GUIDE TO PROMOTING BICYCLING ON FEDERAL LANDS

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CTIP

Federal Lands Highway
Commitment to Excellence

Central Federal Lands Highway Division
12300 West Dakota Avenue
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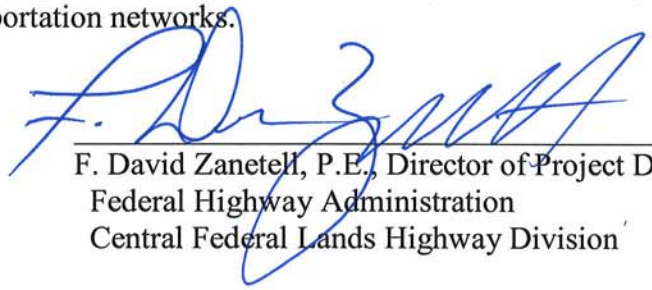
FOREWORD

The Federal Lands Highway (FLH) of the Federal Highway Administration (FHWA) promotes development and deployment of applied research and technology applicable to solving transportation-related issues on Federal lands. The FLH provides technology delivery, innovative solutions, recommended best practices, and related information and knowledge sharing to Federal agencies, Tribal governments, and other offices within the FHWA.

This report provides information to Federal land managers and others who are interested in promoting bicycling on Federal lands. Bicycling facilities are important transportation and recreation links to connect gateway communities, visitor centers, campgrounds, trailheads, and other attractions on Federal lands. This report presents benefits of bicycling, successful bicycling programs, policies that support bicycling, issues and challenges faced by land managers, and useful resources available to help meet these challenges. Bicycle transportation networks have significant positive impacts for the environment, health and visitor experience on Federal lands. Federal land managers have the opportunity to serve as positive national role models by mainstreaming bicycling to create sustainable transportation networks.



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16. Abstract

Federal lands, including units of the National Park Service, National Forests, National Wildlife Refuges, and Bureau of Land Management lands are at a critical juncture. Increasing numbers of automobiles in some areas have led to congestion, poor air quality, damage to natural resources, and degraded visitor experience. At the same time, growth in the number of bicyclists on some of the most scenic roadways has led to motorist–bicyclist conflicts and concern for everyone's safety. Increased fuel costs and climate change have spawned efforts to reduce fuel consumption and minimize the "carbon footprint" of Federal land agencies. Sixty-one percent of adults in the United States are overweight or obese and childhood obesity rates are soaring. Bicycling networks are one part of the solution to these issues.

This report provides guidance to Federal land managers on how to promote bicycling. Bicycling facilities are important transportation and recreation links to connect gateway communities, visitor centers, campgrounds, trailheads, and other attractions on Federal lands. This report presents benefits of bicycling, successful bicycling programs, policies that support bicycling, issues and challenges faced by land managers, and useful resources available to help meet these challenges. Bicycle transportation networks have significant positive impacts for the environment, health and visitor experience on Federal lands. Federal land managers have the opportunity to serve as positive national role models by mainstreaming bicycling to create sustainable transportation networks.

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SPECIAL MESSAGE

from John Burke, President of Trek Bicycles

The bicycle is a simple solution to some of the world's most complicated problems, including those faced by agencies managing our Federal lands.

Looking at today's pressing issues of climate change, escalating obesity, increasing congestion, and society's diminished connection to nature, there is one common answer. The bicycle is a cure to much of what ails us. It is an elegant, yet simple solution to many complex problems facing our public lands and our communities.

For the first time in our nation's history, the average American child has a shorter life expectancy than his or her parents. Inactivity and obesity are compromising our health. Climate change is threatening our future. Congestion is eroding more than our patience. It is degrading cherished natural and cultural resources and positive visitor experiences.

Recently, I asked myself a simple question; *"Am I doing enough to help change the world by making it a more bike friendly place?"* As the President of Trek Bicycles, I have a great opportunity and a great responsibility to do more. At Trek Bicycles we came up One World, Two Wheels[(1)] our commitment to get more people to "go by bike." Our goal is to increase by ten-fold the number of trips taken in the United States by bike, from 1/2 percent to 5.0 percent by 2017.

I urge all government agencies to join me in pursuing this opportunity to change the world by adopting and implementing bike friendly programs and policies outlined in this guide - the Federal Highway Administration's "**Guide to Promoting Bicycling on Federal Lands**." This guide is designed to provide Federal land managers the information they need to promote bicycling on the lands they manage.

The world isn't going to change itself. It's time to take action, to get involved. You are taking the first important step by reading this guide. Let's change the world.

John Burke, President, Trek Bicycles

[(1)] One World, Two Wheels, is a pledge by Trek and its dealers to make the world a more bike friendly place. http://1world2wheels.org/go-by-bike-challenge. The goals of the program are to:

- Give $1 million to the Bicycle Friendly Community program of the League of American Bicyclists to increase the number of Bicycle Friendly Communities in the U.S.
- Give $600,000 to the International Mountain Bike Association for their Trail Solutions Program.
- Increase the number of trips taken in the U.S. by bike from the current 1% to 5% by 2017.

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ABBREVIATIONS AND ACRONYMS

AARP	American Association of Retired People
AASHTO	American Association of State Highway and Transportation Officials
ACA	Adventure Cycling Association
ADA	Americans with Disabilities Act
ATPPL	Alternative Transportation in Parks and Public Lands
BLM	Bureau of Land Management
CALTRANS	California Department of Transportation
CCP	Comprehensive Conservation Plans
CDC	Center for Disease Control
CFLHD	Central Federal Lands Highway Division
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation and Air Quality Improvement Program
COPMOBA	Colorado Plateau Mountain Bike Trail Association
CSS	Context Sensitive Solutions
DOI	Department of Interior
DOT	Department of Transportation
FH	Forest Highways
FHWA	Federal Highway Administration
FLH	Federal Lands Highways
FLHP	Federal Lands Highways Program
FTA	Federal Transit Administration
FWS	United States Fish and Wildlife Service
FY	Fiscal Year
GIS	Geographic Information Systems
GMP	General Management Plan (for NPS)
GPS	Global Positioning System
IMBA	International Mountain Bike Association
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation System
LAB	The League of American Bicyclists

LCI	League Certified Instructor
LOS	Level of Service
LTBMU	Lake Tahoe Basin Management Unit
MMBA	Michigan Mountain Bike Association
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MTA	Moab Trails Alliance
MUTCD	Manual on Uniform Traffic Control Devices
NAMA	National Mall and Memorial Parks
NBWS	National Bicycling and Walking Study
NCBW	National Center for Bicycling and Walking
NEMBA	New England Mountain Bike Association
NEPA	National Environmental Policy Act
NGO	Non-Governmental Organization
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NM	National Monument
NMRA	North Moab Recreation Areas
NP	National Park
NPCA	National Parks Conservation Association
NPS	National Park Service
NRA	National Recreation Area
NWR	National Wildlife Refuge
OA	Outdoor Alliance
OSI	Outdoor Stewardship Institute
PBIC	Pedestrian and Bicycle Information Center
PDDM	Project Development and Design Manual (for FHWA FLH)
PLH-D	Public Lands Highways Discretionary
PRP	Park Roads and Parkways Program
RMP	Resource Management Plan (for BLM)
RPO	Rural Planning Organization
RRP	Refuge Roads Program
RTC	Rails to Trails Conservancy

RTCA	Rivers, Trails and Conservation Assistance (for NPS)
RTP	Recreational Trails Program
SAFETEA- LU	Safe, Accountable, Flexible & Efficient Transportation Equity Act- A Legacy for Users
SR	State Route
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
TART	Tahoe Area Regional Transit
TE	Transportation Enhancement
TEA-21	Transportation Equity Act for the 21st Century
TDM	Transportation Demand Management
TIP	Transportation Improvement Program
TRB	Transportation Research Board
TRPA	Tahoe Regional Planning Agency
US	United States
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFS	United States Forest Service
VOC	Volunteers for Outdoor Colorado
WABA	Washington Area Bicyclist Association
WASO	Washington Support Office (for NPS)
WTI	Western Transportation Institute

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Cover Photo – Bicycling the Route of the Hiawatha Trail. (Photo courtesy USFS.)

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EXECUTIVE SUMMARY

Federal lands, including units of the National Park Service, National Forests, National Wildlife Refuges, and Bureau of Land Management lands, are at a critical juncture. Increasing numbers of automobiles in some areas have led to congestion, poor air quality, damage to natural resources, and degraded visitor experience. At the same time, growth in the number of bicyclists on some of the most scenic roadways has led to motorist–bicyclist conflicts and concern for everyone's safety. Increased fuel costs and climate change have spawned efforts to reduce fuel consumption and minimize the "carbon footprint" of Federal land agencies. Sixty-one percent of adults in the United States are overweight or obese and childhood obesity rates are soaring (U.S. Dept of Health and Human Services, 2006). Non-motorized transportation and recreation networks are one part of the solution to these issues.

As part of its response to these challenges, the Federal Highway Administration's (FHWA) Federal Lands Highways Program (FLHP) has commissioned this "Guide for Promoting Bicycling on Federal Lands." The guide is designed to provide Federal land managers the information needed to promote bicycling to help meet the above challenges. Federal land managers are in a unique position, having the authority and responsibility to make a difference. These leaders have sufficient visibility to bring together many partners to create more sustainable transportation networks on Federal lands.

This guide explores bicycling issues on lands managed by these agencies and offers ideas for designing appropriate and sustainable programs to promote the use of bicycles in these public places.

The guide is intended to be seen as:

- A tool to raise awareness of the benefits of active transportation and the nationwide movement to incorporate bicyclists and pedestrians into our transportation network;
- A compendium of selected bike-friendly projects and programs on Federal lands;
- The first comprehensive study of bicycling policies and issues on Federal lands;
- A reference for bike-friendly resources to assist in the planning and design, promotion and management of bicycle transportation programs;
- A discussion of the challenges of changing the way people move around in an automobile-dominated culture; and
- A challenge to Federal land managers to shift priorities and reallocate transportation resources to promote one of the oldest and simplest forms of transportation. Building more roads and parking lots to accommodate more vehicles is neither sustainable nor compatible with agency missions.

BENEFITS OF BICYCLING PROGRAMS

Bicycling networks can assist land managers by:

- Reducing transportation-related 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 among the participants; and
- Creating a more balanced transportation and recreation network to preserve these special places for future generations.

Moreover, bicycling programs are typically a low-cost investment compared to other transportation infrastructure improvements, and generally have broad public and community support.

CHARACTERISTICS OF SUCCESSFUL BICYCLING PROGRAMS

While each biking program is unique, successful programs have two key characteristics:

Connectivity—A well-connected bicycling network has safe links between places where people are staying (hotels and campgrounds), and places people want to go (visitor centers, restaurants, shops, trailheads, and other attractions).

Partnerships—Partners can provide technical support, help leverage funding and help maintain existing trails. Projects that have multi-agency support and strong local backing can create bicycling networks that span jurisdictional boundaries to connect Federal, State, county and city lands.

The guide describes bicycling projects and programs at the following locations:

1. Mackinac Island, MI—motor-vehicle-free city and state park.
2. Cuyahoga Valley National Park, OH—transit–bike integration.
3. Glacier National Park, MT—employee bicycle sharing program.
4. Grand Canyon National Park, AZ—greenway system.
5. Colorado National Monument, CO—road cycling, high demand on narrow road.
6. National Mall & Memorial Parks, Washington, DC—bicycle patrol, interpretive tours.
7. Harris Neck Wildlife Refuge, GA—bicycling on former WWII runway pavement.
8. Trempealeau Wildlife Refuge, WI—connections to Great River Trail system.
9. Lake Tahoe Basin, USFS, NV and CA—integrated non-motorized network.
10. Route of the Hiawatha, MT and ID—USFS "Rails to Trails."
11. North Moab Recreation Area, UT—multi-agency alternative transportation plan.
12. Fruita, CO—BLM mountain biking destination.

The most successful programs have multiple partnerships and demonstrate well connected bicycling networks. For example, visitors to Lake Tahoe, in California and Nevada, can bicycle

on a system of bike lanes, separated pathways, dirt roads and single-track trails crossing multiple counties and two states—all made possible by numerous agencies and jurisdictions working together.

Access to public lands without automobiles is not only possible; it is desirable and popular with people of all ages and physical abilities. Michigan's vehicle-free Mackinac Island, Maine's Acadia National Park carriage roads and the Route of the Hiawatha rail–trail straddling the Montana/Idaho border all demonstrate successful models for accessing public lands without motor vehicles.

BICYCLING POLICIES

Federal support for bicycling as an alternative to automobile travel has steadily increased over the past two decades. The following chronology shows continuing support for bicycling facilities and programs through three Federal transportation bills: the Intermodal Surface Transportation Efficiency Act (ISTEA), the Transportation Equity Act for the 21st Century (TEA-21) and the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

Federal Transportation Policy Chronology

1973	Federal Aid Highway funds first used for bicycle facilities
1990	USDOT policy created to mainstream bicycling into transportation network
1991	ISTEA greatly increases funding for bicycle facilities and programs
1994	National Bicycling and Walking Study sets goals to increase bicycle travel
1998	TEA 21 increases bicycle facility and program funding
2005	SAFETEA-LU significantly expands support for bicycling programs

In 1990, the FHWA Administrator described bicycling and walking as "the forgotten modes" of transportation. The U.S. Department of Transportation (USDOT) adopted a new national transportation policy that sought to mainstream bicycling and pedestrian needs into the transportation system. Nationwide goals were set to:

1. Double the percentage of total trips made by bicycling and walking in the United States from 7.9 percent to 15.8 percent of all travel trips; and
2. Simultaneously reduce by 10 percent the number of bicyclists and pedestrians killed or injured in traffic crashes.

In 1997, a key Memorandum of Understanding (MOU) between the Department of the Interior (DOI) and the USDOT established joint actions to promote alternative transportation in national

parks. This MOU called for integrating transportation planning into normal NPS activities, including bicycle and pedestrian safety initiatives.

In 1998, a comprehensive study of alternative transportation needs in national parks and public lands was initiated by Congress as part of Section 3039 of TEA-21.

CHALLENGES

While there is significant policy support for bicycling, Federal land managers face some broad challenges to integrating bicycling into the transportation network. Many managers have more immediate responsibilities that take precedence over improving bicycling facilities and programs. Budgets are shrinking and managers may have difficulty maintaining existing infrastructure. There is resistance to change in a culture dominated by the automobile.

OPPORTUNITIES

Federal land managers have a unique advantage in transportation system improvements. Unlike public works officials and other transportation providers, Federal land managers have unusual tools to manage demand and shape many aspects of the visitor experience. Federal land managers have the ability to control visitors' travel modes, routes, and schedules. They can limit or expand the capacity of any link in the transportation network in their land unit. They can design and locate access to features and attractions in the land unit. Managers also have many options to influence travel choices by promoting a particular travel mode and directing the traveler's choices with financial and other incentives and disincentives. Federal land managers should use these special opportunities to encourage bicycle facilities and programs that serve the best interest of both the visitor and the land unit.

RECOMMENDED ACTIONS

A tremendous number of resources exist for planning, designing and promoting bicycling, that are identified throughout this guide. What follows are a few actions that managers can take now to make Federal lands more bicycle friendly.

Planning/Policy

- Learn from other bicycling programs. Chapters 3 and 5 have many examples. Three good examples include: The League of American Bicyclist's Bicycle Friendly Community Program (http://www.bikeleague.org/); and IMBA's Trail Care Crew and National Mountain Bike Patrol programs (http://www.imba.com/tcc/, and http://www.imba.com/nmbp/).
- Develop partnerships with stakeholders who have common interests. Partnerships can guide bicycle programs, provide technical support, leverage funding and manage and maintain non-motorized networks.
- Integrate bicycling into the land unit's long range transportation plan.

- Get involved in the state, regional, and local transportation planning process. Contact state bicycle and pedestrian coordinators at http://www.fhwa.dot.gov/environment/bikeped/.
- Adopt a Complete Streets policy to ensure safe access for all roadway users. (http://www.completestreets.org/). Consider bicyclists and pedestrians as part of every new road construction and reconstruction project.

Design/Implementation

- Tailor a program to meet the land unit's needs and opportunities such as making bicycles available for use by campground hosts or other employees.
- Make bicycles available to visitors through rental or sharing programs. Provide various styles of bicycles that may include hand cycles, tandem, tricycles and four wheeled pedal-cycles.
- Open roadways to bicycling and walking by limiting automobile access to more places, more frequently. While this option is not appropriate everywhere, places like Mackinac Island and Acadia National Park's (NP) carriage roads demonstrate that access without automobiles in not only possible, it is desirable and popular with people of all ages and physical abilities.
- Use existing service roads for non-motorized travel.
- Promote lightly traveled roads to create connectivity for bicycling networks.
- Incorporate bicyclist use into routine traffic data collection. Knowing how many bicyclists are present can help to measure the effectiveness of various programs over time and provide support for bicycle facility and program funding.

Promotion

- Establish a web page for bike-related resources, providing sufficient information for visitors to plan bike trips in advance of travel.
- Promote or organize events such as Bike-to-Work Day.
- Offer interpretive bicycle tours such as at the National Mall & Memorial Parks in Washington, D.C.
- Encourage children to bicycle to help reconnect children with nature and reduce childhood obesity. A few example programs include: USFS More Kids in the Woods—http://www.fs.fed.us/recreation/programs/woods/index.shtml, ACA's Pedal Pioneers—http://www.adventurecycling.org/outreach/pedalpioneers.cfm, and Trips for Kids—http://www.tripsforkids.org/ .
- Ride a bike more often.

Safety/Education

- Provide training to children and adults on bicycling safety and regulations for both roadways and trails. One popular program can be found at: http://www.bikeleague.org/programs/education/ .

- Make bicycle safety literature readily available to educate motorists and bicyclists about bicyclist safety and share the road concepts.
- Ensure enforcement personnel, such as rangers, understand bicyclists' rights and responsibilities.
- Enforce speed limits and driving under the influence laws to improve safety for all roadway users, including bicyclists.

IN SUMMARY

This guide to promoting Bicycling on Federal Lands is available from the Pedestrian and Bicycle Information Center www.bicyclinginfo.org. It contains an extensive list of valuable resources for Federal land managers, including:

- Case Studies and Model Programs;
- Links to Online Bicycling Resources;
- Federal Funding Resources; and
- Annotated Bibliography of Bicycling Resources.

Bicycling continues to grow in popularity across the country for transportation and recreation. Bicycles are an underused tool that can help land managers protect public lands and create a sustainable way for visitors to experience these lands. This guide is intended to encourage Federal land managers to serve as a positive national role model by further advancing bicycle use on Federal lands.

Nothing compares to the simple pleasure of a bike ride ~John F. Kennedy

CHAPTER 1 – INTRODUCTION

Why should Federal land managers be interested in bicycling? Bicycling networks and programs can assist land managers by:

- 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 among the participants; and
- Creating a more balanced transportation and recreation network to preserve the landscape for future generations.

Eighty-seven million people bicycle in the United States (Bikes Belong, 2006). The U.S. bicycle industry sold $6.2 billion in bicycles and equipment in 2005 (National Sporting Goods Association, 2005). Every state's department of transportation has a bicycle and pedestrian coordinator and, as of 2003, 29 of the 50 states had adopted statewide bicycle or bicycle and pedestrian plans (Wilkinson and Chauncey, 2003).

The Federal Highway Administration's (FHWA) Federal Lands Highways Program (FLHP) recognizes the value of bicycling facilities as important transportation and recreation links to connect gateway communities, visitor centers, campgrounds, trailheads, and other attractions on Federal lands. FLHP partners with agencies such as the National Park Service (NPS), the U.S. Forest Service (USFS), the U.S. Fish and Wildlife Service (FWS) and the Bureau of Land Management (BLM) to plan, design, construct, and rehabilitate highways and bridges on public lands. Though many of the principles and practices in this guide are applicable to the Bureau of Indian Affairs and Tribal lands, issues unique to the Tribes are beyond the scope of this guide.

Each of the Federal Land Management Agencies has a unique mission. This guide seeks to promote a transportation network that supports agency missions.

> *"The **National Park Service** preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations."*
>
> *"The **U.S. Forest Service** manages national forests for multiple uses and for the sustained yield of renewable resources such as water, forage, wildlife, wood, and recreation."*
>
> *The **U.S. Fish and Wildlife Service** mission is "working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."*
>
> *Working with its partners at the local, state, and national levels, the **Bureau of Land Management** will meet its mission of "sustaining the health, diversity, and*

productivity of the public lands for the use and enjoyment of present and future generations."

It is our goal to further advance and promote safe non-motorized networks, especially for bicyclists, on Federal lands. It is understood that bicycles are not appropriate everywhere, and issues such as bicycle/traffic safety, limited right-of-way, funding, wildlife and environmental impacts, and agency policies are acknowledged and discussed. The Safe, Accountable, Flexible & Efficient Transportation Equity Act-A Legacy for Users (SAFETEA-LU) Federal transportation legislation states that in the planning, design, and operation of transportation facilities, bicyclists and pedestrians should be included as a matter of routine, and the decision to not accommodate them should be the exception rather than the rule (FHWA, 2007).

DOCUMENT ORGANIZATION

This guide is organized by the following chapters:

Chapter 2, **Bicycling Benefits**, describes how Federal land transportation systems are unique, and the many benefits non-motorized networks and bicycling can offer Federal lands.

Chapter 3, **Existing Bicycle Facilities and Programs**, describes programs already underway beginning with several case studies demonstrating the diversity of bicycling projects on Federal lands around the country. Next, it provides examples of NPS lands that have taken the step (unique on Federal lands) to limit automobile access on roadways at certain times. Finally, Chapter 3 describes bicycling organizations and programs from around the country that could be of great benefit to Federal lands.

Chapter 4, **Bicycling Policies**, presents a brief overview of each agency's mission and summarizes policies, initiatives and Congressional acts that support non-motorized networks and bicycling projects. This chapter describes how Federal transportation funding for bicycling and pedestrian travel has steadily increased over the past 17 years.

Chapter 5, **Bicycling Issues on Federal Lands**, presents issues faced by land managers regarding bicycle facilities and bicycle use. Each issue is followed by a list of relevant resources and examples of how various agencies have addressed the issues. The purpose of this chapter is to raise awareness of the multitude of toolkits, design guides, advocacy/support groups and online resources that have been developed to specifically address bicycle and pedestrian travel.

Chapter 6, **Findings and Recommended Actions**, presents findings and recommends actions that land unit managers and regional and higher level managers can take to further advance bicycle use and provide safe non-motorized travel networks on Federal lands.

Detailed supplementary information is provided in the appendices. Appendix A contains bicycling definitions including clarification on bicycling terminology such as bikeway, bike path, bike lane, bike route, greenway and shared-use path. Appendix B contains funding and details on the North Moab Recreation Area Alternative Transportation Project and information on partners who make bicycling a priority in the Lake Tahoe basin. Appendix C provides a summary of six FWS compatibility determinations on wildlife refuges that relate to bicycling. Appendix D contains an annotated bibliography of useful bicycling references and toolkits organized by subject. Appendix E contains useful online bicycling resources organized by subject. Appendix F contains a summary of bicycle facility funding sources. Appendix G

summarizes the survey methodology and results of surveys distributed to Federal land managers to learn more about bicycling issues. Appendix H contains a glossary of abbreviations used throughout this guide.

CHAPTER 2 – BICYCLING BENEFITS

This chapter describes some of the many benefits that bicycling has to offer. Bicycling can alleviate congestion, lower air pollution, reduce obesity, and increase physical fitness. Bicycles don't emit climate-disrupting carbon dioxide and are priced within reach for the billions of people who cannot afford an automobile (Brown, 2006). The following sections describe the many benefits of bicycling.

ENHANCE VISITOR EXPERIENCE

Providing safe places to ride bicycles allows for leisurely ways to experience Federal lands. Many visitors travel through Federal lands at high speeds, impatient to "get there" not realizing that they "are there." Lower speeds encourage observation and more intimate interactions encouraging visitors to look, listen and experience the landscape.

- A 2006 survey revealed that visitors in Yosemite National Park were more likely to be walking or riding bicycles when their most significant or memorable experience of the park occurred (White, 2006).

Figure 1: Yosemite National Park by Bicycle. (Photo courtesy Daniel Woodrum.)

Yosemite's bike-ability is probably one of the national park's best kept secrets. Paved trails take you places roads made for automobiles can't. In many places, the paths take you alongside or across the picturesque Merced River, which flows through the center of the valley. Compared to the roads, the bicycle trails aren't crowded. Best of all, you can stop, get off and on again, and turn around, whenever you want. In all, the park offers 12 miles of paved trails, designed especially for bicycles (Woodrum, 2005).

- Ecologists led by Harvard University biologist E.O. Wilson have formulated the "biophilia hypothesis," which argues that those who are deprived of contact with nature suffer psychologically and that this deprivation leads to a measurable decline in well-being (Brown, 2006).
- Rangers at the National Mall and Memorial Parks in Washington, D.C., lead interpretive bicycle tours providing a ride through history for visitors. Bicycling allows rangers to lead visitors to the lesser known monuments that may otherwise be missed.

- Historic routes through public lands can create a very memorable biking/hiking experience. In the Black Hills of South Dakota, old USFS and timber access roads provide exceptional mountain biking areas rich in history. The following description relates an experience of one Minnesota bicyclist in the Black Hills.

> *One of the most interesting things I did was to trace Gen. George Custer's 1870s expedition through the Black Hills. I researched the record of his expedition, located maps, engineers' statements/descriptions and photographs and used them to plot the detailed route. I then took my mountain bike and followed the route, some of which is covered by good roads, and some of which was accessible only on unimproved surfaces. It was possible to identify the expedition camp sites though photographs and there were historic markers at other more accessible campsites. Just rambling around on a mountain bike has been fun for my sons and me* (Sandell, 2007).

REDUCE POLLUTION

Decreasing automobile use and increasing bicycle use is good for the environment. It can improve air quality and reduce greenhouse gas emissions linked to climate change. Bicycling does not contribute to the environmental damage inherent in extracting, transporting, processing and burning petroleum or other fossil fuels. One hundred calories can power a cyclist for three miles, but can only power a car for 280 feet (CDC, 2007).

- According to the U.S. Environmental Protection Agency (EPA), driving a car is the single most polluting action undertaken by the average citizen. Bicycling reduces fuel use and greenhouse gas emissions by replacing the automobile on short trips.
- In 2000, Zion National Park banned virtually all vehicles from peak-season travel on the six-mile stretch of road that connects Zion's most popular attractions. From April through October, quiet propane-powered buses carry visitors, eliminating 4,000 vehicle trips a day. Bicycling is popular, in part due to reduced traffic. The buses, in combination with bicycling, resulted in improved air quality and reduced noise and congestion (National Geographic, 2006).
- In Lyon, France, a low-cost bike rental program reduces traffic and pollution. The city's 3,000 rental bikes logged about 10 million miles in the program's first two years, preventing an estimated 3,000 tons of carbon dioxide from being released into the air (Washington Post, 2007).

RELIEVE TRAFFIC CONGESTION AND PARKING SHORTAGES

Bicycling can help minimize impacts of heavy vehicle use on sensitive places. Forty percent of all car trips taken in the United States are two miles or shorter, according to Penn State University ecology professor Christopher Uhl. Nearly half of all trips are less than three miles (FHWA, 2006). Given that three to five miles is considered a reasonable distance for bicycle commuting, 40–50 percent of all trips are within walking or biking distance (Bowman-Melton Associates, undated).

Figure 2: Cars, Buses, Bicycles and Pedestrian Space Requirements. (Photo courtesy Thomas Jefferson Planning District Commission, Charlottesville, VA.)

The four photographs in Figure 2 demonstrate visually how shifting a lane to transit could increase capacity without widening the roadway. Six bicycles can typically fit into the road space used by one car and twenty bicycles can fit into the space required to park one car.

Non-motorized networks in combination with transit systems can not only reduce congestion, they can also improve air quality, minimize environmental damage caused by large numbers of vehicles, minimize parking requirements and reduce noise. In comparison, building wider roadways and more parking lots may improve traffic flow and reduce visitor delays, but offers few other benefits.

Communities that invest in bicycling and pedestrian facilities have seen tremendous growth in the share of biking and walking trips. Replacing cars with bicycles for short trips on Federal lands can reduce congestion and parking needs. Longer trips can be taken using transit fitted with bike racks, providing flexibility for bicyclists to tailor the length of their trips to meet their needs.

- On a typical summer day on the South Rim of Grand Canyon National Park, nearly 6,000 vehicles compete for 2,400 parking spaces.
- Bicycles in combination with transit can significantly reduce congestion and improve air quality. Zion National Park provides a great example, as described above.
- The City of Portland, OR, has built more than 100 miles of trails and bike lanes since 2001. This, and earlier investments in infrastructure and programming, have resulted in a quintupling of miles traveled by Portland bicyclists over the last 15 years (City of Portland, 2005).
- People typically drive 5–15 percent fewer vehicle miles in communities with good walking and cycling conditions than they do in more automobile-dependent areas (Litman, 2007).
- Roughly 30 percent of all urban trips in the Netherlands are on bicycle (Brown, 2006).

IMPROVE VISITOR MOBILITY

Figure 3: People Enjoy a Bicycle Taxi Ride. (Photo courtesy Trever Brandt.)

Mobility refers to the movement of people of all ages and physical abilities, including those without access to a private automobile. This could include seasonal employees who do not own a vehicle, people under age 16 who have not yet earned their driver's license, people with disabilities who are unable to drive, or those who cannot afford to or choose not to drive. Figures 3 and 4 illustrate the appeal bicycles have on a broad range of people of various ages and abilities. Bicycle-friendly facilities such as paved greenways or multi-use pathways can improve mobility for many people.

In 2002, a newly constructed greenway trail in the Grand Canyon won the NPS National Accessibility Leadership Award. At that time, this 4.5-mile-long trail was the longest such trail in the National Park system conforming to the accessibility standards of the Americans with Disabilities Act (ADA) (Olson, 2007).

One paper presented at the 2004 Transportation Research Board annual conference examines urban and rural park settings and conventional mass transportation (buses, trains) and emerging

Figure 4: Hand cycling Along Banks-Vernonia Trail in Oregon. (Photo courtesy Oregon Handcycle Alliance.)

"small" technologies such as bicycles, 4-wheel cycles, motor-scooters, and others. Parks and public lands create different transportation needs for visitors than urban areas and there is significant merit to promoting "smaller, quieter means to experience our public lands to enhance visitor experience" (Gimmler, 2004).

STIMULATE AND DIVERSIFY ECONOMIES IN GATEWAY COMMUNITIES

Bike routes, trails and pathways bring tourists who stimulate recreation-related spending. Local trail users and visitors provide direct economic benefits to bicycle shops, retail stores, restaurants and lodging establishments. Proximity to trails is a valued asset that can increase property values.

- U.S. cyclists have a mean income of $60,000 (Bikes Belong, 2006).
- Bicycle tourism generates (Bikes Belong, 2006):

  $66.8 million annually in Maine (Maine Department of Transportation)

  $193 million annually in Colorado (Colorado Department of Transportation)

  $278 million annually in Wisconsin (Bicycle Federation of Wisconsin)
- The Western Canada Mountain Bike Tourism Association calculated Canada's Sea to Sky corridor generated $9.2 million in visitor spending in the summer of 2006. The region extends from Vancouver's North Shore to Whistler in British Columbia, including the cities of Pemberton and Squamish. The economic impact increases to $32 million when the Whistler Bike Park and Crankworx Mountain Bike Festival are included (Bike Magazine, 2007).
- Tourism dollars from mountain biking help to keep locals working in towns like Moab, UT; Durango, CO; and Downieville, CA, which have become mountain biking destinations. The Slickrock Mountain Bike Trail generates $1.3 million in annual receipts for the City of Moab, a town of fewer than 5,000 people (Lerneris and Poole, 1999). It is only one of many trails in the area.
- A 90-mile-long, single-track trail named Maah Daah Hey, a Native American term meaning "an area that will be around for a long time," runs through the Little Missouri National Grasslands and the Theodore Roosevelt National Park near Medora, ND. Medora attracts an increasing number of cyclists and tourism dollars from this trail. National magazines have published dramatic photos and exciting stories about Medora and the Maah Daah Hey.
- A 1998 study of property values along the Mountain Bay Trail in Brown County, WI, shows that lots adjacent to the trail sold faster and for an average of 9 percent more than similar property away from the trail (Teton Valley Trails and Pathways, 2007).

IMPROVE HEALTH

Regular exercise such as bicycling improves health and provides a sense of well being. Federal lands can encourage active transportation and recreation by creating more places that are safe for bicyclists and pedestrians.

Figure 5: Bicycles Connect Kids with Nature. (Photo courtesy IMBA/Bob Allen Photography, 2005.)

- An NPS study found that people who exercise regularly spend 30 percent fewer days in the hospital than people who do not (NPS, 2003).
- In a recent survey by the Outdoor Industry Foundation, over three-fourths of respondents reported that participating in outdoor activities gives them a feeling of accomplishment and escape from life's pressures (Outdoor Industry Foundation's Exploring the Active Lifestyle survey, 2004).
- Sixty-one percent of U.S. adults are overweight or obese. There is compelling evidence that today's transportation decisions are exacerbating healthcare costs. There is a $76.6 billion potential annual healthcare savings if Americans were more active (U.S. Dept of Health and Human Services, 2006).
- Bicycles can get people out of an enclosed vehicle and into the natural world. A widening circle of researchers believes that the loss of natural habitat, or the disconnection from nature even when it is available, has enormous implications for human health and child development (Louv, 2005).
- The most effective action that local governments say they could take to combat health problems related to obesity is to develop a cohesive system of parks and trails (Active Living Approaches, 2007).

CHAPTER 3 – EXISTING BICYCLE FACILITIES AND PROGRAMS

This chapter highlights bicycling opportunities on public lands and demonstrates how bicycling programs are a smart choice in many settings. In 2007, more than 80 percent of the U.S. population lived in urban or suburban areas. Nearby Federal lands offer opportunities to connect millions of people to nature, wildlife, open space, and environmental/history education. The most successful bicycling networks have connectivity between multiple jurisdictions and are a cooperative effort between a variety of public and private partners.

Connectivity—The importance of connectivity was documented in an extensive four-year study conducted by researchers at the University of Southern California (Weaver and March, 2008). This study concluded that trails are heavily used mostly where there is connectivity between recreational areas, neighborhoods, shops, restaurants and other places people want to go. For bicycle facility planners, a couple of important lessons can be drawn from this:

- Make sure trails lead to places where people want and need to go.
- Make sure there are frequent and convenient connections between the trail, streets, transit stops, recreation areas, etc.

This study found that easy access promotes trail use as a transportation alternative because it alleviates the need to deal with traffic and find parking. In particular, how well a trail serves transportation function is related to its location and integration with other transportation facilities.

Partnerships—The value of partnerships are many and include leveraging resources, gaining community support and finding volunteer or inexpensive labor for maintenance/enforcement. Projects with multi-agency support and strong local backing fare well in the competition for Federal funding.

The Five Es— The League of American Bicyclists evaluates communities for "bicycle friendliness" based on the following five categories (LAB, 2008):

1. **Engineering** refers to what has been built to promote cycling in the community. A few examples are: the existence and content of a bicycle master plan, the accommodation of cyclists on public roads, and the existence of both well-designed bike lanes and multi-use paths in the community. The availability of secure bike parking and the condition and connectivity of both the off-road and on-road network are included in this category as well.
2. **Education** refers to the amount of education there is available for both cyclists and motorists. Education includes teaching cyclists of all ages how to ride safely in any area for multi-use paths to congested city streets as well as teaching motorists how to share the road safely with cyclists. This category includes availability of cycling education for adults and children, the number of League Cycling Instructors in the community, and other ways that safety information is distributed to both cyclists and motorists in the community including bike maps, tip sheets, and as a part of driver's education manuals and courses.
3. **Encouragement** refers to how the community promotes and encourages bicycling. This can be done through Bike Month and Bike to Work Week events as well as producing

community bike maps, route finding signage, community bike rides, commuter incentive programs, and having a Safe Routes to School program. This category also includes projects that have been built to promote cycling or a cycling culture such as off-road facilities, BMX parks, velodromes, and the existence of both road and mountain bicycling clubs.

4. **Enforcement** refers to measuring the connections between the cycling and law enforcement communities. A few examples include whether or not the law enforcement community has a liaison with the cycling community, if there are bicycle divisions of the law enforcement or public safety communities, if the community uses targeted enforcement to encourage cyclists and motorists to share the road safely, and the existence of bicycling related laws such as those requiring helmet or the use of sidepaths.
5. **Evaluation & planning** refer to systems to evaluate current programs and plan for the future. Evaluation focuses on measuring the amount of cycling taking place in the community, the crash and fatality rates, and ways that the community works to improve these numbers. Communities are asked about whether or not they have a bike plan, how much of it has been implemented and what the next steps for improvement are.

This chapter presents descriptions of bicycling facilities, projects and programs that collectively exhibit various attributes of connectivity, partnerships and "The Five Es" across a variety of settings. The specific bicycling opportunities discussed are:

1. Mackinac Island, MI—motor-vehicle-free city and state park.
2. Cuyahoga Valley National Park, OH—transit–bike integration.
3. Glacier National Park, MT—employee bicycle sharing program.
4. Grand Canyon National Park, AZ—greenway system.
5. Colorado National Monument, CO—road cycling, high demand on narrow road.
6. National Mall & Memorial Parks, Washington, DC—bicycle patrol, interpretive tours.
7. Harris Neck Wildlife Refuge, GA—bicycling on former WWII runway pavement.
8. Trempealeau Wildlife Refuge, WI—connections to Great River Trail system.
9. Lake Tahoe Basin, USFS, NV and CA—integrated non-motorized network.
10. Route of the Hiawatha, MT and ID—USFS “Rails to Trails.”
11. North Moab Recreation Area, UT—multi-agency alternative transportation plan.
12. Fruita, CO—BLM mountain biking destination.

These 12 examples of bicycling programs on public lands are followed by descriptions of a few bicycling initiatives from around the country. The next section describes parks with seasonal road closures and limited automobile access that provide unique traffic-free bicycling experiences. Then, the popularity of shared bicycle programs is highlighted by a few examples from around the country. Chapter 3 concludes with descriptions of bicycle-friendly organizations and programs that could be of benefit to managers of Federal lands.

MACKINAC ISLAND STATE PARK, MI

Mackinac Island, located in Lake Huron between Upper and Lower Michigan, two miles wide, three miles long and eight miles around. Annual visitation is over 390,000 to the state park and 800,000 to the City of Mackinac Island. This island is car free, every day, all day—there are no motor vehicles permitted except emergency and some service vehicles. The 2500 acre state park occupies over 80 percent of the island and allows visitors to experience the unique features of a northern boreal forest and witness the effects of receding glaciers from the last Ice Age. After the Civil War, Mackinac Island quickly became a popular resort destination. In 1875 Congress created Mackinac Island National Park, just three years after designating the inaugural Yellowstone National Park. Mackinac Island became Michigan's first state park in 1895 when jurisdiction was transferred from the Federal Government to the State of Michigan. By the end of the 19th Century, tourism had replaced furs and fishing as the island's only viable industry. In the 1880s and 1890s, business investment by large railroad companies and wealthy individuals led to the construction of opulent Victorian summer homes.

Bikers enjoy Mackinac Island State Park. A variety of paved and gravel roads crisscross the park, which makes up over 80 percent of the island

Cyclists enjoy views along State Highway M-185, which encircles Mackinac Island. It is the only state highway in Michigan where autos are banned.

Bikers pause at Dwightwood Spring. The island includes dozens of natural and historic sites including Fort Mackinac, Grand Hotel, Arch Rock, a War of 1812 battlefield, and Victorian cottages.

Figure 6: Car-Free on Mackinac Island, MI. (Photo courtesy Mackinac State Historic Parks.)

Issues: Local carriage drivers were hired to take visitors on sightseeing excursions. By 1880, twelve carriage licenses were issued, and in 1896 a representative of the local carriage drivers petitioned to ban the "horseless carriages," or automobiles, because they startled the horses.

Solution: Mackinac village banned motorized vehicles from the streets in 1897 and the park commission banned motorized vehicles from park roads three years later. Growing concerns for public health and safety in the 1920s led to regulatory systems that remain in effect today to restrict motor vehicles, excluding emergency vehicles, in both the state park and the City of Mackinac Island.

Results: Horses and bicycles are the primary mode of transportation on Mackinac Island. There are eight bicycle rental shops, and bikes are available from $4 per hour. You can rent heavy-duty, three-speed, mountain or tandem bikes. In addition, there are children's bikes, burley carts for the little ones and tagalongs. If you prefer to bring your own bike, all ferry lines offer a round trip ticket for your bike to make the excursion to the Island (http://www.mackinacisland.org/ accessed April 2008, and Brisson, 2008).

CUYAHOGA VALLEY NATIONAL PARK, OH

Figure 7: Ohio & Erie Canal Towpath Trail—Cuyahoga Valley National Park. (Photo courtesy Tom Jones.)

This 33,000 acre park has an annual visitation of about 2.5 million and is located near the urban centers of Cleveland and Akron. Twenty miles of the historic Ohio & Erie Canal Towpath Trail route bicyclists and pedestrians through the park. This fully accessible trail offers a unique experience for people of all ages and abilities providing picnic areas, restrooms, and train access points along the way.

The Ohio & Erie Canal was an inland waterway with a series of sandstone locks allowing boats to travel along the eastern Continental Divide. In the steepest section of the canal, near Akron, 15 locks, or "steps," were necessary in a single mile. Canal boats, which were pulled by mules on the towpath, made it possible to ship goods from Lake Erie to the Gulf of Mexico (via the Ohio and Mississippi rivers). By 1878, the canal's significance was in decline due to the introduction of railroads. After the flood of 1913, the canal was abandoned. Many people recognized the value of using the historic towpath trail for non-motorized use and the first section of the multi-use Towpath Trail opened in 1993. Almost overnight, visitation doubled to Cuyahoga Valley National Park. Restoration of the towpath quickly spread to sections passing through municipalities and neighboring park districts (Metro Parks, 2008).

Issues: A unique aspect of the Towpath Trail within Cuyahoga Valley NP is its close proximity to an existing railroad. The Cuyahoga Valley Scenic Railroad (CVSR) runs through the park and is operated independently of the park. While integrating bicycle and train travel provides convenient alternative transportation with much flexibility, many visitors were unaware the option existed.

Solution: Advertise the unique opportunity to ride the train and bring bicycles on the train, one recommendation from Adina Ringler, a 2007 National Park transportation scholar.

Figure 8: Cuyahoga Valley Scenic Railroad. (Photo courtesy Adina Ringler.)

Figure 9: Cuyahoga National Park Bike Aboard Logo. (Photo courtesy NPS.)

"Bike the Trail, Ride the Rail" brochures were distributed in area bike shops to raise awareness of bicycling opportunities in close proximity to this large urban area. The Cuyahoga Valley Scenic Railroad in conjunction with the park piloted a "Bike Aboard!" program in June of 2007 to encourage park visitors to ride their bikes one way on the popular historic Towpath Trail and then ride the train back to their point of origin. The train makes eight "flag stops" for bicyclists. This bicycle/transit combination allows visitors to see the valley at their own speed and catch the train coming or going at their convenience along the 26-mile track. It operates from June through October and offers discounted rates to bicyclists (CVSR, 2008). In order to promote this service and encourage usage, park superintendent John Debo came up with the idea to reduce the cost of the train ride for bikers to $2.00. The option to put bikes on the train had been available for about five years but its use had been limited, possibly due to the higher cost ($9.00), lack of promotion, and confusion as to how and where to actually use the service.

The NPS and the railroad coordinated efforts to integrate the existing train service to better accommodate park and trail users. Train service had depended on two trains that ran half the length of the park. This raised scheduling and other issues that were resolved by using one train whose run extends the entire length of the park. The new system offers greater convenience to park visitors. Work continues on developing a more efficient method to load and unload bikes from the train.

Results: Use of the train by cyclists had previously coincided with special events at the park, and was largely unused at other times. Increasing visitor awareness of options to bike the trail and ride the rail encouraged more people to take advantage of these alternative transportation modes throughout the tourist season. Bike Aboard anticipated 2,000–3,000 riders in the first season, but gave more than 6,000 rides in 2007. Increased use of the train has reduced the use of private automobiles in the park and given visitors an active and unique way to experience this national park.

Figure 10: Unloading Bikes from Train. (Photo courtesy Adina Ringler.)

GLACIER NATIONAL PARK, MT

Approximately two million people visit this million acre rural northern park each year to view its pristine forests, alpine meadows and lakes, rugged mountains and glaciers. The park's Red Bike Program provides a fleet of bikes for park employees to use for work or recreation trips.

Issues: Vehicles are often used by employees for short trips because distances are perceived as being too far to walk conveniently. For example, distances between buildings in Glacier's headquarters area are short, but many employees drive from building to building for meetings or to the housing area for lunch. This use of cars for short trips results in unnecessary air pollution and use of nonrenewable resources. It also results in lost opportunities for healthy exercise, and in diminishing the park's environmental stewardship goals overall.

Solution: The Red Bike shared bicycle program gives employees an alternative to driving for short trips. In 2003, the Glacier Fund, a non-profit arm of the National Park Foundation, awarded $9,000 for the program to further its mission of supporting "priority projects within the park with the goal of ensuring that the park remains open and accessible to our grandchildren's grandchildren" (Glacier Fund, 2008). The grant was used to supply 20 red bikes for employee use in the park. The grant also supplied a tricycle, helmets, baskets, locks, and bike racks. The Red Bike program was initiated through Susan Law, who at that time was a National Park transportation scholar.

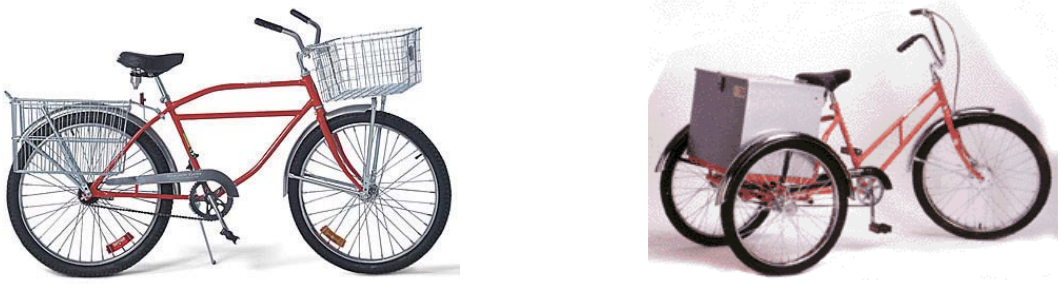


Figure 11: Glacier National Park's Red Bikes. (Photos courtesy NPS.)

Results: The bikes are popular with campground staff, fire crews and employees in the headquarters campus area. A tricycle with a trailer is used to deliver mail. A majority of the fleet is comprised of older-style cruiser bikes that complement the historic red buses. These heavy, single-speed bikes are not prone to theft. They are built for the kind of rough use they receive, meaning that they are much more sturdy and long-lasting than the bikes that you typically find in retail stores.

Quick release adjustments were added to the seats to accommodate riders of various sizes. Local bike shops and volunteers help maintain the bikes, which are stationed at office buildings, visitor centers, campgrounds, and ranger stations. Keys to access the bikes are checked out to employees for the entire season. The Park may expand the program in the future to include park visitors.

GRAND CANYON NATIONAL PARK, AZ

More than 4.5 million people from every corner of the globe visit the North and South Rims of the Grand Canyon each year to gaze over the sheer cliffs and wonder at the grandeur of this 1.2 million acre national park.

Figure 12: Grand Canyon South Rim Greenway. (Photos courtesy Jeff Olson.)

Issues: The popularity of this natural wonder has overwhelmed the infrastructure of roads, parking and view shed areas at the South Rim.

Solution: The NPS and others created a plan to diversify the transportation system and offer access to a wider range of experiences on each rim. In 1996, a team of volunteers that became known as The Greenway Collaborative approached the park with a proposal to develop the Grand Canyon Greenway through a private/public partnership. Part of the solution included a greenway system designed to accommodate pedestrian, bicycle and wheelchair use. Photos shown here are from the park's South Rim, showing the new Grand Canyon Greenway trail between the El Tovar Hotel and the Mather Point Visitor Center (Olson, 2007).

Results: Four-and-a-half miles of the proposed 70-mile greenway system have been completed. The trails have shown the potential for the greenway concept to attract funding and have received the following awards:

Figure 13: A Quiet Moment on the Grand Canyon's South Rim Greenway.

- 2002—National Park Service Accessibility Leadership Award.
- 2002—American Society of Landscape Architects Merit Award.
- 2001—Harvey Bell Memorial Award, Western Trail Builders Association.

The 2002 Accessibility Leadership award is particularly meaningful because it was given to the Grand Canyon Greenway as the longest trail in the National Park System that meets the Americans with Disabilities Act (ADA) accessibility standards (Olson, 2007). The park plans to complete a few other shorter sections of the proposed greenway in 2008, including:

- A 6.5-mile stretch of trail from the North Kaibab Trailhead to the North Rim should be completed by end of summer 2008.
- Three miles of accessible greenway from Hermit's Rest interchange to Hermit's Rest.

- A one-mile-long section from Pipe Creek Vista to the South Kaibab Trailhead. The park anticipates work to begin on this section in early fall 2008.

Table 1 shows there has been significant financial support for the Grand Canyon Greenway. It is important to note that the majority of greenway funding comes from outside the NPS budget (Olson, 2007).

Table 1: Grand Canyon Greenway Funding.

Dollars	Grand Canyon Greenway Funding Sources
$40,000	American Airlines, through the National Park Foundation —1998
$250,000	Estimated volunteer consulting services from the Greenway Collaborative
$479,600	FHWA Transportation Enhancements Program, Arizona DOT —1998
$499,900	FHWA Transportation Enhancements Program, Arizona DOT —1999
$896,800	FHWA Public Lands Highways Discretionary (Millennium Trails Initiative)—1998
$766,361	FHWA Public Lands Highways Discretionary (Millennium Trails Initiative)—2002
$1,000,000	Nina Mason Pulliam Charitable Trust through Grand Canyon Foundation—2001
$25,000	Dr. Scholl Foundation
$29,400	Richard Haiman National Park Foundation
$10,000	Bikes Belong Coalition
$2,560,000	SAFETEA-LU legislation—2005
$1,000,000	Ethel and Kemper Marley Foundation
$7,435,000	**Total Grand Canyon Greenway funding to date**

Future plans also include a bike rental facility at the Canyon View Information Plaza, the South Rim's main visitor center. Since a vast majority of visitors do not bring bikes, this facility will give more visitors opportunities to enjoy the greenway.

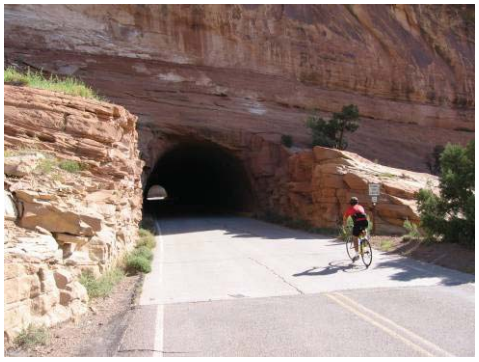
Challenges—While progress has been made on a few short sections of greenway, the park does not have a specific time frame set for the majority of longer sections, including a 6.5-mile section between Canyon View Information Plaza and the town of Tusayan and additional sections on the North and South Rims.

A number of challenges prevent the park from pursuing these longer sections of greenway. Aside from funding, there are many National Environmental Policy Act (NEPA) compliance issues associated with the long lengths of trails that include items such as possible impacts to wildlife habitat and vegetation. The park has had difficulty finding available personnel to complete the lengthy NEPA compliance process and to perform trail work. The Grand Canyon typically has around 100 projects at any one time in the NEPA compliance process. The park has to set priorities for their many projects and work through them as time, budget and staffing allow.

COLORADO NATIONAL MONUMENT, CO

This 25,000 acre National Monument receives over 714,000 visits annually, approximately half of which are commuter traffic. The 23-mile scenic Rim Rock Drive leads along the rim of a colorful panorama of deep, sheer-sided canyons, and high rock towers. Interpretive exhibits inform visitors of the monument's natural and human history (NPS, 2008). This narrow, steep road is on the National Register of Historic Places. Due to the unique topography, challenging climbs, and scenic views, Rim Rock Drive is a popular destination for avid amateur and professional cyclists and is commonly featured in cycling magazines. Biking off-road is prohibited.

Bicyclists on Rim Rock Drive
(Photo courtesy NPS.)



Tunnel at Colorado National Monument
(Photo courtesy Phil Akers.)

Figure 14: Road Biking in Colorado National Monument.

Issues: There is significant growth of bicycle, vehicle and commercial traffic on Rim Rock Drive. Many residents of Glade Park, a small community west of the monument, commute to work in Grand Junction, driving through a four-mile section of the road inside the monument. Conflicts between motor vehicles and bicycles are of great concern on this narrow road. Three tunnels on Rim Rock Drive are long and unlit. The historic road designation and extreme topography limit options to widen the road surface or construct a separated pathway. Vehicles commonly exceed the 25 mph speed limit. There have been several near misses between cyclists and vehicles in the past year and even reports of a fist fight.

Solution: Managers are actively campaigning to educate motorists and bicyclists about their respective responsibilities. "Share the Road" signs, educational brochures, website information and local outreach efforts are in place. Online materials contain a highly visible link listing regulations for bicyclists and motorists. Bicyclists are required to ride single file and use bicycles with reflectors or lights for safe passage through tunnels (NPS, 2008).

Results: While enforcing vehicle speed limits and citing motorists driving under the influence has improved safety for both motorists and cyclists, managers are still concerned about bicycle–vehicle conflicts. Other ideas for improving safety include studying the feasibility of improving a county road to divert vehicle traffic, closing the road to vehicles for a short time and inviting Glade Park residents to bicycle to promote understanding and acceptance of cyclists, and evaluating the potential for widened sections of road to create passing zones.

NATIONAL MALL & MEMORIAL PARKS, WASHINGTON, DC

This 1,000 acre historic urban park receives 25 million visitors annually. Located in the core of the nation's capital, National Mall & Memorial Parks (NAMA) is recognized the world over for its grand monuments including the Washington Monument, the Lincoln Memorial, the Thomas Jefferson Memorial, Franklin Delano Roosevelt Memorial, the Korean War Veterans Memorial, the Vietnam Veterans Memorial, the National Mall, and numerous other historic sites, memorials, and parklands. NAMA is an ideal park to enjoy by bike. Many locals bike through the park for work commutes on weekdays and for pleasure on the weekends.

Figure 15: National Mall and Memorial Parks Bicycle Tour. (Photo courtesy NPS.)

Issues: It is difficult for park staff to patrol the many dispersed monuments and memorials. Driving between sites is impractical due to heavy traffic and restricted parking, while walking can be time consuming.

Figure 16: NPS Ranger Jason Martz Leading Bicycle Tour in Washington, D.C. (Photo courtesy NPS.)

Solution: Park staff use bicycles to patrol the entire park in order to better engage the public, monitor permitted activities, and care for the cultural and natural resources throughout the park. Two of the Five Es contributed greatly to this project's success.

Education—To ensure staff and visitor safety, interested NAMA staff began in 2004 to attend bicycle safety training through the League of American Bicyclists (LAB) BikeEd program—Road I course (LAB, 2008). Bike program coordinator, Ranger Jason Martz, became a League Certified Instructor (LCI) in 2004, qualifying him to teach proper riding rules and regulations from the perspective of the League and the NPS.

In addition to patrolling the park by bike, park staff led interpretive bicycle tours. The LAB Road II course is the base training used for park rangers who conduct bike tours. These free, three-hour ranger-led tours, give the public a new way to experience the vast history of the nation's Capital. Monuments, memorials, and places within the park represent the entire history of the United States. No two tours are ever the same as one pedals through downtown

Washington with a NPS ranger. Due to the continued success of the bike tour program, kid-friendly family tours were introduced in 2007. These tours grew out of a partnership with the non-profit organization Trips for Kids and were an instant success (Trips for Kids, 2008).

Figure 17: NPS Ranger-led Bicycle Tour. (Photo courtesy NPS.)

Encouragement—In addition to full advertising on park web sites (NPS NAMA, 2008), bulletin boards throughout the park, and park literature located at all ranger contact stations, there was still a need to spread the word about all the park's new bicycling opportunities. This need led to a partnership with the non-profit coalition Cultural Tourism DC (Cultural Tourism, 2008). The park became a member in 2007 and has attracted many new bicycle tour participants through weekly emails and a full listing on its web site.

Partnerships—Over the years, the park has strengthened its partnership with the Washington Area Bicyclist Association (WABA). The mission of WABA is to create a healthy, more livable region by promoting bicycling for fun, fitness, and affordable transportation; advocating for better bicycling conditions and transportation choices for a healthier environment; and educating children, adults, and motorists about safe bicycling (WABA, 2008). This partnership continues to grow through free WABA-sponsored bike valets during major events in the park including the National Cherry Blossom Festival and the Independence Day Celebration.

Results: The popularity of the bike program (patrol and tours) at NAMA serves as a model and has prompted several other NPS sites to institute bicycle programs. These include Central High School National Historic Site, AR; Cumberland Gap National Historical Park, KY; Dayton Aviation Heritage National Historical Park, OH; Mississippi National River & Recreation Area, MN; and George Washington Memorial Parkway, VA. These urban/suburban parks have had immediate success largely due to the NAMA model of education—consistent staff training by League-certified bicycle instructors, forming partnerships, and encouraging visitors to bicycle through widespread advertising. In the spring of 2008, the NPS took its first steps to become uniform and streamline the process of creating a bicycle program for any urban/suburban park when a comprehensive bike program guide was begun. When completed, this guide will give these parks the basic knowledge and skills necessary to begin a bike program that has immediate impact and success. Ranger Jason Martz will be become a LAB Coach in 2008. This will allow him to train other NPS bicycle program coordinators to be LCIs and allow each park to be self-sufficient.

HARRIS NECK NATIONAL WILDLIFE REFUGE, MCINTOSH COUNTY, GA

Harris Neck NWR receives approximately 45,000 visitors annually and is one of seven refuges that make up the Savannah Coastal Refuges Complex. Established in 1962, this 2,824 acre refuge consists of man-made freshwater ponds, open fields, pine and oak forests, forested wetlands, and salt marshes. In the summer, thousands of egrets, herons and endangered wood storks nest in the swamps, while in the winter large concentrations of ducks (especially mallards, gadwall and teal) gather in the marshland and freshwater pools.

Issues: Some types of bicycling are not deemed compatible with the refuge mission. For example, due to possible disturbance to wildlife, refuge managers turned down a request by a cycling group to hold a bike race whose course would pass through the refuge. Broader issues within the Savannah Coastal Complex include a lack of connectivity for non-motorized use to nearby communities.

Solution: Managers decided that the large numbers of fast-moving cyclists had the potential to disturb wildlife and is not a compatible use with the refuge mission. While bicycle racing may not be permitted at Harris Neck, individuals or small groups bicycling to view wildlife is a compatible use. Pavement remaining fro m a World War II era U.S. Army airfield provides cyclists with a flat, even surface for riding. A four-mile paved auto-tour road provides motor vehicle access, but much of the refuge is accessible only by paved trails.

Figure 18: Wood Stork Colony, Harris Neck NWR. (Photo courtesy John Carrington.)

Results: Biking the paved trails at Harris Neck Refuge complements the refuge mission as a quiet way to observe and photograph migratory birds and other wildlife. Bicycling is popular and well accepted here as a transportation mode, allowing visitors to travel to more distant areas of the refuge than they may reach by walking. The Wood Stork Colony is a popular refuge attraction accessed by the paved trail (FWS, May 2008).

Bicycling at the Harris Neck NWR was recently featured by Georgia Public Television's Georgia Outdoors program and can be viewed online at http://www.gpb.org/georgiaoutdoors/biking.

TREMPEALEAU NATIONAL WILDLIFE REFUGE, WI

This 6,226 acre refuge receives approximately 113,800 visitors annually. It is located along the Mississippi River and was established in 1936 as a refuge and breeding ground for migratory birds and other wildlife. The refuge has incredible wildlife viewing and photography opportunities due to the abundance of eagles, swans, ducks, warblers, pelicans, herons, and other birds. The Great River State Trail passes through the refuge. This trail traverses 18 different waterways, crosses over the Black River on a former railroad trestle, and follows Lake Onalaska and the Burlington Northern Santa Fe railway corridor (Friends of the Four Trails, 2008). It is one of the most scenic trails in the Midwest, is popular with all types of bicyclists and connects to several other trails comprising a total system of over 101 miles (Onalaska, 2008). Adults, children and seniors commonly bicycle here and managers report there are more bikes than vehicles on some days. Local schools rent bicycles for students to take educational tours through the refuge. Bicycling routes are well promoted with online and onsite maps. Approximately 12 miles of roads are open to hiking and biking year round.

Issues: Managers lack planning and maintenance funds and have difficulty navigating through the process to acquire federal transportation funding for bicycle facilities.

Figure 19: Great River State Trail, Trempealeau NWR, WI.

Bicycling on the Great River State Trail Accounts for More Than One-fourth of All Public Visits to the Refuge. (Photo courtesy FWS.)

Solutions: Managers incorporated bicycle-friendly goals into their recent Comprehensive Conservation Plan, including: improve directional signs for bicyclists, install "Watch for Bikes" signs along auto tour route, install bike rack, construct a year-round restroom, provide potable water, develop interpretive materials for bicyclists, and investigate a "Blue Goose Bike Program" to encourage visitors to park autos and ride refuge bikes. Managers work with partners including the Wisconsin Department of Natural Resources, Scenic Byway Commission, Great River Road Commission, and the Great River State Trail Committee.

Results: Managers are making progress, yet continue to struggle with funding and coordination. The refuge received a grant in 2008 to install infrared counters to track vehicles, bicycles and pedestrians. Managers are working with the Wisconsin Department of Natural Resources and an advisory committee to extend the bike trail to Winona, MN. Managers believe bicycling is a low-impact way to experience nature and are committed to improving facilities and encouraging more visitors to consider traveling by bike.

US FOREST SERVICE LAKE TAHOE BASIN MANAGEMENT UNIT, NV AND CA

Figure 20: Lake Tahoe Basin Forest Service Lands. (Map courtesy USFS, 2008.)

Lake Tahoe Basin is 320,640 acres (501 square miles), with the lake occupying almost 200 square miles. Approximately 400 square miles is managed by the USFS. Up to 200,000 people visit Lake Tahoe during summer weekends. Annual visitation is estimated at 23 million visitor days (USFS, 2008). The USFS manages 80 percent of the land in the Lake Tahoe Basin as the Lake Tahoe Basin Management Unit (LTBMU).

Over the years, urbanization and development clashed with rapid development within the basin. In 1973, in order to manage the values and resources of the Tahoe Basin effectively, portions of each of the three National Forests (Tahoe, Toiyabe, and Eldorado) located in the basin were consolidated into the new LTBMU. This area is a unique mix of forest and urban communities. It is home to a number of ski resorts, summer outdoor recreation areas and tourist attractions. Several small communities border the lake and adjacent USFS land. About 56,000 people resided year-round in the Lake Tahoe region in 2000 (USFS, 2008). Figure 20 shows Lake Tahoe and surrounding USFS lands.

Issues: Many groups are concerned with the long term preservation of the natural environment in the Lake Tahoe basin in light of the significant development it has seen.

Solution: USFS managers and many partners work together to make bicycle-friendly connections to help create a viable alternative to the automobile, thus helping to preserve Lake Tahoe. Partners in this effort include USFS, Tahoe Regional Planning Agency (TRPA) and Tahoe Metropolitan Planning Organization (MPO), Great Basin Institute, Lake Tahoe Bicycle Coalition, Tahoe Rim Trail Association, California Tahoe Conservancy, and the California Department of Transportation. The Lake Tahoe Bicycle and Pedestrian Master Plan provides guidance to ensure connectivity across city, county, State and Federal lands boundaries. The plan is available online at http://www.trpa.org/documents/docdwnlds/BIKE_PLAN.pdf.

Figure 21: Lake Tahoe Bicycle Map. (Map courtesy Lake Tahoe Bicycle Coalition, 2008.)

Guided by the master plan, Lake Tahoe bicycle facilities link residential and shopping areas, restaurants, beaches, campgrounds, backcountry trails and recreation areas. The BlueGo Coordinated Transit System and the Tahoe Area Regional Transit (TART) system fixed-route buses are equipped for carrying bikes. The Lake Tahoe Bike Trail Map produced by the Lake Tahoe Bicycle Coalition promotes and encourages bicycling**.** Bike trails along the southeast side of Lake Tahoe are shown in Figure 21. This map is found online at http://www.tahoebike.org/ (click on the bike trail map tab). Many bike trail projects are planned to complete links in the Lake Tahoe system as part of the master plan (TRPA, 2008).

Results: The Lake Tahoe network includes 74.2 miles of multi-use trails and 8.2 miles of sidewalk (Tahoe MPO, 2006). In September 2006, the City of South Lake Tahoe, CA, was awarded the national designation of Bicycle Friendly Community by the League of American Bicyclists. The Lake Tahoe Bicycle and Pedestrian Master Plan defined a benchmark of doubling the percentage of commuters who bicycle or walk to work from 3.8 percent of employed residents to 7.6 percent, per U.S. Census data, by 2023. This will allow progress to be measured over time.

The plan organizes goals into six topic areas, each having a specific objective and policies. Topics are shown below followed by a more detailed look at the objectives and policies related to funding goals.

1. *Overall System Goal:* Provide safer and more efficient bicycle facilities in the Lake Tahoe Basin that create a positive experience for residents and visitors.

Figure 22: Lake Tahoe view from the Rim Trail. (Photo courtesy Rebecca Gleason.)

2. *Land Use Development Goal:* Include bicycle facilities in all appropriate future development or redevelopment projects to facilitate bicycling with a high degree of connectivity to the existing and proposed system.
3. *Commuting Goal:* Develop a bicycle and pedestrian system that enhances safety and convenience of bicycling and walking to employment, recreational, and educational centers in the Lake Tahoe Basin.
4. *Safety Education Goal:* Educate and inform Lake Tahoe Basin residents and visitors about how to use bicycle and pedestrian facilities safely.
5. *Environmental Considerations Goal:* Avoid and/or mitigate adverse environmental impacts associated with the implementation of the proposed system.
6. *Funding Goal:* Acquire sufficient funding to construct and maintain the proposed system within the next 20 years.

   OBJECTIVE—Maximize the amount of local, State, and Federal funding for bicycle and pedestrian facilities that can be received by agencies in the Lake Tahoe Basin.

POLICIES

6.1 Maintain current information regarding local, regional, State, and Federal funding programs for bicycle and pedestrian facilities, along with specific funding requirements and deadlines.

6.2 Prepare joint grant applications with local agencies for State and Federal funds, as appropriate.

6.3 Work with local and state agencies, recreational business interests, and community groups to identify and pursue potential funding sources for maintaining existing and future bicycle and pedestrian facilities.

6.4 Update Lake Tahoe Regional Bicycle and Pedestrian Master Plan at a minimum of every three years to ensure complete project inclusion and to qualify for funding opportunities.

See Appendix B for information on types of partners that have been instrumental in creating Lake Tahoe's bicycling network.

ROUTE OF THE HIAWATHA—MT AND ID (IDAHO PANHANDLE AND LOLO NATIONAL FORESTS)

Figure 23: Route of the Hiawatha Railroad Trestle. (Photo courtesy Kate Ciari.)

The Route of the Hiawatha is a 15-mile trail on the abandoned Milwaukee Road railroad grade, between St. Regis, MT, and the North Fork of the St. Joe River, near Avery, ID. The Route of the Hiawatha trail is operated in the Idaho Panhandle National Forest by a concessionaire under a USFS Special-Use Permit. It has been called one of the most scenic rail-trail routes in the country. The route passes over seven trestles, some over 200 feet high, and through nine tunnels in the rugged Bitterroot Mountains. Constructed by the Chicago, Milwaukee & St. Paul Railway Company between 1907 and 1909, this segment of railroad completed the line's transcontinental extension from the Midwest to the Pacific Ocean. The route's numerous tunnels, trestles and earth fills remain a feat of railroad engineering even by today's standards.

After the infamous 1910 fires that consumed nearly three million acres in the region, electric locomotives were introduced along a 440-mile stretch through Montana to Avery, Idaho. This innovation by the railroad was the first use of electrification over an extended distance. Generations of railroaders kept the Milwaukee Road running until it finally went bankrupt in 1977. The last train west passed through in 1980, after which the line was abandoned.

Issue: Transforming an abandoned railroad grade into a safe trail for bicycle and pedestrian travel presented many challenges.

Solution: The Taft Tunnel Preservation Society brought many partners together to expedite and support restoration and preservation of this masterpiece rail–trail project. This project has captured the imagination of hundreds of volunteers and organizations who have donated funding, labor, materials and equipment to transform an old railroad grade into one of the most spectacular bicycle rides in the country.

Results: Collaborative efforts of many partners resulted in a world-class recreational trail that spans two national forests, two counties and two states. With government funding and private donations, trail construction started in 1997. The Idaho portion of the trail opened for public use on May 29, 1998. Safety upgrades of the 1.7-mile-long St. Paul Pass, or Taft Tunnel, were completed in May of 2001.

Bicyclists can ride the 30-mile round trip with almost 2,000 feet of elevation change, or choose to ride 15 miles downhill and shuttle back to the top. The shuttle charges $9 for adults and $6 for ages 3–13. Helmets and lights are required for all trail users, and a $9 usage fee ($5 ages 3–13) applies to everyone. The concessionaire runs the shuttle, collects fees and provides

information, emergency help, first aid and water if needed (http://friendsofcdatrails.org/Hiawatha/index.htm).

Partnerships—The Taft Tunnel Preservation Society was formed for the purpose of promoting the conversion of the abandoned Milwaukee Railroad grade into a recreational trail, working in collaboration with the USFS. This non-profit group provided momentum, expertise and support throughout project planning and analysis, fundraising, and construction phases. Many partners contributed their time and expertise:

- Idaho State Parks contributed funding for the environmental analysis, access to the State's "snooper truck" for structural inspections and cable tensioning on the route's many high steel trestles, and State grant funds for trestle improvements and repair;
- Montana State Parks provided State grant funds for installation of a trailhead interpretive kiosk;
- North Idaho College students in a welding class used their skills to design and fabricate massive open mesh gates to close access to a tunnel that presented safety risks;
- Milwest—this organization of railroad buffs and historians donated its entire archive of Milwaukee Railroad advertising materials for reference and use in development of Route of the Hiawatha interpretive materials and themes; and
- Local mining engineers provided technical review and recommendations regarding inspection, repair and reconstruction options for tunnels and snow sheds.

Additionally, a variety of funding, resources, materials and labor were donated by agencies, businesses, organizations and individuals including historic railroad journals and photos, traffic barriers, signs and posts, work parties, site preparation, and funding for toilets.

Project Success—A key component to success was a steering committee that was co-chaired by the Idaho Panhandle National Forest Supervisor and the Taft Tunnel Preservation Society Director. This interagency, multi-partner steering committee included representatives of the Idaho Congressional delegation, local mayors, county commissioners, local state and county government representatives, trail advocate groups, and chamber of commerce and visitor bureau representatives. In this highly effective partnership, the Taft Tunnel Preservation Society and USFS worked together in the sharing of ideas, identification of options and opportunities, resolution of issues, and implementation of solutions. In its role as a non-governmental partner, the Taft Tunnel Preservation Society was very effective in generating widespread project support, uniting trail users and advocates, identifying creative solutions and needed resources, fundraising, and helping maintain implementation momentum.

Figure 24: Route of the Hiawatha Interpretive Kiosk. (Photo courtesy USFS.)

In 1935, the railroad initiated streamliner passenger service with its speedy new trains—all named “Hiawatha.” The name of the rail-trail comes from a slogan the Milwaukee Road displayed on the side of its passenger cars. "Hiawatha" was inspired by Henry Wadsworth Longfellow's famed "Song of the Hiawatha," written in the mid-1800s. The connection with speed comes from the passage: Swift on foot was Hiawatha, He could shoot an arrow from him, And run forward with such fleetness, That the arrow fell away behind him.

Table 2: Route of the Hiawatha Funding.

Dollars	Route of the Hiawatha Funding Sources
$390,000	Congressional earmark for USFS survey and trail development design—1995
$450,000	Congressional earmark for Phase I construction on Idaho segment—1997
$50,000	Private donations in materials and funds—1997
$750,000	Congressional earmark for Phase II reconstruction of St. Paul Pass Tunnel—1998
$74,000	ID Dept. of Parks and Recreation grant (National Recreation Trail Program) for trestle and bridge improvements—1999
$20,000	Taft Tunnel Preservation Society and North Idaho College match for above RTP
$40,000	USFS challenge cost share funds for interpretive kiosks and toilet—1999
$5,000	MT Fish Wildlife and Parks grant (National Recreation Trail Program)—1999
$750,000	Congressional earmark for Phase II St. Paul Pass Tunnel, trailheads and interpretive signs—2000
$2,529,00	**Total Route of the Hiawatha funding as of 2000**

Stimulate Economy—Local communities have experienced an economic boost as a result of increased tourism in connection with the new rail–trail. Trail use was estimated at 2,000 people in 1993, 8,600 people in 1998 and 24,000 people in 2007 (USFS, 2008).

Another 31 miles of trail including a tunnel and two trestles are planned to connect to St. Regis, MT. This portion of the trail will be for use by bikers, hikers, all-terrain vehicles, horses, and automobiles (Route of the Hiawatha, 2000 and 2008).

NORTH MOAB RECREATION AREA'S ALTERNATIVE TRANSPORTATION PROJECT—MOAB, UT

Moab is often called the mountain biking capital of the world. Two and a half million people come to this area each year to enjoy the beautiful landscapes in the 1.8 million acres of BLM, NPS, USFS and Utah State lands.

Figure 25: Moab's Famed Slick Rock Trail. (Photo courtesy Rebecca Gleason.)

Issues: Most visitors come to Moab to bicycle, walk or hike. However, due to the lack of a safe alternative transportation system, most people drive to trailheads on BLM lands and to the nearby state and national parks. State Route 128 is a busy, shoulder less, two-lane highway with poor sight lines, making shared use between bicyclists and motor vehicles dangerous. The Colorado River Bridge along State Highway 191 lacks shoulders and is a major point of conflict for bikes and vehicles. There are a high percentage of trucks operating along State Highway 191, increasing chances for vehicle/bicycle conflict.

Solution: Create a system of continuous bike lanes and/or non-motorized multi-use paths connecting Moab with State Route 128, State Highway 191, Arches National Park, and the North Moab Recreation Area.

Results: An $11.8 million alternative transportation system is partially complete that will include two transit hubs, 15 miles of bike paths, 26.5 miles of bike lanes and a bicycle/pedestrian bridge across the Colorado River. Monthly meetings among stakeholders since 2000 have made an immense contribution to this project's success. Two noteworthy accomplishments of this project are the Porcupine Rim trail highway bypass and the Colorado River bridge.

The popular Porcupine Rim mountain bike trail now routes bicyclists safely under SR 128, rather than directly onto the roadway. Bicyclists and pedestrians will eventually be able to access about four miles of the Colorado River by multi-use paths, allowing a safe route back to Moab.

An expansive bicycle/pedestrian bridge spanning the Colorado River was completed in spring 2008. See Appendix B for project details including a funding breakdown.

Figure 26: Colorado River Bicycle/Pedestrian Bridge. (Photo courtesy Rebecca Gleason.)

FRUITA AND GRAND JUNCTION, CO

Trail systems on 1.2 million acres of BLM lands near Fruita (pop. 7,055) and Grand Junction, CO, (pop. 45,299) have become famous mountain biking destinations. Fruita has evolved from an economically depressed agricultural community into a thriving mountain biking destination.

Figure 27: Fruita's Kokopelli Trails Overlooking the Colorado River. (Photo courtesy Rebecca Gleason.)

The current mountain biking trails system started taking shape in the late 1980s on BLM lands around Grand Junction and Fruita. In 1989 BLM employees and local riders led the creation of the 142-mile-long Kokopelli Trail, beginning near Fruita and ending in Moab, UT. The Colorado Plateau Mountain Bike Trail Association (COPMOBA) was formed out of the Kokopelli effort, and a boom in trail building began across the Grand Valley. The Tabeguache Trail between Grand Junction and Montrose, CO, was completed a year after the Kokopelli Trail. Next, a series of loops was made stemming from the Kokopelli Trail, including Mary's Loop and Lion's Loop in 1990 and 1991. In addition to the Kokopelli trail system, the Bookcliffs trails north of Fruita and the Lunch Loop trails system southwest of Grand Junction have become popular biking destinations with aptly named trails such as Zippity Do Da (Grand Junction Free Press, 2008).

Issues: A quiet agricultural community in a scenic locale on the western slope of the Rocky Mountains in Colorado is in need of an economic boost.

Solution: Create a series of trails to attract mountain bikers. The Kokopelli's Loop Trails in the BLM-managed McInnis Canyon National Conservation Area demonstrate a well designed and managed trail network that draws mountain bikers from around the world. This area is part of the Uncompahgre Plateau, which rises above the Grand Valley of Colorado—a high desert landscape with spectacular canyons.

Results: Kokopelli's Loop Trails are a mountain biking destination consisting of the famous Mary's Loop, Rustlers Loop, Horsethief Bench, Steve's Loop, and Troy Built Loop, to name a few. Each spring, thousands of mountain bikers converge on Fruita for a four-day mountain biking festival. Increased tourism due to biking helps diversify the economy, benefiting many local businesses including bike shops, restaurants, and retail and lodging proprietors. BLM lands around Fruita do not have paved roads, visitor centers or manicured trailheads. These public lands are sought out by those seeking more primitive recreation and solitude. In addition to the spectacular scenery, these trails incorporate many components of "The Five Es"—engineering, education, encouragement, enforcement and evaluation.

Engineering—Trails are well designed, single-track routes with sustainable grades and good water management to minimize erosion. See IMBA's *Trail Solutions* and *Managing Mountain Biking* books for details on sustainable trail design. Loops are of varying lengths and difficulty to accommodate and challenge riders at all ability levels. The Kokopelli's Trail system has three different access points allowing bicyclists easy access to a gravel frontage road. Thus bicyclists can quickly ride back to support vehicles at trailheads in case of inclement weather, an injury, required bicycle maintenance, or just to refuel with more food or water. Multiple access points give people options and flexibility.

Education—Online materials, trailhead signage, local bicycling guidebooks and maps are commonplace in Fruita and Grand Junction. These materials promote traveling "lightly on the land" and "leave no trace" principles. Interpretive signs located along the 3.6-mile Rustler's Loop trail demonstrate how managers can educate visitors on important issues, such as the fragile desert ecosystem (Figure 28).

Figure 28: Cryptobiotic Soils Education, Horsethief Bench Trail, Fruita, CO.

(Photos courtesy IMBA.)

The BLM has increased its capacity to build quality sustainable trails, and better use volunteer trail builders by sending volunteers to trails and crew leadership trainings such as the IMBA Trail Care Crew (see http://www.imba.com/tcc/trailschool.html), Volunteers for Outdoor Colorado (VOC) (see agency resource link on http://www.voc.org/page.php), the Outdoor Stewardship Institute (OSI) (see http://www.osionline.org/), and other BLM trainings.

Encouragement— The first annual Fruita Fat Tire Festival, launched in April 1996, brought 350 people into Fruita to showcase new trails, helping the struggling economy. By 2006, the festival drew riders from 42 states and 14 countries. The Rustler's Loop trail was designed specifically for beginning mountain bikers with signs offering riding tips. BLM's McInnis Canyons National Conservation Area brochure encourages half-day, full-day and multi-day biking opportunities, and illustrates trails categorized by beginner, intermediate or advanced skill levels. A Grand Junction/Fruita Cycling publication is available at the Chamber of Commerce, visitor centers and various locations around town, offering ride descriptions and maps of major biking areas in the region.

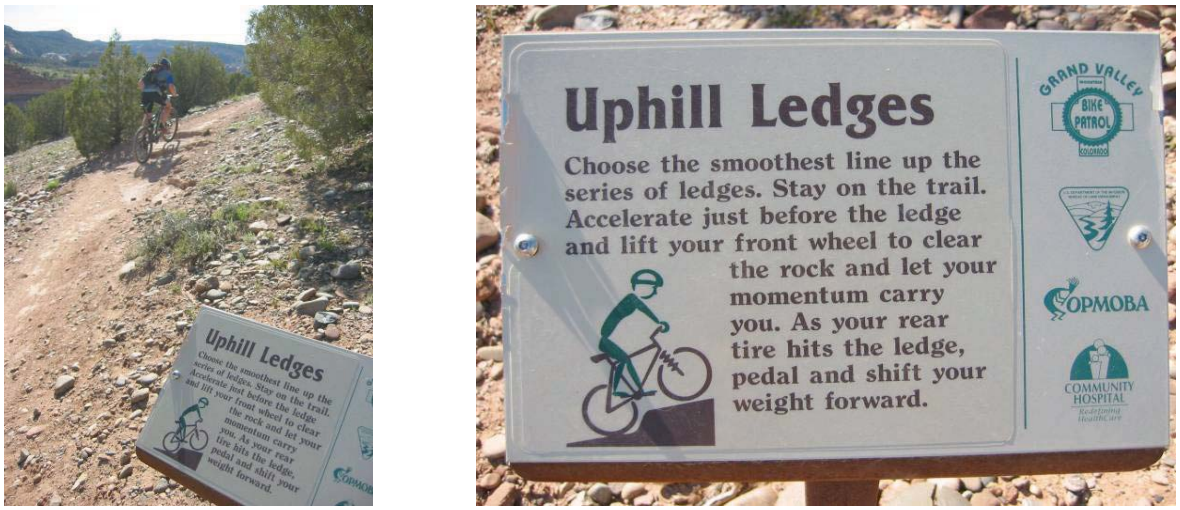


Figure 29: Riding Tips on Rustler's Loop, Fruita, CO. (Photos courtesy IMBA.)

Enforcement— Rules are posted at trailheads to advise riders on proper use of the trails. The more people there are present on trails, the more people are encouraged to follow the rules. BLM seasonal rangers patrol on mountain bikes during busy spring and fall seasons. Volunteers with the Grand Valley Mountain Bike Patrol are out on the trails throughout the year (See http://www.gvmbp.org/). Bike patrol volunteers assist in medical and mechanical emergencies, educate trail users on proper etiquette, and inform land managers, owners and trail users of trail issues.

Figure 30: Rustler's Loop Interpretive Pullout and Adopt-A-Trail Sign, Fruita, CO. (Photos courtesy IMBA.)

The success of mountain biking on BLM lands here can be attributed to the work of many partners, including the Grand Junction BLM field office, COPMOBA, Hilltop Experiential Learning Project, IMBA, Bicycle Colorado, REI (a sporting goods retailer), local bike shops, Colorado State Parks, VOC, OSI, Community Hospital and Grand Valley Bike Patrol.

ADDITIONAL BICYCLE PROJECTS

A few other noteworthy projects further demonstrate how non-motorized systems can connect people with nature and encourage an active way to experience Federal lands.

Figure 31: Acadia National Park Carriage Road. (Photo courtesy Greg Hartford, Acadiamagic.com.)

Acadia National Park Carriage Roads, ME— This park provides the public with 43 miles of unique carriage roads that have never allowed motor vehicles. Signs and free NPS maps guide visitors through the park. The Island Explorer shuttle bus provides free rides to visitors between the town of Bar Harbor and key parking lots in the park (Ross, 2007). As part of the NPS Centennial Initiative, "Car-Free Acadia" offers visitors the opportunity to explore Acadia by foot, bicycle, shuttle bus, commercial tour bus, or private and commercial vessels.

National Elk Refuge and Grand Teton National Park, WY—In 2008, the first section of a 41 mile system of pathways for bicyclists and pedestrians is under construction in Grand Teton National Park (NPS, 2007). In October 2007, the Alternative Transportation in Parks and Public Lands (ATPPL) program awarded $1 million to construct a 4.2-mile trail system through the adjacent National Elk Refuge.

Minute Man National Historical Park Bicycle Trail, MA— Battle Road Trail is a multi-use 5.5-mile pedestrian and bicycle trail connecting historic sites in Lexington and Concord, MA. Bicycle tours are offered by a private company under a Commercial Use Authorization issued by the Park (http://www.nps.gov/mima/planyourvisit/battle-road-bike-tours.htm).

SEASONAL ROAD CLOSURES AND LIMITED AUTO ACCESS

In light of the nature of their use and the manner in which they are administered, unique opportunities exist to promote bicycling on roads within Federal lands. One such opportunity is the ability to restrict automobile access to these roads, which, as the examples below show, often is done periodically (e.g., a few days per week or per year) or seasonally depending on the situation. Reserving more time for non-motorized roadway use can provide a memorable visitor experience while reducing impacts of motor vehicles.

Glacier, Yellowstone, and Grand Teton National Parks, WY and MT—Roadways in these parks are typically snow covered through the winter. During the shoulder seasons, between summer tourists and winter snow, most roadways are closed to motor vehicles. During these times, visitors may bicycle on park roadways without worry of conflicts with vehicles.

Figure 32: Pre-season Road Ride in Yellowstone National Park. (Photo courtesy Jim Nallick.)

Denali National Park, AK—To reduce vehicle traffic in environmentally sensitive areas, the park restricted automobile on portions of Denali Park road, allowing only pedestrians, bicyclists, and buses. Some buses can accommodate up to two bikes.

Zion National Park, UT—To reduce traffic congestion, noise and air pollution, starting in 2000, the park restricted vehicle access to the canyon and implemented a shuttle service. Private vehicles are not allowed on the Zion Canyon Scenic Drive from early April through the end of October. While there is no designated bike lane, the road has become popular with bicyclists who no longer have to contend with constant private vehicle traffic (WTI, 2006).

Other parks that limit automobile use at times include:

- Great Smoky Mountains National Park's Cades Cove Loop Road (Cades Cove, 2008)
- Rock Creek Park, Washington, D.C
- Gateway National Recreation Area, Jamaica Bay Unit, NY (WTI, 2006)
- White Sands National Monument, NM

SHARED BICYCLE PROGRAMS

Bike sharing programs like the one in Glacier National Park encourage employees to ride bikes for short trips. Bike share for visitors can enhance visitor experience and help solve congestion, parking and air quality problems. Look for shared bikes in the Bay Area Golden Gate National Recreation Area in the near future.

National Park De Hoge Veluwe, White Bikes Program, Netherlands—This 13,600-acre national park is famous for its 1,700 White Bicycles, available to visitors at no cost. (http://www.hogeveluwe.nl/page.asp?id=3).

Duke University Bicycle Program—Duke Bikes is an initiative to promote health and encourage students to ride to class instead of drive. The pilot program is part of a broader plan to provide "no-cost options for exercise, adventure and campus commuting" (http://siren.auxserv.duke.edu/parking/bikes/).

Bike Sharing Program for Humana Employees Louisville, KY—Humana, a healthcare company that employs 8,500 people in downtown Louisville has started a bike-sharing program called "Freewheelin" for its workers, and already over 2,000 employees have signed up (http://bicycling.about.com/b/2007/10/04/humana-starts-bike-sharing-program-for-employees.htm).

Cyclocity Bicycles, Paris, France—By the end of 2007, it is anticipated Paris will have 20,600 bikes at 1,450 stations in a program to cut traffic, reduce pollution, improve parking and enhance the city's image as a greener, quieter, more relaxed place (Washington Post, 2007). Similar programs are active in Lyon, France, Germany, and Barcelona, Spain.

More bike share information can be found at http://bike-sharing.blogspot.com/2007/10/november-2007-world-map-of-bike-sharing.html.

BICYCLE-FRIENDLY ORGANIZATIONS AND PROGRAMS

There is incredible momentum from many sources supporting bicycling for transportation, recreation and health. A few bicycle friendly programs that could benefit Federal lands are described below, including some that are specifically involved with Federal land agencies.

Bicycle Friendly Communities Program—This national program sponsored by the League of American Bicyclists (LAB) organizes communities to improve on- and off-road bicycling. As of May 2008, LAB had designated 84 bicycle-friendly communities across 31 states. LAB awards this four-year designation to communities that have made impressive, measurable efforts to integrate bicyclists into the community. Saguaro National Park, located within the Tucson Metropolitan Area, Arizona and South Lake Tahoe, California located near USFS lands, have been recognized as Bicycle Friendly Communities. Much can be learned from the 84 bicycle-friendly community examples, some of which are on or connect to Federal lands (http://www.bikeleague.org/).

Complete Streets—Central to the Complete Streets philosophy is the idea that the public right-of-way is for public use (pedestrians, bicyclists, motorists and transit riders of all ages and abilities), not only for those who own motor vehicles. According to a report in the American Association of Retired People (AARP) Bulletin, 52 municipalities, six counties, 10 regional governments and 14 states have adopted Complete Streets policies (Langdon, 2008). On March 3, 2008, Senate Bill 2686, the "Complete Streets Act of 2008" was introduced. This bill would amend the surface transportation program to require state and metropolitan planning organizations (MPOs) to: (1) adopt a policy statement that ensures that all users of the transportation system, including pedestrians, bicyclists, and transit users as well as children, older individuals, and individuals with disabilities, are able to travel safely and conveniently on streets and highways within the public right-of-way; and (2) apply such policy to Transportation Improvement Program projects as well as to all aspects of the transportation project development process. (http://www.completestreets.org/).

International Mountain Bicycling Association—Formed in 1988, IMBA is a non-profit educational association whose mission is to create, enhance and preserve great trail experiences for mountain bikers worldwide. IMBA's trail care crews and 750 bike clubs have been monumental in helping Federal land managers create bike patrols, construct trails and educate riders. IMBA contributions have been estimated at almost 1 million hours of volunteer work on public and private land. A mountain biking toolkit for land managers is available at http://www.imba.com/resources/managers/index.html (accessed June 2008). IMBA has an agreement with the NPS and a Memorandum of Understanding (MOU) with the USFS, which are described below.

- *General Agreement between NPS, DOI and IMBA–2005*—IMBA is working with some National Parks to encourage bicycle friendly policies and practices where appropriate.

This agreement encourages responsible riding and environmental conservation, supports participation in volunteer trail projects and fosters cooperation among trail user groups and land managers. Details of this agreement can be found at http://www.imba.com/resources/agencies/nps_agreement_05.html.

- *Memorandum of Understanding between the USFS and IMBA*—This MOU develops and expands a framework for the USFS and IMBA to plan and implement mutually beneficial programs, projects, and bicycling opportunities. This MOU encourages responsible use of Federal lands by visitors participating in mountain bicycling and recreational activities. This MOU can be accessed at http://www.imba.com/resources/agencies/usfs_imba_mou_2007.html.

Rails to Trails Conservancy—The mission of RTC is to create a nationwide network of trails from former rail lines and connecting corridors to build healthier places for healthier people. http://www.railtrails.org.

National Parks Transportation Scholars Program—In 2001, the National Park Foundation (NPF), Ford Motor Company Fund, and Eno Transportation Foundation established this program. This program pairs transportation professionals and graduate students with National Parks seeking expert assistance on projects involving transportation planning and analysis, public outreach, intergovernmental coordination, environmental impact assessment, and other transportation-related tasks (Eno, 2007). The free bike program in Glacier National Park, and the Cuyahoga National Park bike/train integration and promotion program resulted from the work of transportation scholars.

The National Park Foundation Transportation Interpreters Program—This program places summer interns in National Parks to encourage visitors to use park-provided "alternative transportation systems" rather than relying on private automobiles. The goal of the Program is to help limit traffic congestion, noise and air pollution. Interpreters develop and deliver presentations to visitors that convey the benefits of the alternative systems available at those locations. Participants may also produce such as brochures, videos and podcasts to inform the public (Eno, 2008).

Other Bicycle Friendly Programs are listed below: See Appendix E for numerous other bicycle friendly programs and organizations.

- National Bicycle Route: http://www.adventurecycling.org/routes/nbrn/usbikewaysystem.cfm.
- One World, Two Wheels: http://oneworldtwowheels.org/,
- FHWA University Course on Bicycle and Pedestrian Transportation: http://www.tfhrc.gov/safety/pedbike/pubs/05085/index.htm.
- East Coast Greenway: http://www.greenway.org/
- Bicycle Technologies: www.ibike.org/library/tech.htm.
- Frequent Biker Program (Freiker): http://www.freiker.org/.
- Pedal Pioneers: A Guide to Bicycle Travel with Kids: http://www.adventurecycling.org/

CHAPTER 4 – BICYCLING POLICIES

Federal transportation policy and associated funding priorities affect the resources and support available for bicycling initiatives on Federal lands. A review of this policy finds support of alternative modes of transportation (relative to automobiles) has steadily increased over the past 40 years. Presented below is a chronology of this policy (as revealed through Congressional acts, appropriations, and policy statements), focusing on bicycling issues. It will be seen in this chronology that in 1994, the USDOT set specific goals for increasing bicycle and pedestrian travel in the United States as part of the landmark National Bicycling and Walking Study. Furthermore, and as discussed in more detail below, the specific issue of bicycling in national parks and Federal lands comes up as part of a study of alternative transportation needs for Federal lands mandated by the Transportation Equity Act of 1998 (TEA-21).

This chapter presents an overview of the NPS, USFS, FWS and BLM mission statements and agency documents that guide their transportation decisions. It then provides a chronology on Federal transportation policies as they relate to bicycling, as these policies will also affect support for biking initiatives on Federal lands. These policies generally fall into two categories: transportation or health initiatives that support active recreation and transportation such as bicycling.

AGENCY OVERVIEW

Federal lands totaled approximately 690 million acres in 2006, encompassing almost a third of the land mass of the United States. Table 3 shows the number of acres managed by each land management agency discussed in this guide. The BLM manages the most land with 258 million acres, while the NPS manages the smallest area of 85 million acres.

The FHWA's FLH program provides funding for public roads on these lands that are not the responsibility of State or local government. The FLH program works with land managers to plan, design, construct, and rehabilitate highways and bridges on Federal lands. FLH provides funding for more than 90,000 miles of Federal roads, and public-authority-owned roads that serve Federal lands.

Table 3: Federal Lands Acreages.

Land Program	Acres
National Park Service	85 million
U.S. Forest Service	193 million
U.S. Fish and Wildlife Service	94 million
Bureau of Land Management	258 million

NPS Mission—"The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations."

The NPS comprises 390 areas covering approximately 85 million acres in every state (except Delaware), the District of Columbia, American Samoa, Guam, Puerto Rico and the Virgin Islands. These areas include parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails and the White House. The fundamental purpose of the National Park System is resource preservation. Visitors can experience and learn about their natural and cultural heritage in the national parks (NPS, 2007).

Balancing visitor experience and conservation of natural and cultural resources with the transportation network is a major challenge. NPS lands can draw large crowds during peak tourist seasons, causing problems with congestion, parking shortages, and air quality. Bicycling offers one option to alleviate these problems and it is popular on many NPS lands, despite a lack of safe infrastructure. Many NPS roads are narrow and dangerous for bicyclists. While there are some mountain biking opportunities, NPS lands tend to be more popular with road cyclists.

While bicycling infrastructure and programs can help NPS solve transportation issues, many parks are designed to be viewed through the windshield. Changing traditional travel modes in national parks can be very challenging. For example, the steps required to open an NPS trail to bicycling are complicated and have taken as little as three months or as long as two years, depending on the political and social volatility of the issue and other factors. IMBA describes the process to open a NPS trail to bicycles in "How to Open a NPS Trail to Bicycles: The Process Explained" (IMBA, 2008).

The broadest level of NPS planning at the Unit level is the NPS General Management Plan (GMP), which is required for each land unit. GMPs often define transportation-related challenges. Parks must create sustainable transportation systems that will define the quality and integrity of parks in the future. Bicycles should play a role in achieving a sustainable transportation system. Strategic action plans, implementation plans and annual performance plans contain increasing levels of detail. The NPS Transportation Planning Guidebook, published in September 1999, provides NPS planning policy and transportation planning details. This guide is a useful resource for land managers and is available online at http://www.nps.gov/transportation/tmp/planning.htm.

USFS Mission—"The USFS manages national forests for multiple uses and for the sustained yield of renewable resources such as water, forage, wildlife, wood, and recreation."

The USFS manages 193 million acres (roughly the size of Texas) that include 155 national forests, 22 national grasslands, more than 380,000 miles of roads and more than 133,000 miles of trails. Congress established the USFS in 1905 to provide quality water and timber for the nation's benefit.

The USFS has many miles of backcountry trails and roads offering ample opportunities for bicyclists, including mountain bike trails, remote dirt roads with little or no traffic and scenic paved roadways. In the off-season, mountain bike rental shops are popular at ski areas located on USFS lands in many small western communities. Long distance bicycle touring groups and special events such as fundraisers and bike races often use USFS roads and trails. A few examples are the Tour of Colorado, Ride the Rockies, Triple Bypass, and the Courage Classic in Colorado. Some of these events draw over 5,000 bicyclists.

USFS Travel Management Plans establish where visitors can travel legally in or on motorized vehicles (i.e., off-highway vehicles, all-terrain vehicles, motorcycles, etc.) within the National Forest. These plans also guide decisions on which trails are opened to non-motorized use, including bicycles, horses and pedestrians. Since mountain biking is a relatively new sport that has only been popular since the 1980s, older USFS travel management guidance documents do not address mountain biking specifically. Mountain bikers are getting more involved with updates to USFS travel management plans to ensure continued access for bicycles. The USFS is involved in a program with various non-governmental organizations (NGO) that has the potential to include bicycling programs. See "More Kids in the Woods" later in this chapter for details.

FWS Mission—National wildlife refuges are first and foremost national treasures for the conservation of wildlife. The FWS mission is "working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people (FWS, 2008).

The FWS manages 94 million acres and is responsible for 632 management units, including 548 wildlife refuges, 37 wetland management districts, and 50 coordination areas.

A Comprehensive Conservation Plan (CCP) is required by the National Wildlife Refuge System Improvement Act of 1997. A CCP must be developed for each refuge in the Refuge System by 2012. A CCP is a 15-year master plan that identifies issues, goals, objectives and strategies for refuge management, including transportation systems. The CCP provides refuge managers with a blueprint for management, and it provides neighbors and others a clear picture of what the Service intends to do in terms of managing habitat, protecting wildlife, and providing a place where people can enjoy wildlife-dependent activities (FWS, 2008).

With regard to bicycling, refuge managers must decide if it is an appropriate refuge use at the local level by determining compatibility with the "big six" allowable recreational uses: hunting, fishing, wildlife observation, wildlife photography, environmental interpretation, and environmental education. If a new use is not appropriate, the refuge manager can deny the use. Although bicycling is not identified as one of the six wildlife-dependent recreational uses, it often appears to be compatible with refuge goals.

Refuges are often centered around waterfowl habitat, offering a quiet rural setting with spectacular waterfowl and wildlife viewing and mild grades. Bicycles can complement the six wildlife dependent recreational uses, allowing visitors a quiet, active way to observe and photograph wildlife as well as fish and hunt in some cases. Bicycling can be less physically demanding than walking, allowing access to places that may be too far to walk. Bicycling can become the major mode of transportation in areas where established roads and trails restrict motorized use at little or no cost to the refuge. These various observations are drawn from a review of six compatibility determinations involving bicycle travel from around the country. These evaluations, summarized in Appendix C, all concluded that bicycling is a compatible refuge use with certain stipulations.

BLM Mission—Working with its partners at the local, state, and national levels, the BLM will meet its mission of "sustaining the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations."

The BLM manages 258 million acres of land and accommodates 53 million visitors per year. The BLM was established in 1946 to manage Federal lands located primarily in the western

United States, including Alaska. The BLM manages multiple resources and uses, including energy and minerals; timber; forage; recreation; wild horse and burro herds; fish and wildlife habitat; wilderness areas; and archaeological, paleontological, and historical sites. The BLM carries out a variety of programs for the management and conservation of resources. These public lands make up more than 40 percent of all land managed by the Federal government (BLM, 2007).

Resource Management Plans (RMPs) are prepared for each land unit and guide how BLM manages its land units, including the transportation system. Policies for consideration of bicycling as a transportation mode on roads differ for each state. Decisions regarding mountain bicycle access on BLM lands are made at the local level, with no nationwide regulations. Federal regulations exist for nationwide management of off-highway vehicles on BLM land, but none currently exist for mountain bikes. The BLM has an informal "open-unless-designated-closed" policy for mountain bikes (http://www.imba.com/resources/agencies/blm_trail_policy.html).

BLM's "open-system" approach is being replaced by a strategy of comprehensive travel management, in part because of extensive motorized travel on unrestricted lands. BLM is conducting comprehensive travel management across approximately 130 million acres of open designated lands. This includes resource management, road and trail design, maintenance, and recreation and non-recreation uses of roads and trails. Travel activities in this context incorporate access needs and the effects of all forms of travel, both motorized and non-motorized.

BLM lands tend to be less developed than other public lands and many are well known for their mountain biking opportunities. Back Country Byways or mountain roads on BLM lands are often lightly traveled and offer stunning scenery for road bikers. BLM lands have many opportunities for long distance tour routes connecting towns and other Federal lands.

FEDERAL TRANSPORTATION POLICY

Pucher (1997) suggests that changes in transportation policy can significantly affect mode shifts from autos to bicycles. Contrasting low bike use in the United States to much higher use in several Western European countries, he discusses a number of factors such as climate, topography, access to transit, trip distance, and presence of a university. He concludes that public transportation policy is the primary reason for the drastically different levels of bicycle use. Table 4 shows significant transportation policies relating to bicycling over the past 35 years.

Federal transportation agencies and Congress have taken steps over the last 35 years to promote bicycle use. The following section describes significant policy changes in more detail.

Table 4: Federal Transportation Policy Timeline.

1973	Federal Aid Highway funds first used for bicycle facilities
1990	USDOT policy created to mainstream bicycling into transportation network
1991	ISTEA greatly increases funding for bicycle facilities and programs
1994	National Bicycling and Walking Study sets goals to increase bicycle travel
1998	TEA 21 increases bicycle facility and program funding
2005	SAFETEA-LU significantly expands support for bicycling programs

Federal Transportation Policy Chronology

1973 Federal-aid Highway Act. States were allowed to use a limited amount of Federal-aid highway system funds for the construction of separate or preferential bicycle lanes and facilities, and pedestrian walkways. During the 18-year period between FY1973 and FY1991, 20 states used Federal-aid highway funds for bike and pedestrian use, totaling $41 million (Lipford, 2000).

1990 The FHWA Administrator described bicycling and walking as "the forgotten modes" of transportation. The U.S. Department of Transportation (USDOT) adopted a new national transportation policy that sought to mainstream bicycling and pedestrian needs into our transportation system.

1991 Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA), making billions of dollars available for a range of transportation projects, including bicycling and walking improvements.

1991–1994 Congress appropriated $1 million to complete the National Bicycling and Walking Study (NBWS). The NBWS consisted of a series of 24 case studies investigating bicycling and walking issues. The study set two overall goals:

- Double the percentage of total trips made by bicycling and walking in the United States from 7.9 percent to 15.8 percent of all travel trips.
- Simultaneously reduce by 10 percent the number of bicyclists and pedestrians killed or injured in traffic crashes.

"Accommodating Bicycle and Pedestrian Travel: A Recommended Approach" is a policy statement aimed at integrating bicycling and walking into the transportation mainstream and was adopted in 1994 as part of the NBWS. This policy is available online at http://www.fhwa.dot.gov/environment/bikeped/design.htm. A nine-point action plan and 60 action items were assigned to at least one of the modal administrations within the USDOT (e.g., FHWA, National Highway Safety Administration, Federal Transit Administration (FTA), Federal Railroad Administration, or Office of the Secretary of Transportation). The USDOT has made significant accomplishments in five key areas: publications; research and technology transfer; outreach and partnerships; increased attention to pedestrian issues; and increased

funding for bicycle and pedestrian projects. A 10-year status report on the NBWS is available at http://www.fhwa.dot.gov/environment/bikeped/study/. For guidance on mainstreaming bicycling, see http://www.fhwa.dot.gov/environment/bikeped/BP-Guid.htm.

These 24 case studies contain valuable information for a variety of bicycling and pedestrian issues. A list of the 24 case studies is shown in Appendix D.

1998 The Transportation Equity Act for the 21st Century (TEA-21) continued funding to create an integrated, intermodal transportation system. Section 3039 of TEA-21 required a comprehensive study of alternative transportation needs in national parks and other Federal lands. This study was initiated due to concerns of high use that compromise visitor experience and degrade natural, cultural and historic resources. The study identifies opportunities to:

- Preserve sensitive natural, cultural and historic resources;
- Reduce pollution;
- Relieve traffic congestions and parking shortages;
- Enhance visitor mobility and accessibility;
- Provide improved interpretation, education, and visitor information services; and
- Improve economic development opportunities for surrounding communities.

This study recognizes that many impacts to public lands are due less to the number of people visiting than the number of automobiles. The first part of the study, completed in 2001, focused on transit services (trams, buses, historic trolleys, trolley cars, waterborne vessels, and aerial tramways). Bicycling and walking were not fully considered as a viable part of an alternative transportation system. Results identified transit needs on NPS, BLM, and FWS lands. The second part of the study, completed in 2004, documented alternative transportation system needs on 30 USFS managed sites. This second part recognized bicycling as alternative transportation, but still focused primarily on transit. As the study developed, it was acknowledged that transit by itself is not the only option. Providing safe options to bike and walk can also reduce impacts of automobiles. Other literature supports bicycling as a way to enhance visitor experience.

2005 SAFETEA-LU authorizes $244 billion to fund Federal surface transportation programs from 2005 to 2009. In SAFETEA-LU, Congress greatly expanded opportunities for bicycle facilities and programs.

- Congress created the Alternative Transportation on Parks and Public Lands (ATPPL) program funded at $97 million from 2006 to 2009.
- Congress funded the Safe Routes to School program. These funds may be used on Federal lands that have schools in the land unit, or nearby.
- Congress funded the Non-Motorized Pilot Program, providing $25 million to each of four cities (Marin, CA; Minneapolis, MN; Sheboygan, WI; and Columbia, MO) to demonstrate and promote active transportation. These cities invested in active transportation infrastructure—such as rail-trails—with supporting programs to increase the share of trips taken by biking or walking.

- Congress changed Section 217 for the FLH Program to clarify that FLH Program funds can be used for bicycle and pedestrian facilities, with or without a road project, as long as the project meets the USDOT definition of transportation.

See http://www.fhwa.dot.gov/safetealu/ for SAFETEA- LU funding details.

See Appendix F for transportation funding applicable to bicycling, including matching requirements, resources and an overview of statewide and metropolitan transportation planning processes. Also see http://www.fhwa.dot.gov/environment/bikeped/bp-broch.htm.

There are various policies, agreements and initiatives in place that promote health and physical activities such as bicycling. The following paragraphs contain a summary of agency travel planning methods, policies and agreements found that relate to bicycle use on public lands. Two general policies applicable to all agencies are:

- **The 2001 Executive Order Trails for America in the 21st Century** instructs Federal agencies to work with States, municipalities, tribes and private groups to protect, connect, promote, and assist trails of all kinds throughout the country. The order also instructs the Federal Interagency Council on Trails to coordinate information and program decisions, as well as policy recommendations, to foster development of America's trails. The council, established in 1969, is an interagency working group that includes the BLM, NPS, FWS, USFS, Army Corps of Engineers (COE), and the FHWA (www.fhwa.dot.gov/environment/rectrails/eofinform.htm).
- **The National Trails System MOU.** The BLM, NPS, FWS, USFS, Army COE, and FHWA encourage long-term interagency coordination and cooperation to enhance visitor satisfaction, to coordinate trailwide administration and site-specific management, to protect resources, to promote cultural values, to foster cooperative relationships, to share technical expertise, and to fund lands and resources associated with the National Trails (www.nps.gov/nts/memorandum2006.html). Representatives of the agencies meet regularly as part of the Federal Interagency Council on Trails. The Council is the primary forum where actions related to this MOU will be carried out and where reports concerning accomplishments related to the MOU will be issued.

Agency-specific policies include:

- **NPS Management Policies, 2006, Section 9.2 Transportation Systems and Alternative Transportation.** Depending on a park unit's size, location, resources, and level of use, the NPS will, where appropriate, emphasize and encourage alternative transportation systems, which may include a mix of buses, trains, ferries, trams, and—preferably—non-motorized modes of access to and moving within parks. In general, the preferred modes of transportation will be those that contribute to maximum visitor enjoyment of, and minimum adverse impacts on, park resources and values (http://www.nps.gov/policy/MP2006.pdf).
- **Climate-Friendly Parks program.** This is a joint partnership between the Environmental Protection Agency and the NPS. This program is intended to protect our parks' natural and cultural resources and ensure their preservation for future generations. Reducing fuel use and greenhouse gas emissions from park facilities and operations is one goal of this program. Providing more options to visitors for non-motorized access

can help managers meet this goal. (http://www.nps.gov/climatefriendlyparks/index.html).

- **Healthier US Initiative and Executive Order 13266**. This order calls on Federal agencies to seek to improve the flow and use of information about personal fitness and increase the accessibility of resources for physical activity. The NPS Committee on Health and Recreation formed in 2004 supports this initiative. The Committee on Health and Recreation National Park System Advisory Board can be accessed online at http://www.americantrails.org/resources/health/npshealthrpt06.html.
- **MOU between the DOI and the DOT November 1997.** Key points in this MOU related to bicycling consist of: integrating transportation planning into normal NPS activities; including bicycle and pedestrian safety, for implementation within the National Park units. Several demonstration parks identified in the MOU include Zion, Grand Canyon, Acadia, Yosemite and Golden Gate National Parks. The agencies may collaborate on joint funding and technical assistance, and work cooperatively on policies that promote mutual goals of improving health, community livability, and protection of resources. For example, the DOT's goal of increasing walking and bicycling opportunities is consistent with the DOI's goal of having trails within fifteen minutes of most Americans (http://www.nps.gov/transportation/tmp/memo.htm).
- **National Park Service Centennial Initiative.** This is a campaign to boost NPS funding for the agency's 100th anniversary in 2016, challenging park partners to match Federal dollars to support National Parks. It includes programs to get visitors out of their cars and onto bicycles. NPS is committed to reaching all park visitors with environmental messages to encourage changes in their daily lives that will better protect the environment. Bicycle facilities can help meet project goals and are an important component in some Centennial Initiative projects as described below (NPS, August 2007).
- **More Kids in the Woods.** In 2008, the USFS started placing a strong emphasis on reconnecting children with nature consistent with the national "No Child Left Inside" initiative. Author Richard Louv's book *Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder*, released in 2005, sparked interest in the consequences of the disappearing connection between children and nature. More Kids in the Woods is a challenge grant, initially involving 24 programs across the nation and $1.5 million in USFS and non-Federal funds. Bicycling on USFS lands has tremendous potential to be a part of this initiative as a fun way for kids to explore and connect with nature. To learn more about projects funded by this program see http://www.fs.fed.us/recreation/programs/woods/index.shtml.
- **FWS National Wildlife Refuge System Improvement Act of 1997.** This Act establishes appropriate uses for the refuge system. This policy ensures priority is given to the six wildlife-dependent recreational uses: hunting, fishing, wildlife observation, wildlife photography, environmental education and environmental interpretation. However, the refuge manager must still determine if each individual use is compatible at a given refuge.

- **BLM National Mountain Bicycling Strategic Action Plan.** This plan provides guidance on mountain bike policies. The purpose of the plan is to ensure that mountain bicycle use on BLM public lands is managed in an environmentally responsible way with regard to ethics, conflicts and impacts, and that opportunities for this activity are not only recognized, but provided, on public lands where appropriate (http://www.blm.gov/mountain_biking/).

CHAPTER 5 – BICYCLING ISSUES ON FEDERAL LANDS

In promoting bicycling on Federal lands, it is important to be aware of the challenges that may be encountered, the resources available to help in addressing them, and how challenges have been successfully overcome in the past. Bicycling issues on Federal lands were identified through a literature review, online survey, and personal communications with land managers and others. A total of 85 surveys were completed by managers from the NPS, USFS, FWS and the BLM. Appendix G describes the survey methodology and results. This chapter describes a number of cultural and institutional barriers identified in the surveys that may hinder the promotion of bicycling on Federal lands, followed by some useful resources to help managers find solutions to common issues.

BROAD CHALLENGES

The following broad challenges were identified to promoting bicycling on Federal lands.

Mainstreaming bicycling and walking is not a high priority. Managers have more immediate responsibilities that take precedence over improving bicycling facilities and programs. Bicycling is promoted on some Federal lands, but it is typically initiated by individual champions rather than by Federal land management policy.

There is a lack of a dedicated funding source to support non-motorized travel on Federal lands. The Alternative Transportation on Parks and Public Lands (ATPPL) program has potential to fund non-motorized facilities, but to date has dedicated most of its funding to transit programs. The ATPPL program is described under the "funding issues" section below.

Non-motorized networks are often not considered important infrastructure solutions. Despite significant public interest in bicycling in the United States and successful models of bicycling infrastructure throughout Europe, transportation planners on public lands are increasingly turning to transit systems rather than seriously assessing non-motorized networks. Non-motorized alternatives need to be considered as a matter of course in many levels of planning.

Maintaining the existing infrastructure is difficult. The National Parks have suffered from limited budgets and deferred maintenance backlogs for many years. The constant need for funding to fix existing infrastructure has made it very difficult to develop new systems—even if those new systems would help solve the problems the Parks are facing. Even in cases where funding is made available from outside of the Parks' budgets, there isn't support for creating new kinds of infrastructure solutions (Olson, 2007).

The connection between transportation and sustainability is not always made. The broad concept of sustainability is often thought of by resource managers in terms of reducing energy in ways that don't require change at the personal level. Solar collectors, wind energy and compact fluorescent light bulbs tend to get more attention than transportation. When transportation is discussed, sustainability is more likely to be linked to hybrid cars or alternative fuels. Like so many issues, the idea of a new technology solving the problem seems easier to consider than the possibility that, given a choice, individuals can make change happen through their personal actions. Walking and bicycling are the most sustainable forms of transportation, but they are rarely talked about as top priorities for sustainability. Creating a new infrastructure of greenways

and trails would provide a sustainable transportation system that is known to work and costs much less to build and maintain than motorized systems (Olson, 2007).

The previous two challenges were identified in "On the Right Path: Greenways and America's National Parks" (Olson, 2007). Prepared by Jeff Olson for the Grand Canyon Foundation in 2007, this document assesses greenway projects in six national parks including the Grand Canyon, Acadia, Yosemite, Grand Teton, Golden Gate, and Zion. Olson identifies a number of cultural, institutional and physical barriers that have prevented the development of greenways in national parks. It can be viewed online at www.pedbikeinfo.org.

This section presented some of the broad challenges managers face in the promotion of bicycling on public lands. The following sections present more specific issues identified by managers, and suggested resources and examples to help managers solve these issues.

TRACKING BICYCLE USE

As pedantic as it may sound, tracking bicycle use is an issue because it is difficult to manage an activity if no data for that activity exists. It is important to understand how changes to bicycling facilities and programs affect bicycle use. Increases in bicycle use may justify changes in funding priorities. Records of motor vehicle, bicycle and pedestrian use reflect on how seriously each mode of travel is considered. It is largely unknown how many bicyclists use public lands. Bicycle use is admittedly difficult to track due, in part, to the dispersed nature of roads and trails as well the complexity of measuring mixed use corridors (motor vehicles, bicycles, pedestrians and others). A few managers reported tracking bicycle use by noting the number of bike tour participants, bike patroller's observations, trail counters, commercial bike group permits, manual counts, or surveys. Tracking methods are inconsistent and sporadic.

Some Federal land units record bicycle use on trails using mechanized counters or sign-in sheets. Others record bike rental program numbers, or estimate based on permits or staff observations. Nonetheless, non-motorized travel is not consistently tracked if it is tracked at all.

Data for nationwide bicycle use on NPS and USFS land units is not readily available. The FWS reported bicycle data at 160 of its 545 refuges in 2004. This was the last year bicycle use was reported. The BLM's Recreation Management Information System (RMS) database records numbers of backpackers, bicyclists, campers, canoe/kayakers, among other activities. These data were collected in a variety of ways including sign-in sheets at trailheads, observations by BLM personnel, visitor surveys, automated counters and, in some cases, ballpark estimates. Table 5 shows an estimate of bicycling participants on BLM lands between Oct. 1, 2005, and Sept. 30, 2006, from the RMS database. It demonstrates the degree to which BLM lands are popular with mountain bikers.

Table 5: Bicycle Use Estimates on BLM Lands.

Activity	Participants
Mountain Bicycling	2,975,393
Road Bicycling	498,084
Bicycle Racing	4,912

Table 6 shows data from National Wildlife Refuges that reported at least 1,000 bicyclists per year and refuges where bicyclists represent a high percentage of total visits.

Table 6: Annual Bicycle Use at National Wildlife Refuges in 2004.

	Refuge	States	Total Visits	Bicycle Visits	Percent Bicyclists
1	Chincoteague NWR	VA, MD	6,776,361	77,044	1.1%
2	J.N. Ding Darling NWR	FL	2,143,987	61,945	2.9%
3	Don Edwards San Francisco Bay NWR	CA	1,693,269	59,600	3.5%
4	Pinckney Island NWR	SC	808,112	36,591	4.5%
5	Minnesota Valley NWR	MN	271,641	30,000	11.0%
6	Upper Mississippi River National Wildlife & Fish Refuge	IL, IA,WI,MN	3,891,388	29,162	0.7%
7	Wichita Mountains Wildlife Refuge	OK	2,055,328	25,770	1.3%
8	Great Swamp NWR	NJ	550,302	15,000	2.7%
9	Trempealeau NWR	WI	113,876	14,849	13.0%
10	Horicon NWR	WI	1,149,144	12,370	1.1%
11	Shiawassee NWR	MI	117,233	10,050	8.6%
12	Chesapeake Marshlands NWR Complex	MD	241,937	8,900	3.7%
13	DeSoto NWR	IA,NE	964,443	8,409	0.9%
14	San Diego NWR	CA	15,260	6,100	40.0%
15	National Elk Refuge	WY	1,463,740	5,000	0.3%
16	Santa Ana NWR	TX	182,043	3,500	1.9%
17	Arthur R. Marshall Loxahatchee NWR	FL	439,755	3,366	0.8%
18	Bosque del Apache NWR	NM	470,263	2,909	0.6%
19	Merritt Island NWR	FL	660,322	2,602	0.4%
20	John Heinz NWR at Tinicum	PA	204,209	2,500	1.2%
21	Turnbull NWR	WA	89,680	2,351	2.6%
22	St. Marks NWR	FL	748,047	2,211	0.3%
23	Patuxent Research Refuge	MD	313,413	2,129	0.7%
24	Tennessee NWR	TN	453,915	2,000	0.4%
25	Wheeler NWR	AL	598,063	2,000	0.3%
26	Tijuana Slough NWR	CA	250,386	1,500	0.6%
27	Crab Orchard NWR	IL	972,752	1,500	0.2%
28	Cedar Island NWR	NC	22,840	1,500	6.6%
29	Savannah NWR	GA,SC	214,651	1,370	0.6%
30	Deer Flat NWR	ID,OR	93,488	1,000	1.1%
31	Big Stone NWR	MN	27,650	1,000	3.6%
32	Mattamuskeet NWR	NC	118,221	1,000	0.8%
33	Kenai NWR	AK	788,042	1,000	0.1%
34	Steigerwald Lake NWR	WA	3,510	600	17.1%
35	Laguna Cartagena NWR	PR	862	224	26.0%

Data provided by USFWS in July 2007.

Includes refuges reporting at least 1,000 bicycle visits per year and those with high percentages of bicycle visits.

Resources to help monitor and record bicycle use are listed below. See Appendix D for annotated bibliographies and research on common monitoring methods such as pneumatic tube counters, passive and active infrared, video cameras and others.

Action: Systematic tracking of bicycle use

Resources: The following references provide ideas for tracking bicycle use in a variety of situations.

National Bicycle and Pedestrian Documentation Project. Alta Planning and Design, August 2005. This paper describes the methodology for a nationally consistent model of data collection.

Bicycle and Pedestrian Data: Sources, Need, & Gaps, 2000. BTS00-02 Washington, D.C. http://www.bts.gov/publications/bicycle_and_pedestrian_data/entire.pdf.

Estimating Bicycle and Pedestrian Demand in San Diego. Alta Planning and Design, August 2007. Transportation Research Board 2008 paper. This paper describes a two-year study measuring bicyclist and pedestrian demand in San Diego County. The project will evaluate the effects that socio-demographic factors and physical factors have on walking and biking rates.

Pedestrian and Bicycle Data Collection in United States Communities: Quantifying Use, Surveying Users, and Documenting Facility Extent, 2005. Pedestrian and Bicycle Information Center. University of North Carolina, Chapel Hill. This document contains eight detailed case studies on automated counting methods and a case study on manual counting methods from communities around the United States. Available online at http://www.pedbikeinfo.org/pdf/casestudies/PBIC_Data_Collection_Case_Studies.pdf

ROADWAY ISSUES

Many roadways lack shoulders and have poor sight distances, a dangerous combination for fast-moving motor vehicles and slower-moving cyclists. This section discusses three roadway issues identified by land managers.

1. Bicyclist safety on roadways with limited width
2. Bicyclist/motorist conflicts on roadways
3. Inadequate shoulders on connecting roads (outside of manager jurisdiction)

The following comment taken from the bicycling survey (see Appendix G) describes a common concern on NPS lands.

"Roads within the majority of National Park areas were designed to park standards. This means they have minimal road width and little or no shoulders. Creating additional bike facilities and roads would require widening road prisms or constructing separate trails. Widening roads often requires an environmental assessment because of the culturally or natural significant area they are crossing. Creating new bike trails is currently financially difficult, and creates a future maintenance burden on a currently overloaded system. Financial assistance would be the major factor that would provide the incentive to promote more bicycling facilities."

Roadway Issue 1: Bicyclist safety on roadways with limited width. Widening roads may not be an option due to environmental, natural/cultural resource, right-of–way, cost, or terrain constraints. If wider roadways are not feasible, managers can get ideas about other engineering, enforcement, or education safety improvements from many sources. A few of these ideas are listed below, followed by resources and examples. When wide shoulders are not an option, other options to improve safety on narrow roads include:

- traffic calming
- roadway surface improvements (install bike-friendly drainage grates, limit rumble strips to centerline)
- maintenance practices (e.g., use roadway seal coats that cover the entire shoulder, avoid chip seal; use micro-surface or thin overlay, which are safer for bikes)
- improve sight distances
- intelligent transportation systems (informing visitors of potential conflicts)
- enforcement and education (e.g., "share the road" signs)
- management options (e.g., reduce speed limits, limit motor vehicle use to certain times)
- "sharrows"—painted symbols on the roadway indicating the lane is to be shared by vehicles and bikes.

Action: Investigate alternatives to improve safety on roadways with limited width

Resources: The following two online toolkits provide a wealth of useful information.

BIKESAFE is an interactive online tool to help select engineering, educational, or enforcement treatments. It is an extremely useful tool to quickly get ideas, learn about successful programs and gain access to many resources (http://www.bicyclinginfo.org/bikesafe/index.cfm).

The Federal Transportation Planning Resources and Toolkit offers solutions to vehicle conflicts with bicycles and pedestrians, including building or modifying infrastructure to reduce the likelihood of conflict, using intelligent transportation systems (ITS) to inform visitors of potential conflicts, or using policies or transit to reduce the number of vehicles on the roadways (http://www.cflhd.gov/ttoolkit/flt/SolutionsMatrix/Safety%20Issues/MotoristBicyclePedestrianSafety.htm).

Example: Green Bay, WI, implemented a pilot project to improve roadway maintenance, making roads safer for bicyclists. This is one of many case studies available on the BIKESAFE website. This case study contains a background section that describes the types of road conditions hazardous to bicyclist such as potholes, debris, drain grates, cracked or uneven pavement, railroad tracks, and overhanging vegetation. It then presents countermeasures to consider—in this case, a pilot project where Road Hazard Identification postcards were distributed to the public through bicycle shops, bicycle clubs, recreation departments, and county, city, and village offices. This is followed by an Evaluation and Results section, Conclusions and Recommendations and finally, Costs and Funding section.

Example: Colorado National Monument is implementing various education and enforcement tools to improve safety for the many bicyclists who come to enjoy the scenery and challenge their skill on the steep, curvy and narrow roads. See Chapter 3 for details.

Example: Denali, Great Smokey Mountain and Zion National Parks and the Gateway National Recreation Area manage some roadways by limiting motor vehicles at certain times. This allows bicyclists and pedestrians safe access. See Chapter 3 for more details.

Roadway Issue 2: Bicyclist/Motorist conflicts on roadways. Many cyclists touring through public lands are at risk due to roadways designed for motor-vehicle use only.

Action: Use existing design resources to determine potential solutions

Resources: Numerous planning and design resources exist that specifically address bicycle facilities. For more references and annotated bibliographies, see Appendix D.

Bicycle and Pedestrian Toolbox Implementation Report, Minnesota DOT, January 2006, www.lrrb.org/pdf/200602.pdf. Wide shoulders not only improve safety for cyclists, they improve safety for motor vehicles, allow additional space for a vehicle to recover, provide space for emergency vehicles and snow removal, and extend pavement life. Table 7 is an example of useful information provided by this resource. It provides guidance that relates average daily traffic and posted speed limit to bicycle facility widths.

AASHTO's Guide for Development of Bicycle Facilities, http://safety.fhwa.dot.gov/ped_bike/docs/b_aashtobik.pdf.

FHWA's Manual on Uniform Traffic Control Devices (MUTCD), 2003 Edition,. http://mutcd.fhwa.dot.gov/pdfs/2003r1/pdf-index.htm.

Oregon bicycle/pedestrian facility design standards, http://www.oregon.gov/ODOT/HWY/BIKEPED/docs/bp_plan_2_ii.pdf.

Table 7: Bicycle Lane Width Guidance, Minnesota DOT.

ROADWAY DESIGN OPTIONS FOR URBAN AND RURAL ROADWAYS

Urban Roadway		Average Daily Traffic (ADT)/Lane					
Two Lane		Less than 500	500-1,000	1,000-2,000	2,000-5,000	5,000-1,0000	1,000 and above
Four Lane		N/A	N/A	2,000-4,000	4,000-10,000	10,000-20,0000	20,000 and above
Posted Speed	0-30 MPH	Shared Lane 12'	Wide Curb Lane or Outside Lane 12'	Wide Curb Lane or Outside Lane 12'	Bike Lane 5'	Bike Lane 5'	Bike Lane 5'
	30 MPH	Shared Lane with Sign 12'	Wide Curb Lane or Outside Lane 12'	Bike Lane 5'	Bike Lane 5'	Bike Lane 5'	Bike Lane 6'
	35-40 MPH	Wide Curb Lane or Outside Lane 12'	Bike Lane 5'	Bike Lane 5'	Bike Lane 5'	Bike Lane 6'	Bike Lane 6'
	over 40 MPH	Bike Lane 5'	Bike Lane 5'	Bike Lane 5'	Bike Lane 6'	Bike Lane 6'	Bike Lane or Shared Use Path 6'
Rural Roadways		Average Daily Traffic (ADT)/Lane					
		Less than 1,000*	1,000-2,500	2,500-5,000	5,000-10,000	10,000 and above	
Posted Speed	0-30 MPH	Paved Shoulder 4'	Paved Shoulder 4'	Paved Shoulder 4'	Paved Shoulder 4'	Paved Shoulder 6'	
	30-35 MPH	Paved Shoulder 4'	Paved Shoulder 6'	Paved Shoulder 6'	Paved Shoulder 6'	Paved Shoulder 8'	
	35-45 MPH	Paved Shoulder 6'	Paved Shoulder 6'	Paved Shoulder 6'	Paved Shoulder 8'	Paved Shoulder 10' and/or Shared Use Path	
	over 45 MPH	Paved Shoulder 6'	Paved Shoulder 6'	Paved Shoulder 8'	Paved Shoulder 10'	Paved Shoulder 10' and/or Shared Use Path	

Note: * When average daily traffic (ADT) less then 500, shoulders are not a necessity unless the roadway is heavily used by truck or heavy commercial vehicles. In these situations bikes should be accommodated with a wide curb or shared lane.

RECOMMENDED BICYCLE PATH WIDTHS

Traffic Composition and Flow	Minimum Paved Width of Two-Way Paths		
	Good	Satisfactory	Minimum if Restrictive Conditions
Light pedestrian & 2-Way Bicycle	12'	10'	8'
Heavy Pedestrian & 2-Way Bicycle	14'	12'	10'
Pedestrian Section	6.5'	5'-6.5'	5'
Two-Way Bicycle Section	10'	8'	8'
Path Geometrics	Minimum Paved Width of One-Way Path		
Located Adjacent Curb-No Parking Allowed	8'	6.5'	5'
Separated from Roadway According to Recommended Clearances	6.5'	5'	5'

These diagrams were taken from *Minnesota Bicycle Transportation Planning and Design Guidelines.*

Roadway Issue 3: Inadequate shoulders on connecting roads (outside manager jurisdiction). State highways or county roads often connect Federal lands with gateway communities. The safety of bicyclists on these roads may be outside of a manager's control. Resources listed below help managers affect decisions about projects beyond their boundaries. Participating in the transportation planning process beyond the boundaries of Federal lands can be critical to addressing this issue and can create lasting connections between multiple jurisdictions.

Action: Get involved with state, regional, and local transportation planning

Resources: Understand and participate in FHWA and FTA surface transportation programs. Learn how to integrate Federal land management objectives with State, regional, and local objectives. Agencies must participate in the State's and/or region's transportation planning process to qualify for Federal transportation funds (many of which can be used for bicycle facilities). The following two resources are written specifically for Federal land managers.

Federal Surface Transportation Programs and Transportation Planning for Federal Land Management Agencies: A Guidebook. October 2007. http://www.fs.fed.us/eng/pubs/pdf/07771814.pdf.

National Park Service, Sept. 1999. The National Park Service Transportation Planning Guidebook. http://www.nps.gov/transportation/tmp/planning.htm.

Example: Monthly meetings between public land managers, Utah DOT, local trails groups, and other stakeholders resulted in an $11.7 million alternative transportation project in Moab, UT. State Highway 191 and State Route 128 connecting the Town of Moab to nearby public lands are being improved for bicycle, pedestrian and transit travel. See Appendix B for details.

Action: Create a bicycle and pedestrian master plan

Resources: View online bicycling master plans created for Federal lands at: http://www.grandcountyutah.net/planning.htm and http://www.trpa.org/documents/docdwnlds/BIKE_PLAN.pdf.

Example: Moab, UT, and Lake Tahoe, CA, have trails or bicycle and pedestrian master plans that have been instrumental in making safe non-motorized connections between multiple jurisdictions.

Action: Implement a "Complete Streets" Policy

Resource: Complete streets enable safe access for pedestrians, bicyclists, motorists and bus riders of all ages and abilities. For detailed information about this program see http://www.completestreets.org/. A related resource, called Thunderhead Alliance, provides information to create a complete streets campaign including planning, creating partnerships and staying apprised on recent news (http://www.thunderheadalliance.org/).

Action: Implement a "Road Diet"

Resource: Road Diet Handbook: Setting Trends for Livable Streets. Rosales, Jennifer, July 2007. The idea of a road diet is similar to "Complete Streets" in that it considers how the roadway can be used not only for automobiles, but for bicycles, pedestrians,

transit or even landscaping for beautification. A road diet does not consider widening the roadway, but instead uses the existing right-of-way. Road diets may reduce the number of lanes for automobiles, or narrow the lane widths and use the remaining space for bicycle lanes, landscaping, parking, or wider sidewalks. Road diets may be one low-cost option to consider for increasing bicycle friendliness on some Federal lands.

Example: In Idaho Springs, CO, pedestrians and bicyclists are now able to safely cross the Clear Creek Greenway at the Stanley Road interchange with Interstate 70 (shown in photo). The Colorado DOT agreed to a "road diet," reducing the travel lane size, allowing for three and a half miles of bicycle lanes on both sides of the road. The NPS Rivers, Trails and Conservation Assistance program provided technical and planning assistance (http://www.nps.gov/ncrc/successes/cons0507.htm).

Figure 33: Clear Creek Greenway, CO.

(Photo courtesy Hugh Osborne.)

Example: Table 8 summarizes case study results from road diet projects presented in the road Diet Handbook (Rosales, 2007).

Table 8: Road Diet Case Study Characteristics (Rosales, 2007).

Case Study	Location	Street Class	Average Daily Traffic	Posted Speed	Primary Adjacent Land Use	Date of Conversion /Time Since Conversion	Project Length	Road Diet Project Elements	Estimated Project Cost
Grand Boulevard 4-lane undivided roadway	Vancouver, Washington	Principal Arterial	12,000	30 mph/ 25mph	Commercial, residential, industrial	Not converted-waiting for funding	1.5 miles	To be re-striped to two lanes, two-way center turn lane, bike lanes	$50,000 (2003 US)
Fourth Plain Boulevard	Vancouver, Washington	Principal Arterial	17,000	30 mph	Residential with commercial	2002 / 2 years	1 mile	Conversion to two lanes, two-way center turn lane, bike lanes, ADA ramps, underground utility work	$1.26 million (2002 US)
Baxter Street	Athens-Clarke County, Georgia	Arterial	20,000	35 mph	Commercial with residential & university	1999 / 5 years	1.9 miles	Conversion to two lanes, two-way center turn lane, bike lanes, signal modifications	$190,000 (2000 US)
U.S. 18	Clear Lake, Iowa	State Highway	12,000	45 mph	Commercial with residential	2003 / 1 year	1.1 miles	Interim project - re-striping to two lanes, two-way center turn lane, shoulders, temporary signal	$105,000 (2003 US)
St. George Street	Toronto, Ontario, Canada	Minor Arterial	7,400	25 mph	University	1993 & 1996 / 11 & 8 years	0.65 mile	1993- lanes reduced to two lanes and bike lanes added with median; 1996 - lanes narrowed, new curbs, added landscaping, widened sidewalks	$4 million (1996 Canadian)
Kalkoral Valley Road	Dunedin, New Zealand	Arterial	10,000	30 mph/ 40 mph	Commercial with residential	2003/ 1 year	1.5 miles	Conversion to two lanes with on-street parking, added cycle lanes, and improved median landscaping, turn lanes, pedestrian crossings	$180,000 (2003 New Zealand)

TRAIL ISSUES

Trails are broadly defined and may include single-track, double-track, paved or unpaved, and multi-use facilities. The following five trail issues were identified by Federal land managers in the bicycling survey (Appendix G).

- Unauthorized trails
- Inadequate staff to patrol trail systems
- Inadequate budget to maintain trails
- Trail conflicts between bicyclists and other users (pedestrians, equestrians)

- Impacts to wildlife and the environment

Trails Issue 1: Unauthorized trails. Bicyclists creating their own trails that are poorly designed and cause inappropriate impacts to resources are a major issue in some areas, especially with respect to mountain bikers.

Action: Designate specific trails that meet user demands

Resource: IMBA's *Managing Mountain Biking* 2007, pages 43-45, has many useful tips. Tip no.1—provide a reasonable substitute when you close a user-created trail. For example, construct a trail with more technical challenge, or one that provides a necessary link between routes. If user needs aren't met, unauthorized trails will continue to be a problem.

Example: "Free Lunch," a part of BLM's Grand Junction Lunch Loop Trail system, was completed in 2007 as a one-way, downhill trail, known as a "freeride" trail, for bikers only. BLM managers in Grand Junction anticipate that creating more trails with specific design features observed on user-created trails will minimize illegal trails. In addition, keeping fast traveling downhill/freeride bicyclists separate from pedestrians and uphill bikers promotes safety for everyone. These BLM managers are making efforts to involve downhill/freeride bikers in design and construction of new legal trails.

Example: Colonnade Mountain Bike Park in Seattle, WA. This is a "special use" bike park, also known as a skill park, freeride park, or challenge park. It provides a new riding experience in a central, easily managed location. This park is being constructed under a freeway near downtown. The Backcountry Bicycle Trails Club partnered with the city to convert the vacant space into a unique two-acre mountain bike skills park. Park features are geared toward beginners through expert riders, focusing on skills progression. The unused land under the I-5 freeway was full of trash, weeds and attracted illegal activity. In addition to giving kids a fun and challenging activity, the bike club and park has gained support of local residents and homeowners by improving, and maintaining the area (IMBA, 2007).

Trails Issue 2: Inadequate staff to patrol trail systems. Managers need help to patrol existing trail systems. Volunteer patrols are one good option to consider.

Action: Empower volunteers to patrol trails

Resource: See "Mountain Bike Patrols", Chapter 8 in IMBA's *Managing Mountain Biking* 2007: Patrollers assist, educate and inform trail users. Volunteer mountain bike patrols are often referred to as the "eyes and ears" of land managers. There are more than 75 active bike patrol units in IMBA's Bike Patrol Program. Volunteer bike patrollers do not have the authority to enforce rules, but should be empowered to mobilize professional law enforcement if the need arises. This reference provides 10 traits of highly successful patrols, discusses liability issues and has many success stories. See www.imba.com/nmbp for a manual, training guidelines and other useful information.

Example: The Diamond Peaks Patrol in Fort Collins, CO, was formed in 1997 and attracts a large and diverse membership by making volunteering convenient and affordable. The patrol pays for members to take CPR/First Aid classes and covers half the cost of uniforms. Volunteers can apply for scholarships for more advanced training

such as Wilderness First Responder. Instead of requiring a set number of days per patroller per year, patrollers are required to collect 25 points each year, translating to about four workdays annually. Points are earned from a variety of activities such as patrolling local trails, volunteering for special events such as a trail work day, or collecting visitor data on remote USFS trails. Eleven local bike shops offer patrollers discounted service and merchandise. A local brewery has made the patrol the primary beneficiary of its annual biking festival and fundraiser, the Tour de Fat. Innovation, organization and close to 50 committed patrollers make this patrol an incredible asset to land managers in this region (IMBA, 2007).

Trails Issue 3: Inadequate budget to maintain trails. Limited budgets mean maintaining existing trail systems and constructing new ones is a fiscal challenge. One solution is to collaborate with other stakeholders to accomplish these tasks.

Action: Authorize volunteers to maintain trails

Resource: See "Partnerships and Managing Volunteers", Chapters 3 and 4 in IMBA's *Managing Mountain Biking*, 2007, for ideas. Chapter 3 explains the importance of partnerships, good principles and agreements. Public land managers should check with local bike shops, bike groups, conservation organizations and other stakeholders to find support for trail maintenance. See examples of successful Memoranda of Understanding (MOU) at http://www.imba.com/resources/managers/partnerships.html.

Chapter 4, Managing Volunteers, demonstrates how biking groups have stepped up to help managers with outdoor stewardship and trail maintenance. Learn more about how to build and sustain volunteer groups and organize and manage successful volunteer events.

Example: Blue Knob State Park located along the Allegheny Front in southern Pennsylvania was full of overgrown trails. The Park did not have enough staff to keep up with trail maintenance. The local Laurel Highlands Off and On Road Biking Association formed with the mission of improving access to the Blue Knob trails. Members effectively boosted the park's available manpower, and performed work such as clearing vegetation and removing deadfall. Since 2000, the group has cleaned up over 30 miles of single-track trails in the park (IMBA 2007).

Trails Issue 4: Conflict between bicyclists and other users (pedestrians, all-terrain vehicles, equestrians). Bikes traveling at excessive speeds and unfriendly social interactions between bicyclists and other trail users are a concern. Conflicts can be an issue especially in high use areas where trails or pathways are multi-use.

Action: Learn from others how to manage conflict

Resources: The National Recreational Trails Advisory Committee identified trail-user conflicts on multiple-use trails as a major concern. The committee asked the FHWA to produce a synthesis of existing research to help identify ways to avoid and minimize multiple-use trail conflicts (http://www.fhwa.dot.gov/environment/conflicts/).

As previously described, BIKESAFE is an interactive online tool to help select engineering, education, or enforcement treatments (http://www.bicyclinginfo.org/bikesafe/).

Chapter 6, "Managing User Conflict", in IMBA's *Managing Mountain Biking* book 2007 offers a range of solutions to user conflict such as information and education, user involvement and partnerships, trail system design and regulations. Well designed trails and trail systems can reduce conflict significantly. Trail design strategies to help reduce conflict include offering diverse trail opportunities for all types of users, designing trails to control speed and using one-way loops, preferred-use, and single-use trails to allow for a variety of visitors (IMBA, 2007). A few examples of methods to educate people to reduce conflict follow:

- Clear, well-placed signs
- Consistent rules regarding biking
- Staff and volunteer trail patrols
- Peer education and mountain bike skills clinics
- Brochures, maps and other handouts that spread the message of shared use

Example: The following excerpt is an example of information from the BIKESAFE Case study #36. "The report, Conflicts on Multiple-Use Trails: Synthesis of the Literature and State of the Practice (Moore, 1994), provides guidelines for developing programs to manage trails. Although this report is primarily concerned with recreational, off-road trails, the guidelines are generally appropriate for managing any non-motorized facilities, including sidewalks and bicycle paths. The report is available at no cost from FHWA. It identifies the following 12 principles for minimizing conflicts on multiple-use trails:

- Recognize Conflict as Goal Interference
- Provide Adequate Trail Opportunities
- Minimize Number of Contacts in Problem Areas
- Involve Users as Early as Possible
- Understand User Needs
- Identify the Actual Sources of Conflict
- Work with Affected Users
- Promote Trail Etiquette
- Encourage Positive Interaction Among Different Users
- Favor "Light-Handed" Management
- Plan and Act Locally
- Monitor Progress

Example: The Tsali Recreation Area in North Carolina's Nantahala National Forest has been a popular mountain bike destination since the late 1980s. Conflicts between bikes and equestrians on the trails became a problem as bike use increased. Mixing bikers and equestrians had diminished the enjoyment for both groups. Instead of banning bikes,

managers decided to implement a rotation plan to keep the two groups separate. Bikers, the more populous user group, can ride the long loops on Monday, Wednesday, Friday, and Sunday and the shorter loops on Thursday and Saturday; equestrians follow the opposite schedule. Rules are displayed prominently at trailheads, and long-time trail users do a good job politely directing any errant users to the right trail. Both user groups have expressed satisfaction with the compromise (IMBA, 2007).

Trail Issue 5. Impacts to wildlife and the environment. Environmental impacts from trails and trail users are a concern on many public lands. There is a growing body of research related to how trails and trail users affect wildlife and the environment.

Action: Review research on how trails affect wildlife and the environment

Resource: The Leave No Trace website at http://www.lnt.org is a good resource on low impact practices. As the name implies, Leave No Trace principles are formulated to minimize visitor impacts. Another resource specifically for bikes is the "Mountain Biking Leave No Trace Skills and Ethics" Booklet, available at http://www.nols.edu/store.

"Environmental Impacts of Mountain Biking: Science Review and Best Practices" (Marion and Wimpey, 2007) describes the general impacts associated with recreational uses of natural surface trails, with a focused study that examined mountain biking impacts. Dr. Marion is a scientist with the U.S. Geological Survey who studies visitor impacts and management in protected natural areas. Jeremy Wimpey is a doctoral candidate in the Park and Recreation Resource Management program at Virginia Tech. This article provides a literature review related to trail impacts on vegetation, soil, water, and wildlife and can be found at http://www.imba.com/resources/science/marion_wimpey_2007.html. The article was originally published in "Mountain Biking and the Environment" (IMBA, 2007). The following paragraphs were adapted from this article.

Research indicates most wildlife species readily adapt or become habituated to consistent and non-threatening recreational activities. For example, animals may notice but not move away from humans on a frequently used trail or pathway. This presents great opportunities to view wildlife while minimizing possible impacts. Other forms of habituation are less desirable. Visitors who feed wildlife, intentionally or from dropped food, can contribute to food-related attraction behavior. In places where visitors stop to eat, wildlife quickly learn to associate people with food, losing their innate fear of humans. The wildlife may beg, search for food scraps or raid packs containing food. This behavior endangers their health and well being. Avoidance behavior in wildlife is also problematic. Avoidance behavior is generally an innate response that is magnified by visitor behaviors perceived as threatening, such a loud sounds, off-trail travel, travel in the direction of wildlife, and sudden movements. When animals flee from disturbance by trail users, they often expend precious energy, which is particularly dangerous for them in winter months when food is scarce. When animals move away from a disturbance, they leave preferred or prime habitat and move, either permanently or temporarily, to habitat that may not meet their needs for food, water, or cover. Visitors and land managers are often unaware of such impacts because animals often flee before humans are aware of their presence (Marion and Wimpey, 2007).

FUNDING ISSUES

The section provides funding resources for bicycling programs and tips on how managers can leverage Federal and other funds. Based on the 2005 SAFETEA-LU Federal transportation bill, bicycle and pedestrian projects are broadly eligible for funding from almost all the major Federal-aid highway, transit, safety, and other programs as shown in Table 9. This table omits one important funding program that was created in 2006 as a result of the "Federal Lands Alternative Transportation Systems Study" (Cambridge Systematics, 2001 and 2004). Congress authorized the Alternative Transportation on Parks and Public Lands (ATPPL) program in 2005 as part of SAFETEA-LU. The ATPPL program was developed specifically to encourage alternatives to the private automobile on public lands. More information about the ATPPL funding program is provided below, followed by a discussion on qualifying for Federal funds and a list of actions that land managers can take to learn more about bicycle facility funding.

Alternative Transportation in Parks and Public Lands (ATPPL) Funding—Congress established the ATPPL program to enhance the protection of national parks and federal lands and increase the enjoyment of those visiting them. Administered by the Federal Transit Administration in partnership with the Department of the Interior and the USFS, the program funds capital and planning expenses for alternative transportation systems such as shuttle buses and bicycle trails in public lands. The goals of the program are 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 (http://www.fta.dot.gov/funding/grants/grants_financing_6106.html). The program does not fund operations or maintenance of alternative transportation systems. Projects in or near a national park, national wildlife refuge, BLM area, Bureau of Reclamation area, or national forest are eligible for funding. Up to ten percent of funding can be used for program planning, research, technical assistance, and technology development.

Although the definition of alternative transportation includes bicycling, to date the ATPPL program has predominantly funded transit projects. This funding source has the potential to support more bicycle friendly facilities in the future. Forty- two projects were funded with ATPPL in 2006; only one of them was a bicycle project, and it was a planning project. James Oberstar, Chairman for the U.S. House of Representatives Committee on Transportation and Infrastructure wrote a June 27, 2007 letter to DOI Secretary Dirk Kempthorne urging him to consider funding bicycle projects in 2007 from ATPPL. In 2007, one million dollars of ATPPL funds were awarded to Teton County, Wyoming to partially fund construction of a 4.2 mile trail system connecting the National Elk Refuge Visitor Center to the end of the National Elk Refuge. In addition, $774,000 was awarded to Grand County, Utah to construct a transit hub on the north end of Moab as part of a bicycle, pedestrian, and transit system. This multi-modal transportation system will provide connections between Moab and surrounding public lands through a combination of bicycle, pedestrian and transit facilities.

Table 9: SAFETEA-LU Funding for Bicycles Projects.

	NHS	STP	HEP	RHC	TEA	CMAQ	RTP	FTA	TE	BRI	402	PLA	TCSP	JOBS	FLH	BYW
Bicycle and pedestrian plan		*				*						*	*			
Bicycle lanes on roadway	*	*	*	*	*	*		*	*	*					*	*
Paved Shoulders	*	*	*	*	*	*				*					*	*
Signed bike route	*	*			*	*									*	*
Shared-use path/trail	*	*			*	*	*			*					*	*
Single track hike/bike trail							*									
Spot improvement program		*	*		*	*										
Maps		*				*					*					
Bike racks on buses		*			*	*		*	*							
Bicycle parking facilities		*			*	*		*	*							*
Trail/highway intersection	*	*	*		*	*	*								*	*
Bicycle storage/service center		*			*	*		*	*				*	*		
Sidewalks, new or retrofit	*	*	*	*	*	*		*	*	*					*	*
Crosswalks, new or retrofit	*	*	*	*	*	*		*	*						*	*
Signal improvements	*	*	*	*	*	*										
Curb cuts and ramps	*	*	*	*	*	*										
Traffic calming		*	*	*		*							*			
Coordinator position		*				*							*			
Safety/education position		*				*					*					
Police Patrol		*									*					
Helmet Promotion		*			*						*					
Safety brochure/book		*			*	*	*				*					
Training		*			*	*	*				*					

NHS National Highway System
STP Surface Transportation Program
HEP Hazard Elimination Program
RHC Railway-Highway Crossing Program
TEA Transportation Enhancement Activities
CMAQ Congestion Mitigation/Air Quality Program
FLH Federal Lands Highways Program
BYW Scenic Byways

BRI Bridge
402 State and Community Traffic Safety Program
PLA State/Metropolitan Planning Funds
TCSP Transportation and Community and System Preservation Pilot Program
JOBS Access to Jobs/Reverse Commute Program
RTP Recreational Trails Program
FTA Federal Transit Capital, Urban & Rural Funds
TE Transit Enhancements

In order to qualify for ATPPL funding, it is important for grant applicants to demonstrate bicycling projects will:

- Reduce motorized vehicle use by providing an alternative,
- Provide a high degree of connectivity in the transportation system and
- Improve safety for both motorized and non-motorized transportation system users.

Table 10 shows ATPPL funding between 2006 and 2009.

Table 10: Alternative Transportation on Parks and Public Lands Funding—2006 to 2009.

Year	2006	2007	2008	2009
ATPPL funding	$22 million	$23 million	$25 million	$27 million

Further information on ATPPL can be accessed online at http://www.fta.dot.gov/funding/grants/grants_financing_6106.html. For general information about the ATPPL program, contact Scott Faulk, Office of Program Management, Federal Transit Administration, scott.faulk@fdot.gov, 202–366–1660.

Transportation versus recreation —To qualify for Federal transportation funds, projects that are to be used exclusively by bicycles must be "principally for transportation rather than recreation purposes," with the exception of the Recreational Trails Program. FHWA has determined that in order to meet the "transportation purpose" requirement, a bicycle facility must be more than a closed loop trail that can only be used for recreational purposes—users must be able to get somewhere other than back to their starting point. Eligible trails must be open to commuters 24 hours a day, 7 days a week; even if lands that the trail goes through are traditionally closed dusk to dawn or has set hours for visitation. Beyond these requirements, any bicycle facility providing access from one point to another can be used for transportation and is therefore eligible for funding under SAFETEA-LU http://www.fhwa.dot.gov/environment/bikeped/BP-Guid.htm. In other words, the USDOT calls anything but a closed loop a transportation trip. Bicycling from one place to any other place, basically for any purpose, is transportation and eligible for funding from many sources.

The following actions, resources and examples provide more information on bicycle facility funding.

Action: Review Federal funding resources for bicycle facilities and programs

Resource: The Bicycle and Pedestrian Provisions of the Federal-aid Program provides online funding guidance (http://www.fhwa.dot.gov/environment/bikeped/bp-broch.htm). See Appendix F for funding details, organized in three sections.

- Federal funding available for bicycle and pedestrian facilities.
- Matching requirements, tips to improve funding success and resources.
- Statewide and metropolitan transportation planning processes (required to receive Federal funds).

Example: An abandoned rail line running through Bozeman, MT, is well used by bicyclists and pedestrians for recreation. It also serves a transportation function, connecting neighborhoods to downtown businesses, restaurants and parks. This type of facility meets the USDOT definition of transportation purpose and would be eligible for funding under SAFETEA-LU. Similar trails in many cities including Denver and Washington D.C., serve a recreation and transportation function as well.

Action: Develop partnerships to help leverage funds

Resource: Non-profit organizations can play a vital role in forming collaborative partnerships to help leverage funds. Federal land managers who may be constrained by daily work demands may not be able to devote the time necessary to develop long-term solutions to transportation issues. Non-profit organizations that share a concern for those issues can offer valuable assistance. The following list names a few of the organizations that can offer various types of support.

- Adventure Cycling Association (ACA) (http://www.adv-cycling.org).
- Bikes Belong (http://bikesbelong.org).
- International Mountain Bike Association (http://www.imba.com).
- League of American Bicyclists (http://www.bikeleague.org).
- Rails to Trails Conservancy (http://www.railtrails.org).

Example: Bikes Belong is a national coalition of bicycle suppliers and retailers whose purpose is to promote bicycling across the country. Since 1999 it has awarded 166 grants, totaling nearly $1.3 million and leveraging more than $476 million in Federal, State, and private funding.

Example: The Moab Trails Alliance (MTA) is a 501(c)3 non-profit that is funded by local businesses and private donors. MTA has written numerous grant proposals and raised money used to match grants for trail development. This non-profit has been a key player bringing stakeholders together to implement the North Moab Recreation Area Alternative Transportation Plan. See Appendix B for details on partnerships for the Moab project as well as Lake Tahoe Basin. These areas have been effective at developing partnerships and leveraging funding.

Example: IMBA is advocating for two important NPS programs in 2007. Hundreds of mountain bicyclists recently attended public listening sessions to support the Centennial Initiative, a campaign to boost NPS funding for the agency's 100th anniversary in 2016. Advocates asked for programs to get visitors out of their cars and onto appropriate narrow dirt trails and roads on bicycles. Mountain bicyclists are also asking for more programs to introduce children to their national parks through mountain biking. In March 2007, mountain bicycling leaders held nearly 200 meetings on Capitol Hill to urge Congress to restore funding to the NPS Rivers, Trails and Conservation Assistance (RTCA) program. Each year, RTCA helps local communities with nearly 300 projects, including many for mountain bicycling. A decade of flat funding has reduced RTCA's capacity and IMBA asked that its budget be increased to $12 million for fiscal year 2008. IMBA is also part of the Outdoor Alliance (OA) coalition that represents millions of people who hike, mountain bike, climb, paddle and cross-country ski. OA works to ensure the conservation and stewardship of our nation's land and waters through the

promotion of sustainable, human-powered recreation. IMBA and OA have been actively supporting increased NPS funding and meeting with congressional officials to support increased appropriations (http://www.imba.com/news/news_releases/04_07/04_26_nps_imba.html.

In closing, Chapter 5 identified common barriers to promoting bicycling and discussed four categories or types of issues commonly faced by Federal land managers related to bicycling:

- Tracking bicycle use,
- Roadway issues,
- Trails issues and
- Funding issues.

Chapter 5 also suggested actions that can be taken and resources that can be used in addressing each of these issues. Chapter 6, Findings and Recommended Actions, will conclude this bicycling guide with a list of findings from the literature review, online survey and conversations with land managers and recommended actions that managers can take to promote bicycling.

CHAPTER 6 – FINDINGS AND RECOMMENDED ACTIONS

Bicycles are used worldwide as a part of the solution to congestion, air quality and health problems. In 1990, the FHWA Administrator described bicycling and walking as "the forgotten modes" of transportation. The USDOT adopted national transportation policy to mainstream bicycling into the transportation system. Federal land managers have the opportunity to serve as a positive national role model by implementing existing policies and mainstreaming bicycling into their transportation networks. This guide finds that bicycle transportation networks have significant positive impacts for the environment, health and visitor experience on Federal lands.

Chapters1 and 2 describe how bicycling can complement agency missions and assist Federal land managers in meeting goals.

Chapter 3 provides 12 bicycling case studies on Federal lands; gives examples of areas that limit automobile use; describes bike share programs and lists a sample of bicycle friendly organizations and programs.

Chapter 4 gives a background of each Federal agency's mission including the NPS, USFS, FWS and BLM and discusses bicycling related policies that complement agency missions. Bicycles are an underused tool that can help managers.

Chapter 5 provides a discussion of common issues land managers face with regard to bicycling. Naturally, bicycling is not appropriate and/or practical in all situations. In pursuing bicycling initiatives, issues that need to be addressed include safety, funding, and appropriateness relative to agency mission. Chapter 5 identifies useful resources and examples to help managers address problems and overcome barriers.

Chapter 6 provides a summary of the Guide. The following sections summarize key findings and recommended actions managers can take to further advance bicycling use on Federal lands.

FINDINGS

Many opportunities exist to deploy bicycle programs on Federal lands. Public demand for bicycling programs is increasing. Education is needed to convince many Federal land managers of the overall benefits of bicycling. Bicycling networks and programs can assist land managers by:

- 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 among the participants; and
- Creating a more balanced transportation and recreation network to preserve the landscape for future generations.

Federal land managers can receive significant help to leverage funds, and to implement and maintain bicycling networks by coordinating with bicycling groups, city/county/state/Federal agencies, non-profit organizations and other stakeholders. Bicycle friendly programs can offer

an enjoyable visitor experience that can attract additional visitors without adding to traffic congestion.

Characteristics of Successful Projects—Bicycle network continuity or connectivity is very important and should be considered at the initial planning stage. Regional bicycling master plans are a key component to establishing non-motorized network connectivity as well as connectivity to other transportation modes. Projects with multi-agency support and strong local backing can create bicycling networks that span across jurisdictional boundaries to connect Federal, state, county and city lands. "The Five Es" (engineering, encouragement, education, enforcement and evaluation) can be used to assess to what level a Federal land unit is bicycle friendly.

Bicycling Policies—Health and transportation policies are in place that support bicycling on Federal lands, but they could be improved and need to be actively implemented. Policies are currently implemented on a unit by unit basis rather than agency wide.

Bicycling Examples and Resources—A significant number of planning and design resources have been developed to support bicycling. Many successful bicycling programs exist both within and outside of Federal lands that can be used as models.

Issues and Challenges—Mainstreaming bicycling and walking has been a lower priority than maintaining roads on Federal lands. Capacity building within the Federal land management community that supports the promotion of bicycle programs is a significant challenge. The capacity of Federal land managers to build bicycle facilities and services lags behind similar resources available to serve road and transit needs. Nonmotorized transportation competes at a decided disadvantage with the current and traditional institutions and practices that support roads and public transit.

There are no Federal programs designed exclusively to finance the deployment of bicycle programs on Federal lands. Road and transit needs currently receive priority for the limited funding that is available and might otherwise be used for bicycle facilities. Bicycle program costs are modest when compared to the costs of providing equivalent mobility using other modes and minimal when compared to the cost in the degradation of natural and other resources associated with continuing past patterns of transportation investment on Federal lands.

Safety is a concern when bicycles and motor vehicles interact, but there are many different methods to address safety concerns.

RECOMMENDED ACTIONS

This section recommends actions that land managers can take to further advance bicycle use on Federal lands. These actions are organized by planning/policy, design/implementation, promotion and safety/education activities.

Planning/Policy

- Learn from other bicycling programs. Chapters 3 and 5 have many examples.
- Develop partnerships with stakeholders who have common interests. Partnerships can guide bicycle programs, provide technical support, leverage funding and manage and maintain non-motorized networks.
- Integrate bicycling into the land unit's long range transportation plan.

- Get involved in the state, regional, and local transportation planning process.
- Find out if your region has a bicycle master plan and get involved. Support safe bicycling connections between gateway communities and public lands.
- Adopt a Complete Streets policy to ensure safe access for all roadway users. (http://www.completestreets.org/). Consider bicyclists and pedestrians as part of every new road construction and reconstruction project.
- Participate in programs such as the Eno Transportation Foundation's National Park Transportation Scholars Program and Transportation Interpreter Program to assist with transportation planning and promoting alternatives to private automobile travel in National Parks. (http://www.enotrans.com/Programs/NPS.htm)
- Incorporate bicycling and pedestrian modes into job descriptions when advertising for staff that will have planning and/or land unit management responsibilities.
- Incorporate bicycling issues into staff training. Many conferences and trainings address non-motorized issues.
- Implement existing transportation and health policies (see Chapter 4) that promote more bicycling and walking on a daily basis.
- Establish greater Federal land management agency participation with AASHTO and TRB bike committees.

Design/Implementation

- Tailor a program to meet the land unit's needs and opportunities such as making bicycles available for use by campground hosts or other employees.
- Make bicycles available to visitors through rental or sharing programs. Provide various styles of bicycles that may include hand cycles, tandem, tricycles and four wheeled pedal-cycles.
- Open roadways to bicycling and walking by limiting automobile access to more places, more frequently. While this option is not appropriate everywhere, places like Mackinac Island and Acadia NP's carriage roads demonstrate that access without automobiles in not only possible, it is desirable and popular with people of all ages and physical abilities.
- Use existing service roads for non-motorized travel.
- Promote lightly traveled roads to create connectivity for bicycling networks.
- Restripe existing roadways to allocate space for bicycles (e.g. implement complete streets and road diet concepts).
- Place bicycle racks in a visible location that is closer to building entrances and attractions than the closest motor vehicle parking space.
- Create a recognizable sign system guiding bicyclists through attractions.
- Design sustainable trail to protect resources and properly accommodate shared non-motorized use.

- Incorporate bicyclist use into routine traffic data collection. Knowing how many bicyclists are present can help to measure the effectiveness of various programs over time and provide support for bicycle facility and program funding.
- Evaluate bicycling use and programs on an annual basis. Estimate how bicycling use changes over time and associated changes in items such as fuel use, air quality, traffic congestion and visitor experience.

Promotion

- Establish a web page for bike-related resources, providing sufficient information for visitors to plan bike trips in advance of travel.
- Promote or organize events such as Bike-to-Work Day.
- Offer interpretive bicycle tours such as at the National Mall & Memorial Parks in Washington, D.C.
- Publish literature that supports bicycling as a travel mode (route maps, brochures, etc).
- Provide visitors with interpretive material to highlight not only the social and environmental benefits of bicycling, but also the opportunity for more intimate, meaningful, and satisfying experiences. Highlight the long history of alternative transportation in national parks, which included stagecoach tours, railroads, touring auto coaches and bicycling. (White, 2006)
- Provide incentives such as discounted entry fees or camp fees for bicyclists. Charging higher fees for automobile entry and parking could also shift more visitors to biking, walking and transit.
- Encourage children to bicycle to help reconnect children with nature and reduce childhood obesity. A few example programs include: USFS More Kids in the Woods—http://www.fs.fed.us/recreation/programs/woods/index.shtml, ACA's Pedal Pioneers—http://www.adventurecycling.org/outreach/pedalpioneers.cfm, and Trips for Kids—http://www.tripsforkids.org/ .
- Ride a bike more often.

Safety/Education

- Provide training to children and adults on bicycling safety and regulations for both roadways and trails. One popular program can be found at: http://www.bikeleague.org/programs/education/ .
- Make bicycle safety literature readily available to educate motorists and bicyclists about bicyclist safety and share the road concepts.
- Educate visitors on how to share trails with hikers, bicyclists, and equestrians by using signage and other program such as IMBA's National Mountain Bike Patrol and Rules of the Trail. For more information see http://www.imba.com/about/trail_rules.html.
- Ensure enforcement personnel, such as rangers, understand bicyclists' rights and responsibilities.

- Enforce speed limits and driving under the influence laws to improve safety for all roadway users, including bicyclists.

Bicycling continues to grow in popularity across the country as an important recreational activity and travel mode. There is no lack of knowledge about how to design bicycle facilities or the elements of successful bicycling programs, only a lack of commitment. There is significant support for bicycling from the public, advocacy groups, and numerous health and transportation agencies. Consider bicycles as an important tool to move people in a way that has a low impact to the environment, low cost, and offers significant benefits. Federal land managers have the opportunity to serve as a positive national presence and role model by mainstreaming bicycling on Federal lands.

Nothing compares to the simple pleasure of a bike ride. ~John F. Kennedy

Figure 34: Tobacco Root Mountains, Montana.

(Photo courtesy Kristin Drost.)

APPENDIX A – BICYCLING DEFINITIONS

Definitions (a) through (k) are from the Code of Federal Regulations Title 23: Highways, Part 652—Pedestrian and Bicycle Accommodation and Projects. http://ecfr.gpoaccess.gov/

(a) Bicycle. A vehicle having two tandem wheels, propelled solely by human power, upon which any person or persons may ride.

(b) Bikeway. Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

(c) Bicycle Path (Bike Path). A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. *In some states, such as California, this is called a Class I facility. This term is often used as slang and can cause confusion. The term bike path should not be used for multi-use or shared use facilities where non-bikers, such as pedestrians and in-line skater are permitted.*

(d) Bicycle Lane (Bike Lane). A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists. *In some states, such as California, this is called a Class II facility. Roads with shoulders can be striped and signed to become bicycle lanes. Paving wide shoulders not only provides room for bikes, it also provides for snow storage, vehicle recovery, better clear zones and sight lines.*

(e) Bicycle Route (Bike Route). A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without a specific bicycle route number**.** *In some states, such as California, this is called a Class III facility.*

Figure 9B-4. Guide Signs for Bicycle Facilities

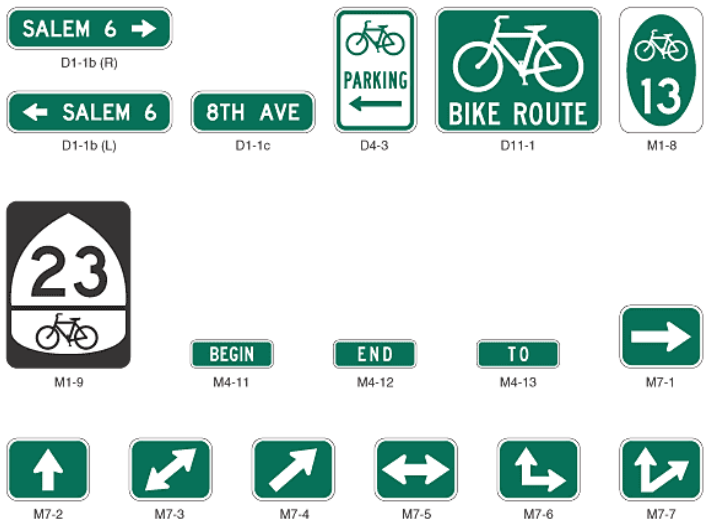


Figure 35: Bicycle Route Sign MUTCD (FHWA, 2003).

(f) Shared Roadway. Any roadway upon which a bicycle lane is not designated and which may be legally used by bicycles regardless of whether such facility is specifically designated as a bikeway.

(g) Pedestrian Walkway or Walkway. A continuous way designated for pedestrians and separated from the through lanes for motor vehicles by space or barrier.

(h) Highway Construction Project. A project financed in whole or in part with Federal-aid or Federal funds for the construction, reconstruction or improvement of a highway or portions thereof, including bridges and tunnels.

(i) Independent Bicycle Construction Project (Independent Bicycle Project). A project designation used to distinguish a bicycle facility constructed independently and primarily for use by bicyclists from an improvement included as an incidental part of a highway construction project.

(j) Independent Pedestrian Walkway Construction Project (Independent Walkway Project). A project designation used to distinguish a walkway constructed independently and solely as a pedestrian walkway project from a pedestrian improvement included as an incidental part of a highway construction project.

(k) Incidental Bicycle or Pedestrian Walkway Construction Project (Incidental Feature). One constructed as an incidental part of a highway construction project.

Pathways, greenways and shared use paths are also common terms that refer to facilities separated from the roadway where pedestrians, bicyclists and other non-motorized users can travel.

Greenways - Linear, open space corridors that include trails and facilities for non-motorized transportation and recreation. Greenways differ from traditional single-track hiking trails because they are designed to be accessible to a wide range of users, provide outdoor experiences to 'average' people who might not otherwise spend time on trails, and because they can provide a transportation function as well as recreation. (Olsen, 2007)

Shared-Use Path—a bikeway outside the traveled way and physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent alignment. Shared-use paths are also used by pedestrians (including skaters, users of manual and motorized wheelchairs, and joggers) and other authorized motorized and non-motorized users. (FHWA, 2003)

Singletrack - Term used to describe a trail that is only wide enough for one person or bicyclist at a time, thus users must ride or walk single file. Single-track trails are especially popular with mountain bikers.

http://mutcd.fhwa.dot.gov/resources/proposed_amend/npa_textshowingrev.pdf for new bicycle definitions proposed for the MUTCD.

Other bicycle facilities or projects include: Bicycle and pedestrian plans, maps, bike racks on buses, bicycle parking racks and lockers, bicycle storage/service centers, signal improvements, curb cuts and ramps, bicycle/ pedestrian coordinator position, safety/education position and bicycle police patrol.

APPENDIX B – NORTH MOAB RECREATION AREA AND LAKE TAHOE PARTNERSHIPS

North Moab Recreation Areas Alternative Transportation Project - Moab, Utah is famous for its stunning scenery that draws visitors from around the world. This scenic and rugged desert terrain offers many recreational opportunities for mountain and road biking, climbing, hiking, rafting, and off road vehicle use. It is often called the mountain biking capital of the world. Moab has evolved from a mining town economy to a recreation based economy and most visitors come to Moab to bicycle, walk or hike. However, due to the lack of a safe alternative transportation system, most people drive to trailheads on BLM lands as well as to State and national parks. The Federal Lands Alternative Transportation Systems Study (Cambridge Systematic, Inc. August 2001) identified a great need for alternative transportation in Moab and along State Highway 191 and State Route 128.

Issues: State Route 128 is a busy, shoulder-less two lane highway sandwiched between sheer cliffs and the Colorado River. Many bicyclists ride about 4 miles along SR 128 to return to Moab from the very popular Porcupine Rim trail. This road has poor sight lines, making shared use of bicyclists and vehicles dangerous. The Colorado River Bridge along State Highway 191 lacks shoulders and is a major point of conflict for bikes and vehicles. There are a high percentage of trucks operating along State Highway 191, increasing chances for vehicle/bicycle conflict. The river must be crossed to get from Moab to Arches National Park, located about 3 miles north of Moab. Parking shortages exist at various trailheads and recreation attractions throughout the project area.

Solution: The North Moab Recreation Areas (NMRA) Alternative Transportation Project is an integrated transit and non-motorized pathway system connecting the town of Moab to Arches National Park, the Colorado Riverway Recreation Area and other BLM, State and NPS recreation sites. (Grand County, 2008)

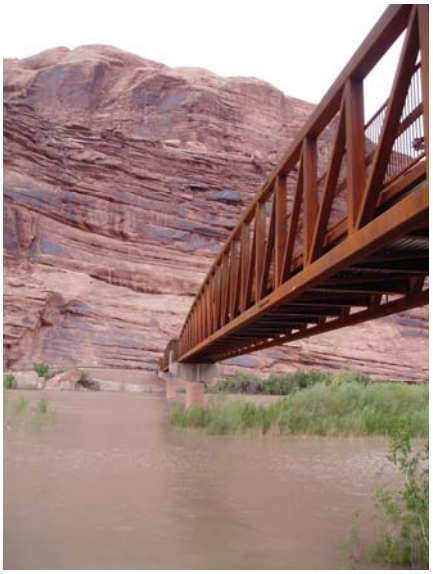


Figure 36: Colorado River Bicycle/Pedestrian Bridge.

This system includes two transit hubs to be served by private shuttle businesses, 42.5 miles of bike paths and lanes, and a bicycle/pedestrian bridge that crosses the Colorado River. The public uses the services of private shuttle companies as well as infrastructure to safely accommodate walking or bicycling. Main project components are described below.

1. The Bridge and Transit Hubs serve as the main gathering and dispersal points of the North Moab Recreation Areas. The Arches National Park transit hub is completed. The Lions Park transit hub is located at the north end of Moab where the Moab Canyon and Colorado Riverway bike paths intersect and the non-motorized bicycle/pedestrian bridge crosses the Colorado River. Just downstream is the site of the replacement vehicle bridge soon to be constructed by UDOT.

Since part of Lions Park will be used as a temporary construction staging area, the redesign and enhancement of the transit hub, funded by ATPPL FY 2007, will happen at a delayed, but parallel rate.

2. The Moab Canyon Trail (US 191) starts at the north end of Moab City's bike lane system and ultimately connects to existing bike lanes along State Scenic Byway SR 313. This route is the gateway to Canyonlands National Park, Dead Horse Point State Park and thousands of additional BLM acres. Points of interest along the way include Lions Park transit hub, the Colorado River and new bicycle/pedestrian bridge, Arches National Park with its visitor center and transit hub and a BLM managed mountain bike focus area.

3. The Colorado Riverway Trail (SR 128) begins at the Lions Park Transit Hub and follows the Colorado River upstream for 3.5 miles to the heavily used Porcupine Rim mountain bike trail. The bike path shares the narrow canyon with State Scenic Prehistoric Route 128, a busy, two-lane, shoulder-less highway situated between sheer cliffs and the Colorado River. Special construction measures are required due to topographical constraints. Phase one of the pathway is complete.

Benefits: The NMRA alternative transportation system will decrease traffic congestion, enhance visitor safety and experience, and reduce motorized trips in the Moab area. In addition, by providing public transit hubs that are used by private shuttle services, the operators bear the costs of their own operations and capital investments. The project enables and encourages the public to use bicycles, ride a shuttle, or walk to popular recreation sites. Visitors' experiences are enhanced by providing infrastructure that can be used by all visitors including the disabled and those without vehicles.

It is estimated that 500,000 people (20% of the visitors) per year will use the transit hubs and the non-motorized transportation infrastructure for part or all of their visit. The carrying capacity of the land is far greater when visitors use alternative transportation. Natural, cultural, historic and scenic resources benefit by reducing the footprint of motorized vehicles in the fragile desert ecosystem. This project is a model that should be emulated throughout our nation's public lands. (Grand County, 2008)

Lessons Learned: Grand County Trail Mix is a committee appointed by Grand County to develop and maintain non-motorized recreation trails. Trail Mix monthly meetings have proven a productive forum to discuss non-motorized trail issues, set priorities and schedule work. These meetings offer a setting where all stakeholders can come together in same room to work out issues on a regular basis. Trail Mix has met every month since it was established in 2000 and meetings are regularly attended by representatives from the BLM, USFS, NPS, Moab City, Grand County, Utah DOT, motorized and non-motorized trail groups. (Schappe, 2008). Grand County sanctions and annual sponsorship of $10,000 lend support and legitimacy to Trail Mix helping to hold this group together. Communications and community relationships have greatly improved through the Trail Mix meetings. Examples of Trail Mix accomplishments follow:

- Trail Mix created the Grand County Non-Motorized Trails Master Plan in 2005 (updated March 2008). This document's vision is: *"To develop a fully integrated network of environmentally sustainable trails for non-motorized use that will link the Moab Valley to other areas in Grand County. A trail system permits residents and visitors to travel safely throughout the county on foot, bicycle, or horseback while they commute to work or school or enjoy the many outdoor recreational opportunities the county has to offer."* This concise

plan is a great master plan example that can be found online at http://www.grandcountyutah.net/planning.htm (Accessed May 2008)

- Efficient Trail Maintenance -Maintenance needs of non-motorized trails may require equipment that is difficult to carry by biking or walking. Through Trail Mix discussions, motorized groups collaborate with non-motorized groups to transport equipment in for trail maintenance. This forum offers motorized and non-motorized groups ideas on how to work together.
- Resolving Trail Misuse - A local motorized group constructed an attractive gateway along a popular trail system where 4-wheelers tended to drive off the jeep road onto a single-track trail intended for non-motorized use only. The gateway clearly notifies motorized users where the trail turns into a non-motorized use trail. The issues of jeeps driving onto this particular section of trails was identified through the Trail Mix forum and resolved in a productive manner through communication of all stakeholders.
- Moab Trails Alliance was conceived in the Trail Mix group. It is a private 501 (c) 3 non-profit funded by local businesses and private donors. MTA has written numerous grant proposals on behalf of Trail Mix and Grand County and has raised money used to match grants for trail development.
- Enforcing Rules - Trail Mix stakeholders discussed the issue of illegal off-trail use common during the annual spring Jeep Safari event. This event often left long term scars on the landscape. The Trail Mix group communicated ideas on educating Jeep Safari participants and better enforcing existing rules. Results benefit everyone: the Jeep Safari event is now better managed and the fragile desert ecosystem is better preserved.

Partnerships: Grand County coordinated completion of design and engineering services. BLM completed the environmental documentation for the project. Grand County's recent ATPPL funding request included letters of support from the City of Moab, Utah DOT, BLM, Arches National Park and U.S. Senator Orrin G. Hatch.

Grand County Non-Motorized Trails Master Plan Partners include:

Government Agencies**:** BLM, Forest Service, Grand County Council, Grand County Travel Council, Moab City, National Park Service, Sovereign Lands, State Institutional Trust Lands, Utah Department of Transportation

Private Partners: Moab Trails Alliance (MTA), Moab Friends For Wheelin', Moab Trails Alliance, Red Rock Forests, Red Rock Four wheelers, Ride With Respect, Southeastern Utah Backcountry Horseman

Funding: The total project cost is $11.8 million. See Table 7 for funding sources and breakdown.

Table 11: North Moab Recreation Area Funding Sources.

NORTH MOAB RECREATION AREAS (NMRA) - GRAND COUNTY, UTAH

SEGMENT SUMMARY - FUNDING SOURCES

BRIDGE AND TRANSIT HUBS

COLORADO RIVER BIKE/PEDESTRIAN BRIDGE	
TRANSPORTATION ENHANCEMENT	$2,760,000.00
STATE PARKS AND RECREATION	$387,328.00
GRAND COUNTY IMPACT FEES	$92,000.00
GRAND COUNTY REC DISTRICT 2005	$40,000.00
TRAIL MIX	$10,000.00
BIKES BELONG	$7,000.00
HORROCKS (IN-KIND)	$75,000.00
HORROCKS CASH	$300,000.00
BLM (IN-KIND)	$20,000.00
UDOT REGION 4 CONTINGENCY	$30,000.00
PRIVATE DONATIONS	$109,672.00
TOTAL	$3,831,000.00
STATUS: COMPLETE MARCH 2008	
TRANSIT HUBS (LIONS PARK AND ARCHES NP)	
ATPPL 2007	$774,000.00
STATUS: ARCHES COMPLETE, LIONS PK CONSTRUCTION 2009	

COLORADO RIVERWAY TRAIL (SR 128)

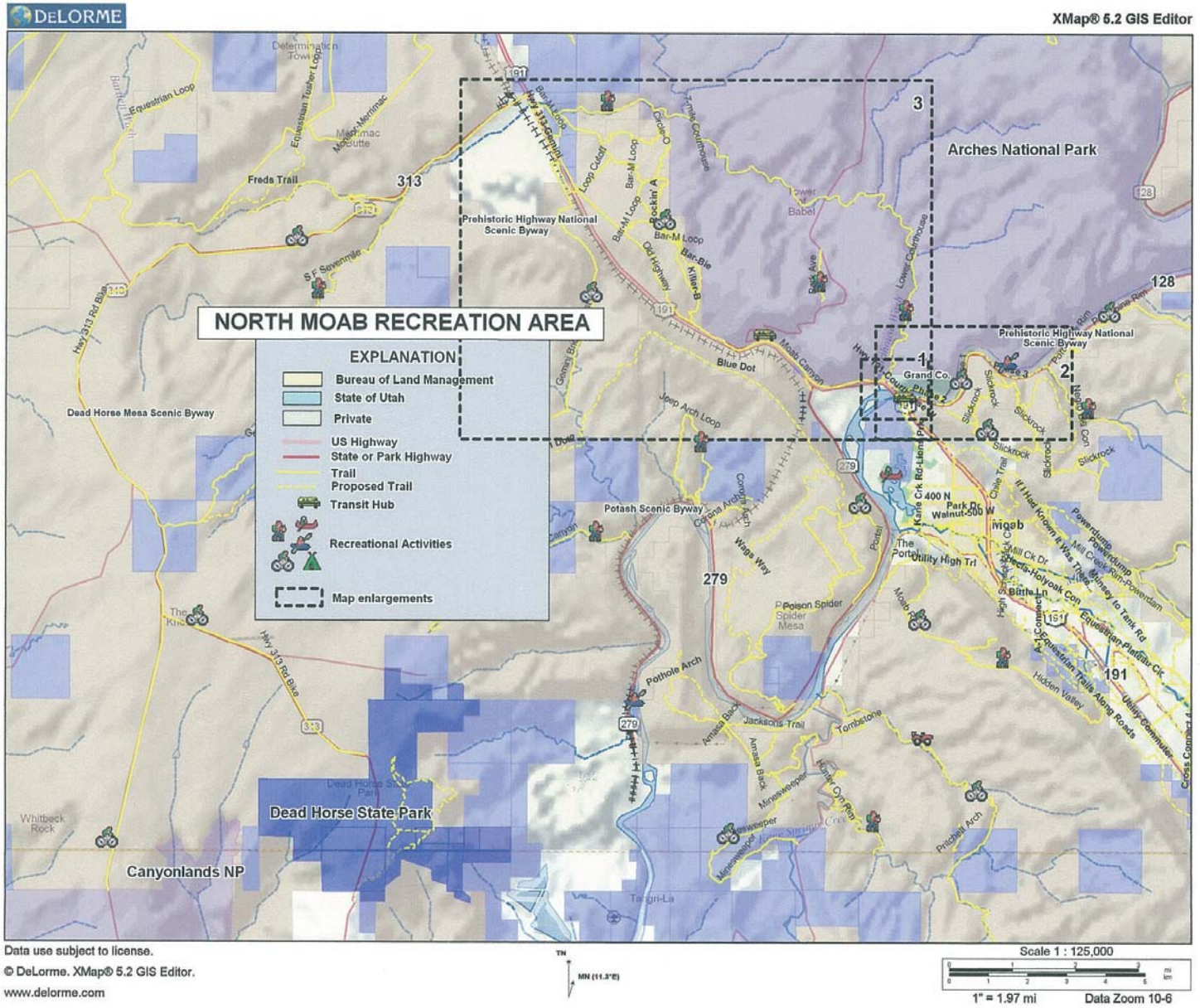
PHASE ONE	
TRANSPORTATION ENHANCEMENT	$616,000.00
STATE PARKS AND RECREATION	$7,000.00
GRAND COUNTY REC DISTRICT 2006	$50,000.00
GRAND COUNTY IMPACT FEES	$13,000.00
BIKES BELONG	$5,000.00
BLM (IN-KIND)	$45,000.00
PRIVATE DONATIONS	$34,000.00
TOTAL	$770,000.00
STATUS: COMPLETE MARCH 2008	
PHASE TWO	
TRANSPORTATION ENHANCEMENTS	$800,000.00
GRAND COUNTY REC DISTRICT 2007	$50,000.00
UDOT	$150,000.00
ADDITIONAL MATCH REQUIRED	$390,000.00
TOTAL	$1,390,000.00
STATUS: ATPPL 2008 APPLICATION	
PHASE THREE	
ALL FUNDS REQUIRED	$2,920,000.00
STATUS: ATPPL 2008 APPLICATION	

MOAB CANYON TRAIL (US 191)

COURTHOUSE WASH TO SR 313	
TRANSPORTATION ENHANCEMENT	$480,000.00
STATE PARKS AND RECREATION	$20,000.00
GRAND COUNTY	$50,000.00
MOAB CITY	$50,000.00
TOTAL	$600,000.00
STATUS: CONSTRUCTION SPRING 2009	
US 191 UNDERPASS AND TRAIL	
ALL FUNDING FROM UDOT	$350,000.00
STATUS: COMPLETED OCTOBER 2004	
LIONS PARK TO MOAB CITY	
TRANSPORTATION ENHANCEMENTS	$480,000.00
UDOT (IN-KIND)	$120,000.00
PRIVATE DONATIONS	$2,910.00
TOTAL	$602,910.00
STATUS: CONSTRUCTION SPRING 2010	
191 CAR BRIDGE AUXILLARY PATHS	
ALL FUNDING FROM UDOT	$500,000.00
STATUS: CONSTRUCTION 2010	

FUNDED	$4,605,000.00	$1,770,000.00	$2,052,910.00
UNFUNDED (ATPPL REQUEST)	0	$3,310,000.00	0

TOTAL FUNDED	$8,427,910.00
TOTAL UNFUNDED	$3,310,000.00
NMRA PROJECT TOTAL	$11,737,910.00


DeLORME
XMap® 5.2 GIS Editor
NORTH MOAB RECREATION AREA
EXPLANATION
Bureau of Land Management
State of Utah
Private
US Highway
State or Park Highway
Trail
Proposed Trail
Transit Hub
Recreational Activities
Map enlargements
Arches National Park
Prehistoric Highway National Scenic Byway
Dead Horse Mesa Scenic Byway
Potash Scenic Byway
Dead Horse State Park
Canyonlands NP
Moab
Data use subject to license.
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www.delorme.com
Scale 1 : 125,000
1" = 1.97 mi
Data Zoom 10-6

Lake Tahoe Partnerships— The Forest Service LTBMU has formed agreements, partnerships and memorandums of understanding with local agencies and groups to facilitate trail projects around Lake Tahoe. They place emphasis on collaboration and partnerships to clearly define roles, responsibilities and procedures. Partnerships benefit the USFS by leveraging funds and providing inexpensive or volunteer labor. A few of the organizations who contribute to a bike friendly Lake Tahoe are described below to demonstrate the diversity of partnerships that can help create integrated non-motorized networks.

Tahoe Regional Planning Agency and Tahoe Metropolitan Planning Organization – One of the primary goals of planning is to reduce dependency on the private automobile. One means of achieving this goal is to make the region more bicycle and pedestrian friendly. The Tahoe Regional Planning Agency and the Tahoe MPO completed the Lake Tahoe Regional Bicycle and Pedestrian Master Plan (Amended October 2006). This comprehensive federal plan includes bicycle and pedestrian projects, priorities, and funding sources. http://www.trpa.org/ Accessed March 2008. See http://www.trpa.org/documents/docdwnlds/BIKE_PLAN.pdf

Great Basin Institute- The Great Basin Institute partners with public land management agencies to complete restoration and monitoring initiatives throughout Nevada. They support the FS in Lake Tahoe in a variety of ways including writing NEPA documents and working with the Nevada Conservation Corp to provide inexpensive labor to implement restoration plans including trail building. http://www.thegreatbasininstitute.org/ Accessed July 2008.

Lake Tahoe Bicycle Coalition is a nonprofit organization founded in 2005 for the purpose of building a bicycle friendly Lake Tahoe. They produced the first Lake Tahoe Bike Trail Map in collaboration with the Tahoe Daily Tribune and many local sponsors. Forty thousand free maps were printed and distributed throughout the Tahoe region. This map is also available online at http://www.tahoebike.org/ from http://www.bluelaketahoe.com/ - *Bicycle Film Festival to Help Build Bike Community, August 16, 2007.* Accessed March 2008.

Tahoe Rim Trail Association is a non-profit volunteer organization established in 1981 to plan, construct, and maintain the Tahoe Rim Trail. This 165-mile single-track trail is open to hiking, equestrians, and mountain biking (in most areas). The trail encompasses the ridge tops of the Lake Tahoe Basin, crossing six counties, and two states. (http://www.tahoerimtrail.org Accessed March 2008). This organization helps the FS by providing grants for projects such as trail construction and providing volunteer labor to construct and maintain trails. The Tahoe Rim Association typically provides the FS with 8,000 to 10,000 volunteer hours per year.

California Department of Transportation(CalTrans) In 2003, CalTrans completed the "SR-89 Cascade to Rubicon Bikeway Study" to improve bicycling safety the on the west side of the lake on Hwy 89 around Emerald Bay. The study identified alternatives ranging from a Class III facility to a bike ferry on the lake to enable cyclists to bypass this segment of hazardous roadway. This is an important segment because it would provide a link between the west shore trail network and the south shore trail network.

California Tahoe Conservancy -was established in 1984 to develop programs to improve water quality, preserve scenic beauty and recreation, provide public access, preserve wildlife habitat, and protect the environment. Since 1985, the Conservancy has authorized expenditure of $22.9 million for 35 public access and recreation projects in the Tahoe Basin. Trailheads have been constructed or improved at several locations and the program is resulting in the construction or enhancement of some 29 miles of hiking, biking and cross-country ski trails through funding of

the acquisition of rights-of-way, construction, or both. http://www.tahoecons.ca.gov/ Accessed July 2008.

Two examples of bicycling projects passing through Lake Tahoe USFS lands follow.

Power Line Road and Trail - connects the highway to the S. Shore road, linking many recreation opportunities. It consists of 7 miles of forested, native surface trail and road that has been reconstructed over the last 8 years including construction of a trail bridge and two road bridges. LTBMU USFS, Nevada Conservation Corps, and International Mountain Bike Association worked together to complete this project. The LTBMU USFS worked with the public and representative stakeholders to address concerns. Extensive resource surveys and analysis were conducted to develop trail systems that are sustainable and adaptable.

Cost – $425,000 – two road bridges, 1 trail bridge, trail and road upgrades, and associated planning and analysis.

Funding – Restoration Act Funding.

Tracking- Counters on connecting trails indicate use varies from 100 to 450 users per day.

South Tahoe Greenway Multi-Use Trail – This 9.4 mile proposed separated trail will link Meyers, CA to Stateline, NV, generally following the former Caltrans U.S. Highway 50 Bypass Corridor. The trail will form the backbone of the bike trail network in South Lake Tahoe and link residential and lodging uses to jobs, schools, shopping, and recreation and community areas. The trail implements specific goals and policies of the Tahoe Regional Planning Agency, the LTBMU, and the California Tahoe Conservancy to provide a non-motorized transportation corridor. This project is currently in the public scoping phase of environmental analysis. http://budget.state.nv.us/clearinghouse/Notice/2007/E2007-141.pdf Accessed March 2008.)

Lake Tahoe Summary: Many bike trail projects are planned to complete links in the Lake Tahoe system; guided by the Lake Tahoe Regional Bicycle and Pedestrian Master Plan. Forest Service planners and many partners are working together to make bicycle friendly connections in Lake Tahoe. These connections can help create a viable alternative to the automobile, thus helping to preserve Lake Tahoe for future generations. http://www.trpa.org/ Accessed March 2008.

References –Tahoe Metropolitan Planning Organization, October 2006. Lake Tahoe Regional Bicycle and Pedestrian Master Plan. Final Report.

APPENDIX C – FWS BICYCLING COMPATIBILITY DETERMINATIONS

Arapahoe NWR, Walden, Colorado—This Refuge supports diverse wildlife habitats, including sagebrush-grassland uplands, grassland meadows, willow riparian areas, and wetlands. The complex contains about 23,000 acres in Colorado and 21,000 acres in Wyoming.

Compatibility Determination –for a proposed 3-mile, 8-feet wide gravel trail for non-motorized vehicles, walking and horses. The trail was proposed in 2004 in the Arapaho Complex CCP, based on local input. The trail starts at a park in Walden and follows scenic byway (Colorado highway 14) to the Refuge. A number of stipulations are necessary to ensure compatibility including: signage for compliance of nonmotorized use and refuge regulations; monitoring to assess the impact of the use on wildlife and the environment and fencing between the trail and refuge to limit disturbance. A local manager indicates bicycling is not common, visitor use is low as is interest in biking is low, with the exception of this proposed trail. Lack of funding/ staff are major concerns regarding development of new public use projects. The trail has not been built nor has funding been secured (Dec 2007). It is anticipated Colorado Scenic Byways, Jackson County and the town of Walden will be involved in the future to promote this trail. A private group, Rivers and Ranges, is leading the efforts to plan and construct this multi-use trail.

Choctaw NWR, Jackson, Alabama—Approximately one-half of the 4,218 Acre refuge is creeks, sloughs, lakes, and backwaters of the Tombigbee River. The other half is typical bottomland hardwoods. Wildlife includes: herons, raptors, otters, beavers, deer, turkeys, raccoons, squirrels, wood ducks, wintering waterfowl, and endangered/threatened species (American alligators, bald eagles and wood storks).

Compatibility Determination -opened up established roads and trails used for administrative and management activities to pedestrians and bicycles. The general public will use existing trails and roads to hike and bike. Due to the motorized vehicles restrictions, these uses have become the major means of locomotion for individuals engaged in the six priority public uses. Hunters may use bicycles along the roads in the Middle Swamp area of the refuge as motorized vehicles are restricted.

Dahomey National Wildlife Refuge, southwest of Cleveland, Mississippi—is an area of approximately 9,600 acres. The refuge is the largest remaining tract of bottomland-hardwood-forested wetlands in the northwest portion of Mississippi. Late winter concentrations of migratory waterfowl reach 15,000. Populations of white-tailed deer and eastern wild turkey attract hunters. Large numbers of neo-tropical migratory songbirds are especially attracted to the forested woodlands in summer months. http://www.fws.gov/dahomey Accessed July 2008.

Compatibility Determination: -to facilitate travel on designated roads and trails for the priority public uses. To promote safety with other users, prevent conflicts, and promote a quality wildlife observation environment, group size is limited to 10 bicyclists. Groups of more than 10 require a special use permit. Anglers and hunters can access refuge lands by bicycle on designated roads and trails to access fish and game. Bicycle travel on the refuge provides increased opportunity for public participation in priority public uses and can be less physically demanding than pedestrian travel.

Hatchie NWR and Lake Isom and Reelfoot NWR in Western Tennessee—About 90 percent of the Refuge lies within the floodplain of the Hatchie River. The Hatchie is the last

unchannelized river of its type in the Lower Mississippi River Valley and still functions under near normal wetland cycles. About 9,400 acres of bottomland hardwoods are located on the refuge and are flooded by headwater flows of the Hatchie.

Compatibility Determination **-**Bicycling is a minor use of the refuge and is often associated with a priority use such as hunting. Bicycles are permitted only on open designated motorized vehicle routes and trails. Most of the recreational activities on the refuge center on wildlife viewing from roads and the observation tower. Bicycling is a popular activity in the surrounding area, and the refuge is one component in a complex of public lands in west Tennessee. A primary refuge objective is to provide the public with wildlife- oriented recreational opportunities. Bicycling, which adheres to established regulations, is compatible with that purpose.

Vieques NWR Puerto Rico—Refuge lands are located on the eastern and western ends of the island and are administered under Caribbean Island NWR complex. The refuge contains several ecologically distinct habitats including beaches, coastal lagoons, mangrove wetlands and upland forested areas. Some of the best examples of sub-tropical dry forest in the Caribbean can be found on refuge lands. The marine environment surrounding the refuge contains coral reefs and sea grass beds. In addition to its ecological value, the refuge contains important resources of archeological and historic significance and legacies of the Taino culture and sugar cane era.

Compatibility Determination: Bicycling, horseback riding, hiking, jogging, and moped/motorcycle riding will allow the general public access onto the refuge for wildlife observation, wildlife photography, and recreation. These activities will be allowed on specified and designated roads, footpaths, and trails. Some designated travel routes will be accessible for all of these modes of transportation, while others will be posted as specific to a certain activity (e.g., a hiking trail). Access through or entry on all or portions of individual areas may be temporarily suspended, by posting, upon occasions of unusual or critical conditions affecting land, water, vegetation, wildlife and plant populations, or public safety. Access for the general public onto the beaches and other potentially sensitive environmental areas is only allowed by foot travel. Access to the refuge through designated travel routes provides the general public the opportunity to enjoy scenic views, diverse wildlife, and an array of plants and various habitats. This, in turn, allows for wildlife observation, wildlife photography, and environmental education and interpretation opportunities not usually available on adjacent municipal and private lands.

Wichita Mountains Wildlife Refuge- Oklahoma—This 59,020 acre Refuge hosts a rare piece of the past - a remnant mixed grass prairie, an island where the natural grasslands escaped destruction because the rocks underfoot defeated the plow. The Refuge provides habitat for large native grazing animals such as American bison, Rocky Mountain elk, and white-tailed deer. Texas longhorn cattle also share the Refuge rangelands as a cultural and historical legacy species. More than 50 mammal, 240 bird, 64 reptile and amphibian, 36 fish, and 806 plant species thrive on this important refuge.
http://www.fws.gov/southwest/refuges/oklahoma/wichitamountains

Compatibility Determination -is for limited mountain bicycling. Bicycling was already permitted on all public us roads on the refuge prior to this determination. Bicyclists are limited to a maximum of 15 per day on existing roads during daylight hours and are required to get a permit to allow land managers to provide education. This determination mentions The Secretary of the Interior's 1991 Outdoor Recreation Initiative which encourages bicycling on refuge lands while still providing adequate protection of refuge resources.

APPENDIX D – ANNOTATED BIBLIOGRAPHY

An immense amount of information on bicycling is available and much of it can be accessed online. A brief description of many of these resources is given below organized by subject matter. For more detailed information on topics of interest, see the annotated bibliographies section immediately following these descriptions.

Bicycling Benefits—This section presents samples of the many resources on why biking is good for health, the environment, and the economy.

Alternative Transportation on Public Lands—Alternative transportation options on public lands have been the focus of several studies. A two part Federal study, authorized by Congress as part of Section 3039 in transportation legislation TEA-21, was completed in 2001 and 2004. This landmark study documents the need for alternatives to the private automobile on public lands including lands managed by the NPS, USFS, FWS and the BLM. Other efforts include a paper presented at the 2004 Transportation Research Board annual conference that explores the possibility and merit of "small" technologies such as bicycles, 4-wheel-cycles and other options that are well suited to give visitors a positive experience and an alternative to the automobile. The other study described in this section looks at visitors experience and perspectives on alternative transportation in Yosemite National Park. This study found that visitors were more likely to be walking or riding bicycles when their most significant or memorable experience of the park occurred.

Federal Transportation Planning Resources and Toolkit—It is difficult to accommodate bicycles without an understanding of the transportation planning process. There is a lot to know about coordinating with state and metropolitan planning agencies and qualifying for funding. A comprehensive manual of policies and guidance for project development and design related activities was developed by the FHWA Central Federal Lands Highway Division (CFLHD). Two transportation guidebooks have been developed specifically for federal land managers as well as a web based resource: to "A Transportation Toolkit for Federal Land Managers, April 2006 at http://www.cflhd.gov/ttoolkit/flt/default.htm (Accessed March 2008)

Bicycling Planning and Design References

- ***Standard References*** — AASHTO's Guide for Development of Bike Facilities and FHWA's Manual on Uniform Traffic Control Devices (MUTCD) are often referenced by planners and engineers to guide them through U.S. bicycle planning and design.
- ***State, Local and International Planning/Design Resources—***These documents are from cities or States that have well developed bicycle programs such as Portland, Oregon. Local references often provide a greater level of detail than the standard AASHTO and FHWA references mentioned above.

- ***Shared-Use Paths/Greenways*—**These references include recent research that recommends design parameters for shared use paths and guidance to help planners choose path widths to ensure a high quality of service. A rails-with-trails lessons learned is listed here and a Teton County, WY guidebook provides details on how to plan and design shared use pathways.
- ***Trails/Mountain Biking*—**These references include a guide developed specifically to manage mountain biking on BLM lands, two recent IMBA guides on managing mountain biking and designing sustainable trails, and a handbook to help managers plan trails with wildlife in mind.
- ***Comprehensive Bicycle Planning and Bicycle specific Toolkits***—BIKESAFE is an interactive online tool to help select engineering, education, or enforcement treatments. This site has many ideas about how to improve bicyclist safety along with dozens of case studies, photos and lessons learned. http://www.bicyclinginfo.org/bikesafe/index.cfm (Accessed July 2008). A 38 page "Bicycle and Pedestrian Toolbox" has also been developed on bicycle planning and design. "From the Margins to the Mainstream. A Guide to Transportation Opportunities in Your Community" reviews how federal surface transportation law can support increased travel options, including bicycling and pedestrian modes.
- ***Other Planning and Design Resources*—** Learn about traffic calming, road diets and road-trail intersections, concepts that can make roads more bicycle friendly. Traffic calming typically consists of physical measures intended to slow down or "calm" traffic such as speed bumps, chicanes, offset intersections, constrictions and surface textures and colors. The Institute of Transportation Engineers (ITE) has a traffic calming web page and discussion group at http://www.ite.org/traffic/index.html (Accessed March 2008). Road diets reduce the number of lanes, allowing space for other uses such as bicycle lanes, landscaping, parking, or wider sidewalks. The final reference listed here examines present practice for road-trail intersection safety.

Bicycle Trends, Tracking, and Classification Technologies—It is difficult to manage what you can't measure. This section includes a Bureau of Transportation statistics document summarizing bicycling data sources, gaps and needs. Another useful reference, *the National Bicycle and Pedestrian Documentation Project*, develops a consistent method of bicycling data collection. Other studies listed here present case studies and research on various bicycle counting devices such as pneumatic tube counters, passive and active infrared, video cameras and others.

Bicycling Promotion and Safety—There is much to learn from the 46 bicycling friendly cities case studies presented in a publication prepared by the League of American Bicyclists. A presentation and a paper from Professor John Pucher of the Bloustein School of Planning and Public Policy at Rutgers University are filled with photos, charts and statistics demonstrating bicycling as a mainstream mode of transportation all around the world. A study published in the Injury Prevention Journal in 2003 suggests increased numbers of bicyclists and pedestrians makes these modes of transport safer. This section also includes a report highlighting best

practices for improving conditions for biking and walking. Finally, a Teton County, Wyoming handbook includes sections on why pathways are important and can help sell homes; just one more method to promote biking.

Bicycle-Transit Integration—A synthesis on integrating bicycles with transit highlights this important link to a well connected alternative transportation system.

Costs- Bicycling Facility Construction and Maintenance—This section has a few resources to help estimate bicycle facility costs. These include an online tool to get ballpark costs, a few project specific costs from Wisconsin, typical trail costs from IMBA projects, and typical unit costs per mile for facilities in California and Nevada.

National Bicycling and Walking Study Reports—Between 1991 and 1994, one million dollars were appropriated to complete the National Bicycling and Walking Study, a series of 24 case studies investigating bicycling and walking issues. These reports gathered bicycling and walking information from around the world and provided a snapshot of the state of bicycling and walking in the U.S. in the early 1990s. The titles of these studies are listed here.

BICYCLING BENEFITS

Benefits of Trails and Greenways. www.americantrails.org/resources/benefits/index.html Accessed online Sept. 2007. This website organizes benefits into concepts, community, physical health and spirituality.

Bikes Belong Coalition. Bicycling/ Moving America Forward Booklet. Printed 5/2006.

Colorful 13 page booklet highlighting the appeal of bicycling and benefits such as economic, health, lifestyle and safety. Contains attractive photos of all types of bicyclists and interesting statistics. Promotional book to encourage bicycling. Available from bikesbelong.org. P.O. Box 2359 Boulder, CO 80306. 303-449-4893.

Cycling Promotion Fund and Bicycle Federation of Australia. Health Benefits of Cycling- Cycling Fact Sheet- www.cyclingpromotion.com accessed July 2007.

Highlights benefits of cycling, citing statistics from the U.S., Australia and Europe. Concise summary based on 30 references to various health, physical activity, safety and environmental journals and publications.

FHWA-PD-93-015. National Bicycling and walking Study Case Study No. 15. The Environmental Benefits of Bicycling and Walking.

Focuses on the amount of fuel consumption and automotive pollution that could be avoided by displacing the use of passenger vehicles. Estimates petroleum, carbon dioxide (CO_2), carbon

monoxide (CO), mono-nitrogen oxides (NO_x) and volatile organic compounds (VOC) emissions that could be displaced under different scenarios.

Oregon Trails 2005-2014: A Statewide Action Plan. Benefits of Non-motorized trails- pages 24-33. Available online at http://egov.oregon.gov/OPRD/PLANS/docs/trails/NonMotorized.pdf. Accessed Sept. 2007

Rails to Trails http://www.railtrails.org/whatwedo/trailadvocacy/2010Campaign.html

From the Making the Case box, click on Mobility, Economic Development, Climate, Family and Community and Health to find many benefits associated with trails, pathways and bicycle facilities.

Transportation Research news January-February 2006. Bikeways to Prosperity. Assessing the Economic Impact of Bicycle Facilities. Institute for Transportation Research and Education, North Carolina State University.

This case study of bicycle tourism in the Outer Banks of North Carolina demonstrates a method to gauge the economic benefits of bicycle facilities. This study found that visitors who bicycle in the northern Outer Banks have a significant economic impact on the area. The study suggests that public investment in a network of bicycle facilities in coastal and resort areas could return similar benefits, whether the area attracts tourist for bicycling or other reasons.

ALTERNATIVE TRANSPORTATION ON PUBLIC LANDS

Cambridge Systematics, Inc. August 2001. Federal Lands Alternative Transportation Systems Study – Congressional Report.

Section 3039 of the Transportation Equity Act for the 21st Century (TEA-21) required a comprehensive study of alternative transportation needs in national parks and Federal lands. The study identified existing transit services that need to be expanded or modified, as well as new transit services. Transit vehicles identified in this study include trams, standard transit buses, small buses, historic trolleys, trolley cars, waterborne vessels, and aerial tramways. This document does not consider bicycling as an alternative transportation mode. Results identified transit needs on NPS, BLM, and FWS lands. Two hundred and seven (207) sites were evaluated in the study; 85 with extensive field visits and 122 with telephone calls or brief visits. This study defined alternative transportation system as transit (not including bicycles). The later 2004 study acknowledged non-motorized corridors including bicycle facilities as an alternative transportation mode.

Cambridge Systematics, Inc. January 2004. Federal Lands Alternative Transportation Systems Study- Summary of Forest Service Needs. Final Report Volume III.

This study is an addition to the 2001 study, documenting alternative transportation system (ATS) needs on 30 sites managed by the Forest Service. Unlike the original 2001 study, this study

considers bicycle and pedestrian facilities to be alternative transportation. This study was initiated due to concerns of high use that compromise visitor experience and degrade natural, cultural and historic resources. The study identifies opportunities to preserve sensitive natural, cultural and historic resources; reduce pollution; relieve traffic congestions and parking shortages; enhance visitor mobility and accessibility; provide improved interpretation, education, and visitor information services; and improve economic development opportunities for surrounding communities. This report recognizes that impacts to many public lands are due less to the number of people visiting than the number of automobiles. Includes a good description of Section 3039 of the Transportation Equity Act for the 21st Century (TEA-21)

Gimmler, Franz, 2004. Transportation Research Board Annual Meeting. The Personal Transportation Alternative for America's Parks and Public Lands.

This paper examines urban and rural park settings and conventional mass transportation (buses, trains) and emerging "small" technologies such as bicycles, 4-wheel cycles, motor-scooters, small electric cars and others. It notes that conventional transportation available to parks and public lands as alternatives to the automobile are optimized for an urban environment. Parks and public lands create different transportation needs for visitors than urban areas. This paper proposes smaller, slower, more efficient forms of transportation are more appropriate for park settings as an alternative to the automobile.

White, Dave D. An interpretive Study of Yosemite National Park Visitors' perspectives Toward Alternative Transportation in Yosemite Valley. School of Community Resource and Development, Arizona State University, Tempe, AZ 85287-4703, USA. Published November 14, 2006.

This research, focusing on visitors perspectives towards alternative transportation, qualitatively analyzed the results of 160 interviews with visitors in Yosemite National Park. Individual psychological factors discussed include perceived freedom, environmental values and beliefs, prior experience with Yosemite and other national parks, prior experience with alternative transportation and sensitivity to crowding. Situational influences discussed include convenience, access, flexibility of travel modes, type of visit, type of group and park use level. The results suggest communications designed to influence visitors' travel mode choices should target both psychological and situational factors. To promote bicycling, NPS interpretation should highlight not only the social and environmental benefits, but also the opportunity for more intimate, meaningful and satisfying experiences in the park. Interpretive communications should highlight the long history of alternative transportation in national parks, which included stagecoach tours, railroad routes and touring auto coaches. Interpretation should include nostalgic images, quotes from early visitors, nostalgic artifacts and alternative transportation with historic design features such as classic red busses called "Jammers" at Glacier National Park or old cruiser style bicycles.

FEDERAL TRANSPORTATION PLANNING RESOURCES AND TOOLKIT

FHWA Federal Lands Highways Project Development and Design Manual (PDDM), March 2008. http://www.wfl.fhwa.dot.gov/design/manual/ Accessed April 2008.

This comprehensive manual provides policies and guidance for project development and design related activities. Several sections contain planning and design guidance for bicycle facilities; and refer to other standard bicycle references such as the AASHTO Guide for Development of Bicycle Facilities and the MUTCD for more details. The bicycle related sections include: Section 4.7 Alternatives Development and Evaluation, 9.3.1.5.4 Future Traffic Projections Forecasts, 9.3.1.10 User Characteristics, 9.3.8.2 Shoulder Width and Type, 9.3.11.3 Curb Offsets, 9.3.14.11 Pedestrian, Bicyclist and Transit Considerations at Intersections, and 9.3.17 Bicycle Considerations and Facilities. Section 9.3.17 contains the USDOT policy statement that bicycle facilities will be incorporated into all projects, unless exceptional circumstances exist.

USDA Forest Service, October 2007. Federal Surface Transportation Programs and Transportation Planning for Federal Land Management Agencies- A Guidebook. http://www.fs.fed.us/eng/pubs/pdf/07771814.pdf Accessed November 2007.

This guide was designed to help federal land managers understand and participate in FHWA and FTA surface transportation programs. It describes how agencies must participate in the State's and/or region's transportation planning process. The guide further provides a resource for funding eligibility, where to find funding, how federal land managers can access and benefit from funds, and how to integrate federal land management objectives with State and local objectives. This is an updated version of the Forest Service's December 2001 document (described below) for SAFETEA-LU.

USDA Forest Service, December 2001. Innovative Approaches to Transportation- A Guidebook. http://www.fs.fed.us/eng/pubs/pdf/01771806.pdf. Accessed Sept. 2007.

This older version was updated in October 2007. Describes Forest Service transportation planning process and how it fits into statewide and metropolitan planning. Describes funding through FHWA and FTA programs and some potential non-traditional funding sources that may be applicable to bicycle facilities. Provides understanding of statewide planning, federal and non-traditional funding sources and examples of funding sources and partnerships.

National Park Service, Sept. 1999. The National Park Service Transportation Planning Guidebook. http://www.nps.gov/transportation/tmp/planning.htm Accessed March 2008.

Describes policy, funding and who to involve in the transportation planning for the national park setting. Pages 65-67 discuss bicycle and pedestrian issues for improving circulation in parks. Recommends amenities to increase convenience and encourage bicycling: increase transit compatibility, provide bicycle storage and bicycle rentals. Describes visitor transportation systems at various parks and contains partnerships and fundraising examples.

Transportation Toolkit for Federal Land Managers, April 2006. http://www.cflhd.gov/ttoolkit/flt/default.htm Accessed Sept. 2007.

This online Transportation Toolkit will assist Federal lands managers in identifying transportation challenges and solutions. The Toolkit is targeted to managers with limited previous exposure to transportation issues, processes and solutions. Potential solutions are described in a series of fact sheets that include a definition of each solution, reference areas where the solution has been implemented, implementation requirements, advantages and disadvantages, and order of magnitude costs. The toolkit also provides definitions, an overview of the planning process for transportation projects, and links to other references/resources. Please review the PowerPoint presentation located under the "Planning Process" tab called "Federal Highway Administration Planning and Project Development: Putting it All Together or at http://www.cflhd.gov/ttoolkit/flt/FLH%20Planning.pdf". It describes how Federal lands management agencies need to coordinate with Metropolitan planning organizations and state planning organizations. It also explains how policy, priorities, funding and other decisions are influenced by planning.

BICYCLING PLANNING AND DESIGN REFERENCES

Standard References

American Association of State Highway & Transportation Officials (AASHTO) Guide for Development of Bike Facilities. 3rd Edition 1999. http://www.communitymobility.org/pdf/aashto.pdf Accessed Sept. 2007.

This standard guide has three chapters: 1) Planning, 2) Design and 3) Operation and Maintenance. The planning chapter defines bicycling terms (bikeway, bike route, shared use path etc); planning considerations such as types of bicyclists (children, basic, advanced) and facility type (shared roadway, bike lane, shared use path etc). The design chapter provides discussions of design features as well as diagrams, cross sections and photos and constitutes most of the report. Design features that can improve bicycle travel include bicycle-safe drainage grates and bridge expansion joints, improved railroad crossings, smooth pavements, adequate sight distances and signal timing and detectors that respond to bicycles as well as shoulder improvements and wide curb lanes. The operations and maintenance chapter is one page that recommends routine maintenance of bike facilities. This document is currently being revised to reflect the many advances in bicycle facility planning and design since 1999. Revisions are planned for completion in March 2009. For more information on revisions, see http://www.trb.org/trbnet/projectdisplay.asp?projectid=417 (Accessed July 2008).

Federal Highway Administration- MUTCD- 2003 Edition. Manual on Uniform Traffic Control Devices. http://mutcd.fhwa.dot.gov/pdfs/2003r1/pdf-index.htm Accessed Sept. 2007.

Published by the FHWA under 23 CFR, Part 655, Subpart F. MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices on all streets and highways. Part 9 contains traffic control for bicycle facilities. The MUTCD is undergoing revisions in 2008. For proposed changes to the MUTCD, see: http://mutcd.fhwa.dot.gov/resources/proposed_amend/index.htm.

State, Local and International Planning and Design References

Federal Highway Administration-PD-93-006 Case Study No. 24. August 1992. National Bicycling and Walking Study- Planning Guidelines/ Design Standards Used by State/ Local Agencies for Bicycle/ Pedestrian Facilities.

This study defined current (from 1992) guidelines and design standards used by states and localities to develop bicycle and pedestrian facilities. This case study presents a compilation of the best practices in use across the country on bicycle and pedestrian planning and design. The document contains specific design examples and recommended the following list of best practice documents. Also of note, page 85 contains a certification questionnaire for bike planning/design guidelines-required for all state-funded transportation projects in New Jersey.

State of Colorado Bikeways Standards and Design Guidelines. Best new compilation of material from existing plans and guidelines.

State of North Carolina Bicycle Facilities Planning and Design Guidelines – Best document for including detailed technical information on a variety of specific bike design issues.

State of Florida Bicycle Facilities Planning and Design Manual and State of Florida Development Manual For Comprehensive Regional Bicycle Plans – Best documents focusing on planning for bicycle facilities

State of Oregon Bicycle Master Plan, State of Florida Bicycle Facilities Design Training Course – Best publications for people unfamiliar with bicycle facility design and technical subject matter.

City and County of Denver Construction Detour Standards for Bikeways and Multi-Use Trails – Best standards for bicycle construction detours.

State of Arizona Bicycle Facilities Planning and Design Guidelines – Best Standards for developing bicycle signage.

State of New Jersey Bicycle Compatible Roadways- Planning and Design Guidelines, State of Florida Bicycle Facilities Design Training Course, State of Minnesota Bikeway Design Manual – Best use of graphics in publications to illustrate various bicycle needs and design guidelines.

State of New Jersey Bicycle Compatible Roadways- Planning and Design Guidelines – Best Manual for On Road Facilities.

Guidelines for Creating Greenways, Charles Fink and Robert M. Seams, 1993. and Design and Management Manual of Multi-Use Trails - Best references for multi-use trails and off-road paths.

City of Seattle, Washington, State of Wisconsin Facilities Development Manual, State of California Highway Design Manual – Best integration of bicycle facilities into transportation planning.

State of North Carolina Bicycle Facilities Planning and Design Guideline and State of Ohio Policy and procedure on Bicycle Projects. Best operational procedures for bicycle facility planning and development.

City of Eugene, Oregon: Transplan Policies Related to Alternative Transportation Modes. Best incentives for bicycle facility development.

Alta Planning and Design July 2005. Pedestrian and Bicycle Facilities in California. A Technical Reference and Technology Transfer Synthesis for Caltrans Planners and Engineers.

This planning and design resource contains standard and innovative practices for pedestrian facilities, traffic calming and bicycle facilities. Includes useful diagrams and photos.

Canadian Institute for Planners. 3/31/90 Updated June 2004. Go for Green Community Cycling Manual. A Planning and Design Guide
http://www.goforgreen.ca/at/eng/resources/cycling_manual.aro Accessed Sept. 2007.

This is a comprehensive planning guide for community bicycling facilities, emphasizing the integration of planning, engineering, education and enforcement. Major sections include Strategic Planning, Facilities Design and Maintenance as well as a bibliography and glossary.

Shared-Use Path and Greenway References

Federal Highway Administration HRT-04-103. 2004. Characteristics of Emerging Road and Trail Users and Their Safety. http://www.tfhrc.gov/safety/pubs/04103/index.htm Accessed Sept. 2007.

This study is on multi-use trail use by adult tricycles, assistive power scooters, bike trailers, electric bicycles, hand cycles, in-line skates, wheelchairs and others. It suggests different design parameters than AASHTO Guide for Development of Bicycle Facilities should be considered to better accommodate multiple users safely.

Federal Highway Administration-HRT-05-138. July 2006. Evaluation of Safety, Design, and Operation of Shared-Use Paths: User Guide.
http://www.tfhrc.gov/safety/pedbike/pubs/05138/index.htm Accessed Sept. 2007.

This document describes how to analyze the quality of service provided by shared-use paths of various widths. Given an estimate of the overall path user volume, this method can provide the level of service (LOS) for path widths ranging from 2.4 to 6.1 meters (8.0 to 20.0 feet). The document describes input data, step-by-step instructions, and example applications.

Alta Transportation Consulting U.S. Department of Transportation. August 2002. Rails-with-Trails: Lessons Learned, Literature Review, Current Practices, Conclusions
This report examines safety, design, and liability issues associated with the development of shared use paths and other trails within or adjacent to active railroad and transit rights-of-way.

Explores lessons learned from the experience of rails-with-trails and suggests practices to enhance safety and security for railroads, transit, and trail users.

Teton Valley Trails and Pathways 2007. Pathways Handbook: How they are important, How they help sell homes, How to build them. www.tvtap.org. Accessed Dec. 2007.

This handbook is a resource containing the many benefits of pathways and examples of trails and pathway success stories. It describes how to plan bike paths, shared-use paths, bike lanes, ski trails and unpaved footpaths as well as specifications for bike lanes, shared-use paths and bike route systems.

Trail and Mountain Biking References

U.S. Department of Interior, Bureau of Land Management, November 2002. National Mountain Bicycling Strategic Action Plan. http://www.blm.gov/mountain_biking/ Accessed Sept. 2007.

This is a general guidance document for BLM field offices and others on ways to address mountain biking and other non-motorized issues. It provides approaches to protect soil, water, wildlife habitat, and other natural resources while providing for high-quality recreational opportunities. It contains sections on public participation, management goals, coordination, education/interpretation/enforcement, planning and environmental considerations, funding, emerging issues and regulations.

International Mountain Biking Association (IMBA) 2007. *Managing Mountain Biking: IMBA's Guide to Providing Great Riding*.

This 256 page book complements IMBA's earlier publication, *Trail Solutions*. Management strategies focus on mountain biking, but may be beneficial to all trail users and managers. Topics covered include what mountain bikers want, planning and designing trails, partnerships, managing volunteers, environmental impacts, user conflicts, safety and risk management, mountain bike patrols and trail signs. This guide is full of colorful photos, examples and success stories and takes a comprehensive look at trails management.

International Mountain Bike Association (IMBA) 2004. *Trail Solutions. Guide to Building Sweet Singletrack.*

This 272 page book is focused on designing, constructing and maintaining sustainable trails. While this reference is focused on mountain biking, it is a good reference covering all trail users. This book demonstrates new techniques and proven fundamentals with many photos and examples. This book is a how-to guide to build and maintain primarily single-track contour trails with switchbacks, retaining walls, water control and other design features.

Trails and Wildlife Task Force, Colorado State Parks, Hellmund Associates. Sept. 1998. Planning Trails with Wildlife in Mind. A handbook for Trail Planners.

http://parks.state.co.us/Trails/Publications/ Accessed Sept. 2007.

This handbook for trail planners focuses on protecting habitat. It discusses how trails affect wildlife and includes sections on the zone of influence, natural features, human-wildlife interactions, management decisions. It includes a wildlife and trails checklist and several case studies along with various sources of information.

COMPREHENSIVE BICYCLE PLANNING AND BICYCLE SPECIFIC TOOLKITS

Federal Highway Administration, January 2006. BIKESAFE Bicycle Countermeasure Selection System. http://www.bicyclinginfo.org/bikesafe/index.cfm Accessed Sept. 2007.

This website focuses on how to improve safety and mobility of bicyclists. BIKESAFE was designed to enable practitioners to select engineering, education, or enforcement treatments to help mitigate a known crash problem and/or to help achieve a specific performance objective. The tool leads you through a series of questions specific to your site, then recommends specific measures. Each measure includes a description of its purpose, considerations, estimated costs and several case study examples. Case studies provide valuable insight from bicycle projects around the country. This site provides a list of guides, handbooks and references for many bicycle related topics.

Minnesota Department of Transportation, January 2006 Implementation Report. Bicycle and Pedestrian Toolbox. www.lrrb.org/pdf/200602.pdf Accessed Sept. 2007

This is a good reference for bicycle and pedestrian planning, facilities and design guide. It was prepared by HNTB for Minnesota DOT. It includes bikeability and walkability checklists. One example of useful information is a matrix of average daily traffic/speed/ bicycle design options (pg24).

Surface Transportation Policy Partnership, Final Edition 2006. From the Margins to the Mainstream. A Guide to Transportation Opportunities in Your Community. http://www.transact.org/ Accessed Sept. 2007.

This document explains complexities of transportation laws, programs and processes. It provides guidance on planning process, funding allocation methods and how ideas become projects. It lists examples of organizations that have performance measures in place to assess whether transportation systems meet goals. This Guidebook reviews how federal surface transportation law can be used to support local and statewide efforts to build more livable communities and expand travel options.

OTHER PLANNING AND DESIGN RESOURCES

Traffic Calming -Center for Transportation Research and Education Iowa State University. November 2007. Evaluation of Gateway and Low-Cost Traffic-Calming Treatments for Major Routes in Small Rural Communities http://www.ctre.iastate.edu/reports/traffic-calming-rural.pdf Accessed March 2008.

Provides a summary of traffic calming measures such as bulb outs, rumble strips, chicanes, landscaping, center islands and others appropriate for rural main streets. Evaluates traffic-calming treatments on the major road through small Iowa communities.

Road Diets - Rosales, Jennifer, July 2007. Road Diet Handbook: Setting Trends for Livable Streets.

Designing streets to accommodate all modes of transport including walking, bicycling, public transit and private motor vehicles is important. A road diet, accomplishes this by reducing the number of lanes and using the remaining space for other uses such as bicycle lanes, landscaping, parking, or wider sidewalks. This handbook contains examples, photographs, and lessons learned from road diet projects across the U.S. and in Australia. It includes planning, analysis and design guidelines for implementing road diet projects. Road diets may be one low cost option to consider to increase the bicycle friendliness of some of our public lands.

Road and Trail Intersection Safety Parks & Trails New York, December 2006. Road and Trail Intersection Safety: An examination of present practice Recommendations for future actions.

This report recommends that design of intersections of trails and roadways include appropriate right of way; alert trail and road users of an approaching crossing; and minimize risk at crossings. Examples of safety innovations include "Yield to Pedestrians" devices, remote detection-activated flashing beacons, and 'sharks tooth' yield markings to improve safety at trail-roadway intersections. (Alta, 2007) **(see www.ptny.org).**

BICYCLE TRENDS, TRACKING, AND CLASSIFICATION TECHNOLOGIES

U.S. Department of Transportation Bureau of Transportation Statistics, 2000. Bicycle and Pedestrian Data: Sources, Need, & Gaps. BTS00-02 Washington, D.C. http://www.bts.gov/publications/bicycle_and_pedestrian_data/entire.pdf Accessed Sept. 2007

This document inventories existing sources of bicycle and pedestrian data, including their extent, quality, and limitations. It identifies and prioritizes data needs and recommends ways to improve bicycle and pedestrian data quality. Two data needs were categorized as high priority:

1) The number of bicyclists and pedestrians by facility or geographic area; and

2) Safety and demand impacts of design features.

Information on existing conditions and trends in usage, crash rates, and facilities are important to set policy and make funding and programmatic decisions. The U.S. Census Bureau, U.S.DOT, Metropolitan Planning Organizations, Center for Disease Control, National Highway Traffic Safety Administration, and National Sporting Goods Association are a few places where bicycle/pedestrian data can be found. See Table 2-1 in this document for a more detailed list of data sources.

Alta Planning and Design, August 2005. National Bicycle and Pedestrian Documentation Project.

This project responds to the need to count bicyclists. Lack of documentation on bicycle and pedestrian usage and demand makes it difficult to measure the positive benefits of investments in these modes. This paper describes the methodology to participate in a nationally consistent model of data collection.

Alta Planning and Design, August 2007. Estimating Bicycle and Pedestrian Demand in San Diego. Transportation Research Board 2008 paper.

This paper describes a two year study that will measure bicyclist and pedestrian demand in San Diego County. Manual peak counts will be performed at 80 locations and automated (active and passive infrared) counts will be collected at four locations. Count methodology is based on the National Bicycle and Pedestrian Documentation Project (Alta, 2005). Field intercept surveys will be collected at twenty of the count locations. The project will evaluate the effects that socio-demographic factors and physical factors have on walking and biking rates.

Schneider, R.; Patton, R; Toole, J. and Rabor, C. Jan. 2005. Pedestrian and Bicycle Data Collection in United States Communities: Quantifying Use, Surveying Users, and Documenting Facility Extent. PBIC University of North Carolina at Chapel Hill. Sponsored by FHWA. Available on the web at http://www.pedbikeinfo.org/pdf/casestudies/PBIC_Data_Collection_Case_Studies.pdf

This document contains eight detailed case studies on automated counting methods and a case study on manual counting methods from communities around the U.S.

Dharmaraju Raghuram,. Noyce David A,. Lehman Joshua D, May 2002. Evaluation of Technologies for Automated Detection and Classification of Pedestrians and Bicycles, FHWA, Massachusetts Highway Administration and University of Massachusetts Transportation Center. Available on the web at http://www.topslab.wisc.edu/publications/noyce_2001_0049.pdf
This document provides descriptions of available motor vehicle detection technologies and explores their applicability to bicycles and pedestrians. The study concludes that none of the available devices completely serves the purpose of detecting, counting, and classifying pedestrians and bicycles. It recommends further research on active infrared technology.

Goodridge, Steven G. Detection of Bicycles by Quadrupole Loops at Demand-Actuated Traffic Signals. Available on the web at http://www.humantransport.org/bicycledriving/library/signals/detection.htm
This document describes how to provide reliable detection of bicycles using inductive loop sensors. It discusses operation, improved loop design configurations and detector circuit sensitivity.

Macbeth Andrew B., Sept. 2002. Automatic Bicycle Counting IPENZ Transportation Group Technical Conference. Available on the web at http://www.ipenz.org.nz/ipenztg/ipenztg_cd/cd/2002_pdf/34_Macbeth.pdf

This document evaluates two pneumatic tube counters for both motor vehicle and bicycle detection. It concludes both counters are satisfactory for counting bicycles, either off-street or on-street. Difficulties were encountered with setup and counter results were somewhat inconsistent.

SRF Consulting Group, Feb. 2003. Bicycle and Pedestrian Detection Final Report. Prepared for FHWA and Minnesota Department of Transportation. Available on the web at http://ntl.bts.gov/lib/23000/23300/23330/BikePedDetFinalReport.pdf

This document's goal was to identify applications and evaluate accuracy of non-intrusive technologies for detecting non-motorized traffic (bikes and pedestrians). This study tested six sensors including ferrous and non ferrous (aluminum) bicycles and contains a useful literature review. This study was carried out on pathways that are separate from road. It does not present information about how or if systems may differentiate between bikes, pedestrians or vehicles on roadway.

Wachtel, Alan. Re-Evaluating Traffic Signal Detector Loops. Bicycle Forum 50 article. Available on the web at http://www.bikeplan.com/aw-signals.pdf
This article discusses various inductive loop types, characteristics and configurations for detecting bicycles at traffic signals.

BICYCLING PROMOTION AND SAFETY

League of American Bicyclists, 2006. Bicycle Friendly Communities, Enhancing Cities Through Cycling. Sponsored by Bikes Belong.

This document presents case studies of 46 cities all around the country that have effectively integrated biking in some way. Each case study contains photos of bicycling projects, significant accomplishments and contact information. This document shows the significance of bicycling across the country and provides city population and size in square miles which may be useful for land managers to consider in regards to gateway communities and what types of bicycle facilities may be appropriate for a lands of varying sizes and geographical layout.

Pucher, John 2007. "Cycling for Everyone: Key to Public and Political Support," keynote address at the 2007 National Bike Summit, League of American Bicyclists, Washington, DC, March 16, 2007. http://policy.rutgers.edu/faculty/pucher/BikeSummit2007COMP_Mar25.pdfm

This is a PowerPoint presentation about mainstreaming bicycles into the transportation system and includes graphs on health, obesity and bicycling. This presentation suggests marketing bikes to everyone (women, young children, seniors…) and includes photos of nuns biking in Germany and international photos of car free zones. It points out that bicycles are a major part of transportation systems in many places overseas. Some ideas presented here are photos of "contraflow" lanes in Toronto and Sidney, Australia allowing cyclists to travel in both directions on otherwise one-way streets

Pucher, John 1997. Bicycling Boom in Germany: A Revival Engineered by Public Policy. Transportation Quarterly, Vol 51, No. 4 Fall 1997 (31-46). Available online at www.policy.rutgers.edu/faculty/pucher/bicyclingboomingermany_TQ1997.pdf

This article suggests that transportation policy changes can significantly affect mode shifts from autos to bicycles. It contrasts low bike use in the U.S. to high use in several western European countries. Factors such as climate, topography, access to transit, trip distances, weather, trip distance, and presence of university are discussed. This article concludes the main reason for differences in the level of bicycle use in the U.S. versus Western Europe is due to policy. Several policies are noteworthy:

1) Provide an integrated network of bicycle paths, most of them separated from both auto and pedestrian traffic.

2) Bicyclists benefit from over 300 km of bike routes over lightly traveled roads restricted to local traffic.

3) Traffic-calming measures give pedestrians and bicyclists right-of-way priority and restrict auto speeds to 30 km per hour (19 mph). A list of similar publications from Pucher can be found at http://policy.rutgers.edu/faculty/pucher/ Accessed July 2008.

Jacobsen, P.L. Injury Prevention Journal 2003; 9: 205-209 Safety in Numbers: more walkers and bicyclists, safer walking and bicycling.

This study examined the relationship between the numbers of people walking or bicycling and the frequency of collisions between motorists and walkers or bicyclists. Results suggest the likelihood of a pedestrian or cyclist being struck by a motorist varies inversely with the amount of walking or bicycling. It appears that motorists adjust their behavior in the presence of people walking and bicycling. A motorist is less likely to collide with a person walking and bicycling if more people walk or bicycle. Policies that increase the numbers of pedestrians and cyclists appear to be an effective method to improve pedestrian and cyclist safety.

Rails to Trails Conservancy and Association of Pedestrian and Bicycle Professionals, January 1998. Improving Conditions for Bicycling and Walking. A Best Practices Report. Prepared for the FWHA.

This report highlights examples of best practices on outstanding pedestrian and bicycle projects. These projects have been recognized for increasing walking a bicycling numbers and safety. A few examples discussed in this report include Portland, Oregon; Davis, California; Anchorage, Alaska; Birmingham, Alabama; Chicago, Illinois; King County, Washington. Examples include successes, lessons learned, funding, contacts, and other examples of project work.

Teton Valley Trails and Pathways 2007. Pathways Handbook: How they are important, How they help sell homes, How to build them. www.tvtap.org.

This handbook is a resource containing the many benefits of pathways and examples of trails and pathway success stories. It describes how to plan bike paths, shared-use paths, bike lanes, ski

trails and unpaved footpaths as well as specifications for bike lanes, shared-use paths and bike route systems.

BICYCLE-TRANSIT INTEGRATION

Federal Transit Administration Prepared by Robert Schneider, Toole Design Group, LLC 2005. TRB's Transit Cooperative Research Program (TCRP) Synthesis 62: Integration of Bicycles and Transit.

This synthesis examines how transit agencies may improve their existing services and assist other communities in developing new bicycle and transit services. It includes a summary of existing programs, specifications, bicycle parking, and costs. It addresses safety, equipment procurement, scheduling, and inter-jurisdictional cooperation issues. This synthesis includes information on bicycle-on-bus, bicycle-on-rail, and bicycle on-ferry programs. This document updates TCRP Synthesis 4: Integration of Bicycles and Transit (1994). http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_62.pdf (Accessed January 2008)

COSTS- BICYCLING FACILITY CONSTRUCTION AND MAINTENANCE

National Cooperative Highway Research Program Report 552. Prepared by University of Minnesota 2006.. Guidelines for Analysis of Investments in Bicycle Facilities.

This 119 page report presents tools to estimate the cost and value of bicycle facilities. This research was developed into a web-based tool for estimating costs, demands and benefits associated with specific facilities (http://www.bicyclinginfo.org/bikecost/). When testing the online tool for a one mile stretch of 10 foot wide asphalt trail in Milwaukee, the resulting estimate was $110,645 (or $125,205 if 4 streetlight equipment costs are included). This number seems reasonable when compared to estimates provided from Milwaukee County trails plan (see below). This is a planning tool to obtain ballpark cost estimates that is quick and provides a list of trail components to consider (signs, painting, drainage, landscaping, bollards, root dams…). The estimate can be saved to your computer in an excel format, which contains only values, not formulas. It is time consuming to update the excel file if changes are required. The resulting cost in this example did not include the equipment cost (check results of spreadsheet for errors). The demand is based on population densities and percentage of riders estimated for an area. The benefits component provides a dollar estimate for recreation, mobility, health, and decreased auto use.

American Trails.org - Trail Maintenance and Management: Construction and maintenance cost for trails http://www.americantrails.org/resources/ManageMaintain/MilwMaintcost.html Accessed Sept. 2007

The following paragraphs demonstrate examples of information available from the americantrails.org web site. Cost information is from the Milwaukee County Trails Network Plan, 2007 (www.countyparks.com). Four summaries give a realistic trail construction estimate including trail amenities, bridges, signage and drainage.

- $149,206 per mile -10 foot wide asphalt trail -Honey Creek Parkway (no bridge construction)
- $301,014 per mile -10 foot wide asphalt trail -Root River (not including boardwalk, includes drainage culverts and railings)
- $176, 470 per mile -10 foot wide asphalt trail (Kinnickinnic River)
- $224,307 per mile -10 foot wide asphalt trail (includes retrofit of bridges). County estimate for construction of 6.5 mile Hank Aaron State trail

Maintenance of asphalt, concrete, and crushed gravel trails differ due to varying material properties. Labor costs, access to machinery and volunteers also affect maintenance costs. Listed below are typical routine maintenance costs to keep trails operating safely such as annual evaluation for minor repairs, removing vegetation, mowing, map/sign updates, trash removal, water repairs, silt cleanup, culvert clearing, patching or minor regarding, planting, pruning, landscaping.

- $1500 per mile – Iowa Trails 2000 plan (mix of different trail surfaces)
- $2525 per mile- Milwaukee County Park system (asphalt paths)
- $1,200 per mile (absolute minimal cost) in the Rail Trail Maintenance & Operation Manual provided by the Rails-to-Trails Conservancy.
- $2,077 per mile for government run trails provided in the Rail Trail Maintenance & Operation Manual provided by the Rails-to-Trails Conservancy.
- $2,042.06 per mile of unpaved trail in the Trail Cost Model - Draft by the Wisconsin Department of Natural Resources.
- Snow removal costs range from $24.13/mile on the Glacial Drumlin Trail - E to $154.13/mile on the Red Cedar State Trail.

International Mountain Biking Association, 2004. *Trail Solutions: IMBA's Guide to Building Sweet Singletrack* Pages 187-188.

Factors to consider when estimating trail building time and cost:

Type of trail -A primary access trail in an urban trail system may require extensive construction work to achieve a wide, smooth tread. A 12-inch-wide single-track could be built with fewer resources. Terrain- Time and effort increase as soil gets harder, roots and rocks increase, vegetation gets thicker and the grade gets steeper. Trail location- Proximity of work site to vehicles, materials, tools and trail workers. Hand or Mechanized Tools- Mechanized tools can reduce construction time and cost. Professional or volunteer labor- On average, an experienced professional can build 10 feet of bench cut trail per hour using hand tools (80 feet per day). Trail Structures- Every switchback adds between $300 and $1,000, or many hours of volunteer time. Large bridges can cost $50,000 to $80,000 or more depending on the location (2004 cost estimate). The following estimates are based on a poll of several professional contractors in 2004. Costs should be adjusted for inflation to reflect current costs.

- $5,000 per mile- Singletrack trail construction by machine or hand- easy conditions

- $26,000 per mile- Singletrack trail construction by machine- hard conditions
- $52,000 per mile- Singletrack trail construction by hand- hard conditions

Tahoe Metropolitan Planning Organization, October 2006. Lake Tahoe Regional Bicycle and Pedestrian Master Plan. Final Report. Page - 82

Unit cost summary for the construction of bicycle and pedestrian facilities in Lake Tahoe. Estimates are based on costs experienced in the region and similar communities in California and Nevada. However, they should be used only to develop conceptual construction cost estimates. More detailed estimates should be developed after preliminary engineering as individual projects advance to implementation.

Class III/Bike Route on roadway

Signing only $1,000 mile/$1,700 kilometer

Signing plus minor road improvements $40,000/ $67,700

Signing plus moderate roadway improvement $150,000/ $254,000

Signing plus major roadway improvement $300,000/ $508,000

Class II/Bike Lane on roadway

Signing and striping only $5,000 mile/ $8,500 kilometer

Signing and striping plus minor roadway improvement $50,000/ $84,700

Signing and striping plus moderate roadway improvement $300,000/ $508,000

Signing and striping plus major roadway improvement $500,000/ $846,700

Class I/Shared Use Path Separated from roadway

Construct asphalt path on graded right of way with drainage and new

sub-base $1,000,000 mile/ $1,693,400 kilometer

Construct asphalt path on un-graded right of way with drainage and

new sub-base $2,000,000/ $3,386,900

NATIONAL BICYCLING AND WALKING STUDY REPORTS

The National Bicycling and Walking Study consisted of 24 case studies investigating bicycling and walking issues. The study resulted in two overall goals:

1. Double the percentage of total trips made by bicycling and walking in the U.S. from 7.9 percent to 15.8 percent of all travel trips; and
2. Simultaneously reduce by 10 percent the number of bicyclists and pedestrians killed or injured in traffic crashes.

These goals were designed together to ensure that gains in safety were not achieved by discouraging use. A 10-year status report on the Study indicates a significant increase of the total number of reported bicycling and walking trips since 1991 as shown below.

	1990 Nationwide Personal Transportation Survey	2001 National Household Travel
Number of trips taken by bicycling and walking	19.7 billion	36.8 billion
Percent of trips taken by bicycling and walking	7.9 percent	9.5 percent (goal is 15.8 percent)

Safety targets exceeded the Study goals with declines between 1993 and 2003 in pedestrian fatalities (17.3%), pedestrian injuries (27.7%), bicyclist fatalities (23.3.%) and bicyclist injuries (35.5%). The Study also resulted in a nine-point Federal Action Plan within the USDOT. Responsibility for action items was assigned to at least one of the modal administrations within the Department (e.g. FHWA, National Highway Traffic Safety Administration (NHTSA), Federal Transit Administration , Federal Railroad Administration, or Office of the Secretary of Transportation). For more details on the Ten-year status report, see http://www.fhwa.dot.gov/environment/bikeped/study/. (Accessed March 2008) A list of the Final and Status Reports and 24 case studies is shown below.

FHWA-PD-94-023 National Bicycling and Walking Study Executive Summary (1994)

National Bicycling and Walking Study Five Year Status Report (1999)

National Bicycling and Walking Study Ten-Year Status Report (2004)

See http://www.fhwa.dot.gov/environment/bikeped/study/index.htm (Accessed April 2008)

Case Studies:

FHWA-PD-92-041 #1 Reasons Why Bicycling & Walking are Not Being Used More

FHWA-PD-92-038 #2 The Training Needs of Transportation Professionals

FHWA-PD-93-039 #3 What Needs to be Done to Promote Bicycling and Walking

FHWA-PD-93-031 #4 Measures to Overcome Impediments to Bicycling and Walking

FHWA-PD-93-008 #5 An Analysis of Current Funding Mechanisms

FHWA-PD-93-024 #6 Analysis of Successful Grass-Roots Movements

FHWA-PD-92-040 #7 Transportation Potential and Other Benefits of Off-Road Facilities

FHWA-PD-93-007 #8 Organizing Citizen Support and Acquiring Funding

FHWA-PD-93-012 #9 Linking Bicycle/Pedestrian Facilities with Transit

FHWA-PD-94-012 #10 Trading Off Among the Needs of Motor Vehicle Users, Peds, Bikes
FHWA-PD-93-009 #11 Balancing Engineering, Education, Law Enforcement, Encouragement
FHWA-PD-92-036 #12 Incorporating Consideration of Bicyclists & Pedestrians into Education
FHWA-PD-93-018 #13 A Synthesis of Existing Bicyclist and Pedestrian Related Laws
FHWA-PD-93-025 #14 Benefits of Bicycling and Walking to Health
FHWA-PD-93-015 #15 The Environmental Benefits of Bicycling and Walking
FHWA-PD-92-037 #16 A Study of Bicycle and Pedestrian Programs in European Countries
FHWA-PD-93-016 #17 Bicycle/Pedestrian Policies and Programs in Asia, Australia, New Z.
FHWA-PD-93-010 #18 Analyses of Successful Provincial, State, and Local Programs
FHWA-PD-93-028 #19 Traffic Calming, Auto Restricted Zones, and Traffic Management
FHWA-PD-93-037 #20 The Effects of Environmental Design on the Amount and Type
FHWA-PD-93-017 #21 Incorporating Bicycle and Pedestrian Considerations into Planning
FHWA-PD-93-019 #22 The Role of State Bicycle/Pedestrian Coordinators
FHWA-PD-93-014 #23 The Role of Local Bicycle/Pedestrian Coordinators
FHWA-PD-93-006 #24 Current Planning Guidelines and Design Standards

APPENDIX E – ON-LINE BICYCLING RESOURCES

In addition to the resources above, there are many websites dedicated to bicycling. A brief description is provided below, and website locations are listed in the following table along with a description of site content and usefulness. These resources are organized as follows:

USDOT Sites—Contains links to the FHWA's bicycle and pedestrian programs, safety and transportation legislation sites. Examples of useful information are contacts for each State's bicycle and pedestrian coordinator. Other sites provide details of the 2005 transportation bill SAFETEA-LU (Safe, Accountable, Flexible & Efficient Transportation Equity Act--Legacy for Users), the National Highway Traffic Safety Administration Bicycle Program and the Turner-Fairbanks Highway Research Center. These sites provide numerous resources for bicycling engineering, education, encouragement and enforcement.

Bicycle Research, Clearinghouses and Professional Associations—Includes a link to the Association of Pedestrian and Bicycle Professionals, a place for professionals to share best practices and exchange ideas. Also includes links to the Pedestrian and Bicycle Information Center, the Institute for Transportation and Development Policy, the Victoria Transportation Institute and a link to the Toolbox for the Great Outdoors to promote recreation on public lands.

Planning and Design Resources — These planning and design resources range from urban bicycle design to trail design. This section includes links to Active Living by Design, American Trails, Bikesafe countermeasure selection system, Complete Streets, Context Sensitive Design, National Scenic Byway Program, Oregon Bicycle and Pedestrian Program, Portland State Bicycle Initiative, Rails to Trails Conservancy and the NPS Rivers and Trails Conservation Assistance Program.

Bicycling Advocacy — sites contain advocacy tools and a range of other information. These sites include the Adventure Cycling Association, America Bikes, Bikes Belong, The International Mountain Bike Association, and the League of American Bicyclists, the National Center for Bicycling and Walking and Thunderhead Alliance.

Regional/Local Bicycling Advocacy— These sites demonstrate the broad support for various bicycling projects in large and small towns across the U.S. It is likely there is an organization nearby that would support your efforts to improve bicycling. Sites include the Oregon Bicycle Transportation Alliance, Bicycle Universe, Chicagoland Bicycle Federation, Colorado Plateau Mountain Bike Trail Association, District of Columbia Bicycle Program, the East Coast Greenway, Friends of Pathway-Jackson Wyoming, The

Greater Victoria Cycling Coalition, Missoula Institute for Sustainable Transportation, Mr Bike-Chicago, Michigan Mountain Bike Association, New England Mountain Bike Association, Trail-net St. Louis and Transportation Alternatives, New York City.

International— These sites provide insight into bicycling activities a. They include Cycling promotion in Australia, the International Bicycle Fund and the Earth Policy Institute.

Bicycling Newsletters/ discussion groups—*Bike Bits* is Adventure Cycling's twice-monthly bicycle bulletin. Sign up at http://www.adventurecycling.org. ***CenterLine*s** is the bi-weekly e-newsletter of the National Center for Bicycling & Walking. http://www.bikewalk.org/newslettersubscribe.php CenterLines is also available as a podcast at http://podcast.bikewalk.org/ **List serves or discussion groups-** are useful to learn more about a specific question or topic of interest. For example**,** if you want to know more about traffic calming, you can join the Institute for Traffic Engineers online discussion at http://list.ite.org/archives/trafficalming.html The Association of Pedestrian and Bicycle Professionals has a list serve for online discussions.

Table 12: United States Department of Transportation Bicycling Sites.

Description /Location	Site Content/Usefulness
FHWA Bicycle and Pedestrian Program Office http://www.fhwa.dot.gov/environment/bikeped/	The Bicycle & Pedestrian Program of the FHWA's Office of Human and Natural Environment promotes bicycle and pedestrian transportation accessibility, use, and safety. This Program issues guidance and is responsible for overseeing that requirements in legislation are understood and met by the States and other implementing agencies. This site links to each State's Bicycle and Pedestrian Coordinator. Access a large variety of documents on bicycling and pedestrian facilities. Note link to recreational trails site. For more information contact: Gabe Rousseau - FHWA Bicycle & Pedestrian Program Manager, 202-366-8044 Gabriel.Rousseau@fwhw.dot.gov
Bicycle and Pedestrian Provisions of Federal Transportation Legislation http://www.fhwa.dot.gov/environment/bikeped/BP-Guid.htm	Summary of bicycle and pedestrian policy, funding requirements, eligibility issues, planning, project selection and more. Provides details such as eligibility and matching fund requirements and understanding of federal bicycle/pedestrian policies.
Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users http://www.fhwa.dot.gov/safetealu/	SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009. This site contains legislation, fact sheets and funding tables with States' allocations from 2005-2009.
FHWA Pedestrian and Bicycle Safety http://safety.fhwa.dot.gov/ped_bike/	Site focused on bicycling/pedestrian safety. Many documents for planning, designing, and operating needs of bicycle facilities. Includes state and local examples from Minnesota, Oregon and Texas. Links to bicycle crash and injury data, traffic calming, forecasting demand, shared use paths, bikes and transit and benefits. A useful pedestrian safety toolkit Resource catalog can be found on this site at ped_bike/docs/resourcecatalog.pdf. It has a good resource index organized by funding, program guidance, public information, research reports, school materials, technical guidelines, training and videos.

Description /Location	Site Content/Usefulness
National Highway Traffic Safety Administration Bicycle Program http://www.nhtsa.dot.gov/	To access the bicycle program, click on traffic safety link and then "bicycles" link. NHTSA's bicycle safety program goals are directed toward reducing bicycle injuries and fatalities. Site contains links to safety, law enforcement and numerous other resources.
Turner Fairbanks Highway Research Center http://www.tfhrc.gov/safety/index.htm	Contains issues and research related to improving pedestrian and bicyclist safety. The purpose of this Web site is to foster public awareness of pedestrian and bicycle safety matters, and to provide resources for use at the national, State and local levels

Table 13: Bicycle Research, Clearinghouses and Professional Associations.

Description /Location	Site Content and Usefulness
The Association of Pedestrian and Bicycle Professionals (APBP) http://www.apbp.org	APBP consists of over 400 professionals working to advance the field of pedestrian and bicycle transportation planning, facility design and program development. Most members are employees of all levels of government, consulting firms, and non-profits who work in the engineering, planning, landscape architecture, safety and promotion fields and specialize in improving conditions for bicycling and walking. This site is useful to learn of training courses, upcoming conferences and events and case studies. It also contains guidance on how to select a consultant for bicycle projects and a list of professionals along with useful links to other bicycling sites.
Pedestrian and Bicycle Information Center (PBIC) http://www.pedbikeinfo.org	Clearinghouse for health and safety, engineering, advocacy, education, enforcement and access and mobility information. The PBIC serves anyone interested in pedestrian and bicycle issues, including planners, engineers, private citizens, advocates, educators, police enforcement and the health community.
Institute for Transportation and Development Policy http://www.itdp.org/	ITDP promotes environmentally sustainable and equitable transportation projects worldwide. Programs include bus rapid transit, congestion pricing, pedestrianization, bicycle and pedestrian planning, Brownfield revitalization, bicycle and cycle rickshaw modernization and others. Contains non-motorized vehicle design and improving non-motorized transport safety and planning.
Toolbox for the Great Outdoors http://www.tools4outdoors.us/	A toolbox for recreation on public lands. Describes programs to supplement traditional appropriations to provide high quality recreation experiences on public lands. See Transportation drawer for information on various funding sources. Contains links to web-based tutorials on how to tap into federal funds.
Victoria Transport Policy Institute http://www.vtpi.org/	Independent research organization developing innovative solutions to transportation problems. See online Transportation Demand Management (TDM) Encyclopedia for information on TDM planning, evaluation and implementation. Links to more detailed information, including case studies and reference documents. The Encyclopedia can be searched for a specific topic and has an international perspective.

Table 14: Planning and Design Resources.

Description/Location	Site Content and Usefulness
Active Living by design www.activelivingbydesign.org	This University of North Carolina School of Public Health program establishes innovative approaches to increase physical activity through community design, public policies and communications strategies. Links to many good resources including one on parks, trails and greenways.
American Trails http://www.americantrails.org/	A national, nonprofit organization working on behalf of *all* trail interests, including hiking, bicycling, mountain biking, horseback riding, water trails, snowshoeing, cross-country skiing, trail motorcycling, all terrain vehicles, snowmobiling and four-wheeling. Supports local, regional, and long-distance trails and greenways, in backcountry, rural and urban areas. This site includes a training calendar and has many design references including trailhead components and various trail surfaces.
BIKESAFE Bicycle Countermeasure Selection System. January 2006 http://www.bicyclinginfo.org/bikesafe/index.cfm	Interactive tool to select appropriate measures to improve biking facilities. Site contains long list of bicycling case studies and allows user to select appropriate countermeasures or treatments to address specific problems. Hard copies of Bikesafe can be ordered at http://safety.fhwa.dot.gov/ped_bike/ped_bike_order.htm
Complete Streets http://www.completestreets.org/	Complete streets is a planning concept to design streets to enable safe access for all users, including pedestrians, bicyclists, motorists and bus riders of all ages and abilities. This concept is gaining popularity across the U.S. On March 3, 2008, Senators Tom Harkin and Tom Carper (D-DE) introduced Senate bill 2686, the "Complete Streets Act of 2008.", a bill drafted to promote the design of safer streets for all users. This site is useful for complete streets campaign planning, creating partnerships, keeping apprised of recent news and much more.
Context Sensitive Solutions (CSS) http://www.contextsensitivesolutions.org/	CSS projects are in harmony with the community, and preserve environmental, scenic, aesthetic, historic, and natural resource values of the area, i.e., exhibits context sensitive design. On the left side of website is a pull down menu under "flexible design". Choose bicycle facility to see photos, case studies, bike planning and design information.

Description/Location	Site Content and Usefulness
National Scenic Byway Program http://www.byways.org/	This program's vision is "To create a distinctive collection of American roads, their stories and treasured places." There are 126 designated Byways in 44 states. Bicyclists are likely to use Scenic Byways because the very qualities (natural, scenic, cultural, historic, recreational and archaeological) that support their designation are appealing. This site contains information on funding, grants and links to other resources. Road and mountain biking opportunities on Scenic Byways are featured at http://www.byways.org/explore/activities/
Oregon Bicycle and Pedestrian Program http://www.oregon.gov/ODOT/HWY/BIKEPED/	Oregon is a well known state with regard to bicycling. This website provides resources such as a 16 page manual on Bicyclist safety, links to biking legislation, grants programs, standard drawings... Oregon's Bicycle and Pedestrian Plan is a good publication for people unfamiliar with bicycle facility design and technical subject matter
Portland State http://www.ibpi.usp.pdx.edu/	Portland State introduced an initiative for bicycle & pedestrian innovation. Their goal is to advance bicycling and walking as integral elements of the transportation system in Oregon. Research, education and information sharing is the goal of this website. (Accessed April 2008)
Rails to Trails Conservancy http://www.railtrails.org	The mission of RTC is to create a nationwide network of trails from former rail lines and connecting corridors to build healthier places for healthier people. Useful for off-road, greenway and trails resources.
Rivers and Trails and Conservation Assistance Program http://www.nps.gov/ncrc/programs/rtca/	RTCA, is the community assistance arm of the National Park Service. RTCA staff provide technical assistance to community groups and local, State, and federal government agencies so they can conserve rivers, preserve open space, and develop trails and greenways. Trail resources. Some links were outdated.

Table 15: Bicycling Advocacy.

Description/Location	Site Content and Usefulness
Adventure Cycling Association (ACA) http://www.adv-cycling.org/	Established in 1973, ACA is the largest non-profit organizer of adventure travel bicycle tours in the U.S. Useful site for bicycle trip planning, maps, finding partners, outreach and education, bicycle travel guides and many other bicycling resources.
America Bikes http://www.americabikes.org	Non-profit collaborative effort of leaders of the bicycle community to advocate for positive outcomes for bicycling in the next federal transportation funding bill. Details of funding through SAFETEA LU.
American Association of Retired People (AARP)	AARP is a nonprofit, nonpartisan membership organization for people age 50 and over, dedicated to enhancing quality of life for all as we age. AARP is a powerful group who want to ensure transportation choices are available when driving may not be an option. See their report on transportation for older Americans, 'Stranded without Options'. http://www.aarp.org/family/articles/stranded_without_options.html
Bikes Belong http://bikesbelong.org	National coalition of bicycle suppliers and retailers promoting bicycling. Since 1999, their grants program has funded 166 grant proposals, awarding more than $1.3 million in cash and leveraging more than $476 million in federal, state, and private funding. Booklet on benefits of biking can be used as advocacy tool. Useful resource for grants, bicycle friendly communities and many links to bicycle resources and sites.
International Mountain Bicycling Association http://www.imba.com	Formed in 1988, IMBA is a non-profit educational association whose mission is to create, enhance and preserve great trail experiences for mountain bikers worldwide. This site has mountain biking and trails resources including work with BLM, USFS, NPS, funding information, case studies and news. For a Land Managers Mountain Bike Management Toolkit, see http://www.imba.com/resources/managers/index.html

Description/Location	Site Content and Usefulness
League of American Bicyclists http://bikeleague.org/	Promote bicycling for fun, fitness and transportation and work through advocacy and education. Promote bicycle friendly communities, bicycle safety and education and national, state and local advocacy programs. Extensive list of U.S. and International advocacy resources, links to bicycling industry sites, state and local groups, tour companies and many more. Up to date calendar of bike events around the country.
The National Center for Bicycling & Walking (NCBW) http://www.bikewalk.org/	NCBW is the major program of the Bicycle Federation of America, Inc. a national, nonprofit established in 1977 whose mission is to create bicycle-friendly and walkable communities by encouraging and supporting the efforts of individuals, organizations, and agencies. Useful news, conferences, training, workshops, links to other bicycle/pedestrian sites.
Thunderhead Alliance http://www.thunderheadalliance.org/	Mission is to create, strengthen, and unite state and local bicycle and pedestrian advocacy organizations. Since 2001, program accommodates travel by all modes including motor vehicle, foot, bicycle or other means. Thunderhead's campaign goal is complete streets policies in all 50 states by 2008. Good resource for training and for identifying bicycle organizations in each state.

Table 16: Regional/Local Bicycling Advocacy.

Description/Location	Site Content and Usefulness
Bicycle Transportation Alliance-Oregon http://www.bta4bikes.org	Non-profit organization promoting bicycling in Oregon and SW Washington. Since 1990, the BTA has grown from a small group of activists to over 4500 members, a staff of nine, and hundreds of volunteers. Good bicycle safety education program and many other resources.
Bicycle Universe http://bicycleuniverse.info/	Informal website with variety of information on bicycle safety, policies, statistics, links to bicycle manufacturers of unusual bikes. Links to special, alternative or unusual bikes and anything else in the universe related to bikes.
Chicagoland Bicycle Federation http://www.biketraffic.org/	Since 1999, more than $100 million worth of trails, bike lanes, bike racks and other projects became a reality due to Chicagoland Bicycle Federation. This organization works to provide safe and convenient bicycling facilities. Useful site for urban bicycling issues.
Colorado Plateau Mountain Bike Trail Association (COPMOBA) http://www.copmoba.org/index.htm	COPMOBA's mission is to build and maintain mountain bike trails, work to preserve single-track, and promote responsible riding. Many volunteer trail construction and maintenance projects, advocacy efforts, riding clinics, group rides and fundraising efforts for mountain biking. Useful examples for rural areas and mountain biking issues in the western U.S.
District of Columbia DOT Bicycle Program (DDOT) http://ddot.dc.gov/ddot/cwp/view,a,1245,q,559835.asp#4	DDOT provides safe bicycle access in Washington D.C. Website is good resource for urban bike issues including advisory council, master plan, safety, child helmets, laws and regulations, maps, parking , list of publications, trip and accident information. Also includes info on existing and planned multi-use trails through city and plans for new union Station bike station. Useful promotional items/ videos.
The East Coast Greenway http://www.greenway.org/	Their goal is to connect all the major cities of the East Coast along a continuous, off-road path, spanning 2,950 miles from Calais, Maine to Key West, Florida. In 2007, the trail was 21 percent open for public use. This is a useful resource for urban greenway corridors.
Friends of Pathways-Jackson, WY http://friendsofpathways.org/	Advocates the funding, construction and use of pathways, trails, sidewalks and bike lanes through public/private partnerships. They connect communities in and around Jackson Hole by promoting safe and convenient non-motorized transportation and recreation

Description/Location	Site Content and Usefulness
The Greater Victoria Cycling Coalition -Victoria, British Columbia http://www.gvcc.bc.ca	Advocacy and cycle commuting information as well as rides and touring cycling possibilities on Vancouver Island and the Canadian Gulf Islands . Useful example of advocacy and promotion of bicycling.
Missoula Institute For Sustainable Transportationwww.strans.org	Mission is to help create a global network of sustainable transportation systems. Useful definitions and photos of sustainable transportation options and links to bike share and other local programs in small cities such as Missoula, Montana.
Mr. Bike –Chicago http://www.mrbike.com	Prints book- "Urban Bikers Tips and Tricks". Useful bike info such as winter riding tips. Entertaining site with many urban biking tips.
Michigan Mountain Bike Association http://www.mmba.org/	The mission of the MMBA is to promote responsible mountain biking and to work toward common land access and natural resource protection through interaction with policy makers, the cycling industry, race promoters, mountain bikers and other trail users. Useful for mountain bike resources in Michigan.
New England Mountain Bike Association (Connecticut) http://www.ctnemba.net/	Since 1987, NEMBA has actively supported the conservation of open spaces. N on-profit with fifteen chapters throughout New England. The organization monitors trail conditions, builds positive relationships with land managers, and gets people to important policy meetings. CT-NEMBA is the Connecticut Chapter of the NEMBA. Useful resource for northeastern U.S. mountain bike issues.
Trailnet-St. Louis http://www.trailnet.org	Trailnet is a not-for-profit organization that seeks to enrich the St. Louis bi-state region by promoting bicycle and pedestrian activities and collaborating with the public and private sectors to ensure and enhance a premier trail system.
Transportation Alternatives-New York City http://www.transalt.org	Transportation Alternatives is a 5500-member NewYork City-area non-profit citizen's group working for better bicycling, walking and public transit, and fewer cars. We work for safer, calmer streets and car-free parks.

Table 17: International Resources for Bicycling.

Description/Location	Site Content and Usefulness
Cycling promotion- Australia www.cyclingpromotion.com.au	Australian website with many examples of how to promote cycling.
International Bicycle Fund http://www.ibike.org/	A non-governmental, nonprofit, advocacy organization, promoting sustainable transport and international understanding. Major areas of activity are non-motorized urban planning, economic development, bike safety education, responsible travel and bicycle tourism, and cross-cultural, educational programs. Useful for a wide variety of bicycling information with many photos and international examples.
Earth Policy Institute http://www.earth-policy.org/Indicators/Bike/	The Earth Policy Institute provides a vision of an environmentally sustainable economy, of which bicycling is an integral part. They track bicycle production and use around the world as one of their indicators 'eco-economy' indicators. Click on 'eco-economy indicators' on left side of screen, then choose 'bicycle production for statistic on bicycles and promotion ideas around the world.

APPENDIX F – BICYCLE FACILITY FUNDING SOURCES

FEDERAL LANDS HIGHWAY PROGRAM (FLHP)

Provisions for pedestrians and bicyclists are eligible under the following categories of the Federal Lands Highway Program (FLHP) in conjunction with roads, highways, and parkways. There are three Federal Lands Highway Division Offices (Eastern, Central and Western) who may assist agencies with project planning, environmental, design, engineering and construction services. As of 2008, the Central Federal Lands office was the only one of the three to employ an alternative transportation planner with a focus on non-motorized and transit on Federal lands. Priority for funding projects is determined by the appropriate Federal land management agency. Reference: 23 USC Section 204. FLHP funds can also be used as the State or local match for most types of Federal-aid highway funded projects (http://www.fhwa.dot.gov/flh/flhpp.htm). Park Roads and Parkways, Refuge Roads, Public Lands Highways-Discretionary and Forest Highways programs are described below. Figure 36 shows SAFETEA-LU funding from 2005 through 2009 for each of these programs.

Park Roads and Parkways (PRP)—This program includes approximately 8,000 miles of NPS roads. Funds may only be used on public roads under NPS jurisdiction. NPS develops a priority program of projects; and program is jointly administered by NPS and the FHWA. NPS is responsible for planning, environment and protection of park values http://flh.fhwa.dot.gov/ parkroad.htm. *$1.050 billion dollars PRP funds available from 2005-2009.*

Refuge Roads Program (RRP)—This program includes **a**pproximately 4,800 miles of public use refuge roads and 1,400 miles of public use trails. Funding may be used by the FWS and FHWA for maintenance and improvement of public roads that provide access to or within a unit of the National Wildlife Refuge System. Refuge roads are public roads that provide access to or within a unit of the National Wildlife Refuge System and for which title and maintenance responsibility is vested in the United States Government. Up to five percent of Refuge Roads program funds can be used for maintenance and improvement of public use trails. *$145 million dollars RRP funds available from 2005-2009.*

Public Lands Highways Discretionary (PLH-D)—Any public road providing access to and within Federal lands is eligible for PLH-D funding. Section 202(b) of 23 U.S.C. provides for States to submit applications for funding in response to FHWA request for PLH-D projects. State Transportation Agencies coordinate their application with a Federal land management agency or a Tribal government. *$479.4 million dollars PLH-D funds available from 2005-2009.*

Public Lands Highways -Forest Highways Program (FH)—Approximately 29,000 miles of State and local roads providing access to and within the National Forest System are designated as FH. Funds are allocated by administrative formula, with FH receiving two-thirds of the PLH funding. The "tri-agencies", composed of a State, the USFS, and FHWA mutually develop a program of projects within available funding. The FH Program is administered in accordance with 23 CFR, PART 660 and individual agreements with State Transportation Agencies. *$930.9 million dollars FH funds available from 2005-2009.*

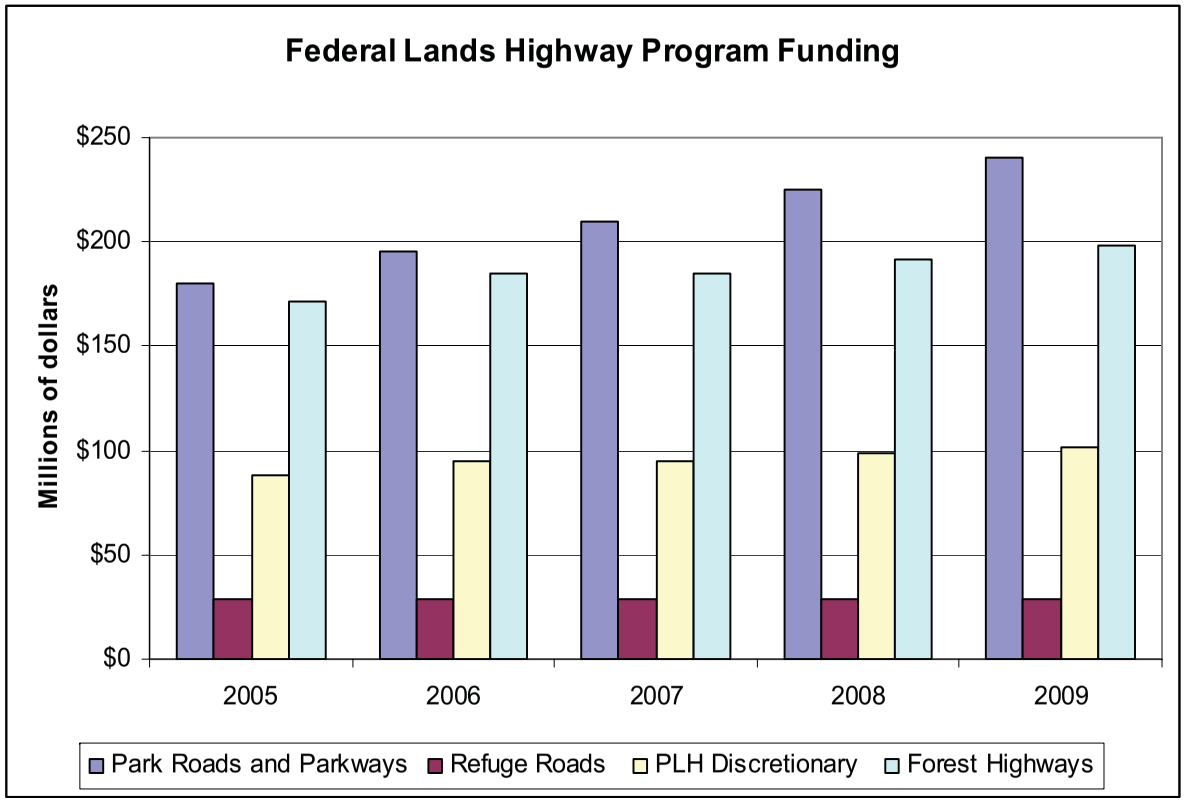


Figure 37: Federal Lands Highway Program Funding 2005-2009.

SURFACE TRANSPORTATION PROGRAM (STP) FUNDING

The STP provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities http://www.fhwa.dot.gov/safetealu/factsheets/stp.htm. STP funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or for non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use and walking. TEA-21 added "…the modification of public sidewalks to comply with the Americans with Disabilities Act…" as an activity that is specifically eligible for the use of these funds. Reference: 23 USC Section 217 (a).

Transportation Enhancements (TE)—Each State must set aside a portion of their STP funds (10 percent or the amount set aside in 2005, whichever is greater) for TE activities. The set-aside of 10 percent previously required for safety construction activities (i.e., hazard elimination and rail-highway crossing improvements) is eliminated beginning in 2006, as these activities are funded separately under the new Highway Safety Improvement Program http://www.fhwa.dot.gov/safetealu/summary.htm. TE funds typically make up over half of all bicycle/pedestrian obligations http://www.fhwa.dot.gov/environment/bikeped/bipedfund.htm. The purpose of the TE Program is to expand travel choices and strengthen the cultural, aesthetic, and environmental aspects of our intermodal transportation system. Three of the twelve eligible TE activities focus on bicycle and pedestrian projects:

- Facilities for pedestrians and bicycles.
- Safety and educational activities for pedestrians and bicyclists.
- Preservation of abandoned railway corridors. (including the conversion and use thereof for pedestrian and bicycle trails). 23 USC Section 109 (a)(35)

See the following online clearinghouse on TE activities for activities, including project descriptions, projects in each state, photos, history, eligibility, funding requirements, and other useful information —http://www.enhancements.org/contacts.asp

Figure shows TE funding for bicycle and pedestrian facilities. This figure shows projects coded as bicycle and pedestrian projects based on the FHWA Fiscal Management Information System. Note this system does not have separate codes for pedestrian-only or bicycle-only projects.

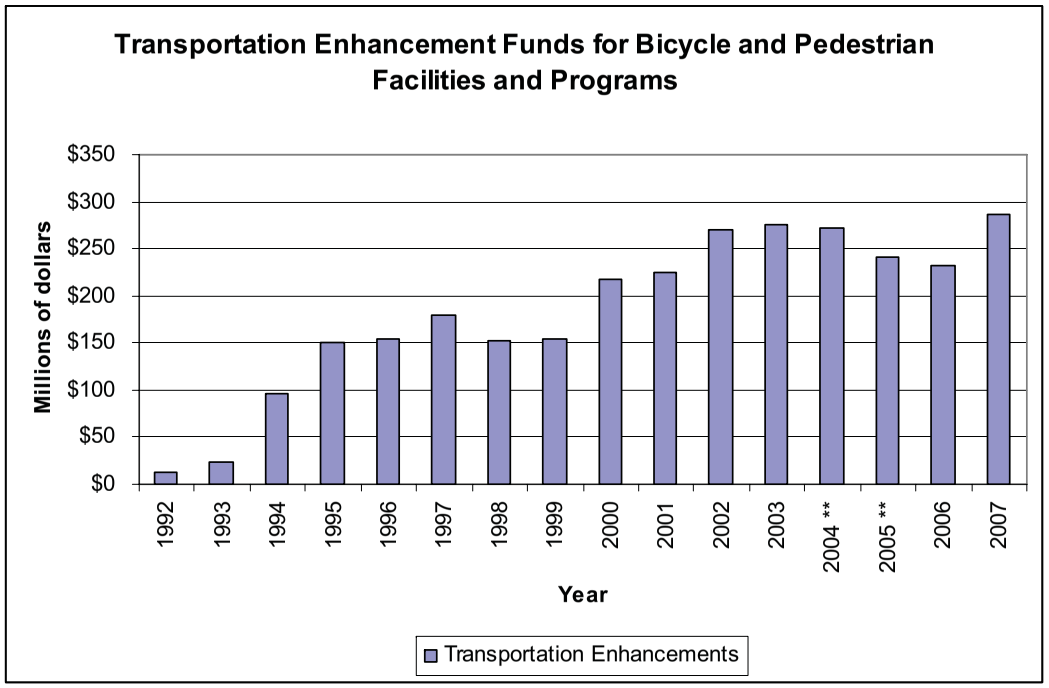


Figure 38: Transportation Enhancement Funds for Bicycle and Pedestrian Programs.

Hazard Elimination and Railway-Highway Crossing Programs—Another ten percent of each State's STP funds is set-aside for Hazard Elimination and Railway-Highway Crossing programs, which address bicycle and pedestrian safety issues. Each State is required to implement a Hazard Elimination Program to identify and correct locations which may constitute a danger to motorists, bicyclists and pedestrians. Funds may be used for activities, including: a survey of hazardous locations: for projects on any publicly owned bicycle or pedestrian pathway or trail: or any safety-related traffic calming measure. Improvements to railway-highway crossings "shall take into account bicycle safety." Reference: 23 USC Section 152

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)

CMAQ is the second largest source of funding for bike/ped projects, accounting for nine percent of project funds (Thunderhead 2007). CMAQ funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or for non-

construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use. Reference: 23 USC Section 217 (a)

RECREATIONAL TRAILS PROGRAM (RTP)

RTP funds may be used for all kinds of trail projects. Of the funds apportioned to a State, 30 percent must be used for motorized trail uses, 30 percent for non-motorized trail uses, and 40 percent for diverse trail uses (any combination). 23 USC Section 206. FHWA has a list of Recreational Trails Program State Administrators on the following link.
http://www.fhwa.dot.gov/environment/rectrails/rtpstate.htm (Accessed November 2007).

NATIONAL SCENIC BYWAYS PROGRAM

Scenic Byway funds may be used for "construction along a scenic byway of a facility for pedestrians and bicyclists." Reference: 23 USC Section 162 (c)(4)

NATIONAL HIGHWAY SYSTEM (NHS) FUNDING

NHS funds may be used to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the National Highway System, including Interstate Highways. Reference: 23 USC Section 217 (b)

FEDERAL TRANSIT PROGRAM FUNDING

Title 49 U.S.C. (as amended by TEA-21) allows the Urbanized Area Formula Grants, Capital Investment Grants and Loans, and Formula Program for Other than Urbanized Area transit funds to be used for improving bicycle and pedestrian access to transit facilities and vehicles. Eligible activities include investments in "pedestrian and bicycle access to a mass transportation facility" that establishes or enhances coordination between mass transportation and other transportation. Reference: 49 USC Section 5307.

TEA-21 also created a **Transit Enhancement Activity program** with a one percent set-aside of Urbanized Area Formula Grant funds designated for, among other things, pedestrian access and walkways, and "bicycle access, including bicycle storage facilities and installing equipment for transporting bicycles on mass transportation vehicles". Reference: 49 USC Section 5307(k)

HIGHWAY SAFETY PROGRAMS

Pedestrian and bicyclist safety remain priority areas for State and Community Highway Safety Grants funded by the Section 402 formula grant program. A State is eligible for these grants by submitting a Performance plan (establishing goals and performance measures for improving highway safety) and a Highway Safety Plan (describing activities to achieve those goals). 23 USC Section 402

Research, development, demonstrations and training to improve highway safety (including bicycle and pedestrian safety) is carried out under the Highway Safety Research and Development (Section 403) program. 23 USC Section 403

PLANNING FOR FEDERAL FUNDING

The following sections briefly describe federal funding matching requirements, tips to improve project funding success and available funding resources.

Federal/State Matching Requirements—In general, the Federal share of the costs of transportation projects is 80 percent with a 20 percent State or local match. However, there are a number of exceptions to this rule.

- Federal Lands Highway projects and Section 402 Highway Safety funds are 100 percent Federally funded.
- Bicycle-related Transit Enhancement Activities are 95 percent federally funded.
- Hazard elimination projects are 90 percent federally funded.
- Bicycle-related transit projects (other than Transit Enhancement Activities) may be up to 90 percent Federally funded.

Individual Transportation Enhancement Activity projects under the STP can have a match higher or lower than 80 percent. However, the overall Federal share of each State's Transportation Enhancement Program must be 80 percent.

States with higher percentages of Federal Lands have higher Federal shares calculated in proportion to their percentage of Federal lands. The State and/or local funds used to match Federal-aid highway projects may include in-kind contributions (such as donations). Funds from other Federal programs may also be used to match Transportation Enhancement, Scenic Byways, and Recreational Trails program's funds. A Federal agency project sponsor may provide matching funds to Recreational Trails' funds provided the Federal share does not exceed 95 percent.

STATEWIDE AND METROPOLITAN TRANSPORTATION PLANNING PROCESSES

Statewide planning is the foundation of all transportation planning. All other transportation planning, including BLM, FWS, USFS, and NPS, is a subset of the overall transportation planning for a State. Most FHWA and FTA surface transportation program funding is provided directly to the State for their use and distribution. States develop a long range transportation plan and a State Transportation Improvement Program (STIP) which is a priority list of proposed FHWA/FTA funded projects. If a project is not included in the STIP, FHWA and FTA funds cannot be used to fund the project. "Federal Surface Transportation Programs and Transportation Planning for Federal Land Management Agencies- A Guidebook." USDA Forest Service, October 2007 describes how agencies must participate in the State's and/or region's transportation planning process. It is a valuable resource for funding eligibility, where to find funding, how federal land managers can access and benefit from funds, and how to integrate federal land management objectives with State and local objectives. This is an updated version of the Forest Service's December 2001 document . It can be found online at http://www.fs.fed.us/eng/pubs/pdf/07771814.pdf (Accessed November 2007). Contact Ed Gilillad at egililland@fs.fed.us for more information on this resource.

Each state has a bicycle and pedestrian coordinator who should be used as a resource for bicycle project planning. The American Association of State Highway and Transportation Officials (AASHTO) website contains a link listing each State's Bicycle and Pedestrian Coordinators. http://design.transportation.org/?siteid=59&pageid=852.

ON-LINE FUNDING RESOURCES

A couple of web-based tutorials are available for learning how to tap into SAFETEA-LU funds. For Federal Lands Highways projects go to: mms://ocbmtcwmp.usda.gov/content/fs/safetealu72.wmv

For funds from other transportation and recreation-related programs go to the web-based video self-study training modules at: www.fs.fed.us/eng/transp/safetea-lu/

A few funding resources are provided in the table below.

Washington State DOT has grant and funding for bicycle facilities at http://www.wsdot.wa.gov/bike/Funding.htm

Table 18: Funding Resources for Bicycle Projects.

Funding Source	Comment
Federal	
FHWA and FTA funds www.fhwa.dot.gov/hep/bkepedtble.htm	This table lists 16 FHWA funding programs and 6 FTA funding programs and briefly describes each program, its purpose and eligible pedestrian and bicycle activities.
FHWA Guidance - (Updated April 4, 2007) Bicycle and Pedestrian Provisions of Federal Transportation Legislation http://www.fhwa.dot.gov/environment/bikeped/BP-Guid.htm	Section 4 contains a table with federal funding for bicycle projects. Appendix 2 contains funding program detail such as eligibility, matching funds, transferability and discussion.
National Transportation Enhancements (TE) Clearinghouse. http://www.enhancements.org/	Transportation Enhancement funds are part of STP, one of the FHWA funding programs. This website provides more detailed Information on TE programs. 3 of the 12 eligible categories are pedestrian and bicycle facilities.
FTA http://www.fta.dot.gov/funding/grants_financing_263.html	This website provides details of FTA grant programs providing funds to bicycle facilities. Programs under United States Code USC 5305 (d), 5305(e), 5307, 5307(k), 5316, and 5320 have provisions for bicycle facility planning, facilities or access to transit.
Alternative Transportation for Parks and Public Lands (ATPPL) http://www.fta.dot.gov/funding/grants/grants_financing_6106.html	This FTA program is to enhance to protection of national parks and public lands and increase visitors' enjoyment. Grants for ATPPL funds must demonstrate they will be used\ for *transportation, NOT recreation.*

Funding Source	Comment
Department of Interior- Land and Water Conservation Fund (LWCF)	Provides park and recreation opportunities to U.S. residents. LWCF funds are distributed by the National Park Service to the states annually. Communities must match LWCF grants with 50-percent of the local project costs through in-kind services or cash. All projects funded by LWCF grants must be used exclusively for recreation purposes, in perpetuity.
Rails to trails funding database http://www.railtrails.org/whatwedo/trailadvocacy/trailfunding.html or http://www.enhancements.org/trailfunding.htm	Compiled by Rails to Trails with information on various trail funding programs organized by Federal, State and private funding sources. Although may be somewhat outdated, provides useful and brief descriptions of many funding sources. Can be queried by state.
Other funding	
Bikes Belong Coalition Grants http://www.bikesbelong.org	Bikes Belong Coalition seeks to assist local organizations, agencies, and citizens in developing bicycle facilities projects that will be funded by TEA-21, the Transportation Equity Act for the 21st Century. Bikes Belong Coalition will accept applications for grants of up to $10,000 each, and will consider successor grants for continuing projects. Funding decisions are made on a rolling basis.
Kodak American Greenways Awards http://www.conservationfund.org/node/245	Small grants to stimulate planning and design of greenways in communities. The program also honors groups and individuals whose ingenuity and creativity foster the creation of greenways.
User fees	A fee charged to facility user to cover or defray cost of providing the facility or a specific services (e.g., tools, fares, parking fees, license fees or user permits). For example, the recreational fee demonstration program permits participating Federal lands sites to retain 80 percent of fees charged for internal use.

Funding Source	Comment
Private Sponsorships	Generally used for funding recreational facilities. Range from large corporate sponsorships to individual contributions.
Fund raising and contributions	Local businesses and well organized bicycle clubs may contribute. Many Federal lands have "friends" organizations.
State Infrastructure Banks	Many states are authorized to make loans and provide assistance to surface transportation projects. The program gives States the capacity to leverage Federal resources by attracting non-federal public and private investment. (FHWA 2001, pg 53)
See Innovative Approaches to Transportation- A Guidebook pg 53-54 for more ideas.	This table describes financing tools such as public-private partnerships, bonds, Certificates of participation, Leasing, Federal credit, and grants

APPENDIX G – BICYLE SURVEY METHODOLOGY AND RESULTS

To support preparation of this guide, two surveys, one for regional managers, and one for on-site managers, were distributed to gain a better understanding of bicycle issues on federal lands (see attached survey questions and results). Two surveys were used because it was believed that the issues faced at the regional and on-site levels were possibly different (i.e. more broad/policy based at the regional level, more local/specific at the onsite, land unit level). While intended for regional managers, a number of land unit managers responded to this survey as well. Surveys were designed to collect data from a variety of sources; not to produce statistically valid results across all federal lands. The survey sought information such as the types of bicycling common at a particular land unit (road, trail, separated pathway), potential barriers to promoting bicycling, how bicycles are tracked and other concerns managers have regarding bicycling on Federal lands. Specific questions are attached in the following sections. Survey results assisted in case study selection (Chapter 3) and common issues identified in the survey are discussed in Chapter 4. Surveys were distributed via email containing a link to the Survey Monkey website between November 2007 and February 2008. Survey response rate is unknown due to a "snowball" type survey distribution method where managers passed surveys along to others with an interest or knowledge of bicycling issues. A brief overview of survey distribution for each agency follows.

NPS –Washington Support Office (WASO) Transportation Planner Gay Page recommended that Western Transportation Institute (WTI) mail the 7 Regional Federal Lands Highway Coordinators requesting completion of the managers' survey and distribution of survey links to 10-15 NPS units within their region to complete the land unit survey. A total of 35 NPS surveys consisting of 13 management and 22 land unit surveys were completed.

USFS- Regional Landscape Architect Chris Sporl emailed the ten regional recreation planners requesting they complete the manager's survey and recommend five or six National Forests within their region to complete the land unit survey. A total of 13 FS surveys consisting of five management and eight land unit surveys were completed.

FWS – Alternative Transportation Coordinator Nathan Caldwell provided a list of bicycling volume data. Refuges from this list with high numbers or a high percentage of bicyclists were targeted for surveys. A request to complete surveys was provided to the FWS Electronic Refuge Update- a monthly newsletter for FWS employees, but the request was not published in the survey. Mr. Caldwell emailed several Refuge managers and WTI called several managers requesting survey completion. A total of nine surveys from 1 manager and 8 land units were completed.

BLM-Travel Management Coordinator Jack Placchi of the Colorado State Office sent an email request to the other 13 Travel Management Coordinators. A total of 32 surveys consisting of 12 management and 20 land unit surveys were completed.

Considered collectively, 28 managers completed the regional level survey and 57 managers completed the land unit survey. The following sections present:

a) overall observations from the survey results
b) detailed land unit managers survey results
c) tables containing current biking activities on public lands and comments from the land unit survey questions, organized by agency (NPS, USFS, FWS, BLM)
d) detailed regional level managers survey results

Overall Observations from Bicycling Survey

Land units surveyed varied widely in terms of size, annual visitation, topography and proximity to urban areas. Units ranged from a 91 acre urban park in downtown St. Louis, Missouri to a 5.6 million acre rural national forest in Alaska. Bicycle issues are unique to each land unit and what may be appropriate for one unit may not work for another

Table 16 shows what types of biking are common and who is biking. For example, 55% of the 22 NPS managers who responded to the survey reported road biking is common at their land unit. Results indicate road biking is more prevalent on NPS lands and mountain biking more prevalent on BLM lands. Biking is much more common for adults than children.

Table 19: Types of Biking on Public Lands.

		What bicycling is common?				Who commonly bicycles?			
Agency	# of responses	Mountain	Roadway	Pathways	Uncommon	Adults	Children	Employees	Not common
NPS	22	23%	55%	23%	32%	82%	41%	27%	18%
USFS	8	75%	75%	0%	13%	100%	13%	0%	13%
U.S.F&WS	8	14%	29%	29%	29%	75%	63%	25%	25%
BLM	20	90%	42%	26%	0%	95%	45%	15%	0%

Current Agency Activity relative to bicycling - Few managers reported regular bicyclist counts. Table 17 shows the percentage of land units that track bike use, have specific goals to increase biking and common issues that prevent managers from promoting biking.

Table 20: Tracking Bikes and Common Issues.

Agency	# of responses	Who tracks the number of bicycles?	Who has specific goals to increase # of bicyclists and pedestrians?	Most likely issues to prevent promotion of bicycling.
NPS	22	14%	9%	Safety, Funding, Environmental Impact
USFS	8	25%	0%	Funding, Environmental Impact, Topographic/design constraints
U.S.F&WS	8	25%	14%	Funding, Safety, Environmental Impact
BLM	20	47%	5%	Funding, Topographic/design constraint, Environmental Impact

Barriers to bicycling- The issues that are most likely to prevent promotion of biking are lack of funding (across the spectrum from planning to construction to maintenance of bicycling facilities), bicyclist safety, environmental impacts and topographic/design constraints.

Demand for bicycling- Demand for bicycling varies significantly. Demand is high in some places and managers are reacting to increased bike use, such as at Colorado National Monument. In other places, managers report very little interest. In Moab, Utah, Golden Gate National Recreation Area (NRA), and Glacier NP, the public has requested more time when roads are closed to autos to allow more time for safe bicycling.

Support for bicycling - The overwhelming majority of managers surveyed reported that they support for bicycling and are bicyclists themselves. Managers are interested in having bicycle facility experts available and they see value in programs such as shared bikes, though this support may not be representative of agency -wide support and attitudes.

Managers were asked what support and incentives would be required to encourage bicycle promotion. Almost every response mentions funding as a major factor. In the words of one NPS manager, "Specific policy and funding dedicated, not just to alternative transportation program in general, but to bicycle facilities."

Other support and incentives managers would need to encourage biking includes: education on low cost items, brochures addressing safety elements, congressional staff support, demand by public, and partnerships/collaboration between agencies and bicycle organizations.

FHWA Bicycles Land Unit Questionnaire

1. Which Federal Agency do you work for?

	Response Percent	Response Count
Bureau of Land Management	34.5%	20
Fish and Wildlife Service	13.8%	8
Forest Service	13.8%	8
National Park Service	**37.9%**	22
answered question		58
skipped question		3

2. Please list

	Response Percent	Response Count
Name of Land Unit you manage	**100.0%**	60
Size of Land unit (acres)	98.3%	59
answered question		60
skipped question		1

3. What best describes the topography of the main travel corridors through this land unit?

	Response Percent	Response Count
flat	21.4%	12
mild grades	28.6%	16
medium grades	**35.7%**	20
steep grades	17.9%	10
mountainous	**35.7%**	20
Other (please specify)		15
answered question		**56**
skipped question		**5**

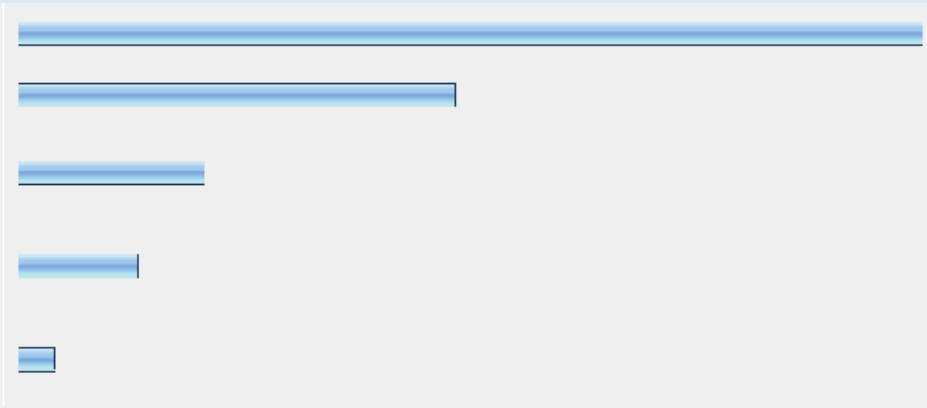
4. Which of the following best describes this land unit?

	Response Percent	Response Count
Urban	12.3%	7
Suburban	3.5%	2
Rural	**59.6%**	34
Other	24.6%	14
Other (please specify)		22
answered question		**57**
skipped question		**4**

5. What type of bicycling commonly occurs in this land unit? (check all that apply)

	Response Percent	Response Count
Mountain biking on trails	**52.5%**	31
Biking on roadways with paved shoulders or bike lanes	50.8%	30
Biking on separated multi-use pathways (multi ues may include pedestrians, roller blades, and other non-motorized users)	20.3%	12
None- bicycling is not common in this land unit	10.2%	6
Other (please specify in comment field)	20.3%	12
	Comment	26
	answered question	**59**
	skipped question	**2**

6. Who commonly bicycles in this land unit? (check all that apply)



	Response Percent	Response Count
Adults	**88.5%**	54
Children	42.6%	26
Employees bicycling to and from work	18.0%	11
Bicycling is not common in this land unit	11.5%	7
Other (please specify in comment field)	3.3%	2
	Comment	9
	answered question	**61**
	skipped question	0

7. How likely are the following issues to prevent promotion of bicycling at this land unit?

	Very Likely	Likely	Neutral	Unlikely	Very Unlikely	Rating Average	Response Count
Concerns about effects on wildlife	3.3% (2)	13.3% (8)	26.7% (16)	**41.7% (25)**	15.0% (9)	3.52	60
Concerns about bicyclist safety	18.3% (11)	**30.0% (18)**	23.3% (14)	21.7% (13)	6.7% (4)	2.68	60
Lack of interest, not a priority	3.3% (2)	21.7% (13)	18.3% (11)	**33.3% (20)**	23.3% (14)	3.52	60
Lack of planning funds or resources	20.3% (12)	**50.8% (30)**	15.3% (9)	8.5% (5)	5.1% (3)	2.27	59
Lack of construction funds or resources	26.7% (16)	**43.3% (26)**	16.7% (10)	8.3% (5)	5.0% (3)	2.22	60
Lack of maintenance funds or resources	28.3% (17)	**40.0% (24)**	15.0% (9)	10.0% (6)	6.7% (4)	2.27	60
Not an appropriate use	5.1% (3)	10.2% (6)	18.6% (11)	**33.9% (20)**	32.2% (19)	3.78	59
Environmental impact to construct bicycle facility	8.3% (5)	**36.7% (22)**	20.0% (12)	25.0% (15)	10.0% (6)	2.92	60
Historic roads or roadside features	5.1% (3)	6.8% (4)	27.1% (16)	**40.7% (24)**	20.3% (12)	3.64	59
Topographic/design constraints	13.3% (8)	26.7% (16)	16.7% (10)	**30.0% (18)**	13.3% (8)	3.03	60
Lack of knowledge about how bicycles may impact operations	1.7% (1)	8.3% (5)	33.3% (20)	**38.3% (23)**	18.3% (11)	3.63	60
Other	33.3% (3)	0.0% (0)	**66.7% (6)**	0.0% (0)	0.0% (0)	2.33	9
					Other (please specify)		13
					answered question		**60**
					skipped question		**1**

8. What types of bicycle projects would you like to encourage at this land unit? (Check all that apply.)

	Response Percent	Response Count
Widened paved shoulders or bicycle lanes	50.0%	30
Shared-use paths for bicycles and other non-motorized users separate from roadway	51.7%	31
Mountain biking trails	**55.0%**	33
More bicycle parking racks or lockers	21.7%	13
Integration of bicycles with transit system(bike racks on transit)	11.7%	7
Shared bicycle programs for employees or visitors (for example, having bicycles available through grant program for free use)	16.7%	10
More options for bicycle availability (for example-bike rentals with unique bikes such as tandems, four wheel bikes, tricycles, etc.)	11.7%	7
Establish bicycle routes (maps and way finding signs)	48.3%	29
Limited auto access (auto free zones or times when roads are closed to autos)	15.0%	9
Showers	6.7%	4
Safe connections for bicyclist and		

pedestrians between campgrounds, visitor centers, trailheads and other attractions	40.0%	24
None- I would not encourage bicycle projects at this land unit	5.0%	3
Other (specify in comment field)	8.3%	5
Comment	23.3%	14
answered question		60
skipped question		1

9. Would you like to have bicycle facility experts available to help plan improvements at this land unit?

	Response Percent	Response Count
Yes	**54.2%**	32
No	18.6%	11
No preference	27.1%	16
answered question		59
skipped question		2

10. What support and incentives would be required for you to promote bicycling facilities or operations at this land unit?		
		Response Count
		45
	answered question	**45**
	skipped question	**16**

11. Are bicycle facilities tracked at this land unit? (for example, miles of bike lanes on roadway, miles of bicycle trails, bicycle parking, etc.)			
		Response Percent	Response Count
I'm not aware of how bicycle facilities are tracked here		10.0%	6
No		**60.0%**	36
Yes		30.0%	18
	If yes, describe method and information tracked (database, bike lane/ trail length, maintenance, costs, funding...)		22
	answered question		**60**
	skipped question		**1**

12. How frequently are the number of bicycles that travel in this land unit tracked?

	Response Percent	Response Count
Bicycles are tracked on a regular basis	14.0%	8
Bicycles are tracked sporadically	21.1%	12
Bicycles are not tracked at this land unit	**59.6%**	34
Don't know	5.3%	3
Describe frequency and methods (survey, observation, counters...)		24
answered question		**57**
skipped question		**4**

13. Does this land unit have specific goals to increase the number of visitors who travel by bicycle? (Federal transportation policy calls for increasing the percentage of trips made by bicyling and walking to 15.8%)

	Response Percent	Response Count
Yes, this land unit has a specific goal (specify in comment field)	8.5%	5
No, this land unit does not have a specific goal	**83.1%**	49
I'm not aware of a specific goal	8.5%	5
	Comment	16
	answered question	59
	skipped question	**2**

14. Does this land unit have any of the following programs to manage or promote bicycling? (Check all that apply.)

	Response Percent	Response Count
Maps or online materials showing specific bicycle routes	**58.5%**	24
Way finding signs on roads or trails for bicyclists	36.6%	15
Bicycle rodeos or other safety education programs	9.8%	4
Bicycle tours by park employees or private groups	22.0%	9
Bicycle festivals, races or other events	46.3%	19
Limited auto access (road closures to vehicles/open to bikes)	29.3%	12
Transit system that accomodates bicycles	14.6%	6
Incentives to bicycle such as reduced entrance or camping fees	9.8%	4
Other	12.2%	5
Provide specifics/details here.		20
answered question		**41**
skipped question		**20**

15. Do you have any data or evidence suggesting bicycling demand on your land unit? Check all that apply.

	Response Percent	Response Count
Before/after studies of areas where bicycle facilities have been incorporated	0.0%	0
Visitor surveys	17.9%	10
Comments from public	46.4%	26
Increased use when roads closed to vehicles/open to bicyclists	8.9%	5
None	**51.8%**	29
Other (please specify)		10
answered question		**56**
skipped question		**5**

16. Does this land unit currently have a transit system?

	Response Percent	Response Count
No	**76.7%**	46
Yes	23.3%	14
If yes, describe type and specify if system accomodates bikes:		15
answered question		**60**
skipped question		**1**

17. What are the main concerns regarding bicycling on this land unit?	
	Response Count
	56
answered question	56
skipped question	5

18. How can the Federal Highway Administration assist you to create more opportunities for bicycling at this land unit?	
	Response Count
	48
answered question	48
skipped question	13

19. Do you yourself, bicycle?		
	Response Percent	Response Count
Yes	76.7%	46
No	23.3%	14
Comment		19
answered question		60
skipped question		1

20. Briefly describe your		Response Percent	Response Count
Job title/position		100.0%	60
Years at this agency		100.0%	60
Years at this land unit		100.0%	60
Role in transportation planning		90.0%	54
	answered question		60
	skipped question		1

21. Please provide any other coments regarding bicycling use on Federal Lands.		Response Count
		18
	answered question	18
	skipped question	43

National Park Service Survey Land Unit Survey Summary

National Park Service Survey Summary					What bicycling is common?					Who bicycles?			
Land Unit/ Location	Size (acres)	Annual Visitation (2006)	Topography of the main travel corridors	Character	Mountain	Roadway	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Apostle Islands National Lakeshore, Wisconsin	69,000 acres (only 2592 on the mainland however)	190,105	mild grades. Most of unit is road less islands, or water in designated wilderness. I will confine answers to the 2592 acres of mainland, non-wilderness land we manage.	Rural					A small number of people bicycle TO the park on paved roads but there is no bicycle use beyond these front country nodes. Total paved road mileage in the park is miniscule.				x
Carlsbad Caverns National Park, New Mexico	45,800	407,367	steep grades	Rural, wilderness		x			Very little biking pressure				x
Casa Grande Ruins National Monument, Arizona	472.5 (only about 3 acres and a one mile entrance road are open to the public)	90,455	flat	Suburban					Bicycling on the entrance road between the visitor center and the City of Coolidge. We are used as a "checkpoint" for some bicycle races. At times we have an issue with unlawful use of mountain bikes in/over sites closed to the public, though they tend to be in the minority of users. One employee regularly bikes to and from work (about 5-6 miles round-trip).	x		x	
Cedar Breaks National Monument, Utah	6,000	528,870	mild and medium grades and exceptional scenic views	wilderness character		x			Would like to develop a separate hiking biking trail alongside a 6 mile scenic drive. Mountain biking is very popular especially in our gateway community of Brian Head, Utah. we would like to connect our campground with Brian Head, but would allow biking ONLY on paved trail.	x	x		

National Park Service Survey Land Unit Survey Summary

National Park Service Survey Summary					What bicycling is common?					Who bicycles?			
Land Unit/ Location	Size (acres)	Annual Visitation (2006)	Topography of the main travel corridors	Character	Mountain	Roadway	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Colorado National Monument	25,000	654,190	steep grades, mountainous. steep, winding, narrow, no shoulders	Rural, on edge of urban areas		x			Intense bicycle use -pressure for pro races	x			
Cuyahoga Valley National Park, Ohio	33,000	2,469,289	mild grades. The main trunk trail is in the valley and is relatively flat. Access route into and out of the valley can have a more challenging slope.	Rural, surrounded by suburban		x	x			x	x	x	
Death Valley national Park, California	3.3 million	771,530	mountainous	wilderness	x	x				x	x	x	
Denali National Park and Preserve, Alaska	6 million	1,180,731	mountainous	Remote - wilderness	x	x	x		Most common is biking on unpaved road without shoulders (the main park road).	x	x	x	
Denali National Park and Preserve, Alaska	6 million	1,180,731	medium grades	Rural, wilderness					Cycling the park road which is a 90-mile dirt road with no shoulders	x			
Devils Tower National Monument, Wyoming	1347	337,508	flat, mild and medium grades	Rural				x					x
Glacier Bay National Park and Preserve, Alaska	3.3 million	414,116	mild grades	Alaska bush community		x				x	x	x	

National Park Service Survey Land Unit Survey Summary

National Park Service Survey Summary					What bicycling is common?					Who bicycles?			
Land Unit/ Location	Size (acres)	Annual Visitation (2006)	Topography of the main travel corridors	Character	Mountain	Roadway	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Great Sand Dunes National Park and Preserve, Colorado	149137	259,130	mild grades to steep, mountainous	Rural		x			Most trails are in wilderness where cycling is not allowed. Our primary backcountry road has long sections of soft sand not conducive to cycling.	x			
Jefferson National Expansion Memorial, St. Louis, Missouri	91	2,830,404	flat	Urban			x			x			
Lyndon B. Johnson National Historical Park, Texas	700	89,952	mild grades	Rural				x	The LBJ Ranch will be opening to increased activity and opportunity as Mrs. Johnson's life estate has ended. The Johnson daughters are avid cyclists. The park has held two bike events in 2007 and has several larger rides planned for 2008.	x	x		
National Mall & Memorial Parks, Washington, DC	6839	3,803,244	flat and mild grades	Urban	x	x	x		you name it, we have it	x	x	x	
Petrified Forest National Park, Arizona	125,000	581,801	mild grades	Rural				x					x
Rocky Mountain National Park, Colorado	265,000	2,927,920	mountainous	Rural		x				x			

National Park Service Survey Land Unit Survey Summary

National Park Service Survey Summary					What bicycling is common?					Who bicycles?			
Land Unit/ Location	Size (acres)	Annual Visitation (2006)	Topography of the main travel corridors	Character	Mountain	Roadway	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Saguaro National Park, Arizona	91,000	3,140,395	medium grades	Rural, on the edge of suburbia...	x	x				x	x		
San Antonio Missions National Historical Park, Texas	835	1,173,771	mild grades	Urban		x	x			x	x		
Theodore Roosevelt National Park, North Dakota	70,447	441,937	steep grades	wild, natural					biking on roads without much shoulder	x			
Timpanogos Cave National Monument, Utah	250	110,840	mountainous	Surrounded by FS lands including wilderness, but are just a few miles from the Wasatch Front urban area.					We have lots of biking but there are no paved shoulders or bike lanes, which creates a very dangerous situation for the bikers.	x			
Whiskeytown National Recreation Area, California	42,000	756,041	mountainous	Rural	x				Biking on roadways without paved shoulders or bike lanes	x			

National Park Service Land Unit Survey Comments

7. How likely are the following issues to prevent promotion of bicycling at this land unit?

Lack of planning funds or resources: We don't currently have an area for bikes to be parked and secured. Rangers generally unlock the outdoor classroom to allow bike users to park there so long as no school group is there. Not an appropriate use: Other then on the entrance road (about one mile long) there is no other lawful use for bikes. Therefore other then bike races that use our visitor center as a "checkpoint" (this happens under 10 times a year) we don't get many bike users.
There are already many bike tour groups that use the park scenic drive as a destination.. but current road widths make this a dangerous practice! The NPS is actively working with Brian Head, Cedar City, Panguitch and other gateway communities to establish a safe bike/hike trail system on Cedar Mountain and through Cedar Breaks.
Courting disaster here with growing bike and auto/truck & commercial hauling commuter uses
Since cycling exists in the more conventional form it is more a matter to trying to determine if mountain biking in the park is appropriate and sustainable
The Gateway Arch grounds are separated from the downtown street grid by a busy frontage road and depressed interstate highway (Memorial Drive/I-70). Bicycle routes have been designated through downtown so there is increased interest and support. However, crossing Memorial Drive to access the park grounds is a safety concern.
To begin, we will allow bicycles to share the one-way Ranch roads.
Conflicts with vehicles during the busy season, although bicycling is allowed. We may just not want to promote it too much during the busiest times. A bicyclist must be in good physical condition to make long rides in the park.

8. What types of bicycle projects would you like to encourage at this land unit?

Currently no bike racks) exist. The park has only a limited need and could/might use an area of parking lot to mount a 5 rack unit. Having more then 5 visitors with bikes at the park is, at this time, very rare.
difficult if not impossible topography for widened road or creation of pathways
As an objective manager I wouldn't say that I want to encourage mountain bike use but I do feel that it needs to be properly evaluated with an informed decision being made as to future mountain bike use.
Improved information for bicycle users.
Expand capacity for bikes on busses
A park partner already rents bicycles (including tandems) on the riverfront adjacent to the park. This has been a positive visitor experience.
We have had preliminary discussions about closing our East District's 8 mile scenic loop drive to vehicles on occasions, so that bicyclists (and walkers) could use it without worrying about motor vehicles. Some staff support this, while others do not. Don't know if we'll ever implement such a plan, but we have at least thought about and discussed it...

10. What support and incentives would be required for you to promote bicycling facilities or operations at this land unit?

National Park Service Land Unit Survey Comments

Cooperation from adjacent land owners and jurisdictions (and money of course) since most of the bike path development would be outside our boundaries.
Due to the nature and generally limited public use area, park level promotion of bike use is not likely. However city level promotion of use in Coolidge area could result in increased use to get to park. However note that many visitors (likely over 50%) come from cities and towns more than 30 miles away (one way).
There is already interest... availability of planning, design and implementation funds is what will make this happen.
Changes in vehicle uses currently allowed and required by lawsuit. T*here are safety issues between commuter and commercial traffic who have right-of-way through the park, and bicyclists. Note: italics text is comment for clarification and is not part of survey respondents original response.*
No incentives are necessary it is more a matter of providing the necessary planning resources.
Funding and planning
Support funding for NPS and for concessioner, and expertise (consultation)
Funding
Funding to plan and build a bike path that parallels our main entrance road.
Having a safer, pedestrian and bicycle friendly connection, such as an overpass, between the downtown proper and the Arch grounds would encourage more bicycle use in the park.
Public interest in proposals and options.
The park will be planning the appropriate future use of newly acquired lands and expects to include mountain bike trails as part of the mix.
Construction funding for multi-use path separate from Bear Lake Road
We'd need greater support of the local bicycling community for adherence to local regulations. Specifically, the Tucson area is very bicycle-friendly, with lots of bicyclists in the area. Our 8 mile loop drive is a very popular bicycle ride. However, as a scenic drive, with some topographic constraints, the speed limit is only 15 mph. On some sections bicyclist far exceed the speed limit, prompting complaints from motorist and walkers, enforcement problems, and safety concerns (significant numbers of injury accidents). We need the local bicycle community to buy into our regulations, and not just use and promote our scenic drive as a good training ride.
Utah 92 runs through the Monument, so we would need UDOT to take the leadership for adding bike lanes, as it would not make sense for the NPS to do anything in our short section of the road.

11. Are bicycle facilities tracked at this land unit? (for example, miles of bike lanes on roadway, miles of bicycle trails, bicycle parking, etc.)

2 bike racks. It's pretty simple.
We have 2.5 miles of designated multi-use trail (for mountain bikes, horses, hikers), and portions of our 8 mile loop drive has designated bike lanes (probably less than 1,500 feet) for sections that are uphill.
We don't have anything except a bike rack for visitors, so it is easy to track. However, if we had more it would be tracked in our Facility Management Software System.

National Park Service Land Unit Survey Comments

12. How frequently are the number of bicycles that travel in this land unit tracked?

During race "checkpoints" we count how many people pass through.
Daily - some days upwards of 100 cyclists
The LBJ Ranch has been closed to visitor access since 1972 except for tours on NPS-operated tour buses. The park is in planning to allow increased access and opportunities to the public.
We keep internal numbers of bike tour participants but not total numbers of riders in the park
In our East District, number of bicyclists are tracked/counted during hours that the entrance station is staff. But there is bicycle use both before and after the entrance station is staffed.

13. Does this land unit have specific goals to increase the number of visitors who travel by bicycle?

safety is huge concern right now -
Improving integration with other transit (more bicycles on buses) and improving information distribution.
A park planning document for the LBJ Ranch after Mrs. Johnson's life was drafted several years ago. It prescribes allowing bicycles on the Ranch.
As I said above, we have a very short section of Utah 92 that runs through the Monument, so UDOT would have to take the leadership role.

14. Does this land unit have any of the following programs to manage or promote bicycling?

No parking fee for bicycles while vehicles have to pay to park.
We are used as a "checkpoint" by some bike races. Though we don't "hold" the race ourselves
sharing the road emphasis, signs, brochures and park website - increased enforcement
cycling information is on the park website
We do not have any promotion programs in progress.
A park partner operates a bicycle rental facility immediately adjacent to the park on the riverfront.
bicycle patrols as well
"Ride The Rockies" event uses park every few years

15. Do you have any data or evidence suggesting bicycling demand on your land unit?

Strong interest in providing for mountain bike use.
Antidotal, it seems bicycle use is increasing. We haven't analyzed our visitor use stats to validate that assumption.
There have been organized mountain bike races held at Whiskeytown NRA

16. If this land unit has a transit system, describe type and specify if system accommodates bikes:

National Park Service Land Unit Survey Comments

It's a ferry system to road less islands where bikes are not permitted, so the answer is effectively "no,"
It is an excursion train that runs through the valley which does offer service to cyclist wishing to use both types of transportation
Bus system; some buses accommodate up to 2 bicycles and the NPS would like to increase this to 4.
Shuttle bus system that can accommodate only two bikes per bus.
Seasonal bus service from Gustavus to Glacier Bay Lodge during the visitor season
A tour bus system that we hope to eliminate as the buses are old and the schedules are limiting to visitor use and convenience.
Washington Metropolitan Area Transit Authority - Rail and Bus
Visitor Transportation System (shuttle buses) tin the Bear Lake Road corridor and links to the Town of Estes Park
Limited access through city bus system. Access to two units through private tour bus operations.

17. What are the main concerns regarding bicycling on this land unit?

No known demand for mountain bike trails. No desire to have shared trails with hikers. Additional trails would fragment the acreage and require maintenance we can't afford.
Visitor safety. Narrow winding road is dangerous and we do not promote bicycle usage.
No bike racks currently. Safety as the road has no real shoulders and a small ditch on each side. Many visitors are coming from a distance that would not be generally biked (50-60+ mils round trip) and the only use that bikes do/can serve at this site do to it's nature is up and down the entrance.
Cedar Breaks is an ideal location to provide a combination of paved and marked widened road shoulders and separate bike lanes.
Exponential growth of all uses - vehicles, trucks and commercial hauling and increased biking on same road. Road is historic and topography cannot accommodate wider road surface We are trying to prevent inevitable fatalities
Is mountain biking appropriate and sustainable at this NPS unit.
Inadequate camping and bicycle storage facilities; a bicyclist has to ride a great distance in one day if traveling the entire 90-mile park road. Also, inadequate capacity on bus systems to haul bicycles, and the need for improving orientation information.
Busses only accommodate two bikes per bus, campgrounds/bike racks are too far apart so that visitors who wish to bike the 90-mile road have to ride over 50 miles in one day.
bicycle on road use: safety, low demand, historic road and features bicycle off road use: not permitted due to impact to natural resources and visitor experience
Rider safety
Demand is self-limiting due to the nature of our unpaved roads and trails. For cyclists who do cycle along our paved roads, safety is a primary concern. If funds were available, our recently completed General Management Plan provides the possibility for a bike path that parallels the entrance road (about 4 miles) plus a path from the campground to the dunes parking lot area. Obviously, beyond funding, construction of such paths may be limited by environmental and/or cultural resource impact concerns.
Bike trails have not been a part of the LBJ Ranch. If we were to offer off-road, single-track trails for ATB's we would introduce a new feature to the landscape.

National Park Service Land Unit Survey Comments

Existing roadways are too narrow - no off-road infrastructure (either paved route along existing transportation corridors or mountain bike tracks).
Steep terrain makes construction difficult and costly and precludes many recreational bicyclists from using the park. Public support has not been significant, probably from lack of adequate awareness of possible bike trail plans.
SAFETY, and the intermingling of bicyclist with motorists, hiker/walkers and equestrians.
Promotion and marketing of bicycle opportunities. Some opportunity to increase bicycle accessibility particularly as the park develops in the coming years.
Distances are far and terrain is rugged. Bicycle use on the roads has increased in the past 20 years, but is still fairly light. We are far from population centers. This is a specialized activity that is available (and it's great!) However, seeing the park by bicycle would not be an option for the majority of our visitors.
Currently there are no bike lanes or shoulders for bikers to use, making it very dangerous for them.
Conflict between mountain bikes and equestrian use on trails. Damage to trails from mountain bike use. Safety of bike users and pedestrians on trails.

18. How can the Federal Highway Administration assist you to create more opportunities for bicycling at this land unit?

Help us work with adjacent jurisdictions and fund the construction of shoulder bike lanes and appropriate signage. Do NOT forward our interest to the mountain biking community!
I don't believe that the FHWA can help use to the nature of the park site. They might be able to help the City of Coolidge though, to increase bike use in the city around the park.
help with planning, design, funding and construction
Improve alternate county road to divert vehicle traffic, evaluate engineering needs to look at some widened section of road????
Planning funding.
Funding and consultation for above projects.
This land unit is currently not pursuing more opportunities for bicycling.
Unsure at this time.
Because the interstate highway bisects the park, a safer connection such as an overpass between the downtown street grid and the Gateway Arch grounds is needed in order to encourage both pedestrians and bicyclists to use the park more fully.
Planning and funding in order to widen the one-way Ranch roads to allow for a hike and bike lane.
Supporting design and construction funding.
not certain...
Provide financial assistance to promote existing opportunities and to develop new ones.
No needs at this time except additional bike racks.
work with Utah Dept of Transportation to encourage them to add bike lanes or shoulders to their roads.
A study would be helpful

National Park Service Land Unit Survey Comments

19. Do you yourself, bicycle?

Not currently.
not in my unit - too scary
Recreationally, mainly in summer
mountain bike on adjacent USFS land
For pleasure.
ATB
mountain bike and recreational bike trails
not an avid bicyclist, but enjoy riding now and then...
avid bicyclist
mountain and road

Please provide any other comments regarding bicycling use on Federal Lands.

would love to see this happen at as many park units as possible. Cedar Breaks has an annual visitation of 550,000 visitors per year and many would enjoy the option to bike / hike through the park.
Bicycling is growing everywhere. In general it can be a good thing. In this unit we have great concerns about bicycle safety and court mandates about right of way road sections for commuter and commercial hauling
I think cycling should be encouraged on paved and dirt roads as a way to see federal lands. Entrance fees should be reduced or waived for cyclists. I think on some federal lands mountain biking opportunities should be provided. I think bicycles should not be allowed in Wilderness.
This is an excellent way to promote energy conservation and wellness for our employees and visitors.
A discreet portion of FHWA funds should be allocated for development and promotion of bicycling facilities on public lands as a vital part of the intermodal transportation system.
I love to bicycle, and love to see visitors bicycling. However, I do not want to see trails on national park lands open to mountain bikes, except in rare places as appropriate.

U.S. Forest Service Land Unit Survey Summary

Forest Service Survey Summary				What bicycling is common?					Who bicycles?			
Land Unit	Size (acres)	Topography of the main travel corridors	Character	Mountain	Roadway	Pathway	Uncommon	Comment	Adults	Children	Employees	Uncommon
Ashley NF	1.5 million	A mix of very steep grades in Utah and mild grades in Wyoming.	Rural	x	x			Several biking events permitted annually.	x			
Boise NF, Idaho	2.2 million	mountainous	Minimally developed	x	x				x	x		
Caribou-Targhee NF	3 million	Varies from flat in some places, medium to steep grades in others.	Rural	x					x			
Chugach NF	5.6 million	mountainous	Wild, undeveloped	x	x				x			
Cibola National Forest and Grasslands	1.87 million	Forest and Grasslands units in 3 different states -- NM, TX and OK. Travel corridors vary widely from flat to mountainous	We border both major metropolitan areas and small rural communities.	x	x		x	There are many mountain bikers near the Albuquerque area; in the rural grasslands there are virtually no bicyclers.	x			x
Coronado NF, Arizona	2 million	mountainous	Urban		x			Sabino and Madera canyon are favored by bikes. Both are narrow canyons, and bikes have been regulated to occur only at certain times. Mt. Lemmon is a favored road with a steep grade for nearly 30 miles and is used by bike for training and for the speed trip downhill.	x			
Gila NF	3.3 million	medium grades	Rural		x				x			
Santa Fe NF	1.57 million	medium grades	Rural	x				Forest has a minor amount of mountain biking--mostly concentrated around Santa Fe and in the Jemez NRA	x			

U.S. Forest Service Land Unit Survey Comments

7. How likely are the following issues to prevent promotion of bicycling at this land unit?

no comments

8. What types of bicycle projects would you like to encourage at this land unit?

The greatest impediment to bicycling as a transportation means is adequate shoulders or bike lanes on state and county roads. Traffic is too heavy to allow safe bicycling without wider shoulders or lanes since there is no place to get off these roads. Forest roads typically have much less use so bicycling on the forest road itself is generally safe.
some additional use on trails would be appropriate, but in our erodible soils, bikes tend to create more damage than hiking; shared use on our roads is not appropriate to encourage because of safety issues.

10. What support and incentives would be required for you to promote bicycling facilities or operations at this land unit?

Funding for maintenance and operations is always an issue. Planning funds seem more available. Hope to tie this in with Byways/Backway existing programs.
None. We do what we can when we can. it's a question of work priorities more than anything else. Maintaining and managing what we already have comes first.
Safe connections via state and county roads to sites and facilities on national forest land.
Our unit's recreation budget has decreased over 30% in two years. We can barely fund our full time people, and we are understaffed as it is. Not only would we need money to fund projects, we would need assistance in personnel to plan, prepare NEPA documentation, and design any bicycle facilities.
To make it work here we would need City and County support

11. Are bicycle facilities tracked at this land unit? If yes, describe method and information tracked (database, bike lane/ trail length, maintenance, costs, funding…)

5 year FS survey (NVUM) gives very general info - not biking specific.
only miles of trails open to bicycle use.
This information is available via our travel plan maps that show restrictions and designations of allowed uses.

12. How frequently are the number of bicycles that travel in this land unit tracked?

One district in particular has an avid mountain bike user groups. This group occasionally compiles numbers and areas of use.
We have an annual bike race that attracts hundreds of riders which we have the ability to track

13. Does this land unit have specific goals to increase the number of visitors who travel by bicycle?

no comments

U.S. Forest Service Land Unit Survey Comments

14. Does this land unit have any of the following programs to manage or promote bicycling?

There are bicycle events which operate under special use permit --the Forest does not sponsor these events.
Some races are held here, but the Forest does not organize them, we permit them

15. Do you have any data or evidence suggesting bicycling demand on your land unit?

National Visitor Use Monitoring Process

16. If this land unit has a transit system, describe type and specify if system accommodates bikes:

a shuttle system operates in Sabino Canyon

17. What are the main concerns regarding bicycling on this land unit?

Difficult to maintain existing Mt. Bike trails with current budget and skills. Adding new facilities is a concern due to flat or declining budgets. I think as soon as we are discovered - the sport will boom locally.
Bicyclist safety. Shared use of trails with motorized uses.
Safety riding along state and county roads that access National Forest Land.
Near the Albuquerque metropolitan area we have mountain biking competing with motorized use, so there are conflicts in some sections of that particular district. Our land unit is not contiguous, so it presents some challenges to bicycle planning; any bike use is fairly localized to a certain community.
Safety and accidents. Sabino has limited road width and extensive pedestrian use. .Madera, is frequented by bikers who speed down hill risking on coming traffic accidents. Often bikers exhibit rude behaviors to Forest Service personnel.
Its remoteness and the actual use it would get except for certain events.
Increasing use on trails would have erosion impacts in some locations; shared use with cars/trucks on our road system would present some significant safety concerns because of rough surfaces and sight distance.

18. How can the Federal Highway Administration assist you to create more opportunities for bicycling at this land unit?

When completing highway projects construct bike paths or wide shoulders where there is adequate space and terrain allows.
Require FHWA funded projects on State roads passing through public lands to include separated pathways for bikes as a part of construction or reconstruction
They could take the role of bringing together communities and the land agencies to spearhead particular projects. For example, the City of Grants, NM, has recently taken the lead in a bike trail and we are able to leverage a small amount of funding and assistance for them.
Supports our efforts in the Gila bike race every year.

19. Do you yourself, bicycle?

For pleasure only.

U.S. Fish and Wildlife Service Land Unit Survey Summary

Fish and Wildlife Service Survey Summary				What bicycling is common?					Who bicycles?			
Land Unit/ Location	Size (acres)	Topography of the main travel corridors	Character	Mountain	Roadway	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Arapaho NWR Complex	23,000 acres in Colorado, 21,000 acres in Wyoming	flat	Rural				x	Public use from out of the area do not bring bicycles for recreation. Local users do not tend to bicycle in this rural area. Though we are close to Walden, narrow state highways make bicycling from town dangerous. Public use is low (about 7,000/yr). Most use is wildlife viewing-people like to drive cars and take pictures of wildlife. At 8,200 feet, cold temperatures and altitude also limit interest in bicycling from out of area visitors. With approximately 1200 people living in Jackson County, local public use is also low and bicycling is not often seen in the area.				X
Cabo Rojo and Cartagena NWR's	Cabo Rojo:1,856: Cartagena 1,043	flat	Rural	x					X			
Chincoteague NWR	14000	flat	adjacent to resort town			x		shared use of paved wildlife tour loop	X	X	X	
Horicon NWR	21000	flat	Rural		x			Some biking on gravel roads as well.	X	X		
McGregor District of the Upper Mississippi River National Wildlife and Fish Refuge	91662	steep grades- The unit is on the floodplain of the Mississippi River, the only travel through the unit is via highway or by boat. Road adjacent to the Refuge are steep.	Rural				x	The Refuge lies in the floodplain of the Mississippi River, there are no bike trails. Biking does occur on highways adjacent to the Refuge (Great River Road), but little if any biking occurs on the Refuge.				X

U.S. Fish and Wildlife Service Land Unit Survey Summary

Fish and Wildlife Service Survey Summary				What bicycling is common?					Who bicycles?			
Land Unit/ Location	Size (acres)	Topography of the main travel corridors	Character	Mountain	Roadway	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Trempealeau NWR	6226	flat	Rural					Biking on multi use gravel roads and pathways	X	X	X	
Upper Mississippi River National Wildlife and Fish Refuge	240000	mild grade	Rural		x	x			X	X		
Vieques National Wildlife Refuge	17700	medium grade	Rural					Mountain biking on graveled roads also used by vehicles.	X	X		

U.S. Fish and Wildlife Service Land Unit Survey Comments

7. How likely are the following issues to prevent promotion of bicycling at this land unit?

We have some issues with large groups, especially for-profit tour groups.

8. What types of bicycle projects would you like to encourage at this land unit? (Check all that apply.)

We can allow bicycling on the auto tour loop and provide for wildlife viewing and public safety. The interest in bicycling is low, and would not be the best use of funds at this station. The one exception is a private group interested in constructing a multi-use trail from the town of Walden to the Brocker Overlook on the Refuge, along Highway 14 (Cache la Poudre Scenic Byway). But, the group has to develop rights-of-way and the trail from town to the refuge boundary before it would make sense to expend funds on the refuge.
I would not encourage on-Refuge bicycle paths, but would support off refuge paths adjacent to or on highways which border the Mississippi River.
We would like to have a "park and bike" program with free bikes available , but making helmets available has always been an issue.

10. What support and incentives would be required for you to promote bicycling facilities or operations at this land unit?

We are about to start an alternative transportation study. Having those results will be important. Our biggest problem is inadequate trails in adjacent community linking users to refuge

Abandonment of railroad lines adjacent to the river would provide a tremendous opportunity to establish bike trails, would reduce noise/pollution associated with rail traffic, would increase safety of visiting public - support/incentives for abandonment or relocation of rail lines
Funding for improvements to facilities, public education and promotion
Money to complete trails and support for a staff person to ride the trail once a day to pick up trash and conduct outreach to those encountered on the trail.
Funds for planning, design, implementation and upkeep of biking facilities. Also, funds to inform bikers about safety issues - appropriate gear, unexploded ordinance awareness, etc.

11. Are bicycle facilities tracked at this land unit? If yes, describe method and information tracked (database, bike lane/ trail length, maintenance, costs, funding…)

trail lengths, maintenance costs
We have no on Refuge bicycle facilities
trail length, maintenance, costs to construct

12. How frequently are the number of bicycles that travel in this land unit tracked?

The use is not observed by staff in numbers that justify tracking.
trail counters and volunteers conducting surveys
Counting devices have been purchased and will be in use spring 08
direct observation, counters
Bicycles are observed during the weekends - Sat. and Sun. and numbers are documented.

13. Does this land unit have specific goals to increase the number of visitors who travel by bicycle?

I think this may come out of the alternative transportation study
There are currently no on-Refuge bicycle facilities ... its a floodplain.
We have plans to connect bike trail units to each other. Including the Mississippi River Trail, Great River Trail and Illinois Great River Trail.
Increase wildlife observation through bicycle use.
Although CCP calls for improvements to promote biking

14. Does this land unit have any of the following programs to manage or promote bicycling? (Check all that apply.)

A portion of the Wisconsin Great River State Bike Trail runs through the Refuge

15. Do you have any data or evidence suggesting bicycling demand on your land unit?

The Wisconsin Department of Natural Resources tracks use on the Great River State Bike Trail

We have documented numbers of bikers on the refuge during the weekends, Sat. and Sun. since 2006.

16. Does this land unit currently have a transit system? If yes, describe type and specify if system accommodates bikes:

Bikes are allowed on all roadways and trails. About half of these trails are closed to vehicle traffic.
The graveled roads do not have any designated areas for bikers.

17. What are the main concerns regarding bicycling on this land unit?

lack of funding and staff to administer a new public use program. Arapaho NWR has only 4 PFT staff to administer lands in Colorado and Wyoming. Public use is good for where we are located, but is low overall. Infrastructure must be used to stay in good condition, or it's a maintenance nightmare. With only one maintenance worker we don't need more facilities to maintain for the limited use we would get by bicyclists. Also, bicycling is to be used on NWRs as a means for wildlife related recreation and there could be an increased law enforcement demand to ensure compliance, particularly if a new program is implemented. With only one dual function officer, (the Refuge Manager) time constraints and priorities would limit the ability or interest in expending LE efforts to ensure compliance with a new program.
safety when crossing vehicle roads and possible disturbance of breeding shorebirds during certain months of the year
Again, connection w/ local community. Lack of a trail that travels the main corridor to the beach which means people ride on road w/ cars.
Safety on perimeter roads.
The Refuge lies on the floodplain of the Mississippi River - any bike trails would require filling of wetlands and continual maintenance due to flooding. The Refuge itself is not a good location for bike trails, however, there is tremendous opportunities to develop very scenic and unique bike trails along the railroad/highways that border and in some cases run through or cross the Refuge. Unfortunately, the costs of abandoning rail lines or developing bike paths adjacent to rail lines or highways is very expensive.
Safety - the Refuge is somewhat remote and not staffed at all hours when biking is occurring. Break-downs or water can become problematic. Gravel roads flood or need to be graded , creating temporary hazards for bikes.
Choosing the correct surface. On our trail in Illinois the surface was limestone Lithofication and a bicyclist was injured after falling due to soft trail conditions. We want to pave this portion of the trail since this runs through a sand prairie and we believe it would be a safer surface. We need funding to complete this project. We have roughly 20-30 miles of trails waiting to be funded that would provide connection to existing trails. These trails link with the Great River Road and provide access to four states along the Mississippi River trail system.
Appropriate roads or trails for bikers - designing trails, upkeep of trails. Safety - Preventing bikers from entering areas with unexploded ordinances.

18. How can the Federal Highway Administration assist you to create more opportunities for bicycling at this land unit?

I think, due to low use and local interest, other than the potential multi-use trail, that the funds would be put to better use at a higher public use station.
Provide funds for bike crossings, signs and educational/promotional material

not sure
convince the rail lines they need to abandon their current tracks along the River.
Streamline funding process so that it is easier to work with partners and to figure out what funds are available and how to apply.
Provide funding for trails and staffing to help monitor trails.
Design biking trails within the refuge. Provide a way to keep the bikers safe from entering areas with unexploded ordinances.

19. Do you yourself, bicycle?

Not here, but I have in the past
I ride to work almost daily
I bike to work
I ride my bike to work in summer. I have never been on an overnight bike ride and don't plan too. Just a casual bicyclist. Ride to work to get exercise and live more lightly on the land.

Please provide any other comments regarding bicycling use on Federal Lands.

Bicycling seems to be very compatible with the Service mission and the Refuge's purposes. It's a great family activity.
We have a high demand for bicycle use on this refuge. We need to ensure we are offering safe experiences.
The National Wildlife Refuge system as a whole has undergone significant reductions in workforce over the last two years. We currently do not have the staff or resources to manage development of bike trails on Refuge lands. Our "wildlife first" mission will often be in conflict with development of bike trails and the site specific and secondary impacts trails would have on fish and wildlife resources.
We are ready and willing to promote biking at Trempealeau - We are under- staffed and funded so new programs often get put on the back burner.
With designated bike trails and appropriate signage, biking on the refuge will be very popular. This is also a great way to help alleviate global warming.

Bureau of Land Management Land Unit Survey Summary

Bureau of Land Management Survey Summary				What bicycling is common?					Who bicycles?			
Land Unit	Size (acres)	Topography of the main travel corridors	Character	Mountain	Roadways	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Arizona Strip District	3.2 million	Combination of mild to steep and mountainous grades. Mohave desert environment to ponderosa pine mountains.	Rural. National Monuments	X					X			
BLM Yuma Field Office	1.2 million	Flat grades	Rural	X				Biking on routes within two Long-term Visitor Areas (3000 acres & 11,000 acres)	X			
Boise Front Special Recreation Management Area	12,000	mountainous	Urban interface	X					X	X		
Glenwood Springs Field Office	580,000	Mild, medium, steep and mountainous grades.	Suburban	X					X			
Grand Junction Field Office	1.1 million	mountainous	Rural	X	X	X			X	X	X	
Grand Junction Field Office	1.3 million	High Desert to Rocky Mt. foot hills	Rural	X	X				X			
Gunnison Field Office - Colorado	600,000	We have a variety of terrain ranging from mild grades to mountainous	Rural	X	X	X			X	X		

Bureau of Land Management Land Unit Survey Summary

Bureau of Land Management Survey Summary				What bicycling is common?					Who bicycles?			
Land Unit	Size (acres)	Topography of the main travel corridors	Character	Mountain	Roadways	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Hassayampa Field Office	3 million	undulating desert landscapes, leading into deep ravines or mountain areas.	urban interface	X					X			
Little Snake Field Office	1.3 million	medium grades	Rural		X				X			
McInnis Canyons NCA	123,430	We have a mix of all grades and difficulty levels.	Rural	X					X	X		
Missoula Field Office	160,000	mountainous	Rural	X					X			
Newcastle Field Office	292,168	mountainous	Rural	X	X				X			
Phoenix District	3 million	Flat, mild, medium and mountainous grades.	Urban	X					X			
Pinedale Field Office WY 100	1,300	Combination mild, medium and steep grades	Urban Interface			X		The 4 mile Pinedale pathway is an urban interface multi-use non-motorized path accommodating all modes of human powered travel. On public lands in general for this area, a variety of cycling opportunities occur from road bike cycling to off road / trail adventure cycling.	X	X		
Rawlins Field Office	3.5 million	Healthy and uniform mix of flat to mountainous grades.	Mainly rural, but the recent boom in oil and gas exploration is changing the settings from middle country to industrial	X	X			Lots of out of the area travelers from both in-state and out of state	X		X	

Bureau of Land Management Land Unit Survey Summary

Bureau of Land Management Survey Summary				What bicycling is common?					Who bicycles?			
Land Unit	Size (acres)	Topography of the main travel corridors	Character	Mountain	Roadways	Pathways	Uncommon	Comment	Adults	Children	Employees	Uncommon
Royal Gorge Field Office	800,000	Steep grades	Rural	X					X	X		
St. George Field Office	635,000	medium grades	urban interface	X	X	X			X	X	X	
Uncompahgre Field Office	~900,000	We have all of the above in the acres that we manage.	A little bit of rural, suburban and urban.	X	X	X			X	X		
White Mountains NRA	1 million	mountainous	National Rec Area	X					X			

Bureau of Land Management Land Unit Survey Comments

7. How likely are the following issues to prevent promotion of bicycling at this land unit?

The desert presents challenges to those not accustomed to the environment and is not a friendly place for children.
Bicycle advocates who poach unauthorized trails, without benefit of environmental study and approval process. We divert scarce resources toward law enforcement and restoration of environmental damage, taking those resources away from providing sustainable trails.
Until the past decade, cycling was not considered very appropriate given the standard traditional activities such as hunting, equestrian and motorized activities. Some folks now promote alternative modes of getting around to enjoy this wonderful country.
There is not a lack of interest from the public, but rather a lack of interest on the part of transportation planners to spend transportation funding on bicycle facilities.
There is also the issue of not enough staff to accommodate all areas and all requests.

8. What types of bicycle projects would you like to encourage at this land unit?

multiple use trails motorized and bicycle together
Biking can link resources; seamless management among agencies from urban to rural or natural areas is plausible and benefits derived from this may include: reduction in smog (motorized travel is now being used to get to these areas). Bicycling planning and initiation should be incorporated as the idea of the interstate highway system was envisioned decades ago. Have bike will travel. Provide for safety.

Bureau of Land Management Land Unit Survey Comments

10. What support and incentives would be required for you to promote bicycling facilities or operations at this land unit?

Funding and indication of public desire in this area.
Additional staff and funding are needed.
Reliable, on-going funding for planning, construction and maintenance.
We presently have about 100,000 bicycle visitors /year.
We actively work in partnership with bicycle advocates to manage mostly mountain bike trail opportunities. The road bikers would like more paved shoulders along the highways but the BLM doesn't manage these. They would also like to see the existing paved shoulders swept free of gravel periodically to make them safer. Right now we have few resources that we can devote to mountain bike trail development. More resources would provide more incentive to develop and maintain trails. Though things are improving we still have problems with bicyclists creating their own "pirated" trails that are poorly designed and cause inappropriate impacts to resources. We need to continue to educate bikers that this behavior reduces their chances for more trails. Instead we need to encourage them to work cooperatively with land managers to take the time to design and build sustainable trails that are easier to maintain and minimize negative impacts to resources.
At the land unit, it's disjointed. Like I pointed out in Q-8, we need to incorporate seamless management across agency boundaries and integrate a networking system similar to the interstate system with feeder trails allowing for alternative travel choices.
More outspoken demand for them from the locals
We already promote bicycle facilities and operations. We need our partners to expand their capacity to maintain, take care of, and market what we have already available. We also need additional funding and capacity to work with our partners and volunteers.
Staff time and funding
I would need funding to construct and maintain mountain bike trails.
Funding and staffing.
Increased internal support for planning, implementation and management.
Management by-off. The Continental Divide National Scenic Trail runs through my land unit, as well as right through town. The CDNST receives a fair amount of bicycle use.
Support from adjoining land management agencies (US Forest Service), access funding so we can implement trail systems that have already been planned but lack funding.
Construction and maintenance funding.
There is always the need for signs, brochures, maps, volunteers or workers for maintenance and construction, complete inventories of what is already on the ground, etc.

11. Are bicycle facilities tracked at this land unit? If yes, describe method and information tracked (database, bike lane/ trail length, maintenance, costs, funding…)

Bureau of Land Management Land Unit Survey Comments

Trail facilities including bike trails are managed in a multi-agency coalition. Trails are maintained using funds from the 7 agency coalition. Bicycle use is estimated periodically by sampling visitor use at trailheads. and along trial routes.
Geographic Information Systems (GIS)
GIS inventory of bike trails. Traffic counters at bike trail systems
Global Position System (GPS) mapping of trails and traffic counters at trailheads.
We don't have a formal database but we have clear information about the numbers of miles of single track trail that allows mountain bike use. We don't track maintenance costs because a lot of our maintenance is done in cooperative projects with volunteers. We don't have funding specifically earmarked to manage bike trails so any figures would only be rough estimates of the amount of money we spend from our overall recreation and maintenance budget to manage bike trails.
All trails are GPS'd and on GIS maps. Mileages are available in a table. We cooperate with Mesa County to include bike trails in the countywide trail inventory and database. We have trail counters on several trails to track use.
Bicycle use is not specifically tracked. All non-motorized use is tracked.
Currently, we know how many miles of bicycle trails we have (in GIS). We will be expanding the information to include maintenance requirements and costs in Facilities and Asset Management System.
We maintain a database of length, condition, type, amenities available, etc.
We have a Recreation Management Information System database that we are required to keep updated as well as any facilities are recorded in a separate database to keep track of assets on the ground.

12. How frequently are the number of bicycles that travel in this land unit tracked? Describe frequency and methods (survey, observation, counters…)

Traffic counters on main roads monthly
Bicycles (along with other uses) are tracked by observation at limited locations, and the results are used to estimate overall use.
Monthly traffic counter data is collected.
Monthly
We have only rough estimates of the amount of biking use we have on the unit based on observation when we are out in the field.
Trail counters which are read at least monthly.
Observation and web site blogs
By observation and by interpreting trail counter data at trailhead. Counter data is collected monthly.
Counters are in place to record 24/7.
The only method right now that we have is observations from users, seasonal or permanent employees. We do have counters in place in some areas but those areas are used by other users and not just bicycles so we have numbers just not the numbers by use with counters.
Bicycles are tracked by observation from recreation specialists.

Bureau of Land Management Land Unit Survey Comments

13. Does this land unit have specific goals to increase the number of visitors who travel by bicycle? (Federal transportation policy calls for increasing the percentage of trips made by bicycling and walking to 15.8%)

There are at least 30 miles of bicycle trails in an area close to Yuma, Arizona that have been mapped and promoted by a local bike club. There are also a couple of competitive mountain bike courses within the BLM Yuma Field Office that have not been used for competitive events in recent years.
Demand for access for bicycles is high. We do not focus on marketing bicycle access, instead we attempt to satisfy rising demand.
Our area has an active lifestyle with a higher percentage of the population participating in outdoor recreation activities than many other parts of the country. Biking activities are already causing some unacceptable impacts in some areas. Our goal is to manage biking in an attempt to meet the public demand but we are not interested in actively promoting mountain biking to draw in a lot of visitors from outside the area. We feel this could result in an increase in undesirable impacts. As part of the county trails commission I know they have clear goals to increase the number of highway miles that have comfortable paved shoulders to accommodate road bikers both for local users and the regular bike tours that come through this area in the summer. We are not concerned about resource impacts coming from this type of activity.
The specific goal is to allow access for bicycle use. However, there is nothing more to address the needs of bicyclists including health and safety issues.
We are in the process through travel management planning of designating roads and trails for a variety of uses including bicycling.
Although our land unit is within an MPO, which has a goal of increasing use.
We are currently working on a trail system near Ridgway with the Ridgway State Park to create a single track trail system.

14. Does this land unit have any of the following programs to manage or promote bicycling? Provide specifics/details here.

We explored a partnership with the Parks & Recreation Division from the City of Yuma for assistance with a variety of programs that would include, hiking, biking, canoeing, and other outdoor recreation activities.
None of these. We may manage a race, but this is sponsored by a club.
None
Partnerships with local and regional organized bike groups, Visitors and Conference Bureaus, Chambers, and Visitor Centers.
none of the above
Other than sending folks to nice areas for backcountry cycling or to the Pinedale Pathway (developed non-motorized cycling route) we provide no other specific programs to promote cycling. We do provide maps for finding backcountry/front country routes.
BLM issues permits for a number of commercial and competitive bike events.
We will be working on getting maps and brochures done for areas that are currently being planned for travel management or trail systems but right now it is very limited. We have groups that do rides and events in certain areas that help promote the area for bicycles such as rides on the Paradox and Tabeguache Trails.

15. Do you have any data or evidence suggesting bicycling demand on your land unit?

Bureau of Land Management Land Unit Survey Comments

A mountain biking group has officially requested a race on one of our trails.
Observing more bicycles on the Continental Divide National Scenic Trail CDNST
We are actively involved with local transportation planning and have received much public comment from local workshops, expos, etc.

16. Does this land unit currently have a transit system? If yes, describe type and specify if system accommodates bikes:

The system consists of a network of routes for public access to and through the public lands to support the multiple uses that occur.
We live and work in the desert , Colorado Great Basin
Within the urban corridor of the city.

17. What are the main concerns regarding bicycling on this land unit?

Some areas are not conducive to bicycling, such as deep sandy secondary unpaved roads. Other concerns are bicyclists' safety - highways leading to the National Monuments in this region have no shoulder and bicyclists are very unsafe on these state highways. Bicyclists and companies promoting bicycling in this region are fairly common on the paved state highways but they do it under unsafe conditions.
We have a lack of staff and funding to more actively promote and manage biking opportunities. A partnership had been established with a local trails group to assist with trail related workloads. The trails group has not been active in the last 2 years.
Social Interaction with pedestrians on trails (bicycles traveling at excessive speeds.
Creating enough environmentally sustainable trails to satisfy demand so that bandit trails are not created by users.
Keeping mountain bikers on designated trails - preventing user-created trails. Providing appropriate opportunities and settings for a wide variety of cyclists. Inadequate staffing to patrol and maintain high-use mountain bike trail systems. Creating connections between trail systems.
Poached mountain bike trails built by the public with out authorization from the federal land owner BLM)
Resource impacts that come primarily from the creation of illegal and inappropriate trail by mountain bikers. Resource impacts that come from the quantity of mountain bikers using our trails. Our minimal capability to manage and maintain a large system of single track trails for bike use.
Lack of access to drinkable water.
Lack of demand
Poached and unauthorized trails. Tight funding and capacity to work with partners and volunteers.
Steep terrain may lead to erosion if trails are laid out in a fashion that is attractive to mountain bikers.
Developing trails where there is public access.
None, some areas are too sandy or soft for mountain bike use,
Where to promote front country and backcountry opportunities. Planning opportunities are limited to heavy workload in fluid mineral development. Other priorities and needs for enhancing recreation and visitor services.
Amount of local interest, demand, and safety.

Bureau of Land Management Land Unit Survey Comments

Lack of resources to meet demand for mountain biking. User created mountain bike trails and the associated resource impacts. Land tenure issues (private land, railroads) that are a barrier to connectivity between public land and adjacent communities.
I am afraid that the federal process to obtain rights-of-way, easements, and R&PP lands is so cumbersome and costly that we are preventing some bicycling/transportation opportunities at the local level (small cities).
Our public lands always have controversy over closing off one use for another so it is a constant balancing act for us to try and keep everyone happy. There is also policies and laws that we have to follow such as Colorado Land Health Standards, Threatened and Endangered Species Act, Cultural laws and policies, Travel Management policies, etc.
None

18. How can the Federal Highway Administration assist you to create more opportunities for bicycling at this land unit?
Encourage a shoulder on state highways in this region.
Funding for staff to conduct the necessary project level planning and management.
Funding grants for trail construction, maintenance of bicycle and multi-use non-motorized trails.
Providing grants to fund projects.
Opportunities for funding or other support to develop and maintain mountain bike trails would be useful. Increasing the amount of safe paved shoulders along state and federal highways would increase the opportunities for road bikers. Periodic sweeping of the gravel that build up on paved shoulders, particularly in the spring, would increase safety and comfort for road bikers.
I suggest the FHA and ALL other agencies need to work together to chart out a course for seamless opportunities. Dream big and the results are big, don't dream, and there are minimal results.
funding following demand
Funding
Provide funding for a mountain bike trail head off the highway. Put up signs along the right of way identifying a trailhead.
Promote agency awareness and support local governments.
Open a line of communication between FHWA and BLM, get interest groups on board, and make this a priority to the point where management will have to sign off on it.
Provide additional resources (grants) to assist with improving and expanding trail systems and access.
FHA must stand firm in its commitment to increase bicycling. What I see in Utah is that UDOT has a "complete streets" philosophy, but they are not willing to push this philosophy on the cities who receive federal funding. Federally funded projects must be made to include bicycling opportunities.
You have already helped by providing funding for travel management planning which I hope continues however there is a big need for signs to help direct users on the land to the right areas and trails as well as possible underpasses on Highways to link areas which area very costly.

19. Do you yourself, bicycle?

Bureau of Land Management Land Unit Survey Comments

Infrequently
Commute to work daily (150+) days per year, mountain bike and road bike recreationally.
I am handicapped and can not use a bicycle
On 2-tracks and paved roads. If there were more opportunities, I would ride more

Please provide any other comments regarding bicycling use on Federal Lands.
We have topography and weather conditions (for a major part of the year) that are ideal for biking. It is anticipated that we will develop a transportation plan to cover the Yuma area in the next 3 years. The transportation plan will address bike trails.
The bicycle use on our lands is all recreational. We do have several employees and associates who bicycle to work and for pleasure. This is on public streets, not on BLM lands.
We are getting increased demands from the free ride segment of the mountain biking population that would like to see more extreme opportunities for their sport. We aren't always able to meet their needs because the type of facilities they want are more hazardous (exposing us to high liability) and have the potential to cause more impacts to resources
Bicycling has been and still is underrated as far as a transportation vehicle. There are numerous incentives to get America moving for health reasons, and this should spill over onto redefining the value of a bicycle. Put the idea into the minds of people and there will be more dialogue on bicycling adequacy as a SAFE transportation option. I do stress safe because I will not and do not take my bicycle on streets to contend with crazy motorists. Many potential users have probably just settled for what is and what will be.
Workload related to other land use activities including fluid mineral development restricts ability promote cycling opportunities.
IMBA has helped a lot regarding user education (really important) and getting the idea out there. Much of our federal lands is very suitable for bicycle use. I would like to close routes to motorized use just for bicycle use. the more attention BLM gets, the more foreseeable BLM would incorporate bicycle use in the Land Use Plans.

FHWA Bicycles- Managers Questionnaire

1. What Agency do you work for?

	Response Percent	Response Count
Bureau of Land Management	38.7%	12
Fish and Wildlife Service	3.2%	1
Forest Service	16.1%	5
National Park Service	**41.9%**	**13**
answered question		**31**
skipped question		**1**

2. List each land unit that you manage.

	Response Count
	28
answered question	**28**
skipped question	**4**

3. Do you keep track of how many bicycles travel in your land units?

	Response Percent	Response Count
Bicycles are tracked in ALL units	6.9%	2
Bicycles are tracked in SOME units	24.1%	7
Bicycles are NOT tracked	**58.6%**	17
Don't know	10.3%	3
If yes, describe which units, frequency and methods used (survey, observation, counters...)		12
answered question		29
skipped question		3

4. Federal transportation policy calls for increasing the percentage of trips made by bicycling and walking to 15.8%. What policies, guidelines, institutional or management practices does your agency have in place to encourage bicycling as an important component of the transportation system?

	Response Percent	Response Count
Specific goals to increase the percentage of bicyclists	0.0%	0
Guidance documents specifically addressing bicyclists needs and issues	30.8%	8
Incorporation of bicycling issues into existing transportation management plans	**69.2%**	18
Consideration of bicycling needs during all transportation design review	57.7%	15

Partnerships or collaboration with surrounding communities on bicycling/pedestrian issues	34.6%	9
Employee and/or visitors incentives to bicycle (specify in comment)	15.4%	4
Input to your State Transportation Improvement Plan (STIP) (required for FHWA/FTA funded projects)	3.8%	1
Discounted entry fees for bicyclists or pedestrians	7.7%	2
Discounted camping fees for bicyclists	7.7%	2
Auto free areas or specific times when roads closed to automobiles	7.7%	2
Promoting bicycling onsite with visitors centers maps and/or signage	15.4%	4
Integrating bicycle travel with transit travel	23.1%	6
Participation in bicycle safety or education campaigns	7.7%	2
Other	7.7%	2
	Comment and/or Other (please specify)	13
	answered question	**26**
	skipped question	**6**

5. How likely are the following issues to prevent you from promoting bicycling?

	Very Likely	Likely	Neutral	Unlikely	Very Unlikely	Rating Average	Response Count
Concerns about effects on wildlife	3.7% (1)	22.2% (6)	**40.7% (11)**	14.8% (4)	18.5% (5)	3.22	27
Concerns about bicyclist safety	14.8% (4)	11.1% (3)	**44.4% (12)**	18.5% (5)	11.1% (3)	3.00	27
Lack of interest, not a priority	11.5% (3)	11.5% (3)	23.1% (6)	**38.5% (10)**	15.4% (4)	3.35	26
Lack of planning funds or resources	18.5% (5)	22.2% (6)	**40.7% (11)**	14.8% (4)	3.7% (1)	2.63	27
Lack of construction funds or resources	**33.3% (9)**	**33.3% (9)**	14.8% (4)	14.8% (4)	3.7% (1)	2.22	27
Lack of maintenance funds or resources	**37.0% (10)**	**37.0% (10)**	11.1% (3)	11.1% (3)	3.7% (1)	2.07	27
Not an appropriate use	7.4% (2)	14.8% (4)	11.1% (3)	**44.4% (12)**	22.2% (6)	3.59	27
Environmental impact to construct bicycle facility	14.8% (4)	29.6% (8)	**37.0% (10)**	11.1% (3)	7.4% (2)	2.67	27
Historic roads or roadside features	3.7% (1)	22.2% (6)	**40.7% (11)**	22.2% (6)	11.1% (3)	3.15	27
Topographic/design constraints	18.5% (5)	14.8% (4)	22.2% (6)	**33.3% (9)**	11.1% (3)	3.04	27
Lack of knowledge about how bicycles may impact operations	3.8% (1)	3.8% (1)	**42.3% (11)**	38.5% (10)	11.5% (3)	3.50	26
Liability concerns	3.7% (1)	7.4% (2)	**44.4% (12)**	29.6% (8)	14.8% (4)	3.44	27
Lack of support from within Agency	7.4% (2)	18.5% (5)	18.5% (5)	**40.7% (11)**	14.8% (4)	3.37	27
Other (specify below)	40.0% (2)	0.0% (0)	**60.0% (3)**	0.0% (0)	0.0% (0)	2.20	5
					Specify other or add a comment		7
					answered question		**28**

skipped question	4

6. Are you aware of any of the following examples that may indicate bicycling demand on land units in your Agency? (please list land unit name and contact information)

	Response Percent	Response Count
Before/after studies of areas where bicycle facilities have been incorporated	61.5%	8
Visitor or employee surveys	69.2%	9
Comments from public	69.2%	9
Increased use when roads closed to vehicles/open to bicyclists	38.5%	5
Other	23.1%	3
answered question		13
skipped question		19

7. Do you support bicycling on your land units as an important means of transportation and recreation (to offer visitors and employees an alternative in addition to motor vehicles)?

	Response Percent	Response Count
Yes	96.4%	27
No	3.6%	1
Comment		7
answered question		**28**
skipped question		**4**

8. Are you aware of bicycle projects or facilities that may provide good examples (or lessons learned) for other federal land units? Please identify land units and contact information for examples below.

	Response Percent	Response Count
Exceptional bicycle facilities (lanes, pathways, trails, parking...)	83.3%	10
Successful partnerships or collaboration promoting bicycling	66.7%	8
Creative funding for bicycling facilities	75.0%	9
Effective promotion of bicycling	50.0%	6
Effective integration of bicycling with transit	50.0%	6
Management that promotes bicycles, (i.e.,road closed to vehicles/ open to bicycles at certain	41.7%	5

times/locations)		
Other	0.0%	0
answered question		12
skipped question		20

9. What support and incentives would be required to encourage promoting bicycling facilities or operations at your Agency's land units?

	Response Count
	17
answered question	17
skipped question	15

10. Would you like to have bicycle facility experts available to help plan improvements at land units under your management?

	Response Percent	Response Count
Yes	63.0%	17
No	18.5%	5
Don't know	18.5%	5
Comment		7
answered question		27
skipped question		5

13. Briefly describe your	Response Percent	Response Count
Job title/position	100.0%	28
Years at this agency	100.0%	28
Years managing these land units	85.7%	24
Role in transportation planning	100.0%	28
answered question		28
skipped question		4

14. Please provide any other comments regarding bicycle use on Federal Lands.	Response Count
	7
answered question	7
skipped question	25

National Park Service Regional Manager Survey Comments

2. List each land unit that you manage. (NPS)
97 Intermountain Regional Parks

Capulin Volcano National Monument
Dinosaur National Monument
Glacier National Park
I work in the Pacific West Regional Office
Midwest Region Transportation Manager
National Mall & Memorial Parks, Washington, DC
National responsibility for all park units, for major construction activities
NPS Alaska Region Transportation Coordinator
Organ Pipe Cactus National Monument

9. What support and incentives would be required to encourage promoting bicycling facilities or operations at your Agency's land units? (NPS)

Funding to put in acceptable measures. Most roads in national parks are narrow in the first place. Ample funding would be required to build facilities which would be safe and yet protect the natural and cultural resources within a specific park unit.
Funding of facility improvements for bicycle facilities is always a great encouragement. Need education on what and how; what are low cost things that can be done.
Roads within the majority of National Park areas were designed to park standards, this means they have minimal road width and little or no shoulders. Creating additional bike facilities and roads would require widening road prisms or construction separate trails. Widening roads often requires an environmental assessment because of the culturally or natural significant area they are crossing. Creating new bike trails is currently financially difficult, and creates a future maintenance burden on a currently over loaded system. Financial assistance would be the major factor that would provide the incentive to promote more bicycling facilities.
Specific policy and funding dedicated, not just to alternative transportation program in general, but to bicycle facilities.

brochures explaining opportunities and addressing possible safety elements

14. Please provide any other comments regarding bicycle use on Federal Lands. (NPS)

Alaska has the challenges of diverse, remote access. Bicycle facilities are and will continue to be worthy of consideration, but realistic implementation may not be feasible nor desirable for all Alaska units.
As a service we do not adequately promote use or activities!

U.S. Forest Service Regional Managers Survey Comments

2. List each land unit that you manage. (USFS)
Alaska Region - Chugach & Tongass National Forests
Intermountain Region USDA Forest Service
Lake Tahoe Basin Management Unit
Rocky Mountain Region - Arapaho/Roosevelt, White River, GMUG, Pike/San Isabel, San Juan, Rio Grande, Medicine Bow/Routt, Shoshone, Bighorn, Black Hills, Nebraska

9. What support and incentives would be required to encourage promoting bicycling facilities or operations at your Agency's land units? (USFS)

Studies that show that biking does not disturb wildlife or habitat significantly when done responsibly.
Have more requirements to include separate paths and lanes on state roads funded by FHWA traveling thru public lands. Have more funding programs specifically targeting bicycling facilities.
congressional staff support at the local level administrative support at the national level

Maintenance funding and bicycle specific funding would be very helpful to promote bicycle facilities. Further education and studies of the benefits of bike paths for personal health, community health, socio-economic vitality, etc. would be helpful to support environmental analysis.

14. Please provide any other comments regarding bicycle use on Federal Lands. (USFS)

Bicycling is a growing form of recreation and transportation. Communities that have good bicycle networks are serving as the model for sustainable lifestyles and health communities. Shifting away from carbon based transportation is critical for environmental sustainability and clearly bicycles play an important role.

U.S. Fish and Wildlife Service Regional Managers Survey Comments

2. List each land unit that you manage. (FWS)

Coordinate trails program at the national level

9. What support and incentives would be required to encourage promoting bicycling facilities or operations at your Agency's land units? (FWS)

Studies that show that biking does not disturb wildlife or habitat significantly when done responsibly.

14. Please provide any other comments regarding bicycle use on Federal Lands. (FWS)

Federal Lands should be leaders in appropriate use of bicycling.

Bureau of Land Management Regional Managers Survey Comments

2. List each land unit that you manage. (BLM)

Alaska statewide BLM managed lands
All Colorado BLM Lands
Arkansas Headwaters Recreation Area
Grand Junction Field Office
Gunnison Gorge National Conservation Area; Lower Gunnison, San Miguel and Dolores Rivers within the Uncompahgre Field Office (Colorado)
Kemmerer Field Office
Kremmling Field Office
Little Snake
State of Nevada
Utah
Statewide OHV and Travel Management Coordinator for BLM Alaska

9. What support and incentives would be required to encourage promoting bicycling facilities or operations at your Agency's land units? (BLM)

In Alaska, lack of suitable trails limits the off-road mountain biking opportunities. Highway construction funds are spent on bike paths, but in the Interior of the State the permafrost soils cause frost heaving resulting in unusable trail conditions.
Upper management - Line Officers, Partnerships/collaboration between agency and bicycle organizations. Funding.
Increased funding for construction of sustainable trails.

Most of what we do with bicycling in my BLM experience is to plan, construct and maintain mountain bike trails that are destinations (i.e., people transport their bikes to the trailhead, ride the trail, and transport their bikes back home). I think that using bikes as means of transportation that carries people onto and across Federal lands is a dimension of transportation that I've not seen many land managers take on. To be honest, our workloads have increased, time spent doing paperwork is increasing, our dollars don't go as far as they once did, and my office is heading into a major planning effort. The American people are electing officials who are increasingly hostile toward government, and they then act accordingly. It's puzzling to me, but true. The best I can say on this subject, I'm afraid, is the old, worn-out mantra -- give us more money. Money for staff, contractors, planning, and maintenance. That means cyclic deferred maintenance money. It could do great things for the local communities, and give people a direct, tangible benefit from a government program.
Facilities might include watering stations, shade/rain shelters, restrooms and bike-in campsites. Another opportunity that exists is to work cooperatively with adjacent communities to link municipal bike paths to the public lands. This would give local residents and visitors the opportunity to access and enjoy public lands via bicycle without having to drive to an access point on public lands. By creating this kind of connectivity we may also reduce the need for staging areas on the public lands.
Bicycle constituents/groups that are willing to partner with us to fund, construct, maintain and monitor bicycle trail systems.
A demand for it by the public
Additional funding. We cannot maintain the facilities we have at the present level. Without dedicated funding and staff we could not take on this task.
Areas close to communities, such as Anchorage, Fairbanks, and Juneau have infrastructure to support biking activities. Many of these areas have bike paths that are supported through SAFETEA-LU projects.

14. Please provide any other comments regarding bicycle use on Federal Lands. (BLM)

Most of what we do with bicycling in my BLM experience is to plan, construct and maintain mountain bike trails that are destinations (i.e., people transport their bikes to the trailhead, ride the trail, and transport their bikes back home). I think that using bikes as means of transportation that carries people onto and across Federal lands is a dimension of transportation that I've not seen many land managers take on. One reason for this is that if bikes use an existing road, it's usually managed by the local county, state or Federal Highways, and there's not much role for BLM to play. What's being missed, however, is the opportunity to provide trails more or less away from the roads, perhaps paralleling or even using the roads for some segments, but away from roads. These kinds of trails would encourage more bike use because they would be safer (away from motor vehicles) and would offer a quieter, more leisurely and aesthetically pleasing experience.
It may be a shock to upper management, but one size does not fit all

BLM Nevada manages 48 million acres, mostly in remote areas of the state. Bicycles may use any routes on public land but the primary mode of transportation in Nevada is motorized because of the remoteness of the lands we administer. Some communities have established mountain bike trails with BLM partnerships.

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