National Park Service
Alaska Region Long Range Transportation Plan

A Drop-Down Plan to the Alaska Federal Lands Long Range Transportation Plan

FINAL
September 2012

National Park Service

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Transportation Plan*

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Moving Ahead for Progress in the 21st Century Act

As the final version of the National Park Service *Alaska Region Long Range Transportation Plan* was completed, the two-year highway authorization, *Moving Ahead for Progress in the 21st Century Act* (MAP-21), was signed into law. Effective October 1, 2012, the National Park Service, Park Roads Program is joined by transportation programs of other Federal land management agencies in the Federal Lands Transportation Program. Discretionary funding programs available to the National Park Service and other Federal land management agencies under the previous Federal highway authorization also change under MAP-21. For example, MAP-21 alters or eliminates programs, such as Public Lands Highway Discretionary Program, Paul S. Sarbanes Transit in Parks, Transportation Enhancements, Recreational Trails Program, and National Scenic Byways, and creates the Federal Lands Access Program—a formula-based program that provides funding for transportation planning, construction, rehabilitation, and maintenance for facilities located on or providing access to Federal lands.

Despite changes in Federal highway authorization, the high-level goals, recommendations, and actions presented in this long range transportation plan remain relevant and complementary to the new law. The next version of the *Alaska Region Long Range Transportation Plan* will further document the connections between the region's long-range goals, objectives, and actions remain relevant under MAP-21 in the context of highway authorization law in effect at that time.

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List of Acronyms and Abbreviations

ADA	Americans with Disabilities Act
ADOT&PF	Alaska Department of Transportation and Public Facilities
ANILCA	Alaska National Interest Lands Conservation Act
API	Asset priority index
ATPPL	Alternative Transportation in Parks and Public Land Program
ATV	All-terrain vehicle
FCI	Facility condition index
FHWA	Federal Highway Administration (U.S. Department of Transportation)
FLHP	Federal Lands Highway Program
FLMA	Federal Land Management Agency
FLREA	Federal Lands Recreation Enhancement
FMSS	Facility Management Software System
GMP	General Management Plan
LRTP	Long Range Transportation Plan
NPS	National Park Service
NPP	National Park and Preserve
ORV	Off-road vehicle
PAMP	Park Asset Management Plan
PMIS	Project Management Information System
PTATS	Park Transportation Allocation and Tracking System
RMP	Resource Management Plan
RTPM	Regional Transportation Program Manager
STARS	Service-wide Traffic Accident Reporting System
SNAP	Scenarios Network for Alaska Planning
TRB	Transportation Research Board
WFL	Western Federal Lands Division (of Federal Highway Administration)

Executive Summary

This National Park Service (NPS) Alaska Region long range transportation plan (LRTP) is intended to guide long-term transportation planning and decisions to support efforts that are the most beneficial to the core vision and mission of the agency over the next 20 years and beyond. This is accomplished by defining long range transportation goals that respond to NPS agency-wide vision and mission. LRTP goals serve as the basis for determining transportation conditions, needs, and gaps. Funding scenarios that emphasize each goal area are devised for addressing needs and gaps. This LRTP is also a means to track progress or performance in addressing the needs and gaps identified in this plan, over time.

Each component of this plan has been developed for the purpose of creating a useful and usable document to guide transportation decision-makers at multiple levels within the agency. The guiding LRTP mission developed to meet this end is:

Implement an overarching transportation strategy that is compatible with the missions of the National Park Service and individual Alaska National Parks

Through analysis of existing conditions, needs and gaps, funding processes and availability, this LRTP offers the subsequent key findings:

- Participating in the joint actions identified in the *Alaska Federal Lands LRTP* will benefit all Alaska Federal land management agencies (FLMA), including the NPS.

- Planning and management documents indicate that known future events and opportunities could change access to Federal public lands, but these factors

NPS Alaska Region LRTP Goals

System Management: Develop a long-term transportation system to satisfy Resource Protection: Protect parks' natural, cultural, and subsistence resources.

Mobility: Provide safe, efficient, and appropriate access to and through NPS lands

User Experience: Proactively enhance the Alaskan multimodal experience.

Resource Protection: Protect parks' natural, cultural, and subsistence resources.

Climate Change: Plan for impacts of climate change to park transportation systems and impacts of park transportation systems on climate through science, adaptation, mitigation, and communication.

are being monitored and planned for accordingly.

- Needs and strategies associated with the goal of system management account for 78 percent of total projected transportation costs.

- Projected funding levels may be significantly lower than is necessary to satisfy anticipated need. As illustrated in Figure 1, the gap between needs and available funding is as high as $16.7 million less than the identified need.

- The preferred funding scenario (which emphasizes the LRTP goal of user experience) funds operation and maintenance for all high priority assets over seven years and a cost of $63 million. The remaining $27 million is applied to other goal areas, and ensures that user experience related needs are address such as collecting baseline park visitation information and transportation planning data, addressing user safety, improving wayfinding and traveler information, addressing crowding and congestion, and mitigating negative wilderness experience impacts.

This plan is implemented over the long-term as projects which address long range LRTP goals are selected and completed over the next 20 years. Once public comments are received on this public draft of the LRTP, Chapter 5 will summarize the actions and other recommendations that will assist the Alaska Region advance the long range transportation goals and objectives established in Chapter 1. Actions and recommendations are based on the needs and gaps identified in Chapter 2 as they relate to each goal area. Scenarios for Implementation these actions and recommendations are presented in Chapter 4. The resulting actions fall within two categories: first, actions that address needs and gaps by achieving outcome-based performance measures; and second, actions that resolve needs and gaps, but are not directly quantified in LRTP performance measures. Performance measures embody outcomes that, once fully achieved, represent major milestones in meeting the long range goals and objectives expressed in this LRTP. The intent is to report progress in meeting these performance measures each year to national leaders and other interested parties.

Figure 1
Needs and Gaps (in millions)

Need (low estimate) $84.9
Funding Available $90
Average of Need Estimates $95.7
Need (high estimate) $106.7

$5.7 gap
$16.7 gap

0   50   100   150
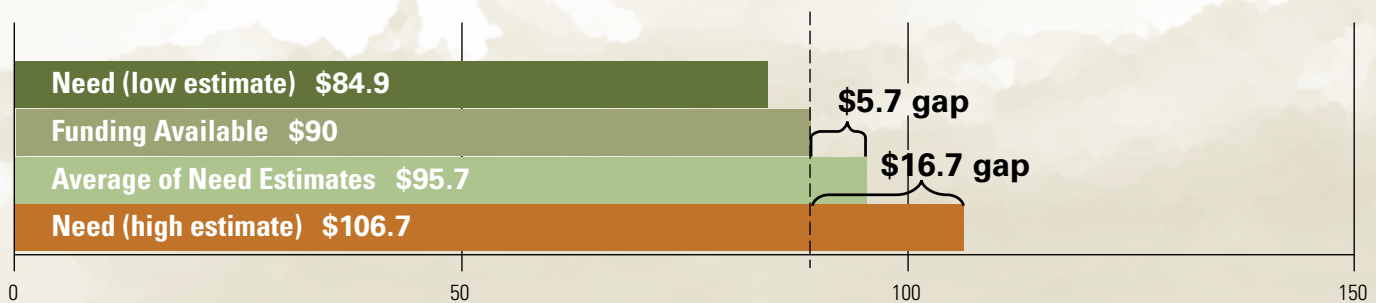
Plan Benefits

This plan was developed to provide multiple benefits, including:

- Illustrate the unique nature and role of transportation in the Alaska Region.

- Establish Alaska Region specific mission, goals, and objectives for transportation planning as it pertains to system management, mobility, user experience, resource protection, and climate change.

- Strengthen the ability to partner with other agencies and organizations to improve NPS transportation infrastructure.

- Define transportation assets in NPS asset databases or management plans.

- Provide direction on long-term issues like climate change and sustainability.

- Identify possible transportation funding sources.

- Provide an understanding of transportation assets and how to determine and illustrate need.

- Strengthen the Alaska Region's defensible structure for sound transportation planning and decision making.

- Develop performance measures to monitor transportation improvements on NPS lands.

- Enable leaders to synchronize transportation planning with General Management Plans (GMP), Park Asset Management Plans (PAMP), and Resource Management Plans (RMP).

- Provide a platform for individual parks to communicate needs and gaps to regional and national decision makers.

- Equip leaders with the needed information to make informed decisions based on the long-term transportation mission, goals, and objectives.

- Enable decision-makers to direct funding to the highest priority and most beneficial transportation projects.

Alaska Federal Lands LRTP

In addition to being a LRTP for the Alaska Region of the NPS, this plan is a "drop-down plan" to the *Alaska Federal Lands LRTP* (as illustrated in Figure 2). As a drop-down plan, this document elaborates upon topics discussed in the *Alaska Federal Lands LRTP* with NPS-specific details regarding existing baseline conditions, identified transportation deficiencies and system needs, projections for desired improvements, and a summary of possible funding sources. This information allows the NPS and other FLMAs participating in the *Alaska Federal Lands LRTP* to identify gaps in the statewide transportation network that serves Federal public lands and to develop better interagency coordination in leveraging project funds and addressing high-level priorities. The *Alaska Federal Lands LRTP* is a unique opportunity afforded Federal lands management agencies in Alaska because of the shared regional boundaries of the state. Like this *NPS Alaska Region LRTP*, the *Alaska Federal Lands LRTP* plan is also a first-of-a-kind effort.

Figure 2
Alaska Federal Lands LRTPs

Denali NPP, NPS
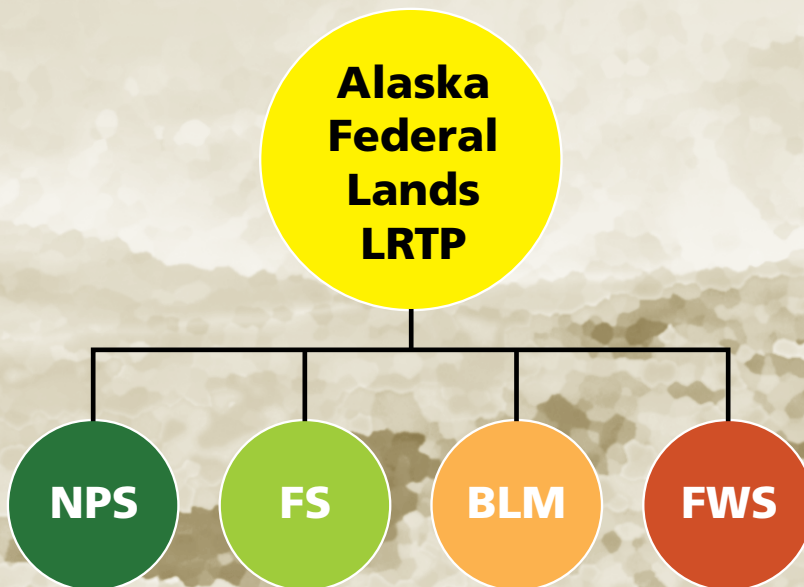
1. Introduction

The National Park Service (NPS) strives to protect resources and provide visitor access to nearly 400 park units nationwide receiving more than 300 million visits each year. The NPS manages more than 84 million acres of land, of which approximately 65 percent is located in the agency's Alaska Region. Alaska's Wrangell-St. Elias National Park and Preserve (NPP) alone represents 16 percent of NPS lands. Due to its great expanse and the remoteness of many park units, the Alaska Region faces challenges unlike any other region in the country.

Pursuant to Federal legislation, the Alaska Region prepared this long range transportation plan (LRTP) to consider existing transportation conditions and forecast transportation needs within a planning horizon of 20 years. This LRTP projects transportation needs through examinations of existing facility and asset conditions, trends in funding, costs, visitation, and other factors. Furthermore, this LRTP ensures that available funding is wisely used to meet stated Alaska Region mission, goals, and objectives.

Among the Alaska Region's 16 park units, the NPS administers approximately 55 million surface acres of public land and serves nearly 2.4 million visitors (in 2008). Most of this land is remote and only accessible by means other than roads, such as trails, air, and water. Access to and within NPS-managed public land is necessary for a wide range of uses, such as:

- Recreational activities

- Administrative uses, such as fire management

- Permitted uses, such as rights-of-way and guides

- Access to private inholdings and inter-village travel

- Access to traditional subsistence areas

Alaska is home to 16 national parks, preserves, monuments, and national historical parks. The NPS Alaska Region administers 13 national wild rivers, 2 affiliated areas, and 1 national heritage area. Alaska is also home to 49 national historic landmarks and 16 national natural landmarks. Travel to and across these NPS-managed public lands is important for recreation, subsistence, and other activities consistent with the agency's mission.

The NPS serves residents and visitors who seek inspiration, recreation, and education, as well as those who come for traditional activities, subsistence, and scientific study. Through cooperation with local communities, Alaska Native groups, and others, natural and cultural resources are protected in these special places for current and future generations to experience and enjoy.

White Pass, NPS

- Transportation and utility system corridors as prescribed in Title XI of ANILCA

This LRTP also serves as the NPS's drop-down plan to the *Alaska Federal Lands LRTP*. As a drop-down plan, this document provides NPS-specific details regarding existing baseline conditions, identified transportation deficiencies and system needs, projections for strategic desired improvements, and a summary of possible funding sources. This information allows other Federal land management agencies (FLMA) participating in the *Alaska Federal Lands LRTP* to identify gaps in the statewide transportation network that serves Federal public lands and to develop better interagency coordination in leveraging project funds and addressing high-level priorities.

The *Alaska Federal Lands LRTP* was established because of Alaska's unique reliance on a truly multimodal transportation system. More than anywhere else in the United States, Alaska depends on a combination of highway, trail, marine, river, and air connections to meet its transportation needs. Unlike other regional or state LRTPs developed for Federal public lands in the lower 48 states, this plan focuses on addressing planning issues related to interconnectivity of various modes of travel and providing a unique and seamless experience across multiple land jurisdictions for local residents, out-of-state visitors, administrative staff, commercial operators, and subsistence users.

This Alaska Region drop-down plan describes the agency's process for transportation planning and its consistency with other forms of NPS planning. LRTP planning ensures that the NPS vision and mission is furthered through transportation projects over the next 20 years and beyond. This plan also establishes and strengthens the Alaska Region decision-making process, and funding decisions by targeting established goals and objectives.

1.1 Relationship to Other Plans

This LRTP is consistent with, and builds upon, other NPS plans. NPS conducts several types and levels of planning, all of which are integral to this LRTP, such as:

- Unit level land-use planning, resulting in General Management Plans (GMP)

- Unit level asset management planning, resulting in Park Asset Management Plans (PAMP)

- Stewardship of cultural and natural resources, resulting in Resource Management Plans (RMP)

- Wilderness and backcountry area planning

- Action and activity planning, resulting in Implementation Plans

- Special Resource Studies

- Commercial Services Plans

GMP decisions establish resource management goals and objectives (such as desired future conditions), the measures needed to achieve these goals and objectives, and the parameters for using NPS-managed lands. GMPs document land-use planning decisions related to transportation infrastructure and travel management, resource protection, and land-use designations. GMPs currently being developed include Gates of the Arctic NPP, Bering Land Bridge National Preserve, and Katmai NPP. The transportation infrastructure and travel management decisions included in GMPs accomplish several things, including:

- Designation of appropriate modes of access in response to the regional setting, resources to be protected, locations for all transportation infrastructure, and the level of allowed use

- Identification of existing or proposed Congressionally designated transportation routes

- Assessment of wilderness and backcountry limitations on transportation-related development

These plans address a wide range of transportation and access needs in some manner. Travel management planning helps identify and prioritize construction and maintenance of developed roads, primitive roads, trails, rail, watercraft and aircraft facilities that provide access to and within public lands. These plans also consider restrictions and closures to protect sensitive resources and meet management concerns. While GMPs and other plans are developed for localized planning areas and specific delineated travel management areas, this LRTP is inclusive of all transportation facilities and access to land managed by the NPS throughout Alaska. The

issues addressed in this LRTP are very similar to those addressed in GMPs. This LRTP links the work completed in the NPS Alaska planning documents and the transportation planning efforts of the other FLMAs without creating redundancy with other plans.

Implementation of GMPs and other plans involving transportation and travel management decisions are achieved through project plans completed for specific on-the-ground actions, which are not the focus of this LRTP. These plans will address exact route and facility locations and construction methods proposed to complete the project.

1.2 Audience

This LRTP is written for several audiences including unit level managers, regional program management, national-level decision makers, and potential local and regional partners from governmental or non-governmental organizations. This plan supports these audiences in different ways, as discussed in Sections 1.2.1 through 1.2.4.

1.2.1 Alaska Region

At the regional level, this LRTP provides guidance for park superintendents and their staffs to make transportation decisions that are based on long range vision, mission, goals, and strategies. The plan also enables the Regional Transportation Program Manager (RTPM) to affirm LRTP strategies with individual parks to collectively decide on funding the most beneficial and highest priority transportation projects. Furthermore, the LRTP enables the RTPM and parks to find alternative funding from sources external to the NPS. The LRTP is used to guide and coordinate transportation planning with unit level plans; regional and statewide plans outside NPS managed lands; and metropolitan planning organization, borough, and Native LRTPs.

1.2.2 NPS Programs

Agency program managers may use the LRTP to determine how transportation affects program level goals, project level funding opportunities, and specific project outcomes throughout the region and within each park. The LRTP also serves as a springboard for program managers to incorporate transportation into their respective strategies for managing assets, facilitating protection of resources, and providing visitor services. Other programs may use transportation as a catalyst to partner with outside agencies and discuss project needs of mutual interest, such as sharing resources, safety improvements, alternative transportation systems, and addressing climate change.

The NPS manages lands in Alaska that in many cases are accessed through gateway communities served by public transportation. Access by tourists, residents, and administrative staff is often enhanced when the NPS, the State of Alaska, and local communities collaborate on the funding, design, and construction of transportation systems and facilities.

Partnering in this way can lead to the creation of mutually beneficial facilities such as Gustavus dock. The NPS, State of Alaska, and community of Gustavus all secured funding in 2009 to once again link Gustavus and Glacier Bay NPP to the Alaska Marine Highway. Public ferry service, private boats, and commercial barges once again support the operation of the park and improve the economic development of the community.

1.2.3 The Nation

This LRTP supplements the development of national-level plans and programs by outlining long-range transportation goals, objectives, and proposed strategies in Alaska while also documenting the relevance of this regional vision in furthering NPS-wide mission and goals. This and other national-level planning efforts help communicate mission critical transportation needs to Congress, the White House, the Department of the Interior, and Department of Transportation, and the general public. This plan also helps communicate the region's unique access and transportation challenges resulting from multiple uses and dramatic seasonal variation in transportation modes. Ultimately, the LRTP illustrates the NPS's foresight and commitment to mission critical goals that are dependent upon or enhanced by transportation while jointly pursuing transportation improvements with other agencies and organizations.

1.2.4 Potential Partners

Potential partners may use this LRTP to identify improvement strategies of mutual interest. The NPS recognizes the value of cooperative transportation partnerships and seeks to leverage available funding by actively working with its stakeholders and user groups. The objective is to achieve the greatest benefit to the shared goals and objectives held by multiple agencies and organizations on common projects.

For example, the NPS recognizes the importance of gateway communities and seeks partnerships with relevant agencies to encourage opportunities of mutual benefit. This LRTP is a tool for fostering partnerships with gateway communities and other parties. Common partners include local governments, boroughs, metropolitan planning organizations, Alaska Department of Transportation and Public Facilities (ADOT&PF), Federal Aviation Administration, Federal Transit Administration, Federal Rail Authority, and other FLMAs.

1.3 Mission, Goals, and Objectives

The *Alaska Region LRTP* responds to a mission and a set of goals developed for the purpose of creating a useful and usable plan to guide transportation decision-makers at multiple levels within the agency. The mission of the *Alaska Region LRTP* is:

> *To implement an overarching transportation strategy that is compatible with the missions of the National Park Service and individual Alaska National Parks*

There are five goals and sixteen objectives developed to accomplish this mission.

System Management: Develop a long-term transportation system to satisfy current and future land management needs

1. **Asset Management:** Apply available financial resources to essential transportation infrastructure.

2. **Asset Investment Planning:** Consider sustainability of operation and maintenance of new and existing assets in the planning process.

3. **Coordination:** Coordinate among parks, regions, and agencies to set priorities for needs, to exchange data, and to discuss mutual policies to share execution of projects.

Mobility: Provide safe, efficient, and appropriate access to and through NPS lands

4. **Safety:** Provide safe access to and within NPS lands.

5. **Access:** Provide access for recreation, subsistence, and other uses as provided for in ANILCA, all consistent with the purposes of the parks using appropriate modes and seamless connections to and through NPS lands.

6. **User Information:** Provide accurate and accessible information through a variety of means about how to travel to and through Alaska parks.

User Experience: Proactively enhance the Alaskan multimodal experience

7. **User Data:** Collect and analyze user information to determine which experiences and expectations are most relevant to transportation access.

8. **Multimodal Transportation:** Establish a multimodal transportation system that emphasizes the journey as integral to the Alaska experience.

Resource Protection: Protect parks' natural, cultural, and subsistence resources

9. **Protect Wildlife at an Ecosystem Scale:** Coordinate with neighboring land and transportation managers to ensure that transportation system impacts on wildlife are understood and mitigated across borders.

10. **Physical Environment:** Protect the physical environment from adverse effects of the transportation system.

11. **Cultural Resources:** Mitigate negative impacts and provide appropriate access to cultural resources.

12. **Subsistence Resources:** Consider impacts and access to subsistence resources in transportation planning and policy development.

Climate Change: Plan for impacts of climate change to park transportation systems and impacts of park transportation systems on climate through science, adaptation, mitigation, and communication

13. **Science:** Initiate, support, and participate in scientific research and assessments needed to understand and respond to the relationship between transportation and climate change in Alaska.

14. **Adaptation:** Manage transportation assets and conduct transportation planning for climate change.

15. **Mitigation:** Reduce the carbon footprint of NPS by reducing the impact of transportation associated with park operations, visitation, and associated operations.

16. **Communication:** Share the compelling story of climate change impacts in Alaska to the public as it relates to transportation.

1.4 Plan Structure

Several performance and scoring measures determine the current and future success in achieving the aspirations represented by the LRTP goals and objectives. Performance measures (discussed in Chapter 5) reflect the goal and objectives statements and are scored based on the region's existing conditions. Accordingly, Chapter 2 summarizes the existing conditions that are used to evaluate goal area performance measures. In determining existing conditions, numerous needs and gaps related to each goal area are uncovered and documented. Financial gaps—the differences between needs and available funding—are determined in Chapter 4, as well as actions necessary to address these needs and gaps.

Fixed wing aircraft lands on airstrip at Serpentine Hot Springs, Bering Land Bridge National Preserve, NPS

2. Conditions and Needs Assessments

Condition and need determinations are ultimately based on the results of five technical reports—one for each LRTP goal area. These technical reports are available in Appendices A through E. This chapter highlights key findings and draws conclusions from the analysis conducted within the reports. This chapter translates report findings into conditions, needs and gaps, and performance measures. Details about specific data, analyses, and other findings that are not included in this chapter can be referenced in the technical reports.

Condition and need determinations do not target specific park units. This plan is not intended to prescribe direction to parks on individual transportation projects. Rather, determinations are made for "park clusters" or parks sharing common attributes. Alaska's national parks are grouped into four categories— "remote north," "remote south," "cruise ship," and "road"—based on the characteristics of access mode, visitation type, and geography. Even though these categories represent important clustering characteristics, it is important to remember that certain parks rely on access other than by road or water only. In some clusters there is a predominant reliance on state airport facilities for park access (for example, King Salmon for Katmai National Park and Preserve, Port Heiden for Aniakchak Monument and Preserve, Nome for Bering Land Bridge National Preserve, Coldfoot for Gates of the Arctic National Park and Preserve, Gulkana for Wrangell-St. Elias National Park and Preserve, and Skagway for Klondike Gold Rush National Historical Park). Some locations inside and outside NPS lands have helicopter fuel caches for the necessary administrative purposes by Federal and state agencies. NPS also leases lots at many facilities outside park units for hangars and ranger pilot headquarters, thereby enabling NPS to play key roles in the aviation system in some areas. Within the NPS lands,

designated airstrips can provide important public service. At the north end of Broad Pass, McKinley Park airstrip is a "port in the storm" on one end of a heavily traveled mountain pass. Similarly, Chisana, May Creek and Kantishna airports provide potential landing sites for aircraft transiting large undeveloped areas. Other backcountry airstrips exist in national parks and preserves such as Wrangell St. Elias, Bering Land Bridge, and Katmai, all serving equally important roles.

Park clusters are illustrated in Figure 3 and listed in Table 1. The four Park clusters have the following characteristics:

- **Remote North Parks.** These parks are characterized by their northern geography, lack of connectivity to the statewide road system, and isolation from frequently used commercial modes of transportation. The primary modes of access to these parks are diverse and can include aircraft, ship, boat, snow machine, off-highway vehicle, or foot. Access to Remote North Parks is also unique in that the access modes may vary by season. The primary mode of access may be motor vehicles, but the volume of trips is low enough as not to be considered a "Road Park," as described below. Remote North Parks generally have low levels of visitation.

- **Remote South Parks.** Like Remote North Parks, Remote South Parks are characterized by their geography, lack of connectivity, low visitation levels, and varied primary modes of access. Remote South Parks have slightly less seasonal variation in the primary modes of access than experienced in Remote North Parks.

- **Road Parks.** Road Parks are characterized by high volumes of visitor and user access by automobiles and busses. These parks are generally located near major ADOT&PF roads. Visitation levels are generally high in these parks.

■ **Cruise Ship Parks**. These parks are characterized by high visitation levels and users whose access originates from cruise ships or ferries. Visitation levels are generally high in these parks, although in some cases travelers on cruise ships may never actually step foot on land within a park unit.

Figure 3
Alaska Region Park Clusters
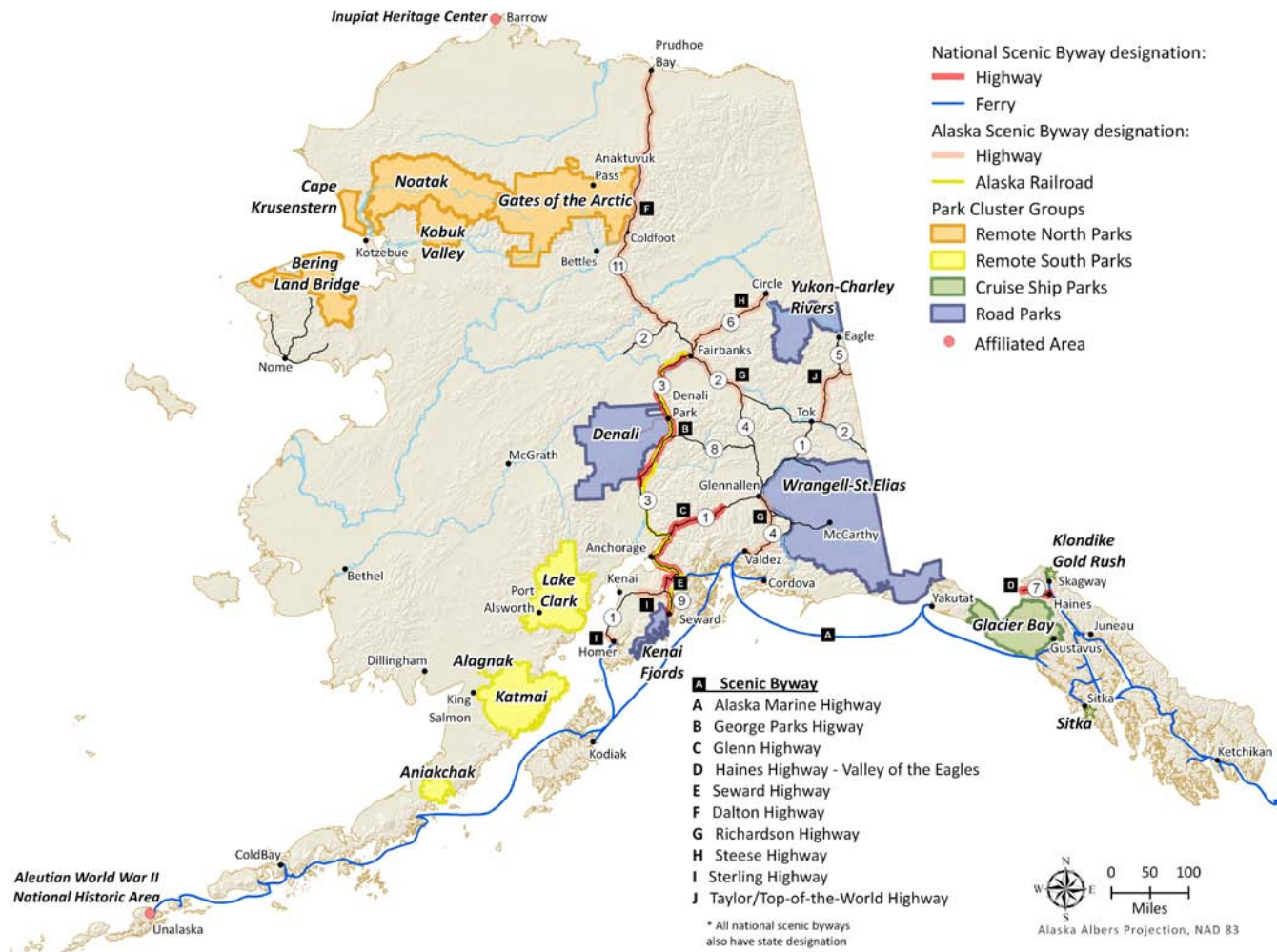
Table 1
Alaska Parks by Cluster

Remote North Parks	Remote South Parks	Road Parks	Cruise Ship Parks
Bering Land Bridge National Preserve	Alagnak Wild River	Denali NPP	Glacier Bay NPP
Cape Krusenstern National Monument	Aniakchak National Monument and Preserve	Kenai Fjords National Park	Klondike Gold Rush National Historical Park
Gates of the Arctic NPP	Katmai NPP	Wrangell-St. Elias NPP	Sitka National Historical Park
Kobuk Valley National Park	Lake Clark NPP	Yukon-Charley Rivers National Preserve	
Noatak National Preserve			

2.1 System Management

The LRTP system management goal is to **"develop a long-term transportation system to satisfy current and future land management needs."** The following objectives clarify how the system management goal shall be achieved:

Asset Management: Apply available financial resources to essential transportation infrastructure.

Asset Investment Planning: Consider sustainability of operation and maintenance of new and existing assets in the planning process.

Coordination: Coordinate among parks, regions, and agencies to set priorities for needs, to exchange data, and to discuss mutual policies in order to share execution of projects.

2.1.1   Existing Conditions

Transportation assets are not currently defined in NPS asset databases or management plans. In order to examine the condition of the transportation system, NPS-owned transportation assets had to be defined by individual Alaska Region park units. Each unit identified the assets that contribute to moving people to and through a park or serve as necessary support to this transportation system. These assets are summarized in Figure 4. Identified assets were also analyzed through four Transportation Asset Management Plans, one for each park cluster category. The Transportation Asset Management Plans are available in Appendix A, System Management Technical Report. The plans provide a meaningful regional look at the costs and conditions of the transportation system in Alaska.

A number of Alaska Region parks are only accessible by aircraft or watercraft and yet, there are roads within these parks that allow vehicular access between visitor attractions.

Such is the case with Katmai National Park and Preserve, where visitors arrive at Brooks Camp by small float plane or tour boat and are then able to board a bus that takes them to the Three Forks Overlook via the 23 mile Road to 10,000 Smokes. The road is unpaved, narrower than standard two-lane roads, and includes a number of at-grade river crossings which makes the entire journey a rustic adventure.

Figure 4
Transportation Assets by Park
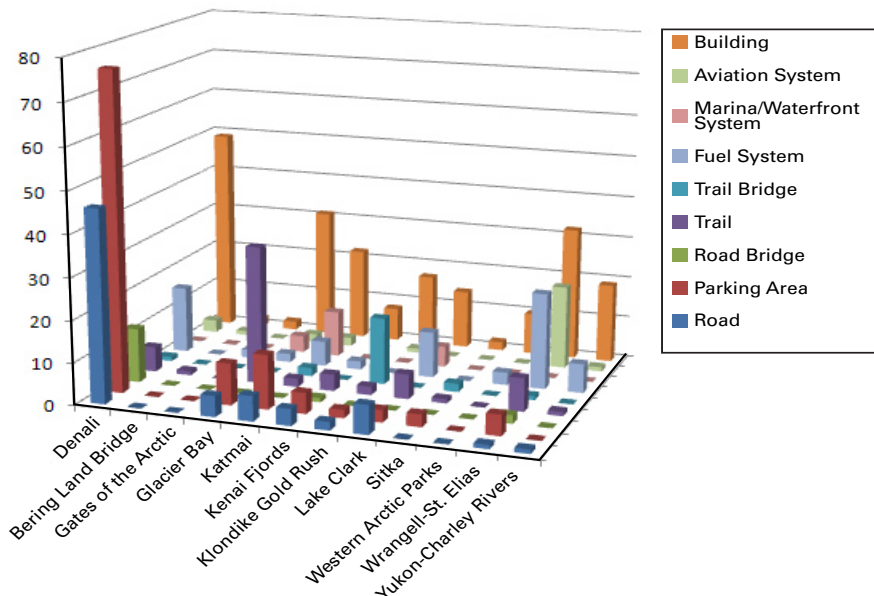
Source: FMSS, January 2011

2.1.2 Alaska Region Transportation Snapshot

As of January 2011, the list of transportation assets identified in NPS' facility management software system (FMSS) by Alaska Region parks accounted for 39 percent of assets within their respective asset categories. For example, 64 of 154 assets with the FMSS asset code "trails" were identified as transportation assets. The current replacement value and deferred maintenance amounts for identified transportation assets both account for 55 percent of total current replacement value and deferred maintenance in transportation-related FMSS asset codes. Table 2 summarizes these region-wide current replacement value and deferred maintenance totals by transportation asset category.

FMSS uses an asset priority index (API) to rank how critical assets are in accomplishing NPS mission and goals.

API is used to ensure that maintenance activities focus on the most important assets. Conversely, API is used to identify very low priority assets for possible decommissioning. FMSS also contains a measure of facility condition index (FCI), which is an index of the deferred maintenance costs to current replacement value. A larger FCI value indicates higher costs to bring an asset back to full repair, and lower values indicate that less cost is required to bring an asset back to full repair. Charting transportation assets by API and FCI therefore provides a measure of condition versus priority, as illustrated in Figure 5.

As illustrated in Figure 6, Alaska Region transportation assets are generally considered to be in good condition, with the exception of the roads, which are considered to be in poor condition.

Table 2
Alaska Region Transportation Asset Portfolio

Asset	Number of Assets	Total Current Replacement Value	Total Deferred Maintenance	FCI	Average API
Road	72	$149,969,265	$30,472,440	0.20	59
Parking Area	117	$32,215,209	$3,228,778	0.10	52
Road Bridge	16	$80,996,139	$2,758,607	0.03	76
Trail	64	$67,844,578	$3,195,011	0.05	64
Trail Bridge	22	$22,902,237	$1,035,679	0.05	62
Building	208	$173,684,022	$5, 408,014	0.03	63
Fuel System	72	$8,636,054	$565,619	0.07	55
Marina/Waterfront System	20	$12,837,968	$823,315	0.06	74
Aviation System	30	$28,980,762	$1,096,378	0.04	63
Total	**621**	**$578,066,234**	**$48,583,841**		

Source: FMSS, January 2011. Note: Fleet inventory was excluded from the analyses

Figure 5
Reading API and FCI Charts

Regular, Recurring Maintenance Preventive Maintenance Component Renewal

Priority for O&M Funding

Priority for Project Funding

Stabilize, Restore, or Replace

Deferred Maintenance Component Renewal

0.15   0.30   0.75   1.00

Higher Priority Asset

Priority Band 1

Priority Band 2

Priority Band 3

Priority Band 4

Priority Band 5

Lower Priority Asset

Asset Priority Index (API)

Facility Condition Index (FCI)

Transfer or desingate for beneficial use by other parties
Minimal investment

Candidate for demolition or disposal

Better Condition   Worse Condition

Figure 6
Average Alaska Region Transportation Assets

Asset Priority Index (API)

Facility Condition Index (FCI)

- Road
- Parking Area
- Road Bridge
- Trail
- Trail Bridge
- Building
- Fuel System
- Marina/ Waterfront System
- Aviation System
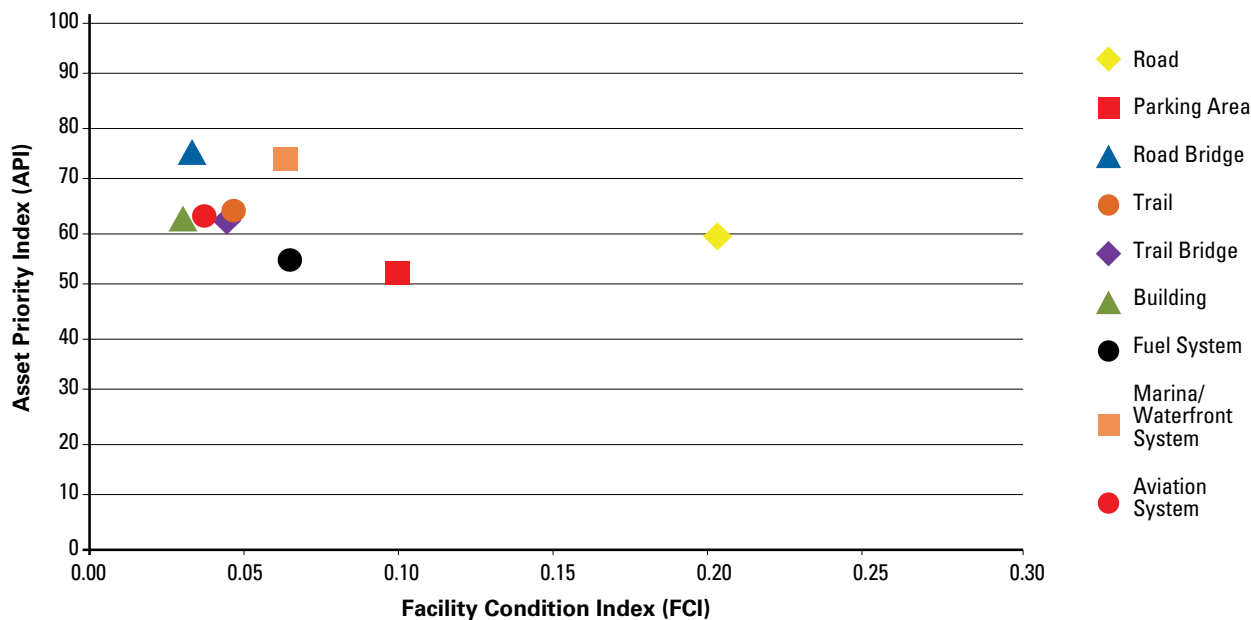
Source: FMSS, January 2011

Cluster Transportation Asset Management Plan Summaries

In order to thoroughly examine the Region's diverse transportation system, cluster Transportation Asset Management Plans were developed using benchmark, current replacement value, and operation and maintenance data for identified transportation assets documented in unit-level Park Asset Management Plans (PAMPs). These source PAMPs are available in Appendix A. The plans provide a detailed record of how park level conditions aggregate to the regional level.

PAMPs also prioritize assets based on the API and FCI concepts summarized in Figure 5, but with greater detail. This prioritization, termed "priority bands," is used in management decision making described in Chapter 4 of this LRTP. As illustrated in Figure 5, PAMPs priority bands use API and FCI values to classify assets into five categories. Assets in these priority bands are characterized by the following:

■ **Priority Band 1: Highest Priority Assets**. Assets are highly important to park mission, have high visitor use, and/or are critical systems. API is 88 or greater and FCI is 0.15 or less.

■ **Priority Band 2: High Priority Assets**. Assets are important to the park mission. API is 75 or greater and FCI of 0.30 or less.

■ **Priority Band 3**: Medium Priority Assets. Assets where only some essential operations are important. API is 50 or greater and FCI is 0.75 or less.

■ **Priority Band 4: Low Priority Assets**. Assets are important but not critical to park operations or do not require much maintenance funding. API is 21 or greater and FCI is 1.0 or less.

■ **Priority Band 5: Lowest Priority Assets**. These assets may not be required for the operations and mission of a park. API is less than 21 and FCI is greater than 1.

Table 3 illustrates the Alaska Region transportation asset current replacement value, deferred maintenance, and average FCI as reported by the PAMPs.

The Transportation Asset Management Plans also indicate that Denali NPP accounts for 65 percent and Glacier Bay NPP accounts for 16 percent of total transportation asset deferred maintenance in the Alaska Region. When examined at the cluster level, Road Parks account for 73 percent of the total transportation asset deferred maintenance, whereas Cruise Ship Parks account for 21 percent, Remote South Parks are 6 percent, and Remote North Park are less than 1 percent. The overall FCI of Road Parks is considered "high," at 0.1, while Remote North Park assets are ranked "excellent" with an FCI of 0.01. Figure 7 illustrates the number of transportation assets by cluster category versus percent of region-wide current replacement value and deferred maintenance.

Table 3
Transportation Assets by Park Cluster

Park Cluster	Number of Assets	Current Replacement Value	Deferred Maintenance	Average FCI
Remote North Parks	21	$21,746,642	$191,261	0.01
Remote South Parks	110	$71,347,569	$2,735,878	0.04
Cruise Ship Parks	135	$122,362,780	$10,314,756	0.08
Road Parks	355	$362,609,422	$35,341,947	0.10
Total	**621**	**$578,066,413**	**$48,583,842**	

Source: FMSS, January 2011

Figure 7
Alaska Region Assets, Current Replacement Value, and Deferred Maintenance
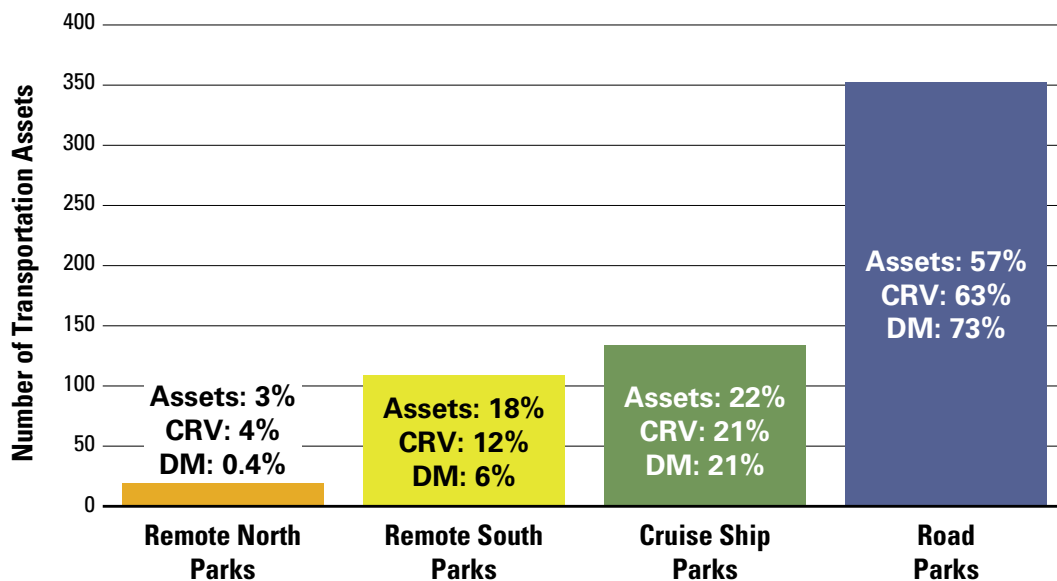
Source: FMSS, January 2011

Remote North Parks

Due to their remoteness and general lack of infrastructure (illustrated in Figure 8 and Figure 9), Remote North Parks have very few transportation assets when compared to other clusters in the Alaska Region. Planning for and management of transportation assets has traditionally not been perceived as a significant need for these parks. Data on the financial requirements of Remote North Park transportation assets is sparse and likely incomplete. The actual financial needs of these parks for operation and maintenance and project funding is potentially much higher than reported in this analysis.

Figure 8
Remote North Park Assets
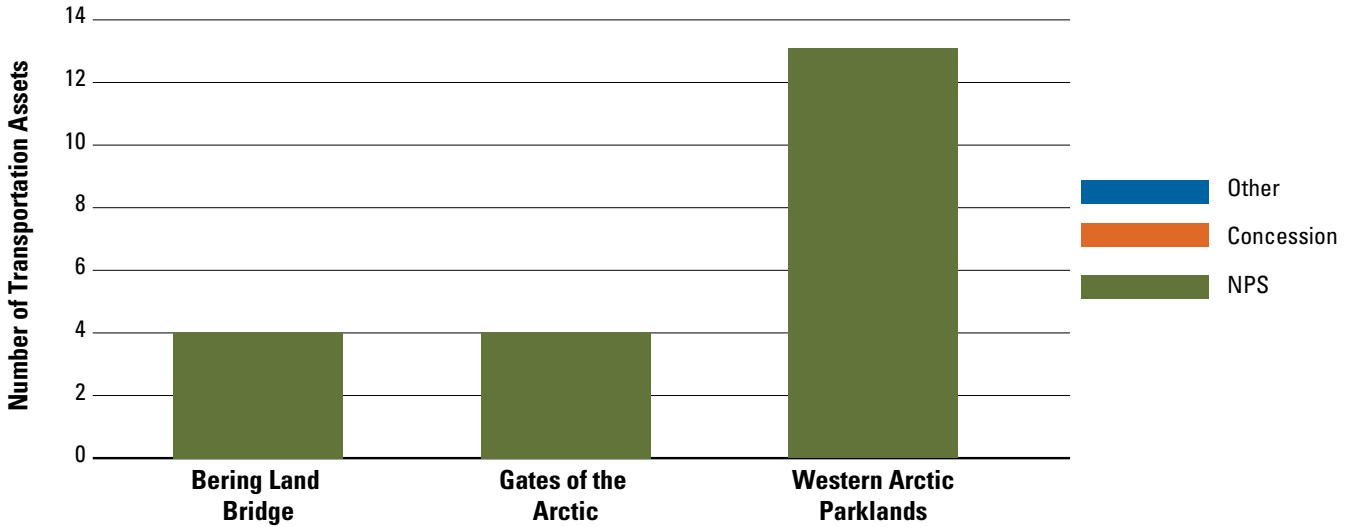
Source: FMSS, January 2011

Figure 9
Remote North Parks API and FCI
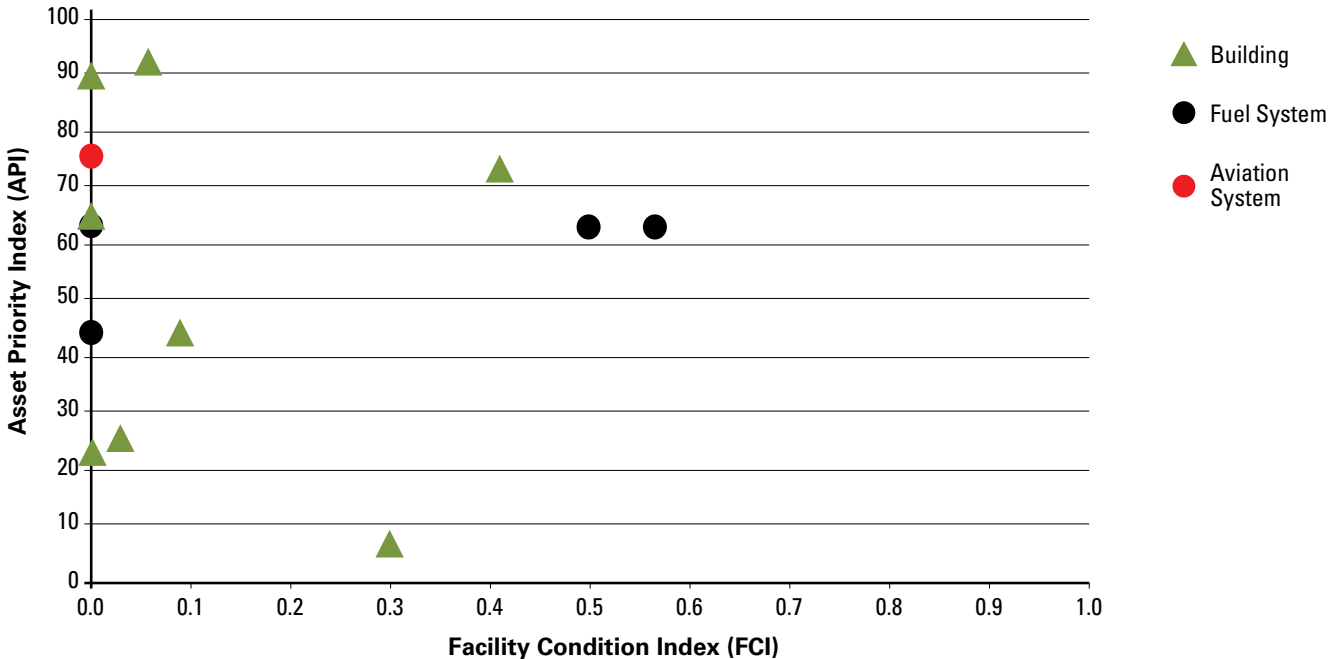
Source: FMSS, January 2011

With the recent addition of several visitor centers, Remote North Parks have had a significant increase in the value of their transportation asset portfolio. While current Remote North Park operation and maintenance and component renewal needs are relatively modest, as indicated in Table 4, operation and maintenance for these new assets will eventually require more resources than these parks have needed historically. Remote North Parks should look towards additional funding mechanisms to help fund operations as well as additional project needs. Developing new partnership agreements, for example, could help to alleviate or reduce this cluster's maintenance responsibilities.

Remote South Parks

FMSS indicates that 69 percent, or 76 of the 110 assets, of the Remote South Park transportation assets have an FCI under 0.15 and an API of 50 or above. This indicates that 69 percent of Remote South Park assets are high priority and are in "good" condition. As illustrated in Figure 10, Alagnak NPP and Aniakchak NPP have no transportation assets. As illustrated in Figure 11, Remote South Parks also contain transportation assets with lower API values and an FCI of 0

(43 percent of Remote South Park assets have an FCI of 0). It is possible that some of these assets have incomplete FCI records in FMSS and, once examined for condition, could be good candidates for disposal.

Although the identified funding gap between operation and maintenance base allocations and benchmarks is approximately $1.2 million, the funding gap for the highest priority transportation assets (priority bands 1 through 3 as identified in the PAMPs) is only approximately $700 thousand. This number more closely approximates additional operation and maintenance needs. As summarized in Table 5, the annual project funding gap is just above $150 thousand. This gap could be reduced or eliminated by lowering the annual deferred maintenance requirements documented in Table 6.

Approximately 15 percent of funding from previous years was provided by the Recreation Fee 20 Percent and Recreation Fee Demonstration 20 Percent funds. These funds will no longer be available in future years and the Remote South Parks should look towards additional funding mechanisms to help fund operations and project needs.

Table 4
Remote North Transportation Asset Portfolio

Asset	Number of Assets	Deferred Maintenance	Current Replacement Value	Average FCI
Road	-	-	-	-
Trail	1	$0	$18,417	0.00
Building	14	$169,445	$21,569,606	0.01
Fuel System	5	$21,816	$59,637	0.37
Aviation System	1	$0	$98,803	0.00
Total	**21**	**$191,261**	**$21,746,463**	

Source: FMSS, January 2011

Figure 10
Remote South Park Assets
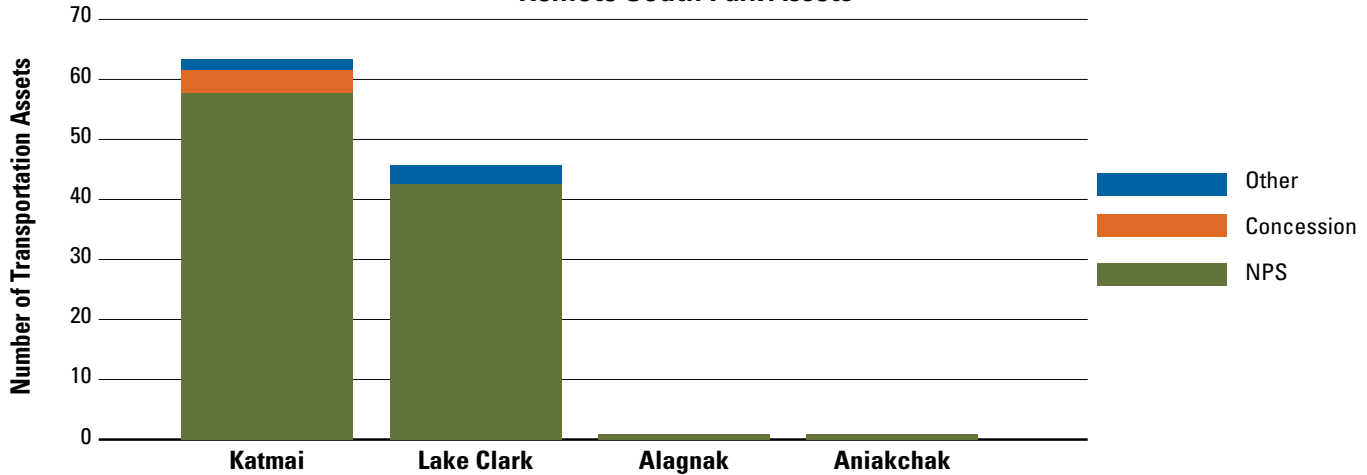
Source: FMSS, January 2011

Figure 11
Remote South Park API and FCI
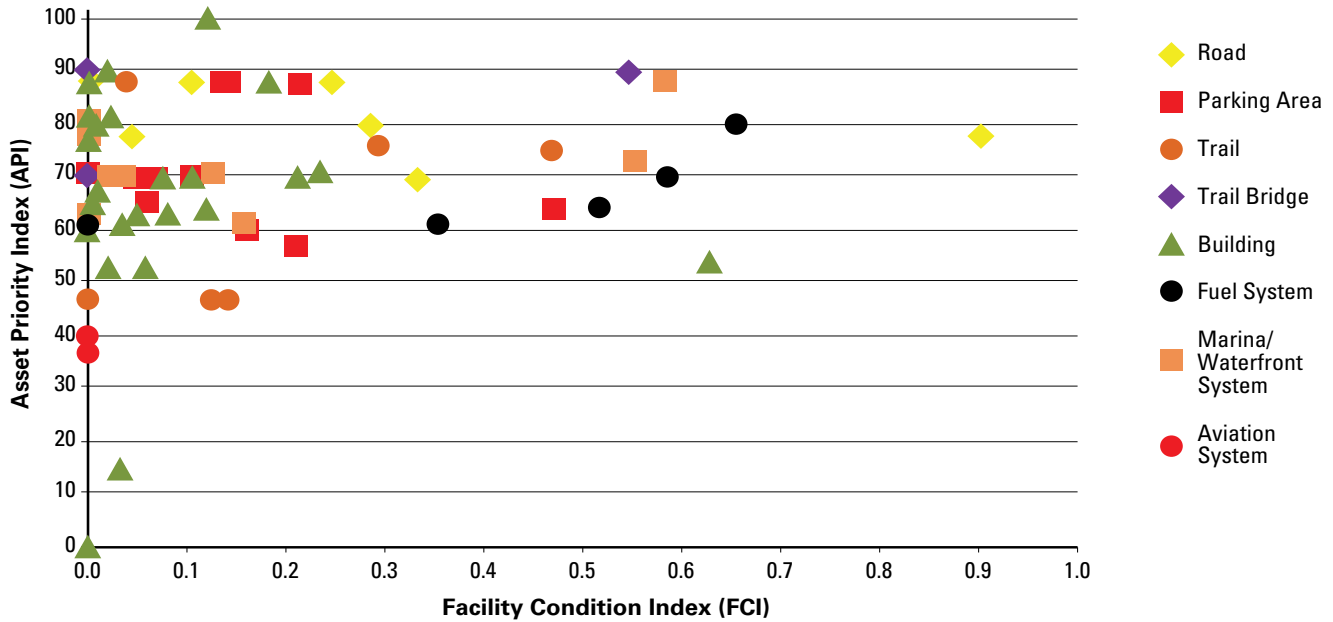
Source: FMSS, January 2011

Table 5
Remote South Funding Gap

Projected Funding Gap	
Deferred Maintenance Annualized Requirement	$273,588
Component Renewal Annualized Requirement	$20,844
Total Deferred Maintenance and Component Renewal Annualized Requirement	**$294,432**
Annual Project Funding Available	**($141,571)**
Total Project Funding Gap	**$152,861**

Source: FMSS, January 2011

Table 6
Remote South Transportation Asset Portfolio

Asset	Number of Assets	Deferred Maintenance	Current Replacement Value	FCI
Road	13	$381,666	$17,940,789	0.02
Parking Area	16	$155,553	$860,975	0.18
Trail	8	$239,424	$1,985,848	0.12
Trail Bridge	2	$664,359	$20,807,054	0.03
Building	36	$463,277	$24,279,568	0.02
Fuel System	17	$273,255	$992,968	0.28
Marina/Waterfront System	16	$558,344	$3,272,606	0.17
Aviation System	2	$0	$1,207,760	0.00
Total	**110**	**$2,735,878**	**$71,347,568**	

Source: FMSS, January 2011

Cruise Ship Parks

As illustrated in Figure 12, The number of transportation assets contained within Cruise Ship Parks varies. As charted in Figure 13, the majority of Cruise Ship Park priority transportation assets are in good condition. That is, 65 percent, or 88 of the total 135 assets, have an FCI below 0.15 and an API of 50 or greater. Cruise Ship Parks consider more trails to be transportation assets compared to other park cluster. Cruise Ship Parks also have many transportation assets that have lower API values and an FCI of 0. It is possible that some of these assets have incomplete FCI records in FMSS and, once examined for condition, could be good candidates for disposal.

Although the identified funding gap between operation and maintenance base allocations and benchmarks is approximately $1.8 million, the gap the highest priority transportation assets (priority bands 1 through 3 as identified in the PAMPs) is $1.1 million. This number more closely approximates additional operation and maintenance needs. The future component renewal requirements for the Cruise Ship Parks are significantly influenced by projected trail maintenance requirements in 2021. This requirement occurring in Glacier Bay should be anticipated and perhaps measures could be taken in earlier years to reduce the projected costs. As illustrated in Table 7, trail assets account for a considerable level of current replacement value.

Cruise Ship Parks rely on fewer funding sources than Road Parks to fund their transportation assets. Their largest funding source comes from the Federal Lands Highway Program (FLHP), which has historically accounted for approximately 60 percent of funding. Although exact levels of Federal funding from this source are uncertain, it is reasonable to assume that these funding levels will remain at historical levels. Cruise Ship Parks should look towards additional funding mechanisms to help fund operations and project needs.

Figure 12
Cruise Ship Park Assets
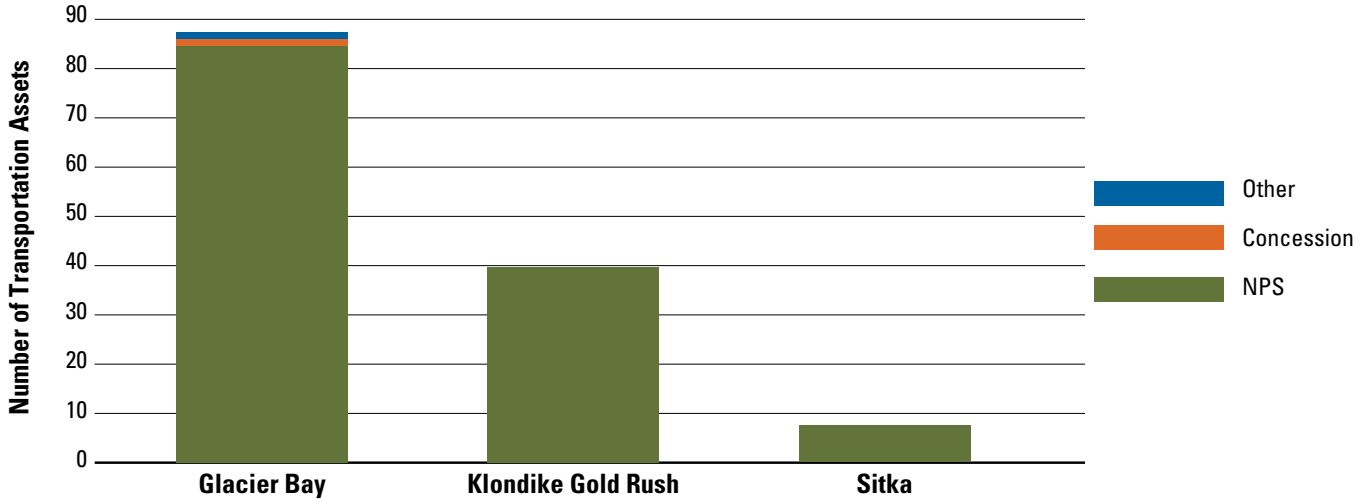
Source: FMSS, January 2011

Figure 13
Cruise Ship Park API and FCI
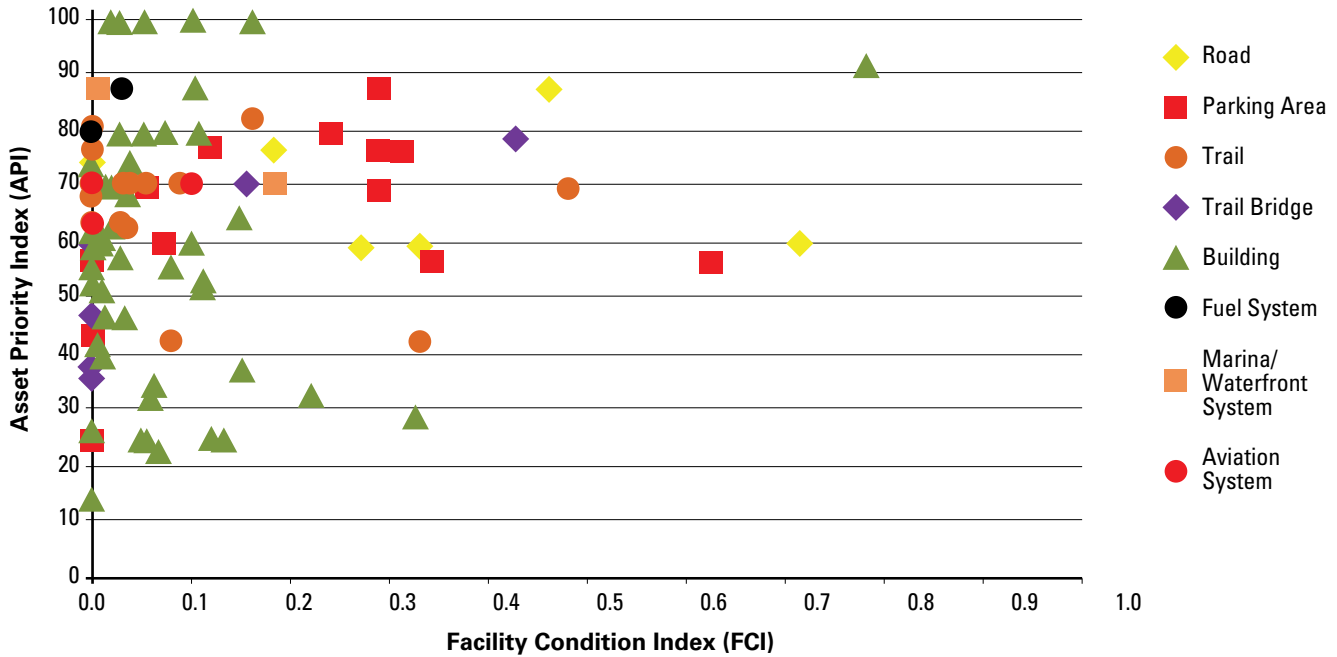
Source: FMSS, January 2011

Table 7
Cruise Ship Park Transportation Asset Portfolio

Asset	Number of Assets	Deferred Maintenance	Current Replacement Value	Average FCI
Road	7	$3,837,851	$19,097,855	0.20
Parking Area	15	$858,127	$4,849,778	0.18
Trail	36	$1,236,988	$33,111,392	0.04
Trail Bridge	18	$371,320	$1,784,480	0.21
Building	50	$3,177,251	$41,248,221	0.08
Fuel System	2	$127,556	$4,191,040	0.03
Marina/Waterfront System	4	$264,972	$9,565,362	0.03
Aviation System	3	$440,691	$8,514,654	0.05
Total	**135**	**$10,314,756**	**$122,362,782**	

Source: FMSS, January 2011

Road Parks

As illustrated in Figure 14, the number of transportation assets contained within Road Parks vary. Fifty-two percent, or 184 of 355, of Road Parks priority transportation assets have an FCI below 0.15 and an API of 50 or higher. This indicates that these 184 assets are in good condition or better. Road Parks also have several transportation assets with higher FCI values with lower API rankings as indicated in Figure 15. These low priority and poor condition assets are candidates for disposal or decommissioning. This strategy can be used to reduce operation and maintenance on unnecessary assets and lowering the Road Park transportation asset deferred maintenance requirements summarized in Table 8.

Road Park transportation assets are prominent in that their road deferred maintenance ($26.3 million) accounts for 54 percent of all deferred maintenance in the region. Denali Park Road is the primary factor for this need, as documented in the Denali NPP PAMP. Table 8 illustrates the significant deferred maintenance and current replacement value for road assets.

Figure 14
Road Park Assets
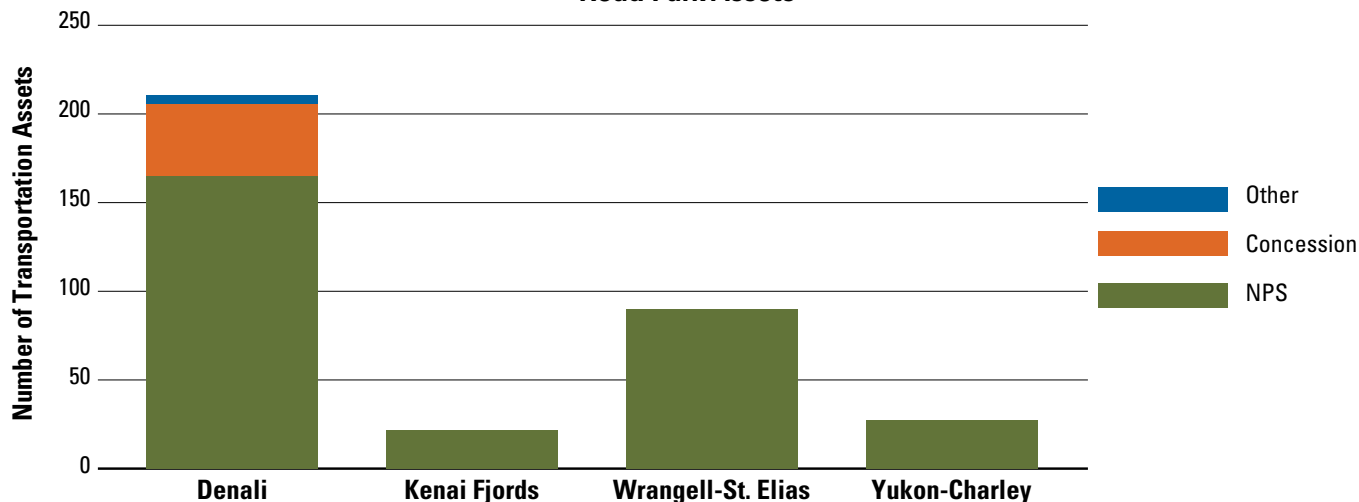
Source: FMSS, January 2011

Figure 15
Road Park API and FCI
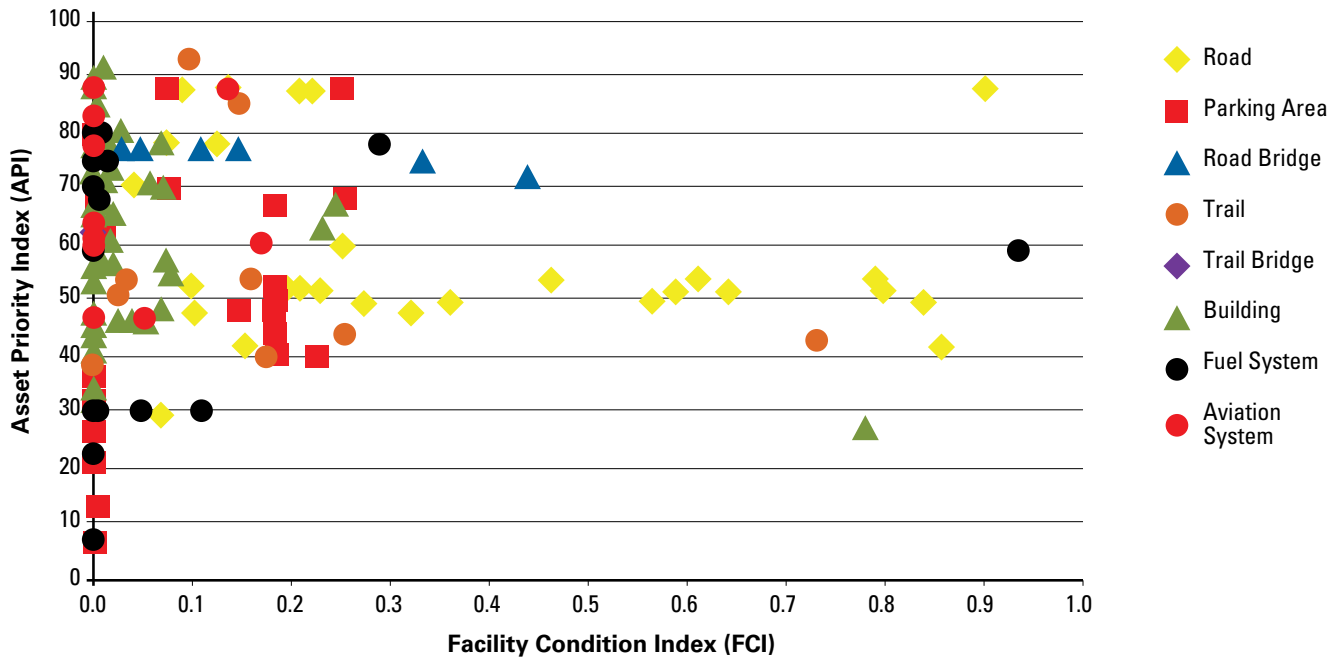
Source: FMSS, January 2011

Table 8
Road Park Transportation Asset Portfolio

Asset	Number of Assets	Deferred Maintenance	Current Replacement Value	Average FCI
Road	52	$26,252,923	$112,930,621	0.23
Parking Area	86	$2,215,098	$26,504,456	0.08
Bridge	16	$2,758,607	$80,996,139	0.03
Trail	19	$1,718,599	$32,728,922	0.05
Trail Bridge	2	$0	$310,703	0.00
Building	108	$1,598,042	$86,586,627	0.02
Fuel System	48	$142,992	$3,392,410	0.04
Aviation System	24	$655,686	$19,159,545	0.03
Total	**355**	**$35,341,947**	**$362,609,423**	

Source: FMSS, January 2011

Although the identified funding gap between operation and maintenance base allocations and benchmarks is approximately $2 million, the funding gap for the highest priority transportation assets (priority bands 1 through 3 as identified in the PAMPs) is only $680 thousand. This number more closely approximates additional operation and maintenance needs. The approximate annual project funding gap is $722 thousand as summarized in Table 9. This gap could be greatly reduced or eliminated by reducing the annual deferred maintenance requirements.

Future funding for Road Parks is uncertain. Historically, these parks have relied upon a diverse set of funding sources, several of which will no longer be available in the future or were only one time occurrences. Road Parks should look towards additional funding mechanisms to help fund operations and project needs.

2.1.3 Needs and Gaps

All parks have ongoing needs in the areas of deferred maintenance, operation and maintenance, and upcoming component renewal for transportation assets of all priority ratings. System management gaps are calculated by determining the cost for proper operation and maintenance, deferred maintenance, and component renewal subtracting the funds available. As such gaps persist through time, conditions will continue to degrade. Table 10 summarizes the funding gaps between operation and maintenance.

Table 9
Road Park Funding Gaps

Projected Funding Gap	
Deferred Maintenance Annualized Requirement	$3,534,195
Component Renewal Annualized Requirement	$584,819
Total Deferred Maintenance and Component Renewal Annualized Requirement	**$4,119,014**
Annual Project Funding Available	**($3,397,119)**
Total Project Funding Gap	**$721,895**

Table 10
Annual Funding Gaps

Need		Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Operations and Maintenance (Allocations – industry standard benchmarks)	Band 1: Highest Priority Assets	$89,239	$282,583	$652,436	$42,143
	Band 2: High Priority Assets	$64,123	$159,318	$399,357	$250,212
	Band 3: Medium Priority Assets	$161,830	$260,168	$61,856	$387,863
	Band 4: Lower Priority Assets	$3,217	$147,805	$569,669	$724,431
	Band 5: Lowest Priority Assets	$235	$395,850	$79,580	$574,385
	Total: Assets Medium Priority or Higher	**$315,192**	**$702,069**	**$1,113,649**	**$680,218**
	Total: All Assets	**$318,644**	**$1,245,724**	**$1,762,898**	**$1,979,034**
Projects* (Deferred maintenance + component renewal - project funding)		**$7,732**	**$152,861**	**$559,207**	**$721,895**

Gap meaning: (Funding need) – (funding available) = funding gap

*Annualized (20 years for component renewal and 10 years for deferred maintenance) costs for projects planned through 2030.

 The NPS often finds that options for mobility to and within Alaska's national parks result in the need to address conflicting modes of transportation. Partnering with user groups and other agencies is required to properly manage transportation corridors, such as multiple-use winter trails.

Access to Kenai Fjords National Park Exit Glacier area, for instance, is defined by the single Herman Leirer Road corridor. The State of Alaska, U.S. Forest Service and the NPS all have certain responsibilities for this road corridor which in its unplowed condition during winter months serves snowmachiners, skiers, snowshoers and dog mushers.

2.1.4   Strategies

Based on the system management needs identified in the previous section, strategies were devised to address them. The strategies resulted from an NPS prioritization and funding scenario workshop conducted in Anchorage in July 2011, and include:

- Invest operation and maintenance funds only in high priority assets (Priority bands 1 and 2, and a portion of band 3)

- Meet annual component renewal requirements and decrease overall deferred maintenance backlog

By concentrating funding on high priority assets, the region can ensure that the assets critical to Alaska transportation systems are maintained over time. By addressing the Alaska Region's $50 million deferred maintenance backlog for transportation assets, the region can avert further degradation of these assets. Once the deferred maintenance is at an acceptable level, much of the funding currently spent on backlog can be diverted to more proactive transportation projects and programs. Concentrated spending on deferred maintenance will improve road assets, which overall, have the lowest FCI rating.

2.2 Mobility

The LRTP mobility goal is to **"provide safe, efficient, and appropriate access to and through NPS lands."** The following objectives clarify how the mobility goal shall be achieved:

- **Safety:** Provide safe access to and within NPS lands.

- **Access:** Provide access for recreational and subsistence users consistent with the purposes of the parks using appropriate modes and seamless connections to and through NPS lands.

- **User Information**: Provide accurate and accessible information through a variety of means about how to travel to and through Alaska parks.

As documented in the *Mobility Technical Report*, available in Appendix B, numerous data sources were used to determine existing conditions as they relate to the mobility goal and access, safety, and user information objectives. Data sources used include NPS PMIS, park unit interviews, planning and management literature reviews, a Federal Highway Administration (FHWA) safety report (available as an addendum to Appendix B) based on NPS Service-wide Traffic Accident Reporting System (STARS) database, and other agency data. Condition findings are organized by data source.

It should be noted that access to NPS lands may be by rail, road, river, and air, meaning there may be diverse influences in mobility without any direct role or responsibilities of the NPS. For example, the Alaska Railroad provides passenger service to Denali National Park and to the gateway community of Seward, near Kenai Fjords National Park. Also, ADOT&PF has responsibility for maintaining the state highway and road infrastructure which brings thousands of motorists to road accessible parks. Similarly, river connections allows for watercraft of all types, including barges, to access parks (such as Kobuk Valley National Park and Yukon-Charley Rivers National Preserve). Finally, there are many air facilities

outside park boundaries that provide the necessary infrastructure and operational support that enables aircraft to fly over and into NPS lands.

2.2.1 Project Management Information System

A review of NPS Alaska Region projects documented in PMIS indicates that 160 projects were related to access, safety, or user information. Of these projects, Road Park units accounted for the majority of projects (103 projects), followed by Cruise Ship Park units (36 projects), Remote South Park units (16 projects), and finally, Remote North Parks (5 projects). Of these PMIS projects, 94 projects are safety-related, 55 are access-related, and 11 projects are related to user information. Figure 16 summarizes the PMIS mobility projects by objective and cluster category. Transportation projects in PMIS are discussed further in Section 3.3.3 as well as the *Mobility Technical Report* in Appendix B and *Financial Analysis Technical Report* in Appendix E.

Figure 16
Alaska NPS Mobility Related Projects
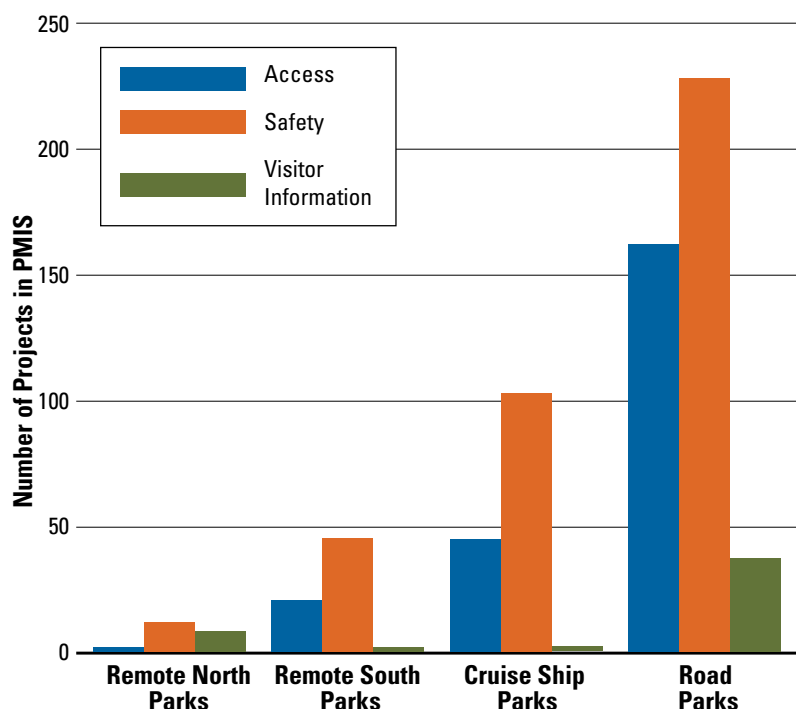
Source: PMIS, February 2011

2.2.2 Park Unit Surveys

To obtain expert knowledge about park unit conditions, needs, and gaps, park unit-level surveys were conducted. Table 11 summarizes key mobility-related conditions as reported by local park unit personnel. The surveys provide a means to document qualitative data related to conditions, needs, and gaps that are not always identified through other analyses or data sources such as PMIS.

2.2.3 Planning and Management Documents

Existing conditions resulting from a literature review of NPS planning and management documents is represented in Table 12. The NPS planning and management literature review revealed more in terms of identified needs and gaps than existing conditions. These identified needs and gaps are discussed in Section 2.2.6.

Table 11
Mobility Condition Survey Results

Mobility Objective	Remote North	Remote South	Cruise Ship	Road	Condition
Access					(No response)
Safety	X				Interagency coordination is occurring
	X				Insufficient winter trail markings and shelter cabins
	X	X			Poor runway conditions
	X				Poor data reporting
	X			X	Severe weather degrading airstrips and trail markings
		X		X	Poor road conditions
			X		Boating incidents
			X		Inadequate lighting
			X		Modal conflicts and capacity issues
User Information	X		X		Materials are outdated / insufficient
		X	X	X	Materials and marketing championed by non-NPS organizations

Source: In-person and teleconference interviews conducted in May and June 2010

Table 12
Planning and Management Literature Review

Mobility Objective	Remote North	Remote South	Cruise Ship	Road	Condition
Access	X				Two Remote North Parks have restricted off-road vehicle (ORV) use for subsistence users
		X			Multiple air taxi operators access unit
				X	ORV trail planning is a major transportation issue
Safety	X	X			Severe weather conditions can occur year-round, causing delays in transportation and hindering access
	X				The Bering Land Bridge GMP calls for landing strip maintenance at Serpentine Hot Springs in Bering Land Bridge
		X			Growing number of boating accidents
			X		Short-condensed park visits by large numbers of cruise ship passengers cause high congestion at times
User Information					(No mention)

2.2.4 Safety Data

Safety conditions consider all transportation systems to and within NPS lands regardless of jurisdiction. Accordingly, safety data considered in this LRTP includes STARS, Safety Management Information System, ADOT&PF statewide roadway accident records, National Transportation Safety Board aviation accident database, and U.S. Coast Guard Boating Accident Report Database system. From this data, the following conclusions are made regarding existing safety conditions:

- Ninety-five percent of accidents are localized to Denali. Of those Denali accidents, 58 percent are on Denali Park Road.

- Seven percent of reported airplane accidents statewide occur on NPS lands. Of those accidents on NPS lands, most occur in Road and Remote South Park units.

- Of the dozen boating accidents reported by the U.S. Coast Guard in NPS lands, most incidences occurred in Cruise Ship and Road Parks.

- The existing NPS STARS dataset is only current to 2005 and it is difficult

to provide a current estimate of crash trends and patterns based on outdated data. From 1990 to 2005, there were five parks with STARS crash data for the study period, with a total of 199 reported crashes. However, since 1996, only Denali crash data was included in the STARS database.

2.2.5 Conditions Summary

Based on the existing conditions analyses, the following generalizations can be made about the current condition of mobility in the NPS Alaska Region:

Access
- Currently, park access is deemed adequate with no significant issues within the region.

- Investments in access related projects are ongoing according to PMIS data.

- Planning and management documents indicate that known future events and opportunities could change access, but these factors are being monitored and planned for accordingly.

- Traditional subsistence modes of travel have been determined for two park units.

Safety
- Accidents are few in number, localized, and not a region-wide or cluster-wide problem.

- Severe weather is an ongoing problem for travel safety and the safe maintenance of transportation assets.

- Cruise Ship Park units experience safety conflicts when there are concentrated spikes in tourist visitation.

- Boat safety issues are believed to be increasing in Cruise Ship and Remote South Park units.

- Road and pedestrian improvements are needed due to inadequate or unsafe infrastructure in Remote South and Cruise Ship Park units.

- Investments in safety related projects are ongoing according to PMIS data.

User Information
- Investments in visitor information products are more active in Road and to a lesser degree, Remote South Park units.

- Remote North and Cruise Ship Park units rely on concessionaire visitor information products.

- Remote South Park units report that visitor information is outdated.

- Investments in visitor information related projects are ongoing according to PMIS data.

2.2.6 Needs and Gaps

The existing conditions analyses exposed numerous mobility related needs and gaps. These needs and gaps are summarized in Table 13. The table provides a cross-tabulation of needs and gaps based on the number of analyses (PMIS, interview, and literature review) that indicated a certain topic was either a need or gap within a cluster. The row tabulation totals indicate the level of recognition a need or gap has region-wide. The column totals indicate the level of recognized needs and gaps within a cluster by mobility objective (access, safety, and visitor information), as well as the region as a whole.

Table 13 also illustrates that safety related needs and gaps were most frequently identified (38 reports), followed by access (17 reports), and visitor information needs and gaps were less common (5 reports). Between the clusters, the identification of needs and gaps ranges from 12 to 18 reports with Road Park units reporting the most and Remote South Park units reporting the fewest.

Although the Alaska Region is vast and often remote, there are locales where pedestrian safety can be challenging due to compressed periods of congestion. For example, the gateway town of Skagway to Klondike Gold Rush National Historical Park receives 800,000 cruise ship tourists between the months of May and September. Multiple dockings in a single day transform the small, quiet historic town into a bustling scene, more typical of a busy city.

In a matter of a few hours, thousands of pedestrians disembark large cruise ships and descend on a sixteen block commercial district while remaining open to automobiles, buses, bicycles, horse-drawn carriages, and commercial trucks. The NPS works with the local community and the State of Alaska to provide separated walkways and signage to guide visitors through the town.

Table 13
Mobility Needs and Gaps

	Park Clusters				Totals
	Remote North	Remote South	Cruise Ship	Road Parks	
Access					
Interagency coordination	1	-	-	-	1
Access study needed	-	1	1	2	4
Improve water/land connection	-	1	-	-	1
Dock improvements	-	-	1	-	1
Pedestrian congestion relief	-	-	1	-	1
Americans with Disabilities Act (ADA) rehabilitations	-	-	1	-	1
Acquire visitor transit buses	-	-	1	-	1
Trail restoration/improvements	-	-	-	1	1
All-terrain vehicle (ATV)/ORV access management	1	-	-	2	3
Potential non-NPS access corridors/development identified near park units	1	1	-	1	3
Access Total	**3**	**3**	**5**	**6**	**17**
Safety					
Insufficient infrastructure	1	-	-	1	2
Inconsistent safety data reporting	1	-	-	-	1
Severe weather conditions or natural hazards and impacts	3	2	-	1	6
Search and rescue/coordination with other groups	1	-	-	-	1
Road and airport safety concerns	-	1	-	-	1
Boating safety/analyze safety of fleet vessel	-	1	2	-	3
Inadequate lighting in parking lot	-	-	1	-	1
Modal conflicts and capacity issues	-	-	1	-	1
Road safety improvements needed or proposed	-	1	-	3	4
Inadequate information about road conditions	-	-	-	1	1
Winter trail safety	3	-	-	-	3
Facilitate safe bear viewing	-	1	-	-	1
Commercial operator training	-	1	-	-	1
Trail safety/restoration improvements	-	1	1	1	3
Rehabilitate/maintain airstrip surface	2	-	1	1	4
Pedestrian and/or vehicle congestion	-	-	2	1	3
Dock improvements	-	-	1	-	1
Safety Total	**11**	**8**	**9**	**9**	**38**
Visitor Information					
Provide interpretive exhibits or roadside kiosks	1	-	-	1	2
Repair/replace information signs	-	-	-	1	1
Implement shuttle system and associated infrastructure	-	-	-	1	1
New visitor information materials proposed	-	1	-	-	1
Visitor Total	**1**	**1**	**-**	**3**	**5**
Grand Mobility Total	**15**	**12**	**14**	**18**	**60**

Based on what is reported in Table 13, the following generalizations can be made of region-wide and cluster specific needs and gaps:

Access

■ More access studies are needed region-wide.

■ All-terrain vehicle (ATV)/off-road vehicle (ORV) access management is needed in select areas.

■ Future non-NPS projects could affect access region-wide.

Safety

■ Severe weather impacts safety region-wide.

■ Boating safety is an issue in select areas.

■ Road safety improvements are needed in select areas.

■ Winter trail safety improvements are needed in select areas.

■ Airstrip improvements would benefit safety region-wide.

■ Vehicle and/or pedestrian congestion is an issue in select areas.

Visitor Information

■ Needs and gaps exist in select areas.

2.2.7 Strategies

Based on the needs identified above, the following strategies resulted from an NPS prioritization and funding scenario workshop conducted in Anchorage in July 2011.

■ Provide readily available and accurate information and training.

■ Support infrastructure that improves winter trails safety.

■ Incorporate ANILCA Section 1301(b)(4) consistent access studies into GMP updates and as needed.

■ Conduct access management plans where needed.

■ Where deemed necessary by parks, provide minimal improvements and basic maintenance to airstrips.

■ Reduce vehicular crashes, especially in road accessible parks.

■ Coordinate with ADOT&PF and local governments on transportation planning and projects.

2.3 User Experience

The LRTP user experience goal is to *"proactively enhance the Alaskan multimodal experience."* The following objectives are used to achieve this goal:

■ **User Data:** Collect and analyze user information to determine which experiences and expectations are most relevant to transportation access.

■ **Multimodal Transportation:** Establish a multimodal transportation system that emphasizes the journey as integral to the Alaska experience.

The LRTP user experience goal responds to the portion of the NPS agency mission that states, "the NPS 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.*" In Alaska, the journey to and within parks is often part of an enjoyable, educational, and inspirational experience. More so than other NPS regions, transportation related user experience in Alaska is tied to the multimodal nature of travel within the State. The types of users accessing Alaska parks also vary from locals who travel to and through parks to reach neighboring villages and for subsistence purposes, to visitors on cruise ships that travel to a number of historic and natural parks along the Alaskan coast. Information regarding Alaska Region and other Alaska FLMA visitation is available in the *Alaska Federal Lands LRTP*, as the *Visitation Trends Technical Report* appendix.

Existing conditions established for the user experience goal relies on unit-level surveys, NPS visitation statistics, NPS planning documents, visitor surveys conducted by the University of Idaho, and requested and formulated projects in PMIS. This information is reported in great detail in the *Visitor/User Experience Technical Report* in Appendix C. The following condition evaluations are derived from the technical report, and are

Winter travel throughout remote Alaska is often characterized by trails that connect villages inside and outside of national park lands. Mobility is highly unpredictable as weather conditions, changing terrain on frozen rivers, and variable snow depth all contribute to the difficulty of maintaining stable routes.

The NPS collaborates with Native villages and local users to explore safer practices of transportation for subsistence, village commerce, and traversing the parks. The ability to utilize Alaska's national parks during the more than eight to nine months of winter is no less important than winter parks in the Lower 48, but the difference is that Alaska's parks remain occupied year round.

provided at a park cluster level. For each park cluster, user experience conditions include:

■ User demographics

■ Transportation systems, modes, and access

■ Trends

■ Experience types

■ Needs

2.3.1   Remote North Parks

Remote North Parks experience relatively low visitation compared to other units in the Alaska Region and the NPS system.

NPS

These parks are generally accessed by non-local visitors through commercial flights from Anchorage or Fairbanks to the gateway communities of Kotzebue or Nome. Locals use these parks for subsistence purposes and inter-village travel. Remote North Parks are depicted in Figure 3 and listed in Table 1.

User Demographics

Remote North Parks are estimated to account for 0.7 percent, or 45,000, of total 2009 Alaska Region visits. Overall visitation in Remote North Parks is trending downward. Trends in visit type show increases in recreation visits and a decline in non-recreation visits.

Transportation Systems, Modes, and Access

Remote North Parks are accessed primarily by snowmobile, small boat, and fixed wing aircraft. Gates of the Arctic National Park is accessible from the nearby Dalton Highway by way of ORVs or hiking. Signage and wayfinding at Remote North Parks and their gateway communities is limited or absent.

Type of Experience

Users of the Remote North Parks typically expect and encounter a wilderness experience. Most non-local travel is pre-planned or provided through guided tours. Visitors arrive by airplane for multi-night excursions including fishing, camping, hiking, and rafting. Visitor reports suggest that small fixed winged aircraft flights and water or tundra landings are trip highlights. Users find few wayfinding tools in these parks and gateway communities. Local users are typically associated with subsistence purposes or traverse parks for inter-village trade and through travel. Anecdotal information indicates safety concerns with insufficient winter travel corridor markings and shelter cabins.

Identified Needs

The following user experience needs are identified for Remote North Parks:

1. **Travel safety.** Safety gaps include a lack of search and rescue capability, emergency shelters, inter-village trail markers, and interagency cooperation with accident data between NPS, State Troopers, Native Corporations, or other land management agencies.

2. **Unreliable aviation access.** Aviation concerns include weather caused delays, flooded airstrips, poor airstrip condition, and airstrip maintenance liability. As aviation access to Remote North Parks is expected to increase in the future airstrip flooding related to any change in climate is a concern for these parks.

3. **Access.** Issues related to the Alaska National Interest Lands Conservation Act (ANILCA) and State of Alaska Revised Statute 2477 access issues are managed on an individual park rather than regional basis, and is not addressed in this document.

4. **Additional data.** Data is needed to answer the following questions:

   - How many users/visitors?

   - What are the purposes of the use or visitation?

- What are user origins and destinations?

- What are user modes of travel?

- Are users satisfied with their travel experience to and within the park(s)?

5. Airstrip mapping. Several sources discussed needs for airstrip mapping. Airstrip locations are needed for search and rescue activities. More investigation is required to assess the feasibility of mapping and maintaining airstrip location data.

2.3.2 Remote South Parks

As illustrated in Figure 3, Remote South Parks are located proximate to or within the Alaska Peninsula. These parks are typically accessed by private and chartered fixed wing aircraft from Anchorage, Katmai NPP, and Lake Clark NPP. Gateway communities for these parks are King Salmon and Port Alsworth. Coastal areas in Remote South Parks are accessed by boat and aircraft via Kodiak.

User Demographics

Remote South Parks account for 1.7 percent of Alaska Region visitation. Similar to North Remote Parks, more data is needed before conclusions can be made about visitor demographics.

Transportation Systems, Modes, and Access

With the exception of Brooks Camp in Katmai NPP, most visitation to Remote South Parks is not reported due to the nature of travel, primarily private fixed wing aircraft and private boat. These data are therefore difficult to acquire.

Type of Experience

Bear viewing at Katmai NPP is a popular activity and draws many visitors. In-holder fishing lodges are located throughout Katmai NPP and Lake Clark NPP and are visitor destinations. Visitors arrive via aircraft for fishing, hiking, and rafting excursions that occur, by necessity,

over multiple days. Users report that arrival to these parks via floatplane, water landings, and hiking highly vegetated trails as trip highlights. There is little wayfinding in Remote South Parks and their associated gateway communities.

Identified Needs

The following user experience needs are identified for Remote South Parks:

1. Additional data. Same as identified for Remote North Parks. See additional data topic in section 2.3.1.

2. Access. Issues related to the ANILCA and State of Alaska Revised Statute 2477 access issues are managed at the park level rather than a regional basis and are therefore not addressed in this LRTP.

3. Unreliable aviation access. Same as identified for Remote North Parks. See unreliable aviation access in section 2.3.1.

4. Airstrip mapping. Same as identified for Remote North Parks. See airstrip mapping in section 2.3.1.

5. Off-road vehicle. Further investigation into Remote North Park ORV needs is necessary.

6. Advanced travel planning data. User experience can be improved through providing advance information detailing conditions and ways to access Remote South Parks.

7. Information and wayfinding. PMIS data indicates that providing information and wayfinding at Remote South Parks is needed.

2.3.3 Road Parks

As illustrated in Figure 3, Road Parks are defined by their connection to the ADOT&PF road network. The following existing conditions are determined for Road Parks in the *Visitor/User Experience Technical Report* available in Appendix C.

User Demographics

Road Parks receive 47.2 percent of Alaska Region visitation. Of Road Park users, 56 percent are under the age of 50. Popular Road Park visitor destinations are campgrounds and visitor centers.

Transportation Systems, Modes, and Access

In addition to the vehicular access that defines Road Parks, users access parks through trains, air and float planes, boats, snow machines, and other travel modes. The Alaska Railroad provides extensive access to Denali NPP as well as Kenai Fjords National Park.

Type of Experience

Typical user activities include bus tours, boat tours, backpacking, mountaineering, camping, rafting, biking, ranger programs, dog sledding, wildlife viewing, photography, hunting, fishing, sightseeing, kayaking, ATV, and staying in backcountry cabins. Sightseeing by train and bus are primary transportation-related user experience in Road Parks. These services are generally privately-owned and operated. Congestion is experienced during the peak tourism months at Denali NPP.

NPS

Identified needs

The following user experience needs are identified for Road Parks:

1. **Airstrip mapping.** Same as Remote North and South Parks as identified in section 2.3.1.

2. **Off-road vehicle.** Further investigation into Road Park ORV needs is necessary.

3. **Crowding.** Conflict between local residents and park visitors needs further study.

4. **Road maintenance and construction.** High-priority roads need to be in good condition.

5. **Negative transportation system impacts to wilderness experience.** Separate from this LRTP, Denali NPP bus traffic issues and mitigation are being studied.

6. **Advanced travel planning data.** Throughout Road Parks, visitor experience can be improved by providing advance information about conditions and ways to access these parks.

7. **Information and wayfinding.** PMIS data indicates that providing information and wayfinding in Road Parks is needed.

2.3.4   Cruise Ship Parks

Cruise Ship Parks that include parks in southeast Alaska are primarily visited by cruise ship travelers. Parks in this category are identified in Figure 3 and Table 1.

User Demographics

Cruise Ship Parks account for 50 percent of visitation in the Alaska Region. Use of these parks is characterized by cruise ship passengers. Of cruise ship passengers, 52 percent are over 50 years old. Users typically access Cruise Ship Parks for short-duration day visits; however, Glacier Bay NPP cruise ship visitors do not leave their vessels as ships travel through waters only to view glaciers from afar. Glacier Bay NPP receives some overnight

and day visitation by way of Juneau (arrival to Gustavus by commercial jet, private and chartered boats, and the Alaska Marine Highway System).

Transportation Systems, Modes, and Access

All Cruise Ship Parks can be accessed by the Alaska Marine Highway System, cruise ships, and commercial jets. The most common mode of travel to Cruise Ship Parks is watercraft (cruise ship, commercial boat, and ferry). The second most common form is aircraft, typically from Juneau. Tour buses are an important component of the Cruise Ship Park transportation systems in parks where cruise passengers disembark and physically access NPS lands. The White Pass and Yukon railroads also provide access to Klondike Gold Rush National Historic Park.

Type of Experience

Cruise Ship Park visitors travel within parks predominantly by foot. A lack of safe crossings, adequate sidewalks, clear pedestrian signs, wayfinding, and proper accessibility all contribute to needs in these Cruise Ship Parks and nearby communities. Cruise Ship Parks are also connected to community transportation systems and networks, requiring close coordination with communities and transportation providers. Common activities at Cruise Ship Parks are hiking, camping, mountaineering, backpacking, kayaking, rafting, fishing, hunting, ranger programs, walking tours, museums, and viewing historic buildings.

Trends in Cruise Ship Parks

Visitation to Cruise Ship Parks is increasing. Recreational visitation is increasing while non-recreation visitation is declining. High levels of visitation are beginning to create pedestrian crowding. In areas with inadequate ground vehicle support, pedestrian crowding creates safety concerns during the height of ship travel season. Information and wayfinding at Cruise Ship Park ports is lacking as is ADA compliant infrastructure. The

Alaska Federal Lands LRTP contains a Visitation/User Trends Technical Report in its Appendix B. The technical report highlights trends in cruise ship visitation to NPS and other FLMA units. The report supports the notion that visitation to Cruise Ship related Federal lands is high and increasing.

Identified Needs

The following user experience needs are identified for Cruise Ship Parks:

1. **Congestion/conflicting modes.** There are pedestrian/vehicle conflicts during travel to and within Cruise Ship Parks. There is also incomplete connectivity to/from parks and docks.

2. **Crowding.** Pedestrian capacity is a paramount need and impacts user experience and mobility goal areas. Conflicts between local use and cruise passenger crowding needs to be further investigated.

3. **Off-road vehicle.** Further investigation into Cruise Ship Park ORV needs is necessary.

4. **Advanced travel planning data.** User experience can be improved by providing advance information about conditions and ways to access Cruise Ship Parks.

5. **Information and wayfinding.** Information and wayfinding at Cruise Ship Parks is needed.

2.3.5   Needs Summary

Transportation in Alaska is an integral aspect of user experience. Region-wide user data is needed to better understand and improve transportation influence on user experience. Despite this data gap, safety, traveler information, as well as crowding and congestion were identified as needs that impact Alaska Region parks. While Table 14 summarizes needs identified throughout Section 2.3, the following bullets indicate the foremost transportation issues relating to user experience:

- Information needs

- Improve travel safety

- Improve wayfinding and advance traveler information

- Crowding and congestion

- ADA compliance

- Road maintenance and construction

- Alleviate negative impacts to wilderness experience

2.3.6   Strategies

Based on the needs identified in Section 2.3, the following strategies were devised during a NPS prioritization and funding scenario workshop conducted in Anchorage in July 2011.

- Collect and analyze transportation data on origin/destination, winter trail system use, incident reporting, demographic trends, mode of travel, safety needs, and so on.

- Improve safety in the Alaska Region by providing safe infrastructure and by providing information. Address known pedestrian/vehicle conflicts, plan for emergency shelters and trail markings for winter travel, and coordinate with existing safety programs.

- Provide for directional and informational signs within and to/from parks. Develop advanced travel information to disseminate travel information.

- Conduct pedestrian and transit planning in partnership with local entities to decrease crowding, congestion, and bottlenecking and reduce conflicts with cruise ship passengers.

- Complete ADA compliance along routes from cruise ship docks to parks and along park travel corridors.

- Maintain roads to a condition level that is appropriate for its use and coordinate with ADOT&PF regarding the maintenance of roads used to access parks.

- Identify and manage negative impacts from vehicles and transportation infrastructure to wilderness experience where appropriate.

Table 14
User Experience Needs Summary

User Experience Identified Needs	Park Cluster			
	Remote South	Remote North	Cruise Ship	Road
Access	X	X		
Advanced Travel Planning Data	X		X	X
Airstrip Mapping	X	X		X
Congestion/Conflicting Modes			X	
Crowding			X	X
Information and Wayfinding	X		X	X
Lack of Data	X	X		
Negative Transportation System Impacts to Wilderness Experience				X
ORV	X		X	X
Road Maintenance and Construction				X
Travel Safety		X		
Unreliable Aviation Access	X	X		

2.4 Resource Protection

The LRTP resource protection goal is to "**protect parks' natural, cultural, and subsistence resources.**" The following objectives will be used to achieve this goal:

- **Protect Wildlife at an Ecosystem Scale:** Coordinate with neighboring land and transportation managers to ensure that transportation system impacts on wildlife are understood and mitigated across borders.

- **Physical Environment:** Protect the physical environment from adverse effects of the transportation system.

- **Cultural Resources:** Mitigate negative impacts and provide appropriate access to cultural resources.

- **Subsistence Resources:** Consider impacts and access to subsistence resources in transportation planning and policy development.

Resource protection is a cornerstone of the NPS mission which states (italics added to emphasize resource protection) "to promote and regulate the use of the [...] national parks [...] which purpose is *to conserve the scenery and the natural and historic objects and the wild life therein* and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." While some Alaska Region parks have extensively studied the impact of transportation systems on resources, the relationship between transportation and resources has not been explored at a regional scale. This LRTP is a first step at such a regional transportation/resource protection perspective.

This LRTP relies on unit-level surveys and requested/formulated projects in

Parks such as Wrangell-St. Elias NPP are accessible by motor vehicle, but two roads accessing the park, McCarthy Road and Nabesna Road, are within State of Alaska right-of-way. The park and ADOT&PF found collaboration on improvements and maintenance to be challenging, as these unpaved roadways are not the highest priority for the State, but they do provide essential park access to park lands and local communities.

PMIS to identify resource protection conditions, needs, and gaps for park clusters. Existing conditions are organized by data source below and are based on the results of the *Resource Protection Technical Report* available in Appendix D.

2.4.1 Project Management Information System

Natural resource issues identified through requested and formulated projects contained within PMIS are identified in Table 15. The most wide-spread Alaska Region needs identified by PMIS are transportation planning, baseline inventories and documentation, and air and water quality monitoring.

Table 15
Natural Resource Issues in PMIS Requested and Formulated Project

Remote North	Remote South	Cruise Ship	Road	Issue Identified in PMIS
X		X		Impacts to soundscape from aircraft and vessel
X	X		X	Inclusion of transportation issues in planning documents (backcountry wilderness management plans, resource protection plans)
X	X		X	Resource inventories and subsistence use documentation
	X	X	X	Air and water quality data and monitoring
	X			Impacts of small aircraft travel on backcountry use impacts
	X		X	Monitor and study ORV impacts on resources
		X		Cruise ship impacts
		X		Resource protection enforcement
		X	X	Addressing exotic species
		X	X	Repairing transportation assets that are cultural resources
X			X	Dust mitigation for roads and trails
			X	Transportation impacts on wildlife
	X			Transportation components to resource education
			X	Wildlife and fish crossings

Source: PMIS, 2011; Resource Protection Technical Report

2.4.2 Park Unit Surveys and Planning Documents by Cluster

Needs and issues identified through unit-level surveys and park planning documents are examined at the park cluster scale. To obtain expert knowledge about park unit conditions, needs, and gaps, park-level staff and management were asked about the relationship between transportation and resource protection. The surveys provide a means to document resource-related conditions, needs, and gaps that are not always identified through other analyses or data sources such as PMIS. Planning documents examined include GMPs.

Resource protection conditions for each park cluster are described in terms of character and needs.

Remote North Parks

The following conditions exist for Remote North Park resource protection character and needs.

Character

The Remote North Parks are large in area and contain few assets. Although these parks are some of the least visited in the NPS system, surrounding remote communities rely on the Remote North Parks for subsistence hunting, gathering, and habitat for subsistence resources. In addition to the natural and subsistence resources, these parks contain archeological and cultural resources.

Issues

Due to the lack of infrastructure and heavy use, few resource impacts were identified in unit-level surveys. The following issues were identified:

■ Tundra is damaged by illegal use of ORV and snow machines on insufficient snowpack.

■ Soundscape disturbances from aircraft and snow machines may impact caribou migration thereby impacting subsistence hunting.

■ Dust from gravel surfacing affects lichen near road corridors, which is then eaten by caribou and also infiltrates fish habitat. Roads themselves fragment habitat with as yet undetermined impacts.

General Management Plans for the Remote North Parks address transportation and resource preservation by documenting permitted modes of travel to/from inholdings and travel that is subject to reasonable regulation based on impacts to resources. In particular, decisions regarding the use of ORVs for access to inholdings is made by park superintendents on a case-by-case basis. The decision considers the potential for resource damage from ORVs.

Remote South Parks

The following conditions exist for Remote South Park resource protection character and needs.

Character

Remote South Parks contain significant geographic landscapes, natural and subsistence resources, and archeological resources. These parks are visited more than the Remote North Parks, and have more assets within their borders including roads and marine facilities.

Issues

Unit surveys indicate concern about natural and subsistence resource disturbance along transportation corridors. Disturbances include:

Serpentine Hot Springs, the most visited area in Bering Land Bridge National Preserve, is accessed only by fixed-wing aircraft in the summer and by snow machine in the winter.

The recent Serpentine Hot Springs Transportation Access Report relied heavily on the knowledge of village residents to explore means of providing safe travel to the area while preserving natural and cultural resources.

■ High-speed river boats causing bank erosion and/or reductions in animal use of shorelines and riverbanks.

■ Subsistence users increasingly travel further into parks to reach resources, using airplanes or boats.

■ ORV impacts on park resources.

Cruise Ship Parks

The following conditions exist for Cruise Ship Park resource protection character and needs.

Character

Cruise Ship Parks receive the highest levels of visitation of any cluster category. The majority of visitors travel to or within these parks by cruise ship.

Addressing transportation needs and accommodations for visitor access are entirely contingent upon the NPS first managing the extraordinary natural and cultural resources found in Alaska.

In Glacier Bay NPP for example, visitation from about 400,000 people per year occurs primarily by cruise ships and smaller tour or charter boats. Measures to address vessel traffic in Glacier Bay NPP were initiated in 1979 to protect endangered humpback whales. The vessel quota system and associated vessel operating conditions have been amended several times since then to properly balance resource protection and visitor experience.

Issues

Cruise Ship Park needs identified in unit-level surveys respond to cruise ship impacts on natural resources. These national resource impacts include:

- Water and air quality impacts from cruise ships and small boats.

- Occurrence of petroleum and other transportation-related contaminants in intertidal communities and marine environments.

- Marine and land soundscape issues impact cultural resources, bears, whales, and other marine mammals.

- Vessel disturbance of the critically endangered bird species, Kittlitz's Murrelets.

- Introduction of exotic and invasive species by cruise ships.

- Discharge from cruise ships may impact glaciers, which are considered sacred by some Native Alaskans.

Road Parks

The following resource protection existing conditions exist for Road Parks.

Character

Road Parks contain most Alaska Region transportation assets and receive the second highest levels of visitation. Road Parks have the highest potential for impacting land resources compared to other park categories.

Issues

Unit-level surveys indicate that Road Park transportation systems impact geologic, natural, subsistence, and cultural resources in the following ways:

- Air and water quality concerns due to road and ORV trail runoff and dust.

- Infrastructure impacts on permafrost, gumbo soil types, and so on.

- Boats can increase erosion (through wake) and disturb salmon rearing.

- Roads can bisect fish and wildlife habitat and hinder sheep migration.

- Soundscape impacts of planes and other vehicles on wildlife are concerning, but largely unstudied.

- In Wrangell-St. Elias NPP, habitat fragmentation by road and ORV trail is poorly understood and requires additional study.

- Airstrips are sometimes constructed on cultural resources.

- Include impacts to wildlife in vehicle management plan as was done for Denali NPP.

2.4.3 Needs and Gaps

The following is a summary of the transportation issues and needs relating to resource protection identified in Section 2.4:

- Bank erosion and fish rearing disturbances from high speed river boats.

- Dust from road and ORV trails (affected lichen entering the food chain).

- Rising costs of travel to access shifting subsistence resources.

- Air and water quality impacts from cruise ships.

- Transportation systems contribution to petroleum in intertidal and marine environments.

- Introduction of exotic species by cruise ships.

- Conflict surrounding discharge from cruise ships and impact to glaciers considered sacred.

- Infrastructure impacts to permafrost, gumbo soil types, and so on.

- Impacts of habitats bisected by roads.

- General national resource impacts caused by cruise ships.

2.4.4 Strategies

Based on the needs identified above, the following strategies were developed during a NPS prioritization and funding scenario workshop conducted in Anchorage in July 2011.

- Research the effects of transportation on resources.

- Study effects of cruise ships on resources.

- Continue to study, document, and invest in managing illegal ORV and snow machine use.

- Study relationship between current transportation system and shifting of subsistence resources.

Regional and interdepartmental approaches are required to address the natural resource needs identified in Section 2.4 of this LRTP. In doing so, transportation asset and program managers must work with the Alaska Region cultural resources team members, the natural resource science team members, and the subsistence team members. This coordination will ensure continued identification of regionally significant needs and integrate transportation planning with other planning and research efforts.

2.5 Climate Change

The LRTP climate change goal is to "**plan for impacts of climate change to park transportation systems and impacts of park transportation systems on climate change through science, adaptation, mitigation, and communication.**" The following objectives support the climate change goal:

- **Science.** Initiate, support, and participate in scientific research and assessments needed to understand and respond to the relationship between transportation and climate change in Alaska.

- **Adaptation.** Manage transportation assets and conduct transportation planning for climate change.

- **Mitigation.** Reduce the carbon footprint of the NPS by reducing the impact of transportation associated with park operations, visitation, and partner operations.

- **Communication.** Share the compelling story of climate change impacts in Alaska to the public as it relates to transportation.

The objectives of the LRTP climate change goal respond to the national and regional climate change goals outlined in the NPS *Climate Change Response Strategies*. Rather than developing a separate and potentially duplicative climate change response through this LRTP, this plan supports and draws from existing national level strategies as they relate to transportation.

Several national and regional climate change efforts are underway to address data gaps, planning methodologies, and the need for policy changes that respond to and plan for climate change. These actions include Alaska Region Climate Change Scenario Planning, Inventory and Monitoring Program, Landscape Conservation Cooperatives, and the Climate Friendly Parks Program. These efforts are documented in the Alaska Region *Climate Change Technical Report* in the appendix of this LRTP as well as the *Alaska Federal Lands LRTP, Climate Change Technical Report* available in that document's appendix.

Because climate change is a relatively new focus of NPS planning, available data does not directly address climate change. Anecdotal information from unit-level surveys more directly addresses climate change-related transportation challenges and reactions in the Alaska Region. This anecdotal information, in combination with climate change data available from the University of Alaska's Scenarios Network for Alaska Planning (SNAP), serve as the basis for existing condition determinations. Best practices developed by ADOT&PF for adaptive transportation asset management are used as climate change strategies. Alaska Region conditions are organized by climate change objectives: Science, Mitigation, Adaptation, and Communication.

2.5.1   Science

The Alaska Region is exploring the nexus between global transportation systems and climate change impacts on Alaska's National Parks and gateway communities. A measure of the extent to which the Alaska Region contributes to climate change is also being studied. Regional and park transportation systems as well as asset managers can integrate climate change data and research efforts through the following actions:

1. Provide transportation information to ongoing NPS climate change monitoring and research efforts, including funding and regional technical support for Climate Friendly Park certification.

2. Identify, propose, and fund transportation related research projects through professional organizations such as Transportation Research Board (TRB), and through university programs.

3. Partner to test new and innovative green technologies and adaptive infrastructure.

Risks

Information on transportation assets vulnerable to climate change impacts and climate change-related planning needs comes from unit-level surveys conducted in May and June of 2010. The impacts of climate change on the Alaska Region transportation system, is summarized in Table 16, where park staff identified from a list of climate change indicators from the NPS inventory and monitoring program.

Other climate change topics identified by park staff include:

- Remote North and Remote South Parks indicate that traditionally allowed modes of travel are adequate for subsistence users to reach resources; however, changing migration patterns coupled with the cost of fuel may make some subsistence harvest trips cost prohibitive.

- New safety problems will emerge with shorter or unpredictable winter travel seasons in Remote North and Remote South Parks.

- With a shift in the seasons, the ability to travel, the availability of the subsistence resource, and the legal hunting season may no longer align to allow efficient subsistence harvest in Remote North and Remote South Parks.

- Sea-level rise will impact non-NPS marinas used by Road Park visitors and staff.

In February, 2011, an interdisciplinary team from NPS, University of Alaska's SNAP, and individuals from other agencies, businesses, and communities participated in a Climate Change Scenario Planning workshop for the South-West Alaska Network of the Inventory and Monitoring Program. Parks involved with the South-West Alaska Network include Remote South Parks and Kenai Fjords National Park.

Table 16
Climate Change Risks to Transportation System

Remote North	Remote South	Cruise Ship	Road	Climate Change Risk	Impact to Transportation System
		X	X	Surging Glaciers and Glacial Outbursts	Airstrip, road, and trail washouts, hazardous debris in coastal waters
X				Coastal Hazards	Floating sea ice is hazardous for small boats
X	X			Coastal Erosion	Threatens OHV trails and administrative assets
X	X		X	Permafrost Thaw	Causes heaving, cracking , subsidence of roads, trails, and airstrips
X	X			Submergence	Trails and airstrips may submerge
X			X	Wildland Fire	Smoke impacts visibility for boating and aviation, submerged hazards to boats are not visible as turbidity increases
X				Ground Failures	Frost heaves render airstrips unusable
X	X	X	X	Rivers Flooding	Road washouts, submerged hazards to boats are not visible as turbidity increases
X		X	X	Water Quality	Submerged hazards to boats are not visible as turbidity increases
X	X	X	X	Water Flow Timing	Shifting winter and summer river travel seasons can create safety hazards, can cause boat groundings.
	X	X	X	Avalanches and Landslides	Damage to trails, roads, airstrips
X	X	X	X	Invasive plants	Invasive plants are more prevalent along transportation corridors

Source: In-person and teleconference interviews conducted in May and June 2011

Climate change drivers rated as "important" for involved parks in this network are temperature change, precipitation change, and extreme events (storms). Within the range of scenarios developed during the workshop, the following impacts may occur to transportation infrastructure in Remote South Parks over the next 20 years:

- Trail and road washout.

- Loss of marina facilities in gateway communities.

- Shifts in recreational and subsistence use travel patterns.

- Damage to roads, trails, and buildings due to melting permafrost.

- Increased storm damage to all facilities.

2.5.2 Adaptation

Climate related impacts to transportation assets are addressed through adaptation. The term adaptation in this context describes the adjustment of natural or human systems to a new or changing environment by capitalizing on opportunities and/or moderating negative effects. Adaptation is a course of action that adjusts to predicted change.

Alaska Department of Transportation and Public Facilities has developed numerous best practices that provide adaptive effects for transportation assets. Alaska Department of Transportation and Public

Facilities employs the climate change adaptation best practices summarized in Table 17.

The NPS *Alaska Region Climate Change Response Strategy* offers the following planning level steps towards adaptation:

1. Identify and prioritize risks to NPS-owned and non-NPS owned transportation assets and systems likely to be affected by climate change and determine what management actions are needed.

2. Participate in existing scenario planning activities to develop and evaluate alternatives and options for managing a range of probable changes and their impacts to transportation assets and systems.

3. Develop adaptive management into LRTP updates as a means of assessing situations, designing, implementing, monitoring, evaluating, and adjusting management decisions to account for climate change.

4. Enhance collaborative transportation management, with Federal, State, and other land managers in Alaska to coordinate climate change response strategies on a landscape scale.

5. Incorporate consideration of climate change in planning and funding decisions.

Table 17
ADOT&PF Adaptation Best Practices

Remote North	Remote South	Cruise Ship	Road	Best Practice
X	X	X	X	Relocation of existing assets
X	X	X	X	Shoreline protection using rip rap and sandbags
X			X	Deeper fill for infrastructure on permafrost

2.5.3 Mitigation

Climate change mitigation is an intervention that attempts to reduce the causes of changes in climate such as reducing the emission of greenhouse gases into the atmosphere. Mitigation strategies focus on how to slow the progress of climate change and how to change long-term conditions. In Alaska, mitigation efforts involve reducing the sources of greenhouse gas emissions or increasing carbon sinks to offset emissions.

Existing Mitigation Efforts

Alaska Region climate change mitigation is currently developed and funded at the unit level. Across the Alaska Region, NPS units rely on video conferencing between offices and units to reduce staff travel. In addition, telework and flex scheduling is increasingly used to reduce employee commutes.

Park fleets are being converted to more efficient vehicles and fuels. For example, Lake Clark National Park and Preserve converted its marine fleet to more efficient four-stroke outboard motors. Klondike Gold Rush National Historic Park and Kenai Fjords National Park both use electric and hybrid cars and vans. To reduce on-the-job vehicle use, Klondike Gold Rush National Historic Park provides bikes, helmets, and locks for all seasonal employees. Denali NPP has experimented with using biodiesel for the park's transit fleet and is currently using grant funds to test hybrid fuels.

Some parks are implementing employee commute programs to encourage alternative transportation to the workplace, with Glacier Bay NPP and Kenai Fjords National Park offering opportunities to earn time off and monetary awards. Denali NPP established a carpool fleet for employees to reduce travel within the park. The park also reduces vehicle miles traveled by identifying local gravel sources for road projects, thereby minimizing distances traveled to haul gravel.

Suggested Actions for Mitigation

The following steps are based on objectives as applied to transportation assets and systems from the NPS publication, *Alaska Region Climate Change Response Strategy:*

1. Provide technical and financial support for transportation components of the Climate Friendly Parks certification.

2. Consider sustainability in planning new or replacement transportation facilities and infrastructure.

3. Learn about and participate in local sustainable transportation operations.

4. Encourage innovation in employee transportation to and from work.

2.5.4 Communication

No region-wide devoted communication effort currently exists to describe the relationship between transportation and climate change in the Alaska Region. Currently, Glacier Bay NPP, Klondike Gold Rush National Historical Park, and Denali NPP all offer interpretive programs on the impact of climate change.

The following communication steps are based on the *NPS Alaska Region Climate Change Response Strategy* objectives as applied to transportation assets and systems:

1. In cooperation with interpretive park staff on a regional scale, develop and fund educational materials and programs for internal and external audiences to explain the impacts of transportation on Alaska's parks.

2. Provide the tools to encourage individuals to make appropriate transportation choices to maintain sustainability for future generations.

3. Communicate internally about successes and failures with regards to environmentally sustainable transportation practices.

2.5.5   Strategies

Based on the needs identified, the following climate change strategies were developed during a NPS prioritization and funding scenario workshop conducted in Anchorage in July 2011:

- Identify and prioritize risks to NPS-owned and non-NPS owned transportation assets and systems likely to be affected by climate change and determine what management actions are needed for adaptation.

- Identify, propose, and fund transportation related research projects through professional organizations such as TRB, and through university programs.

- Participate in or initiate local sustainable transportation operations.

- Provide technical and financial support for transportation components of the Climate Friendly Parks certification.

- Communicate throughout NPS about successes and failures with regards to environmentally sustainable transportation practices.

The following are other transportation-related actions for addressing climate change needs in the Alaska Region:

- Support and provide transportation components to ongoing monitoring and research efforts, including funding and regional technical support for Climate Friendly Parks certification.

- Partner to test new and innovative green technologies and adaptive infrastructure.

- Participate in existing scenario planning activities to develop and evaluate alternatives and options for managing a range of probable changes and their impacts to transportation assets and systems.

- Develop adaptive management into LRTP updates as a means of assessing situations, designing, implementing, monitoring, evaluating, and adjusting management decisions to account for climate change.

- Enhance collaborative transportation management, with Federal, State, and other land managers in Alaska in order to coordinate climate change response strategies on a landscape scale.

- Incorporate consideration of climate change in planning and funding decisions.

- Consider sustainability in planning new or replacement transportation facilities and infrastructure.

- Learn about and participate in local sustainable transportation operations.

- Encourage innovation in employee transportation to and from work.

- Cooperate with interpretive park staff on a regional scale to develop and fund educational materials and programs for internal and external audiences to explain the impacts of transportation on Alaska's parks.

- Provide the tools to encourage individuals to make appropriate transportation choices to maintain sustainability for future generations.

- Communicate internally about successes and failures with regards to environmentally sustainable transportation practices.

3. Transportation Funding and Project Selection

NPS transportation investment decisions are guided by funding availability, regulatory requirements, and strategic planning. This chapter describes the result of these three dynamics as they pertain to traditional transportation funding streams, fund source requirements, justifying investments, and various funding scenarios. Topics discussed in this chapter are based on the results of the *Financial Analysis Technical Report* available in Appendix E.

3.1 Funding Sources

The NPS has several internal and external sources available for funding transportation projects. The Alaska Region receives Federal Lands Highway Program funding (FLHP), which covers planning, design, construction, and limited maintenance. A portion of the Region's funding for transportation projects comes from non-standard appropriated sources, such as the Paul S. Sarbanes Transit in Parks Program, Public Lands Highway Program Discretionary Fund, National Scenic Byways, Congressional Earmarks, and State of Alaska transportation. This section describes these sources as well as the types of projects that are eligible for funding. Project selection processes are also described for significant internal funding sources.

3.1.1 Common FLMA Funding Sources

Common FLMA funding sources are programs that are available to all FLMAs for eligible transportation related projects that meet a wide variety of requirements and needs. Because these possible funding sources are common to all FLMAs, they are documented in the *Alaska Federal Lands LRTP*.

3.1.2 NPS Funding Sources

In addition to common FLMA sources, the Alaska Region funds transportation projects through several NPS and FHWA WFL programs. These funding programs and their applicability are listed in Table 18 and are described in greater detail in the following. It should be noted that although there are numerous funding sources available nationally, the Alaska Region has not consistently fared well in nationally competitive funding due to its relatively undeveloped transportation system.

Table 18
National Park Service Internal Transportation Fund

Funding Programs	Eligible Project Type							
	Road	Parking	Bridge	Drainage/Slope stabilization	Trail	Marine	Transit System	Intelligent Transportation System
FLHP – Category I	X	X	X	X				X
FLHP – Category III				X	X	X	X	X
Repair/Rehabilitation Program	X	X	X					
Line Item Construction (new construction)	X	X	X	X	X	X		
Federal Lands Recreation Enhancement (FLREA) - Fees	X	X	X	X	X	X	X	X
Planning (general management plans, LRTPs, etc.)	X	X	X	X	X	X	X	X

Federal Lands Highway Program – Category I – Roads and Bridges

Traditionally, FLHP funds have been authorized for construction improvements to existing roads, bridges, and occasionally new projects in the form of realigned roads. This follows national policy that emphasizes reduction in deferred maintenance on the NPS road system. FLHP funds are distributed by categories, where *Category I* encompasses roads and *Category III* includes alternative transportation (*Category II* exists, but addresses parkways, which are not present in Alaska).

Category I funds are allocated to regions by a mathematical formula that quantifies the road program's national goals and objectives. Within the Alaska Region, informal but pragmatic processes and procedures guide Category I road project prioritization and selection. Projects are selected through a collaborative process influenced by regional funding demand, all construction projects of any kind (to avoid disruption of visitor services and contractor work) and specific maintenance priorities at Denali NPP. Prioritization and selection accounts for the park containing two thirds of all paved and unpaved public roads region-wide and its roads carry significantly more traffic than all other parks combined. Therefore, the bulk of Category I funding is typically allocated to Denali NPP.

Federal Lands Highway Program – Category III – Alternative Transportation

Until fiscal year 2011, the FLHP Alternative Transportation Program required regions to compete for funding applied to prioritized and selected projects at the national level each year. In fiscal year 2011, a pilot effort allocated alternative transportation funding to regions through the use of a formula much like the one described above for Category I funds. Regions are encouraged to use these limited funds to solve transportation problems that cannot be addressed by traditional road development or that require alternative modes of transportation to protect resources.

Category III funding for alternative transportation projects are few in number and require an evaluation team to determine regional priorities driven by national criteria. These projects may include improvements to trails, water-based infrastructure and systems, and intelligent transportation systems, among other project types.

Repair/Rehabilitation Program

Funding for minor repairs to roads and bridges is occasionally provided through the Repair/Rehabilitation Program. Repair/Rehabilitation funds are approved through the NPS operating budget that is appropriated every fiscal year. Repair/Rehabilitation funds are two-year funds that expire at the end of the second fiscal year. The program has a $500,000 funding cap per project.

Line-Item Construction

Funds to develop new parks and areas within parks are budgeted through the Line-Item Construction Program. Funds from this program are appropriated by line item in the yearly Department of the Interior appropriation act. Line-item funds generally do not expire.

Federal Lands Recreation Enhancement Act

The Federal Lands Recreation Enhancement Act (FLREA) Program (formerly the Fee-Demonstration Program) allows park units to charge fees for access to specific areas and attractions. Park units are allowed to use a portion of these funds for certain purposes within a unit, including transportation projects. The Federal Lands Recreation Enhancement Act funds cannot be transferred from the NPS to the FHWA; however, an interagency agreement can permit FHWA work to be accomplished with FLREA funds.

Planning

Funds for integrating transportation planning into regional and park planning processes are allocated on a case-by-case basis. In most situations, these funds may be applied towards the following:

- Supplement funds intended for completing updates or amendments to park GMPs.

- Provide essential funding for completing long range transportation plans at the regional and park level.

- Allow special planning projects to be completed that are inherently related to transportation or have a transportation component.

PMIS Funding Summary

The Federal Lands Recreation Enhancement Act dollars fund 41 percent of the $4.6 million project dollars spent on transportation assets each year. Figure 17 and Table 19 illustrate the diverse funding sources for transportation projects identified in PMIS from 2006 to 2010.

Figure 17
Transportation Funding Sources (2006 to 2010)
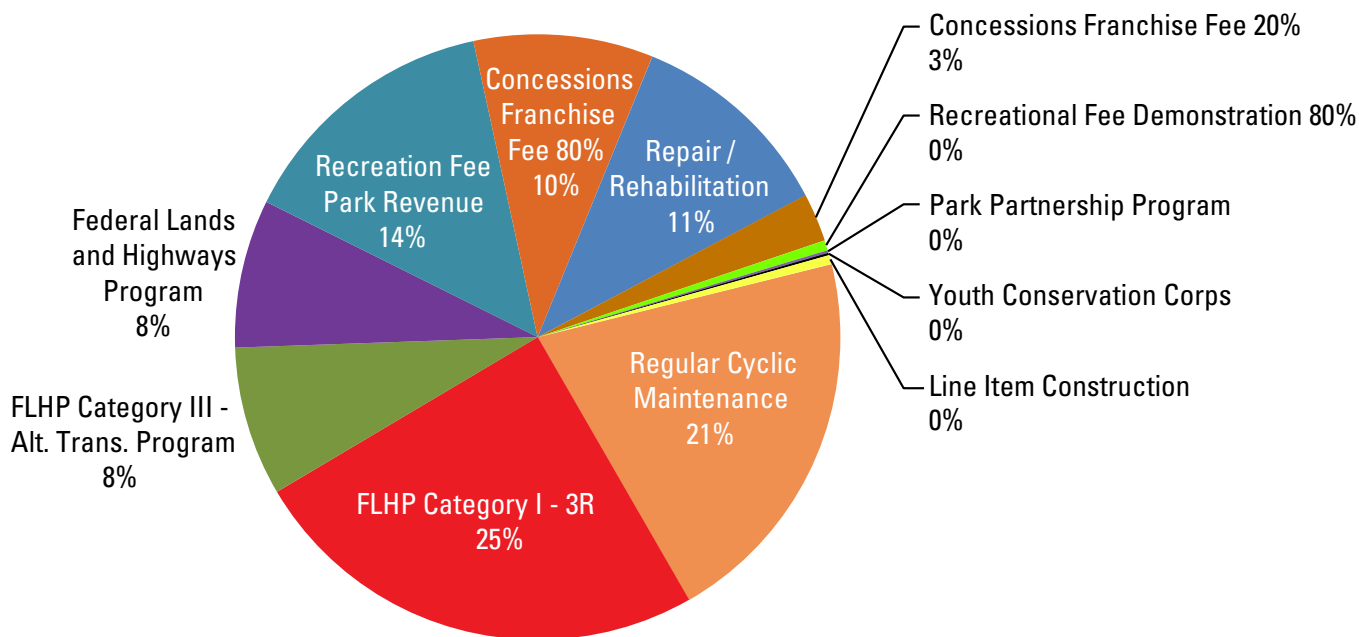
Table 19
Transportation Funding Sources (2006 to 2010)

Fund Source	Amount
Regular Cyclic Maintenance	$956,464
FLHP Category I - 3R	$1,151,736
Recreation Fee Park Revenue	$661,704
Federal Lands and Highways Program	$367,793
Concessions Franchise Fee 80%	$444,705
Repair / Rehabilitation	$514,753
FLHP Category III - Alt. Trans. Program	$370,800
Concessions Franchise Fee 20%	$120,000
Recreational Fee Demonstration 80%	$24,786
Park Partnership Program	$6,400
Youth Conservation Corps	$6,211
Line Item Construction	$22,316
Total Project Funds	**$4,047,668**
Other Fund Source	
Emergency Storm and Flood Damage (2007)	$1,235,100
2009 Economic Recovery - Trails	$204,500
2009 Economic Recovery - Deferred Maintenance	$631,730
Recreational Fee Demonstration 20%	$384,700
Recreation Fee 20%	$234,930
Non-NPS Fund Sources (2007)	$3,000,000
Line Item Construction (2004, 2006)- one time funding	$15,828,000
Total	**$21,518,960**

3.2 Project Selection Processes

The Alaska RTPM, through ongoing discussions with regional parks, develops a five-year work plan to identify and program funds for transportation and other facility projects. To the extent possible, projects are scheduled for funding and implementation in the rank order shown on the FLHP project priority list. The region has established processes and procedures to guide projects through the development, evaluation, and ranking of projects. The process is described in the following steps for both Category I and III projects.

3.2.1 Category I (Roads and Bridges)

The Park Road and Parkways Program is the main source of funding for improvement of transportation infrastructure in national park system units. The Park Road and Parkways Program is comprised of three primary funding categories, similar to those described in FLHP discussion above. Category I, however, is divided into two subcategories: Road Rehabilitation and Road Reconstruction/Realignment. These projects are administered by NPS regional offices, with coordination, funding allocation, and oversight provided by the NPS Washington Office.

The Road Rehabilitation "3R" acronym represents "resurfacing, restoration, and rehabilitation." This work is undertaken to extend the service life of roads and enhance safety. Occasionally, 3R projects may include drainage structures, retaining walls, slope failure repair, and bridges repair work. However, this type of work by must be limited to 5 percent or less of total project costs. Above that limit, work is designated as "4R," which is subject to different funding approval standards. Bridge work may be done independently of 3R road work if the results of regular bridge inspections indicate a need for improvement and if the work does not exceed $1.5 million.

Road Reconstruction/Realignment "4R" acronym represents "reconstruction" and "realignment." This work consists of changing the geometry of existing roadways, intersections, or bridges as well as widening lanes or modifying the horizontal and vertical alignment of roads. Category 4R projects also include work such as the replacement of large bridges (more than $1.5 million); road relocation; and construction of new roads, bridges, parking areas, or parallel bicycle paths.

The Category I project selection process is described in the following and summarized in Figure 18.

Figure 18
Category I Project Selection Process

1. Service-wide Comprehensive Call issued and net construction components are added to PMIS

2. RTPM evaluates funding, requested needs, and prioritizes projects within a five-year plan

3. RTPM meets with WFL Division to discuss prioritization and near term planning, design, and construction workloads

4. Funded projects are entered into Park Transportation Allocation and Tracking System (PTATS)

Step 1

An annual Service-wide Comprehensive Call is issued, which prompts parks to generate a single component for Category I project net construction in PMIS. This component is used to track project management and funding detail through fiscal years. Projects are justified through supporting documentation which indicates how work orders fulfill national, regional, and park unit level goals.

Step 2

The RTPM generates a five-year program that lists projects by requested year of funding from each park. After evaluating available funds and the annual total request for funds, the RTPM prioritizes projects for all five years. Typically, projects from parks other than Denali NPP are given priority due to the infrequency of such requests. Denali NPP projects are then reconciled with the remaining estimated funding for each year. Denali NPP East and West Road Supervisors confirm current park needs, priority of projects, and available funding during their annual meeting.

Step 3

The RTPM conducts an annual meeting with FHWA, Western Federal Lands Division to collaborate on the final prioritization list. Emphasis is given to the upcoming fiscal year to confirm immediate planning, design, and construction management workloads as well as data collection, planning, and design strategies for other near term projects.

Step 4

Projects ready for funding are then formulated based on priority. Once the component is formulated to Category I/3R or Category I/4R, that project is then automatically entered into the NPS Park Transportation Allocation and Tracking System (PTATS) for funding allocation and management.

3.2.2 Category III (Alternative Transportation)

The Park Road and Parkways Program is also the main source of funding for improvement of transportation infrastructure in national park system units that use alternative transportation modes or specialized solutions to transportation issues that require alternative approaches. Category III is administered by the NPS regional offices, with coordination, funding allocation, and oversight provided by the NPS Washington Office. Figure 19 summarizes the Category III project selection process detailed in the following.

Step 1

The annual Service-wide Comprehensive Call prompts parks to generate a single component for planning or implementation of a Category III project in the NPS PMIS. As is done for Category I components in PMIS, the Category III component is used for project management and assessing funding detail through fiscal years. Projects are justified through supporting documentation, which demonstrates the degree to which proposals align with national, regional, and park unit level goals. Category III projects are subject to specific criteria, which each park must address and codify in PMIS. The ranking process only considers the specific details and factual material provided in the submittal package. Applicants are therefore encouraged to provide supporting documentation that is factual, measurable, and quantifiable.

Step 2

Each park unit submits its needs. Proposals include itemized cost estimates for the requested project, scope, project map, utilization, administrative considerations, resource opportunities, anticipated management or resource problems, design elements, historic eligibility, mission dependency, and annual operation and maintenance costs.

Figure 19
Category III Project Selection Process

1. **Service-wide Comprehensive Call issued for possible projects to be added to PMIS**

2. **Project proposal packages are submitted by each park unit for review**

3. **RTPM generates a prioritized five-year program plan**

4. **Regional Office staff determine eligibility for project implementation**

5. **Within the available budget, eligible projects are programmed into PTATS**
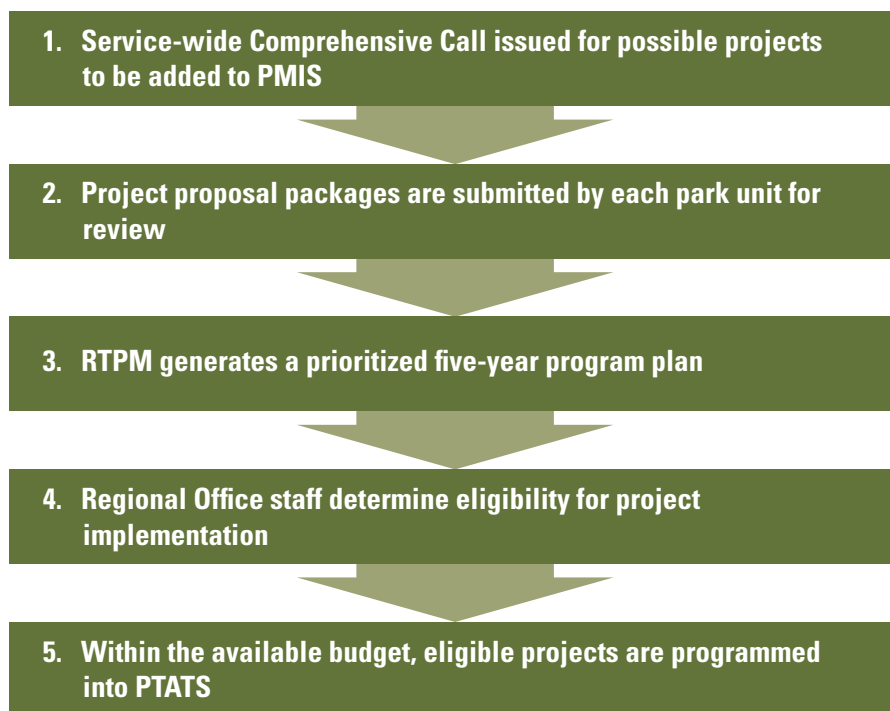
Step 3

The RTPM generates a five-year program with projects listed by requested funding year for each park. After evaluating available funds and the annual total request for funds, the RTPM gives preliminary prioritization for projects for all five years.

Step 4

A team consisting of regional office staff is assembled to rank projects eligible for initiation. Eligibility is determined by readiness of a park to begin planning or implementing a project, status of compliance or site evaluation, and confirmation of partnerships or partnership funding. The team members first complete an individual, independent review and prioritization of the projects using a standard scoring system developed by the NPS for all regions. The team then compares individual evaluations to confirm scoring consistency. Some ranking adjustment may be made through this process.

Planning projects are considered based on five factors:

1. **Demonstration of need.** Describes what the problem is and how the problem is impacting the purpose and significance of a park. Needs demonstration also describes potential or identified issues or constraints.

2. **Planning strategy/process.** Explains how the planning process will develop solutions to the problem and address significant transportation issues such as congestion, transit/roadway capacity, mobility, access, safety, or facility/operational limitations. Planning strategy also includes identification of park staff/divisions, partners, general public, and any other parties that may be impacted by the potential project and now they will be included in the planning process.

3. **Visitor experience and resource benefits.** Identifies and describes significant issues related to transportation (including visitor experience, natural resources and cultural resources) that will be addressed as part of the planning

process. Describe how the planning process will establish relationships between user capacity and the transportation system (i.e., will proposed changes to the transportation system limit, enhance, or control access based on resource conditions).

4. **Financial sustainability/analysis.** Describes all planning costs associated with the project (i.e., transportation planning consultants, project management, and environmental compliance). The analysis also describes how the planning process will determine implementation and lifetime operation and maintenance costs of the project alternatives. The analysis also explains how alternatives will be evaluated considering costs (i.e., value analysis, and value based decision making). Also describes how the planning process will identify financial impacts to park operations and explores potential funding sources and partnerships.

5. **Facility conditions/asset management.** Describes the FCI of the facility or asset and how the planning process will address and evaluate the benefits to the condition index rating.

The five factors considered for implementation projects are:

1. **Demonstration of need.** Describes a project and why it is important to the park. The explanation cites park goals, strategies, management decisions, project prioritization, and other applicable targets. Needs express if the project is a new start or ongoing project and what problems are solved by the project. The needs statement describes issues and points of controversy and how they will be resolved.

2. **Visitor experience.** Describes how a project will promote, preserve, or enhance the visitor experience (i.e., visitor enjoyment and comfort, transportation information or park education). Access discussions describe how a project will improve movement to or within a park and/or reduce congestion for persons of all

abilities. Safety discussions describe how a project will result in direct and measurable changes to documented unsafe conditions (citing studies, reports, incidents).

3. **Cost effectiveness.** Identifies the total cost of a project and how it will be funded. The planning exercise describes all associated project costs (start up, capital investment, and lifetime operation and maintenance). If the lowest cost alternative is not selected, this exercise explains why. Funding sources and financial sustainability discussions describe how the project leverages and/or combines funding sources, including partnerships, to fulfill funding needs over the project lifetime. Matching funds are verified.

4. **Protection of resources.** Describes how a project will protect and/or improve natural, cultural, and/or scenic resources, or mitigate negative impacts.

5. **Deferred maintenance.** Describes an asset's current FCI and how a project will improve facility condition.

Step 5

Projects ready for funding are then formulated based on priority and available funding. Once the component is formulated to FLHP Category III/Alternative Transportation Program, it is entered into the NPS PTATS.

3.3 Historic Funding Trends

Records of recent Alaska Region transportation project funding were examined in the *Financial Analysis Technical Report*. Among other findings, the report documents transportation funding trends from 2006 to 2010 as well as formulations about future funding. The following subsections summarize historic transportation funding levels and distributions as documented in the technical report. Additional details on this and other funding topics are in the report, located in Appendix E.

3.3.1 Federal Lands Highway Program Funds

Project funding data from the PTATS reporting system for FLHP is summarized in Table 20. The majority of Category I funding applies to Denali NPP for road construction and maintenance projects. Figure 20 illustrates the FLHP funding by funding category.

3.3.2 Alternative Transportation in Parks, Public Lands Program, and National Scenic Byways Program

In addition to the data reported in PMIS and PTATS, two other funding sources contributed to transportation funding within the past five years: Alternative Transportation in Parks and Public Lands (ATPPL) Program and the National Scenic Byways Program. Table 21 lists the five-year funding history for ATPPL and the National Scenic Byways Program.

The ATPPL Program, established in 2005, funds capital and planning projects for alternative transportation systems in National Parks and other public lands. ATPPL is a competitive grant program jointly administered by the Department of Interior and the Federal Transit Administration. Examples of past NPS Alaska Region transportation projects funded by ATPPL over the past five years have included construction of the Gustavus Dock serving Glacier Bay National Park and funding for hybrid buses in Denali NPP.

The National Scenic Byways Program is a competitive grant program administered by FHWA, which funds projects related to Scenic Byways such as creating statewide byway programs, corridor management planning, promoting byways, and scenic easements. Through participation with ADOT&PF, the Alaska Region received funds for George Parks Highway and Seward Highway projects.

Table 20
FLHP Funding (2006 to 2010)

Funding Category	2006	2007	2008	2009	2010
FLHP Category I-3R (construction projects)	$365,426	$6,146,481	$11,152,732	$2,577,255	$3,182,056
FLHP Category I-4R (construction projects)	$0	-$5,135	$0	$0	$2,000,000
FLHP Category III (construction projects)	$696,900	$0	$0	$3,500,000	$0
Design, Planning, Compliance and Administration	$1,048,829	$1,384,358	$1,490,500	$1,104,179	$1,349,779
Total	**$2,111,115**	**$7,525,704**	**$12,043,232**	**$7,181,434**	**$6,531,835**

Table 21
ATPPL and Scenic Byway Funding History, FY 2006 through 2011

Additional Funding Categories	2006	2007	2008	2009	2010
ATPPL Program	$1,200,000	$3,000,000*	$0	$515,000	$571,000
National Scenic Byways Program	$25,000	$25,000	$25,000	$25,000	$25,000

Amount represents funding for the Gustavus Dock replacement, which is a project (and similar $ amount) that is also documented under FHLP Category III funds. To not double count this funding amount, the $3 million for 2007 under ATPPL funds was removed from the funding projection found in Appendix E.

Figure 20
FLHP Funding

Legend:
- Design, Planning, Compliance and Administration
- FLHP Category III (construction projects)
- FLHP Category I-4R (construction projects)
- FLHP Category I-3R (construction projects)
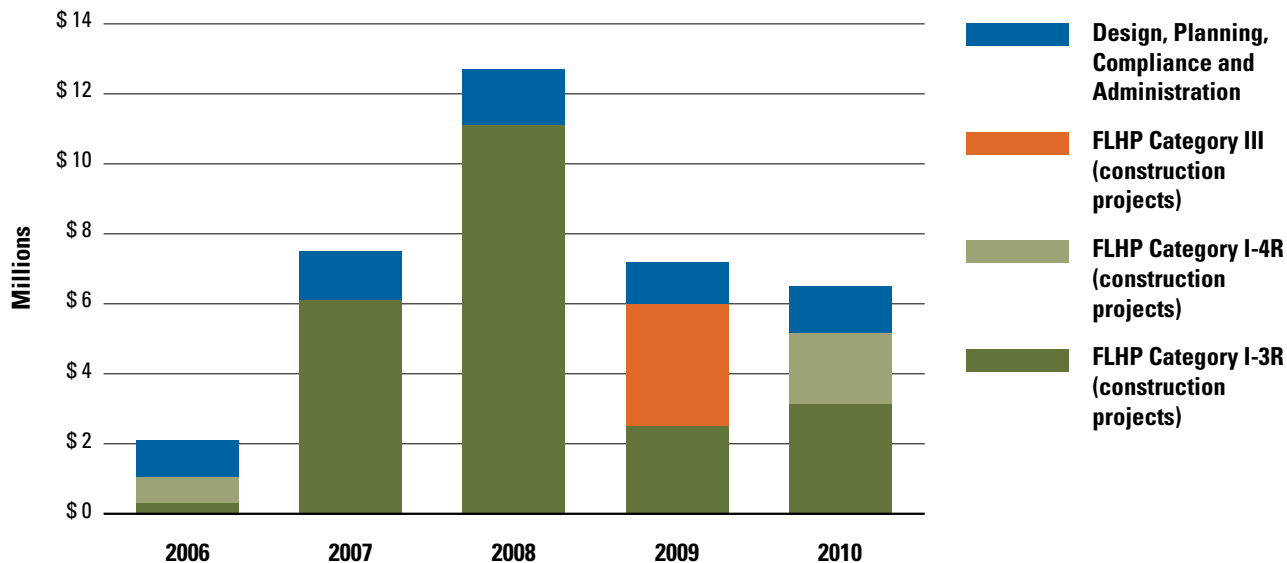
3.3.3 Project Management Information System

The *Financial Analysis Technical Report* includes a five-year history of all funding sources recorded in PMIS that have funded capital, planning, environmental and other transportation projects within the Alaska Region. Figure 21 illustrates total transportation funding reported by PMIS from 2006 to 2010, including fleet-related projects. The figure includes a one-time line item construction project for $12.7 million (construction of the Northwest Alaska Heritage Center and

Administrative Quarters in Kotzebue) in 2006. The line item project accounts for over one-half of the transportation funding for that year. With the exception of that line item project, transportation funding reported in PMIS is fairly consistent over time. Figure 21 suggests that transportation funding in PMIS is about $7 to $10 million per year, excluding one-time line item projects. Details about each funded transportation project are available in the *Financial Analysis Technical Report* in Appendix E.

Figure 21
Funded Transportation Projects Reported in PMIS (2006 to 2010)

Excludes one-time $12.7 million line item
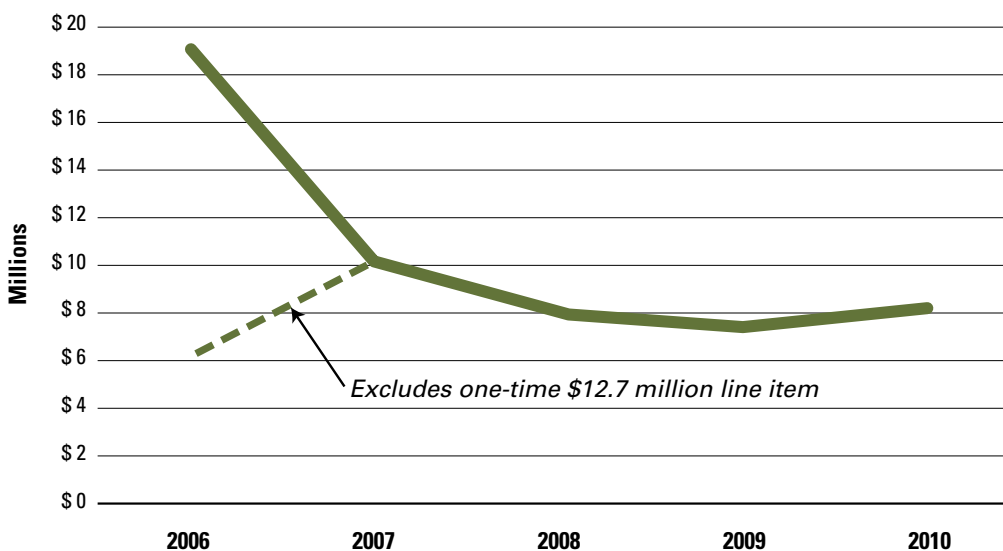
Source: PMIS, Financial Analysis Technical Report. Data includes fleet-related projects.

Road Parks receive the majority of PMIS transportation funds as these parks possess more transportation assets than the other three park clusters combined. Figure 22 presents the median funding of transportation for park clusters. The figure shows that funds for Remote North Parks in PMIS from 2006 to 2010 is 0 percent. As this is a median value, one-time anomalies such as the $12.7 million 2006 Northwest Alaska Heritage Center in Kotzebue, are essentially ignored.

The Transportation Program Manager assigned LRTP goal areas to funded, formulated, and requested transportation projects in PMIS for projects ranging from 2006 to 2010. Most of these projects were assigned to more than one goal area, and a percentage of funding documented in PMIS was attributed to the appropriate goal. The final break down of PMIS cumulative funding by goal area is represented in Figure 23. As indicated

by the figure, the majority of funding was programmed for projects related to system management, followed by projects related to user experience. Formulated and requested projects in PMIS indicate a trend towards more requests for projects related to the system management goal area and resource protection goal areas.

As illustrated in Figure 24, PMIS funding history by goal area varies greatly by park cluster category. While approximately half the projects in Road and Remote South Park are related to system preservation, Remote North Park requests have traditionally focused on the user experience and mobility goal areas. Project Management Information System data also indicates that Cruise Ship Parks have focused funds on resource protection related projects.

Figure 22
2006 to 2010 Median Transportation Funds in PMIS by Park Cluster

0% – Remote North Parks
4% – Remote South Parks
74% Road Parks
22% – Cruise Ship Parks
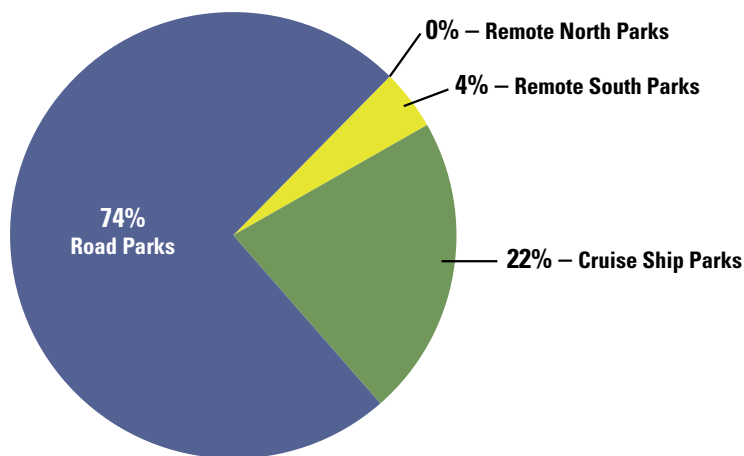
Source: PMIS, 2006 to 2010

Figure 23
Funded, Formulated, and Requested Project by Goal Area

10% – Resource Protection

<1% – Climate Change

42% – System Management

32% – User Experience

15% – Mobility
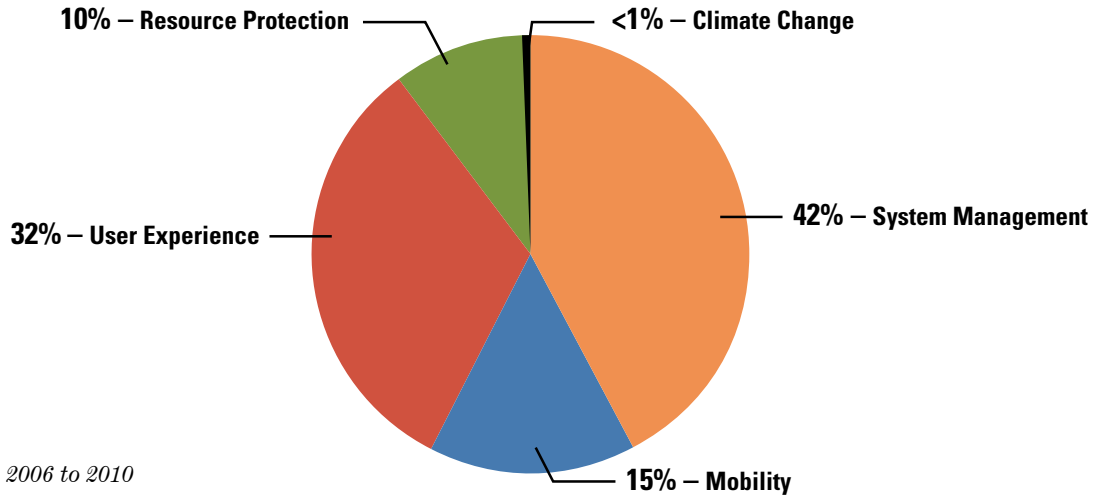
Source: PMIS, 2006 to 2010

Figure 24
Goal Area Funding History by Park Cluster

<1% Resource Protection

0% Climate Change

20% System Management

50% User Experience

30% Mobility

Remote North Parks

1.3% Resource Protection

0% Climate Change

36% User Experience

50.3% System Management

12.4% Mobility

Remote South Parks

<1%% Climate Change

12% Resource Protection

48% System Management

30% User Experience

9% Mobility

Road Parks

<1% Climate Change

14% Resource Protection

42% System Management

23% User Experience

20% Mobility

Cruise Ship Parks

Source: PMIS, 2006 to 2010

3.4 Future of Transportation Funding

Alaska Region transportation funding has been aggregated to provide a comprehensive five-year funding history from which future funding levels were projected. Appendix B of the *System Management Technical Report* (Appendix A of this LRTP) documents the five-year funding projection for transportation-related projects by funding source. Additionally, the report provides a description of the future prospects of each fund based on input from NPS transportation planning staff. Many of funds that have been available historically—either as one-time funds or intermittently—are not projected for future years. Many of the projections are based on an average of funding levels over past five years. Figure 25 shows the past five years of funding and a projection of funding for the next five years.

Available annual transportation funding over the next five years is estimated at approximately $12.5 million in 2011 with a slight upward trend to $13 million in 2015. This projection is intended to provide an approximate figure with which to program future transportation projects. There may again be the intermittent, one-time funds available to direct towards transportation projects as there has been in the past. Examples of these include Emergency Relief for Federally Owned Roads, additional stimulus dollars, or grant funding.

Figure 25
Five Year Funding History and Projections
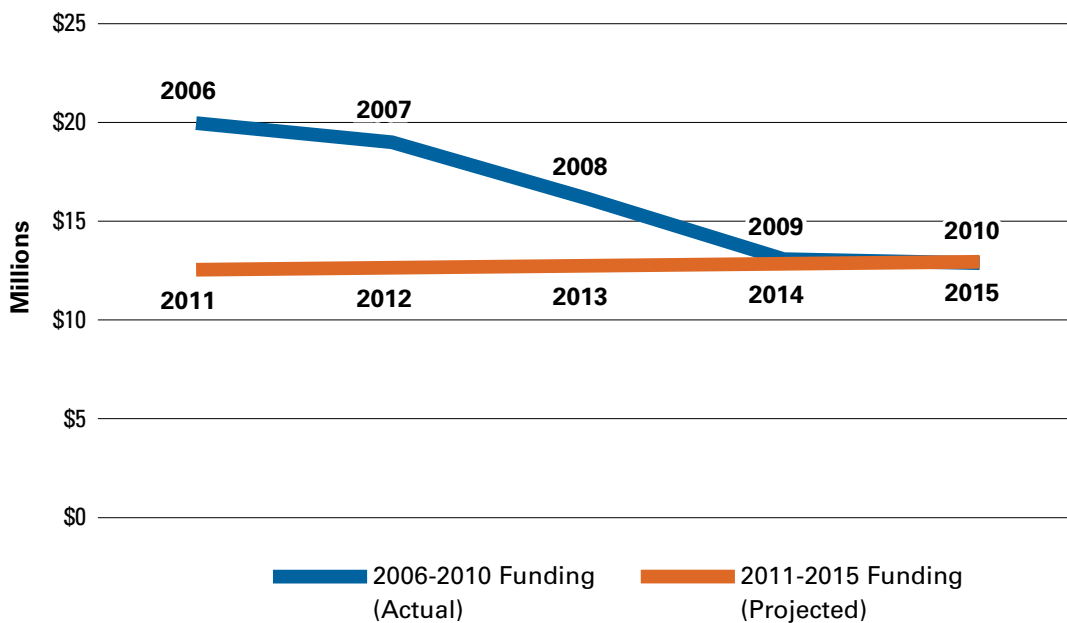
4. Prioritized Funding Needs

To determine which transportation needs can be addressed with forecasted funding, a scenario planning workshop was conducted in June 2011. At the workshop, participants prioritized the needs identified in each goal area technical report (Appendices A though E). Prioritization was based on data and anecdotal information documented in the technical reports, as applied by the Transportation Program Manager and regional staff. The following factors were considered in prioritization decisions:

- Regional significance: Does the need impact more than one park or cluster?

- Relation to Transportation Program: Can the Alaska Region, Transportation Program take steps to address the need?

- Current transportation projects: Is the need already being addressed by funded projects?

Workshop participants devised possible strategies for addressing prioritized needs. These strategies are used as the basis for generating cost estimates for long-range planning purposes only, and are not intended to prescribe or exclude other means of addressing the prioritized needs. This work resulted in cost ranges for each strategy used to potentially address each need.

4.1 Strategies and Costs

Table 22 summarizes the results of the prioritization workshop though needs, strategies, and cost estimates. Cost estimates reflect an average of high and low estimates for each strategy. Based on the results summarized in Table 22, $95.7 million is needed to address all prioritized needs for each LRTP goal area in the current seven-year plan. Table 23 and Figure 26 indicate that needs and strategies associated with the system management goal account for 78 percent of total estimated costs.

Table 22
Transportation Funds in PMIS by Park Cluster (2006 to 2010)

Park Cluster	2006	2007	2008	2009	2010
Remote North Parks	$12,806,057	-	-	-	$158,882
Remote South Parks	$220,260	$310,700	$215,144	$212,330	$161,251
Cruise Ship Parks	$585,417	$3,780,388	$580,208	$1,465,869	$1,074,092
Road Parks	$2,968,430	$4,331,568	$2,649,961	$3,635,583	$4,286,510
Total	**$16,580,164**	**$8,422,656**	**$3,445,313**	**$5,313,782**	**$5,680,735**

Source: PMIS, 2006 to 2010

Table 23
Prioritized Needs, Strategies, and Cost Estimations

Goal	Prioritized Need	Strategy	Estimate ($1,000s)	
			Low	High
Mobility	Safety needs related to sever weather and natural hazards.	Information: provide readily available and accurate information and training. Infrastructure: winter trails safety infrastructure.	$500	$1,000
	Access studies.	Incorporate access studies into GMP updates and as needed.	$500	$700
	ATV/ORV access management.	Access management plans where needed.	$1,000	$1,500
	Rehabilitate/maintain airstrip surfaces.	Where deemed necessary by the park, provide minimal improvements and basic maintenance to airstrips.	$500	$1,000
	Road safety improvements.	Reduce vehicular crashes in road accessible parks.	$2,000	$3,000
	Potential non-NPS access corridor development near park units.	Coordinate with ADOT&PF and local governments on transportation planning and projects.	$1,500	$5,000
	Total		**$6,000**	**$12,200**
			$9,100 (average)	
System Management	Bands 1-2 priority assets operation and maintenance.	Invest only in high-priority assets	$16,000	$19,000
	Projects (deferred maintenance, component renewal, project funding).		$55,000	$60,000
	Total		**$71,000**	**$79,000**
			$75,000 (average)	
User Experience	Information needs.	Collect and analyze transportation data on origin/destination, winter trail system use, incident reporting, demographic trends, mode of travel, safety needs, etc.	$400	$640
	Improve travel safety.	Improve safety in the region by providing safe infrastructure and by providing information. Address known pedestrian/vehicle conflicts, plan for emergency shelters and trail markings for winter travel, and coordinate with existing safety programs.	$800	$1,600
	Improve wayfinding and advance traveler information.	Provide for directional and informational signs within and to/from the parks, and develop advanced travel information to disseminate travel information.	$1,000	$1,400
	Crowding and congestion.	Conduct pedestrian and transit planning in partnership with local entities to decrease crowding, congestion and bottlenecking and reduce conflicts with cruise passengers.	$450	$600
	ADA compliance.	Complete ADA compliance along route from Cruise Ship docks to parks and along park travel corridors.	$450	$600

Table 23
Prioritized Needs, Strategies, and Cost Estimations

Goal	Prioritized Need	Strategy	Estimate ($1,000s)	
			Low	High
User Experience	Road maintenance and construction.	Maintain roads in condition appropriate to use and coordinate with ADOT&PF on maintenance of roads used to access parks.	$3,000	$7,000
	Alleviate negative impacts to wilderness experience.	Identify and manage negative impacts from vehicles and transportation infrastructure to "wilderness experience" where appropriate.	$300	$600
	Total		**$6,400** $9,400 (rounded average)	**$12,440**
Resource Protection	Study and address soundscape disturbances.	Study effects of transportation studies on resources.	$250	$400
	Cruise ship impacts: soundscape, air and water quality, petroleum, exotic species.	Study effects of cruise ships on resources.	$250	$500
	Study and address illegal ORV and snow machine use impacts to tundra.	Continue to study, document, and invest in managing illegal ORV and snow machine use.	$100	$300
	Study and address rising costs of travel to access shifting subsistence resources.	Study relationship between current transportation system and shifting of subsistence resources.	$700	$1,350
	Total		**$1,300** $1,900 (rounded average)	**$2,550**
Climate Change	Identify and prioritize risks to NPS-owned and non-NPS owned transportation assets and systems likely to be affected by climate change and determine what management actions are needed to prepare.	Same as need.	$50	$100
	Identify, propose and fund transportation related research projects through professional organizations such as TRB, and through university programs.	Same as need.	$25	$50
	Participate in or initiate local sustainable transportation operations.	Same as need.	$100	$300
	Provide technical and financial support for transportation components of the Climate Friendly Parks certification.	Same as need.	$25	$50
	Communicate within the agency about our successes and failures with regards to environmentally sustainable transportation practice.	Same as need.	$0	$0
	Total		**$200**	**$500**
			$350 (average)	
Grand Total			**$84,900** $95,795 (average)	**$106,690**

Figure 26
Cost Estimates by Goal Area

2% – Resource Protection

10% – Visitor Experience

0% – Climate Change

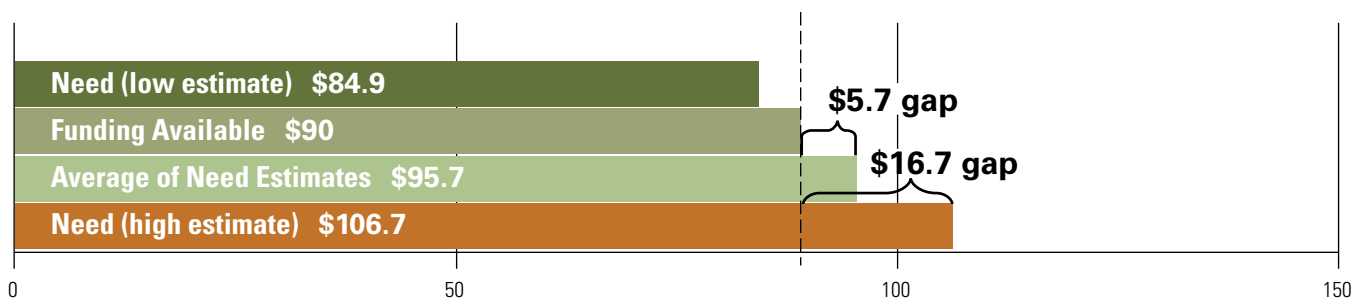10% – Mobility

78% – System Management
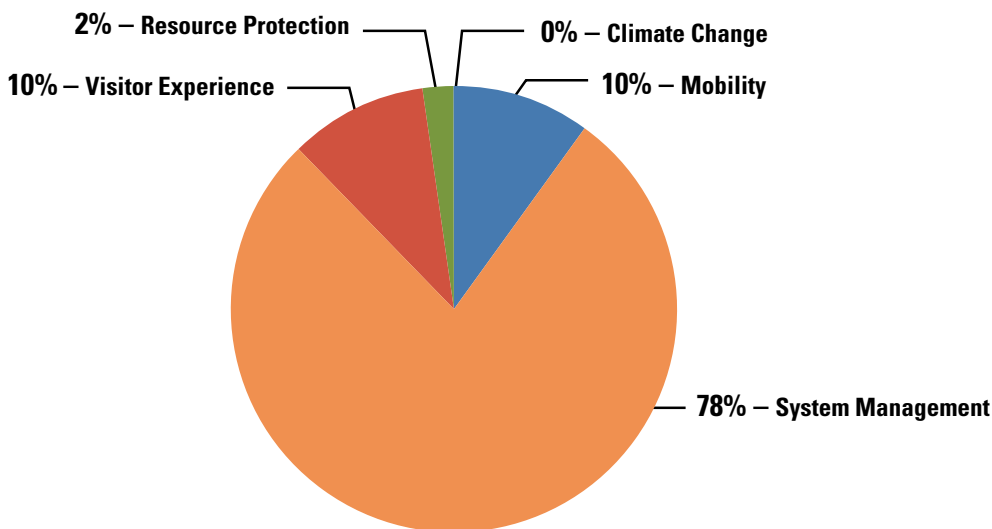
4.2 Funding Gaps

As illustrated Figure 27, the total projected seven-year funding for transportation in the Alaska Region is approximately $90 million. This projected funding level is lower than that of the average anticipated need. As illustrated in Figure 27, the gap between averaged 7-year needs estimate and expected funding is $5.7 million, a six percent funding shortfall. The gap between the high needs estimate and expected funding is $16.7 million, an 18.5 percent funding shortfall.

Funding scenarios were developed during the July 2011 workshops to examine the implications of investing limited transportation dollars in four different ways, each emphasizing an LRTP goal area. Workshop participants decided that funding for operation and maintenance for assets in priority bands 1 and 2 as

well as one half of the operation and maintenance costs of assets in priority band 3, and region-wide costs for deferred maintenance and component renewal are minimum constants for all scenarios. By addressing the most serious deferred maintenance for transportation assets over the next seven years, the region can expect to decrease the amount of spending on maintaining assets in subsequent years, freeing funds for other projects.

Operation and maintenance, component renewal, and deferred maintenance for high-priority assets over seven years is $63 million, leaving $27 million to be used in each funding scenario to emphasize a goal area. New assets, planning efforts, as well as operation and maintenance, component renewal, or deferred maintenance costs for assets that are less than high priority (priority bands 3 through 5) are eligible for the remaining $27 million in the scenario plans.

Figure 27
Seven Year Funding Gaps (Millions)

Need (low estimate) $84.9

Funding Available $90

Average of Need Estimates $95.7

Need (high estimate) $106.7

$5.7 gap

$16.7 gap

0   50   100   150

The following sections include funding allocations and a description of the needs met through each funding scenario.

4.2.1 System Management Scenario

The system management scenario summarized in Figure 28 and Table 24 maintains high and one half of medium priority assets (priority bands 1 through 3 at a cost of $79 million) and provides funding to drastically reduce the deferred maintenance backlog of transportation assets, using the high estimate for these costs. By including operation and maintenance for half of priority band 3 (medium priority) assets, the system management scenario allows for the maintenance of over 39 percent more transportation assets in Alaska (from 194 assets in bands 1 and 2 to 272 assets in bands 1 through 3). Many of these medium priority assets are essential to the transportation system as a whole, and include road and trail bridges, parking lots, fuel systems, and emergency shelters. Within seven years, this scenario provides funding for the current deferred maintenance backlog recorded in FMSS thereby decreasing further degradation of these assets and demand for deferred maintenance funding.

The system management scenario also provides for safety information dissemination and winter trail safety infrastructure (emergency shelters and trail markings), access studies, GMP transportation components, OHV management plans, and partial funding for airstrip safety improvements. However, funds needed to address road safety improvements or coordinated corridor planning on non-NPS lands are not available. The user experience allocation in the system management scenario will provide basic user information, improve travel safety in pedestrian areas and winter trails, provide signs and develop and support advanced traveler information systems such as 511 and smart phone applications. American with Disabilities Act compliance, crowding, and congestion hotspots will be studied and addressed. Of the $5 million in road maintenance and coordination with ADOT&PF on crucial road projects, $2 million will not be funded. Management of negative impacts to wilderness experience will not be addressed under this funding scenario.

Prioritized resource protection needs met through this funding scenario include studies and solutions for soundscape disturbances, cruise ship impacts, OHV and snow machine impacts. Half the funds needed to study of the rising costs of subsistence travel are available. All prioritized climate change needs will be met in this scenario.

Figure 28
System Management Funding Scenario Allocation

$300,000, <1%
Climate Change

$1,300,000, 2%
Resource Protection

$6,400,000, 7%
User Experience

$3,000,000, 3%
Mobility

$79,000,000
88%
System Management
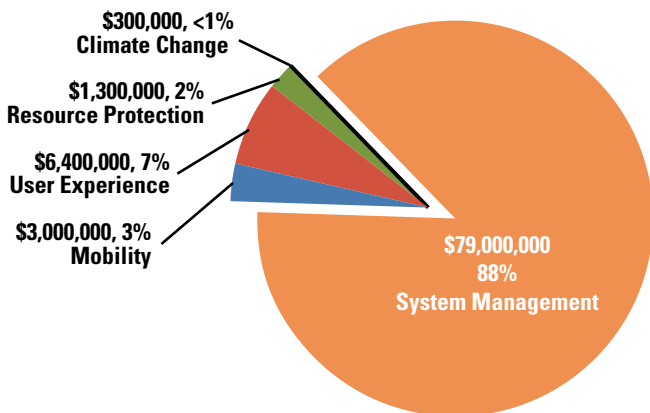
Table 24
System Management Funding Scenario

Goal Area	Percentage of Funding	Funding
System Management	88	$79,000,000
Mobility	3	$3,000,000
User Experience	7	$6,400,000
Resource Protection	2	$1,300,000
Climate Change	<1	$300,000

4.2.2   Mobility Funding Scenario

The mobility funding scenario summarized in Figure 29 and Table 25 underfunds the low estimate for system management needs by $1 million. This level of funding will address most of the deferred maintenance backlog over 7 years, provide component renewal costs, and pay for operation and maintenance of priority band 1 and 2 assets, and some of priority band 3 assets.

This scenario funds all prioritized mobility needs at the high cost estimate, including $3 million in road safety projects and $5 million in corridor planning and projects on non-NPS lands. However, less than half of the $6 million needed for user experience-related road projects and coordination with the ADOT&PF is funded. Although all other user experience priority needs will be met in the mobility funding scenario, no funding is used to study or address negative impacts to wilderness experience. Resource protection and climate change allocations decrease under the mobility funding scenario. Funding for transportation studies of subsistence resource impacts will be decreased to half of the $1 million needed. The mobility funding scenario also decreases participation in local sustainable transportation projects by half, and the

transportation program will be unable to provide technical transportation assistance to parks attaining Climate Friendly Park status.

4.2.3   User Experience Scenario

This scenario funds at high cost estimate all prioritized user experience needs. The scenario ensures that baseline park visitation information will be collected and analyzed, filling a critical gap in transportation planning data in the Alaska Region. Also, user safety will be improved through increased education and planning projects addressing vehicle/pedestrian conflicts and winter trail safety. Wayfinding and traveler information will be improved through this scenario, and new technology-based means of dissemination developed. Crowding and congestion problems will be addressed, gaps in ADA accessibility will be addressed, road maintenance and construction projects carried out, and negative impacts to wilderness experience will also be identified and mitigated through the user experience funding scenario.

Figure 29
Mobility Funding Scenario Allocation

$200,000, <1%
Climate Change

$1,600,000, 2%
Resource Protection

$6,000,000, 7%
User Experience

$12,200,000, 13%
Mobility

$70,000,000
78%
System Management
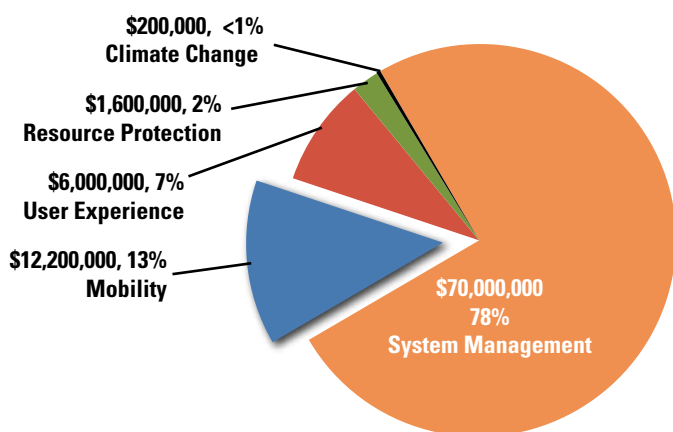
Table 25
Mobility Funding Scenario

Goal Area	Percentage of Funding	Amount of Funding
System Management	78%	$70,000,000
Mobility	13%	$12,200.000
User Experience	7%	$6,000,000
Resource Protection	2%	$1,600,000
Climate Change	<1%	$200,000

Figure 30
User Experience Funding Scenario Allocation

$200,000, <1% Climate Change
$1,600,000, 2% Resource Protection
$12,440,000, 14% User Experience
$5,760,000, 6% Mobility
$70,000,000 78% System Management
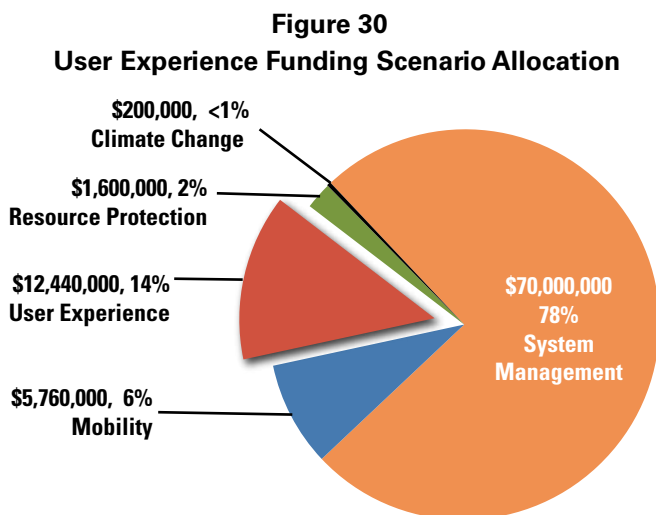
Table 26
User Experience Funding Scenario

Goal Area	Percentage of Funding	Amount of Funding
System Management	78%	$70,000,000
Mobility	6%	$5,760,000
User Experience	14%	$12,440,000
Resource Protection	2%	$1,600,000
Climate Change	<1%	$200,000

As with the mobility scenario, the user experience funding scenario underfunds the low estimate for system management needs by $1 million. This level of funding will address most of the deferred maintenance backlog over 7 years, provide component renewal costs, and pay for operation and maintenance of priority band 1 and 2 assets, and some of priority band 3 assets. The user experience funding scenario uses the same levels of funding for resource protection and climate change as proposed in the mobility funding scenario. However, funding to mobility needs is decreased in favor of funding all of the prioritized user experience needs, as illustrated in Figure 30 and Table 26.

The funding scenario cannot fully fund priority mobility needs. None of the estimated need of $3.2 million is available to address non-NPS access corridor development near park units in this funding scenario. This curtails the ability of the NPS to coordinate with ADOT&PF on essential non-NPS infrastructure and transportation systems such as key roads and docks used to access parks.

4.2.4 Resource Protection/Climate Change Scenario

The resource protection/climate change funding scenario, summarized in Figure 31 and Table 27, maintains high-priority assets and some medium-priority assets while completely funding prioritized projects within the resource protection and climate change goal areas at the high cost estimate level. Mobility and user experience prioritized needs are fully funded. Increased funding of projects relating to the mobility and user experience goal areas take precedence over maintaining existing on-the-ground transportation assets in this funding scenario.

The resource protection/climate change scenario meets all prioritized needs in goal areas other than system management by maintaining only the high-priority needs in priority bands 1 and 2 assets. However, critical transportation assets currently identified as medium-priority assets would receive no operation and maintenance, component renewal, or deferred maintenance funding, and will deteriorate further over time.

**Figure 31
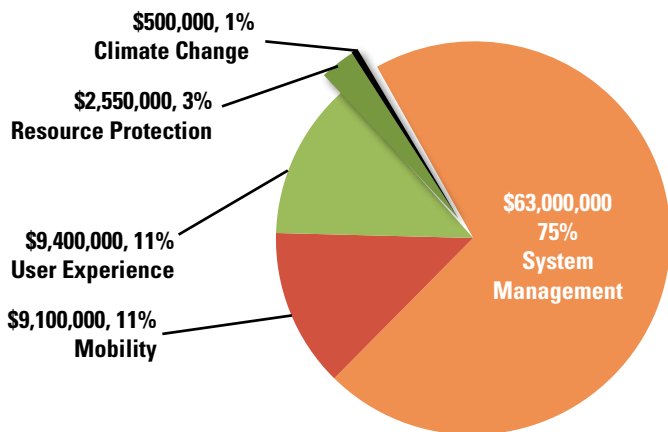Resource Protection / Climate Change Funding
Scenario Allocation**

$500,000, 1%
Climate Change

$2,550,000, 3%
Resource Protection

$9,400,000, 11%
User Experience

$9,100,000, 11%
Mobility

$63,000,000
75%
System
Management

**Table 27
Resource Protection/Climate Change Funding
Scenario**

Goal Area	Percentage of Funding	Amount of Funding
System Management	75%	$63,000,000
Mobility	11%	$9,100,000
User Experience	11%	$9,400,000
Resource Protection	3%	$2,550,000
Climate Change	1%	$500,000

Kennecot National Historic Landmark, Wrangell-St. Elias National Park and Preserve

5. Actions and Performance Measures

Chapter 5 outlines actions and other recommendations that will assist the Alaska Region in advancing the long-range transportation goals and objectives established in Chapter 1. Actions and recommendations are based on the needs and gaps identified in Chapter 2 as they relate to each goal area. The resulting actions fall within two categories:

1. Actions that address needs and gaps by achieving outcome-based performance measures.

2. Actions that resolve needs and gaps, but are not directly quantified in LRTP performance measures.

These actions, and the measures used to track success, are discussed in the following subsections.

5.1 Performance Measures

Performance measures embody outcomes that once fully achieved, represent major milestones in meeting the long-range goals and objectives expressed in this LRTP. These outcomes are documented in Table 28 as a desired performance, followed by the measure from which progress can be evaluated and tracked. The prerequisite requirements described in the table are actions that must occur before performance can be

measured. The "2011 Score" column in Table 28 indicates the degree to which a performance measure was met in fiscal year 2011. The column also indicates if enough information exists at this time to determine a performance measure score.

5.2 Needs and Gaps

The needs and gaps identified in Chapter 2 result in actions that are represented by performance measures and others that are not. Needs and gaps are not represented by performance measures when:

■ Performance is not readily quantifiable

■ Specific actions are better determined at the park, issue driven, and at small scale planning levels than at a regional and long range level

■ Additional information is needed before actions can be recommended and performance measures can be established

■ Needs are short-term and not fully consistent with the long range outlook of this plan

Actions required to address the needs and gaps identified in Chapter 2 will be documented once public comments are received on this draft LRTP.

Table 28
Performance Measures

Goal	Objective	Performance	Measure	Requirement	2011 Score
System Management: Develop a long-term transportation system to satisfy current and future land management needs	Asset Management: Apply available financial resources to essential transportation infrastructure.	1. All high-priority assets (API of 75 or higher) are in good or better condition (FCI of 0.3 or less).	Percentage of FMSS API bands 1 and 2 transportation assets that have an FCI of good or better.	None.	87%
	Asset Investment Planning: Consider sustainability of operation and maintenance of new and existing assets in the planning process.	None.	None.	None.	
	Coordination: Coordinate among parks, regions and agencies to set priorities for needs, to exchange data, and discuss mutual policies to share execution of projects.	None.	None.	None.	Alaska Region involved in FLMA LRTP - Combined action plan and coordination meetings
Mobility: Provide safe, efficient, and appropriate access to and through park lands	Safety: Provide safe access to and within park lands.	2. Minimize number of safety related incidences.	Number of safety related incidences.	Establish safety baseline which includes winter travel.	(Score is dependent on item(s) in the requirement column)
	Access: Provide access for recreational and subsistence uses consistent with the purposes of the parks using appropriate modes and seamless connections to and through park lands.	3. All GMPs have transportation elements.	Number of GMP updates with transportation elements.	None.	2
	User Information: Provide accurate and accessible information about how to travel to and through the Alaska parks through a variety of means.	4. All surveyed users have information needs met.	Percentage of surveyed users that have information needs met.	Visitor surveys need to determine if users have had information needs met.	(Score is dependent on item(s) in the requirement column)

Not enough information exists at this time to determine a score for the performance measure – or – Data shows that the conditions in fiscal year 2011 completely failed to meet the performance measure.

Only enough information exists at this time to make a partial determination of performance – or – Data shows that the conditions in fiscal year 2011 did not completely meet the performance measure.

Data shows that the conditions in fiscal year 2011 met or exceeded the performance measure.

Table 28
Performance Measures

Goal	Objective	Performance	Measure	Requirement	2011 Score
User Experience: Proactively enhance the Alaskan multimodal experience	User Data: Collect and analyze user information to determine which experiences and expectations are most relevant to transportation access.	5. In 20 years, all parks will have a reliable user/visitation baseline condition.	Number of parks with reliable visitor/user baseline condition.	None.	(50% of clusters [Remote North and South] identify user/visitor data need, but measure asks for park level info)
	Multimodal Transportation: Establish a multimodal transportation system that emphasizes the journey as integral to the Alaska experience.	6. All users that consider transportation part of the park journey report a satisfied experience.	Percent of surveyed users reported that transportation was part of experience.	Visitor surveys need to determine satisfaction of transportation experience.	To be determined
	Protect Wildlife at an Ecosystem Scale: Coordinate with neighboring land and transportation managers to ensure that transportation system impacts on wildlife are understood and mitigated across borders.	7. Plans coordinate with neighboring land and transportation managers to ensure that transportation system impacts.	Number of coordinated plans and projects implemented annually.	None.	To be determined
Resource Protection: Protect parks' natural, cultural, and subsistence resources	Physical Environment: Protect the physical environment from adverse effects of the transportation system. Cultural Resources: Mitigate negative impacts and provide appropriate access to cultural resources. Subsistence Resources: Consider impacts and access to subsistence resources in transportation planning and policy development.	8. All GMPs consider transportation in relation to the physical environment, cultural and subsistence resources.	Percent of park GMPs/RMPs with transportation elements that influences physical, cultural, and subsistence resources.	None.	To be determined

Not enough information exists at this time to determine a score for the performance measure – or – Data shows that the conditions in fiscal year 2011 completely failed to meet the performance measure.

Only enough information exists at this time to make a partial determination of performance – or – Data shows that the conditions in fiscal year 2011 did not completely meet the performance measure.

Data shows that the conditions in fiscal year 2011 met or exceeded the performance measure.

Table 28
Performance Measures

Goal	Objective	Performance	Measure	Requirement	2011 Score
Climate Change: Plan for impacts of climate change to park transportation systems and impacts of park transportation systems on climate change through science, adaptation, mitigation, and communication	Science: Initiate, support, and participate in scientific research and assessments needed to understand and respond to relationship between transportation and climate change in Alaska.	9. Improve understanding of transportation and climate change through at least one climate change participation effort per year with documented results.	Number of climate change participation efforts.	None.	To be determined.
	Adaptation: Manage transportation assets and conduct transportation planning for climate change.	10. Improve climate change adaptation through reducing the number of transportation assets at risk due to climate change.	Number of transportation assets at risk due to climate change.	None.	(LRTP shows types of risks at cluster level, does show asset level risk).
	Mitigation: Reduce the carbon footprint of the NPS by reducing the impact of transportation associated with park operations, visitation, and associated operations.	11. Become a climate friendly region by 2030.	Number of climate friendly parks in the region.	None.	2
	Communication: Share the compelling story of climate change impacts in Alaska to the public as it relates to transportation.	12. All parks have climate change addressed in planning transportation elements.	Number of parks including climate change in transportation elements in plans.	None.	To be determined.

Not enough information exists at this time to determine a score for the performance measure – or – Data shows that the conditions in fiscal year 2011 completely failed to meet the performance measure.

Only enough information exists at this time to make a partial determination of performance – or – Data shows that the conditions in fiscal year 2011 did not completely meet the performance measure.

Data shows that the conditions in fiscal year 2011 met or exceeded the performance measure.

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National Park Service

Alaska Region Long Range Transportation Plan

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