National Park Service
Alaska Region Long Range Transportation Plan

Appendix A

System Management Technical Report

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National Park Service
U.S. Department of the Interior

Alaska Region
Long Range Transportation Plan

SYSTEM OPTIMIZATION TECHNICAL REPORT

Draft Preliminary




May 2011

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Long Range Transportation Plan

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Draft Preliminary

May 2011

Prepared for the National Park Service
Alaska Region

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1. System Optimization Report Overview

The System Optimization Technical Report is one of several reports comprising a region-wide long range transportation plan for the National Park Service Alaska Region. This report presents the background information and analytical approach used in creating the transportation asset management plans contained in Appendices A through D. The approach closely follows the methodologies used in the park asset management planning process, or PAMPs, except they consist of only transportation assets as defined by each respective park unit. Similar to the PAMP process, the transportation asset management planning process does the following: documents the current footprint of transportation assets; examines the current funding available for transportation assets (based on historical averages); examines the financial requirements needed for operating and maintaining the transportation assets; and examines the relationship between financial requirements and available funding.

1.1 Introduction of the LRTP

The National Park Service (NPS) Alaska Region (AKR) is developing a long range transportation plan (LRTP) to guide future transportation program development and implementation. The LRTP will also bring the NPS into compliance with Federal legislation requiring Federal Land Management Agencies to conduct long range transportation planning in a manner consistent with U.S. Department of Transportation planning practices for State and Metropolitan Planning Organizations (MPOs). The AKR LRTP will provide NPS decision-makers with information and data necessary for informing future planning and operational decisions.

This LRTP effort is being led by a core team consisting of NPS staff from the AKR office; NPS staff from a number of Alaska park units; staff from Western Federal Lands Highways Division of the Federal Highway Administration; and the NPS' consultant, HDR Alaska, Inc. At the onset of this effort in late 2009, the core team developed the following mission statement for the LRTP:

> ***"To implement an Alaska Region long range transportation plan that provides overarching strategies compatible with individual Park missions."***

Early in the LRTP process, the core team developed a list of goals, objectives, and strategies and obtained supporting data. Goals were generally related to one of five categories: asset management, visitor experience, mobility, or cultural and natural resources. Four categories were presented in a report produced by the core team in April 2010 entitled Alaska Region *State of the Regional Transportation System Report*.

The core team developed the following goals and objectives for system optimization.

The AKR LRTP draft goal for system optimization is

- Develop a long-term transportation system to satisfy current and future land management needs.

The AKR LRTP draft objectives are

Objective 1a: Asset Management

- Apply available financial resources to essential transportation infrastructure.

Objective 1b: Asset Investment Planning

- Consider sustainability of operation and maintenance of new assets in the planning process.

Objective 1c: Coordination

- Accomplish interagency, interregional, and inter-park coordination by setting priorities for needs, exchanging data, and discussing mutual policies in order to facilitate shared execution and potential economic savings for projects of mutual interest and benefit.
  - Coordinate between Federal Land Management Agencies in Alaska
  - Coordinate between NPS Regions
  - Coordinate between NPS Parks in Alaska
  - Coordinate between Alaska Region and local and state governments

1.2 Report Organization

To fulfill the goals and objectives of the AKR LRTP, the system optimization technical report describes the background and processes undertaken to define and assess the region's transportation asset portfolio with the purpose of enabling park staff to better understand and articulate the current state of transportation assets within the region and the funding requirements of those assets.

Section one introduces the system optimization goal and objectives in the context of the AKR NPS LRTP effort and states the contents of this report.

Section two describes asset management and its significance to the NPS in relation to transportation planning. The concept of Total Cost of Facility Ownership (TCFO) is introduced and how the NPS is utilizing this process to assist the development of strategic, long-range plans in order to optimize limited financial resources.

Section three explains the analytical approach used to develop the transportation asset management plans as well as the sources for financial data for the park units. This section also describes the "cluster group" approach used to organize Alaska's 16 park units into four "clusters" based on their geography and accessibility requirements.

Section four summarizes the key findings from the four cluster transportation asset management plans as well as highlighting key statistics of the National Park Service's transportation asset portfolio at a regional level.

At the heart of the System Optimization Technical Report are the Transportation Asset Management Plans for the respective park clusters. ***Appendix A*** contains the Alaska Snapshot, which provides a regional perspective and statistics on the transportation assets analyzed in the four cluster plans. ***Appendices B through E*** contain the four cluster transportation asset management plans.

2. Asset Management

Significant research and effort have been directed toward improvements in asset management by the National Park Service since the late 1980s with the advent of the 1986 National Park Service Maintenance Management System. This management philosophy was further codified in the policies and requirements outlined in Director's Order #80, Real Property Asset Management, in November, 2006. The NPS Management Policies 2006 states:

> *In protecting the park resources and values, the Service will demonstrate environmental leadership and a commitment to the principles of sustainability and asset management in all facility developments and operations.*

Many of the national park assets are located in remote areas which makes operations and maintenance more difficult and costly.

Such is the case in 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 the standard two-lanes, and includes a number of at-grade river crossings which makes the entire journey a rustic adventure for all motorists.

The vision for asset management within the NPS is to sustain all high priority, mission critical transportation assets at acceptable conditions today and for future generations.

Since the NPS Asset Management Plan (AMP) was first published in February 2006, the NPS has made significant progress addressing its inventory of transportation assets, assessing their condition, and formalizing and communicating the decision-making framework, business practices, and data to ensure that region and park-level staff are using these tools to manage their transportation investment decisions.

2.1 Total Cost of Facility Ownership (TCFO)

As the NPS asset management program continues to mature greater emphasis is being placed on development of strategic, long-range plans that optimize available resources. Generally speaking, total cost of facility ownership (TCFO) involves quantifying costs associated with planning, designing, constructing, operating, and ultimately disposing of an individual or system of assets, and then examining a range of scenarios based on those quantifications to identify a preferred investment strategy for the organization.

Evaluation of preferred investment alternatives typically involves the application of aLife Cycle Cost Analysis (LCCA) methodology. LCCA identifies the present value of each alternative based on a selected discount rate for a defined period of time. Use of discount rate normalizes the analysis by putting all of the options in constant dollar terms, i.e., today's dollars. Thus the LCCA process can be used to develop constrained comparable estimates of TCFOs for a set of infrastructure investment alternatives.[1]

[1] Draft NPS White Paper entitled, " Defining the Total Cost of Facility Ownership (TCFO)," dated August 6, 2010.

The TCFO planning process and its implementation is still being developed within the NPS. The NPS asset management program has the components in place necessary to develop TCFO estimates; however, standards are needed to ensure quality data and consistency in estimates, especially when considering more than one asset at a time.

3. Analytical Approach to System Optimization

This section describes the analytical approach to assessing system optimization as well as descriptions of the various data sources used in the analyses.

3.1 Cluster Group Analysis

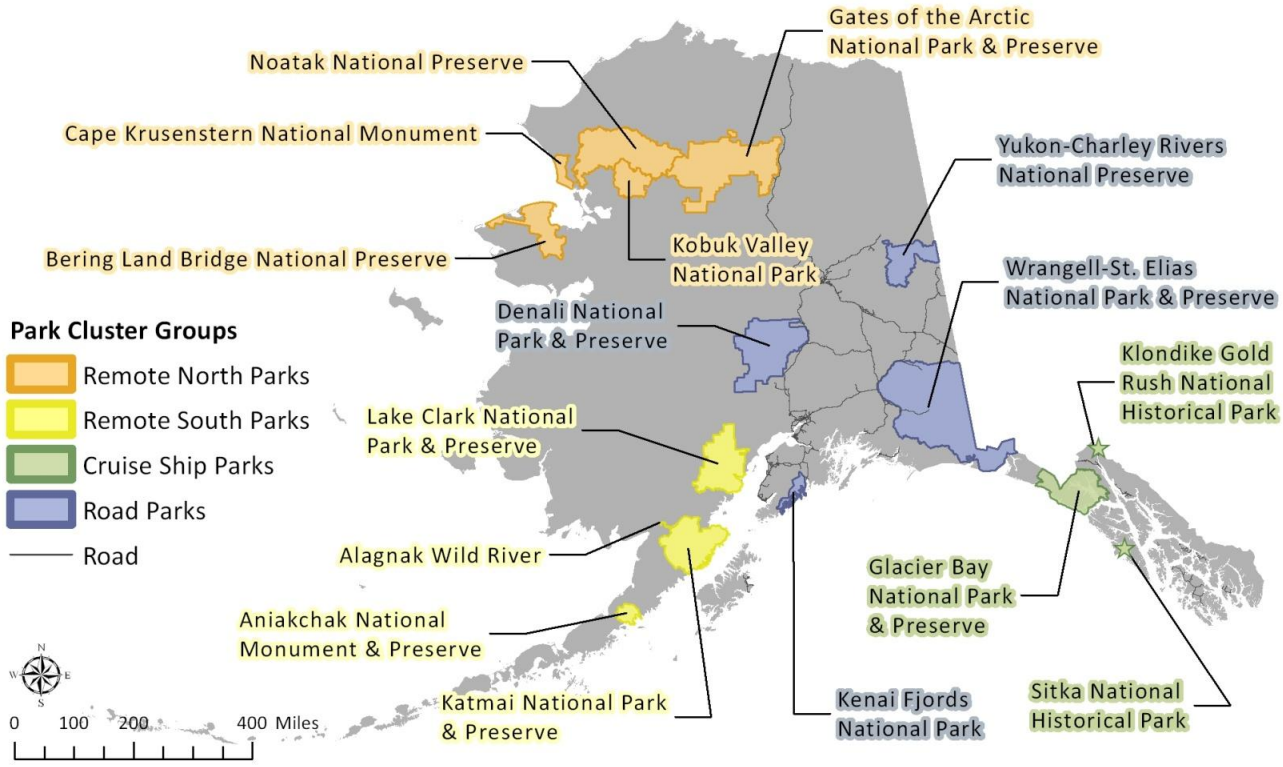
Understanding the diversity of transportation infrastructure and needs across the region, as well as to streamline the transportation planning analysis, the park units were grouped into four "clusters," as defined by their location in Alaska and unique multi-modal needs. Table 1 lists the cluster grouping by park unit; Figure 1 illustrates each park cluster in context with the State of Alaska and the highway system.

Table 1: Alaska Region Park Units by Cluster Group

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

*Note: Cruise Ship Parks are those accessed mostly via boats, while Road Parks are those that are accessed predominantly via a road network.

Figure 1: Alaska's 16 Park Units by Cluster Group



3.2 Transportation Asset Management Plan Analysis

The transportation asset management plan process closely follows the format of the park asset management plans (PAMP). Similar to the PAMPs, the transportation asset management plans found in Appendices B through E are organized into four sections: current footprint, current funding, current requirements, and managing the gap. They are organized into the four cluster groups described above and examine only assets that are considered transportation assets.

To begin, transportation assets for each park unit had to be defined. Currently there is not an official definition of what constitutes a transportation asset and general queries of the NPS Facility Management Software System (FMSS) by asset codes can be overly inclusive. To establish the list of transportation assets the individual park units were interviewed by NPS staff in May and June of 2010 and asked to select their transportation assets from their overall asset list. The individual park units identified a total of 693 assets collectively as transportation assets. It is important to note that not all 693 assets were analyzed in the transportation asset management plans. Assets removed from analysis included all fleet assets as well as planned assets. Additionally, an updated report of FMSS was printed in January 2011 and used in the plans which identified several transportation assets previously selected by the parks as either removed or decommissioned. The comprehensive list of each cluster's transportation assets used in the analyses can be found at the end of their respective transportation asset management plans in Appendices B through E.

3.3 Data Sources

This section summarizes the various data sources and files used in the transportation asset management plans.

Facility Management Software System (FMSS): A report of the FMSS database was run on January 2, 2011 to provide the most current information on the park-defined transportation assets. The report contained all assets present in FMSS for each asset category being examined (i.e., roads (1100), parking (1300), road bridges (1700), trails (2100), trail bridges (2200), trail tunnels (2300), buildings (4100), fuel systems (5700), marina/waterfront systems (6300), aviation systems (6400), and fleet (8999)). The park-defined transportation assets were then matched using a vertical lookup function in Excel and extracted from the larger database query.

The FMSS report provides values for the following information as reported in Section 1, Current Footprint, of the transportation asset management plans:

- Location numbers[2]
- Location descriptions
- Park units (abbreviations)
- Occupant information
- Asset code
- Status
- Asset Priority Index (API) rating
- Facility Condition Index (FCI) rating
- Current replacement value (CRV)
- Deferred maintenance (DM) values
- Rank
- Priority band (1-5 as established in the PAMPs; 1 being highest priority, 5 being lowest)
- Quantity
- Unit of measure
- Historic (Y or N)
- Year built

Project Management Information System (PMIS): Section 2, Current Funding, of the transportation asset management plans examines funding available to the park units that had historically been directed towards the transportation assets. The annual funding amounts presented on page 9 of the plans listed as "Project Programs" is based on an annual average of funding occurring over the past fiver years (2006 through 2010). An attempt was made to match up projects in PMIS with the transportation asset list. The project descriptions in PMIS were carefully read as to only include projects that funded a transportation asset.

Page 12 of each transportation asset management plan provides a breakdown of the transportation projects by funding source.

[2] A location as defined in FMSS is commonly referred to as an asset; however can be comprised of one or more individual assets. For example, an individual building has a location number but its components (walls, windows, etc.) are listed in FMSS individually as assets. For the purposes of this analysis the term asset is used to represent a location.

Optimizer spreadsheets (O&M data): During the PAMPs, each park unit developed an "Optimizer" spreadsheet that documented the costs of operating and maintaining each park asset. The O&M figures contained in the Optimizer files were based on 2008 values and all numbers used from these spreadsheets were increased to 2011 dollars using a 4% inflation rate. The O&M figures contained in the Optimizer files represent both the industry standard benchmark O&M figures as well as the planned O&M figures that are reported in each transportation asset management plan. Each park units Optimizer file was matched to the master transportation asset list and only O&M figures for the transportation assets were included in the analyses. The O&M benchmarks and planned expenditures are presented in Sections 3 and 4 of the transportation asset management plans.

O&M Actuals: A spreadsheet of all work orders entered in FMSS for 2010 was examined to provide an estimate on each park's actual budget directed towards operations and maintenance. The information was matched to the transportation asset list and was used in Section 2 of the transportation asset management plans to capture the each park's current funding requirements. The O&M Actuals spreadsheet contains information on operations (Ops), recurring maintenance (RM), preventative maintenance (PM), and unscheduled maintenance (UM).

Indirect costs for each cluster were calculated taking each park's percentage of indirect costs to its total O&M budget (found in the PAMPs) and applying that percentage to the O&M Actuals and then aggregating the amount by cluster group[3]. The indirect costs were included with the other O&M costs to provide a total operations and maintenance budget for each cluster (as reported on page 9 of the transportation asset management plans).

Component renewal: A spreadsheet containing component renewal (CR) information by location was examined to estimate each cluster's 20-year lifecycle component renewal costs. The information comes from FMSS and was dated August 24, 2010. The CR data was again matched to the transportation asset list and each specific asset was rolled up to the location level and aggregated by cluster. Each cluster's component renewal costs are described on pages 16 and 17 of the transportation asset management plans.

PAMPs Graphics File: The PAMPs graphics file is an elaborate Excel spreadsheet that was produced for each park unit during the PAMP planning process. This file was used as a guide for the transportation asset management plans where the transportation asset information from FMSS was entered into the graphics file and corrections were made to various equations and reference formulas to produce many of the graphs and tables presented in the transportation asset management plans.

[3] An adjustment was made to account for a shared position within the WEAR parks and GAAR and YUCH. Per Jason Huart (NPS) $6,000 was removed from both GAAR and YUCH and added to both BELA and WEAR to account for this shared job position.

4. Analysis Results

This section presents some of the key results from the transportation asset management plans. Refer to Appendices A through E for the complete analysis and presentation of results.

4.1 Overview of Transportation Asset Portfolio

Table 2 presents a snapshot of the Alaska Region transportation assets organized by asset type. Road and building assets are the most valuable assets as determined by the current replacement value (CRV). Deferred maintenance (DM) for roads comprises about 63% of the total DM. Table 3 presents the transportation asset portfolio by cluster. Denali and the park road heavily influence the totals for the Road Parks.

Table 2: Transportation Asset Portfolio by Cluster

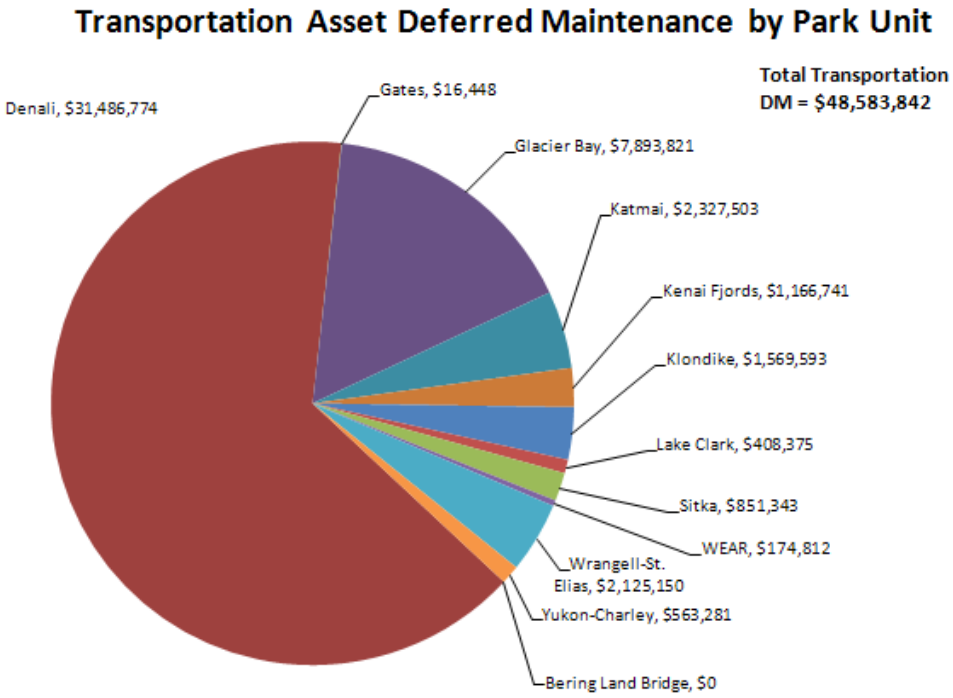
Asset	Number of Assets	CRV	Deferred Maintenance	FCI	Average API
Road	72	$149,969,265	$30,472,440	0.20	59
Parking Area	117	$32,215,209	$3,228,778	0.10	52
Road Bridge	16	$80,996,139	$2,758,607	0.03	76
Trail	64	$67,844,578	$3,195,011	0.05	64
Trail Bridge	22	$22,902,237	$1,035,679	0.05	62
Building	208	$173,684,022	$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	$578,066,233	$48,583,842		

Table 3: Transportation Asset Portfolio by Cluster

Park Cluster	Number of Assets	CRV	DM	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	0.08

Table 4 breaks down the transportation deferred maintenance by park unit to further illustrate the influence that the park road in Denali has on transportation assets for the Road Park cluster and the region as a whole. Denali accounts for 65% of the total DM on transportation assets. Glacier Bay accounts for 16% of the total DM.

Table 4: DM by Park Unit



4.2 Park Cluster Financial Requirements Summary

The four park cluster transportation asset management plans presented in Appendices B through E contain detailed information on financial requirements and available funding as well as how the amounts were derived. A primary goal of the transportation asset management plans is to identify transportation funding shortfalls, if applicable, so that the region has a better understanding of its . Table 5 presents a culmination of data that illustrates the projected funding gaps based on each cluster's estimated requirements of DM and CR funding and the available project funding (historical average) intended to be directed towards DM- and CR-related projects. In total, the annual projected funding gap for all four park cluster is approximately $1,441,695. In other words, this additional amount, at a minimum, is required to address each cluster's anticipated annual deferred maintenance and component renewal requirements.

Table 5: Projected Funding Gap by Park Cluster

Park Cluster	Annual DM Requirement	Annual CR Requirement	Annual Project Funding Available	Total Project Funding Gap
Remote North Parks	$19,126	$15,417	$26,811	$7,732
Remote South Parks	$273,588	$20,844	$141,571	$152,861
Cruise Ship Parks	$1,031,476	$609,897	$1,082,166	$559,207
Road Parks	$3,534,195	$584,819	$3,397,119	$721,895
TOTAL	$4,858,385	$1,230,977	$4,647,667	$1,441,695

Tables 6 through 9 summarize the O&M funding gaps for each park cluster. These tables measure the gap between the base O&M allocations (O&M Actuals) and the benchmark totals and list the percent coverage. Each park clusters' assets are broken down by the O&M Optimizer Priority Band and, for each of the tables, the total gap for priority bands 1-3 can more closely approximate the additional O&M funding needs.

As described in the Remote North Parks transportation asset management plan, the data on base O&M expenditures is sparse and likely incomplete. This results in all asset priority bands showing a 0% coverage (Table 6).

Table 6: O&M Gap: Remote North Parks

O&M Optimizer Priority Band	Asset Count	Base O&M Allocations	O&M Benchmarks	Percent Coverage	O&M Funding Gap
(1) Highest Priority	3	$28	$89,267	0%	$89,239
(2) High Priority	3	$7	$64,130	0%	$64,123
(3) Medium Priority	9	$49	$161,879	0%	$161,830
(4) Lower Priority	4	$0	$3,217	0%	$3,217
(5) Lowest Priority	1	$0	$235	0%	$235
Totals	20	$84	$318,728	0%	$318,644

Gap for Bands 1-3 $315,192

Also of note, the Road Parks cluster (Table 9) has the highest percent coverage for its higher priority assets. In particular, highest priority assets are almost entirely funded based on benchmark totals. The deficit for the top three priority bands is only $680K, which is 34% of the total O&M gap.

Table 7: O&M Gap: Remote South Parks

O&M Optimizer Priority Band	Asset Count	Base O&M Allocations	O&M Benchmarks	Percent Coverage	O&M Funding Gap	
(1) Highest Priority	22	$6,972	$289,555	2%	$282,583	Gap for Bands 1-3 $702,069
(2) High Priority	26	$21,018	$180,336	12%	$159,318	
(3) Medium Priority	49	$17,312	$277,480	6%	$260,168	
(4) Lower Priority	9	$0	$147,805	0%	$147,805	
(5) Lowest Priority	4	$11,600	$407,450	3%	$395,850	
Totals	110	$56,902	$1,302,626	4%	$1,245,724	

Table 8: O&M Gap: Cruise Ship Parks

O&M Optimizer Priority Band	Asset Count	Base O&M Allocations	O&M Benchmarks	Percent Coverage	O&M Funding Gap	
(1) Highest Priority	15	$99,056	$751,492	13%	$652,436	Gap for Bands 1-3 $1,113,649
(2) High Priority	19	$207,591	$606,948	34%	$399,357	
(3) Medium Priority	40	$32,244	$94,100	34%	$61,856	
(4) Lower Priority	54	$153,923	$723,592	21%	$569,669	
(5) Lowest Priority	6	$180	$79,760	0%	$79,580	
Totals	134	$492,994	$2,255,892	22%	$1,762,898	

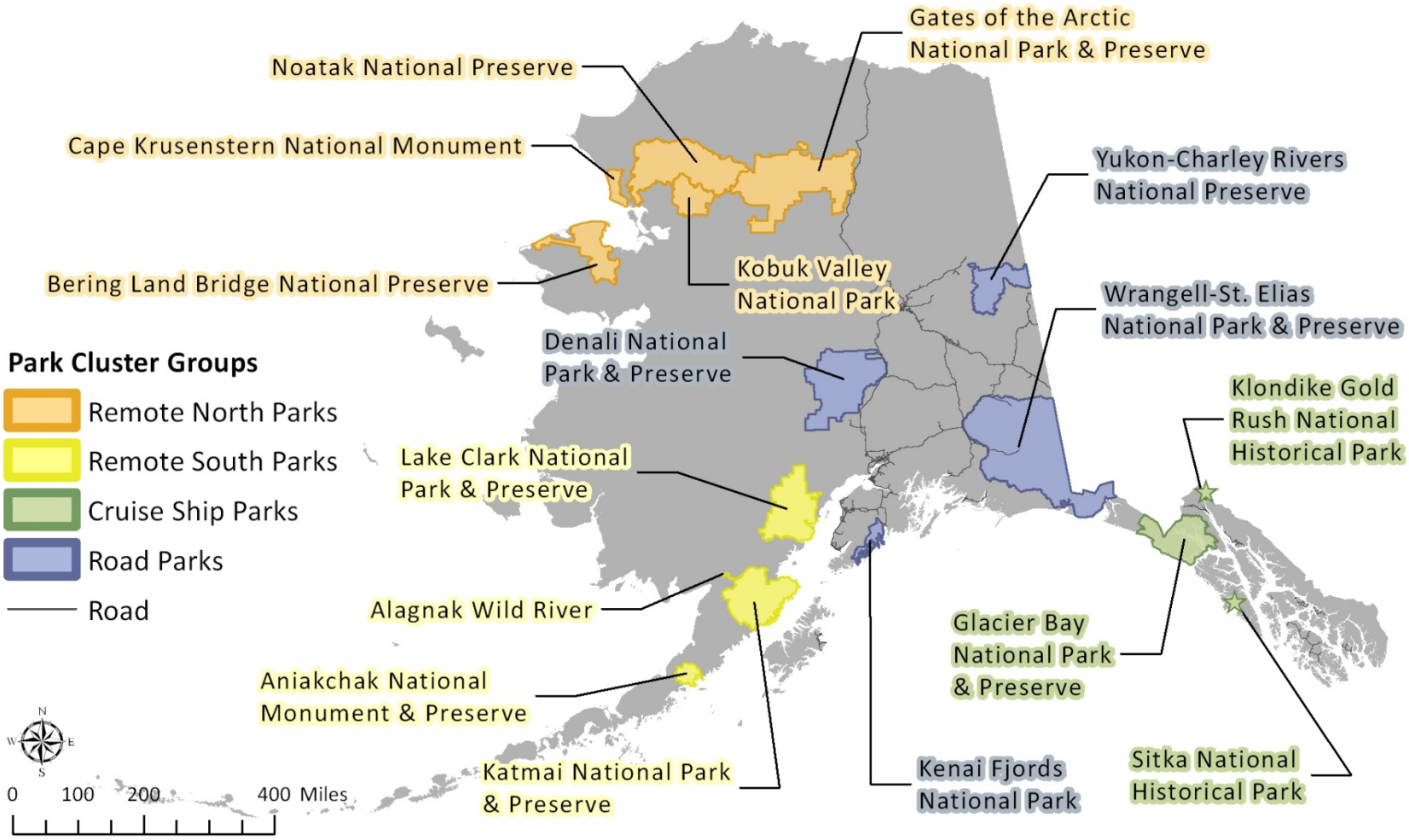
Table 9: O&M Gap: Road Parks

O&M Optimizer Priority Band	Asset Count	Base O&M Allocations	O&M Benchmarks	Percent Coverage	O&M Funding Gap	
(1) Highest Priority	41	$1,702,979	$1,745,122	98%	$42,143	Gap for Bands 1-3 $680,218
(2) High Priority	65	$299,676	$549,888	54%	$250,212	
(3) Medium Priority	58	$12,351	$400,214	3%	$387,863	
(4) Lower Priority	90	$29,074	$753,505	4%	$724,431	
(5) Lowest Priority	70	$39,332	$613,717	6%	$574,385	
Totals	324	$2,083,412	$4,062,445	51%	$1,979,033	

Conclusions for each of the park cluster transportation asset management plans can found on page 29 of each of the plans.

Appendix A: Alaska Snapshot: Transportation Asset Management Plan for the Alaska Region

Alaska Snapshot: Transportation Asset Management Plan for the Alaska Region



Section 1: Current Footprint

- This section compares the complete asset portfolio found in FMSS to the Park-defined transportation assets

- The asset information contained herein is based from FMSS records dated January 2011

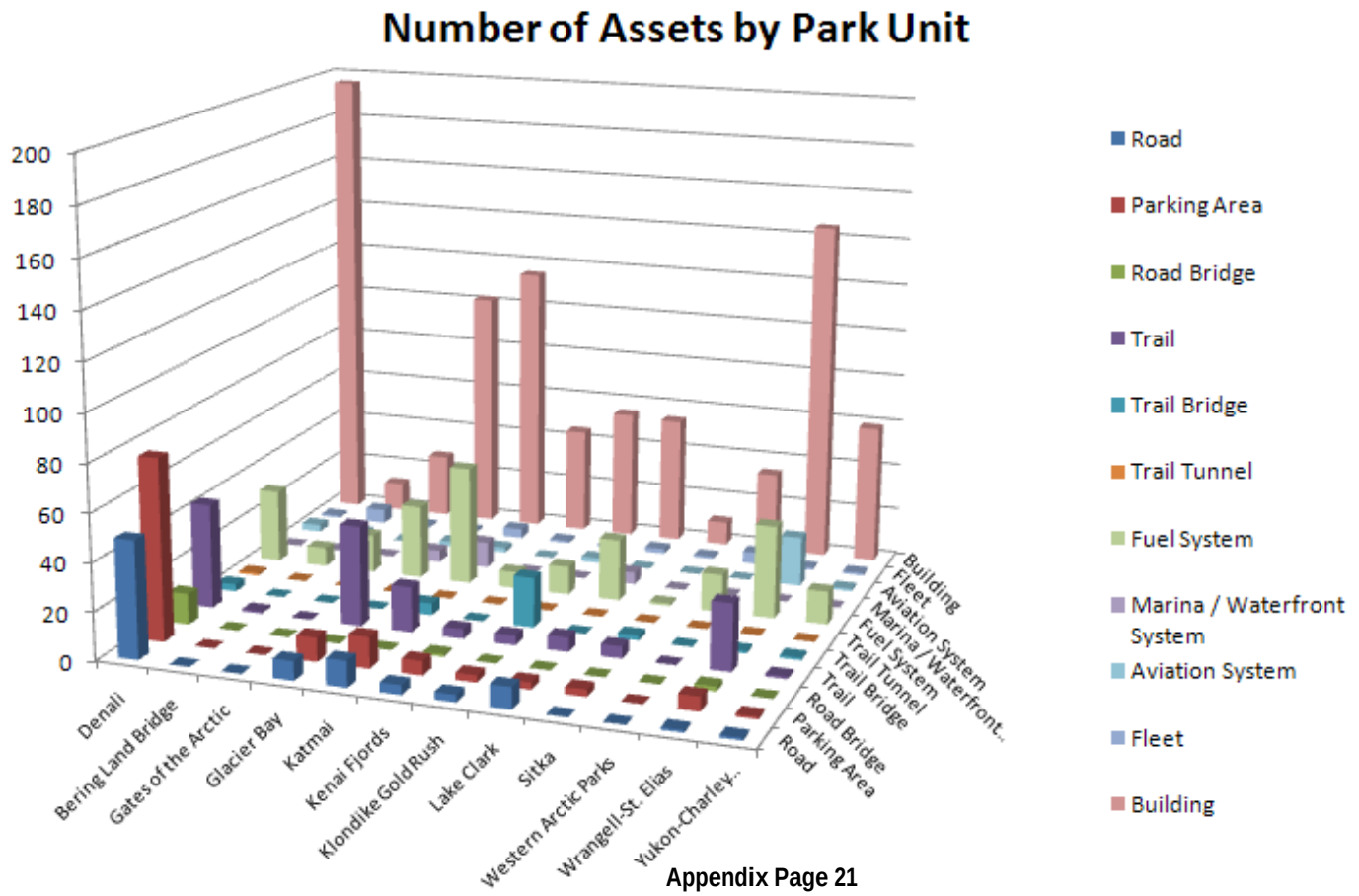
Alaska Region Transportation Assets – Comprehensive Overview from FMSS

Below is a summary of an all asset query of FMSS dated January 06, 2011 for the Alaska Region. This table includes all assets within the FMSS database for each asset category.

Asset	Number of Assets	CRV	Deferred Maintenance	FCI	Average API
Road	86	$154,325,482	$31,401,974	0.20	60
Parking Area	121	$33,166,714	$3,228,778	0.10	52
Road Bridge	16	$80,996,139	$2,758,607	0.03	76
Trail	154	$115,085,541	$10,392,946	0.09	62
Trail Bridge	33	$25,756,941	$1,356,818	0.05	66
Trail Tunnel	1	$5,065,704	$738,381	0.15	78
Building	860	$528,643,272	$35,092,379	0.07	56
Fuel System	251	$13,464,181	$757,370	0.06	57
Marina / Waterfront System	21	$51,186,188	$823,315	0.02	74
Aviation System	33	$31,371,311	$1,099,884	0.04	63
Fleet	27	$2,681,268	$685,946	0.26	NA
TOTAL	1603	$1,041,742,742	$88,336,398		

Alaska Region Transportation Assets – Comprehensive Overview from FMSS

Below is an illustration of the total number of assets reported in FMSS by asset category by Park Unit.



Alaska Region Transportation Assets – Park Selected List

The Park Units were interviewed in May and June, 2010, and asked specifically to identify their transportation assets from the comprehensive asset list from FMSS. The resulting list of assets was the basis for the cluster transportation assets analyses. Below is the summary of the officially defined transportation asset portfolio for the Alaska Region.

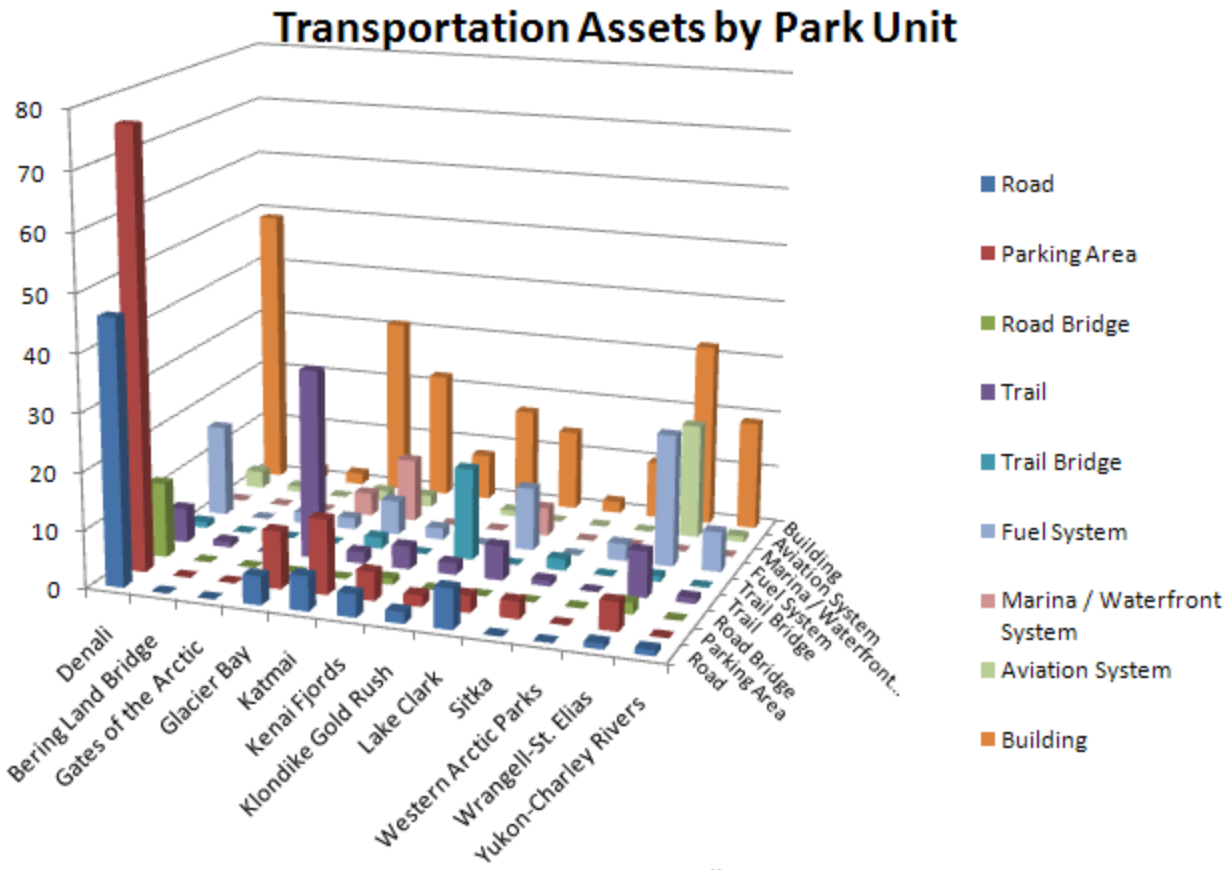
Asset	Number of Assets	CRV	Deferred Maintenance	FCI	Average API
Road	72	$149,969,265	$30,472,440	0.20	59
Parking Area	117	$32,215,209	$3,228,778	0.10	52
Road Bridge	16	$80,996,139	$2,758,607	0.03	76
Trail	64	$67,844,578	$3,195,011	0.05	64
Trail Bridge	22	$22,902,237	$1,035,679	0.05	62
Building	208	$173,684,022	$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	$578,066,233	$48,583,842		

Note: All Fleet inventory were removed from the analyses.

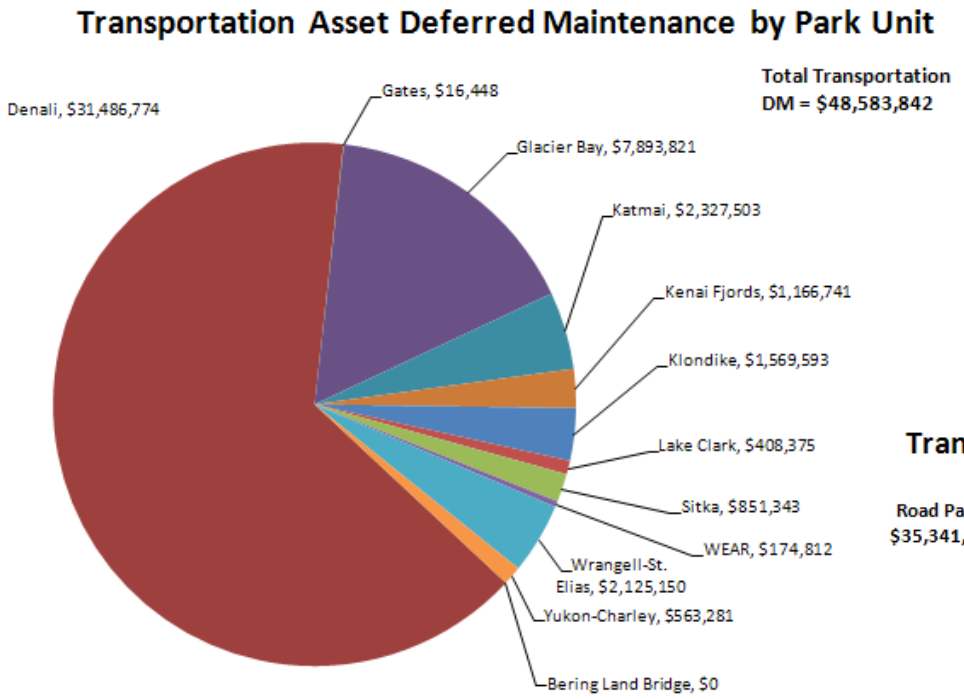
The Park selected list of transportation assets accounts for 39% of all the assets in FMSS for those asset categories. The CRV and DM amounts for the transportation assets both account for 55% of the total in FMSS.

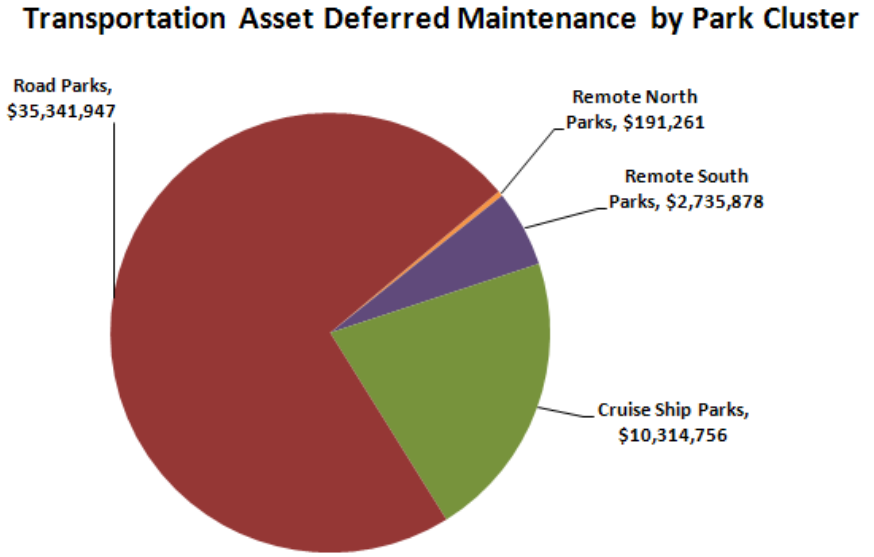
Alaska Region Transportation Assets – Park Selected List

Below is an illustration of the total number of Park defined transportation assets reported by Park Unit.



Transportation Assets – Deferred Maintenance

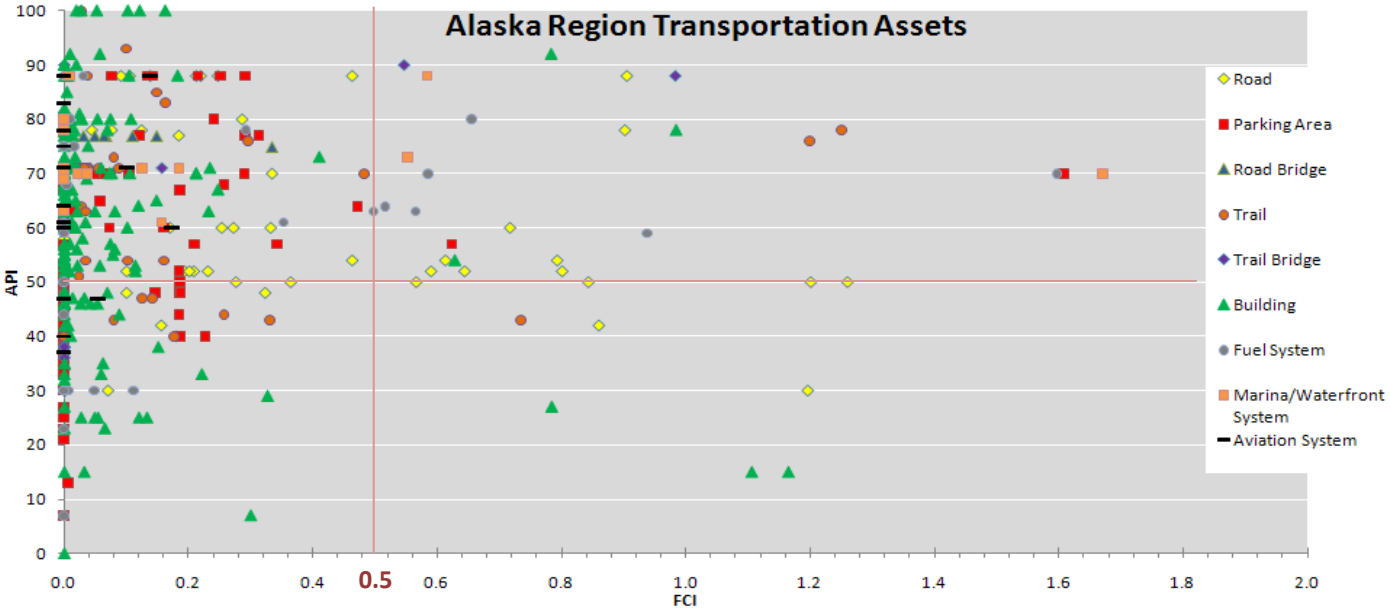




- Denali accounts for 65% of the total deferred maintenance on transportation assets for the Alaska Region. Glacier Bay accounts for 16%

- When examined at the cluster level, Road Parks account for 73% of the total deferred maintenance on transportation assets; Cruise Ship Parks = 21%, Remote South Parks = 6%, and Remote North Park = less than 1%

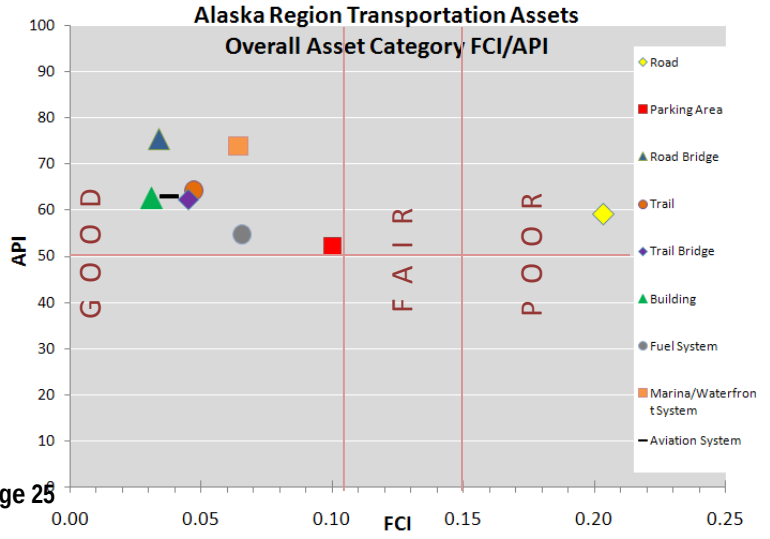
Transportation Assets – Condition Summary



FCI Range	Condition
< 0.11	GOOD
0.11 - 0.15	FAIR
0.15 - 0.50	POOR
> 0.5	SERIOUS

- The overall conditions of the transportation asset portfolio are displayed above in the FCI/API distribution plot

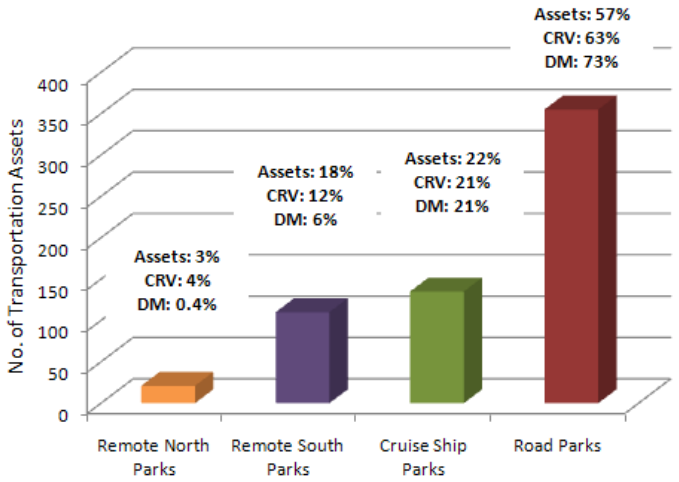
- Overall, the conditions of each asset category is considered GOOD, with the exception of the roads, which is considered in poor condition.



Section 2: Current Footprint by Park Cluster

- This section provides an overview of each Park Cluster's transportation asset portfolio and their condition

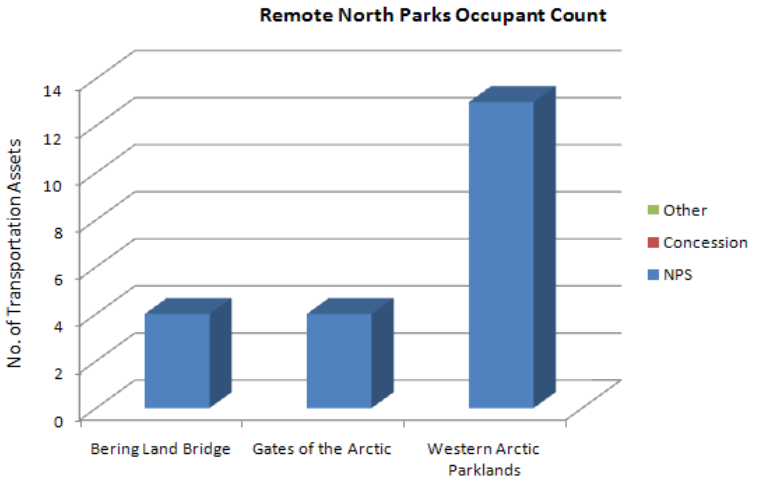
Park Cluster	Number of Assets	CRV	DM	FCI
Remote North Parks	21	$21,746,642	$191,261	0.01
Remote South Parks	110	$71,347,569	$2,735,878	0.04
Cruise Ship Parks	135	$122,362,780	$10,314,756	0.08
Road Parks	355	$362,609,422	$35,341,947	0.10
TOTAL	621	$578,066,413	$48,583,842	0.08

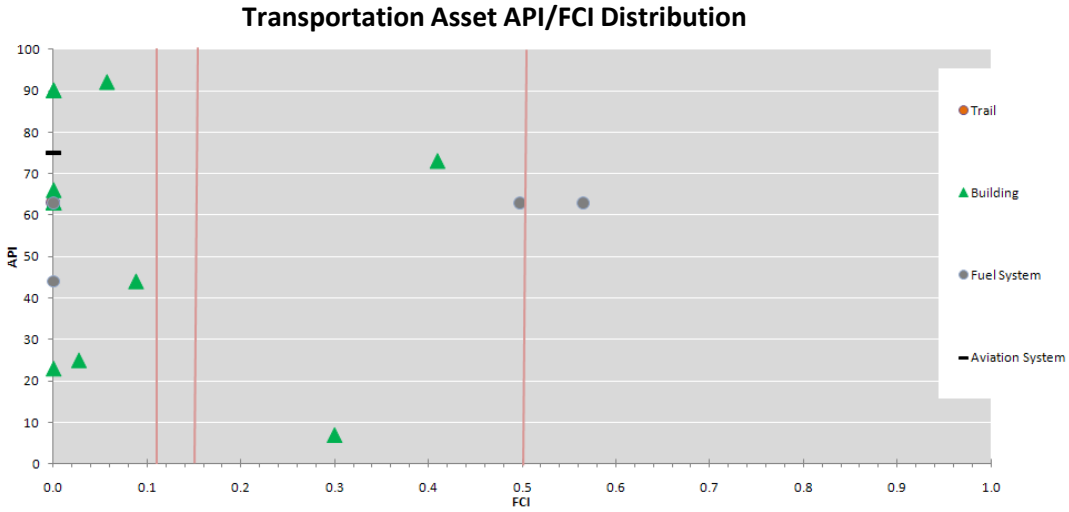


Remote North Parks - Overview

- Bering Land Bridge National Preserve
- Gates of the Arctic National Park & Preserve
- Western Arctic National Parklands (Cape Krusenstern National Monument, Noatak National Preserve, and Kobuk Valley National Park)

Asset Type	Asset Count	DM	CRV	FCI
Roads	–	–	–	–
Trails	1	$0	$18,417	0.00
Buildings	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
Grand Total	21	$191,261	$21,746,462	0.01





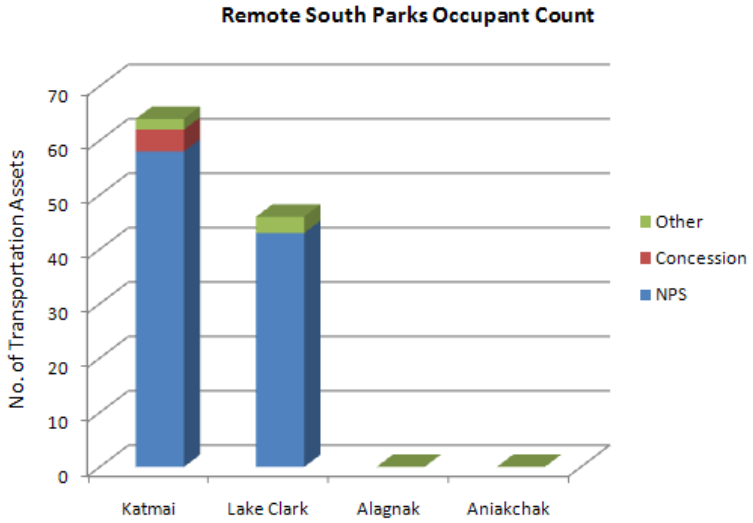
- The Remote North Parks have the fewest number of transportation assets

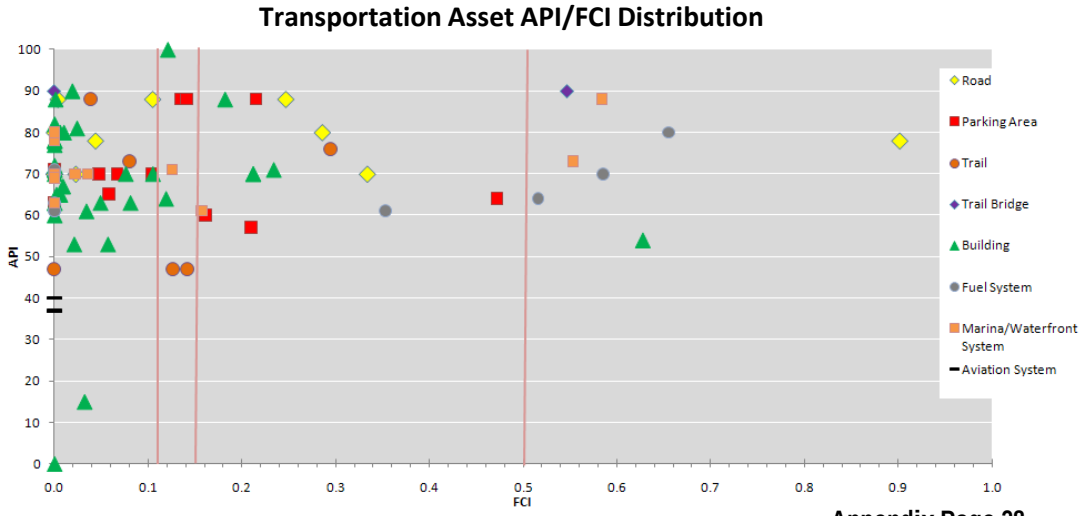
- Buildings are most valuable transportation asset for this cluster: the Nome VC and Headquarters building, the Northwest Alaska Heritage Center, and the Kotzebue Headquarters account for 87% of this cluster's CRV, all of which have an FCI of 0.0

Remote South Parks - Overview

- Katmai National Park & Preserve
- Lake Clark National Park & Preserve
- Alagnak Wild River
- Aniakchak National Monument & Preserve

Asset Type	Asset Count	DM	CRV	FCI
Roads	13	$381,666	$17,940,789	0.02
Parking Area	16	$155,553	$860,975	0.18
Trails	8	$239,424	$1,985,848	0.12
Trail Bridge	2	$664,359	$20,807,054	0.03
Buildings	36	$463,277	$24,279,568	0.02
Fuel System	17	$273,255	$992,968	0.28
Marina / Waterfront	16	$558,344	$3,272,606	0.17
Aviation System	2	$0	$1,207,760	0.00
Grand Total	110	$2,735,878	$71,347,569	0.04





- Alagnak and Aniakchak have no transportation assets

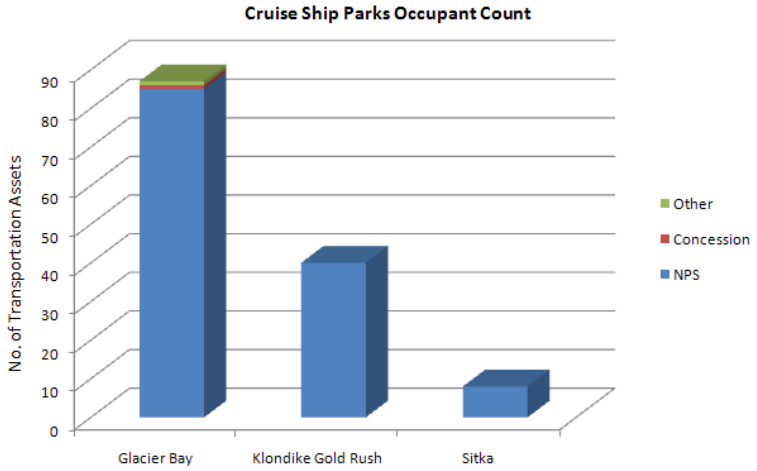
- 69%, or 76 of the 110, of the Remote South Parks' transportation assets are high priority in good condition, i.e., FCI < 0.15 and API ≥ 50

Appendix Page 28

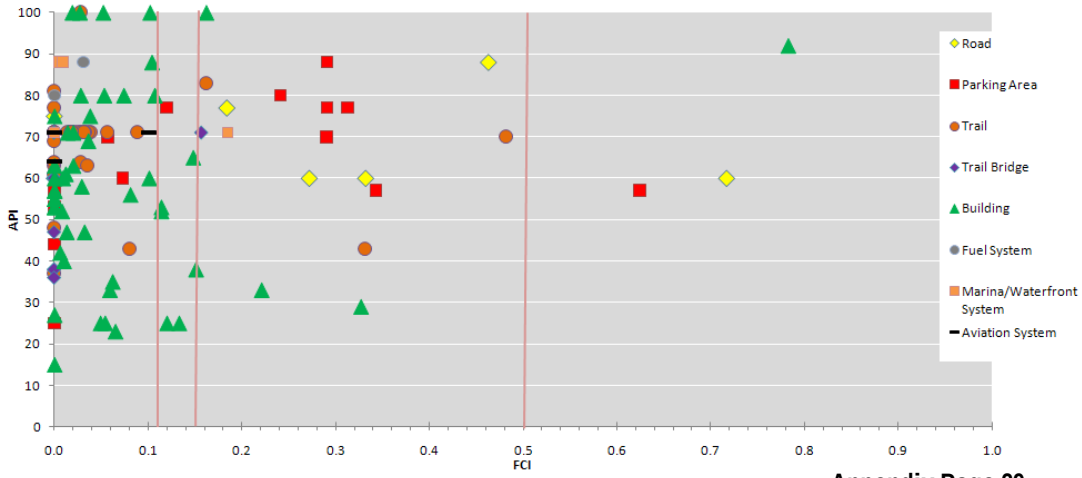
Cruise Ship Parks - Overview

- Glacier Bay National Park & Preserve
- Klondike Gold Rush National Historic Park
- Sitka National Historic Park

Asset Type	Asset Count	DM	CRV	FCI
Roads	7	$3,837,851	$19,097,855	0.20
Parking Area	15	$858,127	$4,849,778	0.18
Trails	36	$1,236,988	$33,111,392	0.04
Trail Bridge	18	$371,320	$1,784,480	0.21
Buildings	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
Grand Total	135	$10,314,756	$122,362,780	0.08



Transportation Asset API/FCI Distribution



- The majority of the Cruise Ship Parks' priority transportation assets are in good condition. 65%, or 88 of the 135, have an FCI < 0.15 and API ≥ 50

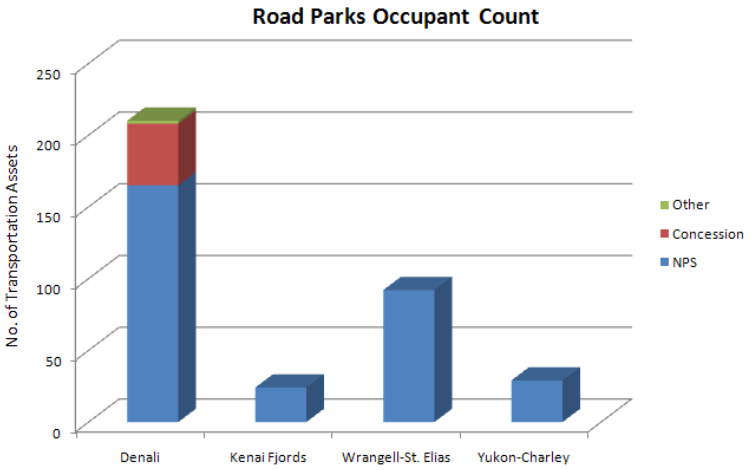
- The Cruise Ship Parks considered more trails to be transportation assets than the other clusters

Appendix Page 29

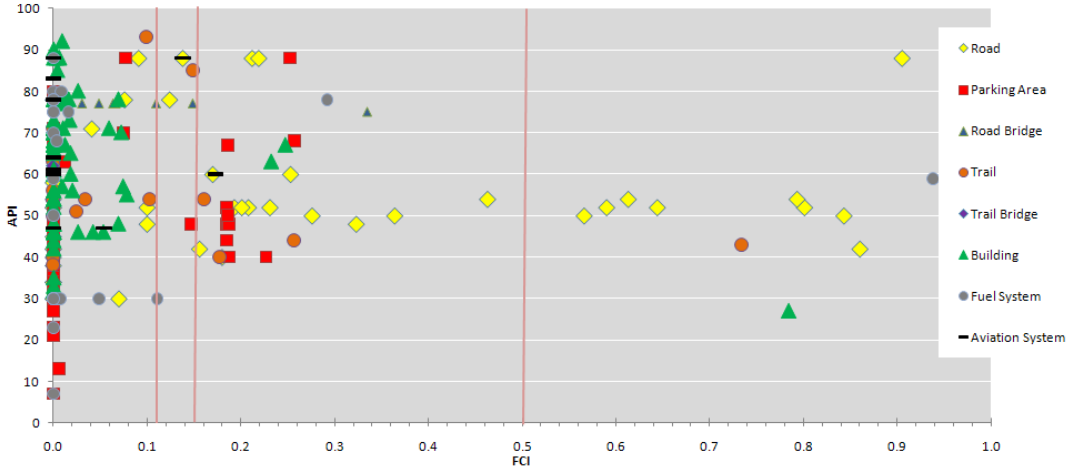
Road Parks - Overview

- Denali National Park & Preserve
- Kenai Fjords National Park
- Wrangell-St. Elias National Park & Preserve
- Yukon-Charley Rivers National Preserve

Asset Type	Asset Count	DM	CRV	FCI
Roads	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
Trails	19	$1,718,599	$32,728,922	0.05
Trail Bridge	2	$0	$310,703	0.00
Buildings	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
Grand Total	355	$35,341,947	$362,609,422	0.10



Transportation Asset API/FCI Distribution

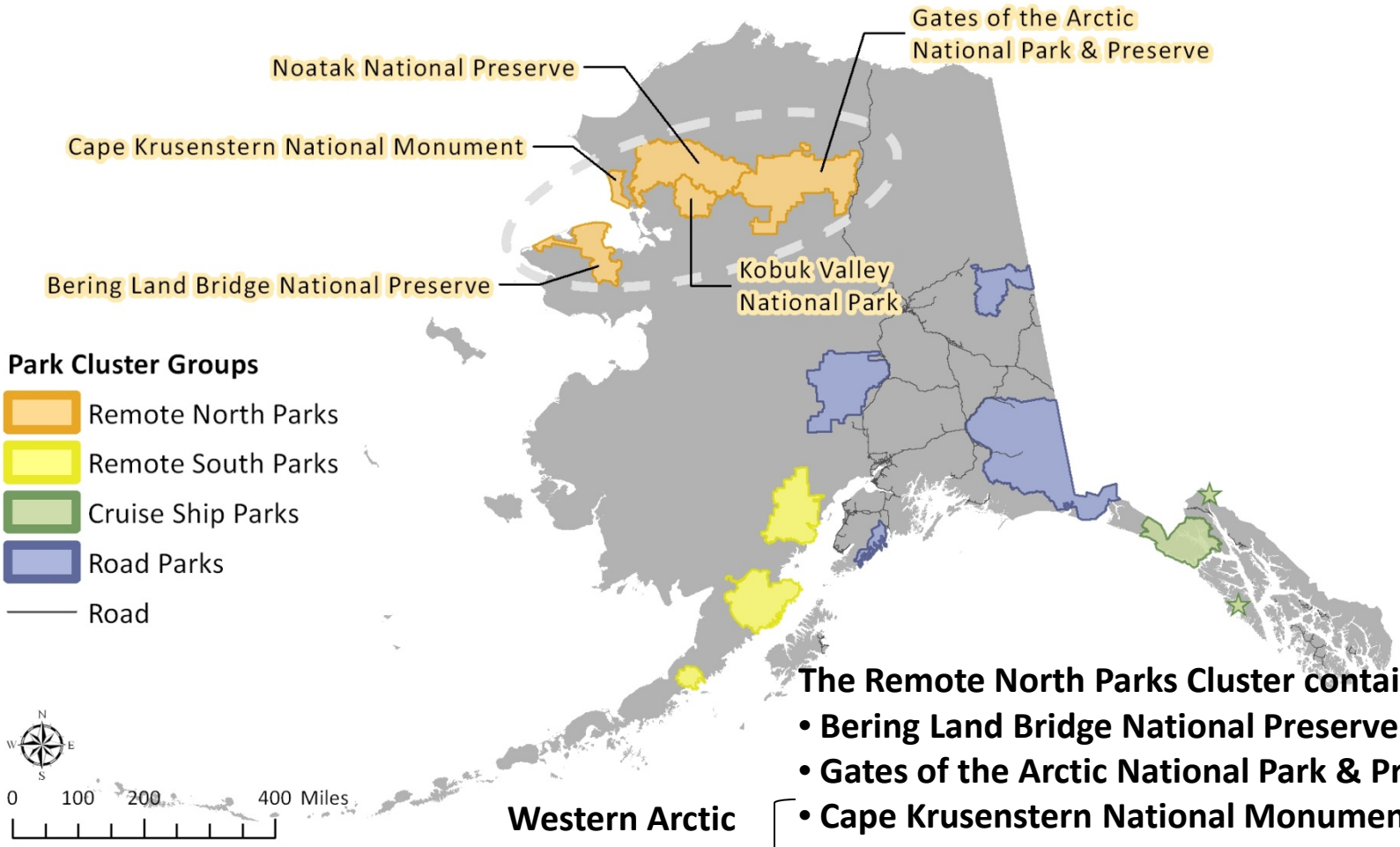


- Deferred maintenance on road assets ($26.3 M) for the Road account for 54% of all DM for the entire region. The Denali Park Road is the primary reason

- 52%, or 184 of 355, of the Road Parks' priority transportation assets are in good condition, i.e., have an FCI < 0.15 and API ≥ 50

Appendix B: Transportation Asset Management Plan for the Remote North Parks

Transportation Asset Management Plan for the Remote North Parks



The Remote North Parks Cluster contains:

- **Bering Land Bridge National Preserve**
- **Gates of the Arctic National Park & Preserve**
- **Cape Krusenstern National Monument**
- **Kobuk Valley National Park**
- **Noatak National Preserve**

Western Arctic National Parklands (WEAR)

The transportation asset management plan for the Remote North Parks Cluster follows a similar process as the PAMP analysis. It explored four key topics:

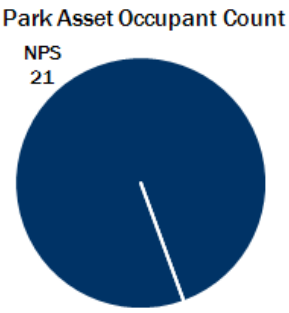
The transportation asset base was determined for each park and aggregated by cluster	Specific to their transporation assets, the main funding sources for each park are split between annual base O&M and special project funding and aggregated by cluster	Industry models are used to determine O&M benchmarks and identify required project funding for each cluster's transportation assets	Different approaches are examined to help each cluster prioritize allocation of funds for their transportation assets

Section 1: Current Footprint

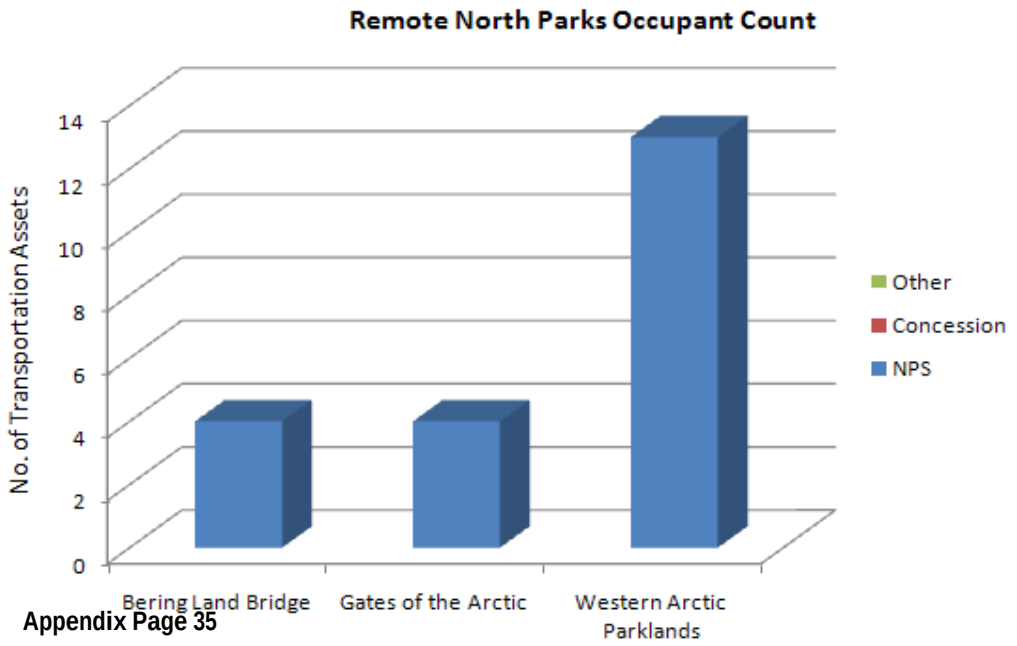
- This section examines the Remote North Parks' existing transportation asset portfolio, highlighting its value, size, and occupancy
- The asset information contained herein is based from FMSS records as of January 2011

The Remote North Parks' transportation asset portfolio consists of 21 assets

Asset Type	Count	Quantity	Units
Roads	–	–	MI
Trails	1	60	LF
Buildings	14	35,651	SF
Fuel System	5	304	EA
Aviation System	1	1,100	LF
Grand Total	21	–	–



- The Remote North Parks have no roads to maintain and only one trail considered a transportation asset.
- All Remote North Parks' transportation assets are NPS owned
- Most WEAR assets are located in Kotzebue, which eliminates the need for much infrastructure. Most are building or housing related
- All Remote North Parks transportation assets are remote and require park managed utility systems (fuel systems), which have high O&M requirements



The Remote North Parks' transportation asset portfolio is valued at over $21 million

Asset Type	DM	CRV	FCI
Roads	–	–	–
Trails	$0	$18,417	0.00
Buildings	$169,445	$21,569,606	0.01
Fuel System	$21,816	$59,637	0.37
Aviation System	$0	$98,803	0.00
Grand Total	$191,261	$21,746,462	0.01

- Overall FCI for transportation assets is considered GOOD
- The Fuel System assets are rated as POOR
- Building assets account for 99% of CRV and 89% of deferred maintenance for the Remote North Parks. This is due to the expensive nature of maintaining building structures in remote Alaskan locations (primarily Bettles, Nome, and Kotzebue)
- Building assets are in good condition. The Remote North Parks' most expensive buildings all have an FCI of 0:
  - Nome VC and Headquarters, CRV = $2.1M
  - Northwest AK Heritage Center, CRV = $14.6M
  - Kotzebue Headquarters, CRV = $2.2M

Definitions:
DM = Deferred Maintenance
CRV = Current Replacement Value
FCI = Facility Condition Index

FCI is a metric calculated by dividing the deferred maintenance by the current replacement value.

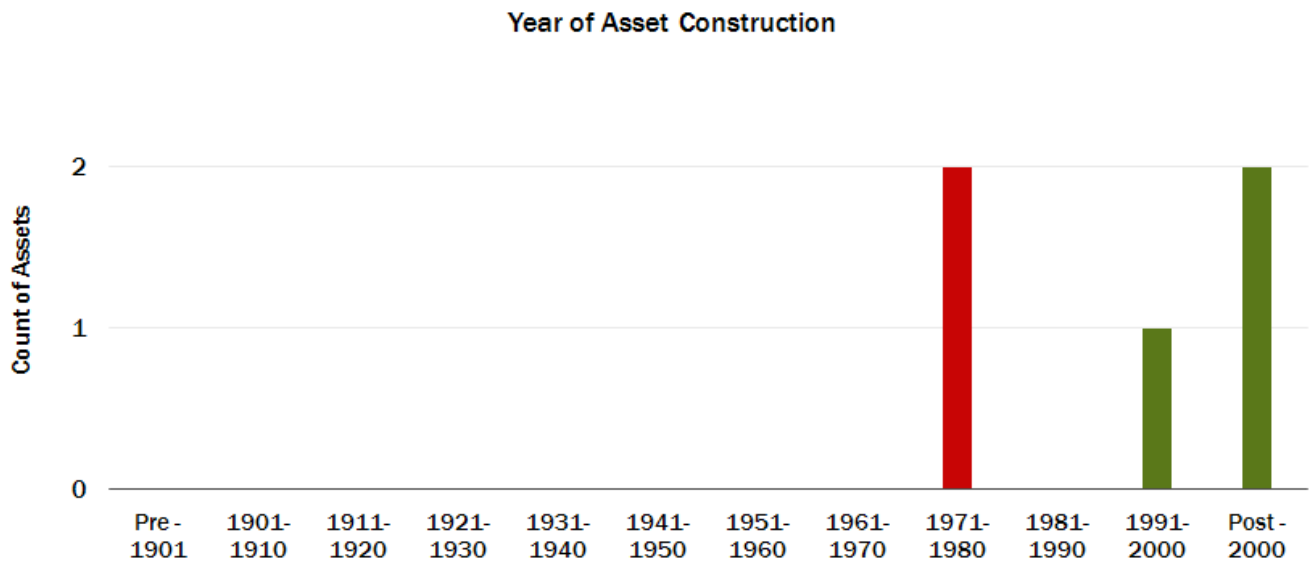
$$\text{FCI} = \frac{\text{Deferred Maintenance}}{\text{Current Replacement Value}}$$

The FCI is used by facility managers to better understand the relative condition of assets within a portfolio. A score closer to 0.0 reflects better condition.

FCI Range	Condition
< 0.11	Good
0.11 - 0.15	Fair
0.15 - 0.50	Poor
> 0.5	Serious

The overall FCI for Remote North Parks is GOOD

The Remote North Parks' transportation asset portfolio is lacking year built information on its few assets



- Most of the Remote North Parks transportation assets are lacking a recorded year of construction. Only 24%, or 5 of the 21 assets, have year built information
- Although lacking the data, many of the transportation assets were likely built before 2000 and the Remote North Parks should plan for significant component renewal in the near future
- With the relatively new assets, the Remote North Parks have an opportunity to maintain them and improve their longevity, reducing the need to replace assets with new construction

Section 2: Current Funding

- This section discusses the Remote North Parks' current base and special project funding situation

- Understanding stable and varied funding sources year to year is important to successfully managing the transportation asset portfolio

Annual funding specifically directed towards transportation assets for the Remote North Parks consists of operational funds and special project funding

Source	Details	Annual Budget
Operations and Maintenance (O&M)	Total funding directed towards operating and maintaining Remote North Parks transportation assets	$ 400
Project Programs	Includes only Repair/Rehab funding	$ 26,811
Total Annual Direct Maintenance Funding		$ 27,211

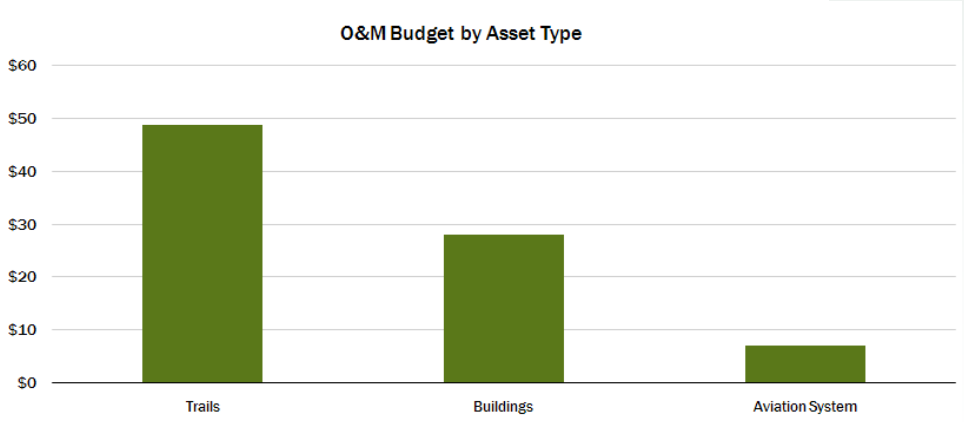
- Total O&M budget was determined by matching records from the Facility Management Software System (FMSS) for work order history specifically to the transportation assets identified by each park

- The project programs budget is based on historical figures (past 5 years) directed towards DM and CR projects. Only projects found in the NPS Project Management Information System (PMIS) that are specific to this cluster's transportation assets are included

The Remote North Parks have sparse records on total budget expenditures for their transportation assets

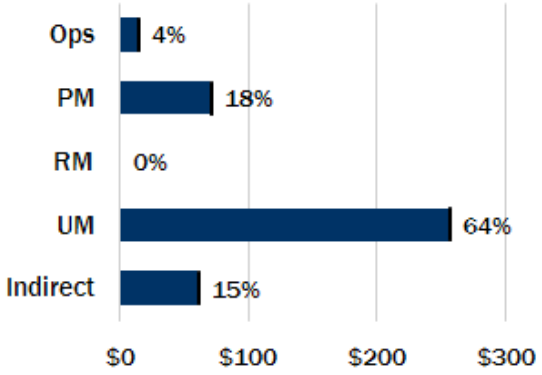
Asset Type	Operations	Recurring	Preventive	Total
Trails	$0	$0	$49	$49
Buildings	$14	$0	$14	$28
Aviation System	$0	$0	$7	$7
Grand Total	$14	$0	$70	$84

- According to the PAMP, WEAR does not track expenses and labor against FMSS work orders. By keeping better records, true expenses required to maintain transportation assets can provide for better analyses.
- Not counting indirect costs, the Remote North Parks spend less than $100 on its transportation assets.



According to available information, the total O&M budget for transportation assets is small

Type	Amount	%
Indirect	$60	15%
UM	$255	64%
RM	$0	0%
PM	$70	18%
Ops	$14	4%
Total	$399	100%



Definitions:
Ops = Operations
UM = Unscheduled Maintenance
RM = Recurring Maintenance
PM = Preventative Maintenance

- Indirect costs factor into the total cost of ownership for transportation assets and were included in the total amount directed towards operating and maintaining transportation assets. However, as stated in the PAMPs, indirect costs are typically excluded for modeling and understanding direct costs associated with maintenance

- Indirect cost for the Remote North Parks cluster was determined by first identifying each park's percentage of indirect costs to its total O&M budget (found in the PAMPs), applying that percentage to the total O&M budget for transportation assets, and then rolling together to the cluster level

- Unscheduled maintenance accounts for 64% of total O&M budget

The Remote North Parks receive approximately $27K annually in special project funding

Fund Source	Annual Budget	Budget as Percentage of Total
Repair / Rehabilitation (2006 only)	$26,811	100.0%
Total Project Funds	$26,811	

- The forecasted project budget is based on historical figures (past 5 years) directed towards deferred maintenance (DM) and component renewal (CR) projects. Only projects in PMIS that are specific to this cluster's transportation assets are included
- Project funding totals were determined by examining all funded transportation projects over the past 5 years and annualizing the total

- Significant funds can come from funding sources other than ones directed towards DM and CR. These LIC funds were for the Northwest Alaska Heritage Center

Other Fund Source	Total
Line Item Construction ('04, '06)	$15,828,000
Total	$15,828,000

Section 3: Current Requirements

• This section reviews the Remote North Parks' operating and project requirements

• Industry requirements are benchmarks that can assist park managers in determining the appropriate level of care necessary for their transportation assets. It is important, however, to recognize that each park (and each cluster) has unique maintenance requirements and this transportation asset management plan addresses those needs as appropriate

The Remote North Parks would require over $318K annually for O&M of transportation assets based on industry standard benchmarks

Asset	Operations	RM	PM	Total
Trails	$22	$101	$22	$146
Buildings	$251,217	$45,826	$20,027	$317,070
Fuel System	$137	$46	$91	$274
Aviation System	$619	$202	$416	$1,237
O&M Benchmark Totals	$251,995	$46,176	$20,557	$318,728

- According to benchmark standards, buildings account for largest expenditure of O&M funds for the Remote North Parks
- All O&M figures were taken from PAMP Optimizer files and totals were adjusted to 2011 dollars by applying a 4% annual inflation rate
- As documented in the AKR PAMPs, O&M benchmarks are modeled from industry standard national averages (RS Means) and other relevant sources. Non-industry standards unique assets are estimated based on 2 percent of CRV (a current federal government benchmark for budgeting and out-year planning)

O&M benchmarks exceed current funding by more than $318K

Asset	O&M Budget	Benchmarks	Difference	% Funded
Trails	$49	$146	($97)	33%
Buildings	$28	$317,070	($317,042)	0%
Fuel System	$0	$274	($274)	0%
Aviation System	$7	$1,237	($1,230)	1%
Totals	$84	$318,728	($318,644)	0%

- According to available information, it appears that the Remote North Parks' transportation assets are significantly underfunded based on industry standards

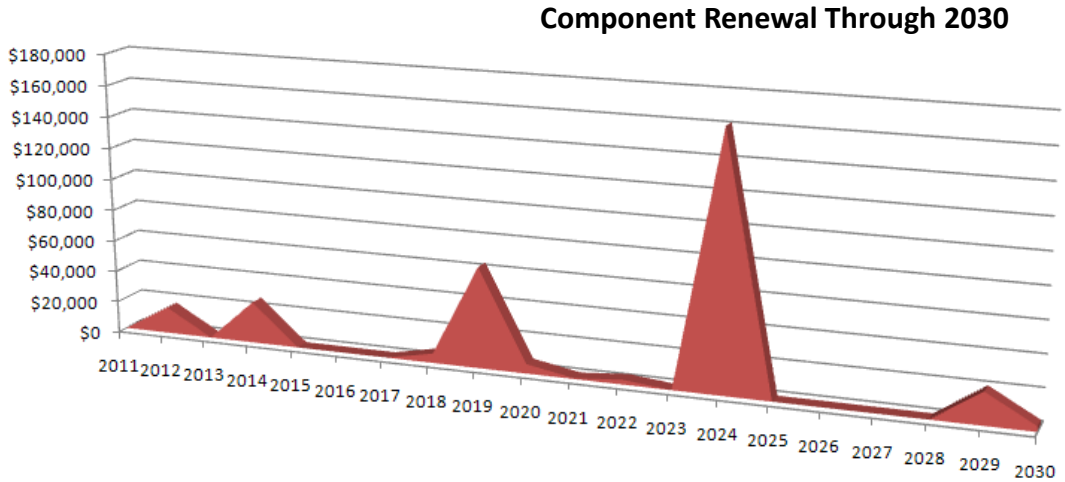
- As previously noted, inadequate record keeping of expenses and labor against FMSS work orders may account for some of this discrepancy

- Without adequate O&M funding, portfolio condition will decline and the deferred maintenance backlog of $191K will continue to grow

- Given the gap in funding, the Remote North Parks need to identify strategies for allocation of limited O&M funding

In addition to annual O&M requirements, the Remote North Parks have a lifecycle component renewal (CR) cost of over $308k over the next twenty years

- A twenty-year horizon was examined for asset component renewal to better assess future funding requirements and account for spikes
- CR profile is based on equipment lifecycle data, which incorporates estimated replacement date and replacement cost for the Remote North Parks' transportation assets

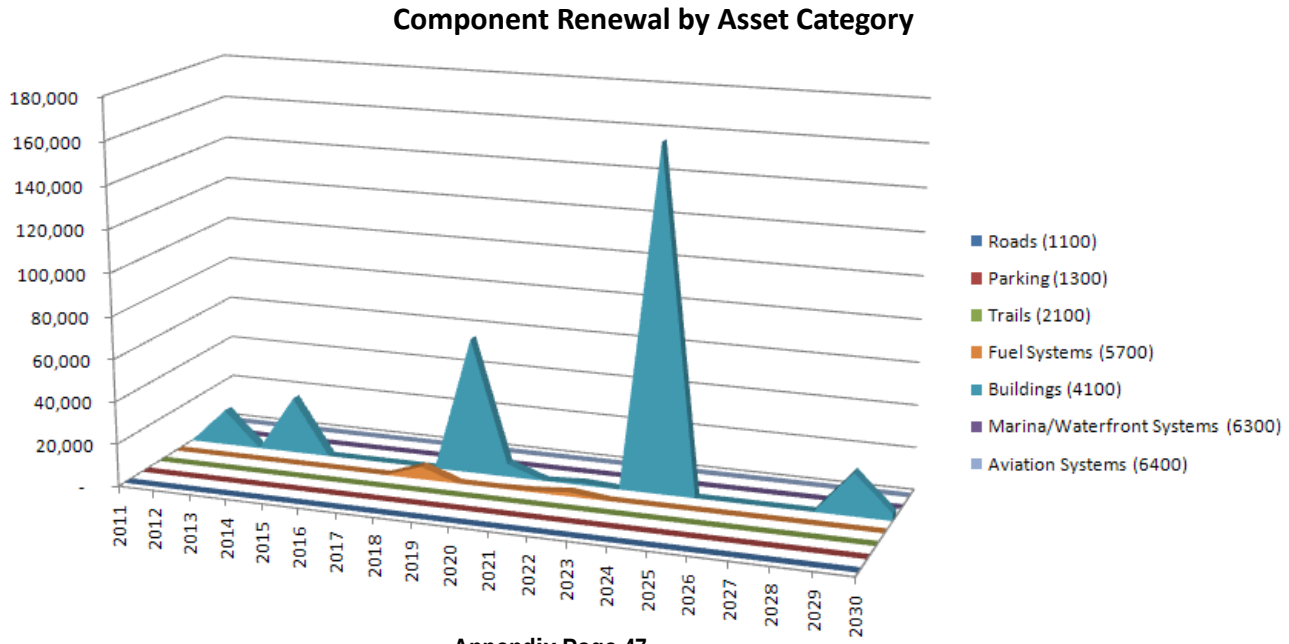


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10 yr Totals
Annual CR	$0	$16,817	$0	$26,394	$0	$0	$0	$6,039	$63,897	$6,012	$119,159

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	10 yr Totals
Annual CR	$560	$3,035	$0	$161,771	$0	$0	$0	$0	$20,390	$3,416	$189,172

The Remote North Parks should plan for occasional spikes in budget requirements for component renewal

- Buildings account for 97% of component renewal costs over the next 20 years
- The large spike in 2024 represents anticipated maintenance and equipment replacement for the Maintenance Shop 297 and the Northwest Alaska Heritage Center buildings
- Some asset types, such as the roads, parking, and trails, appear to have no furture component renewal requirements and may have incomplete FMSS equipment records
- Actual CR need may be higher once all equipment/feature records are completed in FMSS



Future Requirements

- Currently, the total deferred maintenance on transportation assets for the Remote North Parks is $191,261 over the next 10 years
- The total component renewal requirements over the next 20 years are $308,331

Requirement	Amount
DM - FMSS (10-yr)	$191,261
Component Renewal (20-yr)	$308,331
Total Requirement	$499,592

Project Funding Gap	
DM Annualized Requirement	$19,126
CR Annualized Requirement	$15,417
Annual Project Funding Available	$26,811
Total Project Funding Gap	$7,731

- By taking an annual average of future funding requirements to address DM and CR needs and applying an anticipated annual project funding amount, the Remote North Parks will have an annual funding gap of approximately $8K

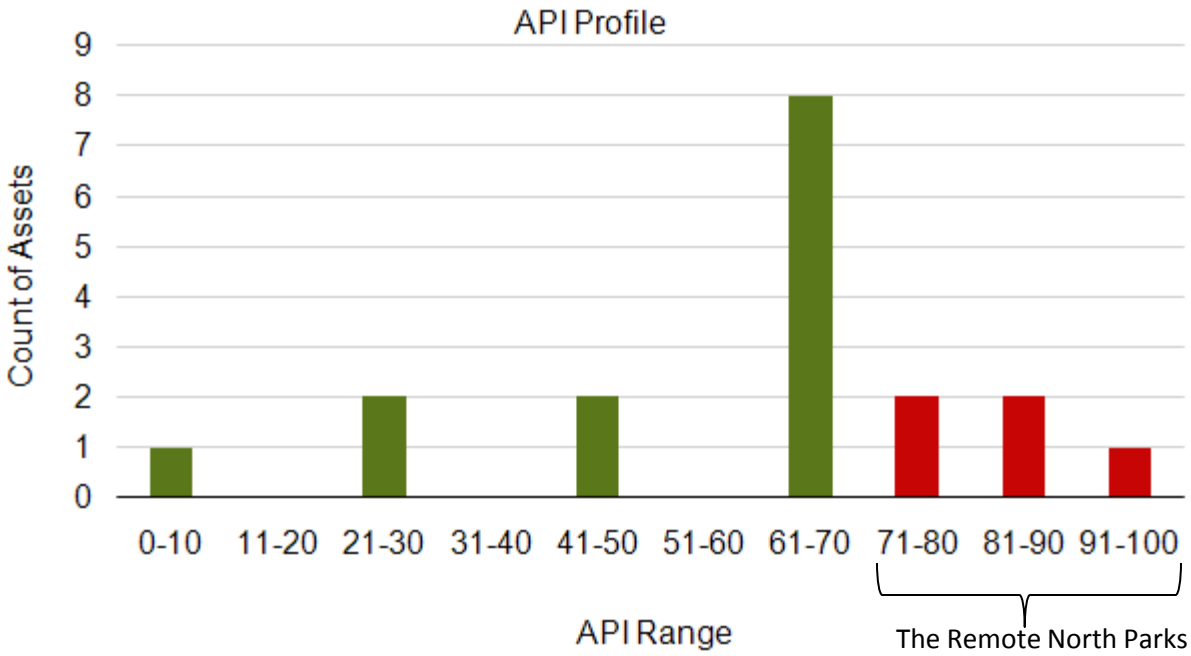
Section 4: Managing the Gap

- How can the Remote North Parks manage the gap between their current funding situation and O&M/project requirements?

- Incorporating an asset's condition and relative importance (as done in the PAMPs) can help park managers prioritize and direct available funding

Asset Priority Index (API) Profiles

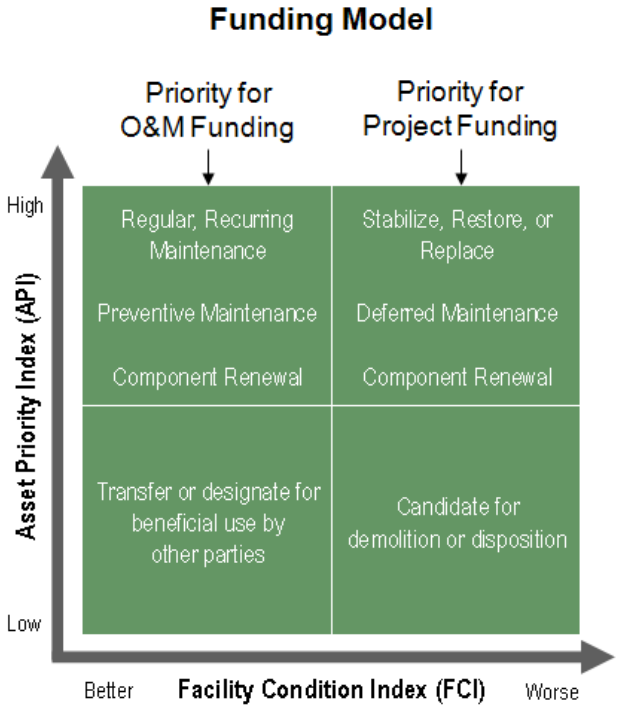
- Metrics such as Asset Priority Index (API) can assist park management in identifying funding priorities based on the most important assets
- Only 28% of the Remote North Parks' transportation assets have an API higher than 70
- The Remote North Parks should focus its limited resources on maintaining its highest priority assets

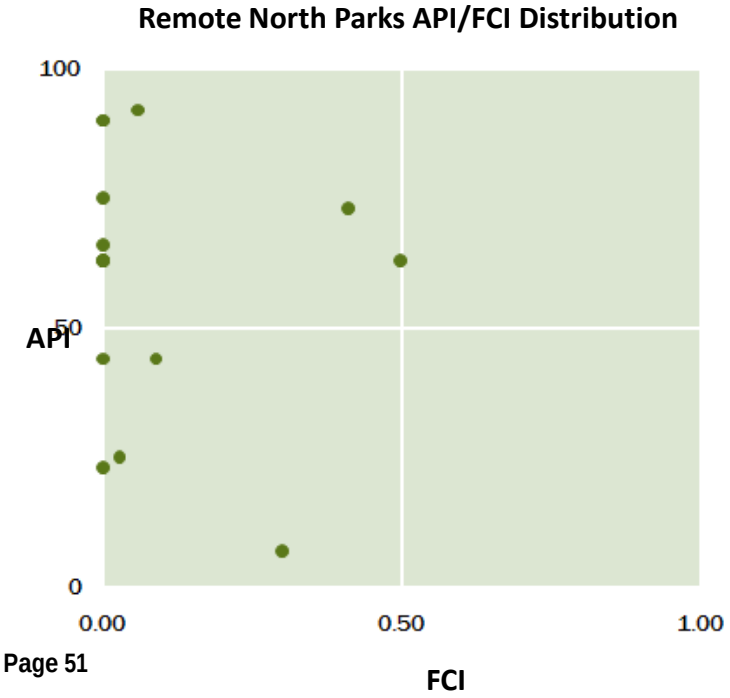


The Remote North Parks should target base and project funds on the top priority assets. Assets with high API scores are a logical starting point for determining maintenance priorities.

Plotting the Remote North Parks' transportation assets on this matrix demonstrates the distribution in terms of both condition and priority

- The scatter plot reflects the current transportation asset distribution for the Remote North Parks
- 67% of the Remote North Parks' transportation assets have an FCI equal to zero; those assets are either in excellent condition or the park has not yet assessed them for deficiencies
- Over time as base and project funding is allocated to high priority assets, the distribution of transportation assets will shift to a negatively tending curve, reflecting more effective asset management

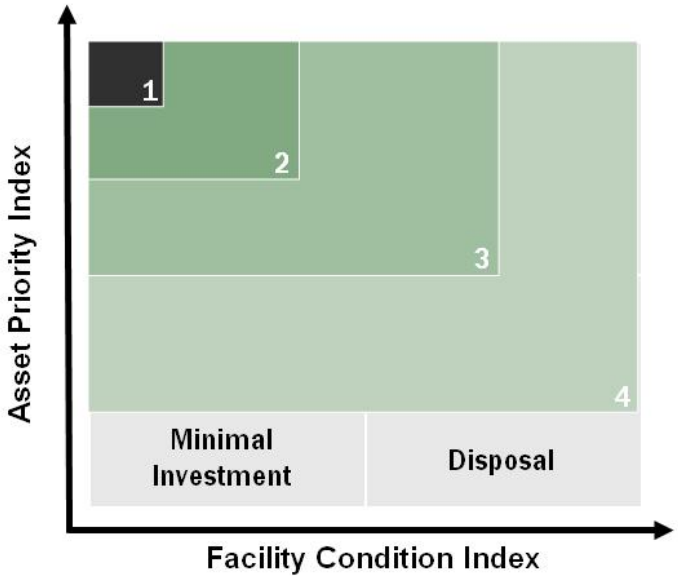




Appendix Page 51

During the PAMP process each Remote North Park prioritized their assets to assist in strategizing funding decisions

- The table below demonstrates the final prioritization results of transportation assets
- Assets falling within the lowest groups should receive minimal O&M funding



Priority	API	FCI	# of Assets
1. Highest	88	0.150	3
2. High	75	0.300	3
3. Medium	50	0.750	9
4. Low	21	1.000	4
5. Lowest	<21	>1.000	1
Total Asset Count			20

Park management employed logical criteria when establishing priority level for all assets in the portfolio during the development of the PAMPs

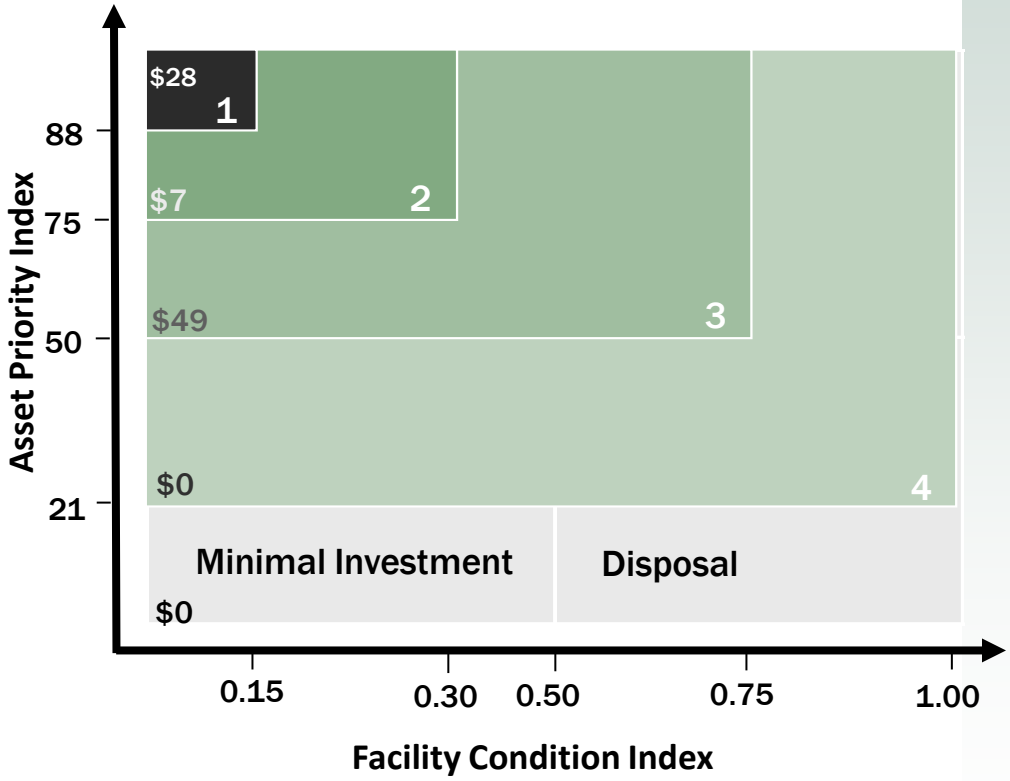
- Examining the reasons why assets end up in different priority bands helps develop a better estimate of true additional need for O&M funding
  - -- By moving assets into priority bands that will receive little to no funding, management can see exactly what functions they are not able to perform
- Assets were slotted into O&M priority bands using the following general guidelines:
  - -- Highest Priority Assets – Highly important to the park mission, these asset have high visitor use. Critical systems, some Operations, RM and PM will be addressed
  - -- High Priority Assets – Important to the park mission, some Operations and very little RM and PM will be addressed
  - -- Medium Priority Assets – These assets, while important will only have essential operations funded
  - -- Low Priority Assets – These assets are important but not critical to park operations or do not require much maintenance funding. Very little O&M money will be spent on these assets unless more funding becomes available
  - -- Lowest Priority Assets – These assets may not be required for the operations and mission of the park. Many are backcountry assets or are targeted to receive project funding in the next few years

O&M amounts by priority band

- As previously noted, inadequate record keeping of expenses and labor against FMSS work orders may account for the apparent lack of information

- The Remote North Parks have the most assets within the priority band 3, which is why O&M amounts are highest

- The Remote North Parks should work towards improving API/FCI of their transportation assets so that more funding is directed towards higher priority assets



Remote North Parks O&M expenditures by work type

- Industry standard O&M costs can be broken down according to work type activities and divided into priority bands

- According to the available information, even the relatively few transportation assets of the Remote North Parks are significantly underfunded when compared to industry benchmarks

O&M Optimizer Priority Band Level	Asset Count	Operations	RM	PM	Base Funding Totals	Benchmark Totals
(1) Highest Priority	3	$14	$0	$14	$28	$89,267
(2) High Priority	3	$0	$0	$7	$7	$64,130
(3) Medium Priority	9	$0	$0	$49	$49	$161,879
(4) Lower Priority	4	$0	$0	$0	$0	$3,217
(5) Lowest Priority	1	$0	$0	$0	$0	$235
Total O&M Base Funding Allocation	20	$14	$0	$70	$84	$318,728
O&M Industry Standard Benchmark Totals	20	$251,996	$46,175	$20,557	Gap: $318,644	
% Coverage of Benchmark Totals		0%	0%	0%	Total Coverage: 0%	

The Remote North Parks' current O&M base budget for transportation assets is minuscule and significantly less than industry standards. All assets within each priority band require additional funding

- Priority bands 1 – 3 comprise $315K of the gap, a number that more closely approximates the additional O&M funding needs
- Band 5 assets either not maintained or planned to be renovated with project money and therefore do not require O&M funding
- The use of other funding sources can help alleviate the base funding shortfall

O&M Optimizer Priority Band	Asset Count	Base O&M Allocations	O&M Benchmarks	Percent Coverage	O&M Funding Gap
(1) Highest Priority	3	$28	$89,267	0%	$89,239
(2) High Priority	3	$7	$64,130	0%	$64,123
(3) Medium Priority	9	$49	$161,879	0%	$161,830
(4) Lower Priority	4	$0	$3,217	0%	$3,217
(5) Lowest Priority	1	$0	$235	0%	$235
Totals	20	$84	$318,728	0%	$318,644

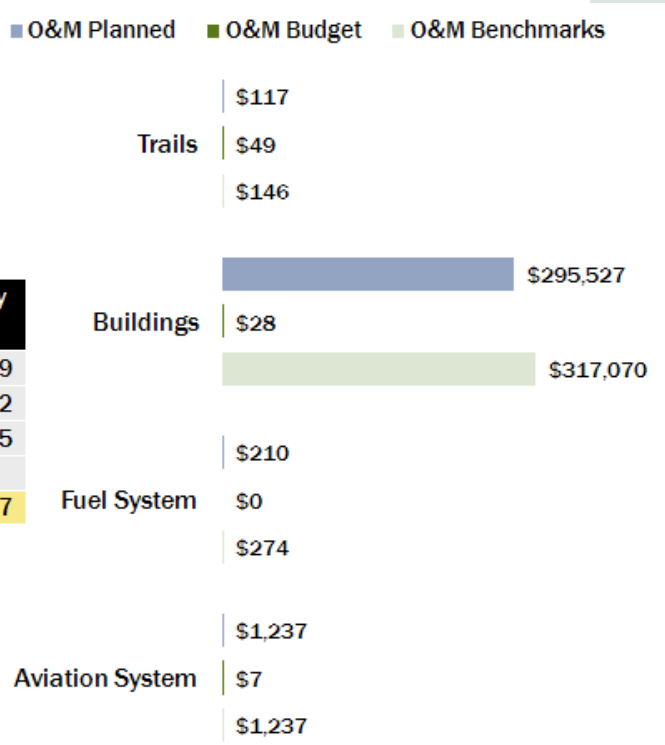
Gap for Bands 1-3 $315,192

Planned allocation of O&M funds will result in changes to the way the Remote North Parks manage some of their asset types

- It's likely that O&M budgeted amounts do not accurately reflect actual amounts spent due to incomplete FMSS record keeping, with amounts for buildings being the most off based

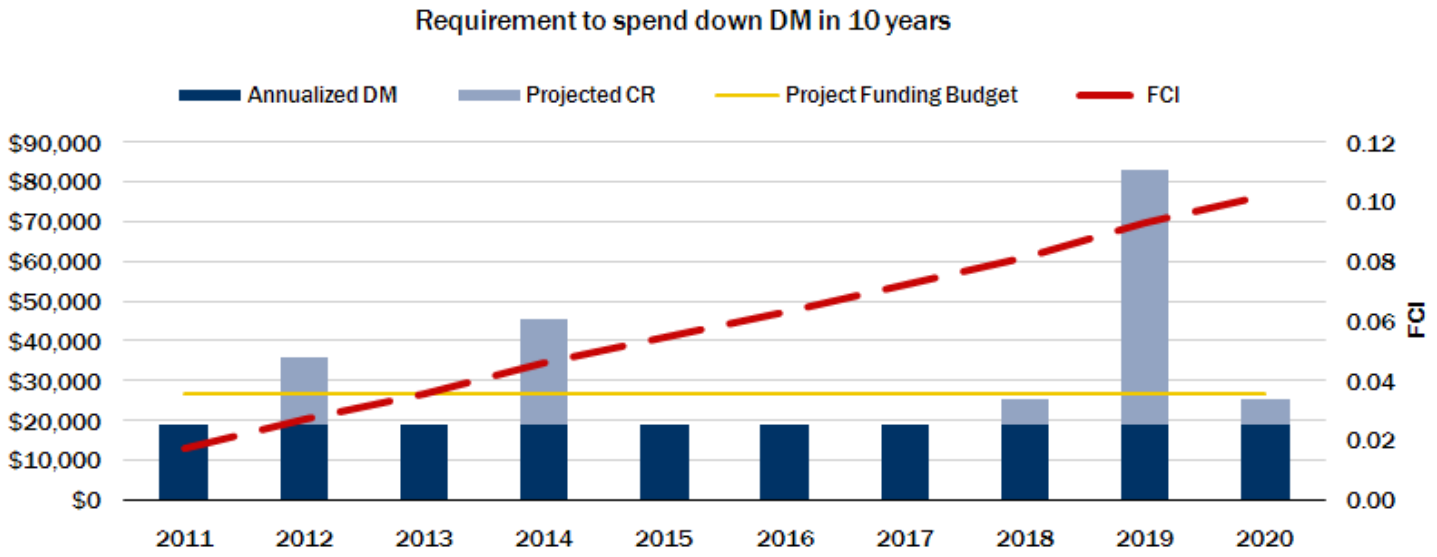
- Aside from gaps in accurate O&M budget data, planned spending is comparable to industry standard requirements

Asset	O&M Budget	O&M Planned	O&M Benchmarks	O&M Gap by Asset Type
Trails	$49	$117	$146	29
Buildings	$28	$295,527	$317,070	21,542
Fuel System	$0	$210	$274	65
Aviation System	$7	$1,237	$1,237	-
Total	$84	$297,091	$318,728	$21,637



If the Remote North Parks were required to address their entire DM backlog in the next 10 years using the current available annual project funding, the condition of their transportation asset portfolio would continue to decline

- The dramatic increase in the transportation asset portfolio FCI over the next 10 years is a result, in part, of the anticipated deterioration rate of this cluster's large CRV of its expensive buildings (headquarters and visitor centers)
- In other words, current funding levels will not be adequate to address the anticipated maintenance requirements of the building assets and FCI will increase



General Conclusions

• Due to their remoteness and general lack of infrastructure, the 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. As demonstrated by this analysis, data on the financial requirements of this cluster's transportation assets is sparse and likely incomplete. The actual financial needs of the Remote North Parks for O&M and project funding is potentially much higher than reported in this analysis.

Project Funding Gap	
DM Annualized Requirement	$19,126
CR Annualized Requirement	$15,417
Annual Project Funding Available	$26,811
Total Project Funding Gap	$7,731

• With the recent addition of several visitor centers, the Remote North Parks cluster has had a significant increase in value of its transportation asset portfolio. While the current O&M and CR needs of this cluster are relatively small, the O&M of these new assets will eventually require more resources than this cluster has historically needed. The 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.

- *Nome VC and Headquarters, CRV = $2.1M*
- *Northwest AK Heritage Center, CRV = $14.6M*
- *Kotzebue Headquarters, CRV = $2.2M*

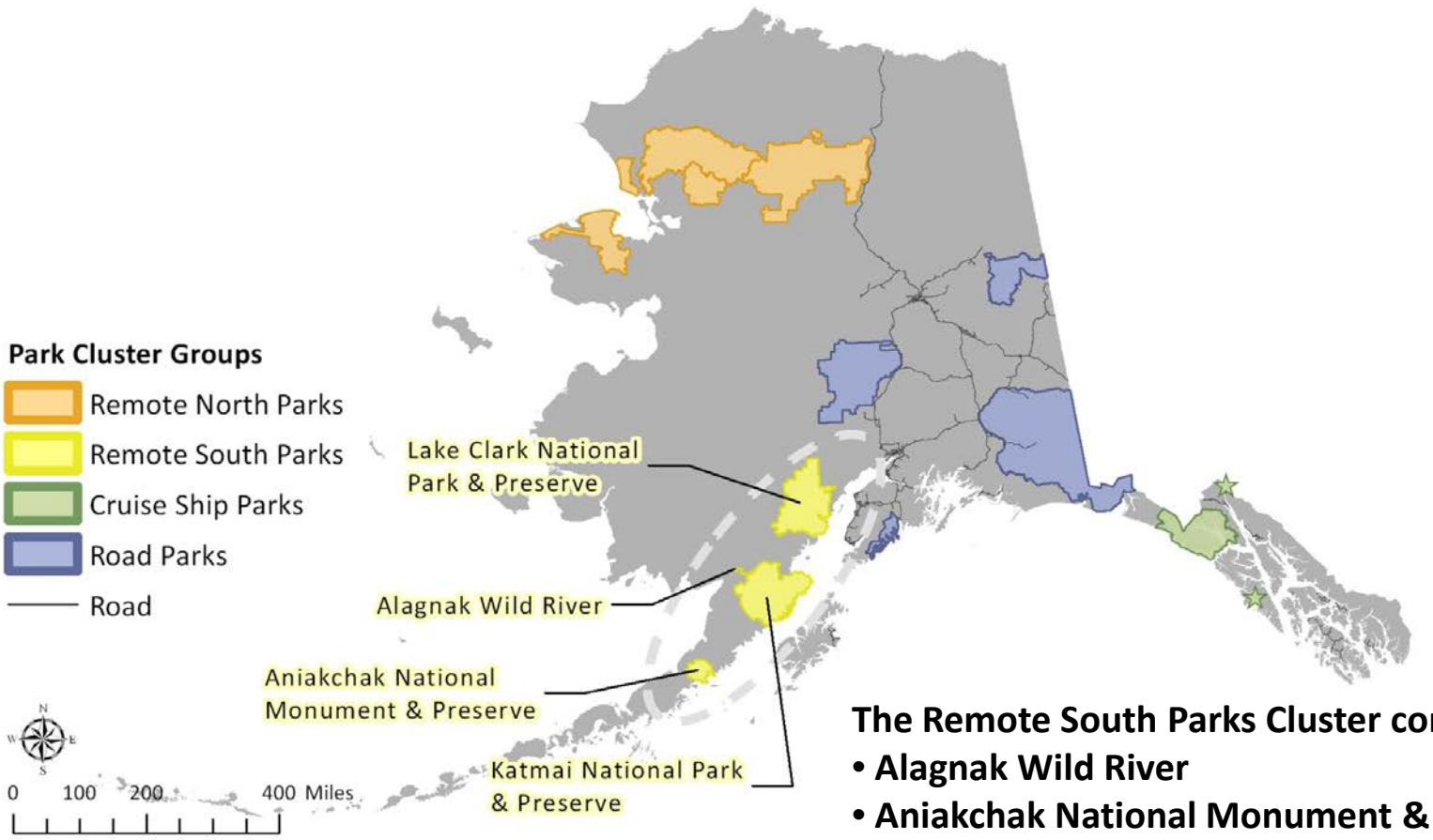
Appendix A: Remote North Parks Transportation Asset List

REMOTE NORTH PARKS								
Location	Description	Park	Asset Code	Deferred Maintenance	CRV	API	FCI	Priority Band
58894	Serpentine Hot Springs Boardwalk	BELA	2100	$0	$18,417	63	0.000	3
91942	Nome VC and Headquarters	BELA	4100	$0	$2,097,587	90	0.000	1
91943	Dogyard Haz Mat Locker	BELA	4100	$0	$28,987	23	0.000	4
58918	Serpentine Hot Springs Airstrip	BELA	6400	$0	$98,803	75	0.000	2
83890	BTTB - 112 Aviation storage	GAAR	4100	$1,167	$13,224	44	0.088	4
89072	BTTB - Employee Recreation Hall	GAAR	4100	$15,282	$561,612	25	0.027	1
43819	BTTU Fleet Gasoline System	GAAR	5700	$0	$5,539	44	0.000	4
91664	BTTU Float Pond Fuel System	GAAR	5700	$0	$13,083	63	0.000	2
42572	Ambler Fuel Cache	WEAR	4100	$0	$39,754	63	0.000	3
42585	Maintenance Shop 297	WEAR	4100	$48,442	$854,020	92	0.057	2
42715	Aniigaq Ranger Station	WEAR	4100	$0	$62,401	63	0.000	3
42722	Kotlik Shelter Cabin	WEAR	4100	$0	$156,004	63	0.000	3
42725	Onion Portage Ranger Station (Giddings)	WEAR	4100	$102,318	$249,606	73	0.410	3
42730	Kelly River Ranger Station	WEAR	4100	$0	$62,401	66	0.000	3
59099	Onion Portage RS Cache	WEAR	4100	$2,237	$7,454	7	0.300	5
84667	Northwest Alaska Heritage Center	WEAR	4100	$0	$14,624,150	90	0.000	1
91937	Kotzebue Headquarters	WEAR	4100	$0	$2,246,650		0.000	3
95160	Maintenance Addition	WEAR	4100	$0	$565,756		0.000	3
42634	Fleet Gasoline System	WEAR	5700	$10,221	$20,507	63	0.498	3
42635	Fleet Diesel Fuel System	WEAR	5700	$11,595	$20,507	63	0.565	3
225729	Fuel Storage Tank - SFU 297 B	WEAR	5700				0.000	4

Source: NPS FMSS, printed on 1/06/2011

Appendix C: Transportation Asset Management Plan for the Remote South Parks

Transportation Asset Management Plan for the Remote South Parks



The Remote South Parks Cluster contains:

- **Alagnak Wild River**
- **Aniakchak National Monument & Preserve**
- **Katmai National Park & Preserve**
- **Lake Clark National Park & Preserve**

The transportation asset management plan for the Remote South Parks follows a similar process as the PAMP analysis. It explored four key topics:

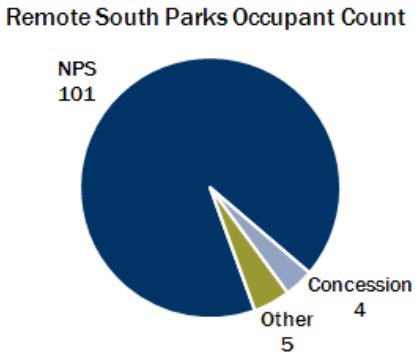
The transportation asset base was determined for each park and aggregated by cluster	Specific to their transporation assets, the main funding sources for each park are split between annual base O&M and special project funding and aggregated by cluster	Industry models are used to determine O&M benchmarks and identify required project funding for each cluster's transportation assets	Different approaches are examined to help each cluster prioritize allocation of funds for their transportation assets

Section 1: Current Footprint

- This section examines the Remote South Parks' existing transportation asset portfolio, highlighting its value, size, and occupancy
- The asset information contained herein is based from FMSS records as of January 2011

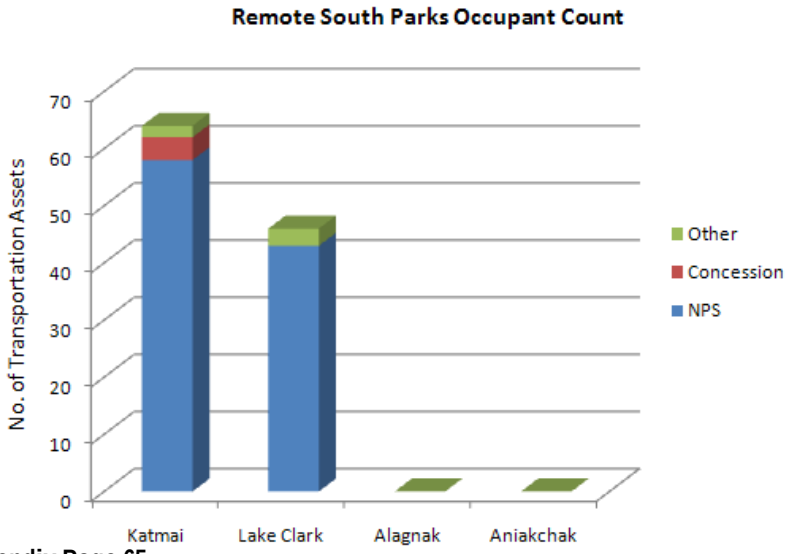
The Remote South Parks' transportation asset portfolio consists of 110 assets

Asset Type	Count	Quantity	Units
Roads	13	27	MI
Parking Area	16	96,258	SF
Trails	8	88,146	LF
Trail Bridge	2	54,240	SF
Buildings	36	44,556	SF
Fuel System	17	17	EA
Marina / Waterfront	16	2,516	varies
Aviation System	2	2,800	LF
Grand Total	110	–	–



- Alagnak and Aniakchak, while a part of the Remote South Parks, have no transportation assets

- Both Katmai and Lake Clark have transportation assets that are concessionaire owned or other



The Remote South Parks' transportation asset portfolio is valued at over $71 million

Asset Type	DM	CRV	FCI
Roads	$381,666	$17,940,789	0.02
Parking Area	$155,553	$860,975	0.18
Trails	$239,424	$1,985,848	0.12
Trail Bridge	$664,359	$20,807,054	0.03
Buildings	$463,277	$24,279,568	0.02
Fuel System	$273,255	$992,968	0.28
Marina / Waterfront	$558,344	$3,272,606	0.17
Aviation System	$0	$1,207,760	0.00
Grand Total	$2,735,878	$71,347,569	0.04

- Overall, the conditions of transportation assets for the Remote South Parks are GOOD

- This cluster's most valuable asset categories—roads, trail bridges, and buildings—all have an FCI condition rated as GOOD

- This cluster does, however, have an overall FCI rating as POOR for its parking areas, fuel systems, and marina/waterfront systems

Definitions:
DM = Deferred Maintenance
CRV = Current Replacement Value
FCI = Facility Condition Index

FCI is a metric calculated by dividing the deferred maintenance by the current replacement value.

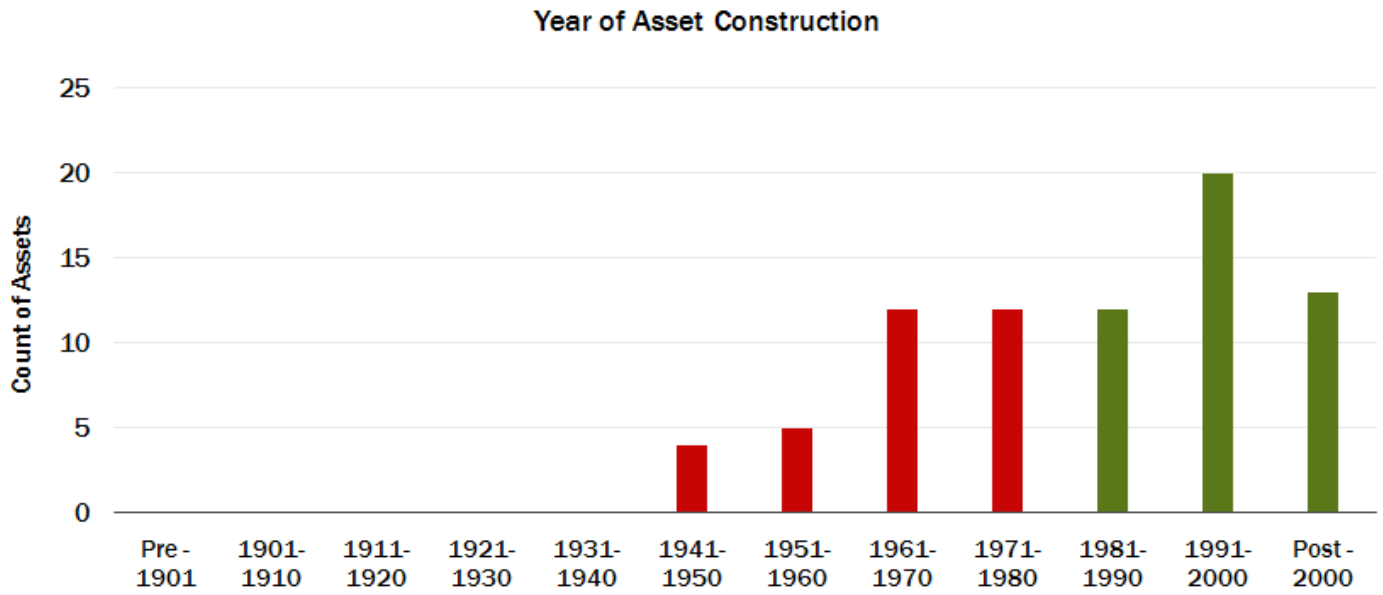
$$\text{FCI} = \frac{\text{Deferred Maintenance}}{\text{Current Replacement Value}}$$

The FCI is used by facility managers to better understand the relative condition of assets within a portfolio. A score closer to 0.0 reflects better condition.

FCI Range	Condition
< 0.11	Good
0.11 - 0.15	Fair
0.15 - 0.50	Poor
> 0.5	Serious

The overall FCI for Remote South Parks is GOOD

The Remote South Parks' transportation asset portfolio has many newer assets



- 58% of transportation assets were built after 1980
- 42% of the transportation assets were built before 1980
- 32% of the Remote South Parks' assets have an unknown year built
- Based on their aging infrastructure, the Remote South Parks should plan for substantial component renewal costs in the future

Katmai has the only planned transportation assets for the Remote South Parks

Asset	Type	Park	Status	CRV	Quantity	Units
LC- SPUR ROAD Lake Camp Valley Road Access Spur Road	1100	KATM	PLANNED	$105,071	0.2	MI
NL-ROAD Naknek Lake Beach Ramp Access Road	1100	KATM	PLANNED	$901,159	0.4	MI
WYE-ROAD road into the WYE Housing Development	1100	KATM	PLANNED	$527,141	0.5	MI
LC-LOT Ferry Vessel and Barge loading and Unloading Parking Lot	1300	KATM	PLANNED	$55,853	14,400	SF
NL-PARK Naknek Lake Parking Lot	1300	KATM	PLANNED	$220,454	6,200	SF
KS B10 King Salmon Maintenance Building	4100	KATM	PLANNED	$3,467,308	4,500	SF
NL-RAMP Marine Access Ramp for Ferry Vessel and barges	6300	KATM	PLANNED	$259,373	1	EA
			Total Additional CRV	$5,536,360		

- When complete these additions will add over $5.5 million to the Remote South Parks' CRV

- Using O&M models and park knowledge of maintenance needs on similar assets, the Remote South Parks can establish more accurate benchmark costs that could be used to plan for future funding of new assets

Section 2: Current Funding

- This section discusses the Remote South Parks' current base and special project funding situation
- Understanding stable and varied funding sources year to year is important to successfully managing the transportation asset portfolio

Annual funding specifically directed towards transportation assets for the Remote South Parks consists of operational funds and special project funding

Source	Details	Annual Budget
Operations and Maintenance (O&M)	Total funding directed towards operating and maintaining Remote South Parks transportation assets	$ 226,103
Project Programs	Includes the following funding programs: Regular Cyclic and Repair/Rehab	$ 141,571
Total Annual Direct Maintenance Funding		$ 367,674

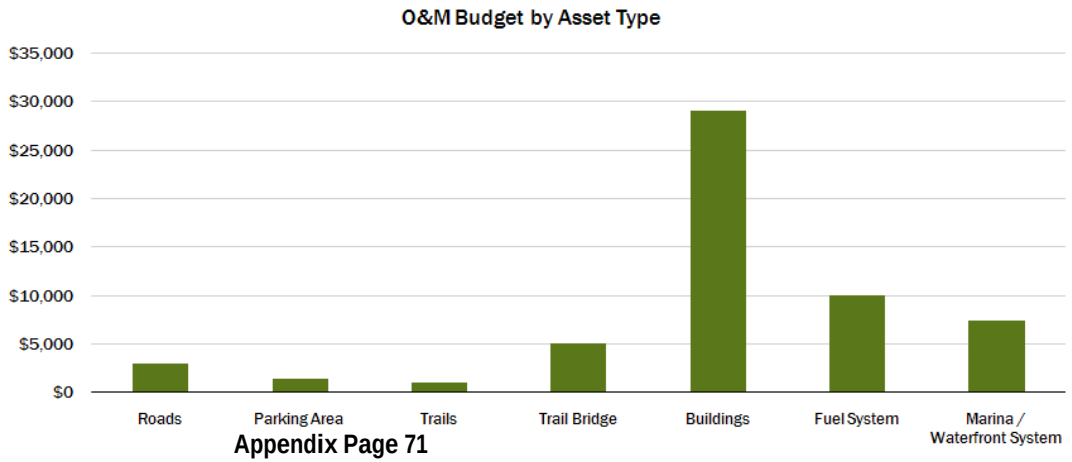
- Total O&M budget was determined by matching records from the Facility Management Software System (FMSS) for work order history specifically to the transportation assets identified by each park

- The project program budget is based on an annual average of historical funding occurring over the past 5 years. Only projects found in the NPS Project Management Information System (PMIS) that are specific to this cluster's transportation assets are included

While Remote South Parks budget for funding across all asset types, trails and buildings account for approximately 73% of total budget

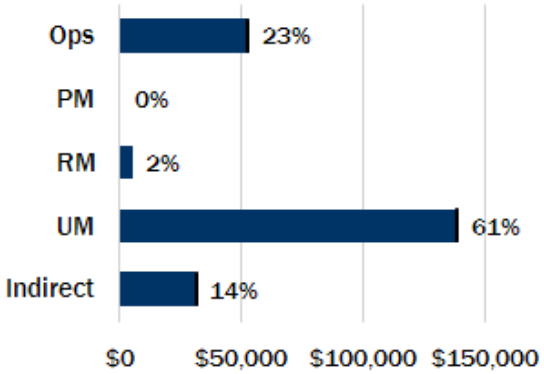
Asset Type	Operations	Recurring	Preventive	Total
Roads	$3,045	$0	$0	$3,045
Parking Area	$1,389	$0	$0	$1,389
Trails	$1,028	$0	$0	$1,028
Trail Bridge	$5,092	$0	$0	$5,092
Buildings	$24,087	$4,920	$0	$29,007
Fuel System	$10,068	$0	$0	$10,068
Marina / Waterfront System	$7,409	$0	$0	$7,409
Grand Total	$52,117	$4,920	$0	$57,037

- Buildings account for 51% of transportation budget expenditures
- Fuel Systems account for 18% of transportation budget expenditures



The Remote South Parks budget approximately $226K to their transportation assets, 61% of which goes toward unscheduled maintenance

Type	Amount	%
Indirect	$30,753	14%
UM	$138,313	61%
RM	$4,920	2%
PM	$0	0%
Ops	$52,117	23%
Total	$226,103	100%



Definitions:
Ops = Operations
UM = Unscheduled Maintenance
RM = Recurring Maintenance
PM = Preventative Maintenance

- Indirect costs factor into the total cost of ownership for transportation assets and were included in the total amount directed towards operating and maintaining transportation assets. However, as stated in the PAMPs, indirect costs are typically excluded for modeling and understanding direct costs associated with maintenance

- Indirect cost for the Remote South Parks cluster was determined by first identifying each park's percentage of indirect costs to its total O&M budget (found in the PAMPs), applying that percentage to the total O&M budget for transportation assets, and then rolling together to the cluster level

- 61% of the O&M budget is directed towards unscheduled maintenance

- The Road Parks should continue to focus attention on preventative maintenance (0%) to keep assets in serviceable working order and avoid more costly unscheduled maintenance

The Remote South Parks receive approximately $141K annually in special project funding

Fund Source	Annual Budget	Budget as Percentage of Total
Repair / Rehabilitation	$110,622	78.1%
Regular Cyclic Maintenance	$30,949	21.9%
Total Project Funds	$141,571	

• The forecasted project budget is based on an annual average of historical funding directed towards deferred maintenance (DM) and component renewal (CR) occurring over the past 5 years. Only projects in PMIS that are specific to this cluster's transportation assets are included

• The Recreation Fee 20% and Recreation Fee Demonstration 20% funds have historically provided approximately $25K annually on average. With these funds going away, the Remote South Parks will have less money available and need to keep a closer eye on their budgets

Other Fund Source	Annual Avg. Total
Recreation Fee 20%	$20,390
Recreational Fee Demonstration, 20%	$5,000
Total	$25,390

• Forecasting future funding levels is difficult due to the inconsistent nature of the funds, especially when analyzing funding directed specifically towards transportation assets. Future funding levels may vary from historical averages

Section 3: Current Requirements

• This section reviews the Remote South Parks' operating and project requirements

• Industry requirements are benchmarks that can assist park managers in determining the appropriate level of care necessary for their transportation assets. It is important, however, to recognize that each park (and each cluster) has unique maintenance requirements and this transportation asset management plan addresses those needs as appropriate

The Remote South Parks would require over $1.3 million annually for O&M based on industry standard benchmarks

Asset	Operations	RM	PM	Total
Roads	$3,857	$0	$2,008	$5,865
Parking Area	$56,455	$29,178	$7,295	$92,927
Trails	$29,367	$148,300	$31,837	$209,504
Trail Bridge	$21,108	$106,430	$38,011	$165,550
Buildings	$556,181	$158,455	$66,142	$780,778
Fuel System	$3,204	$1,611	$3,232	$8,046
Marina / Waterfront System	$12,043	$6,290	$12,603	$30,936
Aviation System	$2,980	$2,014	$4,027	$9,020
O&M Benchmark Totals	$685,194	$452,277	$165,155	$1,302,626

- According to benchmark standards, buildings account for over 60% of O&M funding requirements
- All O&M figures were taken from PAMP Optimizer files and totals were adjusted to 2011 dollars by applying a 4% annual inflation rate
- As documented in the AKR PAMPs, O&M benchmarks are modeled from industry standard national averages (RS Means) and other relevant sources. Non-industry standards unique assets are estimated based on 2 percent of CRV (a current federal government benchmark for budgeting and out-year planning)

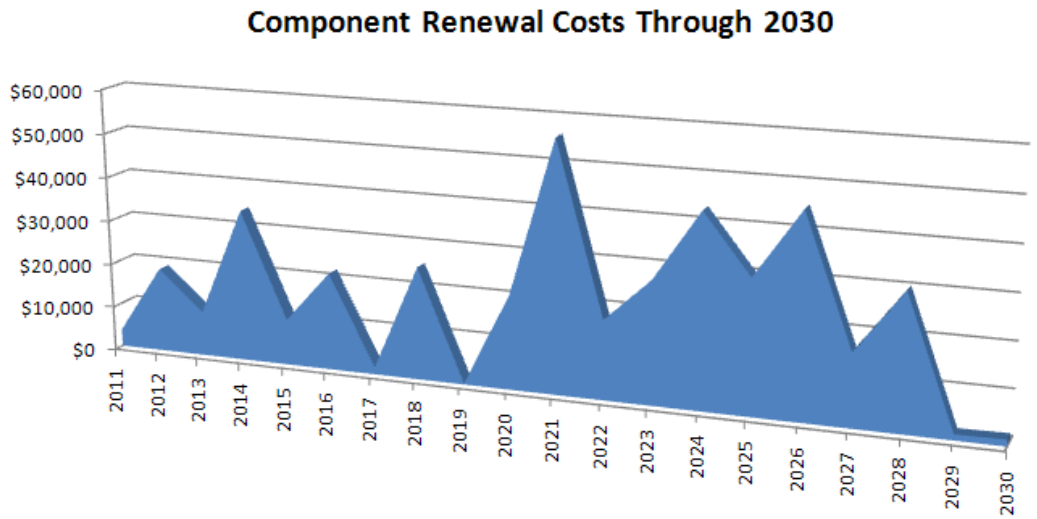
O&M benchmarks exceed current funding by more than $1.2 million

Asset	O&M Budget	Benchmarks	Difference	% Funded
Roads	$3,045	$5,865	($2,820)	52%
Parking Area	$1,389	$92,927	($91,539)	1%
Trails	$1,028	$209,504	($208,476)	0%
Trail Bridge	$5,092	$165,550	($160,458)	3%
Buildings	$29,007	$780,778	($751,771)	4%
Fuel System	$10,068	$8,046	$2,022	125%
Marina / Waterfront Systen	$7,409	$30,936	($23,527)	24%
Aviation System	$0	$9,020	($9,020)	0%
Totals	$57,037	$1,302,626	($1,245,589)	4%

- Current O&M funding is only 4% of the recommended industry benchmark
- Fuel Systems is the only asset category where actual funding exceeds the benchmark totals
- Buildings are the most insufficiently funded assets (by dollar amount) within the Remote South Parks
- Given the gap in funding, the Remote South Parks need to identify approaches to guide allocation of their limited O&M base dollars

In addition to annual O&M requirements, the Remote South Parks have a lifecycle component renewal (CR) cost of over $400k over the next twenty years, most of which will occur beyond 2020

- Component renewal costs over the next twenty years total $416,877 with the majority of those costs occurring beyond 2020
- CR profile is based on equipment lifecycle data: estimated replacement dates and replacement costs



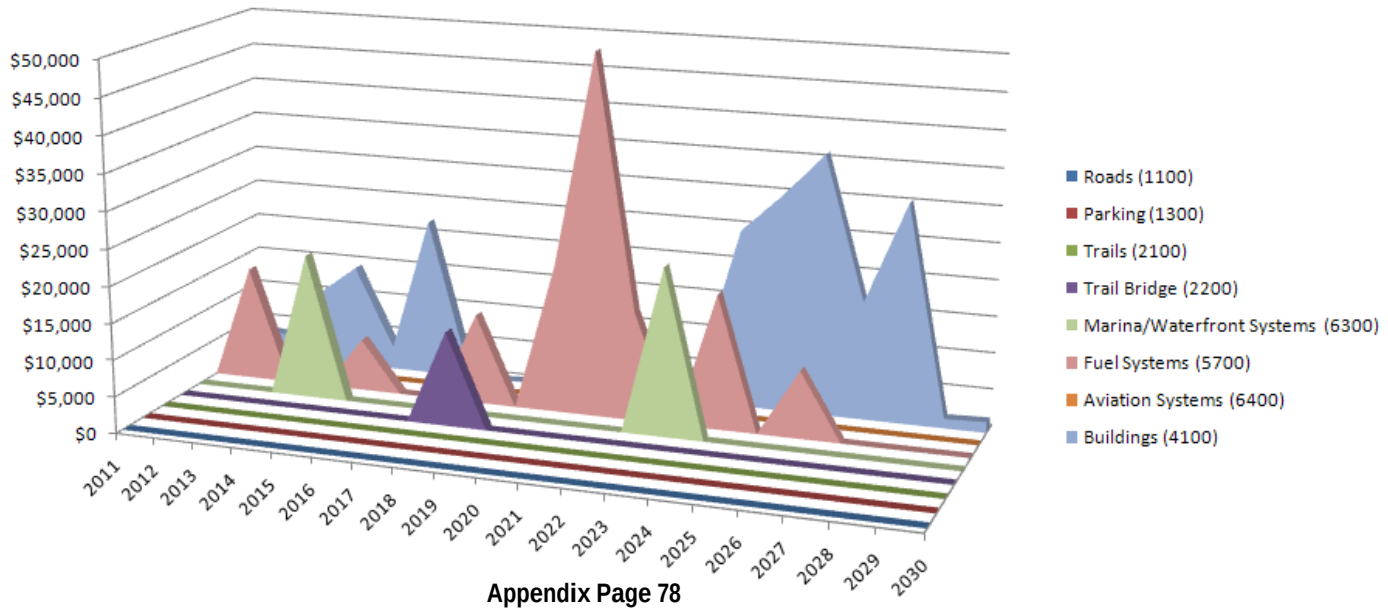
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10 yr Totals
Annual CR	$3,875	$19,117	$10,114	$34,306	$10,400	$21,921	$1,663	$25,328	$300	$21,060	$148,084

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	10 yr Totals
Annual CR	$56,086	$17,754	$27,484	$43,085	$29,923	$45,125	$16,272	$30,235	$1,326	$1,503	$268,793

The Remote South Parks should budget for occasional spikes in budget requirements for component renewal

- Buildings account for 51% of component renewal costs over the next 20 years
- Fuel Systems account for 35% of component renewal costs over the next 20 years
- In 2021, Lake Clark should budget for an increased component renewal requirement to fund improvement to their fuel systems
- As evidenced in the graph, some asset types (roads, parking, and trails) have incomplete FMSS equipment records. Actual CR need may be higher once all equipment/feature records are completed in FMSS

Component Renewal by Asset Category



Future Requirements

- Currently, the total deferred maintenance on transportation assets for the Remote South Parks is $2,735,878 over the next 10 years
- The total component renewal requirements over the next 20 years are $416,877

Requirement	Amount
DM - FMSS (10-yr)	$2,735,878
Component Renewal (20-yr)	$416,877
Total Requirement	$3,152,755

Project Funding Gap	
DM Annualized Requirement	$273,588
CR Annualized Requirement	$20,844
Annual Project Funding Available	$141,571
Total Project Funding Gap	$152,860

- By taking an annual average of future funding requirements to address DM and CR needs and applying an anticipated annual project funding amount, the Remote South Parks will have an annual funding gap of approximately $153K
- The annual project funding available is based on an average of the past 5 years of funding directed specifically towards Remote South Parks transportation assets. Funding levels are inconsistent year to year and the annual project funding anticipated in coming years may change

Section 4: Managing the Gap

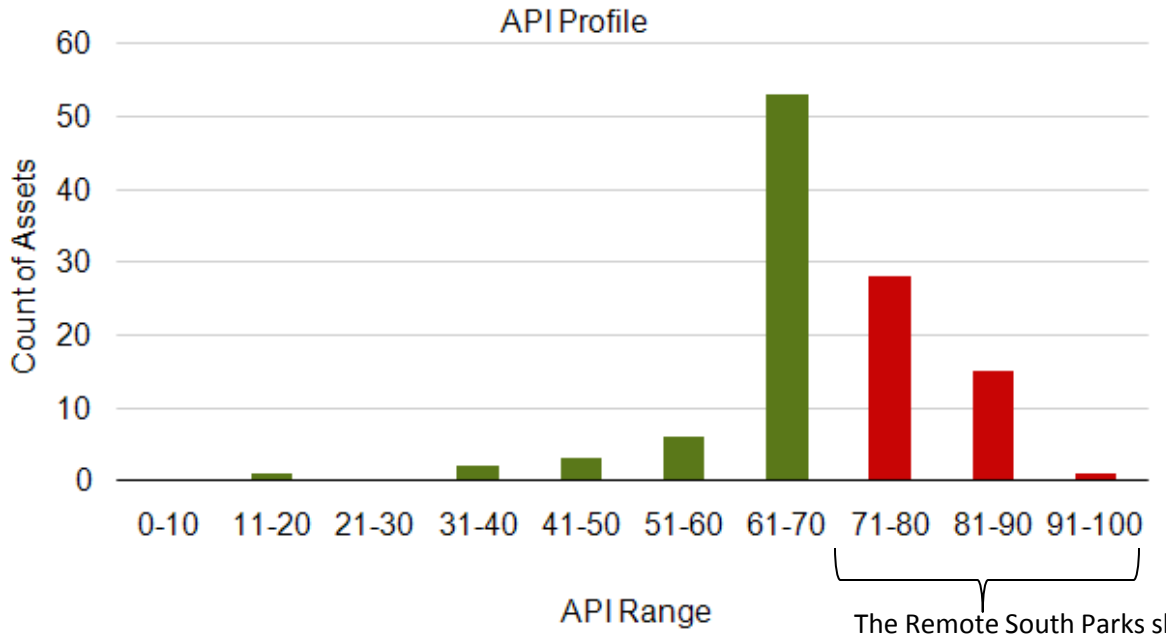
- How can the Remote South Parks manage the gap between their current funding situation and O&M/project requirements?

- Incorporating an asset's condition and relative importance (as done in the PAMPs) can help park managers prioritize and direct available funding

The Remote South Parks should focus its limited resources on maintaining its highest priority assets

- Metrics such as Asset Priority Index (API) can assist park management in identifying funding priorities based on the most important assets

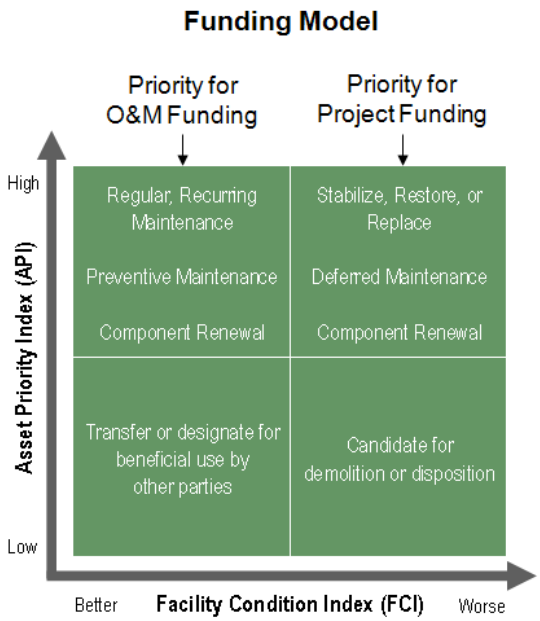
- 60% of the Remote South Parks transportation assets have an API of 70 or lower

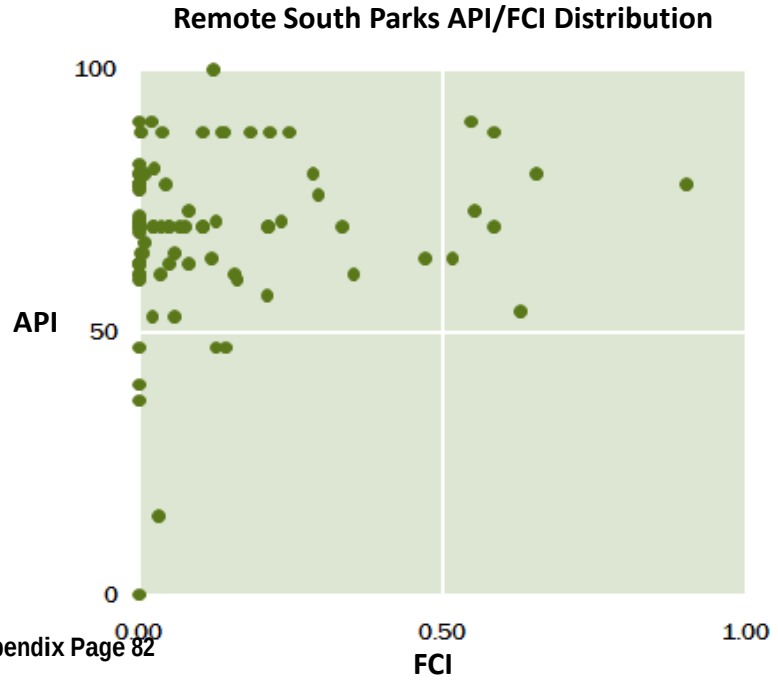


The Remote South Parks should target base and project funds on the top priority assets. Assets with high API scores are a logical starting point for determining maintenance priorities.

Plotting the Remote South Parks' transportation assets on this matrix demonstrates the distribution in terms of both condition and priority

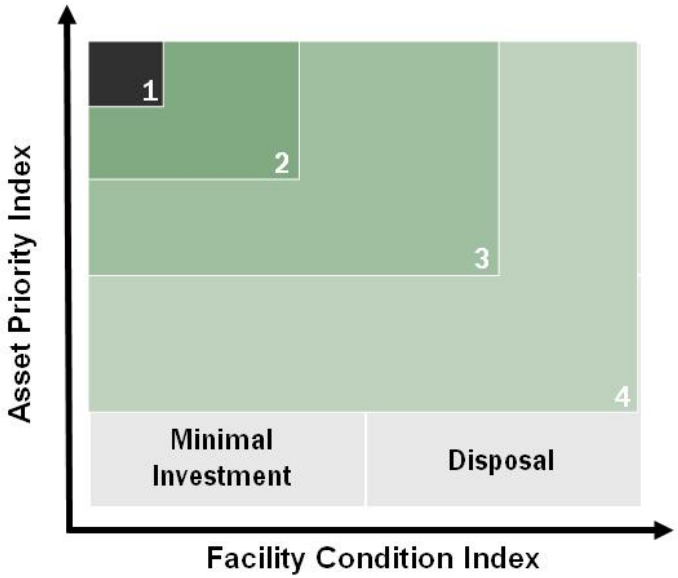
- Of the 110 transportation assets (excluding those with an FCI > 1) depicted below, many are in good condition: 76 have and FCI < 0.15 and API ≥ 50, which accounts for 69% of the total
- A total of 27 assets, or 25%, have an API ≥ 50 and an FCI > 0.15
- 43% of the Remote South Park transportation assets have an FCI equal to zero; those assets are either in excellent condition or the park has not yet assessed them for deficiencies
- Over time as base and project funding is allocated to high priority assets, the distribution of transportation assets will shift to a negatively tending curve, reflecting more effective asset management





During the PAMP process each Remote South Park prioritized their assets to assist in strategizing funding decisions

- The table below demonstrates the final prioritization results of transportation assets
- Assets falling within the lowest groups should receive minimal O&M funding



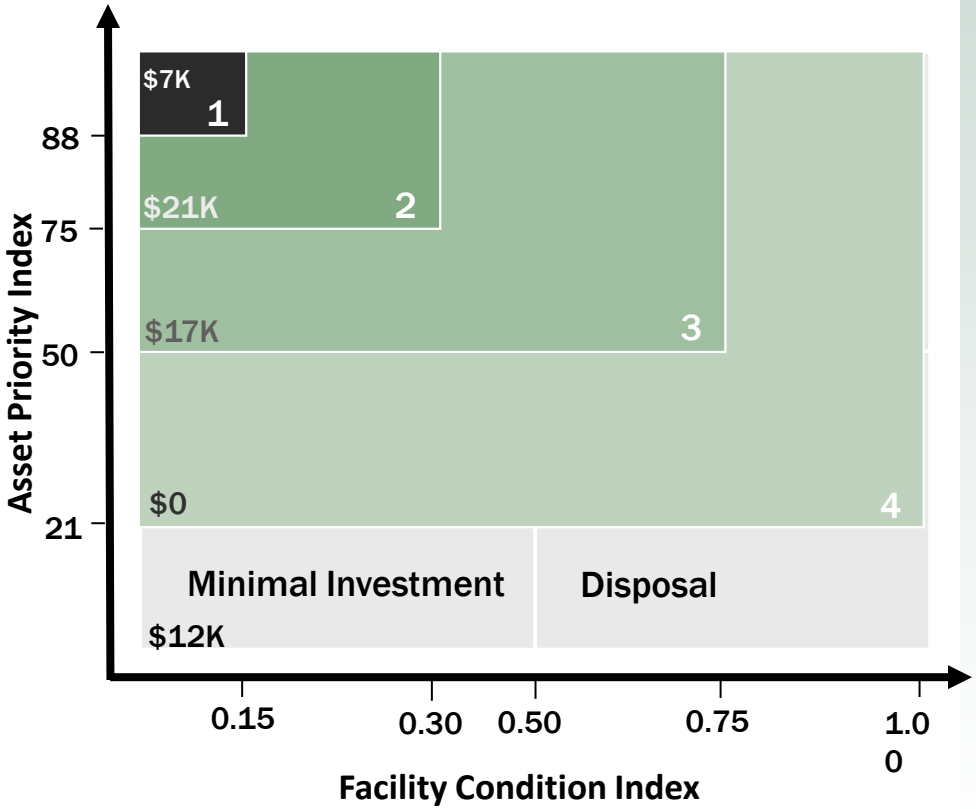
Priority	API	FCI	# of Assets
1. Highest	88	0.150	22
2. High	75	0.300	26
3. Medium	50	0.750	49
4. Low	21	1.000	9
5. Lowest	<21	>1.000	4
Total Asset Count			110

Park management employed logical criteria when establishing priority level for all assets in the portfolio

- Examining the reasons why assets end up in different priority bands helps develop a better estimate of true additional need for O&M funding
  - -- By moving assets into priority bands that will receive little to no funding, management can see exactly what functions they are not able to perform
- Assets were slotted into O&M priority bands using the following general guidelines:
  - -- Highest Priority Assets – Highly important to the park mission, these asset have high visitor use. Critical systems, some Operations, RM and PM will be addressed
  - -- High Priority Assets – Important to the park mission, some Operations and very little RM and PM will be addressed.
  - -- Medium Priority Assets – These assets, while important will only have essential operations funded
  - -- Low Priority Assets – These assets are important but not critical to park operations or do not require much maintenance funding. Very little O&M money will be spent on these assets unless more funding becomes available
  - -- Lowest Priority Assets – These assets may not be required for the operations and mission of the park. Many are backcountry assets or are targeted to receive project funding in the next few years

O&M amounts by priority band

- As intended by the PAMP process, the majority of budgeted funds are directed to higher priority assets
- Low priority assets receive little, if any, operating funds for anything other than basic services (utilities)



Remote South Parks O&M expenditures by work type: Actuals vs. Benchmarks

- Industry standard O&M costs can be broken down according to work type activities and divided into priority bands

- Total O&M budget of $57K covers only 4% of the industry standard requirements for the transportation asset portfolio

- An increase in O&M funding will be required to meet the RM and PM needs for the portfolio if the Remote South Parks hope to avoid accumulating DM

Priority	Ops	RM	PM	Total
1	8%	0%	0%	2%
2	14%	10%	0%	12%
3	11%	0%	0%	6%
4	0%	0%	0%	0%
5	4%	1%	0%	3%
Total	8%	1%	0%	4%

O&M Optimizer Priority Band Level	Asset Count	Operations	RM	PM	Base Funding Totals	Benchmark Totals
(1) Highest Priority	22	$6,972	$0	$0	$6,972	$289,555
(2) High Priority	26	$16,812	$4,206	$0	$21,018	$180,336
(3) Medium Priority	49	$17,312	$0	$0	$17,312	$277,480
(4) Lower Priority	9	$0	$0	$0	$0	$147,805
(5) Lowest Priority	4	$10,886	$714	$0	$11,600	$407,450
Total O&M Base Funding Allocation	110	$51,982	$4,920	$0	$56,902	$1,302,626
O&M Industry Standard Benchmark Totals	110	$685,194	$452,277	$165,154	Gap: $1,245,724	
% Coverage of Benchmark Totals		8%	1%	0%	Total Coverage: 4%	

The Remote South Parks' current O&M base budget for transportation assets is $1.2 million less than industry standards. The deficit for the top 3 priority bands is over $700K.

• Priority bands 1 – 3 comprise $702,069 of the gap, a number that more closely approximates the additional O&M funding needs

•The use of other funding sources can help alleviate the base funding shortfall

O&M Optimizer Priority Band	Asset Count	Base O&M Allocations	O&M Benchmarks	Percent Coverage	O&M Funding Gap
(1) Highest Priority	22	$6,972	$289,555	2%	$282,583
(2) High Priority	26	$21,018	$180,336	12%	$159,318
(3) Medium Priority	49	$17,312	$277,480	6%	$260,168
(4) Lower Priority	9	$0	$147,805	0%	$147,805
(5) Lowest Priority	4	$11,600	$407,450	3%	$395,850
Totals	110	$56,902	$1,302,626	4%	$1,245,724

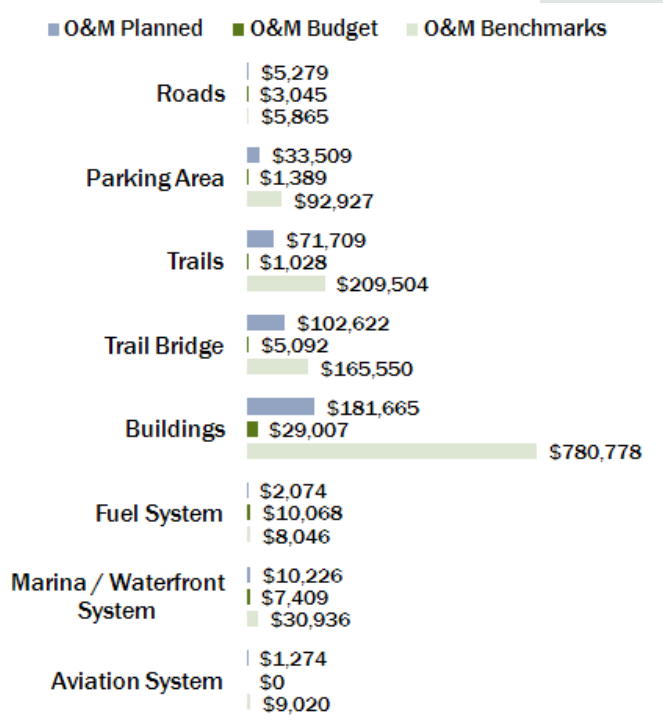
Gap for Bands 1-3 $702,069

Planned allocation of O&M funds will result in changes to the way the Remote South Parks manage some of their asset types.

• During the PAMP process, each park developed a planned budget based on the relative importance of each asset. Planned level of O&M funding towards transportation assets will increase in all assets categories over current O&M levels, except for fuel systems

• These planned levels are more reflective of industry standard divisions of O&M money across asset types

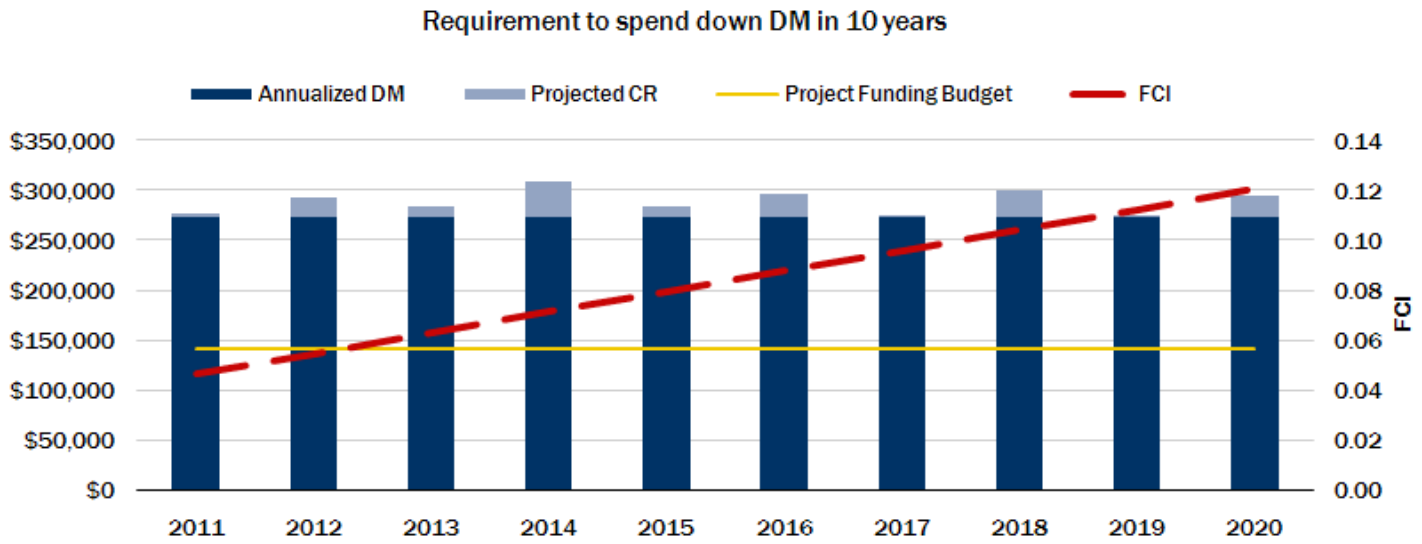
Asset	O&M Budget	O&M Planned	O&M Benchmarks	O&M Gap by Asset Type
Roads	$3,045	$5,279	$5,865	$586
Parking Area	$1,389	$33,509	$92,927	$59,418
Trails	$1,028	$71,709	$209,504	$137,795
Trail Bridge	$5,092	$102,622	$165,550	$62,928
Buildings	$29,007	$181,665	$780,778	$599,113
Fuel System	$10,068	$2,074	$8,046	$5,972
Marina / Waterfront System	$7,409	$10,226	$30,936	$20,710
Aviation System	$0	$1,274	$9,020	$7,746
Total	$57,037	$408,358	$1,302,626	$894,268



The Remote South Parks will see conditions of their transportation assets decline based on current project funding levels

- The Remote South Parks will not have enough funding on an annual basis to eliminate their DM backlog over the next ten years and will therefore see a deterioration of its transportation assets

- According to this model, by 2020, the overall FCI rating of this cluster's transportation assets will increase from 0.04 in 2011 to 0.12



Appendix Page 89

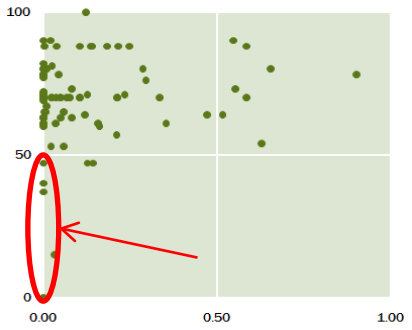
General Conclusions

• Although the identified funding gap between O&M base allocations and benchmarks is approximately $1.2M , the gap the highest priority transportation assets—priority bands 1 through 3—is only approximately $700K. This number more closely approximates additional O&M needs.

• The approximate annual project funding gap is $150K. This gap could be reduced or eliminated by reducing the annual DM requirements.

Project Funding Gap	
DM Annualized Requirement	$273,588
CR Annualized Requirement	$20,844
Annual Project Funding Available	$141,571
Total Project Funding Gap	$152,860

• The Remote South Parks have many transportation assets that have a lower API score and an FCI of 0. 43% of this cluster's transportation 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.



• Approximately 15% of funding from previous years was provided by the Recreation Fee 20% and Recreation Fee Demonstration 20% 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. Developing new partnership agreements, for example, could help to alleviate or reduce this cluster's maintenance responsibilities.

Appendix A: Remote South Parks Transportation Asset List

REMOTE SOUTH PARKS								
Location	Description	Park	Asset Code	Deferred Maintenance	CRV	API	FCI	Priority Band
38427	VR-ROAD Valley of 10,000 Smokes Road, RT 010	KATM	1100	$60,311	$15,674,703	88	0.00	2
39539	LB-ROAD (Lake Brooks Road) RT 100	KATM	1100	$50,737	$483,330	88	0.11	3
39541	BR-S-ROAD Spit Landing Road, RT 402	KATM	1100	$16,894	$68,294	88	0.25	3
95883	LC - Ketivik Loading Ramp Road	KATM	1100	$75,790	$227,029	70	0.33	2
95884	LC - BLRR Ramp Road for Boat Launch	KATM	1100	$79,825	$88,473	78	0.90	3
109664	VR-WYE Road to Maint Yard	KATM	1100	$0	$318,092	70	0.00	3
39542	VR-PARK Three Forks Overlook Parking, RT 900	KATM	1300	$2,300	$17,039	88	0.14	1
39543	LB-MSPARK Vehicle Repair Shop Parking, RT 901	KATM	1300	$4,244	$73,499	65	0.06	3
39544	KS-PL1 Residence Parking, RT 902	KATM	1300	$16,582	$103,240	60	0.16	3
39545	LB-PARK Lake Brooks Float Plane Gathering Area, RT 903	KATM	1300	$4,267	$30,273	88	0.14	1
39546	LB-BOAT Parking Area	KATM	1300	$2,551	$12,140	57	0.21	3
39547	BR-BUS & Brooks Fall Trails Parking Lot, RT 905	KATM	1300	$4,402	$92,961	70	0.05	3
39548	BR-PARK Lower Platform Parking & Turn Around RT 906	KATM	1300	$3,093	$14,363	88	0.22	1
86507	Pikes Lake Access Parking Area	KATM	1300	$5,489	$11,636	64	0.47	3
91353	LC - Upper Parking Area (Lake Camp)	KATM	1300	$5,012	$75,306	70	0.07	3
91354	LC - Lower Parking Area (Lake Camp)	KATM	1300	$6,017	$125,510	70	0.05	3
95832	VR Research Bay Overlook Parking Area	KATM	1300	$0	$11,234	63	0.00	3
99534	KS-PL3 Dock area parking lot	KATM	1300	$9,600	$92,288	70	0.10	3
108366	KS-PL2 Outboard Shop Yard and Carpenter Shop Parking Area	KATM	1300	$91,995	$57,249	70	1.61	3
57991	BR-TRAILS Brooks CampTrail System	KATM	2100	$34,903	$921,573	88	0.04	3
99524	BR- Campground Trail	KATM	2100	$30,259	$24,185	78	1.25	2
53672	BR-BRIDGE Floating Bridge	KATM	2200	$664,359	$1,213,710	90	0.55	1
112030	BR-CBRIDGE (Planned Asset) Elevated Bridge and Boardwalk	KATM	2200	$0	$19,593,344	90	0.00	1
38420	BR-39 Maintenance Building	KATM	4100	$109,838	$470,113	71	0.23	3
38422	BR-38 BC Ranger Station	KATM	4100	$25,211	$209,159	100	0.12	2
38424	BR-01 BC Visitor Contact Station	KATM	4100	$84,985	$467,202	88	0.18	2
38425	LB-MS Mechanics Shed	KATM	4100	$44,377	$209,483	70	0.21	4
38428	KS B19 Warehouse/Maint Shop/Utility Building/Boiler Plant	KATM	4100	$48,642	$638,865	70	0.08	4
53679	VR-OVL Three Forks Valley of 10,000 Smokes Overlook Building	KATM	4100	$14,419	$750,399	90	0.02	1
54348	KS B33 Garage Outboard Shop	KATM	4100	$29,040	$136,900	70	0.21	3
76059	LC-RR Vault Toilet-Lake Camp	KATM	4100	$7,378	$70,110	70	0.11	3
83353	KS B34 Storage Van (Maintenance Yard)	KATM	4100	$5,238	$64,315	63	0.08	3
83354	KS B35 Outboard Engine Storage Van	KATM	4100	$3,168	$64,315	63	0.05	3

86629	BFT-RR Falls Trail Visitor Comfort Station (2003)	KATM	4100	$669	$105,165	80	0.01	2
88525	KATMAILAND BC Brooks Lodge Office and Store	KATM	4100	$1,632	$252,607	65	0.01	3
88527	KATMAILAND BC Guest Shower/Restroom	KATM	4100	$552	$254,606	65	0.00	3
88569	KATMAILAND Grosvenor Camp Outhouse	KATM	4100	$0	$1,461	60	0.00	3
90936	VR-MCF/RR Margot Falls Comfort Station	KATM	4100	$2,031	$98,969	53	0.02	3
91554	VR-3F/RR Three Forks Overlook Comfort Station	KATM	4100	$5,612	$98,969	53	0.06	3
95870	LB- KIOSK Picnic Shelter	KATM	4100	$686	$75,006	67	0.01	3
95875	LB- RR Outhouse for Picnic Area	KATM	4100	$0	$8,467	71	0.00	3
109196	BR-PG Restroom (Planned Restroom for Picnic Ground)	KATM	4100	$0	$105,165	78	0.00	2
111841	KS B100 KATM/ANIA/ALAG Headquarters Office	KATM	4100	$0	$4,418,478	82	0.00	5
113776	BR-PS Picnic Area Shelter	KATM	4100	$0	$19,279	71	0.00	1
116039	LC-Picnic Shelter (Planned)	KATM	4100	$28,560	$45,482	54	0.63	3
54350	BR-DSL Bulk Diesel Storage System	KATM	5700	$189,960	$290,081	80	0.66	2
54413	LB GAS Gasoline Fuel Distribution System - Tank - BL Gen Shed	KATM	5700	$0	$94,677	70	0.00	3
54505	LB DSL Diesel Fuel Distribution System - (Pump near LB Gen Shed)	KATM	5700	$0	$188,775	70	0.00	3
55047	KS-GAS Fuel Sys.- Maint. Yard AST-GAS	KATM	5700	$0	$36,252	70	0.00	3
55067	KS-DSL Diesel Fuel sys.- KS Maint. Yard AST-DSL	KATM	5700	$0	$28,761	70	0.00	3
91576	KS-AVGAS Fuel System for KS Float Plane Dock	KATM	5700	$48,153	$30,149	70	1.60	3
77837	LC- Dock Bulkheads	KATM	6300	$323,063	$193,341	70	1.67	2
77838	LC- Waterfront Break Water System	KATM	6300	$6,990	$315,611	70	0.02	3
82951	KS-RAMP Old USAF Bulk Head and Ramp on Naknek River	KATM	6300	$0	$30,149	63	0.00	3
91552	KS Naknek River Waterfront	KATM	6300	$61,241	$391,249	61	0.16	3
94864	BR-R&L LAUNCH Brooks River & Naknek Lake Waterfront Area	KATM	6300	$93,301	$159,825	88	0.58	4
95035	LC-MARINE Naknek River Channel (Navagational Aids Channel)	KATM	6300	$24,125	$661,507	70	0.04	3
95882	LC-Fuel Transfer Pad	KATM	6300	$0	$135,682	70	0.00	3
97465	BR-Ketivik Cove	KATM	6300	$0	$181,841	69	0.00	3
97466	LB - LAUNCH Lake Brooks Boat Storage & Launch Area	KATM	6300	$0	$191,789	78	0.00	2
115999	LC-RAMP Upper Naknek River Ferry & Barge Launch Ramp	KATM	6300	$0	$331,402	78	0.00	1
116031	LC-BOAT RAMP	KATM	6300	$0	$273,221	78	0.00	2
95857	KB 1/2 Kulik Lodge Airstrip	KATM	6400	$0	$1,125,260	40	0.00	4
101207	Pfaff Mine Air Strip	KATM	6400	$0	$82,500	37	0.00	4
38549	PA - ROAD Airstrip Road (Parallel to Air Strip runs ESE to WNW)	LACL	1100	$85,242	$298,279	80	0.29	1
91066	PA-RHQ Road From Airstrip to HQ past Visitor Center	LACL	1100	$0	$61,852	80	0.00	1
104779	PA-RBH Birch Hill Road From Airstrip to Birch Hill Housing	LACL	1100	$6,095	$270,604	70	0.02	1
104813	PA-RMP Mid Property Road from N side Maint Shop to Sewage Lagoon Area	LACL	1100	$6,772	$154,631	78	0.04	1
104822	PA-RHQ Road Connects Mid Property Road to East Boundry Road	LACL	1100	$0	$165,316	70	0.00	1
104826	PA-RME Road Mid Enterance Road that goes Past Judy's House	LACL	1100	$0	$123,987	70	0.00	1

104936	PA-RWP Road to Water Plant from East Boundry Road	LACL	1100	$0	$6,199	70	0.00	1
99540	PA- PHV- Parking Lots for HQ and VC	LACL	1300	$0	$68,094	63	0.00	1
104835	PA-Shop Parking Lot & Airplane Ramp	LACL	1300	$0	$72,483	70	0.00	1
109178	PA Tanalian Trail Head Parking Lot	LACL	1300	$0	$3,661	71	0.00	1
91037	Tanalian Falls Trail	LACL	2100	$22,573	$179,166	47	0.13	3
91547	Beaver Pond Trail	LACL	2100	$0	$204,202	47	0.00	4
91550	Tanalian Mountain Trail	LACL	2100	$40,356	$283,799	47	0.14	4
94910	PA-TRAILS Port Alsworth Trails connects trails and NPS buildings	LACL	2100	$19,526	$244,880	73	0.08	1
101991	UpperTwin Lake Trail System	LACL	2100	$20,181	$68,322	76	0.30	4
101993	Kasna Creek Trail	LACL	2100	$71,626	$59,722	76	1.20	4
38540	PA-3 Visitor Center Building	LACL	4100	$1,056	$868,342	88	0.00	1
38542	PA-1 Headquarters Building	LACL	4100	$33,066	$1,398,937	81	0.02	2
38544	PA-15 Maintenance Shop	LACL	4100	$11,754	$1,191,021	80	0.01	3
91040	PT-5 Point Fuel Dispensing Shed	LACL	4100	$2,927	$24,660	64	0.12	3
91043	PT-6 Point Outhouse	LACL	4100	$0	$13,786	0	0.00	5
91050	PA-14 Jet A fuel Dispensing Building	LACL	4100	$1,688	$50,248	61	0.03	3
91054	PA-OH Port Alsworth Clivus Mutrum Outhouse	LACL	4100	$747	$23,218	15	0.03	5
92276	PA Hanger Facility (Leased)	LACL	4100	$0	$1,411,498	78	0.00	2
94753	LACL Headquarters and Archeology Office Anchorage AK (Rented Space)	LACL	4100		$473,870	72	0.00	5
94965	PA-MS Maintenance Shop & Warehouse (Planned)	LACL	4100	$0	$4,830,451	70	0.00	3
94966	Planned Visitor Center and Administrative Office Building	LACL	4100	$0	$5,063,470	78	0.00	2
99576	PA-Museum & Boat Barn	LACL	4100	$0	$358,913	77	0.00	2
107614	PA-AVDB Port Alsworth Avgas Dispensing Building	LACL	4100	$0	$6,639	63	0.00	3
115807	PA-SB Maintenance Yard Storage Barn	LACL	4100	$0		63	0.00	3
57993	PA-AV Avgas Bulk Fuel Storage System (Tank 1DW & 2DW)	LACL	5700	$0	$93,667	61	0.00	2
57994	PA-GAS Unleaded gasoline Bulk Fuel Systm (Tank 4DW)	LACL	5700	$0	$20,612	61	0.00	2
57995	PA-D Diesel Fuel System-Airstrip (Tank3DW)	LACL	5700	$0	$37,313	61	0.00	2
57996	PT-AV Point Avgas Dispensing System (Tanks 4 & 5)	LACL	5700	$13,168	$37,313	61	0.35	2
57998	PT-GAS Gasoline Fuel System-Point (Tank 6)	LACL	5700	$0	$37,313	71	0.00	2
57999	PA-J Jet-A Bulk Fuel Storage System (Tank 7BDW)	LACL	5700	$0	$21,515	61	0.00	2
58005	PA-12 VIP Fuel System (Tank 12)	LACL	5700	$10,987	$21,306	64	0.52	2
58007	PA-MSF Maintenance Shop Fuel System (Tank 15)	LACL	5700	$10,987	$18,788	70	0.59	2
114572	PA-17 Fuel System "Tanalian"	LACL	5700	$0	$10,317	63	0.00	3
114573	PA-18 Fuel System "Iliamna"	LACL	5700	$0	$15,813	63	0.00	3
114574	PA-19 Fuel System "Redoubt"	LACL	5700	$0	$10,317	63	0.00	3
91041	PA-M Lake Clark Marine in Port Alsworth both Point and City	LACL	6300	$38,336	$69,335	73	0.55	2
91042	PT-WD Point Bulkhead and Ramp for West Dock at Bly House	LACL	6300	$11,287	$89,845	71	0.13	1

99542	PT-MARINE Beach Area	LACL	6300	$0	$115,025	80	0.00	2
99543	PT-ED Bulkhead Ramp to East Dock	LACL	6300	$0	$120,969	63	0.00	1
104852	PA-Boat Landing	LACL	6300	$0	$11,816	78	0.00	2

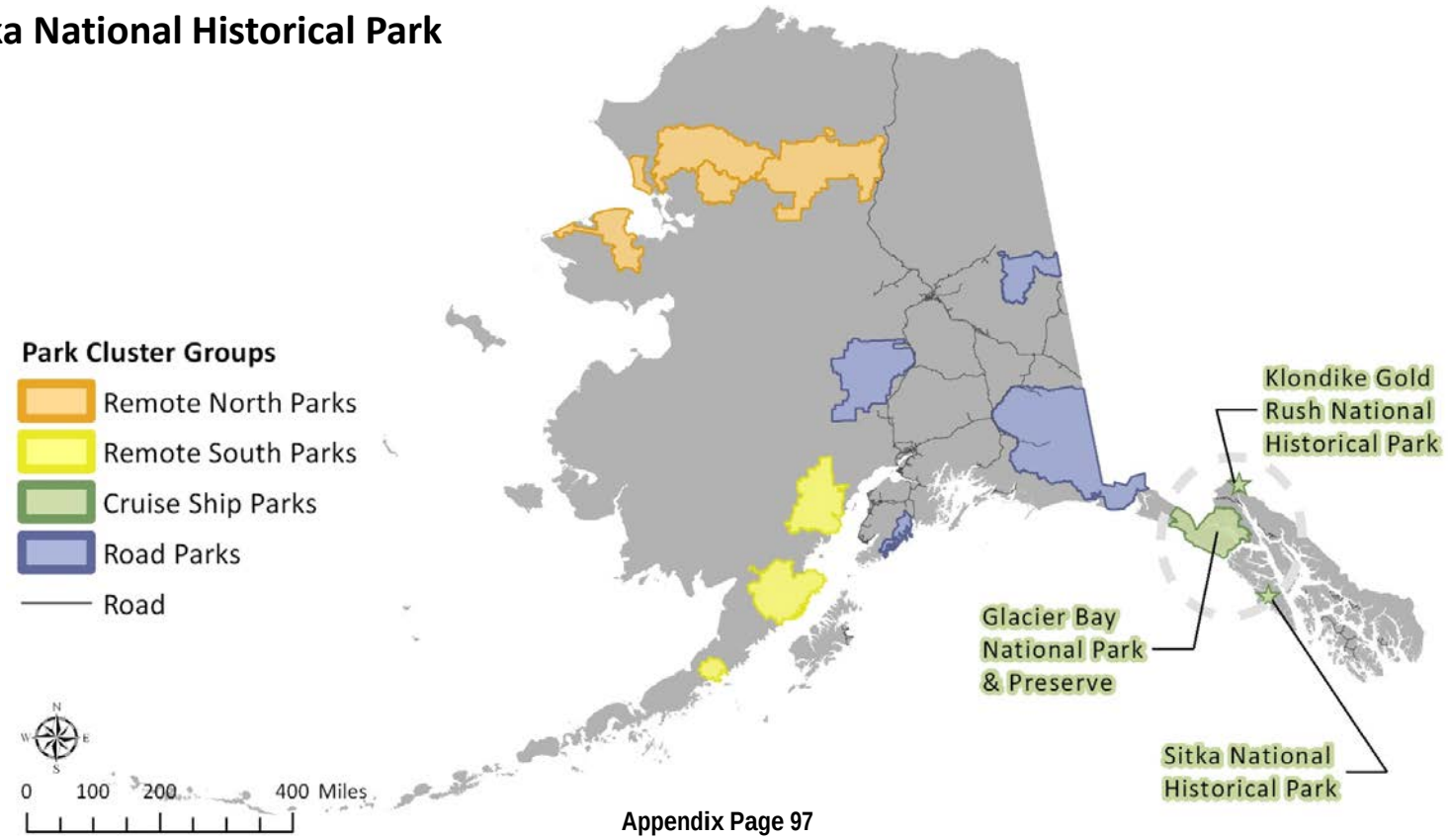
Source: NPS FMSS, printed on 1/06/2011

Appendix D: Transportation Asset Management Plan for the Cruise Ship Parks

Transportation Asset Management Plan for the Cruise Ship Parks

The Cruise Ship Parks Cluster contains:

- **Glacier Bay National Park & Preserve**
- **Klondike Gold Rush National Historical Park**
- **Sitka National Historical Park**



The transportation asset management plan for the Cruise Ship Parks cluster follows a similar process as the PAMP analysis. It explored four key topics:

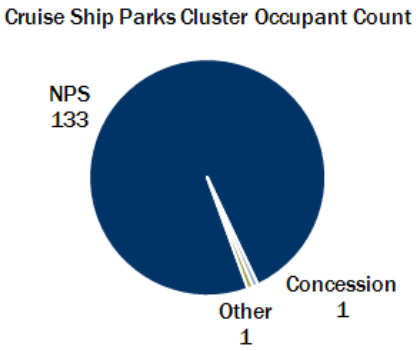
The transportation asset base was determined for each park and aggregated by cluster	Specific to their transporation assets, the main funding sources for each park are split between annual base O&M and special project funding and aggregated by cluster	Industry models are used to determine O&M benchmarks and identify required project funding for each cluster's transportation assets	Different approaches are examined to help each cluster prioritize allocation of funds for their transportation assets

Section 1: Current Footprint

- This section examines the Cruise Ship Parks' existing transportation asset portfolio, highlighting its value, size, and occupancy
- The asset information contained herein is based from FMSS records as of January 2011

The Cruise Ship Parks' transportation asset portfolio consists of 135 assets

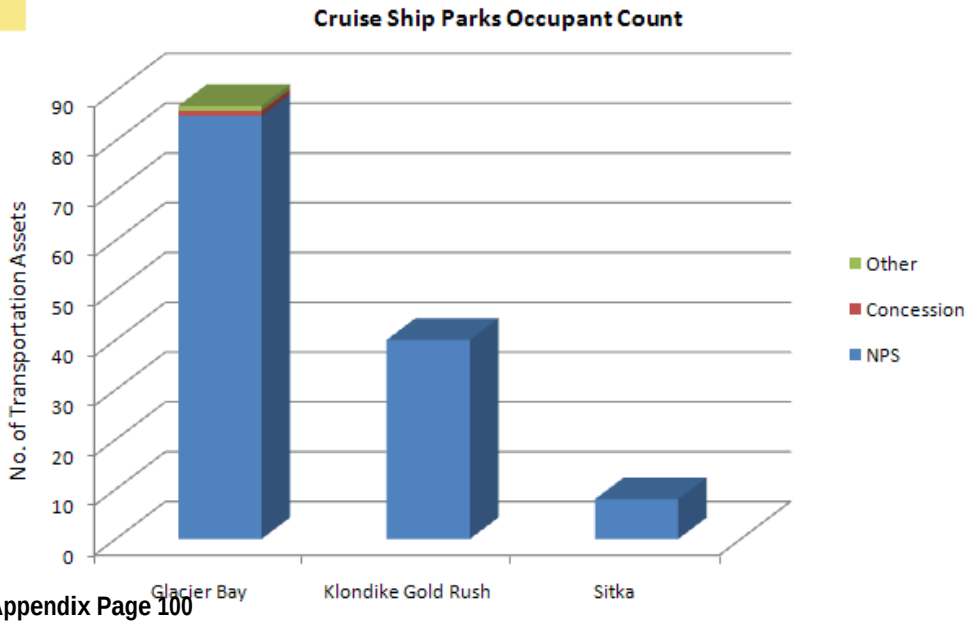
Asset Type	Count	Quantity	Units
Roads	7	7	MI
Parking Area	15	408,436	SF
Trails	36	452,734	LF
Trail Bridge	18	5,850	SF
Buildings	50	73,859	SF
Fuel System	2	5,001	EA
Marina / Waterfront	4	1,298	SF
Aviation System	3	6,076	LF
Grand Total	135	–	–



- All but two of the Cruise Ship Parks' transportation assets are NPS owned

- The Cruise Ship Parks cluster has the highest number of trails reported as transportation assets, mainly due to the amount of trails in GLBA

- Many of this cluster's assets are culturally or historically significant, which can present additional maintenance concerns and expenses



The Cruise Ship Parks' transportation asset portfolio is valued at over $362 million

Asset Type	DM	CRV	FCI
Roads	$3,837,851	$19,097,855	0.20
Parking Area	$858,127	$4,849,778	0.18
Trails	$1,236,988	$33,111,392	0.04
Trail Bridge	$371,320	$1,784,480	0.21
Buildings	$3,177,251	$41,248,221	0.08
Fuel System	$127,556	$4,191,040	0.03
Marina / Waterfront System	$264,972	$9,565,362	0.03
Aviation System	$440,691	$8,514,654	0.05
Grand Total	$10,314,756	$122,362,780	0.08

FCI is a metric calculated by dividing the deferred maintenance by the current replacement value.

$$\text{FCI} = \frac{\text{Deferred Maintenance}}{\text{Current Replacement Value}}$$

The FCI is used by facility managers to better understand the relative condition of assets within a portfolio. A score closer to 0.0 reflects better condition.

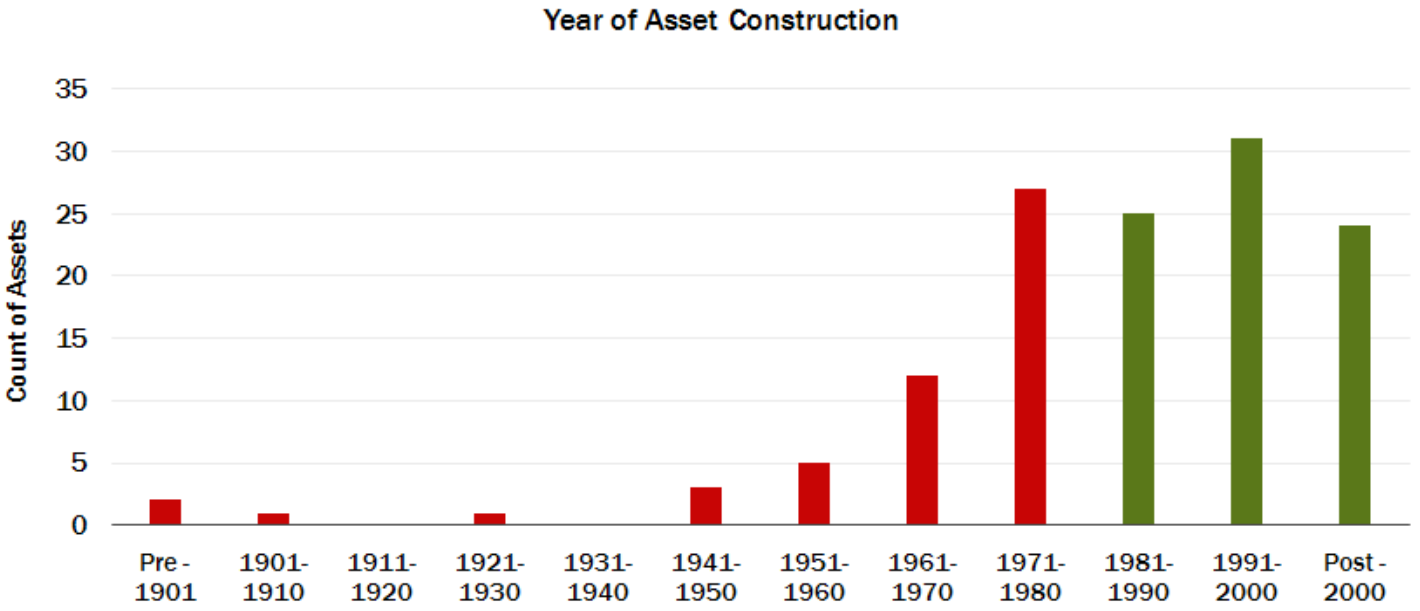
FCI Range	Condition
< 0.11	Good
0.11 - 0.15	Fair
0.15 - 0.50	Poor
> 0.5	Serious

- Overall FCI for transportation assets is considered GOOD
- When examined alone, Roads, Parking, and Trail Bridges are in POOR condition.
- These three asset categories account for 21% of the cluster's current replacement value, but 49% of its deferred maintenance

Definitions:
DM = Deferred Maintenance
CRV = Current Replacement Value
FCI = Facility Condition Index

The overall FCI for Cruise Ship Parks is GOOD

The Cruise Ship Parks' transportation asset portfolio has many newer assets



- 61% of transportation assets were built after 1980

- All assets predating 1950 belong to Klondike Gold Rush and have historic status. Despite their age and associated cost for maintaining, these assets are important to the Park

Glacier Bay has the only planned transportation assets for the Cruise Ship Parks.

Asset	Type	Park	Status	CRV	Quantity	Units
HA - Headquarters Upper Admin Parking Area	1300	GLBA	PLANNED	$1,010,966	10,000	SF
MA - Maintenance Covered Parking and Storage Building GBA130	4100	GLBA	PLANNED	$1,290,783	6,720	SF
PD - Public Dock Area Visitor Center	4100	GLBA	PLANNED	$15,812,787	10,645	SF
			Total Additional CRV	$18,114,537		

- Glacier Bay has the only planned transportation assets within the Cruise Ship Parks

- When complete these additions will add over $18 million to Cruise Ship Parks' CRV, which will also require an increase in O&M expenses

Section 2: Current Funding

- This section discusses the Cruise Ship Parks' current base and special project funding situation
- Understanding stable and varied funding sources year to year is important to successfully managing the transportation asset portfolio

Annual funding specifically directed towards transportation assets for the Cruise Ship Parks consists of operational funds and special project funding

Source	Details	Annual Budget
Operations and Maintenance (O&M)	Total funding directed towards operating and maintaining all Cruise Ship Parks transportation assets	$ 890,656
Project Programs	Includes the following funding programs: Regular Cyclic, Repair/Rehab, FLHP, LIC, and CFF 80%	$ 1,082,166
Total Annual Direct Maintenance Funding		$ 1,972,822

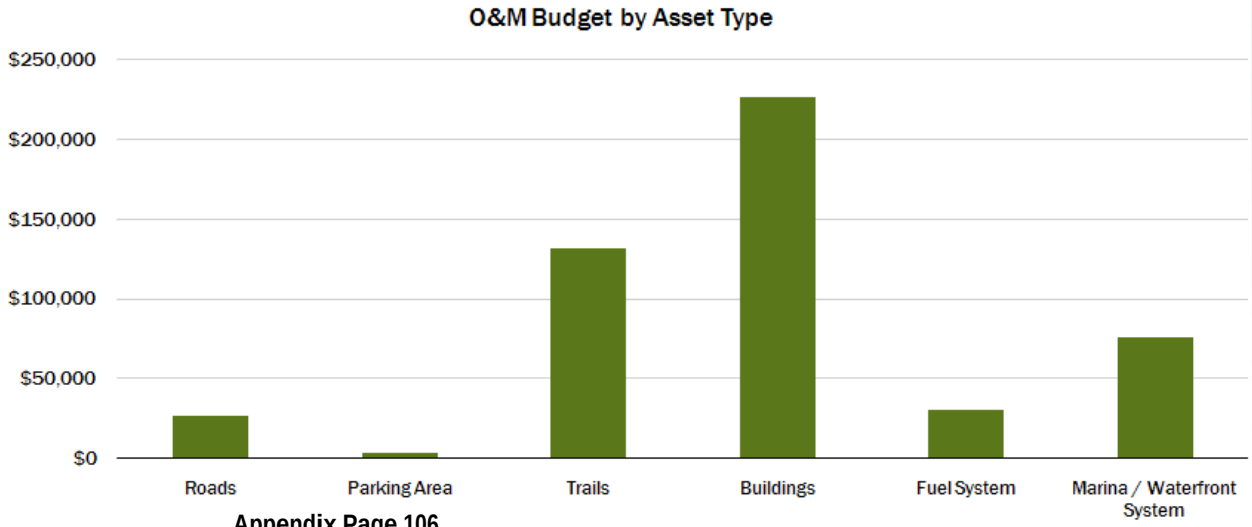
• Total O&M budget was determined by matching records from the Facility Management Software System (FMSS) for work order history specifically to the transportation assets identified by each park

• The project programs budget is based on an annual average of historical funding occurring over the past 5 years. Only projects found in the NPS Project Management Information System (PMIS) that are specific to this cluster's transportation assets are included

While Cruise Ship Parks budget for funding across all asset types, trails and buildings account for approximately 73% of total budget

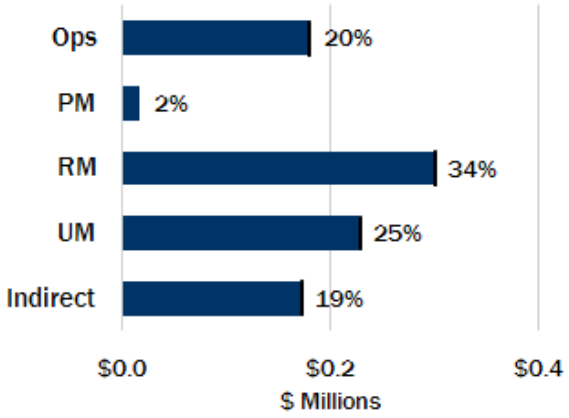
Asset Type	Operations	Recurring	Preventive	Total
Roads	$8,398	$17,960	$0	$26,358
Parking Area	$310	$2,531	$14	$2,855
Trails	$3,657	$123,675	$4,182	$131,514
Buildings	$135,824	$78,763	$11,715	$226,302
Fuel System	$30,048	$0	$0	$30,048
Marina / Waterfront System	$128	$75,762	$26	$75,916
Grand Total	$178,364	$298,692	$15,937	$492,994

- Buildings account for 46% of transportation budget expenditures
- Trails account for 27% of the budget



The Cruise Ship Parks direct well over half of their O&M budget on recurring and unscheduled maintenance

Type	Amount	%
Indirect	$170,811	19%
UM	$226,851	25%
RM	$298,692	34%
PM	$15,937	2%
Ops	$178,364	20%
Total	$890,656	100%



Definitions:
Ops = Operations
UM = Unscheduled Maintenance
RM = Recurring Maintenance
PM = Preventative Maintenance

- Indirect costs factor into the total cost of ownership for transportation assets and were included in the total amount directed towards operating and maintaining transportation assets. However, as stated in the PAMPs, indirect costs are typically excluded for modeling and understanding direct costs associated with maintenance

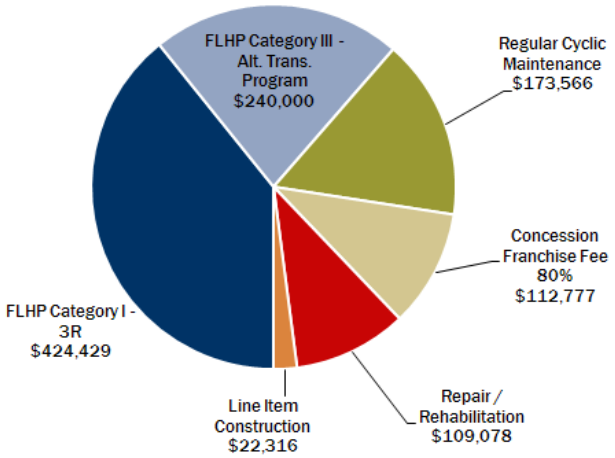
- Indirect cost for the Cruise Ship Parks cluster was determined by first identifying each park's percentage of indirect costs to its total O&M budget (found in the PAMPs), applying that percentage to the total O&M budget for transportation assets, and then rolling together to the cluster level

- Unscheduled maintenance accounts for 25% of total O&M budget. The Cruise Ship Parks should continue to focus attention on preventative maintenance (only 2%) to keep assets in serviceable working order and avoid more costly unscheduled maintenance

The Cruise Ship Parks receive approximately $1.1 million annually in special project funding

Fund Source	Annual Budget	Budget as Percentage of Total
FLHP Category I - 3R	$424,429	39.2%
FLHP Category III - Alt. Trans. Program	$240,000	22.2%
Regular Cyclic Maintenance	$173,566	16.0%
Concession Franchise Fee 80%	$112,777	10.4%
Repair / Rehabilitation	$109,078	10.1%
Line Item Construction	$22,316	2.1%
Total Project Funds	$1,082,166	

- The forecasted project budget is based on an annual average of historical funding directed towards deferred maintenance (DM) and component renewal (CR) projects occurring over the past 5 years. Only projects in PMIS that are specific to this cluster's transportation assets are included
- The Recreation Fee 20% and Recreation Fee Demonstration 20% funds have historically provided approximately $91K annually on average. With these funds going away, the Cruise Ship Parks will have less money available and need to keep a closer eye on their budgets



- The 2009 economic recovery funds are not available on a recurring basis. Some other funding occur only intermittently, such as the Non-NPS funding for the Gustavus dock replacement. These funds are difficult for the cluster to rely on due to irregular funding schedules and are not included in the project funding forecast
- Forecasting future funding levels is difficult due to the inconsistent nature of the funds, especially when analyzing funding directed specifically towards transportation assets. Future funding levels may vary from historical averages

Other Funding Sources	Total $
2009 Economic Recovery - Deferred Maintenance	$580,030
2009 Economic Recovery - Trails	$59,600
Non-NPS Fund Sources (2007)	$3,000,000
Total	$3,639,630

Section 3: Current Requirements

• This section reviews the Cruise Ship Parks' operating and project requirements

• Industry requirements are benchmarks that can assist park managers in determining the appropriate level of care necessary for their transportation assets. It is important, however, to recognize that each park (and each cluster) has unique maintenance requirements and this transportation asset management plan addresses those needs as appropriate

The Cruise Ship Parks would require over $2.2 million annually for O&M based on industry standard benchmarks

Asset	Operations	RM	PM	Total
Roads	$71,271	$41,038	$17,820	$130,130
Parking Area	$68,055	$19,948	$4,988	$92,991
Trails	$65,715	$502,040	$98,349	$666,104
Trail Bridge	$7,883	$9,874	$3,526	$21,284
Buildings	$813,147	$239,353	$66,040	$1,118,540
Fuel System	$20,674	$6,985	$13,960	$41,619
Marina / Waterfront System	$56,227	$18,746	$37,482	$112,455
Aviation System	$21,222	$17,183	$34,367	$72,772
O&M Benchmark Totals	$1,124,195	$855,169	$276,531	$2,255,895

- According to benchmark standards, buildings account for almost 50% of O&M funding requirements
- All O&M figures were taken from PAMP Optimizer files and totals were adjusted to 2011 dollars by applying a 4% annual inflation rate
- As documented in the AKR PAMPs, O&M benchmarks are modeled from industry standard national averages (RS Means) and other relevant sources. Non-industry standards unique assets are estimated based on 2 percent of CRV (a current federal government benchmark for budgeting and out-year planning)

O&M benchmarks exceed current funding by more than $1.7 million per year

Asset	O&M Budget	Benchmarks	Difference	% Funded
Roads	$26,358	$130,130	($103,771)	20%
Parking Area	$2,855	$92,991	($90,136)	3%
Trails	$131,514	$666,104	($534,590)	20%
Trail Bridge	$0	$21,284	($21,284)	0%
Buildings	$226,302	$1,118,540	($892,238)	20%
Fuel System	$30,048	$41,619	($11,571)	72%
Marina / Waterfront Systen	$75,916	$112,455	($36,539)	68%
Aviation System	$0	$72,772	($72,772)	0%
Totals	$492,994	$2,255,895	($1,762,901)	22%

• Without adequate funding, conditions of transportation assets will decline and the deferred maintenance backlog of more than $10 million will continue to grow

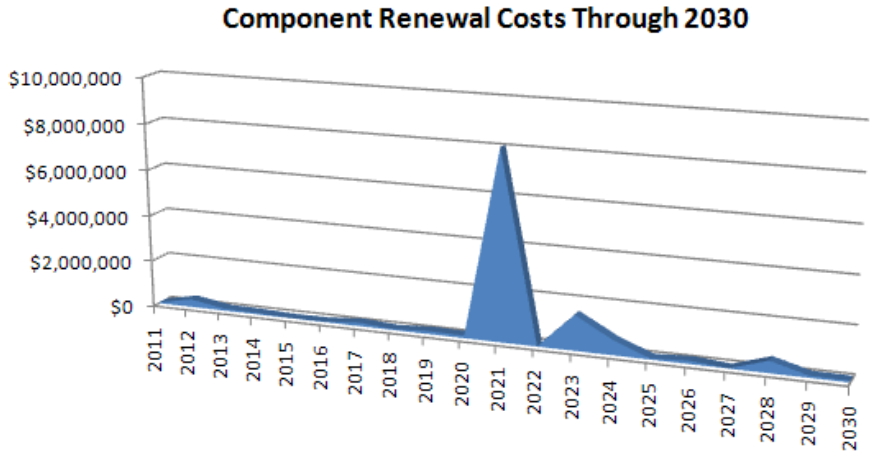
• Of the apparent $1.7 million difference between base funding and industry benchmarks, not all of it represents true additional immediate funding needs. This fact will be addressed when discussing O&M priorities and planned spending

In addition to annual O&M requirements, the Cruise Ship Parks have a lifecycle component renewal (CR) cost of over $12 million over the next twenty years, most of which will occur beyond 2020.

- A twenty-year horizon was examined for asset component renewal to better assess future funding requirements and account and better plan for annual spikes

- CR profile is based on equipment lifecycle data, which incorporates estimated replacement date and replacement cost for the Cruise Ship Parks' transportation assets

- As illustrated in the graph, component renewal costs increase dramatically over the period 2021 to 2030, with a major spike occurring in 2021



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10 yr Totals
Annual CR	$42,937	$341,068	$93,502	$67,877	$11,625	$27,999	$150,327	$46,593	$135,890	$107,646	$1,025,464

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	10 yr Totals
Annual CR	$8,096,359	$15,435	$1,511,570	$656,761	$52,824	$141,914	$12,298	$514,065	$94,269	$76,974	$11,172,469

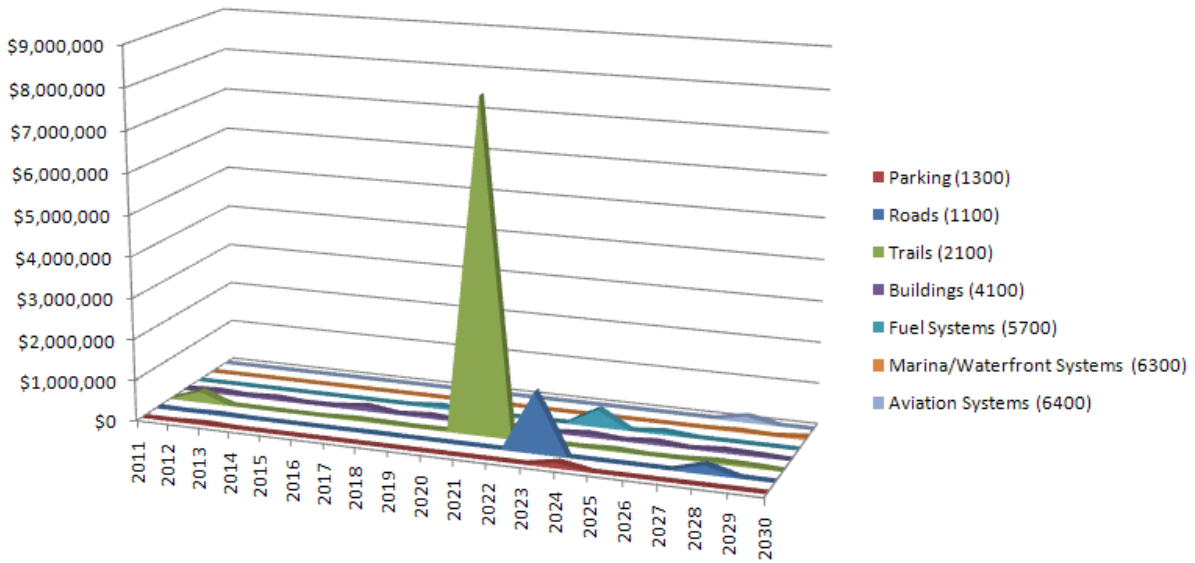
The Cruise Ship Parks should budget for occasional spikes in budget requirements for component renewal

- Trails account for 71% of the projected component renewal requirements for the Cruise Ship Parks over the next 20 years
- In 2021, Glacier Bay should budget for a significant component renewal requirement to fund trail maintenance. This expenditure is over $8 million
- In 2023, Glacier Bay anticipates needing nearly $1.5 million for component renewal requirements for roads

- Some asset types, such as the marina and waterfront systems, appear to have relatively small component renewal requirements and may have incomplete FMSS equipment records

- Actual CR need may be higher once all equipment/feature records are completed in FMSS

Component Renewal by Asset Category



Future Requirements

- Currently, the total deferred maintenance on transportation assets for the Cruise Ship Parks is $10,314,756 over the next 10 years
- The total component renewal requirements over the next 20 years are $12,197,933

Requirement	Amount
DM - FMSS (10-yr)	$10,314,756
Component Renewal (20-yr)	$12,197,933
Total Requirement	$22,512,689

Project Funding Gap	
DM Annualized Requirement	$1,031,476
CR Annualized Requirement	$609,897
Annual Project Funding Available	$1,082,166
Total Project Funding Gap	$559,206

- By taking an annual average of future funding requirements to address DM and CR needs and applying an anticipated annual project funding amount, the Cruise Ship Parks will have an annual funding gap of approximately $560K
- The annual project funding available is based on an average of the past 5 years of funding directed specifically towards Cruise Ship Parks transportation assets. Actual annual funding amounts may vary

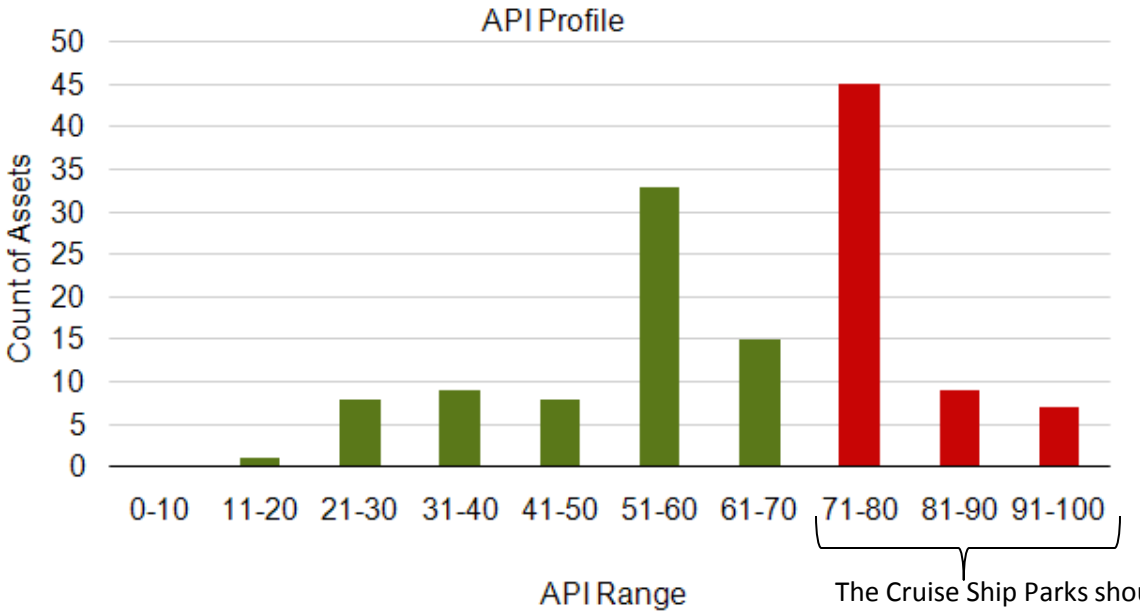
Section 4: Managing the Gap

- How can the Cruise Ship Parks manage the gap between their current funding situation and O&M/project requirements?

- Incorporating an asset's condition and relative importance (as done in the PAMPs) can help park managers prioritize and direct available funding

Asset Priority Index (API) Profiles

- Metrics such as Asset Priority Index (API) can assist park management in identifying funding priorities based on the most important assets
- 55% of the Cruise Ship Parks' transportation assets have an API of 70 or lower
- The Cruise Ship Parks should focus its limited resources on maintaining its highest priority assets

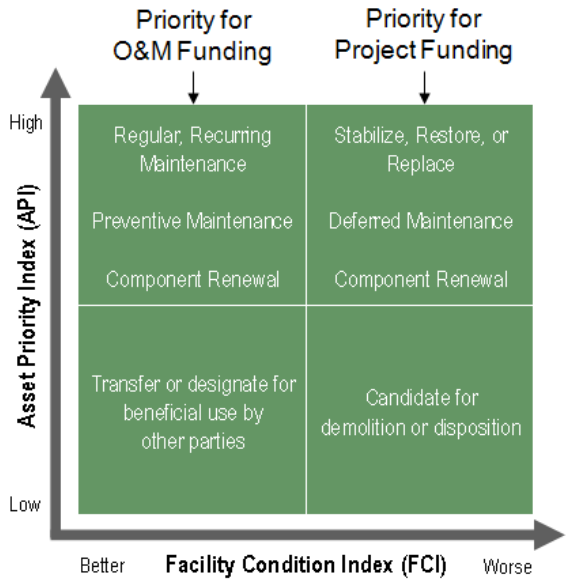


The Cruise Ship Parks should target base and project funds on the top priority assets. Assets with high API scores are a logical starting point for determining maintenance priorities.

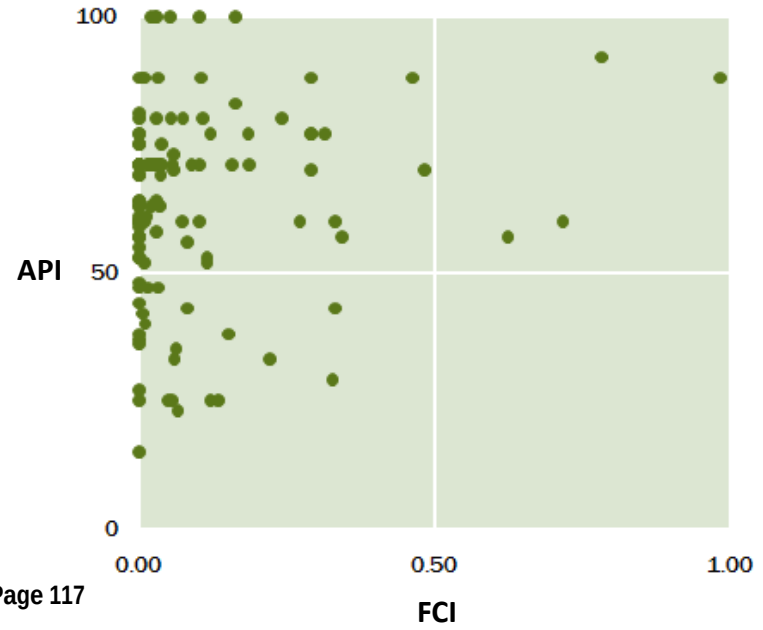
Plotting the Cruise Ship Parks' transportation assets on this matrix demonstrates the distribution in terms of both condition and priority.

- Of the 135 transportation assets (excluding those with an FCI > 1) depicted below, many are in good condition: 88 have and FCI < 0.15 and API ≥ 50, which accounts for 65% of the total
- A total of 19 assets, or 14%, have an API ≥ 50 and an FCI > 0.15
- 36% of the Cruise Ship Park transportation assets have an FCI equal to zero; those assets are either in excellent condition or the park has not yet assessed them for deficiencies
- Over time as base and project funding is allocated to high priority assets, the distribution of transportation assets will shift to a negatively tending curve, reflecting more effective asset management

Funding Model



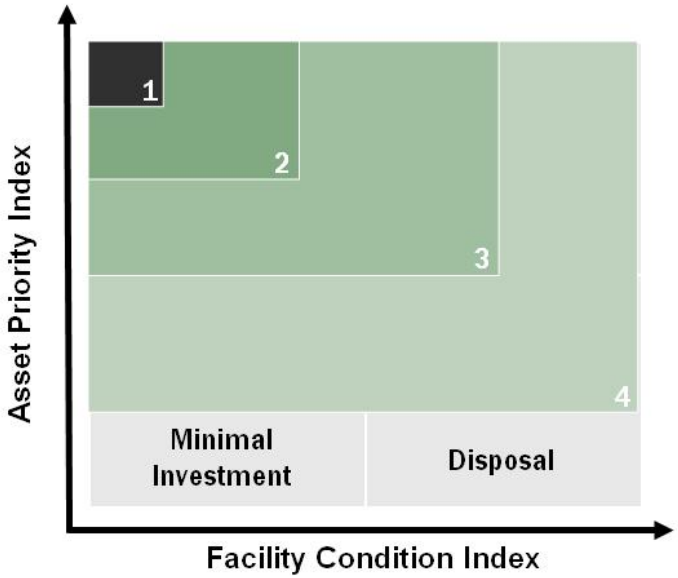
Cruise Ship Parks API/FCI Distribution



Appendix Page 117

During the PAMP process each Cruise Ship Park prioritized their assets to assist in strategizing funding decisions

- The table below demonstrates the final prioritization results of transportation assets based results from the PAMP process
- Assets falling within the lowest groups should receive minimal O&M funding



Priority	API	FCI	# of Assets
1. Highest	88	0.150	15
2. High	75	0.300	19
3. Medium	50	0.750	40
4. Low	21	1.000	54
5. Lowest	<21	>1.000	6
No Band			*1*
Total Asset Count			135

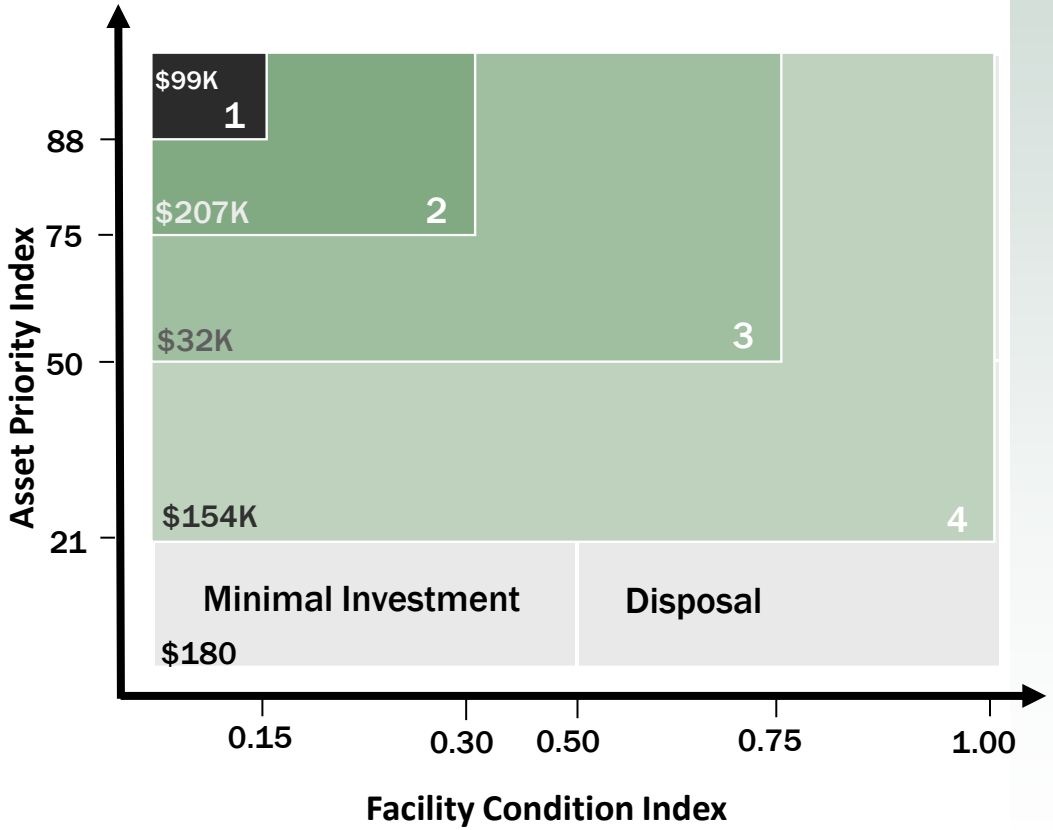
Park management employed logical criteria when establishing priority level for all assets in the portfolio

- Examining the reasons why assets end up in different priority bands helps develop a better estimate of true additional need for O&M funding
  - -- By moving assets into priority bands that will receive little to no funding, management can see exactly what functions they are not able to perform
- Assets were slotted into O&M priority bands using the following general guidelines:
  - -- Highest Priority Assets – Highly important to the park mission, these asset have high visitor use. Critical systems, some Operations, RM and PM will be addressed
  - -- High Priority Assets – Important to the park mission, some Operations and very little RM and PM will be addressed.
  - -- Medium Priority Assets – These assets, while important will only have essential operations funded
  - -- Low Priority Assets – These assets are important but not critical to park operations or do not require much maintenance funding. Very little O&M money will be spent on these assets unless more funding becomes available
  - -- Lowest Priority Assets – These assets may not be required for the operations and mission of the park. Many are backcountry assets or are targeted to receive project funding in the next few years

O&M amounts by priority band

- As intended by the PAMP process, the majority of the Road Parks base funds are directed to higher priority assets with 62% of funding going to the top two priority bands

- Low priority assets receive little, if any, funding for anything other than basic services



Cruise Ship Parks O&M expenditures by work type: Actuals vs. Benchmarks

- Industry standard O&M costs can be broken down according to work type activities and divided into priority bands
- Total O&M budget of $493 thousand covers only 22% of the industry standard requirements for the transportation asset portfolio
- There is 62% of available funding (for band levels 1 and 2) directed towards just 25% of the transportation asset portfolio, but that percentage contains the highest priority assets
- An increase in O&M funding will be required to meet the RM and PM needs for the portfolio if the Cruise Ship Parks hope to avoid accumulating DM

Priority	Ops	RM	PM	Total
1	16%	19%	3%	13%
2	24%	73%	20%	34%
3	7%	121%	10%	34%
4	18%	30%	5%	21%
5	0%	1%	0%	0%
Total	18%	39%	6%	25%

O&M Optimizer Priority Band Level	Asset Count	Operations	RM	PM	Base Funding Totals	Benchmark Totals
(1) Highest Priority	15	$65,817	$30,429	$2,810	$99,056	$751,492
(2) High Priority	19	$77,893	$121,042	$8,656	$207,591	$606,948
(3) Medium Priority	40	$3,749	$27,548	$947	$32,244	$94,100
(4) Lower Priority	54	$30,906	$119,561	$3,456	$153,923	$723,592
(5) Lowest Priority	6	$0	$112	$68	$180	$79,760
Total O&M Base Funding Allocation	134	$178,365	$298,692	$15,937	$492,994	$2,255,892
O&M Industry Standard Benchmark Totals	134	$999,406	$760,242	$245,833	Gap: $1,762,898	
% Coverage of Benchmark Totals		18%	39%	6%	Total Coverage: 22%	

Even though the Cruise Ship Parks' current O&M base budget for transportation assets is almost $1.8 million less than industry benchmark, the deficit for the top 3 priority bands is $1.1 million

- Priority bands 1 – 3 comprise $1,113,649 of the gap, a number that more closely approximates the additional O&M funding needs
- Band 5 assets area either not maintained or planned to be renovated with project money and therefore do not require O&M funding
- The use of other funding sources can help alleviate the base funding shortfall

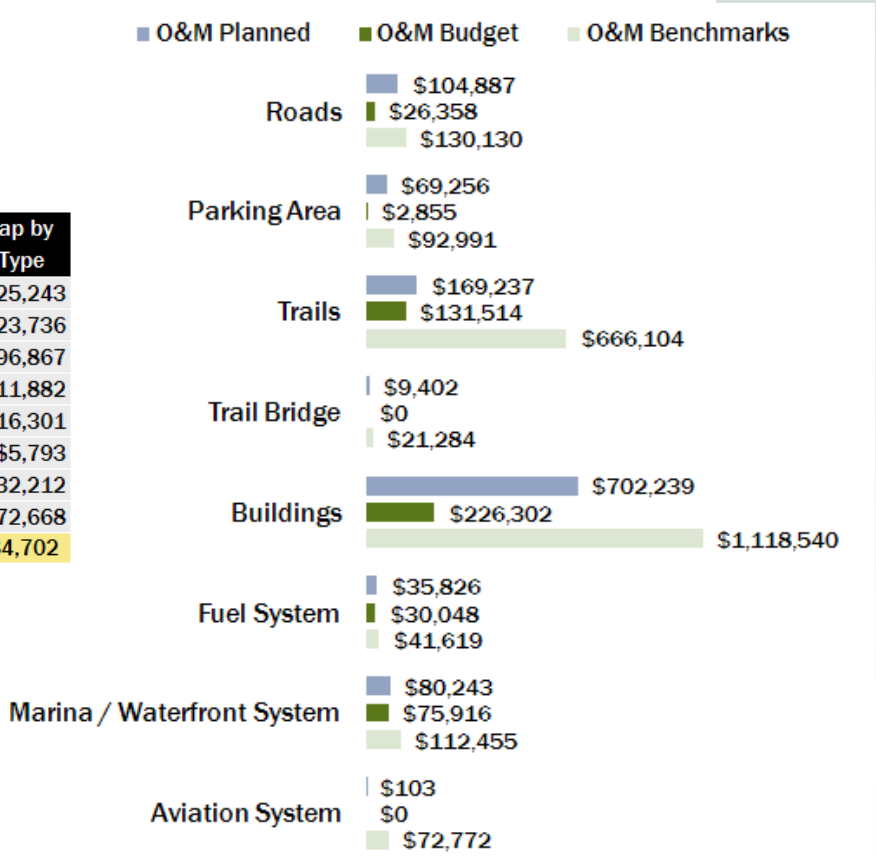
O&M Optimizer Priority Band	Asset Count	Base O&M Allocations	O&M Benchmarks	Percent Coverage	O&M Funding Gap
(1) Highest Priority	15	$99,056	$751,492	13%	$652,436
(2) High Priority	19	$207,591	$606,948	34%	$399,357
(3) Medium Priority	40	$32,244	$94,100	34%	$61,856
(4) Lower Priority	54	$153,923	$723,592	21%	$569,669
(5) Lowest Priority	6	$180	$79,760	0%	$79,580
Totals	134	$492,994	$2,255,892	22%	$1,762,898

Gap for Bands 1-3 $1,113,649

Planned allocation of O&M funds will result in changes to the way the Cruise Ship Parks manage some of their asset types

• During the PAMP process, each park developed a planned budget based on the relative importance of each asset. According to the available information, planned O&M spending will increase for every asset category over what is currently budgeted

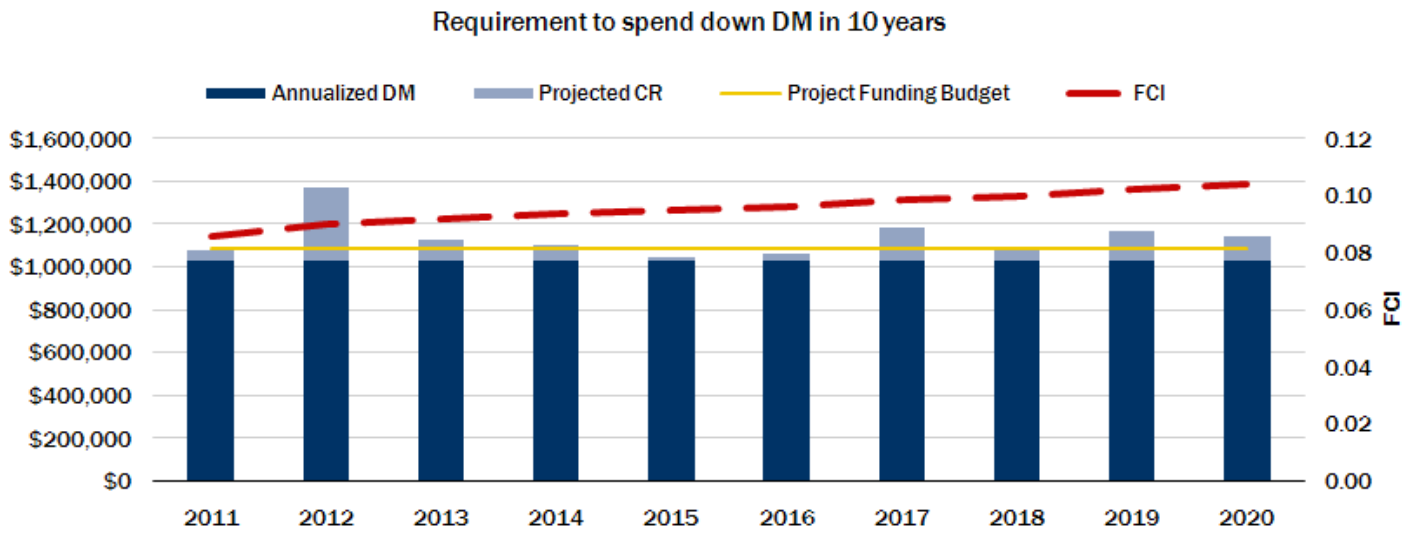
Asset	O&M Budget	O&M Planned	O&M Benchmarks	O&M Gap by Asset Type
Roads	$26,358	$104,887	$130,130	$25,243
Parking Area	$2,855	$69,256	$92,991	$23,736
Trails	$131,514	$169,237	$666,104	$496,867
Trail Bridge	$0	$9,402	$21,284	$11,882
Buildings	$226,302	$702,239	$1,118,540	$416,301
Fuel System	$30,048	$35,826	$41,619	$5,793
Marina / Waterfront System	$75,916	$80,243	$112,455	$32,212
Aviation System	$0	$103	$72,772	$72,668
Total	$492,994	$1,171,193	$2,255,895	$1,084,702



If the Cruise Ship Parks were required to address their entire DM backlog in the next 10 years using the current available annual project funding, the condition of the transportation asset portfolio would continue to decline

• If the Cruise Ship Parks continue with an annual project funding average of approximately $1.1M, the FCI of their transportation asset portfolio will increase from 0.08 in 2011 to 0.10 over the course of 10 years, which is still considered a good rating

• Component renewal costs spike dramatically beyond 2020 and would need to be planned for in order to avoid an increase of the DM portfolio



Appendix Page 124

General Conclusions

• Although the identified funding gap between O&M base allocations and benchmarks is approximately $1.8M , the gap the highest priority transportation assets—priority bands 1 through 3—is $1.1M. This number more closely approximates additional O&M needs.

• The future component renewal requirements for the Cruise Ship Parks are significantly influenced by the 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.

• The Cruise Ship Parks have many transportation assets that have a lower API score 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.

• The Cruise Ship Parks rely on fewer funding sources than does the Road Parks to fund their transportation assets. It's largest funding source comes from the Federal Lands Highway Program, or FLHP, which has historically accounted for approximately 60% of funding. Although exactly levels of federal funding from this source are uncertain, it is reasonable to assume that these funds at about the historical levels will be available in future years.

• The Cruise Ship Parks should look towards additional funding mechanisms to help fund operations and project needs. Developing new partnership agreements, for example, could help to alleviate or reduce this cluster's maintenance responsibilities.

Appendix A: Cruise Ship Parks Transportation Asset List

CRUISE SHIP PARKS								
Location	Description	Park	Asset Code	Deferred Maintenance	CRV	API	FCI	Priority Band
42539	MR - Park Road GLBA-0010	GLBA	1100	$3,200,954	$17,421,732	77	0.18	1
73522	MA - Maintenance Facility Access Road (Service Road B) GLBA-0401	GLBA	1100	$210,386	$293,289	60	0.72	1
73528	PH - Permanent Quarters Road (Service Road E) GLBA-0400	GLBA	1100	$29,831	$89,971	60	0.33	1
78136	IP - Indian Point Road GLBA-0405	GLBA	1100	$0	$176,692	60	0.00	4
101504	PH - Seasonal Quarters Access Road (Service Road D) GLBA-0406	GLBA	1100	$22,979	$84,348	60	0.27	1
42541	DA - Depot Parking (Service Road A) GLBA-0915	GLBA	1300	$68,685	$571,323	77	0.12	2
61190	MR - Bartlett River Trailhead Parking GLBA-0913	GLBA	1300	$20,197	$69,562	70	0.29	3
73529	LH - Lodge Housing Parking Area (Service Road F) GLBA-0906	GLBA	1300	$15,275	$267,846	70	0.06	3
74091	PD - Public Dock Parking GLBA-0900	GLBA	1300	$139,851	$480,494	77	0.29	1
74106	UC - Utility Complex Parking Area GLBA-0904	GLBA	1300	$142,520	$489,503	88	0.29	2
74115	LA - Lodge Parking Area GLBA-0907	GLBA	1300	$126,133	$433,413	77	0.29	2
74125	PH - Storage Building GBA10 Parking GLBA-0910	GLBA	1300	$0	$46,494	53	0.00	4
74127	HA - Headquarters Parking Area GLBA-0912	GLBA	1300	$73,918	$306,880	80	0.24	2
74140	MR - Water Tank Access and Parking GLBA-0914	GLBA	1300	$10,101	$32,287	77	0.31	2
92851	MA - Maintenance Parking Lot GLBA-0916	GLBA	1300	$119,173	$1,626,668	60	0.07	2
70788	PD - Beachfront Trail	GLBA	2100	$0	$583,892	81	0.00	2
70838	LA - Glacier Bay Lodge Trail	GLBA	2100	$38,134	$79,059	70	0.48	3
70848	PH - Seasonal Quarters to Beachfront Trail	GLBA	2100	$0	$70,034	63	0.00	3
78134	CA - Campground Trail	GLBA	2100	$0	$97,055	77	0.00	2
93035	PH - Seasonal to Permanent Housing Trail	GLBA	2100	$0	$28,377	48	0.00	3
93037	HA - Headquarters Service Trail	GLBA	2100	$0	$14,657	37	0.00	4
93038	LA - East Boardwalk to Beachfront Service Road Trail	GLBA	2100	$0	$6,026	64	0.00	4
93039	LA - Lodge to Lodge Housing Area Trail	GLBA	2100	$0	$6,373	69	0.00	5
93040	WT - Alder Creek Coffer Dam Service Trail	GLBA	2100	$1,250	$35,496	63	0.04	3
109174	WA - Boundary Line Trail	GLBA	2100	$59,478	$2,162,049	64	0.03	4
111928	DB - Main Trail East	GLBA	2100	$0	$2,729,024	71	0.00	4
111929	DB - Bear Island Trail	GLBA	2100	$49,333	$1,251,005	71	0.04	4
111930	DB - East Cabin Trail	GLBA	2100	$16,547	$948,502	71	0.02	4
111931	DB - East Cabin North Trail	GLBA	2100	$16,437	$855,382	71	0.02	4
111932	DB - East Access Trail	GLBA	2100	$9,954	$279,250	71	0.04	4
111933	DB - Schumacher Trail	GLBA	2100	$15,691	$1,082,397	71	0.01	4
111934	DB - Varni West Trail	GLBA	2100	$42,660	$756,422	71	0.06	4
111935	DB - Dog Salmon Cutoff Trail	GLBA	2100	$25,451	$1,175,407	71	0.02	4

111936	DB - Main Trail South	GLBA	2100	$0	$1,361,647	71	0.00	4
111937	DB - Plains South Trail	GLBA	2100	$80,014	$907,728	71	0.09	4
111938	DB - Plains North Trail	GLBA	2100	$0	$837,971	71	0.00	4
111939	DB - Rohloff Trail	GLBA	2100	$44,289	$1,355,806	71	0.03	4
111940	DB - Sean Dog Trail	GLBA	2100	$20,741	$750,801	71	0.03	4
111941	DB - Flowers Trail	GLBA	2100	$24,908	$779,784	71	0.03	4
111942	DB - Boring Trail	GLBA	2100	$20,315	$785,515	71	0.03	4
111943	DB - Pellett Trail	GLBA	2100	$14,664	$512,105	71	0.03	4
111944	DB - McSpaden Trail	GLBA	2100	$20,656	$1,245,274	71	0.02	4
111945	DB - Takeout Trail	GLBA	2100	$14,664	$453,919	71	0.03	4
111946	DB - Smitty's Trail	GLBA	2100	$14,664	$762,262	71	0.02	4
111947	DB - Alsek North Trail	GLBA	2100	$102,199	$6,127,412	71	0.02	4
111948	DB - Tractor North Trail	GLBA	2100	$14,770	$779,784	71	0.02	4
113304	PH - Seasonal Quarters Boardwalk	GLBA	2100	$38,549	$116,559	43	0.33	2
113305	PH - Duplex Boardwalk	GLBA	2100	$4,192	$52,617	43	0.08	2
42545	HA - Resource Management / Ranger Office Building GBA06	GLBA	4100	$28,838	$1,410,571	71	0.02	2
42547	PD - Visitor Information Station Building GBA07	GLBA	4100	$12,708	$670,800	100	0.02	1
42549	IP - Indian Point Warehouse Building GBA28	GLBA	4100	$4,947	$155,787	47	0.03	3
42551	HA - Headquarters Building GBA12	GLBA	4100	$1,564,372	$1,998,012	92	0.78	2
42556	UC - Hazard Response Building GBA60	GLBA	4100	$628	$74,777	52	0.01	4
42563	DA - Depot Used Oil Storage Building GBA73	GLBA	4100	$1,341	$21,550	35	0.06	4
42603	DB - Ranger Station Building GBA72	GLBA	4100	$15,004	$201,916	80	0.07	2
42609	LA - Glacier Bay Lodge GBL16	GLBA	4100	$419,793	$15,697,880	100	0.03	4
70936	DA - Depot Boat Storage Shelter Building GBA79	GLBA	4100	$4,751	$497,874	40	0.01	4
70940	MA - Maintenance Hazmat Storage Container Building GBA98	GLBA	4100	$862	$42,188	63	0.02	4
70950	CA - Campground Wood Shed GBA32	GLBA	4100	$1,014	$12,594	56	0.08	3
70959	MA - Maintenance Support Building GBA99	GLBA	4100	$73,743	$5,452,583	71	0.01	2
73458	UC - Fuel / Gasoline Pump Building GBA87	GLBA	4100	$27,381	$264,392	88	0.10	2
73682	DB - East Alsek Outhouse GBA96	GLBA	4100	$196	$15,624	47	0.01	4
78278	UC - Fuel Dock Dispenser Shelter GBA91	GLBA	4100	$723	$20,246	69	0.04	4
78848	UC - Fuel Dock Operator Booth GBA34	GLBA	4100	$3,491	$32,751	80	0.11	4
78851	UC - Fuel Dock Fuel Hose Building GBA84	GLBA	4100	$723	$13,585	80	0.05	2
78852	UC - Fuel Dock Boom Building GBA86	GLBA	4100	$2,056	$73,694	80	0.03	4
87178	HA - Headquarters Trash Collection Shed GBA125	GLBA	4100	$1,509	$13,246	52	0.11	4
87968	DB - Dry Bay ATV Storage Building GBA97	GLBA	4100	$711	$79,412	60	0.01	4
87969	DB - Ranger Station Shop GBA103	GLBA	4100	$1,186	$11,759	60	0.10	4
91285	DA - Depot Hazmat Storage Container GBA110	GLBA	4100	$0	$2,440	63	0.00	3

94360	DA - Depot Equipment Storage Shed GBA43	GLBA	4100	$735	$118,259	42	0.01	4
94362	DA - Depot Bobcat Storage Shed GBA44	GLBA	4100	$18,957	$57,969	29	0.33	5
94371	PH - Seasonal Housing Recycling Shed GBA50	GLBA	4100	$1,658	$28,147	33	0.06	3
94384	UC - Heavy Equipment Shed GBA111	GLBA	4100	$2,390	$36,880	23	0.07	5
94385	UC - USCG Spill Container GBA112	GLBA	4100	$0	$30,733	53	0.00	4
94386	UC - Spill Response Container GBA113	GLBA	4100	$0	$30,733	53	0.00	4
94388	UC - Interpretation Storage Container GBA115	GLBA	4100	$0	$61,466	15	0.00	5
94399	UC - AIS / VES Building GBA121	GLBA	4100	$0	$30,733	75	0.00	3
94400	PD - AIS / VES Building GBA122	GLBA	4100	$1,325	$35,343	75	0.04	3
83404	UC - Fuel Storage and Distribution System	GLBA	5700	$127,556	$4,081,780	88	0.03	1
93291	WA - Petrol Fuel Barge Storage / Distribution System	GLBA	5700	$0	$109,260	80	0.00	1
42561	IP - Indian Point Waterfront System	GLBA	6300	$209,328	$1,134,380	71	0.19	4
42739	HA - Inner Lagoon Dock	GLBA	6300	$0	$926,910	71	0.00	4
99610	UC - Fuel Dock	GLBA	6300	$16,559	$3,103,412	88	0.01	1
99611	PD - Public Use Dock	GLBA	6300	$39,085	$4,400,660	88	0.01	1
42592	DB - Ranger Station Air Strip	GLBA	6400	$440,691	$4,361,157	71	0.10	5
91957	DB - East Alsek River Air Strip	GLBA	6400	$0	$4,119,174	64	0.00	5
68745	Road to Old Dyea Town Site	KLGO	1100	$373,702	$807,513	88	0.46	3
91330	Campground Road	KLGO	1100	$0	$224,309	75	0.00	2
68779	Nelson Slough Parking Lot - Unpaved	KLGO	1300	$0	$82,671	44	0.00	4
92471	Maintenance Shop Parking Lot	KLGO	1300	$0	$26,771	25	0.00	4
68746	Trail (To Old Town Site)	KLGO	2100	$0	$71,325	61	0.00	3
68817	Chilkoot Trail, CLI# 100047	KLGO	2100	$524,858	$3,245,652	83	0.16	2
68784	Nelson Slough Foot Bridge	KLGO	2200	$0	$58,666	47	0.00	4
77674	Stairway to Heaven Bridge (.94 mile)	KLGO	2200	$0	$27,133	60	0.00	3
77676	Eagle's Nest Bridge (1.06 mile)	KLGO	2200	$0	$30,311	60	0.00	3
77678	Warder's Memorial Bridge (1.51 mile)	KLGO	2200	$0	$87,999	60	0.00	3
77679	Dry Fork Bridge (2.32 mile)	KLGO	2200	$0	$39,599	60	0.00	3
77681	Steel Truss Bridge (2.42 mile)	KLGO	2200	$0	$94,842	60	0.00	3
77683	Beaver Pond Boardwalk (2.63 mile)	KLGO	2200	$134,686	$856,389	71	0.16	3
77686	Eagle Rock Bridge (3.23 mile)	KLGO	2200	$0	$23,466	60	0.00	3
77694	Bridge of Dankness (5.32 mile)	KLGO	2200	$0	$27,133	60	0.00	3
77717	Suspension Bridge to Canyon City (7.88 mile)	KLGO	2200	$0	$43,413	60	0.00	3
77727	Pat Moore Suspension Bridge (10.79 mile)	KLGO	2200	$0	$69,295	60	0.00	3
77731	Zig Zag Bridge (11.62 mile)	KLGO	2200	$0	$35,591	71	0.00	3
77733	Avalanche Bridge (11.82 mile)	KLGO	2200	$0	$30,066	38	0.00	4
77738	Blueberry Bridge (12.81 mile)	KLGO	2200	$0	$24,200	38	0.00	4

84974	Rock Garden Bridge (6.8 Mile)	KLGO	2200	$0	$22,000	60	0.00	3
84975	6.5 Mile Bridge (6.5 mile)	KLGO	2200	$0	$38,133	71	0.00	3
68537	White Pass Depot Visitor Center	KLGO	4100	$384,786	$3,782,133	100	0.10	1
68658	Martin Itjen House	KLGO	4100	$79,756	$491,113	100	0.16	1
68744	Trail Head SST (Restroom)	KLGO	4100	$0	$74,837	57	0.00	3
68752	Dyea Ranger Station Office	KLGO	4100	$1,058	$87,307	61	0.01	3
68823	Warming Tent Finnegan's Point	KLGO	4100	$2,087	$38,525	25	0.05	4
77614	Trail Crew Cabin (Canyon City)	KLGO	4100	$0	$55,736	60	0.00	3
77616	Tool Shed (Trail Crew Cabin)	KLGO	4100	$2,848	$24,945	53	0.11	3
77629	Warming Tent Pleasant Camp (mile 10.59)	KLGO	4100	$1,884	$38,525	25	0.05	4
77642	Ranger Station Sheep Camp	KLGO	4100	$19,278	$87,307	33	0.22	4
77660	Warming Tent 2 North Sheep Camp Campgroud	KLGO	4100	$5,117	$38,525	25	0.13	4
77664	Tool Shed (Ranger Station)	KLGO	4100	$0	$25,978	27	0.00	4
77666	Warming Tent 1 South Sheep Camp Campground	KLGO	4100	$4,638	$38,525	25	0.12	4
86787	Campground SST #1	KLGO	4100	$0	$113,502	55	0.00	3
86789	Campground SST #2	KLGO	4100	$0	$113,502	55	0.00	3
86846	Canyon City Historic Log Cabin, mile 7.5	KLGO	4100	$29,297	$193,971	38	0.15	3
91308	Nelson Slough SST	KLGO	4100	$0	$113,502	57	0.00	3
99568	Sheep Camp State Cabin	KLGO	4100	$5,597	$193,971	58	0.03	3
84486	Helipad at Sheep Camp Ranger Station	KLGO	6400	$0	$34,323	71	0.00	3
64369	Visitor Center Upper Parking Lot	SITK	1300	$87,985	$256,259	57	0.34	3
64371	Visitor Center Lower Parking Lot	SITK	1300	$54,290	$87,001	57	0.62	3
89278	East Entrance Parking Lot	SITK	1300	$0	$72,607	57	0.00	3
68536	Totem Walk	SITK	2100	$22,572	$804,821	100	0.03	1
68539	Indian River Bridge	SITK	2200	$236,634	$240,602	88	0.98	1
74594	Diversion River Bridge	SITK	2200	$0	$35,645	36	0.00	
64367	Sitka National Historical Park Visitor Center	SITK	4100	$438,350	$8,464,426	100	0.05	1
68541	Romtec Restroom	SITK	4100	$11,511	$77,949	65	0.15	2

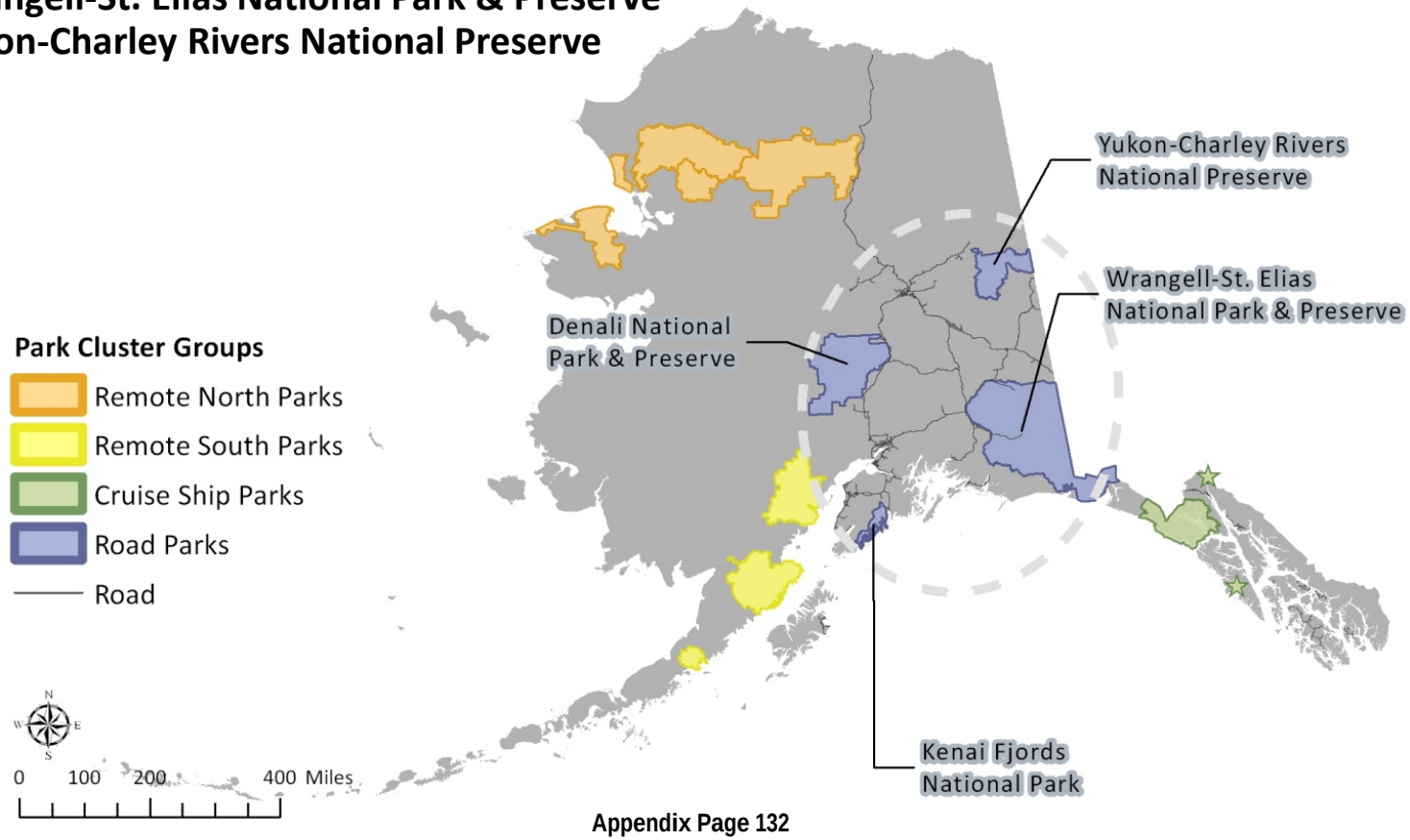
Source: NPS FMSS, printed on 1/06/2011

Appendix E: Transportation Asset Management Plan for the Road Parks

Transportation Asset Management Plan for the Road Parks

The Road Park Cluster contains:

- **Denali National Park & Preserve**
- **Kenai Fjords National Park**
- **Wrangell-St. Elias National Park & Preserve**
- **Yukon-Charley Rivers National Preserve**



The transportation asset management plan for the Road Parks cluster follows a similar process as the PAMP analysis. It explored four key topics:

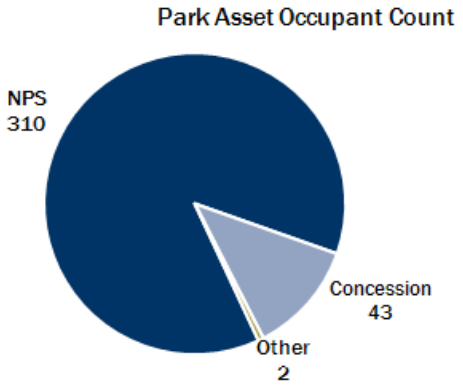
The transportation asset base was determined for each park and aggregated by cluster	Specific to their transporation assets, the main funding sources for each park are split between annual base O&M and special project funding and aggregated by cluster	Industry models are used to determine O&M benchmarks and identify required project funding for each cluster's transportation assets	Different approaches are examined to help each cluster prioritize allocation of funds for their transportation assets

Section 1: Current Footprint

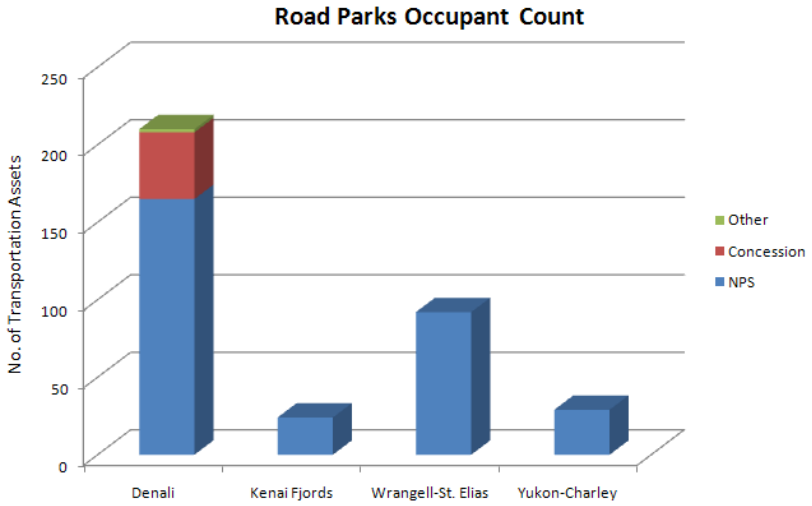
- This section examines the Road Parks' existing transportation asset portfolio, highlighting its value, size, and occupancy
- The asset information contained herein is based from FMSS records as of January 2011

The Road Parks' transportation asset portfolio consists of 355 assets

Asset Type	Count	Quantity	Units
Roads	52	112	MI
Parking Area	86	1,735,028	SF
Bridges	16	104,953	SF
Trails	19	570,904	LF
Trail Bridge	2	906	SF
Buildings	108	143,550	SF
Fuel System	48	49	EA
Aviation System	24	28,821	LF
Grand Total	355	–	–



- Only Denali has transportation assets that are not NPS owned: 21% of Denali's transportation assets are owned by concessionaires or under other ownership
- Denali's transportation assets account for nearly 60% of the cluster's total asset count
- Due to the large transportation asset base, Denali will need significantly more funding than the other Road Parks to address maintenance requirements



The Road Parks' transportation asset portfolio is valued at over $362 million

Asset Type	DM	CRV	FCI
Roads	$26,252,923	$112,930,621	0.23
Parking Area	$2,215,098	$26,504,456	0.08
Bridge	$2,758,607	$80,996,139	0.03
Trails	$1,718,599	$32,728,922	0.05
Trail Bridge	$0	$310,703	0.00
Buildings	$1,598,042	$86,586,627	0.02
Fuel System	$142,992	$3,392,410	0.04
Aviation System	$655,686	$19,159,545	0.03
Grand Total	$35,341,947	$362,609,422	0.10

FCI is a metric calculated by dividing the deferred maintenance by the current replacement value.

FCI= Deferred Maintenance / Current Replacement Value

The FCI is used by facility managers to better understand the relative condition of assets within a portfolio. A score closer to 0.0 reflects better condition.

FCI Range	Condition
< 0.11	Good
0.11 - 0.15	Fair
0.15 - 0.50	Poor
> 0.5	Serious

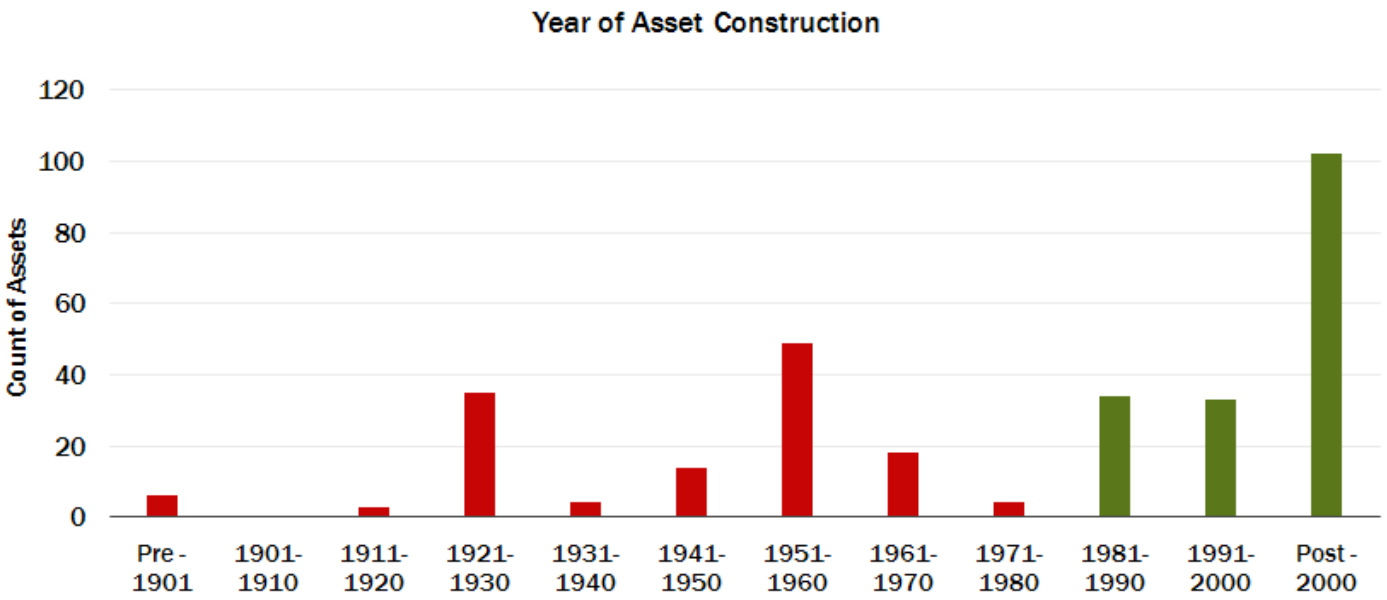
- Overall, transportation asset conditions of the Road Parks are GOOD

- Road assets, the cluster's most valuable and costly to maintain asset category, have an FCI condition rating of POOR

The overall FCI for Road Parks is GOOD

Definitions:
DM = Deferred Maintenance
CRV = Current Replacement Value
FCI = Facility Condition Index

The Road Parks' transportation asset portfolio has many newer assets



- 34% of transportation assets were built after 2000
- However, 44% of transportation assets were built in 1980 or earlier
- 15% of the Road Parks transportation assets have an unknown year built
- Based on their aging infrastructure, the Road Parks should plan for substantial component renewal costs in the future

The Road Parks (primarily DENA) have many planned transportation assets that will require significant additional O&M funding once operational

- When complete these additions will add over $64 million to the Road Parks' CRV

- Using O&M models and park knowledge of maintenance needs on similar assets, the Road Parks can establish more accurate benchmark costs that could be used to plan for future funding of new assets

Asset	Type	Park	Status	CRV	Quantity	Units
Curry Ridge Access Road	1100	DENA	PLANNED	$9,176,192	4	MI
HQ Kennels Area Loop Access Road	1100	DENA	PLANNED			MI
HQ VIP RV Loop Road	1100	DENA	PLANNED		0	MI
ESFMB Access Road	1100	DENA	PLANNED	$1,224,820	0	MI
McKinley Village Parking, Parks Hwy, MP 230	1300	DENA	PLANNED	$460,791	13,846	SF
Trails Shop Parking	1300	DENA	PLANNED			SF
Intermodal Transportation Center ITC Parking	1300	DENA	PLANNED	$2,081,427	6,600	SF
Kantishna Airstrip Parking Area	1300	DENA	PLANNED		1,200	SF
HQ Kennels Area Loop Road Parking	1300	DENA	PLANNED	$666,057		SF
HQ Weather Station Parking	1300	DENA	PLANNED			SF
HQ Area Flagpole SST Parking Area	1300	DENA	PLANNED			SF
ESFMB Annex Parking	1300	DENA	PLANNED	$576,205	7,860	SF
ESFMB Employee Lower Parking	1300	DENA	PLANNED	$422,257	5,760	SF
C Camp Residential Parking Area	1300	DENA	PLANNED	$506,708	6,912	SF
Upper Maintenance Parking Area	1300	DENA	PLANNED		19,200	SF
Denali Park Bike Trail	2100	DENA	PLANNED	$12,992,609	34,320	LF
Grounds HQ Visitor Center Viewing Deck and Scopes	2100	WRST	PLANNED	$67,233	60	LF
Intermodal Transportation Center ITC Maintenance Facility	4100	DENA	PLANNED		2,000	SF
Intermodal Transportation Center ITC Generator Building	4100	DENA	PLANNED		800	SF
Intermodal Transportation Center ITC Shuttle Terminal Shelter	4100	DENA	PLANNED		1,500	SF
Curry Ridge Visitor Center	4100	DENA	PLANNED	$10,281,514	16,500	SF
Curry Ridge Comfort Station	4100	DENA	PLANNED		500	SF
Curry Ridge Shuttle Terminal Shelter	4100	DENA	PLANNED		1,500	SF
Savage Cabin Rest Stop SST #4	4100	DENA	PLANNED	$108,051	327	SF
Savage River West Bus Shelter	4100	DENA	PLANNED	$73,475	240	SF
Intermodal Transportation Center ITC Comfort Station	4100	DENA	PLANNED	$1,149,607	500	SF
McKinley Airstrip Hangar	4100	DENA	PLANNED	$2,784,081	5,280	SF
Administrative & Visitor Center	4100	KEFJ	PLANNED	$8,930,073	16,500	SF
Front Country Natural Gas Fuel System	5700	DENA	PLANNED	$12,553,614	1	EA
			Total Additional CRV	$64,054,714		

** FMSS database printed 12/09/2010*

Section 2: Current Funding

- This section discusses the Road Parks' current base and special project funding situation
- Understanding stable and varied funding sources year to year is important to successfully managing the transportation asset portfolio

Annual funding specifically directed towards transportation assets for the Road Parks consists of operational funds and special project funding

Source	Details	Annual Budget
Operations and Maintenance (O&M)	Total funding directed towards operating and maintaining all Road Parks transportation assets	$ 3,064,637
Project Programs	Includes the following funding programs: Rec Fee, Regular Cyclic, Repair/Rehab, FLHP, etc.	$ 3,397,119
Total Annual Direct Maintenance Funding		$ 6,461,756

- Total O&M budget was determined by matching records from the Facility Management Software System (FMSS) for work order history specifically to the transportation assets identified by each park

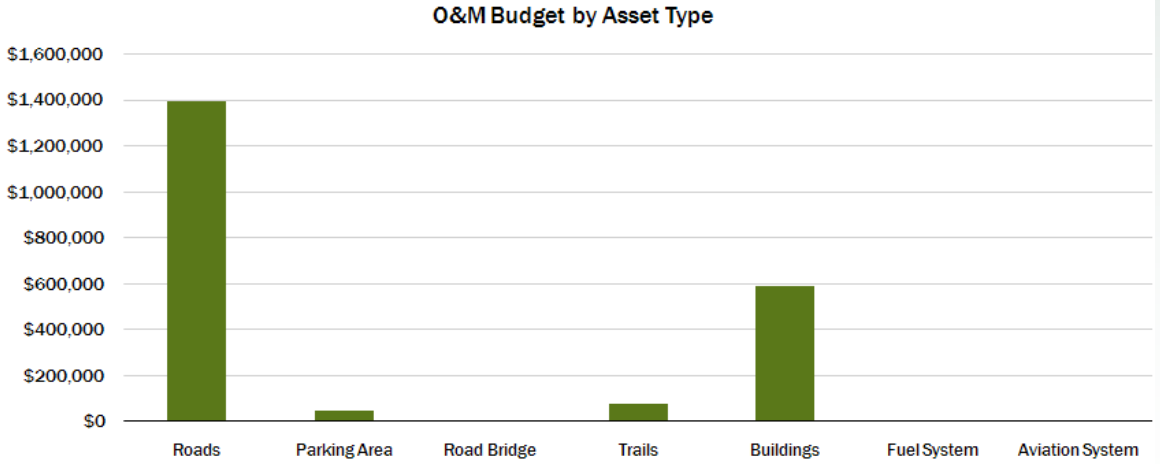
- The Project Programs budget is based on an annual average of historical funding occurring over the past 5 years. Only projects found in the NPS Project Management Information System (PMIS) that are specific to this cluster's transportation assets are included

The Road Parks budget for funding across all asset types, but roads and buildings account for approximately 94% of total budget

Asset Type	Operations	Recurring	Preventive	Total
Roads	$34,531	$1,192,893	$169,607	$1,397,031
Parking Area	$49,268	$0	$0	$49,268
Road Bridge	$0	$0	$592	$592
Trails	$39,434	$36,239	$3,091	$78,763
Buildings	$312,598	$275,017	$196	$587,810
Fuel System	$1,964	$211	$40	$2,215
Aviation System	$3,298	$0	$0	$3,298
Grand Total	$441,092	$1,504,360	$173,526	$2,118,977

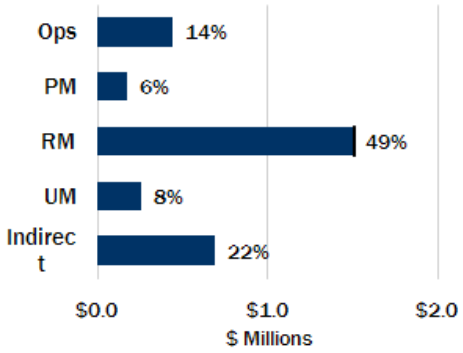
- Roads account for 66% of actual transportation budget expenditures. Of this amount, recurring maintenance on Denali roads heavily influences this amount and accounts for 85% of the total

- Buildings are the second most costly expenditure, accounting for approximately 28% of the total transportation budget



The Road Parks direct nearly half of their $3 million budget to recurring maintenance requirements

Type	Amount	%
Indirect	$687,502	22%
UM	$258,158	8%
RM	$1,504,360	49%
PM	$173,526	6%
Ops	$441,092	14%
Total	$3,064,637	100%



- Indirect costs factor into the total cost of ownership for transportation assets and were included in the total amount directed towards operating and maintaining transportation assets. However, as stated in the PAMPs, indirect costs are typically excluded for modeling and understanding direct costs associated with maintenance

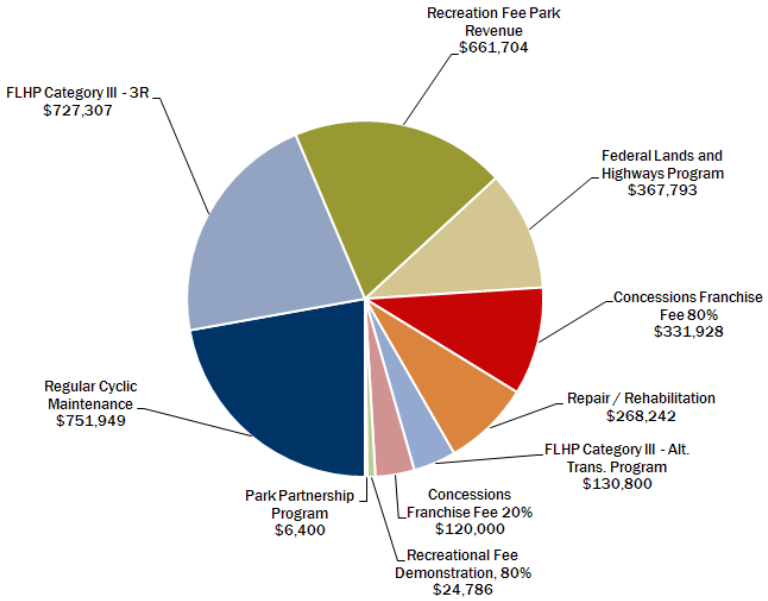
- Indirect cost for the Road Parks cluster were determined by first identifying each park's percentage of indirect costs to its total O&M budget (found in the PAMPs), applying that percentage to the total O&M budget for transportation assets, and then rolling together to the cluster level

- The Road Parks should continue to focus attention on preventative maintenance (only 6%) to keep assets in serviceable working order and avoid more costly unscheduled maintenance

The Road Parks receive approximately $3.4 million annually in special project funding

Fund Source	Annual Budget	Budget as Percentage of Total
Regular Cyclic Maintenance	$751,949	22.1%
FLHP Category III - 3R	$727,307	21.4%
Recreation Fee Park Revenue	$661,704	19.5%
Federal Lands and Highways Program	$367,793	10.8%
Concessions Franchise Fee 80%	$331,928	9.8%
Repair / Rehabilitation	$268,242	7.9%
FLHP Category III - Alt. Trans. Program	$130,800	3.9%
Concessions Franchise Fee 20%	$120,000	3.5%
Recreational Fee Demonstration, 80%	$24,786	0.7%
Park Partnership Program	$6,400	0.2%
Youth Conservation Corps	$6,211	0.2%
Total Project Funds	$3,397,119	

- The forecasted project budget is based on an annual average of historical funding directed towards deferred maintenance (DM) and component renewal (CR) projects occurring over the past 5 years. Only projects in PMIS that are specific to this cluster's transportation assets are included
- The Recreation Fee 20% and Recreation Fee Demonstration 20% funds have historically provided approximately $120K annually on average. With these funds going away, the Road Parks will have less money available and need to keep a closer eye on their budgets



- The 2009 economic recovery funds are not available on a recurring basis. Some other funding occur only intermittently, such as the emergency funds in 2007. These funds are difficult for the cluster to rely on due to irregular funding schedules and are not included in the project funding forecast

- Forecasting future funding levels is difficult due to the inconsistent nature of the funds, especially when analyzing funding directed specifically towards transportation assets. Future funding levels may vary from historical averages

Other Fund Source	Total
Emergency Storm and Flood Damage (2007)	$1,235,100
2009 Economic Recovery - Trails	$144,900
2009 Economic Recovery - Deferred Maintenance	$51,700
Recreational Fee Demonstration, 20%	$379,700
Recreation Fee 20%	$214,540
Total	$2,025,940

Appendix Page 143

Section 3: Current Requirements

• This section reviews the Road Parks' operating and project requirements

• Industry requirements are benchmarks that can assist park managers in determining the appropriate level of care necessary for their transportation assets. It is important, however, to recognize that each park (and each cluster) has unique maintenance requirements and this transportation asset management plan addresses those needs as appropriate

The Road Parks would require over $4 million annually for O&M based on industry standard benchmarks

Asset	Operations	RM	PM	Total
Roads	$305,615	$133,377	$111,672	$550,665
Parking Area	$324,936	$87,918	$30,399	$443,254
Road Bridge	$197,312	$174,394	$62,284	$433,991
Trails	$72,424	$144,481	$74,789	$291,694
Trail Bridge	$1,184	$1,171	$418	$2,774
Buildings	$1,505,650	$466,922	$188,941	$2,161,513
Fuel System	$18,059	$6,772	$13,432	$38,262
Aviation System	$63,046	$25,749	$51,497	$140,293
O&M Benchmark Totals	$2,488,227	$1,040,785	$533,433	$4,062,445

- According to benchmark standards, buildings account for over 50% of O&M funding requirements
- All O&M figures were taken from PAMP Optimizer files and totals were adjusted to 2011 dollars by applying a 4% annual inflation rate
- As documented in the AKR PAMPs, O&M benchmarks are modeled from industry standard national averages (RS Means) and other relevant sources. Non-industry standards unique assets are estimated based on 2 percent of CRV (a current federal government benchmark for budgeting and out-year planning)

O&M benchmarks exceed current funding by almost $2 million

Asset	O&M Budget	Benchmarks	Difference	% Funded
Roads	$1,397,031	$550,665	$846,366	254%
Parking Area	$49,268	$443,254	($393,986)	11%
Road Bridge	$592	$433,991	($433,398)	0%
Trails	$78,763	$291,694	($212,931)	27%
Trail Bridge	$0	$2,774	($2,774)	0%
Buildings	$587,810	$2,161,513	($1,573,703)	27%
Fuel System	$2,215	$38,262	($36,048)	6%
Aviation System	$3,298	$140,293	($136,995)	2%
Totals	$2,118,977	$4,062,445	($1,943,468)	52%

- Current O&M funding is only 52% of the recommended industry benchmark

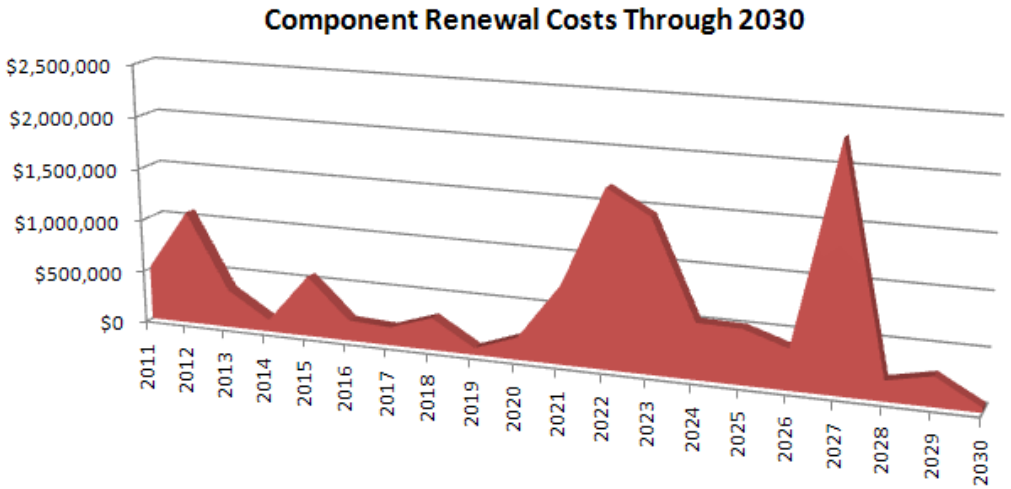
- Current O&M funding for roads greatly exceeds the benchmark totals, primarily due to the park road in Denali

- All other asset categories for the Road Parks are significantly underfunded based on industry benchmarks

- Without adequate funding, conditions of transportation assets will decline and the deferred maintenance backlog of more than $35 million will continue to grow

In addition to annual O&M requirements, the Road Parks have a lifecycle component renewal (CR) cost of almost $11.7 million over the next twenty years

- Component renewal costs over the next twenty years total $11,696,384, with the majority of those costs occurring beyond 2020
- Significant cost spikes will occur in years 2022 and 2027 and component renewal costs must be planned for as to keep this from going to deferred maintenance

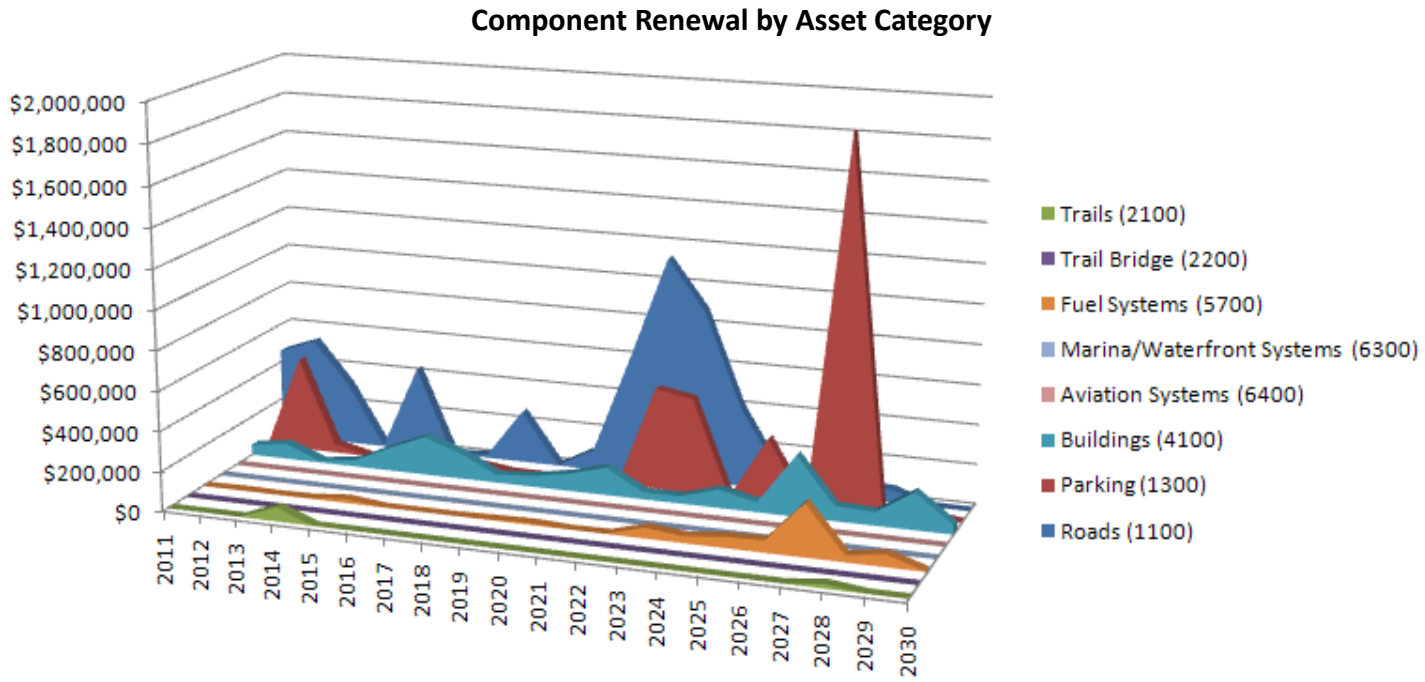


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10 yr Totals
Annual CR	$514,499	$1,086,727	$363,104	$113,116	$578,316	$196,187	$174,177	$307,654	$64,740	$212,234	$3,610,754

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	10 yr Totals
Annual CR	$747,117	$1,674,264	$1,447,130	$527,789	$517,851	$383,466	$2,273,054	$190,906	$277,746	$46,307	$8,085,630

The Road Parks should budget for occasional spikes in budget requirements for component renewal

- Significant funding for roads will be necessary in beyond 2020
- A variety of roads in Denali will require surface maintenance in 2022, costing over $1M
- A significant funding requirement should be anticipated for 2027 when multiple parking areas require maintenance in Denali, estimated at over $1.8M



Future Requirements

- Currently, the total deferred maintenance on transportation assets for the Road Parks is $35,341,947 over the next 10 years
- The total component renewal requirements over the next 20 years are $11,696,384

Requirement	Amount
DM - FMSS (10-yr)	$35,341,947
Component Renewal (20-yr)	$11,696,384
Total Requirement	$47,038,331

Project Funding Gap	
DM Annualized Requirement	$3,534,195
CR Annualized Requirement	$584,819
Annual Project Funding Available	$3,397,119
Total Project Funding Gap	$721,895

- By taking an annual average of future funding requirements to address DM and CR needs and applying an anticipated annual project funding amount, the Road Parks will have an annual funding gap of approximately $722K
- The annual project funding available is based on an average of the past 5 years of funding directed specifically towards Road Parks transportation assets. Actual annual funding amounts may vary

Section 4: Managing the Gap

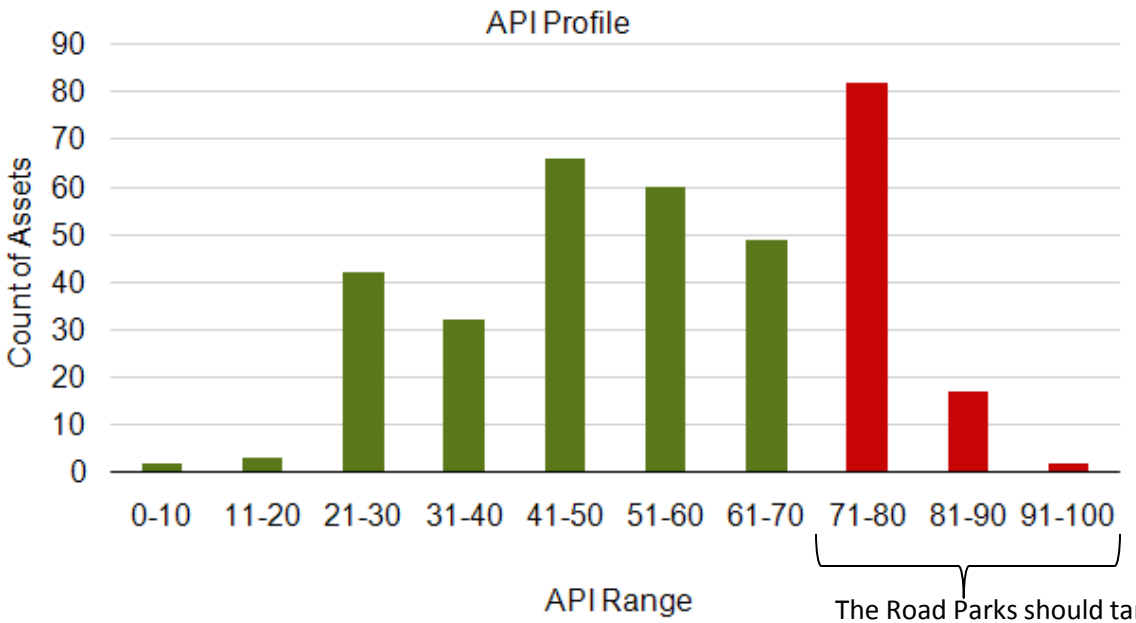
- How can the Road Parks manage the gap between their current funding situation and O&M/project requirements?

- Incorporating an asset's condition and relative importance (as done in the PAMPs) can help park managers prioritize and direct available funding

The Road Parks should focus its limited resources on maintaining its highest priority assets

- Over 70% of the Road Parks' transportation assets have an API lower than 70

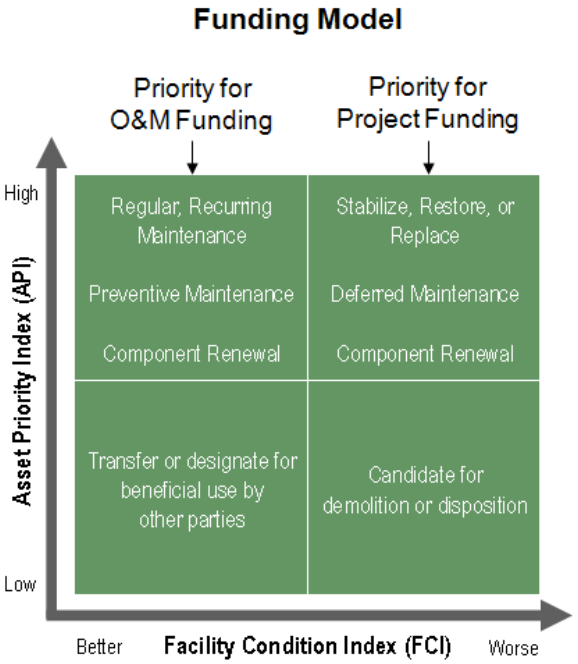
- Metrics such as Asset Priority Index (API) can assist park management in identifying funding priorities based on the most important assets

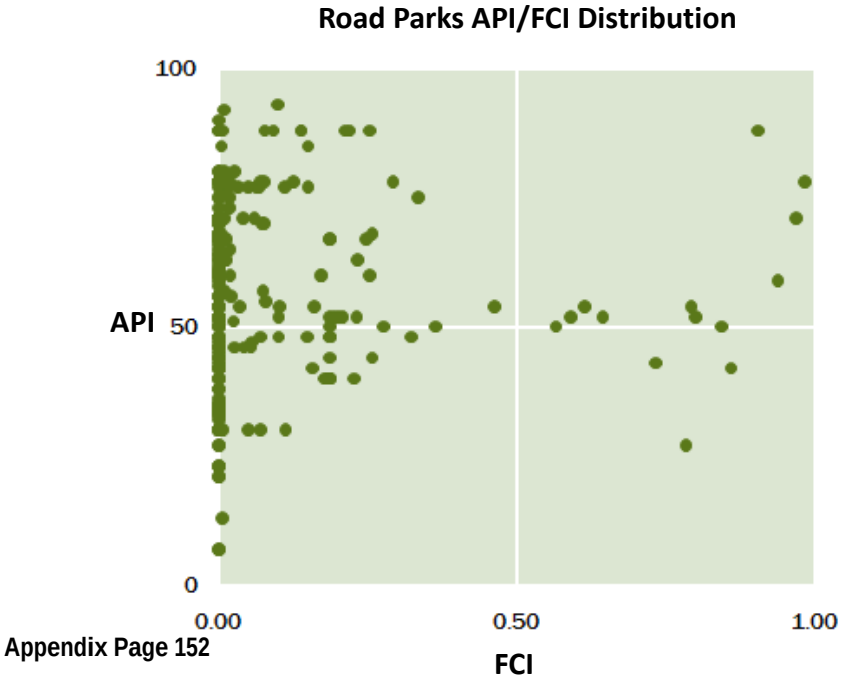


The Road Parks should target base and project funds on the top priority assets. Assets with high API scores are a logical starting point for determining maintenance priorities.

Plotting the Road Parks' transportation assets on this matrix demonstrates the distribution in terms of both condition and priority

- Of the 355 transportation assets (excluding those with an FCI > 1) depicted below, many are in good condition: 184 have and FCI < 0.15 and API ≥ 50, which accounts for 52% of the total
- A total of 61 assets, or 17%, have an API ≥ 50 and an FCI > 0.15
- 65% of the Road Park transportation assets have an FCI equal to zero; those assets are either in excellent condition or the park has not yet assessed them for deficiencies
- Over time as base and project funding is allocated to high priority assets, the distribution of transportation assets will shift to a negatively tending curve, reflecting more effective asset management

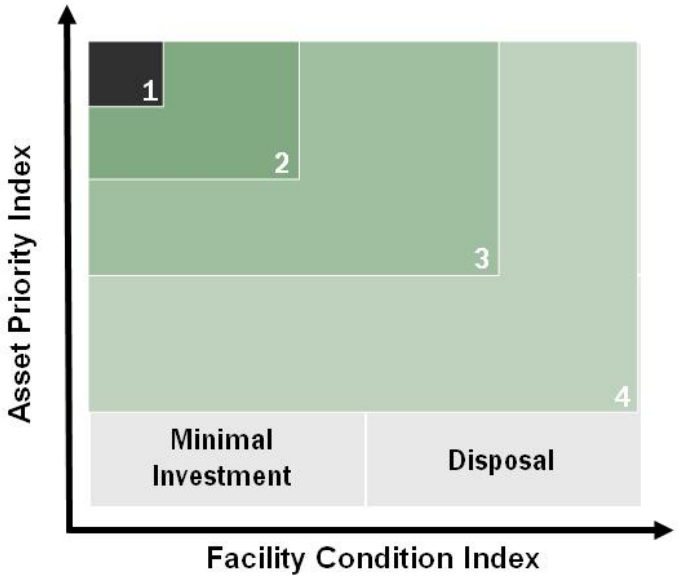




Appendix Page 152

During the PAMP process each Road Park prioritized their assets to assist in strategizing funding decisions

- The table below demonstrates the final prioritization results of transportation assets
- Assets falling within the lowest groups should receive minimal O&M funding



Priority	API	FCI	# of Assets
1. Highest	88	0.150	41
2. High	75	0.300	65
3. Medium	50	0.750	58
4. Low	21	1.000	90
5. Lowest	<21	>1.000	70
No Band			*31*
Total Asset Count			355

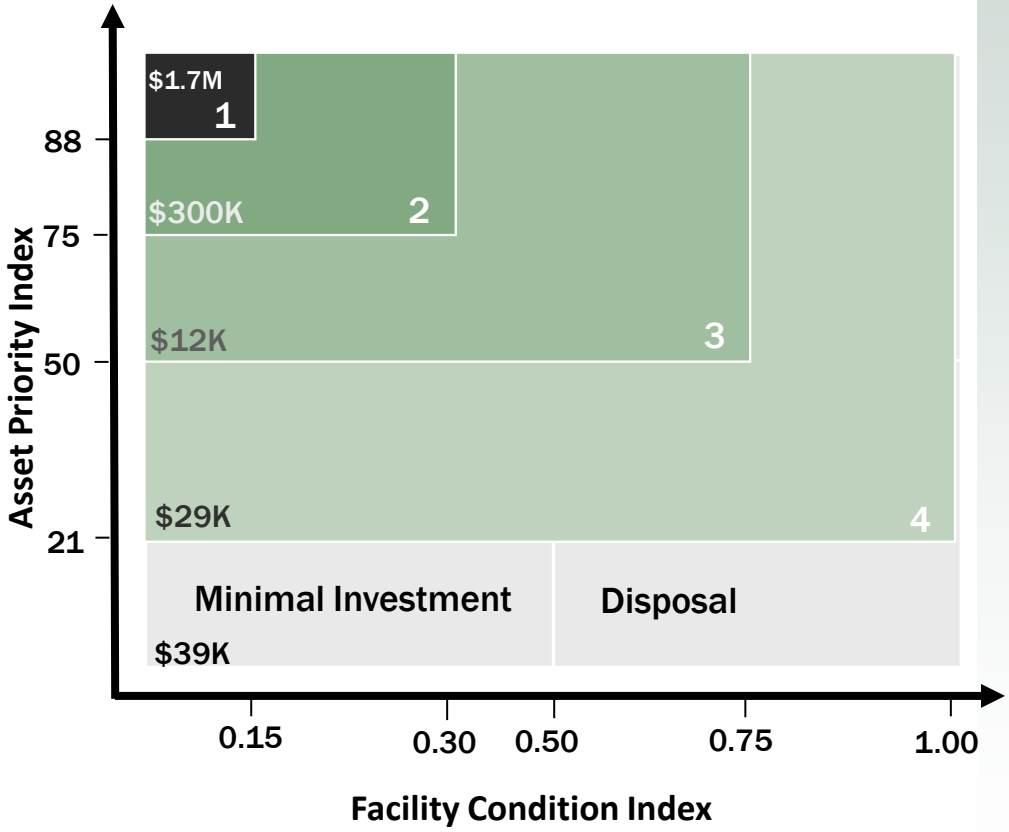
Park management employed logical criteria when establishing priority level for all assets in the portfolio

- Examining the reasons why assets end up in different priority bands helps develop a better estimate of true additional need for O&M funding
  - -- By moving assets into priority bands that will receive little to no funding, management can see exactly what functions they are not able to perform
- Assets were slotted into O&M priority bands using the following general guidelines:
  - -- Highest Priority Assets – Highly important to the park mission, these asset have high visitor use. Critical systems, some Operations, RM and PM will be addressed
  - -- High Priority Assets – Important to the park mission, some Operations and very little RM and PM will be addressed.
  - -- Medium Priority Assets – These assets, while important will only have essential operations funded
  - -- Low Priority Assets – These assets are important but not critical to park operations or do not require much maintenance funding. Very little O&M money will be spent on these assets unless more funding becomes available
  - -- Lowest Priority Assets – These assets may not be required for the operations and mission of the park. Many are backcountry assets or are targeted to receive project funding in the next few years

O&M amounts by priority band

- As intended by the PAMP process, the majority of the Road Parks base funds are directed to higher priority assets with 96% of funding going to the top two priority bands

- Low priority assets receive little, if any, funding for anything other than basic services



Road Parks O&M expenditures by work type: Actuals vs. Benchmarks

- Industry standard O&M costs can be broken down according to work type activities and divided into priority bands
- Total O&M budget of $2.1 million only covers 51% of the industry standard requirements for the transportation asset portfolio. However, band level 1 (highest priority) assets are almost entirely funded according to the benchmark
- There is 96% of the budget (for band levels 1 and 2) directed towards just 30% of the transportation asset portfolio, but that percentage contains the highest priority assets
- An increase in O&M funding will be required to meet the O&M needs for the portfolio if the Road Parks hope to avoid accumulating DM

Priority	Ops	RM	PM	Total
1	22%	316%	95%	98%
2	42%	116%	4%	54%
3	5%	0%	0%	3%
4	8%	0%	0%	4%
5	1%	77%	0%	6%
Total	18%	160%	26%	51%

O&M Optimizer Priority Band Level	Asset Count	Operations	RM	PM	Base Funding Totals	Benchmark Totals
(1) Highest Priority	41	$257,605	$1,275,642	$169,732	$1,702,979	$1,745,122
(2) High Priority	65	$136,120	$160,394	$3,162	$299,676	$549,888
(3) Medium Priority	58	$12,351	$0	$0	$12,351	$400,214
(4) Lower Priority	90	$28,442	$0	$632	$29,074	$753,505
(5) Lowest Priority	70	$3,093	$36,239	$0	$39,332	$613,717
Total O&M Base Funding Allocation	324	$437,611	$1,472,275	$173,526	$2,083,412	$4,062,445
O&M Industry Standard Benchmark Totals	324	$2,488,226	$917,783	$656,436	Gap: $1,979,033	
% Coverage of Benchmark Totals		18%	160%	26%	Total Coverage: 51%	

The Road Parks' current O&M base budget for transportation assets is $1.98 million less than industry standards. The deficit for the top 3 priority bands is $680 thousand.

• Priority bands 1 – 3 comprise $680K of the gap, a number that more closely approximates the additional O&M funding needs

O&M Optimizer Priority Band	Asset Count	Base O&M Allocations	O&M Benchmarks	Percent Coverage	O&M Funding Gap
(1) Highest Priority	41	$1,702,979	$1,745,122	98%	$42,143
(2) High Priority	65	$299,676	$549,888	54%	$250,212
(3) Medium Priority	58	$12,351	$400,214	3%	$387,863
(4) Lower Priority	90	$29,074	$753,505	4%	$724,431
(5) Lowest Priority	70	$39,332	$613,717	6%	$574,385
Totals	324	$2,083,412	$4,062,445	51%	$1,979,033

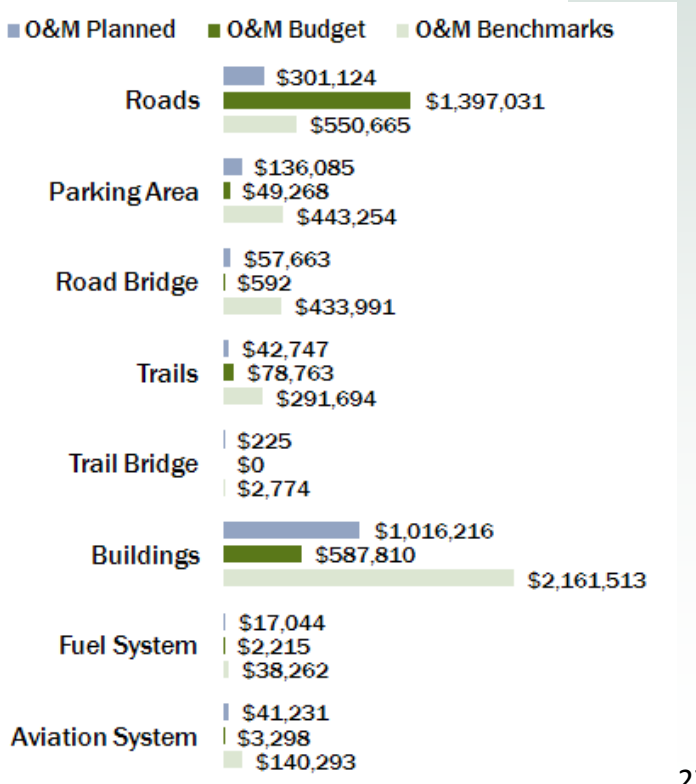
Gap for Bands 1-3 $680,218

Planned allocation of O&M funds will result in changes to the way the Road Parks manage some of their asset types

- Based on the optimized planned spending resulting from the PAMP processes, spending on roads will be significantly reduced

- All asset categories except roads and trails are likely candidates for receiving more funding in future years

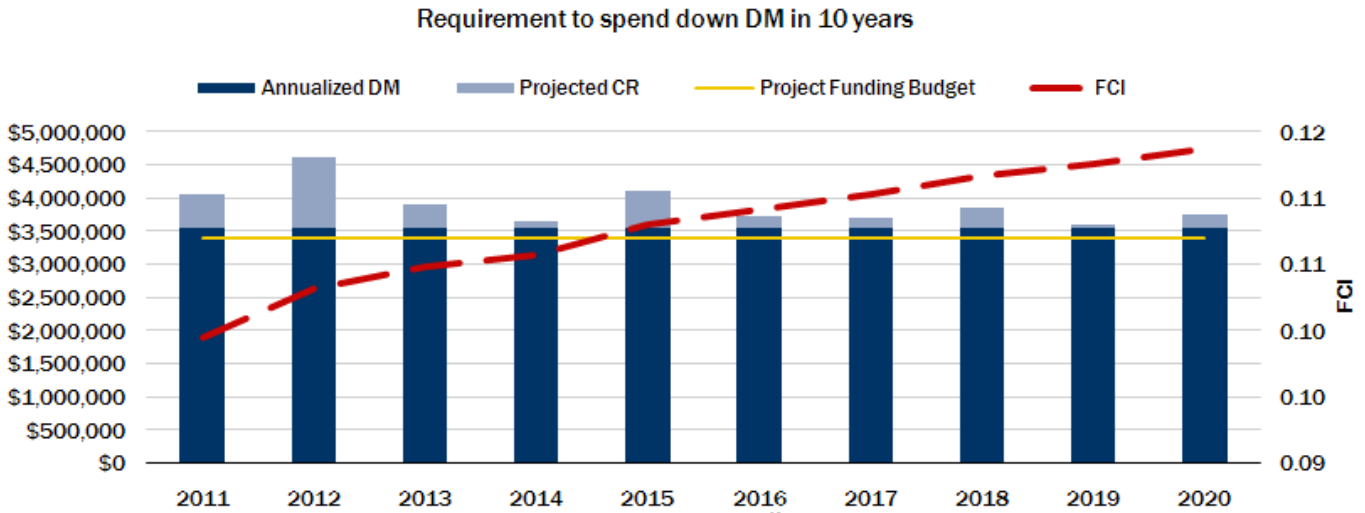
Asset	O&M Budget	O&M Planned	O&M Benchmarks	O&M Gap by Asset Type
Roads	$1,397,031	$301,124	$550,665	$249,541
Parking Area	$49,268	$136,085	$443,254	$307,169
Road Bridge	$592	$57,663	$433,991	$376,328
Trails	$78,763	$42,747	$291,694	$248,947
Trail Bridge	$0	$225	$2,774	$2,549
Buildings	$587,810	$1,016,216	$2,161,513	$1,145,297
Fuel System	$2,215	$17,044	$38,262	$21,218
Aviation System	$3,298	$41,231	$140,293	$99,062
Total	$2,118,977	$1,612,334	$4,062,445	$2,450,111



If the Road Parks were required to address their entire DM backlog in the next 10 years using the current available annual project funding, the condition of the transportation asset portfolio would decline

- If the Road Parks continue with an annual project funding average of approximately $3.4M, the FCI of their transportation asset portfolio will increase from 0.10 in 2011 to 0.12 over the course of 10 years, which is still considered a good rating

- In addition, by addressing only DM, the Road Parks would be forced to neglect other requirements normally addressed with project funds such as RM, leading to a more rapid deterioration of the transportation asset portfolio



General Conclusions

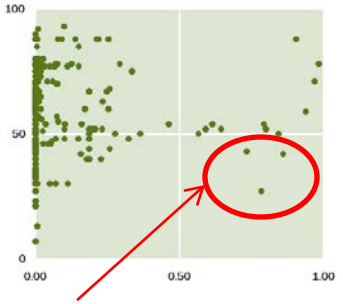
• Although the identified funding gap between O&M base allocations and benchmarks is approximately $2M , the gap the highest priority transportation assets—priority bands 1 through 3—is only $680K. This number more closely approximates additional O&M needs.

• The approximate annual project funding gap is $700K. This gap could be greatly reduced or eliminated by reducing the annual DM requirements.

Project Funding Gap	
DM Annualized Requirement	$3,534,195
CR Annualized Requirement	$584,819
Annual Project Funding Available	$3,397,119
Total Project Funding Gap	$721,895

• Although there are not many assets falling into the lower right quadrant, these low priority, poor condition assets are good candidates for disposal or mothballing. This is a good start to reducing O&M on unnecessary assets and reducing the Road Parks' transportation asset DM and CR requirements.

Asset	Type	Park	DM	CRV	API
Hideout Pit Parking Route 947 Mile Post 77.7	1300	DENA	$0	$36,709	21
Toklat Bridge Loop Parking Route 945	1300	DENA	$0	$168,790	7
Mai's Fuel System	5700	KEFJ	$0	$8,864	7
SACR-STR-001A (H) Sam Creek Cabin	4100	YUCH	$57,258	$51,782	15
SACR-STR-001B (H) Sam Creek Cache	4100	YUCH	$35,988	$30,892	15



• Future funding for the 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. The Road Parks should look towards additional funding mechanisms to help fund operations and project needs. Developing new partnership agreements, for example, could help to alleviate or reduce this cluster's maintenance responsibilities.

Appendix A: Road Parks Transportation Asset List

ROAD PARKS								
Location	Description	Park	Asset Code	Deferred Maintenance	CRV	API	FCI	Priority Band
20051	Denali Park Road Unpaved Route 010w	DENA	1100	$10,191,631	$48,044,689	88	0.21	1
20052	Denali Park Road Paved Route 010e	DENA	1100	$9,003,104	$41,058,864	88	0.22	1
22435	Riley Creek Campground Access Road Route 100 Concessions	DENA	1100	$362,302	$452,370	52	0.80	5
39571	Wonder Lake Campground Access Road Route 103	DENA	1100	$287,757	$1,138,595	60	0.25	2
39572	Riley Creek Campground Loop 2 Route 200B Concessions	DENA	1100	$341,980	$1,478,685	52	0.23	5
39573	Wilderness Access Center Access Road, Route 201Concessions	DENA	1100	$2,224,699	$819,921	77	2.71	5
39575	Headquarters Access Road Route 203	DENA	1100	$68,849	$497,607	88	0.14	2
39577	Savage River Campground Access Road, Route 204 Concessions	DENA	1100	$67,720	$114,777	52	0.59	5
39578	Sanctuary Campground Access Road, Route 205	DENA	1100	$21,575	$46,621	54	0.46	2
39579	Teklanika Campground Access Road Route 206	DENA	1100	$69,413	$107,746	52	0.64	2
39581	Igloo Campground Loop Route 207	DENA	1100	$18,076	$22,792	54	0.79	2
39582	Wonder Lake Campground Loops Route 208	DENA	1100	$16,930	$99,459	60	0.17	2
39583	Savage River Campground Loop A Route 209A Concessions	DENA	1100	$46,275	$21,441	52	2.16	5
39584	Teklanika Campground Loop A Route 210A	DENA	1100	$0	$311,845	52	0.00	2
39585	Sanctuary Campground Spur Route 211	DENA	1100	$35,553	$58,017	54	0.61	2
39588	Wonder Lake Shuttle Service Road Route 300	DENA	1100	$0	$174,052	42	0.00	2
39589	Dump Pit Road Route 400	DENA	1100	$0	$51,314	30	0.00	4
39590	Frontcountry Sewage Lagoon Road Route 401	DENA	1100	$18,912	$21,992	42	0.86	4
39591	Airstrip Access Road Route 402	DENA	1100	$139,955	$247,407	50	0.57	3
39595	Frontcountry Water Supply Road Route 404	DENA	1100	$0	$229,082	30	0.00	3
39603	C Camp Residence Maintenance Road Route 405	DENA	1100	$453,047	$537,190	50	0.84	2
39756	Rock Creek Pump House Road Route 406	DENA	1100	$0	$68,866	38	0.00	3
39760	Headquarters Housing Area Road Route 407	DENA	1100	$249,887	$904,740	50	0.28	2
39763	HQ Housing Area Road Loop A Route 407a	DENA	1100	$226,185	$622,009	50	0.36	2
39765	HQ Housing Area Road Loop B Route 407b	DENA	1100	$213,770	$169,639	50	1.26	2
39766	HQ Housing Area Road Loop C Route 407c	DENA	1100	$113,318	$94,389	50	1.20	2
39769	Dog Kennels Access Road Route 409	DENA	1100	$12,980	$14,346	88	0.91	3
39770	Rock Creek Reservoir Road Paved and Unpaved Route 410	DENA	1100	$36,214	$879,172	71	0.04	2
39773	Seven Mile Pit Road Route 412	DENA	1100	$41,196	$34,432	30	1.20	3
39774	Teklanika Pit Service Road Route 413	DENA	1100	$0	$123,546	30	0.00	3
39775	East Fork Cabin Road Route 415	DENA	1100	$110,000	$59,552	48	1.85	3
39776	Toklat Maintenance Camp Road Route 416	DENA	1100	$18,094	$237,767	78	0.08	3
39778	Wonder Lake Water Tank Road Route 417	DENA	1100	$22,573	$125,459	40	0.18	4

39779	C Camp Residence Road Route 418	DENA	1100	$0	$319,899	42	0.00	3
39780	Toklat Camp Residence Road Route 419	DENA	1100	$33,860	$217,566	42	0.16	3
98414	Denali Visitor Center Concessions Grounds Access Road	DENA	1100	$0	$55,236	45	0.00	5
98449	Concessions Sugarloaf Hall Access Road	DENA	1100	$0	$45,909	40	0.00	5
99195	Mercantile Access Road Route 222 Concessions	DENA	1100	$374,953	$1,159,199	48	0.32	5
99222	Depot Access Road Route 223	DENA	1100	$259,594	$2,603,956	52	0.10	2
99223	Mercantile Service Road Route 423 Concessions	DENA	1100	$36,575	$367,551	48	0.10	5
100035	Riley Creek Campground Loop 1 Route 200A Concessions	DENA	1100	$305,863	$1,583,296	52	0.19	5
100038	Riley Creek Campground Bear Loop 3 Route 200C Concessions	DENA	1100	$307,271	$1,478,685	52	0.21	5
100039	Savage River Campground Loop B Route 209B Concessions	DENA	1100	$45,711	$227,298	52	0.20	5
100041	Teklanika Campground Loop B Route 210B	DENA	1100	$0	$108,163	52	0.00	2
109885	Friday Creek Camp Road	DENA	1100	$0	$28,405	54	0.00	3
113052	Mountain Vista Loop Road	DENA	1100	$0	$450,213	78	0.00	
38021	Stony Overlook Rest Stop Parking Route 913	DENA	1300	$0	$164,112	42	0.00	3
39788	Wilderness Access Center Lower Parking Route 900 Concessions	DENA	1300	$559,483	$3,013,387	67	0.19	5
39791	Wilderness Access Center Upper Parking Rte 901A Concessions	DENA	1300	$273,706	$1,474,138	67	0.19	5
39797	Entrance Area Parking Route 903	DENA	1300	$52,747	$284,597	44	0.19	4
39800	Headquarters Parking A Route 905A	DENA	1300	$0	$334,674	67	0.00	3
39801	Savage River East Parking Route 906	DENA	1300	$86,862	$468,495	48	0.19	2
39802	Savage River West Parking Route 907	DENA	1300	$0	$285,036	48	0.00	3
39803	Primrose Old Parking Route 908B Concessions	DENA	1300	$0	$27,856	34	0.00	5
39804	Primrose Parking Route 909P Concessions	DENA	1300	$0	$159,794	34	0.00	5
39805	Headquarters Flagpole Shuttle Stop Parking Route 910	DENA	1300	$33,853	$182,578	52	0.19	2
39806	Teklanika Rest Stop Parking Route 911	DENA	1300	$0	$484,058	44	0.00	2
39809	Riley Creek Overflow Parking Unpaved Route 916B Concessions	DENA	1300	$0	$642,914	40	0.00	5
39810	Riley Creek Overflow Parking Paved Route 916A Concessions	DENA	1300	$22,831	$123,386	40	0.19	5
39812	Concessions Bus Maintenance East Parking Lot Route 919N	DENA	1300	$0	$301,356	50	0.00	5
39813	Concessions Bus Maintenance West Parking Lot Route 920N	DENA	1300	$0	$383,091	50	0.00	5
39814	Concessions Employee Parking Lot Route 921P LSI	DENA	1300	$0	$825,421	30	0.00	5
39815	Concessions Bus Fleet Parking Lot Route 922 LSI	DENA	1300	$0	$826,983	50	0.00	5
39816	Riley Creek Post Office Parking Route 928	DENA	1300	$94,734	$510,771	40	0.19	2
39817	Power Station Parking Route 924	DENA	1300	$0	$23,921	21	0.00	2
39818	Frontcountry Sewage Lagoon Parking Route 925	DENA	1300	$0	$187,725	23	0.00	4
39819	Riley Creek Campground Restroom Parking A Route 926A Concessions	DENA	1300	$7,872	$42,944	40	0.18	5
39820	Riley Creek Campground Access Parking Route 927P Concessions	DENA	1300	$0	$220,703	40	0.00	5
39821	Mercantile Dump Station Parking Route 971 Concessions	DENA	1300	$60,554	$266,954	40	0.23	5
39822	Riley Creek Shuttle Stop Parking A Route 929A Concessions	DENA	1300	$0	$15,003	40	0.00	5
39823	Savage River Campground Shuttle Parking Route 930	DENA	1300	$7,086	$38,070	48	0.19	2

39824	Savage Cabin Trailhead Parking Route 931	DENA	1300	$0	$95,026	48	0.00	2
39825	Savage River Viewpoint Parking Route 932	DENA	1300	$18,632	$99,829	48	0.19	2
39826	C Camp Maintenance Parking Route 933	DENA	1300	$172,411	$929,289	50	0.19	3
39827	Mercantile Store Parking Route 972 Concessions	DENA	1300	$79,828	$541,428	48	0.15	5
39828	C Camp Fuel Area Parking A Route 935A	DENA	1300	$0	$377,443	52	0.00	3
39829	B & U Pad Parking Route 936	DENA	1300	$0	$784,788	50	0.00	3
39830	C Camp Residence Parking A Route 937A	DENA	1300	$0	$245,205	42	0.00	3
39831	Toklat Maintenance Camp Parking Route 938	DENA	1300	$138,888	$1,855,615	70	0.08	3
39832	Five Mile Pit Parking Route 939	DENA	1300	$0	$895,429	23	0.00	4
39833	Seven Mile Pit Parking Route 940	DENA	1300	$0	$467,152	23	0.00	4
39834	Igloo Pit Parking Route 941	DENA	1300	$0	$285,036	35	0.00	4
39835	Loop Parking Mile 25.85 Route 942	DENA	1300	$0	$162,313	48	0.00	4
39836	Teklanika Shuttle Stop Parking A Route 943A	DENA	1300	$0	$41,027	60	0.00	2
39837	Teklanika Camp Host Parking Route 944	DENA	1300	$0	$33,111	42	0.00	3
39838	Toklat Bridge Loop Parking Route 945	DENA	1300	$0	$168,790	7	0.00	5
39839	Moose Creek Pit Parking Route 946 Mile Post 74.8	DENA	1300	$0	$60,103	33	0.00	4
39840	Hideout Pit Parking Route 947 Mile Post 77.7	DENA	1300	$0	$36,709	21	0.00	5
39843	Duck Pond Pullout Parking Route 948 Mile Post 79.2	DENA	1300	$0	$70,180	33	0.00	3
39844	Wonder Lake Ranger Station Parking 1 Route 949 Dalle Molleville	DENA	1300	$0	$83,137	51	0.00	3
39845	Wonder Lake Ranger Station Parking 2 Route 950	DENA	1300	$0	$112,287	51	0.00	3
39848	Reflection Pond Parking Route 951	DENA	1300	$0	$10,077	44	0.00	3
39850	McKinley Bar Trail Parking Route 953	DENA	1300	$0	$23,034	27	0.00	3
39851	Wonder Lake Shuttle Parking Route 954	DENA	1300	$0	$41,027	42	0.00	3
39853	Teklanika River Utility Parking Route 955	DENA	1300	$0	$22,313	30	0.00	3
39854	Kennels Shuttle Parking Route 956	DENA	1300	$0	$30,568	67	0.00	2
39856	Healy Trailhead Parking Route 957	DENA	1300	$26,767	$144,264	40	0.19	2
39857	Water Supply Pump House Parking Route 958	DENA	1300	$0	$58,478	30	0.00	3
39859	Water Tank Road Parking Route 959	DENA	1300	$0	$32,230	30	0.00	4
39861	Rock Creek Reservoir Parking Route 970	DENA	1300	$0	$43,192	38	0.00	3
88640	Riley Creek Campground Restroom Parking Bear Loop Concessions	DENA	1300	$0	$16,945	40	0.00	5
94869	Eielson Parking Lot Route #914	DENA	1300	$0	$300,123	78	0.00	2
99228	Primrose Parking Route 908A Old Concessions	DENA	1300	$0	$314,766	34	0.00	5
99229	Riley Creek Campground Restroom Parking Route 926B Concessions	DENA	1300	$8,397	$44,971	40	0.19	5
100043	Wilderness Access Center Upper Parking Rte 901B Concessions	DENA	1300	$28,866	$154,908	67	0.19	5
100044	Wilderness Access Center Upper Parking Rte 901C Concessions	DENA	1300	$88,961	$479,084	67	0.19	5
100045	Headquarters Parking B Route 905B	DENA	1300	$0	$123,503	67	0.00	3
100046	Headquarters Parking C Route 905C	DENA	1300	$0	$155,391	67	0.00	3

100047	Toklat Parking Areas B Route 912B	DENA	1300	$0	$229,282	43	0.00	5
100048	Riley Creek Shuttle Stop Parking B Route 929B Concessions	DENA	1300	$0	$132,412	40	0.00	5
100049	C Camp Fuel Area Parking B Route 935B	DENA	1300	$0	$200,564	52	0.00	3
100050	C Camp Residence Parking B Route 937B	DENA	1300	$0	$46,484	42	0.00	3
100051	C Camp Residence Parking C Route 937C	DENA	1300	$0	$18,049	42	0.00	3
100052	Teklanika Shuttle Stop Parking B Route 943B	DENA	1300	$0	$12,976	60	0.00	2
109063	Denali Visitor Center Parking	DENA	1300	$343,636	$1,366,059	88	0.25	2
109064	Murie Science & Learning Center Parking	DENA	1300	$20,075	$78,067	68	0.26	2
109232	Talkeetna Visitor Center Parking	DENA	1300	$0	$18,369	71	0.00	2
109882	73 Mile Pullout	DENA	1300	$0	$25,895	42	0.00	2
109883	74.5 Mile Pullout	DENA	1300	$0	$15,936	27	0.00	3
109884	Big Timber Overlook	DENA	1300	$0	$6,224	36	0.00	3
111869	Headquarters Parking D Route 905D	DENA	1300	$0	$283,244	67	0.00	
113056	Mountain Vista Parking Area	DENA	1300	$0	$332,437	78	0.00	
39987	Rock Creek Bridge Route 001P	DENA	1700	$29,392	$2,494,573	77	0.01	4
39989	Savage River Bridge Route 005P	DENA	1700	$48,597	$6,795,797	77	0.01	4
39991	Sanctuary River Bridge Route 007P	DENA	1700	$190,380	$3,848,035	77	0.05	4
39992	Teklanika River Bridge Route 008P	DENA	1700	$427,520	$6,457,941	77	0.07	4
39993	Igloo Creek Bridge #1 Route 009P	DENA	1700	$96,860	$1,448,441	77	0.07	4
39995	Igloo Creek Bridge #2 Route 010P	DENA	1700	$90,180	$816,826	77	0.11	4
39996	Ghiglione Creek Bridge Route 011P	DENA	1700	$33,400	$3,065,131	77	0.01	4
39998	East Fork Toklat River Bridge Route 012P	DENA	1700	$352,000	$5,472,188	77	0.06	4
40000	Toklat River Bridge #1 Route 013P	DENA	1700	$480,960	$15,315,476	77	0.03	4
40002	Toklat River Bridge #2 Route 014P	DENA	1700	$175,350	$15,315,476	77	0.01	4
40003	Stony Creek Bridge Route 015P	DENA	1700	$310,620	$2,088,197	77	0.15	4
40004	Moose Creek Bridge Route 016P	DENA	1700	$13,360	$3,339,894	77	0.00	4
115934	Riley Creek Bridge #3, Parks Hwy, MP 237	DENA	1700	$0	$5,430,274	77	0.00	
19970	Roadside Hiking Trail	DENA	2100	$0	$1,147,199	54	0.00	5
19971	Jonesville Trail	DENA	2100	$0	$358,379	56	0.00	5
83277	Denali BikeTrail (Frontcountry Multi-use Trail)	DENA	2100	$151,242	$4,463,872	54	0.03	1
98599	Wilderness Access Center Trail Concessions	DENA	2100	$0	$66,479	50	0.00	5
109837	MSLC Access Trails	DENA	2100	$108,211	$147,493	43	0.73	5
111187	HQ Area Trail System	DENA	2100	$46,362	$180,085	44	0.26	
88780	Roadside Trail Bridge	DENA	2200	$0	$253,968	70	0.00	2
1515	Auto Shop B164	DENA	4100	$110,523	$6,060,432	60	0.02	2
18726	Wonder Lake Campground Comfort Station B76	DENA	4100	$53,565	$217,264	67	0.25	2
18737	Savage Campground Bus Shelter B79	DENA	4100	$0	$43,075	48	0.00	2
18738	Riley Creek Campground Mercantile Bus Shelter B80 Concessions	DENA	4100	$0	$121,481	48	0.00	5

18745	Wilderness Access Center B91 Concessions	DENA	4100	$0	$2,888,603	78	0.00	5
18842	Wonder Lake Campground Comfort Station B134	DENA	4100	$1,915	$165,219	67	0.01	2
18911	Teklanika Rest Stop Comfort Stations	DENA	4100	$0	$1,108,981	67	0.00	1
18915	Teklanika Campground Bus Shelter B246	DENA	4100	$0	$76,994	48	0.00	2
18918	Talkeetna Visitor Center B249	DENA	4100	$92,211	$5,794,466	78	0.02	1
18927	BackCountry Information Center B261	DENA	4100	$0	$225,667	61	0.00	2
19158	Primrose Comfort Station B387 Concessions	DENA	4100	$0	$183,145	67	0.00	5
19159	Primrose Comfort Station B388 Concessions	DENA	4100	$0	$183,145	67	0.00	5
45909	Wonder Lake Campground Bus Shelter B206	DENA	4100	$2,411	$34,991	48	0.07	2
46494	Teklanika Rest Stop Bus Shelter B245 and Deck Area	DENA	4100	$0	$180,522	48	0.00	3
59479	Riley Creek Campground Bus Shelter B543 Concessions	DENA	4100	$0	$45,765	48	0.00	5
62098	Eielson Visitor Center	DENA	4100	$0	$19,056,378	78	0.00	1
86493	Murie Science and Learning Center MSLC B547	DENA	4100	$0	$2,060,565	90	0.00	1
86498	Denali Visitor Center B548	DENA	4100	$28,056	$10,303,509	88	0.00	1
86501	Denali Visitor Center Comfort Station B549	DENA	4100	$0	$932,684	71	0.00	1
86502	Denali Visitor Center Bus Shelter B552	DENA	4100	$0	$271,166	48	0.00	5
88035	HQ Kennels SST B564	DENA	4100	$0	$147,802	71	0.00	1
88038	North Face Corner SST B568	DENA	4100	$0	$146,175	67	0.00	4
88647	Concessions Area Bus Barn/Shop	DENA	4100	$0	$4,215,936	68	0.00	5
92143	Kantishna Airstrip SST B569	DENA	4100	$0	$134,948	67	0.00	2
97622	Toklat River Rest Area SST #1 B557	DENA	4100	$0	$85,328	71	0.00	1
97625	Toklat River Rest Area SST #2 B558	DENA	4100	$0	$85,328	71	0.00	1
97626	Toklat River Rest Area SST #3 B559	DENA	4100	$0	$85,328	71	0.00	1
97627	Toklat River Rest Area SST #4 B560	DENA	4100	$0	$85,328	71	0.00	1
97679	Toklat River Rest Area SST #5 B561	DENA	4100	$0	$85,328	71	0.00	1
97682	Toklat River Rest Area SST #6 B562	DENA	4100	$0	$85,328	71	0.00	1
98694	Savage River East SST #1 B565	DENA	4100	$0	$194,391	71	0.00	1
98695	Savage River West SST #1 B566	DENA	4100	$0	$235,780	71	0.00	1
98696	Savage River West SST #2 B567	DENA	4100	$0	$210,561	71	0.00	1
98866	Toklat River Rest Area Weatherport B667	DENA	4100	$0	$155,002	71	0.00	2
98937	Toklat River Rest Area SST #7 B563	DENA	4100	$0	$85,328	71	0.00	1
102787	Savage Campground SST B575 Concessions	DENA	4100	$0	$148,815	71	0.00	5
110376	Concessions Bus Dispatch Building B583	DENA	4100	$0	$671,094	68	0.00	5
111419	Eielson Utility Building	DENA	4100	$0	$284,557	78	0.00	2
113030	Mountain Vista Bus Shelter	DENA	4100	$0	$183,687	60	0.00	
113031	Mountain Vista SST#1	DENA	4100	$0	$108,051	71	0.00	
113033	Mountain Vista SST#2	DENA	4100	$0	$108,051	71	0.00	
113042	Mountain Vista SST#3	DENA	4100	$0	$108,051	71	0.00	

113044	Mountain Vista SST#4	DENA	4100	$0	$108,051	71	0.00	
113045	Savage Cabin Rest Stop SST #1	DENA	4100	$0	$276,778	71	0.00	
113046	Savage Cabin Rest Stop SST #2	DENA	4100	$0	$276,778	71	0.00	
113047	Savage Cabin Rest Stop SST #3	DENA	4100	$0	$276,778	71	0.00	
113051	Mountain Vista Viewing Shelter	DENA	4100	$0	$88,170	60	0.00	
114734	Kantishna Fuel Shed	DENA	4100	$0	$36,875	46	0.00	
225964	Toklat River Rest Area Urinal	DENA	4100	$0	$439,699	71	0.00	
33392	Auto Shop Pad Fuel Dispensing System	DENA	5700	$0	$779,900	70	0.00	1
33397	Toklat Area Fuel Dispensing System	DENA	5700	$0	$120,256	70	0.00	1
33439	Toklat Propane Bulk Storage and Filling Station	DENA	5700	$0	$196,111	50	0.00	1
33458	Wilderness Access Center Area Fuel System Concessions	DENA	5700	$33,617	$115,301	78	0.29	5
62099	Toklat Area Fuel Storage System	DENA	5700	$103,431	$110,256	59	0.94	1
89570	McKinley Airstrip Aviation Fuel Dispensing System	DENA	5700	$0	$64,522	78	0.00	1
89573	Auto Shop and B&U Area Heating Fuel System	DENA	5700	$0	$62,116	80	0.00	1
89600	HQ Area Fuel Tank System	DENA	5700	$2,058	$243,511	80	0.01	1
89856	Kantishna Fuel Dispensing System	DENA	5700	$0	$277,005	78	0.00	1
89877	Wonder Lake Area Fuel System	DENA	5700	$0	$93,485	59	0.00	1
93517	Denali Visitor and Backcountry Information Center Propane Fuel System	DENA	5700	$0	$23,220	88	0.00	1
98437	Concessions Bus Barn Fuel Distribution System	DENA	5700	$879	$197,461	68	0.00	5
98668	Teklanika Pit Fuel Dispensing System	DENA	5700	$0	$35,249	23	0.00	2
98669	Five Mile Pit Fuel Dispensing System	DENA	5700	$0	$26,803	23	0.00	
105540	Talkeetna Airstrip Aviation Fuel Dispensing System	DENA	5700	$0	$159,091	78	0.00	1
111511	Eielson Fuel System	DENA	5700	$0	$73,156	78	0.00	
33482	McKinley Airstrip	DENA	6400	$0	$4,011,460	88	0.00	3
36799	Kantishna Airstrip	DENA	6400	$601,662	$4,350,090	88	0.14	3
114742	Talkeetna Helipad	DENA	6400	$0	$70,671	61	0.00	
1048	Exit Glacier Road, Paved, RT 10	KEFJ	1100	$310,123	$2,496,224	78	0.12	1
42812	Campground Rd. Unpaved, RT 201	KEFJ	1100	$0	$35,115	34	0.00	4
59932	Nature Center Access Rd., RT 200	KEFJ	1100	$49,956	$710,604	30	0.07	2
59934	Exit Glacier Service Rd., Unpaved, RT 401	KEFJ	1100	$0	$10,270	34	0.00	2
1095	Nature Center Parking, Paved, RT 900	KEFJ	1300	$11,943	$1,031,072	63	0.01	2
42813	Exit Glacier Employee Parking, Unpaved, RT 901	KEFJ	1300	$0	$18,816	34	0.00	4
59937	Exit Glacier Campground Parking, Unpaved, RT 902	KEFJ	1300	$0	$23,804	34	0.00	4
59939	Maintenance Parking, Unpaved, RT 903	KEFJ	1300	$0	$256,732	63	0.00	2
114381	Visitor Center Parking, Paved	KEFJ	1300	$250	$45,106	13	0.01	3
1096	Exit Glacier Bridge, #9845-001P	KEFJ	1700	$0	$7,538,931	78	0.00	1
56804	Exit Glacier Paved Trail	KEFJ	2100	$0	$705,540	71	0.00	2
56805	Harding Icefield Trail	KEFJ	2100	$777,125	$1,184,892	85	0.15	4

91649	Exit Glacier Trails	KEFJ	2100	$120,751	$1,219,272	93	0.10	2
108622	Coastal Trails & Paths	KEFJ	2100	$0	$260,454	64	0.00	4
1039	Visitor Center	KEFJ	4100	$208,486	$3,028,679	78	0.07	1
1041	Maintenance Facility	KEFJ	4100	$237,898	$3,318,708	70	0.07	2
42771	Interpretive Storage Shed	KEFJ	4100	$0	$41,703	70	0.00	5
42798	Plaza Comfort Station	KEFJ	4100	$8,697	$785,989	78	0.01	1
42807	Nature Center	KEFJ	4100	$7,074	$950,960	78	0.01	1
89837	Romtec toilet (Housing)	KEFJ	4100	$3,997	$67,841	71	0.06	2
116149	Harbor Comfort Station	KEFJ	4100	$30,442	$390,667	55	0.08	4
225984	Education Pavilion	KEFJ	4100	$0	$168,058	65	0.00	2
42805	Diesel Fuel System - Exit Glacier	KEFJ	5700	$0	$12,329	78	0.00	2
110752	Mai's Fuel System	KEFJ	5700	$0	$8,864	7	0.00	5
82471	ROAD COPPER CENTER HQ & VC	WRST	1100	$117,020	$1,279,486	88	0.09	1
82479	PRKLOT COPPER CENTER VISITOR CENTER - Paved	WRST	1300	$76,717	$991,381	88	0.08	2
82482	PRKLOT COPPER CENTER ADMIN - Paved	WRST	1300	$0	$272,630	80	0.00	2
93456	PARKING Crystalline Hills Parking Area	WRST	1300	$0	$10,677	44	0.00	4
110940	Chitina Wayside	WRST	1300	$0	$161,375	46	0.00	4
226321	Copper Center Headquarters Entrance Wayside	WRST	1300	$0	$300,128	61	0.00	
36855	BRIDGE KENNECOTT NEW NATIONAL CREEK TRESTLE	WRST	1700	$509,988	$1,523,100	75	0.34	2
36856	BRIDGE MAY CREEK	WRST	1700	$0	$45,857	54	0.00	5
36828	TRAIL NUGGET CREEK	WRST	2100	$73,681	$3,096,651	51	0.02	5
36829	TRAIL KOTSINA ROAD/TRAIL	WRST	2100	$0	$4,683,684	40	0.00	5
40573	TRAIL MAY CREEK - AIRPORT TO YOUNG CREEK	WRST	2100	$0	$406,435	54	0.00	5
60671	TRAIL REEVES FIELD	WRST	2100	$125,167	$706,423	40	0.18	5
60674	TRAIL BATZULNETAS	WRST	2100	$0	$445,144	63	0.00	5
109306	TRAIL TANADA LAKE	WRST	2100	$0	$1,935,407	54	0.00	5
109308	TRAIL COPPER LAKE	WRST	2100	$594,209	$5,813,961	54	0.10	5
109310	TRAIL SODA LAKE	WRST	2100	$321,851	$2,012,824	54	0.16	5
56285	BRIDGE KENNECOTT NATIONAL CREEK TRAIL BRIDGE	WRST	2200	$0	$56,735	62	0.00	2
11965	BPVCX CHITINA ORR CABIN VISITOR CENTER	WRST	4100	$6,513	$667,453	71	0.01	3
12020	BPKNHLX KENNECOTT RAILROAD DEPOT/STATION HOUSE	WRST	4100	$1,084	$281,446	85	0.00	3
12022	BPVC SLANA RANGER STATION AND VISITORS CENTER	WRST	4100	$13,254	$989,308	78	0.01	2
12023	BPOH MXY MCCARTHY ROAD INFO STATION OUTHOUSE (Left)	WRST	4100	$1,788	$42,888	46	0.04	3
12024	BPOH MXY MCCARTHY ROAD INFO STATION OUTHOUSE (Right)	WRST	4100	$1,119	$42,888	46	0.03	3
12027	BPOH DEAD DOG VAULT TOILET NABESNA ROAD	WRST	4100	$0	$32,836	46	0.00	4
12028	BPOH TWIN LAKES TOILET NABESNA ROAD	WRST	4100	$0	$32,836	46	0.00	4
12029	BPOH JACK CREEK TOILET NABESNA ROAD	WRST	4100	$0	$32,836	46	0.00	4
12030	BPOH ROCK LAKE TOILET NABESNA ROAD	WRST	4100	$1,730	$32,836	46	0.05	4

32873	BA GULKANA HANGAR	WRST	4100	$142,001	$1,926,565	57	0.07	1
32881	BA GMF FUEL STORAGE SHED	WRST	4100	$0	$88,523	35	0.00	4
32888	BP HQ COMFORT STATION	WRST	4100	$8,827	$661,935	77	0.01	2
32889	BPVC HQ VISITOR CENTER	WRST	4100	$28,248	$4,616,768	88	0.01	1
32892	BA HQ ADMINISTRATIVE MAIN OFFICE	WRST	4100	$29,427	$3,390,702	92	0.01	1
36505	BPI MXY MCCARTHY ROAD INFO STATION KIOSK	WRST	4100	$8,073	$34,738	63	0.23	4
36841	UWW CHITINA ORR OUTHOUSE	WRST	4100	$284	$10,722	80	0.03	3
56662	BA SLANA FUEL STORAGE DOCK	WRST	4100	$0	$110,653	56	0.00	4
56663	BA MXY AIRPORT BUILDING	WRST	4100	$3,085	$361,859	57	0.01	3
81744	BA CHISANA CZN Airport FUEL STORAGE SHED	WRST	4100	$3,238	$160,826	56	0.02	4
81748	BA MYK AIRSTRIP FUEL STORAGE SHED	WRST	4100	$0	$160,826	56	0.00	3
93445	BPOH Kuskulana Bridge Vault Toilet	WRST	4100	$0	$42,888	54	0.00	3
93448	BPOH Gilahina Trestle Vault Toilet	WRST	4100	$0	$42,888	44	0.00	3
106882	BPI MXY MCCARTHY ROAD INFO STATION	WRST	4100	$0	$80,413	52	0.00	5
110570	BPHO FIREWISE WAYSIDE OUTHOUSE	WRST	4100	$0	$42,888	54	0.00	5
110670	BPHO Slana Vault Toilet	WRST	4100	$0	$32,836	46	0.00	5
110912	BP HQ BUS SHELTER	WRST	4100	$0	$46,437	68	0.00	
110941	Chitina Wayside Shelter	WRST	4100	$0	$96,034	46	0.00	4
110942	Chitina Wayside Outhouse	WRST	4100	$1,429	$80,415	65	0.02	3
114174	Jacobson Bldg - Yakutat	WRST	4100	$0	$1,225,882	68	0.00	
114175	Yakutat Hangar - Leased	WRST	4100	$0	$210,683	54	0.00	
115091	BA MAY CREEK POST OFFICE OUTHOUSE	WRST	4100	$0	$32,166	61	0.00	
115092	BA MAY CREEK AIRSTRIP PUBLIC USE CABIN OUTHOUSE	WRST	4100	$0	$16,753	42	0.00	
36832	UAST GKN AVIATION AvGas/Jet B TANK #1	WRST	5700	$0	$129,035	30	0.00	4
36833	UAST MYK AVIATION Jet B TANK #19A	WRST	5700	$0	$13,318	30	0.00	4
36834	UAST CZN AVIATION Jet B TANK #24A	WRST	5700	$0	$10,230	30	0.00	4
46864	UAST SLANA R/S DIESEL TANK #11	WRST	5700	$0	$13,318	30	0.00	4
46939	UAST SLANA R/S GASOLINE TANK #12A	WRST	5700	$1,677	$15,092	30	0.11	4
46940	UAST MYK OPERATIONS DIESEL TANK #23A	WRST	5700	$0	$9,239	30	0.00	4
46942	UAST SLANA R/S GASOLINE TANK #12	WRST	5700	$557	$11,386	30	0.05	4
46943	UAST MYK OPERATIONS GASOLINE TANK #22A	WRST	5700	$0	$11,386	30	0.00	4
48918	UAST AVIATION CZN AvGas TANK #25A	WRST	5700	$0	$15,292	30	0.00	4
48919	UAST CZN AVIATION AvGas TANK #26A	WRST	5700	$0	$23,528	30	0.00	4
48920	UAST CZN AVIATION Jet B TANK #27	WRST	5700	$0	$15,092	30	0.00	4
48921	UAST CZN AVIATION Jet B TANK #28	WRST	5700	$0	$18,666	30	0.00	4
48922	UAST CZN AVIATION Jet B TANK #29	WRST	5700	$0	$11,386	30	0.00	4
48923	UAST MYK AVIATION AvGas TANK #20A	WRST	5700	$0	$15,092	30	0.00	4
48924	UAST MYK AVIATION AvGas TANK #19B	WRST	5700	$49	$15,092	30	0.00	4

48925	UAST MYK AVIATION AvGas TANK #19C	WRST	5700	$0	$15,092	30	0.00	4
48926	UAST MYK AVIATION Jet B TANK #21B	WRST	5700	$0	$23,528	30	0.00	4
48927	UAST MYK AVIATION Jet B TANK #21A	WRST	5700	$0	$23,528	30	0.00	4
48928	UAST MXY AIRPORT Gasoline/Diesel Tank #31	WRST	5700	$0	$46,509	30	0.00	4
86836	UAST MXY Airport Diesel TANK #32A	WRST	5700	$0	$11,386	30	0.00	4
86837	UAST MXY Airport Diesel TANK #32B	WRST	5700	$0	$11,386	30	0.00	4
86839	UAST KENNECOTT Diesel Tank #34A	WRST	5700	$110	$15,092	30	0.01	4
86840	UAST MXY West Side Diesel Tank #33A	WRST	5700	$0	$23,528	30	0.00	4
12042	AIRSTRIP SKOLAI PASS	WRST	6400	$0	$377,669	60	0.00	4
12044	AIRSTRIP SOLO CREEK	WRST	6400	$0	$240,014	60	0.00	4
12050	AIRSTRIP CHELLE	WRST	6400	$0	$377,669	60	0.00	4
12051	AIRSTRIP NUGGET CREEK	WRST	6400	$0	$90,005	60	0.00	5
12052	AIRSTRIP MAY CREEK	WRST	6400	$0	$5,400,314	60	0.00	3
12053	AIRSTRIP BREMNER	WRST	6400	$0	$448,482	64	0.00	4
12054	AIRSTRIP GLACIER CREEK	WRST	6400	$24,946	$144,008	60	0.17	4
12055	AIRSTRIP JAKES BAR #1	WRST	6400	$0	$250,015	60	0.00	4
12056	AIRSTRIP JAKES BAR #2	WRST	6400	$0	$120,007	60	0.00	4
12057	AIRSTRIP HUBERTS	WRST	6400	$0	$90,005	60	0.00	4
12059	AIRSTRIP PEAVINE BAR	WRST	6400	$0	$330,019	60	0.00	4
94959	AIRSTRIP TANA RIVER	WRST	6400	$29,078	$540,031	47	0.05	4
97106	AIRSTRIP Baultoff	WRST	6400	$0	$180,010	47	0.00	4
97107	AIRSTRIP Sanford 1	WRST	6400	$0	$56,003	47	0.00	4
97108	AIRSTRIP Sanford 2	WRST	6400	$0	$60,003	47	0.00	4
97109	AIRSTRIP Black Mountain	WRST	6400	$0	$164,780	47	0.00	4
226446	AIRSTRIP Nizina/Chitina	WRST	6400	$0		78	0.00	
226447	AIRSTRIP Peninsula	WRST	6400	$0	$423,719	78	0.00	
226448	AIRSTRIP Amphitheater	WRST	6400	$0	$129,052	78	0.00	
226449	AIRSTRIP Doubtful Creek	WRST	6400	$0	$101,693	78	0.00	
99356	COCR-STR Lower Road/Trail	YUCH	1100	$0	$885,165	58	0.00	4
78727	COCR-STR-022B Upper Route	YUCH	2100	$0	$3,894,727	38	0.00	4
73154	EHQB VC Comfort Station	YUCH	4100	$441,167	$448,501	78	0.98	2
73159	EAPB Hangar	YUCH	4100	$0	$465,465	66	0.00	2
73319	Snowmobile Storage - Airstrip	YUCH	4100	$0	$238,747	33	0.00	4
73661	CoCAB Aviation Shed	YUCH	4100	$0	$96,342	71	0.00	3
75528	YURI-STR-040A (H) Frank Slaven Roadhouse	YUCH	4100	$0	$951,849	88	0.00	1
75533	YURI-STR-063A Slaven Public Use Cabin	YUCH	4100	$0	$103,565	73	0.00	3
75548	YURI-STR-063B Slaven Public Use Comfort Station	YUCH	4100	$567	$32,692	73	0.02	3
75550	Gold Dredge Outhouse	YUCH	4100	$0	$32,692	70	0.00	

75553	BECR-STR-004C Ben Creek Cabin	YUCH	4100	$0	$111,803	32	0.00	5
75554	KARI-STR-009 Ricketts/Trainor Cabin	YUCH	4100	$0	$67,670	70	0.00	3
75555	SACR-STR-001A (H) Sam Creek Cabin	YUCH	4100	$57,258	$51,782	15	1.11	5
75556	SACR-STR-001B (H) Sam Creek Cache	YUCH	4100	$35,988	$30,892	15	1.17	5
75558	YURI-STR-013A (H) Nation Bluff Cabin	YUCH	4100	$0	$66,199	70	0.00	3
75559	YURI-STR-013B (H) Nation Bluff Cache 1	YUCH	4100	$0	$19,771	70	0.00	4
75568	YURI-STR-013D (H) Nation Bluff Comfort Station	YUCH	4100	$0	$32,692	70	0.00	4
75569	YURI-STR-023A (H) Glenn Creek Cabin	YUCH	4100	$0	$57,667	70	0.00	3
75570	YURI-STR-023C (H) Glenn Creek Comfort Station	YUCH	4100	$0	$17,027	70	0.00	3
84712	CHRI-STR-021 (H) Gelvin s Cabin	YUCH	4100	$27,688	$35,306	27	0.78	5
111058	BC Washington Creek Cabin	YUCH	4100	$0	$236,257	54	0.00	4
73664	CoCAU AVGAS System	YUCH	5700	$0	$85,566	75	0.00	
73672	CoCAU JET B System	YUCH	5700	$0	$53,869	75	0.00	4
73674	CoCAU JET A System	YUCH	5700	$0	$37,129	75	0.00	4
73685	EAPU Unleaded Gasoline System	YUCH	5700	$612	$37,129	75	0.02	4
73688	EAPU Jet A-Avi. Fuel System	YUCH	5700	$0	$37,129	75	0.00	4
73690	EAPU AVGAS System	YUCH	5700	$0	$37,129	75	0.00	4
99358	UNLEADED gasoline system	YUCH	5700	$0	$8,625	75	0.00	4
73659	COAL CREEK AIRSTRIP (CoCA)	YUCH	6400	$0	$1,203,825	83	0.00	2

Source: NPS FMSS, printed on 1/06/2011

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National Park Service
Alaska Region Long Range Transportation Plan

Appendix B
Mobility Technical Report

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Table of Contents

Tables

Figures

Acronyms and Abbreviations

ADA	Americans with Disabilities Act
AKR	Alaska Region
AMHS	Alaska Marine Highway System
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
API	Asset Priority Index
ATIA	Alaska Travel Industry Association
ATV	All-terrain vehicle
BARD	Boating Accident Report Database
CRV	Current replacement value
DOT&PF	Alaska Department of Transportation and Public Facilities
EA	Environmental Assessment
EIS	Environmental Impact Statement
FARS	Fatality Analysis Reporting System
FCI	Facility condition index
FLMA	Federal Land Management Agency
GMP	General management plan
IRR	Indian reservation roads
LRTP	Long range transportation plan
MPO	Metropolitan Planning Organization
NPS	National Park Service
NTSB	National Transportation Safety Board
ORV	Off-road vehicle
PAMP	Park asset management plan
PMIS	Project Management Information System
ROW	Right-of-way
RS	Revised Statute
SMIS	Safety Management Information System
STARS	Service-wide Traffic Accident Reporting System
TIS	Traveler information systems
USFS	U.S. Forest Service
USFWS	U.S. Fish & Wildlife Service

Photo credits

Carl Siebe: Brooks Lake access to Katmai (p2); Float plane shuttle, Katmai (p7); Kennecott Mine, Wrangell-St. Elias (p49); White Pass and Yukon Route Railroad accesses Skagway, “Gateway to the Klondike” (p28).
Nancy Tankersley: Chilkoot Trail, Klondike Gold Rush (p31).
John Wolfe: Gates of the Arctic (p6); Taxi boat unloading kayaks, Kenai Fjords (p29); Aialik Bay, Kenai Fjords (p23).
Joli Weiss: Seward Highway and Alaska Railroad (p9); Alaska Railroad along Turnagain Arm and the Seward Highway (p27 and cover); Cruise ships in Southeast Alaska (p8 and cover); Wildlife Viewing on Denali Park Road (p14).
Dirk Greeley: May Creek Airstrip, Wrangell-St. Elias (p30).
Ron Nicholl: Winter trail marker along the Iditarod Trail (p31 and cover).
Tom Brigham: Concessionaire shuttle bus, Denali (p53 and cover).

1. Mobility Technical Report Overview

The National Park Service (NPS) Alaska Region (AKR) is developing a long range transportation plan (LRTP) to guide future transportation program development and implementation. The LRTP will also bring the NPS into compliance with Federal legislation requiring Federal Land Management Agencies to conduct long range transportation planning in a manner consistent with U.S. Department of Transportation planning practices for State and Metropolitan Planning Organizations (MPOs). The AKR LRTP will provide NPS decision-makers with information and data necessary for informing future planning and operational decisions.

This LRTP effort is being led by a core team consisting of NPS staff from the AKR office; NPS staff from a number of Alaska park units; staff from Western Federal Lands Highways Division of the Federal Highway Administration; and the NPS' consultant, HDR Alaska, Inc. At the onset of this effort in late 2009, the core team developed the following mission statement for the LRTP:

> ***"To implement an Alaska Region long range transportation plan that provides overarching strategies compatible with individual Park missions."***

Early in the LRTP process, the core team developed a list of goals, objectives, and strategies and obtained supporting data. Goals were generally related to one of five categories: asset management, visitor experience, mobility, or cultural and natural resources. Four categories were presented in a report produced by the core team in April 2010 entitled Alaska Region *State of the Regional Transportation System Report*.

The purpose of this technical report is to present the mobility goal and supporting information. The core team developed the following goal for mobility:

> ***Provide safe, efficient, affordable, and Park-appropriate access to and through Park lands.***

This technical report details the objectives for achieving the mobility goal, which are improving visitor access, safety, and visitor information.

Section one introduces the mobility goal in the context of the AKR NPS LRTP effort and states the contents of this report.

Section two presents the mobility goal and supporting objectives as defined by the core team.

Section three explains the analytical approach to developing and obtaining supporting information and data. This section describes the "cluster group" approach used to address Alaska's park units, based on their geographic location and unique multi-modal needs.

Section four details the unique transportation challenges and modes used to access the park units.

Sections five and six present data and information to support the safety and visitor information objectives, respectively.

Section seven summarizes some of the key mobility issues that were identified in this report. Draft recommended actions have been included to provide a basis for discussion to achieving the objectives goal and objectives. This section also describes some of the gaps and limitations of the data and information that was collected.

2. Addressing Mobility within the LRTP

One of the main purposes of having a transportation system is to provide mobility. The purpose of mobility is to move people, goods and services to the places they need to go. For the NPS, mobility is about how easy it is for visitors to access its park units, whether it is traveling to, through, or within the park.

In the context of the Alaska Region and its LRTP effort, the ease with which one can access a park unit is related to access, safety, and availability of visitor information.

Mobility reflects a purpose to move people and goods from place to place.

Mobility provides benefits to society.

The ability to move people and goods freely provides increased opportunities to improve the quality of life.

The AKR LRTP draft goal for mobility is

- Provide safe, efficient, and appropriate access to and through NPS lands.

The AKR LRTP draft objectives are

- **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 the NPS lands.

Access is addressed in Section 4 of this report. Safety is addressed in Section 5. Coordination planning, as defined as visitor information in this technical report, is addressed in Section 6. Safety and visitor information help to address moving park visitors to and within the park units.

2.1. Alaska's Unique Transportation Challenges and Multi-Modal Travel

Alaska is vast and diverse and so are many of the park units contained within. The NPS oversees management of more than 84 million acres of land, of which approximately 65% is located in Alaska. The Alaska Region has an even greater challenge than most other NPS regions in the country due to the expansiveness of the region and the remoteness of the park units.

Table 1 highlights some characteristics of Alaska's park units and begins to paint the big picture of just how great the travel distances are, how large some of the park units are, and the limited types of

Brooks Lake access to Katmai

transportation modes used to access the park units. Mobility is more easily addressed when decision-makers have a sense of Alaska's transportation challenges and the types of transportation modes available and that are used.

Table 1: Alaska Region Park Units Characteristics Summary

Park Unit	Approx. distance from AKR office in Anchorage (miles)	Approx. Size (acres)	AKR Size Ranking	2010 Visitation (recreation only)	2010 Visitation (non-recreation only)	2010 Visitation Total	% of 2010 visitors reported as a Recreational Visitor Only	Primary Transportation Mode(s)	Accessible by Road?
Alagnak Wild River	290 SW	24,000	14	*	*	*	*	Air	NO
Aniakchak National Monument and Preserve	450 SW	600,000	13	62	0	62	100%	Air	NO
Bering Land Bridge National Preserve	550 NW	2.8 million	8	2,642	1,128	3770	70%	Air	NO
Cape Krusenstern National Monument	560 NW	660,000	11	2,521	390	2911	87%	Air	NO
Denali National Park and Preserve	240 N	6 million	4	378,855	872,110	1,250,965	30%	Road, Rail	YES
Gates Of The Arctic National Park and Preserve	400 N	8 million	2	10,840	0	10,840	100%	Air	indirectly
Glacier Bay National Park and Preserve	530 SE	3.3 million	7	444,530	454	444,984	99%	Boat	NO
Katmai National Park and Preserve	290 SW	4.7 million	5	55,172	0	55,172	100%	Air	NO
Kenai Fjords National Park	120 S	607,000	12	297,596	0	297,596	100%	Road, Boat	YES
Klondike Gold Rush National Historical Park	530 E	13,000	15	797,716	0	797,716	100%	Boat	YES
Kobuk Valley National Park	610 NW	1.7 million	10	3,164	370	3,534	90%	Air	NO
Lake Clark National Park and Preserve	150 SW	3.6 million	6	9,931	0	9,931	100%	Air	NO
Noatak National Preserve	600 NW	6.6 million	3	3,257	350	3,607	90%	Air	NO
Sitka National Historical Park	590 SE	107	16	189,176	0	189,176	100%	Boat	NO
Wrangell - St Elias National Park and Preserve	340 E	13.2 million	1	73,170	0	73,170	100%	Road, Air	YES

Park Unit	Approx. distance from AKR office in Anchorage (miles)	Approx. Size (acres)	AKR Size Ranking	2010 Visitation (recreation only)	2010 Visitation (non-recreation only)	2010 Visitation Total	% of 2010 visitors reported as a Recreational Visitor Only	Primary Transportation Mode(s)	Accessible by Road?
Yukon - Charley Rivers National Preserve	350 NE	2.5 million	9	6,211	0	6,211	100%	Air, Boat	indirectly

* Alagnak visitation numbers are included within Katmai National Park and Preserve Visitation numbers.
Source: Visitation data from NPS Public Use Statistics Office (accessed at: http://www.nature.nps.gov/stats/).

3. Analytical Approach to Mobility

3.1. Methodologies and Approaches to Developing Mobility Information

Mobility is one of the identified goals for the AKR LRTP. Three objective themes supporting the mobility goal were identified by the core team[1]; these are (1) access, (2) safety, and (3) visitor information. Subsequent to the development of this goal and related objectives, the team searched for relevant mobility data to set a baseline condition and to identify possible trends. Trends of the system condition, visitation data, and other data sets were obtained to consider what may affect the future of the AKR transportation system.

For access, the team took a qualitative look at how visitors access Alaska's vast and diverse national park system. Safety data was obtained, for both NPS-owned and -managed transportation assets and systems, and also those assets and systems not under NPS' management or jurisdiction, such as State-owned facilities or systems. Available safety-related crash or incident data is included in this report. For visitor information, the team investigated how the region as a whole disseminates visitor information. Several other sources of mobility-related information were obtained, including projects listed in the NPS Project Management Information System (PMIS), park unit surveys conducted specifically for this LRTP effort, and a review of other NPS planning and management documents.

3.2. Mobility Overview and Cluster Group Analysis

Data related to access entailed taking a qualitative look at how visitors access each park unit in Alaska. Each park unit provides varying mobility challenges. In order to streamline the transportation planning analysis, the park units were grouped into four "clusters," depending upon their location in Alaska and unique multi-modal needs. The four cluster groups of AKR park units are identified below in Table 2 and on

Figure 1 and further detailed in subsequent sections.

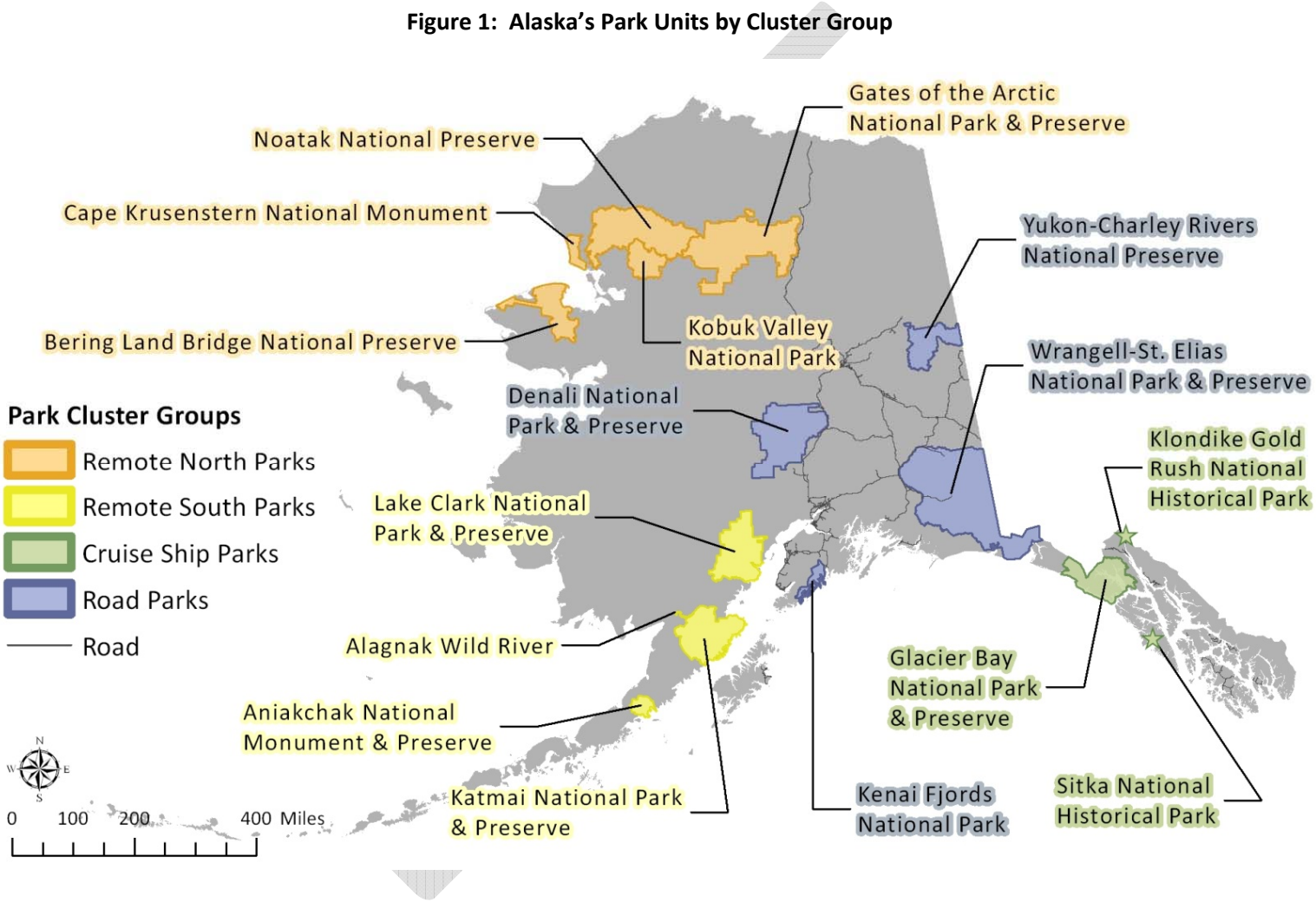
[1] A fourth objective was initially identified but removed due to its redundancy with other objectives. This was "Multimodal Transportation: Invest in mode-appropriate transportation to and within parks."

Table 2: Alaska Region Park Units by Cluster Group

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

*Note: Cruise Ship Parks are those accessed mostly via boats, while Road Parks are those that are accessed predominantly via a road network.

Figure 1: Alaska's Park Units by Cluster Group



3.2.1. Remote North Parks

Small planes are the primary transportation mode used to access Gates of the Arctic

Bering Land Bridge, Cape Krusenstern, Noatak, Kobuk, and Gates of the Arctic comprise the *Remote North Parks* cluster group.

Characteristics: The *Remote North Parks* are characterized by remoteness; vastness; few facilities and no services; necessity for self-reliance; and limited access with oftentimes atypical transportation modes, including fixed-wing aircraft, water access via motorized or non-motorized watercraft, snowmachines, or dog sleds. Four of the five park units in this cluster (excluding Gates of the Arctic) are contained within the Western Arctic National Parklands management unit

Gates of the Arctic is included as one of the *Remote North Parks* because of its similar characteristics and geographic proximity to the other Remote North Parks. Unlike the other four park units that are not connected to the road system, Gates of the Arctic can be accessed indirectly by a roadway via foot.

Visitation: This cluster group has the least number of reported recreation visitors. In 2010, the number of reported recreation visits to these five park units was 22,424. See Table 3. Excluding Gates of the Arctic, the *Remote North Parks* have the highest percentage of non-recreation[2] visits compared to other cluster groups. In 2010, between 10 and 30% of the total number of visitors to Bering Land Bridge, Cape Krusenstern, Kobuk Valley, and Noatak were reported as non-recreational visits. In 2008, the percentage of non-recreation visitors reported was even greater, with between about 40 or 50% of the total visitation coming from non-recreational visitors. All *Remote North Park* units except for Gates of the Arctic reported increased recreation visits between 2008 and 2009. Between 2009 and 2010, all *Remote North Park* units reported increased recreation visitation. Compared to the other cluster groups, the *Remote North Parks* cluster group reported the greatest change in recreation visits between 2009 and 2010 (30%).

Table 3: Remote North Parks Recreation Visitation, 2008–2010

Park Unit	Reported Recreation Visits Only			% Change	% Change
	2010	2009	2008	2008–2009	2009–2010
Bering Land Bridge	2,642	1,054	1,019	3%	150%
Cape Krusenstern	2,521	1,810	1,575	15%	39%
Gates of the Arctic	10,840	9,975	11,397	-12%	9%
Kobuk Valley	3,164	1,879	1,565	20%	68%
Noatak	3,257	2,474	2,147	15%	32%
TOTAL	**22,424**	**17,192**	**17,703**	**8%**	**30%**

[2] A non-recreation visitor is defined as a reportable non-recreation visit that includes through traffic, persons going to and from inholdings, trades-people with business in the park, and government personnel (other than NPS employees) with business in the park. In Alaska and especially for the *Remote North Parks*, this may also include subsistence users and locals.

Source: NPS Public Use Statistics Office.

3.2.2. Remote South Parks

Alagnak, Aniakchak, Katmai, and Lake Clark comprise the *Remote South Parks* cluster group.

Float plane shuttle, Katmai

Characteristics: None of the *Remote South Parks* are located on the road system. Commercial jets and small aircraft are the most common transportation modes to these parks. Despite their remoteness, Katmai and Lake Clark receive a fair amount of visitors. Katmai is popularly known for its brown bear viewing opportunities. Lake Clark is relatively geographically close to Anchorage and provides recreational opportunities via the Anchorage area, where nearly half the State population resides. Aniakchak is one of the least visited in the entire NPS system, due to its extreme remoteness and notorious bad weather. All four park units contain Wild or Scenic designated rivers.

Visitation: This cluster group is the second least visited of the four cluster groups. See Table 4. A change in methodology for how visitation is reported could be one of the reasons the percent change between years is so high.

Table 4: Remote South Parks Recreation Visitation, 2008–2010

Park Unit	Reported Recreation Visits Only			% Change	% Change
	2010	2009	2008	2008–2009	2009–2010
Aniakchak	62	14	10	40%	343%
Katmai *	55,172	43,035	7,970	440%	28%
Lake Clark	9,931	9,711	6,802	43%	2%
TOTAL	**65,165**	**52,760**	**14,782**	**174%**	**23%**

* Alagnak visitation numbers are included within Katmai.
Source: NPS Public Use Statistics Office.

3.2.3. Cruise Ship Parks

Cruise ships in Southeast Alaska

Glacier Bay, Klondike Gold Rush, and Sitka comprise the *Cruise Ship Parks* cluster group.

Characteristics: The *Cruise Ship Parks* are generally characterized by intense numbers of visitors in short amounts of time due to the nature of the cruise industry schedules and ports of call.

The *Cruise Ship Parks* are located in or near coastal communities that are ports of call for cruise ships traveling through the Inside Passage in Southeast Alaska. All three park units are serviced by the Alaska Marine Highway System (AMHS). The AMHS constructed a new ferry dock in Gustavus in 2010 and regular ferry service began late 2010. Klondike Gold Rush is the only park unit in this cluster group accessible by the road system; the other two are accessible only via water or air.

Visitation: The *Cruise Ship Parks* cluster group is the most visited of the four cluster groups. In 2009, the NPS reported more than 1.5 million recreation visits for the three park units. In 2010, there were approximately one million less recreational visits reported for these three park units. According to Alaska Cruise Line Agencies, the overall number of cruise ship passengers remained relatively the same between 2008 and 2009. This is reflected in the NPS-reported recreation visitor numbers as well. See Table 5. Cruise ship industry visitation to Alaska dropped between 2009 and 2010 because fewer cruise ships came to Alaska.

Due to the cruise ship industry, the *Cruise Ship Parks* units are all in the top 5 of the most visited parks in the AKR. Klondike Gold Rush received the highest number of recreation visitors in 2009 and 2010 out of all the AKR park units. However, Klondike Gold Rush was the only park that saw a decrease in reported recreation visitation over two consecutive years (between 2008 and 2010).

Table 5: Cruise Ship Parks Recreation Visitation, 2008–2010

Park Unit	Reported Recreation Visits Only			% Change	% Change
	2010	2009	2008	2008–2009	2009–2010
Glacier Bay	444,530	438,361	418,911	5%	1%
Klondike Gold Rush	797,716	880,512	935,940	-6%	-9%
Sitka	189,176	246,866	241,407	2%	-23%
TOTAL	**1,431,422**	**1,565,739**	**1,596,258**	**0%**	**-9%**

Source: NPS Public Use Statistics Office.

3.2.4. Road Parks

Denali, Kenai Fjords, Wrangell-St. Elias, and Yukon-Charley Rivers comprise the *Road Parks* cluster group.

Seward Highway and Alaska Railroad

Characteristics: The *Road Parks* are generally characterized as the most easily accessible park units in Alaska, thereby making them some of the most popular and most visited. Despite the easier access to these park units, they are also characterized by rugged Alaskan wilderness.

Wrangell-St. Elias is the largest park unit in the entire NPS system, containing nearly 10 million acres of designated and managed Wilderness area.

All four of these park units are also distinctly different from the other in terms of transportation and mobility. Denali is the only AKR park unit that has a concessionaire-run shuttle bus system, partly due to its popularity and also because the NPS formally capped the number of vehicles that could travel on its main park road by special regulation (36 CFR 13.932). The character and management of the Denali Park Road itself is one of the most important factors influencing mobility for this park.

Only a small portion of Kenai Fjords is actually accessible by roadway. The rest of Kenai Fjords is accessible by charter boat tours or by personal boat. Wrangell-St. Elias is most commonly accessed by private vehicles along the road system. For Yukon-Charley Rivers, access is generally via small boat or small plane.

Visitation: This cluster group is the second most visited of the four cluster groups, partially due to a number of reasons, including easy access, proximity to the State's larger population centers, and influence from the cruise industry. Reported recreation visits decreased significantly between 2008 and 2009 for all the *Road Parks* except for Yukon-Charley Rivers. This was partially due to the economic downturn and lower volume of cruise passengers visiting Alaska. In 2010, the percent change for this cluster group was positive again. See Table 6.

Table 6: Road Parks Recreation Visitation, 2008–2010

Park Unit	Reported Recreation Visits Only			% Change	% Change
	2010	2009	2008	2008–2009	2009–2010
Denali	378,855	358,041	432,309	-17%	6%
Kenai Fjords	297,596	218,358	272,190	-20%	36%
Wrangell-St. Elias	73,170	59,966	65,693	-9%	22%
Yukon-Charley Rivers	6,211	6,432	4,942	30%	-3%
TOTAL	**755,832**	**642,797**	**775,134**	**-4%**	**18%**

Source: NPS Public Use Statistics Office.

3.3. Existing Conditions and Needs Assessment: Other Mobility-Related Information

3.3.1. Mobility-Related Existing Conditions and Needs Overview

An important part of long term planning is to assess the existing conditions and needs. Three additional sources of information were reviewed to assess the existing conditions and needs related to mobility at the cluster group level. These sources include:

- NPS online database called Project Management Information System (PMIS), which is used to track requests for funding.
- Unit-level surveys conducted specifically for this LRTP effort.
- Other existing NPS planning and management documents.

The results of looking at the PMIS mobility-related projects, conducting the park unit surveys, and reviewing other NPS planning and management documents are summarized below and listed in Table 7. This information may also be found in the respective access, safety, and visitor information sections. The mobility topics listed below contain those existing conditions and needs that were identified in more than one cluster group.

Access

- Access studies are needed. (Three of the four cluster groups, excluding the *Remote North Parks*)
- New non-NPS sponsored transportation or utility corridors and/or development have been identified as occurring near parks or even through park units. These identified developments and corridors have the potential to impact park resources. (Three of the four cluster groups, excluding the *Cruise Ship Parks*)
- All-Terrain Vehicle / Off-Road Vehicle (ATV/ORV) access management is needed. (Two cluster groups: *Remote North Parks* and *Road Parks)*

Safety

- Severe weather conditions or natural hazards can impact the transportation system. (Three of the four cluster groups, excluding the *Remote North Parks*)
- Trail improvements or restoration efforts are needed due to safety concerns. (All four cluster groups)
- Road and pedestrian improvements are needed due to inadequate or unsafe infrastructure. (Two cluster groups: *Remote South Parks* and *Cruise Ship Parks*)
- Boating safety concerns exist. (Two cluster groups: *Remote South Parks* and *Cruise Ship Parks)*
- Need for rehabilitation or maintenance of airstrips. (Three cluster groups: *Remote North Parks*, *Cruise Ship Parks*, and *Roads Parks)*
- Pedestrian and/or vehicle congestion are safety issues. (Two cluster groups: *Cruise Ship Parks* and *Road Parks*)

Visitor Information

- Concessionaires or air taxis do most of the advertising and marketing. (Three of the four cluster groups, excludes *Remote North Parks*)
- Interpretive exhibits or roadside kiosks are needed. (Two cluster groups: *Remote North Parks* and *Road Parks*)

Table 7: Summary of Identified Mobility-Related Existing Conditions and Needs

Identified Mobility-Related Issue	Information Source											
	PMIS				Unit Surveys				NPS Planning Documents			
Cluster	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Access												
Interagency coordination					X							
Access study needed		X	X	X								X
Improve water/ land connection		X										
Dock improvements			X									
Pedestrian congestion relief			X									
Americans with Disabilities Act (ADA) rehabilitations			X									
Acquire visitor transit buses			X									
Trail restoration/ improvements				X								
ATV/ ORV access management				X					X			X
Potential new non-NPS access corridors/ development identified near park unit									X	X		X
More than 100 air taxi operators access park										X		
Safety												
Insufficient infrastructure					X			X				
Inconsistent safety data reporting					X							
Severe weather conditions or natural hazards and impacts	X				X	X		X	X	X		
Search and rescue/ coordination with other groups					X							
Road and airport safety concerns						X						

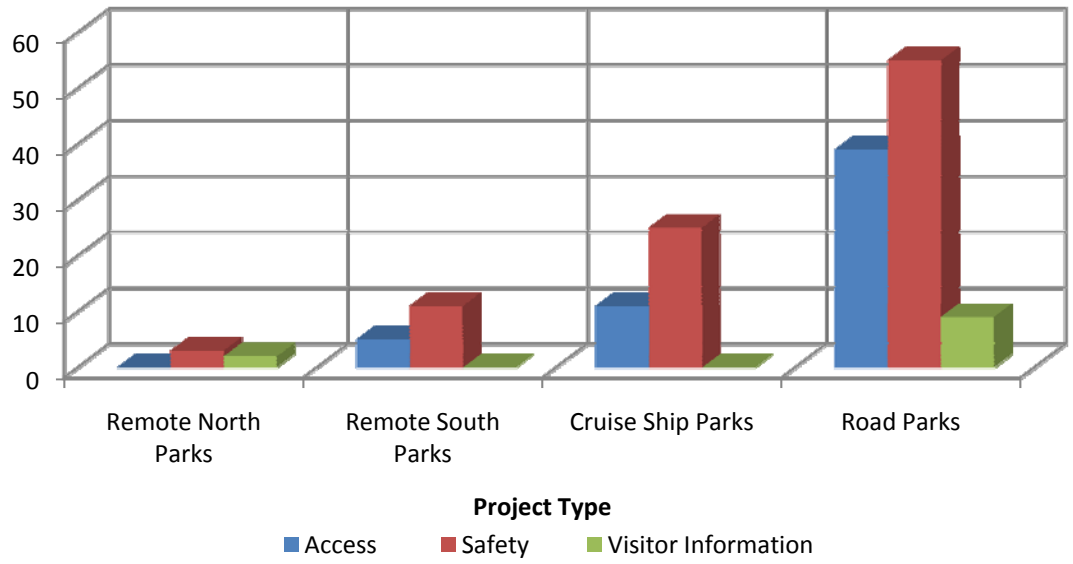
Identified Mobility-Related Issue	Information Source											
	PMIS				Unit Surveys				NPS Planning Documents			
Cluster	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Boating safety/ analyze safety of fleet vessel			X				X			X		
Inadequate lighting in parking lot							X					
Modal conflicts and capacity issues							X					
Road safety improvements needed or proposed		X		X				X				X
Inadequate information about road conditions								X				
Winter trail safety	X				X				X			
Facilitate safe bear viewing		X										
Commercial operator training		X										
Trail safety/ restoration improvements		X	X	X								
Rehabilitate / maintain airstrip surface			X	X	X				X			
Pedestrian and/or vehicle congestion			X	X							X	
Dock improvements			X									
More than 100 air taxi operators access park										X		
Visitor Information												
Visitor information materials are outdated					X							
Non-NPS entities (air taxis or concessionaires) do the marketing/ advertising						X	X	X				
Lack of visitor information							X					
Provide interpretive exhibits or roadside kiosks	X			X								
Repair /replace information signs				X								
Implement shuttle system and associated infrastructure				X								
New visitor information materials proposed										X		

3.3.2. NPS Project Management Information System (PMIS) Mobility-Related Projects

PMIS is the NPS' service-wide online database used to manage project funding information. PMIS enables park units and NPS regional offices to submit project proposals to be reviewed, approved, and prioritized at park units, regional levels, and the NPS Washington Office. Project proposals are submitted, reviewed, approved, prioritized, and then formulated under an available funding source by utilizing PMIS.[3]

A review of AKR projects in PMIS extracted on February 10, 2011 showed about 160 projects were related to the specific mobility topics of access, safety, and visitor information. Of these 160 transportation-related projects, the *Road Parks* had the most projects in PMIS (103 projects), followed by *Cruise Ship Parks* (36 projects), *Remote South Parks* (16 projects), and *Remote North Parks* (5 projects). Of the three mobility categories, 94 projects were safety-related, 55 projects were access-related, and 11 projects were related to visitor information. See Figure 2. Table 8 summarizes these AKR PMIS projects, which includes the funding status and project types by mobility type (access, safety or visitor information) and cluster group.

Figure 2: Number of Mobility-Type Projects in PMIS, February 2011



[3] Source: NPS Focus, digital library and research station webpage. Accessed on February 11, 2011 at: http://npsfocus.nps.gov/docs/guide/metadata/AboutPMIS.htm.

Remote North Parks

The five projects listed for the *Remote North Parks* are related to winter trail safety and visitor information along the Dalton Highway for Gates of the Arctic. No access-related projects are listed for any of the *Remote North Parks*.

Remote South Parks

The 16 projects listed for the *Remote South Parks* are access- and safety-related. There are no visitor information projects in PMIS for *Remote South Parks.* Access projects listed in PMIS include an access study for Aniakchak and a multi-modal transportation analysis for Katmai. Other projects are safety-related to bear viewing at Katmai.

Cruise Ship Parks

Thirty-six projects are listed in PMIS for the *Cruise Ship Parks*. These projects are either access- or safety-related; no visitor information projects are listed. Two-thirds of these projects are safety projects, with many addressing pedestrian safety on trails, docks, roads, and boardwalks, particularly in Sitka and Klondike Gold Rush. Some access projects revolve around the Gustavus dock. ADA rehabilitations and pedestrian congestion projects are also included.

Road Parks

Nearly two-thirds of all the AKR PMIS projects are for the *Road Parks*. This is the only cluster group that has projects for all three mobility types (access, safety, and visitor information). More than half of these projects are safety-related, with Denali accounting for most of the projects. Access-related projects relate mostly to ORV and subsistence access. A number of access studies or plans have been requested for some of these park units.

Wildlife viewing on the Denali Park Road

Table 8: NPS Project Management Information Systems (PMIS) Mobility-Related Projects

Cluster Group	Mobility-Type PMIS Projects		
	Access	**Safety**	**Visitor Information**
Remote North Parks	**No projects**	**3 projects** • *Requested: 1* • *Formulated: none* • *Funded: 2* **Types of projects** *Winter trail safety* *Facility rehabilitation*	**2 projects** • *Requested: 1* • *Formulated: 1* • *Funded: none* **Types of projects** *Install roadside kiosks* *Dalton Highway audio tour*
Remote South Parks	**5 projects** • *Requested: 5* • *Formulated: none* • *Funded: none* **Types of projects** *Subsistence activity/access study* *Improve water/land connections*	**11 projects** • *Requested: 4* • *Formulated: 1* • *Funded: 6* **Types of projects** *Facilitate safe bear viewing* *Commercial operator training* *Road/trail safety improvements*	**No projects**
Cruise Ship Parks	**11 projects** • *Requested: 5* • *Formulated: 3* • *Funded: 3* **Types of projects** *Dock improvements* *Pedestrian congestion relief* *ADA rehabilitations* *Acquire visitor transit buses*	**25 projects** • *Requested: 6* • *Formulated:203* • *Funded: 9* **Types of projects** *Rehabilitate airstrip surface* *Pedestrian/vehicle congestion* *Trail safety improvements* *Analyze safety of fleet vessel* *Dock safety*	**No projects**
Road Parks	**39 projects** • *Requested: 7* • *Formulated: 6* • *Funded: 26* **Types of projects** *Trail restoration/ improvements* *Access plan (Kennecott District)* *Develop studies/plans re: Denali visitor transportation system*	**55 projects** • *Requested: 3* • *Formulated:6* • *Funded: 46* **Types of projects** *Pedestrian/vehicle traffic safety* *Trail safety improvements* *Road safety improvements* *Rehabilitate airstrip surface*	**9 projects** • *Requested: 1* • *Formulated: 0* • *Funded: 8* **Types of projects** *Install roadside kiosks (McCarthy Road)* *Repair/replace information signs* *Implement shuttle system and*

	ATV/ORV access management		*associated infrastructure*

3.3.3. Park Unit Survey Results Regarding Mobility

As part of this LRTP process, park unit-level transportation surveys were conducted in person or via teleconference in May and June 2010. Table 9 summarizes some of the key mobility-related issues discussed or describes existing conditions as reported by local park unit-level NPS personnel. Survey results by cluster group are summarized below. A majority of the issues identified during the surveys were related to safety, as compared to access or visitor information. This may be indicative of park units having firsthand "on the ground" knowledge. This is not intended to be an exhaustive or all-inclusive list of the existing conditions or issues.

Remote North Parks

The park unit surveys conducted for the *Remote North Parks* indicate there is some interagency coordination occurring with regard to winter trail staking. Winter trail staking and marking was identified as a key safety issue due to the severe winter weather conditions that often blow the stakes away. Other safety conditions and needs identified include safety shelter cabins being in poor condition, inconsistent and oftentimes no safety data being reported, and the need for basic runway maintenance. For access, there appears to be opportunities to coordinate with other agencies. For visitor information, some visitor materials are outdated.

Remote South Parks

No access-related conditions or needs were reported during the surveys for the *Remote South Parks.* A variety of road and airport safety concerns were voiced, some of which include motor vehicle crashes due to soft road shoulders and a fatal of aviation crash occurring in 2010. Natural hazards, such as volcanoes, bad weather, and severe snowstorms were reported as having impacts to aviation. Aviation safety is a key issue for these remote parks, particularly because the NPS does not control aviation into the park. For visitor information, a lot of the advertising is done by the air taxis (*Lake Clark*).

Cruise Ship Parks

No access-related conditions or needs were reported during the surveys for the *Cruise Ship Parks.* Vessel groundings occur every other year in Glacier Bay, possibly due to outdated charts and in spite of efforts to educate. *Sitka* reported inadequate lighting in its parking lot. Modal conflicts and capacity issues related to cruise ship visitation were also reported.

Road Parks

No access-related conditions or needs were reported during the surveys for the *Road Parks.* A number of safety-related issues were identified. Road and pedestrian infrastructure improvements were cited as being needed. For visitor information, a lot of the advertising and marketing is done by others, such as the concessionaire or the Alaska Railroad.

Table 9: Identified Mobility-Related Existing Conditions and Needs from 2010 Unit Surveys

Remote North Parks	
Access	Interagency coordination: Potential opportunity for additional coordination (e.g., Indian Reservation Roads [IRR])
Safety	Interagency coordination: Interagency coordination is occurring (*Bering Land Bridge*) • Shishmaref *relocation* with DOT&PF; winter trail staking with Kawerak (nonprofit) Insufficient infrastructure *(winter trail markings, shelter cabins)* Lack of basic runway maintenance Inconsistent safety data reporting among units • Some units lack crash or fatality data unless learned by word of mouth. Other units document incidents in a yearly report. Severe weather conditions and impacts • Thawing permafrost results in frost heaves on airstrips. • Winter trail markings are blown over by heavy winds. Search and Rescue coordination: NPS assists with approximately 12 search and rescue operations along winter trails yearly *(Western Arctic National Parklands management unit)*
Visitor Information	Visitor information materials are outdated *(Bering Land Bridge)*
Remote South Parks	
Access	Nothing reported
Safety	Road and airport safety concerns *(Katmai* and *Lake Clark)*
Visitor Information	Air taxis do marketing/advertising (*Lake Clark General Management Plan cites more than 100 air taxis*)
Cruise Ship Parks	
Access	Nothing reported
Safety	Boating safety: Vessel groundings occur every other year in Glacier Bay, in spite of NPS efforts to educate. Charts are out of date. Inadequate lighting in parking lot *(Sitka)* Modal conflicts and capacity issues *(Klondike Gold Rush)*
Visitor Information	Concessionaire does the marketing/advertising *(Aramark for Glacier Bay)* Lack of visitor information*:* There is little to no public outreach. Wayfinding at the dock and at the ferry terminal is inadequate *(Sitka).*
Road Parks	
Access	Nothing reported
Safety	Inadequate infrastructure/ road safety improvements needed: There is a lack of shoulder for bicycles and pedestrians in roadways *(Kenai Fjords).* Natural hazards: Natural hazards generate safety concerns, such as ice on planes and wilderness smoke that compromises visibility for aviation and boating *(Yukon-Charley).* Road safety: The road design is dangerous *(McCarthy Road).* Inadequate information about road conditions *(Wrangell-St. Elias)* Road safety: Park road conditions are variable, including soft shoulders, soft road areas, and narrow sections (*Denali*).

Visitor Information	Concessionaire and the Alaska Railroad do their own advertising/marketing

3.3.4. Other NPS Planning and Management Documents Discussing Mobility

A number of NPS planning and management documents were reviewed to identify trends and existing conditions and needs including park unit general management plans (GMPs), foundation statements, and park asset management plans (PAMPs). Based on a review of these documents, there are a number of common transportation-related issues that a majority of the park units and/or cluster groups encountered (see Table 10). Visitor information issues were not immediately identifiable in the documentation. Common access and safety issues cited in the plans included:

- Potential transportation and/or utility corridors or resource development and the subsequent impacts to wilderness, park lands, and/or environmental resources (three clusters: *Remote North Parks*, *Remote South Parks*, and *Road Parks*).
- ORV trail impacts and/or use, and subsequent ORV planning needs (two clusters: *Remote North Parks* and *Road Parks*).
- Access as it relates to wilderness, the Alaska National Interest Lands Conservation Act (ANILCA), Alaska Native Claims Settlement Act (ANCSA), and/or subsistence (one cluster group: *Remote North Parks*).
- Revised Statute (RS) 2477 trails and/or right-of-way issues (three clusters: *Remote North Parks*, *Remote South Parks*, and *Cruise Ship Parks*).
- Intense congestion during selected times (mostly related to the *Cruise Ship Parks*, which see a high number of cruise industry visitors.

General Management Plans (GMPs) are the broadest level of NPS planning and form the foundation for NPS long-range decision making within each park unit. GMPs focus on why the park was created and establish the direction and parameters for resource preservation and visitor use in a park unit. GMPs encompass a 20-year planning horizon. Most of the NPS GMPs provide general guidelines for managing rights-of-way and easements as transportation corridors. The plans also identify potential transportation needs and issues regarding the development of these corridors. Most of the Alaska Region GMPs were last written or updated in the 1980s.

Foundation statements identify the most important features of a park unit, describing the park's purpose, significance, fundamental resources and values, primary interpretive themes, and special mandates. Foundation statements are intended to ensure that park planning and decision-making is conducted in a context that is based on these key features.

Park Asset Management Plans (PAMPs) are required for each park. The purpose of these plans is to generate an asset strategy and road map with the purpose of determining how to efficiently allocate limited resources. Two components of PAMPs are (1) an asset inventory and condition assessment (through Asset Priority Index [API] ratings) and (2) asset valuation (through current replacement values [CRVs]). The idea is to decrease the Facility Condition Index (FCI) over time, which is intended to improve the overall condition of the NPS' and parks' asset portfolios. PAMPs help to budget operating and maintenance funding and special project funding to secure NPS and Congressional funding. For the smaller, remote park units, PAMPs are mostly used as a guide for operation and maintenance scheduling.

Table 10: Identified Mobility-Related Existing Conditions and Needs from NPS Planning and Management Documents

	Identified Transportation Issues
Remote North Parks	
Access	Potential new non-NPS transportation or utility corridors or development identified near a park unit*:* Several potential utility, transportation or mining access corridors or development were identified near or possibly through park units, as cited in GMPs (for all *Remote North Parks*). ORV use and subsistence access: Two GMPs (*Noatak* and *Gates of the Arctic*) cite ORV use for subsistence as not allowed because it has not been shown as a traditional means of access.
Safety	Severe weather conditions can occur year-round, causing delays in transportation. Airstrip maintenance: The Bering Land Bridge GMP calls for landing strip maintenance at Serpentine Hot Springs in Bering Land Bridge. Winter trail marking: The Kobuk Valley GMP cites the State of Alaska as funding the marking of winter trails throughout Northwest Alaska.
Visitor Information	Issues are not immediately identifiable in the documentation.
Remote South Parks	
Access	Air access: The Lake Clark GMP cites multiple air taxi operators that access the park unit. Potential new transportation or utility corridor: The Aniakchak GMP cites a potential new development (a trans-peninsula transportation/pipeline corridor) located near or in the park unit.
Safety	Boat safety: Public safety is a growing safety concern in Alagnak with potential collisions associated with high-speed motorboats. Frequent and severe weather conditions affect access, resulting in closed runways.
Visitor Information	New visitor information materials proposed: The Katmai GMP cites upgrades and improvements, which includes interpretive exhibits.
Cruise Ship Parks	
Access	Issues are not immediately identifiable in the documentation.
Safety	Pedestrian congestion: Short-condensed park visits by large numbers of cruise ship passengers cause high congestion at times, presenting challenges to park staff.
Visitor Information	Issues are not immediately identifiable in the documentation.
Road Parks	
Access	Coordination proposed. A Denali-specific Needs Assessment Study (YEAR) recommended linking park entrance area park bus services with hotel shuttles to provide a consolidated and coordinated transportation system. Proposed new visitor center and access enhancements: A number of plans, including the GMP, recommends a new visitor center and access node on the southern end of *Denali*. ORV access: ORV trail planning is a major transportation issue (*Wrangell-St. Elias).* Potential oil and minerals exploration opportunity near park unit: The Yukon-Charley GMP cites a potential nearby area for oil and mineral exploration.
Safety	Proposed road design: To address road safety concerns, a previous DOT&PF study (Interior Region Transportation Study) recommended McCarthy Road to be widened, though the NPS recommended that DOT&PF maintain the road in essentially its current condition with improvements for public safety as needed.

Visitor Information	Either issues are not immediately identifiable in the documentation or there are none.

4. Access

4.1. Access-Related Existing Conditions and Needs Overview

An important part of long term planning is to assess the existing conditions and needs. Three sources of information were reviewed to assess the existing conditions and needs related to mobility at the cluster group level. These sources include:

- NPS PMIS online database
- Unit-level surveys conducted specifically for this LRTP effort.
- Other existing NPS planning and management documents.

The results of looking at the PMIS mobility-related projects, conducting the park unit surveys, and reviewing other NPS planning and management documents are summarized below and listed in Table 11. The mobility topics listed below contain those existing conditions and needs that were identified in more than one cluster group.

Access

- Access studies are needed. (Three cluster groups: *Remote South Parks*, *Cruise Ship Parks*, and *Road Parks*)
- New non-NPS sponsored transportation or utility corridors and/or development have been identified as occurring near parks or even through park units. These identified developments and corridors have the potential to impact park resources. (Three cluster groups: *Remote North Parks*, *Remote South Parks*, and *Road Parks*)
- ATV/ORV access management is needed. (Two cluster groups: *Remote North Parks* and *Road Parks)*

Table 11: Summary of Identified Access-Related Existing Conditions and Needs

Identified Access-Related Issues	Information Source											
	PMIS				Unit Surveys				NPS Planning Documents			
Cluster	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Access												
Interagency coordination					X							
Access study needed		X	X	X								X
Improve water/ land connection		X										
Dock improvements			X									
Pedestrian congestion relief			X									
Americans with Disabilities Act (ADA) rehabilitations			X									
Acquire visitor transit buses			X									
Trail restoration/ improvements				X								
ATV/ ORV access management				X					X			X
Potential new non-NPS access corridors/ development identified near park unit									X	X		X
More than 100 air taxi operators access park										X		

4.1.1. NPS Project Management Information System (PMIS) Access-Related Projects

A review of AKR projects in PMIS extracted on February 10, 2011 showed about 160 projects were related to the specific mobility topics of access, safety, and visitor information. Of the three mobility categories, 55 projects were related to access. Table 12 summarizes these AKR PMIS projects, which includes the funding status and project type by cluster group.

Table 12: NPS Project Management Information Systems (PMIS) Access-Related Projects

Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
No projects	**5 projects** • *Requested: 5* • *Formulated: none* • *Funded: none* **Types of projects** *Subsistence activity/access study* *Improve water/land connections*	**11 projects** • *Requested: 5* • *Formulated: 3* • *Funded: 3* **Types of projects** *Dock improvements* *Pedestrian congestion relief* *ADA rehabilitations* *Acquire visitor transit buses*	**39 projects** • *Requested: 7* • *Formulated: 6* • *Funded: 26* **Types of projects** *Trail restoration/ improvements* *Access plan (Kennecott District)* *Develop studies/plans re: Denali visitor transportation system* *ATV/ORV access management*

4.1.2. Park Unit Survey Results Regarding Access

As part of this LRTP process, park unit-level transportation surveys were conducted in person or via teleconference in May and June 2010. Very few specific access-related issues were identified during the park unit surveys; whereas most of the identified issues were related to safety. The *Remote North Parks* cluster group did, however, identify the potential for additional interagency coordination (e.g., Indian Reservation Roads [IRR]). The other three cluster groups (*Remote South Parks*, *Cruise Ship Parks*, and *Road Parks*) did not report access-related issues or concerns.

4.1.3. Other NPS Planning and Management Documents Discussing Access

A number of NPS planning and management documents were reviewed to identify trends and existing conditions and needs including park unit general management plans (GMPs), foundation statements, and park asset management plans (PAMPs). The identified access conditions and needs are summarized in Table 13.

Table 13: Identified Access-Related Existing Conditions and Needs from NPS Planning and Management Documents

Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
• Potential new non-NPS transportation or utility corridors or development identified near a park unit: Several potential utility, transportation or mining access corridors or development were identified near or possibly through park units, as cited in GMPs (for all *Remote North Parks*). • ORV use and subsistence access: Two GMPs (*Noatak* and *Gates of the Arctic*) cite ORV use for subsistence as not allowed because it has not been shown as a traditional means of access.	• Air access: The Lake Clark GMP cites multiple air taxi operators that access the park unit. • Potential new transportation or utility corridor: The Aniakchak GMP cites a potential new development (a trans-peninsula transportation/pipeline corridor) located near or in the park unit.	Issues are not immediately identifiable in the documentation.	• Coordination proposed. A Denali-specific Needs Assessment Study (YEAR) recommended linking park entrance area park bus services with hotel shuttles to provide a consolidated and coordinated transportation system. • Proposed new visitor center and access enhancements: A number of plans, including the GMP, recommends a new visitor center and access node on the southern end of *Denali*. • ORV access: ORV trail planning is a major transportation issue (*Wrangell-St. Elias).* • Potential oil and minerals exploration opportunity near park unit: The Yukon-Charley GMP cites a potential nearby area for oil and mineral exploration.

4.2. Multimodal Access by Necessity

The overall NPS transportation system is made up of many modes of transportation. Whereas roads, trails, and transit systems are common in the Lower 48, these modes are less common in Alaska. As a result, Alaska faces a much different set of transportation issues and travel demands that are not typically encountered in other NPS regions. For example, only one-fourth of the park units in Alaska are directly accessible by surface roadway. Instead, local residents and visitors access Alaska's park units through multiple transportation modes not typically thought of as primary means of travel. These modes may include floatplane or fixed-wing aircraft (small bush planes), boat, snowmachine, dogsled, and foot. In many cases, remoteness and high cost of travel limit visitor use and demand.

Aialik Bay, Kenai Fjords

The highways, roads, and ferry routes that do provide access to and within NPS units, are an important element of the park-related transportation system in Alaska. But there are relatively few highways in Alaska. More communities in the state are located off the main road system—sometimes referred to as "the bush"—than on it.[4]

The AKR park units were grouped into four clusters, based on their location and unique multi-modal needs and modes used to access the parks. Table 14 summarizes the general access modes used to access the AKR park units by cluster groups.

Table 14: Access Modes to Alaska Region Park Units by Cluster Group

Park Cluster Group	Access Mode			
	Road	Rail	Ferry	Air
Remote North Parks	NO[1]	NO	NO	Most common mode
Remote South Parks	NO	NO	NO	Most common mode
Cruise Ship Parks	1 of 3 park units[2]	NO	YES	Not very common
Road Parks	3 of 4 park units[3]	2 of 4 park units[4]	NO	Somewhat common

[1] None of the Remote North Parks are accessible via road. Gates of the Arctic is indirectly accessible by road via foot.
[2] Klondike Gold Rush is the only Cruise Ship Park accessible via road.
[3] Yukon-Charley Rivers is indirectly accessible via road.
[4] Denali and Kenai Fjords are accessible via rail.

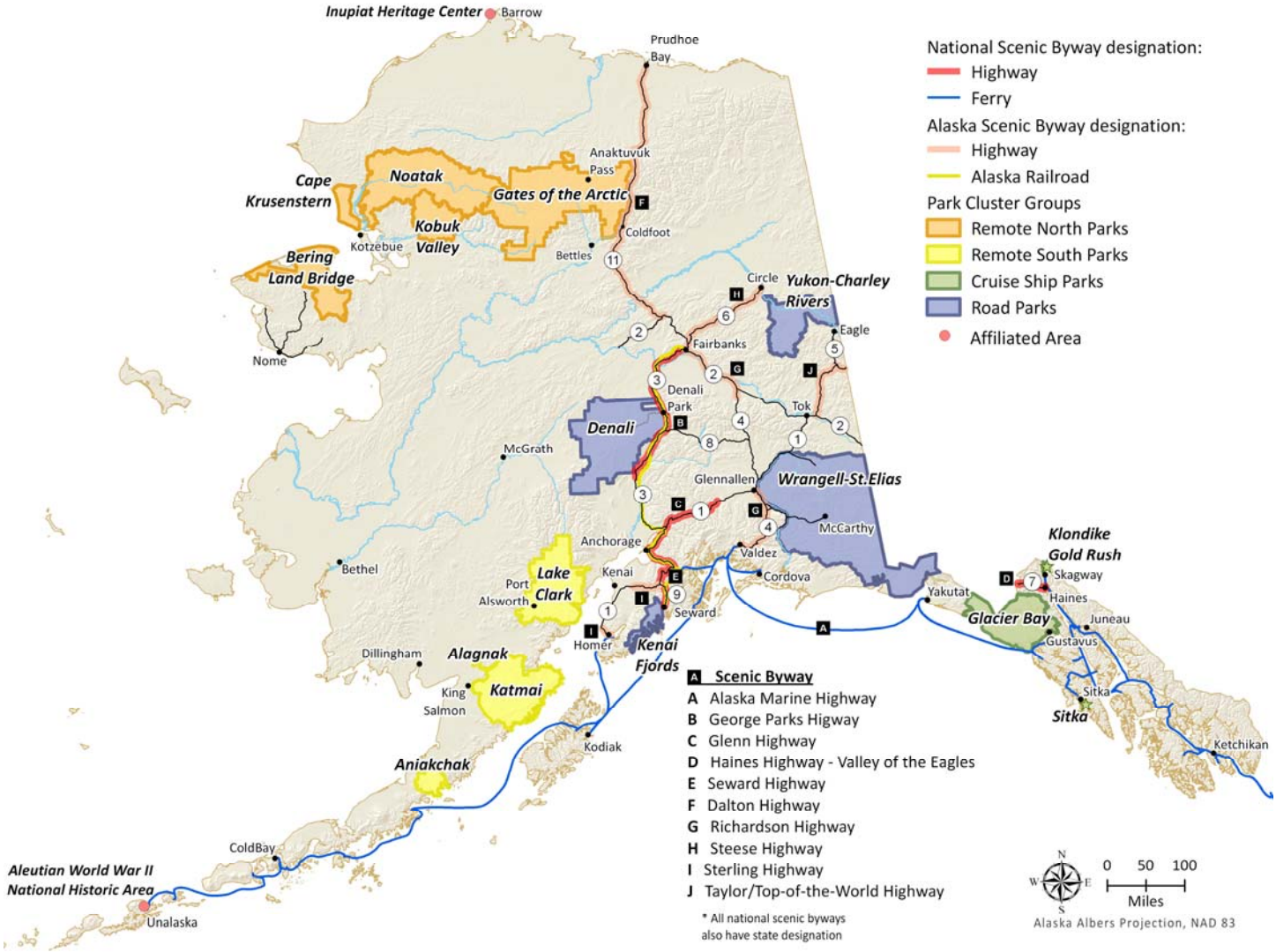
4.2.1. Alaska's Highway System

Only one-fourth of the AKR park units are accessible directly by the road system: Denali, Kenai Fjords, Wrangell-St. Elias (three out of the four *Road Parks*), and the Klondike Gold Rush (a *Cruise Ship Park*). Figure 3 depicts Alaska's Highway system. Almost all of the other AKR park units are accessed mostly by boat or air, or in rare cases by foot via a distant roadway (Yukon-Charley Rivers or Gates of the Arctic).

Alaska is unique in that its state ferry system, the Alaska Marine Highway System (AMHS), is a part of the National Highway System. The AMHS provides regularly scheduled service for the primary purpose of providing transportation.

[4] According to the Alaska Division of Community and Regional Affairs, there are 163 incorporated cities and boroughs in Alaska. Of those, 24 communities/boroughs are on the road system and connect to the rest of the country. (Communities will sometimes have roads connecting them to nearby villages, but not to the Alaska road and highway system). The state ferry system serves about 30 Alaska communities, only five of which are also on the road system. Considering both unincorporated and incorporated communities, there are 393 communities in Alaska. Of the 393 communities, about one-third (139 communities) are on the road system. That means approximately two-thirds of the communities in Alaska are only reachable by ferry or air.

Figure 3: Alaska's Highway and National Park Systems



The National Scenic Byways Program is part of the Federal Highway Administration, established as a grassroots collaborative effort to help recognize, preserve, and enhance selected roads throughout the United States. The U.S. Secretary of Transportation recognizes certain roads as All-American Roads or National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational, and scenic qualities.[5] Additionally, the State of Alaska also operates the Alaska Scenic Byway program to recognize roads with outstanding scenic or cultural attributes. The USFS also operates a scenic byways program, to recognize particularly scenic routes through national forests. The best known

[5] National Scenic Byway Program website. http://www.byways.org/learn Accessed April 6, 2010.

of the Alaska scenic byways is the Seward Highway between Anchorage and Seward. It is recognized by all three scenic byway programs, and its All-America Road designation is the highest designation given by the National Scenic Byway program. The Seward Highway's designation means that it has features that do not exist elsewhere in the U.S. and are scenic enough to be considered a tourist destination unto itself. All routes within the AMHS collectively also have the All-American Road designation.

As these byway programs gain public recognition, they will increasingly encourage travel on these routes within Alaska and as portions of trips to Alaska's national parks. Other National Scenic Byways designations in Alaska have been given to segments of the Parks, Glenn, and Haines highways. All but the Haines Highway provide direct access to an AKR park unit. Byway designations provide the opportunity for possible grant funding for byway-related projects.

The Alaska program also includes both the Seward and Parks highways. In addition to these highways, there are a few state byways that lead to access nodes for jumping off into park units. These include either portions or the entire length of the highway. They are described in the following paragraphs where applicable.

Remote North Parks

- **Dalton Highway—Gates of the Arctic:** For an adventurer, Gates of the Arctic can be accessed by foot from the Dalton Highway. The Dalton Highway, also known as the "Haul Road" or Alaska Route 11, stretches more than 400 miles and begins 70 miles north of Fairbanks and terminates in Deadhorse near the Arctic Ocean and the Prudhoe Bay oil fields. The highway is designated as a state byway. Near the communities of Wiseman and Coldfoot, the park boundary is just west of the highway corridor, about 5 miles from the roadway at its closest point. According to available backcountry permit data for 2004 and 2006-2010, 289 people accessed Gates of the Arctic by foot during these years.[6]

Remote South Parks

No *Remote South Park* is accessed by a road.

Cruise Ship Parks

- **Klondike Highway—Klondike Gold Rush:** The coastal community of Skagway, located at the north end of the Lynn Canal in Southeast Alaska, is known as the "Gateway to the Klondike." The Klondike Gold Rush park headquarters is located in Skagway. Skagway is also the terminus of the Klondike Highway, which connects to the Alaska Highway 110 miles to the north in Canada near Whitehorse, Yukon Territory. Only 15 miles of the Klondike Highway is located in Alaska, and the rest is in Canada.
- **Haines Highway—Klondike Gold Rush and Glacier Bay:** The Haines Highway, also known as Alaska Route 7, extends south from Haines Junction in Canada on the Alaska Highway and dead-ends at the community of Haines, a Southeast Alaska town located on the Lynn Canal, 14 miles by ferry from Skagway. Haines could be an access node for either the Klondike Gold Rush or Glacier Bay. The Haines Highway has state byway designation.

[6] Draft Gates of the Arctic Transportation Data and Visitor Projection Analysis, provided by the National Park Service. Date not specified.

Road Parks

- **George Parks Highway—Denali:** The George Parks Highway, also known as Alaska Route 3, is 323 miles long. It begins 35 miles north of Anchorage at a junction with the Glenn Highway and terminates in Fairbanks. It is usually just called the Parks Highway. This highway and the Alaska Railroad, which generally parallels the highway, connect Fairbanks to Anchorage and together provide primary access to one Alaska park unit: Denali. Before the Parks Highway was constructed, the Alaska Railroad provided the only direct surface link to Denali. Like all of Alaska's highways, the Parks Highway is owned and maintained by the DOT&PF.

- **Seward Highway—Kenai Fjords:** The Seward Highway, also known as Alaska Route 1, is 127 miles in length and connects Seward to Anchorage. The highway traverses the Kenai Peninsula and continues north along Turnagain Arm. The Seward Highway provides road access to one park unit—Kenai Fjords. The 9-mile-long Exit Glacier Road, which is partly owned and maintained by the NPS, branches off the Seward Highway near Seward and provides access to the popular Exit Glacier.

Alaska Railroad along Turnagain Arm and the Seward Highway

- **McCarthy Road, Edgerton Highway, Richardson Highway, and the Nabesna Road—Wrangell-St. Elias:** The main road access into Wrangell-St. Elias is by the 60-mile McCarthy Road, which begins in Chitina—just outside the western boundary of the park – and ends in McCarthy. The McCarthy Road is located within State right-of-way (ROW), and is owned and maintained by DOT&PF. The McCarthy Road is a classic case of "it is the journey, not the destination." It is known for its gravel, washboard surface, and it usually takes 3 to 4 hours to drive the 60 miles. Chitina is the terminus of the 33-mile Edgerton Highway, which connects to the Richardson Highway near Copper Center and Glennallen. Primitive road access into the park is also available to the north via the 42-mile Nabesna Road, which begins in Slana. Slana is located on the 125-mile Tok Cut-off, which connects the Richardson and Alaska Highways. The Nabesna Road is also located largely within the park, but on State ROW. The Richardson Highway, also known as Alaska Route 4, has a state byway designation.

- **Indirect access via road—Yukon-Charley Rivers:** For an adventurer, Yukon-Charley Rivers could possibly be accessed indirectly via the Steese Highway near Circle or the Taylor Highway near Eagle. The park boundary is located more than five miles from these two highways, which would likely require some "bushwhacking" or river travel to actually cross into the park unit boundary. The Steese Highway, also known as Alaska Route 6, extends north of Fairbanks and dead-ends at the town of Circle. The Taylor Highway, also known as Alaska Route 5, extends north of the Alaska Highway and dead-ends at the town of Eagle. Both the Steese and Taylor highways are designated as state byways.

4.2.2. Rail

Only two park units are accessible directly by the Alaska Railroad mainline: Denali and Kenai Fjords, both *Road Parks*. A third park unit, Klondike Gold Rush, is accessed by a tourist train. The number of visitors using rail to access the Kenai Fjords and Klondike Gold Rush is somewhat negligible, as these are not the most common modes to access these parks. On the other hand, rail is the most common method visitors use to access Denali. The Alaska Railroad has been designated as a state byway.

Remote North Parks* and *Remote South Parks

No *Remote North Parks* or *Remote South Parks* are accessed by the Alaska Railroad.

White Pass and Yukon Route Railroad accesses Skagway, "Gateway to the Klondike"

Cruise Ship Parks

- **White Pass and Yukon Route Railroad—Klondike Gold Rush:** Visitors may also travel from Skagway via the White Pass and Yukon Route railroad to park access points. Once used to haul freight between Whitehorse and Skagway prior to the construction of the Klondike Highway in 1978, the railroad is now a tourist narrow-gauge route that operates passenger service between Skagway and Carcross, Yukon Territory. The tracks still extend from Carcross to Whitehorse but that section is no longer operated. DOT&PF owns and maintains the 15 miles of the Klondike Highway located in the Alaska. Skagway is also served by the Alaska Marine Highway System, which provides service year-round. During the summer, Skagway serves as a key stop for cruise ships touring Southeast Alaska, bringing more visitors to the Klondike Gold Rush than any other mode or means.

Road Parks

- **Alaska Railroad—Denali:** The Alaska Railroad operates one train between Anchorage and Fairbanks in each direction each day during the summer, with Denali as a key destination. The trains include Alaska Railroad cars as well as cars owned and staffed by the major tour companies. More recently, Princess Cruises has contracted with the railroad to operate two trains per week that operate from the docks in Whittier directly to Denali.
- **Alaska Railroad—Kenai Fjords:** The Alaska Railroad, owned and operated as an Alaska State corporation, also operates between Anchorage and Seward. During the summer, one daily train (the "Coastal Classic") is operated round-trip from Anchorage to Seward and return.

4.2.3. Water

Water access to some of the park units can be via the AMHS, cruise ships, or by smaller boats. The AMHS accesses only the *Cruise Ship Parks* cluster group. At one time, the AMHS provided service to Seward (and therefore Kenai Fjords) but service was discontinued in 2004.

Remote North Parks

No *Remote North Parks* are accessed by the AMHS or cruise ships. Locals and very few adventurers may access some park units by smaller boats.

Remote South Parks

No *Remote South Parks* are accessed by the AMHS or cruise ships. Locals and very few adventurers may access some park units by smaller boats.

Cruise Ship Parks

All three *Cruise Ship Parks* can be accessed by the AMHS. The AMHS provides service to about 30 communities in Alaska. Most of these communities are off the "road" system. However, the AMHS is a critical element to Alaska's transportation system because it does serve as part of the National Highway System. The AMHS carries about 300,000 passengers and 100,000 vehicles every year.[7] For most residents of Southeast and Southwest Alaska, the ferry system is their highway, providing connections to other communities and the road system. In addition to the 30 Alaskan communities, the AMHS also provides service to Prince Rupert, British Columbia, and Bellingham, Washington. In 2010, the State, City of Gustavus, and National Park Service constructed a new ferry dock in Gustavus, thereby allowing regular ferry service to begin for accessing Glacier Bay.

Taxi boat unloading kayaks, Kenai Fjords

The cruise industry plays a key role in the AKR visitation. All three of the *Cruise Ship Parks* (Glacier Bay, Sitka, and the Klondike Gold Rush) are directly accessed by cruise ships. These three park units see a substantial number of visitors who arrive by cruise ship. Changes in the number of vessels deployed in Alaska and in the itineraries each summer have a large impact on visitation to the *Cruise Ship Parks* in Southeast Alaska.

Smaller day tour boats and other personal boats are used to access these park units as well.

Road Parks

No *Road Parks* are accessed by the AMHS. Kenai Fjords is the only park unit in this cluster group that is directly accessed by cruise ships. While Denali is not directly accessed by cruise ships, there are a substantial number of cruise ship visitors who visit Denali. The high number of cruise ship passengers visiting Denali can be contributed partly to its location and relatively easy accessibility by highway or rail. Also, especially in the case of Denali, the cruise industry focuses a lot of its marketing on the parks and their attractions.

Smaller day tour boats and other personal boats are used to access these park units as well.

[7] DOT&PF. February 2008. Let's Get Moving 2030, Alaska Statewide Long-Range Transportation Policy Plan. In association with Dye Management Group, Inc., and HDR Alaska, Inc.

4.2.4. Air

Air access is the most common mode for many of the park units in Alaska, particularly for the *Remote North Parks* and *Remote South Parks* cluster groups.

In Alaska, airports, air strips, lakes, and rivers provide important access to communities and to those NPS units not connected to the road or ferry systems. There are 257 public airports owned, maintained, and operated by the State, and 42 owned and/or operated by boroughs (counties), cities, or Federal agencies. Given that many of these airports are the primary transportation link connecting communities to the rest of the state, the State's role in airports and airstrips is much like its role in building, operating and maintaining the network of highways in Alaska. Some of these facilities are key for accessing NPS units.

May Creek Airstrip, Wrangell-St. Elias

Parks accessed by fixed-wing aircraft must balance providing access to these remote areas with protecting resources. To plan for these park interests, many of the park unit GMPs have called for an inventory of landing strips in the parks.[8]

The key role of aviation in accessing remote Alaska park units can be illustrated by considering the example of visiting the Gates of the Arctic. Visitors who are interested primarily in wilderness backpacking or wildlife viewing can fly to Bettles from Fairbanks on a semi-scheduled small air carrier, and then fly from Bettles into the park on a body of water, such as a lake or river. Alternatively, one can drive from Fairbanks on the Dalton Highway to Coldfoot, and then fly into the park on a small plane equipped with tundra tires that can land on sandbars or other unimproved sites. A third option is to fly via a scheduled small carrier to the village of Anaktuvuk Pass, and hike into the park from the village. Apart from the Anaktuvuk Pass airport, there are no other public, improved facilities in the park.

4.2.5. Trails

In Alaska, trails are commonly used for transportation as well as recreation, whether by dogsled, snow machine, horse, foot, bicycle, or ORVs/ATVs. In rural parts of the state, ORVs are used for work, basic transportation, subsistence, and for recreation. Because the roadway system in Alaska is very limited, traveling by snow machine and ORV is a way of life for many rural Alaskans.

[8] Draft Overview of Alaska National Park Transportation Needs and Issues paper provided by the National Park Service. Date not specified.

Hiking Trails

Unlike many parks in the contiguous 48 states that have developed networks of well-built and maintained hiking trails, parks in Alaska feature relatively few miles of such trails. There are several reasons for this:

- Many areas within the AKR park units are managed as Wilderness, with no designed improvements, including trails.
- Remote, low levels of visitation or use result in a lack of concentrated traffic

Chilkoot Trail, Klondike Gold Rush

- Much of the groundcover in many park units is easily-traversed tundra, and trails are not generally needed. Most commonly traveled routes cross administrative boundaries, which requires coordinated planning

Winter trail marker along the Iditarod Trail

Winter Trails

Winter trails for snowmachine, and to a lesser extent, dogsled, provide vital transportation networks for local residents, particularly in *Remote North Parks*. These trails are often the only available mode of travel between villages and to subsistence resources. However, severe winter weather can include high winds, blowing snow and white-out conditions, making route finding nearly impossible. In winter, some trails are marked for snowmachine travel. Trail markings are an important safety element, used to identify hazardous areas and mark direction changes in the trail. Other available safety mechanisms used in these remote locations include GPS, search and rescue operations, and emergency shelters. Some emergency shelter cabins have been constructed along some of the winter trails in rural Alaska.

OHV Trails

Trails created by and for ORVs are a more complex matter. Because of the potential for resource damage, ORVs are generally prohibited off established roads and designated routes. This prohibition includes the use of ORVs for subsistence purposes, unless they have been shown to be a traditional means of access. ANILCA guarantees the right of access to inholdings within park areas, subject to reasonable regulations to protect natural and other values of park lands (see Section 4.3.1). Generally other "customary and traditional methods of access" are preferred, but if these methods of access are not feasible or do not provide adequate access, then use of ORVs for access to inholdings may be

allowed.[9] NPS decision makers have to address a wide variety of compliance considerations in determining whether to allow or prohibit ORV uses in their areas. OHV use and access is considered on a park by park basis.

Several Alaska park unit GMPs have identified the adverse impacts caused by ORVs on park natural, aesthetic, cultural, and scenic values as an issue needing to be addressed. ORV use is a sensitive issue, both to those who use them and to those who want their use prohibited, particularly as it relates to crossing NPS lands. The NPS is preparing an environmental impact statement (EIS) to evaluate alternatives for managing recreational ORV use and its impacts in Wrangell-St. Elias. Glacier Bay also prepared an ORV use plan and environmental assessment (EA) for authorizing and regulating the use of ORVs on specific routes in the preserve in support of commercial fishing as well as subsistence, recreational activities, and other uses. Both these plans involved monitoring ORV trails and use, closing and restoring damaged areas, designating routes, and formulating mitigation for reducing impacts. It is likely that similar planning efforts will be needed in the future for the other Alaskan parks.[10]

4.3. Other Alaska-Unique Access Issues in Alaska

The NPS recognizes and considers a number of acts and statutes as they pertain to addressing access issue sin Alaska. This section briefly describes the Alaska Native Claims Settlement Act (ANCSA) and the Alaska National Interest Lands Conservation Act (ANILCA). Other specific access issues related to easements and rights of way.

4.3.1. ANCSA / ANILCA

Prior to statehood, nearly all land in Alaska was federally-owned. The 1959 Alaska Statehood Act granted the State selection of 104 million acres of federal public land. Much of the land selected for State ownership consisted of lands traditionally used by Alaska Natives. Contention and several lawsuits arose as a result. This situation finally led to broad Alaska Native community objections and resulted in a freeze on further state land selections until Congress could settle the Native claim issues.

In 1971 Congress passed the Alaska Native Claims Settlement Act (ANCSA), a fundamental purpose of which was resolution of Native land claims. ANCSA created thirteen Native-owned regional corporations, granted them nearly $1 billion in seed money, and entitled the Native corporations to select 44 million acres of federal public lands in Alaska. ANCSA Section 17(d)(2) also provided for withdrawal of 80 million acres to be studied for possible designation as national parks, fish and wildlife refuges, national forests, and wild and scenic rivers.

Signed into law on December 2, 1980, the Alaska National Interest Lands Conservation Act (ANILCA) created 21 new conservation system units, designated 3210 miles of wild and scenic rivers and 57 million acres of designated wilderness, and expanded 12 existing parks and refuges, influencing over 157 million acres in Alaska.

ANILCA provides management direction for all federal public lands in Alaska. Title VIII and Title XI contain relevant sections of statutes that apply to transportation, as indicated in the following paragraphs.

[9] Draft Overview of Alaska National Park Transportation Needs and Issues paper provided by the National Park Service. Date not specified.
[10] Ibid.

Title VIII – Subsistence management and use

Section 810 of Title VIII discusses subsistence and land use decisions. Section 810 requires that federal agencies must consider the effects of their actions on subsistence use and take reasonable steps to minimize the impacts. The federal agencies have adopted a formal process for conducting subsistence evaluations.

Section 811 of Title VIII discusses access. Section 811(a) ensures that residents shall have reasonable access to subsistence resources, and Section 811(b) provides for the appropriate and reasonably regulated use of snowmobiles, motorboats, and other means of surface transportation traditionally utilized by local residents.

Title XI– Transportation and utility systems in and across, and access into, conservation system units

Title XI of ANILCA provides for:

- Adequate and feasible access to and from villages, home sites, traditional activities, and State and private inholdings for economic and other activities
- The use of snowmachines, motorboats, airplanes and nonmotorized surface transportation, subject to reasonable regulations
- A decision-making process for evaluating transportation and utility system across all federal public lands.

Section 1110 of Title XI addresses special access and access to inholdings. Section 1110(b) guarantees access for state, Native and other private inholders. This is one of the sections where there is much discussion and conflict between federal land management agencies and Alaska residents.

4.3.2. ANCSA 17(b) Public Easements

The U.S. Congress passed ANCSA in 1971 to settle Native Alaskan's native land claims. Subsequently, Native corporations were created and were granted the right to select and receive title to withdrawn public lands. To guarantee continued access to publicly-owned lands, major water ways, and other public uses as specified in the regulations, public easements were granted, known as 17(b) public easements.

The validity of 17(b) public easement claims and whether or not 17(b) public easements fall under the management authority of the NPS is made on a case-by-case basis. Issues associated with 17(b) public easements include members of the public leaving the easement to trespass on Native lands and illegal OHV use on 17(b) public easements not designated for OHV use.

Because of the local nature of case-by-case determination of RS2477 rights-of-way and 17(b) easements, this AKR LRTP will not address these access issues directly.

4.3.3. RS 2477 Right-of-way

The State of Alaska claims a number of roads, trails and pathways across federal lands under Revised Statute 2477, which comes from a section in the Mining Act of 1866. This section refers to the granting of public right-of-way access across unreserved Federal land as land is transferred to State or private ownership. The RS 2477 states: "The right of

way for the construction of highways over public lands, not reserved for public uses, is hereby granted." The historical meaning of "highways" referred to foot trails, pack trails, sled dog trails, crudely built wagon roads, and other transportation corridors.

Congress repealed the law in 1976; however, in Alaska, the opportunity to establish new RS 2477 rights-of-way generally ended December 14, 1968, with the Federal government issuing Public Land Order 4582—the "land freeze" —in preparation of the settlement of Alaska Native land claims. Although no new rights-of-way could be established after Federal land was reserved or appropriated, these actions did not extinguish pre-existing rights.

The validity of RS 2477 rights-of-way is determined on a case by case basis.

4.4. Access Conclusions and Recommendations

Data gaps and limitations are summarized in Section 7. The following are recommended actions so that identified needs and concerns can be addressed. These recommended actions are not intended to be a part of an all-inclusive list, but rather a starting point for further discussion.

1. Access management for ATVs/OHVs is an ongoing issue and stretches across multiple park units and cluster groups.
2. Intense congestion occurs during select times, mostly occurring in park units that see a high number of cruise ship industry visitors. (*Cruise Ship Parks* and some *Road Parks*)
    - Action: Continue to make improvements to improve the infrastructure and make conditions safer.

5. Safety

5.1. Introduction

The safety objective entails "**providing safe access to and within Park lands and ensuring that transportation infrastructure and operations are safe within Alaska parks**." Project staff examined crash and safety data to gain a better understanding of what relevant safety concerns exist in relation to accessing and traveling within AKR park units. Project staff collected and reviewed relevant NPS crash or fatality data as well as ancillary safety data from other state and Federal agencies. This section contains a summary of this data as well as recommendations on crash reporting protocol that could serve to provide more meaningful safety data for future analyses.

5.2. Safety-Related Existing Conditions and Needs Overview

The following three sources of information were reviewed to assess the existing conditions and needs related to safety at the cluster group level. These sources include:

- NPS PMIS online database
- Unit-level surveys conducted specifically for this LRTP effort.
- Other existing NPS planning and management documents.

The results of looking at the PMIS safety-related projects, conducting the park unit surveys, and reviewing other NPS planning and management documents are summarized below and listed in Table 15. The safety topics listed below contain those existing conditions and needs that were identified in more than one cluster group.

Safety

- Severe weather conditions or natural hazards can impact the transportation system. (Three cluster groups: *Remote South Parks*, *Cruise Ship Parks*, and *Road Parks*)
- Trail improvements or restoration efforts are needed due to safety concerns. (All four cluster groups)
- Road and pedestrian improvements are needed due to inadequate or unsafe infrastructure. (Two cluster groups: *Remote South Parks* and *Cruise Ship Parks*)
- Boating safety concerns exist. (Two cluster groups: *Remote South Parks* and *Cruise Ship Parks)*
- Need for rehabilitation or maintenance of airstrips. (Three cluster groups: *Remote North Parks, Cruise Ship Parks,* and *Road Parks)*
- Pedestrian and/or vehicle congestion are safety issues. (Two cluster groups: *Cruise Ship Parks* and *Road Parks*)

Table 15: Summary of Identified Safety-Related Existing Conditions and Needs

Identified Safety-Related Issues	Information Source											
	PMIS				Unit Surveys				NPS Planning Documents			
Cluster	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Safety												
Insufficient infrastructure					X			X				
Inconsistent safety data reporting					X							
Severe weather conditions or natural hazards and impacts	X				X	X		X	X	X		
Search and rescue/ coordination with other groups					X							
Road and airport safety concerns						X						
Boating safety/ analyze safety of fleet vessel			X				X			X		
Inadequate lighting in parking lot							X					
Modal conflicts and capacity issues							X					
Road safety improvements needed or proposed		X		X				X				X
Inadequate information about road conditions								X				
Winter trail safety	X				X				X			
Facilitate safe bear viewing		X										
Commercial operator training		X										
Trail safety/ restoration improvements		X	X	X								
Rehabilitate / maintain airstrip surface			X	X	X				X			
Pedestrian and/or vehicle congestion			X	X							X	
Dock improvements			X									
More than 100 air taxi operators access park										X		

5.2.1. NPS Project Management Information System (PMIS) Safety-Related Projects

A review of AKR projects in PMIS extracted on February 10, 2011 showed about 160 projects were related to the specific mobility topics of access, safety, and visitor information. Of the three mobility categories, 94 projects were safety-related. Table 16 summarizes the AKR PMIS safety-related projects and includes the funding status and project type by cluster group.

Table 16: NPS Project Management Information Systems (PMIS) Safety-Related Projects

Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
3 projects • *Requested: 1* • *Formulated: none* • *Funded: 2* **Types of projects** *Winter trail safety* *Facility rehabilitation*	**11 projects** • *Requested: 4* • *Formulated: 1* • *Funded: 6* **Types of projects** *Facilitate safe bear viewing* *Commercial operator training* *Road/trail safety improvements*	**25 projects** • *Requested: 6* • *Formulated:203* • *Funded: 9* **Types of projects** *Rehabilitate airstrip surface* *Pedestrian/vehicle congestion* *Trail safety improvements* *Analyze safety of fleet vessel* *Dock safety*	**55 projects** • *Requested: 3* • *Formulated:6* • *Funded: 46* **Types of projects** *Pedestrian/vehicle traffic safety* *Trail safety improvements* *Road safety improvements* *Rehabilitate airstrip surface*

5.2.2. Park Unit Survey Results Regarding Safety

As part of this LRTP process, park unit-level transportation surveys were conducted in person or via teleconference in May and June 2010. Table 17 summarizes some of the key safety-related issues discussed or describes existing conditions as reported by local park unit-level NPS personnel. A majority of the issues identified during the surveys were related to safety, as compared to access or visitor information. This may be indicative of park units having firsthand "on the ground" knowledge. This is not intended to be an exhaustive or all-inclusive list of the existing conditions or issues.

Remote North Parks

The park unit surveys conducted for the *Remote North Parks* indicate there is some interagency coordination occurring with regard to winter trail staking. Winter trail staking and marking was identified as a key safety issue due to the severe winter weather conditions that often blow the stakes away. Other safety conditions and needs identified include safety shelter cabins being in poor condition, inconsistent and oftentimes no safety data being reported, and the need for basic runway maintenance.

Remote South Parks

A variety of road and airport safety concerns were voiced, some of which include motor vehicle crashes due to soft road shoulders and a fatal of aviation crash occurring in 2010. Natural hazards, such as volcanoes, bad weather, and severe snowstorms were reported as having impacts to aviation. Aviation safety is a key issue for these remote parks, particularly because the NPS does not control aviation into the park.

Cruise Ship Parks

Vessel groundings occur every other year in Glacier Bay, possibly due to outdated charts and in spite of efforts to educate. *Sitka* reported inadequate lighting in its parking lot. Modal conflicts and capacity issues related to cruise ship visitation were also reported.

Road Parks

A number of safety-related issues were identified. Road and pedestrian infrastructure improvements were cited as being needed.

Table 17: Identified Safety-Related Existing Conditions and Needs from 2010 Unit Surveys

Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Interagency coordination: Interagency coordination is occurring (*Bering Land Bridge*) • Shishmaref *relocation* with DOT&PF; winter trail staking with Kawerak (nonprofit) Insufficient infrastructure *(winter trail markings, shelter cabins)* Lack of basic runway maintenance Inconsistent safety data reporting among units • Some units lack crash or fatality data unless learned by word of mouth. Other units document incidents in a yearly report. Severe weather conditions and impacts • Thawing permafrost results in frost heaves on airstrips. • Winter trail markings are blown over by heavy winds. Search and Rescue coordination: NPS assists with approximately 12 search and rescue operations along winter trails yearly *(Western Arctic National Parklands management unit)*	Road and airport safety concerns *(Katmai* and *Lake Clark)*	Boating safety: Vessel groundings occur every other year in Glacier Bay, in spite of NPS efforts to educate. Charts are out of date. Inadequate lighting in parking lot *(Sitka)* Modal conflicts and capacity issues *(Klondike Gold Rush)*	Inadequate infrastructure/ road safety improvements needed: There is a lack of shoulder for bicycles and pedestrians in roadways *(Kenai Fjords).* Natural hazards: Natural hazards generate safety concerns, such as ice on planes and wilderness smoke that compromises visibility for aviation and boating *(Yukon-Charley).* Road safety: The road design is dangerous *(McCarthy Road).* Inadequate information about road conditions *(Wrangell-St. Elias)* Road safety: Park road conditions are variable, including soft shoulders, soft road areas, and narrow sections (*Denali*).

5.2.3. Other NPS Planning and Management Documents Discussing Safety

A number of NPS planning and management documents were reviewed to identify trends and existing conditions and needs including park unit general management plans (GMPs), foundation statements, and park asset management plans (PAMPs). The identified safety conditions and needs are summarized in Table 18.

Table 18: Identified Safety-Related Existing Conditions and Needs from NPS Planning and Management Documents

Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Severe weather conditions can occur year-round, causing delays in transportation. Airstrip maintenance: The Bering Land Bridge GMP calls for landing strip maintenance at Serpentine Hot Springs in Bering Land Bridge. Winter trail marking: The Kobuk Valley GMP cites the State of Alaska as funding the marking of winter trails throughout Northwest Alaska.	Boat safety: Public safety is a growing safety concern in Alagnak with potential collisions associated with high-speed motorboats. Frequent and severe weather conditions affect access, resulting in closed runways.	Pedestrian congestion: Short-condensed park visits by large numbers of cruise ship passengers cause high congestion at times, presenting challenges to park staff.	Proposed road design: To address road safety concerns, a previous DOT&PF study (Interior Region Transportation Study) recommended McCarthy Road to be widened, though the NPS recommended that DOT&PF maintain the road in essentially its current condition with improvements for public safety as needed.

5.3. Safety Data Overview

Safety data was obtained for both NPS-owned and -managed transportation assets and systems and also those assets and systems not under NPS' management or jurisdiction, such as State-owned facilities or systems. Project staff collected and reviewed the following available safety-related data:

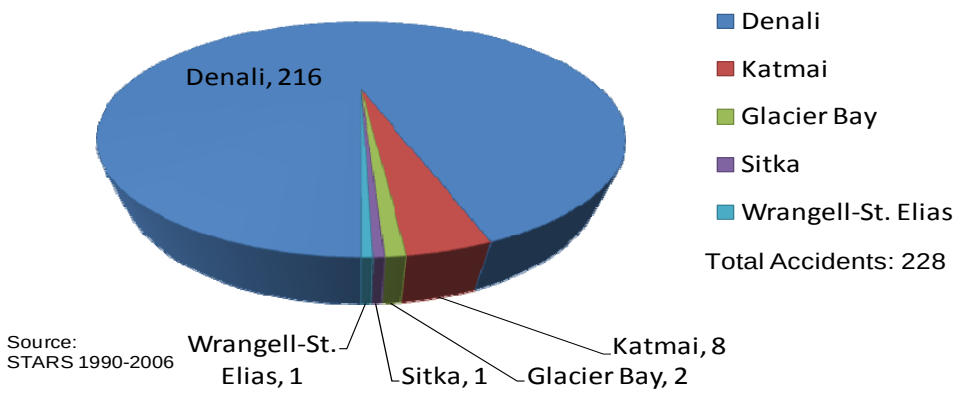
- NPS' Service-wide Traffic Accident Reporting System (STARS): NPS traffic incidents reported at the park unit level
- NPS' Safety Management Information System (SMIS): NPS staff incidents involving government-owned vehicles and other vehicles reported at the park unit level
- Alaska Department of Transportation and Public Facilities (DOT&PF) statewide roadway accident records: To identify fatalities occurring near or within park units
- National Transportation Safety Board aviation accident database: To identify incidences (aviation crashes and fatalities) occurring near or within park units
- U.S. Coast Guard Boating Accident Report Database (BARD) system: To identify incidences (reported recreational boating incidents and fatalities) occurring near or within park units

5.3.1. NPS Accident Data

Vehicular travel within Alaska's park units is extremely limited due to the small number of constructed roadways within the parks themselves. The NPS provided the project team a spreadsheet containing reported vehicular crashes in Alaska's park units between 1990 and 2006. The crash information is derived from STARS, which contains traffic accident data at the park unit level. It is likely a large number of accidents may not be reported in the STARS, however, so the data may not be complete.[11]

The most noteworthy road within STARS is the Denali Park Road, in terms of visitor use, significance within the park systems, and number of accidents recorded. Figure 4 shows approximately 95% of all vehicular accidents recorded from 1990 to 2006 in Alaska have occurred in Denali. The park unit with the next most reported number of vehicular accidents is Katmai, with eight incidents occurring between 1992 and 1994. These eight incidents occurred on either the roadway or parking lots. No other vehicular accidents were reported after 1994 (to 2006), which represents either the safety record improved or data was not reported.

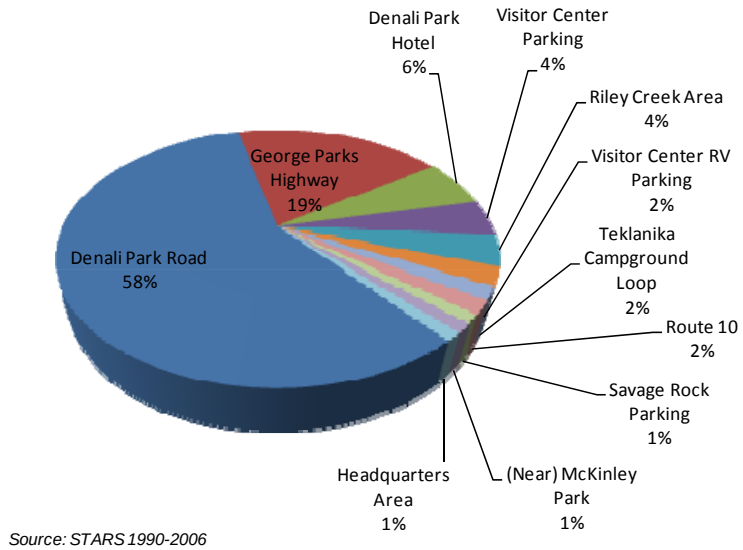
Figure 4: Number of Vehicular Accidents by Park Unit (1990-2006)



Of the 216 accidents occurring in Denali, 58% of them occurred on the Denali Park Road. Figure 5 shows the primary locations of these accidents in Denali. The George Parks Highway, which travels through only a small portion in the northeast corner of the park boundary, is included in the data set. Insufficient information exists to confirm this, however. For instance, within STARS, the Denali Park Road is identified inconsistently. For this particular road, the road name attribute within STARS is denoted by three different names: Denali Park Road, McKinley Park Road, or Park Road. In this instance, all values for the three "park road" locations were totaled and presented in Figure 5 as Denali Park Road. It is important to keep in mind there may be other potential reporting discrepancies with the STARS data.

[11] Source: National Park Service. December 2005. Inside Transportation News E-Newsletter. Accessed on March 30, 2010: http://www.nps.gov/transportation/tmp/documents/InsideTransprtnNews_Dec0105_final.pdf

Figure 5: Location of Accidents within Denali National Park and Preserve (1990-2006)



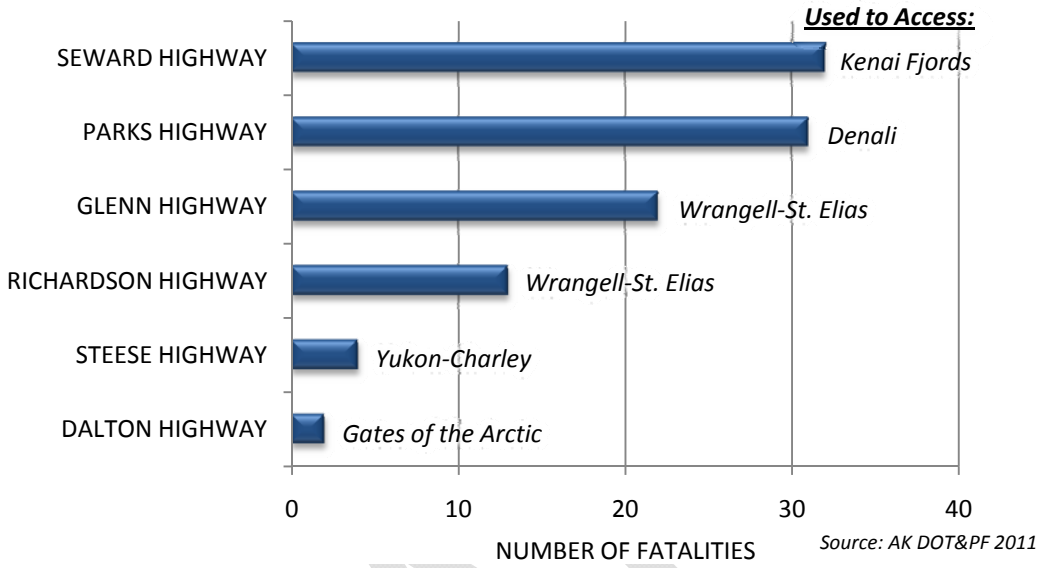
Source: STARS 1990-2006

The AKR also maintains a safety database, SMIS. The SMIS catalogs incidents occurred by NPS staff involving government-owned vehicles and other vehicles (rentals, snow machines), as reported by individual park units. Case reports provided by NPS dating back to 2000 show a very small number of reported incidents. Of the 19 case reports available, 12 were confirmed as having occurred within a park. Of these 12, seven of them (almost 40%) occurred in Denali. The other reported cases either occurred outside of a park boundary or the location was uncertain based on the information provided. All incidents were described as random injuries occurring while employees were at work. No trends could be identified.

5.3.2. Alaska DOT&PF Statewide Roadway Fatality Data

DOT&PF provided roadway fatality data for the major highways in Alaska from 2007 through 2010. This information is maintained in the Fatality Analysis Reporting System (FARS), a national database that contains information on all known motor vehicle traffic crashes in which there was at least one fatality. During this time frame, there were 132 fatalities. The Seward Highway, used to access Kenai Fjords, had the highest number with 32 fatalities. The Parks Highway, used to access Denali, had the second highest number with 31 fatalities. Figure 6 depicts the state roadways with the greatest number of fatalities s between 2007 and 2010.

Figure 6: Major Highway Fatalities in Alaska (2007-2010)



5.3.3. National Transportation Safety Board Aviation Accident Data

With only one-fourth park units in Alaska directly accessible by roadway, aviation plays an integral part in accessing Alaska's park units. The National Transportation Safety Board (NTSB) aviation accident database contains the most comprehensive source of data for civil aviation crashes and fatalities. The NTSB provided a spreadsheet of all aviation accidents occurring in Alaska from 2000 to 2009. Of the 1,162 accidents, roughly 88%, or 1,027, of the reported accidents have available latitude/longitude coordinates, which makes it capable of being brought into GIS. Figure 7 and Figure 8 show the map-able aviation accidents (fatal and non-fatal) in relation to the Alaska's park units. Spatial analysis of the aviation accident data shows a concentration of accidents around the most populated areas of the state, which includes Anchorage, north of Anchorage in the Matanuska-Susitna Valley, and Fairbanks. In relation to the park units, less than 7% (67 accidents) of the 1,027 accidents that were mapped occurred within a national park.

Figure 7: Aviation Crashes in Alaska (2000-2009)

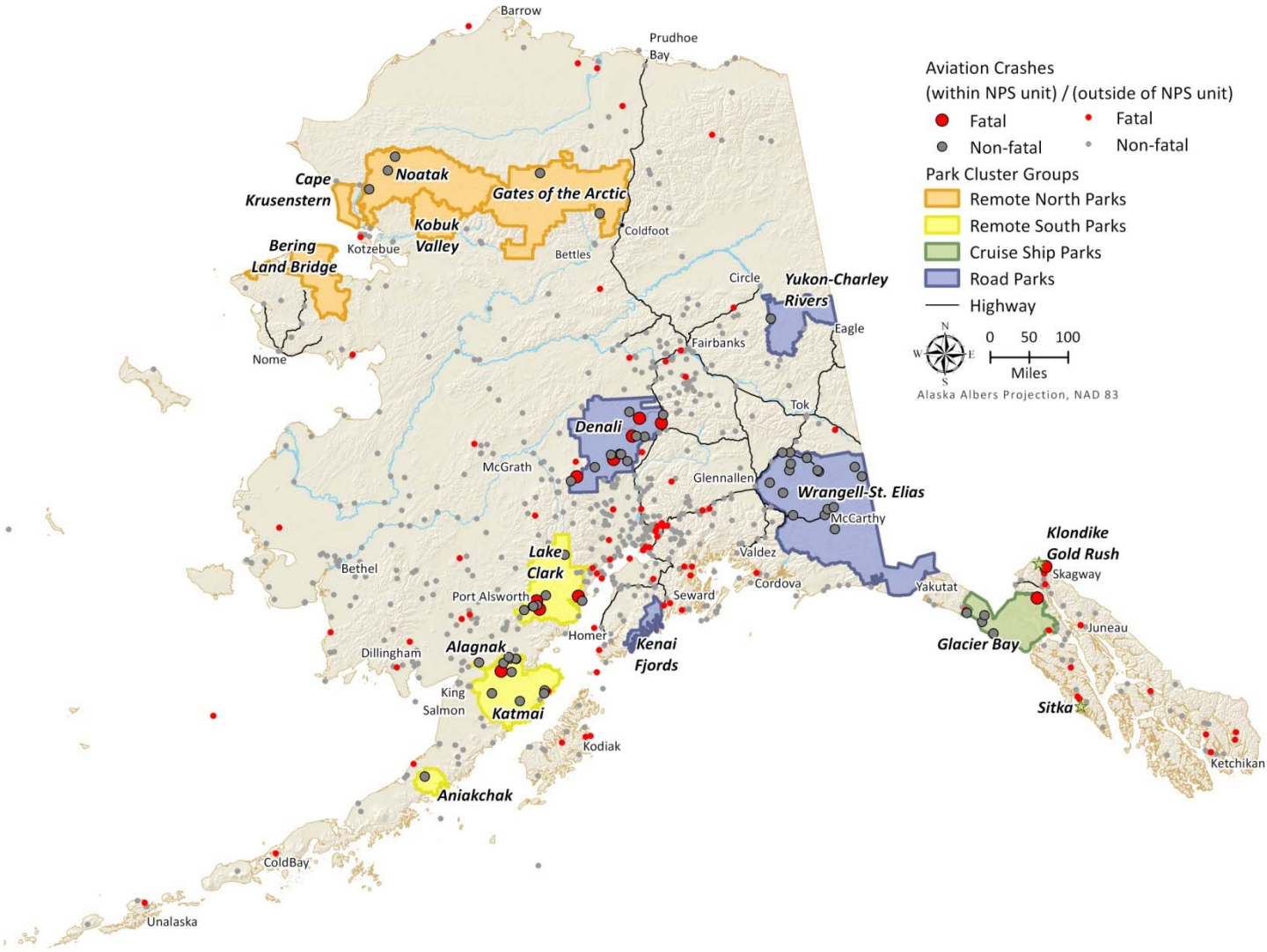
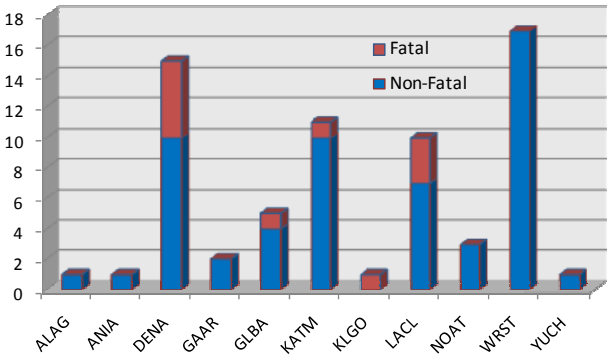


Figure 8: Aviation Crashes within Alaska Region Park Units (2000-2009)



Source: National Transportation Safety Board 2010

5.3.4. U.S. Coast Guard Boating Accident Data

Every year, the U.S. Coast Guard compiles statistics on reported recreational boating accidents and fatalities. These numbers come from boating accident reports that are filed by the owners or operators involved in the boating accidents and the investigative reports that are filed by local authorities. The information is maintained in the Boating Accident Report Database (BARD) maintained by the U.S. Coast Guard. The Alaska Department of Natural Resources, Office of Boating Safety submits accident report data to the U.S. Coast Guard for inclusion in their annual statistics publication.

The U.S. Coast Guard provided to the project team recreational (non-commercial) boating accident and fatality data for 2003 through 2009. Precise locations of the incidents are not reported, so it is difficult to ascertain whether incidents occurred on waterways within a park unit boundary. Of the approximately more than 500 separate reported incidents in Alaska occurring between 2003 and 2009 (that contained longitude/latitude information that could be used to determine the general location of the incident), only about a dozen occurred within a NPS park unit. The C*ruise Ship Parks* and *Road Parks* cluster groups had the most recorded incidents of those that could be geo-referenced. The accuracy and/or relevancy of this data are uncertain and therefore not included at the park unit level. The types of incidents seemed to be a mix of user error, equipment failure, or weather-related.

5.4. Safety Conclusions and Recommendations

Data gaps and limitations are summarized in Section 7. The following are recommended actions so that identified needs and concerns can be addressed. These recommended actions are not intended to be a part of an all-inclusive list, but rather a starting point for further discussion.

1. Trail improvements or restoration efforts are identified needs due to safety concerns. (Three of the four cluster groups, excluding *Remote North Parks*)
2. There is a need for basic runway maintenance and airstrip rehabilitation. (Three of the four cluster groups, excluding *Remote South Parks*)
3. There are modal conflicts and capacity issues related to cruise ship visitation. (Two cluster groups: *Remote South Parks* and *Cruise Ship Parks*)

- Action: Continue to make road and pedestrian improvements to improve the infrastructure and make conditions safer.

4. Intense congestion occurs during select times at park units that see a high number of cruise industry visitors. (Two cluster groups: *Cruise Ship Parks* and *Road Parks*)
    - Action: Continue to make improvements related to pedestrian and/or vehicle congestion.
5. Boating safety concerns exist. (Two cluster groups: *Remote South Parks* and *Cruise Ship Parks*)
6. Safe winter trail travel is an identified issue and ongoing concern in the *Remote North Parks*. Winter trail staking and marking was identified as a key safety issue, especially since the stakes and markings are often blown over by heavy winds. The park unit surveys conducted for the *Remote North Parks* indicate there is some interagency coordination occurring with regard to winter trail staking.
    - Action: Continue to seek and encourage interagency coordination with winter trail staking and marking. Identify, develop and leverage partnerships and funding sources to accomplish this work, such as Bureau of Indian Affairs funds, funds from the Borough, village non-profits, or Northern Region DOT&PF.
7. Other identified safety issues include the safety shelter cabins along these winter trail routes as being in poor condition.

6. Visitor Information

6.1. Introduction

Access to and within the NPS park units can be a defining experience for NPS visitors. This is particularly the case for parks in Alaska, where the journey can be as exciting and memorable as the destination.

Visitors to most of Alaska's national parks generally are not your average tourist. For more than half of the park units in Alaska, park visitors need to be skilled with backcountry experience or knowledge to survive harsh climate or conditions. At these parks, prior planning is critical, as a first-time park visitor must plan transportation logistics prior to arrival. Even for the road-accessible parks or parks frequented by a high number of cruise ship passengers, information about available modes and other key services is critical for the visitor.

National Park Service Brochures

With the dawning of social media in the last decade and the age of the internet in the last 20 years, the methods to disseminate visitor and traveler information have changed considerably. While hard-copy brochures are still mailed to prospective visitors by State of Alaska tourism groups, potential Alaska visitors can find an array of materials online.

This section highlights some of the key visitor information sources that have traditionally been used in the past by AKR park visitors. This section also describes other sources of visitor information, including the internet and other social media, and non-NPS sources such as NPS concessionaires and other agencies.

6.2. Visitor Information-Related Existing Conditions and Needs Overview

The following three sources of information were reviewed to assess the existing conditions and needs related to visitor information at the cluster group level. These sources include:

- NPS PMIS online database
- Unit-level surveys conducted specifically for this LRTP effort.
- Other existing NPS planning and management documents.

The results of looking at the PMIS mobility-related projects, conducting the park unit surveys, and reviewing other NPS planning and management documents are summarized below and listed in Table 19. The visitor information topics listed below contain those existing conditions and needs that were identified in more than one cluster group.

Visitor Information

- Concessionaires or air taxis do most of the advertising and marketing. (Three of the four cluster groups, *Remote South Parks, Cruise Ship Parks,* and *Road Parks*)
- Interpretive exhibits or roadside kiosks are needed. (Two cluster groups: *Remote North Parks* and *Road Parks*)

Table 19: Summary of Identified Visitor Information-Related Existing Conditions and Needs

Issue	Source											
	PMIS				Unit Surveys				NPS Planning Documents			
Cluster	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks	Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Visitor Information												
Visitor information materials are outdated					X							
Non-NPS entities (air taxis or concessionaires) do the marketing/ advertising						X	X	X				
Lack of visitor information							X					
Provide interpretive exhibits or roadside kiosks	X			X								
Repair /replace information signs				X								
Implement shuttle system and associated infrastructure				X								
New visitor information materials proposed										X		

6.2.1. NPS Project Management Information System (PMIS) Visitor Information-Related Projects

A review of AKR projects in PMIS extracted on February 10, 2011 showed about 160 projects were related to the specific mobility topics of access, safety, and visitor information. Of the three mobility categories, 11 projects were related to visitor information. Table 20 summarizes these AKR PMIS projects and includes the funding status and project type by cluster group.

Table 20: NPS Project Management Information Systems (PMIS) Visitor Information-Related Projects

Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
2 projects • *Requested: 1* • *Formulated: 1* • *Funded: none* **Types of projects** *Install roadside kiosks* *Dalton Highway audio tour*	No projects	No projects	**9 projects** • *Requested: 1* • *Formulated: 0* • *Funded: 8* **Types of projects** *Install roadside kiosks (McCarthy Road)* *Repair/replace information signs* *Implement shuttle system and associated infrastructure*

6.2.2. Park Unit Survey Results Regarding Visitor Information

As part of this LRTP process, park unit-level transportation surveys were conducted in person or via teleconference in May and June 2010. Table 21 summarizes some of the key visitor information-related issues discussed or describes existing conditions as reported by local park unit-level NPS personnel. Survey results by cluster group are summarized below. A majority of the issues identified during the surveys were related to safety, as compared to access or visitor information. This may be indicative of park units having firsthand "on the ground" knowledge. This is not intended to be an exhaustive or all-inclusive list of the existing conditions or issues.

Table 21: Identified Visitor Information-Related Existing Conditions and Needs from 2010 Unit Surveys

Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Visitor information materials are outdated *(Bering Land Bridge)*	Air taxis do marketing/ advertising (*Lake Clark General Management Plan cites more than 100 air taxis*)	Concessionaire does the marketing/advertising *(Aramark for Glacier Bay)* Lack of visitor information*:* There is little to no public outreach. Wayfinding at the dock and at the ferry terminal is inadequate *(Sitka).*	Concessionaire and the Alaska Railroad do their own advertising/marketing

6.2.3. Other NPS Planning and Management Documents Discussing Mobility

A number of NPS planning and management documents were reviewed to identify trends and existing conditions and needs including park unit general management plans (GMPs), foundation statements, and park asset management plans (PAMPs). Visitor information issues were not immediately identifiable in the documentation for the following three cluster groups: *Remote North Parks, Cruise Ship Parks*, and *Road Parks.* For the *Remote South Parks*, the Katmai GMP cited needed upgrades and improvements, which included interpretive exhibits.

6.3. Visitor Information Overview

For visitor information, the team considered how visitor information gets distributed for the AKR park units. Generally, there is a not a region-wide effort. Park visitors who check in with the individual park visitor information centers usually obtain a park map that describes facilities and services the visitor should know about during their visit. However, a lot of planning usually occurs prior to a visitor arriving at a park in Alaska. The team looked at a variety of these types of information sources, including NPS materials such as previous visitor surveys and websites and non-NPS materials such as other governmental entity websites. The team also considered some of the other visitor information distribution methods used by other NPS regions.

6.4. Methods to Disseminate Information to the NPS Traveler

6.4.1. NPS Visitor Survey-Identified Information Sources

In conjunction with the University of Idaho, the NPS has been conducting visitor surveys at many of its park units nationwide since 1988. Visitor survey results are intended to provide NPS managers with visitor information that can be used to improve services, protect resources, and manage parks more efficiently. Since the program began, the Visitor Services Project has conducted surveys in more than 178 NPS park units.[12] To date, visitor surveys have been conducted in seven park units in Alaska: three *Road Parks* (Denali, Kenai Fjords, and Wrangell St. Elias), three *Cruise Ship Parks* (Glacier Bay, Sitka, and Klondike Gold Rush), and one *Remote South Park* (Katmai). Most of these surveys occurred in the 1990s, except for visitor surveys conducted in Katmai and Denali in 2006.

Kennecott Mine, Wrangell-St. Elias

Over the years, the visitor surveys have contained questions regarding how visitors obtain park information prior to their park visit. Table 22 and

Figure 9 summarize six of these surveys, showing how visitor groups most often obtained information about the park they were visiting prior to their visit. Travel guides/ tour books and word of mouth historically have been the most common sources of information. The internet, including NPS web pages, has become an increasingly popular source for information. However, prior to 1997, the Visitor Park Surveys did not contain "source of information" questions that included answer options for internet/websites. Therefore, older surveys do not reflect internet use as an information source. See Section 6.6 for suggested recommendations and actions related to the need for improving the visitor surveys.

Surveyed visitors for Wrangell-St. Elias and Kenai Fjords, both *Roads Parks,* cited the *Alaska Milepost* guidebook as one of the top sources for information. This may be indicative of independent travelers visiting these *Road Parks* park units and being proactive about the need to obtain information. Alternatively, cruise ship passengers would likely not be using the *Alaska Milepost* as an information source. Interestingly, more than half of the surveyed visitors in 1998 to the

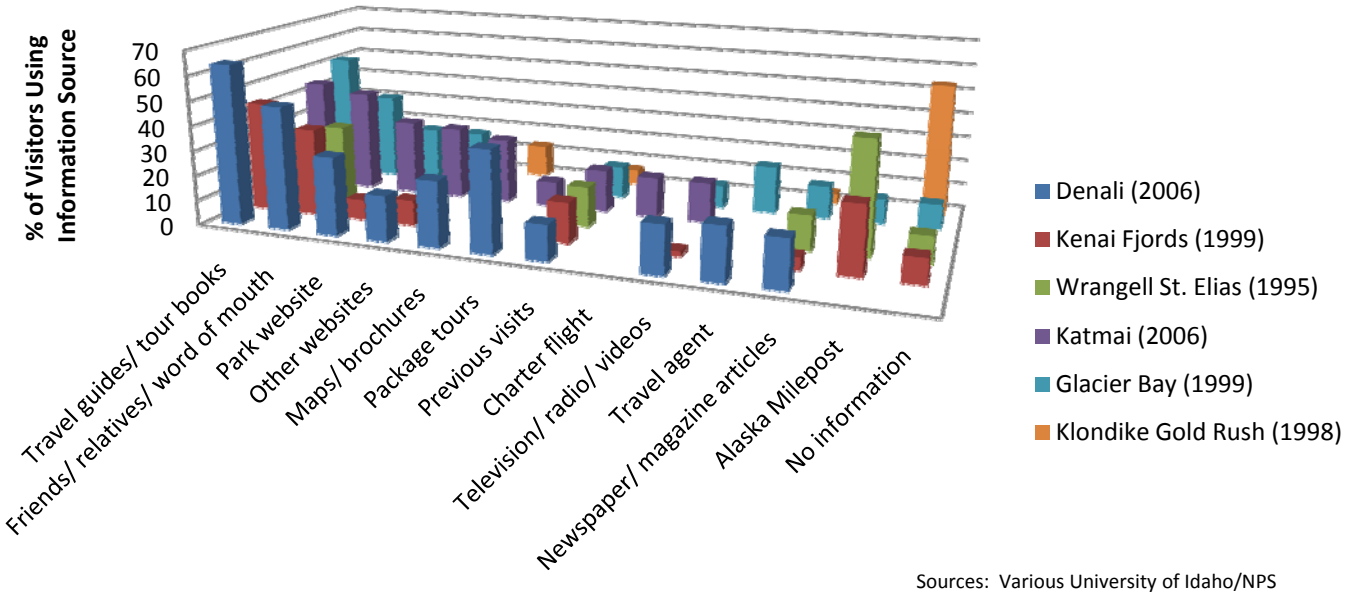
[12] NPS Visitor Services Project Web page: http://www.psu.uidaho.edu/vsp.htm. Accessed February 2, 2010.

Klondike Gold Rush reported receiving no information about the park prior to their visit. More than likely, a significant number of those surveyed visitors were cruise ship passengers.

Table 22: Information Sources AKR Visitors Used Prior to their Park Visit, as Reported in NPS Visitor Surveys

Park Unit (Survey Year) *Cluster Group*	Number of visitor groups surveyed	Top visitor-identified information source	Second most visitor-identified information source	Third most visitor-identified information source
Katmai (2006) *Remote South Park*	425	Travel guides/ tour books	Friends/ relatives/ word of mouth	Park website
Denali (2006) *Road Park*	758	Travel guides/ tour books	Friends/ relatives/ word of mouth	Package tours
Kenai Fjords (1999) *Road Park*	318	Travel guides/ tour books	Friends/ relatives/ word of mouth	Alaska Milepost
Glacier Bay (1999) *Cruise Ship Park*	532	Travel guides/ tour books	Friends/ relatives/ word of mouth	Park website
Klondike Gold Rush (1998) *Cruise Ship Park*	521	No information	Travel guides/ tour books	Maps/ brochures
Wrangell-St. Elias (1995) *Road Park*	437	Alaska Milepost	Friends/ relatives/ word of mouth	Travel guides/ tour books

Figure 9: Information Sources that Park Visitors Used Prior to their Park Visit, by Percentage



Sources: Various University of Idaho/NPS Visitor Services Project surveys

Visitor-identified Information Sources

6.4.2. Technology: Websites, Social Media, and Smartphones

Current information technologies make it possible to access information at previously unprecedented levels. Information systems such as the NPS website, social media, and downloadable phone applications are used to promote access to and knowledge of transportation services.

The nps.gov website contains a plethora of information, including maps, cultural and historical stories, fees, and operating hours and seasons. In terms of mobility, NPS websites offer information on directions, "things to know before you come," ways to get around, and lists of transportation and guide services. NPS web pages also incorporate multimedia features such as cultural videos (e.g., video on an archaeological dig in *Gates of the Arctic*) or audio tours (e.g., the Nabesna Road audio tour in *Wrangell-St. Elias*).

In addition to websites, the NPS is also disseminating information through social mediums such as Facebook, Flickr, and Twitter. In Alaska, ranger programs are being delivered through Facebook (*Bering Land Bridge*). Official park visitor guides (*Glacier Bay*) are also being made available through Facebook. For *Denali*, rangers are posting blogs about their dogsled patrols. With only one-fourth of the AKR park units on the formal road system, technology provides a way to share the park visitor experience with those who do not have the opportunity to visit the parks in person. For *Kobuk*, the NPS created a Flickr webpage as a way to extend the "virtual park boundary," allowing park visitors to post photos, video clips, and journal entries to share with others. Park units use Twitter to send park updates such as the bear viewing at Brooks Camp (*Katmai*) or events at *Bering Land Bridge*.

Visitor Centers to Handheld Devices: The Changing Nature of Technology

In April 2011, the NPS Director Jonathan Jarvis spoke to a group of university students about the changing role of the NPS visitor center, alluding to the changing nature of how visitor information is being distributed.

"We have long believed that the visitor center was the gateway to the park; the first stop to learn all that the park had to offer—where to go and what to see." But maybe that's not necessarily the case today.

"They download everything they need to iPhones, iPads, Droid, devices that also tell them where they are and where they want to be, and allow them to share the experience in real time with friends and family anywhere on the planet."

"Today's visitors are more technologically attuned than ever before. Many people—and not just those under 30—plan their visits online, using the National Park Service's website and other sources to find interactive maps, watch videos of the trails they will hike, listen to podcasts about the wildlife they will encounter, and study online exhibits on the history of the place.

Source: NPS Digest. April 27, 2011. Conservation, Design and the 21st Century National Parks: NPS Director Talks with UVA Architecture Students. http://home.nps.gov/applications/digest/

NPS Websites, Multimedia and Social Media

All AKR park unit websites contain a "Plan Your Visit" webpage. This is a likely place to begin for a potential park visitor to obtain information. Advanced planning is critical for many of the national parks in Alaska. Many of the park unit websites emphasize this.

Remote North Parks

Most of the *Remote North Parks'* web pages imply a "do it yourself" (DIY) sufficiency as a necessary skill for the visitor to have at these isolated parks. Most of these park units' websites list licensed air transporters or air taxis and recommend that visitors contact these service providers prior to arrival to facilitate trip planning. Four of the five *Remote North Parks* list some type of social media for obtaining information or to "visit the park" virtually. The other remaining park, Gates of the Arctic, contains "multimedia presentations" on its webpage.

Remote South Parks

All of the websites for the *Remote South Parks* list transportation or guiding services that are authorized to conduct business within the parks. The *Remote South Parks* websites also allude to the necessity of self-sufficiency for the visitor. For *Katmai*, links are given for the lodging concessionaire.

Cruise Ship Parks

In comparison to the remote north and south parks, the *Cruise Ship Parks* web pages tend to focus on things to do at the park rather than how to get there. Informational leaflets, hiking trail brochures, and guides for the visitor center and Russian Bishop's House (*Sitka*) are available on these websites. *Cruise Ship Parks* also utilize social media like Facebook.

Road Parks

Visitor information available on the *Road Parks* web pages tends to be a bit more diverse than within the other cluster groups. While *Kenai Fjords* is on the road system, a significant amount of people visit the park by boat tours, of which some of the larger tours provide Park Ranger narration. In 2011, the NPS website for Denali launched a new page of virtual tours, guides, and resources to help visitors plan and enhance their experiences in the park. The new web page has three new eFeatures called ePlanner, eGuide, and eResource. The ePlanner is intended to help the visitor determine which type of bus they would want to take to go into the park depending upon their desired visitor experience. The eGuide provides visitors with information about what to expect on ranger-guided hiking trips. The eResource displays the results of a 2006–2009 noise inventory study in the park. These are newer features on the park websites.

Smartphones

Downloadable applications for smartphones have started to become available at NPS locations. A recent example in the Lower 48 includes an available app for a Civil War battlefields tour entitled "Battle App." Civil War Trust, a non-profit organization devoted to preserving Civil War battlefields, designed the app. In addition to showing the location of the historic sites, each historic location is explained with text or in some cases by a park ranger via a short video presentation. The tour takes visitors to four NPS-protected sites as well as other lesser-known battlefield locations. Source www.civilwar.org/. Accessed May 16, 2011.

NPS Concessionaires and Commercial Use Authorizations

As of the end of 2010, the NPS Office of Concession Operations reported there were approximately 360 commercial use authorizations (CUA) providing a wide range of commercial services for visitors to the NPS park units in Alaska. Some of the services these groups provide include air taxi, big game transport, backpacking and kayaking guiding, hunting and sportfishing guiding, and boat charters. These CUAs provide a great deal of visitor information. These operators are listed on the NPS AKR web pages.

Concessionaires play a key role in supporting the visitor experience by providing park visitors with transportation, lodging, food services, shops, and other facilities and services. The NPS works closely with concessionaires. Concessionaires are vital sources of information for park visitors and concessionaire employees can provide a wealth of information and guidance to visitors at the parks

Concessionaire shuttle bus, Denali

Two different concessionaires operate both buses and lodging services in AKR parks: in *Katmai* and *Denali*. The NPS AKR park web pages provide links to both of these concessionaire websites. Katmailand also provides bus service along the 23-mile road between Brooks Camp and the Valley of Ten Thousand Smokes. In Denali, Doyon/ARAMARK Joint Venture provides bus tours, park shuttles, food services, campground, and retail outlets within Denali.

6.4.3. Traveler Information System

For a number of reasons, including visitor congestion and strains on existing park transportation systems, the NPS continues to explore new ways to provide access and information to park visitors.

According to the John A. Volpe National Transportation Systems Center, traveler information systems (TIS) or intelligent transportation systems (ITS) are tools that provide real-time transit and traffic information (e.g., when the next bus will arrive, levels of road congestion, travel time between two points, etc.). These appear to be valuable tools, though may not necessarily be entirely applicable to parks in Alaska. These issues tend to be congestion-related, which is not an identified region-wide concern in Alaska, except for intense periods when cruise ship passengers are embarking or disembarking from one mode of transportation to another (e.g., between rail and bus in *Denali* or cruise ship to foot or bus in ports of call like Skagway at *Klondike Gold Rush*).

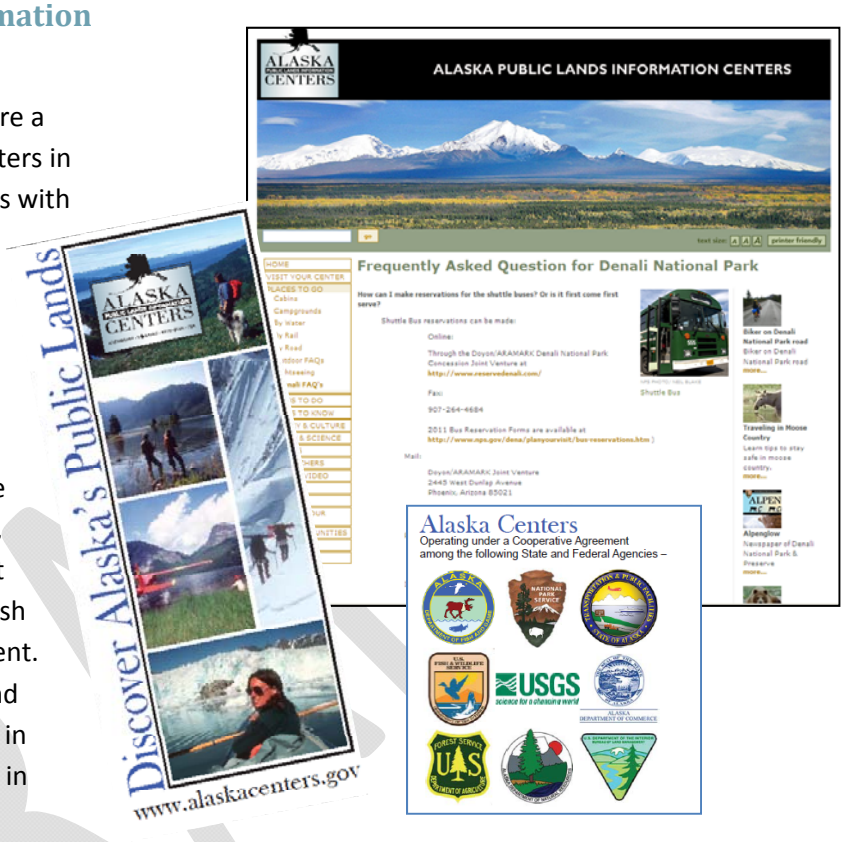
The Volpe Center works with the NPS to help design systems so visitors are informed and have enjoyable visits. In Massachusetts, Volpe partnered with the NPS to develop physical and electronic ways to help visitors plan trips to 18 NPS park units that document a range of significant periods and events in the nation's history.[13] The system will show visitors how to use public transit to navigate among the various park sites, most of which have been integrated into the local transit system's trip planner. The web-based TIS goes beyond "how to get there" and helps users plan their visits based on their interest: in this case, a historical or cultural context. This type of traveler information system could be implemented in Alaska, and could track events such as Alaska's Gold Rush era or other historic events such as the Iditarod.

These forms of electronic information are applied to transportation operations that can result in improved transportation efficiency and safety.

[13] Federal Transit Administration, Research and Innovative Technology Administration, Volpe National Transportation Systems Center webpage: http://www.volpe.dot.gov/infosrc/highlts/03/septoct/d_focus.html. Accessed on February 28, 2011.

6.5. Other State and Federal Agency Methods to Disseminate Information to the Traveler

6.5.1. Alaska Public Lands Information Centers



The Alaska Public Lands Information Centers are a system of four information and education centers in Alaska that "help provide visitors and residents with meaningful, safe, enjoyable experiences on public lands and encourage them to sustain the natural and cultural resources of Alaska." The Centers were established in 1980 by ANILCA and represent nine different State and Federal land management agencies. The agencies serviced by these centers include the NPS, USFS, USFWS, U.S. Geological Survey, Alaska Division of Tourism, Alaska Department of Natural Resources, Alaska Department of Fish and Game, and the Bureau of Land Management. The NPS manages the centers in Anchorage and Fairbanks, while the USFS manages the center in Ketchikan and the USFWS oversees the center in Tok.

These interagency centers allow visitors to stop by or write to a single location for the information they might need to plan their trip to public lands in Alaska. The Anchorage center is open year-round and provides information to Alaska residents and visitors. Exhibits, maps, brochures, recreation passes, live web cams, and a daily series of Alaska-specific movies are available to visitors. During the school year, the Anchorage center hosts the NPS Urban Education Program.

6.5.2. Alaska Travel Industry Association Visitor Information Content and Conduits

Marketing efforts to lure potential visitors to Alaska and its parklands can be one of the first ways Alaska's park visitors obtain information for their travels.

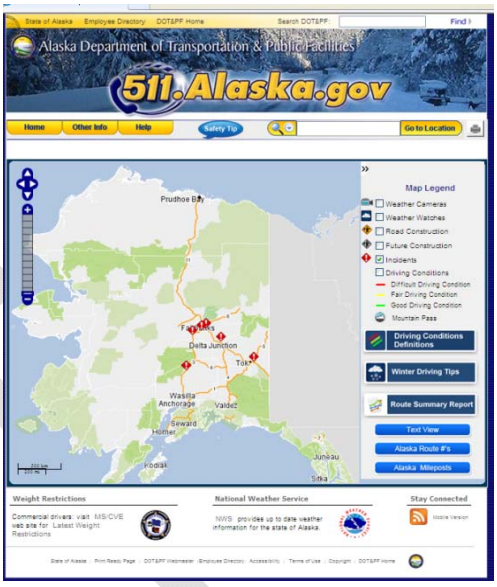
According to the 2010 Alaska Travel Industry Association (ATIA) Year End Report[14], the number of potential Alaska tourist leads generated via online media jumped from 16% to 36% between 2009 and 2010. This indicates a growing number of people going online to seek out travel information on Alaska. According to ATIA, a primary focus for the State of Alaska Division of Tourism and ATIA marketing efforts was to construct an entirely new website to replace an aging TravelAlaska.com. Enhancements to the website will continue through the 2011 fiscal year.

ATIA establishes goals and objectives each year and tracks a number of measures. Relevant to the NPS in Alaska include the following, as cited in ATIA'S 2010 year-end report:

- Alaska was also a co-sponsor with the National Parks Cooperative during the U.S. Travel Association's International POW WOW. A lunch presentation to an audience of approximately 5,000 delegates consisting of international tour operators, media, and U.S. suppliers featured clips of Alaska's National Parks as seen in the Ken Burns documentary, The National Parks: America's Best Idea.
- As part of one of its strategies to provide detailed travel planning and booking information to high potential prospects, ATIA Included information on Alaska's Scenic Byways and Alaska's State and National Parklands in the State Vacation Planner.
- Several articles on Alaska's national parklands were published as a result of ATIA media outreach and assistance:
    - A 9-page story on Alaska appeared in the April 2010 Adventure Issue of *Outside* magazine. The story focused on Alaska's National Parks, claiming Alaska is "the last real place to find epic, crowd-free adventure on American soil."
    - *Sunset* magazine highlighted Alaska in the May issue in an article called "Procrastinator's Guide to Summer" highlighting Denali National Park.
    - ATIA co-sponsored a luncheon on May 17, 2010 held n conjunction with the National Park Service and Amtrak. Approximately 5,000 delegates consisting of international tour operators, media and U.S. suppliers were in attendance. The presentation featured clips of Alaska's National Parks as seen in the Ken Burns documentary, The National Parks: America's Best Idea. Alaska National Park collateral material was distributed in all the tour operator delegate bags, at the ATIA booth, and at the National Parks booth on the trade show floor.

[14] Alaska Travel Industry Association. 2010 Alaska Travel Industry Association Year End Report. Accessed at: www.alaskatia.org/~/media/ATIA/PDFs/Research%20and%20Reports/General%20Reports/FY10_Year_End_Report.ashx.

6.5.3. 511 in Alaska



In 2010, the State of Alaska launched their New Generation 511, an online system that includes a map-centric condition reporting system for locating road incidents, planned events, and weather conditions. While most of the NPS park units are not on the road system, for those who are planning to travel to the road-accessible park units, 511 can be a useful tool. Alaska's 511 provides National Weather Service forecasts, road-weather conditions. For the 511 phone service, callers can access information by referencing major road segments by name between cities and landmarks. In Alaska, because of the climate and very few non-winter months, road construction is commonly encountered in the summer. Road construction closures and updates provide valuable information for travelers. One idea that has been discussed entails creating a similar webpage for federal public lands.

6.5.4. Federal Aviation Administration (FAA) Webcam

Aviation in Alaska is a critical component of the transportation system. According to the FAA registry queried on May 5, 2011, the number of registered pilots in Alaska is 11,118. Small bush planes are the most common mode used to access the remote AKR park units. As of March 2011, FAA provides webcams at 150 different locations throughout the state. These webcams are a useful tool for remote travelers. The cameras are located to view sky conditions around airports, air routes, and mountain passes. Camera images are downloaded and updated every 10 minutes and are disseminated to the public through FAA's Aviation Camera website at: http://akweathercams.faa.gov/.

While your average NPS visitor may not use FAA's website, NPS commercial use authorization permit holders, particularly those who are pilots, may access the website to plan their flight. These cameras provide important weather information to help pilots determine whether it is safe to fly.

6.6. Visitor Information Conclusions and Recommendations

Data gaps and limitations are summarized in Section 7. The following are recommended actions so that identified needs and concerns can be addressed. These recommended actions are not intended to be a part of an all-inclusive list, but rather a starting point for further discussion.

In many AKR park units, crossing over several cluster groups, concessionaires, air taxis, and other commercial are the main marketers of the park.

- Action: Investigate other NPS regions to see what kinds of visitor information services the NPS is providing where there are concessionaires and commercial use operators. How is visitor information materials and outreach handled in those cases?

1. Interpretive exhibits or roadside kiosks are needed. (Two cluster groups: *Remote North Parks* and *Road Parks*)

- Action: Obtain funding and install kiosks and/or interpretive exhibits in locations that have been identified as needing these (e.g., along the Dalton Highway in Gates of the Arctic).

2. Some visitor information materials are outdated.
   - Action: Identify what materials are outdated. Obtain funding to replace old materials.
   - Action: Use resources in the community and other interested stakeholders who are outside the park boundaries (e.g., gateway communities) but who still have and interest in providing quality visitor experiences.
3. Integrated traveler information systems are being used by the NPS in the Lower 48.
   - Action: Investigate and consider if the AKR should use this type of modernized technology.
4. Traveler information systems or intelligent transportation systems can improve the visitor experience by informing visitors how to navigate the transportation system.
   - Action: Consider how traveler information systems or intelligent transportation systems could be incorporated in Alaska (advanced communication technologies in transportation infrastructure to improve safety and provide dynamic, real-time information that allows people to make informed decisions). In heavily-congested AKR parks, direct visitors to less crowded areas or parks.
5. Where there is overlap in visitor information with other Federal Land Management Agencies (FLMAs), there may be opportunity to optimize efforts, reduce redundancies, and build partnerships, like the creation of the Alaska Public Lands Centers.
   - Action: Collaborate with other AK FLMAs to improve channels and methods of communication for the traveling visitor to public lands.
6. The NPS visitor surveys are intended to provide qualitative information on park visitor experiences and satisfaction. The visitor surveys are useful primarily for assessing qualitative information on general Alaska park visitor perceptions. An Alaska caveat for these surveys is that they are particularly applicable for road-accessible park units in the Lower 48 states where traditional park entrance stations provide extensive and reliable visitor counts. Surveys conducted in Alaska may not accurately reflect actual visitation and visitor experience because of the nature of Alaska's park units and the multiple locations and modes of access used by visitors. For instance, in Denali, the location of where the surveys occur is critical. In one location, you might capture the independent travelers who came by private vehicle and probably researched information prior to their visit. On the other hand, if surveys are conducted in locations where the majority of those surveyed are cruise ship industry visitors, they may have very different answers to the survey.
   - Action: Consider how to revise and tailor the NPS visitor surveys to accurately reflect AKR park visitation.
7. AKR park units already utilize a number of online technologies to disseminate information.

- Action: Look at how other park units are using technology to disseminate information and determine if similar methods could be applied in Alaska (e.g., smartphones).

7. General Conclusions

Mobility is one of several goals developed for the NPS AKR LRTP effort. The core team defined the mobility goal as **providing safe, efficient, affordable, and Park-appropriate access to and through Park lands**. This report is a summary of the existing relevant data that was obtained to support the mobility goal in terms of access, safety, and visitor information. Data, where possible, was obtained to provide a baseline condition and to identify possible mobility trends.

This report presents to the reader the unique transportation challenges and multi-modal travel necessary for accessing many of Alaska's national parks. The park units in Alaska were arranged into four cluster groups based on their geographic location and related multi-modal needs.

Data gaps and limitations are summarized in the following section. See the respective sections for recommended actions related specifically to access, safety and visitor information. These recommended actions are not intended to be a part of an all-inclusive list, but rather a starting point for further discussion.

7.1. Data Gaps and Limitations

The amount of data collected and reported by each park unit differs greatly. As one of the top-most visited as well as top-funded park units in Alaska, Denali has considerably more data available compared to other AKR park units.

Several safety data sets were reviewed to establish an existing conditions baseline. Limited, relevant safety data are available for the entire AKR, making trends difficult to identify. The team reviewed information from two NPS-managed databases containing safety-related information: STARS and SMIS. For reasons given earlier, STARS data are not reliable as information is inconsistently reported. No trends could be identified in the SMIS-reported incidents either.

Individual park unit surveys identified that some park units are not reporting safety data, which means either there are none to report or staff is not reporting safety data, or staff does not become aware of safety incidences on park lands. This is especially the case for safety data related to travel on trails, particularly during the winter.

- Action: Improve NPS reporting process for existing NPS databases (STARS and SMIS).
- Action: Encourage or require staff to report all safety incidents or concerns.
- Action: Identify ideas and strategies for improved, consistent data collection of vehicular accidents and other relevant safety accident data. One strategy could require the safety officers in each park unit to do the safety reporting into a database.
- Action: Establish a safety advisory working group.

A number of non-NPS agency datasets were reviewed, including roadway fatality data, aviation accident data, and boating accident data. These non-NPS data sets contain little to no information on incidents occurring within a park boundary. No trends related to safety to and within the park units could be gleaned from these other databases. These non-NPS managed accident databases either appear to be incomplete or lack trends related to safety in or near park units.

- Action: Identify other relevant existing safety databases.
- Action: Identify issues and strategies for improved (safety) database collaborations between the NPS and other agencies.

Anecdotal safety information appeared to shed greater light on park unit and cluster group safety issues. Anecdotal safety information came from AKR park unit surveys specifically conducted for this LRTP effort. Often, the conditions and needs identified during the park unit surveys matched the conditions and needs identified in other NPS planning documentation or listed within PMIS.

- Action: During future planning efforts, continue conducting park unit surveys to obtain anecdotal information about existing conditions and needs.

Having accurate visitation data results in being able to conduct a more accurate assessment of visitor transportation information services and needs. The NPS visitor surveys generally do not include transportation information. Three tiers of visitor information should be analyzed: visitor information related to the pre-visit, during the park visit, and the post-visit.

- Action: Develop transportation-specific questions for inclusion in future NPS park visitor surveys.

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National Park Service
Alaska Region Long Range Transportation Plan

Appendix C

Visitor/User Experience Technical Report

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1. Overview

Providing for the enjoyment, education, and inspiration of this and future generations, the visitor/user experience (VE), is a corner stone in the mission of the National Park Service (NPS.) This Technical Report reviews the analysis of the influences and impacts the current transportation system has on the experiences of Alaska National Park visitors and users. The report also summarizes the transportation system "needs" important to maintaining and improving the visitor/ user experience. The Alaska Region Long Range Transportation Plan (LRTP) is required to bring the NPS into compliance with Federal Legislation requiring Federal Land Management Agencies to conduct long range transportation planning in a manner consistent with the U.S. Department of Transportation planning practices for state and metropolitan planning organizations. Since the mission of the NPS is grounded in providing for visitor enjoyment, it is crucial that the NPS evaluate the transportation related expectations and needs related to Visitor/User Experience in the LRTP. After all, the majority of visitor experiences in National Parks are tied directly to Transportation, ranging from riding a shuttle bus system, traveling via fixed wing aircraft to a remote airfield or lake, to viewing glaciers and wildlife from the deck of cruise ships or tour boats. Transportation in any mode always accounts for the arrival experience to a national park, and for many visitors to Alaska's National parks, the transportation network enables the visitor experience by providing the multimodal connections to and within the park units. Often interpretation is provided in-route to visitors, by NPS, NPS concessioners, NPS partners, and private transportation providers, while the visitors view the unique Alaskan natural and cultural resources along the way.

2. *Findings*

The Visitor Experience analysis identified priority and evaluated real needs and identified priority investment strategies to identify transportation system improvements that would enhance the visitor experience in Alaska. The Unit level needs were aggregated to a cluster-level, where they were prioritized and rolled up to the regional level. Regional priorities were then prioritized and cost estimates were assigned to help provide the sustainable investment strategy recommendations.

Information needs ranked as the number one regional priority need. To effectively address visitor/user needs, data related to origin and destination, use patterns and numbers, winter trail system use, incident reporting, demographic trends, modes of travel, and safety needs is required. This data collection is related the next several regional prioritized needs: (2) providing appropriate access to recreation and resources, (3) improving traveler safety and (4) improving way finding and advance traveler information.

Information collection is estimated to cost $400,000 over 2 to 3 years. Implementation of projects defined by the finding is estimated at three to seven million dollars over four years (this excludes the construction of new major roadways and infrastructure.) This approach will enable strategic investments for meeting a large set of prioritized needs that would improve the visitor experience as it relates to the transportation system.

3. Purpose and Intent of Visitor Experience within the Alaska LRTP

The Alaska Region of the NPS offers the visitor unique recreational opportunities, majestic scenery, remote wilderness experiences and a wide range of ecosystems to explore. From mountaineering in Denali and kayaking in Kenai Fjords to hiking the tundra in the Northwest parks and cruise ship tours of Glacier Bay, the recreational experiences in Alaska park units are as diverse as the transportation systems used to get to them.

The Visitor/User in Alaska Parks is also varied, ranging from locals who live adjacent to and among the park landscape, to the visitor who has preplanned the trip months ahead of time and will only set foot on the parkland once in a lifetime. As with all National Parks, transportation systems hold a place in shaping the experience. For Alaska Park Units in particular, the modes of transportation and access are the most unique in the entire National Park System, often becoming the park experience, with most parks only accessible by aircraft or boat.

The NPS Strategic goal of Providing Public Enjoyment and Visitor Experience of Parks states, "visitors (are) to safely enjoy and (be) satisfied with the availability, accessibility, diversity of park facilities, services and appropriate recreational opportunities." In addition, the goal calls for park visitors and the public to understand and appreciate the park's resources and the need to preserve resources[1]. The NPS mission and goals influences the way transportation planning performed, NPS is not merely working toward moving goods and services to and through parklands as efficiently as possible, but is working to provide a memorable trip the enhances the visitor's experience of the park. All this translates into the need to incorporate elements into the NPS LRTP that are nontraditional in state and metropolitan LRTPs, such as way finding, interpretation, and appropriate (multi-modal) access.

In addition to recreational visitation, the Alaska Parks have significant non-recreation use. Transportation systems are used for administrative purposes related to law enforcement, protection of resources and maintenance, to support subsistence uses, provide access to in holdings and inter-village travel.

4. NPS Units within the Alaska Region

The Alaskan landscape offers vast geographical distances between Park Service Units and allows for a unique variety of both transportation and recreational opportunities. Since there is no single visitor/user travel scenario that represents the "Alaska visitor experience" it was decided to separate the parks into clusters with similar transportation, recreational and non-recreational opportunities. After an analysis of the transportation systems and park characteristics, the sixteen Park Units in the Alaska Region were divided into four clusters: Remote North Parks, Remote South Parks, Cruise Ship Parks and Road Parks. The clusters are in relative geographical proximity to one another and offer

[1] NPS- Strategic Goal 2.

similar transportation access, visitor experiences, and in most cases similar climatic, ecological and recreational opportunities. Like the names suggest, the Remote North and Remote South Parks are less accessible than the Road Parks. Similarly, the Cruise Ship Parks experience high numbers of visitors via cruise ships. The Visitor Experience of visiting a park for the few hours the cruise ship has docked is quite different than experiencing the wilderness for a week of backpacking after being dropped off by a fixed-wing aircraft in wilderness. By clustering the Park Units, trends and specifics data relative to visitor experience in clusters of parks are addressed. The table below provide the breakout of parks by cluster and the map in figure one demonstrates the parks location by cluster.

Remote North Parks	Remote South Parks
Gates of the Arctic National Park and Preserve	Aniakchak National Monument and Preserve
Noatak National Preserve	Lake Clark National Park and Preserve
Cape Krusenstern National Monument	Katmai National Park and Preserve
Bering Land Bridge National Preserve	Alagnak Wild River
Kobuk Valley National Park	

Cruise Ship Parks
Sitka National Historical Park
Klondike Gold Rush National Historical Park
Glacier Bay National Park and Preserve

Road Parks
Denali National Park and Preserve
Kenai Fjords National Park
Wrangell – St. Elias National Park and Preserve
Yukon-Charley Rivers National Preserve

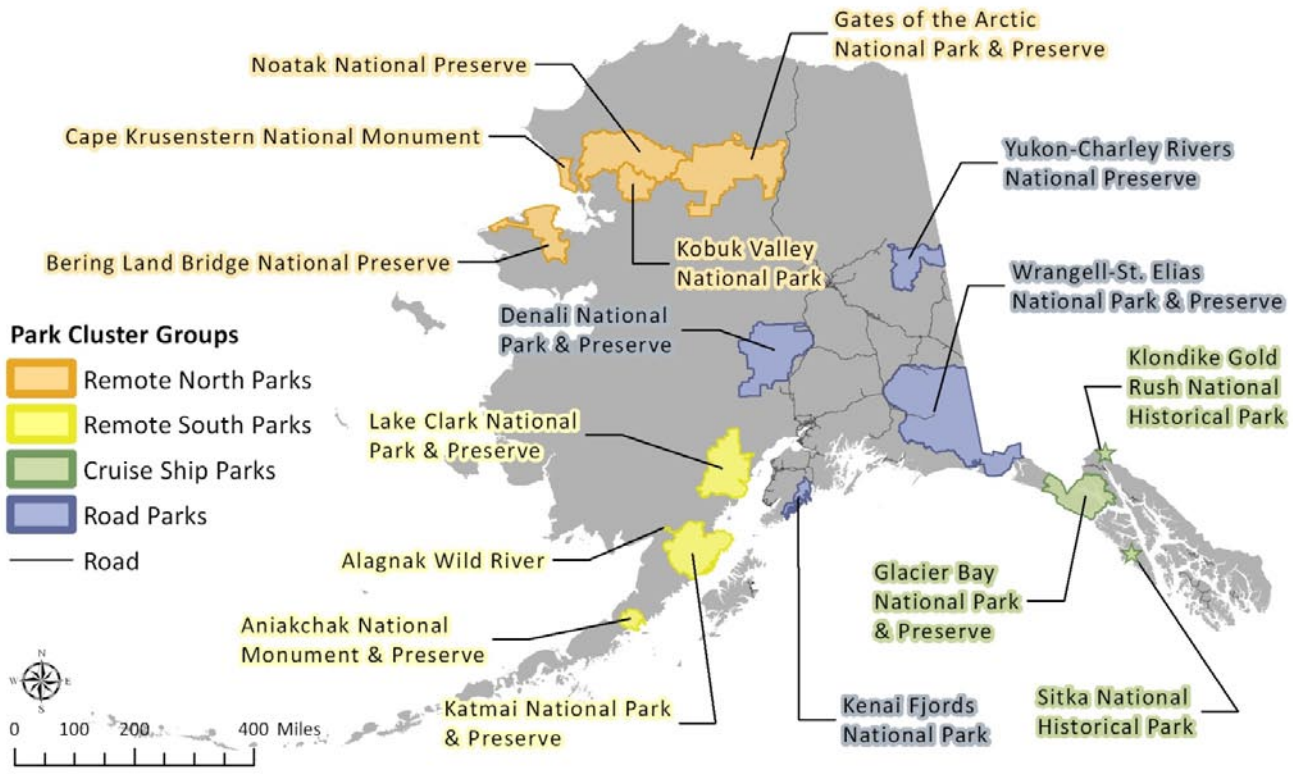


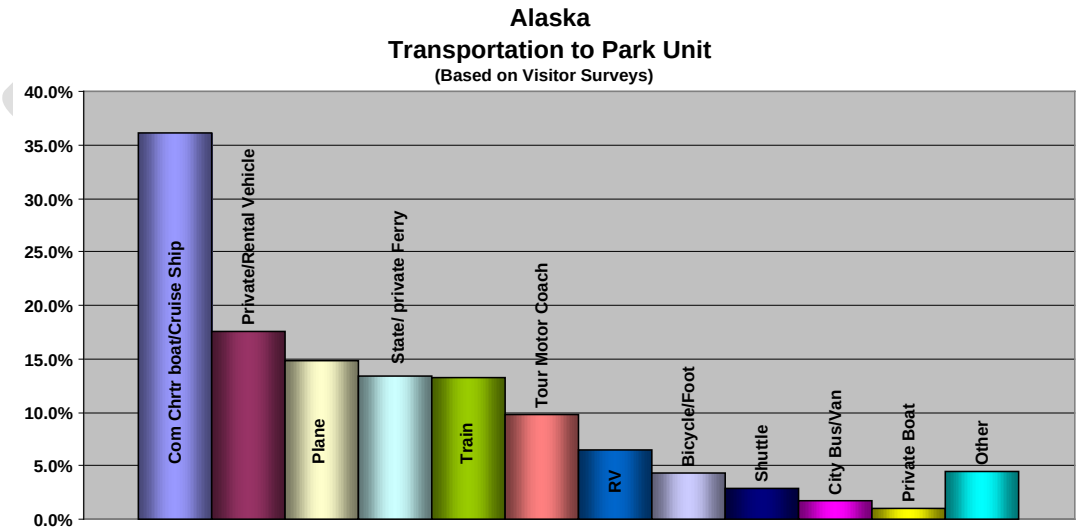
Figure 1. Map of NPS Alaska Parks by Park Clusters

5. Regional Existing Conditions and Future Trends for Visitation & Visitor Experience

Transportation to Alaska park units is strongly influenced by the predominance of cruise ship visitation to Alaska and the fact that cruise ships and marine vessels provide access to four of the top five most visited park units—Glacier Bay, Klondike Gold Rush, Sitka and Kenai Fjords. Denali, the second most visited park unit in Alaska (recreation visits), while not directly reached by cruise ships, receives approximately half of its visitation from cruise passengers on land tour packages. Most of these land tour visitors arrive to the park via the Alaska Railroad and motor coaches. Similarly, the increase in visitation to road-accessible Wrangell-St. Elias resulted from the recently constructed Princess Lodge and visitor center in Copper Center that brings cruise passengers on land tours, most of whom arrive via motor coach. Kenai Fjords visitors primarily access the park first via road or railroad to Seward where they access marine vessels into the park.

Many of the more remote wilderness parks are accessed by commercial airlines to gateway communities and then air charters from gateways to the park. Examples of these include Katmai accessed from King Salmon and Kobuk Valley and Noatak from Kotzebue. The coasts of Lake Clark and Katmai are accessed by commercial air charters from the Kenai Peninsula and Kodiak Island as well as marine vessels and small cruise ships. Transportation modes used by visitors to Alaska park units varies significantly across the parks. One thing true for all the parks, however, is that a much smaller fraction of visitors arrive via roads and automobiles than is the case in park units outside of Alaska.

Alaska Region Transportation to Park Units by Transportation Mode and Type



Source: NPS-provided document: WASO\July Meeting w Kevin\Alaska Snapshot Plus 072809.ppt
Note: While this figure shows the variety of transportation modes used by visitors to Alaska park units, it does not accurately reflect proportions due to outdated data and statistically unreliable survey samples. See

the section "Other Data Sources, NPS Visitor Surveys" for more detail on issues regarding University of Idaho visitor surveys.

Data Collection for all Alaska Parks

The Overall goal for identification of needs is to proactively enhance the Alaskan multimodal transportation system experience and connectivity. The three main components for existing and future data collection included analyzing information, studies and plans related to visitor experience, evaluation of project funding requests associated with transportation and visitor experience, and performing specific individual Park Interviews/surveys.

The following Alaska planning documents and databases were reviewed and analyzed: Individual Park Unit Asset Management Plans, Foundation Statements, General Management Plans (GMPs), Area Management Plans, and Park Level Strategic Plans and select Interpretive Plans. Smaller studies were also examined such as corridor studies, development concept plans and trail/pedestrian plans. The Alaska State of the Region Draft Report for the Long Range Transportation Plan (HDR, April 2010) provided background on existing transportation systems. This report established baseline conditions for transportation to and within Alaska's national parks and described travel trends that will affect future park transportation systems and their users in future years.

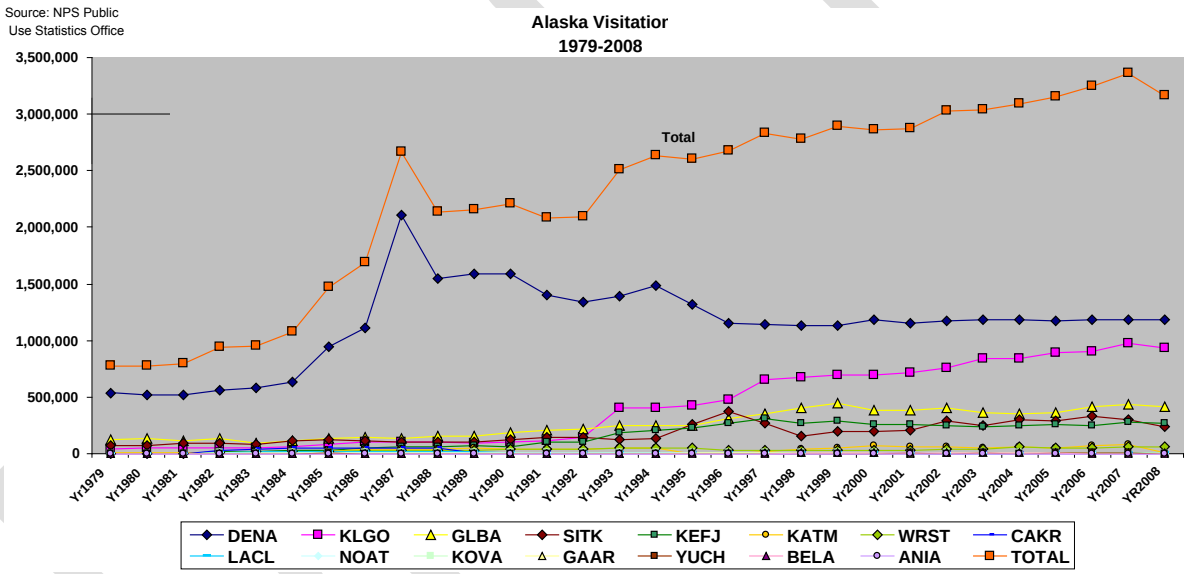
Specific Visitor Experience Studies included Visitor Use Surveys from the University of Idaho, which are oriented toward evaluating visitor facility use and satisfaction. Although these visitor surveys have been conducted in only seven park units in Alaska; six of the seven park units in the 1990s, and two park units – Denali and Katmai – in 2006, the surveys are useful for assessing qualitative information on general Alaska park visitor perceptions. The Alaska tourism industry reports also provided information on visitation trends and visitor use for the gateway communities and regions. Visitation statistical information was provided through the NPS Public Use Statistics Office and the *Alaska Residents Statistics Program Final Report*. NPS Statistics provides information by park unit on visitation (annually and monthly), length of stay, and a breakdown of visitation by recreation and non-recreation visits. NPS Statistics also provided system wide reports on parks, states, and regions as well as forecasting reports.

The second component of data collection included review of the NPS park planning and improvement projects tracked in the NPS Park Management Information System (PMIS). PMIS is a database that contains listing of park requested projects and provides detailed information on the project identifying the expected resulted improvement the project will have on visitor experience as well as resources protection, park operations, etc.

The third dataset collected information directly from the park units through interviews with park staff to capture their local knowledge, observations and expertise. (These interviews were conducted by the Alaska LRTP Project Manager in May and June of 2010.) All 16 units were included and the Project Manager captured anecdotal Visitor Experience comments. The open-ended questions received answers that helped identify additional transportation system needs to improve the visitor experience. Of all of the datasets, the most fruitful proved to be the responses to the open-ended questions asked

of each park unit in the surveys, since the park staff provided relevant, accurate and current information. See Appendix for Specific Elements and Comments from Data Sources Investigated.

Regional Visitation/ Visitor Use Demographics: Overall, for Alaska parks, recreational visitation is trending up sharply and non-Recreational Visitation is trending up slightly. Numbers of visitors and lengths of stay are captured by individual parks and the information is consolidated, monitored and analyzed by the NPS Public Use Statistics Office. Estimating visitation to national parks in Alaska is a challenge because of the area's remoteness and lack of road accessibility. All of the public land managers in Alaska face similar challenges and few have developed protocols to reliably estimate remotely accessed visitation.[2] Visitor estimates for the "Road" and "Cruise Ship" units are considerably more accurate and less challenging than the more remote park units. These "more accessible" parks account for approximately 98 percent of the estimated visitation to Alaska park units.



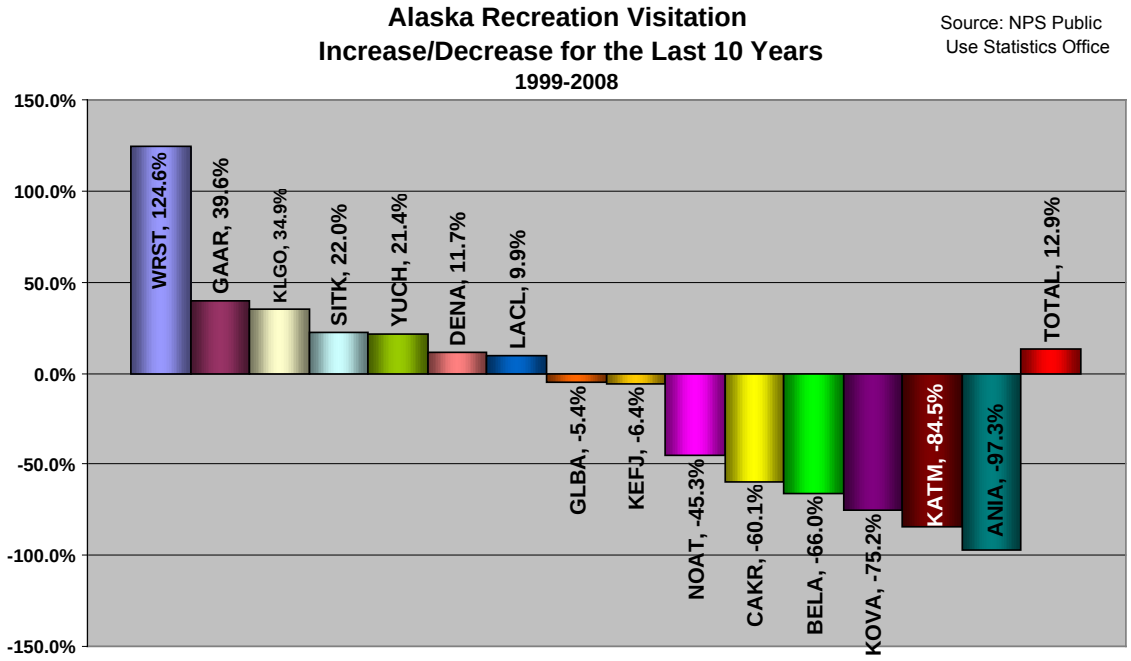
1. Alaska Region Visitation for all Park Units (1979-2008)

Visitation to Alaska dropped an estimated 7.3 percent between summer 2008 and 2009. While cruise passenger volume remained essentially the same, air visitor traffic decreased by 15 percent (from 800,600 to 684,400). Highway exits were down by 8 percent, while ferry exits decreased by 16 percent. The declines in these non-cruise sectors likely impacted visitation is Alaska lesser visited parks. Between 1999 and 2008, recreation visitation increased in seven park units, whereas eight park units saw a decrease in the number of recreation visits over the decade. However, given the challenge and

[2] Fay, Ginny; Colt, Steve; White, Eric M. 2010. Data survey and sampling procedures to quantify recreation use of national forests in Alaska. Gen. Tech. Rep. PNW-GTR-808. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 59 p.

inconsistencies in estimating visitation to the more remote park units, the declines in these six park units should be viewed with caution. Relatively small changes in visitation or estimation methods can result in large percentage changes in estimated visitation. This is due in part to the relatively smaller number in total visitors compounded by the difficulty in estimating visitation to remote wilderness areas with seemingly "infinite" access points via small charter aircraft. The downturn in the economy and increased fuel prices are possible reasons for these decreases.

Alaska Region Recreation Visitation Increase/Decrease for the Last 10 Years by Park Unit (1999-2008)



Although the University of Idaho Park Studies Unit performs annual visitor satisfaction surveys, these surveys do not request detailed information directly related to transportation modes and visitor experience with their travel to and within the park units, nor is origin and destination data gathered. Surveys do show that over half of the visitors from the cruise ships and road parks are over 50 years of age. Little is known for the demographic data on the remote north and remote south parks.

Transportation Systems, Modes & Access: Nearly all travel to and within Alaska's National Parks is multimodal. Multimodal being defined as use of more than one travel mode, car, plane, boat/ferry, shuttle, OHV, and rail. The exception being the in state and local recreational and non-recreational visitors.

Visitation by Transportation Mode to Alaska

Year	Alaska	Cruise	Air	Highway	Ferry
1996	1,294,800	464,484	624,316	113,500	27,200
1997	1,330,200	524,842	609,658	112,700	21,400
1998	1,380,000	569,707	602,893	123,000	24,700
1999	1,434,200	595,959	638,741	121,100	23,200
2000	1,455,400	640,477	646,573	107,550	20,600
2001	1,453,700	690,600	643,800	100,500	18,800
2002	1,527,600	739.800	672,600	96,800	18,800
2003	1,567,200	777,000	678,300	94,300	18,400
2004	1,693,900	884,400	697,700	94,000	17,600
2005	1,875,200	953,400	826,200	94,000	17,800
2006	1,881,000	958,900	832,700	82,000	13,600
2007	1,961,500	1,029,800	845,200	76,100	13,300
2008	1,954,800	1,033,100	839,900	84,500	13,500
2009	1,825,800	1,026,600	724,100	64,900	10,200

Source: Alaska Visitor Statistics Program, various years

Trends and Findings in all Alaska Parks: Since Alaska tends to be a "big trip" for many visitors, advance travel planning is a trend that has been identified that can be applied to the region. Travel to Alaska park units via cruise ships and cruise ship tours has not been detrimentally impacted by fluctuations in the economy and fuel prices. Lack of data about inter-Alaska user travel and remote park visits inhibits the ability to establish visitor needs and assess visitor experience.

Type of Experience: The National Parks in Alaska are known throughout the world for providing unique outdoor and wilderness experiences. It is interesting to note the according to the information gather via the current visitor surveys the following are the most common activities visitors participate in: shopping, visit to museums and/or cultural centers, viewing/photographing wildlife, touring historic buildings, touching/viewing glaciers, viewing scenery, hiking, riding the train (Klondike Gold Rush), riding tour boat (Glacier Bay and Kenai Fjords.) (The surveys available are primarily from cruise ship visitors. The visitors arriving to the parks via remote access and not tour groups are generally not captured as easily as cruise

and tour groups. This is another area where the lack of adequate survey information provides skewed results.)

6. Cluster Breakdown of Existing Conditions and Future Trends for Visitation & Visitor Experience

6.1. Remote North Parks

The Remote North Parks are some of the most remote parks in the NPS system. These parks are generally accessed by non-local visitors via commercial flights from Anchorage or Fairbanks to the gateway communities of Kotzebue or Nome. Local visitors use the parks for subsistence purposes and travel across parks lands for inter-village travel and trade. These units experience relatively low visitation compared to other units in the Alaska Region and the NPS system.

Existing Visitation/ Visitor Use Demographics: The Remote North Units make up 0.7% of total AKR Visitation. The accuracy of visitation is unknown but an estimated minimum visitation is around 45,000 (2009 estimations). Overall, the visitation trends in remote parks north are experiencing a slight downward trend. However, Recreation visitation is trending up and Non-Recreation visitation is trending down. (A reportable non-recreation visit includes through traffic, persons going to and from inholdings, trades-people with business in the park, and government personnel (other than NPS employees) with business in the park.)

Transportation Systems, Modes & Access: The remote North parks are accessed primarily by snowmobile, small boat, and fixed wing aircraft. Gates of the Arctic can be accessed from the Dalton Highway by off road vehicles and by foot. Signage and Way finding at the parks and gateway communities is limited or absent.

Trends in Remote North Parks:

(Most of these trends were brought to light with direct conversations with park management and were cross-referenced with the data analysis.)

1. Travel Safety - General trends include the lack of SAR capability, lack of emergency shelters, and lack of trail markers to facilitate inter-village travel, lack of interagency cooperation on safety – accident data not reported between NPS, State Troopers, native corporations, or other land management agencies.

2. Unreliable Aviation Access - Large scale trends include visitors being weathered in/out, flooded airstrips, poor airstrip condition, concerns about the liability to fixing airstrips, impossible to meet FAA regulations given size of park staff and money. Increases in visitation are anticipated using aviation to access units, and flooded airstrips related to Climate Change may become an increasing issue.

3. Access - ANILCA, RS2477 legally require NPS to provide access within the park units. Issues related to ANILCA and RS2477 access issues do not typically occur in trends and are therefore managed on an individual basis, and will not be addressed in this document.

4. Lack of Data – There is a trend related to the need for better data, including visitor/user data - how many, what are they doing, origin and destination, mode of travel, etc.

5. Advanced travel planning data – This is not as much of a trend in the Remote North parks, since research indicates that Bering Land Bridge is the only park in need of a this type of data.

6. Airstrip Mapping –Several sources discussed the need for airstrip mapping. Airstrip locations are needed for search and rescue activities. More investigation is required to assess the practicality of mapping and maintaining the maps of airstrip locations.

Type of Experience: Visitors to the remote north parks typically encounter a true wilderness experience. Most travel is pre-planned or provided through guided tours. Visitors are flown in for multi-night executions including fishing, camping, hiking, and rafting. The transportation experience of being flown in by small plane, landing on water or tundra is often the highlight of the trip. There is little way finding in the parks and at gateway communities. Local visitors and users are typically in the parks for subsistence purposes or traversing the parks for inter-village trade and travel. Anecdotal information suggests significant safety concerns with the lack of undesignated winter travel corridors and storm shelters.

6.1.1. Data Source: Alaska Residents Statistics Program Final Report March 2009, Interpretive Plans and online research

- The rural strata, Northern and Southwest, had a high participation rate in food gathering, hunting and fishing, and snow machining.
- The Northern stratum had a high participation rate in ATV/motorbike riding.
- The Northern had the highest percent of respondents who were born in Alaska. 60.9
- This cluster had by far the most corrections/additions from the units to the readily accessible data compiled by HDR in the State of the Region report. This may reflect a disproportionately high participation level from the survey, but supports HDR's conclusion that the remote park lack sufficient data on Visitation and Visitor Experience.
- NPS Stats data should not be relied upon. Most units agree that last 3 years is most accurate. Including visitation to out-of-park facilities skews data.
- Local users (in BELA, 80-90% of park visitation) not reflected in visitor counts or surveys
- Intervillage travel is not reflected in data

- The most cited VE issue in these parks is remote travel safety
- Winter Trails: Lack of winter trail markers, markers blowing over, building maintenance and supplying emergency cabins, deaths along trails, lack of data concerning incidents along winter trails, lack of capacity to conduct search and rescue
- Aviation: unmaintained airstrips, flooded airstrips, weather-related dangers, weather-related strandings ($400-500K TCFO for one aviation improvement)
- Boaters: Weather-related safety issues, lack of coast guard support along coastline and no park ability to assist boaters

6.1.2. Data Source: Survey of Alaska park unit managers

- This cluster had by far the most corrections/additions from the units to the readily accessible data compiled by HDR in the State of the Region report. This may reflect a disproportionately high participation level from the survey, but supports HDR's conclusion that the remote park lack sufficient data on Visitation and Visitor Experience.
- NPS Stats data should not be relied upon. Most units agree that last 3 years is most accurate. Including visitation to out-of-park facilities skews data.
- Local users (in BELA, 80-90% of park visitation) not reflected in visitor counts or surveys
- Intervillage travel is not reflected in data
- The most cited VE issue in these parks is remote travel safety
- Winter Trails: Lack of winter trail markers, markers blowing over, building maintenance and supplying emergency cabins, deaths along trails, lack of data concerning incidents along winter trails, lack of capacity to conduct search and rescue
- Aviation: unmaintained airstrips, flooded airstrips, weather-related dangers, weather-related strandings
- Boaters: Weather-related safety issues, lack of coast guard support along coastline and no park ability to assist boaters

6.1.3. Data Source: University of Idaho Surveys

Remote North Units make up .7% of Total AKR Visitation

Visitation - Remote North Units, TOTAL visitation has a slight downward trend

- GAAR – 9,975
- NOAT – 3,681
- KOVA – 3,205
- CAKR – 2,830

- BELA – 2,174

Visitation - Remote North Units, RECREATION visitation is trending up

- GAAR – 9,975
- NOAT – 2,474
- KOVA – 1,879
- CAKR – 1,810
- BEL – 1,054

Visitation - Remote North Units, NON-RECREATION visitation is trending down

- KOVA – 1,326
- NOAT – 1,207
- BELA – 1,120
- CAKR – 1,020
- GAAR – 0

6.1.4. Data Source: Analysis of needs through formulated projects in PMIS

Remote North Units funding requests associated with transportation related work account for $151,600 or less than 1% of the total formulated requests currently entered in PMIS related to transportation. The formulated projects deal with improving connectivity and visitor information.

6.2. Remote South Parks

The Remote South Parks cluster includes parks located in the southern peninsula. These parks are typically accessed by private and chartered fixed wing aircraft from Anchorage, although Katmai and Lake Clark are also serviced by the Gateway communities of King Salmon and Port Alsworth. Coastal areas of the parks are accessed by boat and plane via Kodiak as well.

Existing Visitation/ Visitor Use Demographics: The Remote South Units make up 1.7% of total AKR Visitation. Similar to the North Remote Parks, more data is needed on demographics.

Transportation Systems, Modes & Access: With the exception of Brookes Camp in Katmai most visitation to the remote south parks is untracked due to the nature of the primary travel method, private fixed wing aircraft and private boat.

Trends in Remote South Parks:

(Most of these trends were brought to light with direct conversations with park management and were cross-referenced with the data analysis.)

1. Lack of Data - There is a trend related to the need for better data, including visitor/user data - how many, what are they doing, origin and destination, mode of travel, etc.

2. Access – Access - ANILCA, RS2477 legally require NPS to provide access within the park units. Issues related to ANILCA and RS2477 access issues do not typically occur in trends and are therefore managed on an individual basis, and will not be addressed in this document.

3. Unreliable Aviation Access - Large scale trends include visitors being weathered in/out, flooded airstrips, poor airstrip condition, concerns about the liability to fixing airstrips, impossible to meet FAA regulations given size of park staff and money. Increases in visitation are anticipated using aviation to access units, and flooded airstrips related to Climate Change may become an increasing issue.

4. Airstrip Mapping –Several sources discussed the need for airstrip mapping. Airstrip locations are needed for search and rescue activities. More investigation is required to assess the practicality of mapping and maintaining the maps of airstrip locations.

5. ORV - Further investigation into the ORV needs is necessary.

6. Advanced travel planning data – Throughout the Remote South parks, visitor experience can be improved through providing advance information detailing conditions and ways to access the units.

7. Information & way finding at park – PMIS data, in particular, indicates that providing information and way finding at the park units is a trend.

Type of Experience: Bear viewing at Katmai is a significant experience and draws many visitors. In-holder fishing lodges are located throughout KATM and LACL and many visitors fly in for muti-night fishing, hiking and rafting excursions. The transportation experience of being flown in by floatplane, landing on water, hiking highly vegetated trails in bear country is thrilling, and dangerous…. and often the highlight of the trip. There is little way finding in the parks and at gateway communities.

6.2.1. Data Source: Alaska Residents Statistics Program Final Report March 2009

- The rural strata, Northern and Southwest, had a high participation rate in food gathering, hunting and fishing, and snowmachining.
- The Southwest strata has 48.6% percent of respondents who were born in Alaska.

6.2.2. Data Source: Survey of Alaska park unit managers

- This cluster had fewer additions/corrections to existing data, but reflected similar, if less urgent, concerns to Remote I issues.
- Local use is missing from NPS Stats (hunting, private airplanes), but NPS stats are pretty good
- Collecting accurate surveys is difficult as it is an open park
- Aviation concerns with weather, operators

- Boating safety

6.2.3. Data Source: University of Idaho Surveys

Remote South Units make up 1.7% of Total AKR Visitation

Visitation - Remote South Units, TOTAL visitation is trending up

- KATM – 43,286
- LACL – 9,711
- ANIA – 14
- ALAG – n/a

Visitation - Remote South Units, RECREATION visitation is trending up

- KATM – 43,035
- LACL – 9,711
- ANIA – 14
- ALAG – n/a

Visitation - Remote South Units, NON-RECREATION visitation is trending down

- **KATM - 250**
- ANIA-0
- LACL – 0
- ALAG – n/a

6.2.4. Data Source: Analysis of needs through formulated projects in PMIS

Remote South Units funding requests associated with transportation related work account for $510,362 or 1% of the total formulated requests currently entered in PMIS related to transportation. The formulated projects deal with improving facility condition, concession interaction, interpretation, information and wayfinding.

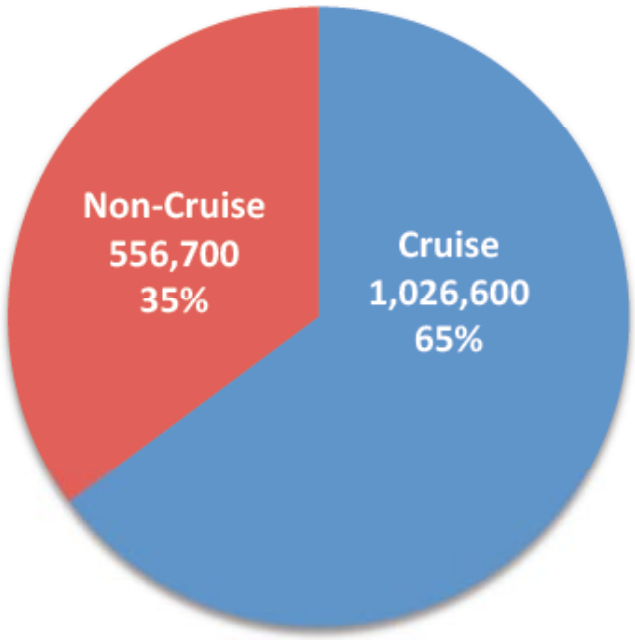
6.3. Cruise Ship Parks

The Cruise Ship Parks cluster includes parks in southeast Alaska that receive visitation primarily via cruise ships and cruise ship tours.

Existing Visitation/ Visitor Use Demographics: The Alaska cruise market dominates visitation to these parks. The visitors usually have day visits that are short in duration at KLGO and SITK. GLBA cruise visitors never leave the ship as the ship travels up and down the bay to see the glaciers. GLBA does receives some overnight and day visitation from Juneau (arriving in Gustavus by commercial jet, private and chartered boats and soon the Alaska State Ferry.) The Cruise Ship make up 50% of the total Alaska Parks Visitation. Of the cruise ship passengers, 87% claim to have a once in a lifetime visit and 52% of

these visitors are over 50 years old. Total Visitation Trends are increasing sharply in these clusters. Of that visitation, recreational visitation is trending sharply while non-recreational visitation is trending down. Group Travel is common and there is little to no information on subsistence use.

Alaska Cruise Market Share (Summer 2009)



- Source: Alaska Cruise Line Agencies

Alaska Annual Cruise Ship Passenger Growth (1992-2009)

Year	Cruise Passengers	Annual Growth Rate (%)
1992	265,000	
1993	306,000	13
1994	379,000	19
1995	383,000	1
1996	464,484	18
1997	524,842	12
1998	569,707	8
1999	595,959	4
2000	640,477	7
2001	690,648	7
2002	739,757	7
2003	776,991	5
2004	884,406	12
2005	953,400	8
2006	958,900	1
2007	1,029,800	7
2008	1,033,100	0
2009	1,019,507	-1

Transportation Systems, Modes & Access: Overall, the most common form of transport to these units was watercraft (cruise ship, commercial boat, and ferry). The second most common form was air via Seattle then Juneau. All three units in the cluster can be accessed by the Alaska Marine Highway System (ferry), cruise ship and commercial jet. The White Pass and Yukon Railroad provide access to Klondike Gold Rush. Mobility is limited to pedestrian traffic or local transportation. Tour bus accommodation is an important component of the transportation system at park units where cruise passengers disembark such as at Sitka and Klondike Gold Rush.

Trends in Cruise Ship Parks: Cruise ship visitation was down 1% between 2008 and 2009 implying that economic trends are not adversely affecting visitation rates at these parks. The fair small ports at KLGO and SITK in Skagway and Sitka are not constructed to efficiently handle the thousands of cruise ship passengers. Pedestrian crowing, congestion combined with inadequate ground vehicle supports creates havoc and safety concerns during the height of the cruise ship season. Information and wayfinding at the ports is lacking as is ADA compliant infrastructure.

1. Congestion/Conflicting Modes– Trends indicate that there are pedestrian/vehicle conflicts in and getting to the parks, and there are missing links to/from parks and docks

2. Crowding – Most of the trends relate to pedestrian capacity issues within the units. There is also a trend indicating that there may be some issue between local residents and cruise passengers that may need to be further investigated.

3. ORV (K, A) – Further investigation into the ORV needs is necessary.

4. Advanced travel planning data – Throughout the Cruise Ship parks, visitor experience can be improved through providing advance information detailing conditions and ways to access the units.

5. Information & way finding at park – Trends indicate that providing information and way finding at the park units is needed.

Type of Experience: Most visitation at these parks is organized by the cruise ship industry through the cruise day excursions. Walking around historic sites and in the towns is a big part of the cruise ship experience. The lack of safe crossings/adequate sidewalks, clear pedestrian signs and wayfinding, and accessibility issues all contribute to VE needs in these cruise ship parks and communities. Our parks are also intertwined within community transportation systems and networks, requiring close coordination between parks and communities and transportation providers. For individual visitors a wealth of activities are available including, hiking, Camping, Mountaineering, Backpacking, Kayaking, Rafting, Fishing, Hunting, Ranger Programs, Walking Tours, Museums/Historic Bldgs.

6.3.1. Data Source: Alaska Residents Statistics Program Final Report March 2009

- the Southeast stratum, which has the ferry system, also had relatively high intra-stratum travel.
- All strata had high participation rates in hiking, with the Southeast having 75% of respondents participating.
- Southeast stratum where saltwater fishing had a higher participation rate
- The number of people born in the southeast part of AK 21.3%
- Crowding due to tourism was often cited as reason for displacement by the Southeast stratum. Fees were also mentioned for the sites around Juneau.

6.3.2. Data Source: Survey of Alaska park unit managers

- Safety and congestion issues on land: Congestion, conflicting traffic uses, pedestrian safety, noise.
- Missing connections between modes (cruiseship docks and parks, trailheads to access nodes)

6.3.3. 6.4.3 Data Source: University of Idaho Surveys

Cruise Ship Park Units make up 50.3% of Total AKR Visitation

Visitation - Overall for all Cruise Ship units, TOTAL visitation is trending up (Sharply)

- KLGO- 880,512
- GLBA – 438,683
- SITK – 246,866

Visitation - Overall for all Cruise Ship units, RECREATION visitation is trending up (Sharply)

- KLGO – 880,512
- GLBA- 438,361
- SITK – 246,866

Visitation - Overall for all Cruise Ship units, NON-RECREATION visitation is trending down

- GLBA – 322
- KLGO – 0
- SITK – 0

6.3.4. Data Source: Analysis of needs through formulated projects in PMIS

Cruise Ship Units funding requests associated with transportation related work account for $4,100,000 or 8% of the total formulated requests currently entered in PMIS related to transportation. The formulated projects deal with improving congestion, facility condition, interpretation, safety, accessibility, wildlife impacts, wayfinding, recreation, facility condition-historic, noise, air quality.

6.4. Road Parks

(Denali National Park and Preserve, Kenai Fjords National Park, Wrangell – St. Elias National Park and Preserve, Yukon-Charley Rivers National Preserve). Road Parks cluster includes parks that are all connected to road networks.

Existing Visitation/ Visitor Use Demographics: Road Park Units make up 47.2% of Total AKR Visitation. All units in these clusters have campgrounds, visitor centers, and facilities. 44% of visitors are over 50 years old.

Transportation Systems, Modes & Access**:** Vehicle, Train, Air/Float Plane, Boat/Watercraft, Snow Machine (Cruise Ship at KEFJ). The Alaska Railroad provides access to both Denali and Kenai Fjords.

Trends in Road Parks:

(Most of these trends were brought to light with direct conversations with park management and were cross-referenced with the data analysis.)

1. Airstrip Mapping –Several sources discussed the need for airstrip mapping. Airstrip locations are needed for search and rescue activities. More investigation is required to assess the practicality of mapping and maintaining the maps of airstrip locations.

2. ORV – Further investigation into the ORV needs is necessary.

3. Crowding (A) – Trends indicate that there may be conflict between local residents and park visitors.

4. Road Maintenance and Construction – Most of the needs for road maintenance and construction have been targeted towards Denali Road, indicating a trend for the funding allocations for roads.

5. Negative Transportation System Impacts to Wilderness Experience – DENA bus traffic issue is currently under study and mitigation is being investigated separate from this study.

6. Advanced travel planning data – Throughout the Road Parks, visitor experience can be improved through providing advance information detailing conditions and ways to access the units.

7. Information & way finding at park – PMIS data, in particular, indicates that providing information and way finding at the park units is a trend.

Type of Experience: Bus Tours, Boat Tours, Backpacking, Mountaineering, Camping, Rafting, Biking, Ranger Programs, Dog Sled, Wildlife Viewing, Photography, Hunting, Fishing, Flight seeing, Kayaking, ATV, and BC Cabins. Sight-seeing from train and bus is a primary transportation-related VE. These systems are generally privately-owned/operated and designed to facilitate viewing from the vehicles via dome train cars and panoramic windows on coaches. Congestion is experienced during the peak months at Denali.

6.4.1. Data Source: Alaska Residents Statistics Program Final Report March 2009

- The Anchorage subregion had a high percentage of people from each strata traveling to it (ranging from 25% to 62%).
- The Interior stratum had the highest percentage of respondents indicating they traveled in the Northern and Interior Dalton Highway Corridors.
- The Matanuska-Susitna and Fairbanks-Ft. Yukon subregions also had relatively high visitation from all strata (ranging from 10.7% to 61.6% and 10.2 and 33.4, respectively)
- Strata on the road system showed greater intra-stratum travel.
- With respect to when people travel, for subregions with large enough numbers of respondents for patterns to emerge, many subregions appear to have higher visitation during the summer months, e.g., the Dalton Highway Corridor (Northern & Interior), ANWR, Yukon-Koyukuk, Southern Interior, Dillingham, Kenai Peninsula. The Anchorage, Juneau, and, to a lesser degree, Fairbanks-Ft. Yukon subregions seem to have more consistent visitation year round.
- The Southcentral region had the highest activity participation rate from respondents living in other strata.
- Two sites for being displaced were mentioned by all strata: the Kenai/Russian Rivers and variations of Denali Park (e.g., National Park, State Park, and just “Denali Park”). Crowding was an often-cited reason.
- The number of people born in the interior/south-central part of AK 20.9% and 16.6%, respectively

6.4.2. Data Source: Survey of Alaska park unit managers

- Road maintenance: Washouts, rough roads maintained by state (out of park control)
- Negative transportation impacts to wilderness experience:

- ORV impacts, insufficient airport facilities, aviation soundscape disturbance,

6.4.3. Data Source: PMIS

Road Park Units make up 47.2% of Total AKR Visitation

6.4.4. Visitation - Overall for all Road units, TOTAL visitation is trending up:

- DENA – 1,184,733
- KEFJ – 218,358
- WRST – 59,966
- YUCH – 6,432

Visitation - Overall for all Road units, RECREATION visitation is trending up (Sharply)

- DENA – 358,041
- KEFJ - 218,358
- WRST – 59,966
- YUCH – 6,432

Visitation - Overall for all Road units, NON-RECREATION visitation is trending up

- NR Visitation for all units except DENA is trending down
- DENA – 826,692
- KEFJ - 0
- WRST - 0
- YUCH – 0

6.4.5. Data Source: Analysis of needs through formulated projects in PMIS

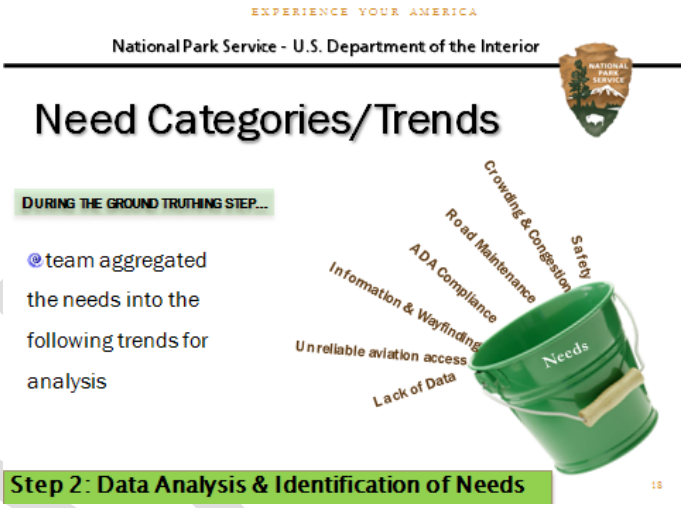
Road Units funding requests associated with transportation related work account for $46,100,000 or 91% of the total formulated requests currently entered in PMIS related to transportation. The formulated projects deal with improving facility condition, safety, wildlife impacts, recreation, connectivity, parking, subsistence, congestion, wayfinding, interpretation, information, pedestrian facilities, and noise.

7. NPS LRTP Planning Process

7.1. Data Analysis & Identification of Needs

Aggregating the Needs and Identifying Strategies to Address the Needs

The data analyses focused on identifying the most pressing transportation needs for the region related to Visitor Experience. For example, the survey responses previously mentioned were analyzed to identify transportation system needs that could improve the visitor experience. Some of the needs identified included safety, crowding and congestion, road maintenance, ADA compliance, information and wayfinding, unreliable aviation access and lack of data.



The project team collated and organized all of the needs identified at the cluster levels into logical categories under each cluster—the logical categories are ultimately the trends that were extracted from the analysis. The team then identified specific rational strategies for addressing those needs through a long range transportation planning process.

For example, due to many PMIS entries related to crowding and congestion, we determined that there were enough instances in which crowding/congestion issues were leading to less than optimal visitor experience conditions that it could be considered a trend/category. The strategy the team identified to meet the need was that NPS should investigate “pedestrian and transit planning in partnership with local entities to decrease crowding, congestion and bottlenecking”. The team recommended this rational strategy, since the majority of crowding/congestion issues in the Alaska Region are not located on property that is owned or managed by the NPS. However, the crowding/congestion issues still negatively impact the visitor experience of the transportation system experience and could be collaboratively resolved through partnerships.

A second example was the lack of necessary data to fully understand the relationship of the visitor experience to the transportation system. With the data gaps being the need, the team identified the following strategy to fill the gaps: “collect Data on origin/destination, use patterns and numbers, winter trail system usage, incident reporting, current demographics, etc.” The team felt it was appropriate to get more complete, current and thorough information to better inform the LRTP recommendations in the future.

7.2. Prioritization of Needs

Once all of the need categories/trends and strategies were identified at the cluster levels, they were prioritized within each cluster using a CBA process to assist in the evaluation. In instances where the CBA evaluation produced priorities that were close in ranking, we selected 4 priorities in each cluster. Typically, the team drew the line at 3 priorities per cluster, since it is known that there isn't enough NPS funding to address all of the NPS needs.

It is important to note that the team chose to focus the regional prioritization process only on the top priorities identified for each cluster, so that at the regional prioritization process would yield conclusions and recommendations that would best serve the Alaska Region with limited funding projected over the next several years.

The evaluation criteria for prioritization at both the cluster-level and the regional-level were related solely to the Alaska visitor experience and mobility goals identified in the Alaska Draft LRTP documents.

- Goal 1 - PLANNING - Collect and Analyze user information to determine which experiences/expectations are most relevant to transportation access
- Goal 2- MULTI-MODAL TRANSPORTATION - Emphasize the multimodal journey as part of the Alaska parks experience.
- Goal 3 - COORDINATED PLANNING - Strive for seamless multimodal connections to and across state and Federal lands
- Goal 4 - VISITOR INFORMATION - Provide accurate and accessible transportation information through a variety of means
- Goal 5 - SAFETY - Improve transportation infrastructure and operation safety.
- Goal 6- MULTIMODAL TRANSPORTATION - Invest in mode-appropriate transportation

Prioritization of Needs by Cluster

7.2.1. **Remote North Parks** (Gates of the Arctic National Park and Preserve (GAAR), Bering Land Bridge National Preserve (BELA), Cape Krusenstern National Monument (CAKR), Kobuk Valley National Park (KOVA), and Noatak National Preserve (NOAT))

7.2.1.1. ***Overall Needs Identified:*** There is little to no information on Subsistence Use, they are essentially "open units" with multiple entry points. In addition, the demographic information is relatively unknown and more data is needed in order to further identify the needs. Additional needs identified include winter trail safety and visitor information along Dalton Highway. Working with other federal lands agencies would help.

7.2.1.2. ***Future Investment Priorities:*** The funding is focused on connectivity and information.

Table 1. Priority needs and strategies identified from the CBA process to accomplish the needs for Remote North Parks. Four strategies were identified as priorities since the CBA provided close results.

	Needs Identified	Strategy for VE in Remote North Parks
1	**Lack Of Data**	Collect Data on use patterns and numbers, winter trail systems, incident reporting, demographics, origin and destination, mode of travel, etc.
2	**Appropriate Access to Recreation and Resources**	Investigate the need and plan for appropriate access to cultural, subsistence and recreational resources (including OHV).
3	**Advanced Travel Planning Data**	Use technology to disseminate advanced travel information, especially at the Bering Land Bridge.
4	**Travel Safety**	Safety planning and providing safety infrastructure and trail markings. Plan for SARs, emergency shelters, and trail markers (inter-village travel). Through partnerships improve the Bering Land Bridge(BELA) interagency cooperation on safety – accident data not reported between NPS, State Troopers, native corporations, and other FLMAs.
5	Unreliable Aviation Access	Maintain airstrips, provide information about weather conditions and provide oversight on use permits and concessions. We know enough from our data searches to know that there is an issue, but we don't know the details of the issue yet/nor have we identified the appropriate strategy to address those needs, it is recommended that we address the need to improve aviation access, without associating a specific strategy on how to do it.
6	"Information and Way Finding at Park	Provide for directional and information signs outside the park (at the destination). Primarily a BELA issue - provide signage and information at Nome Airport.

7.2.2. **Remote South Parks** *(*Aniakchak National Monument and Preserve, Lake Clark National Park and Preserve, Katmai National Park and Preserve, Alagnak Wild River)

7.2.2.1. ***Needs Identified:*** Missing links between modes of transportation (water and land) and safe bear viewing areas.

7.2.2.2. ***Future Investment Priorities:*** The funding is focused on connectivity and information.

Table 3. Priority needs and strategies identified from the CBA process to accomplish the needs for Remote South Parks.

	Priority Needs	Strategy for VE in Remote South Parks
1	**Lack of Data**	Collect Data on O&D, use patterns and numbers, incident reporting, demographics, subsistence use, information needs related to remoteness, weather and wildlife interactions, local use is missing from NPS stats, lack of accurate surveys, visitation data, etc.
2	**Appropriate Access to Recreation and**	Investigate the need and plan for appropriate access and designation of trails (including OHV).

	Resources	
3	**Unreliable Aviation Access**	Maintain airstrips, provide information about weather conditions and provide oversight on use permits and concessions.
4	Advanced Travel Planning Data	Use technology to disseminate advanced travel information.
5	"Information and Way Finding at Park	Provide for directional and information signs at the park.

7.2.3. **Cruise Ship Parks** (Sitka National Historical Park, Klondike Gold Rush National Historical Park, Glacier Bay National Park and Preserve)

7.2.3.1. ***Needs Identified:*** PMIS indicated most mobility related projects are safety related, in particular pedestrian safety on trails, docks, roads and boardwalks. Pedestrian safety from docks to paths, safe design and maintenance on the Chilkoot Trail and SITK trails, ADA compliance and Pedestrian congestion are needs.

7.2.3.2. ***Future Investment Priorities:*** The funding is focused facility condition, concession interaction, interpretation, way finding and information.

Table 4. Priority needs and strategies identified from the CBA process to accomplish the needs for Cruise Ship Parks.

	Priority Needs	Strategy for VE in Cruise Ship Parks
1	**Crowding and congestion**	Pedestrian and transit planning in partnership with local entities to decrease crowding, congestion and bottlenecking and reduce conflicts with cruise passengers.
2	**Information & way finding at park**	Provide for directional and information signs.
3	**ADA Compliance**	Complete ADA compliance along route from Cruise Ships to parks and along park travel corridors.
4	Conflicting Modes / Safety	Design, construct or repair pedestrian infrastructure to improve safety especially between pedestrian/vehicle conflicts in and getting to the parks. Fill in the missing links for pedestrian access to/from parks and docks.
5	Advanced Travel Planning Data	Use technology to disseminate advanced travel info.
6	Trail Safety	Make safety improvement to the Chilkcoot Trail.
7	OHV	Provide necessary safe OHV access as identified in the Alaska Mobility Technical Report.

7.2.4. **Road Parks** (Denali National Park and Preserve, Kenai Fjords National Park, Wrangell – St. Elias National Park and Preserve, Yukon-Charley Rivers National Preserve)

7.2.4.1. ***Needs Identified:*** Mobility related projects have been recorded in PMIS, the majority of project are in Denali. Identified needs include implement shuttle systems and construct infrastructure for shuttle systems, studies/plans associated with

congestion (Denali Park Road), ADA accessible trails, ORV access management, Coal Creek Road (restoring access in YUCH). Safety needs were identified as Denali Road Maintenance and Design Safety Improvements, Pedestrian and ORV trail Improvements. Visitor information needs have been identified as waysides and signage.

7.2.4.2. ***Future Investment Priorities:*** Funding should be focused on data and roads (access and improvements).

Table 5. Priority needs and strategies identified from the CBA process to accomplish the needs for Road Parks. Four strategies were identified as priorities since the CBA provided close results.

	Priority Needs	Strategy for VE in Roads Parks
1	**Advanced Travel Planning Data**	Use technology to disseminate advanced travel information.
2	**Appropriate Access to Recreation and Resources**	Investigate the need and plan for appropriate access and designation of trails (including OHV), recreational opportunities and subsistence resources.
3	**Road Maintenance and Construction**	Maintain roads in condition appropriate to use. And coordinate with AKDOT on maintenance of feeder roads.
4	**Alleviate Negative Impacts to Wilderness Experience (including Bus and OHV)**	Identify and manage negative impacts from vehicles and transportation infrastructure to "wilderness experiences" where appropriate. Denali Road - timing of buses is too close and should be reevaluated. Damage of terrain from OHV use detracts from the landscape and should be evaluated further for impacts to the wilderness experience.
5	Information & way finding at park	Provide and maintain for directional and information signs at the park.

8. Identified Recommendations and Investment Priorities for VE in the Alaska Region

The top ranking priorities identified at the regional level essentially became the concluding recommendations for investments in the transportation system to improve the visitor experience. The team identified the costs associated with all of the regional priorities and drew the imaginary line to identify what needs could be met with the anticipated/ projected levels of funding from Category I (Roads) and Category III (Alternative Transportation Systems) that is provided from FHWA and FTA.

Needs Identified: Table one demonstrates all needs for the region with strategies (listed from top priority to bottom priority).

Costs were derived from researching and averaging costs for similar Alaska projects documented in PMIS.

Current Investment Priorities: Of the projects identified in PMIS that would seek funding for visitor experience-related improvements, Road Units make up 91% of the funding requests, Cruise Ship Units make up 8%, Remote Units for north and south combined make up 1%, and the total Region funding makes up less than 1% of formulated funding for 2010-2015.

Recommendations for Regional Visitor Experience Investments

Assumption: The Preferred LRTP sustainable investment strategy will allocate up to 10% of the total Alaska funding from Category I and III money over the next 7 years to the Visitor Experience component. If a number greater than or less than 10% is allocated in the investment strategy, the recommendations within this section would need to be modified to reflect the change.

If 10% of the money is allocated toward Visitor Experience, it is recommended that the investment strategy focus on the needs listed below, which would total approximately $3.5 Million. This approach will enable strategic investments for meeting all of the prioritized needs—except for Roads Maintenance and Construction—to improve the visitor experience as it relates to the transportation system.

As mentioned earlier, the costs were derived from an average cost of similar Alaska projects that were documented in PMIS—and the assumptions are detailed in the right-hand column of Table 1.

- Information Needs ($400K)
- Improve travel safety ($800K)
- Improve way finding and advance traveler information ($1.4 Million)
- Crowding and congestion/ ADA Compliance ($450K)
- Alleviate Negative Impacts to Wilderness Experience (including Bus and OHV) ($450K)

Please note that the costs for Roads Maintenance and Construction are $101 Million. If the entire ten percent of the allocation was dedicated to the Roads Maintenance and Construction needs, it would be still be grossly underfunded. Therefore, needs related to Road Maintenance and Construction are expected to be captured under the asset management component, where it most likely would receive an allocation that is greater than 10% of the total anticipated funding.

Table 1. Priority needs and strategies identified from the CBA evaluation process and cost estimates derived from PMIS averages based on similar projects.

	Priority Needs	Strategy for the Alaska Region	Total Cost Estimate
1.a	**Information Needs- Lack Of Data**	In order to address visitor/user needs, data needs to be collected, compiled and analyzed to identify the specific visitor experience needs that relate to the transportation system. Specifically data related to origin/destination, use patterns and numbers, winter trail system use, incident reporting, demographic trends, mode of travel, safety needs, etc. is a part of the strategy to address future needs and trends in	Visitor Surveys for 16 Park Units @ $25K- 40K each (assumption, surveys will be done as one project region-wide). **$400,000 – $640,000**

		visitation.	
1.b	**Information Needs- Appropriate Access to Recreation and Resources**	Collect information to plan for appropriate access to cultural, subsistence and recreational resources (including OHV).	Data from the Visitor Surveys above can be used to begin assessing the visitor/users access needs/desires. Costs to develop access infrastructure cannot be estimated without further information.
2	**Improve travel safety**	Improve safety in the region by providing safe infrastructure and trail markings. Design, construct or repair pedestrian infrastructure to improve safety where there are known pedestrian/vehicle conflicts. Fill in the missing links for pedestrian access to/from parks and docks. Plan for SARs, emergency shelters, and trail markers (inter-village travel). Through partnerships improve the Bering Land Bridge (BELA) interagency cooperation on safety – it would improve transportation planning if accident data was reported/shared between NPS, State Troopers, native corporations, and other FLMAs.	Improve safety for 16 park units @ $50K – 100K each including planning and infrastructure **$800,000 - $1,600,000**
3	**Improve wayfinding and advance traveler information**	Provide for directional and informational signs within and to/from parks, and use technology to disseminate advanced travel info.	Signage for 16 parks ($50 - 75K each) and the creation of a 2 advance travel applications ($200K) **$1,000,000 – $1,400,000**
4	**Crowding and congestion**	Pedestrian and transit planning in partnership with local entities to decrease crowding, congestion and bottlenecking and reduce conflicts with cruise passengers.	Planning for congestion in 3 cruise ship parks ($150K - $200K each) **$450,000 - $600,000**
5	**ADA Compliance**	Complete ADA compliance along route from Cruise Ships to parks and along park travel corridors.	($150K - $200K each) **$450,000 - $600,000**
6	**Road Maintenance and Construction**	Maintain roads in condition appropriate to use. And coordinate with AKDOT on maintenance of feeder roads.	Derived from PMIS data **$450,000 - $600,000**
7	**Alleviate Negative Impacts to Wilderness Experience (including Bus and OHV)**	Identify and manage negative impacts from vehicles and transportation infrastructure to "wilderness experiences" where appropriate. E.g., Damage of terrain from OHV use detracts from the landscape and should be evaluated further for impacts to the wilderness experience.	Costs include planning and implementation **$450,000 - $1,000,000**
8	**Unreliable Aviation Access**	Maintain airstrips, provide information about weather conditions and provide oversight on use permits and concessions. Work with FAA and local airstrip managers to provide real-time weather updates via new emerging technologies.	**$500,000 - $1,000,000**
Total			**105,050,000 – 107,840,000**

Table 2. The gap in the projected funding versus the estimated need is $101 Million, which is equal to the total cost of the Road Maintenance and Construction needs.

As noted in the recommendations section following, even though Road Maintenance and Construction ranked higher than alleviating negative impacts to the wilderness experience, the disproportional cost of the former ultimately knocks it out of contention due to lack of funding.

	Regional Priority Needs	Total Anticipated Cost over the next 7 years (unconstrained need)	Funding allocation over the next 7 years for VE (10% of total funding)	Gap in funding vs. need
1	Information Needs	**$400,000 – $640,000**	$400,000	$240,000
2	Improve travel safety	**$800,000 - $1,600,000**	$800,000	$800,000
3	Improve wayfinding and advance traveler information	**$1,000,000 – $1,400,000**	$1,000,000	$400,000
4	Crowding and congestion	**$450,000 - $600,000**	$450,000	$150,000
5	ADA Compliance	**$450,000 - $600,000**	$450,000	
6	Road Maintenance and Construction	**$101,000,000**		$101 Million
7	Alleviate Negative Impacts to Wilderness Experience (including Bus and OHV)	**$450,000 - $1,000,000**	4,000,000	$600,000
8	Unreliable Aviation Access	**$500,000 - $1,000,000**		1,000,000
	Total	**$105,050,000 – $107,840,000**	$3,500,000	

This assumes a funding scenario where 10% of expected FLHP Cat I and Cat III funds are provided to support the VE needs.

9. Identified Recommendations and Investment Priorities for VE in the Alaska Park Clusters

Costs were not calculated for the cluster-level needs. The Investment Priorities for the clusters, generated from the needs have been rolled up to the regional level where costs were assigned. Since the clusters were developed for this effort and the investment strategy looks at a regional level, costs would not be useful at the cluster level.

10. Conclusions

The Visitor Experience analysis identified and evaluated real needs and identified priority investment strategies to identify transportation system improvements that would enhance the visitor experience in Alaska. The Unit level needs were aggregated to the cluster-level, where they were prioritized and rolled

up to the regional level. Regional priorities were then evaluated and cost estimates were assigned to help provide investment strategy recommendations.

Since most visitors to Alaska Park Units tend to preplan their trips, there are huge opportunities for improving the visitor experience through advance travel information (e.g. smart phone applications, interactive websites, etc), which is identified as the third regional priority. A large part of reaching that target audience is through collecting the right data about them to better focus the outreach--most optimally through direct survey approaches, since they produce fruitful and current information. Additionally, perhaps by providing advance traveler information, crowding and congestion could be minimized by proposing alternative routes, modes or time frames to assist park unit visitors reach their destinations more efficiently. In sum, all five of the recommended priorities are inter-related and would cumulatively enhance the visitor experience.

If 10% of the money is allocated toward Visitor Experience in the Preferred Investment Strategy, it is recommended that the strategy focus on the needs listed below, which would total approximately $3.5 Million. This approach will enable strategic investments for meeting all of the prioritized needs—except for Roads Maintenance and Construction—to improve the visitor experience as it relates to the transportation system.

Information needs ranked as the number one (#1) priority regional need for Alaska and would help inform the other four regional priorities by providing specific necessary data to assist with improving travel safety (priority #2), way finding/advance travel info (#3), crowding/congestion problems (#4), and minimizing negative impacts to the wilderness experience resulting from the transportation system (#5). A minimal investment is recommended in these five areas to target investments in a coordinated manner to improve the visitor experience traveling to NPS units, and within NPS units.

APPENDIX: Alaska Regional-level Data

Data Sources: GMPs, Strategic Reports, HDR Report October 7, 2010

- All parks appear to have ORV impacts and ORV use/access issues as they relate to recreation and to ANILCA, ANSCA and subsistence access. (From both the GMPs dating from the mid-1980s and Newer Studies in 2005- 2009) . See table below for individual park evaluation.
- Inventory and Condition Assessment of Airstrips within park boundaries. Per GMPs – the superintendent will inventory the landing strips within each unit and designate, after public notice and the opportunity to comment, those strips where maintenance is necessary and appropriate for continued safe public use of the area.
- Reoccurring theme at several parks is Managed/Trail Access vs. "random" access for resource protection but this also affects Visitor access and experience.
- Lack of good Visitor/User survey use data. Need additional surveys.
- Visitor Impacts (such as noise and vehicular or motorboat traffic) on environmental resources and subsequent loss of resource effect on VE. (Compare to recent DENA study of Bus traffic)
- Congestion at selected times (mostly related to parks effected by Cruise Ship industry visitors; DENA, KLGO, SITK, KEFJ)

Cluster	Park	Access Related to:					
		Subsistence	Native Access/transit	*Mining /RS2477	In holdings	Recreation (ORV USE/MISUSE)	Landing Strip Inventory Discussed in GMP
Remote North	GAAR	X	X	X	X	X	X
	NOAT	X	X	X	X	X	X
	CAKR	X	X	X	X		X
	BELA	X	X	X	X	X	X
	KOVA	X	X	X	X	X	X
Remote South	ANIA			X	X	X	
	LACL			X		X	X
	KATM	X		X	X	X	**X – may be done**
	ALAG		X				
Cruise Ship Parks	SITK						
	KLGO			X	X	X	
	GLBA			X	X	X	X
Road Parks	DENA	X		X	X	X	X
	KEFJ					X	
	WRST	X		X	X	X	X
	YUCH	X		X			X

* Revised Statute 2477 is found in section 8 of the Mining Law of 1866. It granted states and territories unrestricted rights-of-way over federal lands that had no existing reservations or private entries.

Data Source: Alaska Residents Statistics Program Final Report March 2009

- All strata had high participation rates in hiking, with the Southeast having 75% of respondents participating.

- All strata had relatively high participation rates in camping and wildlife viewing.

- All strata had relatively high participation rates in freshwater fishing, except for the Southeast stratum where saltwater fishing had a higher participation rate.

- Crowding was often cited as the primary reason for being displaced. Fees are mentioned as a reason for displacement, but they do not seem to be a dominant cause for displacement. This should be evaluated with respect to the relatively few sites that charge fees in the state.

- The states cited most often as places people lived prior to moving to Alaska were Washington (n = 202), California (n = 182), and Oregon (n = 125). This was followed by Minnesota (n = 71), Montana (n = 66), Michigan (n = 59), Colorado (n = 49), Texas (n = 47), and Idaho (n = 40).

- Few respondents came to Alaska to go to school. Likewise, few of the respondents were here because of the military, however, a slightly larger percentage of respondents returned to Alaska after initially moving to Alaska with the military.

- When respondents were asked why they stay in Alaska, 50% or more of the respondents selected at least one of the following responses: I have a job here, this is where my family is, I like the freedom I feel in Alaska, I like living in a place where there are not a lot of people, I like the opportunities for outdoor activities in Alaska, and I like the hunting and fishing opportunities in Alaska.

- Between 58 and 66% of respondents are either retired and living in Alaska full time or plan to live in Alaska full time upon retirement.

- Overall, hiking, fishing and hunting were each listed as a significant activity by more than 10% of respondents. However, the top activities varied by strata.

- The following reasons for participating were chosen as important by 40% or more of respondents for at least five activities: gaining a better appreciation of nature, spending time with family and friends, obtaining meat / food, exploring new areas, and exercise and physical fitness.

- Three reasons for participating had 10% or fewer respondents selecting them as important reasons: doing something creative, meeting new people, and testing / using outdoor gear.

- Enjoying risk taking activities was infrequently chosen as a reason for participation in activities, except for respondents listing snowmachining, skiing / snowboarding, and ATV / 4-wheeling (15%, 17%, and 18%, respectively).

Data Source: University of Idaho surveys

- Cruise Ship Park Units make up 50.3% of Total AKR Visitation
- Road Park Units make up 47.2% of Total AKR Visitation
- Remote Units make up 2.4% of Total AKR Visitation
- Remote North Units make up .7% of Total AKR Visitation
- Remote South Units make up 1.7% of Total AKR Visitation
- Total Visitation - Overall for all Alaska Units, is trending up
- Recreation Visitation – Overall for Alaska Units is trending up sharply
- Non-Recreation Visitation - Overall for Alaska Units is trending up (slight leveling)

Data Source: PMIS

Total FY 2010-2015 Formulated Transportation Related Projects amount to $50.9 Million

Primary Need:

- 51% going to improve facility conditions
- 24% going to improve safety
- 5% going towards wildlife impacts
- 5% going towards recreation
- 4% going to improve connectivity
- 4% going to improve congestion

Top Formulated Funding Sources:

- 55% FLHP Cat I
- 16% Recreation Fee Park Revenue
- 7% FLHP Cat III – ATP
- 6% Regular Cyclic Maintenance
- 5 % Recreation Fee 20%

Formulated Projects by Unit

- DENA – 83% or $42.3 Million (Road Unit)
- WRST – 6% or $3.15 Million (Road Unit)
- GLBA – 4% or $1.7 Million (Cruise Ship Unit)

- KLGO – 3% or $1.3Million (Cruise Ship Unit)
- SITK – 2% or $1.1 Million (Cruise Ship Unit)
- KEFJ – 1% or $667,599 (Road Unit)
- KATM – 1% or $510,362 (Remote South Unit)
- WEAR/BELA - $90,000 (Remote North)
- GAAR - $61,600 (Remote North Unit)

Formulated Projects by Cluster

Road Units – 91% or $46.1 Million
Primary Need:
- Facility Condition
- Safety
- Wildlife Impacts
- Recreation
- Connectivity
- Parking
- Subsistence
- Congestion
- Wayfinding
- Interpretation
- Information
- Pedestrian Facilities
- Noise

Cruise Ship Units – 8% or $4.1 Million
Primary Need:
- Congestion
- Facility Condition
- Interpretation
- Safety
- Accessibility
- Wildlife Impacts
- Wayfinding
- Recreation
- Facility Condition-Historic
- Noise
- Air Quality

Remote South Units – 1% or $510,362
Primary Need:
- Facility Condition
- Concession Interaction
- Interpretation
- Information
- Wayfinding

Remote North Units 1% or $151,600
Primary Need:
- Connectivity
- Information
- Region/FAIR - $118,929
  Primary Need:
- Interpretation
- Connectivity
- Wayfinding

National Park Service
Alaska Region Long Range Transportation Plan

Appendix D

Resource Protection Technical Report

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National Park Service
U.S. Department of the Interior

Alaska Region
Long Range Transportation Plan

Resource Preservation TECHNICAL REPORT

Draft

May 2011

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1. Resource Protection Technical Report Overview

The National Park Service (NPS) Alaska Region (AKR) is developing a long range transportation plan (LRTP) to guide future transportation program development and implementation. The LRTP will also bring the NPS into compliance with Federal legislation requiring Federal Land Management Agencies to conduct long range transportation planning in a manner consistent with U.S. Department of Transportation planning practices for State and Metropolitan Planning Organizations (MPOs). The AKR LRTP will provide NPS decision-makers with information and data necessary for informing future planning and operational decisions.

Early in the LRTP process, the core team developed a list of goals, objectives, and strategies and obtained supporting data. Goals were generally related to one of five categories: system preservation, visitor experience, mobility, resource preservation, and climate change.

The purpose of this technical report is to present the climate change goal and supporting information. The core team developed the following goal for climate change:

Protect parks' natural, cultural, and subsistence resources

This technical report details the available data for transportation impacts to natural, cultural and subsistence resources.

1.1 Resource Protection and NPS

Resource protection is key to the mission of the National Park Service. Alaska hosts 15 national parks, preserves, monuments and national historical parks. Additionally, the National Park Service plays varying roles in the administration of 13 national wild rivers, two affiliated areas and a national heritage area. The Alaska Region seeks to protect natural, historic, and subsistence resources through careful transportation planning.

NPS Mission:

"...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."*

The AKR LRTP draft goal for Resource Preservation is

To protect parks' natural, cultural, and subsistence resources

The AKR LRTP draft objectives are

- **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 to and access to subsistence resources in transportation planning and policy development

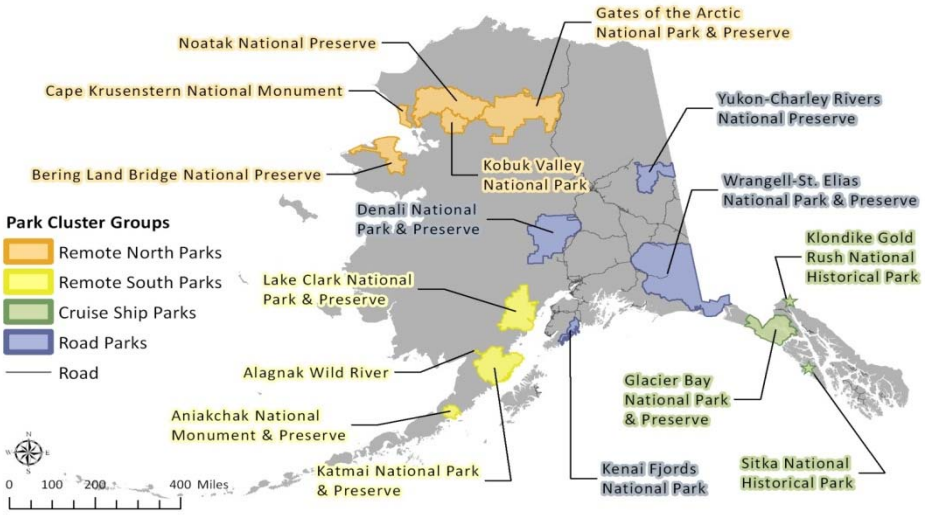
1.2 Data Sources

Because transportation impacts on NPS resources has traditionally been examined on a unit rather than a regional scale, unit-level data sources serve as the basis for this paper, such as Project Management Information System (PMIS)data, NPS planning documents such as GMPs, and unit-level surveys.

While individual NPS units study and plan for transportation impacts to park resources, this paper seeks to identify needs that can be addressed on a regional level. An update to the Resource Preservation Technical Paper will be conducted prior to the first update to the Alaska NPS LRTP.

Figure 1. A bus on the Denali Park encounters brown bears

2. Resource Protection Issues and Needs Identification by Cluster



Each park unit in Alaska faces varying resource preservation-related challenges. In order to streamline the transportation planning analyses, the park units were grouped into four "clusters," depending upon their location in Alaska and unique multi-modal needs.

Remote North Parks

Character:

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

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 snowmachine 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 the natural and cultural resources found here.

Issues and Needs:

Due to the lack of infrastructure and heavy use, few resource impacts were identified in unit-level surveys for this cluster.

- Tundra is damaged by illegal ORV use and by snowmachine use on insufficient snowpack
- Soundscape disturbances from overflights and snowmachines may impact caribou migration, making subsistence hunting inaccessible
- Road impacts: dust from the mine road enters lichen which is then eaten by caribou and may impact fish habitat, the mine road and Dalton Highway fragment habitat for several species, including caribou

GMPs for the Remote North Parks addressed transportation and Resource Preservation by stating that permitted modes of travel and access to inholdings in these parks are subject to reasonable regulation based on impacts to resources. In particular, the use of ORVs for access to inholdings is will be made by the superintendent on a case-by-case basis that considers the potential for resource damage.

One unit, GAAR, has requested funding for a soundscape study investigating the effects of aircraft and boat corridors on moose.

Remote South Parks

Character:

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

Issues and Needs:

Unit surveys indicate a concern about natural and subsistence resource disturbance along transportation corridors.

- High-speed river boats cause bank erosion
- Some subsistence users must travel further to reach resources, using airplane or increased boat distances. Some users cannot afford the cost of increased travel, and cannot participate in subsistence activities.

The Remote South Park GMPs also state that permitted modes of travel and access are subject to reasonable regulation based on impacts to regulation. Designation of ORV routes is an issue in KATM and LACL.

A 2008 study of the Alagnak Wild River describes the resource impacts of increased boat traffic on fish, bank erosion, proximity of moose and other animals to the river and crowding of Native users to the extent that they no longer participate in subsistence hunting and gathering.

Cruise Ship Parks

Character:

Cruise ship parks receive the most visitation of the cluster areas. The vast majority of visitors travel to or in the park by cruise ship.

Issues and Needs:

Cruise ship park concerns raised in unit-level surveys centered on impacts of the cruise ships on natural resources.

- Water and air quality impacts from cruise ships and small boats is a concern
- Occurrence of petroleum and other transportation related contaminants in Intertidal Communities and marine environment
- Marine and land soundscape issues impact bears, whales, and other marine mammals. Vessel disturbance of Kittlitz's Murrelets is a major concern
- Introduction of exotic/invasive species by cruise ships
- Discharge from Cruise Ships may impact glaciers, which are considered sacred by some Native Alaskans

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.

As in the case of Glacier Bay National Park and Preserve, visitation by about 400,000 people per year is primarily by cruise ships and smaller tour or charter boats. Measures to address vessel traffic in Glacier Bay 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 resources and visitor experience.

Both marine and above-water soundscape are reflected as concerns in Cruise Ship planning documents. KLGO cites damage from motorized recreational vehicle to historical building ruins and pier remains as a concern.

Road Parks

Character:

Road parks contain the most transportation assets and receive the second highest visitation of the cluster levels. Because transportation to the road parks is literally on the ground, this cluster has the most potential for impacting land resources.

Issues and Needs:

Unit-level surveys indicate that road park transportation systems impact geologic, natural, subsistence and cultural resources.

- Air and Water Quality concerns due to road and ORV trail runoff and dust
- Infrastructure impacts on permafrost, gumbo soil types, etc.
- Boats can increase erosion (wake) and disturb salmon rearing
- Roads bisects fish and wildlife habitat and hinders sheep migration
- Soundscape impact of planes on wildlife is largely unknown
- In WRST, habitat fragmentation by road and ORV trail is poorly understood
- Airstrips are built on Cultural Resources

DENA has nearly completed a comprehensive Vehicle Management Plan that takes an in depth look at the road corridor impacts on wildlife. Planning documents for WRST indicate that OHV planning is needed to address severe impacts to the landscape.

General Conclusions

In order to understand and address transportation impacts on park resources on a regional scale, a regional interdepartmental approach is needed. Transportation asset and program managers need to work with the Alaska Region's Cultural Resources Team, the Natural Resource Science Team, and the Subsistence Team to further identify needs of regional significance and integrate transportation planning with other planning and research efforts.

National Park Service
Alaska Region Long Range Transportation Plan

Appendix E

Climate Change Technical Report

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Climate Change Technical Report

1. Climate Change Technical Report Overview

The National Park Service (NPS) Alaska Region (AKR) is developing a long range transportation plan (LRTP) to guide future transportation program development and implementation. The LRTP will also bring the NPS into compliance with Federal legislation requiring Federal Land Management Agencies to conduct long range transportation planning in a manner consistent with U.S. Department of Transportation planning practices for State and Metropolitan Planning Organizations (MPOs). The AKR LRTP will provide NPS decision-makers with information and data necessary for informing future planning and operational decisions.

Early in the LRTP process, the core team developed a list of goals, objectives, and strategies and obtained supporting data. Goals were generally related to one of five categories: system preservation, visitor experience, mobility, resource preservation, and climate change.

The purpose of this technical report is to present the climate change goal and supporting information. The core team developed the following goal for climate change:

> ***Reduce our contribution to and respond to the impacts of climate change to our transportation system through science, adaptation, mitigation, and communication.***

This technical report details the objectives for achieving the climate change goal, which center on science, adaptation, mitigation, and communications as tools to plan for the impacts of climate change on the transportation system.

2. Addressing Climate Change within the LRTP

In 2010, NPS Director Jonathon Jarvis called climate change "the greatest threat to the integrity of our national parks."[1] In Alaska, climate change impacts are currently resulting in recognizable and, in some cases, drastic impacts on the transportation system. The Alaska Region must respond to this changing environment and reduce or eliminate NPS contributions to global climate change.

> "[I]n many cases the effects of climate change are occurring more quickly and with more severity in Alaska than at lower latitudes. The local effects of climate change on park resources, operations, visitor experience and uses are expected to increase in coming years"
>
> *-Alaska Region Climate Change Response Strategy*

The Alaska Region's LRTP Climate Change goal and objectives closely follow the National and Regional goals outlined in the 2010 National Park Service Climate Change Response Strategy and the Alaska Region Climate Change Response Strategy:

The AKR LRTP draft goal for Climate Change is

Reduce and respond to the impacts of climate change to our transportation system through science, adaptation, mitigation, and communication.

The AKR LRTP draft objectives are

- **Science:** Initiate, support, and participate in scientific research and assessments needed to understand the relationship between transportation and climate change in Alaska and to protect park transportation systems.
- **Adaptation:** Manage transportation assets and conduct transportation planning for climate change by
- **Communication:** Share the compelling story of climate change impacts in Alaska to the public as it relates to transportation
- **Mitigation:** Reduce the carbon footprint of the NPS by reducing the impact of transportation associated with park operations, visitation, and partner (concessions) operations

[1] National Park Service Climate Change Response Strategy, September 2010

3. An Approach to Climate Change

The challenge of responding to and mitigating climate change has been recently taken on by the National Park Service. The uncertainty of future conditions in light of climate change takes long term planning in a new direction requiring flexible planning processes and new methodologies. The objectives of the LRTP climate change goal tier to the national and regional climate change goals outlined in the respective *Climate Change Response Strategies.* Rather than developing a separate and potentially duplicative climate change response through this planning effort, the LRTP will support and draw from these existing Response Strategies as they relate to transportation.

Coastal erosion in Shishmaref, near Bering Land Bridge National Preserve

Ongoing NPS Efforts to Address Climate Change

Several national and regional climate change efforts are currently underway to address data gaps, planning methodologies, and the need for policy changes to respond to and plan for climate change. This technical paper will be updated with the information and processes developed in these efforts prior to the next LRTP update.

Climate Change Scenario Planning

NPS and the University of Alaska's Scenarios Network for Alaska Planning (UAF-SNAP) are collaborating on a three-year project that will help Alaska NPS managers, cooperating personnel, and key stakeholders to develop plausible climate change scenarios for all NPS areas in Alaska. Final products will include climate change scenario planning exercises and reports for all the NPS units in Alaska, with efforts organized around each of the four inventory and monitoring (I&M) networks. Climate change scenarios will be completed for all Alaska NPS units in 2013. In addition to developing a range of scenarios and outcomes, this effort will provide a process for long-term planning in the face of uncertainties associated with climate change.

Inventory and Monitoring Program

The goal of the NPS Inventory and Monitoring (I&M) program is to develop scientifically sound information on the current condition and long-term trends in park ecosystems and to determine how well current management practices are sustaining those ecosystems. The four I&M networks in Alaska have identified "vital signs", including climate change-related indicators, for the parks in their networks, which they will begin monitoring over time. These signs can provide a baseline data for future climate change planning efforts.

Landscape Conservation Cooperatives

Established by Executive Order in 2010 as part of the Department of the Interior's Climate Change Response strategy, the five Landscape Conservation Cooperatives (LCCs) in Alaska are self-directed partnerships that link science with conservation actions to address climate change and other stressors within and across landscapes. They complement and build upon existing science and conservation efforts – such as fish habitat partnerships and migratory bird joint ventures – as well as water resources, land, and cultural partnerships. While LCCs will not

assume other partner responsibilities or supersede agency decision-making, they will provide the scientific information needed to help inform the development of strategic conservation actions.

Climate Friendly Parks Program

The Climate Friendly Parks (CFP) program is one component of the National Park Service Green Parks Plan, an integrated approach by the NPS to address climate change through implementing sustainable practices in our operations. The National Park Service Green Parks Plan sets ambitious goals for greenhouse gas emission reductions, much of which is accomplished through energy conservation and reduction in energy use, recycling, composting, technology upgrades and other actions that CFP Member Parks address in their climate action plans.

Denali NPP and Glacier Bay NPP are both Climate Friendly Parks. As more Alaska parks apply for Climate Friendly Park status, data collected as part of certification will available to use as baseline data and for performance measures.

Data Sources

Because climate change is a relatively new focus of NPS planning, data sources used in the other LRTP tech papers, such as the Project Management Information System (PMIS) and NPS planning documents such as GMPs either do not directly address climate change or do only to a minimal extent. Anecdotal information from unit-level surveys more directly addressed climate change-related transportation challenges and reactions at the Alaska Parks. This anecdotal information is combined with data compiled in the *Alaska Region Climate Change Response Strategy* and from climate change data available from University of Alaska's Scenarios Network for Alaska Planning (UAF-SNAP). In addition, AKDOT&PF have developed applicable best practices for adaptive management of transportation assets in Alaska.

The data from these sources will be discussed by the LRTP's Climate Change Goal objectives: (1) Science, (2) Mitigation, (3) Adaptation, and (4)Communication.

> The impacts of climate change are already being felt in Alaska. Coastal erosion is accelerating, threatening homes and infrastructure, and as a result, entire communities may need to be relocated. Changing migration patterns of waterfowl, terrestrial and marine mammals, and fluctuations in the movement of fish stocks have influenced subsistence harvest. Warm, dry summers are producing drought conditions over much of the state, altering the landscape by drying wetlands, slowing the growth of trees, and producing more frequent wildland fires.
>
> *-Alaska's LLC brochure*

3. Science

The Science objective of the Climate Change Goal is *to initiate, support, and participate in scientific research and assessments needed to understand the relationship between transportation and climate change in Alaska and to protect park transportation systems* .

The Alaska Region has yet to clearly describe the nexus between global transportation systems and climate change impacts on Alaska's parks and gateway communities, or to measure the extent of our transportation systems' contribution to climate change. Regional and park transportation system and asset managers can integrate into current climate change data and research efforts through the following actions:

1. Support and provide transportation components to ongoing monitoring and research efforts listed above, including funding and regional technical support for CFP 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.

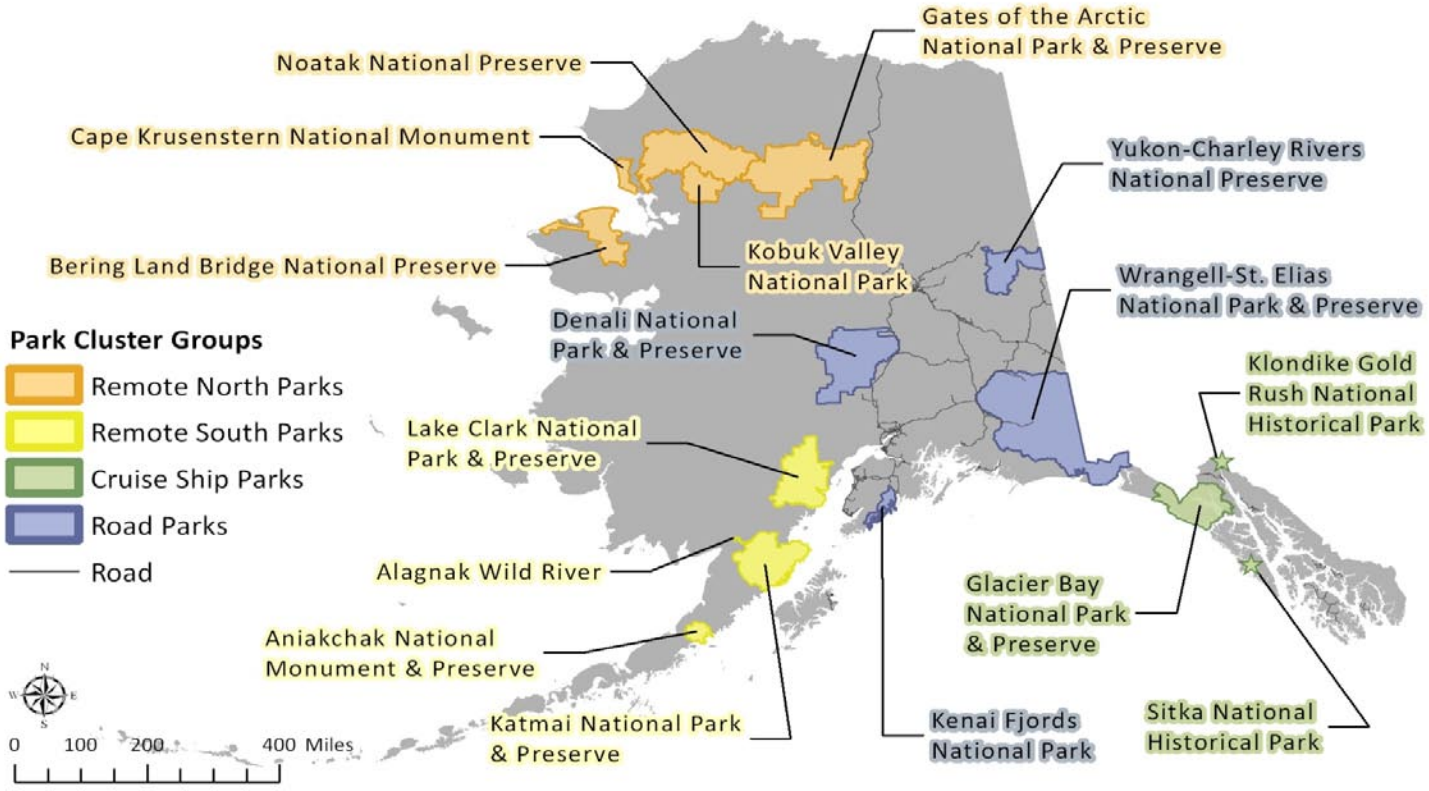
Figure X. Thermokarst formation and road collapse on the Nome to Taylor Highway, outside of Bering Land Bridge (BELA). The pond resulted from thawing and collapse of ground ice.

4. Adaptation

The Adaptation objective of the Climate Change Goal is *to manage transportation assets and conduct transportation planning for climate change*. 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. Ongoing regional Climate Change Scenario planning and (other efforts) will be incorporated before the next LRTP update.

Each park unit in Alaska provides faces varying climate change-related challenges. In order to streamline the transportation planning analysis, the park units were grouped into four "clusters," depending upon their location in Alaska and unique multi-modal needs.

Figure X: Alaska's 16 Park Units by Cluster Group



4.1 Managing Assets and the Transportation System- current climate change impacts and best practices

Remote North Parks

Bering Land Bridge, Cape Krusenstern, Noatak, Kobuk, and Gates of the Arctic comprise the *Remote North Parks* cluster group.

Character:

Access to the Remote North parks is often by fixed wing aircraft which land on water bodies, gravel bars, or airstrips, small boat, or snowmachine. Surrounding villages access the Remote North parks for subsistence harvesting and for inter-village travel.

All parks in this cluster have continuous, discontinuous, or sporadic permafrost coverage. Bering Land Bridge National Preserve and Cape Krusenstern National Monument are subject to coastal erosion and sea level rise.

Assets:

The Remote North parks have very few, if any, transportation assets within their borders. FMSS lists two airstrips and several shelter cabins, and a boardwalk as assets located within park boundaries. Administrative assets, which start as origin points for staff and equipment transportation to the parks, are located at Nome, Kotzebue, Fairbanks, and at several remote villages.

Other Transportation System Aspects:

In summer, safe landing areas such as gravel bars serve as essential transportation links. Rivers are essential for travel by small boat. In winter, frozen rivers and winter trails become snowmachine routes essential to subsistence uses, inter-village travel, and access to emergency services.

Risks:

Of the Climate Change related risks identified in the NPS Alaska Region Climate Change Response Strategy, Remote North Parks indicated that the following are risks that impact transportation assets today:

Coastal Hazards	Floating sea ice is a hazard for small boats
Coastal Erosion	Coastal erosion threatens OHV access and administrative assets in coastal communities
Permafrost Thaw	Permafrost thaw is a threat to remote landing strips
Submergence	Airstrips along the coast (such as at Kevalina) are in danger of being submerged
Wildland Fire	Smoke impacts visibility for aviation and boating, submerged hazards cannot be detected due to increased turbidity due to increased runoff
Ground Failures	Remote airstrips become temporarily unusable due to frost heaves
Rivers Flooding	Flooding rivers impact unimproved landing areas
Water Quantity	Fluctuations in water quantity led to water being flown into Bettles in 2010
Water Flow Timing	Water flow timing impacts the winter and open river travel seasons (winter trails often use or cross rivers and other water bodies)

Other impacts of Climate Change:

- While the Remote North parks indicate that traditionally allowed modes of transportation are still sufficient for subsistence users to reach resources, the combination of changing migration patterns, potentially due to climate change, and the cost of gasoline are making some subsistence harvest trips cost prohibitive
- With the shift in the seasons due to climate change, the ability to travel, the availability of the subsistence resource, and the legal hunting season no longer align to allow efficient subsistence harvest
- Although not a direct impact to an asset, all cluster groups identified that the introduction of invasive plants at transportation corridors and nodes is a major concern
- New safety problems will emerge with shorter or unpredictable winter travel seasons

Climate Change Scenario Workshop:

In February, 2011, an interdisciplinary team from NPS, University of Alaska's Scenarios Network for Alaska Planning (SNAP), and individuals from other agencies businesses, and communities participated in a Climate Change Scenario Planning (CCSP) workshop for the South-West Alaska Network (SWAN) of the Inventory and Monitoring Program.

Climate change drivers rated as "Important" for the parks in this network were Temperature Change, Precipitation Change, and Extreme Events (storms). Within the range of scenarios developed by the workshop, the following impacts occur to transportation infrastructure in the Remote South Parks:

- 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

In one of four scenarios developed, no facilities in Remote South Park are damaged.

Current Best Practices for Assets:

AKDOT&PF uses deeper fill on infrastructure to prevent permafrost thaw and heaves. This is an expensive solution for airstrips in the parks due to the remoteness of these assets and lack of on-site fill material.

Additional Planning Considerations:

- As subsistence resource habitats shift, use and travel patterns will change
- If backcountry landing areas become unusable (disappearing ponds, flooded gravel bars, frost heaves and melted permafrost), new landing areas will lead to changing backcountry travel and use patterns

Remote South Parks

Alagnak, Aniakchak, Katmai, and Lake Clark comprise the *Remote South Parks* cluster group.

Character:

Access to Remote South parks is most often by fixed-wing aircraft which land on water bodies, gravel bars, or airstrips, and in one case, larger airplanes which land at a gateway community airport, or by small boat.

Assets:

Although not attached to the road system, Remote South parks have many more assets within park lands than Remote North parks. Although Aniakchak and Alagnak have no transportation assets listed in FMSS, Lake Clark and Katmai have administrative roads and parking, boat launches and, airstrips, transportation-related buildings and fuel systems, and trail networks.

Other Transportation System Aspects:

In summer, safe landing areas such as bodies of water and gravel bars serve as essential transportation links. Rivers serve as important transportation corridors.

Both Katmai and Lake Clark have sporadic permafrost coverage.

Risks:

Of the Climate Change related risks identified in the NPS Alaska Region Climate Change Response Strategy, Remote South Parks indicated that the following are risks that impact transportation assets today:

Coastal Erosion	Coastal erosion threatens administrative assets in coastal communities
Submergence	Sea level rise may submerge trails at Silver Salmon Creek, Lake Clark NP
Rivers Flooding	Flooding rivers impact unimproved landing areas and boat launches
Water Quality	Submerged hazards to boats are not visible as turbidity increases
Water Flow Timing	Water flow timing impacts the winter and open river travel seasons (winter trails often use or cross rivers and other water bodies)
Landslides	Landslides damage trails

Climate Change Scenario Workshop:

In February, 2011, an interdisciplinary team from NPS, University of Alaska's Scenarios Network for Alaska Planning (SNAP), and individuals from other agencies businesses, and communities participated in a Climate Change Scenario Planning (CCSP) workshop for the South-West Alaska Network (SWAN) of the Inventory and Monitoring Program.

Climate change drivers rated as "Important" for the parks in this network were Temperature Change, Precipitation Change, and Extreme Events (storms). Within the range of scenarios developed by the workshop, the following impacts occur to transportation infrastructure in the Remote South Parks:

- 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

In one of four scenarios, no facilities in Remote South Park are damaged.

Other impacts of Climate Change:

- While the Remote South parks indicate that traditionally allowed modes of transportation are still sufficient for users to reach resources, some users state that they need to fly to resources where they used to be able to travel via land or water
- With the shift in the seasons due to climate change, the ability to travel, the availability of the subsistence resource, and the legal hunting season no longer align to allow efficient subsistence harvest
- Although not a direct impact to an asset, all cluster groups identified that the introduction of invasive plants at transportation corridors and nodes is a major concern
- New safety problems will emerge with shorter or unpredictable winter travel seasons

Current Best Practices for Assets:

AKDOT&PF uses shoreline protection in the form of rip rap and sandbags, and relocation to protect assets from flood and submergence threats.

Planning Considerations:

- Relocation of some assets may become necessary
- As subsistence resource habitats shift, use and travel patterns will change, particularly along winter trails
- If backcountry landing areas become unusable (disappearing ponds, flooded gravel bars, frost heaves and melted permafrost), new landing areas will lead to changing backcountry travel and use patterns

Cruise Ship Parks

Glacier Bay, Klondike Gold Rush, and Sitka comprise the *Cruise Ship Parks* cluster group.

Cruise Ship Parks overwhelmingly accommodate cruise ship passengers.

Assets:

Cruise Ship parks have many types of assets within their borders, including roads and parking lots, marina facilities, airstrips, OHV and foot trails, and transportation-related buildings.

Other Transportation System Aspects:

In addition to cruise ship visitation, the Cruise Ship parks accommodate local pedestrian traffic (Sitka NHP), maintain the international Chilkoot Trail (Klondike Gold Rush NP), and support subsistence harvesting travel.

Risks:

Of the Climate Change related risks identified in the NPS Alaska Region Climate Change Response Strategy, Cruise Ship Parks indicated that the following are risks that impact transportation assets today:

Surging Glaciers and Glacial Outbursts	In addition to potential facility washout, surges bring hazardous debris into the coastal waters and could destroy airstrips
Rivers Flooding	Flooding washes out roads and trails
Coastal Erosion	Erosion could destroy ORV trails used for subsistence harvesting, docks and roads
Water Quality	Submerged hazards to boats are not visible as turbidity increases
Water Quantity and Water Flow Timing	Changes in hydrology can shift the topography of the ocean floor, causing groundings
Landslides	Landslides damage trails

Other impacts of Climate Change:

- Although not a direct impact to an asset, all cluster groups identified that the introduction of invasive plants at transportation corridors and nodes is a major concern
- New safety problems will emerge with shorter or unpredictable winter travel seasons

Current Best Practices for Assets:

AKDOT&PF uses shoreline protection in the form of rip rap and sandbags, and relocation to protect assets from flood threats.

Planning Considerations:

- Relocation of some assets may become necessary
- As subsistence resource habitats shift, use and travel patterns will change

Road Parks

Denali, Kenai Fjords, Yukon Charley, and Wrangell-St. Elias comprise the *Road Parks* cluster group.

While Road Parks can be accessed by private vehicle on the main road system in Alaska, transportation within the parks relies heavily on other modes, such as bus transit, boat, fixed-wing aircraft, and OHV.

Assets:

Assets in the Roads Parks are comprised mostly of roads, parking areas, buildings, and aviation systems. The Road Parks contain 57% of all the transportation assets in the Alaska Region. The Denali Park Road alone has a Cost of Replacement Value (CRV) of nearly $90 million dollars.

Other Transportation System Aspects:

The Road Parks depend largely on non-NPS transportation systems (Alaska Rail Road, Alaska Marine Highway, Alaska Highways) for visitor and operational access to the parks.

Most of the Road Parks contain sporadic permafrost.

Risks:

Of the Climate Change related risks identified in the NPS Alaska Region Climate Change Response Strategy, Road Parks indicated that the following are risks that impact transportation assets today:

River Flooding	Increased flooding washes out roads and trails, at times causing closings during peak visitation season.
Glacial Outbursts	Glacial outbursts threaten backcountry airstrips
Avalanches and Landslides	Landslides also wash out trails and roads
Water flow Timing	Water flow timing changes impact winter and river travel seasons and cause flooding in peak seasons
Water Quality	Increased turbidity impacts river travel
Ground Failures	Mudslides and impact trails and roads
Permafrost Thaw	Permafrost thaw causes extensive damage to roads and trails
Wildland Fire	Smoke from fires inhibits aviation

Other impacts of Climate Change:

- Sea-level rise will impact non-NPS marinas used by KEFJ
- Although not a direct impact to an asset, all cluster groups identified that the introduction of invasive plants at transportation corridors and nodes is a major concern
- New safety problems will emerge with shorter or unpredictable winter travel seasons

Current Best Practices for Assets:

AKDOT&PF uses deeper fill on infrastructure to prevent permafrost thaw and heaves and shoreline protection in the form of rip rap and sandbags, and relocation to protect assets from flood threats.

Planning Considerations:

- Cooperative planning and strategies with land managers and operators of the transportation systems used to access the road parks will be critical to respond to the impacts of climate change

4.2. Tools for Planning for Climate Change

To plan for an uncertain future, the NPS Alaska Region Climate Change Strategy identifies the tools of modeling and forecasting, scenario planning (for considering a range of plausible but uncertain future conditions), adaptive management (using science to adjust management decisions), and hedging (planning for the worst) to equip park managers to make well-informed decisions. Asset managers need to participate in existing efforts develop the data needed for forecasting and modeling and conduct scenario planning, ensuring that transportation systems and assets are considered. As responses to climate change are incorporated into transportation planning, updates of the LRTP can serve as an adaptive management mechanism to assess the success of transportation investment strategies.

4.3 Suggested Actions for Adaptation

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

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 to prepare.

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 in order to coordinated climate change response strategies on a landscape scale.

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

5. Mitigation

The Mitigation objective of the Climate Change goal is *to reduce the carbon footprint of the NPS by reducing the impact of transportation associated with park operations, visitation, and partner operations.*

5.1. Existing Mitigation Efforts

Mitigation for impacts of NPS contribution to climate change at Alaska's parks is currently developed and funded at the unit level. Across the Alaska Region, NPS units rely heavily 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 friendly vehicles and fuels. LACL has converted its fleet to cleaner-burning four-stroke out board motors. KLGO and KEFJ use electric and hybrid cars and vans. KLGO also bought bikes, helmets and locks for all seasonal employees and a bike trial for maintenance to reduce on-the-job vehicle use. DENA has tested using biodiesel on the park transit fleet and has received a grant to test hybrid fuels during the 2011 season.

Some parks are implementing employee commute programs to encourage alternative transportation to the workplace, with GLBA and KEFJ offering opportunities to earn time off and monetary awards. DENA has established a carpool fleet for employees to reduce travel within the park. DENA also reduces vehicle miles travelled by identifying local gravel sources for road projects.

5.2. Suggested Actions for Mitigation

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

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 and participate in local sustainable transportation operations
4. Encourage innovation in employee transportation to and from work

6. Communication

The Communication objective of the Climate Change goal is *to share the compelling story of climate change impacts in Alaska to the public as it relates to transportation.*

6.1. Existing Communication Efforts

While no current region-wide communication effort currently exists to specifically describe the relationship between transportation and climate change in Alaska's parks, individual parks are interpreting climate change. GLBA, KLGO, and DENA all interpret the impact of climate change on the landscape.

6.2. Suggested Actions for Communication

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

1. Cooperating 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 our successes and failures with regards to environmentally sustainable transportation practice

General Conclusions

Climate change impacts Alaska more severely and dramatically than other areas of the country. The Alaska Region of NPS will need to strategize on a shorter time frame in order to effectively plan for potential climate changes within the 20-year horizon of this LRTP.

As climate change science and planning efforts evolve, the results pertaining to transportation planning and asset management will be incorporated into this plan. Alaska region transportation managers and planners should support and participate in these efforts. Meanwhile, this report identifies immediate actions for each objective above that serve as a starting point for addressing the impacts of climate changes to Alaska transportation systems and mitigate NPS contributions to climate change.

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National Park Service
Alaska Region Long Range Transportation Plan

Appendix F

Financial Analysis Technical Report

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Table of Contents

Tables

Figures

Appendices

1. Purpose of the Financial Analysis

The purpose of this financial analysis is to examine and quantify capital project financial history for transportation facilities and services in the Alaska Region (AKR) of the National Park Service (NPS). The analysis is an exploration of data sources and methodologies, and as such will evolve with the data from additional sources. Using the NPS Project Management Information System (PMIS) and other sources, this analysis selected transportation projects and their funding sources that were developed during the five-year period 2006-2010.

This technical report includes projections of likely funding totals and programs available to fund transportation projects. The analysis develops a preliminary forecast of capital improvement project funding sources and amounts for the period 2011-2015.

Finally, this technical report examines future transportation funding requirements by identifying unfunded projects within the PMIS database.

This financial analysis is an element of the first long range transportation plan prepared by the National Park Service for the Alaska Region.

2. Existing AKR Transportation Funding and Revenue

NPS financial and project data systems were used to prepare an overview of existing capital and operating funding from a number of sources:

- NPS Sources: Entrance-user fees; concession revenue, National Park Pass, Park Base;
- Federal Lands Highway Program (Parks Roads and Parkway Program, Public Lands Highway Program);
- Alternative Transportation in Parks and Public Lands program;
- Federal funding via the Alaska DOT&PF: Federal Surface Transportation Program, Transportation Enhancements, etc.
- American Recovery and Reinvestment Act of 2009; and the
- Recreational Trails Program.

2.1. Data Sources and Quality

The primary data sources used for this technical report were the NPS Project Management Information System (PMIS) and Park Transportation Allocation and Tracking System (PTATS). The PMIS database report was produced December 2010. The comprehensive PMIS database was sorted to contain only transportation-related projects for the analyses. Exploration of data quality is ongoing.

2.2. Alaska Region Project Funding History

A recent funding history of transportation projects for the National Parks Alaska Region was examined in order to document past funding trends based on the past five years, 2006 - 2010. Funded projects and expenditure totals were obtained from PMIS for general transportation projects and from PTATS for projects funded through the Federal Lands Highway Program (FLHP). The comprehensive list of park

projects within PMIS was sorted by project type and transportation projects were selected from that database.

Funding sources and total amounts available to each park unit and the region as a whole are variable from year to year. The park-specific financial requirements for transportation projects vary greatly within the Alaska Region as do the funding amounts awarded to each park. Moreover, some funding sources available during the past five years, such as the Recreation Fee 20% and the Recreational Demo Fee 20%, are not expected to be available in future years.

Appendix A displays 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 1 displays the total funding shown specifically from PMIS for the five-year period (additional funding sources and amounts will be described in subsequent sections). The year 2006 included a one-time line item construction project for $12.7 million (construction of the Northwest Alaska Heritage Center and Administrative Quarters in Kotzebue), which constituted well over half of the transportation funding for that year. If that amount is removed from 2006, it can be seen that funding for transportation in the Alaska region reported in PMIS is more consistent than Figure 1 suggests, at about $7 to $10 million per year.

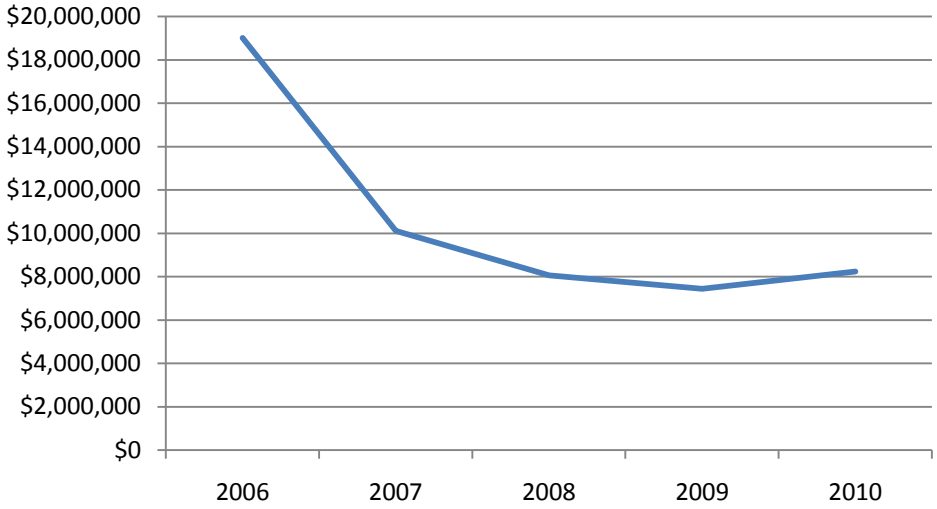

Figure 1: Alaska Region funding history in PMIS for transportation projects, 2006-2010 (includes fleet-related projects)

2.3. Revised Funding History for the Alaska Region

Fleet vehicles are presently accounted for inconsistently in PMIS and although included in Appendix A and Figure 1, were excluded from further analysis. This category of projects includes vehicles, boats, vehicle maintenance, fueling, storage and similar capital projects. It is expected that vehicles and related facilities will be included fully in PMIS in the future and will be included in an update of this analysis at that time. It is important to note that the removal of fleet from the analysis is consistent with the asset management and funding histories presented in the System Optimization Technical Report.

In addition, reporting of Federal Lands Highways Program (FLHP) funding in PMIS is not consistent with the data found in the Park Transportation Allocation and Tracking System (PTATS). PMIS accounts for approximately $10.5 million of FLHP funding over the period of 2006 through 2010, whereas PTATS accounts for approximately $36 million of funding over the same time period. The PTATS information reported in Section 2.4 provides more thorough accounting of FHLP funding and is used in this analysis in lieu of the PMIS totals.

Table 1 shows the updated five-year funding history from PMIS with all fleet-related projects and FLHP projects removed. Please note that a number of the funding sources removed were entirely comprised of fleet-related project funding.

Table 1. Five year PMIS funding history by funding source and dollar amounts (excluding FLHP funds and fleet-related projects)

Funding Source	2006	2007	2008	2009	2010	Grand Total
2009 Economic Recovery - Deferred Maintenance				485,730		**$485,730**
2009 Economic Recovery - Trails				224,975		**$224,975**
Challenge Cost Share - Region		25,000		30,000	23,974	**$78,974**
Concessions Franchise Fee 20%		600,000				**$600,000**
Concessions Franchise Fee 80%	908,367	974,890	1,389,604	639,289	1,592,715	**$5,504,865**
Emergency Storm and Flood Damage		1,235,100				**$1,235,100**
Environmental Quality Division - Environmental Impact Analysis		140,000	240,000	341,200	100,000	**$821,200**
Line Item Construction	12,672,000	111,579		0		**$12,783,579**
Natural Resource Protection Projects			37,125	11,880		**$49,005**
Non-NPS Fund Sources		3,026,650				**$3,026,650**
NRPP - Natural Resource Management				88,110	66,330	**$154,440**
NRPP - Regional Program Block Allocations			18,871			**$18,871**
ONPS - Operations of the National Park System	2,477		10,000			**$12,477**
Park Partnership Program					32,000	**$32,000**
Recreation Fee 20%	152,500		95,717	363,256	297,020	**$908,493**
Recreation Fee Park Revenue		145,600	292,221	1,747,338	1,991,260	**$4,176,419**
Recreational Fee Demonstration, 20%	329,700	125,000	70,000			**$524,700**
Recreational Fee Demonstration, 80%	175,750	200,432	208,000			**$584,182**
Regional Natural Resources			69,900	23,831		**$93,731**
Regular Cyclic Maintenance	1,196,335	923,758	713,322	1,251,605	1,210,353	**$5,295,373**
Repair / Rehabilitation	1,136,535	907147	244,200	96,968	214,655	**$2,599,505**
Transportation Planning for GMPs and LRTPs					134,908	**$134,908**
Volunteers in Parks	6,500	7,500	7,500		7,920	**$29,420**
Youth Conservation Corps			11,853	9,600	9,600	**$31,053**
Youth Partnership Program			37,000			**$37,000**
Grand Total	**$16,580,164**	**$8,422,656**	**$3,445,313**	**$5,313,782**	**$5,680,735**	**$39,442,650**

2.4. FHWA Federal Lands Highway Program Funding History

The Park Roads and Parkways Program (PRP) of the FLHP is a primary funding source provided by through the current surface transportation program, SAFETEA-LU, for the road network serving the National Park System. Park roads and parkways are public roads that provide access within a National Park unit. The PRP projects are grouped into three categories. Category I includes 3R (rehabilitation) and 4R (reconstruction) for road, bridge and safety projects. Category II includes completion of congressionally mandated projects, and Category III consists of Alternative Transportation Program projects. The Alaska Region had no projects funded by Category II funds during the five-year period examined.

The PRP program is jointly administered by the NPS and FHWA. PRP program funds are distributed on a regional basis within the NPS in accordance with the 1983 FHWA/NPS interagency agreement and the FLHP PRP Revised Funding Allocation and Project Prioritization Criteria document. The NPS identifies program and project priorities and is responsible for planning, and environmental and resource protection. The FHWA provides planning, engineering and technical support for the NPS. [1]

Table 2 summarizes the NPS PTATS reporting system for the Alaska Region for FLHP projects funded in FY 2006 through 2010. The majority of Category I funding applies to Denali National Park (within the Road Parks cluster) for road construction and maintenance projects. Other roadway projects are eligible for FLHP funding, such as planning or environmental projects. Funding allocated to those types of projects is approximated under the design, planning, compliance, and administration row in Table 2. Figure 2 shows the FLHP funding history in graphical form.

Table 2. FLHP Funding History, FY 2006 through 2010

Funding Category	2006	2007	2008	2009	2010	TOTAL
FLHP Category I-3R (construction projects)	$365,426	$6,146,481	$11,152,732	$2,577,255	$3,182,056	$23,423,950
FLHP Category I-4R (construction projects)	$0	($5,135)	$0	$0	$2,000,000	$1,994,865
FLHP Category III (construction projects)	$696,900	$0	$0	$3,500,000	$0	$4,196,900
Design, Planning, Compliance and Administration*	$1,048,829	$1,384,358	$1,490,500	$1,104,179	$1,349,779	$6,377,645
Total	**$2,113,161**	**$7,527,711**	**$12,645,240**	**$7,183,443**	**$6,533,845**	**$35,993,360**

**represents approximate amount reported in PTATS for all FHLP funding*

[1] FHWA Eastern Federal Lands Highway. Transportation Improvement Program (TIP) Funding Sources. http://www.efl.fhwa.dot.gov/programs/tip-fs.aspx. Accessed April 2011.

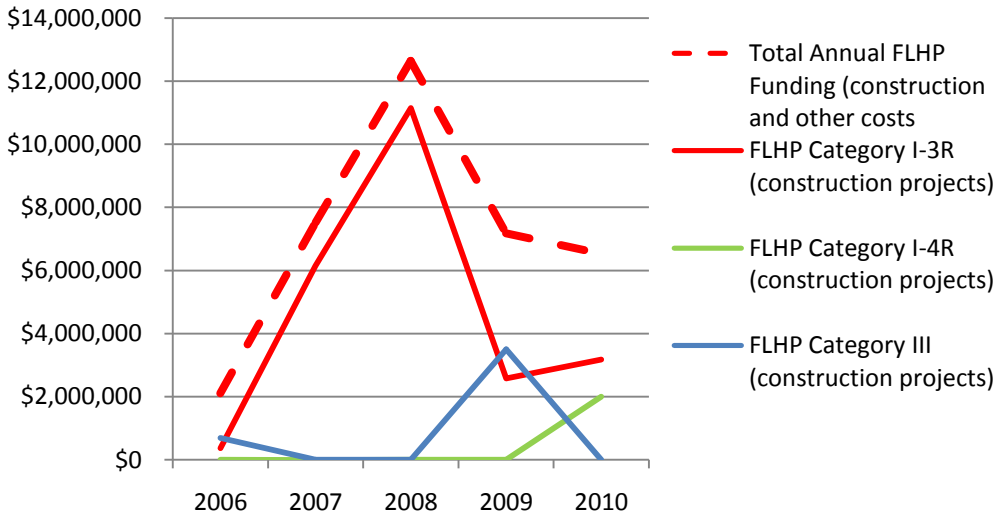

Figure 2: Federal Lands Highways Program Funding by Category and Year

2.5. Additional Funding Sources

In addition to the data reported in PMIS and PTATS, two other funding sources were identified as having funded transportation projects within the past five years. Table 3 lists the five-year funding history for the Alternative Transportation in Parks and Public Lands (ATTPL) Program and the National Scenic Byways Program.

The Alternative Transportation in Parks and Public Lands (ATTPL) Program, established in 2005, funds capital and planning projects for alternative transportation systems in National Parks and other public lands. ATTPL is a competitive grant program jointly administered by the Department of Interior and the Federal Transit Administration. Examples of past NPS AK Region transportation projects funded by ATTPL over the past five years have included construction of the Gustavus Dock and funding for hybrid buses in Denali.[2]

The National Scenic Byways Program is also a competitive grant program that is administered by FHWA which funds projects such as creating statewide byway programs, corridor management planning, promoting byways, scenic easements, etc. Through participation with the Alaska Department of Transportation and Public Facilities, the NPS has received funds for projects relating to the Parks and Seward Highways.

Projecting future funding levels is difficult because both of these funds are competitively awarded and variable from year to year; however, because they have consistently been available it is reasonable to assume that they'll continue at similar levels.

[2] FTA. Paul S. Sarbanes Transit in Parks Program. http://www.fta.dot.gov/funding/grants/grants_financity_6101.html. Accessed July 7, 2011.

Table 3. FLHP Funding History, FY 2006 through 2010

Additional Funding Categories	2006	2007	2008	2009	2010	TOTAL
Alternative Transportation in Parks and Public Lands (ATTPL) Program*	$1,200,000	$3,000,000**	$0	$515,000	$571,000	$5,286,000
National Scenic Byways Program	$25,000	$25,000	$25,000	$25,000	$25,000	$125,000

** Includes funding through Paul S. Sarbanes Transit in Parks Program*
*** Amount represents funding for the Gustavus Dock replacement which is a project (and similar $ amount) that also is documented under FHLP Category III funds. As to not double count this funding amount, the $3M for 2007 under ATTPL funds was removed from the funding projection found in Appendix B.*

2.6. Funding History from PMIS Database by Park Cluster

The comprehensive five-year funding history in PMIS for transportation projects shown in Table 2 (which excludes fleet and FLHP projects) was broken out by park clusters to obtain a perspective on funding at a regional level. The park clusters are illustrated in Figure 4, and are summarized in Table 4.

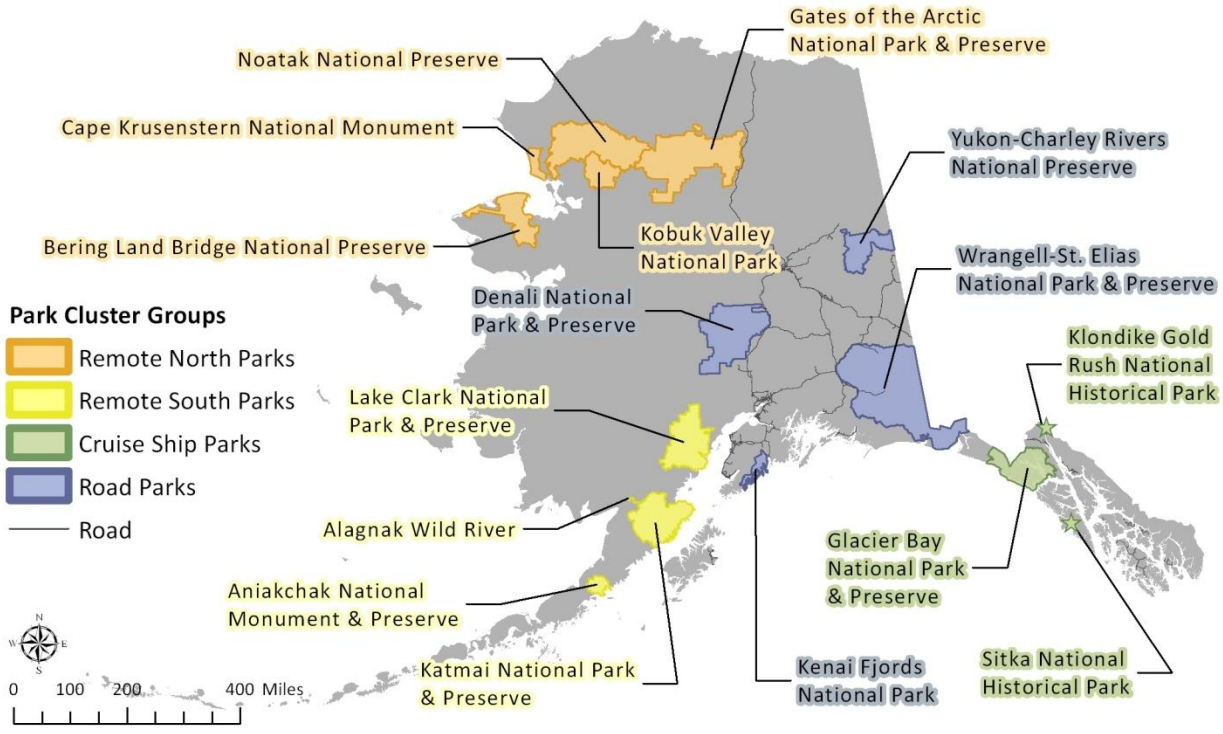

Figure 3: Park cluster groups

Table 4. Cluster groupings of Alaska Region park units

Remote North Parks	Remote South Parks	Cruise Ship Parks	Road Parks
Bering Land Bridge NP	Alagnak Wild River	Glacier Bay NP&P	Denali NP&P
Cape Krusenstern NM	Aniakchak NM&P	Klondike NHP	Kenai Fjords NP
Gates of the Arctic NP&P	Katmai NP&P	Sitka NHP	Wrangell-St. Elias NP&P
Kobuk Valley NP	Lake Clark NP&P		Yukon Charlie NP
Noatak NP			

The funding history of transportation projects by cluster for the past five years is shown below in Table 5. Annual average funding by cluster is shown in Figure 4. The Road Parks capture the majority of transportation funds available to the Region. This is due to fact that the Road Parks possess more transportation assets than the other three park clusters combined, as well as the construction and maintenance expenses required of the Park Road within Denali National Park. Large one-time construction projects having occurred in the Cruise Ship Parks (Gustavus dock, 2007) and the Remote North Parks (Northwest Alaska Heritage Center in Kotzebue, 2006) during the past five years tend to suggest higher than average annual funding amounts available for these two clusters.

Table 5. Five-year funding history of transportation projects by park cluster, 2006-2010

Park Cluster	2006	2007	2008	2009	2010	Grand Total
Remote North Parks	12,806,057	-	-	-	158,882	$12,964,939
Remote South Parks	220,260	310,700	215,144	212,330	161,251	$1,119,685
Cruise Ship Parks	585,417	3,780,388	580,208	1,465,869	1,074,092	$7,485,974
Road Parks	2,968,430	4,331,568	2,649,961	3,635,583	4,286,510	$17,872,052
Grand Total	**$16,580,164**	**$8,422,656**	**$3,445,313**	**$5,313,782**	**$5,680,735**	**$39,442,650**

Each cluster's five-year transportation project history was subdivided into two categories: projects specifically relating to a transportation asset and "other" projects (i.e., non asset-specific projects such as planning, environmental, etc.). The funding history of projects relating to each cluster's transportation asset portfolio is captured and analyzed in the park cluster transportation asset management plans within the System Optimization Technical Report. This project history was used as the basis for estimating future project budget levels for each cluster as described in the System Optimization Technical Report. The five-year history of funding for transportation asset-specific projects by park cluster is presented in Table 6.

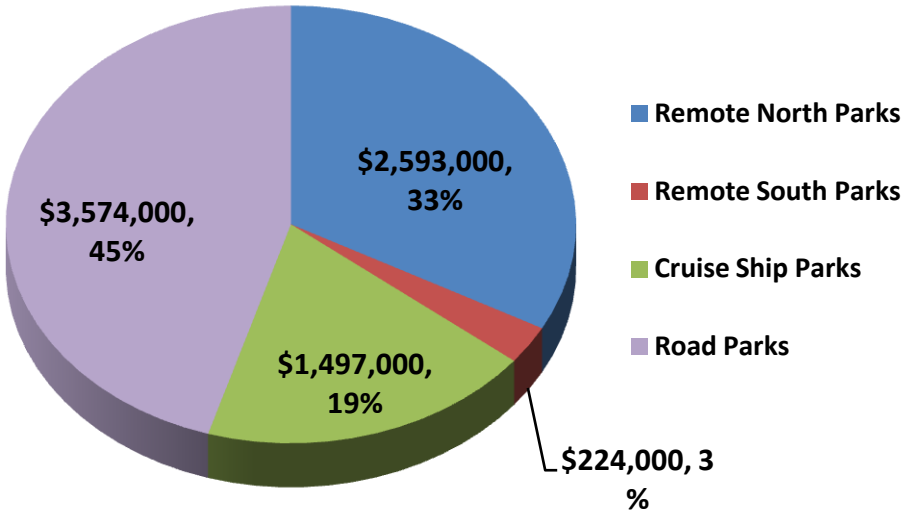

Figure 4: Annual average transportation project funding by park cluster, 2006-2010

Table 6. Five-year funding history of transportation asset-specific projects by park cluster, 2006-2010

Park Cluster	2006	2007	2008	2009	2010	Grand Total
Remote North Parks	12,806,057	-	-	-	-	$12,806,057
Remote South Parks	176,760	262,760	187,506	95,450	112,331	$834,807
Cruise Ship Parks	405,840	3,596,830	304,839	1,100,353	710,997	$6,118,859
Road Parks	1,974,738	3,500,534	1,503,937	2,651,147	3,214,179	$12,844,535
Grand Total	**$15,363,395**	**$7,360,124**	**$1,996,282**	**$3,846,950**	**$4,037,507**	**$32,604,258**

Additional funding for transportation projects includes projects related to planning, environmental studies, visitor experience, etc, as well as transportation projects that are not specifically related to an identified transportation asset (see System Optimization Technical Report). The funds directed towards these other projects are summarized in Table 7 by park cluster.

Table 7. Five-year funding history of "other" projects by park cluster, 2006-2010

Park Cluster	2006	2007	2008	2009	2010	Grand Total
Remote North Parks					158,882	$158,882
Remote South Parks	43,500	47,940	27,638	116,880	48,920	$284,878
Cruise Ship Parks	179,577	183,558	275,369	365,516	363,095	$1,367,115
Road Parks	993,692	831,034	1,146,024	984,436	1,072,331	$5,027,517
Grand Total	**$1,216,769**	**$1,062,532**	**$1,449,031**	**$1,466,832**	**$1,643,228**	**$6,838,392**

The information presented in Tables 6 and 7 are displayed graphically in Figures 5 through 8 below. Each park cluster's funding history directed towards transportation assets and other projects is shown in the graphs for the past five years. For the most part, each park cluster directs the majority of transportation funding on an annual basis towards its assets. The asset-specific funds are almost exclusively related to repairs, rehabilitation, and maintenance of transportation assets.

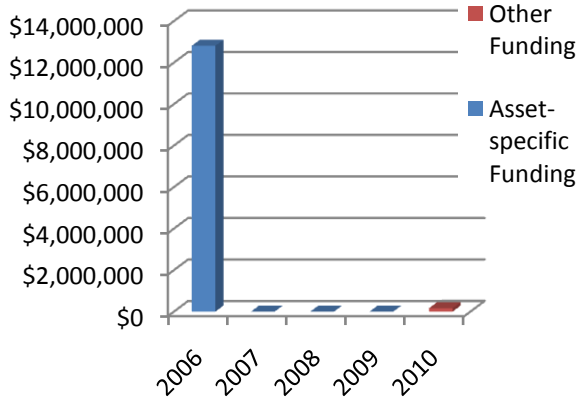

Figure 5: Remote North Parks funding history

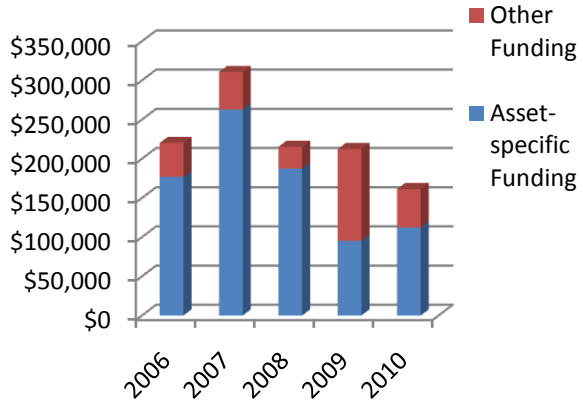

Figure 6: Remote South Parks funding history

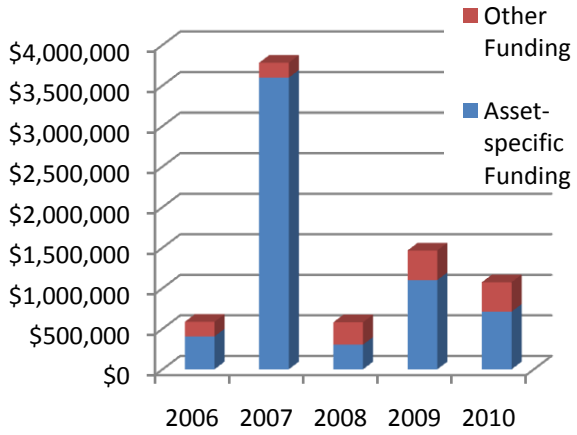

Figure 7: Cruise Ship Parks funding history

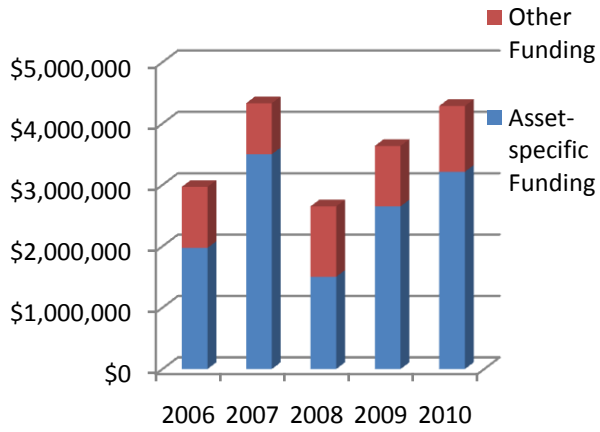

Figure 8: Road Parks funding history

3. Future AKR Transportation Funding

The funding history presented in Section 2 was used as the basis for developing a short-term projection of transportation funding for the NPS AK Region. The funding projection attempts to capture future funding reasonably expected to be available for transportation uses over the next 5 years. The projection is based on historical funding levels as well as discussions with NPS transportation staff on the viability of each funding source.

3.1. Transportation funding over the next 5 years

Transportation funding sources listed in tables 1 through 3 were aggregated to provide a comprehensive five-year funding history from which to project future funding levels. Appendix B contains the table listing the five-year funding projection for transportation-related projects by funding source. Additionally, it provides a brief description on the future prospects of each fund based on input from NPS transportation planning staff.

Many of the funds listed in Table 1 that has historically been available—either as one-time funds or intermittently—are not projected for future years. Many of the funds that are projected take an average based on the past five years. One fund, Regular Cyclic Maintenance, is projected using a trend line; this fund was determined to be the most consistent from year to year and warrant such a projection. Figure 5 shows the past five years of funding and a projection of funding for the next five years.

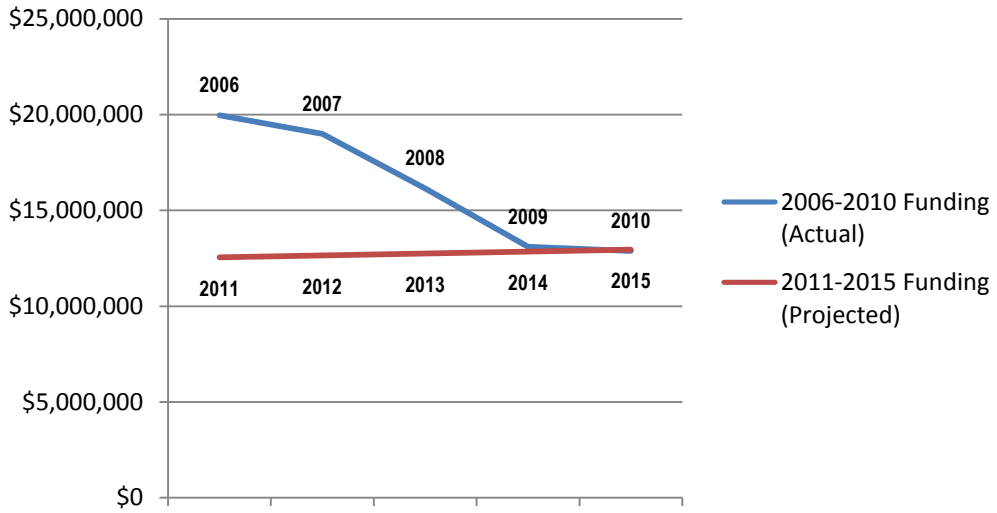

Figure 9: Five-year funding history (2006-2010) and projection (2011-2015) for transportation projects

Available annual transportation funding over the next five years is estimated at approximately $12.5M in 2011 with a slight upward trend to $13M in 2015. This is a reasonable and perhaps conservative estimate based on past trends. There is an inherent difficulty and uncertainty in projecting funding that is evidenced by the variance in past funding. This projection is intended to provide an approximate figure with which to program future transportation projects. As there have been in the past, there may likely again be the intermittent, one-time funds available to direct towards transportation projects. Examples of these may include ERFO funds (Emergency Relief for Federally Owned Roads), additional stimulus dollars, or grant funding.

4. Future Transportation Needs

4.1. Requested Transportation Project Funding through 2050

The PMIS database is used as a tool to manage each park unit's specific project requests and align funding sources, if available, with each project request. Future transportation project requests (all requested projects, excluding fleet-related projects) entered in the PMIS database were examined to gain a perspective on each park cluster's future transportation needs. The requested projects extend out to 2050 and are shown in Figure 10 by park cluster. Rather than a lack of need, the dearth of requested funding for the years 2016-2019 is likely due to the fact that projects for these years have not been entered into the PMIS system.

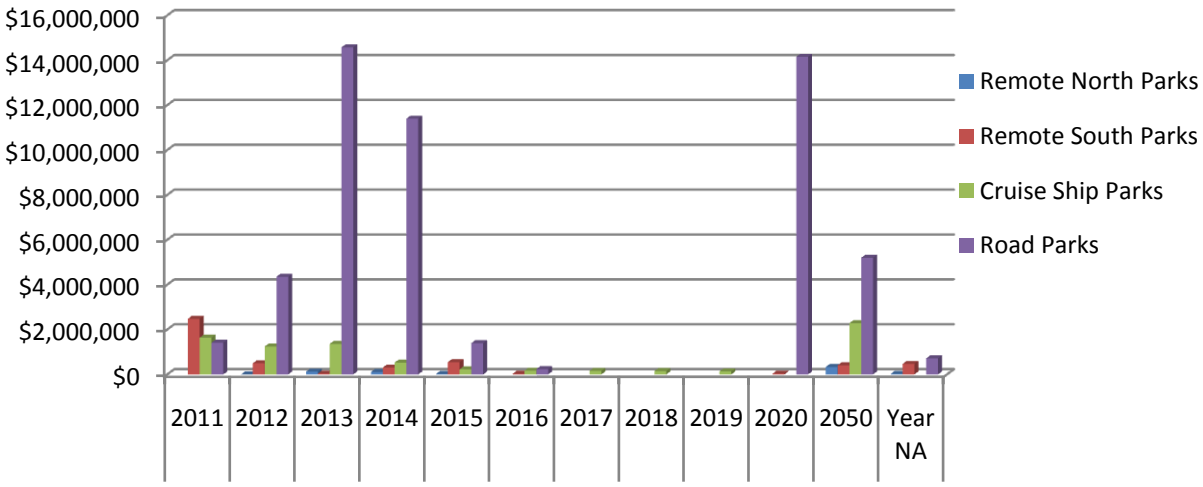

Figure 10: Requested funding within PMIS by park cluster

4.2. Formulated Transportation Projects by Park Cluster, 2011-2015

A more refined examination of each park clusters' financial requirements for future transportation projects was conducted by analyzing the formulated projects within PMIS. Organized by park cluster, requested funding amounts by formulated funding source for the next five years are listed in Tables 8 through 11. There is significant variance between park clusters on the amount of requested funds for transportation projects and the funding sources that will fund them.

Table 8. Future funding requirements for the Remote North Parks, 2011-2015

Formulated Funding Source	Formulated FY					Total
	2011	2012	2013	2014	2015	
Recreation Fee Regional 20%	0	21,600	15,000	0	0	$36,600
Total	**$0**	**$21,600**	**$15,000**	**$0**	**$0**	**$36,600**

Table 9. Future funding requirements for the Remote South Parks, 2011-2015

Formulated Funding Source	Formulated FY					Total
	2011	2012	2013	2014	2015	
Concessions Franchise Fee 80%	111,500	60,000	0	0	0	$171,500
Line Item Construction	1,418,729	0	0	0	0	$1,418,729
Recreation Fee Regional 20%	32,950	0	8,840	0	0	$41,790
Regular Cyclic Maintenance	56,996	69,549	34,334	0	0	$160,878
Total	**$1,620,175**	**$129,549**	**$43,174**	**$0**	**$0**	**$1,792,897**

Table 10. Future funding requirements for the Cruise Ship Parks, 2011-2015

Formulated Funding Source	Formulated FY					Total
	2011	2012	2013	2014	2015	
Concessions Franchise Fee 80%	175,428	45,294				$220,722
FLHP Category I - 3R	24,249					$24,249
FLHP Category III - Alternative Transportation Program	608,697	398,202	50,000		300,000	$1,356,899
NRPP - Natural Resource Management	3,434					$3,434
Recreation Fee Park Revenue			17,013			$17,013
Recreation Fee Regional 20%	86,440	400,112	54,765			$541,317
Regular Cyclic Maintenance	295,027	100,148	159,176			$554,350
Repair / Rehabilitation	107,965	33,228	16,461	43,436		$201,089
Total	**$1,301,240**	**$976,984**	**$297,415**	**$43,436**	**$300,000**	**$2,919,074**

Table 11. Future funding requirements for the Road Parks, 2011-2015

Formulated Funding Source	Formulated FY					Total
	2011	2012	2013	2014	2015	
Climate Change Response		122,400				$122,400
Concessions Franchise Fee 80%	662,459	1,406,734	841,236	469,392		$3,379,821
Environmental Management Program - Clean up of Contaminated Sites		66,900				$66,900
FLHP Category I - 3R	5,889,654	6,646,471	3,744,620	3,579,393	5,831,499	$25,691,636
FLHP Category I - 4R			796,404	3,917,622		$4,714,026
FLHP Category III - Alternative Transportation Program	675,481	497,300	659,467		100,000	$1,932,248
Line Item Construction	4,307,547					$4,307,547
Recreation Fee Park Revenue	869,321	446,160	2,619,834	931,740	730,722	$5,597,776
Recreation Fee Regional 20%	52,000	64,500	77,500			$194,000
Regular Cyclic Maintenance	567,905	245,624	226,779			$1,040,308
Repair / Rehabilitation	258,091				356,314	$614,405
USGS Water Quality Partnership Program	150,000	100,000	100,000			$350,000
Youth Conservation Corps	9,600					$9,600
Total	**$13,442,058**	**$9,596,088**	**$9,065,840**	**$8,898,147**	**$7,018,535**	**$48,020,668**

4.3. Formulated Transportation Projects by Region, 2011-2015

All formulated transportation project funding requests for the Alaska Region were aggregated and are listed by funding source in Table 12. The requested amounts for the Alaska Region range from $16.3M in 2011 to $7.3M in 2015. It is important to note that this is a snapshot of the PMIS database as of December 2010 and the list of project requests and within the PMIS database is continuously changing.

As described in Section 3.1, the projected annual funding for the region is estimated as being approximately $12.5M to $13M. Needed project funding for fiscal year 2011 is approximately $3.8M greater than what is projected to be available; however, requested amounts for 2012 through 2015 are well within the available funds projected.

Table 12. Future funding requirements for the Alaska Region, 2011-2015

Formulated Funding Source	Formulated FY					Total
	2011	2012	2013	2014	2015	
Climate Change Response		122,400				$122,400
Concessions Franchise Fee 80%	949,387	1,512,028	841,236	469,392		$3,772,043
Environmental Management Program - Clean up of Contaminated Sites		66,900				$66,900
FLHP Category I - 3R	5,913,903	6,646,471	3,744,620	3,579,393	5,831,499	$25,715,886
FLHP Category I - 4R			796,404	3,917,622		$4,714,026
FLHP Category III - Alternative Transportation Program	1,284,179	895,502	709,467		400,000	$3,289,147
Line Item Construction	5,726,276					$5,726,276
NRPP - Natural Resource Management	3,434					$3,434
Recreation Fee Park Revenue	869,321	446,160	2,636,847	931,740	730,722	$5,614,789
Recreation Fee Regional 20%	171,390	486,212	156,105			$813,707
Regular Cyclic Maintenance	919,927	415,321	420,289			$1,755,537
Repair / Rehabilitation	366,056	33,228	16,461	43,436	356,314	$815,494
USGS Water Quality Partnership Program	150,000	100,000	100,000			$350,000
Youth Conservation Corps	9,600					$9,600
Total	**$16,363,473**	**$10,724,220**	**$9,421,429**	**$8,941,583**	**$7,318,535**	**$52,769,240**

APPENDICES

Appendix A: Comprehensive five-year funding history of transportation-related projects by funding source and dollar amounts ($) within PMIS (includes fleet-related projects)

Funding Source	2006	2007	2008	2009	2010	Grand Total
2009 Economic Recovery - Deferred Maintenance				691,730		**$691,730**
2009 Economic Recovery - Trails				224,975		**$224,975**
Challenge Cost Share - Region		25,000		30,000	23,974	**$78,974**
Concessions Franchise Fee 20%		600,000				**$600,000**
Concessions Franchise Fee 80%	908,367	974,890	1,389,604	639,289	1,592,715	**$5,504,865**
Emergency Storm and Flood Damage		1,235,100				**$1,235,100**
Environmental Management Program - Clean up of Contaminated Sites	41,085	17,672	18,551	47,326	61,300	**$185,934**
Environmental Management Program - Fuel Storage Management	173,745		11,880			**$185,625**
Environmental Quality Division - Environmental Impact Analysis		140,000	240,000	341,200	100,000	**$821,200**
Equipment Replacement	347,020		391,360	383,000	514,679	**$1,636,059**
Equipment Replacement - Construction Equipment /Vehicles/Other Equipment		383,920				**$383,920**
Federal Lands Highways Program			17,010	995,675	886,280	**$1,898,965**
FLHP Category I - 3R	668,021	440,000	3,955,451		695,209	**$5,758,681**
FLHP Category III - Alternative Transportation Program	1,200,000	654,000	164,675	476,472	323,000	**$2,818,147**
Line Item Construction	12,672,000	111,579		0		**$12,783,579**
Natural Resource Protection Projects			37,125	11,880		**$49,005**
Non-NPS Fund Sources		3,026,650			435,000	**$3,461,650**
NRPP - Natural Resource Management				88,110	66,330	**$154,440**
NRPP - Regional Program Block Allocations			18,871			**$18,871**
ONPS - Operations of the National Park System	2,477		10,000			**$12,477**
Park Partnership Program					32,000	**$32,000**
Recreation Fee 20%	152,500		95,717	363,256	297,020	**$908,493**
Recreation Fee Park Revenue		145,600	292,221	1,747,338	1,991,260	**$4,176,419**
Recreational Fee Demonstration, 20%	329,700	125,000	70,000			**$524,700**
Recreational Fee Demonstration, 80%	175,750	200,432	208,000			**$584,182**
Regional Natural Resources			69,900	23,831		**$93,731**
Regular Cyclic Maintenance	1,196,335	1,100,468	766,752	1,260,605	1,271,963	**$5,596,123**
Repair / Rehabilitation	1,136,535	919,647	244,200	96,968	214,655	**$2,612,005**
Transportation Planning for GMPs and LRTPs					134,908	**$134,908**
Volunteers in Parks	6,500	7,500	7,500		7,920	**$29,420**
Youth Conservation Corps			11,853	9,600	9,600	**$31,053**
Youth Partnership Program			37,000			**$37,000**
Grand Total	**$19,010,035**	**$10,107,458**	**$8,057,670**	**$7,431,255**	**$8,222,813**	**$53,264,231**

Appendix B: Five-year funding projection for transportation-related projects by funding source

Funding Source	5-yr Total (2006-2011)	Funding Projection Notes*	Projected Funding				
			2011	2012	2013	2014	2015
2009 Economic Recovery - Deferred Maintenance	$485,730	One-time program; not to repeat	$0	$0	$0	$0	$0
2009 Economic Recovery - Trails	$224,975	One-time program; not to repeat	$0	$0	$0	$0	$0
Challenge Cost Share - Region	$78,974	Irregular program; assume $0	$0	$0	$0	$0	$0
Concessions Franchise Fee 20%	$600,000	Retooled in past year; will not continue	$0	$0	$0	$0	$0
Concessions Franchise Fee 80%	$5,504,865	Will continue based on concession fees; assume average	$1,100,000	$1,127,500	$1,155,688	$1,184,580	$1,214,194
Emergency Storm and Flood Damage	$1,235,100	Event based, not a normal program; assume $0	$0	$0	$0	$0	$0
Environmental Management Program	$185,934	Entirely PMIS-related; not considered	$0	$0	$0	$0	$0
Environmental Quality Division - Environmental Impact Analysis	$821,200	Will continue; assume average	$165,000	$165,000	$165,000	$165,000	$165,000
Line Item Construction	$12,783,579	Assume little to no funding	$0	$0	$0	$0	$0
Natural Resource Protection Projects	$49,005	Will continue	$10,000	$10,250	$10,506	$10,769	$11,038
Non-NPS Fund Sources	$3,026,650	Not typical; assume $0	$0	$0	$0	$0	$0
NRPP - Natural Resource Management	$154,440	Will continue; started in '09; assume average	$77,000	$78,925	$80,898	$82,921	$84,994
NRPP - Regional Program Block Allocations	$18,871	Removed from analysis	$0	$0	$0	$0	$0
ONPS - Operations of the National Park System	$12,477	Removed from analysis	$0	$0	$0	$0	$0
Park Partnership Program	$32,000	Partner dependent; assume average and some increase ($20-25K annually)	$22,500	$23,063	$23,639	$24,230	$24,836
Recreation Fee 20%	$908,493	Fund no longer available; assume $0	$0	$0	$0	$0	$0
Recreation Fee Park Revenue	$4,176,419	Retain at more recent levels	$1,870,000	$1,870,000	$1,870,000	$1,870,000	$1,870,000
Recreational Fee Demonstration, 20%	$524,700	Fund no longer available; assume $0	$0	$0	$0	$0	$0
Recreational Fee Demonstration, 80%	$584,182	Fund no longer available; assume $0	$0	$0	$0	$0	$0
Regional Natural Resources	$93,731	Assume a smaller than average amount	$17,500	$17,938	$18,386	$18,846	$19,317
Regular Cyclic Maintenance	$5,295,373	Project future amounts based on 5-yr history; trend line projection	$1,166,000	$1,201,000	$1,237,000	$1,273,000	$1,308,000
Repair / Rehabilitation	$2,599,505	Substantial year-to-year variance; assume average	$520,000	$520,000	$520,000	$520,000	$520,000

Funding Source	5-yr Total (2006-2011)	Funding Projection Notes*	Projected Funding				
			2011	2012	2013	2014	2015
Transportation Planning for GMPs and LRTPs	$134,908	Likely to continue; assume $100K	$100,000	$100,000	$100,000	$100,000	$100,000
Volunteers in Parks	$29,420	Assume trending slightly higher	$8,000	$8,400	$8,820	$9,261	$9,724
Youth Conservation Corps	$31,053	Assume will continue at about $10K annually	$10,000	$10,000	$10,000	$10,000	$10,000
Youth Partnership Program	$37,000	Irregular program; assume $0	$0	$0	$0	$0	$0
FLHP Category I-3R (construction projects)	$23,423,950	Unpredictable; assume average	$4,685,000	$4,685,000	$4,685,000	$4,685,000	$4,685,000
FLHP Category I-4R (construction projects)	$1,994,865	Assume small fraction of 2010	$200,000	$200,000	$200,000	$200,000	$200,000
FLHP Category III (construction projects)	$4,196,900	Unpredictable; assume average	$839,000	$839,000	$839,000	$839,000	$839,000
FLHP Design, Planning, Compliance and Admin	$6,377,645	Unpredictable; assume average	$1,276,000	$1,307,900	$1,340,598	$1,374,112	$1,408,465
Alternative Transportation in Parks & Public Lands (ATTPL)**	$2,286,000	Unpredictable; assume average	$457,200	$457,200	$457,200	$457,200	$457,200
Scenic Byway Programs	$125,000	Assume participation with Parks, Seward Highway programs, possibly others	$25,000	$25,000	$25,000	$25,000	$25,000
Total	**$81,032,944**		**$12,548,000**	**$12,646,175**	**$12,746,734**	**$12,848,918**	**$12,951,768**

**Projection notes based on personal communication with Paul Schrooten, April 29, 2011.*

*** Includes funding through Paul S. Sarbanes Transit in Parks Program*