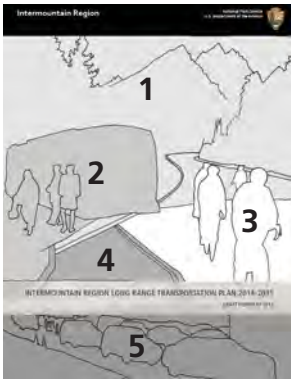
Intermountain Region

National Park Service
U.S. Department of the Interior

INTERMOUNTAIN REGION LONG RANGE TRANSPORTATION PLAN 2014-2035

F A¡ PLAN APRIL 2014



Cover photo collage:

1 - Grand Teton National Park
2 - Going to the Sun Road shuttle bus at Glacier National Park
3 - Spring bicycling at Yellowstone National Park
4 - Boardwalk at Glacier National Park
5 - Queing at the south entrance to Grand Canyon National Park

All photos provided by the National Park Service.

Intermountain Region Long Range Transportation Plan
April 2014

Prepared by:
National Park Service
Intermountain Region
Denver Service Center - Transportation Division
WASO - Facilities Planning Branch

Acknowledgements

IMR Director

Sue E. Masica, Regional Director, Intermountain Region

Core Team

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The first Intermountain Region Long Range Transportation Plan was prepared as a collaborative effort between the Washington Support Office (WASO), the Intermountain Regional Office, and the Federal Highways Administration's Central and Western Federal Lands Highway Divisions.

Special thanks to the Denver Service Center for their active involvement as project managers and to the WASO Park Facilities Management Division Facilities Planning Branch for their oversight and program management.

Following a 30 day stakeholder review period, the final version of the Intermountain Region Long Range Transportation Plan is accepted by the Intermountain Regional Director.

Sue E. Masica 4/16/14

ACCEPTED Date
Regional Director, Intermountain Region

United States Department of the Interior

NATIONAL PARK SERVICE
1849 C Street, N.W.
Washington, DC 20240

4A1 (WASO-PFMD)

MAY 19 2014

Memorandum

To: Regional Director, Intermountain Region

From: Associate Director, Park Planning, Facilities, and Lands

Subject: Intermountain Region Long Range Transportation Plan Concurrence

On February 13, 2014, the final management review briefing for the National Park Service (NPS) Intermountain Region (IMR) Long Range Transportation Plan (LRTP) was held in Denver. In attendance were senior managers from the NPS Washington Support Office (WASO) Park Planning, Facilities, and Lands Directorate—staff from the Park Facility Management Division (PFMD) and representatives from the Denver Service Center—as well as senior partners from the Department of Transportation's Federal Lands Highway Division.

Based on that review of the IMR LRTP—including its detailed documentation—WASO concurs that the plan addresses the minimum requirements listed among the key components of Facility Conditions, Safety, Congestion, Resource Protection and Stewardship, and Visitor Experience. **The Regional Director can accept the plan.**

WASO also notes that the LRTP process to date has identified key subcomponent topic areas that will be more fully developed as part of its implementation strategy (e.g. financial sustainability, total cost of facility ownership, safety, congestion, and alignment with the Capital Investment Strategy). To achieve consistency with national facility investment strategies and ensure a more fully developed 5-year update, WASO looks forward to supporting IMR in that development process.

Congratulations on completing the first IMR LRTP. If you have any questions, feel free to contact Kevin Percival, PFMD Facilities Planning Branch Chief, at 303-969-2429.

cc: Transportation Coordinator, Intermountain Region
Park Facility Management Division Chief
Park Facility Management Division Facilities Planning Branch Chief
Park Facility Management Division Transportation Branch Chief
Denver Service Center Transportation Division Chief

U.S. Department
of Transportation
**Federal Highway
Administration**

Western Federal Lands Highway Division
610 E. Fifth Street
Vancouver, WA 98661
Phone 360-619-7700
Fax 360-619-7846

April 11, 2014

In Reply Refer To: HFL-17

Sue E. Masica
Regional Director, Intermountain Region
National Park Service
12795 Alameda Parkway
Denver, CO 80225

Re: NPS Intermountain Region
Long Range Transportation Plan

Dear Sue:

We would like to take this opportunity to commend you on the completion of your strategic transportation plan for the Intermountain Region of the National Park Service. This comprehensive plan meets the intent of Title 23 USC 201(c)(6), which requires the development of transportation planning procedures.

While maintaining the largest regional transportation system within the National Park Service can be difficult, your plan offers a realistic assessment of your needs and a fiscally constrained, strategic approach to meeting the challenge.

Sincerely,

Clara H. Conner
Division Engineer
Western Federal Lands

Ricardo Suarez for
Division Engineer
Central Federal Lands

CHC/pjw
Ecc: Tim Harvey, National Park Service
Kevin Percival, National Park Service
Mark Hartsoe, National Park Service

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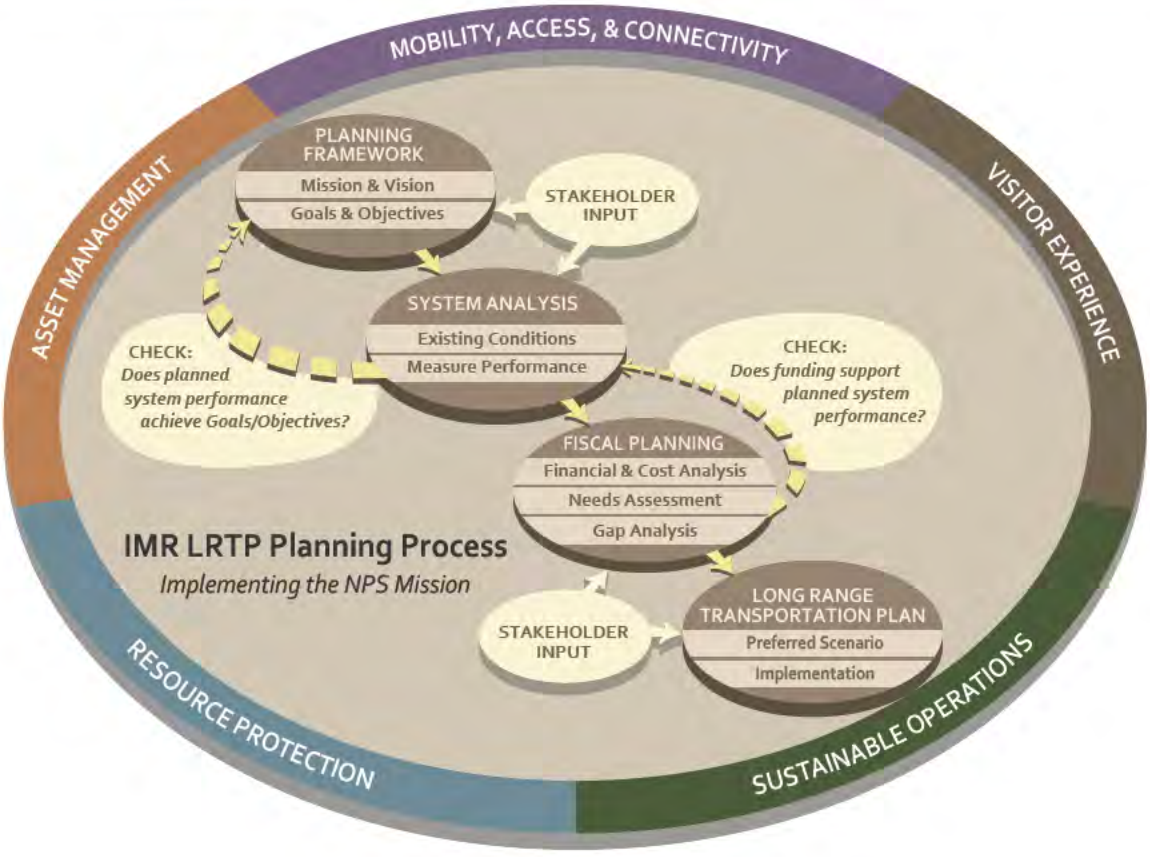
EXECUTIVE SUMMARY

Purpose of the Long Range Transportation Plan

Increasing demand for park access combined with aging transportation infrastructure and limited fiscal resources have created distinct challenges to effective management. The comprehensive vision expressed in this plan is necessary to address current and future needs. The 2035 IMR Long Range Transportation Plan will:

- Create a strategic framework for transportation program investments.
- Establish system level goals, objectives, and performance measures.
- Define existing conditions and transportation needs for asset management, safety, congestion, and capital improvements.
- Identify sustainable implementation strategies that protect park resources and provide a quality visitor experience, while preserving transportation assets.
- Provide decision-making tools to improve the effectiveness of IMR transportation system investments.
- Describe the effects of funding decisions on transportation.

Figure ES-1. IMR LRTP Planning Process



PLANNING PROCESS

The IMR Long Range Transportation Plan presents a comprehensive overview of transportation in the region, both currently and for the planning period extending to 2035. It follows a defined path from goal setting to evaluating existing and future conditions to creating and carrying out a plan of action.

The planning process is designed to implement a long range transportation plan within the context of the NPS Mission, incorporating the principal values represented by LRTP goals.

The progression of analysis from goal setting through system and fiscal analysis culminates in the implementation of strategic investments that achieve the NPS mission and the LRTP vision and goals.

THE IMR TRANSPORTATION SYSTEM

The IMR transportation system is the largest in the National Park System, with a large roadway system to operate and maintain, consistent with the expansive geography of the American West.

The Intermountain Region maintains a network of approximately 3,227 lane miles of roadway and 37.4 million square feet (over 61,000 spaces) of parking infrastructure, valued at almost $6.7 billion. Roadways range from world-renowned park roads like Going-to-the-Sun Road in Glacier National Park and the Grand Loop Road in Yellowstone National Park to park administration roads, with adjacent parking areas providing visitor and employee parking.

The region's approximately 52 million annual visitors enjoy a wide variety of facilities, resources, and programs. The overall condition of assets is fair, falling short of historic conditions and current expectations. The costs to maintain the system at desired levels have left the region with a constantly growing backlog of deferred maintenance.

Partnering relationships are critical to the function of many parks. The role of gateway communities, state and local departments of transportation, and sister Federal Land Management Agencies will continue to expand over time as institutions at all levels strive for fiscal balance.

Roadways

The current average condition of the region's roadways is 79 on a 100 point scale. There are some condition disparities across the region depending on park size, location, visitation, and available funding. This has led the region to thoroughly examine its project selection and funding allocation process to ensure that funds are spent most efficiently.

Parking

The majority of visitors arrive by private automobile and use them to access park features. Parking has emerged as a significant issue in parks of all sizes and especially in those most heavily visited. The condition of paved parking areas lags roadways, a consequence of large expenditures to keep main roads in acceptable condition. Parking areas are also among the most congested and accident prone facilities in the region.

Figure ES-2. The Intermountain Region at a Glance

IMR AT A GLANCE

 # OF STATES: 8 **# OF PARKS:** 94 **ACRES:** 9,857,000

Asset Management

ROADWAY/PARKING CONDITION (CYCLE 4)

	PCR	DM	Lane Miles	Area/Spaces
Roadways	79 / FAIR	$697.3 Million	3,227	–
Parking	70 / FAIR	$11.0 Million	–	37.4M SF / 61,280

Replacement Value of All Transportation Assets	$6,696.3 Million (Current $)

OTHER TRANSPORTATION ASSETS

Bridges	168	Major Structural Culverts	30
Tunnels	9	Transportation Signs	17,566

Mobility, Access, & Connectivity

CRASHES (1990-2005)

Total	18,769
Injury	2,634
Fatal	68

MOST COMMON TYPE OF CRASH

Collision with other vehicle	31%

ALTERNATIVE TRANSPORTATION SYSTEM

Number of Systems	5
Annual Boardings	9.2M
Multi-use Trails	8

Visitor Experience

VISITATION (2010)

Total Visitors	52M
Non-Recreation Visitors	9.3M
Recreation Visitors	42.6
10-Year Trend	-2.4%

LARGEST VISITOR GROUP BY AGE

- Less than 21 years old (27%)

TOP INFORMATION SERVICES

- Park Brochure/Map
- Visitor Center/Exhibits
- Park Newspaper/Photography

TOP ACTIVITIES

- Sightseeing/Scenic Driving
- Visitor Center/Museum
- Painting/Drawing/Photography

Resource Protection

RESOURCE PROTECTION

Historic Transportation Assets in Focus Parks	239
No. Parks Affected by Air Quality Non-Attainment Status	6
Total GHG Emissions in Focus Parks (Tons)	6,415.9

TRANSPORTATION/ RESOURCE ISSUES

- Noise impacts
- Visual impacts
- Air quality
- Vehicle/wildlife crashes
- Social trailing

Sustainable Operations

KEY PARTNERS

Federal	State DOT	MPOs
FHWA	Arizona	Denver Regional Council of Gov'ts
USFS	Colorado	Pima Association of Governments
USFWS	Montana	San Antonio Bexar County MPO
BLM	New Mexico	
BIA	Oklahoma	
	Texas	
	Utah	
	Wyoming	

KEY ISSUES

- **Economic** - Needs greater than financial resources
- **Environmental** - Effects of climate change
- **Social** - NPS leadership in a connected community

Transit

The NPS operates transit systems in Bryce Canyon, Glacier, Grand Canyon, Rocky Mountain, and Zion National Parks. Each system is heavily used by visitors and contributes a great deal to lowering general vehicular congestion. However, each system comes with significant financial costs. The net benefit, when weighed against other environmental and administrative costs must be considered as part of total costs.

Shuttle in Zion National Park. Source: National Park Service

Other System Elements

The system also includes 168 bridges, nine tunnels, major culverts, walls, signage, and guardrails. Maintenance costs for these items have been broadly included in future estimates, typically as part of other roadway projects. Maintenance costs for eight existing multimodal, multiuse transportation trails have also been included. These elements may be treated in a more comprehensive manner in future updates.

STAKEHOLDER OUTREACH

The Intermountain Region began reaching out to key stakeholders during the planning process in order to build and sustain relationships, better understand mutual issues, and seek solutions to challenges. Planners met with each state, several metropolitan planning organizations, and Federal Lands Management Agency (FLMA) partners. The plan also benefited from direct input from the 12 focus parks, which helped to provide insight into on-the-ground operations and management challenges.

One of the most important items uncovered during outreach to stakeholders is that "we are more alike than we are different." All transportation agencies, at all levels, face similar issues revolving around safety, congestion, efficiency, the environment, preservation of the existing system, and their many stakeholders. Successfully addressing transportation needs in this era of escalating costs and fierce competition for scarce financial resources has emerged as the key challenge for now and the foreseeable future.

MACRO TRENDS FOR TRANSPORTATION

The National Park Service - and the Intermountain Region – anticipates that responses to a set of emerging, long-range trends may have dramatic effects on management of the transportation system in coming years. The LRTP explored future trends in three broad, but interrelated, areas:

- The Relationship of Population Changes to Recreation, Leisure, and Visitation – What effects of demographically-oriented changes like the aging population, international visitation, expectations for new technologies, and the benefits to local economies have on transportation in the parks?
- Adapting to a New Landscape – Trends like population growth and development near once remote parks have significant impacts on regional eco- and transportation systems that require careful coordination and responses. Other major environmental events like wildfires, floods, and climate change are beyond NPS control, but require thoughtful planning to mitigate impacts.
- Sustaining Visitor Access and Financial Resources – Visitation is at the heart of the mission, but meeting transportation expectations of a growing, active population has a high cost. Becoming active participants in local and regional

partnerships may provide a mutually beneficial outcome for all.

Appropriate policy and management responses will evolve to meet these challenges. Along the way, the National Park Service will seek to balance its mission to preserve resources and provide access for visitors with costs – economic, environmental, and social.

THE GAP BETWEEN TOTAL NEEDS AND AVAILABLE FUNDS

Transportation needs in 2015 total about $218 million, with about $88 million available from all sources. Needs include three components:

- Existing needs - Fully funded as identified in the Transportation Program and FMSS
- Unmet needs - Not funded as identified in the Transportation Program and FMSS
- Future needs - As identified in transportation data systems

Component Renewal/Recapitalization and Maintenance comprise 86% of future needs. The gap between needs and resources is around $130 million. The gap is projected to grow to about $502 million in unmet needs by 2035 (year of expenditure dollars).

The largest component in the growth of the gap between needs and forecast funding falls in the area of Component Renewal/Recapitalization. This is largely the result of deferring major roadway reconstruction projects, which will grow in value over time as regular maintenance and resurfacing fails to keep pace with the declining pavement life cycle.

Figure ES-3. IMR Estimated Annual Total Needs with Gap

MAINTAINING ACCESS 2014 – 2035

The IMR LRTP establishes a slightly modified framework for managing the IMR transportation program and network over the next 20 years. The preferred scenario, called Maintaining Access, continues current programs, including provisions of the Capital Investment Strategy (CIS) that direct the largest proportion of funding to preserving high priority investments, i.e., asset management and maintenance, to the extent possible with existing funds.

Maintaining Access balances restricted financial resources with a wide-ranging mission and growing needs. It is financially constrained to match the existing funding stream. Due to anticipated funding levels, it is not expected to meet all needs identified in the planning process.

The majority of investments will necessarily occur on Class 1 and Class 2 roads and in public parking areas, but may be directed to any facility depending on the project selection process. Future funding is based on an average annual 2.1% projected rate of inflation in total transportation funds. The financial forecast is financially constrained to the amount reasonably expected to be available during the planning period.

What is the Focus of the Plan?

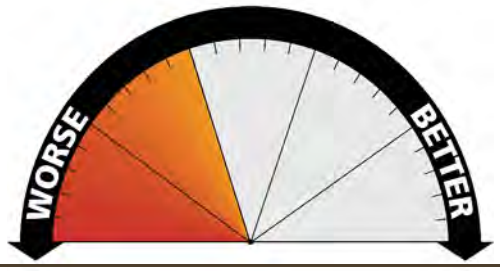
- Maintains access with available funds.
- Allocates approximately 86% of total IMR program funds (not including funds administered by the parks or WASO) to asset management and other maintenance.
- Assumes growth in available funding equal to annual inflation (2.1%).
- Focuses on high priority assets, using the CIS as a guiding strategy.
- Solidifies the relationship between available funding, needs, and actions.
- All structurally deficient bridges needing reconstruction are currently in design and being prepared for contract in the near term.
- New congestion management strategy will identify cost effective practices to relieve congestion at key sites.
- Continues focus on visitor safety, to reduce the frequency and severity of crashes, as well as reductions in wildlife/vehicle crashes.

Pavement related needs account for 85% of all future needs, but only 33% of pavement assets are scheduled for treatment by 2020. As costs are pushed to the future, they become more expensive.

What Comes Up Short?

- Gap between funding and needs will grow from $128 million in 2015 to $502 million in 2035 (Year of Expenditure (YOE) dollars).
- Total deferred maintenance for all transportation assets is currently about $877 million and will not be significantly reduced during the planning period.
- Growth in need is largely the result of high cost Component Renewal/ Recapitalization pavement needs.
- Regional average pavement condition will decline to PCR 65 by 2035 from current PCR of 79.
- Transit systems will not be adequately supported by revenues from existing fee programs.
- Large and expensive projects such as reconstruction of the Yellowstone Grand Loop and the Arches Main Entrance Road will receive some funding, but are not expected to be completed for years.
- Only minimal gains in goal areas other than Asset Management will be possible as the region works to keep its most valuable – and costly – infrastructure in acceptable condition.

Figure ES-4. Performance - Maintaining Access



A general worsening of expected conditions is projected by 2035 given current funding levels.

The remainder of the plan summarizes the process and technical reports used to develop the plan. It highlights key findings and gaps as a foundation for the development and adoption of new strategies and performance measures. Implementation of the plan will continue to align the IMR Transportation Program with the NPS mission, NPS investment policies, the Federal transportation authorization (currently MAP-21) and projected transportation, visitor, and resource challenges over the next 20 years. The narrative in this plan is intentionally broad; readers seeking a rich and detailed analysis of issues, conditions, and process are invited to turn to the plan's appendices for additional details.

Chapter	Planning Process Element	Description
1	Planning Framework	Describes the IMR LRTP planning process and timeline. It also summarizes the IMR Transportation Program and its responsibilities, along with the NPS planning regulatory background.
2	Vision, Goals and Objectives	The Vision, Goals, and Objectives are the foundation of the plan. The entire planning process is designed to fit this structure, ensuring a strong linkage between goals and actions.
3	Stakeholder Outreach	The Intermountain Region reached out to a series of planning partners to better understand transportation issues, gain support, and identify areas of mutual benefit.
4	Baseline System Conditions	A comprehensive review of existing conditions was undertaken to provide the baseline against which improvements are necessary.
5	Macro Trends for Transportation	A variety of emerging issues are becoming increasingly urgent. This chapter examines long term policy and technical questions facing the National Park Service.
6	Financial and Funding Analysis	The history and future of available funding for transportation is analyzed and includes a realistic projection of the growth of funding to 2035.
7	Needs Assessment	Total regional transportation needs are calculated and measured against available funding, resulting in a significant gap in the long run.
8	Maintaining Access 2014 - 2035	The LRTP describes actions to maintain the system over the long term using reasonably available funds. The actions are supported by a series of performance measures that gage progress toward long term goals.

1 PLANNING FRAMEWORK

Lake McDonald and Mt. Vaught in Glacier National Park
Source: National Park Service

Transportation and visitor access to parks is at the nexus of the National Park Service (NPS) mission as established in the 1916 Organic Act: *"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."*

Under the guidance of the NPS mission, the IMR LRTP 2035 began in 2008 with the intent to bring a consistent, forward- looking and multimodal approach to transportation throughout the region.

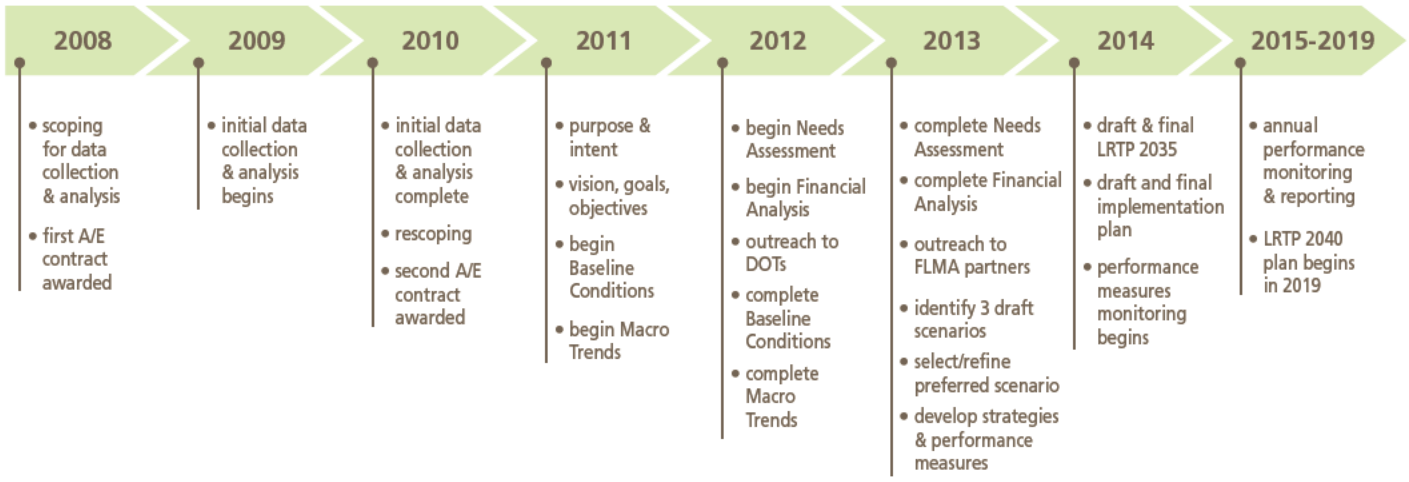
Based on initial data findings in 2009-10, the scope of the large IMR road and parking network and needs in operations, maintenance and rehabilitation (along with challenges related to data collection and analysis, and how to blend system conditions with visitor experience and resource stewardship) greatly outweighed those initial concepts of re-envisioning our transportation system.

In 2010, the project was rescoped to focus on preserving the existing system, and projecting costs and future needs.

Intensive data collection and analysis continued for existing system conditions and projected transportation trends in 2011 and 2012. In-person visits to all departments of transportation in the eight-state region provided valuable perspective and highlighted areas of common interests and concerns. The roll-out of the National Park Service Capital Investment Strategy in July 2012 heavily influenced the extent and analysis of past and projected funding, and the needs assessment for the next 20 years.

With data collection and analysis complete in early 2013, the team moved forward to assess potential scenarios that would meet the plan's five goals while addressing projected shortfalls in deferred maintenance (DM) and other issues over the next 20 years. The preferred scenario selected in 2013 proposes minor changes to the way the program is currently operated, with a new emphasis on annual performance monitoring and reporting.

Figure 1-1. IMR LRTP Planning Timeline



For more information, please see *Foundation for the Long Range Transportation Plan Technical Report, April 2011*, in Appendix B.

CURRENT IMR TRANSPORTATION PROGRAM

The Transportation Program of the National Park Service has undergone significant structural changes over the last 20 years, much as has happened at the state departments of transportation. The change is predominately a shift from highway to multimodal department and is bigger than just a name change; it is a change in philosophy, activity, and focus. The highway engineer has been joined by the transportation planner, transit operator, and multi-use advocate, and at the National Park Service by visitor experience and resource expertise. These changes have been long in coming and have been following the legislative requirements of the U.S. Department of Transportation funding authorizations.

One of the challenges the LRTP process brought to the forefront is that the National Park Service does not currently manage transportation as a holistic activity. Parks are responsible for maintenance and operation of all park assets, including transportation assets. Increasing demand for park access combined with aging transportation infrastructure, limited fiscal resources, and new challenges like electronic communication have created distinct challenges to effective management.

Funding

Funding for the Transportation Program comes from multiple sources within NPS and also from the federal transportation authorization (currently MAP-21) via the Department of Transportation (FHWA). The future funding picture for the NPS transportation program given current assumptions is sobering. Not only has the Federal Land Transportation Program (FLTP) funding been relatively flat in recent years, funding cuts are a real possibility, as has been evidenced by sequestration.

Specific descriptions of funding sources are provided in Appendix A; however, the two primary sources are Title 16 and Title 23 of the United States Code.

Title 16, USC. Title 16 provides 'base funding' for operation of the NPS, and also soft money for projects to build new facilities (Line Item Construction), major rehabilitation activities (Repair/ Rehabilitation) and maintenance funds (Cyclic Maintenance).

Title 23, USC. Title 23 provides funding for the Federal Lands Transportation Program (FLTP) for rehabilitation, reconstruction and planning projects on NPS transportation assets. Title 23 provides rules for the funding provided to the Department of Transportation and Federal Highway Administration. The regional Transportation Program manages Title 23 funds.

Consistency with MAP-21. The current legislation that funds the Federal Lands Transportation Program is Moving Ahead for Progress in the 21st Century Act (MAP-21) which went into full effect in October 2012 and expires on September 30, 2014. The bill consolidates federal programs to focus on key national goals and reduce duplicative programs. Therefore, the ability of the NPS to access alternative sources of funding, such as public-private partnerships, smaller grant opportunities, and potential local and state sources will be critical to future transportation initiatives.

The National Park Service and other Federal land management agencies are required to generally comply with the long-range transportation planning process used by DOTs and Metropolitan Planning Organizations (MPO). This plan complies with that process and adds unique mission-oriented elements (visitor experience and resource stewardship) as well.

Key Policies

As NPS prepares to celebrate its 100th anniversary in 2016, the IMR Transportation Program (along with the rest of NPS) is preparing for the agency's next 100 years. Many daunting challenges lie ahead that will require new perspectives, new tools, new partnerships and renewed dedication to the NPS mission. Several new policies were created during the LRTP plan development that were designed to launch the NPS into its second century, including the Capital Investment Strategy, A Call to Action, Green Parks Plan, and the Climate Change Response Strategy.

Capital Investment Strategy/Total Cost of Facility Ownership. The current NPS investment guidance is the Capital Investment Strategy, a customized strategy for evaluating Total Cost of Facility Ownership of physical assets and prioritizing capital investment projects. At its foundation it is a tool to support financial sustainability goals. The Capital Investment Strategy advances a number of important NPS operational objectives:

- Demonstrates that NPS optimizes taxpayer dollars to preserve mission-critical assets.
- Targets available investment funding to the highest priority assets that parks have committed to maintain in the long term and it will demonstrate improvement in this limited portion of the NPS asset portfolio.
- Addresses an OMB request that the NPS use its robust enterprise asset management database to establish strategic priorities and measure performance.
- Requires NPS to demonstrate how investments satisfy DOI requirements.

Successful implementation of the Capital Investment Strategy requires a Total Cost of Facility Ownership perspective to identify and understand the lifetime costs of acquiring and operating a facility or asset.

A Call to Action: Preparing for a Second Century of Stewardship and Engagement. This framework for NPS employees and partners provides guidance for the organizational transformation and outreach needed to prepare for "a future that is, in so many ways, different from our past." Thirty-nine strategies chart a flexible and creative course, including several items relevant to the Transportation Program:

- #4 In My Back Yard: Promote physical connections and sustainable transportation options between parks and urban residents.
- #5 Parks for People: Enhance trail, greenway and other connections to promote recreational opportunities, particularly for diverse communities.
- #18 Ticket to Ride: Broaden opportunities for students through transportation support to 100,000 students each year, and
- #24 Invest Wisely: Focus NPS investments on high priority park assess and reduce deferred maintenance backlog.

Green Parks Plan. This facilities-focused blueprint aims to increase agency sustainability. NPS accomplishments and performance toward meeting Green Parks Plan goals are detailed in an annual performance report. This plan contains a toolkit and nine goals (including fleet and transportation management).

Climate Change Response Strategy. Multiple and potentially catastrophic threats from rising global temperatures make climate change a risk to NPS lands like no other. This four-pronged strategy (science, adaptation, mitigation and communication) is the roadmap to reduce the agency's carbon footprint, raise employee awareness, and provide leadership and areas of focus to respond to threats at the park, regional and national levels.

See Appendix A for complete information on the laws, directives, and policies that provide the foundation for the IMR LRTP 2035.

Multimodal Work Types in the Plan

The long range plan addresses all modes and transportation assets. For example, total needs for the five work types in Figure 1-2 have been estimated out to the year 2035. This initial IMR plan includes details as available for all modes and asset types. Future updates are expected to include additional detail and analysis as the planning cycle evolves.

Five general work types were selected to represent major transportation activities undertaken by the Intermountain Region. It is important to note that multiple asset types may be addressed in some way by one or more work types. For instance, the asset type "roads" may have needs that include several or all work types: Maintenance, Component Renewal/Recapitalization, Capital Improvement/New Construction, and Planning.

Figure 1-2. LRTP Work Types

Maintenance	Component Renewal/ Recapitalization	Capital Improvement/ New Construction	Transit Operations	Planning
Roads	Roads	Roads	Transit Operations	Roads
Overlooks/Vistas	Parking	Parking		Transit
Parking	Transit	Guardrail		GMPs
Bridge	Bridge	ITS		Transportation Plans
Signage	Signage	Traffic Controls		
Trails (Multiuse/Connector/Urban)	Culvert/Drainage	Transit Shelters		
Culverts/Drainage	Guardrail	Transportation Buildings		
Guardrail	Overlooks/Vistas			
ONPS (park maintenance)	Traffic Controls			
Traffic Controls	Vehicle Wash Facilities			
Transit	Transportation Buildings			
Transit Shelters				
Transportation Buildings				

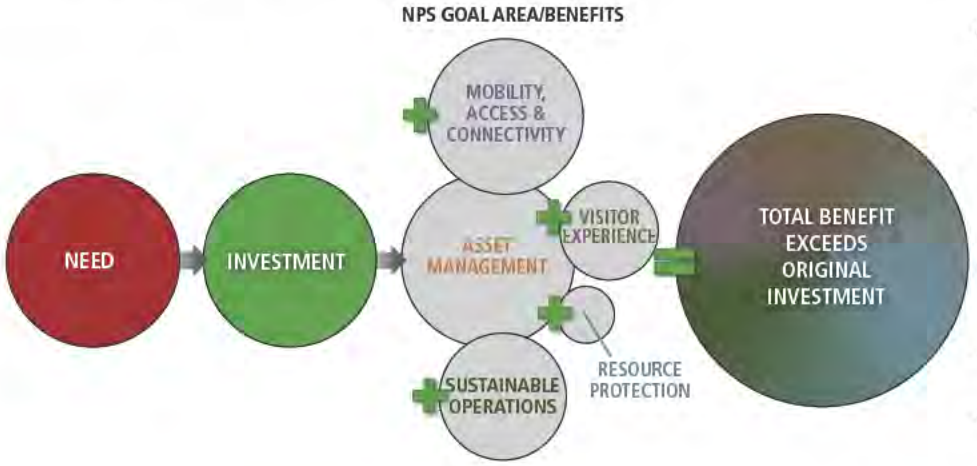
Cross Benefits of Work Types to LRTP Goals

A series of technical reports leading up to the LRTP outlined key transportation issues in the Intermountain Region. Each report ties the key issues to LRTP goals by noting the impacts to each of the goals.

The impacts may be in the form of a deficiency or need that could be addressed by a particular type of work. It is widely recognized that these work types may have benefits to more than one goal area. Figure 1-3 demonstrates the multiplier effect.

The table in Figure 1-4 (next page) further explains how this plan links needs to improvements in goal achievement by action. Several key issues from each technical report are related to the type of work that would improve the condition, with the benefits distributed to the five planning goal areas.

Figure 1-3. Investment Benefit-to-Goal Multiplier



The chart is a conceptual example of the effects of investments in one type of project (roadway reconstruction). Other types of investments would provide a different range of benefits.

Example: Roadway Reconstruction (same footprint)

- Goal area benefit ratio estimate based on the ability of projects within a work group to meet the identified goal area objectives.
- Reconstruction meets all Asset Management objectives.
- Maintains existing footprint, preserving natural resources.
- New paving/construction techniques increase sustainability of improvements.
- Smoother road improves visitor experience.
- New roadway surface may include bicycle and/shoulder.

Figure 1-4. Work Types Cross-Walk with Key Issues and LRTP Goals

WORK TYPE / PLANNING GOAL AREA	Maintenance	Component Renewal/ Recapitalization
		
Asset Management	Invests financial resources in existing infrastructure and assets, thus preserving existing investments. When completed on-time and consistently, preventative maintenance increases the life of an asset and reduces TCFO costs.	Component Renewal/ Recapitalization may enhance an existing asset (adding a lane, extending a road or trail) which may add to the portfolio, thereby increasing the TCFO.
Mobility, Access & Connectivity	Maintenance of existing facilities does not directly improve connectivity within parks and has minimal impact on reducing use of personal vehicles. Some maintenance projects may improve safety at select locations.	Component renewal does not emphasize the construction of new facilities to address missing connectivity or intermodal access. High accident locations can be addressed through recapitalization efforts. However, the transportation footprint is typically unchanged.
Visitor Experience	Maintenance may enhance the quality of the visitor experience; however, it typically does not reduce congestion or integrate visitor information systems.	Component renewal may improve the quality of visitor experience by providing localized asset quality improvements. However, this work typically does not expand the transportation network footprint in a way that reduces congestion or introduces new services.
Resource Protection	Maintenance protects resources by maintaining the current infrastructure footprint and may also provide for the removal of redundant assets. However, maintenance does not generally have a direct positive benefit to resources except through cultural/historic resource management, mowing, clearing culverts, and vista clearing.	Resources are protected by evaluating the transportation infrastructure footprint and adjusting to best minimize the impacts. Major construction projects must be carefully managed to avoid resource impacts in sensitive environmental areas. Recapitalization also replaces fleets on an efficient timeframe, promoting the benefits of transit services.
Sustainable Operations	Maintenance activities may utilize state of the art techniques and timing to improve facility sustainability. Context sensitive maintenance may be used to promote energy and resource conservation.	The goal of component renewal is to develop a sustainable strategy to maintaining the existing transportation infrastructure in the most efficient way. Reducing deferred maintenance with component renewal helps restore sustainable operations. May involve new, more efficient technologies with less impact.

Capital Improvements/ New Construction	Transit Operations	Planning
		
The construction of capital improvements adds more assets to the IMR portfolio, increasing the Total Cost of Facility Ownership (TCFO).	Transit operations have a limited benefit to asset management, and the fleet is currently not included in FMSS. New transit service may introduce new transit specific assets that require on-going maintenance. Because of the weight of transit vehicles, adding this service could impact pavement life.	Planning can be a tool to prioritize asset management strategies across the region consistent with CIS. Planning efforts can also collect, manage, and maintain data, and fill data gaps to improve system performance.
Capital improvements allow parks to provide additional connectivity for all modes of transportation, reducing current transportation limits and access barriers.	Transit operations improve intermodal connections, availability, and accessibility to and within parks. Transit also helps to reduce dependence on personal vehicles for transportation within parks.	Planning efforts seek to improve connections and mobility within and to parks through efficiency and more robust connections.
Capital improvements have the ability to reduce congestion and improve visitor information systems and visitor experience through co-location of services (on-board and at transit stops).	Transit operations may reduce congestion and parking demand at some locations. However, localized pedestrian congestion/ overcrowding are experienced at some transit stops. Transit facilities can be designed to enhance the visitor experience, including visitor information and interpretation.	Planning can be used to address all objectives of the Visitor Experience goal. Additional investment is typically needed in other areas in order to fully benefit visitor experience.
Depending on the type, scope, and magnitude of a capital improvement project, resources within the park may be damaged or improved since this work could include infrastructure expansion and/ or revegetation or other improvements.	Localized damage to resources is frequently observed near transit stops. Transit operations may lessen impacts on air quality and climate change by reducing total emissions, through the use of alternative fuels, and by reducing traffic noise.	Planning applications can be used to address all objectives of the Resource Protection goal, however in some cases the planning process may result in the construction of new assets that impact park resources. Mitigation and avoidance activities are considered. The study of the combination of transportation and resource carrying capacity may help balance impacts.
The future maintenance or operational needs for capital improvements should be considered when investing in any project.	Sustainable practices can be utilized in the planning and operation of transit systems. However, the ever increasing cost of transit operations (due to increases in fuel cost, labor, and insurance) reduces the future sustainability of most existing transit systems.	The planning process can be used to strengthen regional and community relationships as well as develop sustainable and context sensitive solutions that promote energy and resource conservation. Planning studies have the flexibility to address sustainability issues in economic, social, and environmental fields.

2 VISION, GOALS, AND OBJECTIVES

Grand Teton National Park
Source: National Park Service

The Long Range Transportation Plan (LRTP) provides the foundation for a rational and effective multi-modal transportation program over the next 20 years. The LRTP serves as a strategic guiding document using a transparent, inclusive, and accountable process. Extensive and deliberate care and effort was used to establish a vision, goals, and objectives to reflect the NPS mission and transportation needs within the Intermountain Region in the year 2035.

The vision, goals, and objectives highlight the transportation ideals and ambitions of the IMR. By documenting these higher order callings, the plan allows flexibility in solutions at the individual park unit level, while staying true to its overall intent. This framework will continue to serve decision makers even as circumstances of funding and priorities evolve over the life of the plan.

The LRTP Vision: *Providing Access to America's Treasures*, emerged from the Foundation Workshop held early in the planning process. The planning team engaged in a two-day discussion about NPS values – what is important and unique about the National Park Service and the parks it manages. The intent of the vision statement is to highlight the key functions of the LRTP – to provide access for visitors while simultaneously protecting park resources.

For more information, please see *Foundation for the Long Range Transportation Plan Technical Report, April 2011*, in Appendix B.

GOALS AND OBJECTIVES

The Core Team developed a series of goals and objectives at the LRTP Framework Workshop to support the vision. The goals and objectives outline the specific direction of this plan and what it can achieve over the long term.

The LRTP Goals and Objectives form the organizational backbone of this long range plan. Each step of the planning process – from existing conditions to financial and needs analysis to future planning scenarios - develops key findings by goal, ensuring that this plan is firmly linked to achieving its planning goals.

The Intermountain Region's goals and objectives work together to implement the National Park Service's Strategic Goals:

I. Preservation of Park Resources

II. Provide Public Enjoyment and Visitor Experience of Parks

III. Strengthen and Preserve Natural and Cultural Resources and Enhance Recreational Opportunities Managed by Partners.

IV. Ensure Organizational Effectiveness

Auto Touring. Source: National Park Service

Figure 2-1. LRTP Goal Areas

LRTP GOAL AREAS

Asset Management

GOAL: Manage transportation assets to maintain primary park roads and visitor transportation systems in acceptable condition.

Objectives:

A. Optimize the investment in existing infrastructure by emphasizing core Capital Investment Strategy goals that focus on high priority maintenance and asset management projects.

B. Communicate true transportation needs through the effective use of program level performance measures.

C. Capture total costs of facility operation in all planned improvements.

D. Collect, manage, and maintain appropriate system data to support performance measurement.

Mobility, Access, & Connectivity

GOAL: Provide a multimodal park transportation system with seamless connections within each park and to surrounding communities where opportunities exist.

Objectives:

A. Reduce the reliance on personal vehicles in order to relieve congestion, reduce resource impacts, and reinforce sustainable practices.

B. Improve safety at high accident locations such as entrance roads, crosswalks, and parking lots.

C. Ensure that the transportation system is available and accessible to the broadest diversity of visitors including those with disabilities.

D. Improve intermodal connections to and within the park.

Visitor Experience

GOAL: Support the visitor experience with safe, sustainable transportation and information options that strengthen stewardship and diversity.

Objectives:

A. Manage congestion where it interferes with the visitor experience or damages resources.

B. Integrate state-of-the-art visitor information systems into transportation programs.

C. Minimize impacts of non-park traffic on visitor experience.

Resource Protection

GOAL: Incorporate the ideal of leaving park resources unimpaired into all aspects of transportation including planning, design, construction, maintenance, and operation.

Objectives:

A. Manage visitation and the park transportation system to minimize resource impacts and achieve the desired conditions of park resources.

B. Consider removing damaging, unnecessary, redundant, or underutilized infrastructure in order to restore resources and minimize maintenance costs.

C. Use emerging technologies in construction, maintenance, and operations to reduce impacts to park resources.

Sustainable Operations

GOAL: Advance IMR transportation programs to promote wise investments and adapt to emerging issues.

Objectives:

A. Utilize the planning process to strengthen effective regional and community relationships.

B. Promote program and organizational efficiency as sustainable practices.

C. Identify and incorporate climate change mitigation/adaptation strategies into all aspects of transportation planning, design, construction, maintenance, and operations.

D. Provide sustainable and context sensitive solutions to promote energy and resource conservation.

3 STAKEHOLDER OUTREACH

Glacier National Park
Source: National Park Service

The Intermountain Region engaged parks, federal and state partners, and other stakeholders in a range of conversation topics including regional planning processes and specific needs at specific locations. The Intermountain Region used several outreach approaches for the LRTP, seeking effective methods and new opportunities for dialogue. Several key themes emerged from the outreach process. As it turns out, every agency consulted during the planning process has similar concerns, including a long list of needs, limited financial resources, and a dedication to serving the public interest while protecting resources.

KEY FINDINGS

Asset Management	**Tight budgets for parks**, indeed virtually all transportation agencies, leave many desirable investments on long waiting lists. The mismatch of budgets with needs has the IMR joining other agencies in shifting focus from adding new capacity to building a culture that efficiently manages existing assets. The new management paradigm includes the efficient prioritization of needs and possibly reducing asset inventories to a manageable level.
Mobility, Access, & Connectivity	**High peak period travel demand** places a difficult task in front of transportation managers. Since building to meet peak demand is generally impossible, periodic congestion becomes almost unavoidable. Other management techniques are required: multiple connections, distributing travel to less congested times and places, and mode choices, including transit and non-motorized options. All options come with potentially undesirable side effects, such as pulsing at transit stops and sensitive destinations, construction of hardened bicycle/pedestrian facilities, and untenable benefit/cost ratios.
Visitor Experience	**Congestion, safety issues, and poor facility condition** contribute to reduced visitor and user experience. Acceptable limits on these issues have yet to be fully defined by the National Park Service. Other public agencies note that congestion leads to complex reactions, including acceptance, and/or making other choices, such as time of travel or changing destinations.
Resource Protection	**Transportation-related impacts to natural and cultural resources** concern all stakeholders. The noted effects on wildlife, habitat, soils, vegetation, air-water-sound quality, and scenic views are many. Choices must be made with respect to acceptable levels of impact, balanced with the need to provide mobility and access. Coordination with other agencies is crucial to creating comprehensive responses at the landscape level.
Sustainable Operations	**A sustainable operation at all levels** – economic, environmental, and social - is a key focal point for the region and stakeholder agencies. Leadership is required for success and must include active engagement with the broader community. There is a growing realization that transportation networks are inextricably tied to the regional community and that finding better ways to support initiatives of mutual benefit will open doors to the future.

For more information, please see *Agency Outreach and Involvement Report, March 2013*, in Appendix C.

INTERNAL OUTREACH

NPS Core Team

The NPS Core Team provided oversight, guidance, and review of the planning process, intermediate products, and the final plan. The Core Team briefed the IMR Regional Director and WASO leadership at key points with progress updates and to obtain guidance to seek synchronous results with other national and regional plans.

Focus Parks

Twelve focus parks, selected to represent the range of issues, transportation conditions, and challenges throughout the IMR, offered critical information from the park perspective. Insights from those working with day-to-day challenges provided a real flavor for each type of park, proving extremely valuable during the development of the vision, goals and objectives, and ultimately, of transportation strategies for the long term.

During the data collection phase, focus park representatives completed a series of interviews and surveys, furnishing valuable information about transportation issues and conditions in each park. The interviews enabled the project team to gather details about the parks and gain a deeper understanding of each of the 12 focus parks' unique characteristics. The themes and trends from the focus parks formed the basis for the broader, region-wide approach. Data specific to all the parks across the region was used to inform the section on needs and future requirements.

The surveys allowed the project team to explore the LRTP goal areas that are less well documented in databases or other uniformly published information.

Building Solid Relationships

Successful self-sustaining strategies include strengthened connections to the wider community through transportation, education, and mutual support. The sustainable future recognizes the inter-dependency of national parks with gateway communities, regional economies, and planning at the landscape level. The future will be built on a solid base of partnerships with communities and regional planning.

OUTREACH ACTIVITIES

A variety of outreach activities were offered, designed to reach both internal and external audiences and partners.

Long Range Transportation Plan Foundation Workshop – February 2011

The Core Team and several other NPS staff experts participated in a facilitated workshop to discuss transportation planning issues that would frame the plan. The group collaborated to draft a vision, goals, and objectives that serve as guiding principles for plan development. All subsequent parts of the plan refer to these principles to ensure a strong link between goals and actions.

Focus Park Interviews – June/July 2011

A representative from each focus park provided on-the-ground insight about transportation issues in the park. The guided conversation left plenty of room to talk about the park's transportation problems, needs, and successes.

Focus Park Surveys – July/August 2011

Following the focus park interviews, a survey was distributed to the focus park contacts to gather more information about transportation in the parks. The survey focused on the Visitor Experience, Resource Protection, and Sustainable Operations goal areas. The results helped establish key areas for exploration during subsequent planning phases.

Figure 3-1. Key Stakeholders

Planning Environment and Public Comment (PEPC) Website

The NPS created a homepage for the long range transportation plan that made general information available to interested parties, including the general public. Posted items included an overview of the planning process, the project timeline, and the vision, goals and objectives.

This website facilitated a 30 day review and comment period of the draft plan. Stakeholders from previous internal and external outreach activities were notified of the review and over 150 comments were received and addressed.

Newsletters

Six newsletters were posted to the PEPC website at milestones in the plan. Each newsletter focused on a topic, providing an overview of results at each stage. Topics included a preview of the process, key themes emerging in the outreach process, macro trends shaping transportation in the parks over the long term, existing system-wide transportation conditions, financial projections and total needs, and future planning scenarios.

The PEPC website home page at http://parkplanning.nps.gov

Project newsletters provided information to the public.

State DOTs and Metropolitan Planning Organizations (MPO) - 2012

Representatives of the Intermountain Region met with each of the eight state departments of transportation and a metropolitan planning organization to discuss items of mutual interest and to strengthen planning relationships.

Partnership opportunities:

- Planning and coordination.
- Environmental issues.
- Technology opportunities.

Several key themes emerged from the discussions:

- Data collection and management could benefit from strengthened relationships.
- Better coordination with grant applications could lead to funding projects of mutual interest.
- Better coordinated LRTPs and STIP/TIPs could maximize the use of scarce funds.
- Shared concerns about animal/vehicle crashes.
- New ITS opportunities could help address congestion and trip planning.

Federal Land Management Agencies (FLMA) Workshop – January & April 2013

The Intermountain Region hosted an outreach workshop with FLMA partner agencies to explore various planning initiatives underway with each agency. Representatives of the National Park Service, Bureau of Land Management, US Forest Service, US Fish and Wildlife Service, and the Federal Highway Administration met in a day-long workshop to learn about their respective planning processes and items of mutual concern.

The workshop provided an opportunity for networking and further coordination, particularly in the area of resource management. The new Federal Lands Access Program (FLAP) in MAP-21 is of great interest to the agencies. The program is seen as a potentially effective tool to help solve certain access problems such as roads that cross multiple jurisdictions. The IMR will continue to explore and strengthen these relationships.

Transportation Agencies Face Similar Issues

One of the most important items uncovered during outreach to FLMA partners, state departments of transportation, and metropolitan planning organizations is that "we are more alike than we are different." All transportation agencies, at all levels, face similar issues revolving around safety, congestion, efficiency, the environment, preservation of the existing system, and their many stakeholders. Successfully addressing transportation needs in this era of escalating costs and fierce competition for scarce financial resources has emerged as the key challenge for now and the foreseeable future.

DOT/MPO Outreach Meetings

Colorado DOT
Wyoming DOT
New Mexico DOT
Utah DOT
Oklahoma DOT
San Antonio-Bexar County MPO
Texas DOT
Arizona DOT
Montana DOT

Federal Partners

Federal Highway Administration (FHWA)
U.S. Forest Service (USFS)
U.S. Fish and Wildlife Service (USFWS)
Bureau of Land Management (BLM)
Bureau of Indian Affairs (BIA)

FUTURE IMR TRANSPORTATION PROGRAM OUTREACH

The next steps for agency outreach and public involvement in the LRTP planning process for the update may feature expanded outreach and opportunities for engagement with partners.

In addition to continued engagement with FLMAs, FHWA, state DOTs, and MPOs, future efforts may include other agencies, such as state economic development divisions or environmental agencies. Coordination could be expanded by targeting specific partners with a high level of interest and ability to provide input relative to long range regional planning.

Additional partners to engage may include:

- friends of the park groups,
- transportation providers, and
- concessionaires.

Regional and Community Partnerships. The National Park Service and other federal agencies encourage partnerships as a way to leverage resources and accomplish more than any one group could do on its own. Partnerships may include individual contributions, volunteers, corporate contributions, and foundations. These shared responsibilities are becoming ever more critical in this era of constrained financial resources.

Regional communities include gateway towns and cities that provide access and services to local park units. Some gateway communities are located at a park's entrance such as Bryce Canyon City, UT; West Yellowstone, MT; and Estes Park, CO. Other park units are located in or near large metropolitan areas such as Saguaro near Tucson, AZ and San Antonio Missions. These areas have Metropolitan Planning Organizations (MPOs) that coordinate transportation planning and oher investments for the region.

Regional and community stakeholders should encourage all existing and current partners to explore innovative funding mechanisms that would mutually benefit each of them.

Bureau of Indian Affairs (BIA). The United States has a unique legal and political relationship with Indian tribes as provided by the Constitution of the United States, treaties, court decisions and Federal statutes. Within government-to-government relationships, Indian Affairs provides services to tribes and American Indians, including participation in consultations regarding federal lands.

Indian Nations. Many parks in the IMR preserve and maintain cultural resources from Native American tribes. In some cases, tribes donated land to the NPS in order to best preserve their cultural history. Many tribes hold close ties to areas within IMR park units, considering many of the areas sacred. There are over 90 Indian Nations within the IMR. The IMR collaborates closely with tribes to ensure appropriate steps are taken at each step of planning, construction, and maintenance. Refer to *Baseline Conditions Technical Report, Appendix D – Asset Conditions by State* for a full listing of Indian Nations in the Intermountain Region.

Metropolitan Planning Organizations

Flagstaff MPO (AZ)

Pima AOG (AZ)

Denver Regional COG (CO)

Mesa County Regional TPO (CO)

North Front Range Transportation & Air Quality Planning Council (CO)

Las Cruces MPO (NM)

Middle Rio Grande COG (NM)

Santa Fe MPO (NM)

Corpus Christi MPO (TX)

San Antonio-Bexar City MPO (TX)

Potential Future Engagement Strategies

The first IMR LRTP update may test new strategies for public engagement (including social media) in order to reach out to the public-at-large.

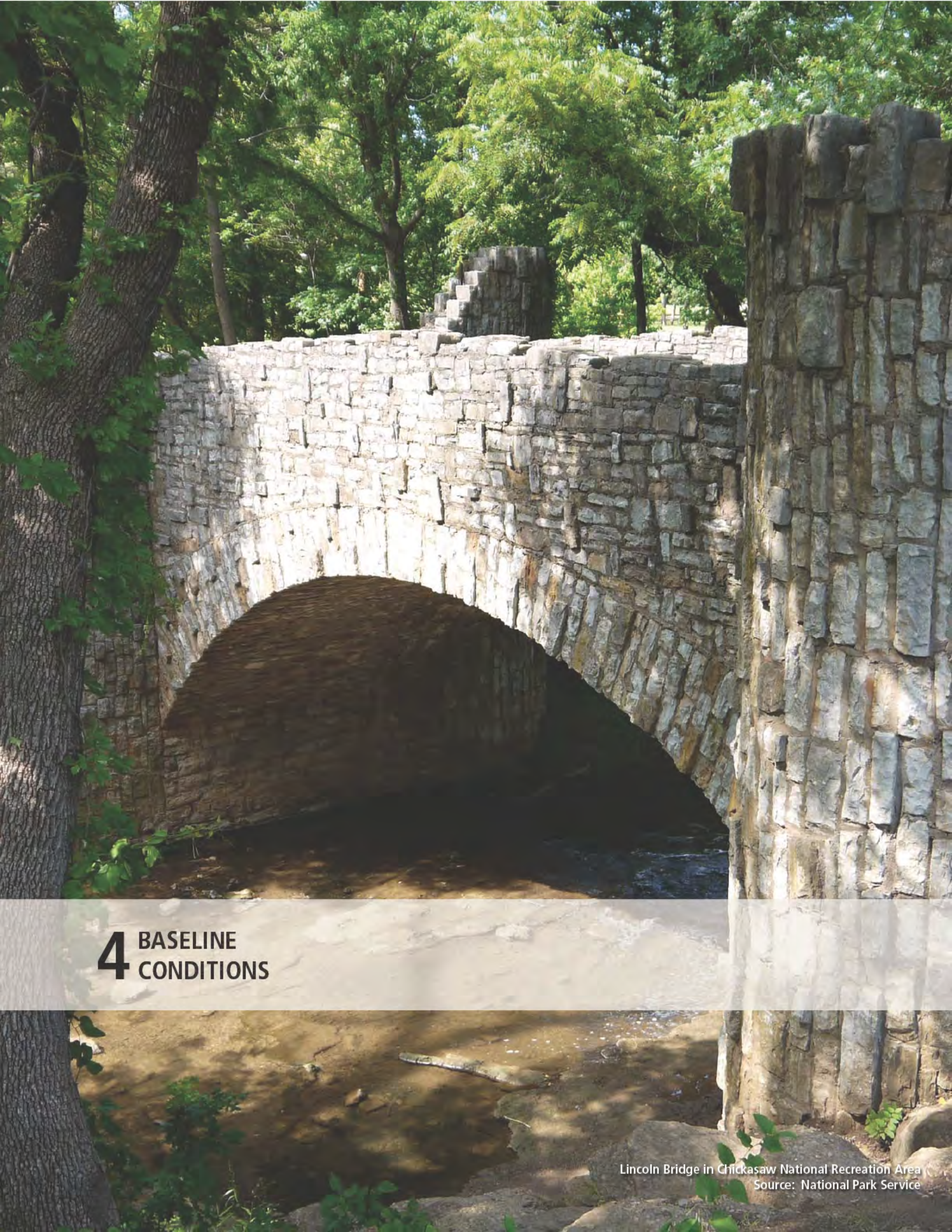
Other successful methods include targeting specific user groups such as the aging, ethnically diverse, and transit and non-motorized advocacy groups.

Telephone surveys, mail/email surveys, online surveys, in-person meetings, workshops, webinars, social media, or focus groups can successfully gather information at a reasonable cost.

The PEPC website will continue to be used to distribute information and receive input related to LRTP updates, including newsletters and E-news updates at key milestones in the process, such as major decisions and actions.

A contacts database will track physical and electronic contact information as well as their specific project interests (e.g., a particular focus park, mode of transportation, and/or particular theme (sustainability, visitor experience, etc.). The contacts database could also be used to tracks issues raised at all points of the outreach process and ensure they are addressed appropriately as the project develops.

Cliff Palace at Mesa Verde National Park. Source: National Park Service



4 BASELINE CONDITIONS

Lincoln Bridge in Chickasaw National Recreation Area
Source: National Park Service

The Intermountain Region maintains over $6.7 billion in transportation assets, including 3,200 lane miles of roadway and 37 million square feet of parking areas. Approximately two-thirds of paved, publicly accessible roadways and one-quarter of public parking areas are in good or excellent condition. The remaining one third are in need of expensive repairs. The range of reported conditions across large and small parks is wide, but together adds up to a large backlog of deferred maintenance approaching $900 million and growing.

In addition to keeping roads and parking areas in good repair, parks in the region face chronic congestion in the most visited parks, periodic crowding in many smaller parks, safety issues affecting visitors and wildlife, evolving visitation patterns and demographics, transportation-related environmental impacts, and challenges to develop sustainable practices in all aspects of system management.

The National Park Service operates five transit systems across the region, in Bryce Canyon, Glacier, Grand Canyon, Rocky Mountain, and Zion National Parks.

The size of the system and the costs of operations, maintenance, and management challenge the IMR to find effective solutions for the near and long terms.

This chapter describes the current state of transportation in the Intermountain Region. The inventory of facility conditions, operating characteristics, and other programs forms the comparative basis for the needs analysis portion of this long range transportation plan. Data are the most current available at the time of analysis and are not consistent across all datasets. Financial and needs data are based on 2011 information in FMSS and AFS. Safety and crash data was available at the regional level through 2005; transit needs and visitation data were compiled from 2010 sources.

For more information, please see *Baseline Conditions Technical Report, January 2013*, in Appendix D.

KEY FINDINGS

Asset Management	**Facility Condition May Reflect Poorly on Visitor Experience.** The regional Facilities Condition Index (FCI) is 0.131, rated Fair overall, but falling short of Good/Excellent goals. Sixty-six percent of the region's deferred maintenance (DM) is attributed to only ten high visitation parks, while 77% of DM is associated with Class 1 roads.
	Roadway Pavement Condition Improves while Parking Pavement Deteriorate. Recent investments in roadway maintenance show marked improvements in overall PCR, with the percent rated Good/Excellent having risen from 11% in Cycle 3 to 66% in Cycle 4. During the same time period, the reported condition of parking areas rated Good/Excellent fell from 47% to 25%.
	Bridges in Generally Good Condition. Only 10 bridges in the region have a Priority of Improvement rating of A or B, indicating the need for substantial rehabilitation. All 10 are programmed for improvements to bring to acceptable levels.
Mobility, Access, & Connectivity	**Congestion Reported at Many Parks.** Congestion occurs at a variety of facilities including parking areas, park access roads, visitor centers, trailheads, and scenic overlooks. Many parks cite the lack of adequate parking, including for large vehicles, as a significant impact on visitors and strain on traffic management. All transit systems report congestion at peak times.
	Safety. The total number of crashes has declined from a 1995 peak, and is concentrated in a few parks with the highest traffic volumes. About 17% of crashes occur in parking areas or driveways. Contributing factors include congestion, poor circulation design, and oversized vehicles.
Visitor Experience	**10 Year Average Recreation Visitation up Slightly, Non-Recreation Visitation Down.** Recreation visits increased regionally 3.2% in last 10 years, while non-recreation visitation is down 12.4%. Growth in recreation visitation is not uniform across the region, but is concentrated in large, iconic destination parks. The drop in non-recreation visitation is also not uniform park-to-park, and remains a significant problem for congestion, safety, and pavement management, especially in parks near metropolitan areas or on major through routes.
	Evolving Travel Patterns. Fully 90% of visits are planned experiences (not spontaneous), while 60% of visitors travel through parks as part of a multiple destination trip. Twenty-seven percent of visitors bring more than one vehicle to the park, including towed vehicles. Recreation hours per visit decreased from 9.4 to 8.4 hours over a 20-year period.
	Visitor Information. Only 25% of visitors obtain pre-trip information from the park websites to assist in trip planning, pointing to the high value of in-park information. Visitors enjoy and rely on mobile information sources, where available.
Resource Protection	**Transportation Carrying Capacity.** The ability of transportation systems to absorb additional visitation, either by adding capacity or allowing congestion to increase, may be incompatible with resource protection goals.
	Historic Roads. The Intermountain Region is the custodian of numerous aging historic roads, each of which requires careful consideration (and costs) when planning improvements or maintenance.
	Wildlife/Vehicle Crashes a Concern. About 17% of all crashes are related to wildlife, but are much higher in some parks, putting visitors, wildlife, and in some cases threatened and endangered species at risk.
Sustainable Operations	**Sustainability includes Environmental, Financial, and Social.** The inter-relationships of economic, environmental, and social systems require cooperation and coordination beyond park boundaries for effective management.
	Total Cost of Facility Ownership Key to Financial Sustainability. Long-term maintenance and other related issues are inherent to the Total Cost of Facility Ownership (TCFO) and must be factored into planned improvements.
	Parks are Vital to Local and Regional Economies. IMR parks have a mutually beneficial relationship with gateway communities and even entire state economies, providing $2.7 billion annually in visitor spending and over 46,000 jobs.

FOCUS PARKS

The analysis closely examined existing conditions in 12 focus parks representing the spectrum of characteristics in parks of different sizes and needs. Figure 4-1 provides an overview of transportation in the focus parks. As a group, the focus parks are a microcosm of the region, but also portray a unique story for each park.

The inventory of existing transportation assets necessarily focuses on the largest and most critical items: paved publicly accessible roads and parking, transit systems and associated infrastructure, bridges, tunnels, and transportation trails. It also documents operational characteristics such as visitation, safety, and congestion. Detailed analysis of other transportation assets such as curb and gutter, drainage structures, roadway shoulders, wayfinding and signage, and minor pedestrian facilities will be considered for the next long range plan update.

Additional details about transit systems, including operations, buses and other associated assets, long term costs, etc. can be found in the Transit Pro Forma developed for each system.

Congestion at the Grand Canyon south entrance may affect visitor experience.
Source: National Park Service

Vehicle crash in Yellowstone National Park near Elk Creek.
Source: National Park Service

Poor pavement condition in parking lot at Washita Battlefield.
Source: National Park Service

Figure 4-1. Focus Parks At A Glance

FOCUS PARKS

	Asset Management					
Park Unit	All Roadway Assets (lane miles)	Class 1 & 2 Roadways	All Parking Assets	Public Parking	Transportation Assets: Total CRV / Total Deferred Maintenance	Average Annual Vehicle Crashes/ Rate*
Bryce Canyon NP (BRCA)	54	46 lane miles PCR: 91/GOOD	802,000 sq ft 1,315 spaces	768,000 sq ft 1,260 spaces PCR: 68/FAIR	CRV: $88.8 Million DM: $0.9 Million FCI: 0.011	32/ na
Chickasaw NRA (CHIC)	40	20 lane miles PCR: 82/FAIR	915,000 sq ft 1,500 spaces	899,000 sq ft 1,470 spaces PCR: 72/FAIR	CRV: $64.2 Million DM: $5.1 Million FCI: 0.080	20/ na
Glacier NP (GLAC)	231	202 lane miles PCR: 84/FAIR	1,650,000 sq ft 2,705 spaces	1,413,000 sq ft 2,315 spaces PCR: 75/FAIR	CRV: $562.6 Million DM: $77.2 Million FCI: 0.137	66/ 144.1
Grand Canyon NP (GRCA)	204	167 lane miles PCR: 92/GOOD	3,170,000 sq ft 5,195 spaces	3,118,000 sq ft 5,110 spaces PCR: 85/GOOD	CRV: $470.5 Million DM: $79.3 Million FCI: 0.168	179/ 124.0
Grand Teton NP (GRTE)	267	220 lane miles PCR: 85/FAIR	2,665,000 sq ft 4,370 spaces	2,249,000 sq ft 3,685 spaces PCR: 64/FAIR	CRV: $423.6 Million DM: $87.6 Million FCI: 0.207	162/ 157.1
Mesa Verde NP (MEVE)	93	82 lane miles PCR: 85/FAIR	1,164,000 sq ft 1,910 spaces	1,068,000 sq ft 1,750 spaces PCR: 74/FAIR	CRV: $249.6 Million DM: $26.7 Million FCI: 0.107	53/ 245.4
Rocky Mountain NP (ROMO)	147	130 lane miles PCR: 88/GOOD	1,507,000 sq ft 2,470 spaces	1,232,000 sq ft 2,020 spaces PCR: 77/FAIR	CRV: $324.3 Million DM: $15.9 Million FCI: 0.049	99/ na
Saguaro NP (SAGU)	23	16 lane miles PCR: 88/GOOD	184,000 sq ft 300 spaces	111,000 sq ft 180 spaces PCR: 72/FAIR	CRV: $42.2 Million DM: $7.0 Million FCI: 0.166	45/ 361.9
San Antonio Missions NHP (SAAN)	0.2	0 lane miles PCR: NA	169,000 sq ft 275 spaces	152,000 sq ft 270 spaces PCR: 50/POOR	CRV: $7.9 Million DM: $1.5 Million FCI: 0.185	na/ na
White Sands NM (WHSA)	10	9 lane miles PCR: 81/FAIR	65,000 sq ft 105 spaces	51,000 sq ft 85 spaces PCR: 69/FAIR	CRV: $31.6 Million DM: $0.5 Million FCI: 0.015	3/ na
Yellowstone NP (YELL)	715	614 lane miles PCR: 85/FAIR	6,594,000 sq ft 10,810 spaces	5,425,000 sq ft 8,895 spaces PCR: 64/FAIR	CRV: $1,310.7 Million DM: $284.8 Million FCI: 0.217	462/ 123.6
Zion NP (ZION)	79	70 lane miles PCR: 77/FAIR	989,000 sq ft 1,620 spaces	717,000 sq ft 1,175 spaces PCR: 71/FAIR	CRV: $463.4 Million DM: $31.1 Million FCI: 0.067	52/ 144.1
IMR Summary	3,227	2,708 lane miles PCR: 86/GOOD	37,381,000 sq ft 61,280 spaces	32,395,000 sq ft 53,105 spaces PCR: 71/FAIR	CRV: $6,696.3 Million DM: $877.3 Million FCI: 0.131	

*Crash rate per 100 million vehicle miles traveled. IMR crash rate is 144.1.

AT A GLANCE

Mobility, Access, and Connectivity	Visitor Experience	Resource Protection	Sustainable Operations	
Major Alternative Transportation System (ATS)	Annual Recreation Visitation	Transportation/Resource Issues	Adjacent/Nearby FLMAs	State Highway/Arterial Through Park
Annual Boardings: 980,000 Service Hours: 9,100 Service Miles: 136,000	1.3 Million	Vehicle congestion Crowding Wildlife/vehicle crashes Vehicle noise	Dixie NF	State Highway (SH) 12 (Scenic Byway 12)
No	1.3 Million	Unauthorized parking/soil compaction Wildlife/vehicle collisions Low water crossings	None	US 117 SH 110 & 7
Annual Boardings: 171,000 Service Hours: 13,900 Service Miles: 335,000	2.2 Million	Diesel bus noise Concentrated impacts at shuttle stops	Flathead NF Lewis and Clark NF Flathead and Bow-Crow Provincial Forests (Canada)	SH 6 Going to the Sun Road
Annual Boardings: 4,775,000 Service Hours: 66,000 Service Miles: 640,000	4.4 Million	Unauthorized parking Wildlife/vehicle crashes Social Trails Inadequate shuttle support facilities (fueling, washing, maintenance)	Kaibab NF	North Rim: none thru park (Kaibab Plateau-North Rim Parkway) South Rim: SH 64
No	2.7 Million	Wildlife/vehicle crashes Stormwater runoff	Caribou-Targhee NF Bridger-Teton NF Winegar Hole Wilderness Jedediah Smith Wilderness Teton Wilderness National Elk Refuge	US 191/26/89 US 287/26
No	0.6 Million	Wildlife/vehicle crashes Visitor Distribution and Transportation Plan	None adjacent to park	US 160 (on border)
Annual Boardings: 435,000 Service Hours: 9,900 Service Miles: 126,000	3.0 Million	Visitor distribution Crowding impacts at shuttle stops Diesel power buses Wildlife/vehicle crashes	Arapaho NF Routt NF Roosevelt NF Araphaho NRA	US 34 US 36
No	0.7 Million	Desert tortoise mortality on roads Unauthorized parking Social trails	Coronado NF	Picture Rocks Road Kinney Road
No	1.3 Million	Social trails Vibration from train Air traffic noise	None adjacent to park	Mission Road/ Parkway US 281 / I-410 I-10 / US 90
No	0.5 Million	Unauthorized parking damages fragile soils	White Sands Missile Range Holloman Air Force Base	US 70 (on border)
No	3.6 Million	Wildlife/vehicle crashes Diesel bus noise Unauthorized parking	Gallatin NF Shoshone NF Bridger-Teton NF Caribou-Targhee NF	US 89/20/191/287 US 212
Annual Boardings: 2,800,000 Service Hours: 46,000 Service Miles: 531,000	2.7 Million	Social trails Vehicle noise Wildlife/vehicle crashes	Dixie NF	SH 9 I-70 (on border)
5 Major Systems 22 Total Systems	42.7 Million			

ASSET MANAGEMENT

The Intermountain Region manages a transportation asset inventory with a total current replacement value exceeding $6.7 billion. These assets play a critical role in meeting NPS mission-related goals – to provide access for park visitors. In recognition of that mission, the long range plan applies the Asset Management goal to help ensure that each park's infrastructure is properly planned, operated, and maintained. The relationship of program expenditures with the corresponding effects on regional goals must be considered within the context of limited budgets. A large and continuing investment will be required to maintain facilities in acceptable condition over time. This section examines those assets in detail, describing physical and operational characteristics as they apply to the long range transportation plan.

Figure 4-2. Total IMR Roadway Assets

Figure 4-3. Pavement Condition

Roadway Assets and Pavement Conditions

The Intermountain Region maintains approximately 3,227 lane miles of roadway on 1,011 different routes. Fifty-five percent of all paved roadway lane miles are located in just seven high visitation parks: Glacier, Glen Canyon, Grand Canyon, Grand Teton, Rocky Mountain, Yellowstone, and Zion. The region constantly evaluates project needs to maintain the best balance in the largest, most visited parks and the smaller gems that preserve and make available unique and treasured resources.

Primary publicly accessible roads (Class 1 & 2) are in generally better condition than other lower use public roads and those used for park administration. Class 1 and 2 roads have recently improved as a result of projects targeted to needed improvements. The region focuses on maintaining access for visitors, key to meeting the NPS mission. While the large majority of roads are in good or fair condition, the growing costs to maintain major facilities at this expected level will be a significant challenge over time.

Roadway Classification

Class 1 - Principal Park Road/Rural Parkway
Class 2 - Connector Park Road
Class 3 - Special Purpose Park Road
Class 4 - Primitive Park Road
Class 5 - Administrative Access Road
Class 6 - Restricted Road
Class 7 - Urban Parkway
Class 8 - City Street

Source: Park Road Standards, National Park Service, 1984.
Note: Only Class 1 and 2 are eligible for Federal Lands Transportation Program (FLTP) funds due to NPS restrictions.

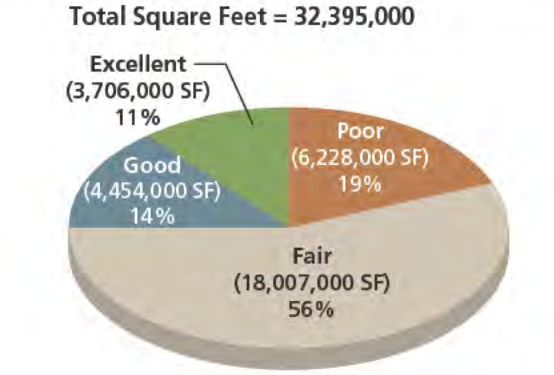
Parking Areas Pavement Conditions

The Intermountain Region provides approximately 61,000 paved parking spaces in over 1,700 parking areas, about 87 percent of which are publicly accessible. Parking areas, while in generally fair or better condition, lag behind road conditions. This is of significant concern as parking has a large effect on visitor experience. Parking in well-maintained, safe, and uncongested areas contributes to appreciation for the park and length of stay.

Parking demand, including subcomponents of congestion, safety, asset condition, and resource damage is a growing problem. While some parks have the ability to add to parking capacity, others are limited by potential resource impacts, space, and costs. Unauthorized parking often occurs when primary lots fill up or is otherwise unavailable. This is of special concern due to associated vegetative and erosion effects, social trailing, and pedestrian safety. Many parks struggle to deal with the impacts of large vehicles, especially recreational vehicles (RVs) and tour buses, in parking areas designed for smaller vehicles.

Figure 4-4. Total IMR Parking Assets

Figure 4-5. Parking Pavement Condition (Public)



Mesa Verde parking lot.
Source: National Park Service

Unauthorized roadside parking in Glacier National Park.
Source: National Park Service

MOBILITY, ACCESS, AND CONNECTIVITY

The Mobility, Access, and Connectivity goal addresses how people move around the parks. The role of mobility in national parks, and in the Intermountain Region, has evolved to a complex system that includes much more than managing pavement and parking facilities. This analysis includes transit, bicycles and pedestrians, safety, congestion, and other multimodal opportunities.

Congestion in some parks is now a significant problem. Park roads, especially at entrance stations and near popular features, are increasingly congested, leading to the search for appropriate travel options, better connections, and effective management strategies. By its nature, transportation is key to a satisfactory visitor experience. It also comes with the potential to impact natural and cultural resources and with opportunities for mitigation. The safety of visitors – over 22,000 vehicle crashes were reported in the analysis period – is of growing concern.

Transit

Figure 4-6. IMR Transit Systems

The five transit systems for which the region is responsible serve over nine million passengers each year. Over the life of the plan, these systems expect a transit operations shortfall of almost $8.3 million. An additional 22 transit systems operate under a variety of concession and management models. The systems play an important role in providing access to park features and managing congestion. Transit service is very popular with visitors, where available. Wait times may be prolonged during peak seasons, often prompting calls for greater capacity and extended service.

In addition, the concentrated effects of passenger loading and unloading, especially at sensitive sites, may contribute to periodic congestion at transit stops and requirements to harden trails to avoid social trailing and soil/vegetation damage.

Figure 4-7. IMR Transit Ridership

Park	Annual Boardings
BRCA	980,000
GLAC	171,000
GRCA	4,775,000
ROMO	435,000
ZION	2,800,000

** Note: Individual visitors and passengers may board a transit vehicle multiple times.*

Transportation Trails

Transportation trails include routes in which the primary mode of travel is accomplished without the use of motorized equipment and that are integral to the transportation network, whereas the network would not function without them and would be incomplete or impassable. Examples may include trails that connect parks to nearby

communities, to places of interest, and to other destinations in the park.

Ten trails meet the current definition and are located in Bryce Canyon, Glacier, Grand Canyon, Grand Teton, Rocky Mountain, San Antonio Missions, and Zion. The trails are in good condition overall and provide access to transit stops either within or adjacent to the park. The trails information provided in this report is preliminary pending further definition and the collection of supporting data.

Figure 4-8. Transportation Trails

Deferred Maintenance	$560,932
Current Replacement Value	$24,546,388
Average Condition	Good

** Source: FMSS July 2011*

Bicycle/Pedestrian Access

Bicycle and pedestrian access has been enhanced throughout the region in recent years and is of major interest in many parks. Parks like Mesa Verde, Grand Teton, Glacier, and Yellowstone open some roadways to bicycles early and late in the season when motorized vehicle travel is restricted. Cycling in Saguaro is also extremely popular.

A successful venture in Grand Canyon has introduced bike rental opportunities to promote bicycle use in the park. A new bike share service has begun at San Antonio Missions, a cooperative project with the City. The transit systems at Glacier, Grand Canyon, Bryce Canyon, Rocky Mountain, and Zion offer bicycle racks on buses for transport within the park.

Rail Service

The National Park Service does not own or operate rail service in the Intermountain Region. However, Grand Canyon National Park hosts a unique concession-operated train service from Williams, AZ, to the South Rim Village in the park. Passengers park remotely and enjoy a scenic rail trip to and from the park. The service is very popular, but creates its own set of congestion problems at the Village station when boarding passengers, other pedestrians, and cyclists navigate the area.

Safety

The safety of visitors is of primary concern to the region. Specific issues include high crash rates on entrance roads and in parking areas, collisions with wildlife, pedestrian safety, increasing numbers of large vehicles on narrow roads, and the typically higher speeds of commuters traveling between home and place of work. Severe crashes are considered to be a high safety priority because they involve injuries or the loss of human life. Effects include vehicle damage for visitors and resource impacts

Multi-purpose trail at Bryce Canyon.
Source: National Park Service

Bicycle rental at Grand Canyon National Park.
Source: National Park Service

to wildlife.

There were 101 crashes with at least one fatality and 3,112 with injuries between 1990 and 2005. While the regional severe crash rate of 0.8 per 100 million vehicle miles traveled is significantly less than those experienced on similar roadway types on surrounding state roads, nine parks reported rates higher than the statewide rates, including:

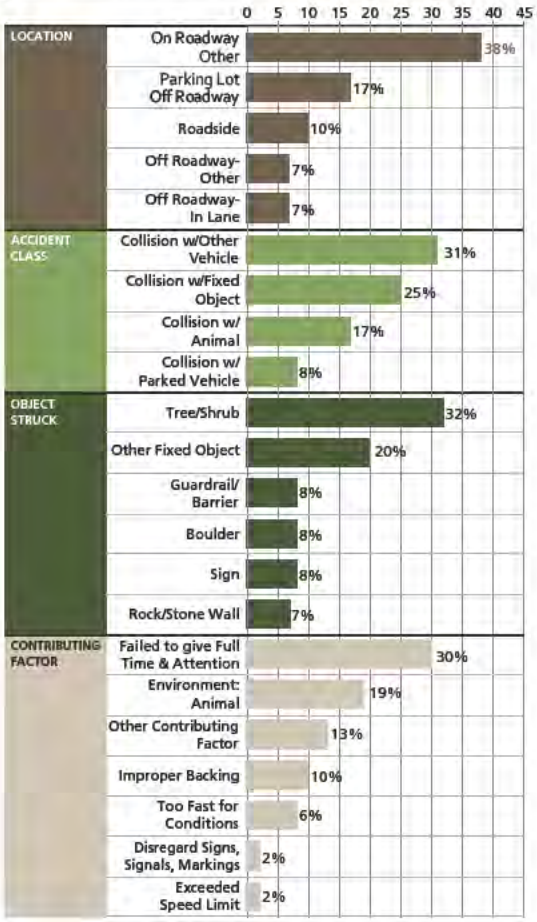
- Big Bend
- Glacier
- Glen Canyon
- Grand Canyon
- Grand Teton
- Mesa Verde
- Saguaro
- Yellowstone
- Zion

About one in six crashes occur in parking lots and are often caused by driver inattention and improper backing. Approximately half of crashes involve collisions with other vehicles or fixed objects. About one in five crashes involve an animal, with the majority of animal-vehicle crashes occurring in Grand Teton and Yellowstone National Parks. Approximately 11% of crashes are rear-end collisions, often indicative of congestion.

The National Park Service is advancing the development and implementation of a safety management system, which will help identify types, locations, causes, and mitigation strategies to alleviate dangerous conditions where possible.

Figure 4-9. Crash Severity (1990-2005)

Figure 4-10. Crash Conditions (1990-2005)



Congestion

Many national parks experience a level of visitation that often exceeds the capacity of the park's facilities and resources. As part of a 2010 Service-wide Congestion Management System (CMS) survey, park staff identified a large number of congested locations in IMR parks. Parks report congestion at some locations in the park. The most congested areas include parking lots, entrance stations, visitor centers, primary park vehicle tour routes, and trailheads during commuter peaks and mid-day visitor periods. It is most notable during peak seasons, which may vary from park to park with location and climate.

The number of vehicles entering IMR parks has increased only slightly (0.26% annually) from 2002 to 2010. On a peak visitation day in July, the twelve focus parks alone welcome nearly 80,000 vehicles. Another 80,000 recreational vehicles (RVs) and commercial tour buses enter the 12 focus parks in the peak season. RV use has been steadily increasing in recent years adding to parking, congestion, and safety issues on roads primarily designed for smaller vehicles.

Congestion management requires careful consideration to avoid resource impacts, address visitor and community preferences for access, and respect carrying capacity. Increasing capacity is not the preferred congestion management tool due to resource and asset management concerns. Successful congestion management is and will be challenging for the parks. Congestion management will be a topic of concern for IMR and NPS over the life of this plan.

Multi-Modal Connections

In an effort to make multimodal transportation more seamless, many parks are developing pedestrian connections between parking areas, transit stops, visitor centers, park lodges, and trailheads. An unresolved issue includes gaps in connectivity between NPS transit services and nearby communities, or between local community transit services and the park itself.

For example, the Town of Springdale Shuttle Loop stops about one quarter mile from the Zion Visitor Center where the NPS Zion Shuttle serves passengers. Passengers transfer between the two loops by walking though the pedestrian entrance fee station area located near the southern park entrance. The walking distance from the Springdale Shuttle Loop is challenging for some visitors, because the route from the town shuttle to park shuttle is not direct and is difficult to discern due to overgrown trees and other vegetation impeding sightlines to the Visitor Center/Zion Shuttle area. These barriers make park entry more complex for visitors. However, the park has recognized these problems and is clearing vegetation to establish better sightlines, as well as developing a park wayfinding sign plan to help guide visitors from the Springdale Shuttle Loop to the Visitor Center/Zion Shuttle area. Additionally, the park is redesigning the south park vehicle entrance to allow for better vehicular access to the park.

A similar situation occurs in Saguaro, where the municipal bus route ends only a mile from the park. Multi-jurisdictional systems in Bryce Canyon, Glacier, Grand Canyon, Rocky Mountain, and Zion often report full buses during peak periods, which require visitors to wait additional time until seats are available, or to seek other transportation.

Congested Areas

- Park access roadways
- Park entrance stations
- Parking areas
- Ped/people loading areas
- Pedestrian paths/trails
- Primary vehicle tour routes
- Scenic overlooks
- Trailheads
- Transit stops
- Transit vehicles
- Visitor centers

Congestion Mitigation Strategies

- Park ranger traffic management
- Manage special events differently
- Alternative Transportation Systems (ATS)
- Remote parking with shuttles
- Bicycle/pedestrian options
- Expanded parking supply
- Changes in traffic circulation
- Fast Pass
- Intelligent Transportation Systems (ITS)

Grand Canyon Depot at Grand Canyon National Park. Source: National Park Service

VISITOR EXPERIENCE

Maintaining and improving visitor experience is a key focal point for the LRTP. For many visitors, and especially in large parks with scenic landscapes, transportation is the key experience. Whether that experience is enhanced by the view out the windshield or by shuttle services to viewpoints, the LRTP seeks to reinforce the NPS mission to both preserve resources for future generations and provide access for their enjoyment.

This section explores the interrelationship between visitors and transportation. It addresses visitation patterns, including recreational and non-recreational trips, and the types of activities and services used in the park. It also highlights how congestion affects the visitor experience and at what locations.

Non-recreational visits are not subject to entrance or other fees, posing management and maintenance cost issues for parks.

Many parks have implemented, or plan to implement, other information systems to assist visitors who are planning a trip or navigating the park's attractions. With over 42 million visitors annually, the region is challenged to manage the experience in a way that enhances, but does not intrude on, time spent in parks.

2010 Visitation

The 94 parks in the IMR saw a total of 42.7 million recreational visitors in 2010. About 18 percent of the region's total visitation is non-recreational. Visitation has increased less than one percent per year on average across the region since 2001, but has seen more rapid increases since 2006 (2 percent per year). Peak visitation months are June through September – accounting for 60 percent of all annual visits. NPS lodges and campgrounds typically have over 800,000 overnight stays during July and August. Backcountry overnight stays total nearly 100,000 in peak summer months.

Changes in recreation visitation are not uniform, with substantial growth reported in some of the larger destination parks, while other parks have seen a modest drop in visitation since peaking in the 1990s.

Figure 4-11. 2010 Visitation

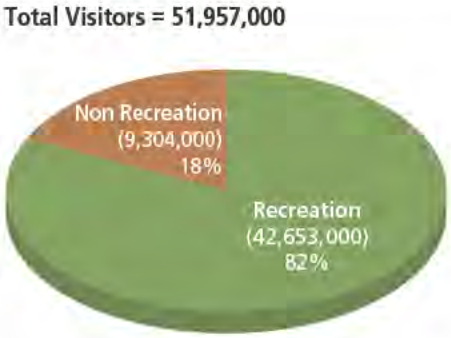
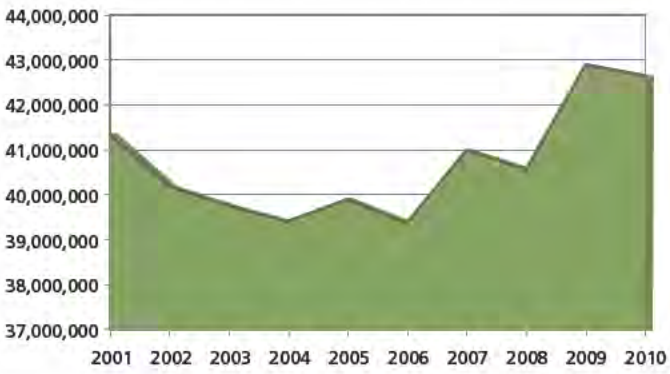


Figure 4-12. 10 Year Total Visitation Trends in Focus Parks (2001-2010)*

BRCA	+13.5%
CHIC	-17.8%
GLAC	+31.4%
GRCA	+0.7%
GRTE	-0.9%
MEVE	+5.4%
ROMO	-5.7%
SAAN	-4.8%
SAGU	-9.8%
WHSA	-9.4%
YELL	+23.6%
ZION	+20.0%

* Includes Recreation and Non-recreation Visitation. Some count inconsistencies may exist due to changing methodologies.

Figure 4-13. IMR Annual Recreation Visitation (2001-2010)



Non-recreation trips have decreased by about 1.4 percent per year since 2001 and appear to be strongly linked to commute trips to employment centers. The drop in non-recreation visitation is not uniform park-to- park. At issue are the costs associated with maintaining pavement condition from high traffic volumes which are not subject to entrance fees, as well as higher speeds and safety concerns with commuters vs. those looking for a leisurely park experience. Non-recreation travel remains a significant problem in many parks bisected by non-NPS routes. Recent decreases may be correlated with the health of local economies, since the majority of non-recreational trips are associated with commuting through parks to and from major employment centers. As the national economy recovers, non-recreational commuting trips can be expected to regenerate in proportion to employment recovery.

Visitor Activities

Visitor activities vary widely across the region, although nearly 90 percent of visitors participate in some form of sightseeing and scenic driving, putting primary importance on park roadways, parking, and entrance stations. Large numbers of visitors also visit museums and visitor centers, photograph, draw and paint park sites, dine in park restaurants, and view wildlife.

Many parks actively seek to promote other modes of transportation such as walking, cycling, or riding shuttles so as to share the demand with road and automobile-centered activities.

Figure 4-14. Visitors By Month

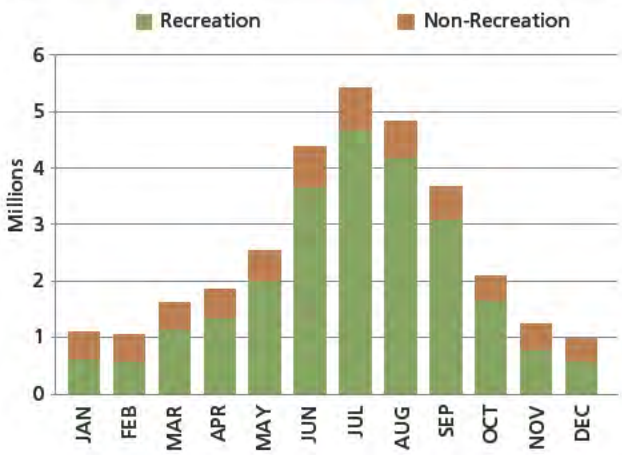
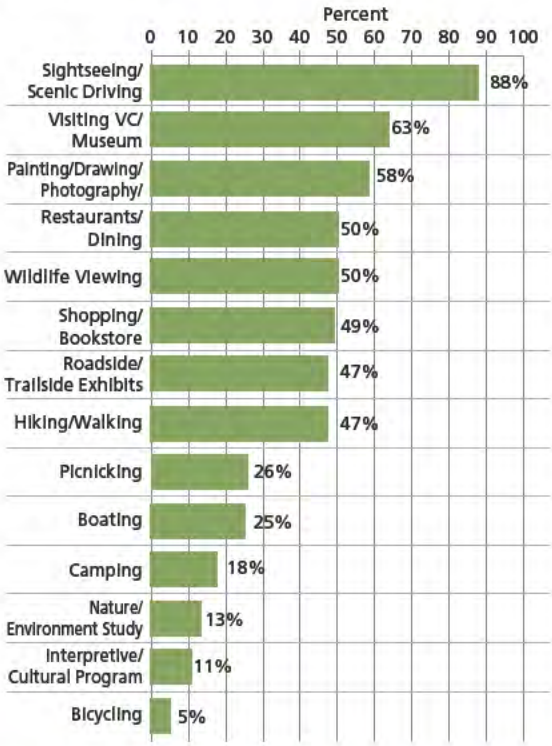


Figure 4-15. Visitor Activities



Visitors walking and sightseeing at Bryce Canyon.
Source: National Park Service

Visitors enjoy access to digital technologies.
Source: National Park Service

International Visitors

Well known parks like Grand Canyon and Yellowstone have high numbers of international visitors who arrive by plane at a major hub, rent cars, and drive roads to get to parks. Grand Canyon is both the most visited park in the region and has the highest number (30%-40%) of international visitors.

Several parks have employed strategies to accommodate international visitors. A sample of these welcoming strategies includes:

- Spanish translation of the website homepage by selecting the "Espanol" toggle button (all 12 focus parks)
- The park newspaper, The Hoodoo, in eight languages (Bryce Canyon)
- Abbreviated newspapers with information about activities, places to go and safety tips, printed quarterly in four languages (Yellowstone & Zion)
- Standard pictorial signs (Grand Canyon)

Insufficient funds to produce wayfinding and other information in languages other than English may discourage efforts to develop better services for international visitors.

RESOURCE PROTECTION

Protecting park resources is a key element in the NPS mission and a strategic goal for the Intermountain Region and the long range transportation plan. The context sensitive relationship between transportation and the protection of resources is vital to continued success as the stewards of the parks' incomparable legacies. Transportation and its interface with the natural world must be carefully managed under the terms of the dual mission; while access and visitor enjoyment must be supported, so must be the resources, whether cultural or natural. The National Park Service has no uniform method of determining the carrying capacity of resources, visitors, and/or facilities.

The range of potentially impacted resources includes cultural and natural landscapes and their various components: historic, cultural, and archeological features; geologic resources; vegetation; wildlife; habitats; soils; air quality; water quality; visual resources; acoustic environment; night sky quality; and others that may be unique to a single location.

The transportation interface is critical to support each individual park within the context of the resources it manages. For example, even the most routine maintenance practices have the potential to affect resources and must be fully considered. Every park employs resource professionals whose job it is to ensure the appropriate preservation of that park's resources, whether natural or cultural. Those professionals are routinely consulted about the potential impacts of transportation improvements.

Major Historic Transportation Assets in IMR Focus Parks

Going to the Sun Road (GLAC)
Lake MacDonald Lodge Area/ Bridge (GLAC)
Grand Canyon Village, Center Road (GRCA)
Jackson Lake Lodge Loop (GRTE)
Fall River Road (ROMO)
Trail Ridge Road (ROMO)
Yellowstone Grand Loop (YELL)
Floor of the Valley Road (ZION)
Zion-Mt. Carmel Hwy (ZION)

Historic Transportation Assets

The National Park Service is a principal custodian of cultural history and maintains historic assets at a high level. This first LRTP identifies a set of major historic roadway assets that, due to their significance and extent, play a significant role in transportation management. These assets include Class 1 and 2 roads and associated bridges, tunnels, and parking areas. Culverts, retaining walls, pedestrian-related assets, and other features may also be associated with the historic roadway.

Historic transportation assets comprise a substantial portion of total assets and have a corresponding impact to asset management. The current replacement value of historic assets is $758.5 million. The deferred maintenance values total $69.8 million, approximately 10% of the entire IMR deferred maintenance for all roadways.

IMR focus parks have over 440 miles of historic roadway and over 1 million square feet of historic parking. Over 27% of roadway lane miles in the 12 parks have been designated historic. Glacier, Rocky Mountain, and Yellowstone National Parks administer a large proportion of historic roads, given the size of the parks and early dates of establishment.

Figure 4-16. Historic Roadway Lane Miles and Parking Area Compared to Total in IMR Focus Parks

	Roadways		Parking	
Park	Historic Lane Roadways (lane miles)	Percent	Historic Parking Area (sq ft)	Percent
BRCA	0.74	2%	0	0%
CHIC	13.12	21%	245,498	26%
GLAC	65.13	35%	11,684	0%
GRCA	6.36	2%	209,132	6%
GRTE	20.72	9%	0	0%
MEVE	24.49	21%	240,093	18%
ROMO	64.26	53%	36,469	2%
SAAN	0.0	0%	0	0%
SAGU	9.13	30%	0	0%
WHSA	0.0	0%	0	0%
YELL	218.29	48%	229,964	4%
ZION	18.28	21%	82,934	8%
Total	440.52	27%	1,055,774	5%

Air Quality And Greenhouse Gas Emissions

Air quality impacts from transportation are frequently cited contributors to poor air quality. The effects are most noticeable in congested parks and those in or near designated non-attainment areas. Some parks have completed emissions inventories for regulated contaminants.

Most parks do not have direct control over air quality controls affecting the park and must coordinate with the congressionally designated regional air quality authority, generally a metropolitan planning organization (MPO) or regional air quality planning commission. Nearby metropolitan areas (and in some cases distant cities or industrial operations) can significantly affect air quality within parks, endangering health, contributing to smog and reducing visibility.

Several areas adjacent to or near parks have been federally identified as non-attainment areas for specific greenhouse gases and other air pollutants. Non-attainment areas must plan for reduction of air pollutants like carbon monoxide, ozone, airborne particulate matter, and sulfur dioxide and include those plans in the regional long range transportation plan. Regional air conformity determinations are based on aggregated modeling for the entire region.

MPOs model their long range plans and emissions to bring the region into compliance with air quality regulations. Parks within or near these areas may be eligible for federal Congestion Mitigation and Air Quality Improvement (CMAQ) funds to help achieve or maintain National Ambient Air Quality Standards (NAAQS). Qualifying parks work directly with regional planning agencies to determine appropriate actions.

Figure 4-17. Air Quality Non-Attainment Status of IMR Parks and MPOs

Affected Park Units	Nonattainment Area	Criteria Air Pollutant and Status
GLAC	Flathead County	Particulate Matter 10 (PM-10) – Moderate
GRCA LAKE	Las Vegas/Clark County, NV	8 Hour Ozone – Marginal PM-10 – Serious
ROMO	Denver-Boulder-Greeley-Ft Collins-Loveland, CO	8 Hour Ozone – Marginal
SAGU	Pinal County, AZ	8 Hour Ozone – Marginal PM 10 – Moderate/Serious PM 2.5 – Non-attainment Sulfur Dioxide – primary
SAGU	Pima County, AZ	PM-10 – Moderate
SAGU	Santa Cruz County, AZ	PM-10 – Moderate PM-2.5 – Nonattainment
WHSA	Las Cruces/Dona Ana County, NM	PM-10 – Moderate

Source: http://www.epa.gov/oaqps001/greenbk/ancl.html (October 6, 2012) – for more information

Other Threats to Resources

Numerous other transportation impacts may add up to significant threats over time and when considered cumulatively. The type and extent of resource impacts related to transportation varies greatly from park to park and from project to project. The following are of special concern overall.

Threatened and Endangered Species/ Habitat. Changing visitor access can have direct and indirect impacts on habitat management and fragmentation. For example, poaching of valuable plants has reached critical proportions in some desert locations, and habitat fragmentation may contribute to vehicle/ wildlife crashes. Roadway and parking expansion of congested facilities near sensitive habitat will continue to require careful balance.

Vehicle/Wildlife Crashes. Vehicle collisions with wildlife are of significant concern in many parks. About 17% of all crashes are related to wildlife, but are much higher in some parks. The costs are high for visitors who may suffer injuries and for expensive car repairs. The resulting animal mortality is also high and may be under-reported, especially for smaller animals (sometimes threatened and endangered species) that cause less damage to vehicles.

Visual Resources. Protecting visual resources, including scenic vistas, is key to understanding both the aesthetic and cultural context of each park. Over time, some critical visual resources have been eroded or are threatened by either internal or external sources. Internal threats may result from changes within a park and may affect views within and into a park. External threats result from actions outside a park and affect the view from the park.

Stormwater Runoff and Drainage. The impermeable surfaces of roads and parking areas increase the volume and velocity of stormwater runoff resulting in threats to culverts, bridges, roadways, and riparian zones from scouring and sedimentation. The runoff also carries contaminants into the watershed, threatening water quality. Stormwater runoff may be intensified by more severe storms and runoff events resulting from climate change. Unusually large or out-of-season storm events may also impact lifecycles and migration of aquatic species in the waterway.

Examples of Threats to Visual Resources

- Visitor access roads
- Service roads and buildings
- Visitor service facilities, including parking areas
- Directional and wayfinding signage
- Communication towers and antennas
- Water tanks
- Wind turbines
- Climate change affecting vegetation
- External development near park boundaries

Wolf crossing Swan Lake Flat in Yellowstone.
Source: National Park Service

Moose crossing in the Grand Tetons.
Source: National Park Service

Vegetation/Revegetation. The impacts from foot traffic on fragile soils contribute to local erosion and degradation of vegetative cover. This frequently happens near both designated and unauthorized parking areas, transit stops, trailheads, or along roads near desirable features. Damaged soils and vegetation also invites invasive species to take hold, crowding out native species. Roadside invasive species (weeds) are a large problem throughout the region and consume considerable resources for mitigation and removal. Additionally, some transportation construction activities require revegetation.

Noise/Soundscapes. Noise from idling buses, motorcycles, and general traffic is frequently cited as a negative impact to treasured resources like solitude, quiet landscapes, and to wildlife. Intrusive noises may be internally generated or arise from outside the parks.

Lighting/Dark Skies. Many parks are recognized for their dark skies and the ability to observe a clear night sky. Parks such as Bryce Canyon, Grand Canyon, and White Sands provide night sky observing opportunities with annual festivals as well as regular ranger led programs. Increased development outside parks as well as lighted facilities like lodges, roads, and parking lots threaten to impact wildlife, the nightime photic environment, and night sky observation opportunities by increasing the amount of light pollution.

Revegetation efforts at Capulin Volcano National Monument. Source: National Park Service

Social trail near parking area on Logan Pass in Glacier National Park. Source: National Park Service

SUSTAINABLE OPERATIONS

The emerging goal of sustainability supports the NPS mission for the long run. The Intermountain Region is home to irreplaceable resources that must be managed effectively for the generations.

By definition, becoming sustainable means supporting a long-lived mission. The Intermountain Region seeks to adapt to the changing organizational, financial, and natural environments with effective strategies that best preserve resources for the future enjoyment of visitors. The region includes sustainability in all aspects of its activities.

Risks to a sustainable future include:
- Unpredictable and inconsistent funding.
- Outdated or overused infrastructure.
- Cultural and natural resource impacts.

Sustainability includes Economic, Environmental, and Social Strategies

Sustainability is emphasized throughout all IMR planning and operations. The NPS has outlined national strategies to achieve sustainable goals across the agency. The Capital Investment Strategy, Green Parks Plan, and Call to Action provides guidance to parks on the economic, environmental, and social "legs of the stool."

The goal of sustainable transportation is to ensure that these considerations are factored into decisions affecting transportation activity. Sustainable decision-making can therefore be described as planning that considers goals and impacts regardless of how difficult they are to measure.

Figure 4-18. Transportation Relationships to Sustainability

	Economic	Environmental	Social
IMPACTS	• Traffic congestion • Mobility barriers • Accident damages • Maintenance/operations costs • Consumer costs	• Air and water pollution • Habitat loss • Hydrologic impacts • Depletion of non-renewable resources • Climate change	• Inequity of impacts • Mobility disadvantaged • Human health impacts
BENEFITS	• Add jobs • Connects communities to parks • Balanced budgets • Regional economic integration	• Habitat preservation • Air and water quality improvements • Increased use of green energy technologies • Reduction in risks of climate change	• Improves accessibility • Promotes mobility • Community interaction • Community livability • Aesthetics

Economic Sustainability

Deferred roadway maintenance and other items like transit shuttle replacement and operational costs are inherent to the Total Cost of Facility Ownership, but have not always been factored into project choices. This plan recognizes that it is critical to determine the full scope of long term costs. This reality will challenge the region and its parks to compete effectively for additional revenue and make tough choices to maintain pavement, bridges, transit, and other services in adequate condition.

Traditional NPS transportation budgets are not keeping pace with either the maintenance backlog or the need to upgrade or increase services in many parks. While all transportation needs for construction and operations are increasing, the buying power of available funding has decreased due to inflation, materials costs, the aging of the system, and competition for scarce funds.

IMR Parks Contribute to Local Economic Development. The economic benefit to state and local economies is a critical part of the financial picture. IMR parks currently contribute $2.7 billion dollars and over 46,000 jobs to the economy. This economic foundation drives many partnering relationships throughout the region.

Figure 4-19. Economic Impacts of Park Visitation by State (2009)

State	Non-Local Visitor Spending ($M)	Jobs from Non-Local Visitor Spending	Payroll-Related Jobs	Total Jobs
Arizona	$ 659.2	8,911	1,336	10,247
Colorado	$ 337.0	4,900	1,893	6,793
Montana	$ 270.0	4,031	886	4,917
New Mexico	$ 62.5	909	543	1,452
Oklahoma	$ 12.7	170	98	268
Texas	$ 247.1	3,690	677	4,367
Utah	$ 565.6	8,551	897	9,448
Wyoming	$ 570.5	8,523	808	9,331
IMR	**$ 2,723.9**	**39,685**	**7,138**	**46,823**

Refueling a bio-diesel vehicle in Yellowstone.
Source: National Park Service

Rideshare bio-diesel bus partnership between the National Park Service and Montana Department of Environmental Quality.
Source: National Park Service

Environmental Sustainability

The Intermountain Region oversees project design and delivery to reduce or mitigate adverse effects of transportation and maximize benefits for resources. The NPS Green Parks Plan, a collaborative product developed by staff from parks, regions, and national support offices, offers agency guidance and long term vision as it seeks to incorporate sustainable principles throughout all activities.

The region encourages parks to incorporate green and recycled materials in infrastructure, as well as reducing waste, tailpipe emissions, and other negative environmental impacts resulting from transportation management and operations.

Social Sustainability

Many parks have active support groups in neighboring communities and depend heavily on volunteer or other partnering arrangements to support operations. Parks and regional communities are often economically and environmentally interdependent. Managers and local supporters have come to understand the inter-relationships of financial and natural ecosystems at the landscape level and that effective management must consider the big picture. However, partners at all levels continue to be fiscally challenged and often lack either the resources or the incentive to contribute sufficient funds to alter the dynamic of limited NPS funding for major projects and maintenance. This makes it even more important for IMR parks to engage their partners when planning at the program or project level.

WYDOT crews clearing south entrance road in Yellowstone National Park. Source: National Park Service

Trail building workshop at Chickasaw National Recreation Area. Source: National Park Service

Park Rangers assist visitors at Grand Canyon National Park. Source: National Park Service

5 MACRO TRENDS FOR TRANSPORTATION IN THE INTERMOUNTAIN REGION

Grand Canyon National Park
Source: National Park Service

This chapter explores emerging trends that will affect transportation in national parks over the long term. Some trends have been developing for years, while others are very new. The Intermountain Region already addresses deficiencies in condition and operations discussed in the previous chapter. However, baseline conditions describe only part of the story. Issues identified here form a portion of the sum of long term needs identified by this plan, but are not fully quantified. Not all the data are in on these emerging trends, but we do have a glimpse of things to come. The NPS will examine and adjust its policies and decision-making to meet the challenges of the future.

KEY FINDINGS

Asset Management	**Balancing asset management needs with other LRTP goals** may require trade-offs in expectations. Reliably measuring performance of the system over time will help policy makers understand the effects of investments, enabling them to determine what is getting better, or worse, over time.
Mobility, Access, & Connectivity	**Evolving population demographics** such as the aging of the baby boomers, increased ethnic diversity, and high visitation growth in the largest parks come with attached costs. Providing desired levels of access has historically built a supportive stakeholder base. The NPS must determine which improvements are compatible with its mission and will carry support from visitors for the long term.
Visitor Experience	**Visitors expect increasingly modernized experiences** in the parks. The long range plan identifies a vision that includes enhanced visitor experience. Again, trade-offs must be considered. For example, updated electronic communication technologies may produce a better experience for some, but may have significant financial and natural resource costs.
Resource Protection	**Risks to park resources are diverse** and threaten to degrade exactly the experiences that make the parks valuable and enjoyable places to learn and visit. The vulnerability of landscape-level natural systems to climate change and other risks should not be ignored. However, the limited ability of national parks to alter large scale events means the National Park Service may need to consider adaptive strategies as the best course of mitigation.
Sustainable Operations	**Many new policies** call for investing in additional community connections and for better balance in economic, social, and environmental approaches to sustainability. Improved community connections can help leverage mutually beneficial investments. The NPS must learn to balance long term goals with the pressing needs to reinvest in existing assets.

For more information, please see *Changing America: Macro Trends for Transportation Technical Report, October 2012*, in Appendix E.

RELATIONSHIP OF POPULATION CHANGES TO RECREATION, LEISURE, AND VISITATION

The visitor base is changing in many ways. The population is aging as the baby boomer generation has grown up. Many are unable or unwilling to spend as much time in rugged conditions, preferring their outdoor experience with an accustomed level of comfort.

The nation's population is more diverse, with increasing proportions of ethnic groups. Some parks' visitor bases already include a significant number of international visitors. Whether domestic or visiting from abroad, each group faces language and cultural barriers to visitation.

Other groups have made known their desire for better electronic communications and expanded use of mechanized recreational vehicles in parks. The price of accommodating visitors with desired amenities, whether upgraded lodging, parking and access for RVs and trailers, translated information and signage, or improved technology infrastructure, must be weighed with the costs of not doing so. Each of these has accompanying financial and environmental costs.

Finally, while some parks, especially smaller and more remote units, appear to be underutilized, larger parks and those within reach of metropolitan areas are in danger of being appreciated perhaps a bit too much. The previously unthinkable is now on the table. The National Park Service and individual parks are increasingly called on to manage congestion or even limit visitation to the capacity of park facilities and of the resources. Park-specific approaches seem appropriate, depending on visitation levels, threats to resources, and financial means.

Demographic and Socioeconomic Trends

General Growth Pressures. Population growth across the Intermountain Region does not appear to correlate well to growth in park visitation. Current trends show marked visitation increases in larger, iconic parks. The Intermountain Region may choose to redistribute visitation across the system, but other pressures may counter such marketing or information campaigns. Absent increased funding, the Intermountain Region may need to consider whether higher levels of congestion in the most visited parks is acceptable, while allowing smaller, less visited parks to manage a declining state of repair.

Figure 5-1. Total Visitation by Park Size Typology, IMR, 1990 - 2010

Park Visits	% Change
Small Parks (<0.5 M Visits)	-17%
Medium Parks (0.5 – 2.0 M Visits)	6%
Large Parks (>2.0 M Visits)	15%
IMR	3.4%
NPS	10%

(NPS Statistical Abstract 2010)

Ethnic Diversity. Visitor participation by ethnic minorities is historically low and presents an ongoing challenge. The region's minority population will grow higher as a percentage of population even as ethnic visitation rates trend downward. Non-English-speaking visitors face a series of obstacles to the National Park Service experience through language, cultural, and historical barriers. The National Park Service may choose to evolve its image and practices to become more attractive to diverse groups. This evolution will include decisions about how interpretive efforts and better access to parks, especially near urban areas, to create a more inclusive and welcoming experience.

Aging Visitors and Universal Access.

Figure 5-2. Percent of Population, Recent Visitors by Race and Ethnicity, 2001 - 2008/09

Race/Ethnicity	2000 %	2008-09 %
White, non-Hispanic	83%	78%
Hispanic, any race	10%	9%
Black or African American	4%	7%
Asian	2%	3%
American Indian or Alaska Native	<1%	1%

(Taylor 2011)

Services for the growing sector of aging visitors and those with disabilities are often associated with wayfinding and signage, recreational vehicle accommodations for parking, transit and shuttle use, trails, sidewalks, and pedestrian crossings. Disabilities may include mobility, sight, hearing, cognitive impairments, or other special needs. The National Park Service is making progress in removing barriers for all visitors as required by the Americans with Disabilities Act and the Architectural Barriers Act. The costs of implementation and compliance for universal access will continue to be incorporated in budgets as possible.

Visitation Characteristics. Visitors are spending less time in parks per visit and trending toward a less primitive experience. These characteristics imply a heavier demand on developed facilities, such as visitor centers, parking areas, and at popular locations. Attempts to mitigate some of the effects of short-term, concentrated uses such as redistribution of visitors to under-utilized areas may introduce other unwanted impacts. Redirecting visitors may create congestion at previously uncongested points, require additional infrastructure development, and spread resource impacts to lightly-used areas.

Communications Technology. The revolution in electronic communications will accelerate over time. Some visitors see new technologies as intrusive to the park experience, while others fully expect that the instant communication they rely on daily is available in parks. The call for the National Park Service to upgrade its use of advanced communications of all types, from the Internet to cell phone applications to real time traffic information, has significant implications. While advanced communications may benefit visitors and park managers, the costs to install and manage such systems are not small. Impacts to visual resources, the soundscape, and a retreat from daily life will be measured and judged at the park level. Park managers, with regional and national oversight, must determine which strategies are appropriate in each location, given the costs and benefits to the visitor experience and natural resources.

Visitors can borrow wheelchairs designed for over-sand travel at Great Sand Dunes National Park. Source: National Park Service

Bicycling is growing in popularity at many national parks, including Yellowstone. Source: National Park Service

ADAPTING TO A NEW LANDSCAPE

Many natural, cultural, and historic resources will face a range of significant challenges over the next 20 years. Acute threats to vegetation include soil erosion and compaction, invasive species, and wildfire. Threats to carefully managed wildlife come from all sides – degraded habitat, broken migration corridors, development at the gates, and unsustainably isolated populations. The National Park Service's ability to protect ecosystems and landscape in tightly managed sanctuaries will be tested by new factors such as encroaching development, natural hazards, and climate change impacts.

Risk Adaptation and Management

Based on a natural hazards risk assessment for IMR's eight state region, the most significant risks are: drought, flooding and flash flooding, hail, high winds, invasive species, landscape fragmentation, landslide, temperature extremes, tornadoes and wildfires.

While the risks of climate change to parks are significant and growing, the regional transportation program does not play a significant role in adaptation strategies for climate change.

Individual parks lead the implementation of adaptation and communications strategies, as well as transportation emissions controls and mitigations from fleet vehicles. Technical guidance on climate change policies is available from a variety of IMR and WASO programs directly to parks, with WASO in the lead to develop climate change science and policies.

Improved hazard identification data and mapping can identify areas where additional infrastructure investments may be inappropriate (like floodplains). The IMR will also coordinate with the Regional Fire Management Program to assist with assessing critical firefighting access.

Additional research by the FHWA, Transportation Research Board, the Association of Pavement Preservation Engineers, and others is expected to lead to new pavement technologies that address extreme temperatures and recommend other actions to minimize climate change risks to vulnerable transportation infrastructure.

Glaciers in Glacier National Park are disappearing due to climate change.
Source: National Park Service

Figure 5-3. Major Natural Hazard Risks by State

Natural Hazard Risks by State	Intensified by Climate Change	Arizona	Colorado	Montana	New Mexico	Oklahoma	Texas	Utah	Wyoming	Effects on Transportation (Examples)
Avalanche	♦		♦	♦				♦	♦	Visitor safety; Pre-emptive mitigation costs; Infrastructure damage; Road closures.
Drought	♦	♦	♦		♦	♦	♦	♦		Species migration or changes may affect visitation patterns, i.e., wildflower viewing).
Earthquake									♦	Infrastructure damage; Visitor safety.
Extreme Weather Events	♦	♦	♦	♦	♦	♦	♦	♦	♦	Frequency/duration storms; Extreme precipitation, tornados, high wind events; Stress and damage to infrastructure; Visitor experience.
Flash Floods/Floods/ Streamflow Changes	♦	♦	♦	♦	♦	♦	♦	♦	♦	Erosion of stream channels; Sedimentation; Bridge pier scour; Loss of wetlands; Damage to riparian systems; Visitor safety.
Hail	♦		♦			♦	♦			Vehicle damage; Flooding of low lying areas; Road closures.
Hurricane	♦						♦			Flooding/wind damage to roadways; Erosion of roads and bridges.
Invasive Species	♦	♦	♦	♦	♦	♦	♦	♦	♦	Competition with other natural resources; Visitor experience
Landscape & Habitat Connectivity/Fragmentation	♦	♦	♦	♦	♦	♦	♦	♦	♦	Impacts to wildlife; Visitor experience.
Landslide		♦	♦	♦	♦			♦	♦	Infrastructure damage; Area closures.
Sea Level Rise	♦						♦			Flooding damage to roadways; Erosion of roads and bridges; Infrastructure relocation.
Snow Cover	♦		♦	♦					♦	Changes in spring run-off dates and volume affect high altitude road openings/closures; Drainage management
Temperature Extremes	♦	♦	♦	♦	♦	♦	♦	♦	♦	Construction materials choices (paving, paint, signage); Increased streamflow (bridge and road scouring).
Volcanoes		♦			♦				♦	Visitor safety; Infrastructure damage
Wildfire	♦	♦	♦	♦	♦	♦	♦	♦	♦	Habitat and viewshed damage affects visitor experience; Area closures.

Atypical, record-setting rainfall caused severe flooding and subsequent road damage in Rocky Mountain National Park. Source: National Park Service

Unintended Effects of Development

External development continues to encroach on parks as a result of general trends toward living near recreational opportunities. Accompanying residential and infrastructure development often result in a series of profound consequences for regional systems, including within national parks.

Landscape and habitat fragmentation both within and outside of park boundaries threaten to reduce at-risk species to island populations. Increased fragmentation is sometimes related to an increase in wildlife-vehicle crashes and a reduction of park safety for visitors. More effective management of fragmentation caused by existing and proposed transportation facilities (roads, culverts, bridges, etc.) may be possible with the emergence of new mapping tools and data being explored by the National Park Service along with other interested parties at the Federal, state and local levels.

Figure 5-4. The Inter-related and Unintended Effects of Development

Unintended Effects	Why It's a Problem
Increased amenity levels and expectations	Increased roadbuilding, traffic, congestion, social trailing, demand for urban type facilities
Increased vacation homes and associated access roads	Disruption of animal movements, stormwater run-off, sedimentation
Road and building density	Disruption of animal movements, stormwater run-off, sedimentation, increased potential for social trailing
Landscape and habitat fragmentation	Degradation of viewsheds, disruption of animal movements, wildlife crashes and animal jams
Erosion of external characteristics that are attractive to visitors such as historic resources and open space	Loss of opportunities for solitude, crowding impacts to visitor experience
Forest cover change	Introduction of exotic species, stormwater run-off, erosion
Reduced habitat connectivity	Increased animal mortality from vehicle/wildlife conflicts
Increased potential for non-recreational visitation	Congestion, increased human-related animal mortality

SUSTAINING VISITOR ACCESS

To prepare for its second 100 years of service, the National Park Service is called to act in sustainable ways. In the Intermountain Region, backlogs in maintenance and critical capital improvements, uncertain funding, evolution of visitor patterns and demographics, climate change, and a host of emerging issues threaten a sustainable future.

The challenge to manage access to the natural, historic, and cultural gems in the region's care is daunting, but feasible. Meeting this test will ensure the region's role as a leader in sustainability in the 21st Century.

Many of these challenges relate to transportation, including requesting and obtaining an adequate and stable budget, building green infrastructure, reducing the footprint on the landscape, utilizing non-carbon fuels, and encouraging transit and non-motorized transportation modes. Future analyses will determine if lower lifecycle costs are achievable given possibly increased upfront costs associated with newer technologies.

Managing the Gap

The Intermountain Region seeks to manage its transportation asset portfolio in balance between expenditures and funding (including non-traditional sources such as participation in partnerships).

Options include identifying additional funds, reducing operational and condition expectations, and limiting visitation to levels that can be supported with available funding.

Make Strategic Investments

Strategic investments may focus on those assets that represent mission-critical priorities – providing access to visitors, protecting resources, preserving assets, and becoming more sustainable in all ways. The developing Capital Investment Strategy will influence future funding scenarios selected for more intense analysis during subsequent phases of the Intermountain Region Long Range Transportation Plan. Tough choices in the planning process help determine what is affordable over the long run and what level of goal achievement is realistic.

Building Solid Relationships

Successful self-sustaining strategies include strengthened connections to the wider community through transportation, education, and mutual support. The sustainable future recognizes the inter-dependency of national parks with gateway communities, regional economies, and planning at the landscape level. The future will be built on a solid base of partnerships with communities and regional planning.

Performance Measurement

Based on recent trends in planning methods, future plans will rely on performance monitoring to assess needs and wisely allocate scarce funds. Measuring transportation system performance against realistic goals will help support good decision-making at all levels of park management and assess the level and type of progress. The LRTP assesses the ability of the preferred scenario to improve performance in each of the five goal areas. The careful monitoring of performance measures will assist the IMR in telling a clear, accurate story about the condition of its transportation system given available funding. One key to the process will be to define "transportation need" as the gap between observed performance and long range goals.

Adaptive Management

Not all transportation problems will have a successful infrastructure solution. Promoting better management through realistic goal setting, performance-based planning, demand management, and adopting a strategy of multi-layered solutions promises a more cost-effective approach. Rather than building for maximum capacity, parks may be more successful by incrementally increasing travel demand management applications and reassigning existing staff to emerging or critical problems.

Aging historic resources, such as GTSR in Glacier NP, often require extensive restoration. Source: National Park Service

Natural resources impacts from improved facilities and services sometimes have unintended effects on fragile ecosystems, such as Logan Pass in Glacier National Park. Source: National Park Service

6 FINANCIAL AND FUNDING ANALYSIS

Giant Geyser in Yellowstone National Park
Source: National Park Service

The LRTP evaluates past funding for transportation in the Intermountain Region within the context of expected changes in the financial picture over the medium- to long-term. The biggest challenge is that the system is in need of significant repairs and major investments just to maintain the current infrastructure, operations, and level of service. This chapter identifies the most likely amount of future available funds so that it can be compared to total needs (in Chapter 7) over the long run.

KEY FINDINGS

Asset Management	**Current practices and programs focus on managing existing roadway and parking assets through maintenance and component renewal/recapitalization**. The majority of forecast funding is anticipated to continue to focus in these two areas through 2035. Managing deferred maintenance is critical to keeping long-term costs under control. **NPS transportation funding has not kept pace** with either the maintenance backlog or demands for upgraded or increased services in many parks. While transportation needs for construction and operations have increased, funding has not kept pace with changes to inflation, materials costs, the aging of the system, and competition for scarce funds among federal agencies. The scale of deferred maintenance alone presents an enormous challenge to the region.
Mobility, Access, & Connectivity	**Very few major capital investments/new construction projects** have been built in recent years that add new automobile capacity or new connections. Recently constructed capital improvement projects include bicycle/multi-use paths, increasing mobility and access for non-motorized modes of travel.
Visitor Experience	**Typical maintenance and component renewal/recapitalization projects focus on the reconstruction and resurfacing of existing facilities** which carry safety and mobility benefits to visitor experience. The majority of historic and forecast funding is anticipated in these two areas.
Resource Protection	**Resource protection elements are normally included as part of the design for larger roadway, bridge and parking projects**. As a result, expenditures in the capital improvement, component renewal/ recapitalization and maintenance levels bring cross-benefits to resource protection.
Sustainable Operations	**Historic obligations and near-term programmed funds reflect relatively steady funding**. Fluctuations in spending by year are evident in individual fund sources, dependent on year to year changes in project readiness, design, and environmental process. While funds will be reasonably steady through the near-term, a decrease in purchasing power is anticipated due to the effects of inflation. **Transit operation and recapitalization expenses are increasing at an unsustainable rate**. Parks have already begun shifting funds from FLREA and other available sources to support transit systems. These shifts come at a cost to other opportunities.

For more information, please see *Financial Analysis Technical Report, June 2013*, in Appendix F.

This LRTP uses a straight forward approach to develop financial projections, as appropriate for long range planning. The most recent five years (2007 – 2011) of funding obligations (money spent on transportation) provided a well-documented history of total funding by source. This "historical analysis" was useful as the baseline for the near term. The baseline was assumed to remain constant for the duration of the current 5-year program of projects (2012-2017).

Projections were then modeled at three different potential growth rates, or trends, and distributed to the five work types, based on the historic proportions. The trends acknowledge economic and financial changes such as generally static federal budgets, increases in construction costs, and the resulting loss in buying power over time. All financial figures in this chapter refer to year of expenditure (YOE) dollars, accounting for inflation.

The focus parks, as a group, were allocated about 82% of all transportation expenditures in the Intermountain Region during the last five years. The financial projections demonstrate a continuation of a similar allocation to the focus parks due to their management of a proportionally large inventory of transportation assets and associated costs.

Historically speaking, financial resources have been identified in individual 'silos' aimed at funding projects within a particular program. This plan takes a slightly different approach by grouping fund sources into five similar types that can be broadly related to the five LRTP goal areas, thereby achieving the strategic linkage so important to this long range plan. Looking at these funding strategies opens some opportunities to leverage new sources, however, it is not a substitute for additional revenue that would be required to close or narrow the anticipated gap over the next 20 years.

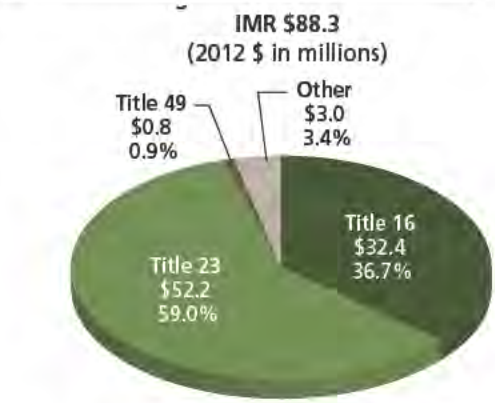
FUND SOURCES

The NPS roster of fund sources available for transportation-related expenditures lists over 60 sources. Based on the obligation analysis of the past five years, the largest fund sources included 14 primary sources, which are exclusively used in this analysis. FHWA Category I - 3R & 4R provides the largest source of funding, 58% of the total.

Category I is administered by the regional office, with coordination, funding allocation, and oversight provided by WASO. This funding program preserves the existing park roads and parkways infrastructure condition, curtails the deterioration of the most important functional classes of roads, and maintains all public bridges.

The Intermountain Region receives an annual allocation based on a formula that includes condition, usage, accidents, and inventory. The Intermountain Region manages about 27% of all NPS transportation assets, receiving the same 27% in an equitable share of NPS transportation funding.

Figure 6-1. Fund Sources



WORK TYPES

The five work types and principal cost elements designated by the National Park Service for financial analysis are shown in Figure 6-2. The work types represent major transportation activities undertaken by the Intermountain Region.

Maintenance includes:

- Preventive Maintenance (PM): regularly scheduled periodic maintenance activities (within a year) on selected assets; includes nonstructural surface treatments less than 1.5" in total thickness.
- Regular and Recurring Maintenance (RM): work activities that recur based on normal wear patterns on a periodic cycle of greater than 1 year and less than 10 years.
- Deferred Maintenance (DM): maintenance that was not performed when scheduled and is delayed. Continued deferment of regular, preventive and/or recurring maintenance will result in deficiencies and higher long-term costs.

Figure 6-2. Primary Fund Sources Apply to Multiple Work Types

(2012 $ in millions)*

Primary Fund	Administration	Average Annual Obligations(%) 2007-2011	Maintenance	Component Renewal/ Recapitalization	Capital Improvement/ New Construction	Transit Operations	Planning
Title 16, US Department of Interior, National Park Service							
Operational Base - Park	Park Unit	$10.6 (11.9%)	✓			✓	
Rec Fee 80%	Park Unit	$8.2 (9.3%)	✓	✓	✓	✓	✓
Transportation Fee	Park Unit	$7.0 (7.9%)				✓	
Cyclic Maintenance	NPS Regional Office	$4.9 (5.6%)	✓	✓			
Repair/Rehab	NPS Regional Office	$1.0 (1.1%)	✓	✓			
Rec Fee 20%	NPS Regional Office	$0.4 (0.5%)	✓	✓			
Concession Franchise 80%	NPS Regional Office / Park	$0.3 (0.3%)	✓		✓		✓
Line Item Construction	DOI	$0.1 (0.1%)			✓		
Emergency Storm & Flood	WASO	$<0.1 (<0.1%)	✓	✓			
Title 23, US Department of Transportation, FHWA, Federal Lands Highway Program							
FHWA Cat I - 3R & 4R	NPS Regional Office/ WASO	$51.3 (58.1%)	✓	✓	✓		✓
FHWA Cat III - ATP	WASO/NPS Regional Office	$0.5 (0.5%)		✓	✓		✓
FHWA - Other Transportation	FHWA	$0.2 (0.2%)			✓		
FHWA ERFO	FHWA	$0.2 (0.2%)	✓	✓			
Title 49, US Department of Transportation, Federal Transit Administration							
TRIP/ATPPL	DOI / FHWA / FTA	$0.8 (0.9%)	✓		✓		✓
Other Funds							
Other Funds	WASO / NPS Regional Office/ Park	$3.0 (3.4%)	✓	✓	✓		✓
TOTAL		$88.3 (100.0%)	✓	✓	✓	✓	✓

* Dollar amounts normalized to 2012.

Component Renewal/Recapitalization includes the planned replacement of a component or system that will reach the end of its useful life based on condition and life cycle analysis within the facility's lifetime. This includes Light Rehabilitation (Light 3R) or pavement rehabilitation without grade improvement, and Heavy Rehabilitation (Heavy 3R) including grade improvements, as well as cyclical transit and other fleet recapitalization. Major recapitalization (4R) construction, including widening and other modification of existing assets in the existing alignment is also included in the work type.

Capital Improvement/New Construction includes major new construction projects and investments where none previously existed. Recent Capital Improvement projects have included bike paths and other missing elements of the non-motorized transportation system. It also includes new transit facilities such as transit stops, shelters, bus wash facilities, etc. No new NPS transit systems are currently anticipated within IMR.

Transit Operations includes costs to operate the five NPS-owned and operated systems in the Intermountain Region. It does not include operational costs for vendor-operated systems in other parks, which are self-supporting and not funded directly by the National Park Service. Transit capital needs are included in the Component Renewal/Recapitalization work type.

Planning includes transportation plans, technical support for general management plans, and environmental planning (NEPA) clearances at both the regional and individual park levels.

Road work in Grand Teton National Park. Source: National Park Service

Historic Funding Obligations 2007-2011

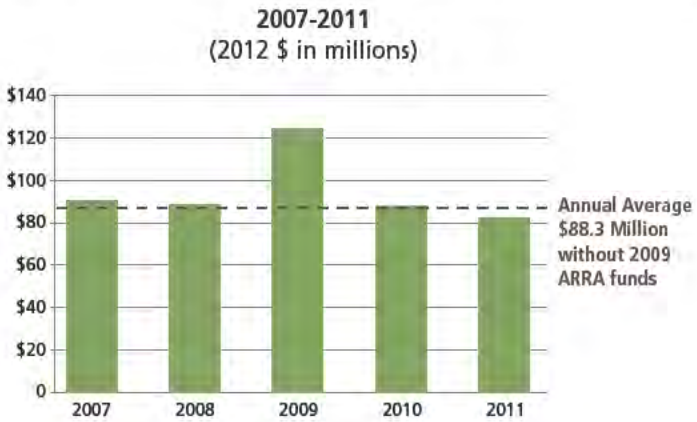
This plan bases future funding forecasts on average historical transportation obligations in the Intermountain Region from 2007-2011. Obligations for those years averaged $96 million annually.

However, an anomaly occurred in 2009 when funding spiked to $125 million for two reasons: 1) the simultaneous construction of several large projects that had been in development for some time, and 2) the one-time stimulus from the American Resource Recovery Act of 2009 (ARRA).

Direct and Indirect Effects of ARRA. The region was able to direct more than usual funding to transportation projects during 2009 since funds were freed up by ARRA funds for other major reconstruction and maintenance projects. The additional funding had a beneficial overall effect of helping complete major projects and generally improving conditions across the region.

Given the one-time nature of the additional funds, this plan uses the four-year historical average total of $88.3 million (disregarding the 2009 spike). This average best represents the typical amount of transportation funds available during that period and forms the baseline for future funding forecasts.

Figure 6-3. IMR Total Funding Obligations



Distribution of Fund Sources to Work Types 2007 - 2011

Next, the historic average expenditures were evaluated using the average proportions of fund sources spent within the five work types. Figure 6-4 shows the distribution for the Intermountain Region as a whole (all parks) during the historical analysis.

Figure 6-4. Fund Distribution and Work Type Annual Average, 2007 - 2011

FUTURE FINANCIAL RESOURCES

This plan forecasts future transportation-related financial resources from 2013 to 2035 in two steps. Current funding levels are expected to remain relatively constant for the first five years of the planning period. Future funding beyond 2017 is modeled based on historic and current amounts, since major changes in Congressional funding level are not anticipated. All future funds (after 2012) are in year of expenditure (YOE) dollars.

This plan forecasts future funding based on the historical average, growing at 2.1% annually after 2017. The trend line is based on historical funding from 2007-2011 continued through 2017. The 2.1% growth rate is the agency standard inflation rate used in financial forecasts; however, even this small increase may be overly optimistic in the current economic climate.

The chosen growth rate is inherently conservative. The concept of including a one-time ARRA-like funding spike in the future was considered, but is not included in the forecast, due to the unreliability of such a projection that is subject to unforeseen economic and political pressures.

Other innovative funding mechanisms and financial partnerships were also considered and not included in the financial forecasts, due to the uncertainty of obtaining significant funds by such means.

The 2.1% NPS inflation value trend was used to compare to needs identified in the Needs Analysis. Key characteristics of the financial forecast include:

Figure 6-5. IMR Financial Forecast (Total Transportation Funds)

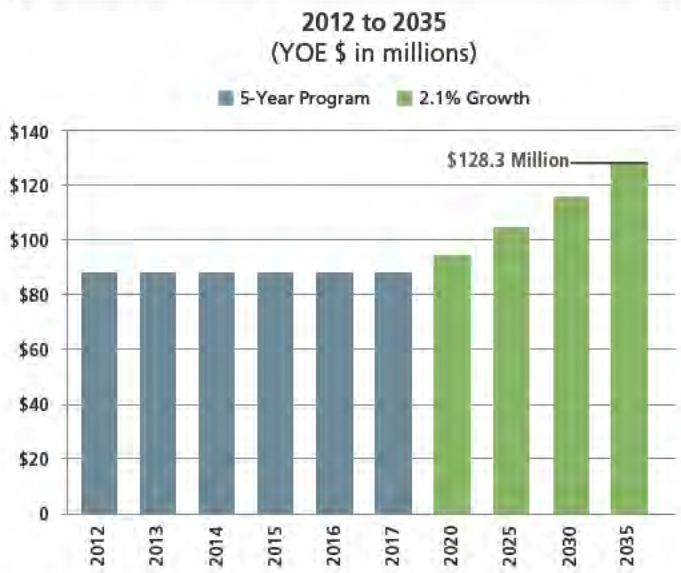
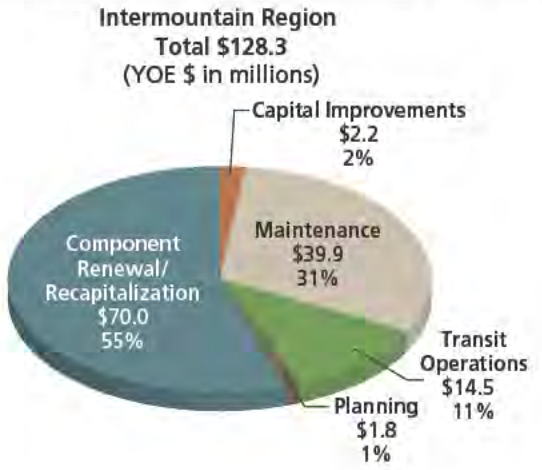


Figure 6-6. Year 2035 Financial Forecast by Work Type



- No "new" funds are projected to be available during the planning period.*
- Maintenance – Maintenance funds continue as the second largest financial input to total transportation funds.
- Component Renewal/Recapitalization – Funds directed toward reducing deferred maintenance continue to be the largest financial input to total transportation funds.
- Capital Improvements/New Construction – Funds for major additions to the system are expected to be limited to about 2% of the total.
- Transit Operations – Transit operations for the five existing NPS-operated transit systems are produced largely from fees collected from visitors at the park gate. Transit capital funds are included in the component renewal/recapitalization work type.
- Planning - Planning funds for regional and park-level transportation-related plans are included in the forecast at current levels.

* The NPS is considering a request to Congress for additional funds to restore and maintain its core transportation infrastructure and other transportation needs upon the reauthorization of the Moving Ahead for Progress in the 21st Century Act (MAP-21). The timing of the reauthorization and the requested amount are not known at this time.

The Lamar River Bridge under construction in Yellowstone National Park.
Source: National Park Service

7 NEEDS ASSESSMENT

Bryce Canyon National Park
Source: National Park Service

This chapter identifies existing and future transportation needs for the Intermountain Region. It examines both programmed and unfunded needs in the near-term (2012-2017) and the long-term (2018-2035). The analysis establishes a significant "gap" between projected funding and estimated needs. All types of transportation need, including maintenance and reconstruction of roadways and parking areas, transit, planning, as well as the relationship between transportation facilities, the visitor experience, and park resources were considered.

KEY FINDINGS

Asset Management	**85% of future needs are pavement related**, but only 33% of pavement assets are scheduled for treatment from 2011-2020. Costs become more expensive when pushed to the future. Accelerating costs have multiple implications: • Pavement maintenance and rehabilitation costs are not sustainable. • Maintenance costs, when deferred, require more expensive reconstruction later to achieve acceptable conditions. • Pavement condition is projected to continue to decline over time, barring additional financial resources. • A primary focus on reconditioning pavement limits the ability to invest in other NPS mission goals such as visitor experience, resource protection, and mobility.
Mobility, Access, & Connectivity	**Transit operations** will need $22.8 million in 2035, leaving a gap of $8.3 million under current funding structures. **Strengthened connections to surrounding communities and better access to parks** are recommended by NPS policies such as the Call to Action. This goal may be unobtainable with the current focus on asset conditions and an evolution to preserving key aspects of the transportation system in acceptable condition.
Visitor Experience	**Visitor experience is clearly impacted** in a negative way by congestion, safety concerns, and poor asset conditions. The costs to improve transportation-related visitor experience are typically included in transportation projects and completed during the course of the project.
Resource Protection	**Costs for resource protection related to transportation are typically absorbed in transportation projects** and completed during the course of the project. This makes it difficult to track costs separately for these critical needs. The assumed costs are high, especially related to preservation of historic resources and adaptation/mitigation costs of climate change, and often underestimated during project development.
Sustainable Operations	**The Capital Investment Strategy** guides cost estimates to include the Total Cost of Facility Ownership in project selection and programming. **Total calculated needs are growing annually at 6.0%**, far outpacing inflation and available financial resources. **Reducing Deferred Maintenance would decrease the relative size of the gap** between available funding and transportation costs.

For more information, please see *Needs Assessment Technical Report, June 2013*, in Appendix G.

OVERVIEW

Total Transportation Needs for the Intermountain Region

Total transportation needs for the Intermountain Region were projected by combining existing, unmet, and future needs to obtain all needs for all transportation assets. The sum of total needs was then compared to projected financial resources to identify the funding gap. The sizable gap represents a significant challenge in operating and maintaining transportation at an acceptable level in the region's parks.

Existing needs were calculated based on current formulated project lists in the Federal Lands Transportation Program (FLTP), the Highway Pavement Management Application (HPMA), the NPS Bridge Management System, Alternative Transportation System *pro forma*, and the Intermountain Region Transportation Program. Obligations to projects by work type were assumed to be the total of "met" needs for the region. Future needs were calculated by extending current needs to 2035 at the rate of inflation (2.1%). All historic obligations were normalized to 2012 dollars.

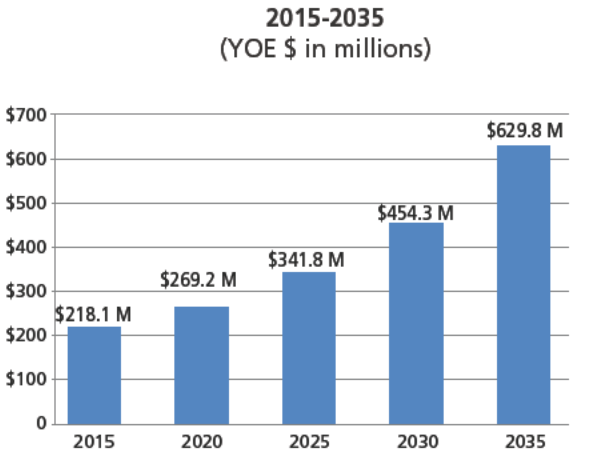
The Capital Investment Strategy (CIS) is an integral part of the long range plan and the needs assessment. The CIS focuses project selection on the Total Cost of Facility Operations (TCFO) so that long term life cycle costs are included in total needs.

Grand Canyon National Park south entrance road work.
Source: National Park Service

INTERMOUNTAIN REGION NEEDS 2015-2035

The total annual estimated needs for the Intermountain Region will grow from $218.1 million in 2015 to $629.8 million in 2035, including inflation. The growth in needs results primarily from the compound effects of inflation and delays in addressing pavement rehabilitation that will eventually require more expensive reconstruction. All dollars are in Year of Expenditure (YOE).

Figure 7-1. IMR Total Needs



Highway Pavement Management Application

Output from the Highway Pavement Management Application (HPMA), October 2011, was accessed to determine preferred pavement treatments for roads and parking areas. Since pavement treatments are cyclical in nature, the needs assessment extends the costs of pavement treatments to 2035 based on HPMA recommended cycles, plus inflation. Roadway pavement maintenance, rehabilitation, and reconstruction dominate future needs.

This plan's needs assessment methodology assumes a cost equivalent to obtain a system-wide PCR of 85. It is not intended as a target, or goal, but shows the costs to achieve that level of performance.

Major Components of Need by Work Type

Figure 7-2 shows the disaggregation of needs by work type in five-year increments from 2015 to 2035 for the Intermountain Region. The table illustrates the effect of under-investment in maintenance over time. As conditions deteriorate, regular and cyclic maintenance will not be sufficient to bring pavement conditions back up to acceptable conditions, requiring more expensive heavy maintenance or reconstruction.

Figure 7-2. IMR Needs by Work Type 2015 - 2035 (YOE $ in millions)

Work Type	2015	2020	2025	2030	2035
Maintenance	$38.5	$27.4	$29.4	$32.1	$36.5
Component Renewal/Recapitalization	$158.9	$213.1	$287.4	$394.7	$563.2
Capital Improvement/New Construction	$3.2	$3.8	$4.1	$4.4	$4.7
Transit Operations	$15.4	$16.7	$18.5	$20.5	$22.8
Planning	$2.2	$2.3	$2.5	$2.6	$2.7
TOTAL	$218.1	$269.2	$341.8	$454.3	$629.8

Major Project Needs

The needs assessment included costs for major representative projects in the focus parks in the near term that have not yet been programmed. These projects represent a significant potential investment by the Intermountain Region in developing and maintaining the transportation system at the level required to meet its needs. A sample of major projects is provided in Figure 7-3.

Figure 7-3. Significant Projects in Focus Parks

Park	Description	Estimated Cost (millions)
ARCH	Entrance Road Reconstruction - Nationally Significant Project	$35.0
BRCA	Campground Road Reconstruction - North and Sunset (historic, cultural landscape,	$2.3
CHIC	Reconstruct Cold Springs Campground Roads	$3.3
GLAC	Reconstruct Avalanche and Fish Creek Campground Roads (historic, cultural landscape)	$3.9
GRCA	Reconstruct Village Loop Drive (historic, cultural landscape)	$5.0
GRTE	Reconstruct Colter Bay Area Roads and Parking Lots (historic, cultural landscape, natural resource)	$8.0
MEVE	Reconstruct Morefield Campground Roads (historic)	$3.7
ROMO	Reconstruct Moraine, Glacier Basin, Aspenglen Campground Roads	$5.6
SAAN	Rehabilitate all Parking Lots (historic)	$1.2
SAGU	Reconstruct Picture Rocks Road (historic)	$5.0
WHSA	Rehabilitate Dunes Drive (natural and cultural resource)	$2.6
YELL	Grand Loop Reconstruction Nationally Significant Project (historic, natural and cultural resource, cultural landscapes)	$850.0 - $1,250.0
ZION	Reconstruct Watchman and South Campground Roads (historic, cultural landscape)	$3.5

Nationally Significant Projects

Two major reconstruction projects constitute a major portion of IMR transportation need that alone significantly exceeds the IMR's anticipated funding stream. The National Park Service is looking to Congress for additional help in completing the National Significant Projects. The Yellowstone National Park Grand Loop Road Reconstruction project is by far the largest. The Arches National Park Main Entrance Road Rehabilitation also requires a large investment. Additional projects could be proposed for this program in the future.

Yellowstone Grand Loop. The last major reconstruction effort in Yellowstone was accomplished in the early 1930s, with some additional minor work during the Mission 66 era (1956-1966). Road widths of 19 to 22 feet, with no shoulders, have proven inadequate for current traffic. Congestion and safety issues trouble park managers and visitors, alike.

The roads are being reconstructed to a 30 foot standard width, with two 11-foot travel lanes and 4-foot shoulders. The primary objective is to increase the functionality of the aging roads to accommodate the increasing number and size of vehicles as well as to accommodate bicyclists and pedestrians.

The project began in 1988 with an expected 20-year reconstruction program. Due to available funding, only 135 miles of the 254 mile Grand Loop and Entrance Roads have been reconstructed to date. Much of the work completed so far is the least expensive.

The remainder is challenging, with costly designs, construction techniques, and environmental mitigation contributing to escalating costs.

Preliminary estimates to complete the project range from $850 million to $1.25 billion, about 2000% of the IMR Federal Lands Transportation Program annual allotment and some 250% of the entire NPS Federal Lands Transportation Program annual allotment.

Arches Main Entrance Road. Three routes in the park fall within this project, designed to rehabilitate 24 miles of poor roadway. The average existing width is 22 feet, with inadequate roadside parking. The project would provide two 11-foot travel lanes with a one foot shoulder. It would close several social pullouts and remedy the shoulder deterioration impact to the surrounding environment.

The preliminary estimate to complete the project is about $35 million or about 70% of the IMR Federal Lands Transportation Program annual allotment and some 14.5% of the entire NPS Federal Lands Transportation Program annual allotment.

Pavement Maintenance

A summary of the treatment type breakdown of HPMA Maintenance and Rehabilitation costs is provided in Figure 7-4. Average per mile costs provided by FHWA were used to forecast the costs of recommended projects.

Figure 7-4. Average Net Construction Cost Per Mile (YOE in millions)

IMR	2011-2015	2016-2020	2035
Pavement Maintenance	$0.06	$0.07	$0.1
Light 3R	$0.5	$0.5	$0.7
Heavy 3R	$0.6	$0.6	$0.9
4R	$1.1	$1.2	$1.7

According to the HPMA, $573.6 million worth of work, including pavement treatments, light 3R, heavy 3R and reconstruction (without realignment or widening) is needed in the IMR from 2016- 2020. The costs include all public and non-public roads and parking, with the exception of reconstruction costs for the Yellowstone project.

Bridge and Tunnel Maintenance Needs

Bridges and tunnels are currently maintained at acceptable levels supported by the current budget. The IMR has very few tunnels in its parks. As a result, the future needs analysis assumes that funds necessary to maintain bridges and tunnels at an average condition of C or D (Condition A and B are urgent needs) is included in the forecast budget. There are only nine bridges currently at Condition B, with none at Condition A. All bridges in Condition B are currently in design and being prepared for rehabilitation in the near term. All tunnels are currently in acceptable condition.

The needs estimate recognizes the five-year history of bridge maintenance obligations as representative of future needs. The difference between the estimated maintenance (five-year history) and the O&M (2%) estimate is assumed to be the unmet bridge need.

Figure 7-5. IMR Bridge and Tunnel Maintenance Needs (YOE in millions)

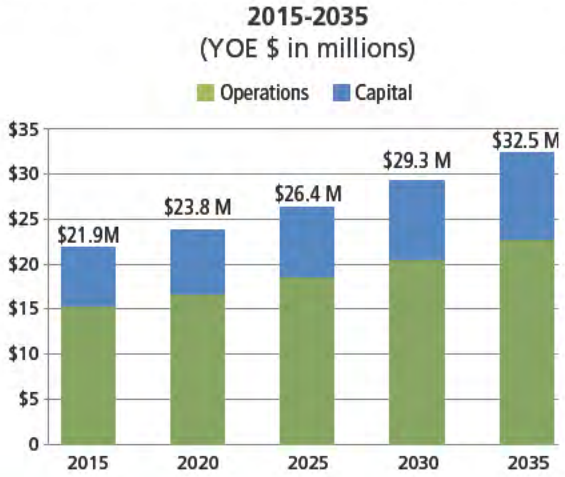
	CRV[1]	DM[2]	Estimated Maintenance[3]	Unmet Need
2015	$310.7	$87.9	$3.2	$3.0
2035	$470.8	$133.2	$4.9	$4.5

[1] – Current Replacement Value (CRV) inflated at 2.1%
[2] – Pontis deferred maintenance inflated at 2.1%
[3] – Based on 5-year history of expenditures inflated at 2.1%

Transit System Needs

This needs analysis includes all costs necessary to operate the five transit systems currently owned and operated by the National Parks Service. Future costs for capital and operational expenses were extracted from recently completed *pro forma*. Capital costs include fleet replacement on the schedule recommended in the five completed transit *pro forma*. Costs beyond 2014 were forecast based on the *pro forma* by extending at the rate of inflation. One cycle of fleet replacement (twenty-year life cycle) for each system is included in the estimated future costs as an annualized amount.

Figure 7-6. Transit System Capital and Operations Need



Visitor Center Transit Station in Grand Canyon National Park. Source: National Park Service

UNMET NEEDS: THE GAP BETWEEN FUNDING AND COSTS

The total gap between projected funding and estimated needs for the Intermountain Region will grows with inflation to $502 million (annually) by 2035.

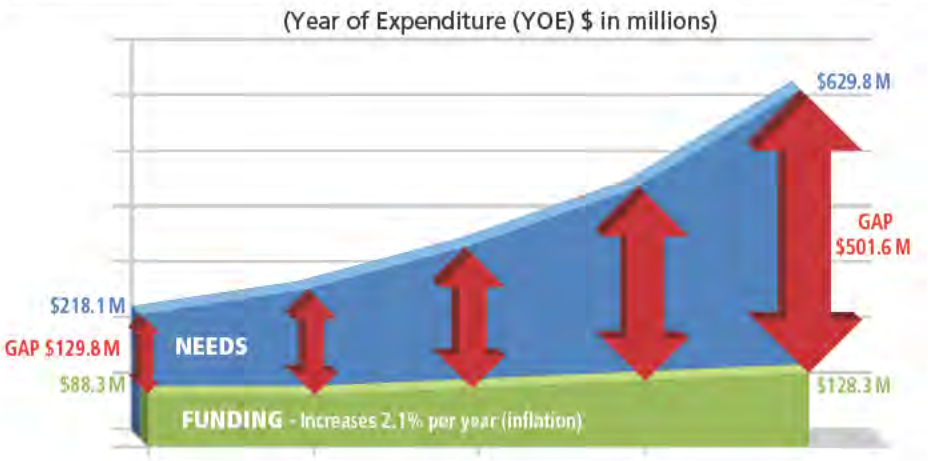
The largest component in the gap between needs and forecast funding falls in the area of Component Renewal/Recapitalization. This is largely the result of deferring major reconstruction needs, which will grow over time as regular maintenance and resurfacing fails to keep pace with the declining pavement life cycle.

Figure 7-7. IMR Total Needs and Gap by Work Type in 2035 (YOE in millions)

IMR TOTAL	2015 Funding			2035 Funding		
	Need	Forecast	Gap	Need	Forecast	GAP
Maintenance	$38.5	$22.6	$15.9	$36.5	$39.9	-$3.4*
Component Renewal/ Recapitalization	$158.9	$48.6	$110.3	$563.2	$70.0	$493.2
Capital Improvements/ New Construction	$3.2	$1.4	$1.8	$4.7	$2.2	$2.5
Transit Operations	$15.4	$14.5	$0.9	$22.8	$14.5	$8.3
Planning	$2.2	$1.2	$1.0	$2.7	$1.8	$1.0
TOTAL	$218.1	$88.3	$129.8	$629.8	$128.3	$501.6

* The Maintenance gap appears as a negative number in 2035 and is based on HMPA forecasts for pavement treatments. As conditions deteriorate over time and maintenance is deferred, the needs transfer to Component Renewal/Recapitalization. The excess revenue in the Maintenance work type may be applied to Component Renewal/ Recapitalization projects.

Figure 7-8. IMR Estimated Annual Total Needs with Gap



8 MAINTAINING ACCESS 2014 - 2035

Railway Depot area construction at Grand Canyon National Park
Source: National Park Service

The IMR long range transportation plan evaluated several future planning scenarios to address existing and projected needs over the next 20 years. Each draft scenario offered a different view of how to plan for the future and varied with respect to areas of focus, costs, and available funding. Each scenario also presented a distinct future outcome and level of success in meeting LRTP goals.

The future scenarios evolved during the planning process into a two-tiered preferred scenario - Maintaining Access: The Fiscally Constrained Plan and Improving Access: The Vision Plan. The distinguishing characteristic between the two tiers is funding. The Fiscally Constrained Plan describes what can and will be achieved with a realistic estimate of projected future funding, while the Vision Plan estimates total costs to attain transportation goals over the long run.

Maintaining Access: The Fiscally Constrained Plan is fiscally constrained to match the existing funding stream. Due to anticipated funding limits, a large fiscal gap between revenues and needs is anticipated, which will delay the achievement of LRTP goals.

Improving Access: The Vision Plan illustrates the full scope of needs, their costs, and strategies to meet those needs. The Vision Plan would require additional funds for transportation that are not realistically anticipated to be available at this time.

Figure 8-1. Core Challenges for the IMR Long Range Transportation Plan

Total fiscal resources for transportation are currently limited to about $88 million annually, with inflation growth to about $128 million by 2035, leaving a gap in funds to address identified needs. A realistic assessment of future resources indicates it is unlikely that funds will significantly exceed the flat funding stream of the last several years.

Declining regional roadway and parking pavement conditions are the major components of accelerating costs. The Fiscally Constrained Plan makes the best possible use of available funds to improve conditions on targeted high use/high value assets.

Total Cost of Facility Ownership has not historically been integrated in transportation project cost estimates and project selection processes. The preferred scenario links the Total Cost of Facility Ownership and the Capital Investment Strategy to strategic decision making.

Vehicle crashes and the safety of visitors are a significant concern, especially in congested parks and those with narrower roads and limited shoulders. Over 22,000 crashes were reported from 1990 to 2005. Wildlife/vehicle crashes also have significant impacts on wildlife resources and visitor experience, especially in those parks with abundant large animals or threatened/endangered species proximate to roadways.

Current Category III funding, Transportation Fees, and FLREA are not sufficient to meet future transit capital and operations costs for NPS operated transit systems.

The costs of resource management, including historic assets and natural resources, have escalated in recent years. The full costs for maintenance and mitigation of impacts should be incorporated in project planning and design.

For more information, please see *Planning Scenarios Technical Report, October 2013,* in Appendix H and *Preferred Scenario Technical Report, December 2013*, in Appendix I.

MAINTAINING ACCESS: THE FISCALLY CONSTRAINED PLAN

The long range plan addresses many core challenges to transportation. The challenges embody integrated threads of needs, issues, and problems that need to be addressed. Each challenge has found a place in the preferred scenario with an action to address the identified problem and can be accomplished by 2035 within the bounds of the projected funding stream.

An investment strategy targeting high priority assets for rehabilitation and network preservation serves as the basis for the LRTP. The region will fully implement the Capital Investment Strategy, focusing on prioritizing high value/high use assets, with the goal of achieving the best balance of investments that preserve existing infrastructure in the best condition possible.

Capital Investment Strategy and the LRTP

The Capital Investment Strategy focuses on top priority assets. The plan allocates approximately 86% of total IMR program funds (not including funds directly administered by the parks or WASO) to asset management and other maintenance.

Few new facilities have been built in recent years which will continue to be the case in coming years. The addition of new assets to the inventory imply additional future maintenance costs, which must be considered in project development through the Total Cost of Facility Ownership (TCFO) process. Given that current maintenance and reconstruction needs exceed available funding, new assets requiring even more on-going maintenance are seldom added to the inventory.

INVESTING IN GOALS

A key strategy for investment in goals other than Asset Management lies within the interrelated benefits in the LRTP goal areas of Mobility, Access and Connectivity; Visitor Experience; Resource Protection; and Sustainable Operations. The plan fully recognizes cross-benefits of investments no matter the type of project or the source of funds.

These goals may also be strengthened by working with partners to leverage funds and by seeking grants and other sources of innovative solutions that add to total funds available for transportation. Partnerships may help achieve mutually beneficial goals.

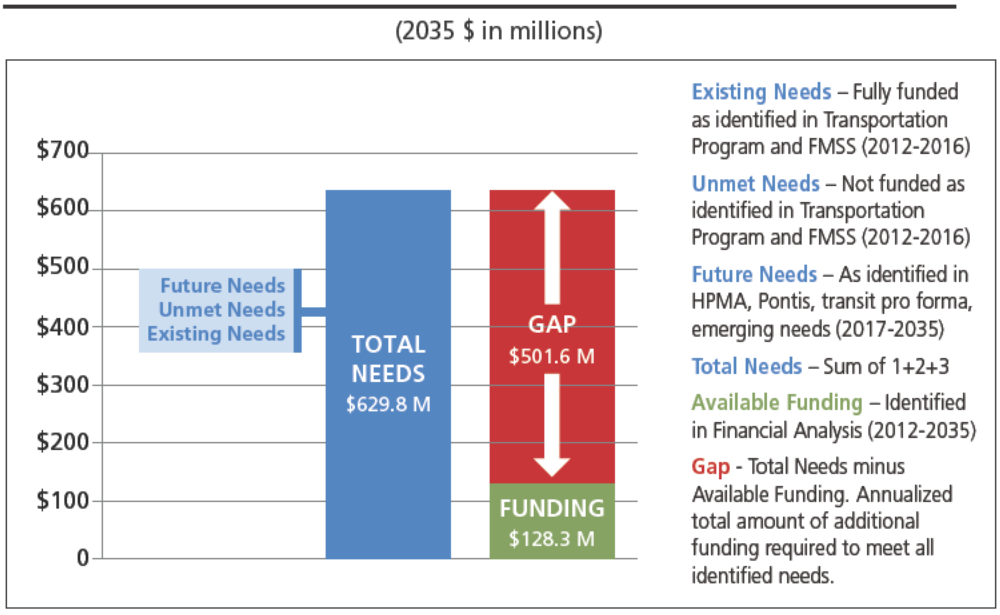
Needs and Funding

Funding is based on an average annual 2.1% increase in total obligations to transportation assets, the projected rate of inflation. This rate of increase is considered fiscally constrained to the amount reasonably expected to be available during the planning period.

- Fiscally constrained to $88.3 million (2015 dollars), representing the average annual obligations from major funding sources from 2007-2011.
- Funding projections use a standard 2.1% annual growth rate, keeping pace with inflation.
- Federal Land Transportation Program (FLTP) funds constitute approximately 61% of total funds available to the region.
- All other fund sources together constitute approximately 39% of total funds available to the region.
- The Pavement Preservation Program includes all paved assets using FLTP and Cyclic Maintenance funds.

- Capital improvements/new construction will be limited due to availability of funds.
- Rehabilitation and recapitalization projects will be funded based on available funds, with priority given to Class 1 and Class 2 roads and parking (publicly accessible assets).
- The IMR will continue its current funding for the Yellowstone Grand Loop program at approximately $11 million per year as well as seek supplemental funding to accelerate the project.
- The IMR will continue its current funding for the Going to the Sun Road (Glacier National Park) recapitalization (major reconstruction) at approximately $8 million/year through FY 2015.
- Transit operations will be funded with Transportation Fee funds and will seek additional revenues through partnerships and grants. Parks may seek approval for Transportation Fee increases through the WASO Fee Program.
- Unmet needs (the gap) are discussed in a subsequent section.

Figure 8-2. Identifying the Needs Gap



STRATEGIES AND PERFORMANCE MEASURES

The chart on the next page shows the principal strategies selected for implementation during the planning period. The strategies are arranged by goal area and are complemented by a series of performance measures designed to gauge improvement toward the goals and to provide a reporting mechanism.

The performance measures rely on both quantifiable and subjective measures to gauge success. The system metrics are dependent on existing and readily available data.

For example, Pavement Condition Rating (PCR) values are readily available and can be reported as year over year or cycle over cycle changes. This simply provides a measuring stick to determine if things are getting better, getting worse, or remaining about the same. Additional development of a more robust performance measure program should be considered as part of a future LRTP update, or at the national level for development at the regional level.

Figure 8-3. Maintaining Access: Strategies and Performance Measures

	Strategies	Responsibility: Region	Parks	WASO
ASSET MANAGEMENT	Utilize approved NPS criteria, including CIS core principles, TCFO, and Management System data for project selection	◆	◆	◆
	Continue Regional Pavement Preservation Program	◆		
	Coordinate with other fund/program managers	◆	◆	◆
	Assist parks with unplanned engineering studies and other technical support	◆	◆	
	Work with parks to review transportation assets for removal/decommission/down grade consistent with CIS principles	◆	◆	◆
	Manage multi-year program with flexibility to balance large scale reconstruction projects, rehabilitation projects, and develop shelf projects	◆	◆	
MOBILITY, ACCESS, AND CONNECTIVITY	Provide technical support to parks with transit systems on life cycle planning and financial efficiency to improve decision making	◆	◆	◆
	Support and coordinate multimodal planning projects at sub-regional and park levels	◆	◆	
	Support parks in self-evaluation and transition plans for universal access of transportation assets	◆	◆	◆
VISITOR EXPERIENCE	Develop a regional congestion management strategy	◆		◆
	Work with parks and WASO on safety management	◆		◆
	Formalize the bicycle and road safety audit process	◆	◆	◆
RESOURCE PROTECTION	Support parks to reduce vehicle wildlife collisions		◆	
	Ensure air quality data is used in transportation planning efforts	◆	◆	
	Work with regional leadership and WASO to develop a process to measure facility resource carrying capacity	◆	◆	
	Support and document natural/cultural resource improvements on transportation projects	◆	◆	
SUSTAINABLE OPERATIONS	Work with parks and partners to leverage available funds	◆		
	Work with parks to help maintain regular communication with local, state, and federal stakeholders	◆	◆	
	Prioritize LRTP data gaps and work with WASO and others to resolve high priority gaps	◆		◆
	Provide technical support in transportation planning	◆	◆	
	Work with national program to evolve internal policy and develop project selection criteria (include all LRTP goal areas)	◆		◆
	Support GMP and Foundation Documents	◆	◆	
	Coordinate with regional staff and parks to provide accurate information about the transportation program and fund sources	◆	◆	
	Provide feedback and share information with other NPS LRTP teams	◆		◆

Benefits to LRTP Goals					Performance Measures
Asset Management	Mobility, Access, and Connectivity	Visitor Experience	Resource Protection	Sustainable Operations	
◆	◆	◆	◆	◆	**Asset Management Performance Measures** • Pavement Condition, measured as change in PCR for Class 1 and 2 roads and public parking areas • Number of bridge maintenance projects • Transportation facilities condition, measured by rate of change in FCI • Measure the rate of the change of deferred maintenance for transportation assets
◆				◆	
◆				◆	
◆				◆	
◆	◆	◆	◆	◆	
◆	◆	◆	◆	◆	
	◆	◆		◆	**Mobility, Access & Connectivity Performance Measures** • Report financial status of NPS transit systems • Report multimodal components in projects • Partnering efforts at the regional level toward enhanced connections
	◆	◆	◆		
	◆	◆			
	◆	◆		◆	**Visitor Experience Performance Measures** • Change in congestion as reported by congestion management strategy • Crashes reported in safety management system • Number of road safety audits completed
	◆	◆			
	◆	◆			
◆	◆	◆	◆	◆	**Resource Protection Performance Measures** • Acreage restored/revegetated • Number of natural and cultural sites improved • Vehicle/wildlife collisions as reported in safety management system
		◆	◆	◆	
◆		◆	◆	◆	
		◆	◆	◆	
◆	◆	◆	◆	◆	**Sustainable Operations Performance Measures** • Number of successful innovative funding sources received • Number of transportation facilities removed • Percentage of funds obligated • Report GMPs and Foundation Documents supported • Document park transportation planning needs
				◆	
◆				◆	
◆	◆	◆	◆	◆	
◆	◆	◆	◆	◆	
				◆	
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◆	◆	◆	◆	◆	

MAINTAINING ACCESS - PERFORMANCE

The projected outcome of Maintaining Access: The Fiscally Constrained Plan has significant tradeoffs. The general effect of investing only at current funding levels will be to maintain access for visitors, but at less than desirable levels. Funds are available to address many needs, but will not be adequate to directly or fully support the full range of LRTP goal areas.

The long-term picture does not meet the full backlog of needs. The gap between funding and needs will grow from $128 million in 2015 to $502 million in 2035 (YOE dollars), largely as the result of not affording optimal maintenance projects and schedules, allowing assets to eventually degrade to a point where more expensive reconstruction will be required.

Asset Management

Asset Management will see a large unfunded gap, growing over time, largely due to the inability to fully fund maintenance and component renewal/recapitalization needs. The regional program will emphasize maintenance needs on highest priority assets.

Maintaining Access focuses on using FLTP and Cyclic Maintenance funds to support the regional pavement preservation program.

Despite localized improvements on individual facilities, the regional average PCR will continue to decline over time. While adequate PCR is not the only goal of an effective transportation system, it is indicative of the general health of the overall system.

While performing cyclic maintenance will extend the useful service life of treated roads, the focus on short term needs will not allow the Intermountain Region to reduce longstanding deferred maintenance.

As a result, additional roadway PCR will decline and require more extensive heavy 3R reconstruction in the future. Most heavy 3R reconstruction will not be affordable under this scenario.

Under current funding, the region will see a continued overall decline in transportation asset condition, including pavement. The average PCR of IMR roads is estimated to decline from 69.7 in 2015 to 65.1 in 2035. The gap between available funds and deferred maintenance is projected to grow from $432 million to $576 million during that time.

Mobility, Access, and Connectivity

Mobility, Access, and Connectivity needs such as access, congestion mitigation, and multimodal projects will be addressed to the extent these needs may be included in projects during planning, design, and implementation.

Total entrance fees are currently capped at $25, which will not be adequate to support transit systems. Major service improvements or additions to NPS-operated transit systems will not be possible, absent increases in fees or other funding.

General performance in the goal area will not improve.

Figure 8-4. Maintaining Access: Pavement Condition Rating & Deferred Maintenance

Pavement Condition & Deferred Maintenance	2015	2020	2025	2030	2035
Average PCR	69.7	68.1	66.4	67.4	65.1
DM Gap (85 PCR)	-$432.0 M	-$489.0 M	-$539.0 M	-$510.0 M	-$576.0 M

Visitor Experience

Visitor Experience will be addressed with existing funds, planning, and to the extent these needs may be included in projects during planning, selection criteria, design, and implementation. The visitor experience in congested parks that depend on transit services for effective operations will continue to present a challenge to park managers. However, the development of congestion and safety management systems will provide the region with much needed data, recommendations for best practices, and priorities.

General performance in the goal area is expected to remain about the same.

Resource Protection

Resource Protection will be addressed by supporting documentation of conditions and to the extent these needs may be included during planning, selection criteria, design, and implementation.

General performance in the goal area will not improve.

Sustainable Operations

Sustainable Operations will be addressed by participating in planning activities, enhancing communications as possible, and to the extent these needs can be addressed with current funding. The regional program will focus on maintenance and rehabilitation of assets to keep them in good condition.

Other NPS initiatives, including the Call to Action, the Green Parks Plan, and the NPS Integrated Climate Response Strategy intended to improve the parks' relationships with visitors, natural and cultural resources, and nearby communities will see little financial support as IMR fiscal resources remain focused on keeping the existing transportation system operational. Funding for these policies must come from programs other than FLTP or be rolled into project development and delivery as possible.

General performance in the goal area will not improve.

Greenway Trail Construction in Grand Canyon National Park. Source: National Park Service

IMPROVING ACCESS: THE VISION PLAN (FISCALLY UNCONSTRAINED NEEDS)

Improving Access: The Vision Plan supplements the Fiscally Constrained Plan. It represents the fulfillment of all transportation needs documented in the long range plan. The vision plan would achieve substantial improvements in all LRTP goal areas. Most importantly, it would erase the gap in deferred maintenance and achieve an estimated average PCR 85 by 2035, which can then be maintained over time. The system achieves a sustainable state of equilibrium.

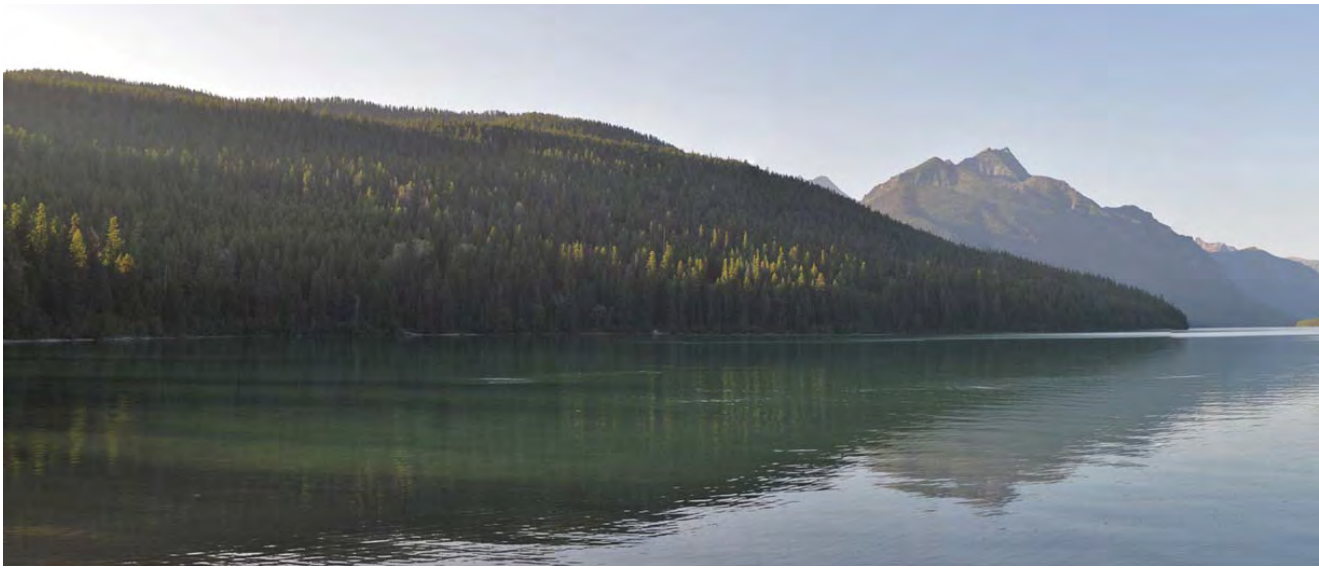
These gains can be achieved with an increase of approximately 15% annually in funding and are made possible by early intervention in the deferred maintenance issue, preventing its rapid-paced growth. The Vision Plan forms a useful comparison to the fiscally constrained element and describes actions to implement the required investments to achieve LRTP goals. It also acknowledges that some future needs are unknown or unquantifiable at this time.

Additional funding could come from an increase in the next federal transportation reauthorization, "Centennial funding," leveraged partnerships, innovative funding, endowments, corporate sponsorships, or other stimulus. The plan does not identify specific targets or sources for the additional funds.

The Vision Plan can be approached as a menu of possible additional actions if additional funding is made available to the transportation program, including to Operations of the National Park System, repair and rehabilitation, cyclic maintenance or other funding sources.

How is the Vision Plan Different?

- Addresses all needs identified in the plan.
- Requires approximately 15% annual increase in transportation funds ($11 M per year).
- Achieves average regional PCR 85 by 2035.
- Completes major reconstruction projects such as the Yellowstone Grand Loop.
- Transit operations for existing NPS-owned transit systems are fully funded.
- Additional transit systems may be considered where needed.
- Full implementation of the Vision Plan would achieve a sustainable maintenance level by 2035.
- Significant gains possible across all LRTP goal areas.



Glacier National Park. Source: National Park Service

Figure 8-5. Vision Plan Opportunities

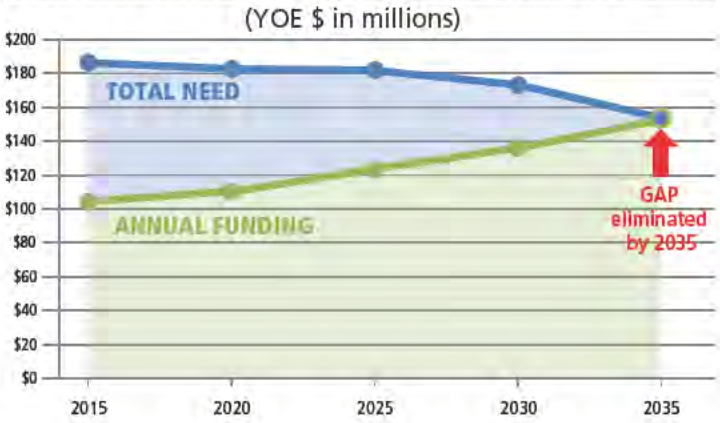
Improving Access offers the opportunity to fully address deferred maintenance and the gap between funding and needs. The largest component of deferred maintenance (78% of all identified needs) is related to pavement costs. The ability to more effectively address life cycle costs reduces growth (6% annual growth) dramatically, to the point regular and cyclic maintenance will be able to keep pace with the life cycle by 2035.
While regional average PCR is expected to decline to 65 under current funding, the vision plan could improve the system to 85 PCR. This marker provides a useful point for comparison, but does not represent an adopted PCR target.
Additional funding would enable the sustainable operation of NPS-operated transit systems.
Parks currently have limited options (funding) to improve vehicular congestion, which could be improved with enhanced operations and congestion management tools.
Additional research and planning could assist parks in understanding the relationship between transportation, visitation, visitor experience, resource impacts, and sustainable operations.
The number and severity of vehicle crashes is focused in highly visited or congested areas. A comprehensive system to address safety issues could be fully implemented.
Communications technology and the potential benefits to visitor experience, congestion, and safety should be more effectively understood and implemented.
Enhanced efforts to explore and support planning partnerships could lead to opportunities for additional funding through non-traditional sources.
The effects and costs of non-recreational visitation impacts in parks with heavily used commuter routes should be more fully explored with partners.
The evolution of park visitor demographics, including age, ethnicity, recreational desires, and international visitation has unknown effects on long-term visitation and visitor experience. Transportation demand resulting from changing demographics could be more effectively addressed.

ADDRESSING THE GAP BETWEEN NEEDS AND ANTICIPATED FUNDING

Improving Access represents a vision plan that calculates the costs to meet all transportation needs. The vision plan is characterized as not fiscally constrained, since no additional funds can be guaranteed.

This plan does not identify specific sources for additional funding, although it could come from an increase in the next federal transportation reauthorization, leveraged partnerships, innovative funding, endowments, corporate sponsorships, or other stimulus boost such as temporarily increased funds linked to observance of the upcoming National Park Service Centennial.

Figure 8-6. Vision Plan: Improving Access - Needs vs. Funding



PERFORMANCE OF THE LONG RANGE TRANSPORTATION PLAN

Performance of the preferred scenario is expressed in a "dashboard" (see Figure 8-7). The gauges rate expected benefits to the LRTP goals in a range of getting better to getting worse as compared to current conditions.

The gauges represent the overall performance of the preferred scenario as well as within each goal area for both Maintaining Access and Improving Access. Benefits to each LRTP goal are estimated based on the percent of need that can be met given available fiscal resources.

Maintaining Access: The Fiscally Constrained Plan

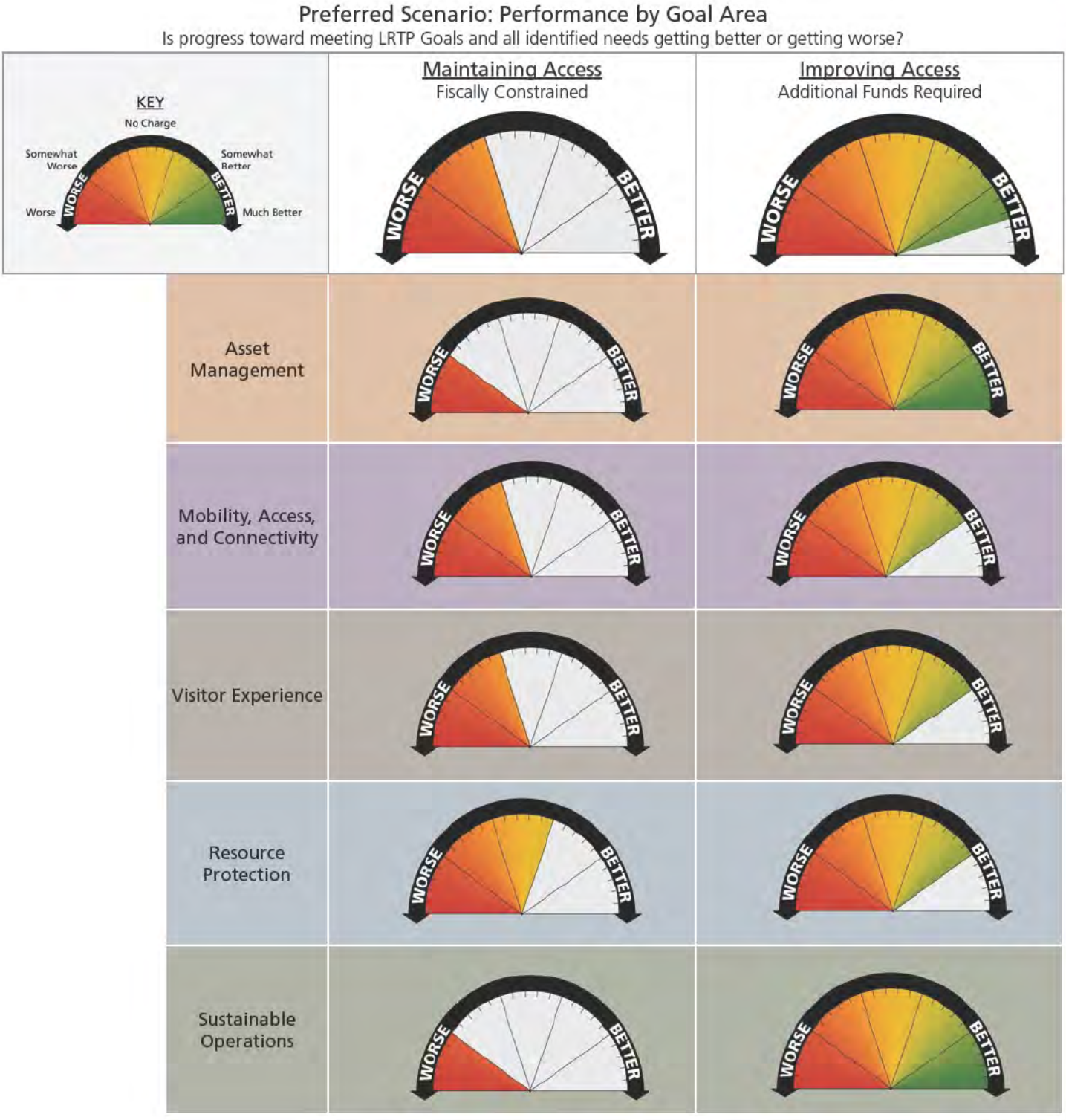
The Fiscally Constrained Plan shows the estimated effects on each LRTP goal area and on transportation plan goals as a whole if funding remains flat during the planning period. A general worsening of expected conditions is projected by 2035 given current funding limits.

Improving Access: The Vision Plan

The Vision Plan element shows improvements in the LRTP goals that could be achieved with some additional investment. Additional funding is neither guaranteed nor expected.

Improving Access would be able to meet 100% of needs in the Asset Management and Sustainable Operations goal areas. The remaining three goal areas show marked improvement, but are not rated at 100% goal achievement. The plan leaves some room for improvement in the Mobility, Access, and Connectivity; Visitor Experience; and Resource Protection goals even under the "meet all identified needs" vision plan. The planning process was not able to fully quantify all future needs in these goal areas, but assumes that additional unidentified needs will exist.

Figure 8-7. Preferred Scenario: Performance by Goal Area



IMPLEMENTING THE LONG RANGE TRANSPORTATION PLAN

The LRTP strategies and performance measures will serve as the backbone for plan implementation. Each strategy will be monitored and performance tracked through the use of an annual IMR LRTP Transportation Program report. The report will assist in short term work flow planning, documentation of changes in system performance, and prioritizing future actions, beginning in 2014.

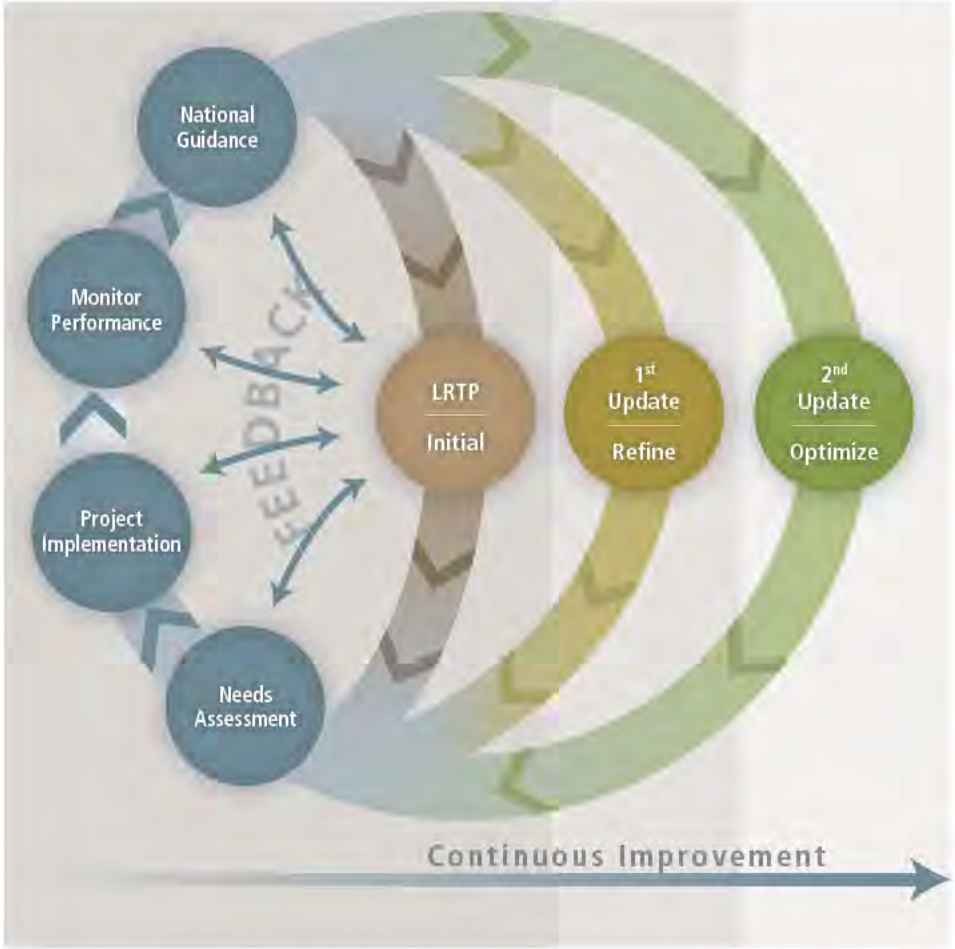
The initial LRTP is a major milestone for the Region and is one part of a continuing cycle of planning and implementation over the short and long terms. The next cycle will see essential elements of the plan brought to life, including annual performance monitoring and reporting of results. Those results will inform the planning process and provide additional opportunities for decisions designed to maxmize performance in all LRTP goal areas. Knowledge gained during this period will enable custodians of the plan to improve the process and outputs of the first update.

Figure 8-8 illustrates the cyclical nature of the long range transportation planning process. Each iteration of the plan will extend the planning horizon, keeping pace with developing issues, needs, and financial resources. Feedback loops are inherent to the process at each step, which is designed as a cycle of continuous improvement with each iteration learning from and improving on past experience.

Key steps to improve the next LRTP update include measuring system performance based on the recommendations in the plan, filling key data gaps, and completing guidance at the national level to ensure consistency in approach and content.

Fore more information, please see *Implementation Plan Technical Report, February 2014*, in Appendix J.

Figure 8-8. LRTP Planning Cycle: Process of Continuous Improvement



GLOSSARY

Saguaro National Park
Source: National Park Service

Term	Definition
ABA	**American Bar Association (ABA)**
ADA	**Americans with Disabilities Act of 1990 (ADA)**
AOG	**Association of Governments (AOG)**
API	**Asset Priority Index (API)** is a value (1 to 100) assigned by park unit staff that is an indication of the asset's priority related to the park's mission. It is generated by FMSS data. An API value greater than 50 indicates the asset is of high priority to the park. An API value between 15 and 50 indicates the asset is of moderate priority to the park. An API value less than 15 indicates the asset is of low priority to the park.
ARRA	**American Recovery and Reinvestment Act (ARRA)** provided $3 billion to the Department of the Interior. Of that amount, $750 million went to the NPS to fund job-creating investments in critical infrastructure and facilities, trail restoration, abandoned mine remediation, and energy efficiency and renewable energy.
ATS	**Alternative Transportation Systems (ATS)** are transit systems that help national parks to minimize resource impacts where traffic volume on existing roadway infrastructure has reached or is over capacity.
ATPPL	**Alternative Transportation in Parks and Public Lands (ATPPL)**
ATV	**All-Terrain Vehicles (ATVs)** are a type of Off-Road Vehicle (ORV) with treads or wheels designed to travel on rough uneven ground.
BIA	**Bureau of Indian Affairs (BIA).** The United States has a unique legal and political relationship with Indian tribes as provided by the Constitution of the United States, treaties, court decisions and Federal statutes. Within government-to-government relationships, Indian Affairs provides services to tribes and American Indians, including participation in consultations regarding federal lands.
BIP	**Bridge Inspection Program (BIP)** data is developed by FHWA to inventory bridges and tunnels within NPS boundaries.
Category I, II, and III Funding Categories of the PRP Program	See the **Park Roads and Parkways (PRP) Program** definition. **Category I** – applied to Road Rehabilitation (3R) and Road Reconstruction/Realignment (4R) projects. For the Category I projects, each of seven NPS regional offices must coordinate other regional programs with their park programs to implement the regional PRP Program with funds available to their region. Historically, approximately 80% of the PRP Program funds were used for Category I to preserve the basic function of the road system. **Category II** – applied to Congressionally Mandated Parkways, these funds are typically for new construction projects necessary to complete the parkways. Category II funds are administered by the NPS Washington Office (WASO). **Category III** – applied to the Transportation Management Program which integrates all (multiple) modes of travel in national park system units, including transit, bicycle, pedestrian, and motor vehicle. Category III funds are administered by the NPS Washington Office (WASO), and this category also supports transportation planning studies.
CIS	**Capital Investment Strategy (CIS)**
CMS	**Congestion Management System (CMS)**
CMAQ	**Congestions Mitigation and Air Quality Improvement (CMAQ)**
COG	**Council Of Governments**
Category 3R and 4R Projects	**Category 3R** – An NPS classification for road rehabilitation. The 3R acronym stands for resurfacing, restoration, and rehabilitation. The 3R projects extend the service life of roads and enhance safety. Typically, project improvements occur entirely within the existing roadway bench, with some exceptions outside the bench for repair to drainage structures and existing retaining walls. If more than 5% of project costs occur outside the roadway bench, the project is re-categorized as 4R. **Category 4R** – Adds Road Reconstruction/Realignment to 3R. The fourth 'R' acronym stands for either reconstruction or realignment. This work consists of altering the geometry of an existing roadway, intersection, or bridge. Typical 4R work involves widening lanes or modifying the horizontal and vertical alignment of the road bench.
CRV	**Current Replacement Value (CRV)** represents an estimate of the funds that would be required to replace the facility at existing size and capacity. CRV is developed using values generated from FHWA's Highway Performance Monitoring System (HPMS) process, and can be adjusted by park staff.

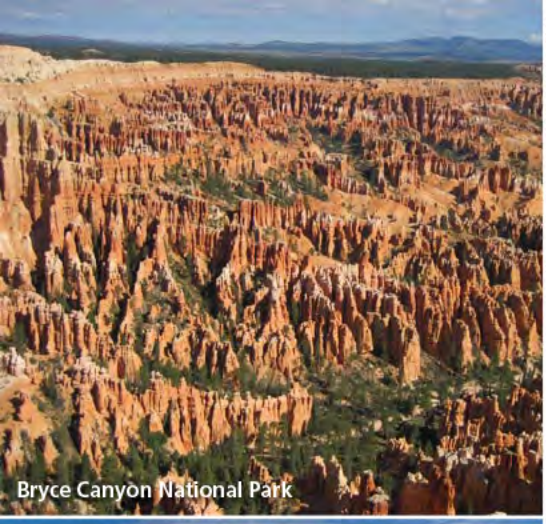
Term	Definition
DSC	**Denver Service Center (DSC)** is the central planning, design, and construction management project office for the National Park Service.
DM	**Deferred Maintenance (DM)** is a cost category for PRP expenditures. DM represents the sum of all maintenance that was not performed when it was scheduled to be, and has been subsequently delayed. It does not include annual preventative maintenance, operational costs, or emergency maintenance. Of the total general Deferred Maintenance funds, nearly 60% are used for transportation deferred maintenance costs. Highly used assets have the largest deferred maintenance costs and poorest Facility Condition Index (FCI). The most used assets have the highest Deferred Maintenance needs and are either in poor or serious condition.
DOI	**Department of the Interior (DOI)**
DOT	**Department of Transportation (DOT)**
FCI	The **Facility Condition Index (FCI)**, generated by FMSS data, provides an indication of the condition of assets, and values are derived from a ratio of the deferred maintenance value [DMV] divided by the current replacement value [CRV]) of NPS assets. FCI for road assets reflects the condition of the entire road, including culverts, striping, barriers and walls, guardrails, and signage. A FCI value greater than 0.5 indicates the asset is in serious condition and a FCI value less than 0.5 indicates the asset is in good to poor condition, with good valued at 0.000-0.109, fair valued at 0.110-0.149, and poor valued at 0.150-0.499. Integrating RIP and BIP data into FCI is critical.
FHWA	The **Federal Highway Administration (FHWA)** is an administrative branch of the U.S. Department of Transportation.
FLHD	The **Federal Lands Highway Division (FLHD)** operates as part of the Federal Lands Highway Program and actively administers the surveying, designing and constructing of forest highway system roads, parkways and park roads, Indian reservation roads, defense access roads, and other Federal lands roads.
FLHP	The **Federal Lands Highway Program (FLHP)** was established by federal legislation in 1982 to provide oversight to several transportation improvement programs. One of these programs is the partnership between the National Park Service and FHWA, first established in 1924, which is today known as the Park Roads and Parkways Program (PRP Program). The Federal Lands Highway Office (FLH) provides financial management, engineering, and construction management support for the PRP Program and other similar federal programs with funding from the Federal Highway Trust Fund.
FLAP	**Federal Lands Access Program (FLAP)**
FLMA	**Federal Land Management Agencies (FLMA)**
FLTP	**Federal Land Transportation Program (FLTP)**
FLREA	The **Federal Land Recreation Enhancement Act (FLREA)**, part of the 2005 Omnibus Appropriations Bill, provides for a nationally consistent interagency program, additional on-the-ground improvements to visitor services at recreation sites across the nation, a new national pass for use across interagency federal recreation sites and services, and more public involvement in the program. The Act also provides agencies with recreation fee authority for 10 years, which will allow the agencies to improve the efficiency of the program, provide better facilities and services to the visitors, employ greater use of technology, and enter into more fee management agreements with counties and other entities to provide additional services to visitors.
FMSS	NPS asset management depends on **Facility Management Software System (FMSS)** data. The data, using asset ID numbers, is compiled by FHWA and NPS and is administered by NPS. It is designed to provide information on all assets in the NPS, including data related to asset condition, deferred maintenance, and replacement value. Data related to the asset's priority (through the FCI rating system) is also included in FMSS.
FTA	The **Federal Transit Administration (FTA)** is an administrative branch of the U.S. Department of Transportation.
FTE	**Full Time Equivalent (FTE)** is defined by the federal government as the number of total hours worked divided by the maximum number of compensable hours in a work year, as defined by law (typically as 2,080 hours).
GTSR	**Going-to-the-Sun Road (GTSR)**, completed in 1932, is a National Historic Landmark in Glacier National Park, MT. The scenic route is an engineering marvel and is approximately 50 miles long. The paved two-lane highway bisects the park east and west, crossing the Continental Divide at 6,646-foot high Logan Pass.

Term	Definition
Goals, Objectives, Strategies	**Goals** – Goals describe the object, end, or aim that an organization strives to attain. Goals are formulated through a visioning/mission process and are achieved with a series of objective strategies. **Objectives** – Objectives are the aim, or series of strategies, designed to attain/ achieve the goals. **Strategies** – Strategies are the careful plan employed to achieve the goal.
HPMA	**Highway Pavement Management Application**
IMR	**Intermountain Region (IMR),** one of seven park management regions of the National Park Service. It includes eight states containing 91 NPS sites.
ISTEA	The **Intermodal Surface Transportation Efficiency Act (ISTEA)** of 1991 was a landmark $155 billion federal legislation which called for broad changes in transportation decision-making, and included major revisions to metropolitan and statewide planning processes. ISTEA emphasized diversity and balance of modes, as well as the preservation of existing systems over construction of new facilities. The law expired in September 1997, and was followed by TEA-21, which was superseded by SAFETEA-LU in August 2005.
ITS	**Intelligent Transportation Systems (ITS)** encompass a broad range of wireless and wire line communications-based information and electronics technologies to help manage traffic congestion. When integrated into a transportation system's infrastructure, and in vehicles themselves, these technologies help relieve congestion and improve safety.
LOS	**Level of Service (LOS)** describes the average total delay to a motorist in traffic or at an intersection. Six LOS categories are used for traffic analyses (LOS A through LOS F), with LOS A having the lowest delay, and LOS F having the most delay.
LRTP	A **Long Range Transportation Plan (LRTP)** is a management level document which creates a strategic framework for transportation program investments. Specifically, it: - Defines existing network conditions and transportation needs for asset management, safety, congestion, and capital improvements. - Identifies sustainable implementation strategies to protect park resources and provide a quality visitor experience, while preserving transportation assets. - Establishes network level goals, objectives and performance measures to improve the effectiveness of IMR transportation program investments. - Clarifies the effects of funding decisions on the transportation network in order to better communicate funding needs.
Maintenance Activities	**Maintenance activities** include those tasks that affect the condition of the asset. Crack sealing, chip sealing, mowing, culvert cleaning, painting structures and roof repairs. In its best form, maintenance keeps assets in an acceptable and static condition. Maintenance activities are further distinguishable by routine maintenance and deferred maintenance, but (from what I've seen) the NPS is not yet able to do that and as soon as an asset is ready for routine maintenance it is automatically considered deferred.
MAP21	The Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), was signed into law by President Obama on July 6, 2012. Funding surface transportation programs at over $105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005.
MPO	**Metropolitan Planning Organizations (MPO)** are designated by local elected officials as being responsible for carrying out the urban transportation and other planning processes for an area. The MPOs have been required by the federal government since the mid-1970s to support transportation planning in areas with a population of more than 50,000. There are more than 380 MPOs in the U.S. When a NPS park unit is in a metropolitan area, their projects must be coordinated with the MPO and included in their required plans and programs when they seek federal funding to states.
MTCO2e	**MTCO2e** is a measure used by the Environmental Protection Agency Pollution Prevention Program. The unit "CO2e" represents the equivalent amount (metric tons) of greenhouse gases (GHGs) whose global warming potential is standardized to that of carbon dioxide (CO2), which is assigned a value of 1. Global-warming potential (GWP) describes the ability of a unit of gas emitted in the present to trap heat in the atmosphere over a timeframe (100 years, as selected by the International Panel on Climate Change).
Modal Split	**Modal Split** is a term that describes how many people use alternative forms of transportation. Frequently used to describe the percentage of people using private automobiles compared to the percentage using public transportation.

Term	Definition
Mode	A **mode** is a particular form or method of travel distinguished by vehicle type, operation technology, and right-of-way separation from other traffic. Examples: motorized vehicle, streetcar, bus, boat, and bicycle.
NAAQS	**National Ambient Air Quality Standards**
NB	**National Battlefield (NB)**
NEPA	The **National Environmental Policy Act** of 1969 **(NEPA)** is a comprehensive federal law requiring analysis of the environmental impacts of federal actions such as the approval of grants; also requires preparation of an Environmental Impact Statement (EIS) for every major federal action significantly affecting the quality of the human environment.
NF	**National Forest (NF)**
NHP	**National Historical Park (NHP)**
NHS	**National Historic Site (NHS)**
NHT	**National Historic Trail (NHT)**
NM	**National Monument (NM)**
NMEM	**National Memorial (NMEM)**
NPS	**National Park Service (NPS)** is a bureau of the U.S. Department of the Interior. Since it was established in 1916, the fundamental purpose of the NPS has been "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."
NRA	**National Recreation Area (NRA)**
NS	**National Seashore (NS)**
ONPS	**Operation of the National Park Service (ONPS)** is an annual congressional appropriation that funds the day-to-day operations of the National Park System, including all operational, maintenance, and administrative costs for parks, regional offices, and the Washington D.C. headquarters office.
Operational Activities	**Operational activities** are those activities that do not have an impact on the condition of the asset. They serve to keep the asset open for the public. The most obvious of these activities include snow removal, litter clean up, sweeping, fueling buses, and paying drivers, etc. When dollars become short, these tasks can be manipulated to save funds and should be considered in the LRTP scenarios.
PAMP	A **Park Asset Management Plan (PAMP)** is a strategy and road map for individual park units. The PAMPs provide a ten-year asset management strategy for park units, allowing for annual updates that coincide with the budget and planning processes already occurring. As this approach includes life cycle total cost of ownership, analysis, processing, and calculations, it also helps park units and the Service as a whole manage the gap between what should be spent on facilities and what is actually being spent.
PEPC	**Planning Environment and Public Comment (PEPC)**
PMIS	**Portfolio Management Information Systems (PMIS)**
PPP PLH-D	The **Public Lands Highways Discretionary Programs (PLH-D)** provides funding for the planning, design, construction, reconstruction or improvement of roads and bridges that are within or adjacent to, or provide access to public lands and Indian reservations. In addition, PLH-D funding has been used for transit facilities, parking lots, roadside rest areas, bike trails, walkways, and transportation planning activities. The **public participation process (PPP)** is the active involvement of the public in NPS planning and decision-making processes. It occurs on a continuum that ranges from providing information and building awareness, to partnering in decision-making. The NPS role is to provide opportunities for the public to be involved in meaningful ways, to listen to their concerns, values, and preferences, and to consider these in shaping decisions and policies.
PRP Program	The **Park Roads and Parkways (PRP) Program** is a partnership of the Federal Lands Highway Program and National Park Service and provides the main source of funding for improvements of transportation infrastructure in national park system units. Funds are used for resurfacing, rehabilitating, and reconstructing public roads, bridges, and parking areas, as well as the development and maintenance of NPS-owned alternative transportation systems. For fiscal years 2005-2009, the average annual funding was $210 million, which is divided over three primary funding categories, Category I, Category II, and Category III.

Term	Definition
PRPP ATP	The **Park Roads and Parkways Program (PRPP)** includes the **alternative transportation program (ATP)** whose mission statement is to "Preserve and protect resources while providing safe and enjoyable access to and within the national parks by using sustainable, appropriate and integrated transportation solutions."
PCR	The **Pavement Condition Rating (PCR)**, generated by RIP data, is an important measure used in the NPS pavement management system to rate pavement conditions compared to prior years (and the baseline conditions), measured at the park, region, and service-wide levels. PCR values are defined as 1-60 = poor, 61-84 = fair, and 85-94 = good.
Park-and-Ride	**Park-and-Rides** are designated parking area for automobile drivers who then board transit vehicles from these locations.
Performance Measures	**Performance Measures** – These are part of a measurement system based on setting goals and objectives to measure progress toward achieving them. They are part of an accountability system that focuses on results of project activities, like improvements in pavement and bridge conditions, safety, or congestion control, or records of the visitor experience through visitor surveys.
Phase I LRTP	The **Phase I Long-Range Transportation Plan (LRTP)** collected extensive data on existing conditions for 12 NPS units in the Intermountain Region (IMR). It was the first step in the IMR LRTP transportation planning process, which covers a period of at least 20 years.
Phase II LRTP	**Phase II** of the IMR **LRTP** will establish the Vision, Purpose, and Intent for the IMR LRTP. The Phase II LRTP will develop a methodology using performance measures that will allow NPS and FHWA to make better decisions for long term asset management in the IMR, given a variety of funding scenarios.
RIP	**Roadway Inventory Program (RIP)** data is developed by FHWA to inventory roadways and parking areas within NPS boundaries. Data is collected using an automated process and documents the condition of pavement, geometrics, and drainage of existing park roads and parking areas.
RV	**Recreational Vehicle (RV)**
SAFETEA-LU	The **Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)** was passed by Congress, 20 July 2005, and signed by the President 10 August 2005. It includes new and revised program guidance and regulations (approximately 15 rulemakings) with planning requirements related to public participation, publication, and environmental considerations. SAFETEA-LU covers Fiscal Year 2005 through Fiscal Year 2009 with a total authorization of $45.3 billion.
Safety Activities	**Safety activities** include striping, raising guardrails, etc. These activities are necessary to ensure roadways are safe. They are not operational and do not affect the condition of the asset.
SCC	**Servicewide Comprehensive Call (SCC)** is the formal beginning of a new round of planning for future NPS budgets. Since the NPS budget cycle takes nearly two years to complete, the SCC is announced at the beginning of each new Fiscal year for planning two years in advance. The SCC asks parks and NPS program offices to identify unfunded needs for base funding as well as one-time project funding.
SOCC	**Sustainable Operations and Climate Change (SOCC)**
STIP	**State Transportation Improvement Program (STIP)**
TAM	The NPS uses **transportation asset management (TAM)** tools and practices in managing its road and bridge network. By gathering information on asset location, condition, deterioration, and possible fixes, asset management practices enable NPS staff members to anticipate and prioritize maintenance and replacement needs based on given budgets. Cost/benefit information allows the use of engineering and economic tools to determine the best actions to take from the standpoint of lowest costs to NPS, continued protection of resources, and greatest benefit to park visitors.
TCFO	The purpose of a **Total Cost of Facility Ownership (TCFO)** analysis is to find the lifetime costs of acquiring and operating a facility or asset. TCFO analysis is based on the notion that there can be a large difference between the initial price of something and its long-term costs. TCFO analysis can be used to support acquisition and planning decisions for a wide range of assets that carry significant maintenance or operating costs across a long usable life. Examples include vehicles, buildings, pavement installations, bridge construction, and more.

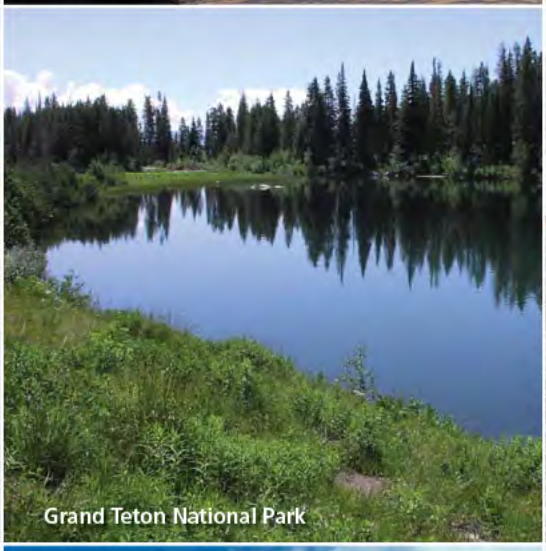
Term	Definition
TDM	**Transportation Demand Management (TDM)** involves strategies to attempt to reduce peak period automobile trips by encouraging the use of high-occupancy modes through commuter assistance, parking incentives, and work policies that alter the demand for travel in a defined area in terms of the total volume of traffic, the use of alternative modes of travel, and the distribution of travel over different times of the day.
TIP	**Transportation Improvement Plan (TIP)**
TRIP	The Paul S. Sarbanes **Transit in Parks (TRIP)** program was established under SAFETEA-LU in 2005. Administered by the FTA in partnership with the Department of the Interior and the Forest Service, the TRIP program funds capital and planning expenses for alternative transportation systems.
Transportation System	Generally speaking, a **transportation system** is a facility consisting of the means and equipment necessary for the movement of passengers or goods. Transportation systems specific to NPS include the provision of infrastructure assets such as highways, bridges, tunnels, parking areas, transit and trails designed to provide access for visitors to enjoy the natural and cultural amenities of national park sites. An NPS transportation system may also provide connections between a national park and its gateway community via transit/shuttle bus linkages and parking areas outside the park site.
UDOT	**Utah Department of Transportation (UDOT)**
U.S. DOT	The **U.S. Department of Transportation (U.S. DOT)** administers several branches of transportation. The federal surface transportation program, under the leadership of FHWA or FTA, relies on planning at two levels to achieve its goals: the state transportation agency (the state department of transportation [DOT]), and the metropolitan planning organization (MPO).
VMT	**Vehicle Miles Traveled (VMT)** is a measure of travel volumes which is often used to calculate other measures such as fuel consumption and pollution generated.
VTS	**Visitor Transportation System (VTS)**, is a term applied to NPS transit operations such as shuttle buses. Tier 1 VTSs include large-scale systems for which the NPS has major financial responsibility (i.e. NPS-operated and contractor-operated systems). Tier 1 VTS services have been implemented at a number of IMR parks, including Grand Canyon, Zion, Bryce, Glacier, Rocky Mountain, and Mesa Verde national parks. Tier 2 VTS systems are smaller scale for which NPS has minor financial responsibility, such as concessioner-operated systems. Tier 3 systems are privately operated for which NPS has no responsibility.
Vision	A **vision** is a clear and succinct description (statement) of what the organization should look like in the future after it successfully implements its strategies and achieves its full potential. For NPS, the future could be a 20 to 30 year horizon. In a visioning process, participants express what they want their organization to be. A vision statement should include the organization's: – mission – basic philosophy, core values or cultural features – goals (if established) – basic strategies – a time period – performance criteria – important decision making rules The more specific and reasonable the vision, the greater the realization of it. Visions are useful in reducing organizational conflict.
WASO	The **Washington Support Office (WASO)** provides guidance, service, and advice, primarily to personnel at individual parks within the NPS.
WSR	The National **Wild and Scenic Rivers (WSR)** System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.


Bryce Canyon National Park


Chickasaw National Recreational Area

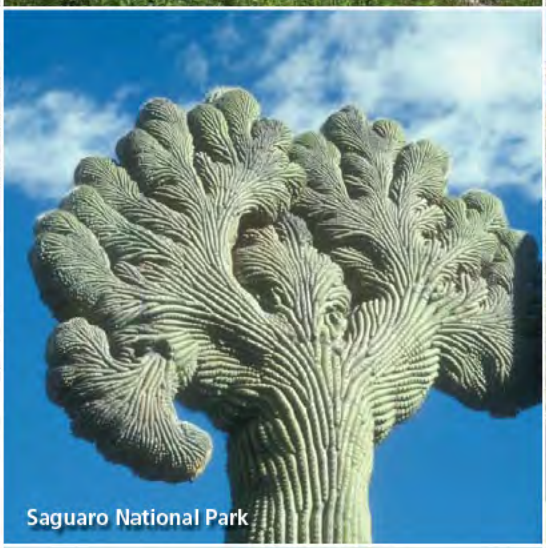

Glacier National Park

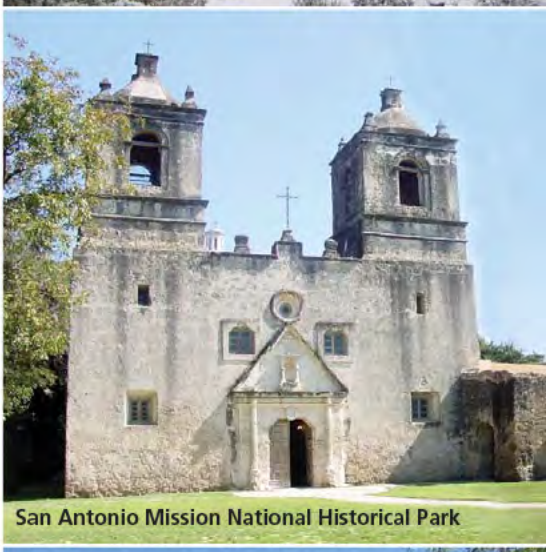

Grand Canyon National Park


Grand Teton National Park

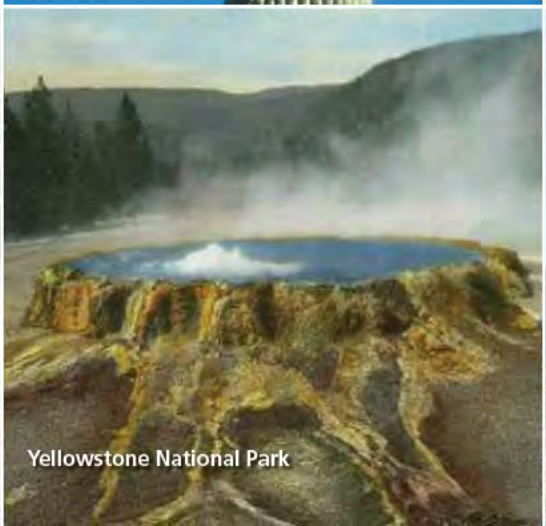

Mesa Verde National Park


Rocky Mountain National Park


Saguaro National Park


San Antonio Mission National Historical Park


White Sands National Monument


Yellowstone National Park


Zion National Park