

**Intermountain Region
Long Range Transportation Plan 2014-2035**

**Appendix H
Future Planning Scenarios Technical Report**

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Introduction

Update: This report is the output of the Planning Scenarios Workshop held for September 30, 2013. The Workshop was originally anticipated to select the Preferred Scenario from the three available options. However, the NPS Core Team felt that enough progress had been made in the analysis to allow selection of the Preferred Scenario. The Workshop purpose was adapted to begin refinement of that selection.

The report outlines the content of the three scenarios as developed during two previous workshops and the *Planning Scenarios – Assumptions and Methodologies Whitepaper, July 19, 2013*. The assumptions and methodologies whitepaper is included as an appendix to this report.

This report is intended to illustrate the three scenarios with their key characteristics and supports the presentation t by webinar 9/4/13 to the Core Team and Advisory Team.

This report was reviewed by the Core Team and Advisory Team with comments submitted to URS September 24, 2013. This final report addresses some of those comments, as needed for clarification. Remaining comments were accepted and will be addressed in the *Refine the Preferred Scenario Technical Report* and/or in the final *Long Range Transportation Plan* document.

A brief description of the Preferred Scenario is included at the end of the report.

Overview of Future Planning Scenarios

Three future planning scenarios have been selected to represent the range, or “bookends” of possible futures. Each scenario has a different amount of funding input and targets investments based on available funds and a particular focus for investments. The scenarios were evaluated by the NPS Core Team, who selected the “preferred scenario.” The preferred scenario may be any one of the three scenarios under evaluation, or a blend of desirable elements chosen to represent the Intermountain Region’s approach to meeting long term transportation challenges.

Deferred Maintenance (DM), largely reflected in Component Renewal/Recapitalization, is the largest single component of transportation need during the planning period through 2035. As a result, the planning scenarios address this need in different ways, depending on funding availability and scenario focus.

Common to All Scenarios

- Responds to LRTP Vision, Goals & Objectives
- Describes how each addresses 5 Work Types
- Funding & Financing Plan
- Key findings from previous planning phases
- Strategies to address key findings
- Performance measures
- Response to Capital Investment Strategy
- Response to other signature NPS initiatives
- Trade-offs and expected outcomes

Figures 1 and 2 show the estimated gap between projected funding and needs.

Figure 1: Total Needs and Gap 2015-2035

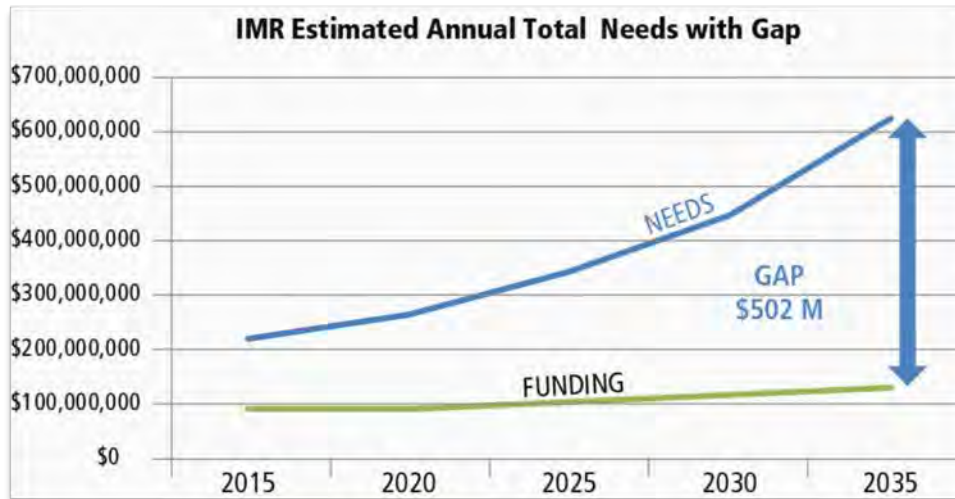
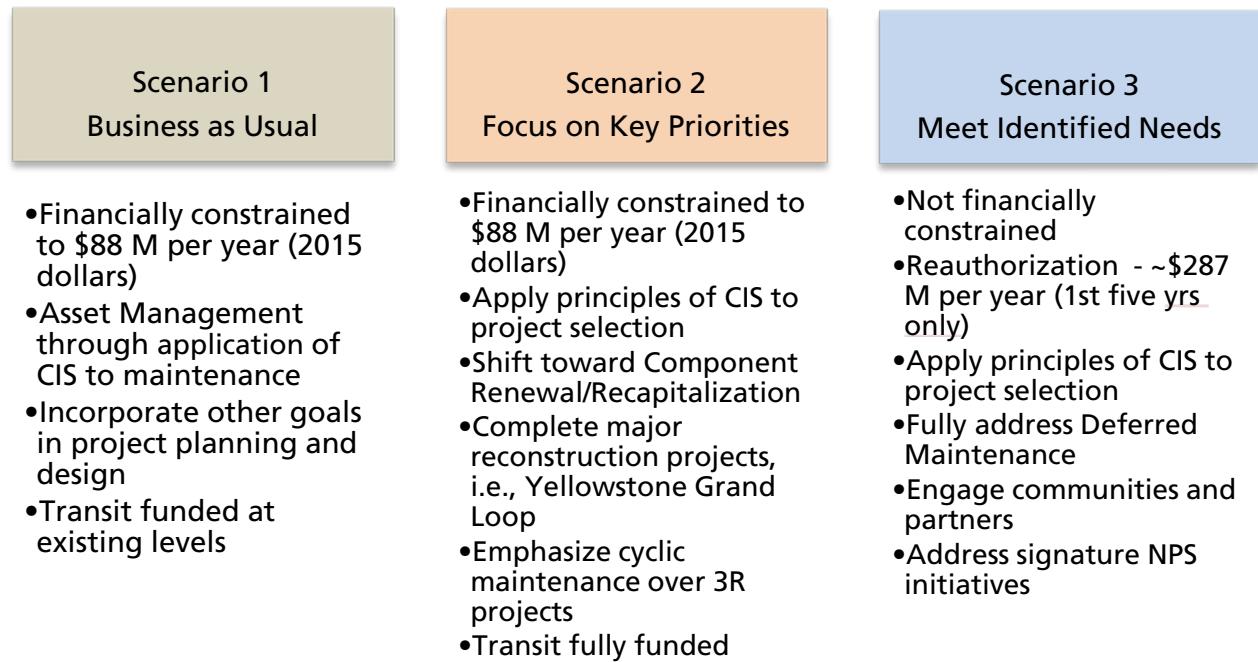


Figure 2: Total Need and Gap by Work Type

Total Needs and Gap by Work Type in 2035			
IMR TOTAL	2035 Needs	2035 Funding Forecast	2035 GAP
Maintenance	\$36,450,000	\$39,860,000	-\$3,410,000*
Component Renewal/Recapitalization	\$563,210,000	\$70,030,000	\$493,180,000
Capital Improvements/New Construction	\$4,670,000	\$2,170,000	\$2,500,000
Transit Operations	\$22,794,000	\$14,500,000	\$8,294,000
Planning	\$2,730,000	\$1,770,000	\$960,000
TOTAL NEED	\$629,844,000	\$128,330,000	\$501,514,000

* 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 negative number does not mean that there is no more maintenance to complete, but that the maintenance will be less effective, and may be more appropriate to use on renewal projects.

Figure 3: Overview - Three Future Scenarios



Scenario 1: Business as Usual: Overview of Key Assumptions and Results

The Business as Usual Scenario represents the No Action plan. The Intermountain Region will continue current programs, including provisions of the Capital Investment Strategy (CIS) that direct a large percentage of funding to preserving high priority investments, i.e., Asset Management and maintenance, to the extent possible with existing funds. The majority of investments will occur on Class 1/2 roads and in parking areas. Funding is based on an average projected rate of inflation increase of 2.1% in total transportation funds. The financial projection is considered financially constrained to the amount reasonably expected to be available during the planning period.

Key Assumptions

- Continue focus on high priority maintenance and asset management projects with emphasis on core Capital Investment Strategy and management system goals
- Yellowstone reconstruction will continue, but at a slower rate. Rather than one project every 2 years, the cycle will be 3 or 4 years per project
- Pavement preservation program will continue, at reduced levels
- Capital and known Planning needs fully funded
- Transit Operations funded at current levels
- Remaining funds directed to maintenance and recapitalization

Outcomes

- 2035 Funding Gap: \$501.5 Million
- 2035 Average Pavement Condition Rating (PCR): 65.1
- 2035 Estimated DM Gap: \$576 Million (to reach PCR of 85)

Performance by Goal Area

- 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 Capital Investment Strategy is addressed by focusing on maintenance needs on high value/high use assets.
- Other goals - Mobility, Access, and Connectivity; Visitor Experience; Resource Protection; and Sustainable Operations will be addressed to the extent those needs may be addressed during project planning, design and implementation in Asset Management type projects. General conditions in these goal areas will decline.
- Transit operations (funded by Transportation Fees) and capital needs will be in deficit by 2014.

Scenario 2: Focus on Key Priorities: Overview of Key Assumptions and Results

The Focus on Key Priorities Scenario emphasizes future transportation investments in several chosen areas in response to specific high API needs on publicly accessible assets. The scenario shifts investments toward component renewal/recapitalization, especially on major class 1 roadways that require very large expenditures, including reconstruction of the Grand Loop in Yellowstone. This scenario also fully funds transit operations and transit capital needs. Funding is based on an average annual 2.1% increase in total transportation funds, the average projected rate of inflation, and is considered financially constrained to the amount reasonably expected to be available during the planning period.

Key Assumptions

- Continue implementation of Capital Investment Strategy core goals, with emphasis on reconstruction of high value assets
- All paved assets will received a pavement preservation treatment on an 8 year cycle.
- Yellowstone reconstruction will continue, on current pace with longer segments on each project
- Pavement Preservation Program will continue as funding allows
- Capital and Planning needs fully funded
- Transit Operations fully funded from Transportation Fee and other sources.
- Remaining funds directed to maintenance and other recapitalization projects

Outcomes

- 2035 Funding Gap: \$538.9 Million
- 2035 Average PCR: 62.2
- 2035 Estimated DM Gap: \$660 Million (to reach PCR of 85)

Performance by Goal Area

- Asset Management will see a large unfunded gap, growing over time largely due to the inability to fully fund maintenance activities while focusing on component renewal/recapitalization needs. The Capital Investment Strategy is addressed through component renewal/recapitalization projects on high value/high use assets.
- Mobility, Access, and Connectivity will improve over the baseline condition somewhat due to fully funding transit operations and transit capital needs. Improvements will also occur due to roadway component renewal/recapitalization resulting in somewhat less congestion, bridge reconstruction/widening, and wider shoulders.
- Visitor Experience will improve slightly with reductions in wait times for transit will improve over the baseline condition and by roadway component renewal/recapitalization projects resulting in a smoother ride, safer conditions, and other ancillary improvements.
- Resource Protection will have small improvements due to transit availability and less dependence on private vehicles.
- Sustainable Operations goals will be addressed primarily to the extent those needs may be incorporated in Asset Management type projects. Stable funding for transit is a benefit to that mode, but at the expense of other Asset Management goals.

Scenario 3: Meet Identified Needs: Overview of Key Assumptions and Results

The Meet Identified Needs Scenario is designed to meet those needs identified in the *Needs Assessment Technical Report*. Funding input derives from an assumed increase due to the NPS request for the next federal transportation reauthorization. The IMR share of the national reauthorization request (\$970 million) is \$287 million (29.65%). The history of reauthorization efforts indicates that the National Park Service is not typically awarded the full amount requested. For this reason, the scenario is characterized as not financially constrained, since the full amount of these additional funds cannot be guaranteed.

Key Assumptions

- All infrastructure assets receive recommended minimum treatment each 5-year cycle
- Capital and planning needs fully funded
- Transit operations fully funded

Outcomes

- 2035 funding surplus: \$63.7 million
- 2035 Average PCR: 87.5
- 2035 Estimated DM surplus: \$71 million (in excess of PCR 85)

Performance by Goal Area

- Asset Management – Maximum improvements, including completing all recommended pavement treatments and other transportation infrastructure maintenance and recapitalization/component renewal. The CIS is fully implemented.
- Mobility, Access, and Connectivity – Maximum improvements to all aspects of MAC, including congestion relief. Existing transit systems are fully funded, with new systems in place at ARCH, LIBI, and BAND per plans. Safety needs are met as part of roadway improvement projects, and major pedestrian/non-motorized facilities can be completed.
- Visitor Experience is improved with fully operational existing transit systems, improved communications/information infrastructure and operations and wayfinding.
- Resource Protection will be improved by mitigating environmental impacts related to roadways and through the CIS by removing or repurposing underutilized transportation assets and restoring sites to a natural condition, where possible. Other progress in the goal will occur due to improvements in transit availability and less dependence on private vehicles.
- Sustainable Operations will be substantially improved by fully funding all operations over the long term, addressing climate change at the regional level, engaging partners in mutually beneficial programs, and providing better connections between parks and communities.

Business as Usual - Detailed Description

The current program, or the Business as Usual Scenario, implements core provisions of the Capital Investment Strategy and will serve as the No Action Scenario as described in the scope of work. The current program allocates approximately 86% of total IMR program funds to maintenance and other asset management. Each of the other goals is addressed to some extent with current practices, but is not the principal focus of how the IMR spends the majority of its funds, due in many cases to funding program restrictions. The principal strategy for investment in goals other than Asset Management lies within the interrelated benefits in Mobility, Access and Connectivity; Visitor Experience; Resource Protection; and Sustainable Operations. Benefits accrue to the transportation system, visitors and the National Park Service as part of many projects, including infrastructure maintenance.

Needs and Funding

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

- Financially constrained to \$88.3 million (2015 dollars).
- 2.1% annual growth keeps pace with inflation.
- FLTP funds 61%
- All other funds 39%.
- Pavement Preservation Program includes all paved assets using FLTP and Cyclic Maintenance funds.
- All capital improvements/new construction needs fully met.
- Rehabilitation and recapitalization projects funded based on available funds - Priority to Class 1, 2 and parking (publicly accessible assets).
- Currently funding Yellowstone Recap at \$11M /year.
- Currently funding GTSR recap at \$8M/year through 2014.
- Transit funded at current level with Transportation Fee - excess need met by shifting funds from other non-transportation sources.
- All planning needs fully met.

Figure 4: Business as Usual: Needs - Funding - Gap

Business As Usual					
WORK TYPE	2015	2020	2025	2030	2035
Capital Improvements/New Construction Needs	\$3,230,000	\$3,820,000	\$4,070,000	\$4,350,000	\$4,670,000
Maintenance Needs	\$31,200,000	\$38,100,000	\$13,300,000	\$63,000,000	\$9,400,000
Component Renewal/Recap Needs	\$166,080,000	\$202,430,000	\$303,490,000	\$363,840,000	\$590,260,000
Transit Operations Needs	\$13,984,000	\$16,656,000	\$18,494,000	\$20,544,000	\$22,794,000
Planning Needs	\$2,220,000	\$2,330,000	\$2,450,000	\$2,580,000	\$2,730,000
Total Needs	\$216,714,000	\$263,336,000	\$341,804,000	\$454,314,000	\$629,854,000
Annual Funding	\$88,290,000	\$93,960,000	\$104,240,000	\$115,660,000	\$128,330,000
Funding Gap	-\$128,424,000	-\$169,376,000	-\$237,564,000	-\$338,654,000	-\$501,514,000

Figure 5: Business as Usual - Need vs. Funding

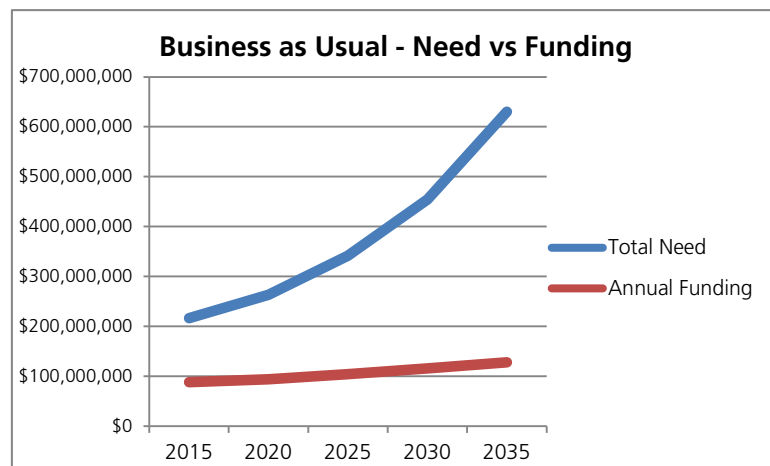
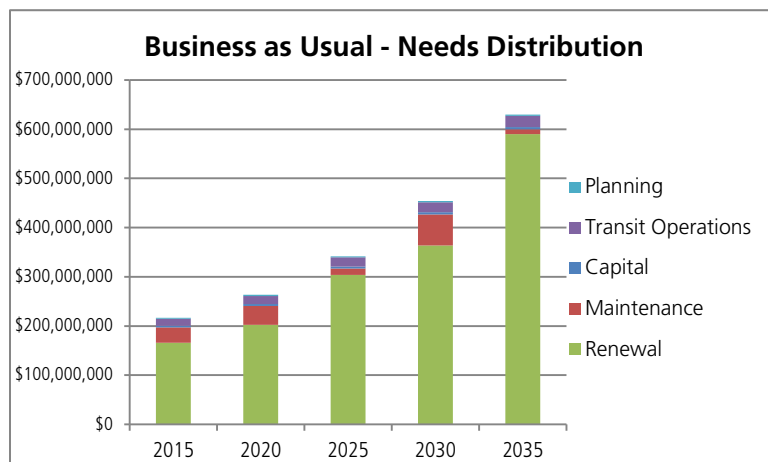


Figure 6: Business as Usual - Needs Distribution



Key Findings to Address

The following key findings from previous technical reports in the Intermountain Region Long Range Transportation Plan were chosen as those that can best be addressed by this strategy. Please see *Baseline Conditions*, *Macro Trends for Transportation*, *Financial Analysis*, and *Needs Assessment Technical Reports* for additional information.

Figure 7: Key Findings to Address with Business as Usual Scenario

Key Findings to Address with Business as Usual Scenario	
Baseline Conditions	Declining roadway and parking area pavement conditions Wildlife/Vehicle crashes Total Cost of Facility Ownership
Macro Trends for Transportation	Asset Management/Capital Investment Strategy/Performance Measurement
Financial Analysis	\$128 M total funding available Focus on asset condition and cost of new improvements
Needs Assessment	Zero sum investment scenario reflects lack of funding growth Hidden costs of cultural resource management

Strategies

Asset Management

- Apply the majority of funds (~86%) from all fund sources to major roads and parking areas (Class 1 and 2).
- Apply FLTP funds as available to main park roads and parking (Class 1 and 2) using MPMA outputs.
- Support the Yellowstone and Arches road reconstruction efforts with \$11 M/year FLTP funds.
- Use Management System data, bridge, road, parking lot in the selection of FLTP projects.
- Utilize approved NPS criteria, including CIS as it comes on line for transportation projects, and Choosing by Advantages (CBA) for selecting projects.
- Utilize Cyclic Maintenance and FLTP funds to support the regional pavement preservation program.
- Continue to provide assistance to parks with engineering, safety and other infrastructure technical support.
- Continue to manage multi-year program (TIP) with flexibility to develop shelf projects and take advantage of additional funding opportunities.

Mobility, Access and Connectivity

- Support existing major transit systems planning, some infrastructure improvements and some recapitalization of buses using Category III funds.
- Provide support for multimodal projects and planning projects to enhance connections with gateway communities as funding permits.

Visitor Experience

- Apply the majority of funding to highly used visitor assets.
- Provide parks assistance with wayfinding projects to enhance signage and other forms of information sharing, including ITS.

- Continue Bicycle Road Safety Audit and Road Safety Audit programs.

Resource Protection

- Continue the practice of reviewing underutilized pavement facilities that could be removed in sensitive key resource areas and adding that work to project scope during project scoping, as funding allows.
- Consider relocating existing facilities that impact resources to a less impactful area, where appropriate.
- Continue robust compliance efforts to survey and record natural and cultural resources located near or adjacent to project sites.
- Continue robust revegetation and landscape restoration efforts on all FLTP projects.
- Support fish/small mammal passage in culverts.

Sustainable Operations

- Continue to provide maintenance treatments to reconstructed assets.
- Develop transportation planning documents that support sustainability efforts, including economic and environmental.
- Continue to support parks in developing climate change plans.

Trade-offs and Outcomes

Capital Investment Strategy

The Intermountain Region will continue to use management systems, criteria and the CIS to prioritize projects demonstrating commitment to park operations and maintenance. This scenario will focus on Cyclic Maintenance and FLTP funds to support the regional pavement preservation program on highly used and other assets critical to the parks' mission.

Analysis: The Business as Usual Scenario will continue to apply core CIS principals to high priority asset management projects, demonstrating a commitment to operations and maintenance as a priority. While conducting cyclic maintenance on recommended schedules will extend the useful service life of treated roads, the focus on immediate cyclic and other maintenance needs will not allow the Intermountain Region to address longstanding DM. As a result, additional roadway mileage PCR will decline sufficiently to require more extensive heavy 3R reconstruction, much of which will not be affordable under this scenario.

Outcome: 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 DM is projected to grow from \$432 million to \$576 million during that time. Under current funding, the Intermountain Region will not be able to prevent a continued decline in asset condition, including pavement. The inability to conduct timely maintenance and lack of funding to complete major reconstruction projects on schedule will contribute to large growth in DM over time.

Figure 8: Business as Usual - Pavement Condition & Deferred Maintenance

Pavement Condition & Deferred Maintenance	2015	2020	2025	2030	2035
Ave PCR	69.7	68.1	66.4	67.4	65.1
DM Gap (85 PCR)	-\$432 M	-\$489 M	-\$539 M	-\$510 M	-\$576 M

Other NPS Signature Initiatives

The National Park Service has embarked upon several initiatives (in addition to the Capital Investment Strategy) designed to address special challenges for the agency in the near, medium, and long terms. Each has a high level of urgency for the agency. The planning scenarios respond to the initiatives with somewhat different strategies, as projected funds and areas of emphasis dictate. In some cases, appropriate responses may be integrated into IMR management strategies and day to day business without undue costs. In other cases, implementing the vision incorporated in the initiatives will require financial investments that may be practical to one extent or another within the bounds of each scenario. This report provides an overview of the trade-offs and outcomes for each initiative inherent to each scenario. For more information about the initiatives addressed here, see *Macro Trends for Transportation Technical Report (October 2012)*.

Call to Action. The *Call to Action* is built around four themes: Connecting People to Parks, Advancing the NPS Education Mission, Preserving America’s Special Places, and Enhancing Professional and Organizational Excellence. The Director calls for an analytic approach to creating “a national system of parks and protected sites (rivers, heritage areas, trails, and landmarks) that fully represents our natural resources and the nation’s cultural experience” by the National Park Service Centennial in 2016 (*Call to Action 2011*).

Analysis: The Business as Usual Scenario will have limited opportunities to implement two core provisions of the *Call to Action* due to constrained funding.

Connect People to the Parks: Connecting urban communities to parks through transit, trails, waterways, and green spaces would require significant financial and time investments. Under this scenario, no expansion of transit services is anticipated and even existing services are at risk. Additional trail connections may be built, but the agency is generally constrained to construction within park boundaries. The agency may partner with other federal lands agencies or local governments on a case-by-case-basis to plan trail networks.

Ensure Sustainable Funding Structures: The action item to secure additional funding sources as envisioned in the *Call to Action* falls generally out of the bounds of this financially constrained scenario. The scenario focuses on maintaining current assets to the extent possible with limited funds. Few new assets will be added to the portfolio.

Outcome: Minimal gains.

Green Parks Plan. The *NPS Green Parks Plan*, a collaborative product developed by staff from parks, regions, and national support offices, establishes the direction for the agency as it seeks to incorporate sustainable principles throughout all activities. It endorses a set of primary goals to improve environmental performance across the parks and takes into account the facility management life cycle—from planning, design, and construction, to operations, maintenance, and disposition.

Analysis: Many of the aspects of the *Green Parks Plan* can be integrated in the everyday business of the parks without significant additional expense. The role of the Intermountain Region under this scenario will be to encourage projects that meet Green Parks Plan goals and to emphasize the goals in project selection and funding. The plan uses nine strategic goals for how the National Park Service will approach transportation, including:

Figure 9: Green Parks Plan Goals and Business as Usual Scenario Response

Green Parks Plan Goals and Business as Usual Scenario Response	
Continuously Improve Environmental Performance	Improve through project selection criteria and project funding awards as possible.
Be Climate Friendly and Climate Ready	Improve through project selection criteria and project funding awards as possible.
Be Energy Smart	Improve through project selection criteria and project funding awards as possible, although limited application to transportation.
Be Water Wise	Improve through project selection criteria and project funding awards as possible, although limited application to transportation.
Green Our Rides	Support the purchase and operation of clean energy transit and administrative fleets where cost and operationally effective.
Buy Green and Reduce, Reuse, and Recycle	Encourage at the individual park level.
Preserve Outdoor Values	Support through project selection criteria and project funding awards as possible.
Adopt Best Practices	Support planning initiatives to research and select best practices as limited planning funds permit.
Foster Sustainability Beyond National Park Service Boundaries	Educational and communication efforts to visitors will focus on the core mission of each park. Enhanced efforts to establish a leadership role will be limited by funding.

Outcome: Modest gains as possible within existing funding limits.

NPS Integrated Climate Change Response Strategy. The National Park Service Integrated Climate Change Response Strategy provides agency direction to address the impacts of climate change. It describes goals and objectives to guide National Park Service actions under four integrated components: science, adaptation, mitigation, and communication. The strategy includes the Climate Friendly Parks Program and associated Climate Change Action Plans. Full implementation of the strategy requires extensive collaboration within the agency as well as with partner agencies. It also requires a significant investment in time, resources, and in some cases, a change in management principals. There is a significant role for education and leadership that crosses agency lines.

Analysis: The region will not make significant headway in the climate change field under the Business as Usual scenario due to limitations in financial resources and the focus on asset management. The region will strive to raise the awareness of the potential effects of climate change at the park level, and encourage adaptation and mitigation as budgets permit.

Outcome: Minimal Gains

Figure 10: NPS Integrated Climate Change Response Strategy and Business as Usual Scenario Response

NPS Integrated Climate Change Response Strategy and Business as Usual Scenario Response	
Science Goals	Under this scenario, the Intermountain Region will have limited ability to extend the scientific knowledge base. National leadership will be required in order to further the science of climate change. The region will not adopt a strong leadership role, but will encourage planning and the implementation of projects that evaluate and manage greenhouse gas emissions, within available funds.
Adaptation Goals	The region will encourage individual parks to complete Climate Change Action Plans, but will not establish a regional program to monitor, adapt, or mitigate impacts.
Mitigation Goals	The region will encourage individual parks to reduce their carbon footprints and will consider climate change as part of project selection.
Communication Goals	The region will be unable to foster a strong communication program based on research, modeling, and subsequent selection of best management practices, except as proposed by others.

Performance Measures

Performance measures have been selected to support the strategies addressed by this scenario. A fully developed performance measurement program typically measures the progress toward a goal, or target. This LRTP does not establish performance targets, but relies on both quantifiable and subjective measures. It does not create the need for metrics that are not easily obtainable through existing data. Where possible, the actual numbers should be reported. For example, 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.

Asset Management

1. Pavement Condition, measured as annual change in PCR for Class 1 and 2 roads and parking areas.
2. Transportation facilities condition, measured by annual change in FCI.
3. DM, measured by annual amount recognized by FCI.

Mobility, Access, and Connectivity

1. Financial status of NPS-operated transit systems, measured in percent of operations and capital needs funded for next five years.
2. Number of projects with multimodal components obligated in most recent year.

Visitor Experience

1. Percent of all transportation funds obligated to Tier 1 and Tier 2 assets.
2. Amount obligated in most recent year wayfinding, signage, and ITS.

Resource Protection

1. Square footage of facilities relocated or closed due to resource impacts.
2. Square footage of areas revegetated in conjunction with transportation projects.
3. Number of animal passageways obligated separately and in conjunction with transportation projects.

Sustainable Operations

1. Annual change in DM for transportation assets.
2. Amount obligated to economic or environmental sustainability or climate change planning.
3. Number of Intermountain Region Parks with completed/in-process Climate Change Action Plans.

Scenario 2: Focus on Key Priorities - Detailed Description

The Focus on Key Priorities Scenario emphasizes future transportation investments in several chosen areas in response to specific high value needs. A pronounced shift toward component renewal/recapitalization, especially on major class 1 roadways that require very large expenditures, includes reconstruction of the Grand Loop in Yellowstone. Other major component renewal/recapitalization projects will be similarly funded. This scenario also fully funds transit operations and transit capital needs.

The scenario will continue other provisions of the Business as Usual Scenario, as funding permits. Each of the other LRTP goals will be addressed to some extent, but is limited by the focus on fewer, high value projects that reduce existing DM at a faster rate than is possible under Business as Usual. However, delaying cyclic maintenance on other assets will contribute to the need for a greater investment and overall growth in DM over time.

The scenario fully supports the CIS by using its core principals to select projects on high use, high value assets.

The principal strategy for investment in goals other than Asset Management lies within the interrelated benefits in Mobility, Access and Connectivity; Visitor Experience; Resource Protection; and Sustainable Operations. Benefits accrue to the transportation system, visitors and the National Park Service as part of many projects, including infrastructure maintenance.

Need vs. Funding

Funding is based on an average 2.1% increase in total transportation funds, the rate average projected rate of inflation, and is considered financially constrained to the amount reasonably expected to be available during the planning period.

- Financially constrained to \$88.3 million (2015 dollars).
- 2.1% average annual growth keeps pace with inflation.
- FLTP funds 61%
- All other funds 39%.
- Component renewal/recapitalization needs are fully met (YELL National Significant Project)
- Assets treated Pavement Preservation Program funds - priority to Class 1, 2, and parking.
- Transit is fully funded by shifting FLTP funds from maintenance and component renewal/recapitalization to transit operations and capital renewal.
- All identified capital improvement needs fully met.
- All identified planning needs fully met.

Figure 11: Focus on Key Priorities - Needs - Funding - Gap

Focus on Key Priorities					
WORK TYPE	2015	2020	2025	2030	2035
Capital Improvements/New Construction Needs	\$3,230,000	\$3,820,000	\$4,070,000	\$4,350,000	\$4,670,000
Maintenance Needs	\$31,200,000	\$38,100,000	\$14,900,000	\$76,100,000	\$11,300,000
Component Renewal/Recap Needs	\$166,080,000	\$202,430,000	\$303,740,000	\$370,100,000	\$625,698,000
Transit Operations Needs	\$13,984,000	\$16,656,000	\$18,494,000	\$20,544,000	\$22,794,000
Planning Needs	\$2,220,000	\$2,330,000	\$2,450,000	\$2,580,000	\$2,730,000
Total Needs	\$216,714,000	\$263,336,000	\$343,654,000	\$473,674,000	\$667,192,000
Annual Funding	\$88,290,000	\$93,960,000	\$104,240,000	\$115,660,000	\$128,330,000
Funding Gap	-\$128,424,000	-\$169,376,000	-\$239,414,000	-\$358,014,000	-\$538,862,000

Figure 12: Focus on Key Priorities - Need vs. Funding

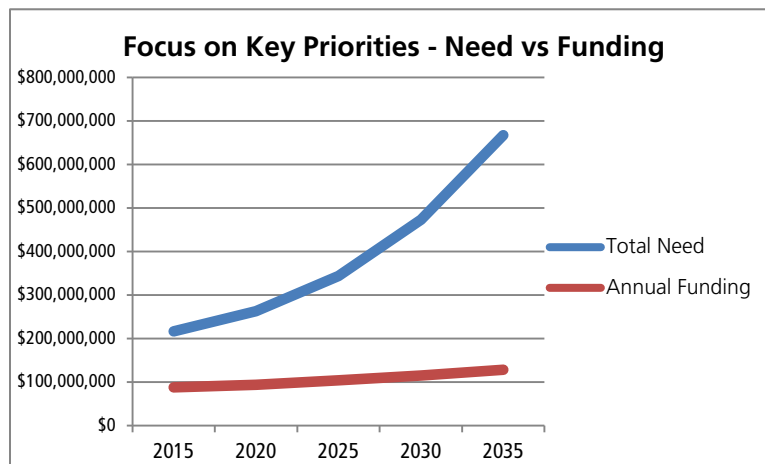
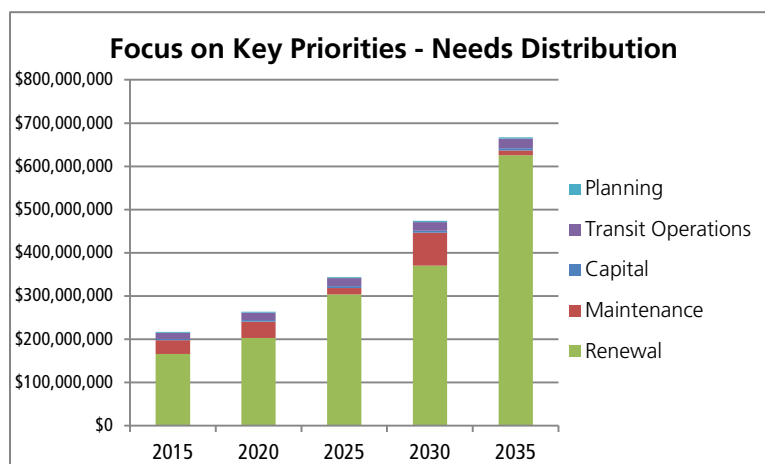


Figure 13: Focus on Key Priorities - Needs Distribution



Key Findings to Address

The following key findings from previous technical reports in the Intermountain Region Long Range Transportation Plan were chosen as those that can best be addressed by this strategy. Please see *Baseline Conditions*, *Macro Trends for Transportation*, *Financial Analysis*, and *Needs Assessment Technical Reports* for additional information.

Figure 14: Key Findings to Address with Focus on Key Priorities Scenario

Key Findings to Address with Focus on Key Priorities Scenario	
Baseline Conditions	75% of needs are in large parks with high visitation, where visitation continues to grow Large vehicle impacts: congestion, pavement condition, parking, safety Total Cost of Facility Ownership
Macro Trends for Transportation	Distribution of visitation growth is concentrated in iconic parks across the IMR Growing demand for more developed facilities and less primitive experience Asset management and performance measurement
Financial Analysis	Transit operations costs are increasing at unsustainable rate
Needs Assessment	Transit operations sustainable through 2014 only

Strategies

Due to the shift in focus for the Focus on Key Priorities Scenario, component renewal on Class 1 roads, transit vehicle recapitalization, and transit operations are off the top priority strategies. Other strategies will be funded as resources allow.

Asset Management

- Fully fund the Yellowstone and other Nationally Significant Projects.
- Fully fund transit recapitalization needs.
- Apply remaining FLTP funds as available to maintenance of other park roads and parking (Class 1 and 2).
- Use Management System data, bridge, road, parking lot in the selection of FLTP projects.
- Utilize approved NPS criteria, including CIS as it comes on line for transportation projects, and CBA for selecting projects.
- Utilize Cyclic Maintenance and FLTP funds to support the regional pavement preservation program.
- Continue to provide assistance to parks with engineering, safety and other infrastructure technical support.

Mobility, Access and Connectivity

- Fully fund existing transit operations through 2035 using CAT III, and supported by FLTP.
- Fully fund infrastructure improvements and recapitalization of buses for existing transit systems as described in related transit *pro forma* using FLTP funds.
- Provide support for multimodal projects and planning projects to enhance connections with gateway communities as funding permits.

Visitor Experience

- Apply the majority of available funding to highly used visitor assets. All fund sources - 39%. FLTP - 61%.

- Provide parks assistance with wayfinding projects to enhance signage and other forms of information sharing, including ITS, as funding permits.
- Continue Bicycle Road Safety Audit and Road Safety Audit programs.

Resource Protection

- Continue the practice of reviewing potential pavement facilities that could be removed and adding that work to project scope during project scoping, as funding allows.
- Consider relocating existing facilities that impact resources to a less impactful area, where appropriate.
- Continue robust compliance efforts to survey and record natural and cultural resources located near or adjacent to project sites.
- Continue robust revegetation and landscape restoration efforts on all FLTP projects.
- Support fish/small mammal passage in culverts.

Sustainable Operations

- Continue to provide maintenance treatments to reconstructed assets.
- Develop transportation planning documents that support sustainability efforts, including economic and environmental.
- Continue to support parks in developing climate change plans.

Trade-offs and Outcomes

Capital Investment Strategy

The Intermountain Region will continue to implement aspects of the CIS. This scenario will focus on component renewal with FLTP funds to support the major reconstruction projects on highly used and other assets critical to the parks' mission.

Analysis: The Focus on Key Priorities Scenario will continue to apply core CIS principals to high priority asset management projects, demonstrating a commitment to operations and maintenance as a priority. The focus will be on major reconstruction projects, particularly the Yellowstone Grand Loop reconstruction, so as to complete it within the planning period. Other cyclic maintenance on recommended schedules will be performed as funds allow. The focus on longstanding DM will reduce the ability to address immediate cyclic and other maintenance needs on other roadways. As a result, additional roadway mileage will decline sufficiently in PCR to require more extensive heavy 3R reconstruction, much of which will not be affordable under this scenario.

Outcome: The average PCR of IMR roads is estimated to decline from 69.7 in 2015 to 62.2 in 2035, even lower than the Business as Usual Scenario. The gap between available funds and DM is projected to grow from \$432 million to \$660 million during that time – higher than the Business as Usual Scenario. Under current funding, the Intermountain Region will not be able to prevent a continued decline in asset condition, including pavement. The inability to conduct timely cyclic maintenance on schedule will contribute to the large growth in DM over time.

Figure 15: Focus on Key Priorities - Pavement Condition & Deferred Maintenance

Pavement Condition & Deferred Maintenance	2015	2020	2025	2030	2035
Ave PCR	69.72	68.1	65.6	65.4	62.2
DM Gap (85 PCR)	-\$432 M	-\$489 M	-\$562 M	-\$568 M	-\$660 M

Other NPS Signature Initiatives

The National Park Service has embarked upon several initiatives (in addition to the CIS) designed to address special challenges for the agency in the near, medium, and long terms. Each has a high level of urgency for the agency. The planning scenarios respond to the initiatives with somewhat different strategies, as projected funds and areas of emphasis dictate. In some cases, appropriate responses may be integrated into IMR management strategies and day to day business without undue costs. In other cases, implementing the vision incorporated in the initiatives will require financial investments that may be practical to one extent or another within the bounds of each scenario. This report provides an overview of the trade-offs and outcomes for each initiative inherent to each scenario. For more information about the initiatives addressed here, see *Macro Trends for Transportation Technical Report* (October 2012).

Call to Action. The *Call to Action* is built around four themes: Connecting People to Parks, Advancing the NPS Education Mission, Preserving America’s Special Places, and Enhancing Professional and Organizational Excellence. The Director calls for an analytic approach to creating “a national system of parks and protected sites (rivers, heritage areas, trails, and landmarks) that fully represents our natural resources and the nation’s cultural experience” by the National Park Service Centennial in 2016 (*Call to Action* 2011).

Analysis: The Focus on Key Priorities Scenario will have limited opportunities to implement two core provisions of the *Call to Action* due to constrained funding.

Connect People to the Parks: Connecting urban communities to parks through transit, trails, waterways, and green spaces would require significant financial and time investments. Under this scenario, no expansion of transit services is anticipated and even existing services are at risk. Additional trail connections may be built, but the agency is generally constrained to construction within park boundaries. The agency may partner with other federal lands agencies or local governments on a case-by-case-basis to plan trail networks.

Ensure Sustainable Funding Structures: The action item to secure additional funding sources as envisioned in the *Call to Action* falls generally out of the bounds of this financially constrained scenario. The scenario focuses on maintaining current assets to the extent possible with limited funds. Few new assets will be added to the portfolio.

Outcome: Minimal gains.

Green Parks Plan. The *NPS Green Parks Plan*, a collaborative product developed by staff from parks, regions, and national support offices, establishes the direction for the agency as it seeks to incorporate sustainable principles throughout all activities. It endorses a set of primary goals to improve environmental performance across the parks and takes into account the facility management life cycle—from planning, design, and construction, to operations, maintenance, and disposition.

Analysis: Many of the aspects of the *Green Parks Plan* can be integrated in the everyday business of the parks without significant additional expense. The role of the Intermountain Region under this scenario will be to encourage projects that meet *Green Parks Plan* goals and to emphasize the goals in project selection and funding. The plan uses nine strategic goals for how the National Park Service will approach transportation, including:

Figure 16: Green Parks Plan Goals and Focus on Key Priorities Scenario Response

Green Parks Plan Goals and Focus on Key Priorities Scenario Response	
Continuously Improve Environmental Performance	Improve through project selection criteria and project funding awards as possible.
Be Climate Friendly and Climate Ready	Improve through project selection criteria and project funding awards as possible.
Be Energy Smart	Improve through project selection criteria and project funding awards as possible, although limited application to transportation.
Be Water Wise	Improve through project selection criteria and project funding awards as possible, although limited application to transportation.
Green Our Rides	Support the purchase and operation of clean energy transit and administrative fleets where funding allows and operationally effective.
Buy Green and Reduce, Reuse, and Recycle	Encourage at the individual park level.
Preserve Outdoor Values	Support through project selection criteria and project funding awards as possible.
Adopt Best Practices	Support planning initiatives to research and select best practices as limited planning funds permit.
Foster Sustainability Beyond National Park Service Boundaries	Educational and communication efforts to visitors will focus on the core mission of each park. Enhanced efforts to establish a leadership role will be limited by funding.

Outcome: Modest gains as possible within existing funding limits.

NPS Integrated Climate Change Response Strategy. The National Park Service Integrated Climate Change Response Strategy provides agency direction to address the impacts of climate change. It describes goals and objectives to guide National Park Service actions under four integrated components: science, adaptation, mitigation, and communication. The strategy includes the Climate Friendly Parks Program and associated Climate Change Action Plans. Full implementation of the strategy requires extensive collaboration within the agency as well as with partner agencies. It also requires a significant investment in time, resources, and in some cases, a change in management principals. There is a significant role for education and leadership that crosses agency lines.

Analysis: The region will make only minimal improvements in the climate change field under the Focus on Key Priorities Scenario due to limitations in financial resources and the focus on asset management. The region will strive to raise the awareness of the potential effects of climate change at the park level, and encourage adaptation and mitigation as budgets permit.

Outcome: Minimal gains.

Figure 17: NPS Integrated Climate Change Response Strategy and Focus on Key Scenario Response

NPS Integrated Climate Change Response Strategy and Focus on Key Priorities Scenario Response	
Science Goals	Under this scenario, the Intermountain Region will have limited ability to extend the scientific knowledge base. National leadership will be required in order to further the science of climate change. The region will not adopt a strong leadership role, but will encourage planning and the implementation of projects that evaluate and manage greenhouse gas emissions, with in available funds.
Adaptation Goals	The region will encourage individual parks to complete Climate Change Action plans, but will not establish a regional program to monitor, adapt, or mitigate impacts.
Mitigation Goals	The region will encourage individual parks to reduce their carbon footprints and will consider climate change as part of project selection.
Communication Goals	The region will be unable to foster a strong communication program based on research, modeling, and subsequent selection of best management practices, except as proposed by others.

Performance Measures

Performance measures have been selected to support the strategies addressed by this scenario. A fully developed performance measurement program typically measures the progress toward a goal, or target. This LRTP does not establish performance targets, but relies on both quantifiable and subjective measures. It does not create the need for metrics that are not easily obtainable through existing data. Where possible, the actual numbers should be reported. For example, 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.

Asset Management

1. Pavement Condition, measured as annual change in PCR for Class 1 and 2 roads and parking areas.
2. Transportation facilities condition, measured by annual change in FCI.
3. DM, measured by annual amount recognized by FCI.

Mobility, Access, and Connectivity

1. Financial status of NPS-operated transit systems, measured in percent of operations and capital needs funded for next five years.
2. Number of projects with multimodal components obligated in most recent year.

Visitor Experience

1. Percent of all transportation funds obligated to Tier 1 and Tier 2 assets.
2. Amount obligated in most recent year wayfinding, signage, and ITS.

Resource Protection

1. Square footage of facilities relocated or closed due to resource impacts.
2. Square footage of areas revegetated in conjunction with transportation projects.
3. Number of animal passageways obligated separately and in conjunction with transportation projects.

Sustainable Operations

1. Annual change in DM for transportation assets.
2. Amount obligated to economic or environmental sustainability or climate change planning.
3. Number of Intermountain Region Parks with completed/in-process Climate Change Action Plans.

Scenario 3: Meet Identified Needs - Detailed Description

The Meet Identified Needs Scenario is designed to address all needs described in the *Needs Assessment Technical Report* across all categories. This is the only proposed scenario that will achieve substantial improvements in all LRTP goal areas. Most importantly, it erases the gap in DM and achieves an estimated average PCR 85 by 2025, which can be maintained over time.

These gains can be achieved only with a large increase in funding as proposed in this scenario. The increase is the product of the IMR share of a possible federal reauthorization. The current estimate of the IMR share of reauthorization is approximately \$287 million per year. The estimate is based on the *NPS Transportation Reauthorization Resource Paper* that includes \$770 million nationally to “Theme 1: Restore and Maintain Core Transportation Infrastructure” and \$200 million in “Theme 2: Address Transportation Needs Beyond the Capacity of the Core Program,” for a total \$970 million annually for the entire agency. The traditional IMR share is 29.65% (\$287 million) and was chosen to reflect the history of the ratio of what the NPS requests and what it actually has received in recent authorizations. This additional funding will be considered “fiscally unconstrained” for the purposes of this plan.

This scenario forms a useful comparison to the financially constrained scenarios and describes actions to implement the required investments. Note that this approach is a substantive change from the preliminary scenario which was limited to about 10 percent of the amount requested in reauthorization. The Core Team determined that matching required funds to meet all needs constitutes a valid and reasonable approach for analysis purposes. It is possible that this approach will be modified in some way for the Preferred Scenario.

Need vs. Funding

- IMR share of reauthorization request ~\$287 M (29.65% of \$850 M).
- Full amount of reauthorization request only required for first five years (2015-2019).
- Funding drops back beginning 2020 to current amount plus average annual 2.1% average annual inflation.
- Component renewal/recapitalization needs are fully met.
- Pavement maintenance program treats all assets on recommended schedule.
- Transit operations and capital renewal for existing systems fully funded.
- All capital improvement needs fully met.
- All planning needs fully met.
- Surplus of \$25 M to \$64 M available beginning 2025. Funds beyond identified needs can be used for other MAC, VE, RP, and Sustainable Operations investments.

Figure 18: Meet Identified Needs - Needs - Funding - Gap

Meet Identified Needs					
WORK TYPE	2015	2020	2025	2030	2035
Capital Improvements/New Construction Needs	\$3,230,000	\$3,820,000	\$4,070,000	\$4,350,000	\$4,670,000
Maintenance Needs	\$7,800,000	\$4,900,000	\$9,500,000	\$17,700,000	\$29,100,000
Component Renewal/Recap Needs	\$151,280,000	\$94,990,000	\$45,480,000	\$15,600,000	\$5,350,000
Transit Operations Needs	\$13,984,000	\$16,656,000	\$18,494,000	\$20,544,000	\$22,794,000
Planning Needs	\$2,220,000	\$2,330,000	\$2,450,000	\$2,580,000	\$2,730,000
Total Needs	\$178,514,000	\$122,696,000	\$79,994,000	\$60,774,000	\$64,644,000
Annual Funding	\$287,000,000	\$93,960,000	\$104,240,000	\$115,660,000	\$128,330,000
Funding Gap	\$108,486,000	-\$28,736,000	\$24,246,000	\$54,886,000	\$63,686,000

Figure 19: Meet Identified Needs - Need vs. Funding

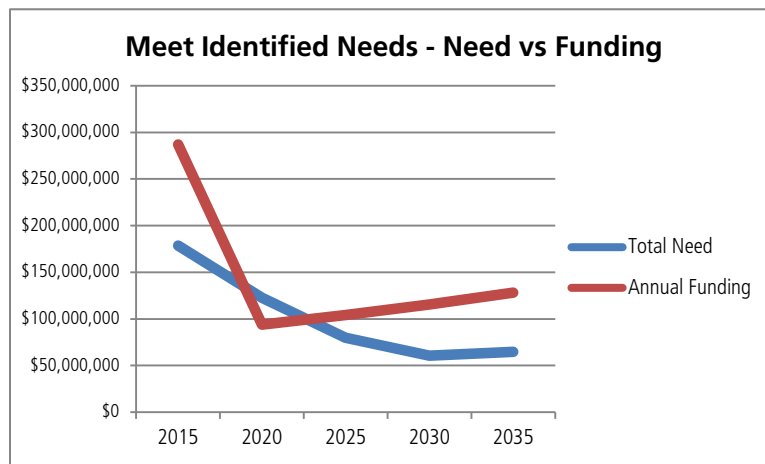
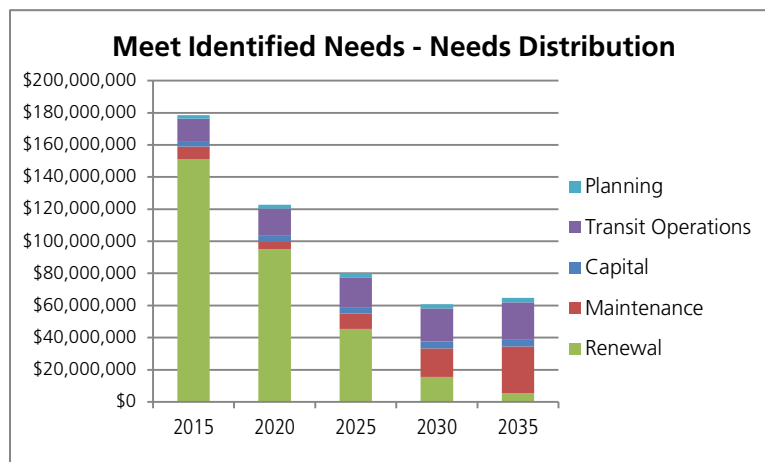


Figure 20: Meet Identified Needs - Needs Distribution



Key Findings to Address

The following key findings from previous technical reports in the Intermountain Region Long Range Transportation Plan were chosen as those that can best be addressed by this strategy. Please see *Baseline Conditions*, *Macro Trends for Transportation*, *Financial Analysis*, and *Needs Assessment Technical Reports* for additional information.

Figure 21: Key Findings to Address with Meet Identified Needs Scenario

Key Findings to Address with Meet Identified Needs Scenario	
Baseline Conditions	<ul style="list-style-type: none"> • DM for roadways/parking = \$709 M • TCFO not fully integrated in project costs • Poor parking area pavement conditions • Congested transit systems during peak season • Transportation carrying capacity out of synch with VE/RP goals / cumulative secondary impacts • Costs to maintain and restore historic roads growing • Wildlife/vehicle crashes prevalent in many parks
Macro Trends for Transportation	<ul style="list-style-type: none"> • Diversity among park visitors not fully addressed • Non-rec visitation impacts in parks with commuter routes • Relationship between facility condition and VE poorly understood • Communications technology not effectively understood or implemented • Climate change, wildfire risks, habitat fragmentation not fully addressed at regional level • Value of partnerships, community connections not fully explored • NPS to integrate asset management and performance measurement
Financial Analysis	<ul style="list-style-type: none"> • Additional investment required to substantially reduce DM • Capital improvements lagging due to stagnant budgets • Transit operations costs are unsustainable • Limited additional funding from partners/innovative financing requires research and partnering effort
Needs Assessment	<ul style="list-style-type: none"> • Total annual transportation need in 2035 - \$629 M • Annual gap between existing funding and need in 2035 \$501.5 M • Total needs growing 6% annually • 78% need is DM • Slowing growth in gap dependent on reducing DM • 85% need is pavement related • PCR declines to 65 under current funding • VE/RP impacted by congestion, safety, asset condition • VE/RP underfunded • Transit operations not sustainable with Cat III program after 2014

Strategies

Asset Management

- Utilize approved NPS criteria, including the CIS as it comes on line for high priority transportation projects, and CBA for project selection to eliminate DM on IMR transportation assets by 2025, including the completion of identified major reconstruction projects.
- Use Management System, bridge, road, and parking lot data in the selection of FLTP projects consistent with CIS principals.
- Conduct pavement maintenance on recommended schedules, thereby extending the pavement life cycle and avoiding the need for more expensive reconstruction.
- Utilize Cyclic Maintenance and FLTP funds to support the regional pavement preservation program.
- Expand assistance to parks with engineering, safety and other infrastructure technical support.

Mobility, Access and Connectivity

- Fully fund existing transit operations through 2035 using CAT III, and supported by FLTP.
- Fully fund infrastructure improvements and recapitalization of buses for existing transit systems as described in related transit *pro forma* using CAT III and FLTP funds.
- conduct regional assessment of needs for improved park/gateway community (or urban area) connectivity.
- Provide support for multimodal projects and planning projects to enhance connections with gateway communities.

Visitor Experience

- Apply available funding to visitor assets using project selection criteria designed to enhance Visitor Experience.
- Provide parks assistance with wayfinding projects to enhance signage.
- Design and implement a comprehensive pre-trip planning system.
- Enhance ITS to improve real-time parking, congestion, and other information.
- Continue Bicycle Road Safety Audit and Road Safety Audit programs.

Resource Protection

- Continue the practice of reviewing potential pavement facilities that could be removed and adding that work to project scope during project scoping, as funding allows.
- Relocate existing facilities that impact resources to a less impactful area, where appropriate.
- Continue robust compliance efforts to survey and record natural and cultural resources located near or adjacent to project sites.
- Continue robust revegetation and landscape restoration efforts on all FLTP projects.
- Support fish/small mammal passage in culverts.
- Implement road crossing protections to reduce, mitigate, or avoid animal/vehicle crashes in parks with high incidence.

Sustainable Operations

- Continue to provide maintenance treatments to reconstructed assets.
- Develop transportation planning documents and programs that support sustainability efforts, including social, economic, and environmental.
- Continue to support parks in developing climate change plans.
- Complete and implement regional climate change plan.
- Partner with regional communities to mitigate development impacts near parks.
- Sustainable Operations strategies will include information from *NPS Funding Sources* and *NPS Innovative Finance* and the likelihood of receiving additional funds from those sources. The preferred scenario will develop an overarching funding strategy that evaluates work tasks that are likely, less likely, or not likely to be supported through innovative funding/financing mechanisms or are most likely to require and receive partner, stakeholder and/or business support.

Trade-offs and Outcomes

Given the “unconstrained” nature of this scenario, all needs identified in the *Needs Assessment Technical Report* will be fulfilled. The outcomes of the scenario will substantially meet the mission and goals of the Intermountain Region and its parks.

Capital Investment Strategy

The Intermountain Region will continue to implement aspects of the CIS. This scenario will focus both on component renewal with FLTP funds to support the major reconstruction projects on highly used and other assets critical to the parks’ mission and on completing cyclic maintenance on recommended schedules. This strategy fully implements all provisions of CIS and Total Cost of Facility Ownership initiatives.

Analysis: The Focus on Key Priorities Scenario will continue to apply core CIS principals to high priority asset management projects, demonstrating a commitment to operations and maintenance as a priority. The scenario includes major reconstruction projects, particularly the Yellowstone Grand Loop reconstruction, so as to complete it within the planning period. Approximately 135 miles of the 254 mile Grand Loop have been reconstructed in recent decades, with the remaining 119 miles funded under this scenario.

Other cyclic maintenance will be performed on recommended schedules. The investment on alleviating DM early in the planning cycle pay large dividends in the reduction of cyclic maintenance costs.

Outcome: The average PCR of IMR roads is estimated to improve from 69.7 in 2015 to approach 85 in 2025, even exceeding that level in subsequent years. Progress in PCR and DM will be especially vital in view of the Centennial Year of 2016. The large improvement in PCR and reduction in DM results in the heavy investment in early years of the planning cycle, extending pavement life to the point that minor surface treatments will keep pavement in good condition for the foreseeable future.

The large investment in component renewal in the first 10 years of the program is probably not practical. The program currently spends about \$20 M per year in Yellowstone. This hypothetical rate of spending is included as for general comparison purposes. A more realistic rate of obligation will be determined for the preferred scenario.

Figure 22: Meet Identified Needs Pavement Condition & Deferred Maintenance

Pavement Condition & Deferred Maintenance	2015	2020	2025	2030	2035
Ave PCR	69.72	79.04	84.79	87.87	87.46
DM Gap (85 PCR)	-\$432 M	-\$172 M	-\$6 M	\$83 M	\$71 M

Other NPS Signature Initiatives

The National Park Service has embarked upon several initiatives (in addition to the Capital Investment Strategy) designed to address special challenges for the agency in the near, medium, and long terms. Each has a high level of urgency for the agency. The planning scenarios respond to the initiatives with somewhat different strategies, as projected funds and areas of emphasis dictate. In some cases, appropriate responses may be integrated into IMR management strategies and day to day business without undue costs. In other cases, implementing the vision incorporated in the initiatives will require financial investments that may be practical to one extent or another within the bounds of each scenario. This report provides an overview of the trade-offs and outcomes for each initiative inherent to each scenario. For more information about the initiatives addressed here, see *Macro Trends for Transportation Technical Report* (October 2012).

Call to Action. The *Call to Action* is built around four themes: Connecting People to Parks, Advancing the NPS Education Mission, Preserving America’s Special Places, and Enhancing Professional and Organizational Excellence. The Director calls for an analytic approach to creating “a national system of parks and protected sites (rivers, heritage areas, trails, and landmarks) that fully represents our natural resources and the nation’s cultural experience” by the National Park Service centennial in 2016 (*Call to Action* 2011).

Analysis: The Meet Identified Needs Scenario presents significant opportunities to implement core provisions of the *Call to Action* due to additional funding.

Connect People to the Parks: Under this scenario, the IMR will improve connections to urban communities. While new transit systems in parks where they are not currently in operation is not anticipated, strengthening services through route extensions or extended service hours may be possible. Additional trail connections would be built, but would require extensive coordination and partnering with other federal land management agencies and local communities. Additional planning staff may be required at the regional level, at individual parks, or both to accomplish this goal. A surplus is generated under this scenario that could be used to implement new transit services.

Ensure Sustainable Funding Structures: The action item to secure additional funding sources as envisioned in the *Call to Action* is the focus of this unconstrained scenario. The scenario focuses on meeting all needs and working extensively with partners to leverage new federal funds.

Approach to Partnerships: *under development*

Outcome: Substantial improvements.

Green Parks Plan. The *NPS Green Parks Plan*, a collaborative product developed by staff from parks, regions, and national support offices, establishes the direction for the agency as it seeks to incorporate sustainable principles throughout all activities. It endorses a set of primary goals to

improve environmental performance across the parks and takes into account the facility management life cycle—from planning, design, and construction, to operations, maintenance, and disposition.

Analysis: Many of the aspects of the *Green Parks Plan* can be integrated in the everyday business of the parks without additional expense. For instance, the role of the Intermountain Region under this scenario will be to encourage projects that meet Green Parks Plan goals and to emphasize the goals in project selection and funding. In addition, the IMR will establish a regional program to support GPP goals, create a regional climate change action plan, and further support completion of park level climate change action plans. The plan uses nine strategic goals for how the National Park Service will approach transportation, including:

Figure 23: Green Parks Plan Goals and Meet Identified Needs Scenario Response

Green Parks Plan Goals and Meet Identified Needs Scenario Response	
Continuously Improve Environmental Performance	Improve through project selection criteria and project funding awards.
Be Climate Friendly and Climate Ready	Improve through project selection criteria and project funding awards.
Be Energy Smart	Improve through project selection criteria and project funding awards.
Be Water Wise	Improve through project selection criteria and project funding awards.
Green Our Rides	Support and fund the purchase and operation of clean energy transit and administrative fleets where operationally effective.
Buy Green and Reduce, Reuse, and Recycle	Encourage at the individual park level.
Preserve Outdoor Values	Support through project selection criteria and project funding awards.
Adopt Best Practices	Support and fund planning initiatives to research and select best practices, including the application of sustainability principles to all transportation construction projects.
Foster Sustainability Beyond National Park Service Boundaries	Educational and communication efforts to visitors will focus on the core mission of each park. Enhanced efforts to establish a leadership role will be supported at the regional level.

Outcome: Substantial improvements in *Green Parks Plan* Goals with additional investment in projects and staffing.

NPS Integrated Climate Change Response Strategy. The National Park Service Integrated Climate Change Response Strategy provides agency direction to address the impacts of climate change. It describes goals and objectives to guide National Park Service actions under four integrated components: science, adaptation, mitigation, and communication. The strategy includes the Climate Friendly Parks Program and associated Climate Change Action Plans. Full implementation of the strategy requires extensive collaboration within the agency as well as with partner agencies. It also requires a significant investment in time, resources, and in some cases, a change in management principals. There is a significant role for education and leadership that crosses agency lines.

Analysis: The region will make significant headway in the climate change field under the Meet Identified Needs Scenario. The region will strive to raise the awareness of the potential effects of climate change at the park level, encourage adaptation and mitigation strategies, and establish a regional climate change action plan to guide park level plans.

Outcome: Substantial improvements.

Figure 24: NPS Integrated Climate Change Response Strategy and Meet Identified Needs Scenario Response

NPS Integrated Climate Change Response Strategy and Meet Identified Needs Scenario Response	
Science Goals	Under this scenario, the Intermountain Region will have the ability to extend the scientific knowledge base through additional research on the potential effects of climate change at the regional and park levels. National leadership will be required in order to help set the agenda and national policy. The region will adopt a strong leadership role and will encourage planning and the implementation of projects that evaluate and manage greenhouse gas emissions.
Adaptation Goals	The region will encourage individual parks to complete Climate Change Action plans as well as a regional plan. The region will establish a program to monitor and project impacts.
Mitigation Goals	The region will encourage individual parks to reduce their carbon footprints and will consider climate change as part of project selection.
Communication Goals	The region will foster a strong communication program based on research, modeling, and subsequent selection of best management practices.

Performance Measures

Performance measures have been selected to support the strategies addressed by this scenario. A fully developed performance measurement program typically measures the progress toward a goal, or target. This LRTP does not establish performance targets, but relies on both quantifiable and subjective measures. It does not create the need for metrics that are not easily obtainable through existing data. Where possible, the actual numbers should be reported. For example, 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.

Asset Management

1. Pavement Condition, measured as annual change in PCR for Class 1 and 2 roads and parking areas.
2. Transportation facilities condition, measured by annual change in FCI.
3. DM, measured by annual amount recognized by FCI.

Mobility, Access, and Connectivity

1. Financial status of NPS-operated transit systems, measured in percent of operations and capital needs funded for next five years.
2. Number of projects with multimodal components obligated in most recent year.
3. Number of enhanced connections in planning stages or obligated as a result of partnering efforts.

Visitor Experience

1. Percent of all transportation funds obligated to Tier 1 and Tier 2 assets.
2. Amount obligated in most recent year in wayfinding and signage.
3. Reduction in congestion/hours resulting from completion of ITS projects.
4. Reduction in total crashes and in crashes involving bicycles.

Resource Protection

1. Square footage of facilities relocated or closed due to resource impacts.
2. Square footage of areas revegetated in conjunction with transportation projects.

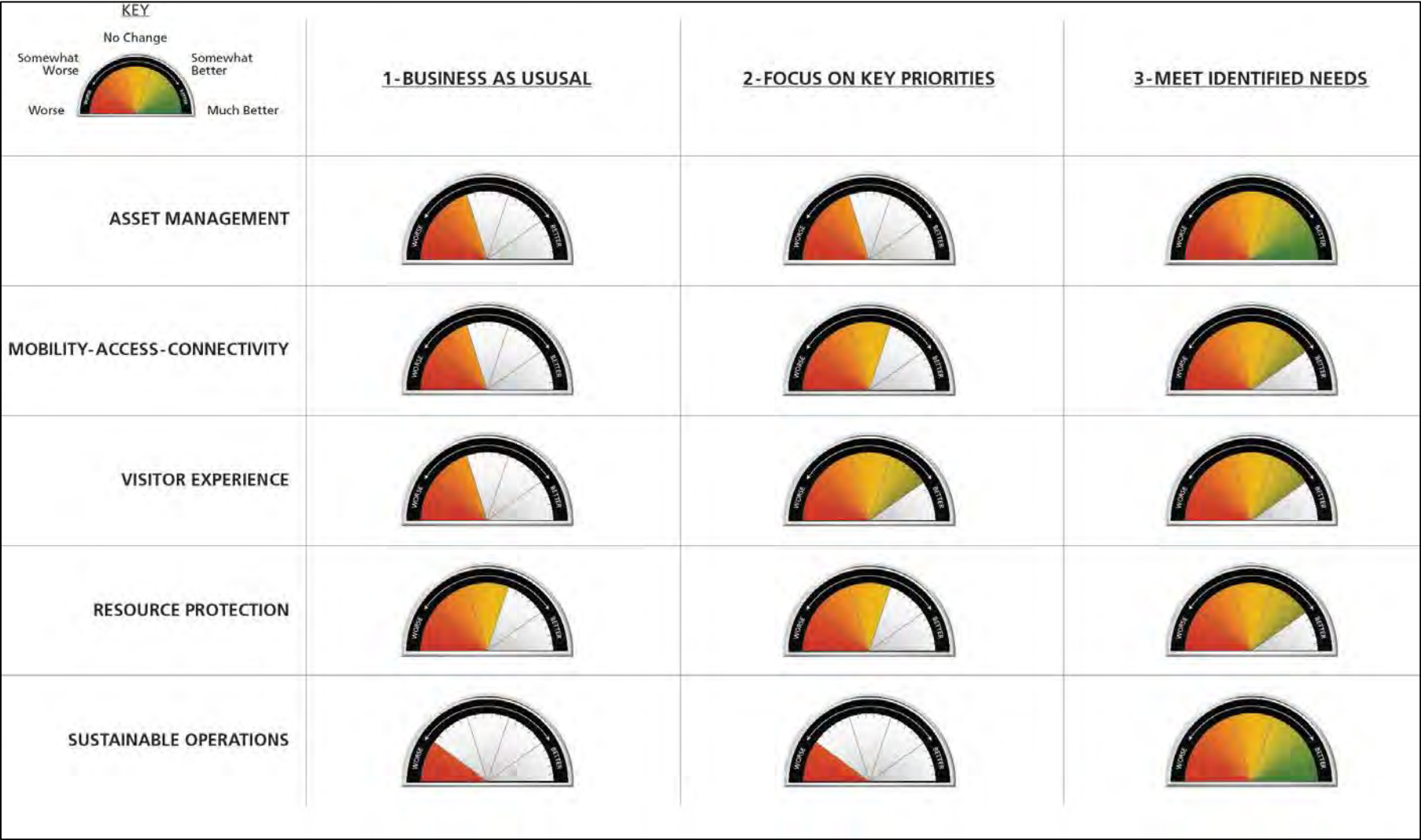
3. Number of animal passageways obligated separately or in conjunction with transportation projects.
4. Number of wildlife road kills per mile of road.

Sustainable Operations

1. Annual change in DM for transportation assets.
2. Amount obligated to social, economic, or environmental sustainability or climate change planning.
3. Number of Intermountain Region Parks with completed/in-process Climate Change Action Plans.
4. Completion of regional Climate Change Action Plan.

Comparison of Scenario Performance

Figure 25: Comparison Scenario Performance



Advantages / Disadvantages of Each Scenario

The evaluation process to compare the three scenarios and to guide the selection of the preferred scenario is under development. The Core Team will have the opportunity to compare the advantages/disadvantages of each scenario, leading to the selection of the preferred. The preferred scenario may be any one of the scenarios under exploration, a modification of any one scenario, or a combination of best advantages from more than one.

Work Type	Planning Goal Area	Work Type Impacts on Goal Areas
Capital Improvements/ New Construction	Asset Management	The construction of capital improvements adds more assets to the IMR portfolio, increasing total cost of ownership. As a result, the work type has a negative impact to the goal area.
	Mobility, Access & Connectivity	Capital improvements allow parks to provide additional connectivity for all modes of transportation, removing current transportation and access barriers.
	Visitor Experience	Capital improvements have the ability to reduce congestion and improve visitor information systems and visitor experience.
	Resource Protection	Depending on the type, scope, and magnitude of a capital improvement project, resources within the park may be damaged or improved.
	Sustainable Operations	Capital or operational improvements may introduce new or additional maintenance requirements, limiting the financial sustainability (TCFO) of the improvement.
Maintenance	Asset Management	Maintenance invests financial resources in existing infrastructure and assets, thus preserving existing investments. When done early, preventative maintenance can increase the life of an asset and reduce TCFO costs.
	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.
	Visitor Experience	Maintenance may enhance the quality of the visitor experience; however, it typically does not reduce congestion or integrate visitor information systems.
	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. Exceptions may include historic transportation resources, mowing, clearing culverts, vista clearing, etc.
	Sustainable Operations	Maintenance activities may utilize state of the art techniques to improve facility sustainability. Context sensitive maintenance may be used to promote energy and resource conservation.
Transit Operations	Asset Management	Transit operations have a limited benefit on asset management. New transit service may introduce new transit specific assets that require on-going maintenance.
	Mobility, Access & Connectivity	Transit operations improve intermodal connections to and within parks. Transit also helps to reduce dependence on personal vehicles for transportation with parks. Availability and accessibility are also improved.
	Visitor Experience	Transit operations help to reduce congestion in localized areas and can implement visitor information systems. However, localized pedestrian congestion/overcrowding are experienced at some transit stops. Transit facilities can be designed to enhance the visitor experience, including visitor information.
	Resource Protection	Localized damage to resources has been observed near transit stops where large volumes of visitors disperse in a short period of time. Transit operations may lessen impacts on air quality, by reducing total emissions, and through the use of alternative fuels. Transit facilities can also be designed and constructed using technology that reduces resource impacts. Transit operations may also create the ability to remove unused and redundant infrastructure assets.
	Sustainable Operations	Sustainable practices can be utilized in the planning and operation of transit systems. However, the ever increasing cost of transit operation reduces the future sustainability of most existing transit systems.

Work Type	Planning Goal Area	Work Type Impacts on Goal Areas
Planning	Asset Management	Planning applications can be used to best prioritize asset management strategies across the region. Planning efforts can also collect, manage, and maintain data to support performance measurement.
	Mobility, Access & Connectivity	A primary focus of planning efforts is to improve connections and mobility within and to parks. Planning efforts focus on improving the efficiency of the transportation system within parks.
	Visitor Experience	Planning can be used to address all objectives of the Visitor Experience goal. However, additional investment is typically needed in other areas in order to fully benefit visitor experience.
	Resource Protection	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. The combination of transportation and resource carrying capacity may help balance impacts.
	Sustainable Operations	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 applications have the flexibility to address sustainability issues in economic, social, and environmental fields.
Component Renewal/Recapitalization	Asset Management	Component Renewal/Recapitalization may enhance an existing asset (adding a lane, extending a road or trail) which may add to the portfolio thereby changing the TCFO.
	Mobility, Access & Connectivity	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	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	Resources are protected when the transportation infrastructure footprint is maintained and not expanded. 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	The goal of component renewal is to develop a sustainable strategy of maintaining the existing transportation infrastructure in the most efficient way. The current needs (deferred maintenance) of the transportation system in comparison to available funding reduce the ability to develop a sustainable program. May involve new, more efficient technologies that have less impact.

The Preferred Scenario

The final planning scenarios workshop was held with the Core Team September 30, 2013. The purpose of the workshop was to begin refining the Preferred Scenario as selected on September 24.

General Description

- Preferred Scenario is a blend of Scenario 1: Business as Usual and Scenario 3: Meet Identified Needs in a two-level plan.
- Scenarios will be renamed during the refinement phase.
- Level 1 is financially constrained and includes all of Business as Usual.
- Level 1 represents how the IMR will conduct business if additional funding is not available.
- Level 2 is not financially constrained and is more of a vision plan. The vision plan will be designed to meet identified needs by 2035 with a defined financial input distributed over the years 2015-2035.
- This is a modification of the original Scenario 3 which anticipated the full reauthorization request for the first five years of the cycle, then falling back to current (inflated) funding levels.
- URS anticipates that approximately 10% additional funds will be needed each year for Level 2.
- The Core Team reviewed a series of proposed strategies by goal area for both levels. Several additions and modifications were recommended.
- URS will further develop the package of strategies and develop appropriate performance measures and other outcomes as described in this document. The results will be presented as a draft technical report for review and comment prior to finalization.
- The LRTP document will contain a chapter describing the each of the preliminary scenarios and the preferred scenario. Emphasis will be on the preferred scenario.
- URS will develop an implementation plan that includes additional detail on the Preferred Scenario.

Next Steps – Refine the Preferred Scenario

The Preferred Scenario will be refined during Task 8 and presented as a draft technical memo for review and comment by the Core Team.

Figure 26: Next Steps/Schedule

Sept. 9	Advisory Committee Overview Presentation
Sept. 10	Core Team Meeting
Sept. 20	Comments on 1 st draft Scenarios Technical Report
Sept. 24	Core Team Selection of Preferred Scenario
Sept. 30	Planning Scenarios Workshop
Oct. 1	Begin Task 8 - Refine Preferred Scenario
Oct. 15	Draft Preferred Scenario Report
Oct. 29	Review complete
Nov. 8	Final Preferred Scenario Report

Note: Schedule to be revised pending resolution of federal government shutdown and furlough of NPS employees beginning Oct. 1.

Appendix - Planning Scenarios Assumptions & Methodology

Introduction

This whitepaper describes the assumptions and methodology applied by the consultant (URS) and the Core Team to develop draft Planning Scenarios to be presented at a future workshop for review and discussion. This exercise is a component of Task 7 – Develop and Analyze Planning Scenarios, and is in follow-up to the Pre-Scenario Planning Workshop conducted May 14, 2013, that was further refined during the June 3, 2013 Core Team meeting and a second workshop held July 9, 2013, during which additional options were considered. The evolution of decisions of the Pre-Scenario Planning Workshop is described in a technical memorandum dated June 7, 2013 and this technical memo dated July 19, 2013. Participants at a third workshop tentatively scheduled for September 10, 2013 will evaluate the scenarios and select a preferred scenario.

Discussion of earlier assumptions that no longer apply is documented in the June 7, 2013 draft and has been dropped from discussion as of this version of the whitepaper. Please see the earlier draft for more information.

This whitepaper provides the “scaffolding” upon which the No Action and two Action scenarios will be built. The assumptions, methods, and directions from the Core Team to URS will be used to fully develop the scenarios themselves. This paper serves as background and an outline of the scenarios, but does not include the content, which is under development.

This whitepaper describes the components of the scenarios and those components that are common to all. It is a roadmap of actions (not scenario content) for URS and the Core Team in preparation of the Planning Scenarios Technical Report that will conclude Task 7.

Specific Directions from Core Team to Consultant

The Core Team provided additional specific directions to the consultant for scenario development in response to a series of questions presented July 9, 2013. The questions are included below, along with the *Core Team response in italics*.

1. Is Balanced Goals A & B a single scenario with two components, or two distinct scenarios?
The Core Team determined that two distinct action scenarios will be developed, each with defining characteristics as outlined elsewhere in this paper.
2. Is the current description of Financially Constrained vs. Financially Unconstrained clear and appropriate?
No. Participants confirmed a new set of action scenarios (1) and (2). Action scenario (1) will be financially constrained to the same level as the No Action. This has been previously defined as current funding plus the rate of inflation (2.1%) compounded to the year 2035. Action scenario (2) will be financially unconstrained, based on the full amount of the IMR share of potential reauthorization, plus a growth rate calculated (if required) to achieve all needs identified in the Needs Assessment Technical Report.
3. Is the Capital Investment Strategy appropriately captured in the scenarios?
 - a. IMR current practice = 86% maintenance and asset management.
This figure represents a reasonable preliminary approximation of IMR funds spent on high priority maintenance and asset management and may be adjusted based on further refinements. It will be incorporated in the No Action Scenario.

- b. Is the CIS minimum target of 55% for Preventive Maintenance (Bands 1-3) appropriate for the LRTP scenarios?
No. The CIS is an evolving strategy, with future development anticipated by the NPS. The PM target of 55% is the first step in implementation, with others to follow. Participants decided to eliminate this binding strategy pending further direction from WASO Transportation Branch. The LRTP will strive to implement the four major elements of the CIS Mission Goals and the Scoring Methodology which are very consistent with the LRTP Goals.
- c. Is IMR current practice compatible with CIS Goals?
Yes. Current practice within the IMR program is consistent with the core CIS goals of high priority, commitment to O&M, and the Scoring Methodology. As a priority, the IMR awards funding to projects that will substantially improve existing asset conditions. New capital investments that will require additional maintenance are very limited.
- d. Is current practice likely to achieve long term goals?
Each scenario has a different level of success in achieving long term goals, ranging from partial to total. This appears to represent a good range from which to choose a preferred scenario.
- e. Reductions to CIS for the Action Scenarios?
URS will replace the progressive banding approach for each scenario with statements that the LRTP will be consistent with the evolving strategy in all scenarios.
- 4. How should key findings be incorporated into the scenarios, including strategies and performance measures?
The scenarios should establish a firm link between key findings from previous tasks and action strategies. Each scenario will take a different approach to implementation, focusing on different findings that reflect its characteristics.
- 5. Scope of Work Questions
 - a. Should the future scenarios include "...proposed project ranking criteria" as stated in Task 8 - Implementation Plan?
No. Project ranking criteria will be developed by the IMR outside the LRTP process, but consistent with its preferred scenario and implementation plan.
 - b. Should the future scenarios include analysis based on Return on Investment (ROI) as stated in Task 7?
No. Return on Investment, as an analysis tool, will not be employed in the LRTP. However, the preferred scenario will recommend investments based on value to the LRTP Goals, based on available funding.
 - c. Should the future scenarios maintain analysis of Focus Parks distinct from the overall regional analysis?
Yes. It will still be useful to describe the relative effects on Focus Parks in each scenario. This will help establish a basis for choosing the preferred scenario.
- 6. Performance Measures
 - a. Should the LRTP develop numerically quantifiable performance measures (as available)?
No. The LRTP will not include numerically quantified performance measures, e.g., PCR 85. These measures are under development at the national level and will be incorporated in the next LRTP update.

- b. Should the LRTP use non-quantifiable performance measures - measured against the LRTP Goals as yes/no or improving/declining.
Yes. We will include performance measures for each strategy selected, measured by yes/no or improving/not improving the goal area.
- 7. Other suggested measures?
None at this time.
- 8. Does the Core Team have consensus to move ahead with these 3 scenarios?
The scenarios proposed at the May 14, 2013 workshop were not determined to satisfactorily represent the needs of the plan. An adjusted set of scenarios was discussed at the July 9, 2013 workshop and is outlined in this whitepaper dated July 19, 2013. The Core Team will respond with final comments by July 29.

Scenarios: Key Characteristics

Figure 1 on the next page describes the key characteristics of the scenarios as developed to date. Further refinements and expansion will be on-going for the remainder of Task 7. This table provides a quick reference to ascertain the chief differences and principal direction of each scenario.

Figure 27 – Planning Scenario Characteristics

Planning Scenario Characteristics			
LRTP Goal Area	Planning Scenario		
	Business as Usual	Focus on Key Priorities	Meet Identified Needs
Asset Management	Continue to apply majority of funds (~86%) to maintenance, especially major roads and parking areas. Apply principles of CIS to project selection	Major road reconstruction projects at high visitation parks Preventive maintenance (PM) for pavement & bridge Shift most 3R projects to PM Apply principles of CIS to project selection	Reduce Deferred Maintenance by addressing long term asset needs identified in LRTP Apply principles of CIS to project selection Distributes funding equitably across the region, based on need
Mobility, Access, and Connectivity	Support for existing major transit systems operations as available through Cat III funding Multimodal projects limited to self-sustaining concessions and major pedestrian/multi-use trails with dedicated funding sources	Additional support for existing major transit systems operations and recapitalization Multimodal projects limited to self-sustaining concessions and major pedestrian/multi-use trails with dedicated funding sources	Additional support for transit systems operations and recapitalization, including through enhanced Cat II programs and through innovative funding and finance Reduce congestion and improve VE through additional multimodal choices
Visitor Experience	Addressed during project planning & design	Addressed during project planning & design	Implement additional transportation choices Improve wayfinding, communications, etc.
Resource Protection	Addressed during project planning & design s	Addressed during project planning & design Assess removal/decommission of under-utilized or poor condition transportation facilities	Enhanced focus on preserving cultural and natural resources through transportation projects Assess removal/decommission of under-utilized or poor condition transportation facilities Restoration of transportation-impacted areas
Sustainable Operations	Support actions to reinforce economic, environmental, and social elements Partnerships supported on park by park basis CC Action Plans completed at discretion of parks	Support actions to reinforce economic, environmental, and social elements Partnerships supported on park by park basis CC Action Plans completed at discretion of parks	Act to reinforce economic, environmental, and social elements Additional emphasis on partnerships and Signature NPS Initiatives Engage regional and gateway communities to strengthen partnerships and interconnectivity at social, environmental, and economic levels Regional focus on CC response strategies
Funding	Financially CONSTRAINED 2.1% Annual Growth Keeps pace with inflation	Financially CONSTRAINED 2.1% Annual Growth Keeps pace with inflation	Financially UNCONSTRAINED IMR Share of Reauthorization (~\$287 M) PLUS x% Annual Growth to equal Total Need PLUS Innovative Funding/Finance (\$TBD)

Common to All Scenarios

The Action and No Action Scenarios have a series of components in common, largely because major changes to the management of the IMR Transportation Program are not anticipated. Each part of the Action Scenario will present a slightly different focus, with shifts toward or away from selected goals. By carefully describing the items that are common to all scenarios, the scenarios will show how they are similar and then to expand on how they are different.

Note that this report is dependent upon NPS data systems, including FMSS, which provide results most useful to asset management. Many results for other goal areas are not as easily accessible or trackable and have been inferred where necessary.

Response to LRTP Vision, Goals, and Objectives

The entire LRTP project is constructed on the relationship of each task to the LRTP Vision, Goals, and Objectives developed during the Framework phase of the project. In keeping with the concept of defining needs as a deficiency in attaining established goals, URS will describe how each scenario responds with a description of the *beneficial (or negative) relationship to each goal*. Each scenario will also recognize the *cross-benefits of investments across goal areas*. Preliminary examples are shown in Figure 2 on the next page.

URS (with assistance from Core Team) will create a clear “map” of work items developed in Task 6 - Financial Analysis and Needs Assessment and how they translate to LRTP Goals. It is anticipated that this matrix will assign the value of each work item to each goal. A single work item may be applied to one or multiple goals with associated benefits (negative or positive).

Response to Approach to Partnerships and Other Outreach

Partnering with local communities, state DOTs, supporting non-profits, FLMAAs, and others provides additional support for IMR parks. Several NPS initiatives encourage these relationships. Building and nurturing such relationships requires effort and resources. Each scenario has a different approach to these activities, limited by available staff and resources, and will be described in the analysis.

Figure 28 - Mapping Work Types to Planning Goals (*draft*)

Work Type	Planning Goal Area	Work Type Impacts on Goal Areas
Capital Improvements/ New Construction	Asset Management	The construction of capital improvements adds more assets to the IMR portfolio, increasing total cost of ownership. As a result, the work type has a negative impact to the goal area.
	Mobility, Access & Connectivity	Capital improvements allow parks to provide additional connectivity for all modes of transportation, removing current transportation and access barriers.
	Visitor Experience	Capital improvements have the ability to reduce congestion and improve visitor information systems and visitor experience.
	Resource Protection	Depending on the scope and magnitude of a capital improvement project, resources within the park may damage or improve resource protection.
	Sustainable Operations	Capital or operational improvements may introduce new or additional maintenance requirements, limiting the financial sustainability (TCFO) of the improvement.
Maintenance	Asset Management	Maintenance invests financial resources in existing infrastructure and assets, thus preserving existing investments. When done early, preventative maintenance can increase the life of an asset and reduce TCFO costs.
	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.
	Visitor Experience	Maintenance may enhance the quality of the visitor experience; however, it typically does not reduce congestion or integrate visitor information systems.
	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. Exceptions may include historic transportation resources, mowing, clearing culverts, vista clearing, etc.
	Sustainable Operations	Maintenance activities can utilize state of the art techniques to improve facility sustainability. Context sensitive maintenance can be used to promote energy and resource conservation.
Transit Operations	Asset Management	Transit operations have a limited benefit on asset management. New transit service may introduce new transit specific assets that require on-going maintenance.
	Mobility, Access & Connectivity	Transit operations improve intermodal connections to and within parks. Transit also helps to reduce dependence on personal vehicles for transportation with parks. Availability and accessibility are also improved.
	Visitor Experience	Transit operations help to reduce congestion in localized areas and can implement visitor information systems. However, localized pedestrian congestion/overcrowding are experienced at some transit stops. Transit facilities can be designed to enhance the visitor experience, including visitor information.
	Resource Protection	Localized damage to resources has been observed near transit stops where large volumes of visitors disperse in a short period of time. Transit operations may lessen impacts on air quality, by reducing total emissions, and through the use of alternative fuels. Transit facilities can also be designed and constructed using technology that reduces resource impacts. Transit operations may also create the ability to remove unused and redundant infrastructure assets.
	Sustainable Operations	Sustainable practices can be utilized in the planning and operation of transit systems. However, the ever increasing cost of transit operation reduces the future sustainability of most existing transit systems.
Planning	Asset Management	Planning applications can be used to best prioritize asset management strategies across the region. Planning efforts can also collect, manage, and maintain data to support performance measurement.
	Mobility, Access & Connectivity	A primary focus of planning efforts is to improve connections and mobility within and to parks. Planning efforts focus on improving the efficiency of the transportation system within parks.
	Visitor Experience	Planning can be used to address all objectives of the Visitor Experience goal. However, additional investment is typically needed in other areas in order to fully benefit visitor experience.
	Resource Protection	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. The combination of transportation and resource carrying capacity may help balance impacts.
	Sustainable Operations	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 applications have the flexibility to address sustainability issues in

Work Type	Planning Goal Area	Work Type Impacts on Goal Areas
		economic, social, and environmental fields.
Component Renewal/Recapitalization	Asset Management	Component Renewal/Recapitalization may enhance an existing asset (adding a lane, extending a road or trail) which may add to the portfolio thereby changing the TCFO.
	Mobility, Access & Connectivity	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	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	Resources are protected when the transportation infrastructure footprint is maintained and not expanded. 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	The goal of component renewal is to develop a sustainable strategy of maintaining the existing transportation infrastructure in the most efficient way. The current needs (deferred maintenance) of the transportation system in comparison to available funding reduce the ability to develop a sustainable program. May involve new, more efficient technologies that have less impact.

Funding and Financing Plan

Each scenario has different levels of financial input, originally explored at the Pre-Scenario Workshop. The amount of available funding, or growth in funding, will have a significant difference on what can be achieved under each scenario, and where it will be focused. The amounts and sources will be carefully explained. We will explain the relative potential to realize each funding alternative incorporated in the scenarios.

The scenarios will include, as appropriate for each, the 2.1% inflation adjusted trend, the potential federal reauthorization and its implications for the Intermountain Region, financial partnership opportunities, and innovative finance opportunities. Each funding component will be characterized as fiscally constrained or unconstrained. The working definition for fiscally constrained is “those funds that are reasonably expected to be available.”

Each scenario will include an outline of the total funds available by goal area and general fund sources, e.g., the top 15 sources described in the Financial Analysis Technical Report:

- FHWA Cat I - 3R & 4R
- Operational Base - Park
- Rec Fee 80%
- Transportation Fee
- Cyclic Maintenance
- Repair/Rehab
- TRIP/ATPPL
- FHWA Cat III - ATP
- Rec Fee 20%
- Concession Franchise 80%
- FHWA - Other Transportation
- FHWA ERFO
- Line Item Construction
- Emergency Storm & Flood
- Other Funds

Key Findings, Strategies, and Performance Measures

Each scenario will list the key findings (deficiencies) that it is best designed to address. The key findings will be tied directly to a selected set of top priority strategies designed to further each goal. The strategies will focus on what can/should be accomplished at the regional level, as opposed to what can be achieved at the individual park or project level.

Performance measures will be identified for each goal area and strategy, using generally qualitative performance measures as a starting point. Performance measures will be used to indicate an estimate of the beneficial relationship of the strategy to the five goal areas. The most effective performance measures will be those that illustrate the status of more than one goal area. Performance will be illustrated in a dashboard/gauge style, measured by “yes/no” or “improving/not improving” the goal area. Performance metrics will be kept as consistent as possible for all scenarios, but may vary depending on selected strategies. Performance measures will be refined for the preferred scenario after selection.

Travel and Recreation Trends (Macro Trends)

The Macro Trends Technical Report described a series of significant changes already underway in the Intermountain Region. Those changes include demographic and recreation/visitation characteristics, natural hazards such as habitat fragmentation and climate change, and sustainability in all its aspects. Each scenario will include pertinent aspects of the Macro Trends report as key findings and describe how successfully it addresses these challenges.

Scenario Comparison

The key findings, strategies, and performance measures will be presented in table format, and include the “cross-walk” demonstrating the interrelationship among goals. See Figure 3 below for an example matrix of comparison of the scenarios. ***The example is conceptual pending completion of the scenarios themselves.***

Figure 29 – Matrix Comparison of Key Findings, Goals, Strategies and Performance Measures (Example)

Scenario: No Action / Business As Usual				
L RTP Goal Area	Key Finding	Response to NPS Signature Initiatives	Strategies	Performance Measure
Asset Management				
Mobility, Access & Connectivity				
Visitor Experience				
Resource Protection				
Sustainable Operations				

Scenario: Focus On Key Priorities				
L RTP Goal Area	Key Finding (selected)	Response to NPS Signature Initiatives	Strategies	Performance Measure
Asset Management				
Mobility, Access & Connectivity				
Visitor Experience				
Resource Protection				
Sustainable Operations				

Scenario: Meet Identified Needs				
L RTP Goal Area	Key Finding	Response to NPS Signature Initiatives	Strategies	Performance Measure
Asset Management				
Mobility, Access & Connectivity				
Visitor Experience				
Resource Protection				
Sustainable Operations				

Capital Investment Strategy

“The NPS Capital Investment Strategy (CIS) is a customized strategy to evaluate and prioritize capital investment projects. At its foundation is an ability to support financial sustainability goals.” (NPS CIS Guidebook, July 2012). The CIS is based on the critical nature of an asset’s role to the operations and mission of the park, as defined by the park. It should be noted that the CIS looks beyond just capital investments – it looks at financial sustainability, O&M and commitment to life-cycle maintenance. Each asset has been placed in an “optimizer band” defining its criticality; however, the bands are currently under reevaluation.

The CIS will be an integral part of each scenario. Each scenario will define in dollars the amount allocated to CIS and asset management. Each scenario will include a description of the expected outcomes with regard to asset management, i.e., improvements or negative impacts to asset condition, through an assessment of the CIS Goals – Financial Sustainability, Resource Protection, Visitor Use, and Health and Safety. It will assess the level of success anticipated by the implementation of each scenario. See the sections discussing CIS under each scenario in this report.

Signature NPS Initiatives

The NPS has explored several major initiatives at the national level over the past several years that are now termed “Signature NPS Initiatives” in the *NPS Transportation Reauthorization Resource Paper*. In some cases, these initiatives, policies, and directives may partly conflict with – or, at the least, and due to restricted funding availability - may not be implemented with equal emphasis in each scenario. Refinements to the signature initiatives or additional new policies are possible during the implementation of the plan, particularly related to Centennial Year anniversary of the National Park Service. Aspects of the Capital Investment Strategy, the Call to Action, the Green Parks Plan, Climate Change Action Plans, and the NPS Integrated Climate Change Response Strategy will be addressed as a “common to all” item. This is not to say that each scenario addresses these things in the same way. In fact, the focus of the scenarios on one or the other of these policies becomes a discerning characteristic.

Trade-offs and Expected Outcomes

Adjusting the scenario focus to one goal area or another may mean that less can be achieved in other areas. Each scenario will describe any trade-offs in its ability to meet established project goals. The scenario will also describe how it proposes to maximize performance in each goal area and identify the resulting gap in needs in 2035, assuming the scenario is implemented. The scenario will include trade-offs in large vs. small parks and in focus parks vs. other parks.

Items for Future Consideration

Each scenario will describe what is not possible to address within this scenario due to funding or policy restraints, what should be reserved for future LRTP updates, and why.

Next Steps

The following steps will be undertaken based on the methods outlined in this report. The specific schedule for each milestone will be clarified as soon as possible.

- Develop detailed planning scenarios
- Evaluate scenarios and select Preferred Scenario at workshop – Oct. 1

- Complete Scenarios Technical Report (draft and final)
- Refine Preferred Scenario
- Implementation Plan
- Lessons Learned
- Draft and Final LRTP – complete Feb. 15, 2014

Develop the No Action/Business as Usual Scenario

The current program already implements key provisions of the Capital Investment Strategy and will serve as the No Action Scenario as described in the scope of work. The current program allocates approximately 86% of total IMR program funds to maintenance and other asset management. Each of the other goals is addressed to some extent with current practices, but is not the principal focus of how the IMR spends the majority of its funds, due in many cases to funding program restrictions. The principal strategy for investment in goals other than Asset Management lies within the interrelated benefits in Mobility, Access and Connectivity; Visitor Experience; Resource Protection; and Sustainable Operations. Benefits accrue to visitors and the NPS as part of many projects, including infrastructure maintenance. *See Figure 1: Planning Scenario Characteristics.*

Financial and Funding Plan

The High Trend developed in Task 6 (2.1% average annual growth in total IMR transportation funds available beginning in 2017) will form the basic financially constrained planning total budget for the No Action/Business as Usual Scenario. The scenario description will identify the anticipated funding gap (completed in the Needs/Financial Analysis Technical Reports) and use this information in the tradeoff analysis.

Strategies and Performance Measures

The scenario will include approximately two strategies for each LRTP Goal that can be reasonably implemented within the bounds of the scenario. The proposed strategies will be selected from a longer set of strategies under consideration.

Tradeoffs and Expected Outcomes

The No Action/Business as Usual Scenario will describe the expected outcomes for the IMR during the planning period if this scenario is followed. The description will answer the question, “What can or cannot be achieved if we continue on this ‘business as usual’ path.” With a high level of investment in PM and other asset management, will other goals be negatively impacted? For example, will better asset conditions improve Visitor Experience, Resource Protection, or Mobility, Access and Connectivity, or will these goal areas see a decline in performance?

Develop Action Scenario 1: Focus on Key Priorities

Financial Input

Action Scenario 1 will describe a financially constrained scenario. Similar to the No Action, it includes stable funding (2.1% average annual growth in total IMR transportation funds available beginning in 2017), but provides an approach unconstrained by current policies and programs.

Funds will be redistributed across goal areas, focusing investments on key findings of the LRTP. See *Figure 1: Planning Scenario Characteristics*.

Key Priorities

Given the financially constrained financial input to Action Scenario 1, this is a “zero sum” alternative in which funds would be redistributed by policy toward selected LRTP goals and priorities, especially transit. The Asset Management/Capital Investment Strategy would remain a priority, but with additional emphasis in other areas.

Strategies and Performance Measures

Action Scenario 1 will address all goal areas and include an emphasis on shifting funding to support strategies for existing major transit systems operations and recapitalization. We will develop strategies to address asset management goals with some additional emphasis on other balanced goals/objectives such as those described in the Call to Action: partnerships, multimodal development, resource protection, sustainability, etc. Proposed strategies will be selected from several considered strategies and vetted with the Core Team.

Capital Investment Strategy

The scenario will describe a somewhat lesser funding amount targeted to asset management than as contained in the No Action Scenario. It will include a shift from major 3R-type projects to shorter term, less costly maintenance so as to allow for enhanced expenditures in other areas. Other goals such as Visitor Experience and Resource Protection will primarily be addressed through asset management-type projects.

Tradeoffs and Expected Outcomes

The scenario will describe the likely outcomes and the related funding gap of the scenario. The funding gap will describe the dollar amount not included in the scenario to meet needs established the Needs Assessment phase of the project. The shift in this scenario toward meeting the needs of existing major transit systems is likely to correspond to a decreased ability to meet asset management goals and an increase in transportation-related Deferred Maintenance.

Develop Action Scenario 2: Meet Identified Needs

Financial Input

Action Scenario 2 will describe additional funding (2.1% Inflation + IMR Share of Reauthorization + Innovative Funding/Financing) that may become available. The current estimate of the IMR share of reauthorization is approximately \$287 million per year and will be extended annually for the life of the plan (through 2035). The estimate is based on the *NPS Transportation Reauthorization Resource Paper* that includes \$770 million nationally to “Theme 1: Restore and Maintain Core Transportation Infrastructure” and \$200 million in “Theme 2: Address Transportation Needs Beyond the Capacity of the Core Program,” for a total \$970 million annually for the entire agency. The traditional IMR share is 29.65% (\$287 million). This additional funding will be considered “fiscally unconstrained” for the purposes of this plan.

A growth rate for the scenario will be developed at a rate that will achieve all needs identified in Task 7: Needs Assessment. It is unknown at this time whether growth rate equal to the 2.1%

annual inflation rate employed in other scenarios will be sufficient (or too high) to achieve this target.

Strategies and Performance Measures

The primary goal of Action Scenario 2 is to achieve all needs identified in Task 7. This forms a useful comparison to the financially constrained scenarios and describes actions to implement the required investments. Note that this approach is a significant change from the preliminary scenario which was limited to about 10 percent of the amount requested in reauthorization. The Core Team determined that matching required funds to meet all needs constitutes a valid and reasonable approach for analysis purposes. It is possible that this approach will be modified in some way for the Preferred Scenario.

The scenario description will include information from *NPS Funding Sources* and *NPS Innovative Finance* and the likelihood of receiving additional funds from those sources. The scenario will develop an overarching funding strategy that evaluates work tasks that are likely, less likely, or not likely to be supported through innovative funding/financing mechanisms or are most likely to require and receive partner, stakeholder and/or business support. Proposed strategies will be selected from several considered strategies and vetted with the Core Team.

Capital Investment Strategy

The scenario will describe asset management strategies that reduce or eliminate Deferred Maintenance, using the significant amount of funding anticipated through reauthorization.

Tradeoffs and Expected Outcomes

Given the “unconstrained” nature of this scenario, all needs identified in Task 6 will be fulfilled. The scenario will describe the benefits of meeting all needs to the NPS Mission and to each LRTP Goal Area.

Planning Scenarios Technical Report - Preliminary Outline

- I. Process and Assumptions to Develop Scenarios
 - A. Workshops
 - B. Planning Scenarios Whitepaper
- II. Overview of Scenarios
 - A. Purpose of Planning Scenarios
 - B. Relationship of Planning Scenarios to LRTP Goals
 - C. Planning Scenarios: Key Characteristics
 - 1. Chart
 - 2. Discussion
- III. No Action Scenario: Business as Usual
 - A. Response to LRTP Vision, Goals, and Objectives
 - B. Funding and Financing Plan
 - 1. Financial Constraint
 - 2. Funding Distribution to Goal Areas
 - C. Response to Key Findings
 - 1. Baseline Conditions
 - 2. Macro Trends
 - 3. Needs Assessment
 - D. Capital Investment Strategy and the No Action Scenario
 - 1. Investment in Asset Management
 - 2. Changes in Asset Condition
 - 3. Changes in Deferred Maintenance
 - E. Signature NPS Initiatives and the No Action Scenario
 - F. Strategies to Address Key Findings
 - G. Measuring Performance of the No Action Scenario
 - 1. Trade-offs and Expected Outcomes
 - 2. Specific Performance Measures for Selected Strategies
 - 3. Dashboard Performance
 - 4. Items for Future Consideration
- IV. Action Scenario 1: Focus on Key Priorities
 - A. Response to LRTP Vision, Goals, and Objectives
 - B. Funding and Financing Plan
 - 1. Financial Constraint
 - 2. Funding Distribution to Goal Areas
 - C. Response to Key Findings
 - 1. Baseline Conditions
 - 2. Macro Trends
 - 3. Needs Assessment
 - D. Capital Investment Strategy and Action Scenario 1
 - 1. Investment in Asset Management
 - 2. Changes in Asset Condition
 - 3. Changes in Deferred Maintenance
 - E. Signature NPS Initiatives and Action Scenario 1
 - F. Strategies to Address Key Findings
 - G. Measuring Performance of Action Scenario 1
 - 1. Trade-offs and Expected Outcomes

- 2. Specific Performance Measures for Selected Strategies
 - 3. Dashboard Performance
 - 4. Items for Future Consideration
- V. Action Scenario 2: Meet Identified Needs
 - A. Response to LRTP Vision, Goals, and Objectives
 - B. Funding and Financing Plan
 - 1. Financially Unconstrained
 - 2. NPS Reauthorization Resource Paper
 - a) Theme 1: Restore and Maintain Core Transportation Infrastructure
 - b) Theme 2: Address Transportation Needs Beyond the Capacity of the Core Program
 - c) IMR Share of Reauthorization
 - 3. Funding Distribution to Goal Areas
 - C. Response to Key Findings
 - 1. Baseline Conditions
 - 2. Macro Trends
 - 3. Needs Assessment
 - D. Capital Investment Strategy and Action Scenario 2
 - 1. Investment in Asset Management
 - 2. Changes in Asset Condition
 - 3. Changes in Deferred Maintenance
 - E. Signature NPS Initiatives and Action Scenario 2
 - F. Strategies to Address Key Findings
 - 1. General Findings
 - 2. Innovative Financing and Funding Strategies
 - 3. Partnering Strategies
 - G. Measuring Performance of Action Scenario 2
 - 1. Trade-offs and Expected Outcomes
 - 2. Specific Performance Measures for Selected Strategies
 - 3. Dashboard Performance
 - 4. Items for Future Consideration
- VI. Choosing the Preferred Scenario
 - A. Scenario Comparison
 - B. Core Team/Workshop Considerations
 - C. Components of the Preferred Scenario
 - 1. Selected at Sept. 10 Workshop
- VII. Next Steps - Refine the Preferred Scenario