National Park Service
U.S. Department of the Interior

Southeast Region

Long Range Transportation Plan

December 2016

National Park Service Southeast Region

Source: NPS

Southeast Region Long Range Transportation Plan

DECEMBER 2016

Prepared for:

National Park Service

Southeast Region

Washington Support Office – Facilities Planning Branch

Federal Highway Administration

Eastern Federal Lands Highway Division

Cover Photo: Natchez Trace Parkway

ACKNOWLEDGEMENTS

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Southeast Region Long Range Transportation Plan
December 2016

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The first Southeast Region Long Range Transportation Plan was prepared as a collaborative effort between the NPS Washington Support Office, the Southeast Regional Office, and the Federal Highway Administration's Eastern Federal Lands Highway Division.

Special thanks to the WASO Park Facilities Management Division, Facilities Planning Branch and to Eastern Federal Lands Highway Division for their oversight and program management.

A 30 day stakeholder review period has been completed on the Planning, Environment and Public Comment (PEPC) website, and the final version of the Southeast Region Long Range Transportation Plan has been accepted by the Southeast Regional Director.

ACCCEPTED
Regional Director, Southeast Region

1/4/17
Date

United States Department of the Interior

NATIONAL PARK SERVICE
1849 C Street, N.W.
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4. A1 (WASO-PFMD)

DEC 16 2016

Memorandum

To: Regional Director, Southeast Region

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

Subject: FYI – Review and Approval for the Southeast Region Long Range Transportation Plan

The Facilities Planning Branch of the Park Facility Management Division has reviewed the Southeast Region (SER) Long Range Transportation Plan (LRTP). We evaluated the plan's topical areas—that are identified in the LRTP Checklist—to ensure all elements were adequately addressed or to identify if an element needs to be addressed in future updates.

The Washington Office (WASO) concurs that the SER LRTP addresses the minimum requirements listed among the key components of Facility Conditions, Safety, Congestion, Resource Protection and Stewardship, and Visitor Experience. The Regional Director can accept the plan.

WASO also notes that the LRTP process to date has identified key subcomponent topic areas that will be more fully developed as part of its implementation strategy, leading up to the first update of the LRTP in five years. WASO will help the Region fulfill those needs through the annual program of LRTP projects.

Congratulations on completing the first SER LRTP.

cc: Transportation Coordinator, Southeast Region
Chief, Park Facility Management Division (PFMD)
Branch Chief, PFMD Facilities Management Branch
Branch Chief, PFMD Transportation Branch

U.S. Department
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**Federal Highway
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Eastern Federal Lands
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21400 Ridgetop Circle
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DEC 20 2016 In Reply Refer to: HFPP-15

Mr. Stan Austin
Regional Director, Southeast Region
National Park Service
100 Alabama Street, SW
1924 Building
Atlanta, GA 30303

Subject: NPS Southeast Region
Long Range Transportation Plan

Dear Mr. Austin:

I would like to take this opportunity to commend you on the completion of your strategic long range transportation plan for the Southeast Region of the National Park Service. This comprehensive plan meets the intent of Title 23 USC 201 (c) (6), which requires federal land management agencies to develop transportation planning procedures which are generally consistent with those required in Section 134/135 for the statewide and metropolitan transportation planning processes.

While maintaining one of the largest groups of transportation assets within the National Park Service can be difficult, your plan offers a realistic assessment of your needs and a fiscally constrained strategic approach to meeting these challenges.

Sincerely,

Melissa L. Ridenour, P.E.
Division Director

cc:
Mr. Shawn Benge, National Park Service
Mr. Kevin Percival, National Park Service
Mr. Mark Hartsoe, National Park Service

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ACRONYMS

3R	Resurfacing, Restoration and Rehabilitation
4R	Roadway Reconstruction
ABA	Architectural Barriers Act
ADA	Americans with Disabilities Act
API	Asset Priority Index
ARRA	American Recovery and Reinvestment Act
ATS	Alternative Transportation Systems
BHI	Bridge Health Index
BIP	Bridge Inventory Program
CCRP	Climate Change Response Program
CCRS	Climate Change Response Strategy
CI	Capital Investment
CIS	Capital Investment Strategy
CMAQ	Congestion Mitigation and Air Quality
CMP	Congestion Management Program
CR	Component Renewal
CRV	Current Replacement Value
DM	Deferred Maintenance
DOI	Department of the Interior
DOT	Department of Transportation
EFLHD	Eastern Federal Lands Highway Division
EHP	Ecological & Historic Preserve
EPA	Environmental Protection Agency
ERFO	Emergency Relief for Federally Owned Roads
FAST Act	Fixing America's Surface Transportation Act
FC	Functional Classification
FCI	Facility Condition Index
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
FLHP	Federal Lands Highway Program
FLMA	Federal Land Management Agency
FLTP	Federal Lands Transportation Program
FMSS	Facility Management Software System
FO	Facility Operations
FTA	Federal Transit Administration
FY	Fiscal Year
GHG	Greenhouse Gas
HPMA	Highway Pavement Management Application
IMARS	Incident Management and Reporting System
INSTEP	Innovative and Sustainable Transportation Evaluation Process and Guidance
ITS	Intelligent Transportation Systems
LRTP	Long Range Transportation Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act
MPO	Metropolitan Planning Organization
MTCO2E	Metric Ton of Carbon Dioxide Equivalent
NAAQS	National Ambient Air Quality Standards
NB	National Battlefield
NBP	National Battlefield Park
NBS	National Battlefield Site

NHP	National Historical Park
NHS	National Historic Site
NHT	National Historic Trail
NM	National Monument
NMem	National Memorial
NMP	National Military Park
NP	National Park
NPres	National Preserve
NPS	National Park Service
NR	National River
NRA	National Recreation Area
NRRA	National River and Recreation Area
NRSS	Natural Resource Stewardship and Science Directorate
NS	National Seashore
O&M	Operations and Maintenance
OB	Optimizer Band
PAMP	Park Asset Management Plan
PCR	Pavement Condition Rating
PFMD	Park Facility Management Division
PL	Planning and Administration
PM	Preventative Maintenance
PMIS	Project Management Information System
RIP	Roadway Inventory Program
RM	Recurring Maintenance
RTPO	Rural Transportation Planning Organization
SER	Southeast Region of the National Park Service
SOCC	NPS Sustainable Operations and Climate Change Branch of the Park Facility Management Division
STARS	Servicewide Traffic Accident Reporting System
TCFO	Total Cost of Facility Ownership
TIGER	Transportation Investment Generating Economic Recovery
TRIP	Paul S. Sarbanes Transit in Parks Program
USC	United States Code
USDOT	United States Department of Transportation
WASO	Washington Support Office
WSR	Wild and Scenic River

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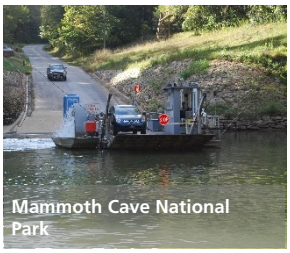
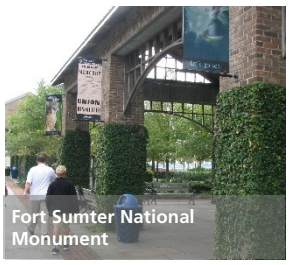
NPS Southeast Region LRTP
Executive Summary


Mammoth Cave National Park


Fort Sumter National Monument


Gulf Islands National Seashore


Chickamauga & Chattanooga National Battlefield Park

Goals:

- **Sustainable Operations**
- **Asset Management**
- **Safety**
- **Visitor Experience, Access and Mobility**
- **Resource Protection**

Vision

The Southeast Region Long Range Transportation Plan will support the NPS mission by maintaining a regional transportation network that provides access to all users, and positive visitor experiences while minimizing impacts to natural and cultural resources. The tools and principles of asset management, resource protection, safety, visitor experience, and sustainability will be used to achieve this vision, while striving to make wise and effective financial and investment decisions.

Goal	Objectives
Sustainable Operations Sustainably manage transportation assets and services. 	• Identify and incorporate climate change mitigation/adaptation strategies into aspects of transportation planning, design, construction, maintenance, and operations over time as financially feasible. • Maintain flexible use of transportation funding sources while improving identification of transportation needs and expenditures. • Identify and prioritize investments based on legal requirements, agency mission, anticipated lifecycle costs, and consideration of potential future funding. • Utilize the planning process to strengthen effective regional and community relationships.
Asset Management Allocate transportation funding to ensure the long term viability of transportation systems. 	• Maintain important transportation assets and services in good operating condition through targeted investment. • Use transportation management systems to assist in decision making for improving the overall condition, utilization, and effectiveness of the transportation asset portfolio over time. • Decommission or dispose of undesirable transportation assets. • Search for innovative financial resources and partnerships to leverage additional funding for transportation projects.
Safety Provide a safe transportation system for all users. 	• Maximize safety of all visitors and staff while minimizing negative impact to park resources and values. • Address engineering, education, enforcement, and emergency response as part of the safety initiatives in the region. • Manage visitation and transportation operations to minimize visitor and wildlife incidents and multimodal conflicts.
Visitor Experience, Access and Mobility Maintain and enhance the quality of the park visitor experience. 	• Understand the impacts of congestion where it interferes with the visitor experience or where it damages resources. • Consider improvements and ease of access to and within national park units for all park users. • Advocate creating a range of appropriate transportation options that provide a network for seamless connections within each park unit and to surrounding communities. • Support traveler information and wayfinding initiatives and, where appropriate, support interpretation and education opportunities.
Resource Protection Protect and preserve natural and cultural resources. 	• Incorporate natural and cultural resource considerations into transportation decision making. • Support the protection and enhancement of cultural transportation resources.

Introduction

The Southeast Region

The Southeast Region of the National Park Service stretches from Kentucky to the Caribbean, and encompasses 66 park units across nine states and the territories of Puerto Rico and the U.S. Virgin Islands.

Southeast Region parks represent the full range of cultural and natural resources and visitor experiences of the national park system. The region has 13 of the 25 designated battlefield and military parks in the national park system, five of the 10 national seashores, and the two longest NPS parkways—the 469-mile Blue Ridge Parkway and the 444-mile Natchez Trace Parkway.

Southeast Region parks host more than 63 million visitors each year. Those visitors spend more than $3.6 billion annually in gateway communities, and that spending supports over 58,000 jobs.[1]

The Southeast Region is responsible for the operation and maintenance of some $8.7 billion in transportation assets.[2] Roads, bridges, and tunnels comprise more than 90 percent of the current replacement value of Southeast Region transportation assets. The Southeast Region administers approximately two-thirds of the tunnels and bridges in the entire National Park Service and about one-third of the total national system paved road miles.

Purpose of the LRTP

This first-of-its-kind Southeast Region Long Range Transportation Plan (LRTP) helps the region better understand existing and forecasted needs and provides a framework for making more effective transportation decisions and strategic program investments.

The Southeast Region LRTP establishes regional goals, objectives, and performance measures; defines existing conditions and transportation needs; identifies safety, congestion, and capital improvement needs; and identifies sustainable strategies that protect resources while maintaining quality visitor experiences.

By looking to the future and understanding its challenges and opportunities, the region will be positioned to make quality transportation planning decisions over the next 20 years. The region will also be positioned to keep pace with technological advancements in response to the changing needs of an evolving visitor population, and proactively protect the natural and cultural resources for the enjoyment of future generations.

[1] National Park Service, *2014 National Park Visitor Spending Effects: Economic Contributions to Local Communities, States, and the Nation*, 2015. Accessed www.nature.nps.gov/socialscience/docs/VSE2014_Final.pdf

[2] Unless otherwise indicated, all dollar figures in this report are in 2014 dollars, which were calculated using the White House gross domestic product (GDP) inflator factors (https://www.whitehouse.gov/omb/budget/Historicals, table 10-1.)

LRTP Development Process

The Southeast Region LRTP was developed between 2014 and 2016, led by a Core Team composed of staff from the Southeast Region, the NPS Washington Support Office (WASO) – Facilities Planning Branch, and Federal Highway Administration Eastern Federal Lands Highway Division (EFLHD).

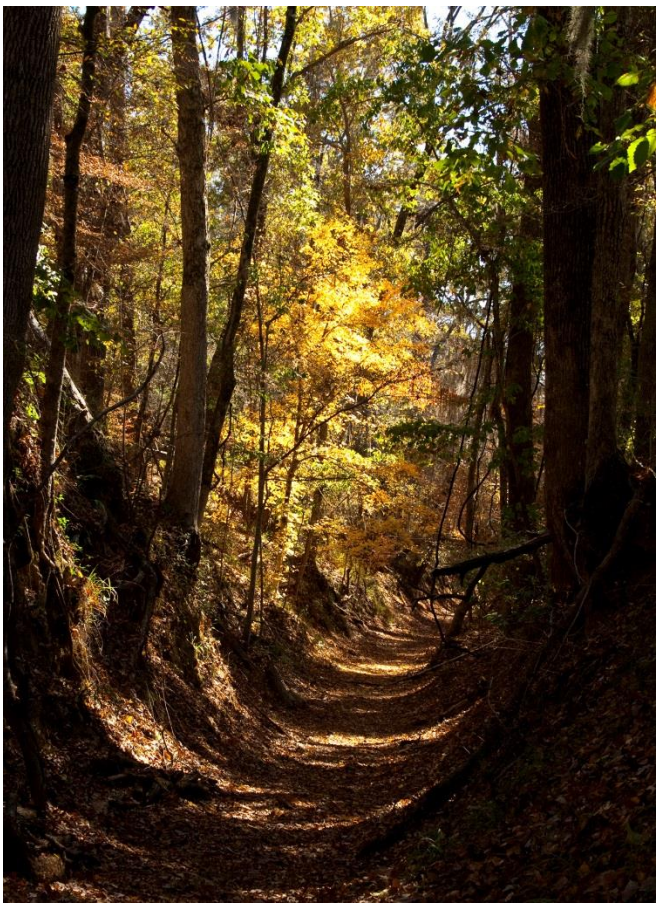
Among the most critical components of the process were stakeholder engagement efforts to gain technical input and ground-truth preliminary findings. The engagement efforts were as follows:

- A Southeast Region LRTP Advisory Committee comprised of key NPS stakeholders within the region provided the Southeast Region LRTP Core Team with technical input and ground-truth of analyses and findings at key stages in the LRTP process.
- Members of the Southeast Region LRTP Core Team visited nine Focus Parks during the fall of 2014. The park units were chosen with a goal of providing representation for the broad range of units in the region. The Focus Park visits provided the Core Team with a better understanding of both shared and unique unit-level transportation conditions, needs, opportunities, and strategies.
- A transportation survey was distributed to all superintendents in the region to gain insight into the transportation network.
- Webinar presentations were conducted to provide state departments of transportation and FHWA Federal-aid Highway Division Offices an outline of the overall Southeast Region LRTP approach, provide a preliminary assessment of baseline conditions, and afford an opportunity to suggest ways in which their agencies could provide input on the LRTP effort.

Vision, Goals & Objectives

The Southeast Region LRTP supports the NPS mission by supporting a transportation network that provides access and facilitates positive visitor experiences to all users, while minimizing impacts to natural and cultural resources.

The Southeast Region LRTP Core Team identified principles of sustainable operations, asset management, safety, visitor experience, and resource protection as five goals that frame the LRTP. Each goal has a set of objectives and each objective has a set of actionable strategies to achieve those objectives. Strategies are presented with the summary of each goal topic in the next sections.



Natchez Trace National Scenic Trail

Investment Strategy - Highest Priority Investment

The Southeast Region used this LRTP process as an opportunity to consider different investment strategies for transportation assets and needs. Four investment strategies were reviewed and vetted to identify the strategy that best reflected the priorities of the region, provided an effective path to upholding the goals and objectives of the LRTP, and resulted in the most efficient outcomes for the region in terms of needs and conditions.

The region ultimately selected the Highest Priority Investment strategy to best represent its needs and priorities (Table ES-1). This strategy places an emphasis on investing in those assets identified as Highest Priority and, more specifically, investments that emphasize improving condition for these assets. In a region tasked with maintaining many "big ticket" transportation assets such as paved parkways, bridges, and tunnels, this has been and will continue to be the preferred approach.

Table ES-1: SER LRTP Highest Priority Investment Strategy

Source: NPS and Volpe National Transportation Systems Center.

Context	% of Available Funding
Priority	98% Highest Priority Assets 2% Other Assets
Life cycle	89% Improves Asset Condition 10% Maintains Asset Condition 1% Non-Condition Investment
Asset Category	55% Roadway Investments 30% Bridge Investments 3% Transit Investments 12% All Other asset types

NPS Investment Principles[3]

As a best practice, the National Park Service incorporates strategic facility planning into its asset management decision-making processes, including LRTPs. Two fundamental concepts, the NPS Capital Investment Strategy (CIS) and Total Cost of Facility Ownership (TCFO), underlie those best practices and are drivers of the investment planning and decision making reflected in this LRTP.

Capital Investment Strategy is an NPS strategy for prioritizing project investment to ensure effective and responsible project funding. The CIS helps focus investment on its Highest Priority transportation facilities, with a particular emphasis on facilities that park units have committed to maintain over the long term.

Total Cost of Facility Ownership considers the lifetime costs of acquiring, operating, maintaining, and decommissioning a system or asset in investment decisions. The Southeast Region is committed to incorporating these critical tools as it seeks to make the most of limited funding and ensure that important transportation facilities are kept in good condition.

The Highest Priority Investment strategy reflects the region's current investment practices for Federal Land Transportation Program (FLTP) funding and is in close alignment with the National LRTP. This strategy enables the region to continue its current investment course with few changes to how it programs transportation funding.

The strategy addresses a number of region objectives. It ensures bridge safety; prioritizes network infrastructure of greatest importance, such as key connector roads and parkways; and continues the current level of investment in NPS-owned transit assets, ensuring their continued operation.

[3] National Park Service, *NPS Capital Investment Strategy Guidebook: Goals, Objectives and Functional Elements*, 2012.

Sustainable Operations

Goal – Sustainably manage transportation assets and services.

Sustainability is the practice of preserving resources in the present to be shared in the future. The Southeast Region is committed to sustainable practices in every facet of its operation. For the region, sustainable management involves achieving a balance among the three elements that make up sustainability: financial, social, and environmental.

Issues and Opportunities

FINANCIAL SUSTAINABILITY

The region received an average of $71.9 million (in 2014 dollars) annually over the period FY 2006 through FY 2013 to support the transportation system (Figure ES-1). Approximately three-quarters of the funding is distributed to the region by WASO through the Federal Lands Transportation Program.

For the Southeast Region, an average of 89 percent of the annual investments have been allocated to work that maintains or improves the condition of transportation assets. Operations and maintenance accounted for seven percent of the investments, and planning and administration four percent.

Figure ES-1. Southeast Region Historical Funding & Investment (Average annual funding and investment for FY 2006 – FY 2013)

Source: NPS Administrative Financial System. 2014 dollars.

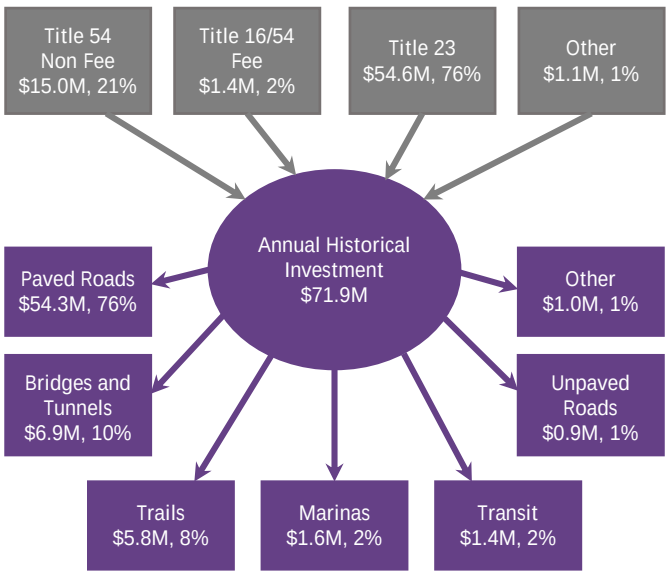
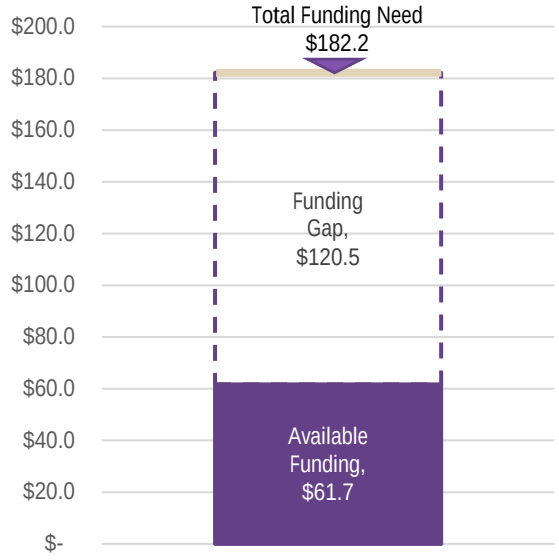


Figure ES-2. Forecasted Funding, Unconstrained Need, and Gap

Source: NPS Administrative Financial System



All values in millions of 2014 dollars.

The Southeast Region forecasts $61.7 million of available annual funding for its transportation network. This figure is 14 percent, or $10.2 million, lower than the average annual historical funding of $71.9 million. The Southeast Region estimates the financially unconstrained annualized need for its transportation asset portfolio at $182.2 million. The region comprises a high proportion of paved roads and bridges within the National Park Service. Paved roads represent about half of annual Southeast Region transportation needs and road bridges and tunnels represent about one-quarter of annual needs.

The Southeast Region LRTP is a fiscally constrained plan. With an estimated annualized need of $182.2 million, and a forecast of $61.7 million in annual available transportation funding, the region faces an annual funding gap of $120.5 million (Figure ES-2). Of that total gap, 70 percent ($90.7 million) is tied to the region's Highest Priority assets, a gap representing more than twice the available funds presently anticipated to be available for allocation for those same assets.

ENVIRONMENTAL SUSTAINABILITY

The Southeast Region is home to irreplaceable resources that must be managed effectively for future generations. Operating sustainably means accounting for extreme weather events and the reality of climate change, and considering the impact of greenhouse gases in transportation planning efforts and investment decisions.

More than 85 percent of Southeast Region coastal park assets have been identified as being highly vulnerable to sea level rise and associated storm damage, with a cumulative value of over $35 billion. Several coastal parks in the region have taken steps to adapt their transportation facilities to the impacts of climate change. This includes Gulf Islands National Seashore, which has realigned Fort Pickens Road, along a barrier island, in an attempt to adapt to severe weather events, and San Juan National Historic Site, which accounted for sea level rise in the design of its Paseo del Morro pedestrian walkway.

Climate change impacts are not limited to coastal parks. Inland parks in the Southeast Region have experienced significant impacts to their transportation assets from intense storms and droughts in recent years. The combination of drought conditions and more intense precipitation has degraded the trail system at Kennesaw Mountain National Battlefield Park, and landslides at both Blue Ridge Parkway and Great Smoky Mountains National Park have resulted in significant damage to park roadways.

In 2015, the Southeast Region became the first NPS region to develop a region-specific climate change response strategy and action plan. The plan identifies specific actions the region will take to manage resources in a manner that is responsive to the most up-to-date climate science.

The Southeast Region seeks to cut petroleum use and greenhouse gas emissions through participation in the Clean Cities National Parks Initiative. To date, four Southeast Region park units have "greened" their fleets as part of this initiative. Twelve Southeast Region parks have been certified as Climate Friendly Parks, a designation that helps parks raise awareness of climate change impacts. In addition, WASO has conducted vulnerability and adaptation workshops at seven parks in the region, with future plans for workshops at seven more park units.

SOCIAL SUSTAINABILITY

Many Southeast Region park units leverage partnerships, outreach, and education to promote transportation infrastructure as a means of improving livability for gateway community residents. This includes multimodal connections—for instance, trails at San Juan National Historic Site or advocating for increased transit service at Kennesaw Mountain National Battlefield Park—between parks and surrounding communities.

The NPS National Rivers, Trails, and Conservation Assistance program provided technical assistance on 30 livability projects in the Southeast Region in 2015.

The National Park Service anticipates that urban park units, and connecting those park units to their surrounding communities, will be a critical component of NPS operations going forward.

Recommended Strategies

- Implement the Southeast Region LRTP investment strategy for all funding programs.
- Work to identify new transportation planning partners and funding sources.
- Consider decommissioning low priority assets, particularly those low priority assets most vulnerable to climate change impacts.
- Develop an inventory of roadway drainage systems. When replacing culverts, consider the need for upsizing or relocation.
- Continue working to incorporate climate change adaptation strategies into project design.

Asset Management

Goal – Allocate transportation funding to ensure the long term viability of transportation systems.

The Southeast Region is responsible for the operation and maintenance of $8.7 billion in transportation assets. The Southeast Region transportation assets support the NPS mission of providing visitors access to cultural and natural resources, and many of the region's transportation assets are themselves important cultural resources.

The Southeast Region transportation system includes 2,182 centerline miles of roads, 1,063 bridges and tunnels, 518 acres of parking lots, 243 miles of transportation trails, and land- or water-based alternative transportation systems at 14 parks (Table ES-2).

The Southeast Region administers approximately one-third of the paved road miles and about two-thirds the tunnels and bridges in the National Park Service. This is due in large part to the region's two parkways: the 444-mile Natchez Trace Parkway and the 469-mile Blue Ridge Parkway.

Fourteen parks have on-road transit (shuttle, bus, van, tram) or water transit (boat, ferry) alternative transportation systems (ATS). Most of the ATS provide "critical access" to parks and/or units that are not accessible by automobile. ATS in the region carry almost two million riders annually.

The condition of transportation assets are classified using a Pavement Condition Rating (PCR) for paved roads and parking, a Bridge Health Index (BHI) for bridges, and a Facility Condition Index (FCI) for other transportation assets. The average condition of bridges and paved roads and parking in the Southeast Region exceeds the average condition of those asset types servicewide.

Table ES-2. Southeast Region Transportation Asset Inventory Characteristics

Source: SER asset inventory derived from National NPS Transportation Asset Inventory, unless otherwise noted. Data date: October 1, 2014.

Transportation Asset Type	Quantity	Current Replacement Value ($millions)	Deferred Maintenance ($millions)	Average Condition
Roads —paved	1,587 miles	$4,994.4	$1,001.6	88 PCR, Good
Roads - unpaved	595 miles	$370.6	$43.9	0.12 FCI, Fair
Parking - paved	479 acres	$398.4	$84.2	72 PCR, Fair
Parking - unpaved	39 acres	$14.6	$2.0	0.21 FCI, Poor
Road Bridges	1,029 bridges	$1,621.1	$125.9	95 BHI, Good
Road Tunnels	34 tunnels	$799.3	$15.8	0.02 FCI, Good
Transportation Trails	243 miles	$147.2	$43.4	0.30 FCI, Poor
Trail Bridges	234 bridges	$21.8	$0.7	n/a
Trail Tunnels	2 tunnels	$20.4	$0.5	n/a
Constructed Waterways	92 miles	$42.9	$0.3	n/a
Docks, Marina, and Waterfront Assets	585,353 lf	$238.2	$37.1	0.16 FCI, Poor
Railroad Assets	9,997 lf	$3.8	$0.6	0.17 FCI, Poor
Grand Total		$8,672.7	$1,356.0	

n/a - FCI calculation not meaningful since deferred maintenance data are missing for many of this category of assets
lf = linear feet
Additional sources: Quantity and condition of paved roads and parking are from 2014 National Park Service Pavement Condition Report, March 2015. Quantity of road bridges and tunnels, and BHI, are from Bridge Inventory Program (BIP) data. Provided by WASO, January 2015.

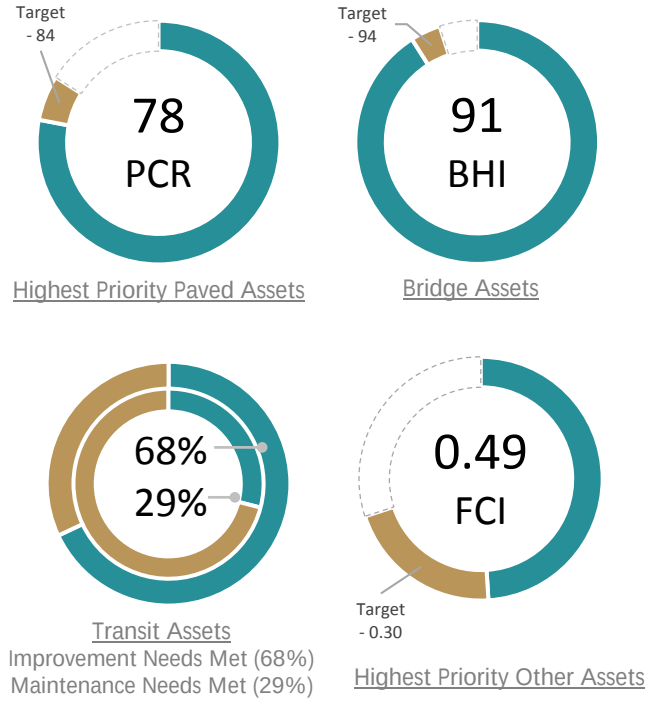
Issues and Opportunities

TRANSPORTATION ASSET CONDITION

Average annual funding for transportation investments is expected to decrease from $71.9 million (observed over the period of FY 2006 – FY 2013) to approximately $61.7 million forecast for FY 2015 – FY 2020. This amount is not sufficient to maintain the current condition of transportation assets and, as illustrated by Figure ES-3, is not enough to meet performance metric targets of this LRTP. The region will need to enhance all elements of asset management and project prioritization to ensure that available funding is spent wisely.

Figure ES-3. Investment Strategy Outcomes – Asset Conditions

Source: Volpe National Transportation Systems Center, "NPS SER LRTP: Proposed Investment Strategy – Final Draft," presented May 31, 2016.



PARTNERSHIPS

The role of partner organizations and partnerships are expected to continue to expand. Partnerships can be beneficial in direct ways, such as in program cost sharing, and indirect ways, such as providing more comprehensive regional access options to the parks themselves.

ASSET MANAGEMENT DATA NEEDS

Asset management data for trails, ATS, and unpaved assets are not as complete as the data for bridges and pavement. Improving the condition assessment programs for those assets will provide for better financial decisions. Incorporating data about assets vulnerable to climate change impacts will ensure better long-term financial decisions.

RIGHT-SIZING TRANSPORTATION INVENTORY

Both nationally and within the Southeast Region, there is advocacy for new and expanded parks. If realized, the transportation asset inventory would likely increase even with the absence of all of the funding required to maintain just the existing assets in a state of good repair. Decommissioning or disposal of low-priority assets can help offset potential new investment commitments.

Recommended Strategies

- Enhance the effectiveness of existing asset management systems by ensuring that asset condition data are accurate and up-to-date.
- Continue to build upon the condition assessment programs for trail and transit assets by preparing for asset assessments and utilize resulting data moving forward.
- Inventory transportation assets to identify risks due to extreme weather events and sea-level rise.
- Decommission, dispose, or repurpose unnecessary, redundant, or underused transportation infrastructure.
- Leverage partnership funding opportunities in a timely manner during project planning.

Safety

Goal – Provide a safe transportation system for all users.

The Southeast Region has embraced the NPS focus on visitor and staff safety by making safety a stand-alone goal in the LRTP process. The Southeast Region has been systematically making progress to improve conditions through its ongoing safety initiatives. More robust and reliable data would enhance these initiatives going forward.

Issues and Opportunities

CRASH EXPERIENCE

The Southeast Region accounted for nearly 30 percent of all fatal crashes and 23 percent of all injury crashes in the NPS between 1990 and 2005. Three park units—Blue Ridge Parkway, Great Smoky Mountains National Park, and Natchez Trace Parkway—accounted for nearly 90 percent of the total reported fatal and injury crashes in the region.

MULTIMODAL SAFETY

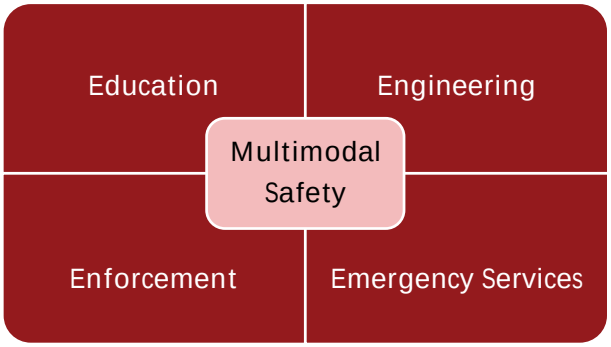
The Southeast Region is actively seeking to address intermodal conflicts on transportation facilities. Conflicts between vehicles, pedestrians, and bicyclists are among the region's greatest concerns. Marked crossings and informal crossings of roadways are hotspots for intermodal conflicts.

DATA

More complete and accessible safety data are critical to identifying and addressing transportation safety issues in the Southeast Region. The region will support interagency efforts to develop a Transportation Safety Management System, as well as the rollout of the Department of Interior's new reporting system, the Incident Management and Reporting System (IMARS). When fully operational, these systems will allow for a predictive approach to safety through the use of historic data and network characteristics to identify critical locations for safety needs.

Given the relatively large number of park units with water-based transportation systems and recreational activities, water safety is another area of focus in the region. Park units are exploring ways to improve water safety through reduction in on-water conflicts or by limiting or restricting private boat access.

Figure ES-4. The Four **E's of Safety**



FOUR **E'S OF SAFETY**

The Southeast Region will continue to incorporate the four E's of safety—engineering, education, enforcement, and emergency response—in all aspects of its transportation system. The region will build on existing partnerships with local, state, and federal agencies to assist in efforts to educate visitors about safety guidelines and potential hazards, engineer transportation infrastructure to enhance safety, enforce rules and regulations, and provide adequate emergency response.

Recommended Strategies

- Focus near-term efforts, including data collection and mitigation, on facilities with a demonstrated history of severe crashes.
- Support national efforts for improving data collection on wildlife-vehicle incidents.
- Conduct targeted, planning-level safety studies at select park units.

Visitor Experience, Access and Mobility

Goal – Maintain and enhance the quality of the park visitor experience.

Visitor experience is directly linked to access and mobility to park units and sites. Access and mobility provide and enable positive visitor experiences.

Issues and Opportunities

CONGESTION

Congestion impacts visitors' ability to access park resources and freely travel within a park unit, ultimately affecting the visitor experience.

- Nineteen out of 24 park units participating in the Southeast Region superintendent survey described commuter traffic as an external pressure that is a problem for their park unit. Seven units characterized this as a "big problem."
- Twelve park units reported congestion on roads leading to and/or within their unit.

The Southeast Region can continue to address congestion at key locations on a project-by-project basis.

ACCESSIBILITY

Providing access and mobility is a multimodal issue that must encompass all park visitors across all physical abilities. The Southeast Region should work to ensure that standards such as the Architectural Barriers Act (ABA) continue to be upheld on all transportation projects.

TECHNOLOGY

The growing role of technology in everyday lives encourages the Southeast Region to improve their electronic presence on websites, provide real-time information, use social media, and interact on mobile devices through smartphone apps.

Smartphone apps are available for at least 30 Southeast Region park units. NPS apps have been created for three parks (Blue Ridge Parkway, Cape Hatteras National Seashore, and Great Smoky Mountains National Park) and the other apps are available from commercial developers.

ROBUST MULTIMODAL NETWORK

The National Park Service and the Department of the Interior have documented the importance of providing multimodal transportation facilities and services, connecting with gateway communities, and encouraging active transportation options. Such strategies will be a strength for the region looking forward. Population trends suggest that the aging Baby Boomer generation and the increasing numbers of Millennial generation visitors will both appreciate and benefit from greater multimodal access.

Recommended Strategies

- Utilize the NPS Congestion Management Toolkit to identify and address congestion issues in the region.
- Always consider the needs of visitors or staff with disabilities, and move quickly to address barriers as they are identified.
- Support alternative transportation systems by creating or enhancing systems/networks in a way that serves the maximum number of visitors.
- Consider providing real-time information via social media or, when appropriate, a smartphone application to connect with visitors digitally.

Resource Protection

Goal – Protect and preserve natural and cultural resources.

Resource protection is a vital component of the mission of the National Park Service, which must be honored and supported through transportation systems and decision making.

Issues and Opportunities

NATURAL AND CULTURAL RESOURCES

The resource protection goal area is about finding balance. Transportation is a double edged sword—on one hand historic assets such as Blue Ridge Parkway must be preserved as a way to uphold the mission, while on the other, transportation assets may introduce pollutants to a park unit or change natural habitats.

GREENHOUSE GAS EMISSIONS

Greenhouse gas emissions result from a number of operational functions at a park unit, including transportation. Greenhouse gas emissions can result from fossil fuel combustion and electricity consumption at park units (Scope 1 and Scope 2 emissions) or from outside sources including official travel to/from park units (Scope 3 emissions).

Unchecked, greenhouse gas emissions are harmful to the natural habitats and environments and to staff and visitors exposed to the poor air quality.

RECENT GUIDANCE

The Innovative Sustainable Transportation Evaluation Process (INSTEP) is a sustainability rating system for NPS transportation projects. By following the guidance and checklists this document provides, from the initial conception of a project through operations, maintenance, and end of service life disposition, decision makers and managers can better evaluate project impacts on resources and chose paths that best emphasize sustainability for each phase of a project and operations.

The Transportation Resource Stewardship Planning Tool was developed through collecting regional mapping data and conversations with representatives in park units in the Southeast Region specifically. As such, this tool is best calibrated to identifying the needs of Southeast Region park units and recommending strategies to address common issues and challenges. By identifying the characteristics of a proposed project and site, a user can learn what tools and strategies may be available to their project to help refine and enhance the project's ability to protect and enhance natural and cultural resources while also improving the transportation network and supporting visitor experiences.

Recommended Strategies

- Apply the INSTEP process to future transportation projects when the tool is ready for application.
- Begin reviewing appropriate projects with the Transportation Resource Stewardship Planning Tool.
- Continue to monitor greenhouse gas emissions rates and support park units participating in the Climate Friendly Parks program.
- Focus on asset needs for historic and cultural transportation assets to support the mission of the National Park Service by protecting these Highest Priority assets.

Goals & Objectives and Performance Measures

The Southeast Region LRTP Core Team identified five goal areas that frame this LRTP: sustainable operations, asset management, safety, visitor experience, and resource protection. Each goal area has an accompanying goal statement, as well as a set of objectives to support the goal. Each goal also has an associated set of performance measures that identify actionable strategies intended to help the region achieve the goal and objectives. Those performance measures, which include baseline data and quantitative targets where applicable, are critical to the region's performance monitoring and reporting activities that represent the next steps in the LRTP process.

Those five goals and their supporting objectives and performance measures are shown on the next two pages.

John Coffee Memorial Bridge on the Natchez Trace Parkway

NPS Southeast Region Goals, Objectives and Performance Measures

SUSTAINABLE OPERATIONS

Goal – Sustainably manage transportation assets and services.

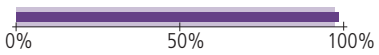
Objectives

- Identify and incorporate climate change mitigation/adaptation strategies into aspects of transportation planning, design, construction, maintenance, and operations over time as financially feasible.
- Maintain flexible use of transportation funding sources while improving identification of transportation needs and expenditures.
- Identify and prioritize investments based on legal requirements, agency mission, anticipated lifecycle costs, and consideration of potential future funding.
- Utilize the planning process to strengthen effective regional and community relationships.

Performance Measures

Percentage of Transportation Funds Invested in Highest Priority Transportation Assets

- Baseline: 98%
- 5-yr Target: 95%



Develop and Implement a Park Unit Preventative Maintenance Program

- Baseline: n/a
- 5-yr Target: Pilot program at select park units

ASSET MANAGEMENT

Goal – Allocate transportation funding to ensure the long-term viability of transportation systems.

Objectives

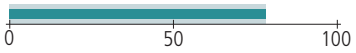
- Maintain important transportation assets and services in good operating condition through targeted investment.
- Use transportation management systems to assist in decision making for improving the overall condition, utilization, and effectiveness of the transportation asset portfolio over time.
- Decommission or dispose of undesirable transportation assets.
- Search for innovative financial resources and partnerships to leverage additional funding for transportation projects.

Performance Measures

Condition of Highest Priority Transportation Facilities

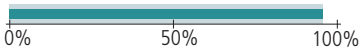
Paved Roads and Parking (FC 1,2,7)

- Baseline: 84 PCR
- 6-yr Target: 84 PCR



Bridges and Tunnels

- Baseline: 95% BHI
- 6-yr Target: 95% BHI



Other Assets

- Baseline: 0.30 FCI
- 6-yr Target: 0.30 FCI

Number of Park Units That Have Completed a Transportation Infrastructure Vulnerability Assessment

- Baseline: n/a
- 5-yr Target: Support National Efforts

SAFETY

Goal – Provide a safe transportation system for all users.

Objectives

- Maximize safety of all visitors and staff while minimizing negative impact to park resources and values.
- Address engineering, education, enforcement, and emergency response as part of the safety initiatives in the region.
- Manage visitation and transportation operations to minimize visitor and wildlife incidents and multimodal conflicts.

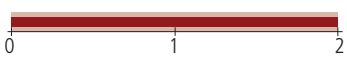
Performance Measure

Apply Transportation Safety Management System

- Baseline: n/a
- 5-yr Target: Support National Efforts

Prepare Transportation Studies

- Baseline: 2 safety studies per year
- 5-yr Target: 2 safety studies per year



VISITOR EXPERIENCE, ACCESS AND MOBILITY

Goal – Maintain and enhance the quality of the park visitor experience.

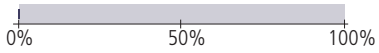
Objectives

- Understand the impacts of congestion where it interferes with the visitor experience or where it damages resources.
- Consider improvements and ease of access to and within national park units for all park visitors.
- Advocate creating a range of appropriate transportation options that provide a network for seamless connections within each park unit and to surrounding communities.
- Support traveler information and wayfinding initiatives and, where appropriate, support interpretation and education opportunities.

Performance Measures

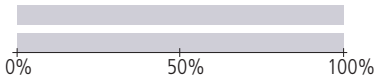
Percentage of Park Unit Websites that Provide Nine Elements of Essential Traveler Information

- Baseline: 0%
- 5-yr Target: 100%



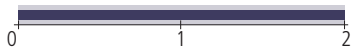
Percentage of Transportation Contracts and Projects that Include Accessibility Language and Are Compliant with Accessibility-Related Laws, Regulations and Policies

- Baseline:
  Contracts: n/a
  Projects: n/a
- 5-yr Target: 100%



Complete Congestion Studies at Key Locations

- Baseline: 2
- 5-yr Target: 1-2 studies



Identify Opportunities and Priorities for Multimodal (Transit or Trail) Connections between Park Units and Gateway Communities

- Baseline: n/a
- 5-yr Target: Establish approach to improve multimodal connectivity in selected parks

RESOURCE PROTECTION

Goal – Protect and preserve natural and cultural resources.

Objectives

- Incorporate natural and cultural resource considerations into transportation decision making.
- Support the protection and enhancement of cultural transportation resources.

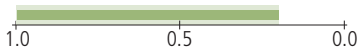
Performance Measures

Apply the Innovative Sustainable Transportation Evaluation Process and Guidance (INSTEP) Tool

- Baseline: n/a
- 5-yr Target: Support National Efforts

Average Condition of Highest Priority Historic Transportation Assets

- Baseline: 0.20 FCI
- 5-yr Target: 0.20 FCI



Percentage Decrease in NPS Transportation System Emissions (per Green Parks Plan)

SCOPE 1+2 (in MTCO2E)
- 2008 Baseline: 27,400
- 2020 Target: 17,800 (-35%)

Scope 3 (in MTCO2E)
- 2008 Baseline: 1,100
- 2020 Target: 990 (-10%)

Validate the Outcomes of the Transportation Resource Stewardship Planning Tool for Park Units in the Southeast Region

- Baseline: No pilots completed
- 5-yr Target: Pilot as part of 2-3 park unit projects, where applicable

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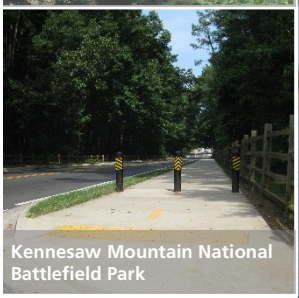
Chapter 1 | **Introduction**

Big South Fork National River and Recreation Area



Kennesaw Mountain National Battlefield Park

Great Smoky Mountains National Park

Everglades National Park

Goals:

- **Sustainable Operations**
- **Asset Management**
- **Safety**
- **Visitor Experience, Access and Mobility**
- **Resource Protection**

The National Park Service National LRTP is the comprehensive national vision guiding transportation program priorities and investments servicewide. This Southeast Region LRTP will act as both a step-down plan that reflects transportation priorities and investments specific to the Southeast Region park units within the framework of the National LRTP and a roll-up plan that will provide information to national transportation planning efforts moving forward. This plan provides a 20-year vision, high-level goals and objectives, investment strategies and performance measures that will shape future transportation investments across the Southeast Region.

The New Garden Road Trace at Guilford Courthouse National Military Park

Purpose of the LRTP

Within the National Park Service, transportation is more than systems and facilities—it is the foundation that supports access to the wondrous experiences found in America's national treasures, and therefore plays a critical role in serving the NPS mission. While a keystone to accessing these special places, transportation can also, at times, negatively affect the integrity of natural and cultural resources or adversely impact visitor experience through congestion or poor facility condition. Transportation planning in the National Park Service is fundamentally about striking a critical balance between access and resource protection while operating within fiscal constraints.

This first-of-its-kind Southeast Region LRTP helps the region better understand existing and forecasted needs and provides a framework for making more effective transportation decisions and strategic program investments. It establishes regional goals, objectives, and performance measures; defines existing conditions and transportation needs; identifies safety, congestion, and capital improvement needs; and identifies sustainable strategies that protect resources while maintaining quality visitor experiences.

By examining the past and looking to the future and understanding its challenges and opportunities, the region will be positioned to make quality transportation planning decisions over the next 20 years. The region will also be positioned to keep pace with technological advancements in response to the changing needs of an aging visitor population, and proactively protect the natural and cultural resources for the enjoyment of future generations.

The Southeast Region LRTP is a program-oriented plan and plays a critical role in promoting efficient and effective transportation systems for all users by:

- Assessing current conditions and anticipating changes in multimodal transportation, needs, and funding using a 20-year planning horizon[4]
- Formulating the long-term transportation vision, goals, and objectives of the Southeast Region
- Enabling the Southeast Region office and park units to make better informed transportation investment decisions
- Providing a holistic and long-term view of transportation in relation to core operations and other programs and priorities

The intended audience for this long range transportation plan is principally park staff at the unit level, as well as regional and unit-level partners. Regional and park program managers can use this LRTP to prioritize transportation projects for their units and to better synchronize transportation planning with other park planning efforts, such as general management plans, foundation documents, and park asset management plans.

Current and potential park partners (such as state Departments of Transportation [DOTs], Metropolitan Planning Organizations [MPOs] and other Federal Land Management Agencies [FLMAs]) can use this LRTP to better understand the future of the NPS Southeast Region transportation system and identify opportunities to coordinate efforts and achieve common objectives.

[4] Financial analyses in the Southeast Region LRTP reflect a six-year horizon, which is consistent with NPS multiyear project planning and was used because of the limited data and quality of data for analysis beyond this six-year timeframe.

Vision, Goals & Objectives

The Southeast Region Long Range Transportation Plan advances the NPS mission by supporting a transportation network that provides access and positive visitor experiences to all users, while minimizing impacts to natural and cultural resources.

At the kickoff of the process in July 2014, the Southeast Region LRTP Core Team developed goals and objectives to frame the LRTP. These goals are in alignment with the goals developed for the National LRTP.

The five goals for the Southeast Region LRTP are:

- Sustainable Operations
- Asset Management
- Safety
- Visitor Experience, Access and Mobility
- Resource Protection

Organization of this Report

This report begins with a general introduction of the LRTP goals and objectives, the LRTP development process, and some guidance documents and policies. The LRTP goals serve as the organizational framework for the body of the report. Goals are addressed in individual chapters that provide a goal-specific discussion of baseline conditions, trends, needs, objectives and priorities, and performance measures and targets. The report concludes with a discussion of next steps for implementing, monitoring, and updating the LRTP.

The chapters of this report are as follows.

Chapter 1: Introduction
Chapter 2: Investment Strategy
Chapter 3: Sustainable Operations
Chapter 4: Asset Management
Chapter 5: Safety
Chapter 6: Visitor Experience, Mobility and Access
Chapter 7: Resource Protection
Chapter 8: Next Steps

The appendices contain a series of technical reports prepared during the LRTP process and used to support the preparation of this LRTP. These reports contain detailed assessment and analysis of transportation system elements. The reports provided in the appendices are the following.

- Baseline Conditions Assessment Report
- Future Conditions Assessment Report
- Needs Assessment Report
- Funding and Financial Analysis Technical Report
- Stakeholder Engagement Summary Report, including summaries of the superintendent survey findings and Focus Park visits
- Transportation Resource Stewardship Planning Tool Summary Report for the Southeast Region

Vision

The Southeast Region Long Range Transportation Plan will support the NPS mission by maintaining a regional transportation network that provides access to all users and positive visitor experiences, while minimizing impacts to natural and cultural resources. The tools and principles of asset management, resource protection, safety, visitor experience, and sustainability will be used to achieve this vision, while striving to make wise and effective financial and investment decisions.

Goal	Objectives
Sustainable Operations Sustainably manage transportation assets and services. 	• Identify and incorporate climate change mitigation/adaptation strategies into aspects of transportation planning, design, construction, maintenance, and operations over time as financially feasible. • Maintain flexible use of transportation funding sources while improving identification of transportation needs and expenditures. • Identify and prioritize investments based on legal requirements, agency mission, anticipated lifecycle costs, and consideration of potential future funding. • Utilize the planning process to strengthen effective regional and community relationships
Asset Management Allocate transportation funding to ensure the long term viability of transportation systems. 	• Maintain important transportation assets and services in good operating condition through targeted investment. • Use transportation management systems to assist in decision making for improving the overall condition, utilization, and effectiveness of the transportation asset portfolio over time. • Decommission or dispose of undesirable transportation assets. • Search for innovative financial resources and partnerships to leverage additional funding for transportation projects.
Safety Provide a safe transportation system for all users. 	• Maximize safety of all visitors and staff while minimizing negative impact to park resources and values. • Address engineering, education, enforcement, and emergency response as part of the safety initiatives in the region. • Manage visitation and transportation operations to minimize visitor and wildlife incidents and multimodal conflicts.
Visitor Experience, Access and Mobility Maintain and enhance the quality of the park visitor experience. 	• Understand the impacts of congestion where it interferes with the visitor experience or where it damages resources. • Consider improvements and ease of access to and within national park units for all park users. • Advocate creating a range of appropriate transportation options that provide a network for seamless connections within each park unit and to surrounding communities. • Support traveler information and wayfinding initiatives and, where appropriate, support interpretation and education opportunities.
Resource Protection Protect and preserve natural and cultural resources. 	• Incorporate natural and cultural resource considerations into transportation decision making. • Support the protection and enhancement of cultural transportation resources.

LRTP Development Process

The development of the Southeast Region LRTP was undertaken between 2014 and 2016. The project was led by the Southeast Region LRTP Core Team, comprised of representatives from the Southeast Region, the NPS Washington Support Office (WASO) Facilities Planning Branch, and Federal Highway Administration Eastern Federal Lands Highway Division (FHWA-EFLHD).

Among the most critical components of the process were stakeholder engagement efforts to gain technical input and ground-truth preliminary findings, and the development of interim deliverables that served as the basis for the final LRTP report. These interim deliverable activities, and the date of their issuance, are illustrated in Table 1-1.

Southeast Region LRTP Core Team

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Chris Jaeschke, FHWA EFL – Highway Division
Teresa Parker, FHWA EFL – Highway Division
Richelle Ellis, FHWA EFL – Highway Division
Kent Cochran, NPS Southeast Region
Barbara Hatcher, NPS Southeast Region
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Wm. Bryce Lloyd, NPS WASO Facilities Planning Branch
Stephanie Fischer, NPS WASO Facilities Planning Branch
Rachel Collins, NPS DSC Planning Division

Southeast Region LRTP Advisory Committee

Dianne Flaugh, Great Smoky Mountains National Park
Barry Boyd, Natchez Trace Parkway
Mark Woods, Blue Ridge Parkway
Pat Kenney, Cape Lookout National Seashore
Jeri DeYoung, Cape Lookout National Seashore
Formerly of Carl Sandburg Home National Historic Site
Steve McCoy, Gulf Islands National Seashore
Jayne Schaeffer, Virgin Islands National Park
Shawn Benge, Southeast Region
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Southeast Region LRTP Technical Support

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Kevin McCoy, Volpe Center
Chris Conklin, VHB
Kevin Keeley, VHB
Bill Cranshaw, VHB
Kristin Caouette, VHB
Jason Coccia, Booz Allen Hamilton
Steve Lawson, RSG
Brett Kiser, RSG

Stakeholder Engagement

PROJECT MANAGEMENT AND TECHNICAL INPUT

The Core Team served as a task group to organize the broader advisory and technical contributors during the LRTP process; plan specific outreach efforts; obtain input from other stakeholder groups; attend and facilitate meetings, discussions, and site visits; document results in the plan; and revise the plan as appropriate.

The Core Team identified key stakeholders within the region to serve on the Southeast Region LRTP Advisory Committee, which the Core Team engaged periodically to provide technical input and to ground-truth analyses and findings at key stages in the LRTP process.

The Advisory Committee was chosen with the goal of providing broad representation for various disciplines, park types, and regional and park unit roles and positions to help establish consensus across the Southeast Region. Committee members played a critical role in identifying goals and objectives, framing the investment strategy, and providing park-unit level examples and context throughout the planning process.

Table 1-1. Project Schedule and Process

2014	2015	2016
Focus Park Visits	Future Conditions Assessment	Financial Analysis Technical Report
Superintendent Survey	Needs Assessment	Core Team Meetings
State DOT and FHWA Webinars	Financial Investment Strategies	Advisory Committee Meetings
Baseline Conditions Assessment	Core Team Meetings	WASO Briefing
Core Team Meetings	Advisory Committee Meetings	Full LRTP Report
Advisory Committee Meetings		

FOCUS PARK VISITS

Because the Core Team was not able to visit all 66 park units in the region, Southeast Region staff identified nine Focus Park units as being representative of other parks in the region with similar missions, settings, and transportation assets and challenges. Members of the Southeast Region LRTP Core Team visited each of these Focus Parks in the fall of 2014. The Focus Park visits provided the Core Team with a better understanding of both shared and unique unit-level transportation conditions, needs, opportunities, and strategies. The findings are incorporated throughout this LRTP. Details of each park visit can be found in the Stakeholder Engagement Summary Report in the appendix.

Southeast Region LRTP Focus Parks

Big South Fork National River and Recreation Area, KY, TN

Blue Ridge Parkway, NC, VA

Fort Sumter National Monument, SC

Great Smoky Mountains National Park, NC, TN

Gulf Islands National Seashore, FL, MS

Kennesaw Mountain National Battlefield Park, GA

Mammoth Cave National Park, KY

San Juan National Historic Site, PR

Stones River National Battlefield, TN

SOUTHEAST REGION TRANSPORTATION SURVEY

Following the Focus Park visits, a transportation survey was distributed to all superintendents in the region to gain insight into the transportation network. The survey instrument was designed to collect information about transportation-related conditions, needs and issues, and effects on park resources and visitors' experiences.

Completed surveys were returned for 31 park units. The survey results served as the basis of a substantial portion of the analysis contained in the Visitor Experience, Access and Mobility chapter. Detailed results of the survey are included in the Stakeholder Engagement Summary Report in the appendix.

STATE DEPARTMENT OF TRANSPORTATION AND FHWA STATE FEDERAL AID DIVISION OFFICE WEBINARS

In the early stages of the project, the Southeast Region LRTP Core Team conducted two webinar presentations that were open to representatives of each state DOT and FHWA Federal-aid Highway Division Office for the nine-state Southeast Region and two territories. The webinars outlined the overall Southeast Region LRTP approach, provided a preliminary assessment of baseline conditions, and afforded participants an opportunity to learn more about the LRTP process and to suggest ways in which their agencies could provide input on the LRTP effort.

Alignment with Planning Requirements and Existing Plans

Federal surface transportation legislation requires LRTPs for FLMAs to be consistent with the planning processes required of state DOTs and MPOs. This Southeast Region LRTP is consistent with those processes and legal requirements.

Table 1-2 illustrates how the Southeast Region LRTP goal areas align with US Department of Transportation (USDOT) Planning Factors specified in the federal surface transportation legislation.

Table 1-2. Alignment of Southeast Region LRTP Goals with USDOT Planning Factors

USDOT Planning Factors	Sustainable Operations	Asset Management	Resource Protection	Visitor Experience, Access & Mobility	Safety
Economic Vitality	●	●	●	●	
Safety			●	●	●
Security					●
Accessibility		●		●	●
Environment		●	●		
Connectivity	●	●		●	
Efficiency	●	●		●	
System Preservation	●	●	●		
Resiliency	●	●	●		●
Travel & Tourism	●			●	

USDOT Planning Factors

- Support the economic vitality of the United States, the states, metropolitan areas, and nonmetropolitan areas, especially by enabling global competitiveness, productivity, and efficiency
- Increase the safety of the transportation system for motorized and nonmotorized users
- Increase the security of the transportation system for motorized and nonmotorized users
- Increase the accessibility and mobility of people and freight
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns
- Enhance the integration and connectivity of the transportation system, across and between modes throughout the state, for people and freight
- Promote efficient system management and operation
- Emphasize the preservation of the existing transportation system
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation
- Enhance travel and tourism

Source: United States Code: 23 USC §201; 23 USC §134 and §135

Guidance Documents

Over the last several years, the National Park Service and the Department of the Interior have focused on long-range planning through several different disciplines. Key guidance documents that set goals for the transportation network and operations are described below.

A CALL TO ACTION

Released on August 25, 2011, *A Call to Action* highlights goals and actions to advance the mission of the National Park Service into the first half of the 21st century. One of the goals focuses on the key role of surface transportation for the National Park Service: "connect urban communities to parks, trails, waterways, and community green spaces that give people access to fun outdoor experiences close to home."

Several report actions also emphasize the need to invest in transportation assets and services:

- Action 4: In My Backyard — emphasizes connectivity between urban residents and nearby park units through transit and nonmotorized facilities.
- Action 5: Parks for People — challenges the NPS to enhance the connection of densely populated and diverse communities to parks, greenways, trails and waterways.
- Action 12: Follow the Flow — highlights the need to expand access to water-based recreation and to protect and restore waterways across the country by establishing a national system of water trails.
- Action 23: Go Green — sets a goal to reduce the NPS carbon footprint by reducing greenhouse gas emissions by 20 percent, including on-site fossil fuel usage and emissions due to electricity consumption.
- Action 24: Invest Wisely — focuses investments from all maintenance fund sources on high priority assets to address deferred maintenance and code compliance needs.

AMERICA'S GREAT OUTDOORS

On April 16, 2010, President Barack Obama introduced America's Great Outdoors: A Promise to Future Generations (AGO), an initiative aimed at reigniting the nation's historical commitment to conserving and enjoying the magnificent natural heritage that has shaped the nation and its citizens. AGO is a plan to reconnect people with America's lands, waters and natural and cultural resources. Among the major goals is to "create and enhance a new generation of safe, clean, accessible great urban parks and community green spaces." Several report actions emphasize the need to:

- Support and align federal agency programs and initiatives to promote the creation, expansion and enhancement of urban parks and community green spaces.
- Connect people with urban parks and community green spaces.
- Establish the National Recreational Blueway Trails Initiative to increase access to recreation.
- Facilitate recreational access to our nation's waterways.

CAPITAL INVESTMENT STRATEGY

The Capital Investment Strategy (CIS) is the asset management strategy developed by the National Park Service for evaluating capital investment projects in a manner that optimizes taxpayer dollars to preserve mission-critical assets. It is a park unit-level commitment to maintain high-priority, mission-critical assets in acceptable condition and dispose of nonessential assets to the greatest extent possible. Potential projects are scored based on four key components.

- Financial Sustainability
- Health & Safety
- Resource Protection
- Visitor Use

GREEN PARKS PLAN

The *Green Parks Plan* details the National Park Service's commitment to sustainability and environmental performance. It articulates an overarching vision that will make everything the National Park Service does more sustainable, including how transportation facilities are planned, constructed, operated, and maintained. A key commitment of the plan is to reduce NPS greenhouse gas emissions, including those from direct sources (e.g., fleet vehicles, construction) and from indirect transportation sources (e.g., commuter travel).

The plan also commits the National Park Service to using sustainable materials in the construction and maintenance of assets; to adapt the location, structure or function of park facilities as needed in anticipation of climate change; and to reduce stormwater runoff by employing best management practices. By leading the way in environmentally sustainable transportation, the National Park Service hopes to foster sustainability beyond park borders, engaging NPS visitors and employees in a long-lasting campaign to improve our nation and our planet.

CLIMATE CHANGE RESPONSE STRATEGY

The *Climate Change Response Strategy (CCRS)* is an NPS guidance document outlining principles and goals to manage the impacts of climate change on the National Park Service. This policy promotes an integrated approach that highlights the importance of science, adaptation, mitigation, and communication to manage the impacts of climate change on the National Park Service. This guidance document focuses on some of the areas in which transportation can be used as a tool to address the impacts of climate change, as well as some of the areas in which transportation resources could be threatened by the changing climate. Areas of focus include:

- Adaptation: Develop the adaptive capacity for managing natural and cultural resources and infrastructure under a changing climate. Inventory resources at risk and conduct vulnerability assessments. Prioritize and implement actions, and monitor the results. Explore scenarios, associated risks, and possible management options. Integrate climate change impacts into facilities management.
- Mitigation: Reduce the carbon footprint of the National Park Service. Promote energy efficient practices, such as alternative transportation. Enhance carbon sequestration as one of many ecosystem services. Integrate mitigation into business practices, planning and the NPS culture.

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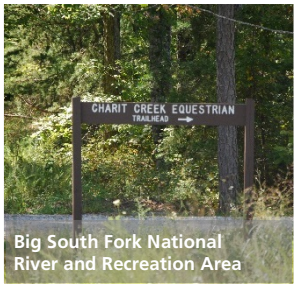
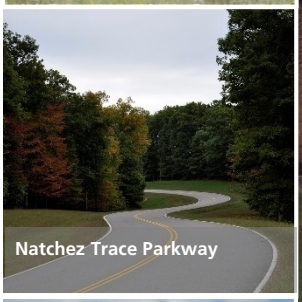
Chapter 2 | **Investment Strategy**



Big South Fork National River and Recreation Area


Natchez Trace Parkway


San Juan National Historic Site


Dry Tortugas National Park

Goals:

- **Sustainable Operations**
- **Asset Management**
- **Safety**
- **Visitor Experience, Access and Mobility**
- **Resource Protection**

At the core of the Southeast Region LRTP is the investment strategy. The investment strategy synthesizes the plan's goals and objectives, agreed-upon investment and other transportation-related needs, and the reality of the constraints that exist in the current funding environment. This chapter describes the process used by the Southeast Region to identify several potential investment strategies, select the preferred investment strategy from that mix, and refine that selected strategy for inclusion in the final LRTP. The chapter also highlights select modeled outcomes of the investment strategy for the Southeast Region LRTP, and outlines how the strategy can help the region as it seeks to meet its financial and asset management goals in a challenging fiscal environment.

Process for Selecting the Investment Strategy

Identification of potential investment strategies and the recommended strategy for the Southeast Region LRTP was a collaborative endeavor that required input from many sources. Care was taken to ensure proper attention was given to the region's past investment practices while incorporating current NPS policies into any recommended investment strategy.

The Southeast Region held several workshops and follow-up discussions with the Core Team and the Advisory Committee, as well as other internal and external NPS stakeholders, to identify candidate strategies and select the Southeast Region LRTP investment strategy. Internal NPS stakeholders included park staff representatives, regional staff members (including fund program managers, transportation branch leadership, and other regional office executives) and representatives from across the NPS Park Facility Management Division (PFMD) Washington Support Office.

External stakeholders included the FHWA Eastern Federal Lands Highway Division, the U.S. Department of Transportation's John A. Volpe National Transportation Systems Center, and subject matter experts in federal, state, and metropolitan planning.

The Southeast Region worked with stakeholders to identify potential candidate strategies that considered NPS policies and guidance, best practices, historic investment practices, and pre-established asset priorities (described in detail in Chapter 3). Once potential strategies were identified—the region identified four candidate strategies—analytical models predicted the potential outcomes of each strategy on the region's transportation portfolio condition.

Additional details on the evaluation of candidate investment strategies and the selection of the final recommended strategy can be found in the Funding and Financial Analysis Technical Report in the appendix.

NPS Investment Principles

As a best practice and policy, the National Park Service incorporates strategic facility planning into its asset management decision making processes, including LRTPs. Two fundamental concepts, the Capital Investment Strategy (CIS) and Total Cost of Facility Ownership (TCFO), underlie those best practices and are drivers of the investment planning and decision making reflected in the Southeast Region LRTP.

Capital Investment Strategy

The CIS is an NPS strategy for prioritizing project investment to ensure effective and responsible project funding. The CIS is a tool that decision makers at all levels of the National Park Service have available to them to inform project investments and other asset management needs.

The purpose of the CIS is to help prioritize investments, focus on mission-critical assets, manage operations and maintenance, and ensure that the greatest impact can be made with available capital, maintenance, and operational funds. The CIS uses a scoring strategy to evaluate projects on four criteria: Financial Sustainability, Visitor Experience, Resource Protection, and Health & Safety. Projects are scored using predefined category weights, and scores can be compared as needed—in theory, the greater the score, the higher the priority. The scoring strategy supports an approach that emphasizes maintaining key assets and reducing the estimated value of deferred maintenance cost against those key assets.

Some of the key objectives in the Financial Sustainability strategy are to build only what can be maintained, right-size the asset portfolio, reduce liabilities, reduce resource consumption to promote sustainability, and eliminate nonessential development in order to emphasize the essential natural and cultural experience. The Health and Safety strategy places an emphasis on correcting unsafe or hazardous conditions within park units that pose a threat to visitors or staff.

The Resource Protection strategy focuses on those historic, cultural, and natural resources that the National Park Service is tasked with protecting and preserving. Such tasks supported by the CIS could include preservation, repair, and restoration of assets. Visitor Use efforts include investment in assets or resources that enable recreation and serve as gateways to park units, contact stations, and interpretive assets.

Optimization of assets is another important aspect of the CIS. Park units prioritize transportation assets for investment and O&M based on a ranking that incorporates asset condition and the criticality of that asset to the park's mission. These rankings, known as Optimizer Bands (OB), range from 1 to 5, with OB 1 representing highest priority assets and OB 5 representing lowest. Assignment of assets to bands 1-3 not only signals the priority of the assets but entails a commitment by the park to dedicate a minimum amount of preventive maintenance (PM) funding to those assets (Table 2-1).

Table 2-1: Priority and PM Investment Floor by Optimizer Band

Source: NPS Administrative Financial System.

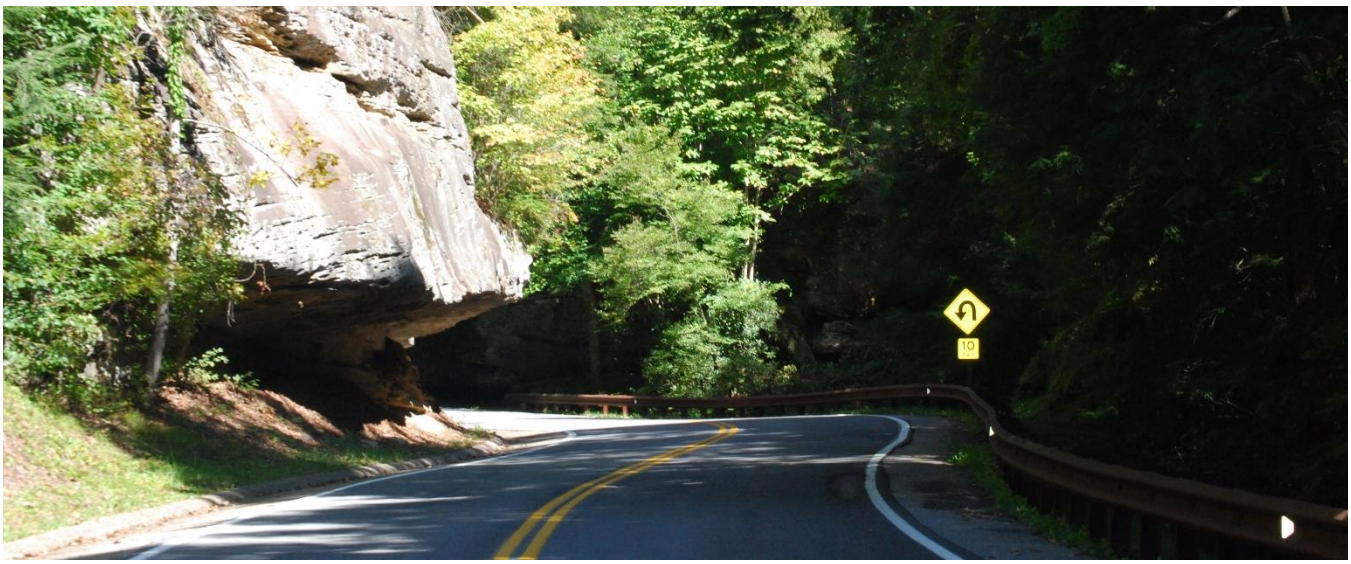
Optimizer Band	Priority	Minimum PM Investment
OB 1	Highest	55%
OB 2	High	50%
OB 3	Medium	25%
OB 4	Low	No minimum
OB 5	Lowest	No minimum

Total Cost of Facility Ownership

Applying Total Cost of Facility Ownership (TCFO) concepts is considered by the National Park Service to be a vital part of financially sustainable infrastructure strategies and practices, including transportation asset management.[5] It aligns closely with the intentions behind the CIS, especially the CIS Financial Sustainability component. TCFO is the full life-cycle cost of building, maintaining, and operating an asset until it needs replacement or decommissioning. This concept recognizes that assets require investment throughout their service lives until they need replacement or disposition and that preventive maintenance and facility operations activities are key to minimizing long-term costs. Implementation of the TCFO concept involves a shift away from a "just fix it" or "run to failure" mentality towards more holistic planning—cost estimates and decisions consider not just the maintenance backlog (deferred maintenance, or DM) of an asset, but also the ongoing O&M need, need for replacement, and ultimately disposition.

The Southeast Region embedded the concepts inherent to the CIS and TCFO into all of its LRTP analyses and planning activities. Consequently, the resulting investment strategy selected by the Southeast Region is consistent with the approaches and practices used across the National Park Service to develop, for example, the National LRTP and other regional LRTPs.

Investment strategies identified by the Southeast Region reflected key NPS investment principles, ensuring that the resultant strategy would be consistent with the NPS focus on financial sustainability of its most important infrastructure. Candidate strategies were defined by asset priority, life cycle, asset category, and tradeoffs.



A hairpin turn on Leatherwood Ford Road at Big South Fork National River and Recreation Area

5 For example, reference "Memorandum: Guidance for Addressing Facilities in Planning Documents", Associate Director, Park Planning, Facilities, and Lands, National Park Service, US Department of the Interior, January 4, 2016.

Southeast Region LRTP Investment Strategy: Highest Priority Investment

After comparing projected outcomes and weighing the trade-offs among the candidate strategies, the Southeast Region selected Highest Priority Investment as its strategy for this LRTP. The Highest Priority Investment strategy closely reflects how the Southeast Region has managed its investment portfolio in the past and results in conditions that are as strong as any other candidate strategy. The Highest Priority Investment strategy:

- Invests 98 percent of available funding in the region's Highest Priority transportation assets.
- Invests 89 percent of available funding on needed work that will improve asset condition (i.e., reduce or avoid deferred maintenance through timely capital improvement, component renewal, and recurring maintenance), 10 percent on maintaining condition (i.e., facility operations and preventive maintenance) and one percent on planning and administrative activities.
- Targets roads for 55 percent of available funding, bridges for 30 percent, transit for 3 percent, and other multimodal facilities for 12 percent.

In comparing candidate strategies, the region selected the Highest Priority Investment strategy because it addresses a number of Southeast Region interests: it ensures bridge safety; prioritizes network infrastructure of greatest importance such as primary park roads, key connector roads, and parkways; and continues the same level of investment in NPS-owned, current transit assets, ensuring their continued operation.

The Highest Priority Investment strategy also reflects the current practices already adopted by the region's FLTP program. Choosing the Highest Priority Investment strategy will enable the region to continue on its current investment course, with few modifications to how it programs transportation funding. As a result, the projected outcomes of this strategy shown with the condition models are feasible and likely to be achieved.

Modeled Outcomes

Given the highly constrained funding environment in which the Southeast Region must operate, some tradeoffs were inevitable in the selection of an investment strategy. In light of this reality, the Highest Priority Investment strategy represents the best combination of outcomes among the candidate strategies.

The biggest trade-off for the region is that under this strategy, lower priority transportation assets will be at risk for increased deferred maintenance and degradation of condition outside the five-year investment forecast period (FY2021 and beyond). Other transportation assets—many of which are support facilities and include trails, marinas, unpaved roads, and unpaved parking—are expected to continue to deteriorate under this strategy, even those Highest Priority (i.e., OB 1) Other facilities. However, these same assets would similarly decline under other candidate strategies.

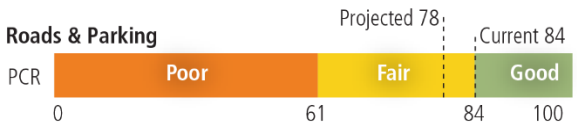
Even with the best combination of outcomes there is not enough funding to meet needs, and the region will still face increasing DM backlogs and deterioration of even its Highest Priority roads and other transportation assets.

ROADS AND PARKING

Highest Priority roads (FC 1,2 and 7) and parking pavement condition rating (PCR) will decrease from an average of 84 in 2014 to 78 in 2020, but the perceived condition of these roads will remain similar, in fair condition (Figure 2-1).

Figure 2-1: Current and Projected Condition of Roads & Parking

Source: NPS Administrative Financial System.



BRIDGES

For Southeast Region bridges, all considered to be Highest Priority, the regionwide BHI is projected to decline from an average of 95.1 percent in 2014 to 90.6 percent in 2020 (Figure 2-2). This result means that the Southeast Region under this strategy will have its bridge portfolio transition over time from a current situation of being in "good" condition (a BHI of greater than 91 percent) to a future of being on the margin of only "fair" condition (a BHI of 80 to 91 percent).

Figure 2-2: Current and Projected Condition of Bridges

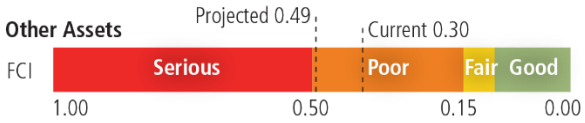
Source: NPS Administrative Financial System.

OTHER TRANSPORTATION ASSETS

For other transportation assets deemed to be Highest Priority, FCI will worsen from an average of 0.30 in 2014 to 0.49 in 2020 (Figure 2-3). While the perceived condition of these assets will remain "poor" under the Highest Priority Investment strategy, the forecasted FCI of 0.49 at the end of six years is approaching "serious" condition (i.e., FCI of 0.50 or higher).

Figure 2-3: Current and Projected Condition of Other Assets

Source: NPS Administrative Financial System.



Implications for the SER LRTP

The Highest Priority Investment strategy identifies how the Southeast Region will prioritize limited transportation funding in the immediate future (i.e., with a heightened focus on those assets deemed to be of the greatest importance to the Southeast Region transportation network). This investment strategy is anticipated to optimally expend resources and maximize the benefits returned in terms of financial sustainability and other goal areas of the Southeast Region LRTP.

The Highest Priority Investment strategy also reflects the current investment practices of the region's transportation network, but with a keener application of those funds to ensure funding continues to address longer-term financial sustainability of the transportation portfolio priority assets. The strategy targets the region's Highest Priority assets, heavily emphasizing investments that will improve asset condition.

Overall, the Southeast Region will be challenged to maintain, let alone to improve, the condition of its Highest Priority transportation assets under any of the investment strategies evaluated relative to current condition as of 2014. The Highest Priority Investment strategy, however, will serve to sustain the transportation asset portfolio in as close to current condition as possible given highly constrained funding.

More importantly, because the strategy clearly segregates the portfolio by priority and asset category, the region will be better able to track condition and other performance metrics on priority subsets of its portfolio. Over time and through subsequent plan updates and performance tracking, the region will be able to refine and be more exacting with how it prioritizes transportation investments and improves and maintains those subsets that are most critically important to the operation of the Southeast Region transportation network.

The region will also be better informed and prepared to communicate needs and gaps to internal and external stakeholders and partners. This may assist in paving the way for the identification of alternative funding opportunities and new creative partnerships that can help to close the projected annual funding gap.

Park visitors paddle along a water trail at Biscayne National Park

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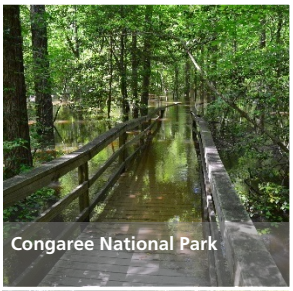
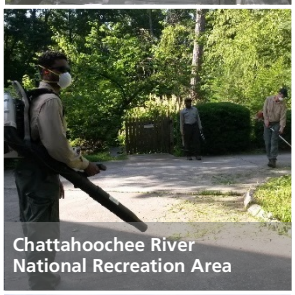
Chapter 3 | **Sustainable Operations**



Congaree National Park



Chattahoochee River National Recreation Area

Dry Tortugas National Park

Kennesaw Mountain National Battlefield Park

Goal: Sustainably manage transportation assets and services.

Objectives:

- Identify and incorporate climate change mitigation/adaptation strategies into aspects of transportation planning, design, construction, maintenance, and operations over time as financially feasible.
- Maintain flexible use of transportation funding sources while improving identification of transportation needs and expenditures.
- Identify and prioritize investments based on legal requirements, agency mission, anticipated lifecycle costs, and consideration of potential future funding.
- Utilize the planning process to strengthen effective regional and community partnerships.

Sustainability is the practice of preserving resources in the present to be shared in the future. The Southeast Region is committed to sustainable practices in every facet of its operation. Sustainability can be viewed as consisting of three critical elements, or "legs of the stool": financial, social, and environmental. For the National Park Service, sustainable management involves a careful balance among these three elements. This chapter considers practices and policies that the Southeast Region has instituted and will pursue to achieve this balance.

Baseline Condition

The baseline condition for sustainable operations in the Southeast Region was established through a combination of quantitative and qualitative analyses. The financial sustainability baseline is built largely on a quantitative analysis of the region's historical expenditures. The environmental sustainability baseline relies on available data on emissions and sea-level rise, as well as a qualitative assessment of challenges related to climate change and the region's ongoing response to those challenges. The social sustainability baseline draws largely on existing partnership efforts and qualitative input obtained during Focus Park visits conducted in association with this long range planning effort. For more information on baseline conditions or on the Focus Park visits, see the Baseline Conditions Assessment and the Stakeholder Engagement Summary Report, respectively, in the appendix.

Financial Sustainability

Establishing a financial baseline of the historical average annual level of regional transportation expenditures provides a foundation for forecasting likely future funding levels. The region analyzed all of the transportation fund sources that had been utilized by the region from FY 2006 through FY 2013. Those results provided a baseline condition as well as vital context for developing the Southeast Region LRTP investment strategy.

FUNDING FOR TRANSPORTATION IN THE SOUTHEAST REGION

Transportation funding for the Southeast Region primarily comes from U.S. Code Title 23, Title 54, and Title 16 fund sources.

Title 23 includes the Federal Lands Transportation Program (FLTP). This program is the largest contributor to transportation funding servicewide.

Title 54 funding consists of six primary and many other smaller fund programs that Congress authorizes for application only to the National Park Service. Those primary programs include Operational Park Base, Cyclic Maintenance, Repair/Rehabilitation, Line Item Construction, Concession Franchise Fee, and Transportation Fee.

Title 16 includes the Recreation Fee program.

Except for Transportation Fee, none of the Title 54 or 16 sources are dedicated solely to transportation.

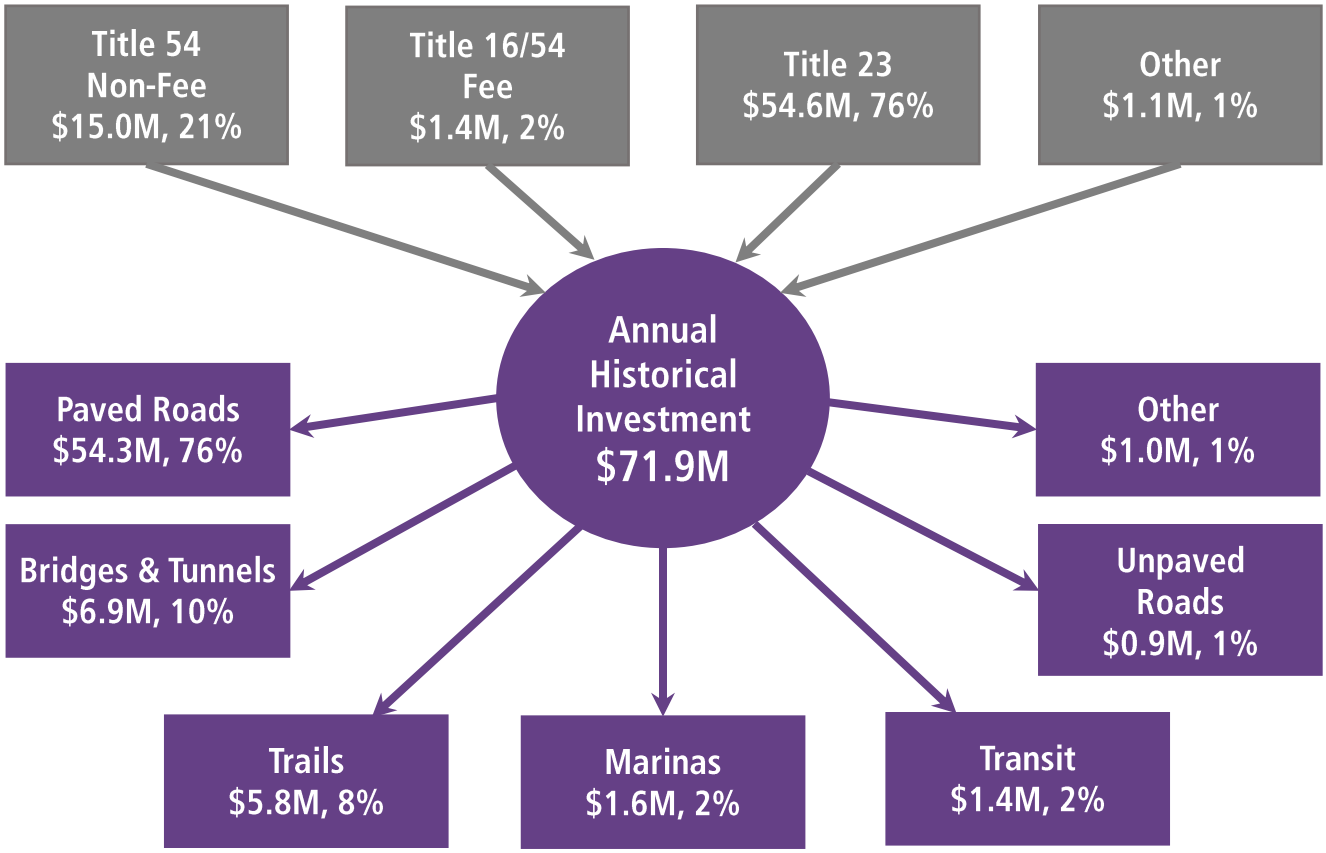
HISTORICAL EXPENDITURES

Over the eight years from FY 2006 through FY 2013, the Southeast Region invested $575 million, or on average, $71.9 million annually (adjusted to 2014 dollars).[7] In addition, the region received $43.0 million in American Recovery and Reinvestment Act (ARRA) funding in 2009; however, the value of these ARRA funds has been excluded from these totals since it was a one-time funding source.

As shown in Figure 3-1, Title 23 fund programs provided most of the Southeast Region transportation funding ($54.6 million, or about 76 percent). Title 54 Non-Fee and Title 16 and Title 54 Fee accounts were the other major fund sources. Collectively, these represented approximately $16.4 million, or about 23 percent of the average annual transportation-related expenditures over the FY 2006 to FY 2013 period. Other smaller fund sources comprised one percent of total historical expenditures.

Figure 3-1. Southeast Region Historical Funding and Investment

Source: NPS Administrative Financial System



[7] Unless otherwise indicated, all dollar figures in this report are in 2014 dollars, which were calculated using the White House gross domestic product (GDP) inflator factors (https://www.whitehouse.gov/omb/budget/Historicals, table 10-1.)

FUND SOURCES

Table 3-1, organized by funding authorization, program and account, shows the make-up of the $71.9 million average annual transportation funding by fund source and program.

Title 23

Over the period FY 2006 to FY 2013, approximately 94 percent of the total average annual Title 23 funding of about $54.6 million was spent on infrastructure improvement (e.g., capital improvement and component renewal) projects. A majority of the total Title 23 funding (an average of about $49.7 million annually) was provided through what is now termed the Federal Lands Transportation Program or the FLTP. The FLTP was the most significant transportation funding source for the Southeast Region from FY 2006 through FY 2013. The FLTP constituted 69 percent ($49.7 million) of the overall historical transportation investment made by the region, with these funds being dedicated solely for transportation assets.

On average, the region has received $8.1 million per year in FLTP Category II funds, or 11 percent of the overall annual transportation investment. These Category II funds are restricted to capital improvements for congressionally authorized parkways: in the Southeast Region, that includes Foothills Parkway at Great Smoky Mountains National Park, Natchez Trace Parkway, and Blue Ridge Parkway.

Title 54 and Title 16

The Title 54 and Title 16 programs administered by NPS historically have been divided between the non-fee and fee programs. Together, they provided 23 percent ($16.4 million) of the historical average annual transportation funding for the region over the FY 2006 to FY 2013 period. Approximately 75 percent ($12.2 million) of Title 54 funding supported the transportation asset operations and maintenance (O&M).

Title 54 Non-Fee funding represented 21 percent ($15.0 million) of the region's average annual transportation funding. The primary Title 54 Non-Fee programs include Operations of the National Park Service (ONPS) base funding, Cyclic Maintenance, Repair/Rehabilitation, Emergency Storm and Flood Damage, and Line Item Construction. ONPS base was the largest Title 54 program for the Southeast Region and funded nearly 8 percent ($5.5 million) of the total average annual transportation investment.

Recreation Fee authorization falls under Title 16 as it is part of the Federal Lands Recreation Enhancement Act. Recreation Fee funding has in the past amounted to $0.9 million per year, or about 1 percent of Southeast Region transportation funding.

Other NPS programs (e.g., Equipment Replacement, Cultural Resource Preservation) have contributed a small portion (one percent or $0.7 million per year for transportation assets) of the $16.4 million annual total available funding for the region provided from these Title 54/16 NPS program accounts.

Other Sources

The Southeast Region received about one percent ($1.1 million) of its average annual historical funding for transportation investments from sources outside of Title 23 and Title 54. The three other sources include the Paul S. Sarbanes Transit in Parks (TRIP) Program, donations, and reimbursable agreements.

Table 3-1. Southeast Region Historical Average Annual Transportation Funding by Fund Source and Program, FY 2006 – FY 2013 ($ in 2014 Millions)

Source: NPS Administrative Financial System

Fund Source and Program	Fund Administration	Annual Average	Percentage of Total Funds
Title 54 Non-Fee		$15.0	20.9%
Operational Park Base	Park Unit	$5.5	7.6%
Cyclic Maintenance	SER	$4.6	6.4%
Repair/Rehab	WASO	$1.9	2.6%
Line Item Construction	DOI	$1.0	1.5%
Other NPS Programs	NPS (Varies)	$0.7	1.0%
Emergency Storm & Flood Damage	WASO	$1.3	1.8%
Title 54/Title 16 Fee		$1.4	1.7%
Recreation Fee 80%	Park Unit	$0.8	1.0%
Recreation Fee 20% and Other Recreation Fees	SER / Park Unit	$0.1	0.2%
Transportation Fee	Park Unit	$0.4	0.5%
Concession Franchise Fee 80%	Park Unit	< $0.1	0.0%
Title 23		$ 54.6	75.8%
Title 23 FHWA FLTP Cat I - 3R & 4R	WASO / SER	$40.7	56.6%
Title 23 FHWA FLTP Cat II	WASO / SER	$8.1	11.3%
Title 23 FHWA FLTP Cat III —ATS	WASO / SER	$1.0	1.3%
Transportation Earmarks	WASO / SER	$2.5	3.4%
Title 23 Public Lands Highway - Discretionary	FHWA	$0.7	1.0%
Title 23 Other FHWA Programs	FHWA	$0.9	1.2%
Title 23 Scenic Byways	FHWA	$0.5	0.7%
Title 23 FHWA Emergency Relief for Federally Owned Roads	FHWA	$0.2	0.3%
Other/External		$1.1	1.4%
FTA / Transit in Parks Program / Alternative Transportation in Parks and Public Lands	DOI / FHWA / FTA	$0.8	1.0%
Reimbursable Agreements and Donations	Park Unit	$0.3	0.4%
Southeast Region Total		$71.9	100.0%

Note: Sums may not equal totals due to rounding.

HISTORICAL SPENDING BY PRIORITY

The region obligates its funding based on defined "Highest," "High," and "Other" priority groups, as shown in Table 3-2. The Highest and High-priority classified assets are typically Optimizer Band (OB) 1 and 2 assets, or equivalent in terms of NPS PFMD Transportation program priority standards. These priorities are the same as those prioritized for funding under the NPS CIS.

Among all regional transportation assets, 47 percent, 13 percent, and 41 percent by count are categorized as Highest, High, and Other priority assets, respectively. During FY 2006 through FY 2013, an estimated $54.6 million (76%) was spent annually on Highest Priority assets, $7.9 million (11%) on High Priority assets, and $9.3 million (13%) on Other Priority assets. In recent years, the Southeast Region has moved to more targeted spending on Highest and High-priority assets.

Table 3-2. Priority Level Groupings for Southeast Region Transportation Assets and Projects

Source: NPS

Priority Level	Roads and Parking	Bridges	All Other Assets	Percentage of Transportation Assets	Percentage of Historical Funding
Highest	FC 1, 2, & 7	All Bridges	OB 1	47%	76%
High			OB 2	13%	11%
Other	FC 3, 4, 5, 6, & 8		OB 3, 4, 5	41%	13%

Notes: (1) To proxy for functional class priority, parking areas were assigned the functional class of the primary park road leading to that parking area.
(2) Sums may not add to 100% due to rounding.

HISTORICAL SPENDING BY ASSET TYPE AND PROGRAM

Examining how funding has previously been spent on different asset types is an indication of past spending priorities. Those historical trends can inform future investment strategies. As shown in Table 3-3, two asset types received most of the investment spending during the eight-year period: paved roads (76%) and road bridges (9%).

Paved roads received the largest amount of funding for any asset type from any one fund source; of the $54.5 million total Title 23 funds, $43.5 million (80%) was spent on paved roads. FLTP funding represents $39.6 million of the $43.5 million in Title 23 funding spent on paved roads (not shown).

Table 3-3. Southeast Region Transportation Funding by Fund Source and Asset Type ($ in 2014 Millions)

Source: NPS Administrative Financial System

Fund Source	Roads (paved)	Roads (unpaved)	Road Bridges	Trails	Marina	Transit	Other	Total
Title 16 / 54	$10.7	$0.9	$0.8	$2.4	$1.1	$0.5	$0.0	$16.4
Title 54 Non-Fee	$10.3	$0.9	$0.7	$2.4	$0.7	$0.1	$0.0	$15.1
Title 16 / 54 Fee	$0.4	$0.0	$0.1	$0.0	$0.4	$0.4	$0.0	$1.3
Title 23	$43.5		$5.7	$3.4	$0.1	$0.7	$1.0	$54.5
Other/External	$0.1	$0.0	$0.0	$0.0	$0.4	$0.2	$0.3	$1.0
Total	$54.3	$0.9	$6.5	$5.8	$1.6	$1.4	$1.3	$71.9
Percent of Total	76%	1%	9%	8%	2%	2%	2%	100%

Note: Sums may not equal totals due to rounding.

HISTORICAL SPENDING BY LIFE-CYCLE STAGE

Per TCFO best practices, the Southeast Region considers all life cycle stages when investing in a new asset or rehabilitating an existing asset. As shown by Figure 3-2, investments during an asset life cycle cover seven stages,[8] and these stages can be grouped into three categories that reflect the intended outcome of the expenditure.

For the region, Improves Condition investments comprise the largest share of expenditures, representing 88 percent ($63.7 million) of total historical average annual investment (Table 3-4). The Title 23 program was the primary funding source for these expenditures.

Maintains Condition expenditures averaged $5.4 million annually, or 7.5 percent of total investment. More notably, minimal funds were directed to PM: $0.8 million per year, just over 1 percent of all funding. Title 54 has covered most of the regional investments focused on Maintains Condition, providing $5.3 million of the $5.4 million of identified expenditures.

Figure 3-2. Asset Life Cycle Stage Groupings

Source: NPS and Volpe National Transportation Systems Center

Life Cycle Stage	Improves Condition	Maintains Condition	Non condition
Planning & Administration (PL)			●
Capital Improvement (CI)	●		
Operations (FO)		●	
Preventive Maintenance (PM)		●	
Recurring Maintenance (RM)	●		
Component Renewal (CR)	●		

Table 3-4. Transportation Average Annual Funding by Fund Source and Work Type ($ in 2014 Millions)

Source: NPS Administrative Financial System

Fund Source	PL	CI	FO	PM	RM	CR	Misc.	Total
Title 16 / 54	<$0.1	$0.4	$4.5	$0.8	$7.0	$3.1	$0.6	$16.4
Title 54 Non-Fee	$0.0	$0.2	$4.1	$0.8	$6.6	$2.8	$0.6	$15.1
Title 16 / 54 Fee	$0.0	$0.2	$0.4	$0.0	$0.3	$0.3		$1.3
Title 23	$1.5	$13.8	$0.0	$0.0	$1.5	$37.5	$0.2	$54.5
FLTP	$0.7	$10.6			$0.9	$37.5		$49.7
Other Title 23 Programs	$0.8	$3.2			$0.6		$0.2	$4.8
Other/External	$0.2	$0.6	$0.1				$0.2	$1.0
Total	$1.7	$14.7	$4.6	$0.8	$8.4	$40.6	$1.0	$71.9
Percent of Total	2.4%	20.4%	6.4%	1.1%	11.7%	56.5%	1.4%	100.0%

<$0.1 represents values less than $0.5M

"Misc." includes assets that did not have sufficient data to be associated with a work type

[8] Disposition is the final stage. Although integral to life-cycle management of an asset, the information needed to tie historical spending to asset disposition was not readily available.

Environmental Sustainability

Environmental sustainability is at the core of the mission of the National Park Service and the Southeast Region is home to irreplaceable resources that must be managed effectively for future generations. Extreme weather events and the reality of climate change have strengthed emphasis on the importance of sustainable decision making and behavior. The effect of greenhouse gases and climate change on communities and society at large is an important consideration for all future transportation planning.

GREENHOUSE GAS EMISSIONS

Transportation is vital to achieving quality of life for individuals, building lasting communities, and enabling a strong economy; however, transportation systems, without proper management, have also been cited as a detriment to the environment, specifically as a significant source of greenhouse gas emissions.

The National Park Service has partnered with the U.S. Department of Energy to establish the Clean Cities National Parks Initiative, which supports transportation projects that cut petroleum use and greenhouse gas emissions and that educate the public on the environmental benefits of doing so. Through this initiative, several Southeast Region parks are adding propane and electric vehicles to their fleets and removing older, less-efficient diesel fuel–powered trucks. Great Smoky Mountains National Park has installed DC (direct current) fast and Level II charging stations for electric-powered public vehicles, and has replaced older, less efficient trucks in its fleet with neighborhood electric vehicles. Mammoth Cave National Park has converted four of its eight buses and both of its ferry boats to propane from diesel. Blue Ridge Parkway and Christiansted National Historic Site also have "greened" their fleets through the Clean Cities Initiative.

The impacts of greenhouse gas emissions as they impact resources and visitors are described in more detail in Chapter 7.

Mammoth Cave National Park's fleet of propane-powered buses

CLIMATE CHANGE AND VULNERABILITY

Climate change refers to variations in weather patterns over a long period of time. While climate change has occurred throughout much of the planet's history, there is a concern that observed changes in temperature, precipitation, and sea level suggest that climate change has been occurring at an accelerating pace in recent years.

According to the National Climate Assessment, the southeastern U.S. has seen an increase in the number of days above 95°F since 1970, and temperatures are expected to continue to rise in the future. Rainfall intensity and frequency in the region has increased in recent decades. For example, the amount of precipitation falling in the heaviest precipitation events (defined as the heaviest one percent) increased by 27 percent between 1958 and 2012. Conditions during summer months have been trending either drier or wetter, depending on the location within the region.[9]

As the planet has been warming, one of the primary effects is a gradual rise in sea-level elevation. This makes low-lying coastal areas vulnerable to flooding and erosion, and is a particular concern for the many seashore and coastal sites in the Southeast Region.

According to an NPS report that estimates the exposure of NPS assets to sea-level rise and associated storm vulnerability, more than 85 percent of Southeast Region coastal park assets, with a cumulative value of over $35 billion, are viewed as being highly vulnerable to sea-level rise.[10] Nine of the 13 coastal parks in the Southeast Region had the entirety of their asset portfolios categorized as high exposure (Table 3-5).

Table 3-5. Exposure of Assets at Southeast Region Coastal Parks to Climate Change Impacts

Source: NPS, *Adapting to Climate Change in Coastal Parks*

	Number of Park's Assets	Percentage of Park's Assets	CRV (million, $)	Percentage of CRV	Exposure Range
Big Cypress NPres	210	83%	$414.2	40%	High
Biscayne NP	68	100%	$67.9	100%	High
Cape Hatteras NS	559	100%	$1,173.3	100%	High
Cape Lookout NS	289	100%	$878.7	100%	High
Canaveral NS	167	100%	$88.4	100%	High
Castillo de San Marcos NM	54	100%	$26,571.8	100%	High
Cumberland Island NS	33	16%	$19.3	17%	Low
De Soto NM	10	100%	$3.4	100%	High
Everglades NP	493	100%	$657.1	100%	High
Fort Pulaski NM	52	100%	$286.3	100%	High
Fort Sumter NM	38	100%	$1,230.7	100%	High
Gulf Islands NS	355	81%	$3,930.2	80%	High
Timucuan EHP	42	38%	$9.9	35%	Intermediate
TOTAL	2,370		$35,331.3		

[9] Walsh, J., et al., *National Climate Assessment*, U.S. Global Change Research Program, 2014. Accessed at http://nca2014.globalchange.gov.

[10] National Park Service, *Adapting to Climate Change in Coastal Parks*, 2015. Accessed at www.nature.nps.gov/geology/coastal/coastal_assets_report.cfm.

In addition to NPS assessments on climate change impacts in the region, the U.S. Geological Survey has conducted Coastal Vulnerability Index (CVI) assessments—which assess hazards associated with future sea level rise—at five park units in the Southeast Region since 2001. The CVIs found that approximately half of the shoreline at Cape Hatteras National Seashore and at Cumberland Island National Seashore had a vulnerability rating of "Very High" or "High"; more than 40 percent of the shoreline at Dry Tortugas National Park and at Gulf Islands National Seashore had a vulnerability rating of "Very High" or "High"; and more than one-third of the shoreline at Virgin Islands National Park had a vulnerability rating of "Very High" or "High."

Southeast Region parks are already taking steps to adapt their transportation facilities to the impacts of climate change. Gulf Islands National Seashore has realigned Fort Pickens Road—which was closed from 2004 to 2009 due to storm damage—in an attempt to adapt to sea-level rise and severe weather events. San Juan National Historic Site accounted for sea-level rise in the design of the Paseo del Morro, a waterfront walkway that serves as one of the park's primary transportation assets.

While climate change can have a great effect on low-lying coastal areas, storms can also impact areas far from the coast. Inland parks in the Southeast Region have experienced significant impacts to their transportation assets from intense storms and droughts in recent years. During the Focus Park visits, Kennesaw Mountain National Battlefield Park reported that the combination of drought conditions and more intense precipitation has significantly degraded the condition of its trail system, as persistently dry conditions have turned trail surfaces to fine dust that washes away during heavy rain events. Blue Ridge Parkway and Great Smoky Mountains National Park both reported multiple major landslides in recent years that have resulted in significant damage to park roadways; in the case of Blue Ridge Parkway, each slide cost more than $5 million to repair. Blue Ridge Parkway and Great Smoky Mountains National Park both relied on Emergency Relief for Federally Owned Roads (ERFO) funding to cover a portion of the cost of roadway repairs from slides.

Paseo del Morro, a waterfront pedestrian walkway at San Juan National Historic Site

Climate Friendly Parks Program

The Climate Friendly Parks (CFP) program, established in collaboration with the U.S. Environmental Protection Agency but administered within the National Park Service, seeks to address sustainability and climate change aspects both within park boundaries and working in partnership with communities surrounding parks. The CFP program is a nationally recognized program that provides a universal context in which parks have the ability to become more sustainable and to teach visitors about sustainability both while visiting the park and in their lives outside of the park. This is important because, due to their visibility and large number of protected resources, national parks are places where the effects of climate change are particularly impactful to large audiences.

The CFP program requires member parks to follow a four-step certification process to receive the CFP designation. CFP designation helps individual park units raise awareness of and educate the public on the effects of emissions and climate change, and raises the profile of park units among a public that increasingly places value on environmental stewardship and green initiatives. CFP designation also helps the National Park Service meet energy, water, and waste reduction targets established in an Executive Order signed by President Obama in 2009.[11]

As of June 2016, 12 Southeast Region park units were certified as Climate Friendly Parks (Table 3-6). As a supplement to parks' efforts to attain CFP certification, WASO has been conducting workshops on vulnerability and adaptation with park units in the region. WASO conducted workshops at seven Southeast Region parks in 2015, with plans to hold workshops at another seven parks by the end of 2016.

Table 3-6. Southeast Region Climate Friendly Parks

Source: NPS Climate Friendly Parks Program

Park Unit	State
Big South Fork NRRA	Kentucky, Tennessee
Buck Island Reef NM	US Virgin Islands
Cape Hatteras NS	North Carolina
Carl Sandburg Home NHS	North Carolina
Christiansted NHS	US Virgin Islands
Congaree NP	South Carolina
Everglades NP	Florida
Fort Raleigh NHS	North Carolina
Great Smoky Mountains NP	Tennessee, North Carolina
Obed WSR	Tennessee
Salt River Bay NHP&EP	US Virgin Islands
Wright Brothers NM	North Carolina

[11] U.S. Department of the Interior, Office of Inspector General, *Evaluation – National Park Service: Climate Friendly Parks Initiative*, 2011.

Social Sustainability

Many Southeast Region park units have undertaken efforts to promote social sustainability through partnerships, outreach, education, and access, and in doing so have underscored their commitment to Ladders of Opportunity, one of FHWA's Planning Emphasis Areas for 2015. The Ladders of Opportunity initiative seeks to identify connectivity gaps in essential services, in an effort to use transportation infrastructure to promote increased access to opportunities for community residents to experience an improved quality of life.

Nearly all Southeast Region park units partner with official friends groups that support the parks through fundraising, program development and administration, and construction. Many park units also offer educational and recreational programming, and in some cases facilitate transportation services, to school groups. Blue Ridge Parkway has established more than 18 educational TRACK Trails through the Kids in Parks program. San Juan National Historic Site's Little Masons program teaches students about traditional masonry techniques and the importance of historic preservation.

Several park units in the Southeast Region have made concerted efforts to improve park access for traditionally underserved communities. As part of the design and construction of the Paseo del Morro, San Juan National Historic Site plans to create multiple connections between an isolated, low-income neighborhood bordering the park and the surrounding city streets and parkland in Old San Juan.

Kennesaw Mountain National Battlefield Park is working with local public transit agencies to establish new or expanded transit service to the park, which would increase access for disadvantaged populations. The park has long partnered with Cobb County, Georgia, to develop and expand trail connections between the park and the surrounding neighborhoods. Parks throughout the Southeast Region work closely with their respective gateway communities to promote greater access to park units, reduce congestion in and around park units, and improve quality of life for gateway community residents.

The NPS partners with the Conservation Fund's Federal Lands Livability Initiative to conduct livability assessments and workshops on federal lands and in gateway communities across the country. One such livability assessment in northwest Alabama included recommendations for improved connections and cooperation between Natchez Trace Parkway and gateway communities in the area, including promotion of the park's bicycle-only campground at Colbert Ferry, identification of partnership and funding opportunities, and efforts to get area residents to see the parkway as "more than just a road."[12]

[12] The Conservation Fund, *Appalachian Gateways Initiative: An Assessment and Recommendations Report for Natural and Cultural Heritage Tourism Development in Muscle Shoals National Heritage Area Alabama*, 2011.

The NPS National Rivers, Trails, and Conservation Assistance (RTCA) program brings its extensive transportation and community planning tools to bear in working with individual park units and gateway communities to support livability initiatives, including engaging youth, enhancing recreational opportunities, and promoting healthy lifestyles. In 2015, the RTCA provided technical assistance on 30 projects in the Southeast Region. Those projects included:

- Planning a trail network to connect Chickamauga and Chattanooga National Military Park to the historic Glass Street community in east Chattanooga, Tennessee;
- The development of a gateway park that links to Ninety Six National Historic Site in South Carolina via a system of greenway corridors; and
- The development of a regional master plan including four counties in Kentucky, Tennessee, and Virginia, with a focus on the development and promotion of alternative transportation and recreation options in and around Cumberland Gap National Historical Park.[13]

A park ranger speaking with visitors on the historic Wilderness Road at Cumberland Gap National Historical Park

[13] National Park Service, Rivers, Trails, and Conservation Assistance Program, accessed at www.nps.gov/orgs/rtca.

Regional Issues and Opportunities

This section details the Southeast Region funding forecast, unconstrained financial need, and the funding gap. It also identifies macro trends related to environmental and social sustainability, including guidance developed at both the national and regional levels that help inform the region's strategies to meet the challenges associated with all facets of sustainable operations. More information on macro trends and needs can be found in the Future Conditions and Macro Trends Assessment and the Needs Assessment, respectively, in the appendix.

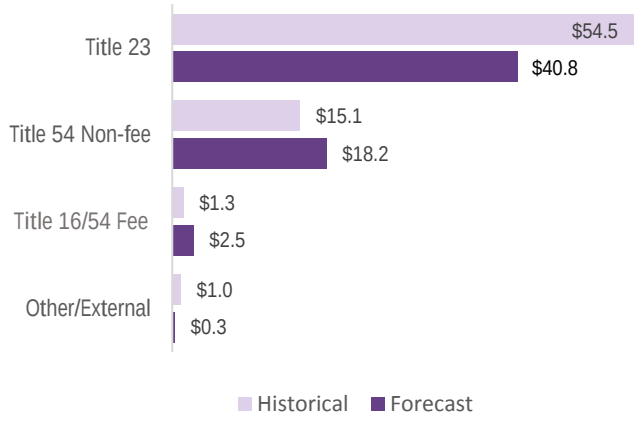
Financial Sustainability

FUNDING FORECAST

In developing a funding forecast for the Southeast Region LRTP, the region leveraged the approach applied in the development of the NPS National LRTP to forecast anticipated funding availability for transportation spending in the next five years. Sources for the forecast included MAP-21 transportation reauthorization legislation, the NPS budget office, and regional funding programs.

Figure 3-3. Southeast Region Historical Expenditures and Forecasted Funding ($ in 2014 millions)

Source: NPS Administrative Financial System



Approach to Forecasting

Although LRTPs are intended to set priorities and provide guidance for a 20-year horizon, it should be noted that results from the analysis of financial investment scenarios reflects a six-year horizon. A six-year horizon is used because of the limited data and quality of data for analysis beyond a six-year horizon. A six-year horizon is consistent with NPS multiyear project planning and the NPS National LRTP's financial analyses.

Assuming that funding were to remain consistent over the next 20 years, asset condition trends will remain consistent relative to the forecasted funding.

The Southeast Region forecasts $61.7 million of available annual funding for its transportation network (Table 3-7). This figure is 14 percent, or $10.2 million, lower than the average annual historical funding of $71.9 million (Figure 3-3). The bulk of this decrease comes from the $13.7 million reduction in Title 23 funding for programs eliminated under MAP-21. The cutting of the TRIP program under Title 49 accounts for another $0.8 million reduction.

An anticipated increase of $5.3 million in Title 54 Non-Fee Repair/Rehabilitation and Line Item Construction program funding and Title 16/54 Fee funding will partially offset the reduction in Title 23 and Title 54 ONPS and Cyclic program funding. The Non-fee and Fee programs within Title 54 are projected to increase $3.1 million and $1.2 million, respectively.

Table 3-7. SER Historical Average Annual Spending (FY 2006 – 2013) and Annual Funding Forecast (FY 2016 – FY 2020) ($ in 2014 Millions)

Source: NPS Administrative Financial System

Funding Title/Program	Historical Average Annual Spending	Forecasted Annual Available Funding	Difference	Rationale
Title 16 / 54	$16.4	$20.7	$4.3	Mix of planned investment and projections
Title 54 Non-Fee	*$15.1*	*$18.2*	*$3.1*	*Mix of planned investment and projections*
Operational Base	$5.5	$5.3	-$0.2	Based on national-level projections
Cyclic Maintenance	$4.6	$2.7	-$2.0	Planned investment
Repair/Rehab	$1.9	$4.0	$2.1	Planned investment
Emergency Storm & Flood Damage	$1.3	$1.3	$0.0	Based on national-level projections
Line Item Construction	$1.0	$4.2	$3.2	Planned investment
Other NPS Programs	$0.7	$0.7	$0.0	Based on national-level projections
Title 16/54 Fee	*$1.3*	*$2.5*	*$1.2*	*Mix of planned investment and projections*
Title 16 Recreation Fee	$0.9	$1.8	$0.9	Planned investment
Title 54 Transportation Fee	$0.4	$0.5	$0.1	Based on national-level projections
Title 54 Concessions Franchise Fees	<$0.1	$0.2	$0.2	Based on national-level projections
Title 23	$54.5	$40.8	-$13.7	Many programs eliminated
FLTP	$49.7	$40.1	-$9.6	Planned investment
Earmarks	$2.5	$0.0	-$2.5	Moratorium on earmarks
Other FHWA Programs	$0.9	$0.5	-$0.4	Most programs eliminated
Public Lands Highway - Discretionary	$0.7	$0.0	-$0.7	Program eliminated
Scenic Byways	$0.5	$0.0	-$0.5	Program eliminated
Emer. Relief for Federally Owned Roads	$0.2	$0.2	$0.0	Based on national-level projections
Other/External	$1.0	$0.3	-$0.8	TRIP eliminated
FTA TRIP/ATPPL	$0.8	$0.0	-$0.8	Program eliminated
Reimbursable Agreements	$0.3	$0.3	$0.0	Based on national-level projections
Total	$71.9	$61.7	-$10.2	

The Southeast Region LRTP focuses on sustaining the region's most critical transportation assets. However, because financial needs far exceed available funding, the region cannot keep all transportation assets in good condition; the Southeast Region projects a $120.5 million annual shortfall in transportation funding. As a result, the transportation deferred maintenance backlog is projected to increase and asset condition is projected to decline.

The intent of the Southeast LRTP investment strategy is to slow the decline of the Highest Priority transportation assets. As such, the investment strategy maintains Highest Priority assets in as good condition as could be expected given the considerable funding shortfall. The condition of other assets not categorized as Highest Priority will decline at an accelerated rate due to this prioritized approach to transportation investments.

The average annual reallocation of $8.4 million to the Tamiami Trail comes from FLTP funds that otherwise would be invested in NPS-owned transportation assets in the Southeast Region (Table 3-8). For more information on the impacts of the Tamiami Trail on the Southeast Region's available funding and resultant transportation investments, see the Funding and Financial Analysis Technical Report in the appendix.

At the time of the writing of this report, the National Park Service is directing $8.4 million per year of the region's FLTP funds to the Florida DOT for the Tamiami Trail project. If the region were to receive additional FLTP funds, they will be invested in Highest Priority assets.

Table 3-8. Southeast Region LRTP Investment Strategy Planned Annual Expenditures (FY 2016 – FY 2020) ($ in 2014 Millions)

Source: NPS Administrative Financial System

	Forecasted Funding with Tamiami Trail	Forecasted Funding without Tamiami Trail	Difference in Funding to NPS owned Assets
Total Funding	$61.7	$61.7	--
Paved Roads & Parking	$36.1	$42.7	$6.6
Bridges	$7.3	$9.0	$1.8
Transit	$2.1	$2.1	
Other Facilities	$7.9	$7.9	
Reallocated Funds - Tamiami Trail	$8.4	$0.0	($8.4)

The Southeast Region funding forecast also considered a scenario in which funding was not reallocated to the Tamiami Trail (Table 3-9). This scenario (Scenario without Tamiami in Table 3-9) shows the potential for increased investment in NPS-owned assets than what is expected in FY 2016 to FY 2020 (Forecasted Funding in Table 3-9) if the region were able to dedicate all of its available funding to NPS-owned infrastructure. Investments in Highest Priority assets would increase to $60.5 million from $52.2 million. Funding to roads and parking would increase to $42.7 million from $36.1 million and funding to bridges would increase to $9.0 million from $7.3 million.

Table 3-9. Comparison of Forecasted Funding for FY 2016 – FY 2020, with and without Tamiami Funding Commitment

Source: NPS Administrative Financial System

		Forecasted Funding FY 2016 —FY 2020 ($61.7 million)		Scenario without Tamiami Trail ($61.7 million)	
Element	Category	Amount	Percentage	Amount	Percentage
Priority	Highest	$52.2	84%*	$60.5	98%
	Other	$1.1	2%	$1.2	2%
	Tamiami Trail	$8.4	14%	--	0%
Life Cycle	Improves Condition	$46.0	75%	$54.4	87%
	Maintains Condition	$6.6	10%	$6.6	12%
	Non-Condition	$0.6	1%	$0.6	1%
	Tamiami Trail	$8.4	14%	--	0%
Asset Type	Roads and Parking	$36.1	59%	$42.7	69%
	Bridges	$7.3	11%	$9.0	12%
	Transit	$2.1	3%	$2.1	4%
	All Other	$7.9	13%	$7.9	15%
	Tamiami Trail	$8.4	14%	--	0%

*Although 98% of funding does go to Highest Priority assets under the Southeast Region LRTP investment strategy from FY 2016 to FY 2020, it is 98% of available funding ($53.3 million) after commitments to the Tamiami Trail ($8.4 million) are applied to the total available funding balance ($61.7 million).

UNCONSTRAINED FINANCIAL NEED

Investment needs are the unconstrained amount of fiscally derived funding required to bring Southeast Region transportation assets to a state of good repair. Investment needs also include programmatic requirements to address legislated needs such as code compliance, structural, fire and accessibility. Other goal area needs such as resource protection may overlap with asset management (TCFO) needs or may be additional, potentially unfunded requirements.

The Southeast Region estimates the unconstrained annualized need for its transportation asset portfolio at $182.2 million.

Need by Asset Category

Assessing need in terms of transportation system asset category shows intense requirements for the existing paved road network. Paved roads alone account for over half (52 percent) of the total unconstrained need, or $95.0 million per year (Table 3-10). Bridges and tunnels make up 24 percent or $43.0 million of annual need. By comparison, parking and transit systems and other transportation assets each comprise about $21 million, or 12 percent of annual need.

Table 3-10. SER Need by Asset Category ($ in 2014 Millions)
Source: NPS Administrative Financial System

Fund Source	Total Need	Percentage of Total Need
Paved Roads	$95.0	52%
Unpaved Roads	$2.2	1%
Parking	$21.1	12%
Bridges and Tunnels	$43.0	24%
Other Assets	$20.9	11%
Total	$182.2	100%

Need by Work Type

By breaking down the total estimated unconstrained annual need by work type and intended investment outcome, the region found context for more precisely directing funding to achieve intended outcomes. For example, CR represents the largest portion of need that Improves Condition. The total funding of $165.1 million needed to bring infrastructure to a state of good condition (i.e., CR, RM and CI), is more than 10 times the $15.7 million needed for Maintain Condition activities (i.e., FO and PM) (Table 3-11). Overall, planning and administrative dollars represent less than one percent of the estimated annual need ($1.5 million out of $182.2 million).

Table 3-11. SER Need by Work Type ($ in 2014 Millions)
Source: NPS Administrative Financial System

Investment Outcome and Work Type	Total Need	Percentage of Total Need
Improves Condition	$165.1	91%
Capital Improvement (CI)	$32.0	18%
Recurring Maintenance (RM)	$40.4	22%
Component Renewal (CR)	$92.7	51%
Maintain Condition	$15.7	9%
Facility Operations (FO)	$10.9	6%
Preventive Maintenance (PM)	$4.8	3%
Planning & Administrative (PL)	$1.5	<1%
Total	$182.2	100%

Need by Priority

The region identified need in terms of Highest, High, and Other priority assets using FMSS and project data (Table 3-12). The Highest Priority Southeast Region transportation assets represent an annual need of $128.3 million, or 70 percent of total need.

Table 3-12. SER Need by Asset Priority ($ in 2014 Millions)
Source: NPS Administrative Financial System

Priority	Total Need	Percentage of Total Need
Highest	$128.3	70%
High	$12.3	7%
Other	$41.7	23%
Total	$182.2	100%

PROJECTED FUNDING GAP

The Southeast Region compared unconstrained investment needs against the funding forecast to identify funding shortfalls, or "gaps." This estimated funding gap averages $120.5 million annually over the period of FY 2016 to FY 2020 and totals about $603 million over the five years.

With regard to fund source (Table 3-13), Title 23 represents the bulk of the $120.5 million gap ($68.8 million or 57%). Title 16/54 Non-fee represents most of the remainder of the gap.

In absolute terms, paved roads have the largest estimated annual funding gap, $59.1 million (Table 3-14). Parking has the largest funding gap on a percentage basis, with only four percent of the total anticipated annual need ($21.1 million) covered by forecasted available funding ($0.8 million).

Additional analysis of the funding gap by work type and by asset priority can be found in the Funding and Financial Analysis Technical Report in the appendix.

Table 3-13. Funding Gap by Funding Title and Program (FY 2016 – FY 2020) ($ in 2014 Millions)

Source: Source: NPS Administrative Financial System

Funding Title/Program	Forecasted Annual Available Funding	Needs	Gap	Percentage of Total Gap
Title 16/54	$20.7	$68.2	($47.5)	39%
Title 54 Non-Fee	$18.2	$55.6	($37.4)	31%
Title 16/54 Fee	$2.5	$12.6	($10.1)	8%
Title 23	$32.4*	$109.6	($68.8)	57%
Other/External	$0.3	$4.5	($4.2)	3%
Total	$53.3	$182.2	($120.5)	100%
Reallocated Title 23 Funds - Tamiami Trail	$8.4			
Reconciled Total Funding	$61.7			

*This figure for available Title 23 funding accounts for the reallocation of $8.4 million to commitments to the Tamiami Trail, and represents the Title 23 funding available for NPS-owned transportation assets. When available, all $40.8 million in Title 23 FLTP funds will go toward closing the funding gap.

Table 3-14: Funding Gap by Asset Category (FY 2016 – FY 2020) ($ in 2014 Millions)

Source: NPS Administrative Financial System

Asset Category	Forecasted Annual Available Funding	Total Needs	Gap	Needs Met by Forecasted Funding
Paved Roads	$35.0	$95.0	($59.1)	37%
Parking	$0.8	$21.1	($20.3)	4%
Bridges and Tunnels	$6.2	$42.5	($36.3)	15%
Trails	$3.7	$12.2	($8.5)	30%
Transit	$2.1	$4.5	($2.4)	47%
Other Assets	$4.6	$6.9	($2.3)	67%
Subtotal —NPS-owned Assets	$53.3*	$182.2	($120.5)	29%
Reallocated Title 23 Funds - Tamiami Trail	$8.4			
Total	$61.7			

*Reflects reallocation of FLTP funding to the Tamiami Trail project managed by FDOT. This commitment reduces available funds for NPS-owned assets and impacts projected amount of met needs. When available, the full $61.7 million will go toward NPS-owned assets.

Environmental Sustainability

CLIMATE CHANGE AND VULNERABILITY

The effects of climate change likely will have a moderate to significant impact on transportation systems. Potential impacts include:[14]

- More frequent/severe flooding of underground tunnels and low-lying infrastructure, requiring drainage and pumping, due to more intense precipitation, sea-level rise, and storm surge.
- Increased numbers and magnitude of storm surges and/or relative sea-level rise potentially shortening infrastructure life.
- Increased thermal expansion of paved surfaces, potentially causing degradation and reduced service life, due to higher temperatures and increased duration of heat waves.
- Higher maintenance/construction costs for roads and bridges, due to increased temperatures, exposure to storm surge, or more frequent flood events.
- Asphalt degradation and shorter replacement cycles, leading to limited access, congestion, and higher costs, due to higher temperatures.
- Culvert and drainage infrastructure damage, due to changes in precipitation intensity, or snow melt timing.
- Increased incidence of landslides due to increased frequency and intensity of precipitation.
- Increased risk of vehicle crashes in severe weather.
- Restricted access to local economies and public transportation.

In recent years, the National Park Service has begun to codify policy, goals, and objectives surrounding sustainability and climate change. The following documents note the impact that transportation has on sustainability, greenhouse gas emissions, and ultimately climate change, and offer guidance to support regional and individual park unit management's efforts to promote sustainable operations and mitigate the impacts of climate change.

- The NPS *Climate Change Response Strategy* (2010) calls for increased use of alternative fuels and alternative transportation systems to reduce the carbon footprint of the National Park Service.
- The NPS *Green Parks Plan* (2012) highlights adoption of greener transportation methods as one of nine strategic goals for the National Park Service, and includes objectives related to reducing emissions, improving fleet fuel efficiency, and supporting alternative commuting practices.
- The *Climate Change Action Plan* (2014) identifies implementation of climate change guidance in LRTPs as a high priority, and recommends increased coordination with the Clean Cities National Parks Initiative.
- *A Call to Action: Preparing for a Second Century of Stewardship and Engagement* (2011, updated 2014), serves as a guiding document for all National Park Service activities through 2016, and calls on park units to help enhance green spaces, reduce energy consumption, and reduce greenhouse gas emissions toward more sustainable communities.

[14] U.S. Department of Transportation, *Climate Adaptation Plan: Ensuring Transportation Infrastructure and System Resilience*, 2014.

Each of these documents provides guidance to parks on protecting the economic, environmental, and social "legs of the stool." In the Southeast Region, sustainable transportation planning efforts ensure that these considerations are factored into decisions affecting transportation activities.

In 2015, the Southeast Region became the first NPS region to develop a region-specific climate change response strategy and action plan. The plan identifies specific actions the region will take to manage resources in a manner that is responsive to the most up-to-date climate science. Those actions are organized into four goal areas:

- Develop a workforce informed about climate change. Actions to advance this goal include advancing workforce climate literacy through staff webinars, a quarterly newsletter, and access to training in vulnerability assessment, scenario planning, and climate-smart adaptation.
- Inspire visitors to take action to address climate change. Actions to advance this goal include supporting communication with visitors through the NPS Climate Change Leadership Series for Superintendents and Climate Change Response Program (CCRP) Climate Change for Interpreters training; implementation of the Long-Range Interpretive Plan for Energy Conservation and Sustainability; youth education programs on sustainability; and outreach materials on climate change science and impacts.
- Improve the Southeast Region's environmental sustainability. Actions to advance this goal include improving sustainability by implementing the regional plan for decreasing facility energy, water, and fuel usage; pursuing Environmental Management Program funding and Flexible Park Base Sustainability funding; encouraging park units to become certified Climate Friendly Parks; and investing in alternative energy and efficiency improvements.
- Manage resources in light of expected change. Actions to advance this goal include supporting climate adaptation by continuing to incorporate climate change information into park foundation documents, including indicators of climate change and a climate change impact brief in the State of the Parks efforts; coordinating with the planning and operations of Landscape Conservation Cooperatives; participating with the CCRP in conducting scenario planning and climate-smart adaptation; and identifying and prioritizing potential adaptation actions as part of a Resource Stewardship Strategy.[15]

[15] National Park Service, *National Park Service Southeast Region Climate Change Response Strategy and Action Plan* [Draft], 2015.

Social Sustainability and Livability

Social sustainability and livability are at the forefront of the National Park Service vision for the future. *A Call to Action* highlights this commitment to livability by promoting a theme of Connecting People to Parks, one of four goals around which the National Park Service builds its vision for stewardship. In order to Connect People to Parks in its second century of operation, the National Park Service must engage the public in a variety of ways; increase urban connections; promote parks as places that contribute to physical, mental, and social well-being; and ensure that parks are attractive and welcoming to diverse populations.[16]

As evidenced by the goals and actions articulated in *A Call to Action*, the National Park Service anticipates that urban park units, and connecting those park units to their surrounding communities, will be a critical component of NPS operations going forward. The NPS *Urban Agenda* (2015) calls on all NPS employees to be relevant to all Americans and work collaboratively both internally and externally to better serve communities.[17]

In support of the *Urban Agenda*, the National Park Service has identified 10 model cities and will be dedicating resources to enhancing collaboration and outreach efforts in those cities, including deployment of NPS Urban Fellows in each city.

Jacksonville, Florida – one of the 10 model cities – is home to two Southeast Region park units: Timucuan Ecological and Historic Preserve and Fort Caroline National Memorial. Those parks, with support from an NPS Urban Fellow, have already begun enhancing their work with local agencies to find innovative ways to meet community needs and connect local residents to educational and recreational opportunities in the parks.

Ongoing activities include a partnership between the two NPS units and the City of Jacksonville to arrange summer camp field trips to the parks for underserved youth. During a five-week period in summer 2016, Fort Caroline National Memorial partnered with the Jacksonville Children's Commission and the U.S. Food and Drug Administration to provide free lunches to all park visitors under the age of 18. Other collaborative efforts are underway to connect more city residents to blueway opportunities in the area.

> It is time that the NPS strategically organized its many urban parks and programs towards building relevancy for all Americans, to connect with their lives where they live, rather than only where some may spend their vacation.
>
> *— NPS Director Jonathan Jarvis, in the foreword to the Urban Agenda (2015)*

[16] NPS, *A Call to Action*, 2011 (Updated 2014).
[17] NPS, *Urban Matters: The Call to [Urban] Action*, 2015.

Meeting the Objectives

Identify and incorporate climate change mitigation/adaptation strategies into aspects of transportation planning, design, construction, maintenance, and operations over time as financially feasible.

The Southeast Region faces a variety of challenges from climate change, including weather events of increasing intensity and frequency, exposure to sea-level rise, and drought, among others. In appropriate and feasible instances, incorporating mitigation and adaptation strategies into project planning and implementation can help the region meet the challenges posed by climate change while extending the life of investments in Highest Priority transportation assets.

To stay ahead of the threat of climate change, the Southeast Region will need to continue to monitor the changes in the environment at individual park units and be cognizant of the threats of sea-level rise and extreme weather events on transportation assets. Action should be taken to adapt or decommission assets before they become critically threatened where the loss of an asset causes large issues of access or connectivity for a park unit.

The 13 Southeast Region coastal parks evaluated in *Adapting to Climate Change in Coastal Parks*— most of which were found to have significant numbers of assets with high exposure to sea-level rise of one meter—should consider monitoring climate conditions and evaluating the function of assets at high exposure to sea-level rise. Adaptation or decommissioning could be considered for assets with high exposure.

Coastal park units are not the only park units that are affected by extreme weather events. Inland parks can be impacted when the surrounding storm water systems are subject to extreme conditions. A recurring problem that was discussed during Focus Park visits and discussions with the Southeast Region LRTP Advisory Committee is the damaging cycle of drought and extreme rains that overwhelms culverts and roadway drainage systems and leads to sections of roadways being washed out. Additional transportation-related climate change impacts include the undermining of the roadway surface from runoff and the destabilization of ditches, shoulders, and mountain cut slopes and overhangs.

An inventory of roadway drainage systems, including culverts specifically, is important to planning for adapting inland road networks to combat the threat of inland flooding. Such an inventory would include as-built details about each structure to help identify undersized culverts and prevent damage due to extreme weather events in the future. Furthermore, when culverts are replaced, consideration should be given to the potential need for upsizing or relocating culverts.

EXAMPLE PROJECT

Timucuan Alternative-Fueled Trams

Timucuan Ecological and Historic Preserve has identified a need for two alternative-fueled trams as it seeks to supplement a new water-based transportation service with a land-based transit connection. The tram purchases and resulting transit service would provide visitors with multimodal options to sites currently accessible only by private vehicle and thereby reduce vehicle emissions and transportation-related impacts to vulnerable coastal transportation assets.

Meeting the Objectives

Maintain flexible use of transportation funding sources while improving identification of transportation needs and expenditures.

The Southeast Region, like the entirety of the National Park Service, will continue to be challenged to find the funding necessary to sustain its transportation asset portfolio at an acceptable condition. As documented previously in this chapter, maintaining the subset of Highest Priority assets for the region at acceptable condition levels will be challenging over the next six years, and into the future.

In this era of tightening budgets and increasing DM backlogs, it is critical that the Southeast Region try to be as nimble as possible in investing in Highest Priority transportation assets. To do so, the region needs to be able to identify areas of greatest need and apply scarce resources to those needs in a relatively timely and efficient manner. The region will need to continue its efforts to identify, obtain, and use the best available data to support its investment decisions.

The Southeast Region should work with its stakeholders, regional and national, to look for other ways to fund transportation needs. Options such as tapping new or different funding sources and engaging in public-public or public-private partnerships should be further investigated. The FAST Act may offer additional funding opportunities, as it features increased FLTP funding for the National Park Service and a pair of new programs—the Nationally Significant Federal Lands and Tribal Transportation Project Program, and the Nationally Significant Freight and Highway Project Grant Program—that have the potential to assist the region in funding some of its larger infrastructure needs.

EXAMPLE PROJECT

Foothills Parkway Sections E and F

An estimated $35 million is needed to complete Sections E and F of the Foothills Parkway, between Walland and Wears Valley, at Great Smoky Mountains National Park. That work includes completion of the 1.65 mile section of the Foothills Parkway known as the “missing link” and paving the full 16 miles of Sections E and F. Great Smoky Mountains National Park has worked closely with the Tennessee Department of Transportation (TDOT), FHWA Eastern Federal Lands Highway Division, and the NPS Southeast Region to identify funding sources to complete the sections and open them to the public. Those collaborative efforts have borne considerable fruit to date, as Great Smoky Mountains National park and TDOT were awarded a $10 Million TIGER grant in July 2016. The State of Tennessee has also committed to contribute an additional $15 Million to the project.

Meeting the Objectives

Identify and prioritize investments based on legal requirements, agency mission, anticipated lifecycle costs, and consideration of potential future funding.

The investment strategy for the Southeast Region LRTP prioritizes investment in Highest Priority assets, in keeping with principles of CIS and TCFO. While the modeled outcomes discussed previously in this chapter show a considerable gap between anticipated needs and forecasted funding and indicate a worsening in portfolio condition, the region nevertheless will be able to maintain the current condition of its entire road network if it adheres to the Southeast Region LRTP investment strategy. The investment strategy also ensures the good condition of all bridges, vital to transportation network safety and no small feat given that the region has the largest portfolio of bridges of any NPS region.

Implementing the investment strategy will require frequent checks on performance as well as adaptive management by the region. The transportation planning, investment, operational and maintenance environments are dynamic. Funding sources change over time, as do policies that affect transportation. The region will need to monitor these types of changes to ensure the success of its investment strategy and broader implementation of its LRTP.

A bridge on Little River Road at Great Smoky Mountains National Park

Meeting the Objectives

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

Relationships with partners and gateway communities are critical to meeting the Southeast Region's goals related to financial, environmental, and social sustainability. Partnerships at the federal, state, and local levels can help identify new or leverage existing funding opportunities, and are vitally important to helping bridge the substantial gap between the anticipated needs of the region's transportation system and the projected available funding to meet those needs.

The Southeast Region should continue to form and build networks among community-based organizations to support the region's outreach efforts to traditionally underserved populations. The region should also continue to pursue partnership opportunities to enhance multimodal connections between park units and gateway communities, particularly in urban and suburban contexts. A number of park units in the Southeast Region are well positioned to further engage urban and suburban gateway communities and attract new visitors to recreate where they live, in keeping with the NPS *Urban Agenda*—for example, Kennesaw Mountain National Battlefield Park and Martin Luther King Jr National Historic Site in metro Atlanta; portions of the Blue Ridge Parkway near Asheville and Boone, North Carolina, and Roanoke, Virginia; New Orleans Jazz National Historical Park; and Stones River National Battlefield in the Nashville metro area.

In addition to the substantial contributions to research and guidance on transportation-related climate change impacts, the Southeast Region also should look to build on the work of internal and external partners to better understand those impacts, and identify effective and feasible adaptation and mitigation solutions.

A group of volunteers at Chattahoochee River National Recreation Area

Performance Measures and Targets

The Southeast Region sought to identify sustainable operations performance measures and targets that were consistent with the goals and objectives developed as part of the regional LRTP process. The region also looked to build on measures and targets from the National LRTP in developing region-appropriate performance measure and targets. The first performance measure draws on a National LRTP performance measure related to financial sustainability, and aligns with the investment strategy for the Southeast Region LRTP. The second performance measure is specific to the Southeast Region—meaning it does not stem from the National LRTP—and is intended to support the region's goals and objectives on sustainability.

Percent of transportation funds invested in Highest Priority transportation assets

The National LRTP seeks to extend the NPS focus beyond DM to all investments in Highest Priority transportation assets and services through this performance measure. The Southeast Region recognizes the importance of this emphasis on Highest Priority assets and services and its alignment with the Southeast Region LRTP investment strategy—as well as CIS and TCFO—and therefore has adopted the same performance measure for its LRTP effort.

The Southeast Region has identified the same target as the National LRTP: investing 95 percent of transportation funds in Highest Priority transportation assets over the life of the LRTP.

Develop and implement a park unit preventative maintenance program

This performance measure seeks to address both financial and environmental sustainability. The Southeast Region identified preventative maintenance as a critical need for sustainable operations, as such activities not only extend the life of transportation assets—in line with TCFO principles—but also can play an important role in mitigating the impacts of climate change on the transportation system. While all park units in the region engage in numerous and varied preventative maintenance activities, there is not currently in place a regional program related to preventative maintenance. The Southeast Region is targeting a pilot program at select park units to begin developing a more coordinated regional effort to guide and support preventative maintenance activities across the region. Currently there is not a national preventative maintenance program or official guidance available.

Table 3-15. Sustainable Operations Performance Measures and Targets

Performance Measure	National LRTP Target	SER LRTP Target	SER Baseline Condition
Percent of transportation funds invested in Highest Priority transportation assets	95% over life of LRTP	95% over life of LRTP	98%
SER PM: Develop and implement a park unit preventative maintenance program	-	Pilot program at select park units	No program established

SER PM – Denotes performance measures unique to the priorities and character of the Southeast Region.

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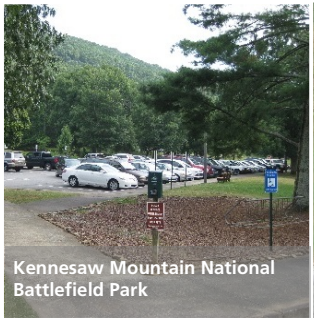
Chapter 4 | **Asset Management**


San Juan National Historic Site


Blue Ridge Parkway


Kennesaw Mountain National Battlefield Park


Fort Donelson National Battlefield

Goal: Allocate transportation funding to ensure the long-term viability of transportation systems.

Objectives:

- Maintain important transportation assets and services in good operating condition through targeted investment.
- Use transportation management systems to assist in decision making for improving the overall condition, utilization and effectiveness of the transportation asset portfolio over time.
- Decommission or dispose of undesirable transportation assets.
- Search for innovative financial resources and partnerships to leverage additional funding for transportation projects.

The Southeast Region is responsible for the operation and upkeep of $8.7 billion in transportation assets. Effective asset management is critical to ensuring the long-term viability of the transportation network and to support the NPS mission. Funding support of the Southeast Region is expected to decrease despite an annually increasing backlog of deferred maintenance, the increasing threat to many assets from climate change considerations such as sea-level rise and more frequent and severe storm events, the increased use of transportation system assets by both park visitors and commuters, and a desire by visitors for additional transportation options. It is vital for the Southeast Region to maximize the benefit of its available funding to address its highest priorities most effectively.

Kirby Storter Boardwalk at Big Cypress National Preserve

Baseline Conditions

This plan addresses all elements of the Southeast Region transportation network, which includes the following systems:

- On-road systems, such as roads, bridges, tunnels, parking lots, and signage
- Transit systems, including bus, trolley, tram, and rail
- Marine systems, including ferry boats, docks, marinas, and waterfront infrastructure
- Nonmotorized systems, including equestrian, bicycle, and pedestrian paths and trails

The information that follows summarizes baseline conditions for the Southeast Region transportation assets. More detailed information is provided in the Baseline Conditions Assessment provided in the appendix. Unless otherwise noted, all inventory and condition data are as of October 1, 2014.

The Southeast Region transportation assets support the NPS mission of providing visitors access to cultural and natural resources, and many of the transportation assets are themselves important cultural resources. Specific information about historic transportation assets can be found in the Resource Protection chapter.

Transportation Asset Inventory

As shown in Table 4-1, there are 4,820 transportation asset locations in the Southeast Region inventory. Those assets have an estimated current replacement value (CRV) of $8.7 billion.

The transportation system includes 2,182 centerline miles of roads, 1,063 bridges and tunnels, 518 acres of parking (equivalent to 54,000 parking spaces), and 243 miles of transportation trails. There are also 23 land- or water-based alternative transportation systems among 14 parks.

Table 4-1. Southeast Region Transportation Asset Inventory

Source: SER asset inventory derived from National NPS Transportation Asset Inventory, unless otherwise noted. Data date: October 1, 2014.

Transportation Asset Type	Number of Asset Locations	Quantity	Current Replacement Value ($ in 2014 millions)	Deferred Maintenance ($ in 2014 millions)
Roads —paved	862	1,587 miles	$4,994.4	$1,001.6
Roads —unpaved	526	595 miles	$370.6	$43.9
Parking —paved	1,431	479 acres	$398.4	$84.2
Parking —unpaved	246	39 acres	$14.6	$2.0
Road Bridges	950	1,029 bridges	$1,621.1	$125.9
Road Tunnels	32	34 tunnels	$799.3	$15.8
Transportation Trails	273	243 miles	$147.2	$43.4
Trail Bridges	234	234 bridges	$21.8	$0.7
Trail Tunnels	2	2 tunnels	$20.4	$0.5
Constructed Waterways	14	92 miles	$42.9	$0.3
Docks, Marina, and Waterfront Assets	246	585,353 lf	$238.2	$37.1
Railroad Assets	4	9,997 lf	$3.8	$0.6
Grand Total	4,820		$8,672.7	$1,356.0

lf = linear feet

Additional sources: Quantity of paved roads and parking are from 2014 National Park Service Pavement Condition Report, March 2015.
Quantity of road bridges and tunnels are from Bridge Inventory Program (BIP) data. Provided by WASO, January 2015.

ROADS

Roads comprise 62 percent of the Southeast Region transportation asset CRV. The 1,587 miles of paved roads in the region represent about 35 percent of the approximately 5,000 NPS system paved road miles. Notable among Southeast Region roads are the two large parkways: the 444-mile Natchez Trace Parkway and the 469-mile Blue Ridge Parkway.

The Roadway Inventory Program (RIP) uses eight different classifications to characterize paved roadways by their function within a park unit. Generally speaking, these eight classifications are of three groups: Primary Public Roads (Functional Classes 1, 2, and 7), Other Public Roads (Functional Classes 3 and 8), and Administrative Roads (Functional Classes 4, 5, and 6). As shown in Figure 4-1, the vast majority of Southeast Region roads are Primary Public Roads, representing 91 percent of the RIP inventory (1,445 lane miles).

PARKING

Parking assets account for about five percent of the current replacement value of the Southeast Region transportation asset inventory. The 518 acres of parking areas is approximately 18 percent of the national NPS parking inventory.

The Southeast Region has 479 acres of paved parking, or approximately 50,000 parking spaces, among 1,431 parking areas. The Southeast Region transportation asset inventory also includes 39 acres (equivalent to 4,000 spaces) of unpaved parking among 246 parking areas.

Similar to paved roadway assets, the system of record for paved parking assets is the RIP database. The RIP database records parking assets as either public or administrative and tracks the condition of the asset. Figure 4-2 shows that there is nearly six times as much area of paved public parking compared to the area of paved administrative parking in the Southeast Region.

Figure 4-1. Lane Miles of SER Paved Roadway Assets

Source: 2014 National Park Service Pavement Condition Report, Federal Highway Administration – Eastern Federal Lands Pavement Section, March 2015. HPMA Report FY15-NPS01.

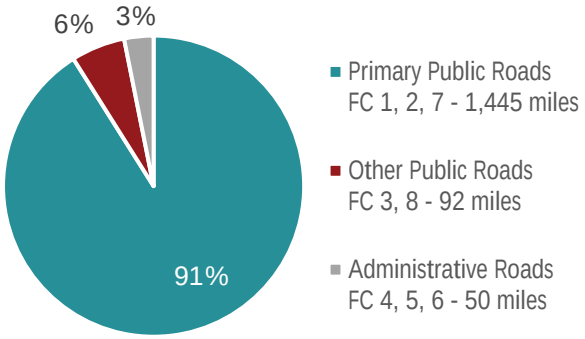
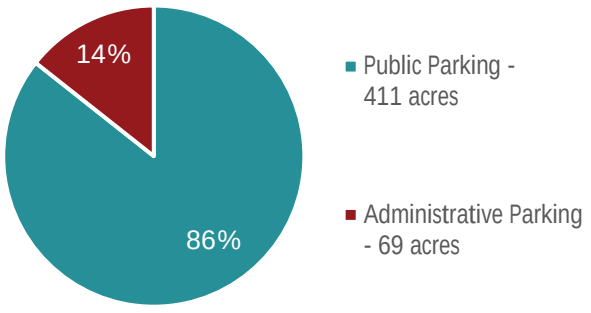


Figure 4-2. Area of SER Paved Parking Assets

Source: 2014 National Park Service Pavement Condition Report, Federal Highway Administration – Eastern Federal Lands Pavement Section, March 2015. HPMA Report FY15-NPS01.



BRIDGES AND TUNNELS

There are 1,063 bridges and tunnels among 24 parks in the Southeast Region. These assets serve a wide range of functions, from narrow bridges carrying a single lane of traffic over a stream to a bridge that is almost a mile long spanning the Tennessee River on Natchez Trace Parkway.

Bridges and tunnels make up 28 percent of the current replacement value of the Southeast Region transportation asset inventory. There are approximately 500 bridges along the Natchez Trace Parkway and some 200 in both Great Smoky Mountains National Park and Blue Ridge Parkway. The Southeast Region has about two-thirds of all the bridges and tunnels servicewide.

TRAILS

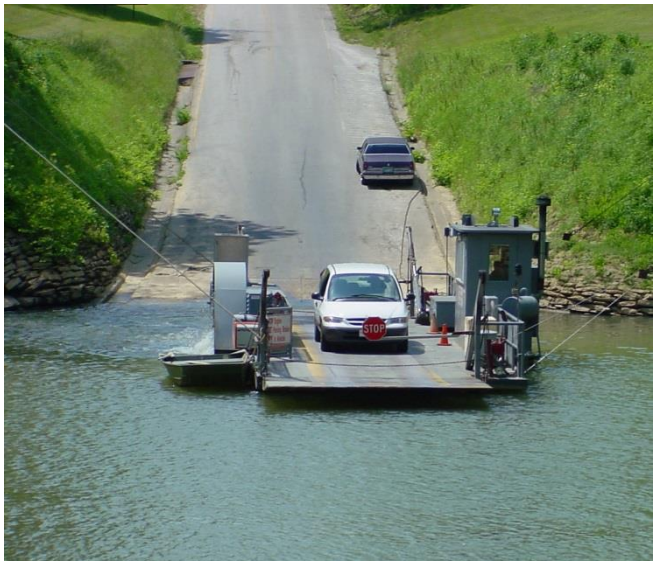
There are 243 miles of transportation trails, along with 246 trail bridge or trail tunnel assets, among 24 parks in the Southeast Region. The determination of "transportation trails" was made as part of the National LRTP effort. Transportation trails are generally front country trails that provide access from a local community, connect built park facilities to other destinations within the park, or provide an alternative to private motor vehicle mobility within a park.

Trail assets account for about two percent of the Southeast Region transportation inventory. The largest amount of Southeast Region transportation trails are located in Big South Fork National River & Recreation Area (67 miles, 28%), followed by Mammoth Cave National Park (35 miles, 14%), Natchez Trace Parkway (20 miles, 8%), and Blue Ridge Parkway (18 miles, 8%).

ALTERNATIVE TRANSIT SYSTEMS

Fourteen parks have on-road transit (shuttle, bus, van, tram) or water transit (boat, ferry) alternative transportation systems (ATS). Most of the ATS provide "critical access" to parks and/or units that are not accessible by automobile. The Southeast Region ATS carry almost two million riders annually. Two of the Southeast Region transit systems rank among the top 10 servicewide. Annual ridership on the ferry service at Fort Sumter National Monument exceeds 600,000 and the trolley system at the San Juan National Historic Site carries over 500,000 riders each year.

ATS assets comprise about four percent of the Southeast Region transportation asset inventory. The assets include constructed waterways, marinas and docks, and, in two parks, railroad assets. There are also 20 NPS-owned fleet vehicles, ranging from electric trams to small ferry boats, but most transit vehicles in use at Southeast Region parks are owned and operated by concessioners and other partners. Only four of the Southeast Region ATS are fully NPS-owned and operated.



Green River Ferry at Mammoth Cave National Park

Condition of Transportation Assets

Monitoring of and investment in Southeast Region transportation infrastructure occurs through asset management systems operated by the National Park Service and the Federal Highway Administration.

The largest transportation investments in the Southeast Region, and the National Park Service, are bridges and roads. The FHWA operates the Bridge Inventory Program (BIP) and the Roadway Inventory Program (RIP) for the National Park Service. The RIP and BIP systems cover 90 percent of the transportation assets in the region.

DEFERRED MAINTENANCE

The total deferred maintenance for Southeast Region transportation assets is $1.4 billion (in 2014 dollars; see Table 4-1, earlier). The overall FCI for all Southeast Region transportation assets is 0.156 (DM/CRV). An FCI higher than 0.15 is considered to be representative of assets in "poor" condition.

Roads account for 77 percent ($1.0 billion) of the deferred maintenance, yet only 62 percent of the CRV. Conversely, bridges and tunnels make up 11 percent ($141 million) of the DM, but 28 percent of the CRV.

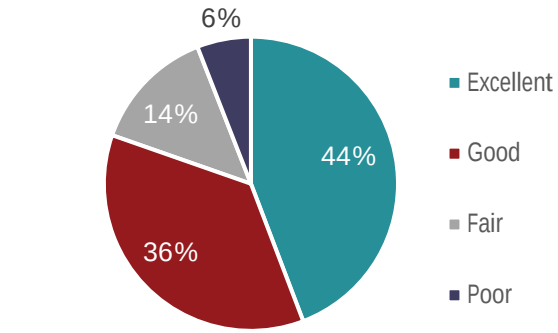
PAVEMENT CONDTION

The FHWA's Highway Pavement Management Application (HPMA) software is used to track and forecast the condition of pavement assets. Pavement Condition Rating (PCR) is an industry-standard condition metric, with values ranging from 0 to 100. A PCR of 100 indicates a new, recently constructed or recently rehabilitated asset.

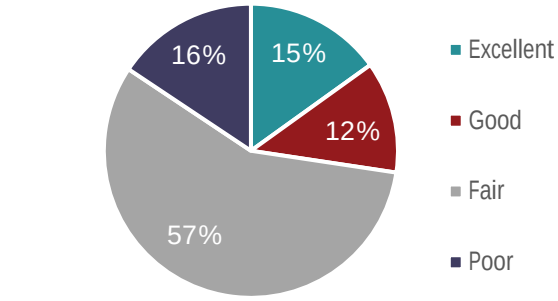
The average PCR for all paved roads and parking in the Southeast Region is 88, which is classified as "good" condition. The average PCR for the Highest Priority roads and parking is 84, the threshold between "good" and "fair." Figure 4-3 illustrates the condition assessment percentages for the Highest Priority roads and parking areas.

Figure 4-3. PCR Condition of SER Highest Priority Paved Assets

Source: 2014 National Park Service Pavement Condition Report, Federal Highway Administration – Eastern Federal Lands Pavement Section, March 2015. HPMA Report FY15-NPS01.



Roads



Parking

BRIDGE CONDITION

The Bridge Inventory Program provides detailed condition inventories and a maintenance plan for each road-system bridge and tunnel. Similar to HPMA modeling for roads, bridge conditions can be modeled and projected by FHWA using PONTIS software. This software provides a bridge health index (BHI) value for bridges that is similar to a PCR for paved roadways. A BHI value of 100 percent is the highest possible rating. Bridge and tunnel structures in the Southeast Region have an average overall BHI of 95 percent.

The BIP also includes a Priority Improvement Code to describe the condition of bridges. As illustrated in Table 4-2, 95 percent of bridge and tunnel assets in the region are without serious deficiencies. Twenty-two bridges are critically deficient; most of these are in Big Cypress National Preserve and are unneeded and targeted for demolition.

CONDITION OF OTHER TRANSPORTATION ASSETS

The facility condition index (FCI) represents the ratio of deferred maintenance to capital replacement value. The FCI from FMSS is used as the metric for assessing conditions for those assets not included in the RIP or the BIP. These other assets include unpaved roads and parking, trails, transit assets, and marine assets.

Inventory and condition data collection for unpaved roads and parking, trail assets, transit assets, and marine assets is not as complete as for the assets in RIP and BIP. For those asset categories for which most FCI data are available, the current conditions are as follows.

- Unpaved Roads. 0.12 FCI ("fair")
- Unpaved Parking. 0.21 FCI ("poor")
- Transportation Trails. 0.30 FCI ("poor")
- Docks, Marina and Waterfront Assets. 0.16 FCI ("poor")

The FCI for Highest Priority Other Transportation Assets, which account for about one-quarter of all other transportation assets, is 0.30.

Table 4-2. Southeast Region Bridge and Tunnel Priority Improvement Code

Source: Bridge Inventory Program data. Provided by WASO, January 2015.

	Total Bridges and Tunnels	Number of Bridges and Tunnels				
		Priority A	Priority B	Priority C	Priority D	Priority E
Natchez Trace Parkway	494	0 (0%)	2 (6%)	54 (30%)	433 (56%)	5 (33%)
Great Smoky Mountains NP	200	1 (5%)	18 (55%)	53 (29%)	123 (16%)	5 (33%)
Blue Ridge Parkway	205	0 (0%)	4 (12%)	53 (29%)	148 (19%)	0 (0%)
Big Cypress National Preserve	46	19 (86%)	5 (15%)	4 (2%)	15 (2%)	3 (20%)
Remaining Park Units	75	2 (9%)	4 (12%)	16 (9%)	51 (7%)	2 (13%)
Total	1,020	22	33	180	770	15

Note: Nine structures regionwide, including six at Great Smoky Mountains National Park, are not assigned a Priority Improvement Code in the database.
Priority A = The structure is critically deficient and is closed.
Priority B = The structure has serious deficiencies but can remain in service with frequent inspections and/or reduced vehicle loads.
Priority C = The structure is structurally sound and capable of carrying legal loads, but is functionally obsolete or requires a high degree of maintenance to prevent a serious deficiency.
Priority D = The structure is structurally sound and capable of carrying legal loads.
Priority E = The structure is under construction/reconstruction.

Regional Issues and Opportunities

TRANSPORTATION ASSET CONDITION

Using the forecasted Southeast Region transportation funding, adoption of the Southeast Region LRTP investment strategy, and the baseline asset conditions by type, projections for future asset conditions were made. These projections were made using pavement and bridge modelling engines, estimating future asset needs across the lifecycle of assets, and constrained by future funding forecasts.

These projections show that the constrained funding expected over the next six years, further complicated by megaproject outlays, results in a degradation of asset conditions across all asset types and priorities.

Table 4-3 below highlights the asset condition outcomes for the Highest Priority transportation assets.

The total deferred maintenance for Southeast Region transportation assets is $1.4 billion (in 2014 dollars) and is increasing each year. The current DM backlog equates to more than 20 years of the forecast $61.7 million annual transportation funding. Reducing deferred maintenance will require understanding the total cost of ownership for all transportation assets, committing to maintain those assets that are priorities for capital investments, and planning for decommissioning or disposal of low-priority assets.

Table 4-3 Southeast Region LRTP Investment Strategy Outcomes – Highest Priority Asset Conditions

Source: "NPS Southeast Region LRTP: Proposed Investment Strategy – Final Draft", May 2016 (presentation)

	Metric	Current Condition (2014)	Southeast Region LRTP Investment Strategy
Roads and Parking			
Condition	Pavement Condition Rating	84	78
Maintenance Needs Met	Percentage of Needs Met		52%
Bridges			
Condition	Bridge Health Index	95	91
Maintenance Needs Met	Percentage of Needs Met		11%
Transit			
Improvement Needs Met	Percentage of Needs Met		68%
Maintenance Needs Met	Percentage of Needs Met		29%
Other Facilities			
Condition	Facility Condition Index	0.30	0.49
Maintenance Needs Met	Percentage of Needs Met		28%

Data presented represent asset condition outcomes for Highest Priority assets only. High Priority and Other assets continue to perform in degraded conditions.
Investment strategy outcomes represent a six-year projection due to data availability and quality limitations. Projections beyond six years lose reliability.
Investment strategy asset outcomes presented assume that $8.4 million annually will be reallocated to the Tamiami Trail megaproject.

ASSET MANAGEMENT DATA NEEDS

The success of asset management systems as tools to help prioritize project investments relies on the quality of data in the asset management system and the ability of staff to make best use of the systems.

Asset management data for trails, ATS, and unpaved roads and parking are not as complete as are data for bridges and paved roads and parking. Improving the condition assessment programs or data collection for those assets will provide for better financial decisions.

All asset management systems, even mature and comprehensive ones such as those for bridges and pavement, can be more effective if there are resources and training to ensure that data are entered correctly and are as up to date as is practicable.

RIGHT-SIZING TRANSPORTATION INVENTORY

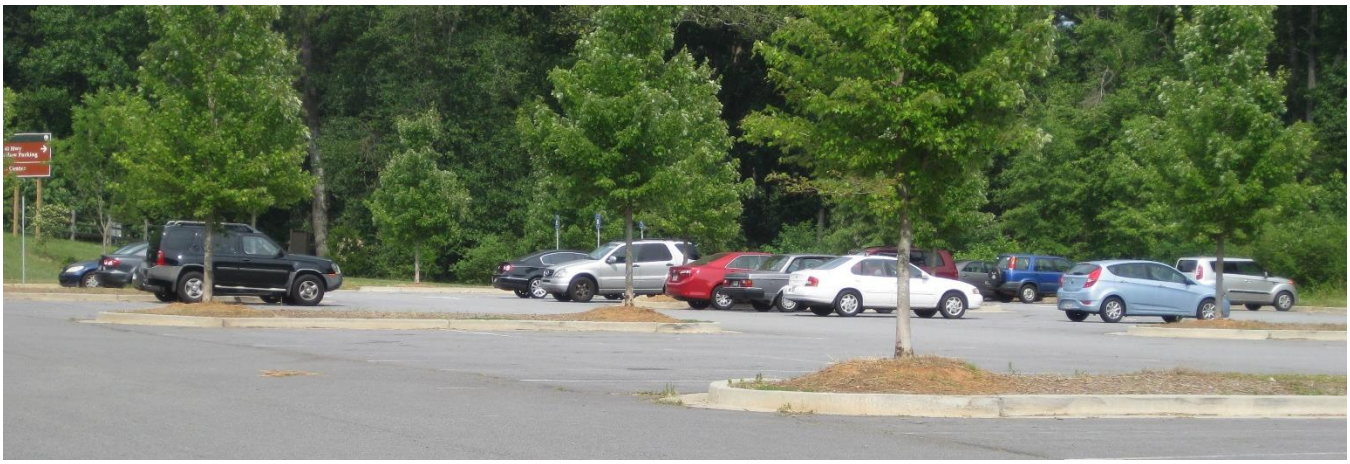
The Southeast Region, along with all NPS regions, face issues with transportation assets that are duplicative, nonperforming, or, due to financial constraints, cannot be maintained in good condition. Decommissioning and disposal of some assets can reduce deferred maintenance, reduce operating costs, eliminate safety and security hazards, and provide opportunities to restore habitats.

PARTNERSHIPS

The role of partner organizations and partnerships are expected to continue to expand nationally for the National Park Service as a whole and locally for individual park units. Partnerships can be beneficial in direct ways such as program cost sharing and indirect ways such as providing more comprehensive regional access options to the parks themselves.

A park's transportation issues and infrastructure are often integrated with those of the park's gateway communities. Shared needs can lead to partnership solutions such as at Kennesaw Mountain National Battlefield Park, where the park operates and maintains a parking lot owned by the county and the county maintains several park roads.

The FAST Act, and MAP-21 before it, have provided funding opportunities such as the Federal Lands Access Program (FLAP) that support partnerships in planning new projects. Gulf Islands National Seashore worked with its gateway communities to obtain over $4 million in grants for docks in the park and in the neighboring city to enable the start of a long-sought ferry service serving the park and local communities.



Visitor Center overflow parking lot at Kennesaw Mountain National Battlefield Park

Meeting the Objectives

Maintain important transportation assets and services in good operating condition through targeted investment

The Southeast Region LRTP is a fiscally constrained plan. Funding support is expected to decrease despite an annually increasing backlog of deferred maintenance, the increasing threat to many assets from climate change impacts, the increased use of transportation system assets by both park visitors and commuters, and a desire by visitors for additional transportation options.

The Southeast Region investment strategy targets Highest Priority assets as follows:

- Functional Class 1, 2, and 7 paved roads (Primary Public Roads) and associated parking areas.
- All road bridges and tunnels open to public use.
- All other assets that are designated as Optimizer Band 1, which includes all "critical access" transit systems.

The Southeast Region has been successful in the past with a strategy of focusing on Highest Priority assets. The current conditions of roads and bridges in the Southeast Region exceed national averages for the National Park Service. Due to anticipated decreases in funding, it is anticipated that the region will not be able to maintain the currently high levels of condition for its roads and bridges; however, the region is setting aspirational targets for conditions that exceed those set by the National LRTP.

Passengers disembarking from a ferry at Cape Lookout National Seashore

Meeting the Objectives

Use transportation management systems to assist in decision making for improving the overall condition, utilization, and effectiveness of the transportation asset portfolio over time

Improvements in the quality of data in a management system, and users understanding of how to use that management system, improves the effectiveness of investment decisions. The Southeast Region will benefit from addressing data and training needs.

FMSS inventory and condition data gaps for assets such as trails, ATS, and unpaved roads and parking pose a challenge for asset management. In addition, transit vehicles are tracked separately and information about condition and replacement value are not complete or readily available. Improving the condition assessment programs for those assets will enable better financial decisions.

Data other than asset inventory and asset condition can provide for more effective modeling and investment decisions. For example, a pavement management model is more accurate if the number of cars, trucks, and buses using a road is known.

Another very important set of data to have is the vulnerability of assets to impacts of sea-level rise and storm events. The Fort Pickens Road along a barrier island section of Gulf Islands National Seashore has had to be reconstructed several times due to hurricanes—typical life-cycle costing models don't apply in situations like that.

The ability to write a Project Management Information System (PMIS) application well can affect CIS scoring and project prioritization in what is competitive environment. Similarly, the quality, accuracy, and timeliness of things as routine as writing and closing out work orders have a large effect on the value of results from an asset management system.

McFadden Ford Trail at Stones River National Battlefield, connecting to Stones River Greenway

Meeting the Objectives

Decomission or dispose of undesirable transportation assets

The total deferred maintenance for Southeast Region transportation assets is $1.4 billion and increasing each year. Successfully addressing the DM backlog will undoubtedly take an exhaustive and prolonged effort using a variety of strategies. One of these is to decommission or dispose of undesirable transportation assets.

The region's strategy of investing primarily in Highest Priority assets helps ensure that funding will not be used on low-priority assets. While analysis of opportunities, best practices and policies for decommissioning or disposal of assets was not a primary focus of this initial Southeast Region LRTP, disposal of low-priority assets is an important component of the CIS. Identifying a funding strategy for demolition projects represents an ongoing challenge servicewide. Future updates to this LRTP will reflect national guidance regarding asset decommissioning or disposal and the associated funding strategy.

In the meantime, there are opportunities to realize near-term benefits and set the stage for comprehensive benefits in the future.

Decommissioning and the right-sizing of assets should be integrated into project planning. For example, planning for a reconstruction project on a large parking lot might find that not all of the parking should be retained, or an underutilized road might be repurposed with a smaller footprint as a multiuse path.

Optimizer Band 5 assets should be confirmed as candidates for decommissioning and disposal and other candidate assets identified. This not only readies the region for concerted national and regional disposal efforts, but also allows parks and the region to be ready should unanticipated funding or partnership opportunities arise.

EXAMPLE PROJECT

Big Cypress National Preserve, Deconstruct Bridges and Structures

Six bridges incidentally acquired when the preserve was established are unneeded, have not been maintained, are unsightly, and are safety hazards. Demolishing and disposing of the bridges will allow the sites to be restored to their original state. (PMIS 219263)

A view of Ochopee Prairie at Big Cypress National Preserve

Meeting the Objectives

Search for innovative financial resources and partnerships to leverage additional funding for transportation projects

Parks share many transportation issues and even infrastructure with their gateway communities. These shared interests provide opportunities for partnerships that can provide many benefits for both the region and the partner organization.

Both the regional office and individual parks should have a dedicated focus on partnerships. To identify project opportunities, park staff should be familiar with local transportation planning efforts, agencies, and staff. To identify program and funding opportunities regional staff should be familiar with federal and state transportation programs.

The FAST Act uses targeted funding opportunities to support cooperation in planning new projects. The Southeast Region has been successful with the Federal Lands Access Program, which generally has similar procedures and requirements in each state within the Southeast Region. Some programs, however, such as those for trails and safety, have state-specific criteria, procedures, and schedules. Maintaining existing partnerships and expanding partnerships is not without effort and cost, but opportunities can be lost if partnership efforts are not made and sustained.

The region should have projects "on the shelf" and ready to go for when future funding opportunities become available. An example of unanticipated funding was during the ARRA era. Several parks were able to leverage funds because of having shovel-ready projects.

Fort Pickens ferry dock at Gulf Islands National Seashore

Performance Measures and Targets

The Southeast Region performance measures for asset management are the same as those of the National LRTP.

Conditon of Highest Priority transportation facilities

The performance measure of the condition of Highest Priority assets is the same as for the National LRTP, although the Southeast Region targets conditions of its assets which are higher than current servicewide averages and higher than the targets of the National LRTP.

The current Pavement Condition Rating (PCR) for Highest Priority roads and parking in the Southeast Region is 84. The overall Bridge Health Index (BHI) is 95 and the Facility Condition Index (FCI) for Highest Priority other assets is 0.30.

Number of park units that have completed an infrastructure vulnerability assessment

The Southeast Region will support national efforts to complete assessments of park assets that are vulnerable to climate change impacts that affect sea-level rise and storm events. The National Park Service is developing best practices for how to determine vulnerability and how to integrate those risks in asset management and design practices.

Table 4-4. Asset Management Performance Measures and Targets

Performance Measure	National LRTP 5-year Target	SER LRTP 5-year Target	SER Baseline Condition
Condition of Highest Priority transportation facilities			
Paved Roads & Parking	FC 1 & 7 = PCR 80	Maintain baseline	FC 1,2,7 = PCR 84
Bridges and Tunnels	BHI = 90	Maintain baseline	BHI = 95
Other Assets	FCI = 0.176	Maintain baseline	FCI = 0.30
Number of park units that have completed an infrastructure vulnerability assessment	Assessment at 5 units per year	Support national efforts	

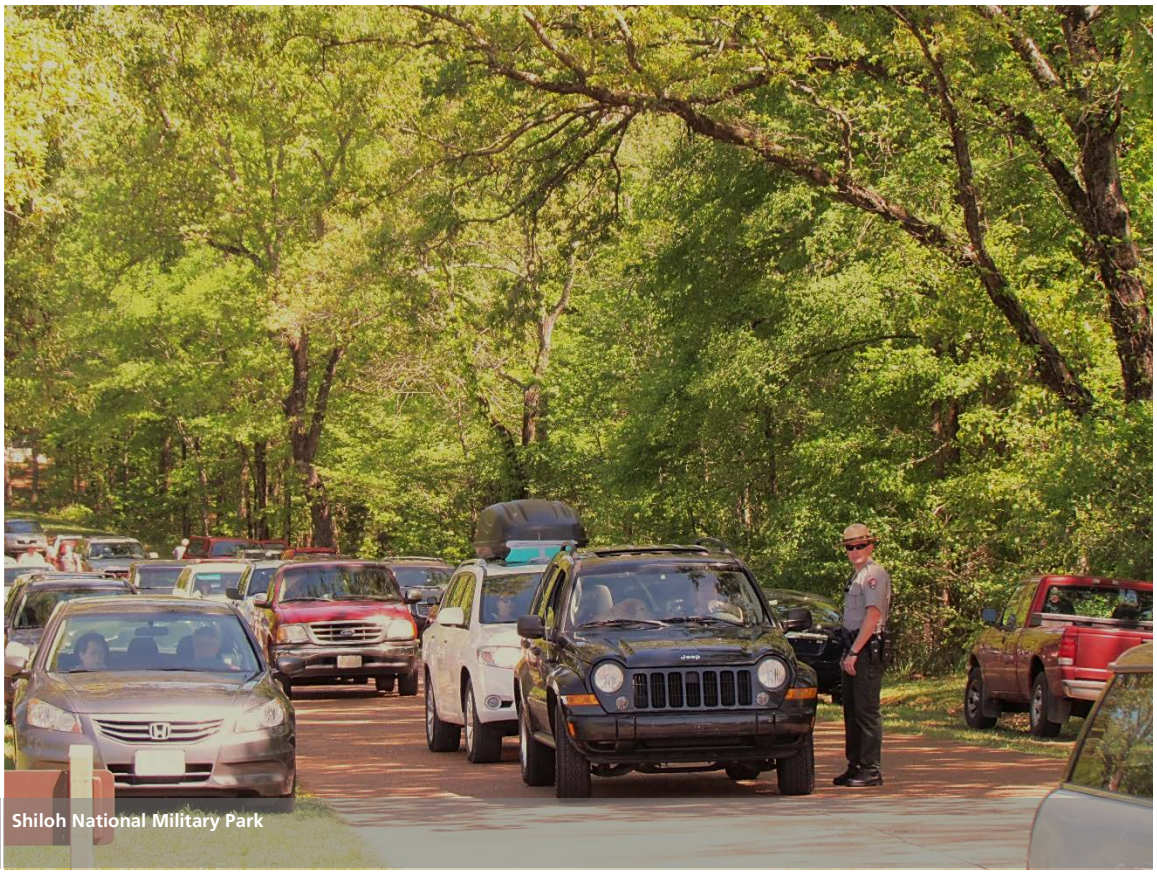
SER Baseline Conditions represent a 2014 baseline.
Source: NPS SER LRTP Proposed Investment Strategy – Final Draft May 18, 2016. [presentation]
FC: Roadway functional class. Primary Park Roads are classes 1, 2, and 7.

Chapter 5 | **Safety**


Stones River National Battlefield

Kennesaw Mountain National Battlefield Park


Cumberland Island National Seashore


Shiloh National Military Park

Goal: Provide a safe transportation system for all users.

Objectives:

- Maximize safety of all visitors and staff while minimizing negative impact to park resources and values.
- Address engineering, education, enforcement, and emergency response as part of the safety initiatives in the region.
- Manage visitation and transportation operations to minimize visitor and wildlife incidents and multimodal conflicts.

Visitor and staff safety is a top priority for the National Park Service. As such, the Southeast Region has made safety a stand-alone goal in the long range transportation planning process. The region seeks to incorporate the four E's of safety—education, engineering, enforcement, and emergency response—in all aspects of its transportation system, while remaining sensitive to the mission of the National Park Service and the unique needs related to the preservation of natural and cultural resources. The region has been systematically making progress to improve conditions through its ongoing safety initiatives. However, the National Park Service has encountered challenges in developing safety databases that facilitate aggregation and analysis of existing crash data collected at the park unit level; this lack of accessible safety data has compromised the region's ability to effectively and efficiently assess safety conditions at its park units.

Baseline Condition

The baseline condition for safety in the Southeast Region is defined by a combination of quantitative crash data and a qualitative assessment of transportation safety issues drawn largely from the Focus Park visits conducted in association with this long range planning effort. For more detailed information, see the Baseline Conditions Assessment Report in the appendix.

Motor Vehicle Crash Experience

With the second highest number of lane miles of park roads in the entire NPS transportation inventory, and with multiple units for which the tour road or parkway itself is a primary visitor attraction, the Southeast Region has significant infrastructure devoted to motorized vehicle travel. As such, motor vehicle safety is a preeminent concern for the region.

More than 17,000 crashes involving motor vehicles were reported in the Southeast Region from 1990 to 2005.[18] This figure represents approximately 16 percent of reported crashes servicewide during that period. The Southeast Region accounted for approximately 35 percent of all fatal crashes (236 out of 673 servicewide) and 35 percent of all injury crashes (7,519 out of 21,448 servicewide) during that period.

Three park units—Blue Ridge Parkway, Great Smoky Mountains National Park, and Natchez Trace Parkway—accounted for approximately 89 percent of both fatal and injury crashes in Southeast Region park units, and approximately 80 percent of all reported crashes in the region (Table 5-1). More than one-third of fatal crashes in the Southeast Region occurred in Natchez Trace Parkway during the time period from 1990 to 2005.

Those three park units also have the most lane miles of park roads in the region (63% of total lane miles) and account for nearly half of the region's total visits.

[18] National Park Service, Servicewide Traffic Accident Reporting System (STARS). Accessed April 2015. While more recent crash data are available for some individual park units, the STARS crash data for 1990 to 2005 represents the most complete available dataset for the Southeast Region, and is consistent with the dataset and timeframe used to analyze crash data in the National NPS LRTP and other regional LRTP efforts.

It is important to note, however, that many park units in the Southeast Region have worked to address safety concerns in recent years, meaning that the safety conditions cited here may not be representative of the current conditions or trends. For example, Blue Ridge Parkway conducted a Road Safety Assessment (RSA) for a 57-mile segment of the motor road in 2012. The RSA assessed safety conditions and identified safety issues in the study area and developed options for countermeasures the park could implement to address those issues.

Multimodal Safety

The focus on safety extends beyond motor vehicles; the Southeast Region is actively seeking to address intermodal conflicts on a variety of NPS transportation facilities.

Conflicts between vehicles, pedestrians and bicyclists are among the region's greatest concerns, particularly in locations where motor vehicles, pedestrians, and bicyclists occupy the same space. Most notable among these locations are Kennesaw Mountain Drive at Kennesaw Mountain National Battlefield Park; the Blue Ridge Parkway motor road; and Big South Fork National River and Recreation Area roads that have been re-designated as multiuse trails but still carry low volumes of motorized vehicle traffic. Marked crossings and informal crossings of roadways also represent hotspots for intermodal conflicts.

An examination of crash data between 1990 and 2005 showed that pedestrian and bicycle crashes accounted for less than one percent of all reported crashes in the Southeast Region. Blue Ridge Parkway, Great Smoky Mountains National Park, and Natchez Trace Parkway accounted for nearly three-quarters of all reported pedestrian and bicycle crashes in the region.

Given the relatively large number of park units with water-based transportation systems and recreational activities, water safety is another area of focus in the Southeast Region. Multiple park units, most notably Fort Sumter National Monument, are exploring ways to improve water safety by limiting or restricting private boat access within the parks. Mammoth Cave National Park is actively working to reduce conflicts among ferry, canoe, and kayak traffic at the Green River Ferry crossing.

Table 5-1. Crash Severity by Southeast Region Park Unit, 1990-2005

Source: National Park Service. Servicewide Traffic Accident Reporting System (STARS) database. 1990-2005.

Park Unit	Fatality (% of SER Fatal)	Injury (% of SER Injury)	Property Damage Only (% of SER PDO)	Total Crashes (% of SER Total)
Natchez Trace Parkway	82 (35%)	2,013 (27%)	1,691 (17%)	3,786 (21%)
Blue Ridge Parkway	72 (31%)	2,615 (35%)	3,102 (31%)	5,789 (33%)
Great Smoky Mountains National Park	55 (23%)	2,017 (27%)	2,565 (26%)	4,637 (26%)
All Other Parks	27 (11%)	874 (11%)	2,658 (26%)	3,559 (20%)
Southeast Region Total	236	7,519	10,016	17,771

The 4 E's of Safety

The 4 E's of safety—education, engineering, enforcement, and emergency response—are integral to the Southeast Region's approach to transportation safety. The Southeast Region seeks to educate visitors about safety guidelines and potential hazards, engineer transportation infrastructure to be safe, enforce the rules and regulations, and provide adequate responses to emergencies as they arise.

Southeast Region park units provide safety measures within their boundaries through visitor education on various safety risks and requirements. Park units can educate visitors through multiple methods, including sharing information on the park website, posting signage along roadways, and through interpretive and informational sessions. Fort Sumter National Monument includes a safety message as part of NPS-approved audio interpretation on the ferry ride to the fort.

The development of new and innovative technologies are being used both outside and within NPS unit boundaries to inform the public about a variety of safety issues. For example, the Blue Ridge Parkway employs interns to update the park's website and Twitter feed to alert the public about road closures and other roadway safety issues in real time. The park also posts photos of road conditions to help the public understand the reasons for road closures during severe weather events. Great Smoky Mountains National Park Association, one of the park's partners, has developed a smartphone app that includes safety tips and wayfinding. Cape Lookout National Seashore uses Twitter to direct the public to the park's website for information on weather-related closures and hazards, and tips on boating safety.

For engineering, the Southeast Region works closely with Washington Support Office and the US DOT's Volpe Center, as well as FHWA and state departments of transportation, to develop safety countermeasures in an attempt to reduce risks to both visitors and staff on NPS transportation facilities. Examples of such countermeasures in the Southeast Region include the installation of rumble strips, median barriers, lighting, and steel-back timber guardrail on the Blue Ridge Parkway and installation of profile edge markings near bridge approaches on Natchez Trace Parkway.

For enforcement and emergency response, Southeast Region park units work closely with other Federal Land Management Agency law enforcement personnel and local and state police, fire, and emergency services. Examples of successful partnerships can be seen in collaborative sobriety checkpoint efforts at Great Smoky Mountains National Park and Blue Ridge Parkway, and in agreements at multiple park units with the U.S. Coast Guard and with regional medical centers to provide airlift support in cases involving serious injury.

Regional Issues and Opportunities

On the national level, the National Park Service centers its safety efforts on better collecting and integrating safety data to improve decision making and on implementing proven safety countermeasures to effectively allocate limited safety funds. The Southeast Region will build on these national efforts, supplemented with other federal safety guidance, to support the development of a more robust safety management system for the region.

Transportation Safety Management System

Accurate data on where, when, and why crashes occur are necessary to make programmatic, performance-based decisions related to safety investments. The National Park Service is working with FHWA to develop a Transportation Safety Management System (TSMS) for use in managing traffic safety in the NPS Park Roads and Parkways Program. The TSMS will bring together data on crashes, traffic volume, and roadway features and condition to identify the most cost-effective opportunities to improve safety.

The Department of Interior has initiated a new reporting system, the Incident Management and Reporting System (IMARS), to replace the obsolete Servicewide Transportation Analysis and Reporting System (STARS) as its primary TSMS. IMARS is designed to record, store, and analyze all incidents occurring on federal lands, including motor vehicle crashes. IMARS will eventually be the primary source of crash data for the National Park Service.

During the Southeast Region Focus Park visits, numerous NPS staff members expressed frustration with IMARS. This frustration—due in part to technical glitches and in part to the level of effort required to enter data into the system—has led to inconsistent use of the system by NPS staff, limiting the utility of available crash data. The WASO Traffic Safety Program is currently compiling recent (post-2005) crash data on a park-by-park basis, but a comprehensive database of regionwide crash data since 2005 does not exist at this time.

Park staff also noted that safety incident reporting can be dependent on jurisdiction or facility ownership. In cases where local or state law enforcement has jurisdiction, crash data may not be shared with NPS staff or may not be collected in a manner consistent with NPS standards. The region should consider working with WASO to establish a protocol for crash data sharing and reporting between the National Park Service and local and state law enforcement.

Federal Safety Guidance

The Southeast Region will draw primarily on two sources of guidance in enhancing its safety program:

- The USDOT has developed a safety agenda focused on making data-driven decisions in targeting hazardous road locations or features. The first priority is to use available data to develop a management system and safety metrics to prevent crashes and correct known issues. A secondary approach is to predict potential locations or road features that may present a crash risk. The USDOT safety program also is increasingly focused on pedestrian and bicycle safety, due to the role of transportation in fostering livable communities.
- The NPS National LRTP promotes a series of safety strategies — centered on reducing crashes resulting from human behaviors and reducing specific crash types—which will guide NPS investment in transportation safety going forward. For each of these strategies, the Southeast Region will seek to center its efforts on park units and specific assets with documentation on crash histories involving fatalities and personal injuries.

Alternative Transportation Safety

The safety concerns for the Southeast Region are not specific to motor vehicles. The need to enhance pedestrian and bicycle safety along roadways and on trails will only increase as policies are implemented to increase multimodal access and mobility. The Southeast Region is also dependent on water transportation for accessing many of its parks, and has several transit systems. Both the water transportation and transit systems have their own unique safety issues and concerns.

The incident data collected by IMARS could ultimately help identify alternative transportation safety issues that need to be addressed. In the meantime, alternative transportation issues can begin to be addressed through targeted studies of high-activity locations. For transit systems, studies can focus on loading areas and bus stops, including travel paths to and from bus stops. Safety on board boats is generally subject to US Coast Guard regulations; water transportation safety studies can focus on dock areas. Bicycle activity on roadways and trails continues to increase rapidly—safety studies for those locations can be done in a manner similar to Road Safety Audits.

Several Southeast Region parks have instituted or are considering measures to address safety in their alternative transportation systems. Cades Cove Loop Road at Great Smoky Mountains National Park, a route very popular with bicyclists, is closed to motorized vehicles on Wednesday and Saturday mornings. Kennesaw Mountain National Battlefield Park closes Kennesaw Mountain Drive to private motor vehicles on weekends. Fort Sumter National Monument plans to change the way in which park staff access the fort, in an effort to minimize the risks associated with crossing the Charleston Bay shipping channel and docking a small vessel at the fort.

Safety Studies and Initiatives

The Southeast Region will seek to enhance its ongoing safety initiatives as it builds a more robust overall safety program. These studies and initiatives will need to take into account the safety of all users of the transportation system.

RSAs have proven to be an effective tool for improving the safety of all roadway users. This formal safety evaluation, conducted by an independent and multidisciplinary team, identifies potential road safety issues and opportunities for improvement. RSAs have received widespread adoption by state, local, and other agencies to proactively improve roadway safety. Their success led FHWA to include the RSA as one of its nine "proven safety countermeasures."[19]

The National Park Service and the Southeast Region have recognized the utility of using RSAs to identify safety issues and develop potential countermeasures. Nine Southeast Region park units have conducted some type of safety study or assessment since 2007, with three parks conducting a formal RSA on park roads. The value of RSAs can be particularly high for addressing isolated crash hot spots in smaller parks. The format of an RSA, with its hands-on participation by people from the park, state, and local community, can result in effective solutions to safety issues and can also lead to more effective partnerships on future projects.

In 2016, the Southeast Region contracted with the Volpe Center to conduct RSAs in conjunction with state DOTs and other partners at Cumberland Gap National Historical Park and Natchez Trace Parkway. These RSAs focused on locations with a history of fatal crashes. Moving forward, the region plans to work with FHWA-EFLHD, Volpe, state DOTs and other partners to develop RSAs at locations with higher crash rates and fatal crashes. The Southeast Region will conduct two to four safety studies each year as part of this effort.

Among the candidate RSA locations are multiple segments of the Blue Ridge Parkway and Natchez Trace Parkway for which WASO has provided crash rates. This updated crash rate data will allow the region, in partnership with FHWA-EFLHD, to identify high incidence locations along the parkway for more focused review and evaluation.

The region plans to develop a safety program, which will include the following components:

- Crash data collection protocol
- Development of a signage program
- Review of crash modification factors in safety improvements
- Before and after crash data analysis for projects with safety improvements, to inform future project selection

Southeast Region Safety Studies

A number of Southeast Region park units have evaluated safety issues on specific segments or elements of their transportation networks in the past several years. Recent activities have included:

Natchez Trace Parkway
Safety and Engineering Assessment (2014)

Gulf Islands National Seashore
Davis Bayou Safety Study (2013)

Blue Ridge Parkway
Road Safety Assessment (2012)

Chickamauga and Chattanooga National Military Park
Traffic and Safety Assessment (2012)

Mammoth Cave National Park
Road Safety Audit (2011)

Virgin Islands National Park
North Shore Road Safety and Engineering Assessment (2011)

Everglades National Park
Main Park Road Passing Zone Study (2009)

Vicksburg National Military Park
Main Entrance Safety Study (2008)

Cumberland Gap National Historical Park
Road Safety Audit (2007)

[19] FHWA, "Nine Proven Crash Countermeasures," available at: http://safety.fhwa.dot.gov/legislationandpolicy/policy/memo071008/npccacsc/

Meeting the Objectives

Address engineering, education, enforcement, and emergency response as part of the safety initiatives in the region.

The 4 E's—engineering, education, enforcement, and emergency response—are the cornerstones of the Southeast Region's approach to transportation safety. Any safety initiatives in the region must consider and incorporate each of these elements.

In the past, the region has undertaken relatively few standalone safety projects; safety issues typically are addressed within the context of larger projects. Nevertheless, there are other specific policies, studies, and activities that the region can pursue in support of the safety goals of the LRTP.

Systemic compliance needs, including signage retroreflectivity and Architectural Barriers Act (ABA) compliance, should be considered. These safety measures do not require crash data as much as an inventory of the safety issues of existing assets, and can be addressed through incorporation into other transportation projects. To encourage enhanced transportation safety throughout the National Park Service, WASO is able to provide a "fair share" of funding for such efforts where there is a demonstrated need.

region. Staff at every Southeast Region Focus Park cited understaffing as a major impediment to the parks' ability to conduct business. These staffing shortages are particularly acute in regard to safety, and impact parks' data collection and enforcement efforts. Developing training for IMARS data entry or changing the manner in which data is collected or entered would enable parks to better leverage IMARS in aggregating and analyzing crash data to identify safety hotspots and crash trends.

Additional law enforcement staff would enhance parks' ability to both enforce the rules of the road and respond to emergency situations. Several Southeast Region parks maintain memorandums of understanding (MOUs) with local municipalities for law enforcement; however, there are certain parks, such as Fort Sumter National Monument, in which local police aren't able to enforce Code of Federal Regulations (CFR) statutes.

Marked crossing of the Pigeon Hill Trail across Burnt Hickory Road at Kennesaw Mountain National Battlefield Park

Meeting the Objectives

Manage visitation and transportation operations to minimize visitor and wildlife incidents and multimodal conflicts.

One of the goals of the Southeast Region is to provide a multimodal transportation network that keeps visitors and staff safe.

A key need for the Southeast Region transportation safety program is accessible historical crash data, which could be used in combination with network characteristics to predict what locations may have critical safety needs as part of a predictive approach to safety. At this point, the Southeast Region does not have a comprehensive database of current crash information, although most parks do collect crash data at the unit level. Development of such a database cannot be completed by the Southeast Region alone; this effort will require coordination among NPS representatives including the region, WASO, and individual park units, as well as FHWA-EFLHD, state DOTs and local law enforcement officials.

Crash databases have typically focused on motor vehicle crashes along roadways and in parking lots. Going forward, cross-modal crashes—crashes involving transit vehicles or occurring on nonmotorized trails—will require consideration as well. The first need in addressing transit or nonmotorized trail safety needs is to identify the magnitude of this safety concern and determine an appropriate response. If a crash database is not appropriate, then localized safety studies may be a better approach.

Locations with an ongoing safety need identified through best available crash data and observed deficiencies from local staff would be candidates for a planning-level safety study. Such a study would likely include a corridor or intersection review at relevant locations, detailed review of all available crash data, input from local stakeholders, and possibly an RSA if viewed as appropriate. The outcomes from such safety studies would be a program of specific projects that would include implementation of targeted countermeasures to reduce crashes.

NPS staff conducting a Road Safety Audit on the Blue Ridge Parkway

Performance Measures and Targets

Based on the goals and objectives developed for safety and the region's needs described above, the Southeast Region adopted the following performance measures and targets to guide decision making over the duration of this long range transportation plan. Given the limited extent of accessible safety data currently available, the region will support the national effort to develop a comprehensive transportation system management system. In addition, the region will support the WASO requirement to prepare two transportation studies per year.

Conduct Transportation Safety Studies

WASO has requested that each NPS region conduct at least two transportation studies per year. In compliance with this direction from WASO, the Southeast Region intends to conduct two safety studies per year at park units within the region. This target is consistent with historical and ongoing activities to support transportation safety in the region.

The region will select safety study locations based on a combination of such factors as historical crash rates, incidence of fatal crashes, known locations with multimodal conflicts, and input from region and park staff.

Apply Transportation Safety Management System

The National LRTP has identified completion of the TSMS as a critical step toward implementing a new performance-based approach to transportation safety. Continued development of IMARS is a major component of this implementation.

The National Park Service estimates that, as of spring 2015, the TSMS was approximately 30 percent complete. The National LRTP has targeted 2018 as the completion date for the TSMS. The Southeast Region will support national efforts to apply the TSMS once it is complete.

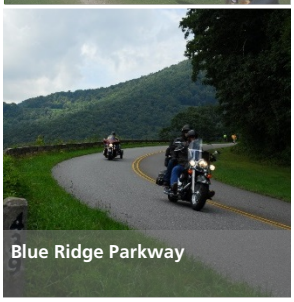
Table 5-2. Safety Performance Measures and Targets

Performance Measure	National LRTP 5-year Target	SER LRTP 5-year Target	SER Baseline Condition
Apply Transportation Safety Management System	100%	Support national efforts	-
Conduct Transportation Safety Studies	-	Two studies per year	Two studies per year

Chapter 6 | **Visitor Experience, Access and Mobility**


Virgin Islands National Park


Fort Sumter National Monument


Blue Ridge Parkway


Gulf Islands National Seashore

Goal: Maintain and enhance the quality of visitor experiences.

Objectives:

- Understand the impacts of congestion where it interferes with the visitor experience or where it damages resources.
- Consider improvements and ease of access to and within national park units for all park users.
- Advocate creating a range of appropriate transportation options that provide a network for seamless connections within each park unit and to surrounding communities.
- Support traveler information and wayfinding initiatives and, where appropriate, support interpretation and education opportunities.

There is an unquestionable link between visitor experiences and providing visitors with appropriate access and mobility. Visitors have positive experiences when they have good access to and within park units. The transportation visitor experience is as much a resource to the National Park Service and the Southeast Region as the physical resources they are tasked to protect. The goal and objectives presented here are a reflection of the importance that the Southeast Region places on visitor experiences and the priorities that the region plans to uphold in the upcoming years.

Baseline Condition

The baseline condition for visitor experiences in the Southeast Region is defined by a combination of quantitative visitation statistics and a qualitative assessment of visitor use. More detailed discussion of visitor experience findings can be found in the Baseline Conditions Assessment Report in the appendix.

Visitor Use

Visitor use considers the quantifiable trends surrounding visitation to park units that may be interpreted to help understand visitor experiences or identify areas of concern.

Southeast Region park units hosted 63.6 million recreation visits during calendar year 2015. Three Southeast Region park units are among the top 10 park units by visitation nationwide: Blue Ridge Parkway (15.0 million visitors), Great Smoky Mountains National Park (10.7 million visitors), and Natchez Trace Parkway (5.8 million visitors). These three park units make up nearly 50 percent of Southeast Region visitation (Figure 6-1). These visitation figures are well aligned with the asset management analysis and emphasize the importance of maintaining parkways and key auto tour routes in these park units to continue to attract a significant portion of visitors.

Figure 6-1. Percentage of Southeast Region Recreation Visitation by Unit (2015)

Source: NPS Public Use Statistics Office

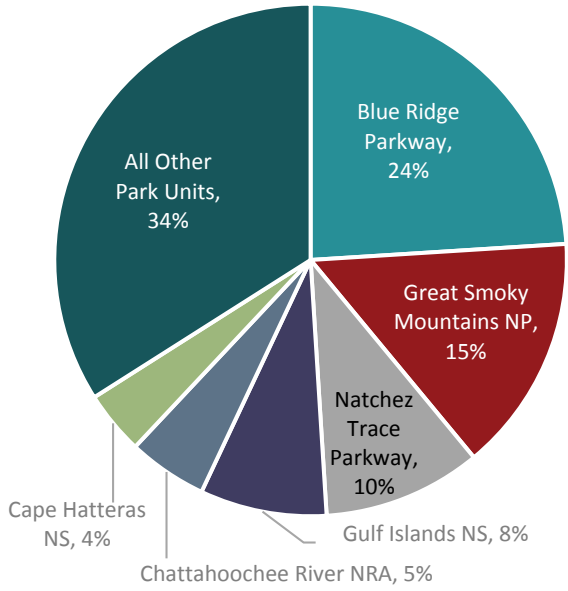
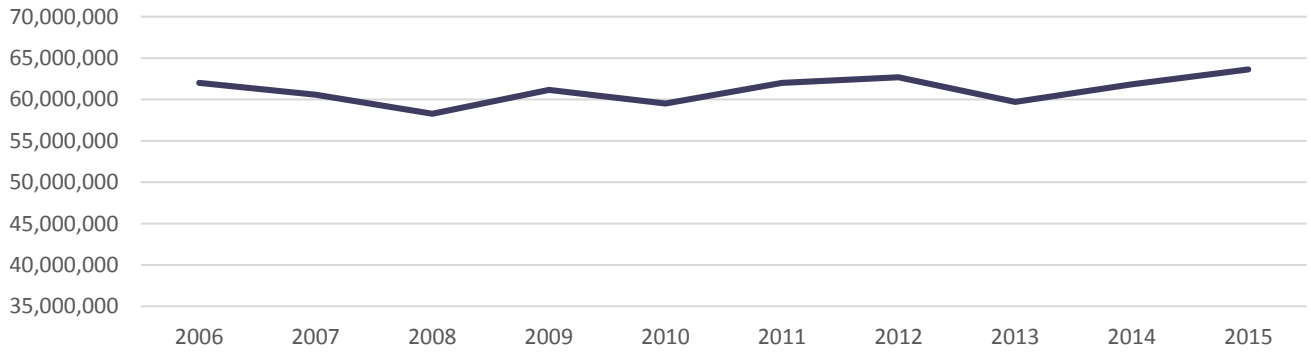


Figure 6-2. Annual Visitation, 2006-2015

Source: NPS Public Use Statistics Office



Annual recreation visitation to park units in the Southeast Region has remained steady over the last decade, rising by a net of three percent, or less than one percent annually (Figure 6-2).

Defining a Visitor:

The Southeast Region views visitors as any individual traveling in a park unit across all modes, recreational or otherwise.

The transportation survey of park unit superintendents conducted for this LRTP development process found that, of 27 respondents, 85 percent expect visitation to grow over the next 10 years. Eleven of those respondents are anticipating visitation will "sharply increase" 10 percent or more. These increases are anticipated to put additional pressure on operations and maintenance resources, law enforcement, parking supply, and land and water trails.

Economic Impacts of Visitation

Annually, the National Park Service estimates the effects of spending at park units nationally. In 2014, it is estimated that visitors spent approximately $15.7 billion dollars, contributing to regional economies through park unit visits.[20] Of that value, $3.6 billion dollars (23%) was spent in the Southeast Region. Across all measures, the Southeast Region has the highest contributions to regional economies of all NPS regions. The spending by Southeast Region visitors supports an estimated $1.9 billion in labor income and $3.1 billion in value added to the regional gross domestic product.

[20] National Park Service, *2014 National Park Visitor Spending Effects: Economic Contributions to Local Communities, States, and the Nation*, 2015. Accessed at www.nature.nps.gov/socialscience/docs/VSE2014_Final.pdf

Transportation-related Visitor Experiences

The National LRTP defines transportation-related visitor experiences as "the perceptions, feelings, and reactions a person has related to transportation before, during, and after a visit to a park unit."[21] Transportation-related visitor experiences (TVE) within national parks are the intersection between transportation planning (e.g., access, mobility, and congestion) and visitor experience metrics (e.g., satisfaction, understanding, and expectations), as illustrated in Figure 6-3. In planning for the potential impact transportation services and networks will have on the visitor experience, all transportation mechanisms and visitor experience metrics should be considered.

The TVE cycle is illustrated in Figure 6-4. The cycle captures all aspects of visitor experiences from Travel Planning, which may happen long before a trip occurs or may never lead to a trip at all, to Recollection.

Transportation can impact visitor experiences in a park unit in many different ways—from complications finding travel information, difficulty traveling to a park unit, poor wayfinding outside and within a park unit, inadequate transportation network, or transportation assets in very poor condition—that are memorable to a visitor in a negative way.

More information on the relationships between visitor experience and transportation, and the benefits of including visitor experience considerations in transportation planning and management, is provided in the WASO Facilities Planning Branch report entitled *Visitor Experience, An Overview for Long Range Transportation Planning* (2014).

Figure 6-3. Transportation-related Visitor Experience

Source: National Park Service, *Transportation-related Visitor Experience Planning: Concepts, Methodology, and Analysis at Park Units and Regional Level,* 2014.

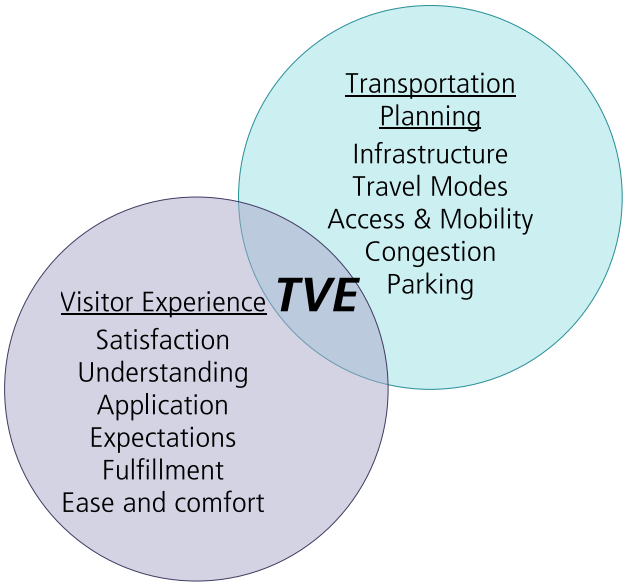
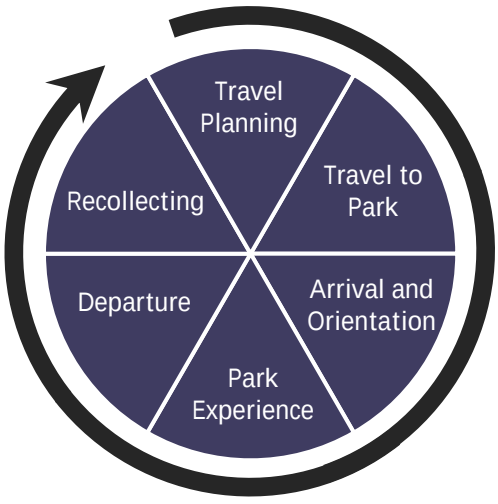


Figure 6-4. Phases of Visitor Experience

Source: National Park Service, *Visitor Experience: An Overview for Long Range Transportation Planning*. NPS Facilities Planning Branch, September 2014.



[21] National Park Service, *National Long Range Transportation Plan,* Park Facility Management Division, 2016, p. 92.

Regional Issues and Opportunities

Visitor Characteristics

Understanding the background and experiences of park unit visitors can help the region make transportation decisions that will meet visitor needs. While visitor experience data and research continue to be a data gap for the Southeast Region, best available data were reviewed to identify visitor characteristic and access and mobility trends for the region.

PLANNED TRIPS

NPS Visitor Survey Project surveys of visitors to 28 Southeast Region park units, conducted between 1991 and 2013, suggest that the majority of visitors are making a specific, likely dedicated, pre-planned trip to a given park unit.[22] As such, the Southeast Region should ensure that appropriate trip planning resources are available to potential visitors.

- Sixty-two percent of visitors are not a resident of the state in which the park unit is located, making them a non-local visitor.
- Approximately half (48%) of visitors reported that the park unit was the primary destination for their visit.
- Sixty percent of visitors were first-time visitors to the park unit, defined as someone who has not visited the unit in at least 12 months.

AWARENESS OF THE NPS

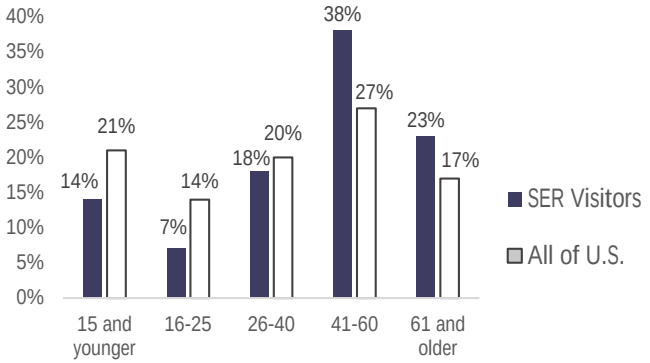
Not all Southeast Region visitors acknowledged an awareness that they were visiting an NPS park unit (23% were not aware that they were in an NPS park unit). This may align with observations during some Focus Park visits and observations suggesting that visitor activities are not consistently aligned with the intended use of the site. For example, some NPS park units in the Southeast Region, such as Kennesaw Mountain National Battlefield Park, are filling the need for a community park.

AGE DISTRIBUTION

Figure 6-5 depicts the age distribution among visitors to Southeast Region park units. As is similar with other NPS regions, the Southeast Region visitor age distribution overrepresents older people and underrepresents younger people when compared to national averages for the US population.

Figure 6-5. Southeast Region Visitor Age Distribution

Sources: University of Idaho Park Studies Unit (28 park units, 1991–2013) and U.S. Census Bureau (2010 data)



[22] University of Idaho Park Studies Unit, 1991—2013. Surveys conducted at the following Southeast Region park units: Martin Luther King Jr. NHS (2013); Stones River NB (2013); Obed WSR (2012); Big South Fork NRRA (2012); Congaree NP (2012); Cumberland Island NS (2012); San Juan NHS (2010); Ninety Six NHS (2010); Chattahoochee NRA (2010); Blue Ridge Parkway (2008); Carl Sandburg Home NHS (2008); Great Smoky Mountains NP (2008); Big Cypress NPres (2007); Fort Donelson NB (2007); Mammoth Cave NP (2006); Fort Sumter NM (2005); Cowpens NB (2003); Everglades NP (2003); Dry Tortugas NP (2002); Cape Hatteras NS (2002); Wright Brothers NMem (2002); Fort Raleigh NHS (2002); Biscayne NP (2001); Cumberland Gap NHP (1999); Jean Lafitte NHP & Pres (1998); Virgin Islands NP (1997); Canaveral NS (1994); Natchez Trace Parkway (1991).

Access and Mobility

Access characterizes visitors' ability to travel to a park unit via the regional transportation network, while *mobility* characterizes visitors' ability to move within a park unit.

Transportation access and mobility can directly impact park visitor experiences. Providing multimodal options where appropriate can enhance the experience by offering a wider variety of visitor experiences. Table 6-1 summarizes some of the key differences among the major modes and highlights some examples of each within the Southeast Region.

NPS Visitor Survey Project surveys show that private vehicles are the primary means of access to and mobility within Southeast Region park units. Private vehicles will likely remain the means by which the majority of people access Southeast Region park units, but there are opportunities to encourage greater use of alternative modes of access and mobility. Respondents to the superintendent transportation survey indicated that at a majority of park visitors have access the park unit by bicycle and on foot, and that about one-quarter of park units have transit and water-based access options for their visitors.

A major hurdle to enhancing access and mobility within the Southeast Region is a lack of data or information to inform decision making at the regional level. The Southeast Region would benefit from a regional inventory of critical access and mobility across all modes.

Congestion

Congestion can negatively impact visitor experience, visitor safety, park operations, and cultural and natural resources. A survey conducted in 2010 as part of the development of an NPS national congestion management program identified 23 Southeast Region park units experiencing traffic congestion.[23] Those parks noted that congestion issues were most prevalent in parking areas, with roadways accessing the parks, visitor centers, and entrance stations being other common locations of traffic congestion.

Congestion issues occur at rural, suburban, and urban park units. Park units in high-density urban areas, such as Martin Luther King Jr. National Historic Site, are often subject to general traffic congestion observed universally in the metropolitan area. Suburban and rural parks can be subject to congestion caused by cut-through traffic on park roads. There are eight parks in the Southeast Region that have more non-recreational traffic on park roads than recreational traffic.[24]

Urbanization and encroachment of development is likely to create more congestion issues among Southeast Region park units. All four counties adjacent to the Chattahoochee River National Recreation Area, located in metropolitan Atlanta, are projected to have significant population increases. This will not only increase the number of visitors to the park, but also the amount of cut-through traffic on park roads.

The wide variation of magnitude, frequency, and locations of congestion at park units requires targeted strategies. The National Park Service is developing a national Congestion Management Plan to help parks, and to help regional offices help parks, in addressing congestion. A congestion management toolkit for NPS parks is available.[25] The next stage of program development is to establish data collection practices, create a help desk for park units experiencing congestion, and identify performance measures for assessing the effectiveness of congestion mitigation strategies.

[23] National Park Service, *Service-wide Congestion Management System—Phase 1: Emphasis Area Identification*, 2011.
[24] National Park Service, Public Use Statistics Office, accessed September 2016. Available at https://irma.nps.gov/Stats/. The eight park units are: Chickamauga and Chattanooga NMP; Cumberland Gap NHP; Fort Donelson NB; Great Smoky Mountains NP; Guilford Courthouse NMP; Kennesaw Mountain NBP; Kings Mountain NMP; and Natchez Trace Parkway.
[25] The toolkit is available at https://www.nps.gov/transportation/pdfs/NPS-CMS_Toolkit.pdf.

Table 6-1. Influence of Mode Choice on Visitor Experience

Source: Adapted from NPS Northeast Region LRTP.

	Benefits to Visitor Experience	Detriments to Visitor Experience
Private Automobile	**Degree of Choice** – includes such factors as choosing travel companions, in-vehicle climate, ability to listen to music, how much and what can be packed, what route to take, and what intermediate stops can be made. **Flexibility** – visitors traveling in their own automobile do not have to conform to a required timetable and can vary their course, time or travel, or sequence of park facilities visited. **Driving for Pleasure** –the visual stimulation which vehicle drivers and passengers receive from observing the surroundings and areas unlike those they normally encounter. **Example: Blue Ridge Parkway, Natchez Trace Parkway, Foothills Parkway (Great Smoky Mountains NP)**	**Automobile Filter** – traveling in an automobile has been found to dilute the travel experience for passengers by placing a filter between passengers and their environment (especially in contrast to active modes in natural and historic surroundings). **Facility Condition** – automobile travel is subject to the condition of roads and parking areas—which park units cannot always control due to lack of ownership or funding—and studies have found that poorly maintained facilities (or unsafe or congested facilities) can detract from visitors' appreciation for scenic views and landscapes. **Parking** – parking availability can be a challenge for private automobiles, especially for those traveling in recreational vehicles/with a trailer in tow, or during peak seasons or times of day.
Bicycling, Walking, and Canoeing	**Level of Access** – visitors can have closer, more personal interactions with park resources when on foot, bicycle, or nonmotorized boat, and at their own pace. **Scale** – visitors can enjoy resources in greater detail and utilize more of their senses while using nonmotorized travel modes rather than traveling by automobile or transit. **Health and Wellness** – active modes offer a form of healthy outdoor recreation and contribute to visitor health and wellness. **Example: Everglades NP, Shark Valley Trail and West Lake boardwalk**	**Level of Physical Effort** – bicycling, walking, and nonmotorized boating are active forms of transportation and are more physically demanding than other options. **Park Coverage** –physical demands and slower travel pace reduces the distance or park coverage that can be accomplished during a visit. **Facility Condition** – poorly maintained trails and pedestrian, bicycle, or boating amenities can detract from visitor experiences for travelers. **Vulnerability to Weather** – poor weather conditions more directly impact visitors who are walking, bicycling, or boating and can be limiting factors for these modes.
Transit Systems	**An Added Attraction** – the transit trip itself can enhance visitor experiences, particularly services that provide entertainment and pleasant views, such as ferry boats or historic trams. **Reduced Stress** – leaving the driving to others can eliminate the stress of driving, wayfinding, and parking, which can improve visitor experiences, especially in congested park environs or park units with remote or limited parking. **Interpretive Services** – friendly and knowledgeable transit or tour operators can enhance transit travel by providing additional interpretive information on the park unit and its resources. **Example: Gulf Islands NS, West Ship Island Ferry, Cumberland Island NS Land and Legacy Tours**	**Service Quality** – the quality of the transit service being provided to visitors—for which the National Park Service may have little, if any, control—including frequency of service, duration or travel time, and cleanliness of the vehicle can influence visitor experiences. **Advance Trip Planning** – using transit to access and travel within a park unit often requires an additional level of advanced planning for visitors (such as acquiring transit schedules and stop locations) and this can detract from the pure spontaneity of park unit exploration.

Meeting the Objectives

Understand the impacts of congestion where it interferes with the visitor experience or where it damages resources

Congestion has been cited as an existing and future threat to the transportation visitor experience; however, this is an area where the region has a somewhat limited ability to act due to lack of data.

Nationally, a Congestion Management Program remains in development. The data and research that result from this effort will better enable the Southeast Region to act on congestion needs.

While the Southeast Region can support national efforts to develop a CMP, the region can also be proactive in identifying congestion deficiencies within the region through park unit congestion management studies.

EXAMPLE PROJECTS

Martin Luther King Jr National Historic Site and Virgin Islands National Park are each participating in congestion management studies. The Washington Support Office is leading both of these efforts to help identify critical congestion needs at each park unit.

Preliminarily, these studies are showing a need for improved wayfinding and parking management at both parks. The ease of access that these improvements could provide would enhance visitor experiences.

Congestion on Cades Cove Loop Road at Great Smoky Mountains National Park

Meeting the Objectives

Consider improvements and ease of access to and within national park units for all park users

Ease of access to and within park units covers a number of potential barriers to travel. Congestion is typically the most easily recognized and, as such, is addressed with a standalone objective (page 6-8). This objective covers other access and mobility issues and barriers.

DIVERSE VISITOR NEEDS

Each park unit within the Southeast Region has potential visitors with unique needs and expectations. Park units should have an understanding of who their potential visitors are and what potential barriers to visitation they may be facing. *A Call to Action* and America's Great Outdoors both encourage the National Park Service to reach out to young, urban, and diverse visitors.

Urban

Park units located in urban areas may have a large number of potential visitors that do not own an automobile or choose not to drive to the park unit. A possible barrier to visitation in this situation could be insufficient regional alternative transportation options.

Visitors with Diverse Backgrounds

Attracting diverse groups of visitors, reflective of the general population, requires community outreach. By working with communities to identify and resolve physical, programmatic, or cultural barriers to outreach, Southeast Region visitation can grow in numbers and diversity.

ACCESSIBILITY

For many visitors, physical barriers present a limitation to park unit access and mobility. The Southeast Region should work with representatives at the park unit level to identify accessibility barriers and propose countermeasures to address existing or potential future issues.

EXAMPLE PROJECTS

Among the comments from the superintendent transportation survey conducted for this LRTP were some that highlighted the need and desire to provide broader access.

- The Jimmy Carter National Historic Site noted that broadening bike-run-walk access to the park will encourage visitors to combine wellness activities into their park visits, support sustainable park visits, and allow people to circulate among the park sites without relying on personal automobiles.
- The Chattahoochee River National Recreation Area needs a bicycle/pedestrian connectivity plan to, among other things, "expand on the growing millennial generation desire to have better bicycle facilities/connections" and expand on a "bicycle tourism" connection to the park from gateway communities.

Meeting the Objectives

Advocate creating a range of appropriate transportation options that provide a network for seamless connections within each park unit and to surrounding communities

Identifying access and mobility gaps in the transportation network is a key first step toward meeting this objective.

Aside from asset databases such as the Roadway Inventory Program and the Facility Management System Software, no inventory of access and mobility connections exists. Closing this data gap is necessary to identify inadequate access and mobility.

Working outside of the Southeast Region, access gaps can, at times, be due to gaps in the regional transportation network. In such cases, the Southeast Region can meet this objective by identifying gaps and working with local stakeholders and partners to identify shared solutions and innovative funding sources to meet mutual needs.

EXAMPLE PROJECTS

Gateway Trail Three-Mile Segment

This project includes the construction of the remaining three-mile segment of Gateway Trail, which will provide regional trail access to Kings Mountain National Military Park for pedestrians and bicycles. This project will use Federal Land Access Program funds through a partnership with Cleveland County, North Carolina.

Foothills Parkway **"Missing Link"**

The "missing link" of the Foothills Parkway is a 1.65-mile long segment of Section E of the parkway. Completion of the missing link project and paving the uncompleted portions of the roadway will create a continuous 33-mile corridor. This will be a valuable step toward the completion of the full 72-mile length of the parkway and an opportunity to expand park unit mobility.

One of a series of bridges that make up part of **the "missing link" of the Foothill**s Parkway at Great Smoky Mountains National Park

Meeting the Objectives

Support traveler information and wayfinding initiatives and, where appropriate, support interpretation and education opportunities

Providing appropriate traveler information is key to a successful transportation visitor experience. Several park units included in the Focus Park visits and represented in the superintendent transportation survey noted a need for improved wayfinding in their park unit.

Wayfinding can be static or dynamic. Static highway signs or local street signs are familiar and can provide a level of comfort in their simplicity for some travelers. Dynamic wayfinding may include electronic signs, highway radio, or data delivered to a smart phone. Dynamic wayfinding has the benefit of being communicated in real time to reflect immediate changes or needs.

A dynamic messaging system that provides real-time information about traffic and parking conditions can difficult to maintain due to the complexity of the monitoring equipment and the availability of reliable power and communications. Commercial GPS navigation software and apps tend to provide good information about regional traffic conditions, but integrating more park-specific traffic, parking and transit information with those services is an important opportunity.

EXAMPLE PROJECT

Natchez Trace Parkway Traveler Information Center

Natchez Trace Parkway has a proposed project for a Traveler Information Station (TIS) to be located at the Ridgeland Craft Center. This area of the parkway is the highest visitor use area on the parkway. There are no visitor contact stations within 60 miles of the Ridgeland Craft Center, so the TIS will be a critical information source for the parkway visitor.

This TIS will inform visitors of the services available at the Ridgeland Craft Center and provide information on subjects such as safety, construction/detours, and interpretation.

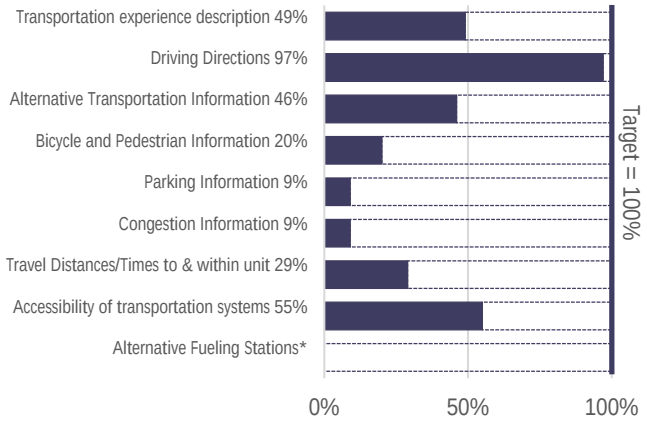
Performance Measures and Targets

The first two performance measures were adopted from the National LRTP to align with the national efforts and show consistency. The second pair of performance measures are unique to the priorities and character of the Southeast Region.

Percentage of park unit websites that provide essential traveler information

As people continue to rely more heavily on digital content and information, the National Park Service has prioritized enhancing website content to include nine key traveler information elements (Figure 6-6). Parks in the Southeast Region are continuing work on updating their websites to include all nine elements, and to make those sites useful for mobile devices.

Figure 6-6. SER Park Unit Websites, Information Provided (2014)
Source: NPS WASO



* No data are currently available on alternative fueling stations.

Percentage of transportation contracts and projects that include accessibility language and are compliant with accessibility-related laws, regulations, and polices

The Southeast Region shares the national view on the importance of considering accessibility requirements on all transportation-related projects and contracts to ensure equitable access and mobility for all park unit visitors and staff. Achieving compliance with standards and requirements including the ABA Accessibility Standards and Sections 504 and 508 of the Rehabilitation Act of 1973 will be an important step in providing equitable access.

Currently, no baseline has been established at the national or regional level.

Complete congestion studies at key locations

This performance measure is unique to the Southeast Region, but is also intended to show support for the national goal of completing Phase II of the NPS Congestion Management Program.

Given that the many Southeast Region park units surveyed for the development of this LRTP noted that transportation congestion is a problem in their park unit, there could be opportunities to support the national effort through pilot studies or data collection.

Identify opportunities and priorities for multimodal (transit or trail) connections between park units and gateway communities

The Southeast Region recognizes the unique visitor experiences associated with providing multimodal transportation options. Over the life of this LRTP, the Southeast Region aspires to develop an approach to improving multimodal connections to gateway communities and identifying park units that are best suited to capture local visitors through multimodal access enhancements.

Table 6-2. Visitor Experience, Access and Mobility Performance Measures and Targets

Performance Measure	National LRTP 5-year Target	SER LRTP 5-year Target	SER Baseline Condition
Percentage of park unit websites that provide essential traveler information	100%	Support National efforts	No SER park units provide all nine elements (2014).
Percentage of transportation contracts and projects that include accessibility language and are compliant with accessibility-related laws, regulations, and policies (ABA)	100%	100%	No Baseline Established
SER PM: Complete congestion studies at key locations	-	One study per year	Two studies underway
SER PM: Identify opportunities and priorities for multimodal (transit or trail) connections between park units and gateway communities	-	Establish approach to improve multimodal connectivity in selected parks	No approach established

SER PM – Denotes performance measures unique to the priorities and character of the Southeast Region.

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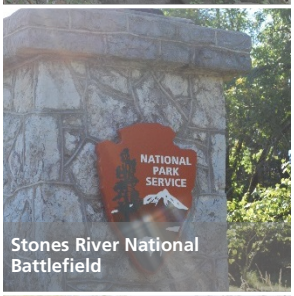
Chapter 7 | **Resource Protection**


Great Smoky Mountains National Park



Stones River National Battlefield


Everglades National Park


Carl Sandburg Home National Historic Site

Goal: Protect and preserve natural and cultural resources.

Objectives:

- Incorporate natural and cultural resource considerations into transportation decision making.
- Support the protection and enhancement of cultural transportation resources.

Upholding the tenets of resource protection takes on different meanings across the National Park Service. On one hand, the agency mission statement requires that "the National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System…" codifying the need to protect park unit resources. Historic parkways, bridges, tunnels, and trails in the Southeast Region are key resources that must be protected. On the other hand, typical park transportation operations and visitor movement on the transportation network can present a threat to park unit resources.

Transportation and resource protection are linked in many ways. Transportation assets can be used to control access, connectivity, and visitation to resources. A transportation asset itself can be historic. An automobile route may be a source of air pollution. Transportation resources can influence the health and condition of natural habitats. Transportation can be used to guide how visitors interact with park resources.

An early morning view of Everglades National Park

Baseline Condition

The baseline condition for transportation-related resource protection in the Southeast Region covers a diverse range of topics, from historic asset management to air quality and greenhouse gas emissions, to roadway ecology and the connection between transportation and the needs of the neighboring environment.

Historic Transportation Assets

Many of the transportation assets in the Southeast Region are historic and culturally significant. In some cases, these assets play a central role in the park experience, such as the Blue Ridge Parkway and Natchez Trace Parkway. Other elements of the transportation network may be deemed historic in their own right or by association with an historic roadway.

Within the Southeast Region, 32 percent of the current replacement value of transportation assets is attributable to historic assets—that is, those that contain some historic or cultural value worthy of historic preservation. This figure includes 31 percent of roadway assets, 29 percent of parking assets, 61 percent of bridge and tunnel assets, and eight percent of nonmotorized assets. In total, there are 1,567 historic assets catalogued with a total current replacement value of $2.8 billion, as shown in Table 7-1.

There is a significant backlog of maintenance on the historic transportation assets in the Southeast Region ($551 million), with the majority ($460 million) on historic roadways. The average FCI for Southeast Region historic transportation assets is 0.20, which indicates "poor" condition.

Table 7-2 shows that the majority of historic transportation assets are found in three park units: Blue Ridge Parkway, Natchez Trace Parkway, and Great Smoky Mountains National Park. This is due to the historic nature of many parkways and auto tour routes. Table 7-2 provides additional details on assets in these three park units by type. With the exception of water infrastructure and assets, the majority of transportation assets of all types are captured in these three units.

Coal cars parked at the historic coal tipple at Big South Fork National River and Recreation Area

Table 7-1. Southeast Region Historic Transportation Asset Inventory Characteristics ($ in 2014 millions)

Source: SER asset inventory derived from National NPS Transportation Asset Inventory. Data date: October 1, 2014.

Transportation Asset Type	Number of Asset Locations	Current Replacement Value (CRV)	Deferred Maintenance (DM)	Facility Condition Index (FCI)	Asset Priority Index (API)
Roads	430	$1,525.3	$459.8	0.30 —Poor	81
Parking	487	$97.1	$28.4	0.29 —Poor	82
Bridge/Tunnel	596	$1,103.5	$61.7	0.06 —Good	100
Nonmotorized	43	$18.6	$0.8	0.04 —Good	81
Water	11	$24.4	<$0.1	<0.01 —Good	63
Grand Total	1,567	$2,768.9	$550.7	0.20 - Poor	88

Table 7-2. Southeast Region Historic Transportation Assets by Park Unit

Source: SER asset inventory derived from National NPS Transportation Asset Inventory. Data date: October 1, 2014.

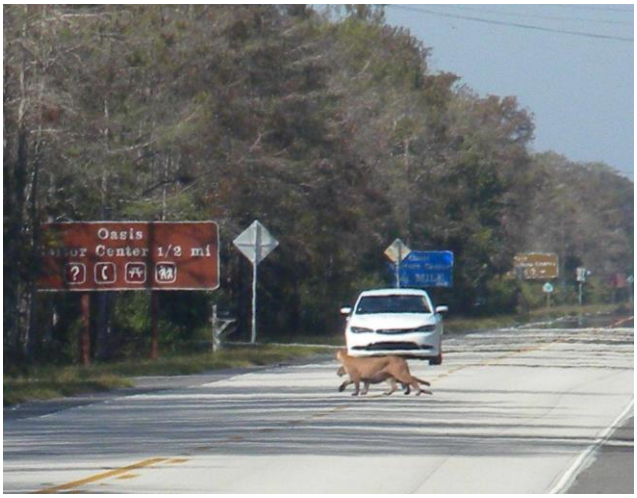
Transportation Asset Type	Blue Ridge Parkway	Natchez Trace Parkway	Great Smoky Mountains National Park	Other Units	Southeast Region Total
Roads	522 miles	503 miles	74 miles	121 miles	1,220 miles
Parking	68 acres	49 acres	<1 acre	10 acres	128 acres
Bridge/Tunnel	104 structures	484 structures	3 structures	5 structures	596 structures
Nonmotorized (trail)	12 miles	3 miles	4 miles	11 miles	30 miles
Nonmotorized (bridge/tunnel)	5 structures	1 structure	5 structures	4 structures	15 structures
Water	2 structures	-	-	9 structures	11 structures

Regional Issues and Opportunities

Wildlife-Vehicle Collisions

Wildlife-vehicle collisions are the most common type of vehicle crash among Southeast Region park units, but the magnitude of impact on wildlife is not fully measured.[26] The wildlife species is not always recorded in crash records and many wildlife-vehicle collisions with no damage to the vehicle are not reported.

Achieving fewer interactions between wildlife and vehicles protects the wildlife, improves visitor safety, and decreases park operation costs in responding to crashes. A key objective of the FAST Act is to improve safety and the legislation includes funding eligibility for projects that reduce vehicle-caused wildlife mortality and restore habitat connectivity. Often roadways that most affect wildlife are not NPS owned and working with partners on wildlife crossings and fencing is needed. This was done at Big Cypress National Preserve on a non-NPS roadway traversing the park.



Panthers crossing a roadway at Big Cypress National Preserve

Development Pressures and Impacts

Urbanization and population growth around park units affect natural and cultural resources through development pressures and changes in the amount and type of visitation.

Development pressures have broad impacts that include increased numbers of commuters using park roads, compromised viewsheds, night sky degradation, and barriers to potential future park expansion. It is important for parks to actively maintain long-term partnerships with regional and local planning agencies so that park issues are understood by all and adverse development impacts can be mitigated when opportunities arise.

Development adjacent to parks in the Southeast Region has also led to more visitors using park units for active recreational opportunities not directly linked to park purpose. Resource impacts from social trails are common at many parks and there can be resource impacts even on designated trails. At Kennesaw Mountain National Battlefield Park a combination of persistently dry conditions and increased trail use has led to trail surfaces being washed away more easily during storm events and resulted in cultural artifacts being exposed.

Parks are addressing active recreational use directly through management strategies and are using the increased visitation as a means of increasing people's appreciation and support of the park. At Guilford Courthouse National Military Park separate travelways have been delineated for pedestrians, bicyclists, and cars on the auto tour road. At Chickamauga and Chattanooga National Military Park there are monthly "historical bike tours" through the Chickamauga Battlefield during which rangers talk about the history of the battlefield. Loaner bicycles are available through support from the park's Friends Group and a local bicycle club.

[26] National Park Service, Servicewide Traffic Accident Reporting System (STARS). Accessed April 2015.

Climate Change

Climate change has been identified by the National Park Service as a critical issue that must be addressed to preserve resources for future generations. This LRTP has considered the impacts that climate change could have on assets, visitors, resources, and funding to the Southeast Region; reviewed potential strategies to address climate change moving forward; and identified vulnerable coastal locations. This chapter considers some of the existing threats that poor air quality and greenhouse gas emissions have on Southeast Region park units and visitors.

AIR QUALITY

The National Park Service Air Resources Division tracks air quality for park units nationally. The 2013 *Air Quality in National Parks* report uses the following measures to characterize air quality in a park unit:

- Visibility – how well and far visitors can see
- Ozone – impacts human health and vegetation
- Sulfur and nitrogen deposition – impacts ecosystem health through soils and waters

Table 7-3 shows that 56 park units in the Southeast Region were reviewed as a part of this study. No Southeast Region park that was reviewed received the rating "Indicator is in Good Condition" for any of the measures evaluated.

Table 7-3. Southeast Region Air Quality Condition

National Park Service, *Air Quality in National Parks: Trends (2000-2009) and Conditions (2005-2009)*, 2013.

	Warrants Significant Concern	Warrants Moderate Concern	Indicator is in Good Condition
Visibility	55	1	0
Ozone	21	34	0
Wet Nitrogen Deposition	48	8	0
Wet Sulfur Deposition	55	1	0

No Ozone indicator was reported for Virgin Islands National Park.

GREENHOUSE GAS EMISSIONS

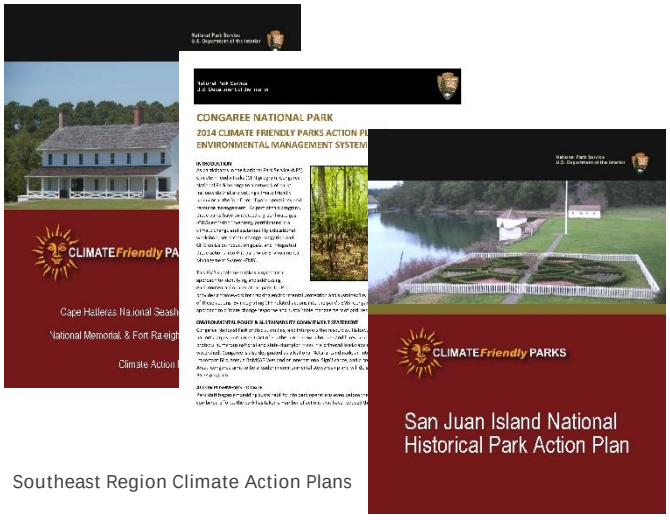
Emissions from motor vehicles and other park unit pollution sources can have direct and indirect impacts on parks. Those parks with substantial levels of congestion on park roadways, those that are adjacent to large metropolitan areas, and those located near coal-fired power plants are most likely to have poor air quality. This can affect the quality of the visitor experience, especially for sensitive populations, and may negatively impact natural and cultural resources within the parks.

While the carbon dioxide and related greenhouse gas emissions have limited short-term impacts, they contribute to the long-term warming of the earth's atmosphere. The warming atmosphere, in turn, has implications for the resources the parks seek to protect. As a result of these long-term impacts and the desire of the National Park Service to be a good environmental steward, the reduction of pollutants and greenhouse gas emissions is an important aspect of resource protection within the Southeast Region.

The following programs provide some opportunities for park units to address greenhouse gas emissions.

Climate Friendly Parks Program

This Climate Friendly Parks Program provides park units with tools to address climate change and pollution issues. This includes identifying sources of greenhouse gas emissions, quantifying the magnitude of their impact on park unit emissions, and developing plans to mitigate such impacts. For more information on this program, see the Environmental Sustainability section in Chapter 3 of this LRTP.



Southeast Region Climate Action Plans

Air Quality Non-Attainment Areas (July 2016)

- Chattahoochee River National Recreation Area
- Chickamauga and Chattanooga National Military Park
- Great Smoky Mountains National Park
- Kennesaw Mountain National Military Park
- Martin Luther King Jr. National Historic Site

Air Quality Maintenance Areas (July 2016)

- Big Cypress National Preserve
- Biscayne National Park
- Blue Ridge Parkway
- Cowpens National Battlefield
- Everglades National Park
- Guilford Courthouse National Military Park
- Jean Lafitte National Historical Park & Preserve
- Kings Mountain National Military Park
- Mammoth Cave National Park
- Natchez Trace Parkway
- Ocmulgee National Monument
- Stones River National Battlefield

Congestion Mitigation and Air Quality Program

The CMAQ program is administered through the Federal Highway Administration and state DOTs and provides funding assistance on projects that will help reduce emissions due to transportation activities. The goal of this program is to bring air quality into attainment with Environmental Protection Agency (EPA) standards across all air pollutants.

Non-attainment areas are those areas where levels for at least one pollutant exceeds the EPA regulation. Maintenance areas are those areas that tend to vary slightly between attainment and non-attainment year by year. Park units in counties meeting either of these designations can apply for project funding through the CMAQ program.

Within the Southeast Region, five parks are located (totally or partially) in air quality non-attainment areas and another 12 parks are located (totally or partially) in air quality maintenance areas as of July 2016. Four park units in non-attainment areas are in non-attainment for two different pollutants.

Innovative Sustainable Transportation Evaluation Process

One foundational step toward better planning for transportation and the environment by the National Park Service is the Innovative and Sustainable Transportation Evaluation Process (INSTEP) Guidance. INSTEP is intended to be a green infrastructure rating system that is applicable to projects within the National Park Service.

INSTEP uses 31 criteria over seven categories to evaluate potential projects through planning, design, construction, and operations and maintenance:

- Project Planning Context
- Natural Resources
- Cultural Resources
- Visitor Experiences
- Energy and Climate Change
- Materials and Construction
- Innovation and Custom Strategies

The purpose of using such criteria is to ensure that innovative and sustainable practices are being incorporated into projects at every step in the planning and design process. Table 7-4 emphasizes how the goals and priorities of INSTEP align with the goals and objectives of the Southeast Region LRTP.

Table 7-4. Influence of Mode Choice on Visitor Experiences

Source: National Park Service, *Innovative and Sustainable Transportation Evaluation Process (INSTEP) Guidance* [Draft]. Denver Service Center – Transportation Division, February 17, 2016.

Southeast Region LRTP Goals	INSTEP Goals
Sustainable Operations —Sustainably manage transportation assets and services	› Improve operational efficiency and reliability. › Provide educational opportunities on sustainability to employees. › Incorporate methods and materials that ensure system longevity.
Asset Management —Allocate transportation funding to ensure the long term viability of transportation systems	› Optimize allocation of financial resources to meet mission critical objectives. › Reduce life-cycle costs and resource consumption. › Encourage new and innovative approaches to sustainable design, and how we operate and maintain our facilities.
Safety —Provide a safe transportation system for all users	› Protect public and employee health, safety, and welfare.
Visitor Experience —Maintain and enhance the quality of the park visitor experience	› Provide for visitor enjoyment and access. › Provide equitable benefits and access to employees and the public to the maximum extent possible. › Provide educational opportunities on sustainability to the public.
Resource Protection —Protect and preserve natural and cultural resources	› Protect, enhance, and restore cultural and natural resources. › Conserve natural resources to the maximum extent possible.

Transportation Resource Stewardship Planning Tool

The Transportation Resource Stewardship Planning Tool (TRSPT), formerly known as the Resource Stewardship Guidance Tool, was developed through the national long range transportation planning process. The purpose of the tool is to use site-specific resource data to guide transportation decision making. The tool compiles data from internal and external resources, accounting for activity on both the local and regional level. The following topics can be evaluated through the TRSPT:

- Context: Protect and enhance natural and cultural resources through the environmentally responsible context-sensitive design and integration of transportation systems.
- Natural: Maintain a high standard of natural resources by identifying, interpreting, protecting, and mitigating impacts.
- Cultural: Maintain a high standard of cultural resource stewardship by finding, interpreting, protecting, and mitigating impacts to all cultural resources.
- Natural Setting: Protect the natural setting of cultural and natural resources.
- Regional Stewardship: Support local and regional efforts to preserve natural and cultural resources.
- Climate Change and Sustainability: Plan for the impacts of climate change and transportation actions to cultural and natural resources through science, adaptation, mitigation, and communication.
- Community: Connect people to parks and help communities protect what is special to them, highlight their history, and retain or rebuild their economic and environmental sustainability.
- Leadership: Provide leadership in protecting and enhancing natural and cultural resources in transportation planning for other agencies.

What makes this tool particularly unique and valuable to the Southeast Region is that an early version of the tool was built using data sources for Southeast Region states and park units. In the current version of the tool, the strategies and outputs could be viewed as "calibrated" to the Southeast Region. A summary of those outputs for the region can be found in the TRSPT Summary Report in the appendix of this LRTP.

Meeting the Objectives

Incorporate natural and cultural resource considerations into transportation decision making

To remain consistent with the mission of the National Park Service, the Southeast Region strives to protect natural and cultural resources, including through transportation projects.

The national long range transportation planning process has led to the drafting of guidance documents such as INSTEP and the TRSPT, both described earlier in this chapter. The intent of these tools are to provide users with greater understanding of resource protection needs and to provide strategies and guidance to support wise decision making.

Beyond this guidance, there is a lack of data surrounding many natural and cultural resource issues.

Key natural and cultural resource issues that were identified through this long range transportation planning process include:

- Wildlife-vehicle collisions
- Development pressures (locally and globally)
- Degraded air quality
- Greenhouse Gas Emissions

Looking forward, the Southeast Region should play a role in supporting the national efforts by piloting and utilizing the provided guidance, providing information to help build these tools, and seeking to develop best practices surrounding transportation decision making related to natural and cultural resource protection.

Solar-powered cart at West Ship Island in Gulf Islands National Seashore

El Morro at San Juan National Historic Site, with the Paseo del Morro in the distance

Meeting the Objectives

Support the protection and enhancement of cultural transportation resources

With approximately one-third of Southeast Region transportation assets being historic, the region has the largest percentage of transportation assets that are historic of all the NPS regions. This is in large part due to the Blue Ridge Parkway and Natchez Trace Parkway.

The mission of the National Park Service is to maintain historic resources for future generations. The Southeast Region exemplifies this tenet through a history of asset management focused on Highest Priority assets and by pledging to uphold that focus in the future.

EXAMPLE PROJECT

Shiloh National Military Park, Repair Road Surface on Hamburg-Purdy Road

Hamburg-Purdy Road is an historic roadway constructed of darkened concrete slabs in the late 1930s that provides multimodal connectivity through the park unit. Currently, the roadway is in poor condition due to severe cracking, pot holes, and storm damage from lightning strikes. Beyond the obvious damage to this historic resource, this also presents a safety concern for visitors. The concrete slabs will be repaired or replaced in kind.

Hamburg-Purdy Road, a historic concrete-slab roadway at Shiloh National Military Park

Performance Measures and Targets

Given the identified deficiencies and needs described, the following performance metrics and targets have been adopted by the Southeast Region to guide decision making over the duration of this long range transportation plan.

Two of the following performance measures were adopted from the National LRTP to align with the national efforts and show consistency across the two LRTPs. The second pair of performance measures are unique to the priorities and character of the Southeast Region.

Condition of Highest Priority historic transportation assets

This performance measure aligns with the objectives of the Resource Protection goal area, which emphasizes the importance of maintaining historic transportation assets in good condition.

The baseline for this performance measure is an FCI of 0.20 for Highest Priority historic transportation assets. The Southeast Region will seek to maintain this FCI as its five-year target for this performance measure.

Percentage decrease in NPS transportation system emissions

Tracking greenhouse gas emissions resulting from transportation and other park unit functions began through the *Green Parks Plan*. The National Park Service has been tracking emissions since 2008 and is observing a downward (reduction) trend.

The region will continue to support this trend through changing their vehicle fleet, advocating for mode shifts by visitors and staff, and reducing vehicle miles traveled. These changes can be facilitated by programs such as the Clean Cities Initiative, which has assisted Great Smoky Mountains National Park, among others, in transitioning to propane maintenance vehicles. Transportation demand management strategies such as rideshare programs and transit subsidies, as well as education and outreach, can help induce mode shifts.

Baseline carbon dioxide emissions, based on a 2008 national inventory, are 27,400 million tons of scope 1 and scope 2 carbon dioxide emissions and 1,100 million tons of scope 3. To be consistent with the *Green Parks Plan* and the National LRTP, the Southeast Region has set a target of reducing Scope 1 and 2 emissions by 35 percent and Scope 3 emissions by 10 percent by the year 2020.

Great Smoky Mountains National Park staff posing with an electric vehicle acquired through the Clean Cities Initiative

Apply the Innovative Sustainable Transportation Evaluation Process and Guidance (INSTEP) tool

In support of the national effort to complete the INSTEP tool, the Southeast Region hopes to pilot applications of this tool on new projects of the appropriate scale and scope to improve resource protection through transportation applications.

This performance measure is contingent on the INSTEP tool being sufficiently complete before piloting can begin.

Validate the outcomes of the Transportation Resource Stewardship Planning Tool for park units in the Southeast Region

The Transportation Resource Stewardship Planning Tool for park units was recently developed in the Southeast Region as a pilot. In an effort to continue supporting national development of the tool, the Southeast Region plans to pilot applications of this tool in the region as projects of the appropriate type and scale are developed and programmed. This will benefit the regional resource protection efforts and provide feedback on the TRSPT for future applications.

Table 7-5. Resource Protection Performance Measures and Targets

Performance Measure	National LRTP 5-year Target	SER LRTP 5-year Target	SER Baseline Condition
Condition of Highest Priority historic transportation assets	FCI 0.18	FCI 0.20	FCI 0.20
Percentage decrease in NPS transportation system emissions (per *Green Parks Plan*) › Scope 1 & 2 › Scope 3	› 35% reduction in $MTCO_2e$ › 10% reduction in $MTCO_2e$	Support National efforts	› 27,400 $MTCO_2e$ › 1,100 $MTCO_2e$
SER PM: Apply the Innovative Sustainable Transportation Evaluation Process and Guidance (INSTEP) tool	-	Pilot on new, large projects, where appropriate	No pilots complete
SER PM: Validate the outcomes of the Transportation Resource Stewardship Planning Tool for park units in the Southeast Region	-	Pilot through two to three park unit projects over life of LRTP, where appropriate	No pilots completed

SER PM – Denotes performance measures unique to the priorities and character of the Southeast Region.
MTCO2e – million tons of carbon dioxide equivalents.

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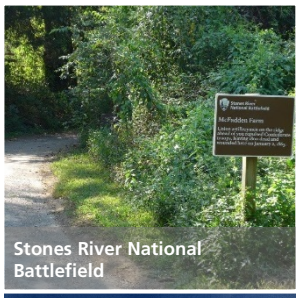
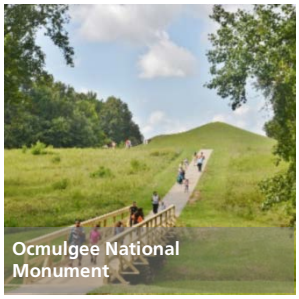
Chapter 8 | **Next Steps**


Stones River National Battlefield


Gulf Islands National Seashore


Ocmulgee National Monument


Cumberland Island National Seashore

Goals:

- Sustainable Operations
- Asset Management
- Safety
- Visitor Experience, Access and Mobility
- Resource Protection

This long range transportation plan, along with the activities and analyses that informed the development of this plan, stands as a milestone for the Southeast Region of the National Park Service. This first-of-its-kind plan represents the region's most concerted effort to date to assess the standing of its broad and unique transportation asset portfolio and define a systematic approach to identifying investments that will help the region sustain those assets in good stead into the future. This plan is intended to be one element of a dynamic, continuous process through which the region assesses needs, identifies challenges, and monitors performance so that it can make as targeted and well-informed investment decisions as possible.

The Southeast Region has identified five goals and an investment strategy that will shape the long-term vision for the region's transportation system. The LRTP goals—Sustainable Operations; Asset Management; Safety; Visitor Experience, Access and Mobility; and Resource Protection—and the supporting objectives are an expression of the core values of the region and frame the region's approach to preserving its assets and optimizing its transportation investments for the next 20 years.

The Southeast Region LRTP investment strategy reflects the current investment practices of the region's transportation network, and aligns with the NPS investment principles of CIS and TCFO by targeting the region's Highest Priority assets and emphasizing investments that will improve asset condition. This investment strategy enables the Southeast Region to provide a keener application of those funds to ensure funding continues to address longer-term financial sustainability of the transportation portfolio priority assets.

The Southeast Region will be challenged to maintain, let alone to improve, the condition of its Highest Priority transportation assets relative to current condition as of 2014. The Southeast Region LRTP investment strategy, however, will serve to sustain the transportation asset portfolio as close to current condition as possible given fiscal realities. Furthermore, the investment strategy represents the way forward for the region to meet its financial sustainability goals in a highly constrained fiscal environment.

The Southeast Region LRTP is largely aligned with the National LRTP goals and objectives. As such, much of the near-term implementation of this LRTP will be to support national efforts on improving transportation asset, safety, and congestion systems and programs. The Southeast Region will benefit from those national transportation management systems and should be an active participant in their development and refinement. In some cases, the Southeast Region can contribute to closing data gaps; in others, the region can test proposed practices and provide feedback from lessons learned.

The next steps for the Southeast Region LRTP entail implementation, monitoring and performance tracking, and updates. It is important that the LRTP programs and policies be monitored to ensure that they achieve their objectives and do so in an effective manner. A scorecard for this LRTP, as with all NPS regional LRTPs, will be completed every two years.

This LRTP identifies a number of strategies intended to guide the region's transportation system investment and management decisions in the short- to medium-term. Those strategies include:

- Implement the Southeast Region LRTP investment strategy for all funding programs, while working to identify new transportation planning partners and funding sources.
- Continue efforts to better understand climate change impacts on the region's transportation assets, identify assets most at risk to extreme weather events and sea-level rise, and incorporate climate change adaptation strategies into project design.
- Continue to build upon the condition assessment programs for trail and transit assets by preparing for asset assessments and utilize resulting data moving forward.
- Enhance the effectiveness of existing asset management systems by ensuring that asset condition data are accurate and up to date.
- Decommission, dispose of, or repurpose unnecessary, redundant, or underused transportation infrastructure.
- Conduct targeted planning-level safety studies at select park units.
- Focus short-term safety efforts on facilities with a demonstrated history of severe crashes while supporting national efforts to improve access to reliable and comprehensive safety data.
- Apply the INSTEP process to future transportation projects when the tool is ready for application.
- Begin reviewing appropriate projects with the Transportation Resource Stewardship Planning Tool.

The main tour road as it passes the Great and Lesser Temple Mounds at Ocmulgee National Monument

In implementing this LRTP, the Southeast Region will reach out to partner agencies at the state and local level to share findings and strategies from the LRTP and will look to increase coordination of transportation planning efforts with those agencies going forward. This coordination takes on even greater importance given requirements in the FAST Act that direct DOTs and Metropolitan Planning Organizations to more explicitly consider climate change impacts and tourism in their respective LRTP and Metropolitan Transportation Plan update processes.

As of the completion of this LRTP, WASO was still working to more precisely determine the impact of the FAST Act on projected available NPS funding and to identify a strategy for the investment of any additional funding made available through the FAST Act. The Southeast Region will coordinate with WASO to incorporate relevant information and financial projections related to the FAST Act into future updates to this LRTP.

As part of the dynamic process of long range transportation planning, periodic updates need to be made to ensure that LRTPs remain relevant and effective. The Southeast Region LRTP will be updated every five years. The updates will reflect changes that impact the Southeast Region transportation network, lessons learned during the implementation of the LRTP, knowledge gained through biannual monitoring, and the results of ongoing national efforts to improve the accuracy and use of transportation management systems.

As the planning process moves forward and evolves through the feedback loop of performance monitoring, needs assessment, progress reporting, and periodic plan updates, future iterations of both the Southeast Region LRTP and the National LRTP can reasonably be expected to reflect an improved capacity to assess the condition and performance of the transportation network and therefore better identify needs and opportunities for targeted and impactful investment.

A kayak along the shore at Everglades National Park