National Park Service
U.S. Department of the Interior

Delaware Water Gap National Recreation Area
New Jersey • Pennsylvania

Delaware Water Gap National Recreation Area

Estimated Lead Agency Total Costs Associated with Developing and Producing This Plan: $236,000

Visitor Use Management Plan

November 2020

August 3, 2020

Park Community,

Delaware Water Gap National Recreation Area and Middle Delaware National Scenic and Recreational River are special places. From 12,000 years ago when humans first inhabited the area to the future generations who will spend time within the park, people have lived in, worked on, traveled through, recreated within and experienced the beauty of the land and the river at its heart.

The Visitor Use Management Plan continues with this progression of providing diverse opportunities while protecting the park's significant natural and cultural resources. This plan has been heavily influenced by your voices and has changed based on your input, thoughts, concerns, and ideas. This is your national park.

The park will use this plan as a guide in future decision making, relying on the science, data, and the strong community voice reflected in this plan to ensure this park remains an important haven.

Thank you for your interest in the park, this plan, and the National Park Service.

Sula Jacobs

Superintendent

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EXECUTIVE SUMMARY

Delaware Water Gap National Recreation Area is a nearly 70,000-acre unit of the national park system located in New Jersey and Pennsylvania. Park lands are almost equally divided between the two states along the 40-mile-long Middle Delaware National Scenic and Recreational River, which is the boundary between the two states. The park is among the top 20 most-visited units of the national park system with an average of approximately 3.8 million visitors annually and is one of the largest parks in terms of infrastructure responsibilities. It is less than a 2-hour drive from New York City and from Philadelphia.

Over the last 10 years, the park has received between 3.5 and 5 million visitors per year. This is about twice as many visitors per year as in 1987 when the General Management Plan (GMP) was completed. Given these changes, updated guidance for providing visitor opportunities and protecting resources is needed. The planning process creates an opportunity for the park to take a comprehensive look at managing visitor use on a parkwide level. It provides an opportunity for the National Park Service (NPS) to assess the current and new/evolving visitor experiences while considering visitor safety, visitor experiences, and resource protection. It also provides specific and up-to-date direction on visitor management and strategies for resource protection within the context of today's visitor use patterns and resource conditions.

The visitor opportunities and related issues at the park are varied given the wide range of recreation activities, resource types, and visitor populations. One of the main reasons to visit the park is to recreate in, on, or near water in a beautiful and relatively undeveloped natural setting. The park offers a wide diversity of outstanding water- and land-based recreation activities, along with educational programming. It is a great place for many to beat the heat and enjoy unique natural and cultural resources with their family and friends, within a short drive from their homes. Many of the visitor use issues stem from the growing popularity of the park, the increased demand from nearby urban areas, and the changing needs of park visitors.

Some of these issues include the desire for visitors to access the water and associated recreation activities in spite of growing crowds, a lack of facilities commensurate with visitor needs and usage, and visitors recreating in areas that may be unauthorized, such as creating their own river campsites and recreational use sites. The park has also experienced increasing numbers of large groups visiting the park in areas currently not designed to accommodate this use, especially in areas with sensitive resources. This disparity between use types and facility design leads to a variety of issues including but not limited to visitor displacement and crowding, resource impacts, and visitor conflicts.

The purpose of the plan is to maximize the ability of the National Park Service to encourage access, improve visitor experiences, and protect the natural and cultural resources of Delaware Water Gap National Recreation Area and the Middle Delaware National Scenic and Recreational River (the park). This planning process examines current and potential visitor activities and services and develops long-term strategies for providing access, connecting visitors to important experiences, and managing visitor use. Many of the park's planning and management documents do not reflect current visitor use patterns and needs, so this plan provides updated guidance for addressing current and future visitor use opportunities, management techniques, and resource protection concerns.

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CONTENTS

Maps

Figures

Tables

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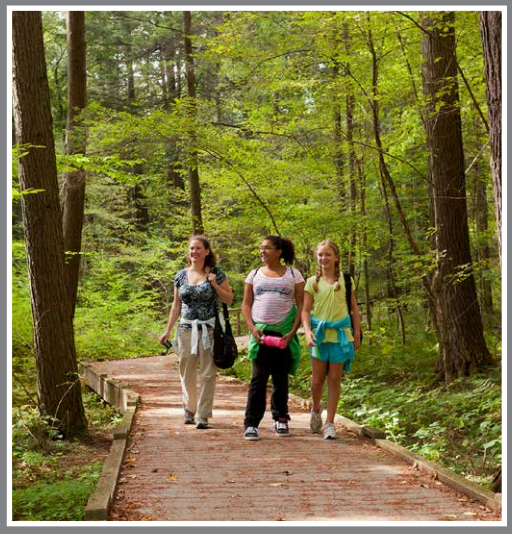
Chapter 1

Introduction to the Visitor Use Management Plan



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CHAPTER 1. INTRODUCTION TO THE PLAN

INTRODUCTION

Visitor use management is the proactive and adaptive process of planning for and managing characteristics of visitor use and its physical and social setting, using a variety of strategies and tools, to sustain desired resource conditions and visitor experiences. Visitor use management is important because the National Park Service (NPS) strives to maximize opportunities and benefits for visitors while achieving and maintaining desired conditions for resources and visitor experiences in a particular area.

This visitor use management (VUM) plan develops a collaborative vision for proactively managing visitor use by aligning visitor activities, services, and experiences with the park's purpose and providing direction for protecting fundamental resources and values. In this plan, visitor use refers to human presence in an area for recreational purposes including education, interpretation, inspiration, and physical and mental health. Visitor use goes beyond the types of activities that people engage in at parks by addressing the dynamic nature of visitor use, including the amount, timing, and distribution of visitor activities and behaviors.

The purpose of the DEWA VUM plan is to determine opportunities for visitors to safely use, experience, and enjoy the park and to develop strategies to concurrently protect resources. The plan will examine management options to support health and human safety, and to enhance the protection of natural, cultural, and scenic resources and values, while providing visitors with opportunities to be inspired through personal connections with those resources.

Over the last 10 years, visitation at Delaware Water Gap National Recreation Area (DEWA or "the park") and the Middle Delaware National Scenic and Recreational River has increased to between 3.5 and 5 million visitors per year, which is about twice as many visitors per year as in 1987 when the General Management Plan (GMP) for these units was completed. As a result, the GMP's visitor use guidance does not adequately address the quantity of visitors who now come to the park, and the quality of visitor experience in the park is eroding. Along with increased visitation, many conditions in the park have changed since then, including undersized or inadequate visitor facilities as well as changing visitor patterns, use, and behavior, resulting in transportation conflicts, parking congestion, and more.

Given these changes, updated guidance for providing visitor opportunities, protecting resources, and streamlining park operations related to visitor use is needed. Through a planning process, the park has taken a comprehensive approach to managing visitor use on a parkwide level. This process assessed the current and new/evolving visitor experiences while considering visitor safety, visitor experiences, resource protection, and operational sustainability. This informed the development of specific and up-to-date direction on visitor management and strategies for resource protection within the context of today's visitor use patterns and resource conditions.

The development of this plan was guided by the following goals and objectives:

1. Minimize and mitigate impacts to the park's natural and cultural resources and visitor experiences caused by conflicting visitor use;
2. Enhance opportunities for the park's key visitor experiences;
3. Assess the appropriateness of current and new/evolving visitor uses while considering visitor safety and resource protection;
4. Align public expectations for use with availability of resources or infrastructure;

5. Increase understanding of existing and emerging visitor interests, visitor use characteristics, patterns, and trends;
6. Manage visitor demand and expectations throughout the park; and
7. Identify and evaluate various visitor use management strategies.

WHY IS THIS PLAN NEEDED?

This plan is needed to address a wide range of uses associated with rapidly growing visitation and changing visitor use patterns. The following statements define and articulate the need to take action:

- **Provide new and more relevant guidance for better managing changing visitation at DEWA**. The types and levels of visitor use have changed substantially since the development and approval of the GMP in 1987.
- **Intentionally plan for and design sites to manage water access.** One of the purposes of the park is to provide water-based recreation. There are relatively few developed sites to sufficiently accommodate this desire and as a result, crowding and dispersal is an issue. The park is a popular spot for large groups to recreate and it currently does not have sufficient facilities to accommodate these large groups. Crowding causes visitors seeking a water-based recreation experience to disperse into undeveloped sites along the river and tributaries. Crowding also creates user conflicts because large groups disperse into low-development areas and come into contact with visitors seeking the nature-based or solitary experience.
- **Address user conflicts by providing a range of recreational opportunities in appropriate variety of settings.** The park has user conflicts that result from a high volume of visitors, crowding, and incompatible uses in the same area, such as conflicts between anglers and swimmers. Other challenges and conflicts arise from parking in high use areas that are full by 9 a.m., stresses to park infrastructure, degradation of natural and cultural resources, and adverse effects on visitors' experiences.
- **Develop effective and sustainable strategies to maximize staff efficiencies to manage and monitor visitor use.** There is a need to identify sustainable management strategies and diversified funding sources to address resource issues and provide quality visitor services over time.
- **Address visitor safety concerns.** An increased number of visitors are engaging in risky and unauthorized activities along the creek trails (such as waterfall jumping) that result in increasing need for technical rescues due to visitor injuries. The remote nature of the incidents usually makes rescue operations difficult and dangerous. Rescue operations also put a strain on local governments and volunteers who respond to incidents within the park.

This visitor use and management plan identifies appropriate uses at locations throughout the park to enhance visitor experiences. The plan sets priorities for resource protection where visitor use occurs. It outlines strategies for managing visitor use and access. This includes identifying the appropriate use of the park's visitor use areas consistent with existing management plans and long-term stewardship. The plan defines resource conditions and visitor uses and experiences to be achieved in the park. It provides a framework for managers to use when making decisions about how

to provide quality visitor use experiences and protect the park resources. The plan also includes strategies for promoting NPS identity at DEWA to associate the park's values with those of the NPS mission.

PLANNING BACKGROUND

In 2014, Delaware Water Gap National Recreation Area completed a foundation document that identified a VUM plan as its highest priority planning need across the park. The park lacked an up-to-date planning and management framework to determine what facilities and infrastructure should be available to accommodate different types of visitor use, and to ensure that visitors are using the facilities and zones for their intended uses (Delaware Water Gap National Recreation Area Foundation Document, 2014). The foundation document also noted that the 1987 GMP zoning and management strategies were no longer adequate or appropriate. Therefore, this VUM planning effort began to amend the GMP with updated guidance for visitor use and experiences.

This visitor use management plan is part of DEWA's "Planning Portfolio," which is a compilation of individual plans, studies, and inventories that together guide park decision-making. The NPS planning portfolio enables the use of targeted planning products to meet a broad range of park planning needs.

Relationship to Other Planning Efforts

The following plans and actions occurring at the park helped inform the development of the VUM plan.

Historic Properties Prioritization Strategy (In Process). The park is developing a historic properties prioritization strategy that would contain strategic maintenance and preservation decisions for the approximately 600 historic buildings remaining in the park. The number and condition of the historic structures exceeds the park's funding and maintenance capabilities. As a result, a long-term strategy is needed to prioritize maintenance and management of the historic properties. This plan will include determinations about which park's historic properties are suitable for new or additional visitor use and a process for re-evaluation of properties if conditions change. A change in condition can include changes in visitor use, needs, or patterns.

Watergate Wetlands Restoration Project (In Process). A project to restore a wetland complex at the Watergate Recreation Site is in the design and engineering phase, with implementation expected between 2020 and 2023. To re-establish wetlands and reconnect Van Campens Brook to its floodplain, a number of dams, berms, ponds, and water diversions would be removed and the picnic area would be relocated. Coldwater angling, picnicking, and hiking opportunities would be improved, and there would be new opportunities for interpretation and education programs. Open-water angling would be more limited, although some small areas of open water would remain.

Liberty–Water Gap Trail Feasibility Study (In Process). A community-based organization is proposing to extend the Liberty–Water Gap Trail, which is currently located adjacent to the park. The proposed extension could include constructing a dedicated pathway through the Delaware Water Gap alongside PA Route 611 to connect the trail to the Borough of Delaware Water Gap and the Borough of Portland. In this scenario, the 911 Memorial Trail would be co-located on the Liberty–Water Gap Extension. Additional planning, design, and compliance would occur in the next five years if the communities decide to move forward with the project.

Delaware Water Gap National Recreation Area Long-Range Interpretive Plan (2015). The long-range interpretive plan describes interpretive themes and visitor experience goals, and recommends ways to achieve these goals. Interpretation is driven by a philosophy that charges interpreters to provide audiences with opportunities for meaningful experiences that, in turn, foster stewardship of resources. Approaches to interpretation have expanded to include a wide variety of methods such as technology, digital media, active learning, and audience-centered experiences. These methods enable DEWA to continue providing opportunities for audiences to find their own connections in the 21st century. The VUM plan builds on the guidance provided in this interpretive plan by adding more specific guidance related to visitor activities and services to view and learn about the park and its resources.

Foundation for Planning and Management (2014). The park's foundation document provides the underlying principles that guide the development of this plan. It identifies what is most important to DEWA (including the park's purpose and significance), notes special mandates and administrative commitments that affect management of the park, and identifies fundamental resources and values within the park. This plan was designed to be consistent with the park's purpose and significance, and ensures the protection of those fundamental resources and values related to visitor use were used to guide the VUM plan. These fundamental resources and values are:

- Middle Delaware National Scenic and Recreational River and Tributaries
- Evidence of Changing Land use, Settlement Patterns, and Lifeways
- Rich Archeological Heritage
- Stunning Scenic Resources and Distinct Aesthetic Values
- Mosaic of Terrestrial and Wetland Habitats
- Sustainable Access to High-Quality Recreational Resources
- Striking Geological Features

The Delaware Water Gap National Recreation Area and Middle Delaware National Scenic and Recreational River Foundation Document (2014) can be found on the park's website (http://www.nps.gov/dewa/getinvolved/planning.htm).

Delaware River Basin Wild and Scenic River Values Report (2012). The Middle Delaware National Scenic and Recreational River contains outstandingly remarkable values (ORVs) worthy of protection under the Wild and Scenic Rivers Act. This plan helps to protect the cultural, ecological, geological, and recreational ORVs as they relate to visitor use. A full discussion of these ORVs is included in the Delaware River Basin National Wild and Scenic River Values Report (2012) available on the park's website (http://www.nps.gov/dewa/getinvolved/planning.htm). This VUM plan uses the desired conditions of the river values as described in this Delaware River Basin National Wild and Scenic River Values Report to ensure that actions taken in this plan protect and enhance river values where they are related to visitor use. For an analysis of how VUM plan actions relate to The Middle Delaware National Scenic and Recreational River's river values see appendix A.

McDade Trail Environmental Assessment (2000) and McDade Recreational Trail Realignment Environmental Assessment (2006). The McDade Recreation Trail is a 32-mile multi-use hiking and biking trail that spans the Pennsylvania side of the Delaware Water Gap National Recreation Area by Hialeah Picnic site to Milford Beach, connecting many popular visitor use sites. Trail construction started in the year 2000 and concluded in 2010.

Delaware Water Gap National Recreation Area Trails Plan Abbreviated EIS and General Management Plan Amendment (1999). The trails plan describes the trail system and related visitor opportunities. The VUM plan builds on the guidance provided in the trails plan and general management plan amendment by amending the trails plan to provide updated guidance for trails management as necessary.

General Management Plan (1987). The general management plan for DEWA provides direction for long-term management of the park including visitor use. Much of this plan is still valid and in effect, including the general measures for the protection of resources and indicators for the general developmental goals. This current VUM planning effort builds on and in some cases amends the guidance related to visitor use management by adding more specific visitor use management guidance (as noted above).

THE PLANNING PROCESS

This plan uses the visitor use management framework to develop a long-term strategy for managing visitor use within the park (figure 1). The general planning process used for this plan is outlined below and is consistent with the guidance outlined by the Interagency Visitor Use Management Council ([IVUMC], www.visitorusemanagement.nps.gov).

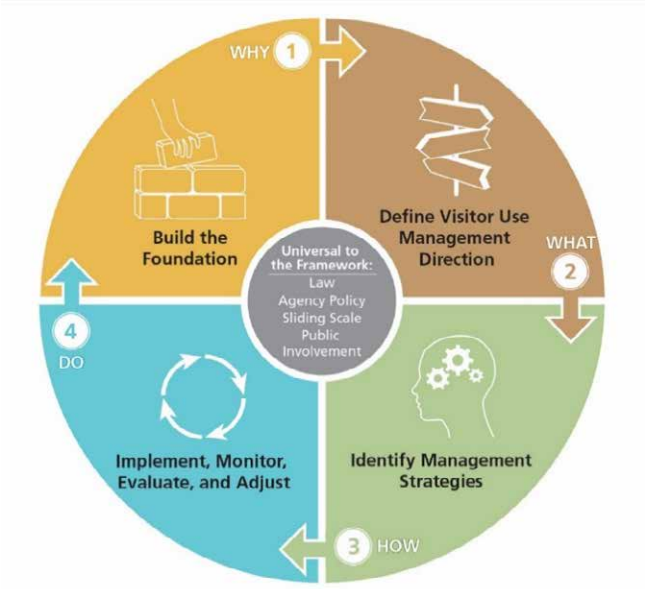

FIGURE 1. VISITOR USE MANAGEMENT FRAMEWORK OVERVIEW

Studies conducted by Clemson University and Virginia Tech University also informed the development of the VUM plan's management strategies. Clemson University researchers collected data to assess visitor experiences, use levels, and visitor's expectations and attitudes towards the park unit and management. Data inputs informed park decisions related to indicators and thresholds for the visitor experience as well as visitor capacities. Data was collected in two phases in the summers of 2015 and 2016. Researchers at Virginia Tech University conducted research, including a review of relevant scientific literature describing visitor impacts, criteria for selecting visitor-caused impacted indicators, monitoring protocols, and reporting mechanisms. The data presented support the selection of indicators and thresholds as a part of the VUM planning process; implications and suggestions for monitoring protocols were also provided.

The management strategies identified in this plan will be accomplished over the years as the plan is implemented, and will be updated and adjusted as needed during the implementation phase. Individual actions directed by this plan will be evaluated for their compliance needs at a time when those projects are ready for implementation.

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Chapter 2

Existing Conditions Summary and Related Issues

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CHAPTER 2. EXISTING CONDITIONS SUMMARY AND RELATED ISSUES

INTRODUCTION

This chapter describes the issues addressed in this plan and summarizes existing information and current conditions related to these issues (e.g., natural and cultural resources and recreation and visitor experience opportunities in the area). Additionally, this chapter provides background information on Delaware Water Gap National Recreation Area, visitor use and experiences at the park, and regional socioeconomic context.

BACKGROUND INFORMATION

Park Description

Delaware Water Gap National Recreation Area is a nearly 70,000-acre unit of the national park system located in New Jersey and Pennsylvania. Park lands are almost equally divided between the two states along and including the 40-mile-long Middle Delaware National Scenic and Recreational River, which is the boundary between the two states. The park is among the top 20 most-visited units of the national park system with an average of 3.8 million visitors annually, and is one of the largest parks in terms of infrastructure responsibilities. It is less than a two-hour drive from both New York City and Philadelphia.

At the southern end of this park, the river cuts a pass through the Kittatinny Ridge, forming the Delaware Water Gap. The diverse ecosystems and landscape features provide unique scenery and experiences for visitors and crucial habitat for plants and animals. Furthermore, the main stem of the Delaware River is the longest undammed river in the eastern United States, and one of the cleanest rivers in the nation due to years of effort to protect and restore it. The park includes a 40-mile segment of the river designated as the Middle Delaware National Scenic and Recreational River.

Delaware Water Gap National Recreation Area's open spaces anchor a multistate greenway corridor, supplemented with other regional protection and preservation initiatives. This corridor preserves essential habitat for the sustained health of plant and animal communities, including special status species, in the region. The park, along with the managing entities of the other Wild and Scenic Rivers Act-designated segments of river, participates in the Delaware River Basin Commission, which manages programs related to water quality protection, water supply allocation and water conservation, regulatory review and permitting, watershed planning, drought management, flood mitigation and loss reduction, and recreational activities for the river and its proximal environments. The park also contains a notable concentration of cultural resources spanning more than 12,000 years of human habitation. Historic structures, villages, and landscapes are found throughout DEWA, many of which are visible from the park's trails and scenic drives. Additionally, the park encompasses substantial American Indian archeological sites.

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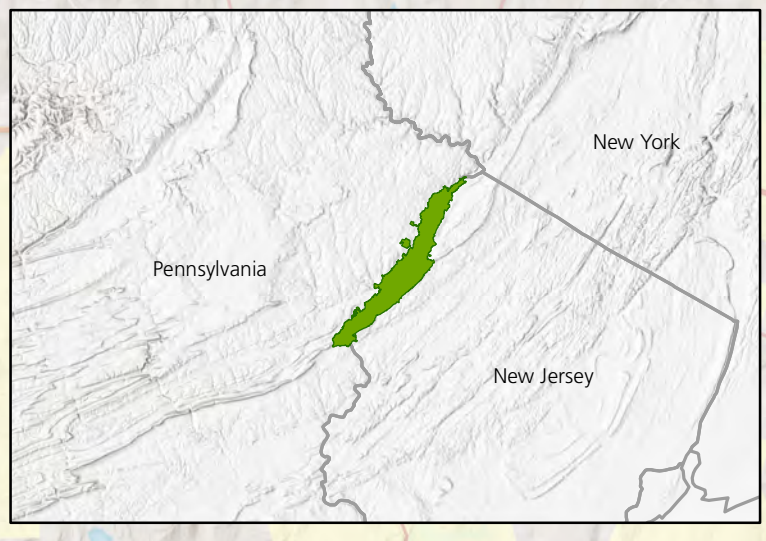
Delaware Water Gap National Recreation Area

Park Overview



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84
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PENNSYLVANIA
NEW JERSEY
DELAWARE STATE FOREST
STOKES STATE FOREST
FLATBROOK-ROY WILDLIFE MANAGEMENT AREA
WALPACK WILDLIFE MANAGEMENT AREA
WORTHINGTON STATE FOREST
DUNNFIELD CREEK NATURAL AREA

Delaware River

Caddoo
Milford
Montague Grange
Cliff Park/Hackers Falls
Foster Armstrong House
Flying Hawks Airpark
Milford Beach
Neldon Roberts Stone House
Zimmermann House/Farm
Namanock
Dingmans Ferry
Dingmans Falls Visitor Center
George W. Childs Park
Kittatinny Camp Lake
Dingmans Falls
Dingmans Ferry Access
Dingmans Camground
Hornbecks Creek
Peters Valley
Camp Hidden Falls
PEEC
Van Campen Inn
Mill Creek
Walpack Center
Eshback Access
Buttermilk Falls
Ames Jennings
Toms Creek
Hemlock Lake (pond)
Bushkill Access
Blue Mountain Lakes
Crater Lake
Long Pine Pond
Crater Lake
Bushkill
Blue Mountain Lakes
Freeman Tract
Flatbrook
Millbrook Village
Hidden Lake
Hidden Lake
Van Campens Glen
Newton
Smithfield Beach
Catfish Pond
Mohican Outdoor Center
Poxono Boat Launch
Hialeah Picnic Site
Turtle Beach
Sunfish Pond
Lower Yards Creek Reservoir
Upper Yards Creek Reservoir
East Stroudsburg
Karamac
Delaware Water Gap
Resort Point Overlook
Kittatinny Point
Kittatinny Point Visitor Center
Point of Gap Overlook
Arrow Island Overlook
Slateford Farm
Columbia
Portland

North

0 5 Kilometers
0 5 Miles

Key Site	Major Road
Town	Major Park Road
Visitor Center	Delaware River
Appalachian Trail	Lake or Pond
Other Trail	State Lands
	Park Boundary

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Regional Recreation and Socioeconomic Context

Tourism and recreation are important economic drivers around the park and in the five-county area including Pike, Monroe, and Northampton counties in Pennsylvania; and Warren and Sussex counties in New Jersey. From 1998 to 2014, travel and tourism employment grew from 27,766 to 39,455 jobs in the five-county region, a 42.1% increase. During this same time period, all other private employment (non-travel and tourism), grew 14.5% in the same region (US Department of Labor 2016). By 2014, 19% or nearly one of every five private-sector jobs in the five-county region was in the travel and tourism sectors. According to the Pennsylvania Department of Community and Economic Development, over 30% of the workforce in Monroe and Pike Counties is employed in the tourism and hospitality industry. Similarly, the New Jersey Division of Travel and Tourism reports that tourism around the Delaware Water Gap National Recreation Area continues to increase (Schutz 2016). In Sussex County alone, tourism supports 15,000 jobs and generates $850 million in direct tourism sales (CVBSC 2015).

Based on 2010 Visitor Services Project (VSP) survey data, the average river visitor group expenditure for day trips was $61 by locals and $102 by nonlocals. For river visitor groups camping outside the park the average spending per night was $153, while those staying in motels spent $259 and visitors staying with friends or relatives spent $67 (Cook 2012). In general, visitors spent about 75% of their total spending outside the park. The 2015 NPS Visitor Spending Effects study (Cullinane & Koontz 2016) estimates that park visitors spent an estimated $125 million and the contribution of this spending to the local economy was $117 million in value added and $184 million in economic output. A 2015 National Parks Conservation Association study estimates that the park supports 2,232 direct and indirect jobs with $219 million in annual sales at local businesses and $97 million in wages and salaries. Additionally, ecosystems services such as water quality, carbon storage, air pollution removal, and carbon sequestration provided by the park have been estimated at providing an annual value of $159 million (The Harbinger Consulting Group 2015).

Visitation to the park directly supports services in nearby communities. River users most commonly used services in Milford, PA (26%), Dingmans Ferry, PA (19%), and Marshalls Creek, PA (18%). Forty-one percent of river user groups stayed overnight away from home in the park or within 20 miles of the park. Thirty-nine percent stayed two nights inside the park, and 33% stayed one night outside the park. The most commonly used accommodation inside the park was tent camping in a developed campground (46%), while the most commonly used accommodation outside the park was a lodge, motel, cabin, rented condo/home or bed-and-breakfast (49%) (Blotkamp et al. 2010). These survey results further support the quality and diversity of recreation experiences offered in the park as well as the contribution visitors make to the economic health of nearby communities.

Canoeists and kayakers may launch from various locations within and outside the park. Many outfitters provide canoe/kayak/paddleboard/tube rentals for personal use on the river while others offer multiday guided trips along the 40-mile river corridor. In general, improved boat launches within the park charge an expanded amenity fee. Car-top launches, which are generally unimproved, are free of charge within the park. There are a total of 65 river campsites within the park. There are two group campsites that have associated fees (Rivers Bend and Valley View). Additionally, the NPS-owned Dingmans Campground currently operates as a park concession. All other river campsites within the park are free to the public. Other than the Alosa River Campsite, which requires reservations, all other river campsites are on a first-come, first-served basis. The other developed campground with access to the river is Worthington State Forest Campground. As of September 2018, 11 liveries, one bike rental, and one rock-climbing company operate within the park under commercial use authorizations (CUAs).

Based on the 2010 VSP survey, Cook (2012) estimated that 1% of river visits (29,751 of 2,975,082 total) were attributed to visitors camping at either concessions or NPS campgrounds within the park. With an average length of stay of 2.1 nights and an average group size of 3.4 people, visitor groups camping inside the park spent an average of $78 per night on overnight trips with almost 70% of this spending taking place inside the park.

Overview of Visitor Use at Delaware Water Gap National Recreation Area

The visitor experience at DEWA is unique within the region. The geographic area surrounding the park became an important leisure retreat for working-class people in the wake of the Industrial Revolution, when an increasing trend in American leisure time spurred a trend in vacationing in western New Jersey and the Pocono Mountains in northeastern Pennsylvania. These two trends were embodied in the legislative history of the national recreation area, which asserts the need to establish publicly owned outdoor recreation areas and open space for city dwellers in the northeastern United States.

The Middle Delaware National Scenic and Recreational River and its tributaries are a defining attribute of the Delaware Water Gap National Recreation Area and are identified by the park as a Fundamental Resource and Value. The river and surrounding landscape support a wide variety of opportunities to enjoy the natural and cultural resources of the park during all four seasons. Another one of the park's fundamental resources and values is sustainable access to high-quality recreation opportunities (Delaware Water Gap National Recreation Area Foundation Document, 2014). Visitors to DEWA participate in a diversity of visitor experiences and high-quality outdoor recreational opportunities including boating, swimming, hiking, hunting, fishing, picnicking, biking, scenic driving, birdwatching, rock climbing, and cross-country skiing. In addition, the park offers more than 100 miles of official hiking trails, including nearly 27 miles of the Appalachian National Scenic Trail. The remoteness found in some areas of the park offers the chance to experience solitude (see Natural Resource and Outstanding Natural Features Zone descriptions), while other areas provide social recreational settings.

Each year, the park and surrounding communities receive an average of 3.8 million recreational visitors. Much of this visitation is from the nearby, rapidly expanding, Greater New York City metropolitan area and Philadelphia greater metropolitan areas. For example, in a survey of visitors conducted in 2010, 90% of visitors were from surrounding states with 40% from New Jersey, 31% from Pennsylvania, and 19% from New York (Blotkamp et al. 2010). This percentage of visitors from the immediate surrounding area speaks to the diversity and quality of recreation experiences that draw visitors to DEWA.

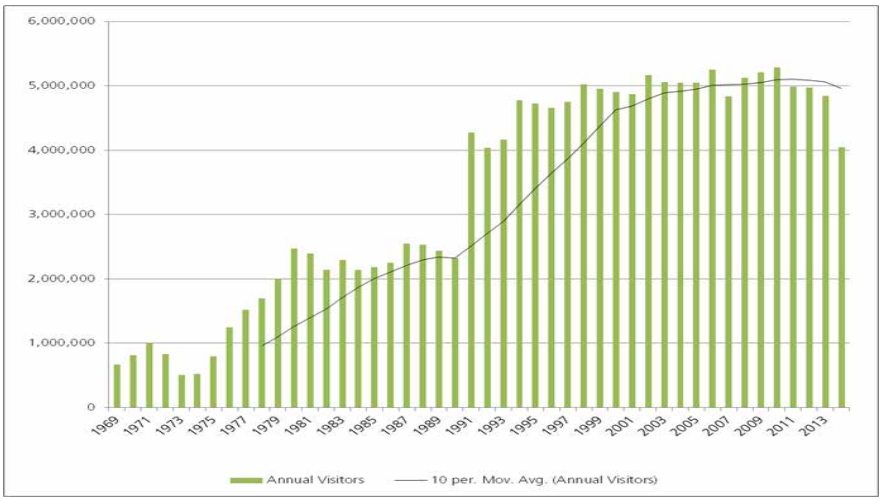


FIGURE 2: DEWA ANNUAL VISITATION 1969 TO 2014

Since its establishment, visitation to the park has generally increased (see figure 2). Average visitation in the 1980s was 2.3 million

visitors per year, which grew to 4.3 million in the 1990s. After 2000, park visitation continued to grow, peaking at 5.2 million in 2010. DEWA regularly ranks in the top 20–30 most-visited parks in the NPS system. Other parks with similar visitation patterns and levels include Acadia National Park, Olympic National Park, Grand Teton National Park, Glen Canyon National Recreation Area, and Glacier National Park.

Delaware Water Gap National Recreation Area and the Middle Delaware National Scenic and Recreational River have a similar visitor use pattern to other large NPS units. Visitation is highest in the summer months and lowest in the winter (see figure 3). As reported in 2015, DEWA's visitation was 4,041,672, which represents 1.3% of visitation of any of the NPS units and 9% of total visits to national recreation areas across the National Park Service.

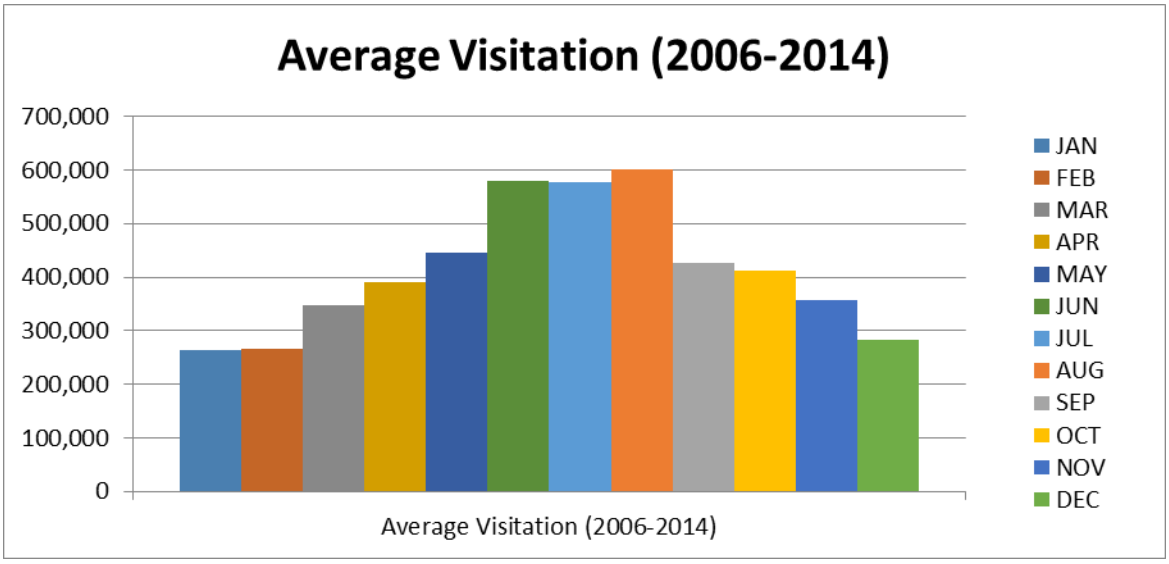


FIGURE 3. DEWA AVERAGE VISITATION BY MONTH (2006–2014)

The following two sections discuss current visitor use patterns and perceptions with regard to this fundamental value of the park.

CONDITION SUMMARIES AND ISSUES ADDRESSED IN THIS PLAN

This section describes the resources that currently have issues related to visitor use management to be addressed in this plan. The descriptions of the resources provided in this section serve as an account of the baseline conditions. The following resources are included in this chapter: visitor use and experience, visitor-caused damage to natural resources, visitor-caused damage to cultural resources, and noise. For this plan, the visitation statistics and other data have been baselined at 2014/2015, the year that the planning effort was initiated to ensure consistency across sources. Additionally, the traffic counters at DEWA have not had stable and consistent reports after this date, which limits interpretability of this data. The park is currently working to update the visitation counting methodology and to repair damaged counters. Where more updated data is available, it has also been reported for additional context.

Visitor Use and Experience

Overall Condition Summary.

Diversity and Quality of Visitor Experiences and Opportunities — In the summer of 2015, the National Park Service conducted a survey of park visitors to understand current visitors to DEWA and their use of the park (see Hallo et al. 2017 for full explanation of data collection methods, results, and discussion). The 2015 survey was implemented during the peak use season and was distributed at both high and low use sites. The survey recorded visitors' perceptions of the diversity and quality of recreation experiences at DEWA as well as the characteristics of a typical visitor and their desired activities.

Visitors expressed that the overall quality of their visit was good to very good, as were the diversity of recreational activities and services in the park. Visitors also felt that the overall quality of visitor services in the park were good, as were the quality of the facilities. The overall quality of recreation opportunities in the park was reported as good to very good. Day visitors to the park stayed an average of 4 hours, while multiday visitors stayed 3 days. In planning their trip to DEWA, visitors found that a recommendation from a person, the park website, and the visitor center were the most useful information sources. While DEWA offers a diversity of recreation experiences, the overall quality of those experiences was reported by visitors as high, with favoritism toward popular destinations along the river. For example, in the 2016 visitor survey (Hallo et al. 2017), visitors reported that current use levels at Smithfield Beach do not reach unacceptable levels of crowding and are below visitor reported preferences for people at one time (PAOT). Often the quality of a recreation experience is directly linked to visitors' perceptions of crowding—at these two sites the overall quality of recreation experiences is likely high. In addition, anglers reported very high overall quality of their visit with 82% reporting good or very good (Hallo et al. 2017). In the DEWA Visitor Survey Card Data Report 72% of respondents reported the overall quality of facilities, services and recreational opportunities as very good, up 8% from baseline.

The diversity of activities available at DEWA is evidenced by the thirty activities listed by members of the public as special things about recreation at the park. These activities demonstrated a range of recreation experiences from visitors seeking solitude and natural quiet, large group gatherings, and whitewater kayaking. Dingmans Falls/Visitor Center, Smithfield Beach, Raymondskill Falls and Milford Beach were the sites most often visited overall, and most frequently, visitors reported that the primary reason for their visit was to experience the river and waterfalls, hike, spend time with their family, and enjoy a vacation. The most common activities, such as walking or hiking, viewing scenery, swimming, scenic driving and paddling on the river are also identified by those surveyed as the most important to them. (Hallo et al. 2017).

Over 75% of hunters report that the overall quality of their visit was good and very good while over 60% report good or very good overall quality of facilities in the park, recreational opportunities, habitat for game, hunting experience, and ability to find a place to hunt without too many other hunters (Hallo et al. 2017).

The overwhelming majority of visitors in the 2016 survey (Hallo et al. 2017) report that they chose to fish at the park because they like the area (72.5%) while over half report alternate reasons such as: it is close to home, they know the area, or the availability of fish is appealing. Well over half of the anglers (63.1%) report (strong agreement or agreement) that the quality of the fishing experience is as good as or better than other fishing areas. Approximately 40% of anglers report it is OK to have fishing rules and regulations that are different where necessary because this is a national park unit. Specifically, anglers rated their level of agreement with the potential for a permit or reservation system that would be used to better manage fishing where necessary: Half of anglers responded

neutral, agree, and strongly agree, with the potential management strategy of a permit or reservation system to manage fishing. Anglers report good and very good overall quality of their visit (82.3%), overall quality of habitat for fish (74.4%), ability to find a place to fish without too many other anglers (76.4%), and overall quality of their fishing experiences (71.9%). Anglers also reported a low perception of crowding at their fishing site with 53.1% reporting not at all crowded, at pull-offs or parking areas (48.6%), and during their entire visit (53.7%). The top three reported issues that present the biggest problem for fishing are the condition of park roads (17.2%), litter (14.3%), and environmental impacts caused by other visitors (11.5%). Consumption of fish from park waters is subject to state public health advisories in New Jersey and Pennsylvania due to chemical contaminants including mercury and polychlorinated biphenyls or PCBs.

Stunning scenic resources and distinct aesthetic values was identified at DEWA as a fundamental resource and value (Delaware Water Gap National Recreation Area Foundation Document, 2014). The Middle Delaware River is framed by the mountains of the Kittatinny Ridge in New Jersey and the cliffs of Pocono Plateau in Pennsylvania. The diverse floodplain includes islands, woodlands, tributary crossings, grassland, and agricultural fields. The adjoining landscape includes steep hemlock- and rhododendron-lined ravines and hardwood forests cut through by streams and waterfalls. Visitors are immersed in the forested and pastoral characters of the area by day and dark skies by night. One of the most iconic features in the park is its namesake, the Delaware Water Gap or "the Gap." Thus, viewing scenery, the river, and/or waterfalls is the most popular activity among frontcountry (71%), river-based (48.5%), and trail-based (73.9%) user groups. 88.5% of front country visitors responded that viewing the night sky without an impact from lights was not a problem. The majority of front country visitors (87.9%) reported that viewing scenery, the river, and/or waterfalls is very important to them, and 79.1% reported that hiking and walking were very important to them as well. The most frequently reported activity engaged in by trail-based users was hiking/walking (84.4% of trail-based users and 73.4% of frontcountry users), and the majority who travel on trails throughout the park were trying to get to the water. Only 5.4% of trail-based users thought the conditions of trails were a big problem, and 73.4% reported that they do not feel at all crowded on trails (Hallo et al. 2017). However, crowding has been observed by park staff in some locations and is leading some visitors to create their own trails/viewing areas away from the developed/hardened sites (crowding is only one of the many reasons visitors create their own social trails).

Opportunities for Visitors to Learn About and Understand the Important Resources and Stories — Opportunities for visitors to learn about and understand the important resources and stories at DEWA take on many forms including birding/nature study, viewing historic sites, viewing scenery/river/waterfalls, scenic driving, and ranger programs. The river and surrounding landscape support a wide variety of opportunities to enjoy the natural and cultural resources of the park during all four seasons. High-quality outdoor recreational activities include canoeing, swimming, hiking, hunting, fishing, scenic driving, birdwatching, and cross-country skiing. The remoteness found in some areas of the park offers the chance to experience solitude, while other areas provide social settings.

Visitors deem opportunities to learn about and understand the important resources and stories within the park as very important. The 2015 survey reported that they most often participated in birding and nature study, and that the largest user group for this activity was frontcountry users (21.3%). Despite a seemingly low participation rate, birding and nature study, as well as ranger programs, are perceived as very important by park visitors (Hallo et al. 2017). User conflicts may particularly be affecting those who are seeking solitude and learning experiences away from other visitors. Especially if visitation increases, some of the sites used for birding and nature study will grow increasingly crowded on the weekends and holidays.

Visitors to DEWA have opportunities to learn about the park's cultural resources and important stories through participation in a variety of other activities, including viewing historic sites. Participation in viewing historic sites at the park attracts about 25% of frontcountry users; 91.3% report that the condition of historic structures is not a problem and that overall, adequate opportunities to visit historic/cultural sites are not a problem at the park. More than 95% of river users and trail-based users report that adequate opportunities exist to visit historic/cultural sites. Each user group reported that this is a very important activity within the park. Trail-based users reported the highest percent importance (67.2%) for opportunities to visit historic/cultural sites, followed by frontcountry users (60.6%).

The 2010 study of river users reported that 90% of park visitors were aware that DEWA was a part of the NPS system and 60% of visitors had been to the park at least once before in the previous 5 years (on average, visitors said they came to the park once a year).The most commonly used information services were the park brochure/map (58%), the canoe and boat launch safety signs (33%), and the park website (33%). Seventy-nine percent of visitor groups rented equipment from a commercial outfitter. Of the 74% of visitor groups that received the pre-trip safety and river orientation briefing, 92% felt it was adequate (Blotkamp et al. 2010).

Issues and Related Conditions.

Crowding — In 2014, almost twice as many visitors came to DEWA compared to 1987, when the park's general management plan was signed and completed. The park's proximity to the growing population centers of New York City, Philadelphia, and northern New Jersey has translated to sustained or increased visitation. Visitor use sites and destinations currently available for visitor use often become full and crowded on weekends and holidays. Many of the visitor use sites and associated facilities were not designed to meet the current visitation and needs of visitors, the level of use they are receiving, and the amount of use visitors would like to see. Some visitors are being displaced because sites are becoming crowded. Some of these displaced visitors are either choosing to no longer recreate at the park or, as mentioned above, are seeking out alternative sites that are undeveloped or finding alternate days or times that are less crowded.

Crowding was reported as an issue during the 2015 visitor survey. Although most visitors reported that the quality of their visits to DEWA was good, with only slight to moderate levels of crowding. 8.4% of frontcountry visitors saw crowding as a big problem, while nearly a quarter (24.9%) reported that it was a small problem and 66.8% did not view it as a problem at all. On average, visitors reported feeling not at all crowded to slightly crowded for all locations including swimming areas, waterfalls, picnic areas, developed and rustic campground sites, while boating, on trails, and just generally during their entire visit. The majority reported that there were adequate designated swimming areas, parking, boat/canoe river access, river-accessed camping, and picnic areas. River users reported visiting Dingmans Boat Launch (41.2%), Smithfield Beach (39%), Milford Beach (38.5%) and Bushkill Access (37.4%) most often, and just under half (42.8%) reported feeling slightly-to-moderately crowded while boating. Trail-based users named the McDade Trail as their most frequented trail recreation site, and 73.4% reported that they did not feel at all crowded on trails (Hallo et al. 2017). Visitors to Smithfield Beach reported that use levels neither reached unacceptable levels of crowding, nor were above visitor-reported preferences for people at one time. The number of visitors enjoying swim beaches may have been affected by DEWA's 1996 decision to adopt and implement the American Red Cross's "25 swimmers per lifeguard" guideline as a means of ensuring safety at these sites. Despite reports of moderate crowding, the Hallo 2015 and 2016 studies found a relatively high number of visitors (between 10% and 20%)
who reported having been displaced as a result of crowds. It should be noted, however, that visitors with a lower tolerance may already have been displaced and were therefore not included in the sample (Hallo et al. 2017).

NPS staff has both observed crowding and received complaints about the issue with respect to a number of sites, including (but not limited to) Caddoo, Ames Jennings, Kittatinny Point, and Blue Mountain Lakes. Complaints often describe undesirable visitor experiences due to the presence of large groups, trash, or other visitors engaging in activities that the reporting visitor believes detracts from their own experience. Increasing user conflicts and the development of visitor-created sites are issues that overlap and are interrelated with crowding.

Visitor-Created Sites — Many visitors come to DEWA to hike, camp, and experience water-based recreation, and are seeking opportunities to access recreation sites—both official and unofficial—along waterfalls, the river, vistas, and other points of interest. Dingmans Falls and Smithfield Beach are key destinations in DEWA, and as popular sites such as these become crowded, visitors begin to seek quieter, less congested areas of the park. In order to accomplish this end, they are creating their own social trails and campsites, causing trampling of vegetation and affecting the quality of the visitor experience and the sense of solitude for other visitors traveling the river corridor. Some of the places where visitors are creating recreation sites and water access points are where river conditions are unsafe for swimming and other water-based activities. This results in increased need for river rescues and the potential for drownings.

Trails — Visitor-created trails often indicate destinations where visitors desire to go, and this situation is particularly evident at Kittatinny Point, Blue Mountain Lakes, and in the Adams Creek area, where a web of visitor-created trails runs about the existing trail, falls and stream. Marion et al. (2015) found that visitor-created trails in the Van Campens Glen area are primarily used to access fishing sites and swimming holes, and a network of visitor-created trails has also been recorded at Dingmans Falls, leading from above the falls area to both sides of the Doodle Hollow section of the stream and further along to Childs Park.

Although over half of frontcountry users reported feeling not at all crowded on the trails (68.9%) and at waterfalls (53.1%), public comment indicates that some visitors seem to be self-displacing at least in part due to crowding. It appears that many of them are trying to avoid crowds and seek individualized experiences, which results in increased visitor-created trails and use sites. An abundance of information about trails (both park and visitor-created) and waterfalls is available on the internet via non-NPS sites—especially through social media outlets—and appears to be driving a portion of this behavior. Visitors are often unaware that their behaviors are causing substantial impacts to natural and cultural resources. The existing trail system at DEWA frequently does not allow visitors the opportunity to avoid crowds or to arrive at their desired destinations, and in the process of avoiding wet areas, creating loop trails from one-way segments, and seeking their desired experiences. In the context of DEWA, these trails can also serve as high public safety risks as visitors may encounter unexpected cliff faces and may follow the trails into unstable areas, unaware of what lies ahead (Marion et al. 2015).

Campsites — A 2015 study of trails and recreation sites found that measurable damage was occurring at visitor-created campsites, particularly at those near the river. Unofficial campsites have been documented scattered about the waterfall area at Adams Creek, and unauthorized camping and fires have been found to have altered vegetation in the Blue Mountain Lakes area (Marion et al. 2015). Although Hallo et al. (2017) found that only a small number of visitors parkwide reported difficulties finding a place to camp in DEWA, a 2015 rapid assessment of the river area by park staff identified 70 visitor-created campsites, indicating that the demand for river camping may be greater than the survey results suggest. DEWA used to have almost double the inventory of river camping sites as are currently available. Many of these were lost due to flooding.

Approximately 21.3% of frontcountry visitors reported camping during their time at DEWA, and 58.7% reported being not at all crowded while using a developed campground site; 42.4% of river users participated in camping, and 81.5% reported that camping was a very important activity. Adequate car-accessed camping was perceived by 92% of river users and 89.6% of frontcountry users not to be a problem in the park. However, river users reported that adequate river-access camping was the biggest issue (11.9%), followed by finding a place to camp on the river (11%), and park staff has reported conflicts resulting from some visitors utilizing river camping sites for day use. Adequate facilities/amenities at campsites were reported by 22.3% of river-based users as a small problem. In addition, notable issues were reported by approximately 7% of visitors and include adequate signage for direction-finding, visitor-caused environmental impacts, and crowds (Hallo et al. 2017).

Visitor Use Conflicts — Given the 1) diversity of visitor activities, 2) crowding at swimming areas, picnic areas and at waterfalls, and 3) increasing visitation, user conflicts are likely to increase. Visitor complaints have already been received concerning a number of sites such as Caddoo, Ames Jennings, Van Campens Glen, and Millbrook Village. Conflicts can be the result of a host of challenges, including crowding, competition for experiences (i.e., lack of opportunity for temporal and spatial visitor experience dispersion), incompatible activities occurring in the same area, variance in desired experience types or motivation, and others. Current conditions at the park do not always allow visitors to achieve their desired experiences (i.e., solitude, spending time with family, etc.), often because incompatible activities are occurring in the same area. This type of user conflict is commonly described in academic recreation literature. Conflicts often arise when participants in one activity may object to the sheer presence or behavior of another type of activity or participant, for example, when boaters and swimmers use same area around boat launches. Another example of conflicts occurs during inappropriate uses of designated areas, such as when a river campsite is used for day use or land-accessed camping. Crowded conditions at sites can also create the potential for visitor conflicts. For example, conflicts between commercial and noncommercial boaters launching at the same access point results from crowding and competition for limited boat launch access. While visitors did not perceive crowding at DEWA's boat launches to be a problem, conflicts have been reported in some locations and serve as an indicator of crowding. Additional safety risks were identified during public scoping, as large numbers of visitors were reported picnicking and recreating off trails, therefore causing visitor conflicts that can result in unsafe visitor experiences.

Two areas of the park that appear to be most affected by high visitation and multiple resultant crowding-related issues are Van Campens Glen and Childs Park.

- **Van Campens Glen.** This area is relatively small in size and current visitation demands are higher than the facilities were designed to accommodate. Many visitors are drawn to the waterfall area and creek pools along this trail. While recreation near waterfalls has been sought after by visitors for a long time, the dynamics of where visitors travel in this area have changed over time. NPS staff have observed an increase in use in the Van Campens Glen area since the early 2000s and a dramatic increase in use in 2011. In 2012, the trail was closed due to safety (e.g., water quality and SAR) and resource concerns (e.g., vegetation trampling). During the 2015 summer season, complaints about the number of people recreating near the waterfall area were received by park staff. According to the complaints and to NPS law enforcement observations, large numbers of visitors picnic and recreate in the woods near the area. Drug and alcohol use has been also observed in this area by NPS staff. In addition, increased visitation creates the potential for user conflicts and poses trash-related safety risks.

- **Childs Park.** Despite this recreation site having been designed to accommodate larger numbers of visitors, NPS staff has observed hundreds of people at one time in the area, which is above its intended use level. NPS staff has also observed an increase in illegal or inappropriate activities at Childs Park, similar to those seen at Adams Creek. Law enforcement in particular has observed illegal activities such as alcohol consumption, bringing barbecue grills outside the designated picnic sites and alongside the creek, wading and waterfall jumping, littering, and improper human waste disposal. Complaints of human waste being present in the area and concern over high numbers of visitors illegally parking along the road and having near misses with oncoming traffic were received during the 2015 season. All of these activities, coupled with the large volume of visitors in the area at once, create high public safety risks.

Boating and Swimming — Some visitors have long sought after swimming experiences that are not in designated swim areas. In recent years, there has been an increase in demand for water-based activities such as swimming in creeks and waterfalls. The cause of this increase is likely threefold: 1) the creeks have cool water that helps visitors cool off on warm days and 2) these areas are free to the public and therefore visitors can swim without having to pay the fee to enter the designated swim beaches and 3) visitors are being displaced from swim beaches when they reach capacity. As visitors search for new places to swim and recreate in water within the park, they are sometimes recreating in places where this activity is not allowed because of resource, safety, or user conflict concerns (e.g., Childs Park). Visitors have articulated concerns over other visitors who are swimming in unauthorized areas such as creeks, some of which may be remote and pose unique challenges for rescue operations and emergency response.

The activities available at beaches and developed areas are some of the most popular at the park. According to the 2015 visitor survey, 47.1% of frontcountry users, 35.2% of trail-based users, and 54.5% of river-based users participated in swimming, and just over 65% of river-based users come to canoe or paddle on their private boats (40.4% with liveries). Another 21.3% of frontcountry users, 16.8% of trail-based users, and 42.4% of river-based users camp, while a large portion also picnicked (38.6% frontcountry, 24.2% river-based, and 26.2% trail-based). The areas where these activities are available are also some of the most popular in the park. In the 2015 visitor survey study, 25% of visitors visited Smithfield Beach during their visit, 22% visited Milford Beach, 13% visited Bushkill Access, and 11% visited Turtle Beach and Dingmans Access, respectively (Hallo et al. 2017). The beaches provide protected river swimming areas where lifeguards are on staff during the summer months. The park follows the American Red Cross guideline of 25 swimmers per present lifeguard to better protect swimmers. All of the developed swim beaches are expanded amenity fee areas. Two of these areas also provide boat and canoe launches that are used by private boaters as well as for launching of boats acquired through livery services.

To encourage visitor safety on the river, the park provides information on designated access points and boating, as well as swimming safety information, in a variety of ways. According to the 2010 river user study, the majority of river users relied upon information provided by the park on land as opposed to information gained while on the river. Park brochures and maps were the most frequent source of information (58%) along with canoe and boat launch safety signs (33%), park website (33%), assistance from park rangers (land-based) (32%) and canoe and boat launch signs and bulletin boards (30%). Canoe and boat launch safety signs were rated mostly as average (26%), good (40%), and very good (28%) in quality (Blotkamp et al. 2010). In the 2016 visitor surveys, many visitors expressed a desire for increased digital information about the park and its resources (Hallo et al. 2017).

During public scoping, concerns were raised over safety at and near boat launches. Individuals cited that recreational users often swim or recreate near launches as vehicles and trailers are loading or off-loading boats. Individuals believe that boat parking lots and boat launch areas should be kept separate from other river access points in order to provide a safe environment. Similar concerns were captured in the comment sections of the 2010 river user study (Blotkamp et al. 2010).

Waterfall Sites — Hiking to waterfall sites and other destinations throughout the park is another very popular activity. During the 2015 visitor survey, 71% of frontcountry visitors and 73.9% of trail-based visitors viewed scenery, river, or waterfalls and 73.4% of frontcountry visitors hiked or walked while at the park. Dingmans Falls was the site most visited by the frontcountry users (44.9%) and the second most visited by trail-based users (35.7%), more of whom visited Raymondskill Falls (50.9%). Forty-five percent of visitors swam during their visit (Hallo et al. 2017). Safety risks at waterfalls and creeks (and the trails that connect them) were identified during public scoping and have been observed by park staff, particularly at Adams Creek. Serious injuries and deaths have occurred as water depths are often variable, making this activity particularly dangerous. The remote locations of some waterfalls provide a challenge not only for the enforcement of rules prohibiting this type of activity, but particularly for rescue operations when accidents occur.

Though Adams Creek does not see a large portion of the overall visitation, it sees more use than the current area was designed to accommodate. It has also become an attractive place for visitors to jump off waterfalls. Visitor-created trails were mapped in the area in 2015 and ". . . are most frequently short side-trails that access locations for swimming, fishing, or jumping off rocks and cliffs into the creek" (Marion et al. 2015). Waterfall diving is prohibited in the area and has resulted in injuries and death. During public scoping, support was given for removing some trails due to resource and safety concerns. Other individuals expressed the desire for waterfall and cliff diving to be allowed. There were 10 technical rescues in 2015 at Adams Creek.

Restrooms/Waste — NPS staff has observed large amounts of trash (including human waste) outside of receptacles, though the existence of adequate restrooms was listed as a small problem by 15% of visitors and a big problem by only 3% (Blotkamp et al. 2010). During the 2015 survey, litter was considered by 10.2% of trail-based users, 10.9% of river users, and 7.2% of frontcountry users to be a big problem. Surveyed visitors in general overwhelmingly reported that the presence of human waste, which can pose serious health risks, was not a big issue (Hallo et al. 2017). Despite the survey results, it is prudent to decrease the presence of exposed human waste. Because beaches, trails, waterfalls, recreation areas, and picnic sites are often where individuals want to visit, restrooms may be unavailable or inadequate for the numbers of users visiting those areas. However, many of the aforementioned sites are within the floodplain, and the construction of additional traditional restroom facilities would be challenging due to frequent high-water events.

Visitor Safety — It is NPS policy to provide enjoyable and safe experiences at NPS sites. While recognizing that there are limitations on its capability to eliminate all hazards, the National Park Service and its concessioners, contractors, and cooperators seek to provide a safe and healthful environment for visitors and employees. If necessary, the saving of human life will take precedence over all other management actions as the National Park Service strives to protect human life and provide for injury-free visits. The recreational activities of some visitors may be of especially high-risk, high-adventure types, which pose a personal risk to participants and which the National Park Service cannot totally control. Park visitors must assume a substantial degree of risk and responsibility for their own safety when visiting areas that are managed and maintained as natural, cultural, or recreational environments (NPS *Management Policies 2006* 8.2.5.1 and DO50-C). Also, as visitors seek out new areas to recreate that don't have the appropriate facilities to support long stays, concerns arise around compromised water quality and its potential associated risks.

According to the 2015 visitor survey, most visitors (94.2% of frontcountry users, 91.1% of trail-based users, and 92.3% of river-based users) do not perceive safety conditions as a problem. In addition, visitors behaving badly or not following the rules was reported as not a problem (79.5% of frontcounty users, 84.6% of trail-based users, and 86.3% of river-based users). However, concerns raised during public scoping focused on the potential for visitor conflicts and visitors participating in activities that are prohibited, such as waterfall jumping or barbecuing near waterfall areas. Incidents of potentially unsafe situations caused by visitor actions have been observed by NPS staff, including alcohol consumption, cliff and waterfall jumping, and parking along roadways. While some factors such as conflicts among visitor groups are not inherently risky or unsafe on their own, they can combine with the physical context of a site or other factors to influence visitor safety. Park management is particularly concerned with safety risks connected with boating and swimming as well as with waterfall jumping.

Visitor-Caused Damage to Vegetation

Overall Condition Summary.

Delaware Water Gap National Recreation Area supports a mosaic of vegetative communities. Much of the park consists of maturing forest, mainly mixed hardwood communities dominated by white oak (*Quercus alba*) and northern red oak (*Q. rubra*) (NPS 2007a). Large unbroken tracts of forest dominated by native oaks, hickories, and pines extend along the upper elevations of the Kittatinny Ridge and Pocono Plateau, while forests dominated by various mixtures of eastern hemlock (*Tsuga canadensis)*, white pine (*Pinus strobus*), maple (*Acer sp.*), birch (*Betula sp.*), ash (*Fraxinus sp.*), sycamore (*Platanus occidentalis*), and other native hardwoods predominate throughout the mid- to lower elevations. Hemlock dominates in cool ravines or on north-facing slopes. (For more details on the park's vegetation see NPS 2007a, 2007b, NPS 2012, NRCS-NPS 2013, Zimmerman et al. 2012, Pennsylvania Natural Heritage Program 2011, and Davis et al. 1991. See also NPS 2015a and 2016a for information on how climate change is affecting the park's vegetation.)

Generally, the riverbanks and the first terrace along the Delaware River contain cold-deciduous forest that is temporarily flooded during the spring thaw. Dominant overstory trees for lowland plant communities include: silver maple (*Acer saccharinum*), white ash (*Fraxinus Americana*) and river birch (*Betula nigra*). Deciduous Appalachian oak forest, dominated by white and northern red oak, found in the lower elevations of the park where soil conditions are moist, is the most common forest type found in the park (NPS 2012).

Several riparian/wetland vegetative communities are in areas frequented by visitors. In more mesic, mid- to lower-elevations, northern red oak/mixed hardwood associations are found in ravines, areas with calcareous bedrock, steep slopes, and floodplains. Eastern hemlock/northern hardwood forest occurs in ravines and north-facing lower slopes in which eastern hemlock is co-dominant with maples and birches.

The upland vegetative communities support a greater diversity of tree species than the lowland communities. Common tree species include: red maple (*Acer rubrum*), white oak (*Quercus alba*), Shagbark hickory (*Carya ovata*), and occasionally eastern hemlock (*Tsuga canadensis*) and white pine (*Pinus strobus*). One of the most common terrestrial forest types found in higher elevations is a mixed forest characterized as dry oak/mixed hardwood forest. This forest type is dominated by deciduous oaks but also contains white pine in the understory (NPS 2012).

The eastern hemlock is noteworthy, being the park's dominant coniferous tree and an important component of the forest canopy of 141 forest stands. The tree has fragile, shallow roots that are vulnerable to erosion and human encroachment among other factors. Hemlocks also have been

weakened by an infestation of hemlock wooly adelgid (*Adelges tsugae*), an insect from Asia. It is estimated that approximately 35% of the hemlock trees in the park have been lost due to the hemlock woolly adelgid in the past 20 years (NPS 2014b). In addition, hemlocks are stressed by drought and severe storms (related to climate change) and secondary pests. As a result, hemlock is declining throughout the park, most noticeably on the mid-slopes along the Kittatinny Ridge. The shallow rooted and weakened vegetation also has resulted in sloughing during rain events, and reducing shade for species such as fish.

Some ongoing vegetation management activities including native grass restoration, agriculture permits, prescribed fire, biocontrols released for invasive plant management, roadside vegetation management, and herbicide treatments of invasive species along trails, in fields, and at wetlands have helped to restore and maintain native vegetation communities.

Issues and Related Conditions.

Visitors have been affecting DEWA's vegetation for many years (see Cole and Marion 1987, Cole and Marion 1988, Marion 1995, Marion and Cole 1996, Marion et al. 2015). Visitor-caused damage to vegetation has been observed in many areas, including: Adams Creek, Raymondskill Falls, Van Campens Glen, Dingmans Falls, Caddoo, Namanock Recreation Site, Freeman Tract, Hidden Lake, and the Blue Mountain Lakes area. Visitors are affecting the park's vegetative communities by trampling vegetation, devegetating areas, compacting and eroding soils, and exposing mineral soil.

As use of the trails has increased, park staff has observed an increase in visitor-created trails and visitor-created trail modifications throughout the park. Visitors seeking access to drainages, lakes, waterfalls, vistas, and other sites of interest often have created their own trails, in the process eroding soils and damaging vegetation. Soil erosion is clearly evident on certain trails, particularly those with steep grades, which in turn damages plants growing along the trails and inhibits the restoration of vegetation. Visitor-created trails, such as near waterfalls, have resulted in soil compaction and increased erosion (which can adversely affect vegetation), and vegetation damage, and loss. Some examples of visitor impacts to vegetation and soils along trails are noted below:

- In the Adams Creek area, a network of visitor-created trails exists at the beginning of the trail, near the falls area, along some of the stream, and above the waterfall areas, which has denuded vegetation. Multiple disturbed areas exist at and leading to the falls. Visitors have also damaged young trees and eroded soils at various places along the trail. Marion et al. (2015) documented five of six sites in the Adams Creek area with nearly complete loss of vegetation cover and obvious soil erosion. A few damaged trees, tree stumps, trees with exposed roots (an indicator of soil loss), and some visitor-created trails were also recorded.
- At popular waterfall sites such as Raymondskill Falls and George W. Childs Park, visitors going off trail and creating their own access above the waterfalls have been affecting the growth of vegetation. Deer fencing has been installed to help protect the vegetation and promote growth at these locations.
- In the Van Campens Glen area, soils have been compacted by visitors along the trail and streambanks, preventing native vegetation from taking root. Visitor-created trails have been established from the road to gain faster access to the falls. Some sections of these visitor-created trails are very heavily eroded; other are heavily covered with nonnative plant species.
- At Dingmans Falls an extensive web of visitor-created trails exists above the falls area leading to the Doodle Hollow section of the stream (on both sides of the stream) and beyond to Childs Park. Vegetation has been lost and damaged due to trampling above the falls, and a high level of erosion has occurred in this area.

Many of the observed visitor impacts to vegetation are occurring in riparian areas. Some visitors are looking for river access points that are away from the crowded beach areas to find quieter areas and/or to avoid the fees associated with the developed beach sites. This increased use of undeveloped areas has resulted in damage to riparian vegetation along the river as well as creeks and streams.

While creek swimming has always been popular, the number of visitors engaging in this activity and the number of creeks being used as swimming holes have been increasing. Larger groups congregating along the fragile creek environments to swim, picnic, and socialize are staying for extended periods of time or entire days rather than hiking through and jumping in for a quick swim. The extended-stay visitors often trample and crush riparian vegetation along the creek banks to the point that it cannot recover.

Visitors have substantially altered vegetation in the existing river campsites. Marion et al. (2015) documented 67% of the five campsites they studied with vegetation cover lost in primary use areas, and 33% with nearly complete loss of vegetation and litter cover. Exposed soil, some damaged trees, tree stumps, and visitor-created trails were also recorded in the area of the campsites. Campers have also taken all of the downed wood they can find and used it for campfires, or they have cut down live shrubs and trees, primarily saplings, when downed wood is no longer available.

Visitors on river trips also have damaged vegetation and riverbanks by creating unauthorized campsites. Although the number of official river campsites available for use has decreased (from 90+ in 2004 to 65 in 2015), demand for river camping has not decreased. In 2015, park staff recorded 115 occurrences of unauthorized campsites along the river. When visitors create their own campsites they trample native vegetation, cut trees, scar trees' branches, expose roots, erode soils, create trails, and leave fire scars (which will be evident for many years). (NPS staff, pers. coms, April 3, 2017; see also Marion et al. 2015).

In some areas, vehicles are being driven off-road, which is prohibited in the park. This activity results in a loss of understory vegetation. For example:

- At the Namanock Recreation Site, visitors have driven their vehicles and parked in unauthorized areas, crushing and destroying vegetation, as well as causing erosion, which limits the ability of native plants to regrow.
- In the Freeman Tract, visitors have altered the vegetation by driving off-road vehicles (which has resulted in erosion, tree cutting, and vegetation damage), and have widened the road prism by avoiding potholes.

In addition to direct impacts, visitors are likely having secondary or indirect effects on the park's vegetation. With increased numbers of visitors walking off trails, in heavily used areas visitors may be contributing to the loss of already weakened hemlock trees, eroding soils on steep slopes in ravines and adding stress to the trees and their shallow roots. In addition, visitors may create a more hospitable environment for nonnative species, such as multiflora rose (*Rosa multiflora*) and Japanese barberry (*Berberis thunbergii*), by compacting soil and trampling native vegetation.

Taken together, all of these visitor-caused vegetation impacts have the potential to negatively affect the park's fundamental resources and values of "Mosaic of Terrestrial and Wetland Habitats."

Visitor-Caused Damage to Archeological Resources, Historic Structures, Districts, and Cultural Landscapes

Overall Condition Summary.

DEWA's cultural resources include some of the region's richest examples of cultural heritage of the Upper Delaware River Valley. These places and sites provide evidence of the changing land use, settlement patterns, and lifeways of American Indian settlements, European settlements of Dutch and English settlers who arrived in the region beginning around 1650, and stretching through the formation of the park in 1965. Throughout the valley examples of landscapes, structures, and archeological resources illustrate the changes in use and economic drivers in the region throughout the centuries. Some of the evidence of land use changes and settlements include agricultural landscapes and associated buildings, ruins of water-powered mills, Delaware River-based resorts and camps, historic villages, and the Old Mine Road Historic District that preserves one of the oldest commercial roadways in the northeastern United States.

Delaware Water Gap National Recreation Area has a high density of archeological resources throughout the park lands. The park documents approximately 12,000 years of human use and adaptation and contains the most well-preserved concentration and intact diversity of known archeological sites and artifacts in the northeastern United States. Archeological surveys conducted on park lands have resulted in the discovery of many prehistoric and historic archeological sites. The park's complex of sites is the best preserved in the northeastern United States, making it a high-value research area for archeologists and geoarcheologists to study the rich archeological heritage of the park. The park's foundation document identifies "Rich Archeological Heritage" and "Evidence of Changing Land Use, Settlement Patterns, and Lifeways" as fundamental resources and values that include archeological resources.

Issues and Related Conditions.

Delaware Water Gap NRA's rich cultural resources are being damaged, unintentionally and intentionally, by visitor activities in the park. These resources are vulnerable to illegal activities by individuals who target unmonitored archeological resources and historic structures and by the actions of visitors unaware of the permanent damage caused by unauthorized activities.

Although park staff works to protect archeological resources to the greatest extent possible, monitoring data indicates that there has been an increase in non-permitted digging and looting of archeological resources in recent years, particularly in the remote areas where monitoring is less frequent. Because the park has a high density of archeological resources, visitor-created trailing (cutting trails into the ground to access the river) and unauthorized campsites are exposing and causing damage. Illegal off-road vehicle use tears up the ground and has caused irreversible damage to archeological resources by scattering or damaging a site's associated features. In many cases, visitors do not realize that these actions cause irreversible damage to the park's archeological resources. Impacts to archeological resources include removal, damage, or dispersal of artifacts and characteristics that may diminish their level of integrity as it relates to their eligibility or listing in the National Register of Historic Places (National Register). These impacts are permanent due to the nonrenewable nature of cultural resources, and could result in an accumulation of adverse impacts to archeological resources across the park over the long term.

Most of the park's 611 historic structures are in fair to poor condition. In some cases, these conditions have been exacerbated by human-caused damage. Currently, park staffing and funding constraints limit the number of historic structures that can be monitored and maintained for historic uses. Consequently, many historic structures remain unoccupied, making them vulnerable to damage. Damage to historic structures and cultural landscapes includes theft and the removal of

historic materials and/or character-defining features of National Register-listed or potentially eligible resources. The current levels of vandalism involve illegal activities such as unauthorized access, graffiti, broken doors and windows, and other forms of damage to buildings, structures, and associated cultural landscape features. Examples of theft include the removal of copper pipes, rock walls, stones, and other historic architectural features. Damage also consists of both intentionally and unintentionally set fires (including two documented arsons in the last 10 years) to historic structures throughout the park.

The negative impacts to the integrity of historic buildings, structures, and landscapes are compounded by a high level of deferred maintenance and repair needs parkwide. Historic structures, historic districts, and cultural landscapes in the remote locations of the park are more vulnerable to these illegal activities because those areas have less of a staff presence (NPS or partner), or receive fewer law enforcement patrols or staff monitoring. Thus, unmitigated and unmonitored visitor activities result in continued damage and historic material loss over time. As a result, many historic structures, historic districts, and cultural landscapes are deteriorating at a faster rate than they would be with regular repair and maintenance.

Noise

Overall Condition Summary.

The soundscape at Delaware Water Gap National Recreation Area varies across the landscape, with a variety of audible natural sounds depending on the location. Visitors have an abundance of opportunities to hear diverse natural sounds that not only enhance visitor experience, but also serve a critical ecological role. Natural sounds at the park range from wildlife calls and insect chirps to sounds produced by physical processes, such as wind rustling leaves on trees, thunder, and water moving through rivers, creeks, and streams within a park. The sound of flowing water from the Delaware River and waterfalls in the surrounding tributaries are common sounds year round. These sounds add depth and meaning for visitors, as does the opportunity to experience natural quiet.

Issues and Related Conditions.

Visitors have been affecting DEWA's soundscapes for many years through introduction of intrusive and other human-induced noises. Noise refers to sound that is unwanted or extraneous because of its effects on humans and wildlife or its interference with the perception or detection of other sounds. Specifically, noise from traffic, unmanned aircrafts, and park users intrude on the soundscapes of the Appalachian Trail, other hiking trails, and public use areas including the beaches and the Delaware River. The National Park Service recognizes that some human-caused sounds are inseparable from park purposes, resource protection, and visitor access and enjoyment; however, intrusive sounds are of concern to the National Park Service because they sometimes impede the ability to accomplish its mission. Intrusive sounds are also a matter of concern to park visitors. The opportunity to experience natural, cultural and historic sounds is an important element of many visitor experiences in national parks.

Studies have shown that, in addition to their effects on humans, intrusive and other human-induced noises can result in adverse physiological and behavioral changes in wildlife communities. For example, some sound sources have been associated with increased stress levels, as well as suppression of the immune system in wildlife. Additionally, increases in ambient noise levels may interrupt communication networks of insects, birds, and mammals, which are necessary for survival and reproduction. Specifically, wildlife communications may signal readiness for mating, danger from predators, and territorial claims (NPS 2010).

Personal stereo systems and speakers — As use of park recreation sites has increased, park staff have observed that large groups of visitors are bringing in personal stereo systems and speakers to play music at beach sites, picnic sites, and some popular swimming holes. For visitors trying to achieve solitude or enjoy natural soundscapes, these non-natural sounds interfere with the quality of the experience. For example, in the Van Campens Glen area, visitors using the waterfalls as a day use area sometimes play music so loudly that the sound can heard from the parking lot almost all the way to the end of the trail, disturbing hikers who are trying to enjoy natural soundscapes and experience solitude (NPS staff, pers. coms, August 11, 2015). Public use areas along the river such as beaches and developed access areas are often sources of noise, as during the summer the river can become busy with motorboats, anglers, large groups of canoers and kayakers, and beachgoers. Park staff have received complaints from park users about the volume at which other groups of visitors play music on personal stereo systems and speakers at those sites (NPS staff, pers. coms, August 18, 2015).

Traffic — Additionally, traffic noise from US Route 209 and I-80 can be heard at various public use areas, particularly affecting Kittatinny and the gap area, and is also audible from parts of the river, Dingmans Bridge, the Rt. 206 Bridge, and various hiking trails throughout the park. Increasing visitation and population growth in the area surrounding the park has led to more passenger traffic on US Route 209 and I-80, resulting in greater levels of noise from traffic. In addition to negatively impacting natural soundscapes, this noise affects the quality of experience for visitors trying to enjoy quiet and solitude along the river and trails.

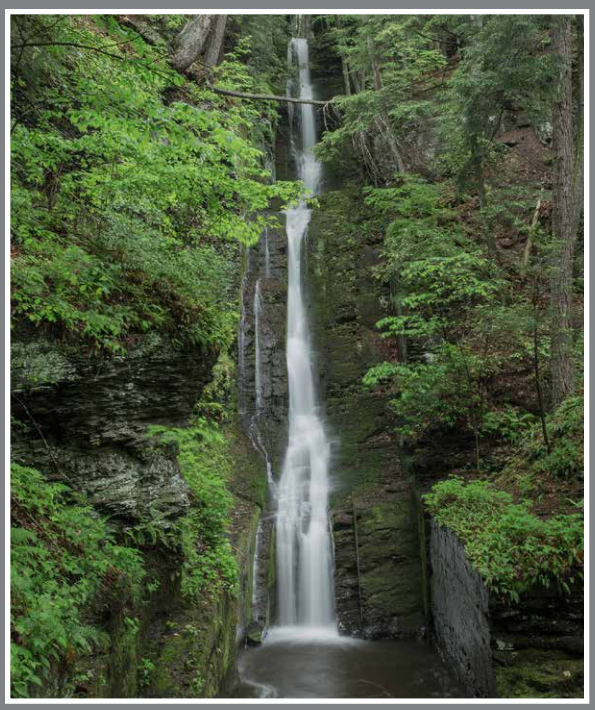
Model airplanes — Noise from model airplanes being flown in the park also negatively impacts soundscapes and interferes with visitors' sense of solitude. The 1987 General Management Plan authorized two areas in which model airplanes could be flown—Hialeah Airpark (currently closed) and Tocks Airpark (now called Flying Hawks Airpark). Noise from model airplanes at the Hialeah Airpark can be heard at several of the most popular recreation sites at the park, including Smithfield Beach, Turtle Beach, and the historic River Road, negatively impacting the visitor experience at those sites. Additionally, noise from Flying Hawks Airpark can be heard by hikers on the Cliff and McDade Trails or kayakers and boaters on the Delaware River trying to enjoy natural experiences within the park.

Noise from model airplanes may also cause behavioral changes in park wildlife. Mulero-Pazmany et al. (2017) performed a review of the existent literature about animals' responses to unmanned aircraft systems and noted that 1) larger unmanned aircraft sizes and fuel-powered engines provoked the strongest reactions in wildlife; and 2) birds are more prone to react than other taxa. In the spring of 2018, peregrine falcons attempted to nest in the Milford Cliffs directly above the Flying Hawks Air Park. Park staff monitoring the nest noted that when the model airplanes were flying, the peregrines could not be seen (NPS staff, pers. coms., March 6, 2018).

Taken together, all of these visitor-caused impacts have the potential to negatively affect the fundamental resources and values of the park, including the "Sustainable Access to High-Quality Recreation Opportunities."

Chapter 3

General Visitor Use Management Direction



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CHAPTER 3. GENERAL VISITOR USE MANAGEMENT DIRECTION

INTRODUCTION

This chapter outlines the general visitor use management direction for the park. The general management plan for DEWA provides high-level guidance on how the park will be managed. This chapter expands on the GMP and answers the question "what are we managing for?" with regard to visitor use management. This includes descriptions of park zoning, goals, and desired conditions. Additionally, this chapter documents the necessary and appropriate determination for commercial uses and services and criteria for evaluating new and emerging uses.

DESIRED CONDITIONS

Desired conditions are defined as statements of aspiration that describe resource conditions, visitor experiences and opportunities, and facilities and services that an agency strives to achieve and maintain in a particular area. They help park managers answer the question "what are we trying to achieve?" Desired conditions focus on fundamental resources and values; the visitor experience opportunities associated with them; and the types and levels of management, development, and access that would be appropriate in a particular location. The goals and desired conditions for this plan were based on guidance from previous planning efforts and other NPS policies and guidance. The desired conditions for zones articulate what kinds of experiences and opportunities should be provided for specific areas of the park (these are presented in the "Zoning" section of this chapter below).

Goals and Desired Conditions for Fundamental Resources and Values

As an integral part of Delaware Water Gap National Recreation Area, visitor use management helps protect the park's fundamental resources and values (FRVs), as described in the foundation document). The following goals and desired conditions, specific to visitor use, have been developed for these fundamental resources and values as part of this comprehensive planning effort. Please refer to the foundation document for a description of each fundamental resource and value identified below.

Middle Delaware National Scenic and Recreational River and Tributaries.

Goal: Visitors can experience miles of mostly undisturbed shoreline, high-quality water, and natural landscapes that provide for an exceptional visitor experience that is consistent with the values for which the river and streams were protected.

Desired Conditions:

- Visitors have safe designated access to water resources and appropriate water recreational experiences.
- The visitor experience is consistent with the protection of water resources.
- Visitor facilities will not impact the scenic character of the park including the river corridor, scenic driving, and other visitor use sites.
- Water quality will be maintained consistent with state and federal law, NPS policies, and the anti-degradation protections designated by the Delaware River Basin Commission.

- Visitors are provided an opportunity to understand the benefits of the substantially undeveloped river corridor in the most densely populated region of the United States through a variety of interpretive services.
- Species dependent on these waters will be protected from impacts.

Evidence of Changing Land Use, Settlement Patterns, and Lifeways.

Goal: Provide visitors with the opportunity to experience and gain an understanding of the landscapes, structures, and history that illustrate the changes in use and economic drivers in the region through the centuries.

Desired Conditions:

- The integrity of cultural resources (historical, archeological, and ethnographic) is safeguarded to preserve significant attributes and uses that contribute to historical and architectural significance.
- Cultural resources that hold particular meaning to the human history of the river valley or with traditionally associated tribes, people, and groups are managed in a sensitive manner, and interpreted where appropriate.
- Visitors are provided an opportunity to appreciate the 12,000 years of continuous human habitation and the importance of protecting the cultural resources in the Delaware River Valley through a variety of interpretive services.
- Cultural landscapes are preserved and maintained as appropriate.

Rich Archeological Heritage.

Goal: Visitors gain an understanding of the rich archeological heritage and human occupation in the landscape over time in the Middle Delaware River Valley.

Desired Conditions:

- Visitors are provided an opportunity to appreciate the 12,000 years of continuous human habitation and the importance of protecting the cultural resources in the Delaware River Valley through a variety of interpretive services. Provide interpretive services that highlight how the National Park Service works to ensure that the interests, history, and material associated with historical people of the Middle Delaware River Valley are protected by the park in the spirit of our enabling legislation and the NPS Organic Act of 1916.
- The integrity of cultural resources is safeguarded to preserve significant attributes and uses that contribute to historical and architectural significance.

Stunning Scenic Resources and Distinct Aesthetic Values.

Goal: Preserve the exceptional variety of scenery and wildlife viewing opportunities within DEWA.

Desired Conditions:

- All developments and endorsed visitor activities are harmonious with the natural and historic character of the park and have minimal impact to scenic view conditions identified in the park's visual resource inventory.
- Scenic vistas and features are maintained and provide visitors with opportunities to view forested and pastoral characteristics of the area and be immersed in the intimate natural

settings of the park that are not diminished by development and continue to foster a sense of discovery.

- Dark skies remain protected from unnecessary or inappropriate lighting of facilities or landscapes. Dark skies provide an opportunity for visitors to connect with nature and have unobstructed views which supports the mission of the park.

Mosaic of Terrestrial and Wetland Habitats.

Goal: Protect and maintain the natural function, diversity, complexity, and resiliency of the ecological systems and natural communities of DEWA; and maintain the unique terrestrial and wetland habitats within the park.

Desired Conditions:

- Ecological integrity and processes, including natural changes and disturbances, remain unimpeded.
- Individual species and plant and wildlife communities function at natural levels of diversity, distribution, and complexity with little human disturbance.
- Ecosystems, habitats, and native species impacted by human activities are restored to their natural abundance, diversity, and distribution.
- Sensitive habitats and dynamic areas (and associated/interconnected resources) that are prone to natural disturbances are void of and buffered from future development.
- Nonnative and invasive species are managed to a level so they do not deter from native species abundance, diversity, distribution, and ecological function.
- Visitors are provided an opportunity to experience a variety of natural terrestrial and wetland habitats.

Sustainable Access to High-Quality Recreational Resources.

Goal: Provide visitors of all abilities with opportunities to enjoy the natural and cultural resources of the park during all four seasons.

Desired Conditions:

- Provide access to high-quality seasonally appropriate outdoor recreational opportunities such as canoeing, swimming, hiking, hunting, boating, horseback riding, fishing, scenic driving, bird watching, biking, and cross-country skiing.
- Work with local communities to connect and engage visitors with a range of recreational activities.
- Actively engage traditionally underserved communities in park recreational experiences connecting people to the resource.
- Recreation is provided in a low-impact, sustainable manner to preserve the natural, cultural, and scenic resources for future generations to enjoy.
- The opportunity to experience solitude is found in some areas of the park, while other areas of the park provide group recreational settings.
- Opportunities are available for visitors to safely enjoy the area and its resources through a variety of appropriate activities.
- Information is available to visitors to assist them in making informed decisions about how to safely enjoy the park.

- To the extent feasible, park programs, services, and facilities are accessible to and usable by all people, including those with disabilities.
- The vast majority of visitors are highly satisfied with park facilities, services, and recreational opportunities.
- Recreational facilities will be designed and maintained to high standards that protect resources from damage.

Striking Geological Features.

Goal: Allow natural geologic forces to continue to shape the dynamic landscapes of DEWA.

Desired Conditions:

- Geologic features of the Delaware Water Gap feature are not diminished or obscured by developments.
- Scenic quality of the unmarred geological features continues to be an iconic highlighting feature of the park.
- Continue to provide visitors with a glimpse into the tectonic and geomorphic processes of the region. Visitors are provided with an opportunity to be surrounded by geology and experience it come to life.
- Development avoids important geologic features including paleontological resources.
- Visitors gain an understanding of the variety of geologic forces and geologic history on display in Delaware Water Gap National Recreation Area.

ZONING

The current zoning as defined in the 1987 GMP is in some areas outdated and no longer accurate or reflective of the park's management strategies. In the more than 30 years since the development of the GMP, inventories of DEWA resources have occurred, providing managers with much more information than was previously available. In addition, visitor activities and experiences have changed, as well as some NPS policies. In some cases, the zoning does not provide sufficient detail to inform the decisions of park managers regarding appropriate visitor uses and resource conditions. Therefore, this plan edits the zones and descriptions to clarify the context and direction for these zones. The earlier zone descriptions can be found in the general management plan. Table 1 provides a summary of the GMP zone names with their corresponding VUM plan zone names.

The park is likely to continue to acquire land during the life of this plan. These land acquisitions would be from willing sellers and would follow any guidelines outlined in the general management plan. Generally, newly acquired properties would take on the designation of the adjacent zone, unless otherwise specified by the superintendent.

Table 1. GMP Zone Name with New VUM Plan Zone Name

GMP Zone Name	VUM Plan Zone Name
Resource Management Subzone	Natural Resource Zone
Natural Zone	Natural Resource Zone
Outstanding Natural Feature Subzone	Outstanding Natural Feature Zone
Development Zone	Visitor Service Area Zone
Historic Zone	Historic Zone
Element of Outstanding Natural Feature Subzone	Middle Delaware National Scenic and Recreational River Zone

Natural Resource Zone

The National Park Service is eliminating subzones under the Natural Resource Zone and separating them into distinct zones. The Resource Management Subzone is now the Natural Resource Zone. Revisions also edit and clarify changes that have occurred because of initiatives that have taken place during the past decades, including the identification, through inventory and monitoring, of many more sensitive resource.

Lands in the Natural Resource Zone are managed for the conservation of natural resources, and the National Park Service maintains primary control over lands and activities within the zone. This zone is the largest in the park, and it includes natural and man-made features that contribute to the natural and scenic diversity of the park. The resources include mature and successional forest vegetation and primarily natural areas around lakes and tributaries, as well as open fields and homesteads. Facilities are minor to moderate in scale and are compatible with the natural environment. They include trails for hiking, bicycling, cross-country skiing, and horseback riding; low-impact campsites; interpretive signs and waysides; and small parking areas. River access points in this zone are developed in a way that is consistent with the Wild and Scenic Rivers guidelines. Resources may be manipulated when necessary and appropriate to accomplish resource management goals and may include actions such as restoration of damaged resource areas, maintenance of cultural landscapes, and perpetuation of native species. Adaptive strategies (as described in chapter 5) will be used as necessary to limit adverse impacts to resources. The lands and resources in this zone will be maintained to enhance scenic diversity, wildlife habitat, and natural and man-made systems, as appropriate within certain landscape types.

Outstanding Natural Feature Zone

The Outstanding Natural Feature Zone is now stand-alone. The purpose of this zone remains the same, which is to protect the special and unique resources in the zone while allowing visitor activities so long as they do not degrade resources. Changes to this zone include expansion of some areas to encompass resources now known, and clarification of management actions within the zone.

This zone protects natural features and ecological communities and processes with high intrinsic or unique values, while providing opportunities for physical challenge, adventure, and solitude. Due to the high quality, rarity, and sensitivity of the resources that define this zone, the primary management objective is to maintain or improve them. The secondary management objective for this zone is to provide appropriate visitor use and interpretive activities. These areas will be given top priority in monitoring efforts to determine if visitor use is degrading the resource. In this zone, no additional resource degradation will be acceptable.

Many areas in the Outstanding Natural Feature Zone are open for low-impact visitor use, and they will continue to be used for suitable recreational and interpretive activities. Any development in this zone will be preceded by the establishment of baseline conditions and the institution of a monitoring program to assess if visitor activity is altering the resource away from desired conditions. If monitoring, research, or observation by professional staff determines degradation of the resource is occurring or is likely to occur, these areas will receive top priority for remedial maintenance or adaptive management actions which may include adjustments to the types and/or amounts of use allowed. Development of facilities will only be constructed in a manner that is consistent with the nature and character of surrounding resources and will incorporate the best available methods and technology to ensure the protection of those resources.

Visitor Service Area Zone (Development Zone)

This zone includes major visitor service areas and developed sites that support frequent and/or high levels of visitation. These areas may provide more extensive visitor programs and services and include sites such as visitor centers, beaches, boat ramps, mowed grassy fields, developed campgrounds, interpretive and educational facilities, and picnic areas. Developed sites also include administrative building complexes, parking areas, and major roads. The emphasis of these easily accessible, high-capacity areas is a connection with and an appreciation of park natural and cultural resources. Facilities and services in this zone are typically more formal, accessible, and extensive than in other zones.

Historic Zone

The Historic Zone is an overlay to the primary Natural Resource Zone, Outstanding Natural Feature Zone, or Visitor Service Area Zone. Therefore sites within the Historic Zone overlay would be managed for the primary zone underneath; however, park development, design, and management would be to the desired conditions of both and would be consistent with the surrounding natural environment. Historic houses and villages within the Historic Districts are discussed under the Historic Zone with the understanding that the surrounding landscape and natural features would be managed according to the primary zone: either the Natural Resource Zone, the Outstanding Natural Feature Zone, or the Visitor Service Area Zone. Some historic structures are in both the Natural Resource Zone and the Outstanding Natural Feature Zone. Treatments of these structures would also follow National Historic Preservation Act (NHPA) standards.

Areas in the Historic Zone would be developed, designed, and managed concurrently to the standards described as the "desired condition" of both the primary zone and overlay zone. The Historic Zone typically includes historic resources and cultural landscapes within the boundaries of current or future historic districts and/or national historic landmarks. This zone represents an interface between natural resources and the historical and cultural aspects of the park. Therefore, the surrounding natural landscape and features will be managed according to the primary zone in a way that will not impact the historic resources and will also follow NHPA standards as appropriate.

Middle Delaware National Scenic and Recreational River Zone (New Zone)

The River Zone includes the river itself and is defined by the banks of the river. This zone is managed in accordance with the management guidelines outlined in the Wild and Scenic Rivers Act (1968) and the designation of the Middle Delaware National Scenic and Recreational River (P.L. 95-625, Sec. 705) (1978).

Special Use Zone

All lands where the National Park Service does not have primary management control are part of the special use zone. The uses of these parcels of land are diverse, ranging from public recreation areas to private residences. Actions within this plan do not pertain to the special use zone.

Site-Specific Changes to Zoning

This plan includes changes to the park zoning of specific locations so that the zoning scheme is consistent with the actions presented herein. These changes (summarized in table 2) are considered amendments to the park's general management plan. Under this plan, some sites would be developed or expanded, such as a proposal to build a river access on the New Jersey side of the park or addition of more swim beach opportunities. Development would adhere to the desired conditions in the designated zone of the site. Under this plan, there would be 2,735 acres (4%) of MDNSR River Zone, 1,206 acres (2%) of Visitor Service Area Zone, 37,501 acres (54%) of Natural Resource Zone, 15,434 acres (22%) of Outstanding Natural Feature Zone, and 3,107 acres (4%) of Historic Zone.

Table 2. Changes to Delaware Water Gap Zoning

Area	GMP Zone	VUM Plan Zone	Rationale
Ayers Tract	Recent acquisition	Natural Resource	The surrounding area is in the Natural Zone, and this property is largely forested and undeveloped.
Blue Mountain Lakes	Natural Outstanding Natural Feature	Natural Resource	This site may be expanded, and will include parking lot improvements. Some facilities in this area may be upgraded and improvements could include simplifying the trail system and creating a loop, formalized picnicking sites, and possibly a swimming beach.
Buchanan Property	Recent acquisition	Natural Resource	The property has some areas of maintained landscape (horse corral, mowed lawn) but the park does not plan to continue maintaining it at current levels. As such, it is likely to revert to a more natural state in subsequent years. This property also contains Barbara Buchanan's home.
Buchanan Life Estate	Recent acquisition (June 2003)	Natural Resource	The majority of the property is buildings and what remains is unmaintained and forested.
Camp Hidden Fall	Acquisition since GMP	Natural Resource	The property is forested and mostly undeveloped.
Cliff Park Inn and Golf Course	Acquisition since GMP	Visitor Service Area and Natural Resource	The Inn and Golf Course would be in the Visitor Service Area Zone. The surrounding land and trails— primarily forested ridgeline with hiking trails and scenic overlooks—would be in the Natural Resource Zone. Part of the property is an Outstanding Natural Feature along the ridgeline.
Delaware Valley School District	Recent acquisition	Natural Resource	The property is primarily forested near the river (within legislative boundary) and adjacent to Pike County open space.
Dingmans Campground	Natural Outstanding Natural Feature	Visitor Service Area	The campground may be developed and expanded by including a day-use picnic area nearby.
Dow Property	Recent acquisition	Outstanding Natural Feature	This property contains special resources to be managed in accordance with the rest of the Outstanding Natural Feature Zone.
Hialeah Picnic Area	Natural	Visitor Service Area	The picnic area would be expanded to accommodate large groups, river views would be improved, and pedestrian river access would be provided.
Hidden Lake	Natural	Visitor Service Area	Facilities may be improved to more sustainably accommodate visitors.

Area	GMP Zone	VUM Plan Zone	Rationale
Hogback Ridge	Natural	Outstanding Natural Feature	Expanded area to include additional sensitive resources in this area.
Koelmel	Recent acquisition	Natural Resource	The property is forested and undeveloped.
Middle Delaware Scenic and Recreational River	Varied	Middle Delaware National Scenic and Recreational River Zone	The wild and scenic river designation would precede any zoning applied through this plan, so this new, stand-alone zone is proposed and is defined by the banks of the river.
Millville Historic District	Historic district	Historic Zone	The Millville District has expanded since the GMP and as a result the historic zone was expanded to match.
Mt. Paradise / Kittatinny Ridge	Outstanding Natural Feature	Expand area of Outstanding Natural Feature	Area zoned as an Outstanding Natural Feature would be expanded along this ridgeline to account for new and updated data on the location and extent of the special natural resources.
McGaughey	Recent acquisition	Natural Resource	This is a new area to the park that would likely be managed similar to the majority of the park under the Natural Zone. It does not have any specific features that warrant a different zone.
Perrault	Recent acquisition	Natural Resource	The property includes forest and wetlands, and is adjacent to NPS land that surrounds Dingmans Creek.
Shawnee / Mosiers Knob and Hallett	Recent acquisition	Natural Resource	With the exception of minor improvements such as trails and small trailhead(s), the property would remain in an undeveloped state.
Van Campens Glen	Natural	Outstanding Natural Feature	The area around the creek would be zoned as Outstanding Natural Feature to protect these habitations in Van Campens creek.
Walpack Center	Natural	Historic	This area is next to an Outstanding Natural Feature area and north of a special use area. Historic structures are present; however, the changes to this zone would be fairly limited.
Watergate	Outstanding Natural Feature Historic feature Special use feature	Natural Zone	Watergate is in progress of a change in the use from a developed recreation site to wetlands, with some minor recreation uses such as a trail and/or boardwalk.
Water Gap Preserve	Recent acquisition	Natural Resource	The property already has roadways and other infrastructure. It is near Hidden Lake Drive in the Natural Resource Zone.
Various River Access points	Development	Natural Resource	Various river access points that were identified in the GMP for further development have been rezoned to the Natural Resource Zone and would be developed consistent with the desired conditions for that zone.
Various Cultural Resources	Historic Zone	Varies by property	Many historic structures and cultural resources that were considered under the GMP have been rezoned as a part of their primary zone, Natural Resource, Outstanding Natural Feature, and/or Visitor Services. Treatment of these properties is further clarified in the historic properties prioritization strategy.

Goals and Desired Conditions for Zones

Middle Delaware National Scenic and Recreational River Zone.

Goal: This corridor would provide for visitor use in a way that is consistent with the Wild and Scenic Rivers Act and the Delaware River outstandingly remarkable values to protect and enhance the values for which the river was designated.

Desired Conditions:

- Visitors have the opportunity to enjoy and appreciate the river as a resource.
- Visitors experience shorelines that are largely undeveloped with natural processes predominating.
- Visitors have a range of river-based recreational opportunities.
- Visitors have a range of high- and low-density experiences.
- Visitor services are consistent, reliable, and provided on a year-round basis.
- River access for visitors of all abilities is provided.
- Visitor use does not degrade water quality.
- Viewsheds are managed in a manner consistent with wild and scenic river values of this segment.
- Development along the river (located in other management zones) is consistent with the outstandingly remarkable values.
- Values of the wild and scenic river are shared by visitors, partners, and adjacent land managers.
- Visitor use sites are managed to the capacities of which they were designated.
- Floodplains and wetlands continue to be protected.

Visitor Service Area Zone.

Goal: This zone represents a pocket of development with a natural backdrop that provides opportunities to learn about the park and facilities needed to support a diverse range of visitor opportunities that are easily accessible, safe, and high quality.

Desired Conditions:

- Visitors have the opportunity to experience recreation in a primarily natural setting that reflects the values of the National Park Service.
- Some year-round access and facilities would be provided. The park will continue to evaluate the historic properties and other existing facilities for a suitable location for centralized visitor information, interpretive programs/services, and educational materials.
- Architectural Barriers Act (ABA) accessibility standard recreation opportunities, facilities and programs occur in primary destinations.
- Most facility developments to support visitor activities and services occur in this zone. These facilities are sustainably designed to blend into and protect resources and may include hardened walkways, permanent structures, and hardened parking areas.
- Each developed site has accessible information and appropriate interpretation that communicates the NPS identity, values of the park, resources, and specific activities and services at the site.

- The infrastructure in this zone serves as a model of sustainable building and practices.
- Visitors have the opportunity to engage in a variety of recreation opportunities such as protected swimming, bicycling, picnicking, hiking, and boating.

Natural Resource Zone.

Goal: This zone provides appropriate opportunities for visitors to experience and connect with primarily natural areas around lakes and streams, forest vegetation, and open fields and agricultural fields in a way that does not impede the functioning of the ecological systems.

Desired Conditions:

- A diversity of outdoor recreation opportunities is provided in a natural landscape that is maintained to enhance scenic diversity, as well as protect wildlife habitat, natural, and cultural resources.
- The diverse landscapes of open, edge, and forested habitats provide high-quality recreation opportunities for park visitors.
- Quality self-directed and self-reliant visitor experiences would be provided while protecting the features and functions of the ecosystem.
- Visitors experience some social settings (mostly in peak season) as well as opportunities for solitude.
- Trails are designed and maintained to highlight and blend in with the flora and fauna.
- Floodplains and wetlands continue to be protected.
- Appropriate interpretation is offered to provide visitors opportunities to understand the significance of specific natural features.
- Visitors can expect to experience solitude and contemplative experiences most of the time within this zone. Disturbances to these experience may be brief and of low intensity.
- Opportunities for sensory experiences such as encountering natural sounds, dark night skies, olfactory sensations, and scenic views are provided in these areas of the park.
- Year-round recreation activities and opportunities are provided such as hunting, fishing, cross-country skiing, biking, horseback riding, birding, and hiking. Access to these activities meets ABA accessibility standards as practicable.
- Historic land-use and landscapes are maintained in accordance with their contextual intents including but not limited to agricultural fields and designed open spaces.

Outstanding Natural Feature Zone.

Goal: Provides priority protection to the high-quality, unique, rare, and sensitive natural and cultural resources while allowing limited opportunities for low-impact recreation.

Desired Conditions:

- Visitors have meaningful, yet appropriate, opportunity to view, enjoy, and value the importance and integrity of these high quality, unique, rare, and sensitive natural and cultural resources within their landscapes and dynamic systems.
- Visitors experience low levels of use on the trails and have opportunities for solitude.
- Opportunities for sensory experiences such as encountering natural sounds, dark night skies, olfactory sensations, and scenic views are readily available here.

- Sustainable visitor use would occur in such a way that ensures the protection of sensitive resources in this zone.
- Development will only be constructed in a manner that is consistent with the nature and the character of the surrounding resources.
- Low levels of use and uses that are low impact are maintained on most days and at most times to minimize or eliminate damage to or degradation of resources.
- Some outstanding natural features are interpreted to provide visitors opportunities to understand their significance.
- Potential visitor-caused impacts to resources would be identified early through increased monitoring, enabling the National Park Service to eliminate or reduce the impacts before they reach the stage of resource degradation.

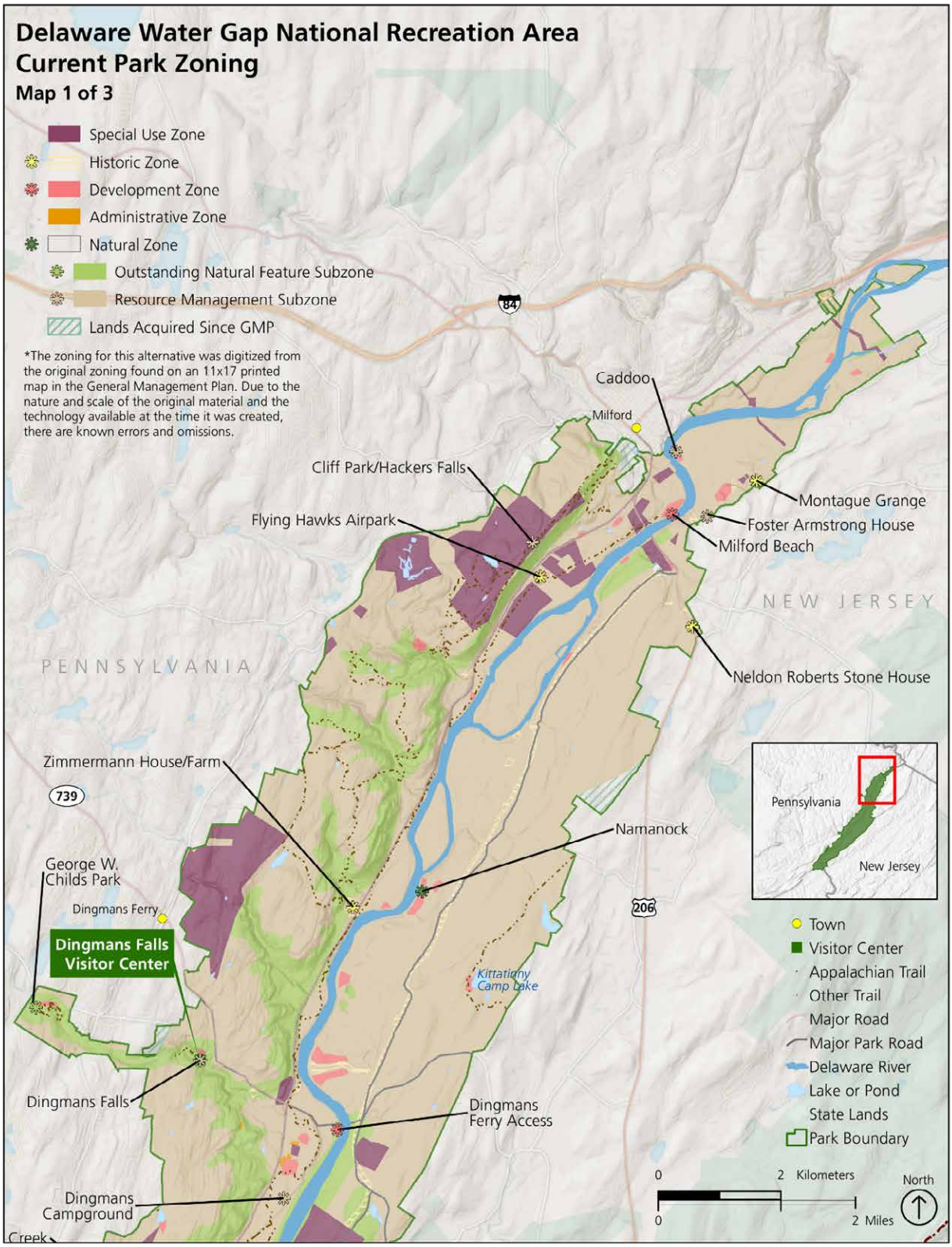
Historic Zone.

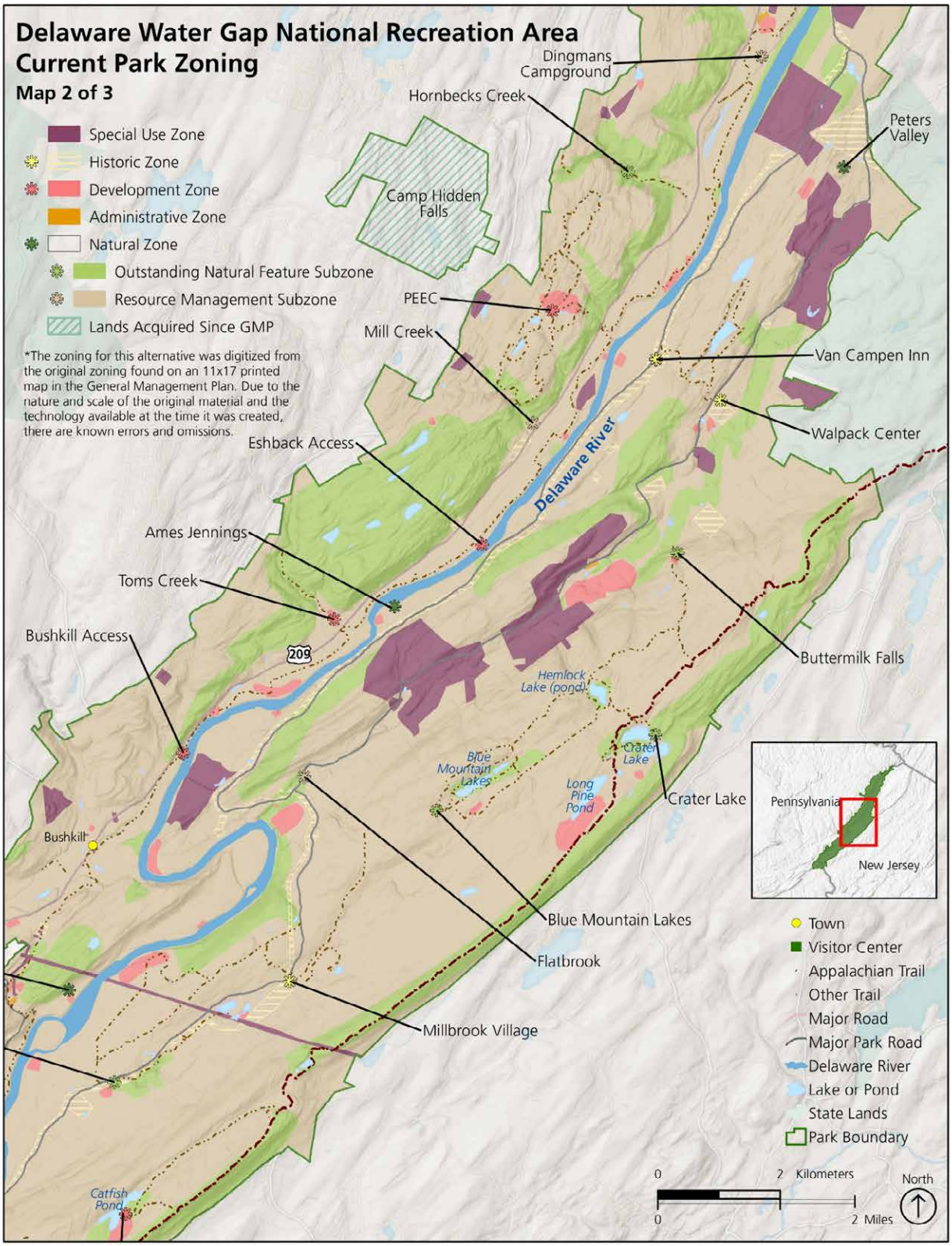
Goal: This zone prioritizes preservation of historic landscapes and districts to provide visitors with opportunities to take a step into the past and immerse themselves in the historic setting of previous eras.

Desired Conditions:

- Visitors experience an authentic historic landscape and gain an understanding of changing land use, settlement patterns, and ways of life within the park.
- Visitors are able to attain a sense of the past, have opportunities to visit the historic districts, and understand the unique stories associated with each district and other selected historic properties.
- Some structures are interpreted to provide visitors opportunities to understand their significance.
- Significant historic structures and features are protected, and damage to significant historic resources is prevented to the greatest extent possible.

Areas and sites in the historic zone are also zoned with one of the other zones above, and therefore these areas assume the desired conditions for the relevant zone designation for that site.


Delaware Water Gap National Recreation Area
Current Park Zoning
Map 1 of 3
Special Use Zone
Historic Zone
Development Zone
Administrative Zone
Natural Zone
Outstanding Natural Feature Subzone
Resource Management Subzone
Lands Acquired Since GMP
*The zoning for this alternative was digitized from the original zoning found on an 11x17 printed map in the General Management Plan. Due to the nature and scale of the original material and the technology available at the time it was created, there are known errors and omissions.
84
Caddoo
Milford
Cliff Park/Hackers Falls
Flying Hawks Airpark
Montague Grange
Foster Armstrong House
Milford Beach
NEW JERSEY
PENNSYLVANIA
Neldon Roberts Stone House
Zimmermann House/Farm
739
Namanock
George W. Childs Park
Dingmans Ferry
Dingmans Falls Visitor Center
206
Kittatinny Camp Lake
Dingmans Falls
Dingmans Ferry Access
Dingmans Campground
Creek
Pennsylvania
New Jersey
Town
Visitor Center
Appalachian Trail
Other Trail
Major Road
Major Park Road
Delaware River
Lake or Pond
State Lands
Park Boundary
0
2 Kilometers
0
2 Miles
North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Hornbecks Creek
Peters Valley
Camp Hidden Falls
PEEC
Mill Creek
Van Campen Inn
Walpack Center
Eshback Access
Delaware River
Ames Jennings
Toms Creek
Bushkill Access
209
Buttermilk Falls
Hemlock Lake (pond)
Blue Mountain Lakes
Crater Lake
Long Pine Pond
Crater Lake
Bushkill
Blue Mountain Lakes
Flatbrook
Millbrook Village
Catfish Pond
Pennsylvania
New Jersey
Town
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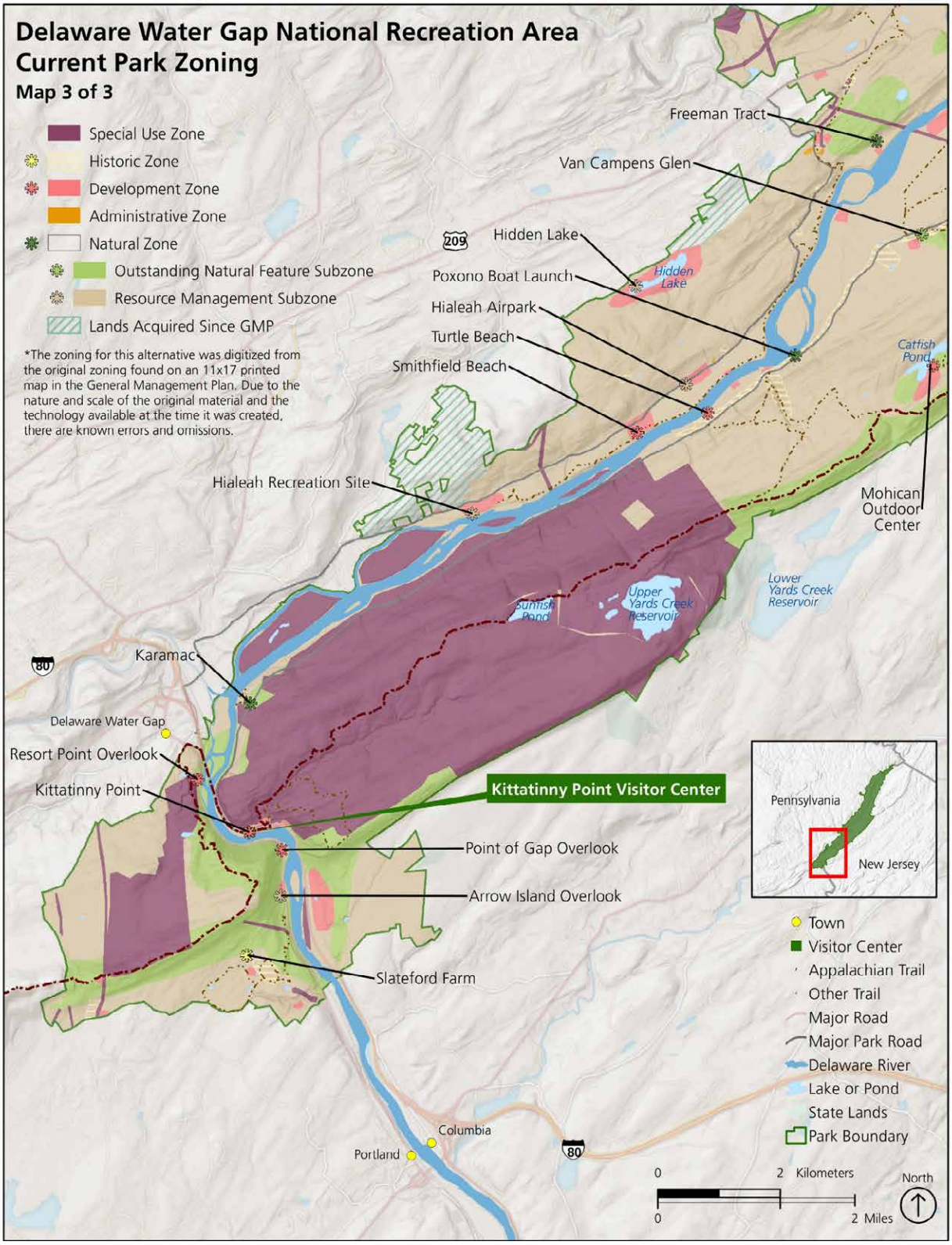
Delaware Water Gap National Recreation Area
Current Park Zoning
Map 3 of 3
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Van Campens Glen
209
Hidden Lake
Poxono Boat Launch
Hialeah Airpark
Turtle Beach
Smithfield Beach
Hialeah Recreation Site
Catfish Pond
Mohican Outdoor Center
Lower Yards Creek Reservoir
Upper Yards Creek Reservoir
Sunfish Pond
80
Karamac
Delaware Water Gap
Resort Point Overlook
Kittatinny Point
Kittatinny Point Visitor Center
Point of Gap Overlook
Arrow Island Overlook
Slateford Farm
Columbia
Portland
Pennsylvania
New Jersey
Town
Visitor Center
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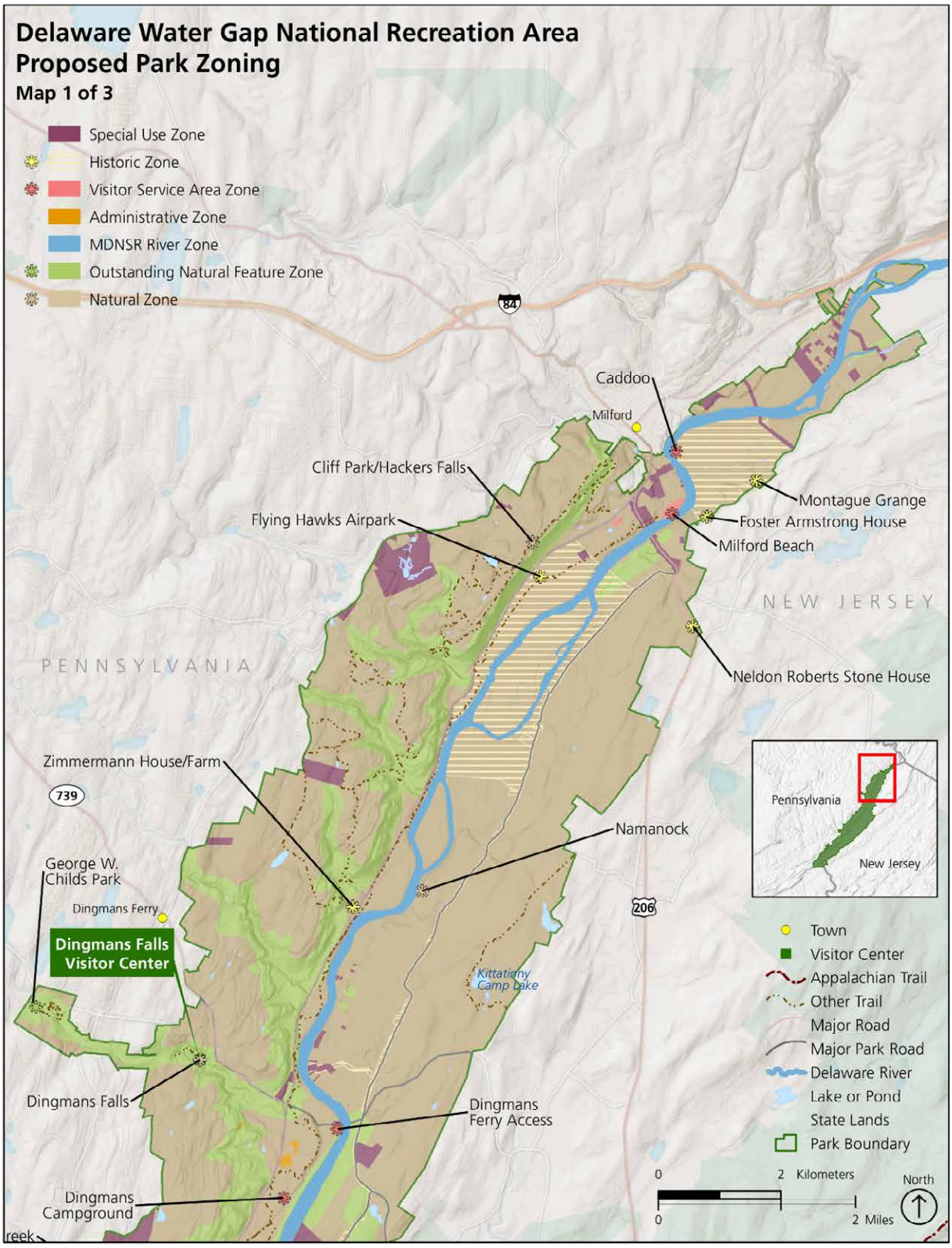
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Visitor Service Area Zone
Administrative Zone
MDNSR River Zone
Outstanding Natural Feature Zone
Natural Zone
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Cliff Park/Hackers Falls
Flying Hawks Airpark
Montague Grange
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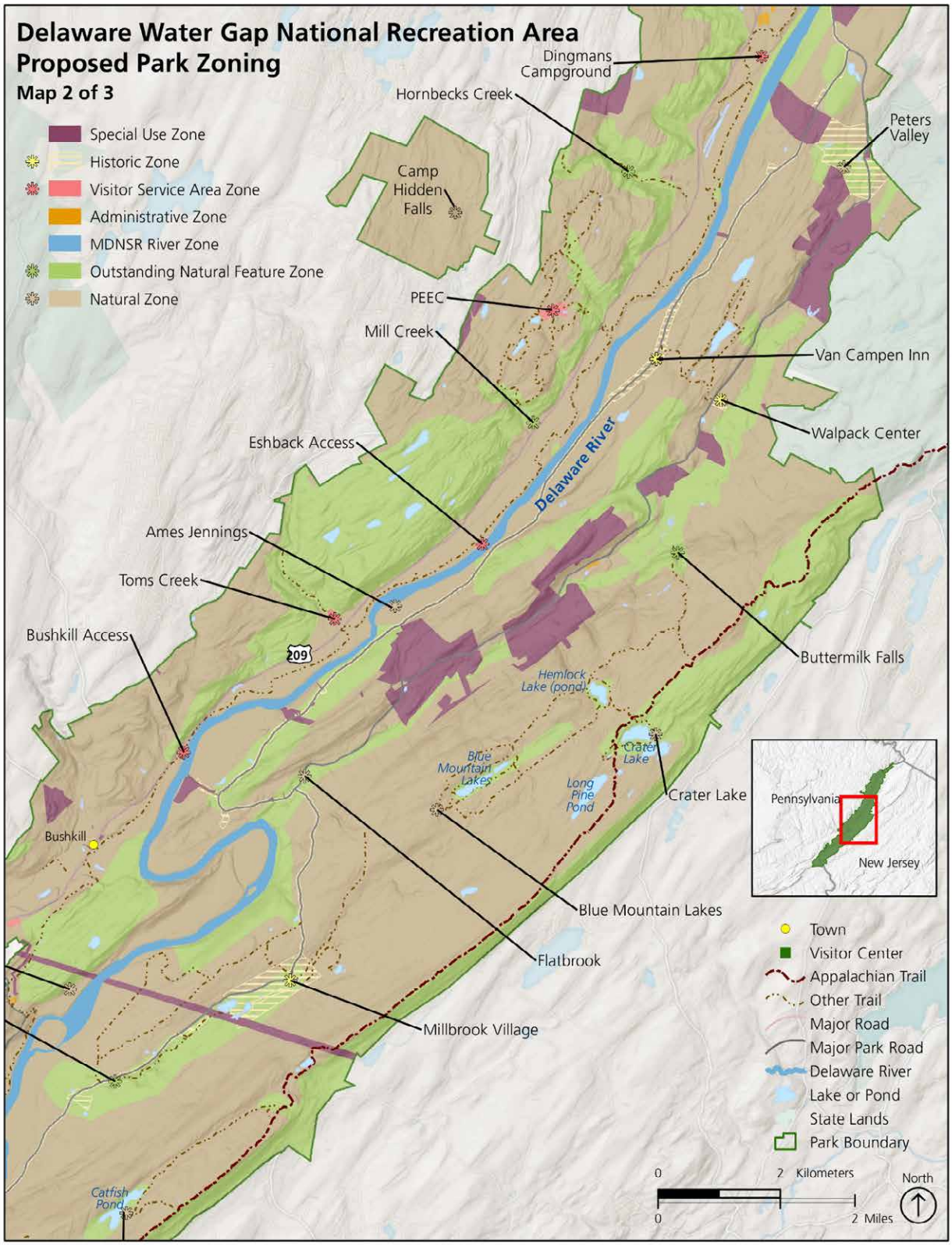
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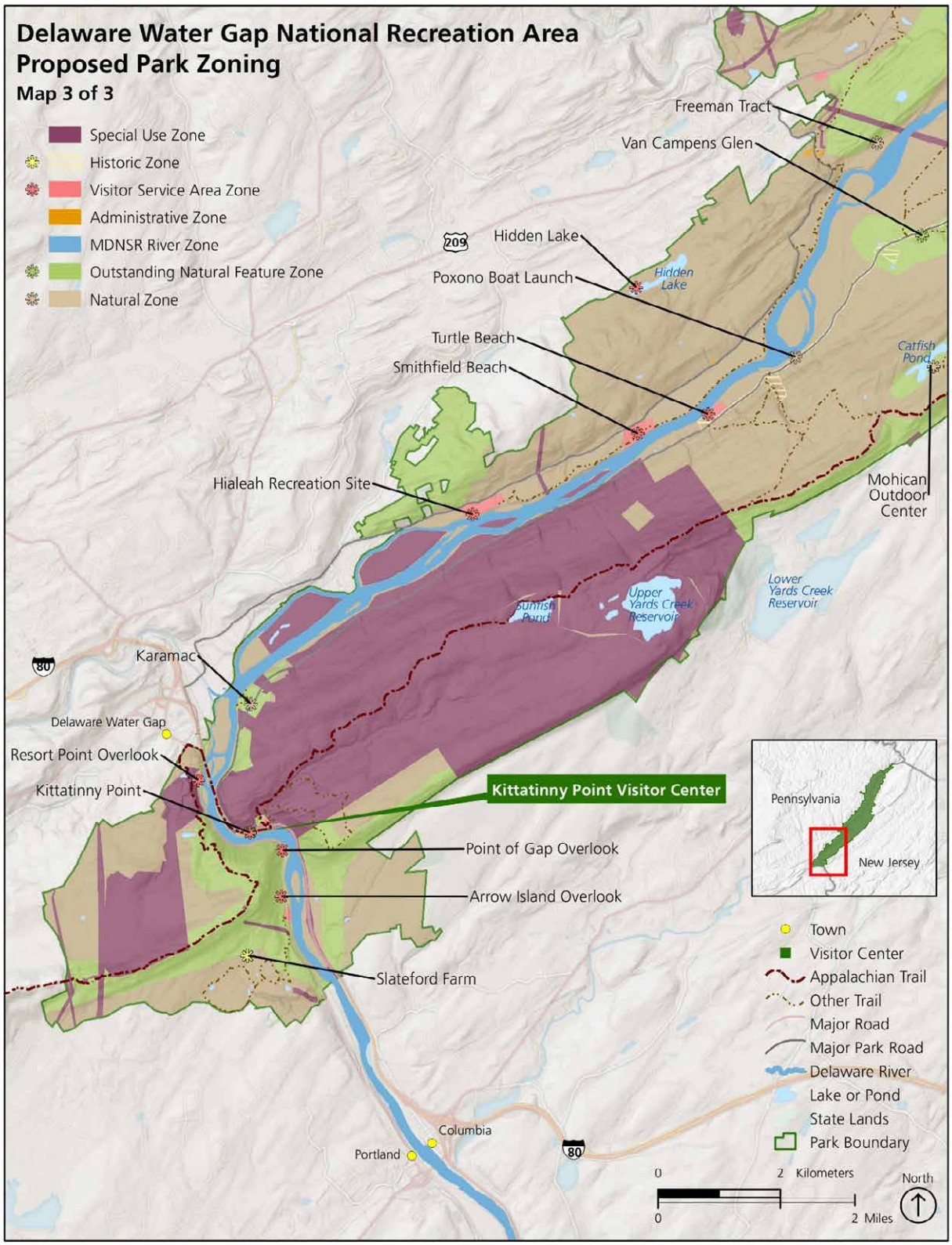
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INDICATORS AND THRESHOLDS

Establishing indicators and thresholds and identifying and implementing visitor capacity are key components of the Interagency Visitor Use Management Council (IVUMC) Visitor Use Management Framework applied by the National Park Service. Indicators measure conditions that are related to visitor use and monitoring is conducted to track those conditions over time. The results of monitoring are used to inform and select strategies that are taken by park managers in order to not exceed the maximum amounts of visitor use that can be accommodated for sites (visitor capacity identification). Potential management strategies are described for each indicator below and would be applied in conjunction with the actions presented in this plan. This iterative practice of monitoring, implementing adaptive strategies, and then continuing to monitor to gauge effectiveness of management actions that allows park managers to maximize benefits for visitors while achieving and maintaining desired conditions for resources and visitor experiences in a dynamic setting. This section presents indicators that will be monitored over time at DEWA. The associated thresholds and adaptive strategies included below would be used to inform the visitor capacity identification found in chapter 5.

Indicators

Indicators translate the broad description of desired conditions into measurable attributes (e.g., people at one time at key locations, number of visitor-created trails) that can be tracked over time to evaluate change in those desired conditions. These are a critical component of the VUM framework. The planning team considered many potential issues and related indicators that would identify impacts of concern, but those described below were considered the most noteworthy, given the importance and vulnerability of the resource or visitor experience affected by visitor use. The planning team also reviewed the experiences of other park units with similar issues to identify meaningful indicators.

Thresholds

Thresholds that represent the minimum acceptable condition for each indicator were then established, taking into consideration the qualitative descriptions of the desired conditions, data on existing conditions, relevant research studies, and staff management experience. Although defined as "minimally acceptable," thresholds still represent acceptable conditions. Also, establishing thresholds does not imply that no action would be taken prior to reaching the threshold. One goal of visitor use management is to strive to make progress toward desired conditions. Thresholds identify the point at which the effects of visitor use on desired conditions are anticipated to become enough of a concern that a management action is needed to achieve and maintain desired conditions. For some indicators, triggers have been developed. A trigger reflects a condition of concern for an indicator that is enough to prompt a management response to ensure that desired conditions continue to be maintained before the threshold is crossed.

Indicators and thresholds that will be implemented as a result of this planning effort are described below. For a complete discussion including rationale for these indicators and thresholds, triggers, and associated potential management strategies, see appendix A.

Indicator: Number of Visitor Use-Related Incidents

> Threshold: No more than 25% increase from baseline in reported incidents at any one site within patrol zones.

Indicator: Number of Incidents of User-Caused Damage to Historic Structures

Threshold: No more than one incident per high priority site, per year.

Indicator: Extent of Visitor-Created Trails

Threshold(s):

- Riparian Areas: No more than 4 miles of visitor-created trails within the riparian areas in DEWA or no more than 5% damage to a specific species of concern. Riparian areas have been determined to be any area within 350 feet of streams and lakes and include the historic flood zone of the Delaware River. The total extent of visitor-created trails within the cumulative riparian area would amount to no more than 5% of the total area of designated trails within the area.
- Visitor Service Area Zone: No more than ¼ of a mile of visitor-created trails within the Visitor Service Area Zone or no more than 5% damage to a specific species of concern. The total extent of visitor-created trails within this zone would amount to no more than 10% of the total area of designated trails within the zone.
- Natural Resource Zone: No more than 16 miles of visitor-created trails within the Natural Resource Zone or no more than 5% damage to a specific species of concern. The total extent of visitor-created trails within this zone would amount to no more than 10% of the total area of designated trails within the zone.
- Outstanding Natural Feature Zone: No more than 3 miles of visitor-created trails within the area of a designated Outstanding Natural Feature Zone or no more than 5% damage to a specific species of concern.
- Historic Zone: No more than ¾ of a mile of visitor-created trails within the Historic Zone. The total extent of visitor-created trails within this zone would amount to no more than 10% of the total area of designated trails within the zone.

Indicator: Number of Unauthorized Campsites

Threshold: No more than 10 unauthorized campsites within 100 feet of a designated recreation site or campsite or within 1 river mile.

Indicator: Encounter Rates on Trails

Threshold(s):

- Visitor Services Area Zone: 90% of groups would encounter no more than seven other hiking groups (1-6 people per group) per hour along the trail.
- Outstanding Natural Feature Zone: 90% of groups would encounter no more than four other groups (1-6 people per group) along the trail.
- Historic Zone: 90% of groups would encounter no more than five other hiking groups per hour along the trail.

Indicator: Maximum Decibel Level

Threshold: Outstanding Natural Feature Zone, River Zone, Historic Zone: Maximum decibel level of 33 dBA during daytime, 30 dBA during night.

CRITERIA FOR EVALUATING NEW AND EMERGING USES

Interpretation of natural and cultural resources would continue to be provided by personal and nonpersonal services throughout the park, as well as through partners. Every attempt would be made to update facilities, programs, and services provided by the National Park Service and its partners to the greatest extent feasible, following outdoor recreation guidelines for accessibility (ABA) as well as rehabilitation standards, language barriers, and program accessibility guidelines. Criteria for evaluating new and emerging uses of the park would be implemented to determine compatibility with resource protection and visitor experience goals (e.g., no cliff jumping/waterfall jumping anywhere in the park). These criteria are consistent with NPS *Management Policies* 8.1.2 "Process for Determining Appropriate Uses." These new and emerging uses must meet all of the following criteria:

- The activity is consistent with the park purpose and significance.
- The activity is consistent with laws, regulations, and policies.
- The activity does not create an unsafe or unhealthful environment for visitors and employees and cannot be mitigated.
- The activity helps achieve the desired conditions of the visitor use management plan (see chapter 3) and other relevant park planning documents, and does not create unacceptable impacts to the fundamental resources and values of the park that are unable to be mitigated.
- The activity does not unduly conflict with other park uses and activities and is consistent with existing plans for public use and resource management.
- The activity does not create new costs for the National Park Service.
- New or emerging uses should meet at least one of the following criteria:
    - The activity contributes to visitors' understanding and appreciation of park purpose and significance.
    - The activity enhances visitor experiences consistent with park purposes, significance, and mission goals.
    - The activity is a key visitor experience not available within a reasonable distance from the park.

These criteria will be used to evaluate current and emerging types of use and the compendium will be updated accordingly. Some uses will continue to require special regulations to be developed (NPS *Management Policies 2006,* 8.2.2).

NECESSARY AND APPROPRIATE CRITERIA AND DETERMINATIONS FOR COMMERCIAL SERVICES

Overview of NPS Commercial Services

Commercial services are defined as any activity or service that occurs in a park for which compensation is made. By law, all commercial services must be authorized in writing by the park superintendent. The two most common mechanisms for delivering commercial services are concessions contracts and commercial use authorizations. Commercial use authorizations are permits authorizing appropriate commercial services to park visitors. Concession contracts are typically 10-year agreements for larger commercial activities, granted after a competitive solicitation process. There are three different types of concession contracts based on the amount of land or facilities assigned to the concessioner. Commercial service providers that do not operate under a NPS concessions contract must have a valid CUA to legally operate in a national park. One type of

commercial service that should be managed through a CUA is road-based commercial tours. Beginning January 1, 2019 road-based commercial tour operators will be required to obtain a CUA for each park in which they operate. Road-based commercial tours are defined as consisting of one or more persons traveling on an itinerary that has been packaged, priced, or sold for leisure or recreational purposes by an organization that realizes financial gain through the provision of the service.

Commercial services within units of the National Park System are governed by the 1998 Concessions Management Improvement Act (Public Law 105-391). The 1998 Act, as it is commonly referred to, requires that contracts for visitor facilities and services "be limited to those that are necessary and appropriate for public use and enjoyment" of the national park area in which they are located, " and that are consistent to the highest practicable degree with the preservation and conservation of the areas." Title 36 of the Code of Federal Regulations (36 CFR 51) outlines the requirements for the preservation of the parks and administration of commercial service operations. Chapter 10 of NPS *Management Policies 2006* provides management guidance specific to commercial visitor services.

Necessary and Appropriate Criteria

Necessary and appropriate criteria help parks determine which commercial services will enhance the visitor experience without negatively impacting the park or its ability to carry out its mission. They allow a park to easily identify which services can be considered for a commercial use authorization or a concession contract.

Appropriate criteria help to answer the question, "Can the park authorize this service without compromising the reason it is a unit of the National Park System?" These criteria provide insight into the critical components of the park and visitor service, while also describing the potential negative impacts of commercial services the park must prevent. All commercial services—whether a CUA or concession contract—must meet all appropriate criteria to operate in the park.

Necessary criteria help to answer the question, "Why is this service important for the park?" These criteria describe how a commercial service could enhance the visitor experience and further the goals and mission of the park. Necessary criteria are unique to NPS concession contracts: while CUAs do not need to meet any necessary criteria, concession contracts must meet at least one necessary criterion to operate in the park.

Appropriate Criteria: (Commercial services *must meet all* appropriate criteria.)

- Consistent with the park purpose and significance
- Consistent with laws, regulations and policies
- Does not compromise public health and safety
- Does not cause unacceptable impacts to park resources or values
- Does not unduly conflict with other park uses and activities
- Does not exclude the general public from participating in limited recreational opportunities

Necessary Criteria: (Concession contracts *must meet at least one* necessary criterion. Commercial Use Authorizations may be issued without meeting any necessary criteria.)

- Contributes to visitor understanding and appreciation of a park's purpose and significance
- Enhances visitor experiences consistent with the park's purpose and significance
- Assists the National Park Service in managing visitor use and educating park visitors
- Provides an essential service or facility not available within a reasonable distance from the park

Evaluation of Commercial Services/Visitor Services Opportunities

The following evaluation of Delaware Water Gap National Recreation Area's current commercial services and potential new services are based on an analysis of relevant laws and policies as well as input from park staff. All commercial services need to be consistent with the zoning for which the activity or service will take place, can be accommodated within visitor capacities (chapter 4) and do not cause indicators to approach thresholds (see chapter 5).

Existing Commercial Services

Current Concessions Contract.

The sole park concessioner operates the NPS-owned Dingmans Campground. The campground offers 133 wooded and river's edge campsites, some with electric and water hookups. The campground includes group as well as RV sites. Additionally, Dingmans Campground operates a convenient canoe and kayak livery service, offering river trips from late spring to early fall.

Overnight camping is a traditional recreational activity integral to multi-day trips involving hiking, climbing, or river running (i.e., kayaking and canoeing) among other activities. In order to avoid causing unacceptable impacts to park resources or values, overnight camping is currently only permitted in designated locations and is subject to limitations that include length of stay, party size, and where fires are allowed. Overnight camping allows visitors to immerse themselves in the exceptional variety of scenery and wildlife viewing opportunities within the park. Overnight camping contributes to visitor understanding and appreciation of the park's purpose and significance, enhances visitor experience, and assists park staff in educating park visitors. Therefore, overnight camping is determined to meet the necessary and appropriate criteria, and should be authorized under the concession contract authority of the Concessions Management Improvement Act of 1998 (PL 105-391, Section 418).

Current Commercial Use Authorizations.

As of September 2018, there are 13 businesses with commercial use authorizations to provide recreational services within the park. These businesses offer canoe, kayak, and raft trips and rentals, rock-climbing, bike rental, and guided fishing services.

River-running — River-running (kayaking, canoeing, rafting, tubing, and paddleboarding) is a fundamental and appropriate recreational activity. River-running is limited in the park due to seasonal water flows and it is currently permitted in the main stem sections of the river. People who river-run are subject to limitations that include: stay length; party size; where campfires are allowed; and modifying campsites with rock walls, new fire rings, or other structures (all of which are prohibited). River-running requires specialized skills and knowledge, employs special equipment, involves special safety and natural resource concerns, and may also offer opportunities for technical skills development. It allows visitors to use and enjoy the park in a manner that is consistent with the preservation of the park's fundamental resources and values, to experience a natural and scenic environment, and to avail themselves of extraordinary opportunities for solitude, group recreation, as well as be immersed in the natural setting of the park.

River-running meets all the appropriate criteria and can be authorized as a CUA. Additionally, it contributes to visitor understanding and appreciation of the park's purpose and significance, and it enhances visitor experience, thereby meeting two of the necessary criteria. Crowding at launch points can negatively impact the visitor experience and cause localized impacts to riparian vegetation. Livery use is and would continue to be guided to formal river access points. Fencing and signs may be installed to protect high use areas that exhibit vegetation loss and eroded soils.

Revegetated areas proximal to launch areas would be protected with signs, fencing, and/or natural barriers such as rocks and logs.

Types of commercial services that directly support river running are canoe, kayak, raft, tubes, and paddleboard rentals, transportation, and river guide services that assist visitors in safely conducting the activity in appropriate locations, including providing localized knowledge. As of September 2018, there were nine CUA holders providing river-running services. In the future, based on interest, performance of CUA holders, visitor experience and financial viability, the park could authorize river-running activities under the concession contract authority.

Recreational fishing — Recreational fishing is a popular activity along the river corridor and tributaries and is authorized in the park's enabling legislation. Recreational fishing as an activity is proper in the park provided it is done in a manner compliant with existing regulations. Fishing within the park is managed in cooperation with state fish and game commissions and requires the appropriate license from the state that the lake or stream is located in. The river, several streams, and numerous lakes offer a variety of fishing prospects. Fishing is currently permitted in most areas of the park

Types of commercial services that directly support fishing are guide services that assist visitors in finding appropriate locations for angling and provide specialized equipment and/or technical skill development. As of September 2018, there were two CUA holders providing guided fishing services. In the future, based on interest, performance of CUA holders, visitor experience and financial viability, the park could authorize recreational fishing activities under the concession contract authority.

Climbing — Technical rock climbing including ice climbing are proper activities in this park provided they are done in a manner compliant with existing regulations. Traditional rock climbing is permitted on the Mt. Tammany and Mt. Minsi cliff faces, and at Ricks Rocks along Route 602 in New Jersey, where there are opportunities for top roping. Many waterfalls in the park, including Buttermilk Falls, and the cascades near Dingmans Ferry and Slateford Farm, are sometimes suitable in winter for ice climbing. Rock and ice climbing requires specialized skills and knowledge, employs special equipment, and involves special safety and natural resource concerns. It allows visitors to use and enjoy the park in a manner that is consistent with the preservation of the park's fundamental resources and values, to experience a natural and scenic environment, and to avail themselves of extraordinary opportunities for solitude or an unconfined recreation experience. Climbing meets all the appropriate criteria and can be authorized as a CUA. Additionally it contributes to visitor understanding and appreciation of the park's purpose and significance, and it enhances visitor experience thereby meeting two of the necessary criteria.

Types of commercial services that directly support rock and ice climbing are guide services, which assist visitors in finding appropriate locations for these activities and provide specialized equipment and/or technical skill development. As of September 2018, there is one CUA holder providing guided climbing services. In the future, based on interest, performance of CUA holder, visitor experience and financial viability, the park could authorize climbing under the concession contract authority.

Biking — Cycling is a popular form of recreation within the Delaware Water Gap National Recreation Area. Bicycles are currently permitted on park roads, parking areas, and the McDade Recreational Trail. Due to traffic volume, the use of U.S. Route 209 and River Road are not encouraged for use as a bicycle route. The McDade Recreational Trail extends most of the length of the park and provides an ideal opportunity for bicyclists, especially for groups with small children. This packed gravel trail extending 32 miles offers visitors views of the river, charming streams, open farm fields, forests, and historic landscapes. The trail offers bicyclists areas of varied difficulty, from

easy to strenuous. With trailheads distributed between ½ and 5 miles apart, this trail offers a section for just about any visitor. Many visitors also utilize Old Mine Road in New Jersey for bicycle tours as the traffic volume is significantly less than on the main roads on the Pennsylvania side of the park. Outside of the McDade Trail, there are no other trails designated for bicycle use. Bicycling meets all the appropriate criteria and can be authorized as a CUA. Additionally, it contributes to visitor understanding and appreciation of the park's purpose and significance, and it enhances visitor experience thereby meeting two of the necessary criteria.

Types of commercial services that directly support biking are bicycle rentals and transportation/shuttle services. These services allow a diverse public who cannot all bring their own equipment to be able to enjoy this form of recreation and makes navigation within the park and surrounding area more flexible. As of September 2018, there is one CUA holder providing bike rental services and transportation within the park. In the future, based on interest, performance of the CUA holder, visitor experience and financial viability, the park could authorize bike rentals and associated transportation/shuttle services under the concession contract authority.

Shuttle service — The length of the park, its distance from easily accessible public transportation, and the need for multiple vehicles to facilitate watercraft trips down the river create a demand for a reliable and consistent shuttle service between areas of the park and potentially to and from gateway communities. Martz–Trailways provides bus service from New York City to Delaware Water Gap, PA. Shortline provides bus service from New York City to Milford, PA. The Monroe County Transit Authority provides regular countywide bus service. Stops are located in Delaware Water Gap, PA, and Bushkill, PA. During the summer, a bus service is provided on Saturdays, Sundays, and Holidays to select beaches, trailheads, and river accesses on the Pennsylvania side of the park and Kittatinny Point in New Jersey. The free bus transports bikes, canoes, and kayaks. Shuttle service in the park is appropriate if it does not conflict with other park uses and activities. Multiple river outfitters offer shuttle services with their equipment rental services.

Potential New Commercial Services.

In-park food and beverage service — Food and beverages service directly support the wide variety of recreational opportunities at the park. As of September 2018, there are no food and beverage operations inside the park although there are services located within driving distance. Limited food and beverage options typically found in other recreational areas could enhance the continuity of visitor experience. In-park food and beverage services are particularly proper in areas most frequently utilized for watercraft put-ins and take-outs, especially after visitors put into the river and no longer have access to a vehicle.

In-park food and beverages service meet all the appropriate criteria and can be authorized as a CUA. Vending machines selling snacks and beverages and temporary food services such as food carts and mobile food trucks are appropriate at the park if they are located within existing developed areas. Food carts and mobile food trucks could help facilitate easy transport of food and beverage products to park areas that experience variable visitation. Any in-park food and beverage services must meet all federal, state, and local health codes; not monopolize space at the expense of park visitors; and not strain the ability of the park's utilities including trash removal.

Hunting — Hunting has long been associated with the area and is authorized in the park's enabling legislation. Hunting is permitted in most areas of the park, during the state-specific seasons, and with the required state licenses. Whitetail deer, bear, turkey, grouse, woodcock, cottontail rabbit, and various species of waterfowl are just some of the game found in the park. Hunting meets all the

appropriate criteria and can be authorized as a CUA. Additionally, it contributes to visitor understanding and appreciation of the park's purpose and significance, and it enhances visitor experience, thereby meeting two of the necessary criteria.

Types of commercial services that may directly support hunting are guide services, which assist visitors in finding appropriate locations for hunting and provide specialized equipment and/or technical skill development.

Road-based commercial tours — Road-based commercial tours are appropriate in the park if they do not conflict with other park uses or activities. Such conflict would most likely occur during summer and holiday weekends when the park already experiences high use. To avoid this, the number and schedule of road-based commercial vehicles allowed at key locations at one time can be addressed in the operating conditions specified in the CUA or concession contract.

Cross-country skiing and snowshoeing — Cross-country skiing and snowshoeing are traditional recreational activities that provide an opportunity to experience winter conditions in the park. There are a total of four cross-country skiing and snowshoeing trails available at the park. Two are in Pennsylvania and the other two are in New Jersey. The two in Pennsylvania are the McDade Trail, which is the longest trail at around 30 miles, and the Slateford Trail, located in the southern part of the park. The Blue Mountain Lakes trails and the road east of this trail are two trails in the New Jersey side of the park. Cross-country skiing and snowshoeing meets all the appropriate criteria and can be authorized as a CUA. Additionally, it contributes to visitor understanding and appreciation of the park's purpose and significance, and it enhances visitor experience thereby meeting two of the necessary criteria. Types of commercial services that may directly support cross-country skiing and snowshoeing are guide services, which assist visitors in finding appropriate locations for these activities and provide specialized equipment and/or technical skill development.

Guided nature walks — Hiking is a traditional and one of the most popular ways in which the public experiences the park. It allows visitors to realize and experience the recreational and other values of the park. Hiking is appropriate in the park. Types of commercial services that may directly support hiking are guide services that assist visitors in finding ideal locations for this activity. Guided nature walks/hikes meet all the appropriate criteria and can be authorized as a CUA. A variety of limitations on this commercial activity may be specified under CUA operating conditions to ensure that it remains compatible with park purpose and significance (i.e., guided hikes may not be authorized in some locations during hunting season to ensure visitors' safety), does not cause unacceptable impacts to park resources or social conditions, and does not exclude the general public from participating in limited recreational opportunities.

New or expanded camping — As discussed under existing commercial services, overnight camping meets the appropriate and necessary criteria within the previously outlined limitations including capacities described in chapter 4. Any new campgrounds or sites within campgrounds would ensure a 150-foot buffer from the ordinary high water mark to reduce the likelihood of future impacts. Visitor use would be guided to more stable and resilient river access points such as sandy beaches and low-angle slopes. Fencing and signs would be installed to protect high use areas that exhibit vegetation loss and eroded soils.

Yoga — Yoga, being a low impact activity with minimal disturbance to the environment, would be an appropriate activity for DEWA. Numerous other National Park Service units offer yoga as a commercial use authorization. Although there has not yet been a request for a CUA for this activity, there has been an inquiry for a Special Use Permit. There are a few trails that provide scenic vistas within DEWA that have been identified as appropriate locations for this activity.

Rationale: Inappropriate Commercial Activities

Waterfall rappelling. In 2016, it was discovered that a climbing CUA had added waterfall rappelling to its park-based recreation opportunities. There was significant damage to the waterfall area with repetitive trips being made daily to a single site. Resource damage included the destruction of sensitive plants at the top of and in the waterfall. Trees that were used as anchors showed signs of wear. In addition, a small parking area used to access properly identified trails were overrun with the volume of visitors participating in the activity leading to destruction of grass areas surrounding the parking lots and the increase in garbage.

Mountain Biking. Mountain biking, as defined by the sport of riding bicycles off road and over rough terrain, is currently prohibited within the boundaries of DEWA (with the exception of the McDade Recreational Trail) to protect natural resources and minimize injuries. This activity may be re-evaluated in the future using the criteria for new and emerging uses found earlier in this chapter if suitable trails and locations can be located within the park (see chapter 4).

BEST MANAGEMENT PRACTICES

The following best management practices will be applied to avoid or minimize potential adverse impacts from implementation of the visitor use management plan.

Visitor use and experience

- Implement measures to reduce adverse effects of construction on safety. Measures may include, but are not limited to, noise abatement, visual screening, and directional signs that aid visitors in avoiding construction activities.
- Design development near the Middle Delaware Scenic & Recreational River in a way that is consistent with the Wild and Scenic Rivers Act guidelines for development by classification.
- Implement timely and accurate communication with visitors regarding programs, services, sites, permitted activities via new releases visitor contacts, web and social media, as well as signage.
- Thoughtfully design signage and place to not detract from visitor experience and to protect natural and cultural resources.

Vegetation and soils

Implement best management practices to avoid and minimize loss and damage to vegetation and soil, including, but not limited to, such actions as:

- Replant exposed soils where applicable with appropriate native vegetation immediately following completion of construction activities.
- Utilize erosion control materials and prepare erosion and sedimentation control plans as needed.
- To the extent practicable, save and reuse topsoil from construction activities on site.
- Acquire construction materials (e.g., gravel) from sources that are appropriate for site and inspected to be free of invasive species seed or insects.
- Clean construction equipment before entering the park to prevent the spread of nonnative invasive species.

- Minimize the area of earth disturbance to the amount necessary to accomplish the project
- Minimize the removal of native, mature, or historic vegetation.
- Avoid areas with rare plant communities, such as springs, seeps, and ephemeral pond sites.
- Avoid wetland soils.
- Conduct plant field surveys in appropriate growing seasons by qualified biologists to determine if rare, threatened, and endangered state or federally listed plant species are present early in the planning process for projects.
- Locate campsites at least 300 feet away from wetlands; campsite access trails will be located at least 150 feet away from wetlands.
- Retain all trees larger than 24 inches in diameter at breast height unless removal is necessary for safety or identified with prior approval through construction design and the park compliance process. Locate campsites, trails, and other facilities so that tree removal is minimized (unless hazard trees are present or no other option exists). Any tree removal will be in accordance with US Fish and Wildlife Service guidance for protection of bat species.
- Identify and preserve historic trees and vegetation to the largest extent feasible and document should there be potential loss.

Archeological resources

Potential impacts on the park's archeological resources will be addressed under the provisions for assessing effects outlined in 36 CFR Part 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA; 54 USC 306108). Under the "Criteria of Effect" (36 CFR Part 800.9(a), federal undertakings are considered to have an effect when they alter the character, integrity, use of cultural resources, or the qualities that qualify a property for listing in the National Register of Historic Places. Compliance with these laws and associated policies will be accomplished through specific project consultation with the State Historic Preservation Officers of New Jersey and Pennsylvania, Tribal Historic Preservation Officers, and other consulting parties. Best management practices for protection of archeological resources will include:

- Early in the planning process for any project and before any ground-disturbing action by the National Park Service, the park's archeologist will determine the need for archeological testing. Any such studies will be carried out and evaluated for effect before construction, in consultation with the state historic preservation officers, tribal historic preservation officers, and the Advisory Council on Historic Preservation (as needed).
- Archeological resources will be avoided to the greatest extant feasible by changing or shifting activities or facilities, or by sensitively designing those facilities.
- In instances where archeological resources cannot feasibly be avoided, archeological resource excavation and collection will be considered on a case-by-case basis. Because archeological excavation and collection is in itself a destructive process representing an irreversible and irretrievable commitment of the resource, excavation will be avoided, and nondestructive investigation techniques will be used as much as possible. Until the described research program of inventory and evaluation has been completed, the interim goal would be to protect archeological sites in place and to recover data from sites that would be unavoidably lost.

- Proper testing and planning should discover if any significant resources are in an area of planned activity. However, in the event that human remains, funerary objects, or objects of cultural patrimony are discovered during construction activities, work will stop immediately and applicable notifications and provisions of the Native American Graves Protection and Repatriation Act and its implementing regulations be followed.
- Management actions will be taken to prevent illegal collecting through monitoring. Protection may include stabilization in the field, or recovery, preparation, and placement of cultural material in museum collections. The localities and geologic settings of such sites will be adequately documented when artifacts are recovered.

Historic Properties

Because this plan involves phased implementation of actions not yet designed to allow for impact analysis in this plan, the National Park Service will follow best management practices including:

- Potential impacts on the park's historic structures, historic districts, and cultural landscapes will be addressed under the provisions for assessing effects outlined in 36 CFR Part 800, regulations issued by the Advisory Council on Historic Preservation implementing Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA; 54 USC 306108). Under the "Criteria of Effect" (36 CFR Part 800.9(a), federal undertakings are considered to have an effect when they alter the character, integrity, use of cultural resource, or the qualities that qualify a property for listing in the National Register of Historic Places.
- To minimize the impacts to cultural resources from new development, new construction will be compatible with the historic character of historic structures in terms of architectural elements, scale, massing, materials, and other character-defining features. The National Park Service will use screening or other sensitive design measures that will be compatible with historic resources and cultural landscapes. If adverse impacts cannot be avoided, impacts will be mitigated through consultation with all interested parties.
- Before any preservation or rehabilitation activities are taken that involve more than maintenance and emergency stabilization, a historic structure report will be completed for that particular structure. Upon completion of the preservation/rehabilitation action, a historic structure preservation guide would be prepared to provide information for inspection and routine and cyclic maintenance for each structure. A historic structure report or preservation guide would also be required for any historic structure being leased under 36 CFR 18.
- Significant landscape patterns and features of cultural landscapes (e.g., spatial organization, land use patterns, circulation systems, topography, vegetation, buildings and structures, cluster arrangements, small-scale features, views and vistas) will be protected and maintained. Proposed treatment levels for related structures will depend on their physical condition and the potential need of a structure for agricultural purposes or adaptive uses. Based on the contribution of all features, individual structures could either be kept, or recorded and removed, with their component pieces used for salvage materials to restore other historic properties.

Natural Soundscapes

- Create interpretive materials that instill a culture of awareness of and respect for the value of natural soundscapes. This will potentially decrease human-generated noise that resulted from visitor dispersal.

- Advise visitors and park staff about the growing impact of loud vehicles, motors, and other unnecessary noise disturbances (e.g., radios).
- Enforce existing noise ordinances (36 CFR §2.12). 36 CFR §2.12 is a federal regulation related to audio disturbances and prohibits noise that "… exceeds a noise level of 60 decibels measured on the a-weighted scale at 50 feet…"
- Implement standard noise abatement measures during construction activities. Standard noise abatement measures may include the following elements: a schedule that minimizes impacts on adjacent noise-sensitive uses; the use of best available noise control techniques wherever feasible; the use of quieter impact tools when feasible; the use of hand tools when feasible; the placement of stationary noise sources as far from sensitive uses as possible; and the use of noise-muffling, shielding, or fencing. Functioning mufflers will be installed and maintained on all motorized equipment. Engine idling will be reduced or eliminated.
- Consider the impact of all administrative actions, such as maintenance, resource management, interpretation, and ranger activities, on natural sounds. Incorporate noise mitigation into these administrative actions, such as remote silencing of alarm systems.
- Design additional facilities with noise reduction in mind, including using quiet fans, shielding noise-producing utilities, and noise-dampening door mechanisms.
- Use quiet pavement technologies when feasible on road and parking surfaces to reduce noise in those areas.

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Chapter 4

Management Strategies and Actions

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CHAPTER 4. MANAGEMENT STRATEGIES AND ACTIONS

INTRODUCTION

This chapter identifies management strategies and actions that will be used to achieve and maintain the desired conditions (see chapter 3) related to visitor use of the park and resolve issues described in chapter 2. This chapter begins with actions that are taken at a parkwide level, for specific zones, and then for specific sites. Actions for specific sites are organized further into a phased program of work that includes near, medium, and long-term actions with target completion dates falling within 5 years, 5–10 years, and 10 years or more, respectively. It should be noted that this phasing is subject to change, as longer-term proposed actions may evolve based on new information or due to the results of previous actions taken. Proposed actions will be evaluated, prioritized, and incorporated into a 5-year strategic plan for park operations that will be updated bi-annually.

Actions directed by the visitor use management plan or in site-specific subsequent implementation plans would be accomplished over the years following the plan and would be updated as needed. Future funding needs for actions are evaluated in the plan; however, there is no guarantee that the actions proposed in this plan would be funded. The park will continue to look for creative and diverse funding opportunities and implementation of proposed actions are subject to available funding. Budget restrictions, requirements for additional data or regulatory compliance, and competing national park system priorities may prevent implementation of some actions.

PARKWIDE AND GENERAL ACTIONS

Visitor Access

All permitted commercial activities within the park, including livery services, will continue to be managed according to NPS policy. All existing boat launches will continue as boat launches.

Accessibility is incorporated throughout this plan. As practicable, physical access will be provided to park services and programs. In these locations and others in which DEWA cannot provide physical access, the park will provide programmatic access to programs. This may include tactile maps, models of historic structures, multi-touch interpretive displays sharing images and videos of inaccessible trails, and audio description of park videos. These methods help to effectively communicate experiences to visitors who may or may not be able to physically access and experience the activity.

Climate change impacts are likely to alter opportunities and demand for outdoor recreation and visitor access through altered weather conditions and season length in addition to regional natural resource impacts (O'Toole et al. 2019). Specific to DEWA, the park is likely to see continued increases at river access locations as demand for water-based recreation rises with warmer temperatures. To ensure sustainable visitor use management and recreation opportunities continue, the park will adapt their recreation management as necessary and identified throughout the plan.

Visitor Use-Related Natural Resource Management

Monitoring and research for natural resources will continue, especially as related to visitor use and visitor-caused impacts. Opportunities to develop and expand current volunteer and partner stewardship natural resource endeavors will continue. Opportunities to educate visitors on Leave No Trace ™ principles will continue.

Visitor Use-Related Cultural Resource Management

Monitoring and research of cultural resources will continue, especially as related to visitor use and visitor-created impacts. Opportunities to develop and expand current volunteer and partner stewardship cultural resource endeavors will continue.

Visitor Education

Staffing to manage and monitor visitor use and park resources may increase to enhance visitor experiences and educational opportunities. If funding is available, seasonal staffing will also increase with expanded hours of operations (beyond the summer season into shoulder seasons) at existing visitor centers. Mobile visitor center services will be piloted to ensure more access to these important information resources for a larger number of visitors. Using roving rangers to bring information to different locations will allow information services to move to multiple locations as the visitor use patterns change over the course of a day. Free, non-personal interpretive services (e.g., waysides, orientations, and interpretive materials such as park brochure) will continue to be provided throughout the park as appropriate. Virtual visitor services and distance learning opportunities through web and social media presence will be increased. NPS staff would continue to explore ways to connect visitors to resources and provide educational opportunities.

Backcountry Patrol

The number of backcountry sites that can be maintained for visitor use may be limited because of management constraints. Many sites are unsuitable for visitor use and do not align with desired conditions for the area. Unauthorized visitor uses, vandalism, graffiti, and theft occur throughout the park, and additional patrolling is needed to manage, maintain, and monitor key areas, as well as to educate visitors and ensure public safety.

Park Operations

Public and employee safety will continue to be a high priority at the park. Park staff will promote safety through messaging and other awareness-raising mechanisms.

Preventative search-and-rescue considerations include increased staffing presence, as funding allows, including beaches, boat launches, trails, and smaller recreation sites.

Given the multitude of entrance and egress points at DEWA it is unclear to visitors when they are entering a national park. More visible park operations are one way to enhance the national park feel. The park presence will also be enhanced by linking trail networks, improved accessibility, increasing the diversity of trails, and developing additional camping and picnicking opportunities. Site identification and wayfinding signs would be added to locations such as trailheads, where appropriate, to contribute to creating a national park presence.

Fee Collection

Rationale for Expanded Amenity Fee Structure. Currently, the park operates on an expanded amenity fee structure from April to October, allowing the park to collect recreational user fees at certain locations throughout the park. During the planning process, DEWA re-evaluated the current fee structure for the park and explored potential changes such as implementing a parkwide entrance fee.

At this time, the park will continue to operate under an expanded amenity fee structure and will consider charging fees at additional sites. The number and location of sites that may charge fees will be identified in the future with appropriate public engagement. Sites that currently require a

recreational user fee are Milford Beach, Dingmans Access, Bushkill Access, Smithfield Beach, and Turtle Beach. Future changes in visitation numbers or patterns, degradation of resources, or other factors may lead to the need to change this in the future. At such a time, parkwide entrance or parking fees may be more effective for managing the use of the park.

What is the Expanded Amenity Fee Structure? In accordance with Federal Lands Recreation Enhancement Act, national park units may charge entrance fees as well as expanded amenity fees. Expanded amenity fees are not covered by America the Beautiful—The National Parks and Federal Recreational Annual, Senior, Access, Military, or Volunteer passes; however, Lifetime pass holders (Annual Senior, Lifetime Senior and Access Pass) are eligible for a 50% discount on the expanded amenity fees. These passes may be obtained at the park and are available online. Under the current structure, a day pass at an amenity site is $10 per vehicle up to 7 passengers, $2.00 for each additional person, and $2.00 for a walk-in pass. A park-specific annual pass will also be available. This will keep costs to frequent users at $45 a year. Second season passes registered to the same name and address are $25, while third season passes are available for $12.50. These fees will be evaluated annually as per NPS policies.

DESCRIPTION OF MANAGEMENT ACTIONS FOR SPECIFIC ZONES

Middle Delaware National Scenic and Recreational River Zone. To enhance river camping the park would develop up to three clustered river campsite locations with toilet facilities and continue to maintain existing primitive river campsites. The park will implement a campsite reservation system with a fee for river camping. The reservation system will create the opportunity for visitors to plan for their trip and allow for securing a campsite in advance. In addition the park would dedicate staff to manage, maintain, monitor, educate, and patrol river operations including educating visitors and enforcing regulations as funding allows. Leave No Trace™ education for proper human waste disposal would be increased. The overall number of river campsites will be increased from 65 to up to 85. Camping, especially the new clustered sites, will be located in areas that allow logistical support from land in addition to the river to improve river operation sustainability. All river campsites will have fire rings. Newly constructed features will be designed to meet ABA accessibility goals (i.e., 20% of campsites and trails will be initially targeted for ABA design) where feasible. River usage will be managed to the capacity defined in chapter 5. (see chapter 5).

Visitor Service Area Zone. Current facilities in this zone would be enhanced to accommodate larger groups and provide for additional use in the future. NPS presence (volunteers, park staff, or partners) at popular destinations would be increased as funding allows to help manage the number of visitors. Cycling as alternative transportation and low-impact recreation would be enhanced by incorporating bicycle-friendly design standards in road design and maintenance practice. Official scenic vistas will be enhanced where feasible. Visitors will be offered a variety of on-site interpretation to increase understanding of park themes and significances. Appropriate commercial services will include limited concessions, and commercial use authorizations, that might include food and beverage sales; canoe, kayak, and bicycle rentals, campgrounds, and modest shuttle services. Key destinations will be managed to their capacity (see chapter 5).

Natural Resource Zone. Visitor use in this area makes up the majority of the park and will be managed to protect resources, including natural lightscapes and soundscapes, and to provide opportunities for visitor's recreational access to experience those resources; trails in this zone will be designed to provide appropriate recreational uses. The McDade Recreational Trail will remain as a multi-use for hiking, biking, and cross-country skiing. Key destinations will be managed to their capacity (see chapter 5).

Outstanding Natural Feature Zone. Trails in this zone are designed to lie lightly on the land and may be more physically challenging. Visitor use in this zone will be actively managed to protect resources through trail design and/or use restrictions. The park will seek to restore visitor-created trails network to natural conditions. This area will be managed to ensure the protection of natural lightscapes and soundscapes and provide visitors with options to experience these two resources. Only visitor use facilities that protect health and human safety will be developed in this zone such as comfort stations (a public restroom such as a vault toilet) and/or trail enhancements. Trails are managed for low use to provide opportunities for solitude. Camping (except along the Appalachian Trail), biking, and horseback riding will continue to be disallowed in this zone to protect these outstanding natural resources. Key destinations will be managed to their capacity (see chapter 5).

Historic Zone. Evaluate opportunities to enhance interpretation of historic properties and villages and evaluate adaptive reuse possibilities, such as converting some historic houses for other uses (based on the priorities outlined in the historic properties prioritization strategy). Millbrook Village, Montague Grange, Neldon-Roberts Stonehouse, Foster Armstrong House, Peters Valley, Van Campen Inn, and Walpack Center sites will continue to be staffed primarily through volunteers with guidance from the National Park Service. The National Park Service will continue to work with partners and volunteers to provide programming and visitor access to historic sites as appropriate such as at Millbrook Village, Montague Grange, Peters Valley, Van Campen Inn, and Walpack Center as funding allows. Key destinations will be managed to their capacity (see chapter 5).

Description of Program and Site-Specific Actions

Implementation of the plan actions at DEWA is likely to occur in phasing and as funding is available. The actions in the plan are described in this section based on near-term (first five years), mid-term (five to ten years), and long-term (10+ years) action items. If there is no action listed for a location in a specific category of phasing, assume continuation of current management (as described in the GMP or other document in DEWA's planning portfolio) or management from previous implementation phase.

Programmatic Actions

Visitor Information and Education. Increased contact with park staff will not only augment visitors' opportunities to learn about and understand park resources, but will also provide more opportunities for visitors to be educated in good park stewardship, thus helping to prevent potential visitor-caused adverse impacts within the park. A mobile visitor center will allow staff to contact visitors where needed and most beneficial.

Near-Term Actions:

- Test mobile visitor center contact station concept as a pilot program, using pop-up options to meet the visitors where they are.
- Implement Leave No Trace™ education for managing camping and streamside recreation.
- Improve the non-personal services such as a virtual visitor center, online maps, and other resources, information on park website, and signage where appropriate.

Mid-Term Actions:

- Refine and continue mobile visitor contact station and roving ranger program as appropriate

- Evaluate other uses at current facilities for possibilities of centralizing education and interpretation services.
- Develop/increase interpretation and education volunteer and internship opportunities. Increase staff to manage these programs such as Visitor Services volunteers, Junior Ranger Volunteers, River Ambassadors, and Park Ambassadors at locations to include partner sites and welcome centers.
- Find opportunities to tell the park story through programs and exhibits.

Long-Term Actions

- Refine and continue mobile visitor contact station and roving ranger program as appropriate and as funding allows
- Implement recommendations for interpretation and education services locations (as described in "mid-term actions" above.

River Camping. Flooding, resource protection concerns, and other operational constraints have reduced the number of official river campsites available for use, but demand for river camping has not decreased. This condition has resulted in visitor use conflicts, resource damage, and inappropriate disposal of human waste.

Near-Term Actions:

- Continue to maintain existing primitive river campsites.
- Pilot alternative waste management solutions at two river campsites.
- Promote Leave no Trace ™ and water safety education along the river corridor to promote resource protection and human health and safety practices in the outdoors.
- Restore up to 20 river campsites in new clustered groupings, utilizing creative solutions to human waste management, universal accessibility, and incorporating ease of access for maintenance.
- Implement river camping reservations and camping fee ($16.00).

Mid-Term Actions:

- Add waste management solutions to existing campsites.
- Continue phased implementation of a river camping program.

Long-Term Actions:

- Add waste management solutions to existing campsites.

Non-River Camping. Additional campsites are needed to help satisfy demand, prevent conflicts from non-river campers using river camping sites, and prevent the creation of unauthorized campsites, which damage park resources.

Mid-Term Actions:

- Investigate opportunities for expanding camping and lodging opportunities within the park including hike- or bike-in campsites.
- Lease properties for campground/rental cabins.

Long-Term Actions:

- Implement opportunities for expanded types of camping as appropriate and funding allows.

Model Airparks. Continue to issue bi-annual permits for one model airpark if appropriate based on resource conditions.

Near-Term Actions:

- Continue with seasonal closures of the airpark as needed to protect cliff-nesting birds proximate to the airpark.
- Monitoring will be done regularly to determine the appropriateness of airpark within the current location.

Alternative Transportation Shuttle. Increased visitation and changing use patterns have resulted in crowding and congestion at some locations. Alternative transportation options will help to alleviate the strain placed on park infrastructure.

Near-Term Actions:

- Continue to operate shuttle in partnership with the Monroe County Transit Authority.
- Investigate funding opportunities to continue and expand the shuttle service.

Mid-Term Actions:

- Expand shuttle operation and improve shuttle stops, implementing appropriate suggestions from prior transportation studies.

Hunting and Fishing. Hunting and fishing are required in the park's enabling legislation, and the National Park Service will continue to cooperate with both Pennsylvania and New Jersey regarding regulations.

Near-Term Actions:

- Assess the feasibility of and implement as appropriate a permit program for hunters with disabilities including limited administrative road access and accessible hunting blinds (similar to the program developed by the Pennsylvania Game Commission).
- Work on developing partnership opportunities to enhance hunting access for underrepresented populations for a variety of hunting sports.

Off-Road Vehicle use/resource damage. Continued unauthorized driving off of designated roads has caused damage to natural and cultural resources. Off-road vehicle uses will be managed according to the Superintendent's Compendium.

Near-Term Actions:

- Redirect vehicles away from sensitive areas and onto designated roads using strategies such as gates, guide rails, and the placement of landscape boulders.
- Reseed and restore damaged areas.
- Increase education and outreach, targeted law enforcement patrols, and resource monitoring to discourage vehicles driving off road in sensitive habitat areas.

Mid- to Long-Term Actions:

- Reseed and restore damaged areas.
- Perform wetlands restoration in areas of extreme resource damage.

Mountain Biking. Mountain Biking is a popular form of recreation in the park. Mountain biking opportunities contribute to achieving desired conditions for sustainable access to high-quality recreational resources.

Near to Mid -Term Actions:

- Partner with local communities, subject-matter experts, and nationally recognized mountain bike groups to evaluate trail locations, develop designs, and implement appropriate mountain biking opportunities and strategies for ensuring long-term maintenance of trails.
- Continue education to trail users where mountain biking is currently allowed and not allowed within the park

Equestrian Use. Horseback riding opportunities contribute to achieving desired conditions for sustainable access to high-quality recreational resources.

Mid-Term Actions:

- Partner with local communities, subject-matter experts, and equestrian groups to evaluate trail locations, develop designs, and implement appropriate horseback riding opportunities and strategies for ensuring long-term maintenance of trails.

Climbing. Climbing opportunities contribute to achieving desired conditions for sustainable access to high-quality recreational resources.

Mid-Term Actions:

- Partner with local communities, subject-matter experts, and climbing groups to evaluate locations and implement appropriate climbing strategies for ensuring long-term maintenance of climbing areas.

Orienteering. Orienteering opportunities contribute to achieving desired conditions for sustainable access to high-quality recreational resources.

Near to Mid-Term Actions:

- Partner with local communities, subject-matter experts, and orienteering groups to evaluate locations and implement appropriate orienteering opportunities and strategies for ensuring long-term maintenance of orienteering areas.

Sites

Montague Grange. The Montague Grange will continue to be co-managed by the National Park Service and a partner organization, an arrangement that will assist with its preservation and public access.

Mid-Term Actions:

- Improve parking area to define parking location and protect cultural resources.

Callahan House. Continue adaptive reuse as an office, residence, or short-term vacation rental to preserve historic structure.

Mid-Term Actions:

- Formalize parking area for access to the Sawkill Glen Trail following the 209 Bridge Construction.

Appalachian National Scenic Trail. Continue to manage this area according to the desired conditions and management guidance in the Natural Resource and Outstanding Natural Features Zone (see chapter 3) and in collaboration with the Appalachian National Scenic Trail unit staff.

Near-Term Actions:

- This trail segment will be managed in coordination with partner organizations and Appalachian National Scenic Trail staff.
- No change from current management (site remains hiking trail only).

Mid- to Long-Term Actions:

- Work with Appalachian National Scenic Trail staff in future trails planning. Additional actions and updates to visitor capacities may be done at this time.

Sawkill Glen Trail. Formalize and improve trail and define parking.

Near-Term Actions:

- Formalize and improve trail from Callahan House along Sawkill Creek to the Mott Street pedestrian bridge and connection to Cliff Park Trail system.

Mid-Term Actions:

- Define trailhead parking adjacent to the Callahan House.

Long-Term Actions:

- Investigate connections to the Milford Greenway and Milford Beach.

Foster Armstrong House. The Foster-Armstrong House will continue to be co-managed by the National Park Service and a partner volunteer organization, an arrangement that will assist with building preservation, public access, and interpretation.

Milford Beach. Milford Beach site will continue as multi-use site with boat ramp, canoe access, picnic area and lifeguarded swim beach.

Near-Term Actions:

- When parking lot becomes full, redirect visitors to other areas or actively meter vehicle entry to ensure area is managed to desired resource and visitor experience conditions.
- Perform planning and design for wastewater system to meet current and future capacity.
- Increase wastewater pumping intervals.
- Evaluate the number of grills and picnic tables to improve picnic area.
- Increase programming with NPS staff as funding is available.

Mid-Term Actions:

- Implement wastewater system improvements.
- Implement expanded picnicking options if applicable.

Long-Term Actions:

- Evaluate the potential to expand beach as needed.

McDade Recreation Trail. Continue as a multi-use trail for hiking, biking, and cross-country skiing.

Near-Term Actions:

- Address deferred maintenance through regular tread and bridge maintenance.

Mid- to Long-Term Actions:

- Resurface tread and improve drainage controls following universal accessibility guidelines for outdoor recreation.
- Assess the feasibility to add hiker/biker campsites along the trail.
- Complete trail construction in conjunction with improvements to US Route 209 to convert hiking only section to multi-use trail.

Cliff Park Golf Course. Continue current lease to provide a nine-hole golf course.

Mid-Term Actions:

- Use of the Inn and other structures will be determined in the Historic Properties Prioritization Strategy.

Cliff Park Trails. Cliff Park Trails System is a popular system of trails and waterfall area that will be managed for appropriate use according to the desired conditions and management guidance defined in the Natural Resource, Historic, and Outstanding Natural Feature Zones (see chapter 3).

Near-Term Actions:

- Address deterred maintenance needs through regular trail tread improvements including minor trail reroutes as necessary
- Restore visitor created social trails to natural conditions to protect resources and improve visitor safety.

Mid-Term Actions

- Reroute Hackers Falls trail to improve trail sustainability and reduce maintenance requirements.

Neldon-Roberts Stonehouse. The Neldon-Roberts Stonehouse will continue to be co-managed by the National Park Service and a partner volunteer organization, an arrangement that will assist with in building maintenance, preservation, public access and interpretation.

New Jersey River Access. Evaluate multiple locations for potential locations for a new or expanded river access site on the New Jersey side of the river to increase recreational activities and services and help disperse use from other crowded locations of the park.

Mid-Term Actions:

- Evaluate improvements to the existing and potential recreation sites to enhance recreation opportunities such as formal river access, swim beach, camping opportunities, and large group picnic area. The evaluation should include the potential consolidation of existing low use sites to offset the costs and operational needs of adding or expanding river accesses.

Long-Term Actions:

- Develop a design narrative and development concept plan (DCP) for a longer-term redesign/use.

Namanock. This site within the Natural Resource Zone will continue as a primitive picnic area. It has the potential to be used by large groups and will be managed according to desired conditions and management guidance for the Natural Resource Zone.

Near-Term Actions:

- Maintain current conditions of picnic sites.
- Pilot test reservations for large group picnic site and event space.

Mid- to Long-Term Actions:

- Repair access road to address drainage issues.
- Implement large group picnic site and event space as appropriate.
- Evaluate sustainability of the canoe access as a part of conducting the New Jersey River Access analysis.

Van Campens Glen. Van Campens Glen is a popular trail and waterfall area that will be managed for appropriate use according to the desired conditions and management guidance in the Outstanding Natural Feature Zone (see chapter 3).

Near-Term Actions:

- Improve parking (e.g., define parking spaces more clearly).
- Perform routine maintenance and deferred maintenance work on trail.
- Restore visitor-created trails to natural conditions due to safety (e.g., water quality and Search & Rescue) and resource concerns (e.g., vegetation trampling). Add fencing or signage if necessary to allow vegetation to be re-established.

Mid to Long-Term Actions:

- Reconnect the trail to Millbrook Village.
- Evaluate the potential relocation of lower parking area and restoration of the lower section to natural conditions.

Raymondskill Falls. Continue site as one of the highlighted trail and scenic visitor experiences within the park. The site will be managed according to the desired conditions and management guidance in the Outstanding Natural Feature Zone (see chapter 3).

Mid-Term Actions:

- Improve trail tread for targeted universal access to upper overlook.
- Delineate parking spots at lower trailhead.

Old Shanna Outbuilding Site. The site will continue as a natural area and be managed according to the desired conditions and management guidance in the Natural Resource Zone (see chapter 3).

Long-Term Actions:

- Evaluate the option to develop formalized parking and picnic area.

Zimmermann Farm. This property will be co-managed through a combination of leasing and volunteer partnerships.

Mid-Term Actions:

- Restore portions of the cultural landscape.
- Continue to manage the property through a combination of leasing and volunteer partnerships.

Long-Term Actions:

- Restore and preserve barns and outbuildings so that they can be incorporated into the continued and future leases.

Adams Creek. Visitor access to the area will be permitted as any other natural location in the park. The area will be restored to natural conditions due to public health and safety concerns resulting from high levels of prohibited activities and the use levels exceeding visitor capacities and adversely impacting natural resources (see chapter 2).

Near-Term Actions:

- The area will be restored to natural conditions.
- Manage use through targeted law enforcement patrols, as needed.

George W. Childs Park – Continue to manage the trails and picnic area according to the visitor capacity and employ adaptive management strategies as necessary according to the desired conditions and management guidance in the Outstanding Natural Resource Zone (see chapter 3).

Near-Term Actions:

- The site is currently closed due to storm damage. The park is actively working to repair trails and reopen the site.
- Complete trail repairs as designed.

Mid-Term Actions:

- When parking lot becomes full, redirect visitors to other areas or actively meter vehicle entry to ensure area is managed to desired resource and visitor experience conditions.

Dingmans Falls. Visitor Center and Dingmans Falls Trail will continue to be open seasonally based on staffing availability.

Mid-Term Actions:

- Analyze and potentially expand season of operation, if appropriate, to provide longer seasonal or year-round access.
- Implement fee for programming (as appropriate) for expanded interpretive services.

Dingmans Access. Dingmans Access will continue as a developed river access site with boat and canoe launches and restroom facilities.

Near-Term Actions:

- Address parking lot and landscape deferred maintenance.
- Evaluate needs for static messaging and media to provide additional visitor wayfinding information.

Mid-Term Actions:

- Develop a designated shuttle stop location.

Long-Term Action

- Install a shaded picnic shelter.

Dingmans Campground. Management of the campground will continue under current concessions contract for tent and RV camping.

Mid-Term Actions:

- Investigate opportunities for managing the campground when concession contract expires.

Peters Valley. The Peters Valley site will continue to be operated and maintained through a partnership with the Peters Valley School of Craft.

Near-Term Actions:

- Conduct value analysis and master plan strategy to improve adaptive reuse of historic structures and viability of the craft center.

Mid-Term Actions:

- Increase NPS presence with staff, volunteers, or interns as funding allows.

Hornbecks. Continue current public access from the trailhead on Hwy. 209 to Lower Indian Ladders Falls and current public access from the trailhead on Emery Road to Upper Indian Ladders Falls for appropriate use according to the desired conditions and management guidance in the Outstanding Natural Feature Zone (see chapter 3).

Near-Term Actions:

- The gorge section of trail between Lower and Upper Indian Ladders Falls remains closed for visitor health and safety reasons resulting from storm damage and unstable slope conditions.
- Restore the visitor-created trails to natural conditions around the waterfalls.

Mid-Term Actions:

- Re-evaluate the stability and safety of gorge section; if the area has stabilized, then the trail would be rehabilitated and re-opened. Maintain the other sections of Hornbecks Trail at current levels.

Camp Hidden Falls. The National Park Service recently acquired the Camp Hidden Falls property as a wildlife connection corridor between DEWA and other private and state protected lands. The area will be managed according to the desired conditions and management guidance in the Natural Resource Zone (see chapter 3).

Near-Term Actions:

- Explore opportunities for orienteering in this location.

Mid-Term Actions:

- Explore opportunities for youth partnership programming on-site with local interest groups.

Long-Term Actions:

- Partner with local communities, subject-matter experts, and volunteer groups to evaluate potential trail locations and strategies for ensuring long-term maintenance of trails.
- Examine the feasibility of a campground such as leasing and concession programs that do not add additional facility costs and maintenance operations to the National Park Service.

Pocono Environmental Education Center. This site will continue to be operated and maintained through a partnership with the Pocono Environmental Education Center (PEEC).

Mid-Term Actions:

- Expand cooperative environmental educational opportunities in coordination with PEEC as funding and staffing are available.

Van Campen Inn. The Van Campen Inn will continue to be staffed and open to the public seasonally primarily through volunteers, with guidance from the National Park Service.

Walpack Center. The Walpack Center will continue to be staffed primarily through volunteers, with guidance from the National Park Service.

Mid-Term Actions:

- Investigate feasibility to restore and improve targeted historic structures for potential adaptive reuse such as vacation rentals.

Long–Term Actions:

- Install non-personal interpretive waysides and exhibits.

Mill Creek Trail. Visitor access to the area will be permitted as any other natural location in the park. The existing trail will be restored to natural conditions because of public health and safety concerns resulting from storm damage and unsustainable trail location.

Near-Term Actions:

- Redirect visitors to the Tumbling Waters Trail that leads to the same waterfall.
- Restore trail and pull-off area to natural conditions. Targeted staff patrols (as needed) will manage use.

Buttermilk Falls. Buttermilk Falls and trail will continue to be managed according to the desired conditions and management guidance for the Outstanding Natural Feature and Natural Resource Zones (see chapter 3).

Near-Term Actions:

- Improve Mountain Road and address deferred maintenance of road and historic culverts.

Mid-Term Actions:

- Define parking lot and parking spaces and lower viewing area to improve accessibility and protect the sensitive waterfall environment.

Long-Term Actions:

- Reroute the trail that connects to the Appalachian Trail to improve trail sustainability.

Eshback. Eshback will continue as a boat and trail access location.

Near-Term Actions:

- Improve waste management strategies that are mobile and can be in place seasonally.
- Define the parking area to establish parking spots and capacity of parking.
- Enhance law enforcement patrols to manage roadside parking and address safety concerns as needed.

Mid-Term Actions:

- Evaluate possibilities for flexible waste management solution that is context-sensitive.

Ames Jennings. A former homestead site where a visitor-created river access site was established with no facilities leading to numerous visitor complaints and conflicts, vegetation loss, trash, and unauthorized activities.

Near-Term Actions:

- Redirect visitor use to other more appropriate locations to enable the park to focus on improving existing developed visitor use sites compatible with large groups.
- Manage the use through targeted law enforcement patrols, as needed.

Mid-Term Actions:

- Restore road entrance and parking area to natural conditions.
- Install natural barriers to block access to former entrance.

Toms Creek. Toms Creek will continue as a picnic area and trailhead according to the desired conditions and management guidance in the Natural Resource and Outstanding Natural Feature Zones (see chapter 3).

Mid Term Actions:

- Address deficiencies and improve trail tread to meet universal accessibility standards.

Long-Term Actions:

- Conduct a Design Concept Plan for the site to enhance picnic area and trail connections.
- Develop non-personal interpretive resources about stream and ravine ecology.

Crater Lake. Crater Lake will continue as a picnic area and managed according to the desired conditions and management guidance in the Outstanding Natural Feature Zone (see chapter 3).

Near-Term Actions:

- Improve road conditions of Skyline Drive to improve accessibility to this site including define overlooks.
- Add additional signage to educate and influence visitor behavior.

Mid-Term Actions:

- Develop a design narrative and conduct Design Concept Plan and environmental analysis in combination with Blue Mountain Lakes.

Long-Term Actions:

- Implement DCP as appropriate.

Flat brook. The Flat Brook is a premier trout fishing stream, which flows through the park and New Jersey State lands and is co-managed according to the desired conditions and management guidance in the Outstanding Natural Feature Zone (see chapter 3)

Near-Term Actions:

- Swimming and wading (except while fishing) will continue to be prohibited through Superintendent's compendium to protect native fish populations and reduce visitor conflicts.
- Use will be managed through information, education, and targeted law enforcement patrols, as needed to redirect visitors to designated swimming areas.

Long-Term Actions:

- Convert informal grassy parking area currently located along roadside across the road from the creek into a formal parking area. Restore pull-off areas along the creek.
- Relocate trash receptacles to the parking area.

Bushkill Access. The Bushkill Access will continue as a boat access and McDade Recreation Trail trailhead with restroom facilities.

Mid-Term Actions:

- Perform pavement treatment on parking lot.

Long-Term Actions:

- Design and conduct environmental review for a small river overlook off US Route 209 with picnic tables.

Camp Ken-Ettiwa-Pec. Will be managed according to the desired conditions and management guidance in the Natural Resource Zone (see chapter 3).

Near-Term Actions:

- Investigate and implement opportunities for special uses with partners and cooperating agencies and organizations to help preserve and maintain the camp.

Blue Mountain Lakes. Blue Mountain Lakes will continue as a trail system around the lake with connections to Crater Lake according to the desired conditions and management guidance in the Natural Resource and Outstanding Natural Feature Zones (see chapter 3).

Near-Term Actions:

- Improve trail blazing to more clearly communicate designated trail paths.
- Evaluate possible operational strategies and staffing reallocation to address unauthorized activities and manage use levels.

Mid-Term Actions:

- Develop a Design Concept Plan and environmental review in combination with Crater Lake and design conversion of old road traces to sustainable and enjoyable trails and opportunities for expansion to a day site with amenities.

Long-Term Actions:

- Implement Concept plan upgrades and trail improvements as appropriate.

Millbrook Village. The Millbrook Village is a living history village that is a collection of original historic buildings, reproductions, and historic structures that were moved to the location. The site will continue to be staffed primarily through volunteers, with guidance from the National Park Service.

Near-Term Actions:

- Develop Master Plan with an interpretive exhibit strategy for the Millbrook Village.
- Evaluate options for providing a covered group picnic space to accommodate visitors seeking group social experiences.
- Address deferred maintenance related to roof repairs and access for key buildings in the Village.

Mid to Long-Term Actions:

- Implement the Millbrook Village Master Plan including addressing deferred maintenance and collections management strategies according to established priorities.
- Implement a fee for interpretation programming (where appropriate) in order to offset expanded interpretation of historic structures in a cost-neutral arrangement.

Freeman Tract. Continue to manage this area according to the desired conditions and management guidance in the Outstanding Natural Feature Zones (see chapter 3).

Mid-Term Actions:

- Restore most or all of the old, unused roads off Freeman Tract Road to natural conditions.
- Provide single-track trail access from Freeman Tract to the river at several points.

Long-Term Actions:

- Restore unauthorized river campsites to natural conditions.
- Formalize some parking areas (where associated with authorized river and/or trail access) and restore others to natural condition.

Hidden Lake. Hidden Lake will continue as a site for fishing access and trail around the lake and managed according to the desired conditions and management guidance in the Natural Resource Zone (see chapter 3).

Near-Term Actions:

- Develop a design and environmental review to install a universal-access fishing platform and trail.

Mid-Term Actions:

- Perform road and parking improvements.
- Develop non-personal interpretive resources about lake ecology and fishing.
- Repair dam to address deferred maintenance.
- Evaluate potential for a group picnicking site.

Riverview Trailhead. Continue as a McDade Recreation Trail trailhead parking area off River Road and managed according to the desired conditions and management guidance in the Natural Resource and Middle Delaware Scenic and Recreational River Zones (see chapter 3).

Near-Term Actions:

- Address drainage issues at parking lot and define parking.
- Restore the riparian slope and visitor-created trails down to the river. Block access to river via fencing or other barricades appropriate for river viewing.

Mohican Outdoor Center. The Mohican Outdoor Center will continue to be operated and maintained through a partnership with the Appalachian Mountain Club.

Poxono Access. Continue to maintain as boat access off Old Mine Road.

Mid-Term Actions:

- Improve and maintain site to address deferred maintenance in parking lot and on grounds.

Turtle Beach. Continue as multi-use site with picnic area and lifeguarded swim beach.

Near-Term Actions:

- Staff will seasonally be assigned to the area on holidays and targeted high visitation days to enforce visitor flow and redirect traffic when areas have become full or approach the identified visitor capacity.
- Continue to look for solutions to the limited shade at the site and improved accessibility.

Smithfield Beach. Continue as multi-use site with boat ramp, canoe access, picnic area and lifeguarded swim beach.

Near-Term Actions:

- When parking lot becomes full, redirect visitors to other areas or actively meter vehicle entry to ensure area is managed to desired resource and visitor experience conditions.

Mid-Term Actions:

- Design and conduct environmental review to address the traffic flow to ease congestion on River Road and at the beach site.
- Improve/replace signage and site distance (implement recommendations from the Alternative Transportation Study).

Long-Term Actions:

- Reconfigure entrance/exit road based on design and analysis.
- Develop a formal alternative transportation shuttle stop.
- Install shaded picnic shelters for permitted groups.
- Investigate feasibility of separate launch areas and beach expansion.

Hialeah Picnic Site. Continue site as picnicking sites will be available on a first-come, first serve basis and trailhead parking for the McDade Recreation Trail.

Near-Term Actions:

- Restore visitor-created river-access trails and improve fencing to protect riparian vegetation.
- Utilize roving patrols as needed to manage use levels .

Mid-Term Actions:

- Targeted vegetation management will open vista to river from picnic sites.
- Investigate the feasibility to convert picnic area to a hiking/biking tent campground or convert one area to a clustered picnic site for permit/reservation large group area.

Karamac. This trail leads to a site of a former hotel and river crossing where visitors like to swim and to jump off of bridge piers into a swift water area of the river. The parking area is sometimes used as alternative parking for the Kittatinny Point/Dunfield area.

Near-Term Actions:

- Control use through targeted patrols, as needed.

- Better define parking using striping and other techniques and add signage with information on resource damage and visitor safety.

Mid-Term Actions:

- Control use through targeted patrols, as needed.

Long-Term Actions:

- Monitor site conditions and safety concerns through the indicators and thresholds (see appendix A). If conditions worsen, restore the area to natural conditions.

Kittatinny Point. Kittatinny Point will continue as a multi-use site with boat ramp, canoe access, trail access, picnic area (no grilling/cooking), and scenic vista.

Near-Term Actions:

- When parking lot becomes full, redirect visitors to other areas or actively meter vehicle entry to ensure area is managed to desired resource and visitor experience conditions.
- Assess the viability of continued operations of the Kittatinny Point Visitor Center. Future options for this facility include changes to operating hours, operating seasons or concessions operations.
- Coordinate Alternative Transportation hiker shuttles in cooperation with Monroe County Transit Authority and New Jersey State Forest to alleviate parking challenges while monitoring trail capacity.

Mid-Term Actions:

- Conduct Traffic Safety Management Study with Federal Highway Administration.
- Continue to evaluate and monitor use levels and resource capacity to manage the location.

Long-Term Actions

- Implement traffic pattern changes as appropriate.
- Investigate site improvements and redesign options to accommodate more visitors for a desired range of opportunities.

611 Overlooks. Point of Gap, Resort Point, and Arrow Island parking areas will continue as scenic overlooks with vistas of the Delaware water gap.

Near-Term Actions:

- Work with Pennsylvania State and other partners on planning efforts for the Liberty to Water Gap/September 11th Memorial Trail connections.

Mid-Term Actions:

- Work with Pennsylvania State and other partners to construct the Liberty to Water Gap trail.
- Restore overlooks, address deficiencies, and improve entrances and exits to the overlooks.
- Manage vegetation to provide a view of the Delaware River and Water Gap.
- Design and install wayside exhibits.

Long-Term Actions:

- Connect shuttle system to the overlooks.
- Investigate opportunities for connecting trails to the Liberty to Water Gap Trail system.

Slateford Farm. Continue to manage this area as hiking trail access only and buildings remain inaccessible to the public according to the desired conditions and management guidance in the Natural Resource and Historic Zones (see chapter 3).

Near-Term Actions:

- Addition of a road sign at Arrow Island Pullout that indicates existence of a trail to Slateford Farm.

Mid- to Long-Term Actions:

- Develop partnership with gateway community to help maintain and interpret the Slateford Farm site.
- Connect trail network to external trail networks including September 11 National Memorial Trail and others being considered along Route 611.

Chapter 5

Visitor Capacity

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CHAPTER 5. VISITOR CAPACITY

OVERVIEW

This section provides additional information about the visitor capacity identification as it relates to the visitor use management framework for the Delaware Water Gap National Recreation Area Visitor Use Management Plan. For a full description of the IVUMC Framework and additional resources, please visit the following web address: http://visitorusemanagement.nps.gov/. The primary goal of this VUM plan is to preserve the fundamental resources and values of DEWA. By managing the number of people at one time, the National Park Service can help ensure that resources are protected and that visitors have the opportunity for a range of high-quality experiences.

Although visitors have mostly noted that their experiences are of high quality, they have also identified a number of concerns related to increasing use levels such as congestion in parking areas, conflicts between user groups, and concerns over resource impacts at swim areas and near sensitive resources.

The IVUMC defines visitor capacity as the maximum amounts and types of visitor use that an area can accommodate while achieving and maintaining the desired resource conditions and visitor experiences that are consistent with the purposes for which the area was established. Visitor capacities will be used to inform and implement the management strategies selected as part of this visitor use management plan. Identifying visitor capacity is also directed by legal mandates that require the National Park Service to identify and implement commitments for visitor capacities for all areas of a park unit per the National Parks and Recreation Act of 1978 and for Wild and Scenic Rivers per the Wild and Scenic Rivers Act of 1968 (Interagency Visitor Use Management Council 2016). Visitor capacities were identified using best practices and examples from other plans and projects across the National Park Service. The process for identifying capacity follows four guidelines: 1) determining the analysis area, 2) reviewing existing direction and knowledge, 3) identifying the limiting attribute, and 4) identifying visitor capacity.

This section of the plan outlines the considerations and process used to identify visitor capacity for key destinations.

VISITOR CAPACITY ANALYSIS AREAS

Analysis areas are destinations where high levels of visitor use are causing resource impacts and threatening desired conditions. For these locations, a detailed analysis has been conducted to identify the appropriate level of use. For each analysis area, an overview of the setting, relevant indicators, visitor use issues, current use levels, and visitor capacity identifications are described. Current use levels have been informed by relevant studies and data, and the actions contained in this plan were considered as part of the visitor capacity identifications.

The sites listed below where the majority of users are likely to congregate (i.e., trailheads, within a short distance from parking areas, beach areas) were selected to have defined carrying capacities. These sites will serve as examples for other similar locations in the park for capacity determinations. Where applicable, specific management strategies outlined in this plan that will be used to implement visitor capacities have been included. For these and all other locations, visitor capacities will be monitored as described, and if associated thresholds are exceeded, adaptive management strategies will be implemented to ensure that capacities are not exceeded. These areas will be used as examples

to apply to the visitor capacity process at other sites throughout the park. Twelve analysis areas have been identified as locations with the highest visitor use emphasizing the importance of implementing visitor capacity strategies at these locations. The locations include:

1. Caddoo
2. Milford Beach
3. George W. Childs Park
4. Dingmans Falls
5. Toms Creek
6. Crater Lake
7. Blue Mountain Lakes
8. Van Campens Glen
9. Turtle Beach
10. Smithfield Beach
11. Hialeah Recreation Site
12. Kittatinny Point

Following guidance from the IVUMC, the level of analysis that occurs during visitor use management planning and visitor capacity identification is determined on a sliding scale depending on the complexity and context of the plan. A higher level of analysis has been identified as necessary for these analysis areas due to the visitor use issues present at them. For other locations, desired conditions are being met under current use levels and a lower level of analysis is being used. The visitor capacities at these other locations have largely been identified to be near, at, or slightly above current use level. Future monitoring of use levels and indicators will inform the National Park Service if use levels are nearing visitor capacities. If so, adaptive management strategies as outlined in this plan will be taken. For these locations, a table is included below that states the current use levels, visitor capacity identifications, and rationale. Rather than identifying capacities for trails, the trails will be managed according to indicators related to trails (see appendix A) to manage both kinds and amounts of use to meet desired conditions for these areas and experiences.

REVIEW OF EXISTING DIRECTION AND KNOWLEDGE

During this step, the planning team developed desired conditions, indicators and thresholds, with particular attention to conditions and values that must be protected and are most related to visitor use levels. An overview of visitor use issues and current use levels for each key area can be found below under each analysis area.

The amount, timing, distribution, and types of visitor use in DEWA influence both resource conditions and visitor experiences. Since its establishment, visitation to the park has increased. Average visitation in the 1980s was 2.3 million visitors per year, which grew to 4.3 million in the 1990s. After 2000, park visitation continued to grow, peaking at 5.2 million in 2010. More recent average annual visitation is 3.4 million.

Visitor capacities are most frequently expressed as people at one time increments. PAOT refers to the total number of people that are present at a site at any given point in time. Delineations of sites may vary depending on the specific location, and monitoring can be done in a variety of ways, but should serve to approximate as best as possible the total number of people present at a location. In some instances, visitors may more fluidly move from one site to another. This determination approximates use levels that are likely to occur at one time within a general area that could easily be associated with each listed location.

For each key area, the following indicators will be monitored 1) people at one time, 2) encounter rates on trails, 3) extent of user-created trails, 4) number of visitor use-related incidents, and 5) number of incidents of user-created damage to historic properties. The selected indicators monitor the limiting attributes to track conditions over time that most inform management of when a change

in action is needed and ensure that desired conditions are maintained and/or achieved. The associated thresholds can also be found in the full description of the Indicators and Thresholds in chapter 5.

METHODOLOGICAL CONSIDERATIONS

To determine the appropriate amount of use at one time at analysis areas, a variety of data were reviewed to understand current conditions compared to desired conditions. Visitation data collected annually by the National Park Service staff to track levels of visitor use parkwide and by area was used as a data source. The National Park Service also collects annual data including counts of fees, parking availability, trail counts, and other data. The traffic count data was converted into the number of people visiting by applying the person-per-vehicle multiplier of 3.5.

Research was conducted by Clemson University on use levels, types, patterns, and preferences and perceptions of visitors at a specific number of analysis areas within the park during the summer seasons of 2015 and 2016 (Hallo et al. 2017). Data relating to people at one time have particularly been incorporated into this analysis. Visitors were asked about their preferences and perceptions of how many people they typically saw at each site, how many people they believe are acceptable at once, and at what point visitors surveyed would no longer visit because of high visitation. In addition to this dataset, field cameras were used during the 2015 season to estimate visitation levels to specific sites. Cameras were directed at locations where the majority of users were likely to be; however, these results represent a portion of use at the site and did not capture all use in each area.

Results from the visitor surveys inform visitor capacity identifications. Research on visitor impacts to trails, including visitor-created trails, was collected by the United States Geological Survey staff in conjunction with Virginia Tech. The National Park Service tracks visitation by tallying fees paid, by counting availability of designated parking spaces, and by using trail counters. In addition, annual reports from commercial operators are collected that track the number of visitors who were brought into the park through those services. Where necessary, approximations have been made. For instance, a persons-per-vehicle multiplier has been used to estimate the average number of people who come to a site by private vehicle. While some vehicles may include more or less than the multiplier used it represents an average. If a site does not include delineated spaces, estimates have been made assuming vehicles would park perpendicular to the edge of the parking area.

IDENTIFY THE LIMITING ATTRIBUTE

The limiting attribute is specifically resource or experiential attribute(s) that constrain the analysis area's ability to accommodate visitor use. The limiting or constraining attribute(s) may vary across the analysis area and is described under each key area. This is an important step given that a key area could experience a variety of challenges regarding visitor use issues. The project team considered potential attributes that would constrain the analysis area's ability to accommodate visitor use. The limiting attributes are directly linked to two of the park's fundamental resources and values: 1) sustainable access to high-quality recreation opportunities and 2) mosaic of terrestrial and wetland habitats. Limiting attributes related to these two FRVs were also considered during the identification of visitor capacity.

IDENTIFY VISITOR CAPACITY AND IMPLEMENTATION STRATEGIES

There are two parts to visitor capacity: the identification of visitor capacity and the identification of additional management strategies and actions to manage within the identified capacity (implementing visitor capacity). To identify the appropriate amounts and types (the visitor capacity) of use at key areas, summaries from previous steps were reviewed to understand current conditions compared to desired conditions for the area. This review included management strategies and actions in chapter 4 and in the work plan. Further analysis of the visitor capacity would be completed as a part of the design and planning for areas where this action is being pursued (as noted above). As a result of those planning processes and associated analyses, the visitor capacities might be adjusted for these areas. For information about visitor capacity monitoring and adaptive strategies related to implementing capacity, see the monitoring for visitor capacity identified in chapter 5.

Caddoo

Overview of Analysis Area.

Caddoo is located in the northern portion of the park along the Delaware River. The site is mostly used for river access on the New Jersey side and does not have restrooms or amenities.

This site is located in the Natural Resource Zone and Historic Zone.

Review of Existing Direction and Knowledge — While this site is a low-use site, its popularity has increased as other sites such as Milford Beach across the river become more crowded and visitors seek river access. People have been observed parking along the road and walking to the site when parking is not available. The number of complaints about inappropriate visitor behavior and trash in the Caddoo area has increased.

The parking area at Caddoo is not defined and the number of vehicles that can park there varies. It is estimated that six vehicles can reasonably fit in the cleared area. When the persons-per-vehicle factor is applied this translates to 20 PAOT at this site.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated at Caddoo is the visitor experience as described by the desired conditions as well as resource concerns specifically related to cultural resources. Specifically, the current amounts and levels of visitor use are low and to maintain and achieve desired conditions the visitor experience should be a primary consideration for identifying the amounts and types of visitor use the area can accommodate.

Visitor Capacity and Implementation Strategies — Management strategies will enhance visitor opportunities at the site. To accomplish this, the road will be improved and the site would be monitored and evaluated as a part of the NJ Swim Beach Access, which could include the possibility of redirecting visitors to other locations to better implement the visitor capacity at Caddoo. These opportunities will be further explored and vetted for feasibility in subsequent planning efforts. The visitor capacity has been identified to be three times the current use for a total of 60 PAOT. The visitor capacity at this site will be reviewed and adjusted as site design for the listed improvements are made to ensure they are accurate. The program of work for this plan includes the development of a Design Concept Plan for this area, which will involve a reevaluation of capacity. For a list of implementation strategies, see the visitor capacity monitoring strategies.

Milford Beach

Overview of Analysis Area.

Milford Beach is at the north end of the park outside the Borough of Milford, Pennsylvania. This area offers a grassy beach with picnic areas, a pavilion, restrooms, a boat launch, a canoe launch, and access to the McDade Recreational Trail. The site is largely accessed by visitors in private vehicles although some small numbers of visitors arrive via commercial transportation services and alternative transportation. It is currently an expanded amenity fee site and is within the Visitor Service Area Zone.

Review of Existing Direction and Knowledge — The popularity of Milford Beach has resulted in crowded conditions during the summer season, particularly when temperatures are high, and on weekends and holidays as visitors seek water-based recreation opportunities. Visitor use of Milford Beach has been increasing steadily over the last several years. Parking is limited compared to the number of people seeking to use this site for a variety of activities. Site is accessed by liveries and private users, creating the potential for competition of resources. During the 2015 season, the site reached capacity twice when the threshold of visitors per lifeguard was reached, and consequently, new entries were temporarily limited to ensure visitor safety.

Milford is a popular destination for a variety of people, with 22% of frontcountry users, 14% of trail-based users, and 38% of river-based users surveyed in 2015 reporting visiting the site during their trip. High use times of the day span between 10 a.m. and 6 p.m. (Hallo et al. 2017). The majority of users arrive at Milford Beach by personal vehicle (74%), and more than half of visitors purchase weekend passes for the site (52%) (Hallo et al. 2017, NPS 2016). Milford Beach is also accessed by liveries that offer boating opportunities. During the 2014 season, liveries brought clients to the site 340 times.

The National Park Service collects annual data on the expanded amenity fees paid at this site. During the 2015 season, $12,350 in fees or passes were collected over the 32 days that counts were recorded (NPS 2015). Because fees are paid by the vehicle, this results in an average of 385 vehicles per day. When the number of persons-per-vehicle multiplier is applied, this results in an average of 960 people per day visiting the site between June and September. According to a 2010 NPS visitor survey, the average length of stay for water-based users at DEWA is five hours. When considering that this site sees the majority of its use from 10 a.m. to 6 p.m., this equates to a complete turnover of people at the site at least once a day and approximately 500 PAOT at Milford Beach. There are 200 designated parking spaces. When an average number of persons-per-vehicle is applied (3.5), this results in 700 PAOT able to use the site. These counts are confirmed by 2015 observational data, which saw an average of 269 vehicles per day over the summer season (Hallo et al. 2017). In addition to visitors arriving at this site by personal vehicle, liveries drop off visitors to use the site and travel to other destinations by personal watercraft that they rent. The National Park Service collects day use data brought to DEWA by liveries. In 2014, the two liveries that regularly drop off visitors at Milford Beach brought on average an additional 20 people to the site at one time. This results in a total of 720

PAOT being at Milford Beach. Sometimes during peak use times, the number of cars and people is exceeding the facility capacity (number of available parking stalls) which results in periods when the site is closed to additional entries and a temporary queuing system is in effect.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated at Milford is the visitor experience for water-based recreation and associated resources and the wastewater comfort facility. Specifically, the current amounts and levels of visitor use are resulting in crowding and visitor complaints from increasing user conflicts that point to undesirable visitor experiences. The ability of the wastewater facility to accommodate

increased visitor use is also an important limiting attribute. The amounts and types of visitors that can be accommodated at Milford Beach are the direct result of the balance between liveries and private users in order to maintain and achieve desired conditions.

Visitor Capacity and Implementation Strategies — Management strategies will potentially accommodate large group picnicking, provide additional visitor services such as food vendors, and expand the wastewater system to accommodate additional use. These changes will help meet current demand for visitor opportunities at this location but will not allow for additional use. Of the parking spaces at Milford Beach, visitors who access the beach primarily use 177 stalls. For this reason, the visitor capacity has been identified to be at current use levels of 720 PAOT. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

George W. Childs Park

Overview of Analysis Area.

George W. Childs Park (Childs Park) is in the northern portion of the park in Pennsylvania. The site includes a short trail that follows Dingmans Creek as it flows through lush ravines, over three rushing waterfalls, and adjacent to the ruins of a mill and several structures built by the Civilian Conservation Corps. The site is within the Outstanding Natural Feature Zone.

Review of Existing Direction and Knowledge — Many activities that visitors participate in at this site are prohibited by the park, such as swimming, jumping, wading near the waterfalls, and traveling off the designated trail. The spot has become popular for barbecues, which often result in large crowds, presence of trash, presence of human waste, consumption of alcohol, and vegetation trampling. Visitors have often been observed parking along the nearby roadway and walking to the site. The site's popularity has also led to visitors parking farther away and accessing the site through visitor-created trails along Dingmans Creek. Natural resources, particularly sensitive species and plants in riparian areas, are being damaged by the high levels of use occurring off trail. Concerns for human safety also exist due to the popularity of jumping from waterfalls and the presence of human waste. During the 2015 season, Childs Park reached capacity six times due to high use levels. Visitors were parking along roadsides because the parking lot was full and new entries to the site were temporarily restricted due to safety concerns of the visitors trying to reach the site from unauthorized parking areas.

Childs Park is primarily used by frontcountry users (22%) and trail-based users (20%), compared to a smaller portion of river-based users (9%), according to the 2015 visitor survey. Visitation to the site is most popular during July and August with peak use times from noon to 5:30 p.m. During the 2016 season visitors who took part in a visitor survey reported typically seeing 30 PAOT at Childs Park (Hallo et al. 2017). Data related to parking and traffic indicate that use levels are higher. There are approximately 56 parking spaces at Childs Park. When the persons-per-vehicle factor of 3.5 is applied this translates to 195 PAOT at Childs Park. This calculation is confirmed by 2015 data, which

showed an average of 50 vehicles at one time being observed at the Childs Park entrance. Specifically, this recreation site is designed to accommodate a larger number of visitors, and as a result, hundreds of PAOT use the area.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated is the visitor experience. Childs Park is one of two areas in the park that are the most affected by high visitation and crowding-related issues from visitor complaints and user conflicts.

Visitor Capacity and Implementation Strategies — Management strategies will provide additional activities that are currently sought after by visitors, while also ensuring safety and lessened resource damage. To accomplish this, the site will be managed through a permit system or metering system with a site attendant, the current parking footprint will be maintained, and roadside parking will be discouraged. Other strategies include the potential to implement a maximum parking duration to discourage inappropriate use and ease congestion. To ensure that the site is managed safely and to lessen the occurrence of resource damage, no more than current levels of use will be accommodated. The visitor capacity has been identified to be at current use of 195 PAOT. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

Dingmans Falls

Overview of Analysis Area.

Dingmans Falls is located in the center of the park near Dingmans Ferry, Pennsylvania. The site includes the visitor center and the short Dingmans Creek Trail. The site is within the Visitor Service Area Zone.

Review of Existing Direction and Knowledge — This site houses one of only two formal visitor centers in the park and visitor demand is high compared to the available parking. During the summer, parking can fill by 10 a.m. most weekends and visitors have been observed parking or using alternative transportation at other sites and walking to Dingmans Falls. Many visitors are drawn to this site due to the ability to quickly and easily access Dingmans Creek Trail and Dingmans Falls. Many visitors participate in prohibited activities such as climbing near the waterfall, swimming/wading, and fishing in Dingmans Creek. Sensitive riparian resources are being damaged by off-trail use.

Dingmans Falls is one of the most popular destinations within the park for a variety of users, with 55% of frontcountry users, 36% of trail-based users, and 41% of river-based users reporting that they visited during their trip (Hallo et al. 2017). Visitor use is high throughout the summer season from May through August with the busiest days on weekends. Currently there are approximately 50 personal vehicle parking spaces at Dingmans Falls. During summer weekends, RVs and buses are prohibited from entering the main parking area. When the persons-per-vehicle factor of 3.5 is applied this translates to 175 PAOT able to reach the site by parking their vehicle.

Data collection performed in 2016 demonstrated that current use levels are on average slightly lower than the maximum possible use levels based on facility design. Visitors at the falls themselves were surveyed in 2016 and on average reported that they saw 30 PAOT. The National Park Service collects and records the number of visitors who enter the Dingmans Visitor Center. During the 2015 season, from May to September, a total of 27,050 visitors entered the visitor center (or an average of 36 visitors per hour). In 2016, this increased to a total of 29,750 visitors per season (or an average of 44 visitors per hour). Assuming many of these visitors arrived with additional family or friends this translates to approximately 90 PAOT near the visitor center. When visitor center numbers are combined with visitor numbers at the falls a total of 120 PAOT is estimated for the total PAOT at Dingmans Falls.

Limiting Attributes — The most limiting attributes constraining the amounts and types of visitor use that can be accommodated at Dingmans Falls are the visitor experience and the ecological conditions. Specifically, the levels of crowding and visitor complaints from increasing user conflicts describe undesirable visitor experiences. The ecological conditions are also limiting attribute where previous research has found extensive webs of visitor-created trails resulting in trampling to

vegetation. Therefore, the quality of the visitor experience and ecological conditions are limiting attributes to consider during the process of identifying visitor capacity.

Visitor Capacity and Implementation Strategies — Management strategies will expand visitor opportunities at this site. To accomplish this, hours of operations will be extended beyond the summer season. Given this management strategy, park staff identified that the area could accommodate an additional 25% increase in visitors while maintaining and achieving desired conditions. Therefore, the visitor capacity has been identified to 175 PAOT. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

Toms Creek

Overview of Analysis Area.

Toms Creek is located in the center of the park to the west of the Delaware River. The site features a picnic area and gentle trail that shares the narrow ravine with Toms Creek. The site is known to be an exceptional value wild trout stream. The site is largely accessed by visitors in private vehicles. The access to the picnic area is in the Visitor Service Area Zone and the majority of the trail and creek itself is in the Outstanding Natural Feature Zone

Review of Existing Direction and Knowledge — Toms Creek is generally a low-use site used primarily for short-term parking by anglers, picnickers, and day hikers. Some unauthorized swimming holes have been created by visitors in the area. Generally, there not measurable visitor use issues at the site.

It is estimated that 15 vehicles can park in the gravel parking lot at Toms Creek. When the persons-per-vehicle factor is applied, this translates to 50 PAOT able to access the Toms Creek area.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated at Toms Creek is the ecological conditions. Specifically, visitor-caused damage is occurring to popular hiking trails and other recreational areas as a result of increasing visitor use. These impacts, such as soil and vegetation loss, result directly to constraining the amounts and types of visitor use that can be accommodated. Riparian plants in particular are sensitive and vulnerable to damage by visitor use along stream, river, and lake areas.

Visitor Capacity and Implementation Strategies — Management strategies will enhance visitor opportunities at the site. To accomplish this, facilities such as the restroom and picnic area will be expanded and improved, the trail will be upgraded to be as accessible as possible, and Toms Creek Trail would be connected to Big Egypt Mills Pond to establish a looping trails system. Due to the lack of major visitor issues at the site with current use levels and the improved facilities under this plan, additional use has been deemed appropriate. It is also likely that the establishment of a loop trail system will bring additional visitors into the area.

Park staff identified that the area could accommodate three times the current use levels. Therefore, the visitor capacity has been identified to be 150 PAOT delivered to the site. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

Crater Lake

Overview of Analysis Area.

Crater Lake is located on the eastern edge of the park. The Crater Lake Trail loops around the lake through the ridgetop forest and connects to additional trails. This site is in the Outstanding Natural Feature Zone.

Review of Existing Direction and Knowledge — Crater Lake is popular with hikers, particularly those connecting to or from other locations. Use patterns have changed in recent years and more people are using the site for recreational purposes such as picnicking rather than just hiking. As visitors seek to recreate along the water edge extensive visitor-created trails have developed that have resulted in soil and vegetation loss.

The highest levels of use occur during July and August at Crater Lake; however, measurable use is also seen in May and June. Heaviest use occurs from noon to 6 p.m. The parking area at Crater Lake is undefined so the number of vehicles able to park varies. It is estimated that approximately 20 vehicles can park in this location. When the persons-per-vehicle (3.5) factor is applied this translates to approximately 70 PAOT able to enter the site through the parking lot. Because Crater Lake is connected by trails to other locations such as Blue Mountain Lakes, it is estimated that some visitors may hike from that area to this trailhead. In addition, visitors have been observed parking along the roadside and walking to the site, resulting in an additional 25 PAOT during peak use times for a total of 95 PAOT.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated at Crater Lake is the ecological conditions. Specifically, visitor-caused damage is occurring to popular hiking trails and other recreational areas as a result of increasing visitor use. These impacts, such as soil and vegetation loss, result directly to constraining the amounts and types of visitor use that can be accommodated at Crater Lake.

Visitor Capacity and Implementation Strategies — Management strategies will provide additional opportunities for visitors to enjoy the site and the area. To accomplish this, the road will be improved, scenic overlooks will be added nearby but not connected to the site, and accessible picnic areas and lake access will be added. In addition, formalized trails to the lake and picnicking areas will be developed that are accessible. These changes will help meet current demand for visitor opportunities and provide some additional use while also reducing resource impacts. The visitor capacity has been identified to be slightly higher than current use levels of 100 people at one time. The program of work for this plan includes the development of a design narrative and Design Concept Plan for this area (in combination with Blue Mountain Lakes), which will involve a reevaluation of capacity.

Blue Mountain Lakes

Overview of Analysis Area.

Blue Mountain Lakes is in the eastern edge of the park. Six miles of trails loop around the lake through ridgetop forest and connect to other trails. The site has areas in the Natural Resource Zone.

Review of Existing Direction and Knowledge — The popularity of Blue Mountain Lakes has increased in recent years; however, use levels remain relatively low and provide an opportunity for quiet recreation and scenic vistas. Some of the trails are difficult to distinguish, as traces of old roads are present in the area. This has resulted in visitor-created trails that damage soil and vegetation as visitors seek to find their way along trails and to the water's edge.

There are currently 30 parking spaces at the Blue Mountain Lakes Trailhead. When the persons-per-vehicle factor (3.5) is applied this translates to 105 PAOT entering the area through the parking lot. Because of its connectivity to other sites, particularly Crater Lake, it is estimated that an additional 50 people (or 14 vehicles are parking at other locations) are in the area during peak use times as visitors more frequently park at other trailheads. This results in a total of 155 people at one time at Blue Mountain Lakes.

Limiting Attributes — The most limiting attributes constraining the amounts and types of visitor use that can be accommodated at Blue Mountain Lakes are the visitor experience and the ecological conditions. Specifically, the visitor experience focuses on opportunities for quiet recreation and scenic vistas. The ecological conditions are also limiting attributes where previous research has found measurable visitor-created campsites and other impacts resulting in trampling to vegetation. Therefore, the quality of the visitor experience and ecological conditions are limiting attributes to consider during the process of identifying visitor capacity.

Visitor Capacity and Implementation Strategies — Management strategies will enhance visitor experience at the site and provide some additional opportunities. To accomplish this, the trail system will be simplified and a loop will be created that will allow multiuse of hiking, biking, and cross-country skiing, including extending the road to meet ABA accessibility standards. These changes will allow for a slight increase in use from current use levels to 170 PAOT. The program of work for this plan includes the development of a design narrative and Design Concept Plan for this area (in combination with Crater Lake), which will involve a reevaluation of capacity. For a list of implementation strategies, see the visitor capacity monitoring strategies in later in this chapter.

Van Campens Glen

Overview of Analysis Area.

Van Campens Glen is in the center of the park off Old Mine Road in New Jersey. The site is within the Outstanding Natural Feature Zone in part because it is a high-quality cold water trout production stream. Three species of trout are found here: native brook, rainbow, and brown. Van Campens Glen is also a migratory birding hotspot and a New Jersey Natural Heritage Priority Site, making it a critically important area for natural resources. It is a steep-sided hemlock ravine where a state endangered plant species is found and New Jersey State-listed species inhabit. This area offers a moderate 1.5-mile trail and a small waterfall with a shallow pool at its base. The primary use at this site is hiking and fishing. Swimming and wading is not permitted anywhere along Van Campens Brook.

Review of Existing Direction and Knowledge — Swimming and wading is not allowed at this site; however, visitors seek this activity here. Visitor conflicts occur between anglers and other recreational users. A small waterfall is a draw for many visitors and despite restrictions, many visitor make a precarious hike to the top of the waterfall resulting in visitor safety concerns. Sensitive plant resources near the brook and waterfall are being damaged by off-trail use of the area. Prohibited activities such as barbecuing, consumption of alcohol, and swimming at the base of the waterfall are frequently observed during the summer season. Visitor complaints and law enforcement citations are common for these behaviors and prohibited activities such as graffiti have occurred. Conflicts also occur between visitors who are seeking a quieter experience (e.g., birdwatching, photography,

hiking for scenery) and those who wish to picnic and have a more social experience. The presence of human waste, trash, and non-natural sounds from music and shouting results in resource degradation at Van Campens Glen.

Van Campens Glen is a popular destination for those seeking trail-based experiences. During a 2015 survey, 17% of trail-based users reported visiting the site. During the 2016 summer season, an average of 120 people could be seen using the most popular portion of the site per day. The lower and upper parking lots at this site can accommodate 10 vehicles each for a total of 20 available parking spaces. Using the persons-per-vehicle multiplier of 3.5, this translates to approximately 70 PAOT able to visit Van Campens Glen. Visitor surveys indicate that current use may be slightly lower than the total parking area can accommodate. In the 2016 summer season, visitors reported that on average they typically saw 36 PAOT at the site (Hallo et al. 2017). It is estimated from park staff observation and visitor reported averages that in a typical year, current use is likely 40 PAOT.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated at Van Campens Glen is the ecological condition of natural resources. Riparian plants in particular are sensitive and vulnerable to damage by visitor use along the creek. Additionally, Van Campens Glen is one of two areas in the park that are the most affected by high visitation and crowding-related issues. Specifically, the current amounts and levels of visitor use are resulting in crowding and visitor complaints from increasing user conflicts that point to undesirable visitor experiences. Visitor experience is affected by crowding including the people in an area at one time and people encountered along a trail or path at one time. In some instances, crowded conditions may pose increased visitor safety risks as visitors travel off of designated trails or away from designated areas in order to find a less crowded condition.

Visitor Capacity and Implementation Strategies — Strategies include defining parking spaces to manage the number of vehicles utilizing the parking lots and rerouting the trail. Additional management of the area could be accomplished through regular staffing of the site during the busy summer weekends. A permit or reservation system to manage use in the area would be created only if other strategies implemented are unsuccessful. The visitor capacity under this plan has been identified to be the same as current use, as the actions taken under this plan will allow current use to be accommodated while improving resource conditions. Additional use beyond what is currently observed would likely result in an unacceptable level of resource impacts. The visitor capacity has been identified as 40 PAOT. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

Turtle Beach

Overview of Analysis Area.

Turtle Beach is located six miles north of Interstate 80 on Old Mine Road in New Jersey. This area offers a grassy beach complete with picnic tables and restrooms. This site is within the Visitor Service Area Zone and is an expanded amenity fee area.

Review of Existing Direction and Knowledge — The popularity of Turtle Beach as a visitor destination has been increasing over the past few years. Crowded conditions at other popular river access sites have encouraged some visitors to use Turtle Beach as an alternative location. During the 2015 season, the site reached capacity three times due to high use levels. Widespread resource damage is not currently being seen at the area; however, crowded conditions exist on weekends and holidays.

Turtle Beach is a lesser-visited area of the park compared to other similar locations; however, similar numbers of different user types reported visiting the site: frontcountry users (12%), trail-based users (10%), and river-based users (10%) (Hallo et al. 2017).

Currently, there are 103 parking spaces available at Turtle Beach for individual vehicles. When the persons-per-vehicle factor of 3.5 is applied, this translates to 360 PAOT able to access the area by vehicle. Because use levels are lower at this site, it is estimated that 80% of available parking is routinely used at any one time, resulting in approximately 288 PAOT at Turtle Beach.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated at Turtle Beach is the visitor experience. Specifically, the levels of crowding at other popular river sites have encouraged use here. Visitor experience is affected by crowding including the people in an area at one time and people encountered along a trail or path at one time. In some instances, crowded conditions may pose increased visitor safety risks as visitors travel off of designated trails or away from designated areas in order to find a less crowded condition. Therefore, the visitor experience will be the primary limiting attribute considered to identify visitor capacity to maintain and achieve desired conditions.

Visitor Capacity and Implementation Strategies — Management strategies will accommodate large group picnicking, and provide additional visitor services such as food vendors. These changes will help meet current demand for visitor opportunities at this location. Additional strategies of permanently stationed law enforcement staff during the weekends and reservations for picnic areas will allow for current use levels to be accommodated while ensuring that conditions at Turtle Beach are aligned with desired conditions. For this reason, the visitor capacity has been identified to be at current use levels of 288 PAOT. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

Smithfield Beach

Overview of Analysis Area.

Smithfield Beach is located on River Road about seven miles north of the town of Delaware Water Gap, Pennsylvania, and offers a grassy beach with picnic areas, restrooms, a boat launch, a canoe launch, and access to the McDade Trail. Smithfield Beach is also near the Village of Shawnee. The site is largely accessed by visitors in private vehicles although small numbers of visitors arrive via commercial transportation services. The beach is within the Visitor Service Area Zone and is an expanded amenity fee area.

Review of Existing Direction and Knowledge — Smithfield Beach is one of the most popular locations within the park for visitors seeking water-based recreation, particularly during hot summer months and on holidays. The demand for swimming and general river access has resulted in crowded conditions at the site relative to the available facilities. Site is accessed by liveries and private users, creating the potential for competition of resources. During the 2015 season, the site reached capacity six times due to the volume of visitors. Visitors can frequently be seen engaging in prohibited activities (such as the consumption of alcohol) and competition among users seeking different opportunities has resulted in visitor conflicts.

Smithfield Beach is a popular destination for a variety of users with 26% of frontcountry users, 14% of trail-based users, and 40% of river-based users reporting that they visited during their trip. Approximately 4,000 people visited the portion of Smithfield Beach visible to the field cameras used in a study from June 3 to August 14, 2016. The site is busiest from 12 p.m. to 5:30 p.m. (Hallo et al. 2017). The majority of users arrive at Smithfield Beach by personal vehicle (96% in the 2014 season). Smithfield Beach is also accessed by liveries that offer river-based activities.

During peak summer months the parking areas at Smithfield Beach regularly fill and demand for parking is high throughout the day. There are currently a total of 260 personal vehicle parking spaces and 38 trailer parking spaces at Smithfield Beach. This results in a total of 298 vehicles

accommodated in the parking lot. When the persons-per-vehicle factor of 3.5 is applied, this results in 1,043 PAOT able to access Smithfield Beach from the parking area. It is estimated that of the existing parking stalls, visitors use about 227 stalls to access the beach area, currently resulting in 800 PAOT. In addition to visitors arriving by vehicle, some visitors are brought to the site by liveries that are dropping people off or are picking people up for a bike or boat rental. The National Park Service collects day use numbers from liveries that operate in the park. Numbers collected in 2014 indicate that the two main liveries that frequently service Smithfield Beach result in an average of 40 additional PAOT being at the site. When combined with personal vehicle parking, this results in 840 PAOT being at Smithfield Beach.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated at Smithfield is the visitor experience. Specifically, the current amounts and levels of visitor use are resulting in crowding for water-based recreation activities and visitor complaints from increasing user conflicts that point to undesirable visitor experiences. Visitor experience is affected by crowding including the people in an area at one time and people encountered along a trail or path at one time. In some instances, crowded conditions may pose increased visitor safety risks as visitors travel off of designated trails or away from designated areas in order to find a less crowded condition.

Visitor Capacity and Implementation Strategies — Management strategies will accommodate group picnicking, explore the possibility of additional visitor services such as food vendors being offered by concessions, and expand or reconfigure the entrance of the site. These changes will help meet current demand for visitor opportunities at this location. Additional strategies of permanently stationed law enforcement staff during the weekends, separating beach use from boating use, and reservations for picnic areas will allow for current use levels to be accommodated while ensuring that conditions at Smithfield Beach are more aligned with desired conditions. Expanding or redesigning the beach area and redesigning portions of the site will allow for slightly higher levels of visitor to be accommodated at the site. For this reason, the visitor capacity has been identified slightly above at 840 PAOT. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

Hialeah Recreation Site

Overview of Analysis Area.

Hialeah Recreation Site is a picnic area near the Delaware River and a trailhead for the McDade Recreational Trail. Visitors can picnic here, or use this location to begin a hike or bike on the McDade trail. The site is located within the Natural Resource Zone.

Review of Existing Direction and Knowledge — The Hialeah Recreation Site is a small area intended to serve as a picnic spot near the Delaware River and as a trailhead for the McDade Recreational Trail. The popularity of the site has dramatically increased as the site does not have a fee, other near-water recreation sites have become crowded, and visitors seek additional areas in DEWA to access the river. Visitors often swim in the river and picnic along the banks. Visitors will also wade across parts of the river in areas where currents can be strong. Because there are no designated trails to the river, visitor-created trails and other soil disturbances occur. Visitor-created trails have caused resource damage to riparian areas near the site and trash left by some visitors attracts wildlife to the area.

Hialeah Recreation Site is a lesser-visited area of the park compared to other locations; however, similar numbers of different user types reported visiting the site: frontcountry users (9%), trail-based users (7%), and river-based users (6%). During a 2016 survey visitors on average reported that they typically saw 38 PAOT at the Hialeah picnic area, which represents a popular portion of this overall

site. Use levels are highest at the site from July to August, with most people using the site between 10 a.m. and 6 p.m. On average, 220 vehicles have been observed in one day during the busiest times of day during the summer season (Hallo et al. 2017). When the persons-per-vehicle factor of 3.5 is applied, this translates to 770 people in one day accessing the Hialeah Recreation Site and the McDade Recreational Trail.

Limiting Attribute — The most limiting attribute constraining the amounts and types of visitor use that can be accommodated is the visitor experience.

Visitor Capacity and Implementation Strategies — Management strategies will expand and further develop the current site to meet the current demand for large group picnicking areas and access to the river. River access will be formalized to lessen resource damage caused by visitor-created trails. The park identified that the capacity would decrease from current use levels. Approximately 35% of the total use at the site should be dedicated to picnicking and scenic viewing and 65% for the McDade Recreational Trail. For this reason, the visitor capacity has been identified as 200 people in one day (35% of current 550 PAOT use level) retained in the analysis area. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

Kittatinny Point

Overview of Analysis Area.

Kittatinny Point is in the southern end of the park just off Interstate 80. The Kittatinny Point Visitor Center is here, along with picnic tables and short trail segments. This site is in the Visitor Service Area Zone. This site includes a canoe and boat launch to access the river. The site is largely accessed by visitors in private vehicles although small numbers of visitors arrive via commercial transportation services or alternative transportation shuttle.

Review of Existing Direction and Knowledge — Kittatinny Point is a very popular site within the park due to its close proximity to the interstate. Visitor use levels have become so high in recent years that parking is managed during weekends and busy holidays to ensure that visitors do not back up onto the interstate. Additional New Jersey state-managed parking areas on the opposite side of I-80 are used by visitors to access the area and trails around Kittatinny Point. There are many competing uses at this site as visitors seek picnicking, hiking, boat access, the visitor center, and a convenient rest stop. The site is accessed by liveries and private boat users, creating the potential for competition of resources. The site has become a popular location for large social gatherings that often include activities that are prohibited such as the consumption of alcohol and swimming. Unintended human-wildlife interactions with black bears have also occurred at this site. The area is also utilized for extended parking to access Kittatinny Point and state parking areas for boaters and hikers. There is a minimal turnover rate in the parking lots given the extended use.

Kittatinny Point is used by many different user groups. During the 2015 visitor survey, 16% of frontcountry and 17% of trail- and river-based users reported visiting Kittatinny Point during their trip; 2016 data collection found that more than 2,500 people, and 2,000 nonmotorized watercraft users, visited the Kittatinny Point area over a two-month period (Hallo et al. 2017). The National Park Service collects and records the number of visitors who enter the Kittatinny Visitor Center. During the 2015 season, from May to September, a total of 12,820 visitors entered the visitor center (or an average of 17 visitors per hour). In 2017, this increased to 18 visitors per hour. Currently there are approximately 80 personal vehicle parking spaces and 10 boat/trailer parking spaces at Kittatinny Point.

Some visitors park at Kittatinny Point and nearby Worthington State Forest managed parking lots and then travel to other nearby destinations. The area is used for a variety of recreation activities and the flow is changing between state and NPS lands. The number of visitors who are using Kittatinny site parking for other recreation area access is not known. This analysis assumes visitors are in the nearby area. Observations by park staff estimate that more people park at Kittatinny than other nearby locations. As subsequent studies are conducted on how visitors move between these sites that information will be incorporated into management of this site. When the persons-per-vehicle factor of 3.5 is applied this translates to 315 PAOT in the approximately 90 parking stalls able to reach the site by parking a vehicle or trailer. In addition to visitors arriving by vehicle, some visitors are brought to the site by liveries or enter the site by personal watercraft to then be picked up by the liveries. The National Park Service collects day use numbers from liveries that operate in the park. Numbers from 2014 indicate that the two main liveries that use Kittatinny Point frequently result in an average of 20 additional PAOT at the site. When combined with parking availability, the current use levels translate to 335 PAOT.

Limiting Attributes — The most limiting attributes constraining the amounts and types of visitor use that can be accommodated are the visitor experience and the ecological conditions. Specifically, the levels of crowding and visitor complaints from increasing user conflicts describe undesirable visitor experiences. At Kittatinny Point, the visitor experience also includes activities at the visitor center and ensuring that the park can maintain and achieve desired conditions. The ecological conditions are also a limiting attribute where previous research has found measurable visitor-caused impacts. Therefore, the quality of the visitor experience and ecological conditions are limiting attributes to consider during the process of identifying visitor capacity.

Visitor Capacity and Implementation Strategies — The visitor capacity has been identified to be at current use levels of 335 PAOT. For a list of implementation strategies, see the visitor capacity monitoring strategies in chapter 5.

Other Locations

The following areas comprise the locations where some plan actions are directly related to visitor use levels. Tables 3-6 provide a summary of the location, current use level, visitor capacity, and rationale for the visitor capacity.

Table 3. Identified Visitor Capacities for MDSR Zone

Analysis Area	Review of Existing Direction and Knowledge	Limiting Attribute(s)	Identified Visitor Capacity
Middle Delaware National Scenic And Recreational River Zone	The river is accessed through a variety of boat launches in and near the park and includes personal boats such as kayaks and motorboats as well as those provided by liveries to their clients. In 2016, river-based users were shown photos depicting varying levels of boats on the Delaware River and were asked what they believe is acceptable and what is preferred. The photo with 4 boats and 5 paddle craft was most frequently cited as acceptable. The photo shows a 1/4 mile portion of the river. This translates to 36 boats per river mile assuming boats are evenly dispersed. If the identified visitor capacity for the Middle Delaware National Scenic and Recreation River Zone is exceeded, the park staff will examine visitor use levels at river access locations. Additional management strategies and actions will be taken to ensure the capacity remains within acceptable levels.	Visual crowding (i.e., number of other boats in an individual's viewshed)	36 boats per river mile at one time.

Table 4. Identified Visitor Capacities for Visitor Service Area Zone

Location	Review Existing Direction and Knowledge	Limiting Attribute(s)	Identified Visitor Capacity
611 Overlooks	There are three primary overlooks along Highway 611. The Arrow Island overlook has 25 parking spaces that translate to approximately 90 PAOT. The Point of Gap overlook has 86 parking spaces that translate to approximately 300 PAOT. The Resort Point overlook has 25 parking spaces that translate to approximately 90 PAOT.	Physical constraints related to parking lots.	Arrow Island: 90 PAOT Point Gap: 300 PAOT Resort Point: 90 PAOT

Location	Review Existing Direction and Knowledge	Limiting Attribute(s)	Identified Visitor Capacity
Bushkill Access	Trail counter south of Bushkill counted 5,000 people over 142 days, meaning that approximately 35 people a day use the site. Current parking is divided into three sections and can accommodate approximately 62 total vehicle spaces. Of the 62 total spaces, 24 are for trailers leaving the remaining 38 spaces for passenger vehicles. The 38 passenger vehicle spaces contributes approximately 115 visitors to the area. This does not include the rare special events where all 62 spaces would be filled with passenger vehicles.	Visitor experiences along trails.	115 PAOT
Dingmans Access	The site is a popular boat access site that regularly sees parking at near capacity during the summer season. Site is accessed by liveries and private users, creating the potential for competition of resources. Current parking has approximately 45 vehicle spaces and 52 boat/trailer spaces for a total of 97 parking spaces. This translates to approximately 340 PAOT able to access the site by vehicle.	Visitor experience at the access point and natural resource impacts related to overcrowding.	340 PAOT
Eshback Access	This site is relatively low in visitor use and most frequently used for river access. An estimated 24 vehicles can park at the trailhead at one time resulting in 85 PAOT.	Visitor experience at the access point and natural resource impacts related to overcrowding.	85 PAOT
Hidden Lake	Fishing, hiking and picnicking are the primary use at this site and use levels tend to be low. An estimated 38 parking spaces are available at the trailhead. This translates to 140 PAOT.	Visitor experience at site and natural resource impacts related to visitor created water access	140 PAOT

Table 5. Identified Visitor Capacities for Natural Resource Zone

Location	Review Existing Direction and Knowledge	Limiting Attribute	Identified Visitor Capacity
Appalachian National Scenic Trail Segments Passing Through DEWA Visitor Capacity for the Appalachian Trail is included in the DEWA VUM plan because of visitor capacity identification and implementation requirements included in the National Trails System Act (NTSA, 16 U.S.C 1241-1251). This visitor capacity identification is subject to update as needed during subsequent Appalachian National Scenic Trail planning.	In addition to other recreation opportunities in the park there are more than 100 miles of official hiking trails, including nearly 27 miles of the Appalachian National Scenic Trail. These miles of trail offer visitors opportunities to experience solitude in the Natural Resource and Outstanding Natural Features Zone. Visitor surveys were conducted during the summer of 2016 that asked visitors to report what number of groups they encounter on trails per hour would be acceptable to them and what they experienced on their visit (Hallo et al. 2017). The findings from this survey have been used to establish thresholds associated with indicators relevant to this analysis area.	Visual crowding (i.e., number of encounters with others on the trail)	Natural Resources Zone: 30 people at one time on the trail. Outstanding Natural Feature Zone: 24 people at one time on the trail.

Location	Review Existing Direction and Knowledge	Limiting Attribute	Identified Visitor Capacity
Dingmans Campground	50 campsites - 13 (max 10 guests) = 130 people 20 campsites - 20 (max 10 guests) = 120 people no power RV sites sometimes used as plain campsites - 16 (max 10) = 160 people river tent - 24 (max 15) = 360 people campsites - 63 (max 10) = 630 people group sites - 2 (max 40) = 80 people The current design capacity of the campground is 1480 campers per night. However, in both 2017 and 2016 summer season's busiest month the maximum monthly use at the campground was 2,400 and 2,260 respectively. In the future, concessioners may consider adding up to 10 cabins with a maximum of 4 visitors per cabin	Physical constraints associated with site design.	50 campsites - 13 (max 6 guests) = 78 people 20 campsites - 20 (max 6 guests) = 120 people no power RV sites sometimes used as plain campsites - 16 (max 6) = 96 people river tent - 24 sites 10 sites , 5 people max = 50 10 sites, 8 people max = 80 4 sites, max 10 = 40 campsites - 61 (max 6) = 366 people group sites - 2 (max 20) = 40 people 10 cabins, max 4 = 40 The visitor capacity for the campground will be 900 overnight campers. The capacity will be updated upon a new concessions contract. These capacities will be reviewed and updated upon each new concession prospectus.
Karamac	The Karamac trailhead will remain open for use. Approximately 30 vehicles can park at the site. This translates to 105 PAOT.	Visitor experience and safety concerns and natural resource impacts.	105 PAOT
Namanock	This small site is primarily used as a picnic spot and sees low levels of use. Approximately 15 vehicles can park at the site. This translates to 50 PAOT.	Visitor experience at site and natural resource impacts related to visitor created water access.	50 PAOT

Location	Review Existing Direction and Knowledge	Limiting Attribute	Identified Visitor Capacity
Poxono Boat Launch	This site is relatively low in visitor use and most frequently used for river access. An estimated 20 vehicles can park at the boat launch at one time resulting in 70 PAOT.	Visitor experience at site and natural resource impacts related to visitor created water access.	70 PAOT

Table 6. Identified Visitor Capacities for Historic Zone

Location	Current Use Level	Limiting Attribute(s)	Identified Visitor Capacities
Millbrook Village	This site has a collection of historic structures and sees low levels of use. There are approximately 40 parking spaces at the site. This translates to 140 PAOT in the area.	Visitor experiences consistent with the historic context.	140 PAOT
Walpack Center	This site is operated by volunteers and use levels vary but are typically low. Approximately 15 parking spaces are available dispersed throughout the site. This translates to 50 PAOT.	Visitor experience associated with the historic context.	50 PAOT
Peters Valley	Capacity to be identified by nonprofit in consultation with NPS.	Visitor experience associated with the historic context.	Capacity to be identified by nonprofit in consultation with the NPS.

VISITOR CAPACITY MONITORING: PEOPLE AT ONE TIME AT KEY DESTINATIONS

Rationale for Monitoring

This monitoring applies to key locations throughout the park including a variety of high-use and low-use areas to ensure that a range of experiences is available to visitors. This is a well-developed indicator in the field of social science. This is useful as it allows NPS staff to accurately and efficiently evaluate the number of people at one time and compare those numbers to desired conditions for the area. PAOT refers to the total number of people present at a site at any given point in time. The visitor capacities protect experiences throughout the park, and a range of thresholds is necessary to ensure that desired conditions for that specific location are achieved. During 2015 visitor surveys, crowding was reported as an issue. Crowding at some locations, particularly at swim beaches, can also be a safety concern. The American Red Cross has developed the guideline of 25 swimmers per lifeguard as a standard to ensure swimmer safety. Delaware Water Gap National Recreation Area adopted and began implementing this threshold after 1996.

This monitoring is related to other indicators such as visitor-created trails. By monitoring conditions with visitor capacities both at specific sites and along trails or at other destinations with additional indicators, a full monitoring program related to visitor use is established. As future monitoring and information collection for this and other indicators is conducted, the capacities may be further refined to reflect that new information.

Visitor capacities have been developed for specific sites as part of the visitor capacity identification analysis. For more details on how each visitor capacity was developed, please refer to "Identified Visitor Capacities" in chapter 5.

Triggers and Corrective Actions

Trigger: PAOT are reported more than four times for a specific site within a year to be within 5% of the threshold.

Follow up Actions: The affected site is monitored for levels of use in the current or upcoming summer season. By monitoring use levels, NPS staff would be able to determine if PAOT has increased steadily or if trash, visitor conflicts, and inappropriate visitor behavior were more isolated incidents. Indirect management actions that center on providing information to visitors in order to influence visitation levels and patterns would be taken as additional monitoring is conducted. The intent of these actions would be to keep PAOT levels from exceeding the thresholds.

Potential Management Strategies.

- Collect further information or data for sites, trails, and destinations where more information on visitor use patterns, levels, and behaviors could further inform thresholds. This information would be collected and used to refine thresholds before taking actions to more directly manage visitor use levels.
- Develop and implement a public information effort about the desired conditions for the park, actions the National Park Service is taking to achieve those conditions, and how visitors can best experience the park. This information could be distributed through direct visitor contact, park publications, wayside exhibits, social media, websites, innovative technology, and through park partners. The goal would be to have visitors self-disperse or come during lower-use times of the day or season to accommodate similar levels of use without concentrating that use during peak periods.

- Provide materials and services to illustrate how sound carries through sites so that visitors can understand how their actions may affect others. This could include NPS staff and volunteers contacting visitors, installing signage and waysides, or displaying sound monitors at affected sites or in traveling visitor centers.
- Ensure that informational materials are available outside of visitor center hours and cover a wide variety of topics such as locations for permitted activities, park rules and regulations, and Leave No Trace ™ practices are available to visitors in a variety of languages and locations.
- Use press releases / media to promote activities available at various times of the year at DEWA and to disperse visitor use to multiple sites or areas (particularly prior to historically crowded weekends.
- Increase maps and signage about various destinations within and outside highly developed sites so that visitors are more easily able to reach them.
- Provide real-time parking lot status updates. Rangers at contact stations could relay this information to visitors before they reach that location or emerging technologies could be used.
- Identify appropriate group sizes at key locations (trailheads or destinations along trails) to ensure visitor safety and enjoyment.
- Increase the amount of staff presence at areas such as swim beaches to effectively monitor the PAOT at critical times so that real-time information can be relayed to entrance stations and other staff.
- Place fences or other barriers along areas where unauthorized parking occurs near key destinations.
- Reconfigure the number of available parking spaces and designate some short-term parking spaces at key locations to ensure that parking lot turnovers encourage a large number of people to visit that site over a day but to keep the PAOT within thresholds.
- Separate when and where visitor use occurs at a location. Separation could be done by allowing private and commercial entities to access a location at different times or by physically separating where one type of use occurs from another.
- Develop permit or reservation systems for parking areas, trailheads or destinations to encourage pre-planning within the park.
- Consider physical changes to site design to influence visitor behavior in a way that is intuitive and encourages compliance with park rules and regulations.
- Develop or expand other locations as described in the visitor use management plan to provide additional opportunities within the park.

Monitoring Strategies.

To monitor PAOT, a standard methodology would be established. Monitoring could be conducted by time-lapse photographs, in-person observations, or other techniques. For sites that have multiple points of entry, specific monitoring guidelines would be developed that account for how people access the sites and the resulting PAOT levels. Every year, multiple sites would be monitored to determine use levels. Each subsequent year, a new set of sites would be assessed until monitoring has been completed for all sites. If monitoring reveals a specific site appears to be over its site-specific threshold, that site would be prioritized for the next season of monitoring. At swim beach sites, lifeguards would continue to conduct visitor counts to ensure that thresholds for swimmers per lifeguard are not being exceeded.

Chapter 6

Implemention, Monitoring, and Adaptive Management

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CHAPTER 6: IMPLEMENTATION, MONITORING, AND ADAPTIVE MANAGEMENT

IMPLEMENTATION OF THE PLAN

To address issues (chapter 2) and achieve desired conditions (chapter 3), the park will begin implementation of the actions (chapter 4) as soon as this planning process is concluded. Individual management actions will be evaluated for compliance needs at the time that those projects are ready for implementation.

Implementation will begin with near term actions, as described in chapter 4. When near term actions have been completed, or when funding becomes available, the park will begin implementation on midterm actions. It is anticipated that the near term actions will take 1-5 years to implement, and that midterm actions will be implemented in 5-10 years.

This plan is also designed to provide strategic guidance for visitor use and visitor use related issues with the park. As specific sites are addressed or new facilities are added during the implementation of this plan, additional site-specific planning and environmental compliance efforts may be required for specific locations. All future plans would include an analysis of the potential effects and employ relevant department and agency standards and guidelines. The process for completing each of these implementation efforts would include coordination with stakeholders, academic institutions, local governments, and state and federal agencies, as appropriate.

MONITORING AND ADAPTIVE MANAGEMENT

Visitor use management is an iterative process in which management decisions are continuously informed and improved through monitoring in order to determine the most effective way to manage visitor use to attain desired visitor experience and resource conditions. Assessing the outcome of management actions is necessary to ensure that these actions are having the intended effects. Conditions of resources and experiences will be monitored against established indicators and thresholds as described in appendix A. Results of these monitoring efforts will be documented at the park. If monitoring reveals a trend away from desired conditions (i.e., approaching thresholds) the park will take corrective actions to improve conditions related to that indicator. These corrective actions associated with each indicator are described in appendix A. As monitoring of conditions continues, managers may decide to modify or add indicators if better ways are found to measure important changes in resource and experiential conditions.

OPPORTUNITIES FOR ONGOING PUBLIC ENGAGEMENT ON VUM

Information about the NPS monitoring efforts, related visitor use management actions, and any changes to the indicators and thresholds would be available to the public. In addition, the park will continually evaluate the needs of visitors and resources and use adaptive management to respond to unanticipated changes or needs to ensure desired conditions are achieved and maintained. If additional strategies are needed, details of their application would be developed as thresholds are exceeded or approached and would be informed by monitoring results.

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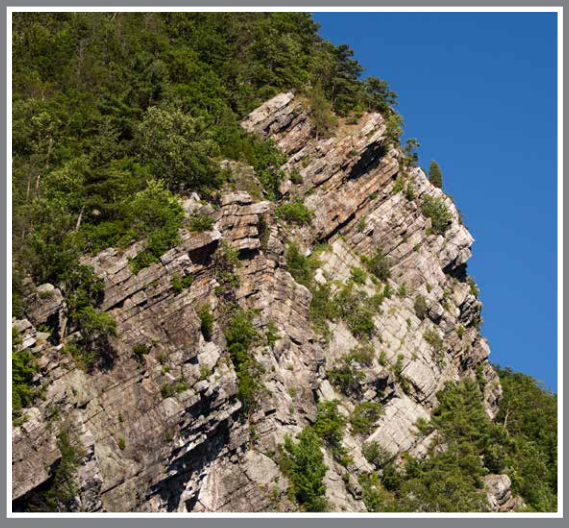
Appendix A, References, and Glossary and Acronyms



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APPENDIX A: MONITORING AND ADAPTIVE MANAGEMENT STRATEGY

INTRODUCTION

Visitor use management is an iterative process in which management decisions are continuously informed and improved through monitoring in order to determine the most effective way to manage visitor use to attain desired visitor experience and resource conditions. As monitoring of conditions continues, managers may decide to modify or add indicators if better ways are found to measure important changes in resource and experiential conditions. Information about the NPS monitoring efforts, related visitor use management actions, and any changes to the indicators and thresholds would be available to the public. For each indicator, potential management strategies have been identified. Several of these strategies are currently in use at DEWA and may be increased in response to changing conditions. These strategies represent the range of actions that the National Park Service may take in order to best meet the goals and desired conditions of this plan. If it were determined through monitoring that thresholds are being approached or exceeded, the National Park Service would implement one or more of these management strategies. Details of potential management strategies will be developed at the time they are needed in order to ensure that the most effective approach is identified. If additional strategies are needed, details of their application would be developed as thresholds are exceeded or approached and would be informed by monitoring results.

INDICATOR: NUMBER OF VISITOR USE-RELATED INCIDENTS

Rationale for Indicator and Threshold

This indicator seeks to address issues of inappropriate visitor behaviors and conflicts. Visitor-related impacts can occur to physical resources as well as value-based resources such as visitor experience. Some incidents may result from competing visitor uses occurring at a site. Others may result from visitors engaging in an activity that results in resource damage (intentional or unintentional) or a use type that is not authorized at a specific location. Some incidents are considered serious and others not serious. For purposes of this indicator, serious incidents are those that require a serious incident report (as defined by NPS Reference Manual 9: Law Enforcement, Security, and Emergency Services).

Visitor use-related incidents are reported and tracked by NPS staff using the Computer Aided Dispatch system (CAD). This indicator focuses on incidents related to areas that have unauthorized access from sunset to sunrise, possession or consumption of alcohol within an unauthorized area, areas considered a public hazard, and other restrictions of visitor use due to public health and safety. An incident is when a citation is issued for a visitor violation (as listed for a specific site or activity) or when NPS staff observes such violations but no citation is issued. Tracking the number of times incidents are reported has been chosen for this indicator as they are one of the most commonly issued citations at DEWA and cover a wide array of visitor behaviors that can threaten desired conditions for resources and visitor experiences. By tracking this information over time, the effectiveness of management actions as prescribed in the plan can be evaluated and potential management strategies can be taken as necessary to better address the issue of inappropriate visitor behavior.

Because this indicator is focused on a topic highly related to law enforcement efforts the thresholds have been organized by patrol zones. DEWA is divided into four geographic patrol zones (see below). In addition, a river patrol zone has been identified as a necessary part of this planning effort. The river patrol zone would include the portion of the Delaware River that flows through the park.

The key locations in each zone are representative sites that law enforcement staff uses to gauge general trends for the entire patrol zone. If changes in visitor behavior are seen at one or more key locations, it is likely that larger changes or incidents in the zone are also occurring. An important future action concerning the threshold would be to identify a baseline. In order to do this, incident data from the past three years (2016, 2017, and 2018) would be analyzed along with CAD data from the upcoming year for each patrol zone. This data would be analyzed to remove any outlying data (i.e., false reports) in order to establish a baseline.

- Northern Pennsylvania Patrol Zone Key Locations: Raymondskill Falls, Adams Creek Trail, George W. Childs Park, Dingmans Falls, Milford Beach, Dingmans Campground
- Southern Pennsylvania Patrol Zone Key Locations: Smithfield Beach, Hialeah Recreation Site, Mount Minsi, Freeman Tract Road
- Northern New Jersey Patrol Zone Key Locations: Caddoo, Ames Jennings
- Southern New Jersey Patrol Zone Key Locations: Crater Lake, Blue Mountain Lakes, Van Campens Glen, Karamac, Kittatinny Point, Turtle Beach
- River Patrol Zone

Threshold: No more than 25% increase from baseline in reported incidents at any one site within patrol zones.

Triggers and Corrective Actions

Trigger: More than a 10% increase in incidents at any one site within patrol zones is seen over one calendar year.

Follow up Actions: Further analysis is conducted to understand the type of incidents that occurred at the key location and to determine if any patterns exist within those incidents. Potential management strategies would then be selected based on this analysis, in order to be the most effective for the type of incidents that are occurring. Strategies could include increasing visitor contacts to inform visitors about appropriate activities and behaviors, and increasing the timing and frequency of ranger patrols. Strategies would be chosen and tailored to specifically address the types of incidents that have increased.

Potential Management Strategies.

- Add or increase signage at key locations on permitted and prohibited activities.
- Raise awareness of appropriate activities and behavior through personal contacts (NPS staff and volunteers) and various media (i.e., social media).
- Modify the timing and/or frequency of patrols to key locations or patrol zones.
- Evaluate activities with new and emerging uses criteria (chapter 3) and allow or disallow specific activities at sites or at specific areas within a site accordingly.
- Change hours of operation at specific sites.
- Adjust timing, amounts, or types of visitor use to manage within thresholds and to desired conditions.

Monitoring Strategies.

Annual reporting is done on law enforcement-related incidents that occur within the park. As reporting is conducted, the number of closure-related incidents for each patrol zone key location would be collected and compared to baseline conditions. This reporting typically would occur in January and the chief ranger would supervise this monitoring activity.

INDICATOR: NUMBER OF INCIDENTS OF USER-CAUSED DAMAGE TO HISTORIC STRUCTURES

Rationale for Indicator and Threshold

This indicator helps NPS staff address issues of damage caused to cultural resources, particularly historic structures. Disturbance to historic structures can occur through both intentional and unintentional means. Both can cause impacts that influence the integrity of these resources (e.g., breaking and entering, graffiti, etc.). The condition of a property is indicative of the level of visitor use at or proximal to this property and the accessibility of these sites to visitors. Historic structures are nonrenewable, and therefore cannot recover from natural and human-caused disturbance. Using condition levels to monitor human impacts allows managers to regularly track changes at sites. Changes in visitor access, construction, and recreational activities can expose historic sites to new risks, which in turn lower the overall condition of a site. More sites are seriously damaged or destroyed by human actions than by natural processes. With consistent monitoring, the effects of environmental and visitor-caused degradation are regularly observed and recorded, so managers can understand the full extent of environmental impacts and visitor-caused degradation. Consistent monitoring of human-related disturbance or destruction within historic sites allows managers to assess whether conditions are worsening and when to implement management action. Any observed disturbance and destruction within historic sites would lead to a record of the condition exceeding the threshold.

Threshold: No more than one incident per high priority site, per year.

Triggers and Corrective Actions

Trigger 1: A break-in occurs at a property that results in no damage or theft.

Follow up Actions: Implement additional monitoring of the site, possibly including time-lapse cameras, to observe visitor behaviors. Use potential management strategies as deemed appropriate.

Trigger 2: A break-in occurs at a property that results in damage or theft.

Follow up Actions: Implement additional monitoring of the site (e.g., time-lapse cameras or motion-sensing cameras) to observe visitor behaviors and increase patrolling of affected property by NPS staff or volunteers to monitor any additional threats to the property or changes in use patterns near the property.

Trigger 3: Multiple break-ins resulting in damage or theft occur at a site in one year.

Follow up Actions: Implement additional monitoring of the site (e.g., time-lapse cameras or motion-sensing cameras) to observe visitor behaviors and increase patrolling of affected property by NPS staff or volunteers to monitor any additional threats to the property or changes in use patterns near the property. Adjust timing, amounts, or types of historic site or area visitor use to manage within thresholds and to desired conditions.

Potential Management Strategies.

- Offer improved and increased information regarding the sensitivity of cultural resources and the need to protect them.
- Designate trails or viewing areas in places where visitor-created trails are occurring near historic properties.
- Provide deterrents to inappropriate vehicular access to cultural sites (e.g., logs, rocks, etc.).
- Place signs directing visitors to stay on trails or paths.
- Increase ranger presence / law enforcement patrol.
- Conduct visitor surveys that seek to understand desired visitor opportunities pertaining to historic properties and current visitor knowledge of appropriate activities and actions near such properties. Information would be used to target additional management strategies that would provide access to properties and effectively communicate restrictions where necessary.
- Adjust timing, amounts, or types of visitor use to manage within thresholds and to desired conditions.

Monitoring Strategies.

According to the management protocols for historic structures outlined in the Historic Properties Prioritization Strategy (HPPS), structures deemed a high priority would be monitored more frequently than lower-priority structures. Please refer to the HPPS for monitoring strategies related to historic structures.

INDICATOR: EXTENT OF VISITOR-CREATED TRAILS

Rationale for Indicator and Threshold

The indicator of the extent of visitor-created trails is related to the issue of vegetation trampling and soil loss. This indicator helps protect natural and cultural resources by identifying visitor-created areas of disturbance through the identification of visitor-created trails. Visitor-created trails are tracks created by users that are noticeable to observers and are not managed directly by park staff. As visitor-created trails are made, vegetation is trampled and soil and vegetation are potentially lost.

This indicator measures the spatial extent of visitor-created trails that branch off of official trails, recreation sites, and/or parking areas. By tracking new visitor-created trails over time, NPS staff can understand how often additional visitor-created trails are developed. Research conducted in the summer of 2015 showed extensive visitor-created trail networks at multiple sites within DEWA, resulting in soil and vegetation loss (Marion et al. 2015). The thresholds below are general guidelines for trails within management zones.

Thresholds specific to waterfalls and nearby creeks have been developed within the zones to address the particularly sensitive vegetation and potential for soil degradation in those areas. The thresholds listed below are intended to be a starting point from which more specific thresholds could be developed for individual trails or trail types (as determined by NPS resource professionals) to effectively protect sensitive resources.

As trail monitoring continues and baseline information is collected, additional indicators and respective thresholds may be added to the monitoring program. For instance, depth of rutting or incising could be measured and then monitored for a specific area where sensitive species exist.

Thresholds.

Visitor Service Area Zone — No more than ¼ of a mile of visitor-created trails within the Visitor Service Area Zone or no more than 5% damage to a specific species of concern. The total extent of visitor-created trails within this zone would amount to no more than 10% of the total area of designated trails within the zone.

Natural Resource Zone — No more than 16 miles of visitor-created trails within the Natural Resource Zone or no more than 5% damage to a specific species of concern. The total extent of visitor-created trails within this zone would amount to no more than 10% of the total area of designated trails within the zone.

Outstanding Natural Feature Zone — No visitor-created trails if their presence results, or could result, in damage to the sensitive resources that are the defining feature of the zone. No more than 3 miles of visitor-created trails within the area of a designated Outstanding Natural Feature Zone that is not directly supporting the defining feature of the zone or no more than 5% damage to a specific species of concern. The total extent of visitor-created trails within the cumulative riparian area would amount to no more than 5% of the total area of designated trails within the area.

Historic Zone — No more than ¾ of a mile of visitor-created trails within the Historic Zone. The total extent of visitor-created trails within this zone would amount to no more than 10% of the total area of designated trails within the zone.

Triggers and Corrective Actions

River Access and Zones.

Trigger 1: A visible increase (approximately a 2% or greater increase in area disturbances) in visitor-created trails is observed by NPS staff during monitoring or other site visits at a specific location.

Corrective Action 1: Potential management strategies that focus on indirect actions, such as providing visitor information, and somewhat indirect actions, such as roping off areas to discourage off-trail use, are taken at the specific trail and a thorough monitoring of visitor-created trails would be prioritized for the next season at the latest.

Outstanding Natural Feature Zone.

Trigger 1: Monitoring of the defining feature would be conducted annually or more frequently if visitor activity is threatening to damage the defining feature.

Corrective Action 1: The site would be evaluated by resource professionals as soon as is practicable and would receive top priority for potential management strategies, up to and including site closure, as recommended by the resource professionals.

Waterfalls.

Trigger 1: A trail that is on the 3-year monitoring cycle shows that visitor-created trails have increased by 10% from the previous monitoring year.

Corrective Action 1: Potential management strategies that focus on indirect actions, such as providing visitor information, and somewhat indirect actions, such as roping off areas to discourage off-trail use, are taken and the trail is monitored annually until visitor-created trails have been reduced by at least 10%.

For All Areas.

Trigger 2: After a year of potential management strategies taking place, monitoring again shows an increase in visitor-created trails along a trail or specific area.

Corrective Action 2: A comprehensive survey of the area or designated campsite that visitor-created trails are near or stem from is completed. This survey would look at changes in total disturbed ground and vegetation for this recreational area by comparing GPS collected area data to previous years.

Potential Management Strategies

- Develop and implement a public information effort about the desired conditions for the park and actions the National Park Service is taking to achieve those conditions and how visitors can best experience the park. This information could be distributed through direct visitor contact, park publications, wayside exhibits, social media, websites, and through park partners.
- Focus efforts on raising awareness of Leave No Trace ™ principles.
- Post specific information about user-created trails and their impacts on resources at sites where these trails exist. Warn visitors of potential dangers resulting from following visitor-created trails as appropriate to discourage their use.
- Where it is difficult to differentiate official trails from visitor-created ones, create a well-defined trail that provides access to locations that visitors want to reach (as indicated by a high volume or a particularly established visitor-created trail), but only if the trail is appropriate and does not degrade natural resources.
- Collect further information or data for sites, trails, or destinations where more information on visitor use patterns, levels, and behaviors could further inform thresholds. This information would be collected and used to refine thresholds before actions that more directly manage visitor use levels.
- Determine the fragility and importance of resources being impacted in relation to the zone where visitor-created trails are occurring. For instance, within the Outstanding Natural Feature Zone, if resources being impacted are determined to be an outstanding feature, take appropriate adaptive management actions such as seasonal site closures or permitting systems that would manage the amount of use that occurs in the area.
- Rehabilitate or redirect improved sustainable trails. This work could be done as existing official trails are repaired or developed. Incorporate noticeable, blaze-designated trails where appropriate.
- Build trail borders or fences to discourage visitors from straying off official trails and disguise visitor-created trails so that they are not used by additional visitors confused by which trail is official versus unauthorized. Revegetate visitor-created social trails.
- Increase law enforcement presence at sites where visitor-created trails are frequently being used to access unsafe areas or where sensitive resources exist.
- Survey visitor-created trail(s) to determine possible reasons for its creation—does it lead to a desired vantage point or site? Identify management actions that can provide this experience at an appropriate location.

- Create better and more up-to-date publications regarding trails in the park, and make them available in mobile-friendly formats and at key visitor information locations. Trail publications would guide users on what trails and trail uses (e.g., hiking, mountain biking, etc.) are available in order to encourage use of designated trails.

Monitoring Strategies

River access — Monitoring would occur annually by park staff walking along main trail stems used by visitors to reach the water. Monitoring would also occur from the river in order to spot user-created trails that may not be visible from designated trails or areas. Riparian areas would be broken into segments that can realistically be monitored over a season. Monitoring would occur annually with segments being rotated one per year until all have been surveyed. GPS data would be collected and compared to previous years.

Zones — Trails within zones would be monitored every two years on a rotational basis until all have been monitored. Monitoring would be done by walking along designated trails and through designated user areas. GPS units would be used to map linear or area features of visitor-created trails. Collected data would be compared to previous years.

Waterfalls and their associated creeks — Due to the sensitive nature of resources near waterfalls and creeks, monitoring would occur annually for areas of high concern by park staff walking along the riparian areas and by GPS mapping of visitor-created trails. Monitoring could be done multiple times in a season if park staff deems it necessary. GPS data would be collected and compared to previous years. Trails where known resource damage exists (e.g., Raymondskill Falls) would be monitored every year. Other trails would be monitored every three years unless triggers are met.

INDICATOR: NUMBER OF UNAUTHORIZED CAMPSITES

Rationale for Indicator and Threshold

The indicator of the number of unauthorized campsites addresses issues of vegetation trampling and loss, noise, and visitor experience. If unauthorized campsites are used routinely, impacts occur to vegetation and trash is often left behind. This indicator addresses areas that are frequently used along the river and near other popular destinations. Many previously authorized campsites were lost in flooding events in the recent past. There is demand for such sites, which has caused visitors to create their own campsites. This indicator would help NPS staff understand where demand for camping exists, as additional authorized sites are developed within the park. A 2015 study of trails and recreation sites found that measurable damage is occurring at visitor-created campsites, particularly those near the Delaware River. The study found a range of impacts at sites including vegetation loss, exposed soil, damaged trees, trees with root exposure, stumps, and visitor-created trails along the Delaware River (Marion et al. 2015).

Threshold: No more than 10 unauthorized campsites within 100 feet of a designated recreation site or campsite; no more than 10 unauthorized campsites within any given river mile.

Triggers and Corrective Actions.

Trigger 1: At designated recreation sites or campsites, 1 to 5 unauthorized campsites are found within 100 feet of that site. Along the river, up to five unauthorized campsites are found per river mile.

Corrective Action 1: Unauthorized sites are logged with GPS coordinates and estimated area. Adaptive management actions are taken that focus on indirect actions such as providing visitor

information and placing physical deterrents such as ropes or other barriers to discourage future use of the site.

Trigger 2: Six or more unauthorized campsites are found near a designated recreation site or campsite.

Corrective Action 2: An analysis of unauthorized sites is completed by surveying and recording them in order to determine how visitors are traveling to them. NPS staff decides if any of the unauthorized sites should be formalized. For sites that are not formalized, areas of disturbance would be restored to natural condition and additional adaptive management actions would be taken, such as increased patrolling.

Potential Management Strategies

- Provide updated information on designated sites and regulations for river camping to users/liveries. Assess appropriate locations for campsites, particularly river campsites, by reviewing currently existing unauthorized campsites in the context of other factors such as soil and vegetation types, and the presence of sensitive cultural resources. Designate campsites in areas where visitors are likely to use them.
- Assess use levels of the visitor-created sites to determine the appropriate action needed to discourage use of the site(s).
- Assess visitor-created sites that are being used continuously and designate if appropriate. Harden campsites by providing fire rings and tent pads as appropriate in order to encourage visitors to stay within the designated campsite area.
- Collect further information or data for sites, trails, or destinations where more information on visitor use patterns, levels, and behaviors could further inform thresholds. This information would be collected and used to refine thresholds before actions are taken to more directly manage visitor use levels.
- Increase monitoring and roving river staff to reduce unauthorized camping.
- Implement a reservation system for all campsites. Directly manage the amount of visitor use an area sees to better meet desired conditions for resources and experiences. The approach taken would depend on what is deemed to be the most effective and reasonable course of action at the time.
- Restore visitor-created campsites to natural conditions to discourage the creation of additional unauthorized campsites nearby.
- River campsites would be placed in areas that are accessible by road for easier maintenance.

Monitoring Strategies

To monitor this indicator, surveys of likely areas of unauthorized camping would be conducted every 3 to 5 years. Surveys would map the location and approximate size of illegal campsites. A baseline survey, particularly of unauthorized river campsites, would need to be conducted first. Areas of concern could be monitored more frequently as NPS staff deem appropriate or as triggers are reached.

INDICATOR: ENCOUNTER RATES ON TRAILS

Rationale for Indicator and Threshold

This indicator measures the number of groups that visitors encounter as they travel along a trail. This indicator is related to crowding. The indicator would allow NPS staff to monitor the general type of experiences that visitors have along trails. Encounter rates are a primary means by which opportunities for solitude would be measured along trails in the Outstanding Natural Feature Zone.

This indicator recognizes the need to have a variety of experience types at the park and therefore has thresholds that vary depending on the management zone. Visitor surveys were conducted during the summer of 2016 that asked visitors to report what number of groups they encounter on trails per hour would be acceptable to them and what they experienced on their visit (Hallo et al. 2017). The findings from this survey have been used to establish the thresholds listed below. Considerations for resource sensitive and experiential opportunities such as solitude have been made and are reflective in thresholds that are more or less stringent depending on the zone. See the goals and desired conditions section of this document for more details on zones.

Thresholds:

Visitor Services Area Zone: 90% of groups would encounter no more than seven other hiking groups (1-6 people per group) per hour along the trail.

Natural Resources Zone: 90% of groups would encounter no more than five other hiking groups per hour along the trail

Outstanding Natural Feature Zone: 90% of groups would encounter no more than four other groups (1-6 people per group) along the trail.

Historic Zone: 90% of groups would encounter no more than five other hiking groups per hour along the trail.

Potential Management Strategies

- Develop and implement a public information effort about the desired conditions for the park, actions the National Park Service is taking to achieve those conditions, and how visitors can best experience the park. This information could be distributed through direct visitor contact, park publications, wayside exhibits, maps, social media, websites, and through park partners. The goal would be to have visitors self-disperse to approved sites or come during lower-use times of the day or season to accommodate similar levels of hiker use without concentrating that use during peak periods.
- Ensure that informational materials that cover a wide variety of topics such as locations for permitted activities, park rules and regulations, and Leave No Trace™ practices are available to visitors in a variety of languages, including at times outside of visitor center hours.
- Use up-to-date technology to provide information to visitors before and during their visits.
- Place physical barriers near trailheads to discourage unauthorized parking and then walking to trailheads. Formalize road edges where possible.
- Collect further information or data for sites, trails, or destinations where more information on visitor use patterns, levels, and behaviors could further inform thresholds. This information would be collected and used to refine thresholds before actions to more directly manage visitor use levels.

- Increased NPS staff roving to enforce NPS rules including unauthorized parking and site access.
- Set maximum group sizes for specific trails or types of trails.
- Reconfigure and clearly mark parking spaces at key trailheads to ensure that encounter rate thresholds are not exceeded.
- Actively manage parking at trailheads to ensure that visitors only park in authorized spaces and are aware of potential wait times.
- Reduce the usable size of parking lots to reduce encounter rates on trails.
- Adjust timing, amounts, or types of trail visitor use to manage within thresholds and to desired conditions during high-use times if visitor safety or damage to resources is imminent, specifically in sensitive hemlock ravines.

Monitoring Strategies

To monitor this indicator, a select number of trails per season would be monitored by park staff or volunteers. The trails that are monitored would rotate from season to season to ensure that a variety of trails (high-use and low-use) are monitored; however, specific trails could be targeted if NPS staff believes that thresholds are being neared. Encounter rate monitoring would be done in conjunction with the collection of trail counter data. As this data is correlated, subsequent years of monitoring would be done with trail counters with encounter rate monitoring being done every five years to ensure the correlation holds true.

INDICATOR: MAXIMUM DECIBEL LEVEL

Rationale for Indicator and Threshold

Natural sounds play a key role for both visitor experience and animal species at DEWA. Within the park, areas in the Outstanding Natural Feature Zone, along designated Wild and Scenic River segments, in the Historic Zone, and along the Appalachian Trail are particularly important when considering soundscapes. Sounds from recreation that occur within the park, such as visitors talking, use of airparks, or playing music can be managed by NPS actions. To a degree, sounds from vehicles operating in the park can also be influenced by NPS actions. In order to protect high quality soundscapes that are not overcome with sounds from non-natural sources, this indicator measures and tracks audible sounds from key locations in the park. As part of a previous planning effort related to a transmission line, soundscape monitoring was conducted in 2010. This indicator uses that research and other national monitoring efforts conducted by the NPS Natural Sounds and Night Skies Division (NSNSD) to inform a percent time non-natural sounds are audible indicator. Future monitoring may be conducted in order to develop a baseline that would be representative of the park once actions contained in this plan are implemented. This monitoring could then be used to further refine the indicator and thresholds in a manner that ensures that desired conditions are being achieved for sensitive zones and areas of the park.

A common measurement of an acoustic environment is sound pressure level (SPL). SPL is a logarithmic measure of pressure relative to a reference value and referred to as decibels (dB). National parks such as Zion, as well as the NPS NSNSD, rely on various metrics that capture different dimensions of the acoustic environment. One indicator of a change in the acoustic quality for local conditions is an increase in sound pressure level over natural ambient. Natural ambient is composed of the natural sound conditions in a park that exist in the absence of any anthropogenic noise (e.g., mechanical, electrical, and other non-natural sounds). Different from these previous

examples, the indicator used in this situation incorporates a new weighting function more appropriate for protected areas (ANSI 2014).

An increase of 3 dBA over existing or natural conditions, results in a 50% loss of listening area for wildlife and a 30% reduction in altering distance for both human and wildlife. Therefore, the threshold for anthropogenic noise will not increase natural ambient (natural L50) more than 3 dBA at ST8 90% of daytime hours (6 a.m. – 6 p.m.) measured over hourly periods (L50) averaged across the measurement period. The daytime hours are comprised of 12 hours, which means L50 cannot exceed 3 dBA above natural ambient more than 1 hour each day. Alternatively, the threshold could be measured across the entire day where daytime hours include 720 minutes, which means L50 cannot exceed 72 minutes averaged across the measurement period. Data collected in 2003 found that most sites within the park met this threshold.

The addition of noise to natural ambient reduces the ability of a listener to hear sounds, known as a reduction in listening area. This "reduction of listening area" for humans and animals alike occurs most dramatically at the same frequency range of the noise, but also reduces other frequency ranges as well through upward spread of masking. For example, transportation noise generally ranges from 100 – 800 hertz (Hz) and therefore is extremely effective at masking natural sounds and human conversation in this range, but has a lesser impact on higher frequency sounds, such as bird songs, that generally range from 1,000 – 10,000 (Hz). However, when conducting a masking analysis it is impossible to determine the degree of masking from A-weighted sound levels (ANSI 2005). Therefore, as a general rule, an increase of 3 dB over baseline conditions (in this case natural ambient) to reduce listening area by 50%. For example, if the natural ambient is 30 dB, and transportation noise raises the ambient to 33 dB (a 3 dB increase), the listening area for humans (and many birds and mammals) is reduced by 50%. Increasing the ambient an additional 3 dB (to 36 dB) would reduce the listening area by half again, to 25% of the initial area.

Threshold: Outstanding Natural Feature Zone and River Zone: Maximum decibel level of 33 dBA during daytime, 30 dBA during night.

Potential Management Strategies

- Interpretation and education about historic times, soundscapes and acoustic environments, guided walks and listening exercises.
- Consider identifying and designating specific areas or sites within the park as "Quiet Zones/Areas." These areas could be identified on maps, through signs and interpretation. Visitors would be encouraged to be quiet enough to hear natural sounds in these areas. This would include encouraging visitors to be respectful of others by not shouting, yelling, having loud conversations, playing music, or producing other excessive noise, particularly in environments where noise carries easily such as on water or from high points.
- Add communications to newsletters or on websites about the importance of the natural soundscape.
- Continue to minimize noise generated by management activities by strictly regulating the National Park Service and concession administrative use of noise-producing machinery, including aircraft and motor vehicles.
- Incorporate design factors that aid in sound reduction to existing or future infrastructure (e.g., follow design standards for road and parking surfaces, curbs, and other infrastructure that reduce noise).

Monitoring Strategies

Specific sites within the Outstanding Natural Feature Zone that would be representative of that zone and are in close proximity to the Appalachian Trail would be monitored in order to assess impacts to soundscapes from humans. Specifically, monitoring would be done near Cliff Trail and along the McDade trail near Hialeah. These sites may be altered or refined in exact location as monitoring is conducted. Additional sites along the Delaware River would also be selected that would be representative of the river values for which the Wild and Scenic River was designated. Baseline data would be collected at representative sites using sound monitoring equipment and methodology as recommended by the NSNSD. At that time, this indicator would be updated and more specific thresholds would be developed. A monitoring protocol would also be developed at this time to determine the frequency that additional data collection would occur for monitoring.

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GLOSSARY AND ACRONYMS

GLOSSARY OF TERMS

Adaptive management: A process that allows the development of a plan when some degree of biological and socioeconomic uncertainty exists. It requires a continual learning process, a reiterative evaluation of goals and approaches, and redirection based on increased information and changing public expectations.

Archeological resources: Historic and prehistoric deposits, sites, features, structure ruins, and anything of a cultural nature found within, or removed from, an archeological site.

Best Management Practices: Effective, feasible (including technological, economic, and institutional considerations) conservation practices and land- and water-management measures that avoid or minimize adverse impacts to natural and cultural resources. BMPs may include schedules for activities, prohibitions, maintenance guidelines, and other management practices.

Cultural landscape: A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

Expanded amenity fee: As authorized by FLREA (16 USC 6801-6814; P.L. 108-447, Division J, Title VIII), expanded amenity fees, formerly known as use fees, are assessed when the visitor uses a specific or specialized facility, equipment, or service.

Facilities: Buildings and the associated supporting infrastructure such as roads, trails, and utilities.

Fundamental Resource and Value (FRVs): Features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. FRVs are closely related to a park's legislative purpose and are more specific than significance statements.

Historic building: For the purposes of the National Register of Historic Places, a building can be a house, barn, church, hotel, or similar construction, created principally to shelter human activity. "Building" may also refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.

Historic district: A historic district is an area, which possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. To be eligible for the National Register of Historic Places, a district must be significant, as well as being an identifiable entity. It must be important for historical, architectural, archeological, engineering, or cultural values.

Historic site: A historic site is the location of significant event, which can be prehistoric or historic in nature. It can represent activities or buildings (standing, ruined, or vanished). It is the location itself that is of historical interest in a historic site, and it possesses cultural or archeological value regardless of the value of any structures that currently exist on the location. Examples of sites include shipwrecks, battlefields, campsites, natural features, and rock shelters.

Historic structure: For the purposes of the National Register of Historic Places, the term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter. Examples of structures include bridges, gazebos, and highways.

Indicator: Indicators are specific resource or experiential attributes that can be measured to track changes in conditions so that progress toward achieving and maintaining desired conditions can be assessed.

Management zone: A geographical area for which management directions or prescriptions have been developed to determine what can and cannot occur in terms of resource management, visitor use, access, facilities or development, and park operations.

Mitigation: Activities that will avoid, reduce the severity of, or eliminate an adverse environmental impact.

National Historic Preservation Act (NHPA): In 1966, Congress established a program for the preservation of additional historic properties through the country. The NHPA requires federal agencies to evaluate the impact of all federally funded or permitted projects on historic properties through the *Section 106* process.

National Park Service Organic Act: In 1916, the National Park Service Organic Act established the National Park Service in order to "promote and regulate use of parks" and defined the purpose of the national parks as "to conserve the scenery and natural and historic objects and wild life therein and to provide for the enjoyment of the same in a manner and by such means as will leave them unimpaired for the enjoyment of future generations." This law provides overall guidance for the management of the park.

National Parks and Recreation Act: The 1978 law that establishes national parks, monuments, recreation areas and other recreation lands under the jurisdiction of the Department of the Interior. This law continues to be amended as new lands are acquired or boundaries of existing lands are changed.

National Register of Historic Places: As a result of the NHPA of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources.

National Park Service Management Policies: A policy is a guiding principle or procedure that sets the framework and provides direction for management decisions. NPS policies are guided by and consistent with the US Constitution, public laws, executive proclamations and orders, and regulations and directives from higher authorities. Policies translate these sources of guidance into cohesive directions. Policy direction may be general or specific. It may prescribe the process by which decisions are made, how an action is to be accomplished, or the results to be achieved. The primary source of National Park Service policy is the publication *Management Policies 2001*. The policies contained therein are applicable servicewide. They reflect National Park Service management philosophy. Director's Orders supplement and may amend management policies. Unwritten or informal "policy" and people's various understandings of National Park Service traditional practices are never relied on as official policy.

Outstandingly Remarkable Values (ORVs): Rare, unique or exemplary river-dependent resource values that, along with water quality and free-flowing character, make a river eligible for Wild and Scenic designation. These values are specific to each wild and scenic river (see appendix A).

A wild and scenic river's ORVs, water quality and free-flowing character must be protected and enhanced for the enjoyment of current and future generations (16 USC 1272).

Planning: A dynamic, interdisciplinary, process for developing short- and long-term goals for visitor experience, resource conditions and facility placement.

Programmatic plan: Programmatic plans establish broad management direction for the park. The 1987 General Management Plan is a programmatic plan with a purpose to set a "clearly defined direction for resource preservation and visitor use" and provide general directions and policies to guide planning and management in the park. The Visitor Use Management Plan is also a programmatic plan that guides future visitor use management decisions for the park. Programmatic plans are required to undergo National Environmental Policy Act review.

Public scoping process: Scoping is a formalized process used by the National Park Service to gather the public's and other agencies' ideas and concerns on a proposed action or project. In addition, although not required by the National Environmental Policy Act (NEPA) nor the Council on Environmental Quality NEPA Regulations, public scoping meetings may be held and integrated with any other early planning meetings relating to the proposed project.

Riparian areas: The land area and associated vegetation bordering a stream or river.

River corridor: The area within the boundaries of a wild and scenic river.

Site hardening: Any development that creates an impervious ground surface. Usually used as a way to direct visitor use and reduce impacts to resources.

Semi-primitive: Settings have no (or extremely little) evidence of management or human alternation.

Scoping: See "Public Scoping Process"

Soundscape: The component of the acoustic environment that can be perceived and comprehended by humans.

Superintendent's Compendium: Under the authority of 16 USC Section 3, and Title 36 Code of Federal Regulations, Chapter 1, Parts 1-7; the Compendium of Superintendent's Orders was established for DEWA. Each park superintendent has discretionary authority to regulate or limit certain uses, and/or require permits for specific activities within the boundaries of a national park.

Threshold: Minimally acceptable conditions associated with each indicator.

Treatment: Work carried out to achieve a historic preservation goal. The four primary treatments are preservation, rehabilitation, restoration, and reconstruction (as stated in the Secretary of the Interior's Standards for the Treatment of Historic Properties).

Trigger: A point that reflects a condition of concern for an indicator that is enough to prompt a management response to ensure that desired conditions continue to be maintained before the threshold is crossed.

Visitor capacity: A component of visitor use management. The maximum amounts and types of visitor use that an area can accommodate while achieving and maintaining desired resource conditions and visitor experiences consistent with the purposes for which the area was established.

User: Visitors and employees in the park.

Visitor-created trails: A visitor-created trail is an informal, nondesignated trail between two locations. Visitor-created trails often result in trampling and stresses to sensitive vegetation types.

Visitor experience: The perceptions, feelings, and reactions a park visitor has in relationship with the surrounding environment.

Visitor use: Refers to the types of recreation activities visitors participate in, numbers of people in an area, their behavior, the timing of use, and distribution of use within a given area.

Visitor use levels: Refers to the quantity or amount of use a specific area receives, or the amount of parkwide visitation on a daily, monthly or annual basis.

Wetland: Wetlands are defined by the US Army Corps of Engineers (CFR, Section 328.3[b], 1986) as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wild and Scenic River: A river receiving special protection under the Wild and Scenic Rivers Act.

ACRONYMS AND ABBREVIATIONS

ABAAS	Architectural Barriers Act Accessibility Standards
ACHP	Advisory Council on Historic Preservation
AIRFA	American Indian Religious Freedom Act
ARPA	Archaeological Resources Protection Act
CDN	Communications Data Network
CFR	Code of Federal Regulations
dB	Decibel
dBA	Decibel (on the “A-weighted” scale)
DCP	Design concept plan
DEWA	Delaware Water Gap National Recreation Area
DM	Deferred maintenance
DO	Director’s Order
EPA	US Environmental Protection Agency
FLREA	Federal Lands Recreation Enhancement Act
GIS	Geographic Information System(s)
GMP	General Management Plan

IVUMC	Interagency Visitor Use Management Council
MARCH	Montague Association for the Restoration of Community History
NPS	National Park Service
NRHP	National Register of Historic Places
ORV	Outstandingly Remarkable Value
PAOT	People at one time
PEEC	Pocono Environmental Education Center
PEPC	Planning, Environment, and Public Comment
RV	Recreational vehicle
VUM	Visitor use management
WSRA	Wild and Scenic Rivers Act

DELAWARE WATER GAP NATIONAL RECREATION AREA AND MIDDLE DELAWARE NATIONAL SCENIC AND RECREATIONAL RIVER

VISITOR USE MANAGEMENT PLAN

NOVEMBER 2020

The actions and strategies as described herein meet the purpose and need for the DEWA and MDSR Visitor Use Management Plan and best addresses the planning issues and opportunities, ensuring long-term protection and preservation of the park's resources while also enhancing the opportunities for visitors to enjoy them.

This Visitor Use Management Plan has been prepared as a collaborative effort between park and regional staff and is recommended for approval by the Regional Director.

RECOMMENDED:

Sula Jacobs 11/16/20

Sula Jacobs, Superintendent — Date

Delaware Water Gap National Recreation Area and Middle Delaware National Scenic and Recreational River

APPROVED:

GAY VIETZKE Digitally signed by GAY VIETZKE
Date: 2020.11.23 11:12:53 -05'00'

Gay Vietzke, Regional Director — Date

National Park Service, Region 1

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

NPS/DEWA/620/136574 NOVEMBER 2020

National Park Service
U.S. Department of the Interior

Delaware Water Gap National Recreation Area
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