

The Legacy of
Pennsylvania's
State Parks
and Forests:

**THE FUTURE IS
IN OUR HANDS**



2018 
PENNSYLVANIA
Parks & Forests
FOUNDATION

It's just our nature to help!



MISSION

PPFF's mission is to inspire stewardship of Pennsylvania's state parks and forests through public engagement in volunteerism, education, and recreation.

VISION

Building the voice for Pennsylvania's state parks and forests.

ARTICLE I SECTION 27:

PENNSYLVANIA ENVIRONMENTAL RIGHTS AMENDMENT

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the commonwealth shall conserve and maintain them for the benefit of all the people.

Funding: Richard King Mellon Foundation
Copyright © 2018
All Rights Reserved
Cover Photos Credit: DCNR

PaParksAndForests.org

EXECUTIVE SUMMARY

In 2018, Pennsylvania's state parks and forests celebrate their 125th anniversary. Founded and developed through visionary leadership, our parks and forests have provided great benefits to Pennsylvania's natural resources and its citizenry. Today, state elected officials and government administrators again have the extraordinary opportunity to provide needed and overdue resources to address the more than \$1 billion in state park and forest infrastructure and maintenance needs.

The Department of Conservation and Natural Resources (DCNR) manages more infrastructure than most state agencies. Maintaining and repairing that infrastructure requires resources — staff, funding, and materials — that have fallen increasingly short over the past decade.

Investment in Pennsylvania state parks and forests has resulted in an unprecedented tally of needed investments: from bridges to wastewater treatment facilities, from dams to invasive plant removal, and from roads to trails.

This report examines the story behind the creation of Pennsylvania's state park and forest system, and explores the needs that must be addressed to assure that what we pass on to our children and grandchildren is a legacy in which we can all be proud.

What is Maintenance

Maintenance is “keeping park and recreation areas and facilities in their original state or as nearly so as possible.” (Sternloff & Warren, 1993, p. 5). This definition applies to the human “built environment,” but also to natural features and areas. Maintenance encompasses a wide range of activities and investments, but are generally divided into three major classifications: routine maintenance, preventative maintenance, and corrective (repair) maintenance.

Public Trust

Article 1, Section 27 of the Pennsylvania Constitution states that the Governor and legislature have a constitutional responsibility to act as shared trustees for parks and forests. As trustees, this responsibility includes investing sufficient fiscal and human resources to maintain and repair the natural and built infrastructure in these common, publicly-owned assets. Currently, a need for additional investment exists to ensure the public's safety and enjoyment and to ensure the continued economic value of these lands to current and future Pennsylvanians.

Popularity Is Not Inexpensive

The more than 40 million visitors a year to Pennsylvania's state parks and forests generate more than \$1 billion a year for our economy through visitor purchases of hotel rooms, dinners, souvenirs, and other amenities.¹ These economic expenditures lead to business and job creation, which in turn, provides tax revenue for the General Fund.

Research demonstrates time and again that our public lands are well loved and much appreciated by Pennsylvania residents, providing generations with fond memories, improved health, and opportunities for relaxation. However, with that use comes significant wear and tear to the built and natural infrastructure, requiring maintenance and upgrades to keep our state parks and forests safe and attractive. Changing regulatory requirements for public safety also create a need for infrastructure investments.

Unfortunately, the money required for routine maintenance, preventative maintenance, and corrective (repair) maintenance has not kept pace with the need. In fact, money acquired from overnight stays in state parks had been invested back into maintenance needs in the past, but is now diverted to cover basic operations due to budget shortfalls. Because of this lack of investment, maintenance costs increase and problems worsen.

As we celebrate our quasiquicentennial, we have an unprecedented opportunity to protect and enhance the legacy, but are we going to squander it because the solution may seem difficult and costly? Will we ignore the rights of the next generations of Pennsylvanians?

Infrastructure Requires Routine Rehabilitation and Upgrades

DCNR's budget is just one half of one percent of the annual Pennsylvania state budget. In recent years, General Fund allocations to DCNR for operations have been reduced and the balance supplemented with funds from the Oil and Gas Lease Fund. Pennsylvania's state park and forest infrastructure repairs and maintenance needs are funded through an array of sources including allocations by the legislature and Governor from the General Fund, the Oil and Gas Lease Fund, the Key 93 Fund, the Environmental Stewardship Fund, and park user fees. However, as these funding streams have been lessened projects are deferred, maintenance is reduced, and costs accumulate.

The management role of DCNR is in ways similar in scope to what the Pennsylvania Department of Transportation (PennDOT) maintains — roads, bridges, rights-of-way, etc. — all of which come with considerable costs. Much like a home to-do list, the removal of one project from the maintenance list at a state park or forest makes way for another project, and another, and another. And as any homeowner knows, deferring maintenance inevitably leads to higher costs in the long term.

Park fees, philanthropic donations, volunteer assistance, and other sources help supplement General Fund allocations, but ultimately the condition of our state parks and forests depends on the trustees of these resources as outlined in the Environmental Rights Amendment to provide and maintain public open space in a manner that ensures human safety and provides for future generations.

Infrastructure Involves More Than Built Structures

Traditionally, infrastructure refers to buildings and roads, but state parks and forests include natural infrastructure as well. For instance, DCNR staff must manage our high-quality forests for timber production. This includes cutting trees, controlling invasive species, collecting seeds, and planting seedlings, among other tasks. Maintaining natural infrastructure is an integral part of what DCNR does and from which all Pennsylvanians benefit.

At times, these natural systems fall under attack, such as is the case now with the spotted lantern fly, hemlock wooly adelgid, and the emerald ash borer. Irruptions of these invasive insects divert staff and funding resources from other infrastructure needs. We don't live in a vacuum — the ecosystem health of our state parks and forests is reflective of the health of the state as a whole.

Long-Term Investments Promote Quality Communities & Job Creation

Every dollar invested in our state parks and forests brings multiple benefits to the communities that surround them. In a 2012 study, for instance, the return on taxpayer investment in our state parks alone was estimated at nearly \$12.41 for every \$1 invested. With more than 41 million visitors to our state parks in 2016, that accounts for considerable economic stimulation and jobs created and/or retained.

Our state park and forest resources also provide benefits through the environmental functions that they perform such as water filtration, air quality improvement, and flood control. They improve quality of life and housing values, and provide opportunities for recreation-based employment. In fact, Pennsylvania ranks fifth in the nation for outdoor recreation spending!^{xi}

Unpredictable Funding

Over the decades, Pennsylvania's state parks and forests have experienced ups and downs in terms of funding for maintenance and day-to-day operations. Temporary sources of funding, such as Project 70, Project 500, and Growing Greener I and II help acquire new park lands, build infrastructure, and keep things clean. However, most of these funding sources are now gone or are being diverted to pay for other things. Even Key 93 funds fluctuate year to year depending on real estate sales. Inadequate funding for DCNR leads to reduced staffing complement for the agency, which in turn impacts the ability to perform maintenance.

Every dollar invested in our state parks and forests brings multiple benefits to the communities that surround them.

A reliable and adequate source of funding for operations and maintenance is needed to ensure our state parks and forests can be handed down in as good or better condition to future generations.

A Call to Action

The Legacy of Pennsylvania's State Park and Forests: The Future Is in our Hands is a call to action for citizens and decision makers to understand the challenges facing our parks and forests and to launch a conversation to ensure a vibrant future for our public lands consistent with the Environmental Rights Amendment. It is a call to address the crumbling roads and bridges, to ensure dam safety, to mitigate the impact of invasive plants and insects, to restore deteriorating historic structures that capture the heritage of our Commonwealth, to restore and connect trails, and to accommodate an aging and more ethnically diverse population in our state parks and forests. It is a call to invest in our local economies and the economic engine that is outdoor recreation. And it is a call to think creatively about how we create a quality of life that makes Pennsylvania a great place to live, work, and play, keeping us competitive on the national front for job creation, employee retention, and attracting new businesses.

Pennsylvania stands at a critical juncture between handing our children a legacy of state parks and forests in which we can all be proud and strapping them with a burden from which they will struggle to recover. An opportunity exists to continue the government and community leadership that created our award-winning state park and forest system.

Who We Are

The Pennsylvania Parks and Forests Foundation (PPFF), established in 1999 as an independent 501(c)(3) organization, works closely with all 121 state parks and 20 forest districts across the Commonwealth. PPFF's mission is to promote and support the natural and cultural resources of Pennsylvania's state parks and forests through leadership in recreation, education, conservation, and volunteerism.

Currently, there are 41 state park and forest friends groups, or chapters, functioning under the PPFF nonprofit umbrella. These chapters are geographically dispersed throughout the Commonwealth. These local, public-private partnerships build bridges between the community and their neighboring state parks and forests, **take on tasks and projects that would not otherwise be accomplished**, and engage the public in active recreation and the opportunity to contribute to the places they know are important.

In addition to supporting volunteer friends groups, PPFF strives to improve the visitor experience through inclusive recreation, events, habitat protection, promotion of parks and forests as tools for improving human health, volunteer experiences and opportunities, **improvements and expansion of parks and forests infrastructure**, and by being a voice for parks and forests.

While volunteers and private philanthropy are making a difference, they cannot replace government investment in our state parks and forests.



CHAPTER I: THE HISTORY OF PENNSYLVANIA'S STATE PARKS AND STATE FORESTS INFRASTRUCTURE

“The nation behaves well if it treats the natural resources as assets that it must turn over to the next generation increased, and not impaired, in value.”

– President Theodore Roosevelt

Pennsylvania has one of the nation's largest park systems, with 121 state parks encompassing nearly 300,000 acres, and was recognized in 2009 as the best state park system in the nation from the National Recreation and Parks Association. We have a nationally-recognized Forest Stewardship Council (FSC) certified sustainable state forest system with 2.2 million acres within 49 of the state's 67 counties. Our world-class state forests and parks not only create jobs and contribute significantly to Pennsylvania's economy, they are used by people for recreation, improving mental health, exercise, and spiritual renewal. These public lands also reduce costs for stormwater management and wastewater treatment, as well as improve air quality. **For decades, visionary leaders recognized the need to conserve land, create recreation areas, and to invest in our parks and forests for generations to come.**

Yet cuts in staffing and budgets have created a situation where not all infrastructure maintenance needs can be addressed, threatening this award winning status. An examination of state parks operations in 1990 showed that major maintenance needs had accumulated for at least the preceding 15 years, while the State Parks 2000 report showed an estimated need of \$50 million for “building and re-paving roads and parking lots, repairing bridges and dams, repairing and restoring existing buildings, sewer and water facilities, and other needed improvements to recreation facilities.”^v

Today, the infrastructure maintenance project inventory has grown to more than \$500 million for state parks and \$500 million for state forests. This includes, but is not limited to:

- roads & trails
- dams
- pavilions
- historic preservation
- picnic areas
- campgrounds
- water treatment facilities
- well plugging
- acid mine drainage remediation

Today, the infrastructure maintenance project inventory has grown to more than \$500 million for state parks and \$500 million for state forests.

For decades, visionary leaders recognized the need to preserve land, create recreation areas, and to invest in our parks and forests for generations to come.

Brief History

Our state's future will always be closely aligned with our natural resources, so to truly consider the big picture, we are focusing on looking back.

William Penn recognized the value of the Pennsylvania forests and in 1681 issued his Charter of Rights to settlers, ordering the colonists to leave one acre of trees for every five acres of land cleared. This was disregarded, but the woods remained relatively intact until about the 1850s. Much of the American economy in the nineteenth century was based on a forest products industry—demands for lumber were staggering. Early rail needed 80 million cross-ties a year for expanding lines. Historians estimate that every iron furnace (there were 145 in 1850) needed between 20,000 and 35,000 acres of forest to sustain it. Hemlock bark was the primary source of tannin for the leather industry. Pennsylvania, abundant with hemlock forests, attracted tanneries, which in turn brought sawmills and pulp mills to use the harvested wood for lumber and paper.



William Penn

Behind the loggers came uncontrolled wild fires, soil erosion, and flooding; leaving in its wake unbelievable devastation. The state's north central region became known as “Pennsylvania's Desert.” Visionary leaders and active citizens worked to protect and restore the land; today, this same 12-county area is known as the “Pennsylvania Wilds.”

Let Protection Begin

Spurred by the 1889 flood in Johnstown that took the lives of 2,200 people, **Governor James Beaver (R)** recognized the need to adopt land use policies. As timber

companies abandoned land, they often failed to pay taxes, and formerly forested areas came up for tax sale. The state began to purchase some of these for watershed protection. Around this same period, citizens were organizing to protect, study, and care for forests. Out of this grew the Pennsylvania Forestry Association, a group that advocated for a state agency devoted to forestry.

A bill signed in 1893 by **Governor Robert Pattison (D)** formed the PA Forestry Commission, tasked with the control of forest fires and to establish a forest reserve system. The system began with the purchase of 7,500 acres in Clinton County to be used to “furnish timber, protect the water supply of Young Woman’s Creek, and provide recreation for citizens.”



Joseph Rothrock

Joseph Rothrock, the Father of Pennsylvania Forestry, and the first President of the Pennsylvania Forestry Association, was appointed the first Commissioner of Forestry in 1895. Rothrock promoted the ideas of conservation, recreation, and health. As commissioner, he began purchasing lands for a forest reserve, some of which

later became state parks. The lands were used to preserve, protect, and propagate forests as well as to protect watersheds.

Public Lands for Recreation

In Pennsylvania, the early days of recreation can be traced to the individuals and groups who formed constituencies for the protection of fish and game, natural places, and public access to land. The industrial and economic growth of the 19th century gave Americans more time and disposable income to enjoy leisure activities and Pennsylvanians were no exception. Yet they needed more places to recreate outdoors.

Pennsylvania’s first state park was designated at Valley Forge in 1893. At the time, the park was 250 acres in size and marked an historic site from the American Revolutionary War. It is now a national historic park and under the jurisdiction of the National Park Service.

Gifford Pinchot (R) became the governor of Pennsylvania in 1922. Pinchot was well known as the “Father of Conservation” for his work while in the U.S. Forest Service and had been hailed for his road program in Pennsylvania of “getting the farmer out of the mud.” Pinchot worked tirelessly to increase the forest holdings of the state. In 1923, the Department of Forestry was renamed the Department of Forests and Waters. The Administrative Code of 1929 formed the Bureau of State Parks, within the Department. Pennsylvania was a leader in public land designations at this time, ranking only behind New York.

In the early years, the state park system concentrated on preserving and protecting rare, scenic, historic, and natural areas. Some of the earliest acquisitions, such as Mont Alto (1902), Caledonia (1903-1905), and Pine Grove Furnace (1913) state parks, contained recreation land from the previous private owners. In 1929, the legislature established the Bureau of State Parks separate from the Bureau of State Forests to provide outdoor recreation facilities and preserve park areas.

Investment in the Pennsylvania Wilds Builds Jobs and Enhances Tourism

The relatively geographically-isolated region known as the Pennsylvania Wilds makes up nearly a quarter of the state’s landmass but contains under 5 percent of the population and less than 1 percent of the gross domestic product (GDP).

Declines in traditional manufacturing and forestry jobs hurt the region. To help boost the region’s economy, the Department of Conservation and Natural Resources (DCNR) invested \$13.6 million into the Pennsylvania Wilds 12-county region between 2003-2008 for recreation and conservation projects. This is in addition to \$120 million in direct investments to state parks and forests in that region, and millions from the Department of Community and Economic Development (DCED) for marketing and promotional materials.ⁱⁱⁱ

These funds have helped create an outdoor tourism industry that has created countless new restaurants, lodging, stores, and other businesses that generate \$1.7 billion annually.^{iv}



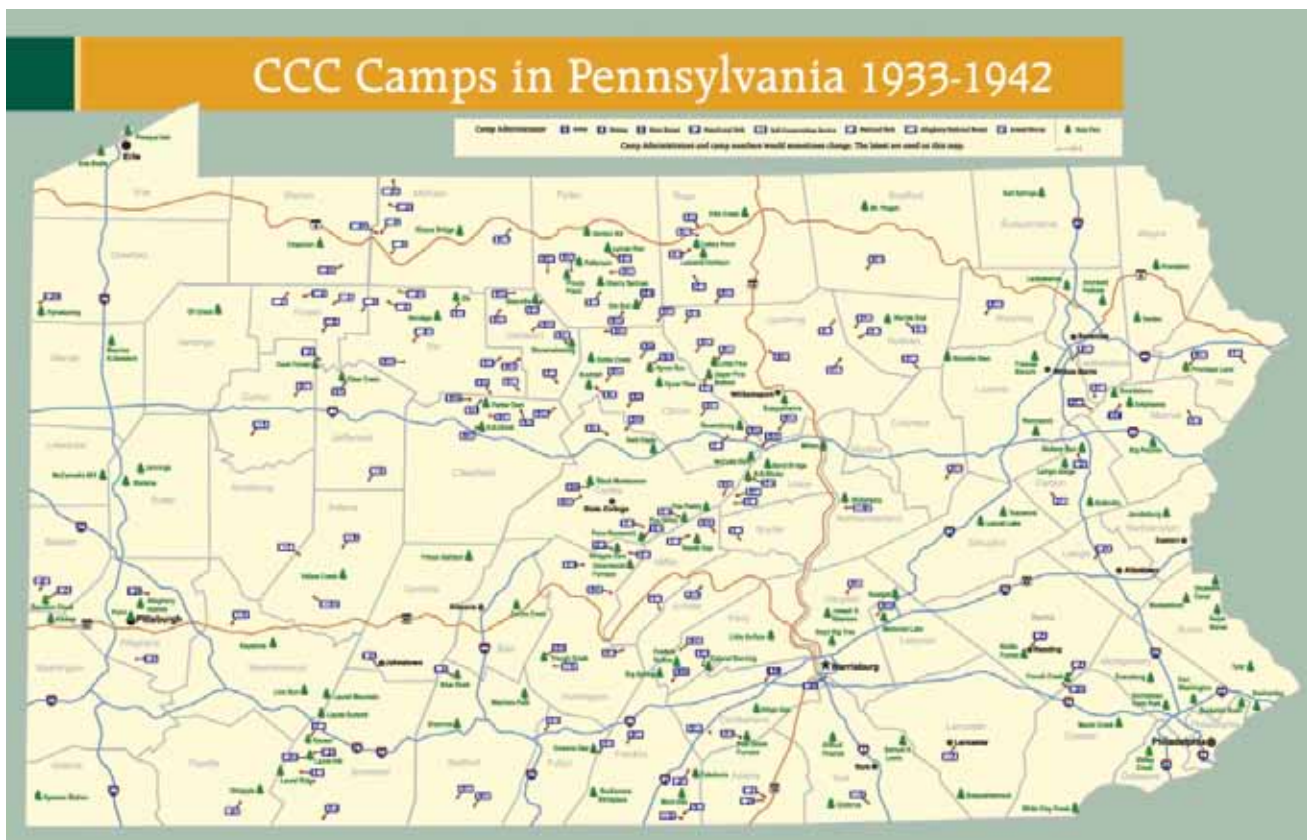
Putting People to Work

During the Great Depression, the Civilian Conservation Corps, or CCC, helped build new state parks and state forests and rehabilitated existing infrastructure. Pennsylvania was home to the second-largest number of CCC camps in the country. Within one year, there were 92 CCC camps located in state forests and parks, with men building cabins, planting trees, and constructing dams for recreation and flood control. By the end, Pennsylvania hosted more than 113 camps.

Projects included the first-ever concrete and stone dam built by the CCC in the United States, located within Bald Eagle State Forest in Union County.

CCC men were instrumental in fighting wildfires and replanting the state's forests that had been decimated by logging in the late 1800s and early 1900s. By the end of 1934, 130 buildings had been erected, 28 water improvements had been made, more than 60 million trees were planted, and 663 other facility improvements were complete. The CCC program continued until the start of World War II in 1942.^v

Many of the historic structures within PA state parks and forests were constructed by members of the Civilian Conservation Corps (CCC) between 1933 and 1942.



The Rebirth of Fort Pitt at Point State Park

In 1945, the Department of Forests and Waters acquired the first part of a 36-acre state park at the confluence of the Ohio, Allegheny, and Monongahela rivers in Pittsburgh. As shown in the photo below, the land at



the point had fallen into decay and was considered a commercial slum. Amazingly, the 1764 blockhouse and other Fort Pitt structures remained intact. Portions of the historic

structures were rebuilt and restored, with a dedication ceremony for the Fort Pitt Museum held in 1969.^{vii}

Today, Point State Park attracts 2.6 million visitors a year for its fountain (constructed in 1974 and redesigned/reopened in 2013 as part of a \$32



million park rehabilitation project), its city views, and its historical attractions. In 2014 the park was named one of the “30 Great Places in America” by the American Planning Association. The Urban Land Institute followed suit by calling the state park a “Best Community Place.”^{viii} And in 2015, the Pennsylvania Parks and Forests Foundation (PPFF) named it their “Park of the Year.”^{viii}

Creating a Lasting Legacy

After World War II, the idea of suburbs began to spread, with highways and other roads expanding into what were once rural lands. This development concerned **Maurice K. Goddard**, who was sworn into office as the Secretary of Forests and Waters in 1955 and was later named the first Secretary of the Department of Environmental Resources in 1971. Goddard wanted to acquire additional acres of Pennsylvania’s natural spaces for recreation and conservation purposes, as the idea of leisure time was starting to take hold among the populace and they needed affordable places to go.

When Goddard began as Secretary, there were 50 state parks, most located in rural, remote areas with gravel roads, pit latrines, and primitive campgrounds. Goddard set the goal of creating one park within 25 miles of every Pennsylvanian to bring the parks closer to people. All told, he established 57 state parks in his lifetime, more than doubling the number across the state.



Maurice “Doc” Goddard set the goal of one state park within 25 miles of every Pennsylvanian. A park was named in his honor in 1971.

Maurice “Doc” Goddard established 57 state parks during his lifetime, more than doubling the number across Pennsylvania.

Environmental Rights Amendment

In 1971, Pennsylvanians ratified by a four to one margin, what is now Article I, Section 27 of the Pennsylvania state constitution. Under the title “Natural Resources and the Public Estate” this amendment clearly articulated and recast the role of Pennsylvania’s government towards the environment. The article reads as follows:

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania’s public natural resources are the common property of all the people, including generations yet to come. As trustees of these resources, the Commonwealth shall conserve and maintain them for the benefit of all people.

According to the author of this amendment, the first sentence declares that every Pennsylvanian has a right to a decent environment. The next two sentences declare that state government will be the trustee of our natural resources for future generations, rather than a silent accomplice to their exploitation.

Map of Goddard State Parks



Our Parks and Forests Today

New parks and upgrades to existing facilities continued over the decades, celebrated in earnest in 1993 with the 100th anniversary of the first state park. In 1995, **Governor Tom Ridge (R)** and the legislature gave the Bureaus of State Parks and Forestry their own agency via Act 18 of 1995 to show the importance of managing 2.5 million acres of public lands: the Department of Conservation and Natural Resources (DCNR).

Pennsylvania now boasts 121 state parks and 2.2 million acres of state forests. While the use of our state parks and forests has grown over the past three decades, investment in our parks and forest staff has declined. In fact, state park staffing is at its lowest levels since 1970, at which time only 77 parks existed. Fewer staff and higher demand, creates a challenge for restoring and replacing all of the needed infrastructure (*see Figures 1 and 2*).^{vii}

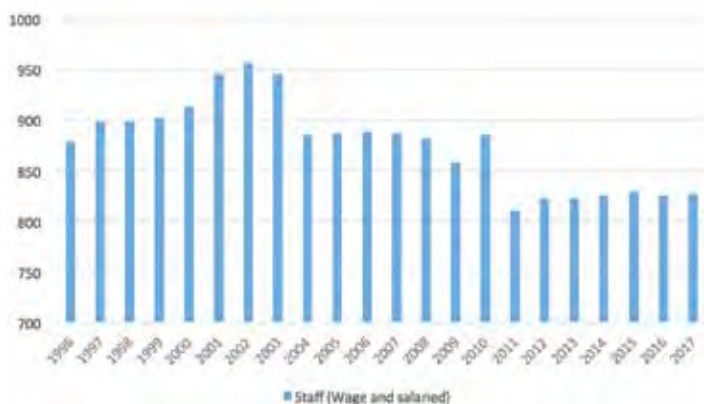
FIGURE 1: Change in Complement and Attendance For State Parks Over Time^{ix}



*Salary data was unavailable for the years 1993-96 due to a changeover in the agency's computer system.

While the use of Pennsylvania's state parks has grown over the decades, as shown by the green line, investment in park staff has declined on the whole, as shown by the blue bars.

FIGURE 2: Change in State Forest Complement Over Time



*Annual attendance to State Forests is not tracked by the agency as it is for State Parks.

Even though more lands have been acquired for state forests in Pennsylvania, creating more work for staff, the number of staff has declined over the years, as shown by the blue bars.

State Park and Forest Staff Include More Than Rangers and Maintenance Crews

Visitors to state parks and forests may not realize the specialized technical skills and professional training required to design, construct, operate, maintain, and upgrade all the diverse buildings and infrastructure that constitute our state parks and forests. All told, there are more than 80 different job titles within the bureaus of state parks and state forests. Without these positions, our public lands would not be as safe, would not be able to accommodate the needs of all users, nor would these lands provide as many ecosystem services as they do. What follows is a brief sample of the diverse positions necessary to operate a state park or forest:

Wastewater Treatment Plant Operators manage and rehabilitate state park and forest sewage treatment plants, which includes operating and maintaining motors, pumps, chemical feeders, chlorinators, flow recorders and related equipment used in sewage treatment. Many of these facilities also service nearby communities, keeping local water quality clean. State parks and forests operate 172 public drinking water supplies and 70 wastewater treatment plants.



Landscape Architects develop aesthetic site designs and manage construction for state park and forest building sites and trail projects with a focus on sustainable native landscape plantings, water quality and runoff-sensitive stormwater management, and site appropriate pedestrian and vehicular circulation.



Engineers - Mechanical engineers design and manage the construction of the plumbing, heating, and ventilation systems that serve state park and forest buildings while electrical engineers design and manage the construction of the electrical and lighting systems serving all buildings, campgrounds, and water and wastewater treatment plants, along with solar arrays and electric vehicle charge stations. DCNR has bridge engineers, civil engineers, and environmental engineers at work on its facilities.



Geologists assist engineers with drilling investigations at bridge and culvert construction sites and provide on-site recommendations for productive and treatable drinking water well locations. They also write technical manuals and educational materials for the public.



Service Foresters help guide landowners and residents to practice sustainable forestry. They can help with writing and reviewing forest stewardship plans, provide urban tree planting tips, and provide guidance on hiring a professional forester.



Rangers are the law enforcement officers within state parks and forests. They ensure people are following the rules and creating a safe environment for all visitors. They may also be one of the first responders to an emergency, particularly in more rural areas.



CHAPTER 2: THE VALUE OF STATE PARKS AND FORESTS

“The economic and social benefits of the present [park] system are so far-reaching that the Commonwealth can afford this small subsidy [from the General Fund].”

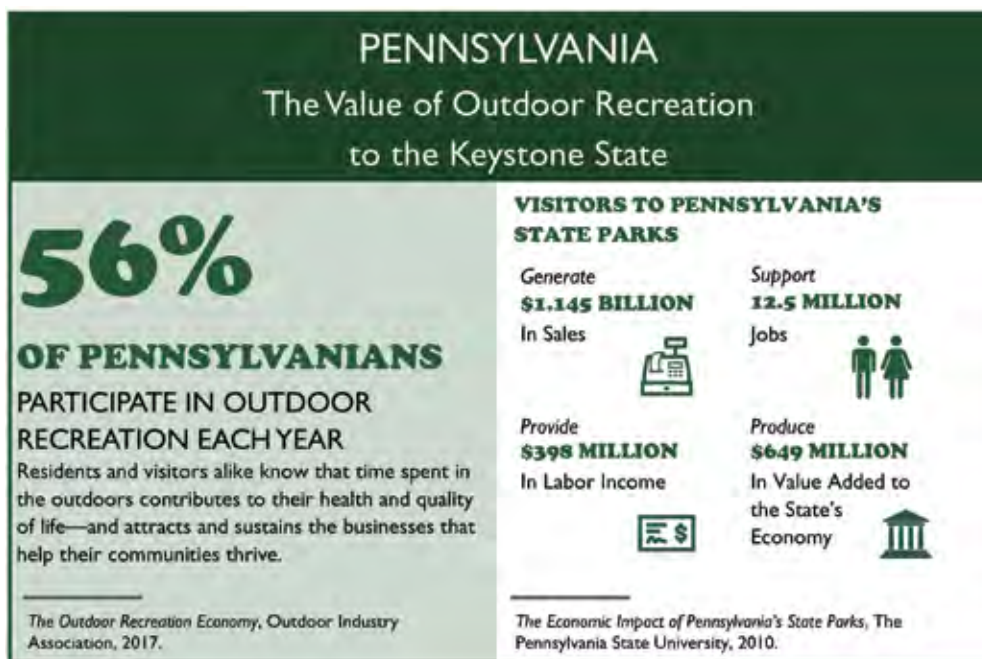
– Maurice Goddard, Secretary of the Department of Environmental Resources (1955–1979)

State Parks and Forests Contribute Significantly to the Economy

Outdoor Expenditures

In 2012, 19 percent of the 189 million travelers to Pennsylvania indicated their primary reason for travel was outdoor related. Those travelers listed swimming, visiting a state park or national park, camping, and hiking as their top outdoor activities. Each visit to those lakes, parks, trails, and forests generates income for local communities. For instance, average trip expenditures for a visitor to one of six state parks studied in the Pennsylvania Wilds region were \$124; in a similar study for state parks in the Laurel Highlands and Poconos, trip expenditures averaged \$187.^{xlii}

Also in 2012, the Department of Conservation and Natural Resources (DCNR) commissioned Penn State to update its 2008 economic analysis of Pennsylvania state parks' impacts. The analysis showed that state parks hosted 37.9 million visitors who spent \$859 million on their trips. The direct contribution of visitor spending to the state economy was \$628.7 million in sales, which supported 9,435 jobs. Including secondary effects, the total contribution of visitor spending to the state economy was \$1.145 billion in sales, 12,630 jobs, 397.8 million in labor income, and \$649 million in value added effects. The study also found that for every dollar invested in the state parks in 2010, \$12.41 of income is returned to the state economy.ⁱ



**For every dollar invested in the state parks in 2010,
\$12.41 of income is returned to the state economy.**

Visitor use monitoring surveys to state forests show that a majority of visitors spend money within 50 miles of the state forest they visit, with average expenditures ranging from \$80 to \$200 per trip.^{vi} These expenditures include hotel rooms, meals at restaurants, souvenirs, and equipment rentals like bikes and kayaks, among other purchases.

A study done in 2015 for the VisitPA.com website found that \$6.9 billion in tourism industry sales in Pennsylvania were associated with recreation (both indoor and outdoor), making it the third most profitable industry in relation to tourism (behind transportation and food/beverage services). This was a 3.2 percent increase since 2008, which was the third largest increase among all

**Outdoor recreation is an important part of Pennsylvania's
tourism industry and economic well-being.**

tourism segments. This shows that outdoor recreation is an important part of Pennsylvania's tourism industry and economic well-being.

The U.S. Bureau of Economic Analyses released data showing that the national outdoor recreation industry comprises two percent (\$373.7 billion) of the 2016 U.S. gross domestic product (GDP), which is more than extractive industries like oil, natural gas, and coal. And in Pennsylvania, an Outdoor Industry Association analysis showed outdoor recreation in the Commonwealth accounted for \$21.5 billion in consumer spending, 219,000 direct Pennsylvania jobs, \$7.2 billion in wages and salaries, and \$1.6 billion in state and local tax revenue. This placed Pennsylvania fifth in the nation in outdoor recreation spending. The figures include both tourism and outdoor recreation product manufacturing. Compare this with the other top industries in Pennsylvania: natural gas extraction, manufacturing, and agribusiness (see infographic.)



The Value of Hardwoods

Pennsylvania's 2.2 million-acre state forest system, found in 49 of Pennsylvania's 67 counties, makes up 12 percent of the state's forested area and represents one of the largest expanses of public forestland in the eastern United States. Pennsylvania's publicly-owned and privately-owned forests contain the largest volume and highest quality of hardwoods in the United States. There are 2,100 forest product based companies in Pennsylvania, employing 66,654 people. The industry generates \$12 billion in sales and has a total impact of over \$19 billion to the state economy each year. Of that, 10 percent, or \$1.2 billion, is generated via state forest lands.^{xiv}



Pennsylvania's state forest system is composed of 2.2 million acres, spread across 49 of Pennsylvania's 67 counties.



Pennsylvania's hardwood industry has a total impact of more than \$19 billion to the state's economy annually.

PENNSYLVANIA'S HARDWOODS INDUSTRY

Money Does Grow on Our Trees



The Economics of the Kinzua Bridge

The Kinzua Bridge State Park was dedicated on July 5, 1975, the focal point of which was the Kinzua viaduct – believed to be the second highest viaduct in North America. In 2003, a tornado swept through the area, destroying 11 of the 20 bridge towers, leaving them strewn across the valley floor.

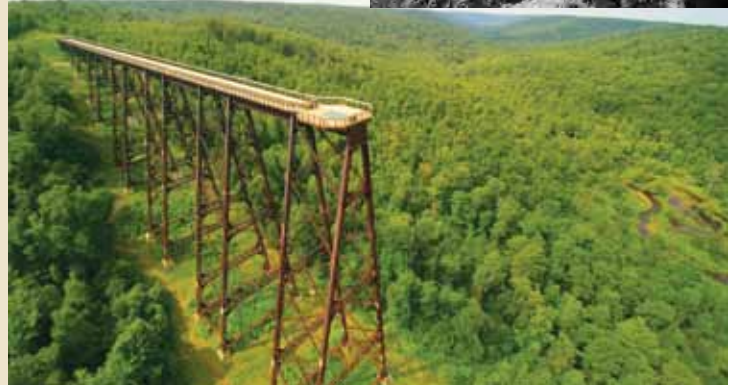
In 2002, Governor Rendell released the first funds to stabilize the remaining portion of the bridge, and in 2011 the Sky Walk at Kinzua Bridge opened. Visitors can look down 300 feet to the ground through a glass-bottom observation area at the far end of the walkway. The total cost of the rehabilitation was \$4.3 million and earned DCNR a “Best Project Award” from The Engineering News-Record. In 2016, a new visitor center opened at Kinzua Bridge State Parks, sharing the story of the bridge and offering great views of what remains.

Kinzua Bridge State Park has a significant impact on the surrounding economy. In 2010, even before the Sky Walk was completed, visitors to the park generated more than \$1 million for the economy. After the Sky Walk opened, the number of visitors jumped from 165,195 in 2011 to 243,095 in 2016. Investments in the park paid off with a 32 percent increase in attendance over a five-year period! A new visitor center at the park continues to draw in new visitors, with many coming from out of state to see this man-made marvel.

Top: The original Kinzua Bridge

Middle: Sky Walk at Kinzua Bridge opened in 2011

Bottom: Kinzua Bridge State Park's new visitor center



State Parks and Forests Enhance Human Health and Quality of Life

Obesity Prevention

The study, “Obesity Threatens America’s Future,” shows that by 2020, 57 percent of Pennsylvanians will be obese and related health care costs will surpass \$13.5 billion. Currently, Pennsylvania ranks as the 17th most obese state in the nation. **Reducing the average body mass index in Pennsylvania by only five percent could mean an \$8 BILLION-dollar savings in health care costs in the next 10 years and \$24 BILLION in the next 20 years.** There is strong evidence that when people have access to parks, forests, and other greenways they exercise more, leading to a reduction in obesity.ⁱⁱ The National Institutes of Health have shown that being more fit leads to a reduction in time spent being sick, which has benefits to productivity and quality of life. Pennsylvania’s state parks and forests can play a key role helping millions of its citizens achieve healthy lifestyles through convenient and inexpensive places in which to recreate.

There is strong evidence that when people have access to parks, forests, and other greenways they exercise more, leading to a reduction in obesity.

Mental Health Benefits

The 2008 Pennsylvania State Park Visitor study by Penn State found that Pennsylvanians who visit state parks each year do so to have fun, reduce stress and anxiety, and connect to the outdoors. This is particularly important during times of economic downturn when more people vacation closer to home, choosing local and state parks and forests for their recreation destination. Visiting state parks and forests can also reduce medical costs as studies show that 60 to 90 percent of doctor visits are attributed to stress-related illnesses and symptoms. In the study, 63 percent of visitors said that they engaged in some form of moderate physical activity during their visit and almost half of respondents (49 percent) reported that they were more physically active during their state park visit than in their daily lives.^{ii, xli}



Visiting state parks and forests for activities like hiking can reduce medical costs, as studies show that 60 to 90 percent of doctor visits are attributed to stress-related illnesses and symptoms.

Get Healthy in the Outdoors

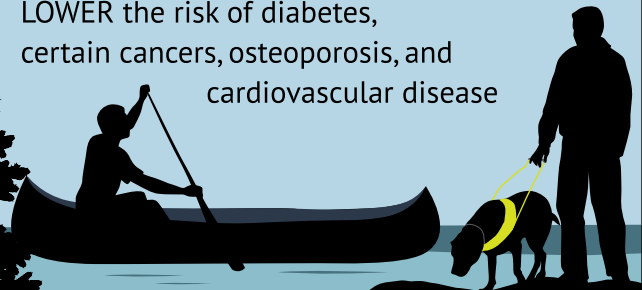
121 state parks
2.2 million acres state forest
5,700 local parks
✈ **11,100 miles of trails**

Regular outdoor activity:

- PROMOTES weight loss
- REDUCES arthritis pain
- LOWERS blood pressure



Outdoor activity can:
LOWER the risk of diabetes,
certain cancers, osteoporosis, and
cardiovascular disease



Outdoor settings
REDUCE stress,
anxiety, and
depression

NATURAL SETTINGS

CALM
the
MIND

Outdoor recreation IMPROVES
confidence and
self-esteem



#1
BENEFIT
of Outdoor
Activity:
STRESS
Reduction

3/4 of
Pennsylvanians
believe PARKS,
TRAILS, and
OPEN SPACES
are an essential
part of their
healthcare system

Outdoor recreation IMPROVES
memory and creativity



Outdoor
activity
RELAXES



#1
Outdoor
Recreation:
WALKING

PENNSYLVANIA
Parks & Forests
FOUNDATION

Providing a Safe Place to Recreate and Relax

According to the 2008 Penn State recreation survey, 92 percent of state park visitors feel that the level of personal safety is good or excellent in the parks. However, a few respondents noted a need for improved trail safety.ⁱ The more comfortable people feel within our public lands the more likely they are to keep returning – and contributing to the local economy. Well-maintained state parks and forests ensure that trails, bridges, dams, and other features are safe.

Enhancing Social Bonds

The Urban Land Institute defines a healthy place within a built environment as one that is designed, built and programmed to support the physical, mental and social well-being of the people who live, work, learn and visit there. Survey respondents (both park visitors and providers) for the most recent statewide Comprehensive Outdoor Recreation Plan (SCORP) said that “opportunities for social interaction” is an important benefit associated with outdoor recreation. Parks have been shown, time and again, to alleviate certain social issues such as petty crime (graffiti, littering, etc.) by encouraging people to be outdoors socializing and building a sense of community.ⁱⁱ

Improving Quality of Life

Communities across Pennsylvania recognize that outdoor recreation contributes to a high quality of life and – perhaps most importantly – attracts and sustains employers and families. In fact, studies show that people rank parks, recreation, and open space as some of most important quality-of-life factors.^{ii, xli} According to the National Recreation and Park Association (NRPA), the reason why parks and forests enhance quality of life is that they provide identity for citizens, making them feel more at home and at ease. And companies are taking notice: many are considering these factors when deciding on where to locate a new business site.^{xviii}



Opportunities for social interaction is one of the most important park and recreation benefits according to participants in the Statewide Comprehensive Outdoor Recreation Plan (SCORP).

The Aging of Pennsylvania's Population

Pennsylvania is already one of the nation's “oldest” states. Between 2005 and 2015, the number of working age Pennsylvanians shrank by 2,000, while the number of residents ages 60 and older grew by 540,000, or nearly 22 percent, according to the Pennsylvania State Data Center. They estimate that the working age population will shrink by three percent by 2025, while those 60 and older will grow by 711,000 – nearly 24 percent – in that same timeframe. This changing demographic will require new and different state park and forest amenities. For instance, visitors of the baby boomer generation say they want more environmental education programming and improved access to trails and other recreational facilities for the mobility-impaired.^{xlii} Keeping up with visitor needs and interests will require new ways of designing and upgrading state park and forest infrastructure.

Ecosystem Services Add Value

The National Wildlife Federation defines ecosystem services as “any positive benefit that wildlife or ecosystems provides to people. The benefits can be direct or indirect – small or large.” Ecosystem services range from erosion control, water and air purification, noise buffering, and medicinal benefits. Our state parks and forests provide a wide range of ecosystem services that benefit all Commonwealth citizens.

Water

The Pennsylvania state forest system serves as a 2.2 million-acre water treatment system. Tree roots absorb nutrients such as nitrogen and phosphorus, which can pollute waterways. Roots prevent soil from eroding into streams and rivers. The shade from the forest canopy keeps the temperature of those water bodies cooler, which is beneficial to a host of organisms. While no one has quantified the total economic value to clean water in Pennsylvania, consider this: billions of dollars are spent on the construction of, and repairs to, water treatment plants in the United States. **According to the Center for Watershed Protection, water utilities spend 19 times more money on water treatment chemicals each year than the federal government invests in protecting lakes and rivers from pollution via forest conservation.^{xx}** Imagine if those numbers were reversed!

Studies show that people rank parks, recreation, and open space as some of the most important quality-of-life factors.

The Trust for Public Land and the American Water Works Association surveyed 27 water suppliers in 2002 and found that for every 10 percent increase in forest cover in the water source watershed, treatment and chemical costs at the water treatment plant decreased by approximately 20 percent.

The Trust for Public Land and the American Water Works Association surveyed 27 water suppliers in 2002 and found that for every 10 percent increase in forest cover in the water source watershed, treatment and chemical costs at the water treatment plant decreased by approximately 20 percent.^{xx} A study in the Lehigh Valley found that open space provided \$355 million savings in water supply, flood control, pollination, and habitat services. In Philadelphia, local parkland saves the city more than \$5.9 million in storm water management.^{xxi}

Air

Trees, both in rural forested areas and those in urban centers, absorb pollutants like sulfur dioxide (SO_x) and particulate matter from the air. For instance, trees near streets absorb nine times more pollutants than more distant trees.^{xxii} **The Urban Forestry Network estimates that one tree, over a 50-year lifespan, provides \$62,000 in air pollution control.**^{xxiii} With a rise in pollution-related respiratory illnesses, trees are critical players in human health.

Climate Change

Our tree-covered state parks and forests provide several benefits that can stave off some of the short and long term effects of climate change. For instance, trees located near buildings can reduce the heating and cooling costs by 15 to 35 percent. The Urban Forestry Network estimates that planting 100 million trees could take 18 million tons of carbon per year out of the atmosphere and thus save American consumers \$4 billion each year on utility bills.^{xxiii} This includes saving tax payer money by reducing

operating costs for state park and forest buildings. Forests and other natural areas also act as “carbon sinks”, which absorb the greenhouse gases like carbon dioxide (CO₂) produced by vehicles, power plants, and other sources, thereby reducing the negative impacts to the climate. Forests are the most effective carbon sinks we have; Pennsylvania’s forests hold 1.5 billion tons of carbon.^{xxii}



Solar panels at Caledonia State Park save money for the park.

It’s not just forests that reduce the effects of climate change; some buildings within our state parks and forests also help. Green building construction can reduce carbon and save on operating costs. Since 2007, state parks began measuring their carbon footprint, using green technologies and best management practices in their buildings, and developing ways to share these sustainable methods with park visitors. More on the sustainability of state parks and forests will be discussed in Chapter 5.



The Pennsylvania state forest system serves as a 2.2 million-acre water treatment system.

CHAPTER 3:

THE INFRASTRUCTURE AND ITS NEEDS

“Infrastructure is like Legos. Building is fun, destroying is fun, but a Lego maintenance set would be the most boring toy in the world.”

– Comedian John Oliver

A History of Growing Needs

The diversity of recreational opportunities makes Pennsylvania an attractive place to live, work, and play. State park and forest staff works daily to ensure the infrastructure under their control is as well managed and ready for public use as possible. However, cuts in staffing and budgets over the years have created a situation where not all infrastructure maintenance needs can be addressed in a timely manner. Staff does as much as they can, given the available resources, yet projects continue to amass.

The inventory of infrastructure maintenance projects in Pennsylvania’s state parks and forests is not new. In 1990, an examination of state parks operations uncovered an increasing accumulation of major maintenance that had accumulated for at least the preceding 15 years. The State Parks 2000 report showed an estimated need of \$50 million for “building and re-paving roads and parking lots, repairing bridges and dams, repairing and restoring existing buildings, sewer and water facilities, and other needed improvements to recreation facilities.”^{xxxix}

Many of our state parks are age cohorts—developed either during the Civilian Conservation Corps (CCC) era (1933-1942) or the Goddard era (1955-1979)—thus their infrastructure needs are developing on a similar timeline. Other parks and forests like Presque Isle and Ohiopyle state parks are heavily used, where the increased demand creates more wear and tear on the infrastructure. And still others like the Loyalsock State Forest and Cook Forest State Park experience natural disasters like flooding and invasive insect outbreaks that put an added strain on the infrastructure.

Today, the infrastructure maintenance project inventory has grown to more than \$500 million for state parks and \$500 million for state forests. Adequate funds have not been appropriated to rehabilitate or upgrade existing facilities and other infrastructure that are aging, such as roofs, sewer and water facilities, and roads. Maintenance of state parks and forests is a year-round operation that will always be needed. Some of the major maintenance funding needs are featured on the following page.

*Flood damage at
Loyalsock State Forest*



*Heavy rains
bring flooding.*

*Trail erosion from
heavy runoff.*



*Bridge washed out
from flooding.*



Defining Maintenance

Maintenance is “keeping park and recreation areas and facilities in their original state or as nearly so as possible.” (Sternloff & Warren, 1993, p. 5). This definition applies to the human “built environment,” but also to natural features and areas. Maintenance encompasses a wide range of activities and investments, but are generally divided into three major classifications:

Routine Maintenance - Generally custodial in nature, non-specialized, re-occurs frequently in short time increments, and primarily focused on cleanliness, orderliness, health, safety, and functionality of existing park facilities and areas.

Preventive Maintenance - Maintenance done proactively to stop or minimize an anticipated deterioration, failure, or damage to equipment, facilities, or settings. Extending the useful life of equipment and the environment. Is accomplished through cyclical assignment (e.g., spraying invasives twice per year)

Corrective (Repair) Maintenance - Sometimes called “emergency” or “breakdown” maintenance is having to fix something that fails – involves repairing or replacing the equipment or systems. Often because of public safety or public use requirements, this maintenance needs to be addressed immediately.

According to Sternloff and Warren (1993) there are 12 guiding principles or fundamental truths basic to effective maintenance of parks and recreation areas. Of these, at least four are particularly relevant to the needs identified in this report: 1) agencies must provide adequate fiscal resources to support the maintenance program,

2) agencies must provide adequate personnel to carry out the maintenance function, 3) the maintenance program must be designed to protect the natural environment, and 4) agency maintenance must assume the responsibility for public and employee safety.

Sampling of Major Maintenance Funding Needed for Inventory Projects at Individual State Parks and Forests



*Upgrade camping areas at several state parks to full service campsites that include individual water, sewer and electrical hook-ups to accommodate camper needs. **Estimated cost is \$4 million.***

*Renovate the District Office serving the Cornplanter State Forest. **Estimated cost is \$2 million.***



*After a concessionaire walked away from an agreement to operate the ski area at Denton Hill State Park, DCNR was left with the project to rehabilitate and replace facilities including the ski lodge, lifts, trails, and snowmaking equipment. **Estimated cost is \$12-\$16 million.***



*Make canal infrastructure improvements at the 60-mile long Delaware Canal State Park, which had more than 1.3 million visitors in 2017. This historic resource is very popular for recreation. Built in the 1830s, the original gates, locks, bridges, and towpath are susceptible to flood-related damage and require continual maintenance and repairs. **Estimated cost is \$28 million.***

*Replace outdated forest maintenance headquarters across Pennsylvania including the Hicks Run and Brooks Run facilities in Elk State Forest, the Snow Shoe facility in Sprout State Forest, the East Licking Creek facility in Tuscarora State Forest, and the Babcock facility in Gallitzin State Forest. These multi-bay garage, equipment storage, and office facilities are heavily used and serve as the hub for forest infrastructure upkeep such as gravel road maintenance, snow grooming, and prep work for commercial logging activities. The facilities keep heavy equipment safe secure and out the weather and provide indoor space for equipment repair. **Estimated cost is \$20 million.***



*Remove sediment that has accumulated in many of the Department of Conservation and Natural Resources' (DCNR) state park lakes, reducing water depths, and inhibiting fishing and boating activities. **Estimated cost is \$35 million.***

*Replace the undersized and outdated office at the Michaux State Forest with a new, more energy efficient Resource Management Center. **Estimated cost is \$8 million.***



*Replace stormwater pipes and inlet boxes, re-pave roads and parking lots, and provide for safer vehicle travel conditions for the nearly one million annual visitors at Ridley Creek State Park. **Estimated cost is \$5 million.***

*Rehabilitate and replace office, maintenance, storage, and fueling facilities at DCNR's Fire Operations at Hazelton Airport and Midstate Airport. These facilities support the Bureau of Forestry's aerial surveys, fire watch, and fire suppression work throughout the state. **Estimated total cost is \$10 million.***



*Replace beach houses, repave roads and parking lots, and improve water and sewer facilities throughout Presque Isle State Park, which had more than four million visitors in 2017. Construct pedestrian and bike access to the park from the city of Erie. **Estimated total cost is \$50 million.***

DCNR Infrastructure Project Costs

DCNR is responsible for over 2.5 million acres of Commonwealth lands, which include both state park and state forestry facilities and resources. These lands contain a wide variety of infrastructure necessary to maintain and support DCNR's mission of conservation and recreation. Facilities include roads, bridges, dams, lakes, canals, marinas, campgrounds, pools, cabins/lodges, various day-use facilities, water/sewer conveyance and treatment plants, and many buildings and facilities needed for administration and support services (garages, office, fueling facilities, and storage buildings). *The number of each of these facilities listed within this report is accurate as of March 2018.* The numbers change regularly as old structures are demolished, safety guidelines are changed, and lands are acquired.

These infrastructure facilities are used heavily by state park and state forest visitors, which requires regular rehabilitation and replacement as infrastructure ages. The infrastructure needs of DCNR are as varied and diverse as the facilities. Several hundred facility repair and rehabilitation projects have been identified by the agency, with estimated project costs ranging from less than \$100,000 to as high as several million dollars. The total dollar amount of these projects is just over **\$1 BILLION**. The state park and forest infrastructure projects can be grouped generally into the following categories:



The labyrinth spillway at Lyman Run State Park dam uses a zig-zag design to allow for greater discharge from the dam to prevent dam failure.



Lakes like this one at Pine Grove Furnace State Park were created by dams. DCNR owns and operates 131 dams, including 47 high hazard dams.

Visitor Facilities/Administrative Support – This category includes facilities such as park and forest district offices, contact stations, visitor centers, and maintenance and service facilities. Total dollar amount is approximately **\$194 million** (\$78 million for state parks, \$116 million for state forests).

Dams/Impoundments – This category includes dams and related hydraulic structure and components as well as the lakes and ponds. Total dollar amount is approximately **\$95 million** (\$54 million for state parks, \$41 million for state forests).

Overnight Facilities – This category includes campgrounds, cabins/ lodges, camping cottages, and associated buildings (bathhouses, restrooms, etc.). Total dollar amount is approximately **\$49 million** for state parks.

Recreation Facilities/Resource Management – This category includes a wide range of facilities and work specifically tied to recreation and resource management such as invasive plant and hazardous tree removal, abandoned mine remediation, well plugging, stream bank stabilization, comfort stations, pavilions, pools, trails, playgrounds, picnic areas, ski areas, and marinas. Total dollar amount is approximately **\$546 million** (\$222 million for state parks, \$324 million for state forests).

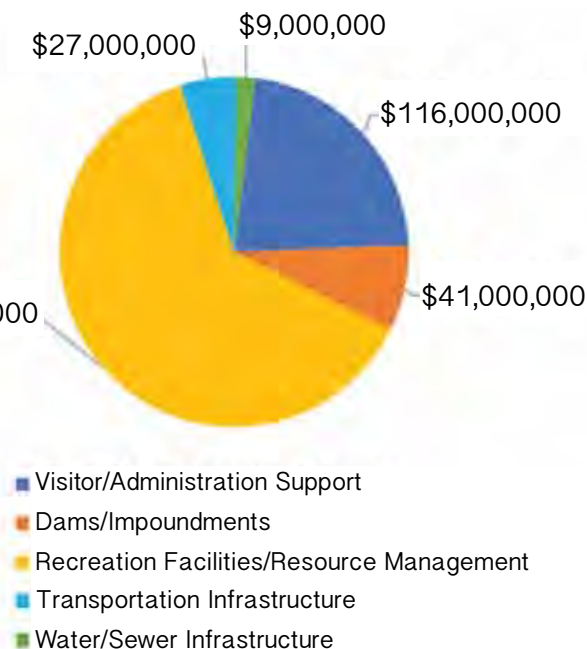
Transportation Infrastructure – This category includes roads, bridges, and any related appurtenances. Total dollar amount is approximately **\$110 million** (\$83 million for state parks, \$27 million for state forests).

Water and Sewer Infrastructure – This category includes water and sewer conveyance and treatment facilities such as pump stations, treatment plants, pipelines, and in-takes. Total dollar amount is approximately **\$66 million** (\$57 million for state parks, \$9 million for state forests).

FIGURE 3: State Park Infrastructure Maintenance Inventory

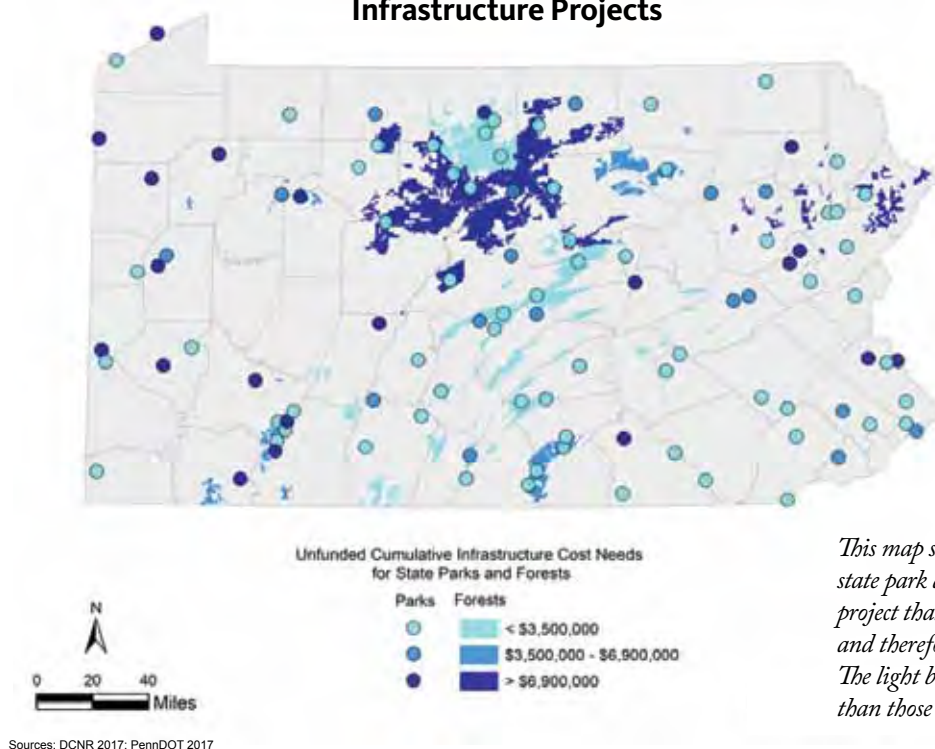


FIGURE 4: State Forest Infrastructure Maintenance Inventory



Figures 3 and 4 show where infrastructure maintenance dollars are needed within Pennsylvania state parks and forests. The largest amount is needed for **Recreation Facilities/Resource Management**, which includes invasive plant and hazardous tree removal, acid mine drainage remediation, stream bank stabilization, comfort stations, pavilions, pools, trails, playgrounds, and picnic areas. Other infrastructure needs include roads, bridges, dams, and water treatment facilities, as well as signs, picnic tables, grills, fire pits, and other smaller needs.

Locations of State Park and Forest Infrastructure Projects



This map shows the locations of each state park and forest maintenance project that is currently unfunded and therefore, unable to be completed. The light blue projects are less expensive than those in purple.

Regulatory, Operational, and Inspection Requirements

As owner and operator of public water supplies, wastewater treatment plants, high hazard dams, and vehicular bridges, DCNR is heavily regulated by state and federal agencies. DCNR is charged with ensuring that the protection of public health and safety is paramount in day to day operations of state park and forest facilities. These responsibilities require rigorous training, specialized equipment, and prioritized funding. Public water supplies must be routinely tested and maintained to meet ever increasing U.S. Environmental Protection Agency (EPA) safe drinking water standards. Wastewater treatment plant operators must be trained and certified to operate complex treatment equipment and ensure PA Department of Environmental Protection (DEP) and EPA discharge requirements are met. DCNR has a full-time, on-call dam inspection engineer to meet DEP dam safety requirements. In addition, DCNR engineers inspect the smaller span bridges and culverts, and hires bridge consultants to inspect larger structures to meet PennDOT and Federal Highway Administration (FHA) requirements. Information gained from all these inspections and analyses establish the criteria for prioritization of future infrastructure projects.

DCNR is charged with ensuring that the protection of public health and safety is paramount in day to day operations of state park and forest facilities.

Investments in Infrastructure

According to public surveys done by Penn State, visitors to our parks and forests want clean restrooms, more and better connected trails, well-maintained parking, improved visitor centers and lodging, improved Americans with Disabilities Act (ADA) access, and public funds used to improve general maintenance of existing facilities. Dedicated and hardworking state park and forest staff strive to keep up with routine maintenance needs, but increase in park visitation coupled with decreasing funding makes it a challenge. In addition, increasing environmental issues, such as the growing invasive species problem, as well as human impacts like vandalism, create strains on maintenance and infrastructure budgets (*see sidebar*). Volunteers and friends groups assist where they can, but general fund investment in adequate staffing and maintenance funding would go a long way to managing needs.

DCNR spent approximately \$400 million on state park infrastructure improvements/upgrades between 1995-2016

The Human Impact on State Parks and Forests is not Always Positive

State parks and forests are not immune to negative impacts from visitors and nearby residents. People carve their names or swear words into picnic tables, spray paint interpretive signs, steal light bulbs, and shoot out signs. Some may inadvertently bring an invasive insect into a campground via their firewood or dump their trash on state forest land. And while the impact of this wear and tear is rolled into the annual major maintenance budget for state parks and forests and therefore not quantified on its own, these actions cost time and money, pulling resources away from other maintenance projects. For instance, at Boyd Big Tree Conservation Area, managed by Little Buffalo State Park, staff have had to replace the lightbulbs in the pavilion due to theft and breakage on a regular basis. Now state park staff leave the sockets empty to avoid the vandalism temptation and to save staff time and money, which unfortunately limits the activities that can take place in the pavilion to sunnier days.



Graffiti and other vandalism within Pennsylvania state parks and forests takes time and money away from other infrastructure needs.

and \$77 million on state forest improvements/upgrades between 1999–2015. Yet, like owning a home, the to-do list never seems to get shorter. Acts of nature such as flooding, heavy snows and lightning strikes, as well as staffing shortfalls, changes in safety standards, additional facilities, and increased visitor demands all add to the state park and forest maintenance and upgrade list. If certain projects related to health and safety needs are not fixed in the near term, such as dam repairs and upgrades to water treatment plants, it may result in facility closings, damage to the facility, or impacts to human safety.

Funding Shortfall

In state parks each year, \$23 million is collected in fees for campground use, cabin rentals, and other concessionaires. In the past, these fees funded infrastructure rehabilitation activities, but due to decreasing general fund allocations, all but a very small part of the fee revenue now supports operations. The Key 93 and Growing Greener funds are used by DCNR, where possible, for some major maintenance projects, often bundled with new capital projects, but it is not enough to erase the entire infrastructure maintenance project inventory within state parks and forests.

Acts of nature such as flooding, heavy snows and lightning strikes, as well as staffing shortfalls, changes in safety standards, additional facilities, and increased visitor demands all add to the state park and forest maintenance and upgrade list.

An Invisible Issue

Dedicated park and forest staff know that visitors depend on our state lands for their vacation destination, and they work diligently to provide a quality experience. Regardless of a shortage in maintenance funds, the bathrooms get cleaned, the grass gets mowed, habitats are managed, and the public fails to see what park and forest staff knows: that deferred maintenance eventually costs more to fix. Park and forest district managers step into the seasonal maintenance roll when positions are cut, doing what needs to be done to keep the system running. Unfortunately, this gives the appearance of a system that can remain viable even with declining appropriation from general revenues.

Maintenance Issues Affect Concessionaires

Mike Biffel, owner of Marsh Creek Outfitters, a concessionaire at Marsh Creek and French Creek state parks, employs at least 50 people each season to operate the pool and food concessions and rent watersports equipment. Biffel has owned the business since 1988 and has seen many changes to the parks and his business with continued cut backs to the budget. For instance, park visitation has increased over the years, but law enforcement presence has decreased. Maintenance has as well, so the infrastructure is deteriorating – plumbing is old and causes issues, pot holes in the road, electrical challenges, etc. The park office is open only four days a week, so people are unable to get boat launch permits the other three days, which means that both the parks and Biffel are losing revenue.



The owner of Marsh Creek Outfitters at Marsh Creek and French Creek state parks has noticed deteriorating park infrastructure that negatively impacts his business.

Protecting Water Access and Quality Promotes Nature-based Tourism



- 180 ramps for boating
- 56 beaches for swimming
- 50 fishing piers
- 137 courtesy docks
- 10 marinas featuring 3,912 slips



- 18 swimming pools, 5 wading pools, 5 water playgrounds
- 126 drinking water treatment systems in state parks
- A combined 7,100 miles of stream of which 611 miles are impaired
- 70 wastewater treatment plants in state parks and forests

Preserving Pennsylvania's Rich Legacy

- 5,000+ identified culturally or historically significant sites on state forest lands and 500 structures on the historical register within state parks

Keeping Trails Open Attracts Visitors and Improves Human Health

- 1,470 miles of trails in state parks
- 964 miles of hiking-only trails in state forests
- 4,088 miles of shared use (non-motorized) trails in state forests*
- 1,517 miles of motorized (snowmobile and ATV) trails in state forests**



*excludes hiking only trails

**these are also shared with non-motorized as well

From swimming and boating to hiking and camping, Pennsylvanians love using their state parks and forests, a passion that supports local economies and improves the quality of life that makes Pennsylvania a great place to live, work and play. But with use comes significant wear and tear to the built and natural infrastructure, requiring frequent maintenance and upgrades. How do we ensure the same quality experience for future generations?

The Importance of Investing In PA State Parks and Forests Infrastructure

Supporting Local Economies by Providing Places to Eat, Stay and Play

- 6,537 camp sites in state parks
- 30,000+ picnic tables
- 27 picnic areas in state forests
- 4 ski areas
- 2 equestrian stables
- 280 cabins, 69 cottages, 2 inns
- 4,400 leased camp-sites managed by DCNR
- 2 public shooting ranges
- 2 golf courses
- 2 model airplane airports
- 42 amphitheaters



Protecting Access and Human Safety

- Combined 864 vehicular bridges and hundreds of additional pedestrian bridges
- Combined 3,000 miles of public-use roads (plus thousands of miles of gated roads for patrolling and access for maintenance and natural resource management)
- 131 dams, including 47 high hazard dams in state parks and forests
- A combined 4,800 buildings, such as visitor centers, offices, maintenance and storage buildings, education buildings, pavilions, cabins, bath houses, and modern and rustic bathrooms
- 50 fire towers in state forests



Infrastructure Is More Than Just Man-Made Facilities

Routine maintenance is needed for the natural resources DCNR manages just as much as for the built infrastructure. The natural resources of state parks and forests form the foundation of the nationally-recognized system, serve as the draw for those seeking quality outdoor recreational and educational experiences, and provide ecosystem services such as clean air and clean water. At the same time, those same resources are subject to increasing impacts by human and natural environmental stressors, such as dumping/litter, graffiti, and invasive plants and insects which pose significant challenges to managing resource quality (*see examples below*).

As mandated by DCNR's mission statement, "...conserve and sustain Pennsylvania's natural resources for present and future generations' use and enjoyment...", and the Environmental Rights Amendment to the state constitution, "...a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people," state park and forest staff are tasked with effectively addressing the natural resource challenges and management responsibilities of the public lands they oversee.

Invasive Insects Can be a Costly Maintenance Concern

Invasive species – plants, animals, insects, and fungi that are not native to Pennsylvania and grow or spread quickly - create a costly maintenance issue for many public lands. For instance, the invasive hemlock wooly adelgid is a small insect that feeds on the needles of our state tree, the eastern hemlock. Combined with another problematic insect, the elongate hemlock scale, within four years a heavy infestation of these insects can kill a tree.^{xxv} This is especially problematic in places with numerous hemlocks, like Cook Forest State Park.

This popular park has an estimated 5,000 acres dominated by hemlock trees, with nearly 2,300 acres that are old growth. Many of the trees are located along hiking trails, which poses a major safety risk should the dying and dead trees fall. The bureaus of state parks and state forestry spend \$200,000 annually treating trees for the adelgid and scale, as well as removing hazardous hemlocks. \$50,000 of this comes from a U.S. Forest Service grant, while the rest is from DCNR. The U.S. Forest Service budget for this treatment program has decreased yearly. To maintain the program, an increase in the DCNR funding portion to \$200,000 per year would allow the agency to weather federal cutbacks.

Damage from hemlock wooly adelgids



Another invasive insect creating maintenance issues is the emerald ash borer. This small, green beetle attacks ash trees and can kill them within a few years of infestation. Initially this insect arrived in Pennsylvania state parks and forests via firewood from other states, but now it is spreading on its own. Like the adelgid, the emerald ash borer can create safety issues through the many dead trees it creates. The Bureau of Forestry spends \$100,000 per year on average to treat ash in state forests.

Additional funds are used in state parks and forests to protect high value ash trees, defined as those of significant age/size, high timber value, and/or historical significance. This funding must be maintained to keep these ash trees alive for the next 10 years as the agency implements the biological control program and develops ash trees tolerant to the emerald ash borer.



Above: Close-up of an emerald ash borer



Right: Damage from these invasive insects

The newest invasive insect in Pennsylvania is the spotted lanternfly. As of early 2018, thirteen counties in Pennsylvania are under a quarantine for this pest. This inch-long black, red, and white spotted insect attacks at least 25 plant species in the state, including many agricultural crops like grapes and apples, as well as important timber species like pine. In February 2018, the federal government announced \$17.5 million in emergency funding to the PA Department of Agriculture and its partners to stop the spread of spotted lanternfly out of southeastern Pennsylvania. That is in addition to the \$3 million that was awarded in 2017 for control. Without this continued funding, this pest could become as ubiquitous and damaging as gypsy moths.



A spotted lanternfly

This increased emphasis on, and need for, managing state park and forest natural resources requires an expansion of DCNR's already exceptional program of resource management, so the agency not only builds outdoor recreational capacity and associated infrastructure, but conserves the outstanding natural resources to meet the current and future outdoor recreational and educational needs of all visitors and to invest in the environmental services provided by a forested ecosystem, such as water quality protection, erosion control, and improved air quality.



The increased emphasis on, and need for, managing natural resources in Pennsylvania state parks and forests takes considerable time and resources.

Urgent Infrastructure Maintenance Needs

Drinking Water

Pennsylvania state parks have 172 public water supplies. The typical water treatment facility component parts last from 15 to 95 years.^{xxv} Fresh drinking water is vital for park concession businesses, campgrounds, and water fountains. The PA Department of Environmental Protection (DEP) developed new water regulations in 2009 that better address pathogens found in drinking water. Under these requirements, a number of park water treatment systems need to be upgraded to meet the improved standards.

Wastewater Treatment Plants

State parks and forests have 70 wastewater treatment plants, including several that service adjacent communities (Black Moshannon State Park for Rush Township, Denton Hill State Park for the Lumber Heritage Museum, Gifford Pinchot State Park for Wellsville Borough, Moraine State Park for Prospect Borough, Bald Eagle State Park for Howard Borough and Liberty Township, Canoe Creek State Park for Frankstown Township, Hills Creek State Park for Charlestown Township, Nockamixon State Park for the Bucks County Vo-Tech School, and Shawnee State Park for Shellsburg Borough). The typical treatment plant component parts last from 15 to 95 years.^{xxv} Because of growing public demand, flush toilets have replaced most pit toilets throughout the system. With these upgraded sanitation facilities comes the added costs of water treatment, pipe and septic tank maintenance, and utility costs.



The wastewater treatment plant at Ricketts Glen State Park is one of 70 wastewater treatment plants within Pennsylvania state parks.

Bridges

Pennsylvania's state parks and forests operate and maintain 860 vehicular bridges and hundreds of additional pedestrian bridges to move visitors across rivers and streams. The typical design-lifespan of a vehicular bridge is 50 years.^{xxvi} In some cases, one bridge may provide the only entrance to a park. Nearly one in four bridges within state parks and forests is used by school buses and residents living on private property within the boundaries of the public lands, and almost all have been used at some point for emergency vehicle access. If such a bridge fails, so does the local economic engine feeding nearby shops, restaurants, and other businesses, and countless residents' and visitors' lives are impacted. The U.S. Highway Department estimates that one in every three bridges in the country is structurally deficient or functionally obsolete.^{xxiv}



This broken bridge at Delaware Canal State Park is just one of many bridges and roads within Pennsylvania state parks and forests in need of repair or upgrade. In fact, \$110 million is needed to fix or replace roads and bridges on these public lands.

Roads and Parking Areas

Scenic driving is the third most popular outdoor recreation activity according to the most recent Statewide Comprehensive Outdoor Recreation Plan (SCORP).ⁱⁱ The roads within our state parks and forests are used for such a pastime, as well as for access to hunting and fishing. **With nearly 3,000 miles of public-use roads (plus many more thousand miles of gated roads that staff use for patrolling and access for maintenance and natural resource management) inside our state parks and forests,** potholes, gravel ruts, washouts, and crumbling asphalt are a known part of routine maintenance. Weather conditions, the amount of traffic, and other factors affect the lifespan of a road; however, on average an asphalt road will last 15 years before it will need to be rehabbed or reconstructed,^{xxvii} with a total average lifespan of 40 years.^{xxviii}

The majority of Pennsylvania's state forests are served by gravel roads. Gravel roads are less expensive to build, but must be regularly restored to extend their lifespan. Research shows that every \$1 spent on gravel maintenance will save or delay spending \$6 to \$10 on future road rehab or construction costs.^{xxix} Deteriorating roads can still be used, so they are often seen as not as critical as a broken water main or fallen bridge. Yet a poorly maintained road creates negative public perceptions that may limit return visits, and can cause polluted runoff entering our streams and other waterways. Inadequately maintained roads may also create wear and tear on vehicles or cause a vehicle to break down, creating an emergency situation to which park or forest staff will have to respond.

Research shows that every \$1 spent on gravel maintenance will save or delay spending \$6 to \$10 on future road rehab or construction costs.



Road deterioration in state parks and state forests is an ongoing battle.

DCNR owns and operates more high hazard dams than any other single public or private dam owner in Pennsylvania.

Dams

DCNR is responsible for operating and maintaining 131 dams, including 47 high hazard dams. According to the Federal Emergency Management Agency (FEMA), high hazard dams are those where failure or mis-operation will likely result in the loss of human life and significant property damage. DCNR owns and operates more high hazard dams than any other single public or private dam owner in Pennsylvania. As dams age, problems develop. Most of DCNR's dams are more than 50 years old. Concrete control towers and spillways crack and deteriorate, exposed reinforcing steel rusts and weakens, increased seepage causes internal erosion of earthen embankments, outlet gates leak, and gate operators wear out. Each year, costly repairs are needed. A single dam rehabilitation project may cost \$10 million or more. To keep them in operation and in compliance with specific regulatory and public safety requirements, DCNR's dams must be routinely inspected and properly repaired and upgraded.

The dam at Greenwood Furnace State Park was constructed by the Civilian Conservation Corps (CCC) in the 1920s, which operated between 1933 and 1942.



DCNR dams that do not meet dam safety standards must be drained and repaired. This interferes with any recreation that might have otherwise occurred on the lake. Visitors go elsewhere, and the economic benefits to that community are reduced or eliminated altogether. Some dams that are still in operation are at risk of breaching with a large rain event, which could cause destruction and flooding for many communities downstream, as well as create water quality issues from the amount of silt and other pollutants that have accumulated behind the dam over the years. There are several state park and state forest dams in extreme disrepair that DCNR must breach and remove because the structures are beyond repair and threaten public safety. Each dam removal project may cost \$5-10 million to remove the dam, remove accumulated sediment in the reservoir area, and dispose of the dam components and sediment.

Some of DCNR's High Hazard Dams in Need of Repair or Removal:

Chapman State Park Dam's spillway is hydraulically inadequate and may result in dam failure according to the PA Department of Environmental Protection (DEP). Funding was released and major rehabilitation at the dam began in the summer of 2017 to address the spillway as well as numerous other deficiencies, including sediment removal.
Project Cost: \$9.95 million

Memorial Lake State Park Dam is considered well-maintained, but the dam's spillway passes only approximately 32 percent of the spillway design flood, which the DEP defines as seriously deficient and has the potential for dam failure.
Project Cost: \$10 million

Laurel Run and Pine Run Dams in Pinchot State Forest.



These two antiquated former water supply dams were included in a recent DCNR state forest land acquisition deal, but are in very poor condition and must be removed for public safety reasons.
Project Cost: \$5 million

Tobyhanna State Park Dam has a concrete spillway



in very deteriorated condition. The spillway must be replaced along with other addressing other deficiencies. The design for this dam rehabilitation project began in 2017.
Project Cost: \$8.5 million

Gunter Valley Dam in Tuscarora State Forest was fully drained in 2011 due to seepage issues through the dam's embankment and foundation and an inadequate spillway. The dam is scheduled to be removed in 2018.
Project Cost: \$5 million

Ryerson Station State Park Dam was drained in 2005 due to foundation movement caused by mining activities. Cracks in the dam caused excessive leakage and instability, requiring the dam to be drained and breached. The dam structure still remains and is classified as an unsafe dam since the potential exists for the lake to refill during an extreme rainfall event. DCNR is pursuing dam removal, sediment removal, and stream restoration.
Project Cost: \$24 million

Lakes, Ponds, and Streams

Lakes are a major attraction in many of the parks and are important water resources in many state forests. There are hundreds of natural lakes and ponds, as well as 113 man-made impoundments, on Pennsylvania state parks and forests. The lakes are mostly man-made from damming a stream in a valley, and silt builds up naturally behind the dams and across the bottom of the lakes. Several lakes need immediate dredging due to silting, or their usefulness will be seriously impaired. This need is not always apparent, as a lake can look fine with only a few inches of water above the silt. Boating has already become impossible in many lakes because of silt deposits. In other lakes, boating is limited to a channel or two that has been kept open through dredging. Swimmers who venture beyond a dredged beach stand knee-high in muck.

Control of invasive plant life is another concern for many lakes in the system. Plants like hydrilla (*Hydrilla verticillate*) and water chestnut (*Trapa natans*) can limit boating and swimming opportunities by clogging and damaging boat propellers and injuring swimmers.

Treating and controlling an infestation of these plants requires significant staff time and money. (See sidebar on next page)

Marsh Creek Lake is one of 113 man-made impoundments within Pennsylvania state parks and forests that were created for boating, swimming, fishing, and other recreational opportunities.



The state park system has 2,142 miles of streams, 120 of which are listed as impaired. The state forest system has 4,996 miles of streams, 491 of which are impaired.



Controlling Invasive Plants at Pymatuning State Park

*In 2016, staff at Pymatuning State Park were determined to combat the invasive plants taking over the lake. The cost of treatment each year was high: \$48,000 in 2016 and \$150,000 in 2017. Thinking that prevention is more effective and less expensive than being reactive, the park received a grant from SeaGrant to install three boat washing stations at the park's lake, one of which has been installed as of fall 2017. Boaters are required to use the station before moving their boat to a different portion of the lake and other lakes to prevent the spread of the invasive plant, hydrilla (*Hydrilla verticillata*).*

The cost of each station is approximately \$1,500, which includes the equipment and set-up costs. Facilities such as this could be useful at other state park marinas and would cut down on the time and money needed to control aquatic invasives, as well as reduce the spread of an invasive from one park to another. xxx



The state park system has 2,142 miles of streams, 120 of which are listed as impaired. The state forest system has 4,996 miles of streams, 491 of which are impaired. That means they are too polluted or otherwise degraded to meet water quality standards within the Clean Water Act. More than half the impairments are caused by abandoned mine drainage, agricultural runoff, and urban/residential stormwater runoff. Thirty-six percent of all state parks have impaired waterways that need to be improved. There are 43 state forest land areas that have abandoned mine drainage impaired streams. The average cost of remediating one mile of impaired stream is \$100 per foot of stream or half a million dollars per mile.

Watershed Implementation Plans (WIP) provide an analytical framework to protect and restore water quality in impaired waters. It is within state park and forest interests to have these plans for all its waterbodies, as it makes the sites more appealing to visitors and decreases water treatment costs on-site and in nearby communities. The components of a WIP include projects such as dredging, stream and shoreline restoration, creation of riparian buffers, and improved water infiltration.

- WIP development for state parks would cost \$6.5 million (~ \$5.00/acre of watershed or approximately \$130,000 per waterbody)
- Stream restoration needs for state parks would cost \$63 million (~ \$100 / linear foot)
- Shoreline stabilization and habitat improvement needs for state parks would cost \$17 million (~ \$150 / linear foot for ~ 5 percent of lakeshore)
- Dredging of lakes and ponds would cost \$35 million for state parks
- Other waterway improvement projects would cost \$3.5 million for state parks
- Acid mine drainage remediation for 43 project sites on state forest lands would cost approximately \$30 to \$70 million. This does not include restoring the land affected by mining, which is estimated at an additional \$275 million



Legacy Problems of Past Industrial Activities

Portions of some Pennsylvania state parks, and particularly state forests, are affected by the legacy of past industrial uses such as abandoned oil and gas wells and coal mines. For instance, there are an estimated 30,000 acres of state forestland affected by past mining, spread across 182 different sites. There are 321 unique point sources of abandoned mine drainage emanating from those sites, which contaminates local streams and rivers, typically killing off aquatic life. To remediate all affected state forest lands would cost a conservative estimate of \$275 million and would require hiring outside contractors to complete. Additionally, there are approximately 600 orphaned and abandoned oil and gas wells on state park and forest lands that would require an estimated \$20 million to plug and remediate. If left uncapped, these wells can become a potential hazard to visitors and the environment. Managing and cleaning up these sites that were abandoned by their former owners detracts from other routine maintenance and infrastructure enhancements DCNR could be making to improve our state parks and forests.

Acid mine drainage is a problem for many streams in Pennsylvania state parks and forests, costing hundreds of millions of dollars to treat and affecting fishing opportunities.



Photo credit: PA DEP



Historical photograph of Pymatuning Dam



The Pymatuning Dam rehabilitation project began in 2015 and was completed in 2017.

*Above: Construction on the tower
Right: Rehab near completion*

The Dam at Pymatuning State Park

The dam at Pymatuning State Park creates the largest lake in Pennsylvania, and provides recreational opportunities, economic benefits and flood protection for residents and visitors to the northwest region of the state. In fact, it is the second most visited park in the system, and has the highest average visitor spending of all the state parks at \$83.60 (in 2010 value).^{viii} But the dam was constructed in 1933 and was showing its age.

Dam safety inspections showed that the stone masonry control tower needed extensive repair. Constantly exposed to water discharges and annual freeze/thaw cycles, the tower's inner concrete surfaces were leaky, deteriorated, and unstable. In addition, the tower's roof and framing needed to be re-built and the outlet works gates and gate operators needed to be replaced.

Normally, a project like this would call for full replacement of the dam's control tower. However, park users and state park officials wanted to preserve the iconic stone masonry tower that serves as the symbol of Pymatuning State Park. A complex cofferdam and pumping system was devised to keep the work area dry while work was underway. The cofferdam system kept the lake at nearly normal levels, preserving the lake's outstanding fishery and preventing interruptions to recreational fishing and boating uses during construction.

The Pymatuning Dam rehabilitation project began in 2015 and was completed in 2017. The project included tower roof removal by crane and replacement, complete reconstruction of the tower's inner surface with a new reinforced concrete lining while keeping the exterior stone masonry intact, repairs to exterior stone masonry joints, and installation of new sluice gates and operators. Additional work on the dam included modification to the spillway weir to improve dam operability, repaving the park road along the dam embankment crest, repairs to the adjacent stone masonry parapet walls and a new toe drain to improvement dam embankment stability. The total cost for this project was \$8.8 million.



Buildings

State parks and forests contain more than 4,800 buildings, such as visitor centers, offices, maintenance and storage buildings, education buildings, pavilions, cabins, bath houses, and modern and rustic bathrooms.

All these need roof repair or replacement on a regular schedule. Depending on the type of roofing material, a roof can last on average 20-40 years for asphalt shingles and 30 years for wood shingles.^{xxxi} Periodic maintenance for heating and cooling (HVAC) systems, wiring, plumbing, carpeting, and painting is also needed. For instance, the typical lifespan of an HVAC system with routine maintenance is 25 years, but that can be reduced to as little as 10 years without adequate maintenance.^{xxxii}



Pennsylvania state parks and forests contain more than 4,800 buildings, such as this park office at Poe Valley State Park.



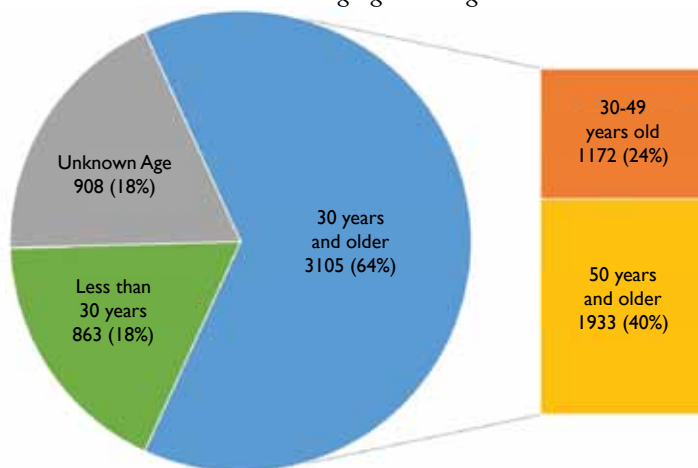
Promised Land State Park is one of 15 state parks with Civilian Conservation Corps (CCC) era (1933-1942) cabins in need of maintenance.

Historical Structures

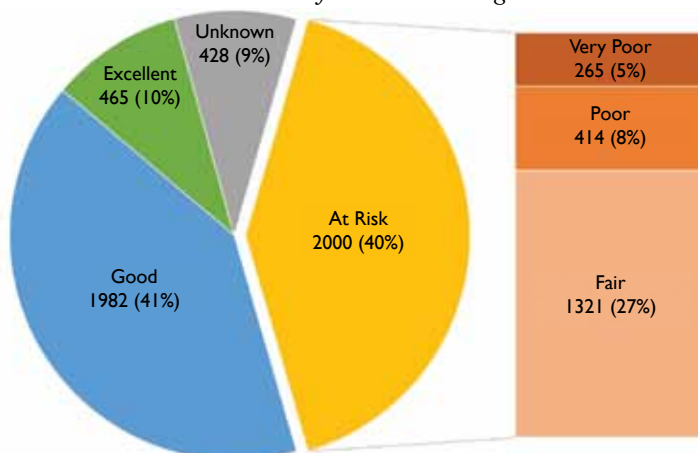
Given that many state parks and forests are 50 to 100 years old, there are many buildings and other structures of historical significance. For instance, there are more than 5,000 culturally or historically significant sites on state forest lands and 500 structures on the historical register within state parks, in addition to numerous others not listed but still of significant age. Rehabilitation of these structures must consider the historic features while preserving their usefulness and safety.

For example, there are eleven cabins at Promised Land State Park that were built in the mid to late 1930s and are considered to be in “fair” condition. These historic cabins provide a unique visitor experience. Should these buildings need to be replaced, the estimated cost to replace each cabin ranges from \$42,000 to \$94,000 for a total of nearly \$753,000. Conversely, investing in the maintenance of these buildings would only cost a fraction. Promised Land State Park is one of 15 parks with Civilian Conservation Corps (CCC) era (1933-1942) cabins in need of maintenance. The total cost to repair and rehabilitate these historic structures is approximately \$4 million for state parks, plus additional funding each year for routine maintenance.

DCNR's Aging Buildings



Condition of DCNR Buildings



The value of ecosystems cannot be overstated. For instance, the American Sportfishing Association and consultant Southwick Associates estimate there were 1,671,435 anglers in Pennsylvania in 2017, spending an estimated \$503 million while fishing in the state, producing an overall economic output of \$853.3 million and supporting 9,586 jobs.

Terrestrial Resource Infrastructure Maintenance

Nearly 140,000 acres of state park lands and at least 204,000 acres of state forest lands currently require some management work to provide adequate ecosystem services and recreational opportunities. This includes management of former conifer plantation sites, increasing resiliency to climate change in plant communities, controlling invasive plants on land, and creating and maintaining early successional habitat and other unique habitats and plant communities.

Pennsylvania's habitats, such as forests and grasslands, have been impacted for many years by deer over-browsing, the exclusion of fire, and by invasive pests and diseases. The overall effect of these impacts has led to areas where habitats are diminished in health and diversity. For example, the pitch-pine scrub oak habitats, barrens, and savannah types are rare and in decline throughout the state. It is also no coincidence that many of the plant and animal species associated with these habitat types are also threatened and endangered statewide. It can be difficult to restore these plant community types. Many of these lands are poor in site quality and timber value and therefore are difficult or not economically feasible to treat with silvicultural prescriptions and timber sales alone. By combining a commercial harvest/contracted mowing and post-harvest follow-up using regeneration tools such as fire, herbicide, mowing, and tree planting

we have a tremendous opportunity to restore diversity and restore habitat. The average cost of these land-based habitat management techniques is about \$1,000 per acre.

The value of these ecosystems cannot be overstated. For instance, the American Sportfishing Association (ASA) and consultant Southwick Associates estimate there were 1,671,435 anglers in Pennsylvania in 2017, spending an estimated \$503 million while fishing in the state, producing an overall economic output of \$853.3 million and supporting 9,586 jobs.^{xxxiii} Without nicely shaded, clean streams and robust riparian forest buffers, the trout and other fish these anglers seek would not be as plentiful. In terms of hunters, nearly one million people hunt in Pennsylvania each year, each of whom spends an average of \$1,260 each year in the communities where they hunt. This leads to the creation of more than 15,000 jobs in the state, \$121 million in state and local taxes generated annually, and a total ripple effect of \$1.6 billion per year for Pennsylvania.^{xxxiv} Our state's hunters, anglers, and outdoor enthusiast rely on well-managed public lands like state parks and forests, as does our economy.

Ensuring healthy and robust plant communities, which in turn support robust wildlife communities essential for traditional hunting and fishing sports as well as wildlife watching, will require \$14 million dollars for state parks and \$20 million for state forests.

In terms of hunters, nearly 1 million people hunt in Pennsylvania each year, each of whom spends an average of \$1,260 each year in the communities where they hunt. This leads to the creation of more than 15,000 jobs in the state, \$121 million in state and local taxes generated annually, and a total ripple effect of \$1.6 billion per year for Pennsylvania.

Hundreds of thousands of acres of Pennsylvania state parks and forests require management to provide adequate terrestrial and aquatic resource management, including the Penns Creek watershed in Bald Eagle State Forest.



CHAPTER 4:

KEY FUNDING MECHANISMS FOR OPERATIONS AND MAINTENANCE

“Whatever the cost, however financed, the benefits for park visitors in health and happiness – virtually unknown to statisticians – would be immeasurable.”

– Writer Edward Abbey

Over the years, governors and the legislature have designated different funds for conservation and recreation purposes. However, much of that money has gone toward building new infrastructure to meet visitor needs rather than restoring what already exists. The following is a synopsis of the historic and current funding mechanisms used by the Department of Conservation and Natural Resources (DCNR) for state park and forest operations and maintenance projects.

Act 256 of 1955 - The Oil and Gas Lease Fund

This act, one of the first of its kind in the country, required that the rents and royalties from oil and gas taken from state-owned land be put into a restricted fund to be used for recreation, conservation, land acquisition, and flood control. It was instituted under **Governor George Leader (D)** and spearheaded by Department of Forests and Waters Secretary **Maurice “Doc” Goddard**, who reasoned that if oil and gas drilling operators were taking something away from the public (i.e. the fossil fuels) something should be given back to the public.

Between 1955 and the end of 2017, the Oil and Gas Lease Fund generated \$1,088,413,270 for conservation purposes including the purchase and creation of 26 state parks, such as Denton Hill, McConnell’s Mill, Prince Gallitzin, and Gouldsboro, and the acquisition of state forest lands, such as 570 additional acres for Bald Eagle in Centre County, 269 acres to Pinchot in Luzerne County, and 132 acres to Tioga in Tioga County. Pennsylvania’s fund is widely seen as the model for the federal government’s Land and Water Conservation Fund, created in 1965.

Beginning in fiscal year 2008-2009 through the spring of 2017, the State Assembly transferred more than \$526 million from the Oil and Gas Lease Fund to the General Fund, removing the requirement that all funds be spent for conservation purposes. However, in June 2017 the Pennsylvania Supreme Court reversed course, ruling that all Oil and Gas funds from state lands must be used for conservation purpose, rather than balancing the state’s budget. The outcome of this decision remains to be seen.

Oil and Gas Lease Fund and the Environmental Rights Amendment

Article I, Section 27 of the Pennsylvania Constitution, commonly called the Environmental Rights Amendment (ERA) creates a duty of Pennsylvania government, as a trustee for the people, to protect Pennsylvania’s natural

Beginning in fiscal year 2008-2009 through the spring of 2017, the State Assembly transferred more than \$526 million from the Oil and Gas Lease Fund to the General Fund, removing the requirement that all funds be spent for conservation purposes.

resources, particularly those that are “public natural resources,” which include the state’s forest and park lands and the underlying oil, gas, and minerals. It says: *“The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania’s public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.”*

Prior to a 2009-10 legislative change, all rents and royalties earned from leasing state forest land went into the Lease Fund which was “exclusively used for conservation, recreation, dams, or flood control or to match any Federal grants which may be made for any of the aforementioned purposes” and gave the Secretary of DCNR discretion to “determine the need for and the location of any project authorized.” In the 2009-10 session, however, the legislature decided to allocate most of the royalties from leases of state forest land to the General Fund, rather than the Lease Fund. This change took away the Secretary’s discretion in use of the funds and gave it to the legislature. The legislature also transferred funds from the Lease Fund to the General Fund. Other changes to the DCNR funding stream were made in the ensuing years.

It is notable that in 2009 the funds received from leases and paid into the Lease Fund for production of natural gas in the Marcellus Shale strata exceeded the cumulative proceeds to the Commonwealth from all oil and gas leases for all of the years between 1947 through 2008 – a staggering increase presenting a historically significant policy issue. Had the law regarding the Lease Fund not been changed, hundreds of millions of dollars of rent and royalty payments would have flowed into the Lease Fund and been available for conservation, recreation, dam or flood control projects.

In 2017 the Pennsylvania Environmental Defense Foundation obtained a ruling from the Pennsylvania Supreme Court that the legislature's decision to allocate most of the royalties from leases of state forest land to the General Fund, rather than the Lease Fund, was done in violation of the Environmental Rights Amendment. The Supreme Court has now held that the proceeds from the sale of oil and gas under state forests is to be held as a trust for the people and that the proceeds may not be spent on general budgetary items but rather must be used for conservation and maintenance purposes.

While there is every possibility that the outcome of this ruling will eventually have a very significant effect on the availability of funding for projects that are needed to restore and maintain state park and forest infrastructure, there remain significant issues to be debated and litigated. Some of these issues will be addressed on remand by the Commonwealth Court and may well return to the Supreme Court before being resolved. And perhaps more than once. Therefore, despite the significance of this historic decision, propelling the Judiciary into issues of government fiscal policy usually reserved for the Legislature, it is impossible to predict the ultimate scale of the impact on the large and growing backlog of projects from disinvestment in park and forest infrastructure.

Project 70 – The Land Acquisition and Borrowing Act

Secretary Goddard knew that parks and forests healed people, providing a respite from day to day worries. He worked with **Governor William Scranton (R)** and the legislature to enact funding, Project 70, to support the creation of additional state parks in Pennsylvania. Project 70 was a \$70 million bond initiative, passed by public referendum and signed into law in 1964, to purchase lands for public parks, reservoirs, and other conservation, recreation, and historical preservation purposes. It was named Project 70 because 1970 was chosen as the target year to complete all open space acquisitions. Project 70 included \$40 million for the acquisition of state parks

and acquisition of historical sites across Pennsylvania.^{vii} Funds from Project 70 helped to fuel a major growth period for state parks, as shown in the map on the next page. The last Project 70 funds were invested in state parks in the late 1970s.

Project 500 – The Land and Water Conservation and Reclamation Act

Project 500, signed into law by **Governor Raymond Shafer (R)** in 1968, packaged state park needs, along with money for abandoned mine land cleanup and sewage treatment plant construction, into another bond issue worth \$500 million. Of that total, \$125 million in funds were set aside to develop the state recreational lands that were purchased previously with Project 70 funds. The first project completed with Project 500 funds was the development of recreational amenities at Codorus State Park in York County. The creation of Lake Arthur at Moraine State Park in Butler County was another Project 500 feature.^{vi} Project 500 funds were fully invested by 1980.



The creation of Lake Arthur at Moraine State Park was completed with funds from Project 500.

Act 51

In 1981, **Governor Dick Thornburgh (R)** enacted Act 51 to enable fees collected in state parks to be spent for park operation and maintenance, rather than deposited into the General Fund. By 2005, while this fund generated the \$13 million needed each year for annual maintenance needs, a state bond or other financing initiative was still required to address the maintenance project inventory. This fund did not last long, however, and with the passage of Growing Greener II in 2005, the administration started requiring the bureau to use the major maintenance fund, originally intended for infrastructure rehabilitation projects, for salaries and other general operating costs.^{vi}

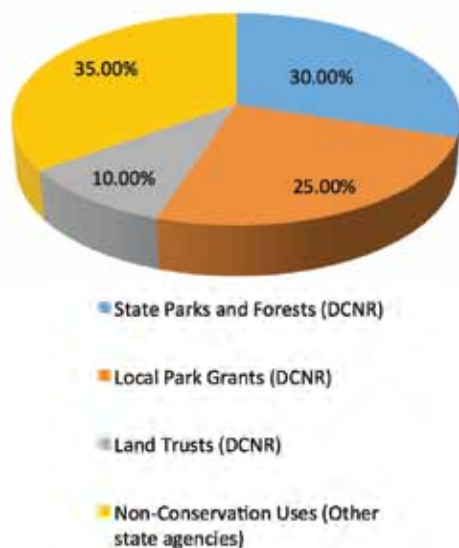
Project 70 was a \$70 million bond initiative, passed by public referendum and signed into law in 1964, to purchase lands for public parks, reservoirs, and other conservation, recreation, and historical preservation purposes.

Key 93 – The Keystone Recreation, Park and Conservation Act

In 1993, the Keystone Recreation, Park and Conservation Act, or Key 93, (also known as the Keystone Fund) was passed under **Governor Bob Casey Sr. (D)**, authorizing a \$50 million bond issue referendum (which voters subsequently approved overwhelmingly), creating a “deferred maintenance account” by earmarking a portion of the realty transfer tax for state parks, historic sites, libraries, zoos, and higher education facilities. 15 percent of the realty transfer tax receipts are required by law to go to those uses.^{ix} By law, 65 percent of the total monies in the fund go to DCNR, where it is then distributed as follows:

- 30 percent of all Key 93 funds go to the bureaus of state parks and state forests, where it is used to rehabilitate and upgrade state park and forestry infrastructure. However, up to 10 percent of that may be directed to rails to trails projects, and up to 10 percent may be directed to rivers protection and conservation projects
- 25 percent of the total funds are provided as grants for local recreation initiatives, such as ballparks and playgrounds
- No less than 10 percent of the total funds are to be provided to land trusts for natural areas and open space planning and acquisition

FIGURE 5: Distribution of Key 93 Funds



Recreation and conservation grants leverage significant matching funds. The Keystone Fund is DCNR’s primary source of funding to support grants for recreation and land conservation, and is considered the lifeline for state park and forest infrastructure. The PA Land Trust Association and the Natural Lands Trust reported that the Keystone Fund returned \$7 in economic value for every dollar invested in its first 20 years.^{xxxv} Since 1995, the Keystone Fund has contributed over \$1 billion to recreation and conservation projects in each of the state’s 67 counties, through grants and matching funding.

State park infrastructure developed with Key 93 funds included new docks at the Codorus State Park marina; rehabilitation of the swimming pools at Mount Pisgah, Sizerville, Hyner Run, and Bendigo state parks; and repairing the dam at Shawnee State Park, among many others.



The swimming pool at Mount Pisgah State Park was constructed using Key 93 funds.

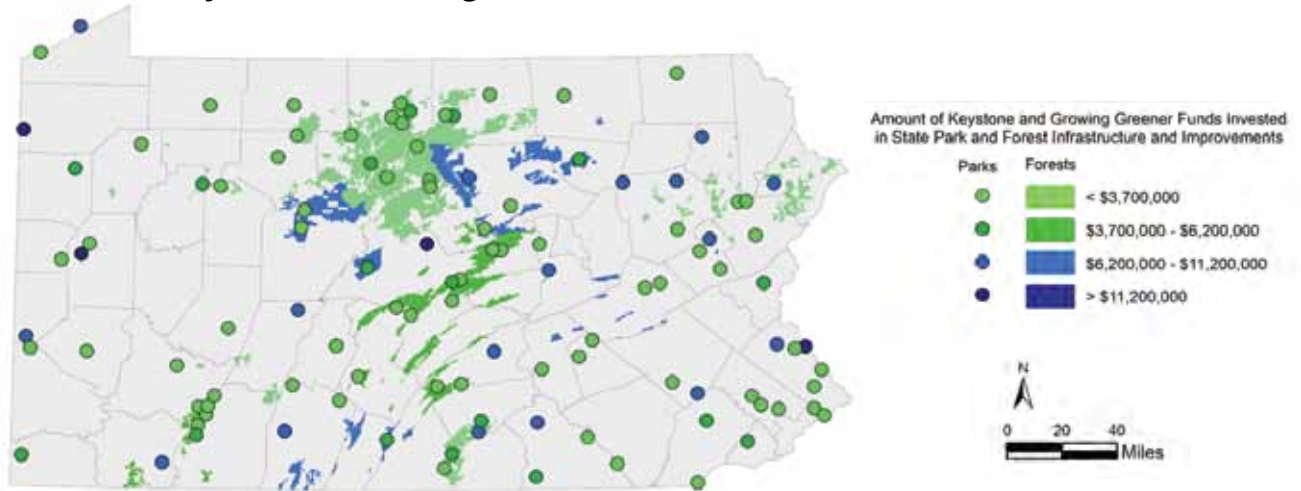
While the amount of funds provided through Key 93 is significant, it includes funding to local, municipal parks and other entities as well as to state parks and forests. The percentage going to DCNR managed lands is shown in Figure 6. In addition, the amount within the fund fluctuates as the housing market rises and falls. During the economic downturn of 2008, for instance, Key 93 funds were limited, as fewer people were buying houses. In addition, Key 93 funds have been under attack by various governors and the state legislature to balance the General Fund budget.



The dam at Shawnee State Park was repaired using Key 93 funds.

The PA Land Trust Association and the Natural Lands Trust reported that the Keystone Fund returned \$7 in economic value for every dollar invested in its first 20 years.

Keystone and Growing Greener Investments



The Environmental Stewardship Fund - Growing Greener I

In 1999, **Governor Tom Ridge (R)** and the legislature created the five-year, nearly \$645 million “Growing Greener” program, investing in watershed restoration, parks and recreation; open space preservation; abandoned mines and wells reclamation; and sewer and drinking water system upgrades. The fund comes from tipping fees on disposal of municipal waste.^{ix} The first project initiated with these funds was at Parker Dam State Park in Clearfield County: roads in the campground, day-use areas, and cabin areas were resurfaced.

In 2002, **Governor Mark Schweiker (R)** and the legislature expanded the funding for Growing Greener I by adopting a new \$4.25 per ton fee on municipal waste disposed in the state, expanding the investment from \$650 million to \$1.3 billion through 2012, when the funds were exhausted.^{ix} The tipping fees from the original Growing Greener are still being generated and used for conservation purposes, as well as going to the Department of Environmental Protection (DEP), the Department of Agriculture, and PENNVEST. Between 1995 and 2015, \$122 million was generated for state park and forest infrastructure projects via the tipping fees.

Growing Greener II

In 2005, **Governor Ed Rendell (D)** and the legislature passed Growing Greener II, allocating a \$625 million bond issue that was to occur over six years. Of the total funds, \$217.5 million was allocated to DCNR (at least \$100 million for state park and forest improvements and \$90 million for open space conservation).^{ix} Though a portion of the Growing Green I and II funds was directed for new capital projects in the state parks and forests, it was also used to address some major maintenance needs.

Starting in 2002, the administration reduced General Fund appropriations for state parks operations and required DCNR to use its maintenance fund from Act 51 to fill in the gap for salaries and other operational costs. The only way to fix some of the worn infrastructure was to package it with new capital projects being funded by Growing Greener. However, the administration directed that revenues from Growing Greener I be used to pay down the debt of Growing Greener II, thereby redirecting those funds from their intended purpose. Furthermore, Growing Greener II sunset in 2011, removing that revenue stream from the system. Today, an effort is underway to renew Growing Greener funding, but it was not included in the 2017 state budget.



The Little Buffalo State Park shower house, the Poe Valley State Park office, and the Leonard Harrison State Park roof were all constructed with funds from Growing Green II.

The General Fund

DCNR's General Fund budget today (in actual dollars, not adjusted for inflation) is the same as it was 15 years ago, despite increases in wages, more visitors, a greater number of state park and forest acres, construction of modern facilities (such as swimming pools, cabins, and flush toilets), increasing demands for visitor programs, the emergence of horizontal natural gas drilling on state forest lands, and the increased presence of invasive plant, animal and insect species to control. The amount of General Fund dollars going to DCNR in **Governor Tom Wolf's (D) 2017-18 budget**^{xxxvi}, as shown in Figure 6 below, is just .003 percent of the overall \$31.99 billion at a little more than \$105 million. Agencies like the Department of Education and Department of Human Services will receive more than \$24 billion of the total General Fund dollars.

Looking back 15 years, the General Fund provided 77 percent of DCNR's operating budget in 1996. In 2014-15, that total was less than 10 percent. The growing gap has needed to be filled each year by other sources, such as higher user fees and oil and gas drilling revenues. The agency is being forced to become increasingly dependent on oil and gas extraction revenues for its operating budget. The reliance on special funds like the Oil and Gas Lease Fund and Key 93 for support of the operations budget has purchased less staff time, resulting in reduced hours available for routine maintenance, as well as an overall reduction in salaried staff for the Bureau of State Parks of 9.9 percent (see Figures 7 and 8 below).

FIGURE 6: Sample of Where General Fund Revenues Go (2017-18)

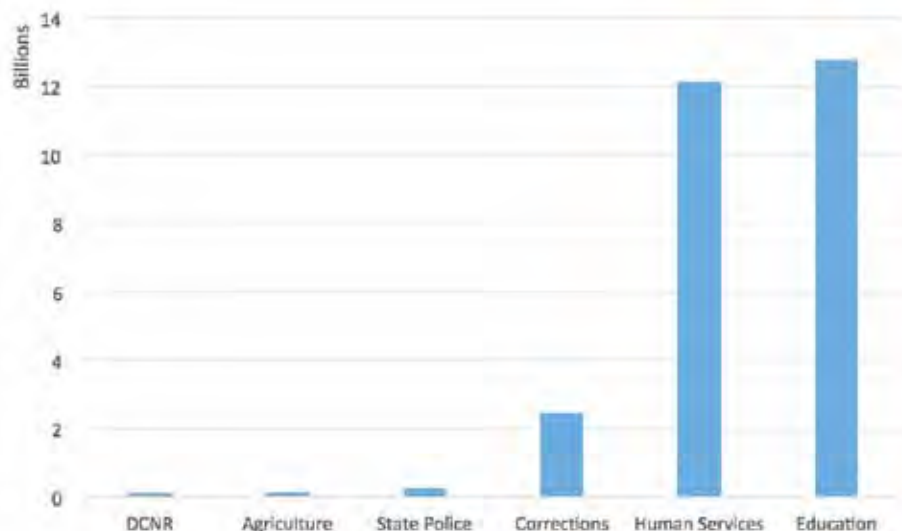


FIGURE 7: Operations Budget for State Forests (2014-15)

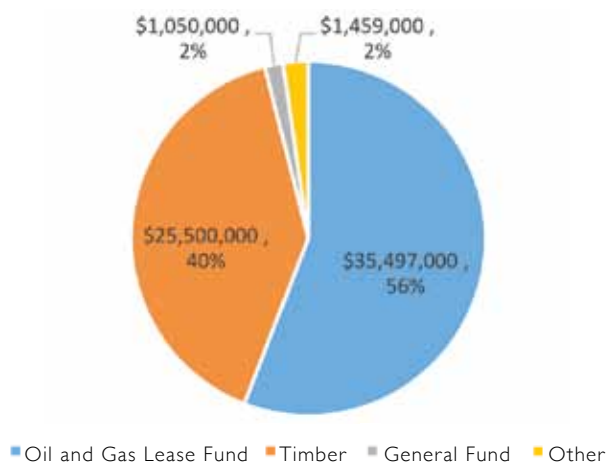
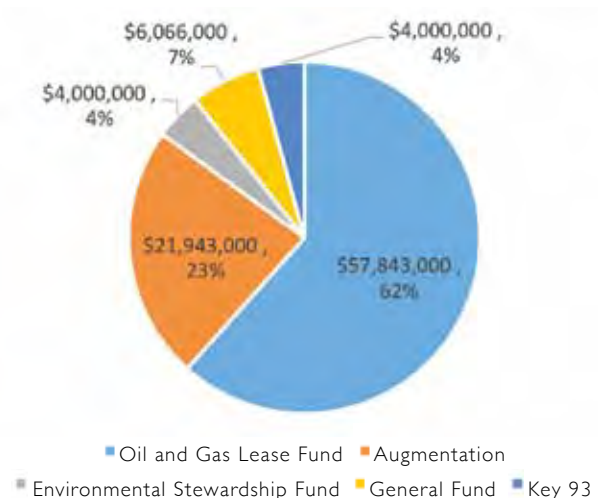


FIGURE 8: Operations Budget for State Parks (2014-15)



CHAPTER 5: INVESTING IN GREEN INFRASTRUCTURE

“Show me a healthy community with a healthy economy and I will show you a community that has its green infrastructure in order and understands the relationship between the built and the unbuilt environment.”

– Will Rogers, President of the Trust for Public Land

Investments Protect Our Natural World

The Pennsylvania state park and forest system has 16 Leadership in Energy and Environmental Design (LEED) certified buildings and has instituted dozens

of conservation best practices and energy efficiencies that can serve as models for homeowners and other land managers.

The green roof at Ohiopyle State Park is one of many sustainable features at Pennsylvania state parks and forests that can save money on heating and cooling costs.



Lower and Cleaner Energy Needs

By deliberately incorporating green and sustainable energy sources such as wind, solar, and geothermal into state park and forest facilities, DCNR has been able to save annually on their heating, cooling, and lighting needs. For instance, the bureaus of state parks and state forests worked together to install a biomass boiler in the maintenance building at Caledonia. The boiler uses firewood or wood pellets, some which comes from hazard trees that are removed from the park. This project takes what would otherwise be a waste product and generates low-cost heating to the park.

The savings afforded through these and other pilot projects allow state park and forest staff to invest in additional green technologies, such as the wind turbines



Yellow Creek State Park is one of three Pennsylvania state parks that has wind turbines to generate electricity and act as an example to the public of how they can save money while investing in clean energy technologies.

By deliberately incorporating green and sustainable energy sources such as wind, solar, and geothermal into state park and forest facilities, DCNR has been able to save annually on their heating, cooling, and lighting needs.

Cleaner Water and Air

If it weren't for our abundant state forests and parklands, communities would have to pay more to treat their drinking water and wastewater. Managing the natural resources on our state park and forest lands provides ecosystem services that keep our air and water cleaner than they would be on their own, and do as effective a job, if not more so, than man-made treatment facilities, for a fraction of the cost. For instance, forested areas have a duff layer that acts as a sponge to hold precipitation and allows water to filter through the soil layers.

Unique Solar Shingles at Mt. Pisgah State Park

On June 30, 1979, Mt. Pisgah State Park became the first DCNR facility ever to install a solar array. The rooftop solar installment was used to provide thermal heating to the park office for more than 30 years.

Over the past three years, DCNR's Sustainability Initiative began assessing new opportunities for solar photovoltaic installations across the Commonwealth. During this process, Mt. Pisgah State Park was brought up as a potential site for a more efficient solar array on the park office's roof. To make this project work, the original solar installation would have to be removed and a roofing contractor would have to replace the roof with architectural shingles to support a new solar module.

DCNR's electrical engineer researched ways the agency could simplify the rooftop shingle replacement/solar installation through solar shingle technology. These solar shingles provided DCNR with the unique opportunity to meet two needs by installing and showcasing new solar technology that works as both shingling for the park office's south-facing roof and a source of clean energy to take the park office to net zero (the array produces as much electricity as the office uses within a year).

Construction on this project began on December 19, 2017 and was completed the week of March 6, 2018. The new rooftop system has a 5.67kW capacity and will produce an estimated 6,045kWh/year in electricity.



Mt. Pisgah State Park's original solar panels (above) were removed and new solar modules (below) were installed to generate an estimated 6,045 kilowatts of energy per year.



Managing the natural resources on our state park and forest lands provides ecosystem services that keep our air and water cleaner than they would be on their own, and do as effective a job, if not more so, than man-made treatment facilities, for a fraction of the cost.

These layers contain fungi, bacteria, and other properties that allow for nutrient and pollutant breakdown. Meadows and tall grasslands also contain properties that can greatly reduce the flow of water across the ground, allowing for pollutant uptake and reducing erosion.

Sediment that makes its way into waterways causes problems for water and sewage treatment systems by raising costs through:

- Increased operator time in operation and equipment maintenance
- Greater need to dredge sediment from reservoirs and from water intakes
- Wasted water required for more frequent filter backwashes
- Increased sludge processing and disposal
- Early mechanical equipment failure due to increased operating times and wear
- Increased electrical usage due to longer equipment run times
- Shortened filter media life resulting in early replacement
- Initial capital required for greater levels of treatment
- Special treatment for influent to remove organic material and minimize formation of disinfection bi-products



Green Buildings Protect the Environment and Save Money

The way state park and forest buildings are constructed and landscaped today also helps to protect the environment. Native plants in landscaping, as well as green infrastructure techniques for managing stormwater (rain gardens, vegetated swales, rain barrels, etc.), help filter out pollutants from runoff before it can enter our streams and rivers. For example, Tiadaghton State Forest office building has a green roof that helps filter and absorb rainwater, reducing the amount of stormwater to be managed, and Weiser and Buchanan state forests have native plant gardens that help them manage stormwater while being attractive to visitors and wildlife alike.

Significant energy savings from building “green” can lead to major cost savings. For instance, in 1999, the annual average electricity costs at Prince Gallitzin State Park was \$90,000. In 2008, the costs dropped to \$56,000, due primarily to the electrical conservation ethos established by the park’s Chief Treatment Plant Operator Don Yeagle. He made it his mission to learn where the park was wasting energy and made adjustments accordingly, and he worked with the utility company to lower costs for seasonally-used buildings. The public has acknowledged the efforts that state parks and forests are doing to conserve energy and be a model for others.



The native plant garden at Ohiopyle State Park is a green feature that provides habitat for pollinators and other wildlife and is aesthetically pleasing to park visitors.

The Trexler Environmental Center is home to a state forest office and boasts a green roof composed of sedums that can tolerate the dry, sunny conditions on the roof while keeping the interior of the building cooler.



Significant energy savings from building “green” can lead to major cost savings.

Pennsylvania’s state park and forest lands provide many ecosystem services like clean air and water, thus saving taxpayers money that would otherwise have to be used to clean drinking water and wastewater mechanically or chemically.

CHAPTER 6: A LOOK AHEAD

*“They always say time changes things,
but you actually have to change them yourself.”*

– Artist Andy Warhol

Well maintained infrastructure within our state parks and state forests is important to visitors, staff, community business owners, and many other stakeholders, as documented by surveys and studies. This chapter examines some of those documents and other statewide initiatives to show how the current and future infrastructure maintenance needs within the state park and forest system aligns with many statewide strategic initiatives.

State Parks 2000

This report, released in 1992, was the first piece of state park policy developed in 30 years.^{xxxviii} Within the report, which was generated via public input, two of the three goals relate to infrastructure:

1. Improving Program and Facilities: modernize facilities and add amenities
2. Sustainable Funding: finance capital improvements with bond issue or long-term trust fund, develop major maintenance plan to prioritize repairs, and increase fees to help pay for repairs and operations.

The report recommended the creation of more modern family camping, while at the same time keeping things rustic. It also recommended the formation of friends groups and partnerships to assist the Department of Conservation and Natural Resources (DCNR) staff with park maintenance and operations. The report was the catalyst for the creation of the Pennsylvania Parks and Forests Foundation, which serves as a nonprofit to parks and forests, while also serving as the umbrella for 42 friends groups.

Fees were increased in the parks per the report’s recommendations, but the fund was later redirected by the administration to cover park staff salaries and other operational costs, rather than manage infrastructure needs as they were intended.^{iv} The Bureau of State Parks is in the process of writing a new strategic plan based on public surveys that will be used to update State Parks 2000 and guide the Bureau’s future operations. This report has an anticipated released date of late 2019.

*Volunteers from the Friends of Beltzville State Park group –
one of over 40 such groups in Pennsylvania – gather to
pick up trash and improve the overall appearance of the park.*

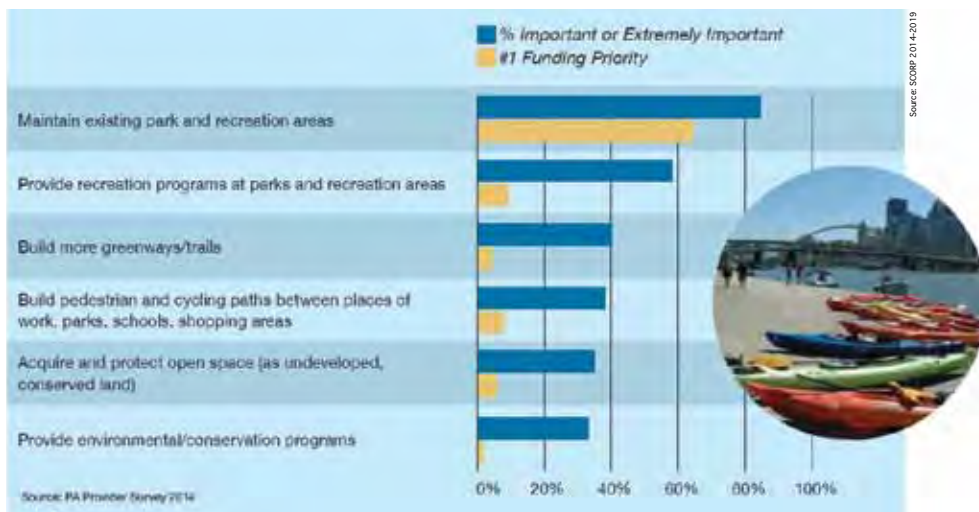


Statewide Comprehensive Outdoor Recreation Plans (SCORP)

Each state is required to develop its own Statewide Comprehensive Outdoor Recreation Plan (SCORP) every five years to receive federal Land and Water Conservation Fund (LWCF) revenues, which are used to “secure public access, improve recreational opportunities, and preserve ecosystem benefits for local communities. The fund provides matching grants to states and tribal governments for the acquisition and development of public parks and other outdoor recreation sites. Since 1965, nearly \$4 billion has been awarded.^{xxxix}

In the 2009–2013 Pennsylvania SCORP, baby boomers said they wanted better maintenance of state park facilities, especially restrooms and trails. Urban youth wanted more adult supervision at parks to feel safe, and better restroom facilities.^{xl} In the 2014–2019 SCORP, maintenance of existing park and recreation areas continued to be the top concern and priority for both citizens and recreation providers, even more so than in 2009.^{xi} (See Figure 9 below)

FIGURE 9: Top Outdoor Recreation and Conservation Funding Strategies



Pennsylvania state parks and forests provide myriad recreational opportunities for residents and visitors alike. These people believe the state should increase its permanent source of funding for park and recreation opportunities based on general tax revenues.



Both residents and community recreation providers agree that maintenance of existing park infrastructure is their top funding priority.

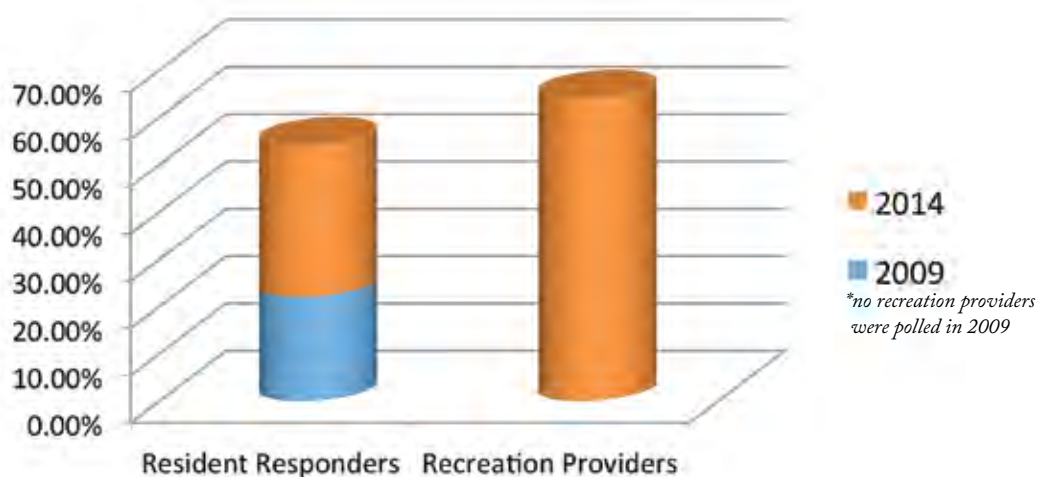
The recommendations put forth in the 2014-2019 SCORP will require new and more permanent funding solutions, such as:

- Ensure the continued stability and permanence of existing state and federal conservation and recreation funding sources.
- Foster use of new revenue sources in support of recreation and conservation.
- Prioritize the use of federal LWCF funds that come to Pennsylvania over the next five years.

A majority of respondents in the SCORP's resident survey believe the state should increase its permanent source of funding for park and recreation opportunities based on general tax revenues. Respondents also believe that restoring and upgraded existing facilities should be a main priority. More than half agreed that maintaining the public recreation areas we have now is more important than adding new ones. Both residents and community recreation providers agree that maintenance of existing park infrastructure is their top funding priority. (See Figure 10 below)

Investing in our parks and forests makes Pennsylvania a great place to live, work, and play. Maintaining man-made and natural infrastructure is essential. For instance, without trails that are regularly monitored and repaired, people would not be able to hike through our parks and forests. Without money to upgrade facilities so they are more energy efficient and green, DCNR would not be a role model for sustainability, not to mention the additional heating and cooling costs placed on the tax payers. Without adequately managed forests, our streams may be subject to more pollution that increases water treatment facility costs for nearby communities. The trickle-down effect of poor maintenance within our state parks and forests does have an impact on the greater economy and quality of life for all our citizens, and, in the long run, deferred maintenance costs tax payers more money.

FIGURE 10: Park Maintenance is a Top Funding Priority for Pennsylvania Residents and Recreation Providers



CHAPTER 7: MOVING FORWARD

“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.”

– Margaret Mead

The Legacy of Pennsylvania’s State Parks and Forests: The Future Is in our Hands is a call to action for citizens and decision makers to understand the challenges facing our parks and forests and to launch a conversation to ensure a vibrant future for our public lands consistent with the Environmental Rights Amendment. It is a call to address the crumbling roads and bridges, to invest in restoration of our dams, to address the impact of invasive plants and insects, to restore deteriorating historic structures that capture the heritage of our Commonwealth, to restore and connect trails, and to accommodate an aging and more ethnically diverse population in our state parks and forests.

Research has shown time and time again that investing in our state parks and forests is an investment in our local communities and the economic engine that is outdoor recreation. These investment also create a quality of life that makes Pennsylvania a great place to live, work, and play, keeping the state competitive on the national front for job creation, employee retention, and attracting new businesses.

Pennsylvania stands at a critical juncture between handing our children a legacy in which we can all be proud and strapping them with a burden from which they will struggle to recover. An opportunity exists to continue the leadership that created our state park and forest system.

Pennsylvania stands at a critical juncture between handing our children a legacy in which we can all be proud and strapping them with a burden from which they will struggle to recover.

The Next Steps for the Pennsylvania Parks and Forests Foundation

1. The Legacy of Pennsylvania’s State Park and Forests: The Future Is in Our Hands. The report will be released to the Governor, General Assembly, and general public in late fall 2018.
2. As part of the release, the Pennsylvania Parks and Forests Foundation will develop fact sheets related to important components of the report to present the information in a more concise manner.
3. Create a sub-page on the Pennsylvania Parks and Forests Foundation website to host information related to the report.
4. Create a Facebook page, along with Twitter and Instagram accounts to begin educating the public on the issues related to deferred maintenance and the needs in our parks and forests.
5. Develop a 2-3 year outreach campaign to bring together thought leaders and decision makers to look at methods to addressing the needs in our parks and forests.
6. Continue to gather data to create informational graphics that easily and precisely convey the depth of the issue.
7. Work with the Department of Conservation and Natural Resources to build a pictorial database of issues across the state.



Work with Elected Officials to:

1. Organize tours of state parks and forests to educate elected officials about the needs that exists, the pressures on the resources, and the existing steps being taken to address these pressures.
2. Develop an understanding of the fiscal needs that exist for both operations and maintenance—and the benefits these investments bring to the commonwealth.
3. Explore funding scenarios that may exist to address the maintenance needs.
4. Continue to protect special funds that are currently earmarked for park and forest infrastructure.

Work with the General Public to:

1. Keep them informed and provide avenues for involvement.
2. Develop an Ambassador Program to showcase our parks and forests—the good as well as the challenges that exist.
3. Provide volunteer opportunities for the public in our parks and forests.
4. Continue to establish friends groups and recruit volunteers for the Stewards of Penn's Woods Program.
5. Host “Park and Forest Days” at the state capitol to connect constituents with their elected officials to discuss how lack of investments impact the local visitor experience and/or how access to parks and forests has benefited constituents.
6. Support parks and forests and the campaign through private philanthropy.

Work with the Department of Conservation and Natural Resources to:

1. Build case studies related to completed projects and/or project needs and their impacts on people.
2. Maintain current and accurate records of needs.
3. Create opportunities for volunteerism.
4. Explore creative solutions to pressing problems.

Work with the media to:

1. Create stories on state parks and forests.
2. Meet with editors to create opinion pieces on the needs within our parks and forests.
3. Create news stories related to challenges faced by our parks and forests.

*To get involved, visit **PaParksAndForests.org** and learn more.*

WORKS CITED

- ⁱ Penn State. *The Economic Significance and Impact of Pennsylvania State Parks: An Updated Assessment of 2010 Park Visitor Spending on the State and Local Economy*, 2012. http://conservationtools.org/library_items/726-The-Economic-Significance-and-Impact-of-Pennsylvania-State-Parks-An-Assessment-of-Visitor-Spending-on-the-State-and-Regional-Economy. (Accessed on 7/13/2017)
- ⁱⁱ Pennsylvania Department of Conservation and Natural Resources. *Pennsylvania's Statewide Comprehensive Outdoor Recreation Plan: 2014-2019*. <http://www.paoutdoorrecplan.com>. (Accessed on 7/13/2017)
- ⁱⁱⁱ Econsult Corporation, *Pennsylvania Wilds Initiative Program Evaluation*, 2010, http://www.pawildscenter.org/wp-content/uploads/pdf/PA-Wilds-Initiative-Program-Evaluation_3918955573331438795144.pdf. (Accessed on 3/13/2018)
- ^{iv} The Pennsylvania Wilds, *Community and Business*. <http://pawilds.com/community-business/> (Accessed on 3/13/2018)
- ^v Pennsylvania Parks and Forests Foundation. *State of the Parks/State of the Forests Report 2011*
- ^{vi} Pennsylvania Department of Conservation and Natural Resources, *The CCC Years*, <http://www.dcnr.state.pa.us/stateparks/thingstoknow/history/cccyers/index.htm>. (Accessed on 7/13/2017)
- ^{vii} Forrey, William. *History of Pennsylvania's State Parks: 1893-1983. (1983)* <http://1rjpbm2fnuze42zdt72y652p.wpengine.netdna-cdn.com/wp-content/uploads/1984-history-of-state-parks-forrey.pdf> (Accessed on 7/14/2017)
- ^{viii} Pennsylvania Department of Conservation and Natural Resources, *Pennsylvania Bureau of State Parks Administrative Briefing Document – State of the Pennsylvania State Park System 2015*.
- ^{ix} Forrey, William. *History of Pennsylvania's State Parks: 1984-2015. (2015)* <http://1rjpbm2fnuze42zdt72y652p.wpengine.netdna-cdn.com/wp-content/uploads/2015-history-of-state-parks-forrey.pdf> (Accessed on 7/14/2018)
- ^x VisitPA.com. *The Economic Impact of Tourism in Pennsylvania: 2015*. https://visitpa.com/sites/default/master/files/pdfs/2015_PA_Visitor_Economic_Impact_FINAL.pdf. (Accessed on 7/14/2017)
- ^{xi} Outside Magazine, *Government Puts Outdoor Industry Size at \$373 Billion*. <https://www.outsideonline.com/2281581/government-puts-outdoor-industry-size-673-billion> (Accessed on 3/6/2018)
- ^{xiii} Pennsylvania Department of Community and Economic Development, *Key Industries*. <https://dced.pa.gov/key-industries/> (Accessed on 3/13/2018)
- ^{xiv} Pennsylvania Department of Labor and Bureau of Forestry annual reports.
- ^{xv} Center for Nutrition and Activity Promotion / Dept of Public Health Sciences at Penn State College of Medicine, and Robert Wood Johnson Foundation. *Obesity Threatens America's Future*. 2010
- ^{xvi} The National Institutes of Health, *The Relationship Between Exercise and Sick Leave*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2092583/> (Accessed on 2/19/2018)
- ^{xvii} Levy, Mark. *Pa.'s Budget Woes Will Deepen with Aging Population*. The Associated Press. http://www.pennlive.com/politics/index.ssf/2017/05/pas_budget_woes_will_deepen_wi.html. (Accessed on 10/23/2017)
- ^{xviii} National Recreation and Park Association, *Why Parks and Recreation Are Essential Public Services*. <https://www.nrpa.org/uploadedFiles/nrpa.org/Advocacy/Resources/Parks-Recreation-Essential-Public-Services-January-2010.pdf>. (Accessed on 2/19/2018)
- ^{xix} The National Wildlife Federation, *Ecosystem Services*, <https://www.nwf.org/Wildlife/Wildlife-Conservation/Ecosystem-Services.aspx>. (Accessed on 6/28/2017).
- ^{xx} The Center for Watershed Protection, *Forests and Drinking Water*, <http://www.cwp.org/forests-and-drinking-water>. (Accessed on 6/28/2017)
- ^{xxi} PA Parks and Forests Foundation, *The Economics of Outdoors in Pennsylvania infographic*. 2017.
- ^{xxii} Pennsylvania Department of Conservation and Natural Resources, *Pennsylvania Statewide Forest Resources Assessment*, http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_007864.pdf. (Accessed on 6/28/2017)
- ^{xxiii} Urban Forestry Network, *Trees Improve our Air Quality*, <http://urbanforestrynetwork.org/benefits/air%20quality.htm>. (Accessed on 6/28/2017)
- ^{xxiv} American Society of Civil Engineers, *2017 Infrastructure Report Card*, www.infrastructurereportcard.org/cat-item/bridges. (Accessed on 10/23/2017)
- ^{xxv} Penn State Extension. *Forest Resources: Hemlock Woolly Adelgid*. <http://extension.psu.edu/natural-resources/forests/private/tools-resources/publications/invasive-plants-and-insects/hemlock-woolly-adelgid> (Accessed on 7/26/2017)

- ^{xxvi} NACE International. *Highways and Bridges*. <https://www.nace.org/Corrosion-Central/Industries/Highways-and-Bridges> (Accessed on 7/14/2017)
- ^{xxvii} Engineering.com. *How many years is the average life time of standard asphalt pavements?* <http://www.engineering.com/Ask/tabid/3449/qactid/1/qaqid/4074/Default.aspx> (Accessed on 7/14/2017)
- ^{xxviii} MPR News. *Gravel or Pavement?* <http://blogs.mprnews.org/ground-level/2010/10/reconsidering-the-feasibility-of-rural-paved-roads>. (Accessed on 7/14/2017).
- ^{xxix} Adams County, Colorado. *Gravel Road Resurfacing Program*. <http://www.adcogov.org/gravel-road-resurfacing-program>. (Accessed on 7/14/2017)
- ^{xxx} Pennsylvania Parks and Forests Foundation. *Penn's Stewards*. "Combating Invasive Species in Pymatuning Reservoir." Spring 2017
- ^{xxxi} SFGate. *The Average Life of Roofing*. <http://homeguides.sfgate.com/average-life-roofing-94238.html>. (Accessed on 7/14/2017)
- ^{xxxii} Comfort Pro Heating & Air Conditioning. *What is the Life Expectancy of my HVAC System?* <https://www.comfort-pro.com/2015/03/what-is-the-life-expectancy-of-my-hvac-system>. (Accessed on 7/14/2017)
- ^{xxxiii} PennLive, *How Much Do Anglers in Your Area Spend on Fishing?* <http://huntingworksforamerica.com/huntingworksforpa/economic-data/> (Accessed on 3/14/2018)
- ^{xxxiv} Hunting Works for Pennsylvania, *Economic Data*. <http://huntingworksforamerica.com/huntingworksforpa/economic-data/> (Accessed on 3/14/2018)
- ^{xxxv} PALTA. *Pennsylvania's Return on Investment in the Keystone Recreation, Park, and Conservation Fund*. http://conservationtools.org/library_items/1210-Pennsylvania-s-Return-on-Investment-in-the-Keystone-Recreation-Park-and-Conservation-Fund. (Accessed on 7/14/2017)
- ^{xxxvi} Commonwealth of Pennsylvania's 2017-2018 Budget. <http://www.budget.pa.gov/Pages/default.aspx> (Accessed on 12/10/17)
- ^{xxxvii} Pennsylvania Parks and Forests Foundation. *Penn's Stewards*. "State Parks are Going Green." Fall 2008
- ^{xxxviii} Pennsylvania Department of Conservation and Natural Resources. *State Parks 2000*.
- ^{xxxix} U.S. Department of the Interior. *Land and Water Conservation Fund*. <https://www.doi.gov/lwcf>. (Accessed on 6/20/2017)
- ^{xl} Pennsylvania Department of Conservation and Natural Resources. *Statewide Comprehensive Outdoor Recreation Plan: 2009-2013*. <http://www.paoutdoorrecplan.com/downloadlinks/parecplanpdf/index.htm>. (Accessed on 7/14/2017)
- ^{xli} Mowen, A. J., Trauntvein, N. E., Graefe, A. R., & Son, J. S. (2012). The influence of visitor characteristics on state park physical activity levels. *Journal of Park and Recreation Administration*, 30(2).
- ^{xlii} Mowen, A.J., Graefe, A.R., Ivy, M.I., and Trauntvein, N.E. (2008). The 2008 Pennsylvania State Parks Visitor Study: Key Findings and Implications.



PENNSYLVANIA
Parks & Forests
FOUNDATION

It's just our nature to help!

1845 Market Street, Suite 202, Camp Hill, PA 17011

PA ParksandForests.org