THE NATIONAL FOREST SYSTEM: RESTORING OUR FOREST INFRASTRUCTURE

HEARING

BEFORE THE

SUBCOMMITTEE ON CONSERVATION AND FORESTRY

OF THE

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THE NATIONAL FOREST SYSTEM: RESTORING OUR FOREST INFRASTRUCTURE

THURSDAY, SEPTEMBER 26, 2019

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON CONSERVATION AND FORESTRY,
COMMITTEE ON AGRICULTURE,
Washington, D.C.

The Subcommittee met, pursuant to call, at 10:05 a.m., in Room 1300 of the Longworth House Office Building, Hon. Abigail Davis Spanberger [Chair of the Subcommittee] presiding.

Members present: Representatives Spanberger, Fudge, O'Halleran, Pingree, Axne, Schrier, Panetta, Peterson (*ex officio*), LaMalfa, Allen, Kelly, Johnson, and Thompson.

Staff present: Melinda Cep, Prescott Martin III, Félix Muñiz, Jr., Alison Titus, Ricki Schroeder, Patricia Straughn, Josh Maxwell, Dana Sandman, and Jennifer Yezak.

OPENING STATEMENT OF HON. ABIGAIL DAVIS SPANBERGER, A REPRESENTATIVE IN CONGRESS FROM VIRGINIA

The CHAIR. This hearing of the Subcommittee on Conservation and Forestry entitled, *The National Forest System: Restoring our Forest Infrastructure,* will come to order.

Good morning. I would like to welcome everyone to this hearing of the Conservation and Forestry Subcommittee on the National Forest System: restoring our forest infrastructure, a critically important topic. I would also like to thank Ranking Member LaMalfa, who will be arriving shortly, for his engagement on this issue, as well as each Subcommittee Member for taking part in this hearing today.

The roads, trails, bridges, dams, and other facilities that make up our National Forest infrastructure help ensure safe and reliable access to natural resources and serve as an essential backbone for our economic activity.

More than 140 million Americans visit National Forest lands every year to camp, hike, fish, hunt, ski, and more. Recreation on and around Forest Service land contributes more than $10 billion to the U.S. economy every year and supports more than 143,000 full-time and part-time American jobs.

In addition to recreation, 66 million Americans in over 3,000 communities depend on Forest Service infrastructure for drinking water and wastewater services and many communities rely on Forest Service roads to drive their children to school; shop in neighborhood stores; and visit their doctors.

However, as a consequence of deferring maintenance across the agency's infrastructure portfolio, our forest infrastructure is in disrepair, and no longer meets the needs of forest users, local communities, and emergency responders. As is the case with all Federal land management agencies, appropriated funds have so far been insufficient.

With the deferred maintenance backlog of $5.2 billion, the ability of the American public to safely access and benefit from National Forests is greatly diminished. As many of our Subcommittee Members know all too well, one contributing factor to this acute backlog has been soaring fire suppression costs. The increasing frequency and intensity of wildfires has forced the agency to make some tough decisions, often pulling funds from non-fire accounts to address wildfires, and leaving fewer and fewer resources to support other aspects of the agency's work, like deferred maintenance. We hope that the fire fix that goes into effect in Fiscal Year 2020 helps address this part of the deferred maintenance challenge.

Despite the challenges of aging infrastructure, the dedicated public servants at the Forest Service have continually worked to do more with less, and to deliver upon their mission: to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations.

Proper maintenance of our National Forests is a matter of safety and economic well-being. I hope this hearing will help us better understand the severity of the deferred maintenance backlog, its impact on regional economies, and the agency's future plans for capital improvement.

[The prepared statement of Ms. Spanberger follows:]

PREPARED STATEMENT OF HON. ABIGAIL DAVIS SPANBERGER, A REPRESENTATIVE IN CONGRESS FROM VIRGINIA

Good morning, I would like to welcome everyone to this hearing of the Conservation and Forestry Subcommittee on *The National Forest System: Restoring Our Forest Infrastructure,* a critically important topic. I would also like to thank Ranking Member LaMalfa for his engagement on this issue, as well as each Subcommittee Member for taking part in this hearing today.

National Forest infrastructure is the physical link to the outdoors. Its network of roads, trails, bridges, dams, and facilities helps ensure access to natural resources and secure the economic well-being of neighboring communities.

Over 140 million Americans visit National Forest lands year-round to camp, hike, fish, hunt, ski and snowboard, and take part in a wide range of other recreation. Recreation on and around Forest Service land contributes more than $10 billion to the U.S. economy every year and supports more than 143,000 full and part-time jobs.

66 million Americans in over 3,000 communities depend on Forest Service infrastructure for drinking water and wastewater services. Similarly, many communities rely on Forest Service roads to drive their children to school; shop in neighborhood stores; or visit their doctor, among other routine travel needs. Over the last 2 decades alone, community development along the Wildland-Urban Interface has expanded by more than 46 million acres, an area larger than the State of Washington.

However, as a consequence of deferring maintenance in the agency's infrastructure portfolio, the state of our forest infrastructure has fallen far behind what is necessary to meet the needs of forest users, local communities, and emergency responders. As is the case with all Federal land management agencies, appropriated funds have been insufficient to adequately maintain roads, trails, bridges, dams, and other important structures.

Over the last few decades, fire suppression costs have increased as the frequency and intensity of wildfires have also increased. These escalating costs have forced the agency to make some tough decisions, often pulling funds from non-fire accounts to address wildfires and leaving fewer and fewer resources to support other aspects of

the agency's work, like deferred maintenance. We hope that the fire budget fix that goes into effect in FY20 solves that component of this issue. With a deferred maintenance backlog of $5.2 billion, the ability of the American public to safely access and benefit from National Forests is greatly diminished.

Despite the challenges of aging infrastructure, the Forest Service has continually worked to do more with less and has charged itself to develop a long-term plan to deliver upon its mission to "*sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations.*"

Proper maintenance of our National Forests is a matter of safety and economic well-being. I hope this hearing will help us better understand the severity of the deferred maintenance backlog, its impact on regional economies, and the agency's future plans for capital improvement.

This is the important subject of our hearing today, to better understand the level of deferred maintenance; its impact on economic opportunity and public use; and to examine agency plans for capital improvement.

The CHAIR. With that, I will recognize the Ranking Member once he has arrived. But in consultation with the Ranking Member and pursuant to Rule XI(e), I want to make Members of the Subcommittee aware that other Members of the full Committee may join us today.

The chair would request that other Members submit their opening statements for the record so the witness may begin her testimony, and to ensure there is ample time for questions today.

I would like to welcome our witness, Ms. Lenise Lago, Associate Chief for the U.S. Forest Service. In coordination with the Chief, Ms. Lago helps lead a workforce of more than 28,000 year-round employees, and an additional 12,000 seasonal employees, and is a steward to 193 million acres of National Forests and Grasslands.

Ms. Lago worked briefly in the forest products industry before joining the Forest Service in 1989. She has worked in a variety of planning, budget, and resource management jobs, splitting time between Washington, D.C., and the western United States, including Montana, Washington, and Oregon.

Associate Chief Lago is a native of Athens, Georgia, and a graduate of the University of Georgia's Warnell School of Forest Resources.

Ms. Lago, you will have 5 minutes to present your testimony. The light will turn yellow, signaling when you have 1 minute left to complete your testimony. Please begin when you are ready.

STATEMENT OF LENISE LAGO, ASSOCIATE CHIEF, U.S. FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

Ms. LAGO. Thank you, Madam Chair, Ranking Member LaMalfa, and Members of the Committee. Thank you for inviting me to share the Administration's views on infrastructure within USDA's Forest Service. I want to thank and acknowledge how important this opportunity is to testify on this important topic. I would also like to thank you for the support you have given us to carry out our programs.

Infrastructure is the physical link between Americans and their public lands, and Forest Service infrastructure is vital to rural and urban communities alike. It includes roads, trails, bridges, visitor centers used by the public, as well as offices, air tanker bases, employee housing, water and wastewater systems which we use to manage and protect all of the other resources. People depend on a safe Forest Service road network to get to schools, to hospitals,

homes, stores. The road system is also critical to carrying out active management to improve forest conditions.

Infrastructure drives the economic benefits communities derive from National Forests. The Forest Service provides the most diverse recreation opportunities in the nation, across world-class landscapes that attract, as you mentioned, Madam Chair, over 140 million visitors annually, contributes $10 billion to the U.S. economy each year, and supports over 140,000 jobs, mostly in gateway and rural communities. Outdoor recreation and tourism are the single greatest source of jobs for local economies in the National Forest System.

Perhaps most critically, forest infrastructure provides fire protection for communities. Firefighters and emergency responders use forest infrastructure to access forest lands for firefighting operations, to protect communities, to evacuate families from areas at risk, and to rescue individuals from danger.

Of specific interest here today is deferred maintenance, and my written testimony includes tables listing various assets the Forest Service owns and maintains, and the deferred maintenance by asset category. I am not going to cite all that here, but just to roughly identify the portfolio that we are talking about, the Forest Service maintains over 370,000 miles of roads. That includes over 6,000 bridges. We have 158,000 miles of trail, including over 7,000 trail bridges. We have almost 40,000 buildings of all types, including administrative buildings, research buildings, employee housing, and recreation sites.

I think you know; deferred maintenance is scheduled maintenance that doesn't get done. It has a dollar value, and the dollar value accumulates over time. As a result of deferred maintenance, the state of the Forest Service infrastructure has fallen far behind what is necessary to meet the needs of our forests and our forest users.

Today, the Forest Service has a deferred maintenance backlog of more than $5.2 billion. Our capital improvement budget has not kept up with needed maintenance. The President's budget request for Fiscal Year 2020 includes a public land infrastructure fund, which allocates monies for deferred maintenance in the National Forest System.

Another funding source for Forest Service infrastructure comes from the Federal Highway Administration Federal Lands Transportation Program. Interestingly, while the Forest Service has more miles of publicly accessible road and many times more bridges than other Federal land management agencies, the Forest Service receives only about five percent of the funding from this program.

In addition to funding, the agency is doing its part to reduce deferred maintenance. We are taking bold steps to streamline our environmental review process and speed up important work that could protect communities, livelihoods, and resources. We are using tools provided by Congress as well. We have continued to use conveyance authority, which allows us to sell facilities that are no longer needed, and keep the proceeds to address other infrastructure needs. We just proposed a rulemaking for the Powerline Utility Corridor Authority from the 2018 appropriations bill, and the

Communication Sites Authority from the 2018 Farm Bill, in addition to the Leasing Authority, which was included in the 2018 Farm Bill.

FLREA, the Federal Lands Recreation Enhancement Act, has enabled us to keep up with needed maintenance at heavily-used developed recreation sites across the country.

So, with funding, innovation, efficiency, and partnerships, those are the keys to taking care of these important assets. Managing a healthy infrastructure is an important part of our job, and it supports our ability to carry out our mission.

Again, I am deeply grateful to the Committee for this opportunity to talk about our infrastructure, to share ideas about how to improve our backlog of deferred maintenance, and we appreciate your support. I am happy to answer any questions.

Thank you.

[The prepared statement of Ms. Lago follows:]

PREPARED STATEMENT OF LENISE LAGO, ASSOCIATE CHIEF, U.S. FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

Regarding Infrastructure on National Forest System Lands

Madam Chair and Members of the Subcommittee, thank you for inviting me to share the Administration's position on deferred maintenance within the U.S. Department of Agriculture's Forest Service.

On the National Forest System, infrastructure is the physical link between Americans and their public lands. It strengthens communities by giving them safe access to the many ecological, economic, and social amenities these lands provide. For instance, people use infrastructure on the National Forest System for ranching, farming, logging, outdoor recreation, tourism, and municipal water services, all of which support thriving small businesses, particularly in local communities. People depend on the Forest Service road network to get to schools, stores, hospitals, and homes. Perhaps most critically, forest infrastructure provides fire protection for communities. Firefighters and emergency responders use forest infrastructure to access forest lands for firefighting operations to protect communities, evacuate families from areas at risk, and rescue individuals from danger.

The infrastructure on the National Forest System includes over 370,000 miles of road, 13,400 bridges and trail bridges (see *table 1*), 158,000 miles of trail, nearly 500 Forest Service owned dams, over 1,100 privately owned dams overseen by the Forest Service, and facilities for both administration and wildland fire management. The roads, bridges, facilities, and other infrastructure affect every aspect of the Forest Service mission and are critical to the effective management of National Forests and Grasslands on behalf of the American public.

However, as a consequence of deferring maintenance in our extensive infrastructure portfolio, the state of the Forest Service's infrastructure has fallen far behind what is necessary to meet the needs of our forests and forest users. Today, the Forest Service has a deferred maintenance [1] backlog of more than $5.2 billion (*table 3*—Deferred Maintenance Backlog; data is also available by state).

The President's Budget for Fiscal Year 2020 includes a Public Lands Infrastructure Fund allocating monies for deferred maintenance on the National Forest System. USDA welcomes the opportunity for further discussion with the Subcommittee regarding the proposed fund to meet the Forest Service's deferred maintenance needs.

Our infrastructure needs are pressing, and neglecting to meet them only makes the problem worse. Neglecting routine maintenance turns minor repairs into major-overhaul work. Ultimately, if left unchecked, it can turn critical infrastructure unusable to the point of requiring full replacement. Every delay expands deferred maintenance beyond the Forest Service's ability to maintain our infrastructure and keep

[1] "Deferred maintenance" is the continual delay of maintenance of Forest Service infrastructure assets. Deferred maintenance prevents buildings, roads, bridges, and other assets from reaching their expected useful lifespans. The total dollar value of deferred maintenance is determined by totaling all of the work items of components and systems that need to be repaired or replaced. It does not include unforeseen failures such as a boiler leak, or a wash out of a road or bridge by a storm, *etc.*

up with vital services such as fire suppression, timber production, and outdoor recreation.

Infrastructure on the National Forests and Grasslands also supports a rising demand for outdoor recreation. The Forest Service provides recreation opportunities in the nation across landscapes that attract over 149 million visitors annually. According to the National Visitor Use Monitoring (NVUM) program, through both direct and ripple effects, National Forest visitor spending contributes over $10 billion to the U.S. economy each year while supporting about 143,000 jobs, mostly in gateway and rural communities. Outdoor recreation and tourism are the single greatest source of jobs on the National Forest System.

Forest roads and bridges are critical for sustaining landscapes across the 193 million acres of National Forest System lands for the benefit of visitors and communities; wildland fire management also requires an extensive system of forest roads and bridges in good condition. However, the backlog of deferred maintenance for forest roads and bridges is $3.4 billion—needed maintenance and repairs delayed until some future time.

One example of deferred maintenance impacts to Forest Service assets is the Longhouse Scenic Drive road system on the Allegh[e]ny National Forest in Pennsylvania. Wear and tear on the road is exceeding the ability for most passenger cars to reasonably travel over it. Without needed repairs, the road system cannot bring visitors from across the country to enjoy the National Forest and sustain local businesses through their spending. Each year, users of the road system spend about $1.5 million at local businesses.

Table 1.—Roads and bridges on the National Forest System, by type and measure.

Asset Category	Number of Asset Locations	Quantity	Unit of Measure
Trail Bridges	N/A	7,156	Each
Bridges	6,245	6,245	Each
Roads	N/A	370,755	Miles

The Forest Service supports outdoor recreation at more than 29,000 recreation sites ranging from highly developed campgrounds, target ranges, and boating areas to minimally developed trailheads and fishing areas. Many of these sites, built by the Civilian Conservation Corps, are more than 75 years old and remain in use far beyond their expected lifespans. The deterioration of this recreation infrastructure has a direct impact on all forest users including outfitters and guides who create jobs in forest communities and utilize recreation infrastructure for activities such as fishing and river rafting in National Forests. Unless the Forest Service invests in recreation infrastructure, the quality of visitor experience will suffer and local businesses who depend on forest visitors for their livelihoods might fail.

The Forest Service manages over 158,000 miles of trails—the largest managed system of trails in the country. These trails provide motorized and nonmotorized access and high-quality recreation opportunities across the National Forest System, benefiting economies and human health in communities nationwide while also fostering extensive volunteerism and citizen stewardship. Only about 25 percent of these trails meet agency standards for safety and quality. Total maintenance across the trail system is estimated at over $600 million, $300 million in deferred maintenance and $300 million in annual operational maintenance.

The Forest Service uses 40,510 USDA-owned buildings for administrative and other purposes (*table 2*). The buildings include facilities for research and wildland fire management as well as visitor centers, bathrooms, communications towers, living quarters, and warehouses. The Forest Service's deferred maintenance backlog for facilities totals $1.2 billion, about 65 percent of which is for buildings older than 50 years. Due to both age and deferred maintenance, only 57 percent of the buildings used by the Forest Service are up to standard.

The agency is taking a number of actions to help reduce deferred maintenance. For example, the Forest Service approach to travel management helps forests plan a road system that best meets community needs and transfers ownership to local communities, counties, or states where appropriate. In West Virginia, Monongahela National Forest, Red Creek Bridge at Laneville accesses 100 structures, including camps, cabins, permanent residences, mail route, *etc.* This bridge also accesses the Dolly Sods Wilderness, an eastern recreation destination and economic generator. The Red Creek bridge structure has been identified for much needed, significant, repairs for the past 10 years.

Table 2.—Buildings owned by USDA and used by the Forest Service, by purpose, number, and square footage.

Asset Category	Number of Asset Locations	Quantity	Unit of Measure
Buildings	38,939	27,351,760	GSF
Residence	1,571	2,470,133	GSF

The agency is doing its part to reduce deferred maintenance. We are taking bold steps to streamline our environmental review processes and speed up important work that could help protect communities, livelihoods and resources. The proposed updates would not only give the Forest Service the tools and flexibility to manage the land and tackle critical challenges like wildfire, insects, and disease but also improve service to the American people. Revising the rules will improve forest conditions and make it simpler for people to use and enjoy their National Forests and Grasslands at lower cost to the taxpayer. The revised rules will also make it easier to maintain and repair the infrastructure people need to use and enjoy their public lands—the roads, trails, campgrounds, and other facilities.

The updates will help reduce our maintenance backlog by implementing a new suite of "categorical exclusions," a classification under NEPA excluding certain routine activities from more extensive, time-consuming environmental impact analyses. The proposed categorical exclusions would be for restoration projects, roads and trails management, recreation and facility management, as well as special use authorizations that issue permits for outfitters and guides, community organizations, civic groups and others who seek to recreate on our National Forests and Grasslands. The new categorical exclusions are based on intensive analysis of hundreds of environmental assessments and related data and, when fully implemented, will reduce process delays for routine activities by months or years. We are also streamlining our business practices and implementing new programmatic agreements for consultation with other agencies.

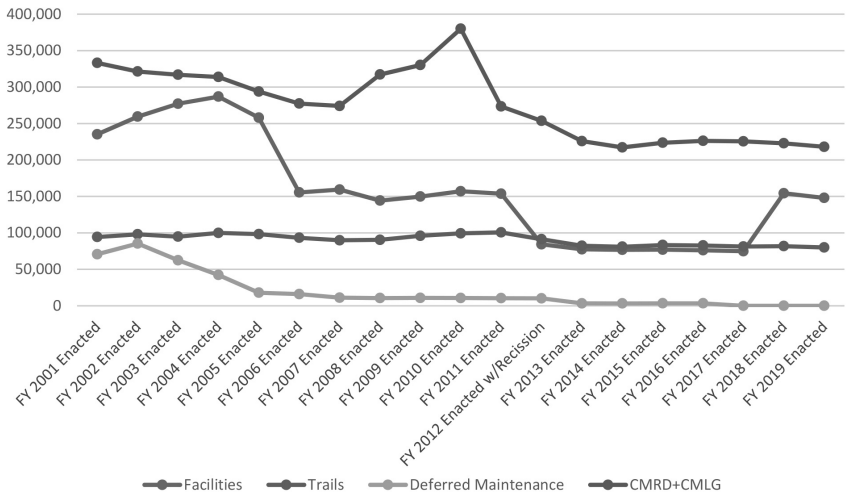
For example, this agency is specifically streamlining business practices to reduce deferred maintenance by strategically prioritizing capital improvement projects. For road projects, the agency uses the following criteria in order: (a) projects vital for near-term forest-based economic activity (that is, restoration within the next 5 years); (b) projects needed for safety; (c) projects that improve access to recreation sites and trails; and (d) projects that improve wildlife connectivity, aquatic organism passage, and flood resiliency. Projects are evaluated based on how they can provide support and infrastructure necessary to accomplish national Forest Service goals and mission areas. The goals are better community service and better access to public lands for emergency response, outdoor recreation, and active resource management. Projects are also evaluated on how they use partnerships to achieve mutual conservation goals through combined efforts.

Primary funding for Forest Service infrastructure comes from both Forest Service appropriations and from the Federal Highway Administration's Federal Lands Transportation Program (FLTP). Adjusted for inflation, appropriated resources have been decreasing over the past 2 decades, notwithstanding a spike in funding for roads in 2010 under the American Recovery and Reinvestment Act. The Fixing America's Surface Transportation Act of 2015 authorized a total of $85 million in FLTP program funding for the agency for Fiscal Years 2016–2020. This amount derives from the Highway Trust Fund.

With more than $5.2 billion in deferred maintenance, the Forest Service cannot keep much of its infrastructure on the National Forest System from deteriorating. A deteriorating infrastructure keeps us from properly managing the National Forest System. With roads in poor condition, for example, emergency vehicles have trouble getting to wildfires, undermining our firefighting and rescue capabilities. Conversely, by reducing deferred maintenance and improving infrastructure, the Forest Service would be better able to protect communities from wildfire, in part through projects to reduce hazardous fuels through prescribed fire and mechanical treatments. In addition, visitors would get better access to recreational activities and the Forest Service would become a better neighbor by offering more opportunities for jobs and economic activity in rural areas.

The Forest Service is eager to work with the Committee to meet our infrastructure needs and reduce our deferred maintenance backlog. We are deeply committed to accomplishing our multiple-use goals for National Forest System lands, goals enshrined in our mission and in the laws of the United States, in accordance with the needs and desires of the people we serve.

Figure 1.—Appropriations for infrastructure on the National Forest System, in thousands of dollars, Fiscal Years 2001–19.



Adjusted for inflation, appropriations declined, despite a spike in funding for roads in (CMRD)/(CMLG) in Fiscal Year 2010 under the American Recovery and Reinvestment Act. FY = fiscal year; CMRD = Capital Improvement and Maintenance-Roads program; CMLG = Legacy Roads and Trails Restoration program.

Table 3.—Forest Service Deferred Maintenance Backlog

Asset Category	Number of Asset Locations	Quantity	Unit of Measure	Current Replacement Value	Deferred Maintenance	Facility Condition Index
Buildings	38,939	27,351,760	GSF	$7,206,149,429	$1,086,287,917	79
Residence	1,571	2,470,133	GSF	$576,242,605	$132,536,427	76
Trails	N/A	158,726	Miles	N/A	$278,012,495	N/A
Trail Bridges	N/A	7,156	Each	N/A	$7,846,506	N/A
Heritage	7,046	7,046	Each	N/A	$17,503,549	N/A
Misc. Recreation Features	N/A	18,264	Sites	$3,141,811,123	$85,809,375	91
Wastewater Systems	4,736	N/A	Each	$162,601,900	$29,988,070	81
Water Systems	4,710	N/A	Each	$321,539,254	$85,840,039	82
Roads	N/A	370,755	Miles	$36,789,857,403	$3,153,000,000	N/A
Dams	497	497	Each	$3,914,284,327	$79,560,275	98
Bridges	6,245	6,245	Each	$2,336,703,257	$260,505,526	89
Total	**63,744**	**30,390,582**	**GSF**	**$54,449,189,297**	**$5,216,890,180**	**85**

Figures in the table above represent a snapshot of the Natural Resource Management (NRM) data as of June 2019 and does not represent the end of the fiscal year summary for 2018; numbers may differ slightly from the end of the fiscal year National Forest System Statistics. See individual asset tabs for more information.

* Residence is defined as residential structures associated with the Employee Housing Program.

+ Roads includes paved and unpaved roadways.

§ Not included are towers, as this program is in the midst of reevaluating assets and determining these figures.

The CHAIR. Thank you for your testimony.

Before proceeding to questions, I recognize Ranking Member LaMalfa for his opening statement.

OPENING STATEMENT OF HON. DOUG LAMALFA, A REPRESENTATIVE IN CONGRESS FROM CALIFORNIA

Mr. LAMALFA. Thank you, Madam Chair, and I have no excuse for my tardiness, but I did bring a forest green pen today, if there is any redeeming value to that.

So, thank you, and thank you for joining with us, Associate Chief Lago.

As we know, the National Forest System created more than 100 years ago, designed—and this is an important key point—for multiple uses for the surrounding communities. And so, it is a vast network, 193 million acres of public land, and much of the infrastructure, like we hear with our National Park System, is aging and requires regular upkeep, which hasn't been quite regular. We have budget challenges, such as fire borrowing, loss of revenue due to declining timber harvests, all contributing to the backlog we are talking about.

A significant portion of the backlog, nearly 75 percent, is maintenance of the 370,000 mile road system within our forests, a lot of that in California, my home state. Of course, the maintenance of these forest roads cannot be understated, and they provide access to the public for access to their lands, recreation, resources. They connect our communities and are very important for our firefighters, of which we suffer a lot of fire in the West lately.

Congress has worked to provide several solutions to address the deferred maintenance, such as providing the fire funding fix in the Consolidated Appropriations Act of 2018 to prevent fire borrowing, something we are all happy about, from other accounts, including those accounts used for National Forest roads. The 2018 Farm Bill provided more tools for the Forest Service, with management of forest lands, and allows more partners to assist them in these activities. The House-passed version of the farm bill also contained several provisions that would have strengthened these goals, including several categorical exclusions that would have addressed bureaucratic red tape that has hindered the Forest Service from addressing many of the maintenance issues we will be talking about today.

Unfortunately, that version did not make it through the Senate last year. Earlier this year, though, the Forest Service announced they were working on streamlining environmental analyses. I believe it is common sense that current facilities should be able to be improved without wasting significant time and money due to unnecessary hurdles.

The Forest Service has recently completed a comprehensive capital improvement plan also that we hope can be a strategy to help address this maintenance backlog, and get back to a healthy and sustainable functioning forest system.

Again, Associate Chief Lago, we appreciate your being here today, and look forward to the dialogue and Q&A.

So, thank you, and I appreciate it, Madam Chair. I yield back.

The CHAIR. Members will be recognized for questioning in order of seniority for Members who were here at the start of the hearing. After that, Members will be recognized in the order of their arrival.

I first recognize myself for 5 minutes.

Associate Chief Lago, in your written testimony, you mention the Forest Service currently has a deferred maintenance backlog of more than $5.2 billion. Can you speak to the backlog's impact on local economies, including recreational outfitters and other small businesses that serve locals and visitors alike? Additionally, please discuss the impact on local small businesses that would complete some of the infrastructure work on projects such as building and maintaining roads?

Ms. LAGO. Certainly. Thank you, Madam Chair.

The condition of deteriorated infrastructure means we can't provide a full season of use to many users of National Forest lands. You mentioned outfitter guides, campground operators. Just to bring it down to the operator level, an outfitter and guide needs road access, typically some parking lots, uses campgrounds sometimes, boat launches. When we can't keep those open or when we have to restrict the season of use, that means that outfitter and guide has to reduce their season days. It has a direct economic effect on that outfitter and guide.

It is the same with a campground. A campground operator is charging a fee, and we can't maintain the water system so we have to shut the water off to that campground. They can still have campers, but they have to provide their own water. It degrades the experience for campers, and they are less likely to go to that campground. Again, a direct economic hit to a service provider.

How increasing our maintenance affects local economies is for the most part, that deferred maintenance is carried out by contractors, partners, service providers in those local communities.

The CHAIR. Thank you, and I do have a second question with a little bit of a personal bit to it.

I have been a Girl Scout leader for the past 5 years, and I have seen the importance of scouting and the role that the outdoors play in the lives of young women and in boys who participate in Boy Scouts. And events like the upcoming Hike-a-palooza in George Washington National Forest not only provides young women with the opportunity to explore the outdoors, but also promotes environmental stewardship and provides exposure to careers in conservation.

The Forest Service's ability to maintain its infrastructure is central to ensuring that the future generations are invested in conservation and have the opportunity to enjoy our country's stunning public lands.

On the topic of environmental stewardship, I understand the Forest Service relies on partnerships and volunteers, in addition to Federal funding. Can you tell us about some of these cooperative agreements, and how they help maintain safe, accessible trails in places like the George Washington National Forest?

Ms. LAGO. Sure. Thank you for that.

Just generally speaking, the total value of our partnerships and agreements is over $1 billion annually, and more than half of that is contributed by the partner.

Within the volunteer service hours that we rack up, trails work represents the majority of that work. We have people volunteering to do trail maintenance that is more than 1.5 billion hours annually. That is more than 800 full-time equivalents, and they help us maintain over 30,000 miles of trail a year.

And in your local forest, the G.W. Jeff, we have more than 50 cooperators on trails projects. I think last year they helped us maintain almost 5,000 miles of trail. We have partnerships with student conservation organizations, back country horsemen, lots of partnerships interested in helping us maintain that infrastructure.

The CHAIR. Thank you very much. I appreciate your answering my questions, and I would now recognize Ranking Member LaMalfa for his questions.

Mr. LAMALFA. Thank you again, Assistant Chief.

We are talking about—and you mentioned in your comments a $5.2 billion maintenance backlog, and that has been a number that seems to be frozen for quite a few years, going back as far as 2012. Which if you look at inflation costs alone, but then obviously we have had some big events there in many of our forests with large fires, runoff, record levels of snow pack, and flooding, *et cetera.* And we know, we hear about it from our forest people out there about considerable damage to the roads, trails, *et cetera,* culverts.

But the dollar figure has stayed the same since 2012, so it makes me wonder, is there really some type of system as to how the Forest Service is monitoring, cataloging the damage to the various pieces of infrastructure in the forests to see that we are actually keeping up with the real number on the maintenance backlog that we are talking about.

Again, we know that there is a huge number for our National Parks, and I am wondering is there a system in place that we could be improving or one that you are working on to get what probably needs to be a more accurate number?

Ms. LAGO. Yes, sir. So it is, first of all, a big number, and as I described, our totality of infrastructure is big, diverse, spread out, and inaccessible.

The way we arrive at that number is we do sampling on an annual basis. We sample a portion of the roads, and then calculate an estimate. We sample buildings and dams on a 5 year cycle, dams on a 2 year cycle.

But in addition, events like fires and floods can take out bridges. Sometimes we don't replace them, so that removes the asset and it removes the deferred maintenance along with it.

We are doing lands transactions every year, and we may convey an asset with a deferred maintenance, and thus reduce it.

Mr. LAMALFA. So, with the loss of a bridge in a situation like that, you can take it off the books because it doesn't exist anymore.

Now on my farm, if one of my tractors catches fire, I don't get just to write of the asset. I still need that amount of tractor power to be able to get over the acres I do in a year.

How is this going to be serving the people in the area, whether it is for firefighters, access, logging, whatever it is? How can we just write that asset off?

Ms. LAGO. It depends on the local area, and a lot of these assets are legacies from many, many years ago. It might be in a portion of the forest where access has been terminated or is seasonally closed, and we may decide not to replace that bridge in-kind, but do some sort of lower scale, more like a trail bridge or something like that.

Mr. LAMALFA. Is it done in conjunction with local needs, with local—whether it is safety officials or logging or access, or is that decision made in D.C.? Is it made by the local forester? I mean, that is kind of disturbing to me that we can just write this off and maybe not have the input. How is that done?

Ms. LAGO. Yes, sir. It is a local decision. It is done with public input, environmental analysis, and disclosure.

Mr. LAMALFA. Okay. So timber receipts have been down. Back years ago, we are looking at 1991, we could see that there is $680

million in timber receipts, of which ten percent goes directly towards forest roads, and it is also very important, those receipts, for local schools and roads under what is the Secure Rural Schools Fund. And so, now you want $680 million in receipts, and more recently, it is down to $21 million. It would seem to me we could be going farther if we had the timber receipts for the road maintenance for that ten percent.

Would you comment upon that?

Ms. LAGO. Yes, sir. In recent years, we have been increasing our timber sales. Those receipts are increasing as a result of that, and so——

Mr. LAMALFA. Do you know that number now compared to the $680 million not-inflation-adjusted 1991 number?

Ms. LAGO. I don't know the total revenue, but I believe our timber receipts—I will have to get back to you. No, I don't.

Mr. LAMALFA. Okay, please do.

With them down significantly, and since recreation is a primary driver of road use; how much is being done to boost what is coming in on recreation fees, not by just raising the fees, but actually having more access in order to keep from losing more roads to deterioration?

Ms. LAGO. Our annual recreation fee collection is about $100 million. Eighty-five percent of that goes back to the site where it was generated, and the decision about fees for recreation use is on a site-by-site basis.

Mr. LAMALFA. I mean, as far as boosting the amount of recreation happening, is that a part of the strategy?

Ms. LAGO. On an individual site basis, the local management can and does suggest a fee increase, or to add an additional site into the fee revenue program.

Mr. LAMALFA. Yes. I am not angling for fee increases, but just more access where it is possible.

So, I am over time. I will yield back, Madam Chair.

The CHAIR. I now recognize the gentlewoman from Ohio, for 5 minutes.

Ms. FUDGE. Thank you, Madam Chair, and thank you, Chief Lago, for being here this morning.

I want to change the subject a bit to Job Corps, if we could just talk about that for a bit. The Job Corps Civilian Conservation Centers in particular.

We know that last year almost 2,000 Job Corps students from under-served communities contributed more than 100,000 hours to infrastructure improvements and to maintenance projects. Tell me what you see as the opportunity to grow that program?

Ms. LAGO. Yes, ma'am. Thank you.

Just this week, Secretary of Agriculture Perdue traveled to Denver, national Job Corps headquarters, and met with our Job Corps leadership, several center directors, and laid out a plan for a more formal program between National Forests and the Job Corps centers where they reside to have more students doing restoration and maintenance work on Forest Service facilities, more conservation-related trades at Job Corps centers, and ultimately, more hiring of Job Corps graduates into Forest Service jobs.

Ms. FUDGE. If I understand you correctly then, USDA is supportive of the program, wants to keep the program, and is going to try to broaden the program?

Ms. LAGO. Yes, ma'am.

Ms. FUDGE. Good.

Let me also ask, do the students who participate in this program have any path toward becoming employed with the Forest Service or some other land management agency?

Ms. LAGO. Yes, ma'am. We currently have an authority called Public Land Corps Authority, which Job Corps students qualify for by doing certain number of hours of restoration work on public land. They are still required to compete for jobs in an open merit application.

What we would like to do is work with OPM on a direct hire authority for Job Corps graduates.

Ms. FUDGE. Can you tell me just for maybe some of my colleagues' benefit who are not familiar with the program, how has this program helped the agency?

Ms. LAGO. Well, you said it yourself. More than 2,000 students and 100,000 hours on projects doing restoration work in National Forests.

In addition to those numbers, we have upwards of 300,000 students annually supporting firefighting, either doing things like mobile cooking camps, or actually being on the fire line. About, ten of our 24 centers have conservation trades. You know, the typical trade at Job Corps is carpentry, masonry, plumbing, painting, auto mechanics. We have ten centers where we have forestry-related trades, and we would like to expand the conservation trades to all of our centers.

Ms. FUDGE. Well, I just appreciate the fact that the program is going to continue. It is an outstanding program. It gets young people involved at a level that we could never do in any other way.

I thank you, Assistant Chief, and I yield back, Madam Chair.

The CHAIR. Thank you. I now recognize the gentleman from Mississippi, for 5 minutes.

Mr. KELLY. Thank you, Madam Chair.

I guess, what is the primary purpose of the National Forests?

Ms. LAGO. To have enduring natural resources for the nation.

Mr. KELLY. And specifically for recreation or for people—I know there is some money-making, but sometimes we forget the main thing has got to be the main thing, and it is to provide opportunities for people who may not have forests of their own to go enjoy that, the recreation, and also, there is some financial benefits to the United States as a whole. But it is to provide those opportunities, recreational and hunting and other things, for our people.

I just ask that you remember, the main thing has always got to be the main thing. And so, I ask that we do all that we can to keep that open and accessible to all those hunters and recreationers and campers and bikers and cross-country runners and trail hikers, that we do everything we can. Because that is the purpose of these National Forests, what it was originally, is to keep that open.

That being said, the House farm bill last time contained several categorical exclusions that would have streamlined NEPA for reconstructing or rehabilitating National Forest infrastructure, from

roads to dams and bridges, even bathroom and shower facilities at recreational sites. How would these CEs have been helpful to saving time and money, while addressing the backlog of deferred maintenance programs?

Ms. LAGO. Yes, sir. Thank you, Congressman.

The CEs that did not get included in the farm bill are very similar to the CEs we have just proposed in our rulemaking for NEPA for infrastructure for roads, bridges, and facilities. And we have existing CEs for routine maintenance. But, most of our facilities need something beyond routine maintenance, major reconstruction, decommissioning, and so, these CEs in the footprint of an existing structure allow us to be consistent with state law, Federal law, documenting a decision, do that work without going through a longer environmental analysis.

Mr. KELLY. And I just want you to understand, this has major impacts. I received several calls last year when we closed some National Forest roads, trails—that cars could go on—to my squirrel hunters and folks who use those National Forests to do that. There are significant impacts that maybe you guys don't always see, but I can assure you, when you start getting calls at the Congressional office because my squirrel hunters can't get to where they want to go.

What have we done to do public-private partnerships? Are you forbidden to do that? You know, because a lot of these folks would go on and improve those trails, which would also make them accessible to fight fires. Or are we co-oping with 70 percent of the engineers in the entire United States Army or in the Guard and Reserves? Camp Shelby is a National Forest which you have engineers, and they just did a new running trail down there in the old rail bed system. What opportunities do we use to use those to help us with the maintenance under the supervision of the Forest Service?

Ms. LAGO. Yes, sir. Thank you.

In a minute and 47 seconds, I won't be able to tell you all the partnerships that we have, but for example, we have partnerships with user groups—and I mentioned before Student Conservation Association, Ducks Unlimited. We also have partnerships with counties in particular that help us maintain roads. The Army National Guard has an authority—because they are largely engineers—they can do major construction, reconstruction, demolition work on our sites and our facilities.

The pathway to those things is the instrument that documents the agreement and what each side needs to do. We can be bureaucratic about that. We need to instill all of our workforce with the curiosity and the innovation to use those partnerships.

Mr. KELLY. What can we in Congress and on this Committee do to make that process easier?

Ms. LAGO. Sir, the attention in this hearing is a tremendous, tremendous value. I will confer with my staff about what is limiting in those partnerships and be happy to visit with your staff.

Mr. KELLY. Please let me know. As an Army engineer who still serves, I am interested in whatever we can do to make this easier for you all so that we can serve the main thing, the public that we are trying to give opportunities, offer recreation to.

And with that, I yield back, Madam Chair.

The CHAIR. Thank you. I now recognize the gentlewoman from Maine, for 5 minutes.

Ms. PINGREE. Thank you very much, Madam Chair, and thank you to the Chair and Ranking Member for holding this hearing, and to Associate Chief Lago, thank you very much for being here today and for your long career and service in the Forest Service. That is so important to all of us.

I am also on the House Appropriations Committee, the Interior Subcommittee, so we had a very interesting and instructive hearing earlier this year with Chief Christiansen. We appreciated that very much, and also have spent a lot of time trying to understand the funding of the Forest Service and the unique challenges you have been dealing with because of the wildfires and the challenges out West.

I am going to take a little bit different tact because I am a Representative from Maine, and in Maine, we know the importance of our forests. Eighty-six percent of Maine is forested land. Only six percent of that is public, so very different from the issues we deal with in the West. I think that is the highest percentage of any state in the nation. We have almost 17 million acres of forests, 16 million of which are privately-owned, and that supports about 30,000 good paying jobs.

One imminent concern that we feel our forests can help us with is the issue of climate change, but it also presents a challenge. Forests are facing rising temperatures, increased and prolonged drought, extreme weather events, invasive species, all contributing in many ways to widespread declines in the forest health.

But on the other hand, forests can be a positive force for change in the climate debate because of their role as carbon sinks. Just last week, there was an article in the *Portland Press Herald* in Maine that highlights the carbon store capacity of our Maine forests, and without objection, Madam Chair, I would like to submit that for the record.

The CHAIR. Without objection.

[The article referred to is located on p. 68.]

Ms. PINGREE. Thank you.

By promoting the value of working forests in the United States and recognizing the continual cycle of growth, harvesting, and replanting, our working forests provide a carbon solution.

Can you tell me a little bit about some of the efforts by the Forest Service that promote healthy working forests, and the carbon benefits associated with growing trees and the wood products they produce?

Ms. LAGO. Yes, Congresswoman, thank you.

We have a branch of the Forest Service called State and Private Forestry. We have authorities under State and Private Forestry that enable us—and first of all, recognizes there is 800 million acres of forest and land in this country owned by states and private entities, and it is just as important for conservation on those lands as on Federal lands. Our State and Private Forestry authorities allow us to work with State Foresters, private land owners, industrial corporations on conservation efforts.

Just this morning, talking about innovation and partnerships, one of my colleagues sent me an announcement from the National Forest Foundation, U.S. Endowment for Forests and Communities, and the Forest Service Partnership Office, announcing grants for public-private partnerships for forest stewardship and forest conservation. There is a lot of growing interest in the importance and the benefits to all of us from a health standpoint, from a climate change standpoint of keeping forests healthy.

Finally, in the Southeast and in the Northeast, we have programs called Keeping Forests Forests. They are big partnerships between us, state forests, and industrial land owners.

Ms. PINGREE. Just to tack on one of the earlier questions, I know the Forest Service is trying to streamline the NEPA review to make it easier for people to manage forests without significant environmental review. But what will you do if those management practices aren't actually storing carbon? Are they considering carbon sequestration in their efforts to streamline NEPA reviews, or is that not part of the consideration?

Ms. LAGO. No, ma'am, I don't see carbon sequestration as a calculus in those environmental reviews.

Ms. PINGREE. Okay. Well, I will follow up on that later.

One other quick thing. I am very familiar with the USDA's regional climate hubs and have asked other USDA agencies about their hubs in previous hearings. Based on budget documents that I have received from USDA, I understand the Forest Service spent $3.3 million on the climate hubs in 2016, which I think is great, but the 2019 estimate is $400,000. Given the challenges that we are dealing with, why is there such a big drop, and do you see those as a valuable part of what you are doing?

Ms. LAGO. Yes. Our investment and our continued commitment to climate hubs is significant. I don't have the dollar values at hand. I can research that with staff and get back to you or submit it for the record.

Ms. PINGREE. Great. Well, I do have great concerns about that number going down, and I appreciate your talking about the value of them.

And I am basically out of time, so again, thank you very much for your answers to the questions.

Ms. LAGO. Thank you.

The CHAIR. I want to recognize the Chair of the full Committee has joined us. Thank you for being here, Chairman Peterson, and I now recognize the gentleman from Georgia, for 5 minutes.

Mr. ALLEN. Thank you, Madam Chair, and thank you for being with us today.

In your written testimony, you mentioned that perhaps most critically, forest infrastructure provides fire protection for communities, especially by providing access to forest lands and roads for firefighters and emergency responders during rescue operations.

Due to the deferred maintenance backlog, how many miles of Forest Service system roads have been decommissioned over the past 10 years?

Ms. LAGO. I don't have 10 year figures. On an average basis, I think we decommission somewhere between 300 and 400 miles of road a year. It is not strictly related to deferred maintenance.

There might be restoration management objective tied, but in any event, I will get you 10 year figures.

Mr. ALLEN. Okay. All right, and during wildfire suppression, what percentage of decommissioned roads from within the fire perimeter are reopened and used for suppression activities? Do you have any idea?

Ms. LAGO. I don't know on a percentage basis.

Mr. ALLEN. Okay.

Ms. LAGO. I know we do do that. The fire line officer has the call on it.

Mr. ALLEN. Right, okay.

And then to that, can you further elaborate on the potential threat the deferred maintenance poses on being able to respond to wildfires, and as a result, additional damage to forest infrastructure?

Ms. LAGO. I can't quantitatively summarize it, but the deferred maintenance accumulates not just on roads, but also our fire guard stations, our air tanker bases, our bunkhouses where our firefighters are housed over the summer. So, the accumulated effect of that is our capacity is diminished where it wouldn't otherwise be.

Mr. ALLEN. And why is your capacity diminished? I mean, why would you do that?

Ms. LAGO. Well, we are not able to house people in bunkhouses because of the deteriorating condition.

Mr. ALLEN. I got you.

Well, then that gets to my next question. The U.S. Forest Service recently completed its comprehensive Capital Improvement Plan. Can you further detail how you plan to implement this strategy, going forward, as far as dealing with these issues?

Ms. LAGO. Yes, sir. Thank you.

Our plan has been released in the last couple of weeks. What it primarily does is identifies criteria for submitting projects for the national prioritization, and those criteria include access to active forest management, access to recreation facilities, access for fire operations, research and development, and revenue generating destinations. Those criteria are applied to the submitted project. It runs through a model. The model prioritizes projects, and so we have funding set aside and cut off the funding at the level that——

Mr. ALLEN. Outside of that, what is your biggest challenge?

Ms. LAGO. The level of funding.

Mr. ALLEN. The level of funding?

Ms. LAGO. Yes, sir.

Mr. ALLEN. You are looking at Members of this Committee who are Members of the United States Congress, and you need more funding?

Ms. LAGO. That is correct.

Mr. ALLEN. Okay. All right. Thank you, and I yield back.

The CHAIR. Thank you. I now recognize the gentleman from Arizona.

Mr. O'HALLERAN. Thank you, Madam Chair.

My district contains all or parts of six National Forests, and the Grand Canyon, and 22 other National Parks and monuments. I fully understand the conditions that you are under, because I live in Forest Service country. I also—my house is located—I take For-

est Service roads back to the house. That road hasn't been touched by a blade in about 20 years, and we even offered at one time to pay for part of it—well, half of it, and they still didn't—because they only have one grader for the entire Coconino National Forest. And that grader has to be borrowed by the Kaibab sometimes in order to get some roads done over there. And so, this whole concept of—how many personnel has the Forest Service lost or percentage in the last decade because of funding?

Ms. LAGO. I have heard the figure ⅓, 33 percent in non-fire professions. I would have to double check is that the last 10 years or some other time period, but that is the figure that I am familiar with.

Mr. O'HALLERAN. And how much more personnel are you going to be able to hire now that you have been able to get the fire funding off your books?

Ms. LAGO. That is a good question. It is not easy to answer.

In my own career, we have changed significantly from using Forest Service employees and equipment doing projects, road projects, for example, to funding partners or counties or contract workers. So, the increase in funding may not necessarily turn around more, let's say, road crews. What we do need is senior experienced engineers and specialists who can plan and design the work, and then do contract oversight.

Mr. O'HALLERAN. Well, let's put it another way. The fire funding has been taken out. How much has been restored to your budget in order to meet your other obligations and needs?

Ms. LAGO. Okay, I can do that one.

It goes into effect in 2020, and if we had to request the 10 year average for fire suppression, it would—which we don't, because the fire funding fix froze it at 2015 level, we would have to increase the request for fire suppression by $270 million.

What that means is we get to add $270 million back to programs, as long as our cap stays the same.

Mr. O'HALLERAN. Now, it is also, at least out in the West and in my district, a lot of the forests were put in place because of watershed protection. What impact has the lack of funding had on the ability of us to protect our watersheds, our wildlife that the hunters love, and our fish that they—and the streams that impact the quality of our tourists and our recreational activities in the forest?

Ms. LAGO. Yes, sir. The two most important things that affect water quality and water coming off National Forests is healthy forest condition and maintaining the road system.

A former long-time Member of the House, Norm Dicks, used to say, "You don't fix the roads, you're going to drink the roads." Our inability to maintain the road system contributes to degraded water. Overcrowded, over-dense forests that stagnate, lead to insect infestation, wildfire, that contributes to poor water quality. We need to take care of those two things.

Mr. O'HALLERAN. Well, I want to thank the Forest Service for helping start the 4FRI projects in Arizona. It has been very important. We are on another step now, and hopefully we will move forward again.

But the management process that you just talked about is critical to watershed protection and wildlife and the whole ecosystem

that is there. And I just look at Arizona as an example. We have millions and millions of acres that are not managed or haven't been able to be managed, I should say, that are just going up in fire all the time, and that is throughout the West. I would kind of like to know the plan of attack, other than a 4FRI for the other National Forests.

Ms. LAGO. Yes, sir.

You might recall, we announced an initiative earlier this year that we called Shared Stewardship, and we have ten states now under an agreement where we are partnering with states to agree on the areas of highest priority treatment, and then we are working on those areas together. And I think that is a commitment that is going to build both support for the work that we need to do, and additional capacity for doing it.

Mr. O'HALLERAN. Thank you, and I yield back.

The CHAIR. Thank you. Before moving to recognize Members of the full Committee, I am going to recognize, for 5 minutes, the gentlewoman from Iowa, who stepped out. Excuse me. I apologize. I will now recognize, for 5 minutes, the gentleman from South Dakota, Mr. Johnson.

Mr. JOHNSON. Thank you very much, Madam Chair.

I know in your line of work you get a fair amount of criticism, but I just want to start by saying thank you on a personal basis, ma'am. The Black Hills National Forest is a ways, we have a very large Congressional district. I suppose I am probably 4 hours from the National Forest, but I can't tell you how many hundreds of memories my family has made in that great national asset that you, throughout your career, and your people have helped to maintain.

And it is wonderful. I mean, some of the most beautiful, quiet moments in our lives have been nestled among those Black Hills ponderosa pine. Some of our most active moments of our life have been in that forest. And so, thank you for what you are doing.

Of course, it is not just the Johnson family that enjoys that resource. Every year, there are millions of South Dakotans and folks from all over the world who recreate there. I get the sense that our deferred maintenance backlog is perhaps smaller there than in many of the forests we have discussed. Perhaps, because it is such an actively managed, well-maintained forest. We have some of the highest timber sales of National Forests in the country. And so, if you are willing to, ma'am, could you elaborate on the connection, if any, that exists between a well-maintained, actively managed forest and the impact that that can have on lower deferred maintenance?

Ms. LAGO. Yes, sir. Thank you for the opportunity, and thank you very much for the compliment. The Black Hills is a very special place, I agree.

All our forests are similar in the way that people love them and rely on them. And that said, they are still unique in their own way. And where a forest is well-maintained, able to reduce deferred maintenance, my guess is that is a forest with a lot of thriving partnerships. We don't have the same ability to partner everywhere. It depends on opportunity and economic capacity. But it also depends on commitment to partnering.

And so, I would put my finger on partnerships where the Black Hills are concerned.

Mr. JOHNSON. Well, I think that is exquisitely well said, and I do think thriving partnerships are a key part of that story of a lower deferred maintenance backlog, and higher use of the forest. Thank you for calling out the importance of having a USDA commitment to that, and to the extent that that commitment can even grow in the Black Hills National Forest and elsewhere, I would certainly love to see more efforts in that regard.

I hate to bring up such a terrible subject of the mountain pine beetle, because I know that little fellow has done a lot of damage in a lot of places. In the Black Hills, we had less damage from the pine beetle than was feared at the onset of this round of the epidemic, and frankly, less damage than many National Forests.

I have attributed that to a more actively managed forest. I want to give you an opportunity to correct my misconception, if I have one, and offer any other thoughts you have.

Ms. LAGO. Yes, sir.

Definitely, well-maintained forests are in a more vigorous condition, and a more vigorous condition allows forests to repel bark beetle attacks. It is a native pest. They have been around a long time. What has changed is the vitality of forests and their ability to just naturally withstand them.

I think definitely better maintained forests, active management such as what we have in the Black Hills, is key to preventing further spread by that insect.

Mr. JOHNSON. Well, Madam Chair, I would just close by trying to highlight some of these great phrases. This conversation has pulled out the *importance of active management, being well-maintained,* and *having thriving partnerships.* Those are wonderful phrases, Associate Chief. Thanks for the work you do, and thanks for your presence here today.

Ms. LAGO. Thank you, sir.

Mr. JOHNSON. And I yield back.

The CHAIR. I now recognize Mr. Thompson from Pennsylvania, for 5 minutes.

Mr. THOMPSON. Thank you, Madam Chair. Thanks for hosting this, and Ranking Member, for this hearing.

Assistant Chief, good to see you. Thank you for your service and your record of service to the nation through the Forest Service, I greatly appreciate it. Also, special thanks when you were testifying on the other side of the Capitol in the Senate Energy and Natural Resources Committee. You used Longhouse Drive in the Allegheny National Forest as an example of the threat of lack of maintenance and roadways deteriorating. And as you really nicely point out in your testimony, the users of that road contribute about $1.5 million a year to the local businesses, local economy. That just speaks to the importance—the economic importance of this.

You have talked a lot about partnership. I am going to start out by really—I think one of our best partners—and we have many great partners, obviously, with the Forest Service—but one of the best partners are those from the forest products industry, the timber industry, that bid on contracts, help us so that we can maintain a healthy forest. We make it so that they are the largest car-

bon sinks in the world. Also, as my friend across the aisle talked about making sure that those healthy forests are—making sure that we have a great filtration system for those watersheds that start in our National Forests.

And so, I am concerned right now. The first thing I have for you is not really looking for a response on, just a request to take back. And I am going to follow up in writing; but, the situation with the tariffs, and specifically the hardwoods industry, we have a lot of folks, good people that bid and obtain contracts. Specifically, I am going to speak about hardwoods, because I have the Allegheny National Forest. Unfortunately, with the trade wars that are going on, the bottom just completely dropped out of the price. They bid at a certain price. They are mandated contracted to pursue that, but they have lost their market for the time being.

I will say talking with them, they are all behind the President and they are supportive, and you know, they want to see fair and free trade, which is what the President wants.

But in the meantime, just two things that we could look at that and will be sent along in a written request. You know, any type of trade relief for hardwoods. They were not included in that package. And I get it. It is different for—it might be because a part of this is administered—that part of trade is administered through commerce. I don't know why. Trees are a crop. It is agriculture. But they need—we are hoping, actually, just to get resolution to trade agreements. But if this goes on for any amount of time, those hardwood folks need this. Because if we lose those industries, then we will not have that valuable partner to keep our forests healthy. And in the long run, that would be a deterioration of tremendous proportions of our National Forests.

The other thing is a request to take back is we need extension on current contracts, and I would say up to a period of 2 years at this point, because there is not a business plan given what the contracts are at and where the pricing has fallen. That may be a little more difficult, I understand, but those are just—not really looking for a response on that. If you could take that back and I will be following back up with certainly the Secretary and the President on those.

The most pressing maintenance issue that we currently have in the Allegheny National Forest is the Mayburg Bridge located in Forest County. There are 128 permanent and seasonal dwellings in Mayburg and the bridge, which is owned by the Forest Service, and it is the only really practical year-round route in and out of that village. Thankfully, we don't have any kids right now living in that area, so there are no school buses, because that bridge would not handle a school bus. And I would be concerned if there is a fire, because an emergency vehicle is not going to be handled as well.

Unfortunately, that bridge has fallen into disrepair and is in need of critical repairs. The Forest Service has indicated that the funding will be coming for the bridge, but there is still a lot of uncertainty about the future.

Now, currently maintenance for infrastructure like this must be a priority, yet it is not being completed. So, it is a simple question. How is the Forest Service prioritizing this kind of maintenance, es-

pecially when it comes down to access for local residents and public safety?

Ms. LAGO. Thank you, Congressman.

I thought we had the funding for that bridge and completed the environmental analysis, and I thought it was moving forward. I will double check on that.

Funding for maintenance is part of regional allocations, and the priorities for maintenance is decided at the local level. When it exceeds routine maintenance and becomes a capital investment, then it is going to be subject to that capital investment strategy and those criteria for prioritization that I mentioned.

Mr. THOMPSON. I appreciate it. I also appreciate your engagement with the community, because it was apparent in the beginning—I am not sure the Forest Service or whoever was involved even locally recognized that there was a permanent village, basically. People live there year-round, and quite frankly, it was the only way in and out. But, because of how you all did conduct yourselves, engaging in the community, that all came to light, and I really appreciate it. And I appreciate the support with the Mayburg bridge.

Ms. LAGO. Thank you.

The CHAIR. I now recognize the gentlewoman from Washington, for 5 minutes.

Ms. SCHRIER. Thank you, Madam Chair, and Ms. Lago, thank you for coming today and joining us. It is great to have a witness with experience in Washington forests, and I would love to host you back at home, along with the Forest Service Chief, in the district—which by the way, includes Mount Rainier, the Mount Baker-Snoqualmie National Forest——

Ms. LAGO. Beautiful area.

Ms. SCHRIER. To raise some of these various issues on deferred maintenance, and in addition to the deferred maintenance projects the Forest Service Legacy Roads and Trails Remediation Program is a critical program that leverages dollars outside of the Forest Service to address water quality issues, and I have an appropriations letter for the record that I would like to submit, outlining the importance of that program, and the need for it to have a dedicated line item.

The CHAIR. So noted.

[The letter referred to is located on p. 72.]

Ms. SCHRIER. The program was created in 2008, because the general Forest Service road maintenance budget was unable to address the sheer volume of blocked culverts, landslides, and washouts, which were impacting water quality and access for threatened and endangered species. And in Washington State and other parts of the country, the program is critical to address water quality issues and habitat, particularly for Chinook salmon, bull trout, and steelhead. These fish are an important part of the Northwest culture, heritage, ecosystem, and they have suffered heavily, as you know. A recent *New York Times* report stated that the Chinook salmon may be extinct in 20 years. I will also add that Chinook salmon are the key food source for the endangered southern resident Orcas, and old weather-damaged roads and broken culverts are key culprits in this demise.

Washington State has invested millions, multiple millions of dollars to address downstream barriers and culverts, including dams and whatnot, while the Chinook salmon spawning grounds are located upstream in the National Forest headwaters.

And on page 4 of your testimony, you outline the criteria for road projects, listing priorities. And unfortunately, the projects that improve wildlife and aquatic passage are last. And so, I was just wondering if you could expand on this and help me understand how projects affecting water quality can be addressed in a timely manner when the Forest Service is facing a $5+ billion backlog?

Ms. LAGO. Yes, thank you, Congresswoman.

When I was still in the Pacific Northwest, we hosted a chiefs review, and the theme of the entire review was Save our Salmon. I really understand the integral role of salmon in the economy and lifestyle, and that ecosystem.

In addition to the criteria, which includes benefits—the ability to be an economic driver in water and recreation, there is an intangible benefit criteria. You know, salmon is a lot more—and water quality is a lot more than an intangible benefit certainly, and local managers—also there is a layer where they put a personal priority on their projects, based on their knowledge of local issues and what is important to the local economy, people, community.

So, there is more than just the criteria that I named in my testimony. It is fair to really think about how we are valuing water, the economic value of water, as well as the fact that we all rely on it. I will go back and discuss that.

Ms. SCHRIER. Thank you, and the way I interpreted *economic* was really related to timber; but, if you think about the recreational economy and salmon and habitat and our Tribes, that those do weave in economics.

Yes. I appreciate your going back. I think that is it, and I would just like to reiterate my invitation, and thank you for paying attention to this issue.

I yield back the rest of my time.

The CHAIR. Thank you. I now recognize the gentleman from California, for 5 minutes, Mr. Panetta.

Mr. PANETTA. Thank you, Madam Chair. I appreciate you allowing me to sit in on this very important hearing, especially when it comes to my district on the Central Coast.

Ranking Member LaMalfa, good morning, and good morning, Chief. Thank you for being here. I appreciate your testimony and appreciate your service.

I represent the Central Coast of California, Big Sur Los Padres National Forest, and in 2016, I am sure you know well, we had a pretty extensive fire there called the Soberanes fire, which encompassed about 206[2] miles being burned, and the cost at the time was the most expensive in our nation's history at the time, until recently, a cost of about $260 million.

The reason that fire started was because of an illegal campfire, unfortunately, and we are seeing a lot of that, especially in Los Padres Forest, in the sense that you have a number of people out there, despite the numerous signs everywhere, saying don't do something as stupid as that. But people continue to conduct themselves in that manner, unfortunately. Obviously, it would be nice

to have staff there, Forest Service officers there, who actually are on the grounds and enforcing those types of laws. But unfortunately, we had to resort to certain volunteers. I say unfortunately because that shouldn't be their job. They are not armed. They don't have the right law and the legal background to enforce those types of laws. But that is what we have had to resort to in order to ensure that people are out there, making sure that people don't do these acts that could threaten—the forest could threaten people.

Obviously staffing is a big issue, and you know that. And so, I was wondering if you could elaborate on any sort of plans that you have to address the chronic staffing issues, obviously not just in Los Padres National Forest, but in other National Forests across our country?

Ms. LAGO. Yes, sir. Thank you.

As I mentioned, and I am not sure if you were in the room at the time.

Mr. PANETTA. And I apologize if I was not. I just came in late. Thank you.

Ms. LAGO. No problem. The result of the fire funding fix is we have room, if our cap stays the same, to request funding for other programs that would have had to go to the 10 year average for fire suppression. And so, we are deeply aware of the shortages in many programs. Law enforcement and fire prevention are two of the areas forest protection officers—which is a designation for people in all kinds of resources—but in addition to their resource job, they patrol. So, having more people on the ground is something that we are acutely aware of.

We did get direct hire authority recently for firefighting jobs, which allows us to more efficiently hire people to be on the ground. It will last for 1 year while OPM sees how we use it. There is not unlimited money. We all know that. Being more efficient with the money that we have and prioritizing these on-the-ground activities is how we can address those issues.

Mr. PANETTA. Got you. Thank you. Thank you. I appreciate that.

Now, obviously, and I know you have talked about deferred maintenance, and in Los Padres, our deferred maintenance exceeds $24 million.

First of all, my question is where does that lie relative to other National Forests and deferred maintenance?

Ms. LAGO. I believe I submitted for the record a deferred maintenance breakdown by state. I don't have one by forest, but I am sure it exists and I would be happy to supply it.

Mr. PANETTA. Understood.

Obviously, as we approach the start of the new fiscal year, as the wildfire fix funding becomes available, can you give me a little bit of light on the priorities, little bit of light on your priorities, specifically whether you will be prioritizing deferred maintenance backlog? I would like to hear about Los Padres, but I would be more than willing to hear about California.

Ms. LAGO. Okay, thank you.

A lot of people will eventually weigh in on what the priorities are.

Mr. PANETTA. Sure.

Ms. LAGO. We have had a continuing emphasis on active management and reducing fuels. I don't see that changing. This hearing helps us highlight the issue of maintenance and deferred maintenance for our facilities. It is felt throughout the Forest Service and throughout the communities that we serve. I am happy to work with you and your staff and this Committee's staff on how to prioritize, going forward.

Mr. PANETTA. Outstanding. I look forward to that.

I yield back my time. Thank you, Madam Chair.

The CHAIR. Thank you. With the first round of questions completed and without objection, we will begin a second round of questions. Members will be recognized for 3 minutes in order of seniority.

All right. I will begin by recognizing myself for 3 minutes.

Associate Chief Lago, thank you for all of your answers today, and I would also offer for the hearing record a copy of the Department of Commerce's news release on outdoor recreation economy.

[The news release referred to is located on p. 29.]

The CHAIR. The report released just last week shows that the outdoor recreation economy accounted for 2.2 percent of GDP and supported 5.2 million jobs in 2017. This not only includes conventional activities like camping, hiking, boating, but also value-added activities such as construction and travel. For the first time, the report included information on the recreation industry's contributions by state.

Is data from reports like this considered as the Forest Service prioritizes maintenance, and does the Forest Service use data like this to leverage assistance from states and other partners?

Ms. LAGO. Yes, thank you, Madam Chair.

First of all with regard to that report, it is interesting that the statistic of 2.2 percent might sound small, but it is interesting to note that it is growing almost 50 percent faster than general GDP. And I can tell you from the communities that I have lived in, the ones that I hear from that depend on a recreation economy, it is far more impactful to their economies than 2.2 percent.

We recognize that 15 states across the country now have recreation officers, so showing that states recognize the importance of this recreation economy. It is not right for every state, but definitely the recognition of the Commerce Department, our own within USDA, not just our agency, but Rural Development has an expanding recreation economy interest. So, it helps us bring partners to the table. It helps us bring investors to the table.

So, to answer your question in a word, *yes.*

The CHAIR. Thank you so much, and coming from the Commonwealth of Virginia where we have seen recreation continue to be a strong use of our natural resources and a major economic driver here, I thank you for your comments.

I now recognize Mr. LaMalfa, for 3 minutes.

Mr. LAMALFA. Thank you again. I appreciate, again, Assistant Chief Lago, for your being here.

I wanted to delve a little bit more into, again with the road maintenance and the issues there where access has been more difficult over the years. We have wrestled in northern California with what is being put in travel management plans, and it seems like

it just means less and less access. We are finding more and more closed gates and less ability for people during the snow season for snowmobiling or off-road activity, hunting, anybody to take vehicles in, or without vehicles. We are finding more and more closed gates.

Does this tie in partly towards a changing view of the multi-purpose, multi-use forest policy, or is it more about the backlog we have of maintenance? You are talking about bridges being removed and no longer counting them as an asset, but you know, a great amount of frustration by my constituents, and neighboring districts as well, is that whether you call it the travel management plan or the maintenance backlog, it is just meaning less access.

The travel management plan efforts, are they moving in that direction because of the lack of maintenance, or is it some other philosophical shift?

Ms. LAGO. Thank you, Ranking Member.

We are not walking away from the multiple-use sustained yield mandate from Congress. It is more the observation that we want people to have access to their public lands. They don't need public lands if they don't have access to them. But we need to maintain the resource in a healthy condition, but we also need to maintain those roads in a safe condition for people to use them, roads and trails.

Our effort at travel management is aimed at looking at the resource from the standpoint of what can we safely provide?

Mr. LAMALFA. Okay. Well, even as Mr. Panetta mentioned here, he had a six-digit fire in number of acres in his district. We have multiple six-digit fires in the more northern part and other western states, and an important component of being able to do the pre-fire work is this access, and as well when it does come to fire suppression time, having these roads available and intact bridges and all that, and not closed gates and all that.

Can you please comment on the fire aspect of that and how important it is we step back up on this?

Ms. LAGO. Well, yes, sir. Roads are an essential way that we stop fires before they get large, get people out of harm's way when there are fires, and we absolutely need a safe, accessible road system to be able to fulfill that part of our mission.

Mr. LAMALFA. The multi-use? Okay, thank you. I yield back.

The CHAIR. I now recognize Mr. Thompson, for 3 minutes.

Mr. THOMPSON. Madam Chair, thank you.

Chief, I just want to check in. I know in the Forest Service we use a concessionaire style approach, and concessionaires play a very important role, obviously. They help us where we need, it helps supplement the staffing and in keeping areas open and access. My understanding, it's the Granger-Thye Act which basically defines a *landlord-tenant relationship* where the Forest Service is the landlord responsible for all behind-the-wall fixes, including the maintenance, capital improvements. And the tenant, the concessionaire, just keeps everything clean and operating.

My question for you is would you like to have the authority actually that has been granted to the Department of Defense and to the Army Corps of Engineers which allows, basically, where 30 year leases are an option—not mandated, but an option, and in that 30 years, that longevity, what would be that the concessionaires are

able to take on the responsibility for some of the capital improvements.

Today, that doesn't occur in the Forest Service with a concessionaire system. I don't know the timeline on when the Department of Defense and the Army Corps made that transition. Just a simple question. Was that something Forest Service would want to consider getting the authority to do? Obviously, we would have to provide that through the bill or whatever.

Ms. LAGO. Yes, sir. I am not sure what the Army Corps of Engineers authority is, but in fact, the Forest Service did get leasing authority in the 2018 Farm Bill. We are developing rules and directives, but it would enable us to do those kind of long-term leases. I am not sure of the time period, but also to enable the leaseholder to do improvements.

I think the Park Service has some kind of authority like that, too. I can check on that and get back to you.

Mr. THOMPSON. I appreciate that. It just seems like it is working well with the Army Corps. I have seen some of the projects, obviously, in my Congressional district from time to time with what these folks do, and so, it would be great to be able—I am glad to hear that we provided at least part of that authority.

Ms. LAGO. Yes, sir.

Mr. THOMPSON. If we haven't done enough, please let us know. We want you to have the authority to be successful.

Ms. LAGO. Thank you.

Mr. THOMPSON. Thank you, Madam Chair. I yield back.

The CHAIR. And I now recognize Ranking Member LaMalfa for one more 3 minute question.

Mr. LAMALFA. Just one more. Thank you so much.

Again, when we were talking about the backlog, when we are seeing the Forest Service absorbing more lands through donations from maybe NGOs or other instances, or the LWCF has also introduced more land back into Forest Service control. How is that contributing to the backlog and your ability to keep up, and as well as updating this $5.2 billion backlog figure?

Ms. LAGO. Well, that is a great question.

I am not sure what the value or the assets that a lot of the lands that we acquire through Land and Water Conservation Fund. I am familiar with areas that we prioritize because they have important wildlife habitat value, water quality value, that kind of thing, which leads me to think they don't have a lot of infrastructure on them. But you know, I don't know that conclusively and I would have to do some checking.

Mr. LAMALFA. I would be really interested in that, how much that is adding to the burden of an already difficult situation.

So, with that, I appreciate it, Madam Chair, and for your appearance today, Ms. Lago, and I will yield back.

The CHAIR. Thank you. I would like to thank Associate Chief Lago for her comments and for her time here today.

What we have heard today underscores the importance of the Forest Service's work, and the challenges it faces. I hope we all leave here with an appreciation for the role that well-maintained forest infrastructure can have significant impacts on people's lives, their work, and their play in and around National Forests, as well

as the communities and economies surrounding our National Forests.

We have also heard loud and clear that dozens of infrastructure projects are ready for implementation, but require the necessary funding, and carrying out these much-needed maintenance projects will support jobs in rural communities, as soon as the Forest Service receives the funding to complete them.

I hope that we all leave here with a better sense of what we can do in the Subcommittee to help the Forest Service carry out its mission, and again, I thank you, Ms. Lago, for your time today.

Before we adjourn, I invite the Ranking Member to make any closing remarks that he may have.

Without any, under the Rules of the Committee, the record of today's hearing will remain open for 10 calendar days to receive additional material and supplemental written responses from the witness to any question posed by a Member.

This hearing of the Subcommittee on Conservation and Forestry is adjourned.

[Whereupon, at 11:23 a.m., the Subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

SUBMITTED NEWS RELEASE BY HON. ABIGAIL DAVIS SPANBERGER, A REPRESENTATIVE IN CONGRESS FROM VIRGINIA

News Release

Embargoed Until Release At *8:30 A.M. EDT, Friday, September 20, 2019*

BEA 19–45

https://www.bea.gov/news/2019/outdoor-recreation-satellite-account-us-and-prototype-states-2017

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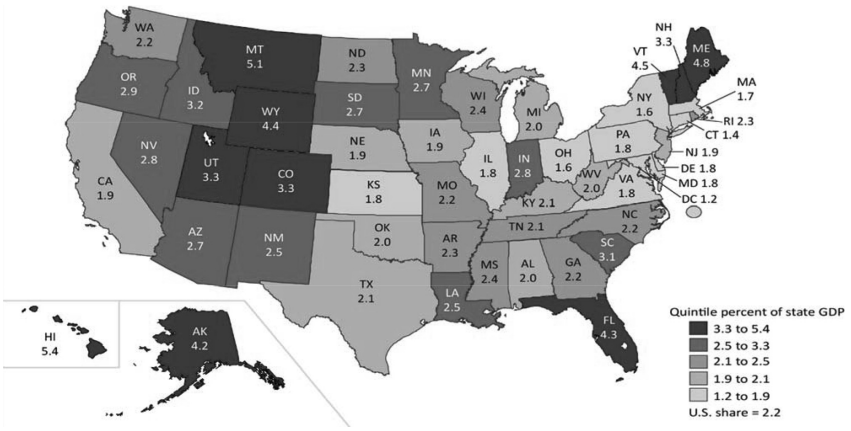
Outdoor Recreation Satellite Account, U.S. and Prototype for States, 2017

New prototype statistics show state value added, compensation, and employment

The U.S. outdoor recreation economy accounted for 2.2 percent ($427.2 billion) of current-dollar gross domestic product (GDP) in 2017 (national *table 2*) according to statistics released today by the Bureau of Economic Analysis. The Outdoor Recreation Satellite Account (ORSA) also shows that inflation-adjusted (real) GDP for the outdoor recreation economy grew by 3.9 percent in 2017, faster than the 2.4 percent growth of the overall U.S. economy. Real gross output, compensation, and employment all grew faster in outdoor recreation than for the economy as a whole.

With this release, BEA introduces prototype statistics on outdoor recreation for all 50 states and the District of Columbia. These new statistics show that the relative size of the outdoor recreation economy ranged from 5.4 percent of GDP for Hawaii to 1.2 percent of GDP for the District of Columbia.

Outdoor Recreation Value-Added: Percent of State GDP, 2017



U.S. Bureau of Economic Analysis.

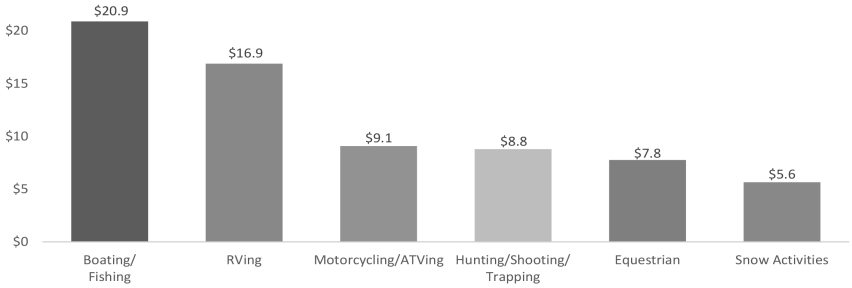
Outdoor Recreation by Activity

For the first time, ORSA includes information on the contribution of outdoor recreation activities to GDP. These data, referred to as value added by activity statistics, are available at both the national and state level.

Activities are grouped into three categories: conventional core activities (such as camping, hiking, boating, and hunting); other core activities (such as gardening and outdoor concerts); and supporting activities (such as construction, travel and tourism, local trips, and government expenditures).

Conventional outdoor recreation accounted for 30.6 percent of the outdoor recreation economy nationwide in 2017, other recreation accounted for 19.3 percent, and the remaining 50.1 percent was supporting activities (national *table 2*).

Nominal Value-Added for Largest Conventional Outdoor Recreation Activities, 2017 ($ Billions)



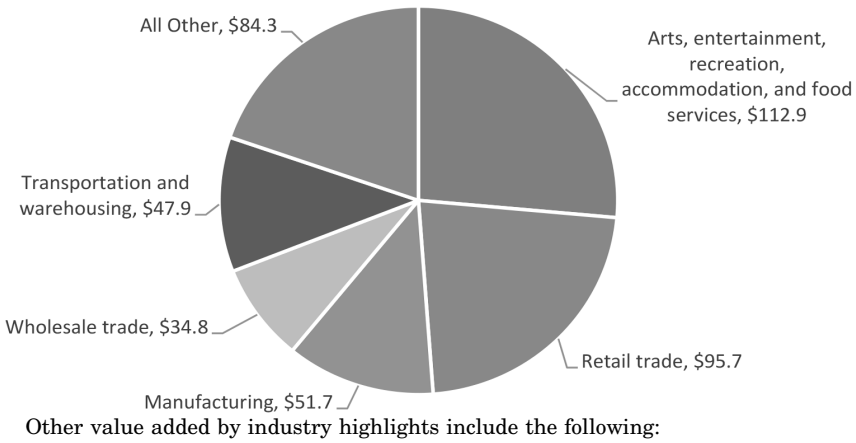
Other value added by activity highlights include the following:

- **Boating/fishing** was the largest conventional activity for the nation as a whole at $20.9 billion in current-dollar value added. At the state level, this was the largest conventional activity in 29 states and the District of Columbia, led by Florida ($2.7 billion) and California ($1.8 billion).
- **RVing** was the second-largest conventional activity nationally with $16.9 billion in current-dollar value added. It was also the largest conventional activity in nine states, led by Indiana ($2.9 billion) and Ohio ($599.5 million).
- **Snow activities** was the sixth-largest conventional activity at the national level with $5.6 billion in current-dollar value added. At the state level, snow activities was the largest conventional activity in Colorado ($1.5 billion), Utah ($549.2 million), and Vermont ($175.9 million).
- **Guided tours/outfitted travel,** part of the other core activities category, accounted for $12.9 billion and was also one of the fastest growing activities in 2017, growing 11.4 percent.

Outdoor Recreation by Industry

Today's data also show the role that different industries play in the outdoor recreation economy, including their impact on value added, gross output, employment, and compensation. The **arts, entertainment, recreation, accommodation, and food services** sector was the largest contributor to the U.S. outdoor recreation economy in 2017, accounting for $112.9 billion (national *table 10*). At the state level, this same sector was the largest contributor to outdoor recreation for 26 states and the District of Columbia.

Industry Composition of Outdoor Recreation Nominal Value-Added, 2017 ($ Billions)



Other value added by industry highlights include the following:

- **Retail trade** had the second largest sector contribution to outdoor recreation nationally, accounting for $95.7 billion of current-dollar value added. Retail

trade was the largest contributor to outdoor recreation value added in 17 states, including Texas ($8.5 billion), Washington ($2.8 billion), and Ohio ($2.7 billion).

- **Manufacturing** contributed $51.7 billion nationally to the outdoor recreation economy in 2017 and was the third largest outdoor recreation sector. At the state level, manufacturing was the largest sector for outdoor recreation value added in Indiana ($4.7 billion), Wisconsin ($2.0 billion), Louisiana ($1.6 billion), and Kansas ($684.2 million).

Seeking Public Comment

The public is invited to submit comments on the prototype state statistics by emailing *OutdoorRecreation@bea.gov*. Comments are due by March 31, 2020. The feedback will be used to help finalize data sources and methodology for the state outdoor recreation statistics. Official state statistics are scheduled for release in the fall of 2020.

Preparing State-Level Outdoor Recreation Satellite Account Estimates

State Outdoor Recreation Satellite Account (ORSA) statistics isolate the economic activity associated with outdoor recreation spending and production in a state's economy. The state-level prototype statistics are an extension of the national industry ORSA statistics. The concepts, definitions, and methodology used to produce state-level prototype statistics are consistent with the national industry concepts, definitions, and methodology. The *U.S. ORSA methodology paper* (*https://www.bea.gov/resources/methodologies/outdoor-recreation-satellite-account-methodology*) provides more information about these concepts, definitions, and methodology.

Geography of outdoor recreation

Outdoor recreation is measured by place of production, not residence of consumer. The value of manufactured goods, such as boats, is assigned to the state where they are produced, even if the goods are not ultimately used there. Services, such as sailing lessons, are assigned to the location where they are consumed. The value of services provided by retailers, such as boat dealers, is also assigned to the location of sale. The services of retailers (known as trade margins) are not measured by sales but are most akin to sales less the cost of goods sold. The production of imported goods is excluded from ORSA, but the value of the services of retailers selling the imported goods is included.

Outdoor recreation spending and production are allocated to states by applying state-level data to detailed, underlying national values. The underlying estimates are distributed to states before aggregation to publication levels to provide the most accurate state values possible. Prototype statistics are primarily based on time-series data generated from the Economic Census and Quarterly Census of Employment and Wages (QCEW). Additional government and nongovernment data sources are used to supplement the census data and to refine and evaluate the statistics.

Regional tables

Activity tables show states' total outdoor recreation value-added contributions to an activity, regardless of the contributing industry. For example, boating value added by state represents all contributions by in-state boat manufacturers, marinas, repair shops, *etc.,* to the boating activity.

Industry tables show states' total outdoor recreation-related value added, employment, and compensation by industry, regardless of the outdoor activities the industries support. Outdoor recreation-related activity is included in the states' industry totals even if the final consumption occurs outside the state.

A state's total value added across all outdoor recreation *activities* will equal the state's total value added across all outdoor recreation *industries.*

Definitions

ORSA employment consists of all full-time, part-time, and temporary wage-and-salary jobs where the workers are engaged in the production of outdoor recreation goods and services. Self-employed individuals are excluded from employment totals.

ORSA compensation consists of the pay to employees (including wages and salaries, and benefits such as employer contributions to pension and health funds) in return for their outdoor recreation-related work during a given year. Pay to the self-employed is excluded from compensation but included in value added.

ORSA value-added (also referred to as GDP) consists of the value of outdoor recreation goods and services produced less the value of expenses incurred for their production. The activity of self-employed individuals is included in value added.

Additional Information

Resources

Additional resources available at *www.bea.gov:*

- Find the latest information on the Outdoor Recreation Satellite Account at BEA's *outdoor recreation page* (*https://www.bea.gov/data/special-topics/outdoor-recreation*).
- Stay informed about BEA developments by reading the BEA *blog* (*https://www.bea.gov/news/blog*), signing up for BEA's *email subscription service* (*https://www.bea.gov/_subscribe/*), or following BEA on Twitter *@BEA_News* (*https://twitter.com/bea_news*).
- Access BEA data by registering for BEA's Data *application programming interface* (*https://apps.bea.gov/API/signup/index.cfm*) (API).
- For more on BEA's statistics, see our monthly online journal, the *Survey of Current Business* (*https://apps.bea.gov/scb/index.htm*).
- BEA's *news release schedule* (*https://www.bea.gov/news/schedule*).
- *NIPA Handbook* (*https://www.bea.gov/resources/methodologies/nipa-handbook*): *Concepts and Methods of the U.S. National Income and Product Accounts.*
- Complete information on the sources and methods for the estimation of BEA's *State Personal Income and Employment* (*https://www.bea.gov/resources/methodologies/spi2017*).

Definitions

Gross domestic product (GDP) or value-added is the value of the goods and services produced by the nation's economy less the value of the goods and services used up in production. GDP is also equal to the sum of personal consumption expenditures, gross private domestic investment, net exports of goods and services, and government consumption expenditures and gross investment.

Gross output (GO) is the value of the goods and services produced by the nation's economy. It is principally measured using industry sales or receipts, including sales to final users (GDP) and sales to other industries.

Current-dollar estimates are valued in the prices of the period when the transactions occurred—that is, at "market value." Also referred to as "nominal estimates" or as "current-price estimates."

Chained-dollar estimates are calculated by taking the current-dollar level of a series in the base period and multiplying it by the change in the chained-type quantity index number for the series since the base period. Chained-dollar estimates correctly show growth rates for a series but are not additive in periods other than the base period.

ORSA employment consists of all full-time, part-time, and temporary wage-and-salary jobs where the workers are engaged in the production of outdoor recreation goods and services. Self-employed individuals are excluded from employment totals.

ORSA compensation consists of the pay to employees (including wages and salaries, and benefits such as employer contributions to pension and health funds) in return for their outdoor recreation-related work during a given year. Pay to the self-employed is excluded from compensation but included in value added.

ORSA value-added (also referred to as GDP) consists of the value of outdoor recreation goods and services produced less the value of expenses incurred for their production. The activity of self-employed individuals is included in value added.

Statistical Conventions

Quarter-to-quarter percent changes are calculated from unrounded data and are annualized. Annualized growth rates show the rate of change that would have occurred had the pattern been repeated over four quarters (1 year). Annualized rates of change can be calculated as follows: (((level of later quarter/level of earlier quarter)^4) − 1)*100. Quarterly estimates are expressed at seasonally adjusted annual rates, unless otherwise specified. Quarter-to-quarter dollar changes are differences between published estimates.

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NATIONAL LEVEL NEWS RELEASE TABLES

Table 1. Real Outdoor Recreation Value-Added by Activity

[Millions of chained (2012) dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**360,509**	**361,153**	**363,128**	**370,446**	**371,789**	**386,107**
2	**Total Core Outdoor Recreation**	**181,182**	**182,453**	**185,380**	**186,452**	**187,001**	**196,628**
3	**Conventional Outdoor Recreation**	**111,349**	**112,623**	**113,991**	**116,012**	**116,392**	**122,221**
4	Bicycling	1,750	1,877	1,904	1,839	2,073	2,091
5	Boating/Fishing	17,436	17,165	17,235	17,629	17,897	18,733
6	Canoeing	76	73	76	78	80	83
7	Kayaking	326	323	315	327	347	363
8	Fishing (excludes Boating)	2,583	2,478	2,486	2,533	2,522	2,500
9	Sailing	1,042	1,039	1,095	1,105	1,145	1,192
10	Other Boating	13,408	13,254	13,267	13,589	13,805	14,590
11	Climbing/Hiking/Tent Camping	3,067	3,141	3,179	3,106	3,266	3,241
12	Equestrian	5,245	5,389	5,686	5,800	6,139	6,800
13	Hunting/Shooting/Trapping	6,514	7,288	6,821	7,393	6,938	7,900
14	Hunting/Trapping	3,457	3,763	3,474	3,872	3,388	3,811
15	Shooting (includes Archery)	3,057	3,526	3,349	3,517	3,563	4,107
16	Motorcycling/ATVing	8,144	8,177	8,384	8,474	8,255	8,315
17	Recreational Flying	1,166	1,111	1,186	1,208	1,247	1,258
18	RVing	12,654	13,048	13,146	13,314	13,485	14,797
19	Snow Activities	5,041	4,888	5,214	5,220	5,055	5,152
20	Skiing	1,565	1,541	1,675	1,689	1,646	1,725
21	Snowboarding	1,346	1,342	1,429	1,430	1,443	1,524
22	Other Snow Activities (includes Snowmobiling) [1]	2,130	2,005	2,111	2,102	1,966	1,903
23	Other Conventional Outdoor Recreation Activities	8,813	8,694	9,425	9,603	9,797	10,111
24	Other Conventional Air and Land Activities [2]	6,909	6,907	7,521	7,623	7,845	8,175
25	Other Conventional Water Activities [3]	1,904	1,787	1,908	1,980	1,959	1,952
26	Multi-use Apparel and Accessories (Conventional) [4]	41,519	41,842	41,851	42,451	42,255	43,722
27	**Other Outdoor Recreation**	**69,833**	**69,828**	**71,388**	**70,445**	**70,613**	**74,407**
28	Amusement Parks/Water Parks	8,918	8,087	7,916	7,940	8,033	8,639
29	Festivals/Sporting Events/Concerts	10,703	11,102	11,800	10,731	11,218	11,594
30	Field Sports	2,719	2,659	2,791	2,868	2,931	2,975
31	Game Areas (includes Golfing and Tennis)	16,996	17,168	16,982	16,550	16,882	17,831
32	Guided Tours/Outfitted Travel	12,054	11,904	12,069	11,156	10,139	11,136
33	Air and Land Guided Tours/Outfitted Travel	6,588	6,536	6,830	6,678	6,393	6,687
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	5,466	5,368	5,241	4,487	3,761	4,457
35	Productive Activities (includes Gardening)	6,680	6,928	7,795	8,300	8,564	8,882
36	Other Outdoor Recreation Activities [5]	8,249	8,208	8,511	9,304	9,312	9,621
37	Multi-use Apparel and Accessories (Other) [4]	3,513	3,803	3,599	3,805	3,779	3,904
38	**Supporting Outdoor Recreation**	**179,327**	**178,700**	**177,768**	**183,951**	**184,743**	**189,505**
39	Construction	5,392	5,187	5,217	5,497	5,688	5,809
40	Local Trips and Travel [6]	33,019	33,206	33,578	33,398	32,322	33,005
41	Trips and Travel [7]	122,373	121,888	120,768	126,700	127,733	131,103
42	Food and Beverages	21,802	17,871	18,218	18,783	18,817	19,074
43	Lodging	34,614	35,523	32,472	35,057	34,973	34,726
44	Shopping and Souvenirs	20,725	21,141	21,330	21,354	21,419	21,721
45	Transportation	45,231	47,379	48,823	51,551	52,584	55,730
46	Government Expenditures	18,543	18,424	18,222	18,351	18,912	19,493
47	Federal Government	2,751	2,960	2,743	2,677	2,776	2,746
48	State and Local Government	15,793	15,469	15,474	15,664	16,127	16,732

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 2. Outdoor Recreation Value-Added by Activity

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**360,509**	**369,280**	**378,654**	**400,205**	**407,362**	**427,189**
2	**Total Core Outdoor Recreation**	**181,182**	**186,700**	**191,226**	**198,881**	**202,513**	**213,246**
3	**Conventional Outdoor Recreation**	**111,349**	**115,482**	**117,737**	**123,249**	**124,873**	**130,844**
4	Bicycling	1,750	1,850	1,876	1,845	2,151	2,145
5	Boating/Fishing	17,436	17,691	18,306	19,253	19,920	20,887
6	Canoeing	76	74	79	83	88	92
7	Kayaking	326	335	343	362	397	414
8	Fishing (excludes Boating)	2,583	2,623	2,635	2,730	2,715	2,686
9	Sailing	1,042	1,048	1,124	1,183	1,259	1,295
10	Other Boating	13,408	13,611	14,125	14,894	15,461	16,399
11	Climbing/Hiking/Tent Camping	3,067	3,201	3,303	3,441	3,488	3,465
12	Equestrian	5,245	5,523	6,146	6,437	6,842	7,756
13	Hunting/Shooting/Trapping	6,514	7,604	7,225	8,063	7,746	8,787
14	Hunting/Trapping	3,457	3,967	3,768	4,354	3,922	4,404
15	Shooting (includes Archery)	3,057	3,637	3,457	3,709	3,824	4,383
16	Motorcycling/ATVing	8,144	8,311	8,463	8,789	8,861	9,079
17	Recreational Flying	1,166	1,221	1,289	1,326	1,318	1,400
18	RVing	12,654	13,500	14,123	14,888	15,411	16,888

Table 2. Outdoor Recreation Value-Added by Activity—Continued

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
19	Snow Activities	5,041	4,897	5,297	5,530	5,449	5,646
20	Skiing	1,565	1,534	1,682	1,779	1,784	1,849
21	Snowboarding	1,346	1,341	1,441	1,521	1,579	1,648
22	Other Snow Activities (includes Snowmobiling) [1]	2,130	2,022	2,174	2,230	2,086	2,149
23	Other Conventional Outdoor Recreation Activities	8,813	8,969	9,192	9,575	9,697	10,072
24	Other Conventional Air and Land Activities [2]	6,909	7,106	7,206	7,448	7,557	7,965
25	Other Conventional Water Activities [3]	1,904	1,863	1,987	2,127	2,141	2,107
26	Multi-use Apparel and Accessories (Conventional) [4]	41,519	42,713	42,517	44,101	43,989	44,719
27	**Other Outdoor Recreation**	69,833	71,219	73,490	75,633	77,640	82,402
28	Amusement Parks/Water Parks	8,918	8,804	9,112	9,740	10,537	11,859
29	Festivals/Sporting Events/Concerts	10,703	11,385	12,477	12,258	13,368	14,143
30	Field Sports	2,719	2,738	2,896	3,057	3,184	3,238
31	Game Areas (includes Golfing and Tennis)	16,996	17,071	16,993	17,306	18,015	18,471
32	Guided Tours/Outfitted Travel	12,054	12,113	12,545	12,275	11,572	12,890
33	Air and Land Guided Tours/Outfitted Travel	6,588	6,632	7,051	7,288	7,217	7,666
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	5,466	5,481	5,494	4,987	4,354	5,224
35	Productive Activities (includes Gardening)	6,680	6,979	7,146	7,478	7,628	8,098
36	Other Outdoor Recreation Activities [5]	8,249	8,315	8,722	9,710	9,597	9,822
37	Multi-use Apparel and Accessories (Other) [4]	3,513	3,814	3,599	3,810	3,741	3,882
38	**Supporting Outdoor Recreation**	**179,327**	**182,580**	**187,428**	**201,324**	**204,849**	**213,944**
39	Construction	5,392	5,504	5,930	6,650	7,315	7,853
40	Local Trips and Travel [6]	33,019	33,467	34,534	35,489	34,118	35,763
41	Trips and Travel [7]	122,373	124,141	126,877	138,338	141,933	147,813
42	Food and Beverages	21,802	18,405	19,218	20,800	21,714	22,678
43	Lodging	34,614	36,498	34,698	38,805	40,036	40,786
44	Shopping and Souvenirs	20,725	21,372	21,984	22,719	22,901	23,196
45	Transportation	45,231	47,866	50,977	56,014	57,281	61,152
46	Government Expenditures	18,543	19,468	20,087	20,846	21,483	22,515
47	Federal Government	2,751	3,018	2,874	2,858	3,013	3,066
48	State and Local Government	15,793	16,450	17,213	17,989	18,470	19,449

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 3. Outdoor Recreation Value-Added by Activity as a Percentage of Gross Domestic Product

[Percent]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
2	**Total Core Outdoor Recreation**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**
3	**Conventional Outdoor Recreation**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
4	Bicycling	0.0	0.0	0.0	0.0	0.0	0.0
5	Boating/Fishing	0.1	0.1	0.1	0.1	0.1	0.1
6	Canoeing	0.0	0.0	0.0	0.0	0.0	0.0
7	Kayaking	0.0	0.0	0.0	0.0	0.0	0.0
8	Fishing (excludes Boating)	0.0	0.0	0.0	0.0	0.0	0.0
9	Sailing	0.0	0.0	0.0	0.0	0.0	0.0
10	Other Boating	0.1	0.1	0.1	0.1	0.1	0.1
11	Climbing/Hiking/Tent Camping	0.0	0.0	0.0	0.0	0.0	0.0
12	Equestrian	0.0	0.0	0.0	0.0	0.0	0.0
13	Hunting/Shooting/Trapping	0.0	0.0	0.0	0.0	0.0	0.0
14	Hunting/Trapping	0.0	0.0	0.0	0.0	0.0	0.0
15	Shooting (includes Archery)	0.0	0.0	0.0	0.0	0.0	0.0
16	Motorcycling/ATVing	0.1	0.0	0.0	0.0	0.0	0.0
17	Recreational Flying	0.0	0.0	0.0	0.0	0.0	0.0
18	RVing	0.1	0.1	0.1	0.1	0.1	0.1
19	Snow Activities	0.0	0.0	0.0	0.0	0.0	0.0
20	Skiing	0.0	0.0	0.0	0.0	0.0	0.0
21	Snowboarding	0.0	0.0	0.0	0.0	0.0	0.0
22	Other Snow Activities (includes Snowmobiling) [1]	0.0	0.0	0.0	0.0	0.0	0.0
23	Other Conventional Outdoor Recreation Activities	0.1	0.1	0.1	0.1	0.1	0.1
24	Other Conventional Air and Land Activities [2]	0.0	0.0	0.0	0.0	0.0	0.0
25	Other Conventional Water Activities [3]	0.0	0.0	0.0	0.0	0.0	0.0
26	Multi-use Apparel and Accessories (Conventional) [4]	0.3	0.3	0.2	0.2	0.2	0.2
27	**Other Outdoor Recreation**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**	**0.4**
28	Amusement Parks/Water Parks	0.1	0.1	0.1	0.1	0.1	0.1
29	Festivals/Sporting Events/Concerts	0.1	0.1	0.1	0.1	0.1	0.1
30	Field Sports	0.0	0.0	0.0	0.0	0.0	0.0
31	Game Areas (includes Golfing and Tennis)	0.1	0.1	0.1	0.1	0.1	0.1
32	Guided Tours/Outfitted Travel	0.1	0.1	0.1	0.1	0.1	0.1
33	Air and Land Guided Tours/Outfitted Travel	0.0	0.0	0.0	0.0	0.0	0.0
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	0.0	0.0	0.0	0.0	0.0	0.0
35	Productive Activities (includes Gardening)	0.0	0.0	0.0	0.0	0.0	0.0
36	Other Outdoor Recreation Activities [5]	0.1	0.0	0.0	0.1	0.1	0.1
37	Multi-use Apparel and Accessories (Other) [4]	0.0	0.0	0.0	0.0	0.0	0.0
38	**Supporting Outdoor Recreation**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**	**1.1**

Table 3. Outdoor Recreation Value-Added by Activity as a Percentage of Gross Domestic Product—Continued

[Percent]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
39	Construction	0.0	0.0	0.0	0.0	0.0	0.0
40	Local Trips and Travel [6]	0.2	0.2	0.2	0.2	0.2	0.2
41	Trips and Travel [7]	0.8	0.7	0.7	0.8	0.8	0.8
42	Food and Beverages	0.1	0.1	0.1	0.1	0.1	0.1
43	Lodging	0.2	0.2	0.2	0.2	0.2	0.2
44	Shopping and Souvenirs	0.1	0.1	0.1	0.1	0.1	0.1
45	Transportation	0.3	0.3	0.3	0.3	0.3	0.3
46	Government Expenditures	0.1	0.1	0.1	0.1	0.1	0.1
47	Federal Government	0.0	0.0	0.0	0.0	0.0	0.0
48	State and Local Government	0.1	0.1	0.1	0.1	0.1	0.1

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 4. Outdoor Recreation Value-Added by Activity as a Percentage of Total Outdoor Recreation Value-Added

[Percent]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
2	**Total Core Outdoor Recreation**	**50.3**	**50.6**	**50.5**	**49.7**	**49.7**	**49.9**
3	**Conventional Outdoor Recreation**	**30.9**	**31.3**	**31.1**	**30.8**	**30.7**	**30.6**
4	Bicycling	0.5	0.5	0.5	0.5	0.5	0.5
5	Boating/Fishing	4.8	4.8	4.8	4.8	4.9	4.9
6	Canoeing	0.0	0.0	0.0	0.0	0.0	0.0
7	Kayaking	0.1	0.1	0.1	0.1	0.1	0.1
8	Fishing (excludes Boating)	0.7	0.7	0.7	0.7	0.7	0.6
9	Sailing	0.3	0.3	0.3	0.3	0.3	0.3
10	Other Boating	3.7	3.7	3.7	3.7	3.8	3.8
11	Climbing/Hiking/Tent Camping	0.9	0.9	0.9	0.9	0.9	0.8
12	Equestrian	1.5	1.5	1.6	1.6	1.7	1.8
13	Hunting/Shooting/Trapping	1.8	2.1	1.9	2.0	1.9	2.1
14	Hunting/Trapping	1.0	1.1	1.0	1.1	1.0	1.0
15	Shooting (includes Archery)	0.8	1.0	0.9	0.9	0.9	1.0
16	Motorcycling/ATVing	2.3	2.3	2.2	2.2	2.2	2.1
17	Recreational Flying	0.3	0.3	0.3	0.3	0.3	0.3
18	RVing	3.5	3.7	3.7	3.7	3.8	4.0
19	Snow Activities	1.4	1.3	1.4	1.4	1.3	1.3
20	Skiing	0.4	0.4	0.4	0.4	0.4	0.4
21	Snowboarding	0.4	0.4	0.4	0.4	0.4	0.4
22	Other Snow Activities (includes Snowmobiling) [1]	0.6	0.5	0.6	0.6	0.5	0.5
23	Other Conventional Outdoor Recreation Activities	2.4	2.4	2.4	2.4	2.4	2.4
24	Other Conventional Air and Land Activities [2]	1.9	1.9	1.9	1.9	1.9	1.9
25	Other Conventional Water Activities [3]	0.5	0.5	0.5	0.5	0.5	0.5
26	Multi-use Apparel and Accessories (Conventional) [4]	11.5	11.6	11.2	11.0	10.8	10.5
27	**Other Outdoor Recreation**	**19.4**	**19.3**	**19.4**	**18.9**	**19.1**	**19.3**
28	Amusement Parks/Water Parks	2.5	2.4	2.4	2.4	2.6	2.8
29	Festivals/Sporting Events/Concerts	3.0	3.1	3.3	3.1	3.3	3.3
30	Field Sports	0.8	0.7	0.8	0.8	0.8	0.8
31	Game Areas (includes Golfing and Tennis)	4.7	4.6	4.5	4.3	4.4	4.3
32	Guided Tours/Outfitted Travel	3.3	3.3	3.3	3.1	2.8	3.0
33	Air and Land Guided Tours/Outfitted Travel	1.8	1.8	1.9	1.8	1.8	1.8
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	1.5	1.5	1.5	1.2	1.1	1.2
35	Productive Activities (includes Gardening)	1.9	1.9	1.9	1.9	1.9	1.9
36	Other Outdoor Recreation Activities [5]	2.3	2.3	2.3	2.4	2.4	2.3
37	Multi-use Apparel and Accessories (Other) [4]	1.0	1.0	1.0	1.0	0.9	0.9
38	**Supporting Outdoor Recreation**	**49.7**	**49.4**	**49.5**	**50.3**	**50.3**	**50.1**
39	Construction	1.5	1.5	1.6	1.7	1.8	1.8
40	Local Trips and Travel [6]	9.2	9.1	9.1	8.9	8.4	8.4
41	Trips and Travel [7]	33.9	33.6	33.5	34.6	34.8	34.6
42	Food and Beverages	6.0	5.0	5.1	5.2	5.3	5.3
43	Lodging	9.6	9.9	9.2	9.7	9.8	9.5
44	Shopping and Souvenirs	5.7	5.8	5.8	5.7	5.6	5.4
45	Transportation	12.5	13.0	13.5	14.0	14.1	14.3
46	Government Expenditures	5.1	5.3	5.3	5.2	5.3	5.3
47	Federal Government	0.8	0.8	0.8	0.7	0.7	0.7
48	State and Local Government	4.4	4.5	4.5	4.5	4.5	4.6

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.
[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.
[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.
[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 5. Chain-Type Quantity Indexes for Outdoor Recreation Value-Added by Activity

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**100.000**	**100.179**	**100.726**	**102.756**	**103.129**	**107.100**
2	**Total Core Outdoor Recreation**	**100.000**	**100.701**	**102.317**	**102.909**	**103.212**	**108.525**
3	**Conventional Outdoor Recreation**	**100.000**	**101.144**	**102.372**	**104.188**	**104.529**	**109.764**
4	Bicycling	100.000	107.240	108.818	105.065	118.450	119.503
5	Boating/Fishing	100.000	98.447	98.851	101.108	102.648	107.441
6	Canoeing	100.000	95.799	99.911	102.616	105.238	109.753
7	Kayaking	100.000	98.969	96.444	100.009	106.303	111.097
8	Fishing (excludes Boating)	100.000	95.938	96.230	98.074	97.624	96.795
9	Sailing	100.000	99.695	105.104	106.027	109.881	114.393
10	Other Boating	100.000	98.845	98.944	101.346	102.960	108.814
11	Climbing/Hiking/Tent Camping	100.000	102.414	103.649	101.273	106.483	105.675
12	Equestrian	100.000	102.742	108.406	110.581	117.034	129.638
13	Hunting/Shooting/Trapping	100.000	111.883	104.710	113.490	106.514	121.281
14	Hunting/Trapping	100.000	108.862	100.517	112.028	98.031	110.262
15	Shooting (includes Archery)	100.000	115.334	109.540	115.035	116.529	134.345
16	Motorcycling/ATVing	100.000	100.408	102.951	104.050	101.368	102.098
17	Recreational Flying	100.000	95.281	101.700	103.588	106.945	107.869
18	RVing	100.000	103.114	103.886	105.209	106.567	116.933
19	Snow Activities	100.000	96.965	103.424	103.558	100.273	102.196
20	Skiing	100.000	98.431	106.990	107.911	105.166	110.214
21	Snowboarding	100.000	99.753	106.177	106.260	107.193	113.259
22	Other Snow Activities (includes Snowmobiling) [1]	100.000	94.146	99.107	98.703	92.305	89.350
23	Other Conventional Outdoor Recreation Activities	100.000	98.651	106.942	108.958	111.158	114.725
24	Other Conventional Air and Land Activities [2]	100.000	99.978	108.856	110.336	113.546	118.325
25	Other Conventional Water Activities [3]	100.000	93.855	100.167	103.952	102.860	102.493
26	Multi-use Apparel and Accessories (Conventional) [4]	100.000	100.779	100.801	102.246	101.773	105.308
27	**Other Outdoor Recreation**	**100.000**	**99.993**	**102.227**	**100.876**	**101.117**	**106.551**
28	Amusement Parks/Water Parks	100.000	90.681	88.766	89.034	90.077	96.872
29	Festivals/Sporting Events/Concerts	100.000	103.722	110.242	100.261	104.805	108.326
30	Field Sports	100.000	97.794	102.641	105.473	107.807	109.408
31	Game Areas (includes Golfing and Tennis)	100.000	101.016	99.922	97.377	99.329	104.912
32	Guided Tours/Outfitted Travel	100.000	98.755	100.127	92.550	84.115	92.385
33	Air and Land Guided Tours/Outfitted Travel	100.000	99.219	103.683	101.370	97.042	101.512
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	100.000	98.197	95.884	82.077	68.807	81.539
35	Productive Activities (includes Gardening)	100.000	103.717	116.690	124.253	128.195	132.963
36	Other Outdoor Recreation Activities [5]	100.000	99.497	103.176	112.794	112.884	116.632
37	Multi-use Apparel and Accessories (Other) [4]	100.000	108.246	102.460	108.301	107.576	111.145
38	**Supporting Outdoor Recreation**	**100.000**	**99.650**	**99.130**	**102.578**	**103.020**	**105.675**
39	Construction	100.000	96.194	96.753	101.957	105.495	107.746
40	Local Trips and Travel [6]	100.000	100.566	101.692	101.148	97.888	99.957
41	Trips and Travel [7]	100.000	99.604	98.688	103.536	104.381	107.135
42	Food and Beverages	100.000	81.967	83.558	86.153	86.305	87.485
43	Lodging	100.000	102.626	93.812	101.278	101.036	100.323
44	Shopping and Souvenirs	100.000	102.006	102.918	103.035	103.347	104.806
45	Transportation	100.000	104.749	107.941	113.973	116.258	123.212
46	Government Expenditures	100.000	99.359	98.265	98.965	101.989	105.121
47	Federal Government	100.000	107.628	99.726	97.330	100.910	99.832
48	State and Local Government	100.000	97.947	97.981	99.186	102.117	105.947

Legend/Footnotes:
[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.
[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.
[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.
[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.
[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.
[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.
[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 6. Percent Changes in Chain-Type Quantity Indexes for Outdoor Recreation Value-Added by Activity

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**0.2**	**0.5**	**2.0**	**0.4**	**3.9**
2	**Total Core Outdoor Recreation**	**0.7**	**1.6**	**0.6**	**0.3**	**5.1**
3	**Conventional Outdoor Recreation**	**1.1**	**1.2**	**1.8**	**0.3**	**5.0**
4	Bicycling	7.2	1.5	−3.4	12.7	0.9
5	Boating/Fishing	−1.6	0.4	2.3	1.5	4.7
6	Canoeing	−4.2	4.3	2.7	2.6	4.3
7	Kayaking	−1.0	−2.6	3.7	6.3	4.5

Table 6. Percent Changes in Chain-Type Quantity Indexes for Outdoor Recreation Value-Added by Activity—Continued

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
8	Fishing (excludes Boating)	−4.1	0.3	1.9	−0.5	−0.8
9	Sailing	−0.3	5.4	0.9	3.6	4.1
10	Other Boating	−1.2	0.1	2.4	1.6	5.7
11	Climbing/Hiking/Tent Camping	2.4	1.2	−2.3	5.1	−0.8
12	Equestrian	2.7	5.5	2.0	5.8	10.8
13	Hunting/Shooting/Trapping	11.9	−6.4	8.4	−6.1	13.9
14	Hunting/Trapping	8.9	−7.7	11.5	−12.5	12.5
15	Shooting (includes Archery)	15.3	−5.0	5.0	1.3	15.3
16	Motorcycling/ATVing	0.4	2.5	1.1	−2.6	0.7
17	Recreational Flying	−4.7	6.7	1.9	3.2	0.9
18	RVing	3.1	0.7	1.3	1.3	9.7
19	Snow Activities	−3.0	6.7	0.1	−3.2	1.9
20	Skiing	−1.6	8.7	0.9	−2.5	4.8
21	Snowboarding	−0.2	6.4	0.1	0.9	5.7
22	Other Snow Activities (includes Snowmobiling) [1]	−5.9	5.3	−0.4	−6.5	−3.2
23	Other Conventional Outdoor Recreation Activities	−1.3	8.4	1.9	2.0	3.2
24	Other Conventional Air and Land Activities [2]	0.0	8.9	1.4	2.9	4.2
25	Other Conventional Water Activities [3]	−6.1	6.7	3.8	−1.1	−0.4
26	Multi-use Apparel and Accessories (Conventional) [4]	0.8	0.0	1.4	−0.5	3.5
27	**Other Outdoor Recreation**	**0.0**	**2.2**	**−1.3**	**0.2**	**5.4**
28	Amusement Parks/Water Parks	−9.3	−2.1	0.3	1.2	7.5
29	Festivals/Sporting Events/Concerts	3.7	6.3	−9.1	4.5	3.4
30	Field Sports	−2.2	5.0	2.8	2.2	1.5
31	Game Areas (includes Golfing and Tennis)	1.0	−1.1	−2.5	2.0	5.6
32	Guided Tours/Outfitted Travel	−1.2	1.4	−7.6	−9.1	9.8
33	Air and Land Guided Tours/Outfitted Travel	−0.8	4.5	−2.2	−4.3	4.6
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	−1.8	−2.4	−14.4	−16.2	18.5
35	Productive Activities (includes Gardening)	3.7	12.5	6.5	3.2	3.7
36	Other Outdoor Recreation Activities [5]	−0.5	3.7	9.3	0.1	3.3
37	Multi-use Apparel and Accessories (Other) [4]	8.2	−5.3	5.7	−0.7	3.3
38	**Supporting Outdoor Recreation**	**−0.3**	**−0.5**	**3.5**	**0.4**	**2.6**
39	Construction	−3.8	0.6	5.4	3.5	2.1
40	Local Trips and Travel [6]	0.6	1.1	−0.5	−3.2	2.1
41	Trips and Travel [7]	−0.4	−0.9	4.9	0.8	2.6
42	Food and Beverages	−18.0	1.9	3.1	0.2	1.4
43	Lodging	2.6	−8.6	8.0	−0.2	−0.7
44	Shopping and Souvenirs	2.0	0.9	0.1	0.3	1.4
45	Transportation	4.7	3.0	5.6	2.0	6.0
46	Government Expenditures	−0.6	−1.1	0.7	3.1	3.1
47	Federal Government	7.6	−7.3	−2.4	3.7	−1.1
48	State and Local Government	−2.1	0.0	1.2	3.0	3.8

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 7. Chain-Type Price Indexes for Outdoor Recreation Value-Added by Activity

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**100.000**	**102.250**	**104.428**	**108.191**	**109.728**	**110.802**
2	**Total Core Outdoor Recreation**	**100.000**	**102.327**	**103.452**	**106.974**	**108.608**	**108.764**
3	**Conventional Outdoor Recreation**	**100.000**	**102.537**	**103.769**	**106.734**	**107.788**	**107.556**
4	Bicycling	100.000	98.587	98.519	100.361	103.751	102.555
5	Boating/Fishing	100.000	103.067	106.216	109.215	111.301	111.496
6	Canoeing	100.000	102.473	103.881	107.413	109.999	110.752
7	Kayaking	100.000	103.655	108.939	110.997	114.343	114.140
8	Fishing (excludes Boating)	100.000	105.840	106.008	107.765	107.662	107.422
9	Sailing	100.000	100.861	102.663	107.072	110.005	108.681
10	Other Boating	100.000	102.701	106.473	109.608	111.994	112.399
11	Climbing/Hiking/Tent Camping	100.000	101.906	103.895	110.791	106.818	106.918
12	Equestrian	100.000	102.483	108.081	110.969	111.457	114.060
13	Hunting/Shooting/Trapping	100.000	104.338	105.926	109.072	111.648	111.228
14	Hunting/Trapping	100.000	105.436	108.437	112.449	115.747	115.563
15	Shooting (includes Archery)	100.000	103.135	103.234	105.455	107.342	106.704
16	Motorcycling/ATVing	100.000	101.626	100.924	103.710	107.331	109.185
17	Recreational Flying	100.000	109.964	108.679	109.813	105.709	111.321
18	RVing	100.000	103.459	107.428	111.826	114.277	114.127
19	Snow Activities	100.000	100.184	101.595	105.924	107.796	109.586
20	Skiing	100.000	99.575	100.416	105.287	108.375	107.171
21	Snowboarding	100.000	99.880	100.844	106.366	109.457	108.137
22	Other Snow Activities (includes Snowmobiling) [1]	100.000	100.835	102.994	106.081	106.093	112.894
23	Other Conventional Outdoor Recreation Activities	100.000	103.164	103.763	106.078	105.310	105.978
24	Other Conventional Air and Land Activities [2]	100.000	102.883	103.670	105.717	104.227	105.424
25	Other Conventional Water Activities [3]	100.000	104.229	104.147	107.431	109.281	107.941
26	Multi-use Apparel and Accessories (Conventional) [4]	100.000	102.081	101.591	103.886	104.104	102.279
27	**Other Outdoor Recreation**	**100.000**	**101.992**	**102.944**	**107.365**	**109.951**	**110.744**

Table 7. Chain-Type Price Indexes for Outdoor Recreation Value-Added by Activity—Continued

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
28	Amusement Parks/Water Parks	100.000	108.869	115.102	122.665	131.166	137.269
29	Festivals/Sporting Events/Concerts	100.000	102.550	105.738	114.223	119.168	121.982
30	Field Sports	100.000	102.954	103.754	106.597	108.604	108.823
31	Game Areas (includes Golfing and Tennis)	100.000	99.432	100.065	104.566	106.710	103.589
32	Guided Tours/Outfitted Travel	100.000	101.754	103.938	110.031	114.124	115.748
33	Air and Land Guided Tours/Outfitted Travel	100.000	101.469	103.228	109.135	112.896	114.634
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	100.000	102.099	104.818	111.156	115.763	117.201
35	Productive Activities (includes Gardening)	100.000	100.733	91.679	90.088	89.075	91.175
36	Other Outdoor Recreation Activities [5]	100.000	101.308	102.477	104.358	103.062	102.086
37	Multi-use Apparel and Accessories (Other) [4]	100.000	100.293	99.984	100.134	98.979	99.412
38	**Supporting Outdoor Recreation**	**100.000**	**102.171**	**105.435**	**109.445**	**110.884**	**112.897**
39	Construction	100.000	106.116	113.700	120.989	128.643	135.206
40	Local Trips and Travel [6]	100.000	100.785	102.847	106.261	105.555	108.357
41	Trips and Travel [7]	100.000	101.848	105.059	109.186	111.117	112.745
42	Food and Beverages	100.000	102.988	105.490	110.735	115.400	118.898
43	Lodging	100.000	102.743	106.853	110.693	114.479	117.450
44	Shopping and Souvenirs	100.000	101.093	103.068	106.390	106.922	106.791
45	Transportation	100.000	101.029	104.413	108.658	108.932	109.730
46	Government Expenditures	100.000	105.666	110.236	113.596	113.595	115.504
47	Federal Government	100.000	101.946	104.763	106.737	108.545	111.650
48	State and Local Government	100.000	106.347	111.240	114.842	114.531	116.241

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 8. Percent Changes in Chain-Type Price Indexes for Outdoor Recreation Value-Added by Activity

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**2.2**	**2.1**	**3.6**	**1.4**	**1.0**
2	**Total Core Outdoor Recreation**	**2.3**	**1.1**	**3.4**	**1.5**	**0.1**
3	**Conventional Outdoor Recreation**	**2.5**	**1.2**	**2.9**	**1.0**	**−0.2**
4	Bicycling	−1.4	−0.1	1.9	3.4	−1.2
5	Boating/Fishing	3.1	3.1	2.8	1.9	0.2
6	Canoeing	2.5	1.4	3.4	2.4	0.7
7	Kayaking	3.7	5.1	1.9	3.0	−0.2
8	Fishing (excludes Boating)	5.8	0.2	1.7	−0.1	−0.2
9	Sailing	0.9	1.8	4.3	2.7	−1.2
10	Other Boating	2.7	3.7	2.9	2.2	0.4
11	Climbing/Hiking/Tent Camping	1.9	2.0	6.6	−3.6	0.1
12	Equestrian	2.5	5.5	2.7	0.4	2.3
13	Hunting/Shooting/Trapping	4.3	1.5	3.0	2.4	−0.4
14	Hunting/Trapping	5.4	2.8	3.7	2.9	−0.2
15	Shooting (includes Archery)	3.1	0.1	2.2	1.8	−0.6
16	Motorcycling/ATVing	1.6	−0.7	2.8	3.5	1.7
17	Recreational Flying	10.0	−1.2	1.0	−3.7	5.3
18	RVing	3.5	3.8	4.1	2.2	−0.1
19	Snow Activities	0.2	1.4	4.3	1.8	1.7
20	Skiing	−0.4	0.8	4.9	2.9	−1.1
21	Snowboarding	−0.1	1.0	5.5	2.9	−1.2
22	Other Snow Activities (includes Snowmobiling) [1]	0.8	2.1	3.0	0.0	6.4
23	Other Conventional Outdoor Recreation Activities	3.2	0.6	2.2	−0.7	0.6
24	Other Conventional Air and Land Activities [2]	2.9	0.8	2.0	−1.4	1.1
25	Other Conventional Water Activities [3]	4.2	−0.1	3.2	1.7	−1.2
26	Multi-use Apparel and Accessories (Conventional) [4]	2.1	−0.5	2.3	0.2	−1.8
27	**Other Outdoor Recreation**	**2.0**	**0.9**	**4.3**	**2.4**	**0.7**
28	Amusement Parks/Water Parks	8.9	5.7	6.6	6.9	4.7
29	Festivals/Sporting Events/Concerts	2.6	3.1	8.0	4.3	2.4
30	Field Sports	3.0	0.8	2.7	1.9	0.2
31	Game Areas (includes Golfing and Tennis)	−0.6	0.6	4.5	2.1	−2.9
32	Guided Tours/Outfitted Travel	1.8	2.1	5.9	3.7	1.4
33	Air and Land Guided Tours/Outfitted Travel	1.5	1.7	5.7	3.4	1.5
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	2.1	2.7	6.0	4.1	1.2
35	Productive Activities (includes Gardening)	0.7	−9.0	−1.7	−1.1	2.4
36	Other Outdoor Recreation Activities [5]	1.3	1.2	1.8	−1.2	−0.9
37	Multi-use Apparel and Accessories (Other) [4]	0.3	−0.3	0.2	−1.2	0.4
38	**Supporting Outdoor Recreation**	**2.2**	**3.2**	**3.8**	**1.3**	**1.8**
39	Construction	6.1	7.1	6.4	6.3	5.1
40	Local Trips and Travel [6]	0.8	2.0	3.3	−0.7	2.7
41	Trips and Travel [7]	1.8	3.2	3.9	1.8	1.5
42	Food and Beverages	3.0	2.4	5.0	4.2	3.0
43	Lodging	2.7	4.0	3.6	3.4	2.6
44	Shopping and Souvenirs	1.1	2.0	3.2	0.5	−0.1
45	Transportation	1.0	3.4	4.1	0.3	0.7
46	Government Expenditures	5.7	4.3	3.0	0.0	1.7

Table 8. Percent Changes in Chain-Type Price Indexes for Outdoor Recreation Value-Added by Activity—Continued

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
47	Federal Government	1.9	2.8	1.9	1.7	2.9
48	State and Local Government	6.3	4.6	3.2	−0.3	1.5

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Editor's note: this table of information was excluded from the pdf submitted, and posted on the U.S. Bureau of Economic Analysis website. It is incoporated herein, in [brackets] and is available in the xlsx file entitled, *Tables—Value-Added by Activity* (*https://www.bea.gov/system/files/2019-09/orsa0919-VA-Activity_1.xlsx*)

[Activity List *

[Outdoor Recreation Activities in Conventional Definition

[Bicycling (All recreational bicycling, including BMX, E-bikes, Mountain, On-road)
[Boating/Fishing (All recreational boating, including Canoeing, Fishing, Inboard/Outboard, Kayaking, Personal watercraft, Sailing)
[Climbing/Hiking/Tent Camping
[Equestrian
[Hunting/Trapping/Shooting (including Archery)
[Motorcycling/ATVs (Off-road, On-road)
[Recreational flying (Experimental, Glider, Turboprop, Ultralight)
[RVing
[Snow activities (Dog mushing, Skiing, Sleighing, Snowboarding, Snowmobiling, Snow shoeing, Tubing)

[*Other Conventional Activities*

[Other Conventional Air and Land activities
[Air sports (Base jumping, Hang gliding, Skydiving)
[Driving for pleasure (Gas spending only)
[Geocaching/Orienteering/Rock hounding
[Ice skating
[Inline skating
[Land/Sand sailing
[Races (includes Bike and Endurance racing)
[Running/Jogging/Walking
[Skateboarding
[Wildlife watching/Birding
[Other Conventional Water activities
[Boardsailing/Windsurfing
[SCUBA Diving
[Snorkeling
[Stand-up paddling
[Surfing
[Tubing/Wakeboarding
[Water skiing
[Whitewater rafting

[*Outdoor Recreation Activities in Other Definition*

[Amusement parks/Water parks
[Festivals/Sporting events/Concerts (includes Professional sports)
[Field sports (*e.g.,* Football, Lacrosse, Soccer)
[Game area sports (*e.g.,* Basketball, Golf, Tennis)
[Guided tours/Outfitted travel (includes Boating and Fishing charters)
[Productive activities (Beekeeping, Foraging, Gardening, Panning for ore)

[*Other Activities*

[Agritourism (Animal sanctuaries, Petting zoos, Pick-your-own produce farms, Vineyard tours)
[Augmented reality games
[Beachgoing
[Disc golf
[Hot springs soaking
[Kite flying
[Model airplane/rocket/UAV
[Paintball
[Photography
[Stargazing/Astronomy
[Swimming
[Therapeutic Programs
[Water Polo
[Yard sports (*e.g.,* Bocce ball, Croquet)]

Table 9. Real Outdoor Recreation Value-Added by Industry

[Millions of chained (2012) dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	360,509	361,153	363,128	370,446	371,789	386,107
2	Private industries	339,779	340,215	342,222	349,558	350,389	363,963
3	Agriculture, forestry, fishing, and hunting	6,782	7,519	8,025	8,485	7,962	8,040
4	Farms	4,791	5,455	6,145	6,407	6,586	6,536
5	Forestry, fishing, and related activities	1,991	2,066	1,918	2,097	1,563	1,655
6	Mining	340	313	284	264	249	321
7	Oil and gas extraction	105	107	104	133	133	96
8	Mining, except oil and gas	183	159	125	93	87	199
9	Support activities for mining	51	46	50	33	28	31
10	Utilities	1	1	1	1	1	1
11	Construction	5,274	4,902	4,925	5,110	5,298	5,410
12	Manufacturing	48,726	50,739	50,611	49,377	47,541	51,812
13	Durable goods	18,433	18,940	18,414	18,039	17,603	20,012
14	Wood products	3	3	3	3	3	3
15	Nonmetallic mineral products	47	50	51	50	51	51
16	Primary metals	5	4	5	4	4	4
17	Fabricated metal products	1,728	1,861	1,647	1,813	1,855	2,434
18	Machinery	1,942	1,939	1,725	1,435	1,010	1,419
19	Computer and electronic products	551	568	683	1,202	909	1,088
20	Electrical equipment, appliances, and components	643	612	582	596	459	472
21	Motor vehicles, bodies and trailers, and parts	3,436	3,693	3,616	3,333	3,338	4,184
22	Other transportation equipment	6,699	7,123	7,158	6,888	6,941	6,954
23	Furniture and related products	55	55	53	47	41	40
24	Miscellaneous manufacturing	3,325	3,023	2,907	2,757	3,002	3,320
25	Nondurable goods	30,293	31,808	32,261	31,391	29,925	31,534
26	Food and beverage and tobacco products	6,440	6,583	6,516	6,241	6,187	6,071
27	Textile mills and textile product mills	482	405	437	452	468	464
28	Apparel and leather and allied products	2,653	2,574	2,524	2,491	2,817	2,965
29	Paper products	300	306	334	315	302	283
30	Printing and related support activities	112	110	115	116	115	102
31	Petroleum and coal products	16,578	17,910	18,499	18,237	15,888	18,053
32	Chemical products	3,490	3,713	3,694	3,457	3,506	3,501
33	Plastics and rubber products	240	239	230	235	241	252
34	Wholesale trade	32,193	28,419	29,897	31,085	30,137	29,952
35	Retail trade	84,301	88,246	86,834	87,613	87,987	92,151
36	Motor vehicle and parts dealers	8,170	8,230	7,840	8,879	9,833	11,468
37	Food and beverage stores	6,002	5,943	5,790	5,631	5,450	5,598
38	General merchandise stores	15,056	16,204	16,162	16,699	16,299	16,445
39	Other retail	55,074	57,885	57,086	56,465	56,440	58,673
40	Transportation and warehousing	33,036	34,962	36,346	38,494	39,700	41,681
41	Air transportation	21,998	23,069	24,678	27,736	30,141	31,803
42	Rail transportation	580	562	560	567	566	600
43	Water transportation	2,733	3,704	3,639	2,975	2,116	2,382
44	Truck transportation	3,808	3,693	3,603	3,370	3,253	3,240
45	Transit and ground passenger transportation	2,235	2,169	2,104	2,026	1,942	2,017
46	Pipeline transportation	354	362	348	455	486	486
47	Other transportation and support activities	1,291	1,381	1,386	1,293	1,259	1,201
48	Warehousing and storage	36	37	35	36	38	36
49	Information	1,297	1,340	1,343	1,450	1,546	1,685
50	Publishing industries, except internet (includes software)	529	481	462	460	460	481
51	Motion picture and sound recording industries	47	42	42	47	52	53
52	Broadcasting and telecommunications	601	683	693	750	803	869
53	Data processing, internet publishing, and other information services	120	135	149	195	235	290
54	Finance, insurance, real estate, rental, and leasing	22,226	21,498	18,905	21,076	21,947	21,717
55	Finance and insurance	3,805	3,325	4,005	4,357	4,196	3,775
56	Federal Reserve banks, credit intermediation, and related activities	408	376	384	423	414	406
57	Securities, commodity contracts, and investments	0	0	0	0	0	0
58	Insurance carriers and related activities	3,396	2,949	3,622	3,936	3,783	3,371
59	Funds, trusts, and other financial vehicles	0	0	0	0	0	0
60	Real estate and rental and leasing	18,421	18,173	14,910	16,728	17,768	17,984
61	Real estate	15,460	15,195	12,047	12,965	13,192	13,027
62	Housing	15,455	15,191	12,043	12,960	13,187	13,022
63	Other real estate	5	5	5	5	5	5
64	Rental and leasing services and lessors of intangible assets	2,961	2,977	2,859	3,787	4,720	5,208
65	Professional and business services	6,078	5,806	5,967	6,203	6,256	6,906
66	Professional, scientific, and technical services	1,246	1,220	1,338	1,434	1,489	1,586
67	Legal services	0	0	0	0	0	0
68	Computer systems design and related services	62	50	49	60	61	67
69	Miscellaneous professional, scientific, and technical services	1,184	1,170	1,290	1,375	1,428	1,519
70	Management of companies and enterprises	0	0	0	0	0	0
71	Administrative and waste management services	4,832	4,586	4,628	4,766	4,764	5,318
72	Administrative and support services	4,831	4,585	4,627	4,765	4,763	5,317
73	Waste management and remediation services	1	1	1	1	1	1
74	Educational services, health care, and social assistance	3,061	2,931	3,055	3,007	3,039	3,009
75	Educational services	2,554	2,464	2,568	2,498	2,510	2,470
76	Health care and social assistance	507	467	487	511	533	545
77	Ambulatory health care services	296	276	292	309	327	335
78	Hospitals	161	143	146	152	158	161
79	Nursing and residential care facilities	22	19	19	19	20	20
80	Social assistance	28	29	30	31	29	30
81	Arts, entertainment, recreation, accommodation, and food services	91,833	89,264	91,506	92,641	93,637	96,546
82	Arts, entertainment, and recreation	41,793	41,465	43,034	41,527	42,897	45,712
83	Performing arts, spectator sports, museums, and related activities	10,481	10,792	11,495	10,586	11,082	11,505
84	Amusements, gambling, and recreation industries	31,312	30,672	31,534	30,949	31,817	34,226
85	Accommodation and food services	50,041	47,801	48,483	51,105	50,729	50,837
86	Accommodation	27,868	29,079	29,265	31,299	30,931	30,746
87	Food services and drinking places	22,173	18,725	19,221	19,805	19,798	20,088
88	Other services, except government	4,631	4,551	4,640	4,687	4,736	4,770
89	Government	20,730	20,936	20,910	20,917	21,404	22,152
90	Federal	3,093	3,412	3,198	3,133	3,225	3,197
91	General government	2,768	2,975	2,759	2,692	2,796	2,766
92	National defense	0	1	1	0	1	1
93	Non-defense	2,768	2,974	2,759	2,691	2,796	2,766
94	Government enterprises	325	440	445	450	430	434
95	State and local	17,637	17,531	17,706	17,772	18,169	18,931
96	General government	18,134	17,538	17,581	17,785	18,271	18,972
97	Government enterprises	−497	53	170	80	66	80

Table 10. Outdoor Recreation Value-Added by Industry

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	360,509	369,280	378,654	400,205	407,362	427,189
2	Private industries	339,779	347,211	355,672	376,142	382,564	401,264
3	Agriculture, forestry, fishing, and hunting	6,782	7,718	7,621	7,851	7,181	7,428
4	Farms	4,791	5,528	5,487	5,422	5,286	5,414
5	Forestry, fishing, and related activities	1,991	2,189	2,133	2,429	1,895	2,014
6	Mining	340	312	284	205	182	271
7	Oil and gas extraction	105	117	128	92	81	91
8	Mining, except oil and gas	183	143	102	73	65	139
9	Support activities for mining	51	52	54	41	36	40
10	Utilities	1	1	1	1	1	1
11	Construction	5,274	5,192	5,593	6,193	6,838	7,338
12	Manufacturing	48,726	50,409	50,590	50,494	46,638	51,667
13	Durable goods	18,433	19,866	19,734	20,438	20,478	23,064
14	Wood products	3	3	3	3	3	4
15	Nonmetallic mineral products	47	50	51	53	55	56
16	Primary metals	5	4	5	5	5	4
17	Fabricated metal products	1,728	2,118	1,896	2,137	2,186	2,860
18	Machinery	1,942	2,002	1,861	1,629	1,120	1,554
19	Computer and electronic products	551	551	663	1,094	732	864
20	Electrical equipment, appliances, and components	643	622	598	633	493	496
21	Motor vehicles, bodies and trailers, and parts	3,436	3,975	4,088	4,176	4,517	5,853
22	Other transportation equipment	6,699	7,381	7,501	7,659	8,084	8,119
23	Furniture and related products	55	59	58	57	54	51
24	Miscellaneous manufacturing	3,325	3,101	3,010	2,993	3,228	3,204
25	Nondurable goods	30,293	30,543	30,856	30,056	26,160	28,604
26	Food and beverage and tobacco products	6,440	6,720	7,057	7,511	7,645	7,339
27	Textile mills and textile product mills	482	439	484	512	541	532
28	Apparel and leather and allied products	2,653	2,674	2,605	2,616	3,022	3,267
29	Paper products	300	300	317	307	304	272
30	Printing and related support activities	112	110	117	124	125	112
31	Petroleum and coal products	16,578	16,258	16,130	14,760	10,089	12,640
32	Chemical products	3,490	3,803	3,915	3,973	4,168	4,171
33	Plastics and rubber products	240	239	231	253	267	270
34	Wholesale trade	32,193	31,794	33,303	35,298	34,612	34,774
35	Retail trade	84,301	87,648	87,539	91,022	92,373	95,661
36	Motor vehicle and parts dealers	8,170	8,453	8,483	9,441	10,260	11,309
37	Food and beverage stores	6,002	6,092	6,197	6,486	6,591	6,800
38	General merchandise stores	15,056	15,640	15,159	15,452	15,337	15,543
39	Other retail	55,074	57,464	57,700	59,644	60,186	62,008
40	Transportation and warehousing	33,036	35,587	38,432	42,981	45,538	47,932
41	Air transportation	21,998	23,448	26,385	30,828	33,607	35,680
42	Rail transportation	580	590	603	639	641	688
43	Water transportation	2,733	3,670	3,524	3,412	3,142	3,336
44	Truck transportation	3,808	3,809	3,864	3,830	3,741	3,766
45	Transit and ground passenger transportation	2,235	2,246	2,182	2,215	2,225	2,314
46	Pipeline transportation	354	383	401	563	620	622
47	Other transportation and support activities	1,291	1,404	1,438	1,459	1,524	1,490
48	Warehousing and storage	36	37	36	36	38	36
49	Information	1,297	1,368	1,382	1,493	1,580	1,711
50	Publishing industries, except internet (includes software)	529	493	481	486	496	527
51	Motion picture and sound recording industries	47	50	53	59	60	66
52	Broadcasting and telecommunications	601	687	697	751	789	826
53	Data processing, internet publishing, and other information services	120	137	151	198	236	291
54	Finance, insurance, real estate, rental, and leasing	22,226	22,085	20,070	22,647	24,002	24,600
55	Finance and insurance	3,805	3,415	4,184	4,662	4,757	4,595
56	Federal Reserve banks, credit intermediation, and related activities	408	394	410	459	467	468
57	Securities, commodity contracts, and investments	0	0	0	0	0	0
58	Insurance carriers and related activities	3,396	3,020	3,774	4,202	4,289	4,127
59	Funds, trusts, and other financial vehicles	0	0	0	0	0	0
60	Real estate and rental and leasing	18,421	18,670	15,886	17,985	19,245	20,005
61	Real estate	15,460	15,625	12,785	14,263	15,066	15,453
62	Housing	15,455	15,620	12,780	14,258	15,061	15,447
63	Other real estate	5	5	5	5	5	5
64	Rental and leasing services and lessors of intangible assets	2,961	3,045	3,101	3,722	4,179	4,552
65	Professional and business services	6,078	5,898	6,133	6,595	6,859	7,786
66	Professional, scientific, and technical services	1,246	1,249	1,396	1,547	1,658	1,805
67	Legal services	0	0	0	0	0	0
68	Computer systems design and related services	62	53	54	65	63	71
69	Miscellaneous professional, scientific, and technical services	1,184	1,195	1,342	1,482	1,594	1,733
70	Management of companies and enterprises	0	0	0	0	0	0
71	Administrative and waste management services	4,832	4,649	4,737	5,048	5,201	5,981
72	Administrative and support services	4,831	4,648	4,736	5,047	5,200	5,980
73	Waste management and remediation services	1	1	1	1	1	1
74	Educational services, health care, and social assistance	3,061	3,058	3,267	3,328	3,482	3,610
75	Educational services	2,554	2,583	2,772	2,806	2,936	3,047
76	Health care and social assistance	507	475	495	522	546	562
77	Ambulatory health care services	296	282	296	309	323	329
78	Hospitals	161	146	152	163	172	180
79	Nursing and residential care facilities	22	20	20	21	22	22
80	Social assistance	28	27	28	29	29	30
81	Arts, entertainment, recreation, accommodation, and food services	91,833	91,434	96,529	102,891	107,934	112,870
82	Arts, entertainment, and recreation	41,793	42,291	44,954	46,169	49,500	52,880
83	Performing arts, spectator sports, museums, and related activities	10,481	11,062	12,145	12,070	13,181	14,006
84	Amusements, gambling, and recreation industries	31,312	31,229	32,809	34,099	36,319	38,874
85	Accommodation and food services	50,041	49,143	51,575	56,722	58,434	59,990
86	Accommodation	27,868	29,865	31,308	34,779	35,538	36,072
87	Food services and drinking places	22,173	19,278	20,268	21,943	22,896	23,918
88	Other services, except government	4,631	4,708	4,927	5,142	5,344	5,615
89	Government	20,730	22,069	22,982	24,063	24,799	25,926
90	Federal	3,093	3,456	3,293	3,248	3,400	3,471
91	General government	2,768	3,033	2,891	2,872	3,034	3,087
92	National defense	0	1	1	0	1	1
93	Non-defense	2,768	3,032	2,890	2,872	3,034	3,087
94	Government enterprises	325	423	402	376	366	383
95	State and local	17,637	18,613	19,689	20,815	21,398	22,455
96	General government	18,134	18,569	19,448	20,359	20,890	21,948
97	Government enterprises	−497	44	241	456	508	508

Table 11. Outdoor Recreation Value-Added by Industry as a Percentage of Gross Domestic Product

[Percent]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	2.2	2.2	2.2	2.2	2.2	2.2
2	Private industries	2.1	2.1	2.0	2.1	2.0	2.1
3	Agriculture, forestry, fishing, and hunting	0.0	0.0	0.0	0.0	0.0	0.0
4	Mining	0.0	0.0	0.0	0.0	0.0	0.0
5	Utilities	0.0	0.0	0.0	0.0	0.0	0.0
6	Construction	0.0	0.0	0.0	0.0	0.0	0.0
7	Manufacturing	0.3	0.3	0.3	0.3	0.2	0.3
8	Durable goods	0.1	0.1	0.1	0.1	0.1	0.1
9	Nondurable goods	0.2	0.2	0.2	0.2	0.1	0.1
10	Wholesale trade	0.2	0.2	0.2	0.2	0.2	0.2
11	Retail trade	0.5	0.5	0.5	0.5	0.5	0.5
12	Transportation and warehousing	0.2	0.2	0.2	0.2	0.2	0.2
13	Information	0.0	0.0	0.0	0.0	0.0	0.0
14	Finance, insurance, real estate, rental, and leasing	0.1	0.1	0.1	0.1	0.1	0.1
15	Finance and insurance	0.0	0.0	0.0	0.0	0.0	0.0
16	Real estate and rental and leasing	0.1	0.1	0.1	0.1	0.1	0.1
17	Professional and business services	0.0	0.0	0.0	0.0	0.0	0.0
18	Professional, scientific, and technical services	0.0	0.0	0.0	0.0	0.0	0.0
19	Management of companies and enterprises	0.0	0.0	0.0	0.0	0.0	0.0
20	Administrative and waste management services	0.0	0.0	0.0	0.0	0.0	0.0
21	Educational services, health care, and social assistance	0.0	0.0	0.0	0.0	0.0	0.0
22	Educational services	0.0	0.0	0.0	0.0	0.0	0.0
23	Health care and social assistance	0.0	0.0	0.0	0.0	0.0	0.0
24	Arts, entertainment, recreation, accommodation, and food services	0.6	0.5	0.6	0.6	0.6	0.6
25	Arts, entertainment, and recreation	0.3	0.3	0.3	0.3	0.3	0.3
26	Accommodation and food services	0.3	0.3	0.3	0.3	0.3	0.3
27	Other services, except government	0.0	0.0	0.0	0.0	0.0	0.0
28	Government	0.1	0.1	0.1	0.1	0.1	0.1
29	Federal	0.0	0.0	0.0	0.0	0.0	0.0
30	State and local	0.1	0.1	0.1	0.1	0.1	0.1

Table 12. Outdoor Recreation Value-Added by Industry as a Percentage of Total Outdoor Recreation Value-Added

[Percent]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	100.0	100.0	100.0	100.0	100.0	100.0
2	Private industries	94.2	94.0	93.9	94.0	93.9	93.9
3	Agriculture, forestry, fishing, and hunting	1.9	2.1	2.0	2.0	1.8	1.7
4	Farms	1.3	1.5	1.4	1.4	1.3	1.3
5	Forestry, fishing, and related activities	0.6	0.6	0.6	0.6	0.5	0.5
6	Mining	0.1	0.1	0.1	0.1	0.0	0.1
7	Oil and gas extraction	0.0	0.0	0.0	0.0	0.0	0.0
8	Mining, except oil and gas	0.1	0.0	0.0	0.0	0.0	0.0
9	Support activities for mining	0.0	0.0	0.0	0.0	0.0	0.0
10	Utilities	0.0	0.0	0.0	0.0	0.0	0.0
11	Construction	1.5	1.4	1.5	1.5	1.7	1.7
12	Manufacturing	13.5	13.7	13.4	12.6	11.4	12.1
13	Durable goods	5.1	5.4	5.2	5.1	5.0	5.4
14	Wood products	0.0	0.0	0.0	0.0	0.0	0.0
15	Nonmetallic mineral products	0.0	0.0	0.0	0.0	0.0	0.0
16	Primary metals	0.0	0.0	0.0	0.0	0.0	0.0
17	Fabricated metal products	0.5	0.6	0.5	0.5	0.5	0.7
18	Machinery	0.5	0.5	0.5	0.4	0.3	0.4
19	Computer and electronic products	0.2	0.1	0.2	0.3	0.2	0.2
20	Electrical equipment, appliances, and components	0.2	0.2	0.2	0.2	0.1	0.1
21	Motor vehicles, bodies and trailers, and parts	1.0	1.1	1.1	1.0	1.1	1.4
22	Other transportation equipment	1.9	2.0	2.0	1.9	2.0	1.9
23	Furniture and related products	0.0	0.0	0.0	0.0	0.0	0.0
24	Miscellaneous manufacturing	0.9	0.8	0.8	0.7	0.8	0.8
25	Nondurable goods	8.4	8.3	8.1	7.5	6.4	6.7
26	Food and beverage and tobacco products	1.8	1.8	1.9	1.9	1.9	1.7
27	Textile mills and textile product mills	0.1	0.1	0.1	0.1	0.1	0.1
28	Apparel and leather and allied products	0.7	0.7	0.7	0.7	0.7	0.8
29	Paper products	0.1	0.1	0.1	0.1	0.1	0.1
30	Printing and related support activities	0.0	0.0	0.0	0.0	0.0	0.0
31	Petroleum and coal products	4.6	4.4	4.3	3.7	2.5	3.0
32	Chemical products	1.0	1.0	1.0	1.0	1.0	1.0
33	Plastics and rubber products	0.1	0.1	0.1	0.1	0.1	0.1
34	Wholesale trade	8.9	8.6	8.8	8.8	8.5	8.1
35	Retail trade	23.4	23.7	23.1	22.7	22.7	22.4
36	Motor vehicle and parts dealers	2.3	2.3	2.2	2.4	2.5	2.6
37	Food and beverage stores	1.7	1.6	1.6	1.6	1.6	1.6
38	General merchandise stores	4.2	4.2	4.0	3.9	3.8	3.6
39	Other retail	15.3	15.6	15.2	14.9	14.8	14.5
40	Transportation and warehousing	9.2	9.6	10.1	10.7	11.2	11.2
41	Air transportation	6.1	6.3	7.0	7.7	8.2	8.4
42	Rail transportation	0.2	0.2	0.2	0.2	0.2	0.2
43	Water transportation	0.8	1.0	0.9	0.9	0.8	0.8
44	Truck transportation	1.1	1.0	1.0	1.0	0.9	0.9
45	Transit and ground passenger transportation	0.6	0.6	0.6	0.6	0.5	0.5
46	Pipeline transportation	0.1	0.1	0.1	0.1	0.2	0.1
47	Other transportation and support activities	0.4	0.4	0.4	0.4	0.4	0.3
48	Warehousing and storage	0.0	0.0	0.0	0.0	0.0	0.0
49	Information	0.4	0.4	0.4	0.4	0.4	0.4
50	Publishing industries, except internet (includes software)	0.1	0.1	0.1	0.1	0.1	0.1
51	Motion picture and sound recording industries	0.0	0.0	0.0	0.0	0.0	0.0
52	Broadcasting and telecommunications	0.2	0.2	0.2	0.2	0.2	0.2
53	Data processing, internet publishing, and other information services	0.0	0.0	0.0	0.0	0.1	0.1
54	Finance, insurance, real estate, rental, and leasing	6.2	6.0	5.3	5.7	5.9	5.8
55	Finance and insurance	1.1	0.9	1.1	1.2	1.2	1.1
56	Federal Reserve banks, credit intermediation, and related activities	0.1	0.1	0.1	0.1	0.1	0.1
57	Securities, commodity contracts, and investments	0.0	0.0	0.0	0.0	0.0	0.0

Table 12. Outdoor Recreation Value-Added by Industry as a Percentage of Total Outdoor Recreation Value-Added—Continued

[Percent]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
58	Insurance carriers and related activities	0.9	0.8	1.0	1.0	1.1	1.0
59	Funds, trusts, and other financial vehicles	0.0	0.0	0.0	0.0	0.0	0.0
60	Real estate and rental and leasing	5.1	5.1	4.2	4.5	4.7	4.7
61	Real estate	4.3	4.2	3.4	3.6	3.7	3.6
62	Housing	4.3	4.2	3.4	3.6	3.7	3.6
63	Other real estate	0.0	0.0	0.0	0.0	0.0	0.0
64	Rental and leasing services and lessors of intangible assets	0.8	0.8	0.8	0.9	1.0	1.1
65	Professional and business services	1.7	1.6	1.6	1.6	1.7	1.8
66	Professional, scientific, and technical services	0.3	0.3	0.4	0.4	0.4	0.4
67	Legal services	0.0	0.0	0.0	0.0	0.0	0.0
68	Computer systems design and related services	0.0	0.0	0.0	0.0	0.0	0.0
69	Miscellaneous professional, scientific, and technical services	0.3	0.3	0.4	0.4	0.4	0.4
70	Management of companies and enterprises	0.0	0.0	0.0	0.0	0.0	0.0
71	Administrative and waste management services	1.3	1.3	1.3	1.3	1.3	1.4
72	Administrative and support services	1.3	1.3	1.3	1.3	1.3	1.4
73	Waste management and remediation services	0.0	0.0	0.0	0.0	0.0	0.0
74	Educational services, health care, and social assistance	0.8	0.8	0.9	0.8	0.9	0.8
75	Educational services	0.7	0.7	0.7	0.7	0.7	0.7
76	Health care and social assistance	0.1	0.1	0.1	0.1	0.1	0.1
77	Ambulatory health care services	0.1	0.1	0.1	0.1	0.1	0.1
78	Hospitals	0.0	0.0	0.0	0.0	0.0	0.0
79	Nursing and residential care facilities	0.0	0.0	0.0	0.0	0.0	0.0
80	Social assistance	0.0	0.0	0.0	0.0	0.0	0.0
81	Arts, entertainment, recreation, accommodation, and food services	25.5	24.8	25.5	25.7	26.5	26.4
82	Arts, entertainment, and recreation	11.6	11.5	11.9	11.5	12.2	12.4
83	Performing arts, spectator sports, museums, and related activities	2.9	3.0	3.2	3.0	3.2	3.3
84	Amusements, gambling, and recreation industries	8.7	8.5	8.7	8.5	8.9	9.1
85	Accommodation and food services	13.9	13.3	13.6	14.2	14.3	14.0
86	Accommodation	7.7	8.1	8.3	8.7	8.7	8.4
87	Food services and drinking places	6.2	5.2	5.4	5.5	5.6	5.6
88	Other services, except government	1.3	1.3	1.3	1.3	1.3	1.3
89	Government	5.8	6.0	6.1	6.0	6.1	6.1
90	Federal	0.9	0.9	0.9	0.8	0.8	0.8
91	General government	0.8	0.8	0.8	0.7	0.7	0.7
92	National defense	0.0	0.0	0.0	0.0	0.0	0.0
93	Non-defense	0.8	0.8	0.8	0.7	0.7	0.7
94	Government enterprises	0.1	0.1	0.1	0.1	0.1	0.1
95	State and local	4.9	5.0	5.2	5.2	5.3	5.3
96	General government	5.0	5.0	5.1	5.1	5.1	5.1
97	Government enterprises	−0.1	0.0	0.1	0.1	0.1	0.1

Table 13. Chain-Type Quantity Indexes for Outdoor Recreation Value-Added by Industry

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	100.000	100.179	100.726	102.756	103.129	107.100
2	Private industries	100.000	100.128	100.719	102.878	103.123	107.118
3	Agriculture, forestry, fishing, and hunting	100.000	110.855	118.316	125.097	117.392	118.538
4	Farms	100.000	113.866	128.267	133.734	137.464	136.429
5	Forestry, fishing, and related activities	100.000	103.727	96.336	105.325	78.471	83.091
6	Mining	100.000	91.995	83.533	77.753	73.402	94.548
7	Oil and gas extraction	100.000	101.665	98.613	126.151	126.547	91.355
8	Mining, except oil and gas	100.000	86.508	68.233	50.942	47.643	108.457
9	Support activities for mining	100.000	90.057	96.816	64.890	54.216	60.290
10	Utilities	100.000	97.457	80.986	83.511	88.696	84.879
11	Construction	100.000	92.945	93.393	96.893	100.455	102.573
12	Manufacturing	100.000	104.130	103.868	101.335	97.566	106.332
13	Durable goods	100.000	102.747	99.896	97.861	95.496	108.564
14	Wood products	100.000	106.507	113.158	112.935	114.960	122.015
15	Nonmetallic mineral products	100.000	106.820	107.633	106.012	107.868	108.734
16	Primary metals	100.000	73.981	88.934	71.047	74.985	74.946
17	Fabricated metal products	100.000	107.675	95.343	104.918	107.343	140.856
18	Machinery	100.000	99.866	88.837	73.929	52.016	73.062
19	Computer and electronic products	100.000	103.102	123.994	218.194	164.995	197.573
20	Electrical equipment, appliances, and components	100.000	95.108	90.499	92.723	71.418	73.328
21	Motor vehicles, bodies and trailers, and parts	100.000	107.486	105.231	97.005	97.156	121.759
22	Other transportation equipment	100.000	106.328	106.846	102.823	103.611	103.809
23	Furniture and related products	100.000	100.448	97.506	86.207	74.622	73.604
24	Miscellaneous manufacturing	100.000	90.903	87.424	82.910	90.285	99.837
25	Nondurable goods	100.000	105.001	106.496	103.625	98.784	104.096
26	Food and beverage and tobacco products	100.000	102.232	101.193	96.908	96.083	94.280
27	Textile mills and textile product mills	100.000	84.095	90.700	93.821	97.045	96.200
28	Apparel and leather and allied products	100.000	97.042	95.153	93.909	106.212	111.797
29	Paper products	100.000	102.086	111.241	105.164	100.797	94.290
30	Printing and related support activities	100.000	98.498	102.687	103.480	102.699	91.515
31	Petroleum and coal products	100.000	108.037	111.592	110.009	95.838	108.901
32	Chemical products	100.000	106.402	105.861	99.054	100.459	100.314
33	Plastics and rubber products	100.000	99.664	95.828	97.955	100.563	105.202
34	Wholesale trade	100.000	88.279	92.870	96.560	93.614	93.040
35	Retail trade	100.000	104.679	103.004	103.928	104.372	109.312
36	Motor vehicle and parts dealers	100.000	100.733	95.965	108.679	120.360	140.366
37	Food and beverage stores	100.000	99.022	96.480	93.832	90.804	93.276
38	General merchandise stores	100.000	107.626	107.350	110.913	108.258	109.229
39	Other retail	100.000	105.103	103.652	102.525	102.479	106.534
40	Transportation and warehousing	100.000	105.831	110.018	116.520	120.172	126.169
41	Air transportation	100.000	104.873	112.184	126.085	137.020	144.578
42	Rail transportation	100.000	96.854	96.460	97.719	97.579	103.427
43	Water transportation	100.000	135.553	133.147	108.882	77.419	87.160
44	Truck transportation	100.000	96.990	94.603	88.506	85.420	85.086
45	Transit and ground passenger transportation	100.000	97.039	94.140	90.637	86.904	90.218
46	Pipeline transportation	100.000	102.229	98.152	128.498	137.238	137.187
47	Other transportation and support activities	100.000	106.952	107.323	100.148	97.513	92.969

Table 13. Chain-Type Quantity Indexes for Outdoor Recreation Value-Added by Industry—Continued

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
48	Warehousing and storage	100.000	100.921	97.106	98.480	103.744	98.199
49	Information	100.000	103.315	103.609	111.819	119.212	129.931
50	Publishing industries, except internet (includes software)	100.000	90.894	87.288	86.974	87.025	90.858
51	Motion picture and sound recording industries	100.000	89.537	89.267	99.471	110.279	111.517
52	Broadcasting and telecommunications	100.000	113.754	115.339	124.942	133.682	144.636
53	Data processing, internet publishing, and other information services	100.000	112.204	123.880	162.878	195.915	241.861
54	Finance, insurance, real estate, rental, and leasing	100.000	96.727	85.061	94.827	98.749	97.710
55	Finance and insurance	100.000	87.404	105.271	114.532	110.294	99.228
56	Federal Reserve banks, credit intermediation, and related activities	100.000	91.993	94.114	103.453	101.384	99.401
57	Securities, commodity contracts, and investments	0.000	0.000	0.000	0.000	0.000	0.000
58	Insurance carriers and related activities	100.000	86.846	106.653	115.906	111.404	99.270
59	Funds, trusts, and other financial vehicles	0.000	0.000	0.000	0.000	0.000	0.000
60	Real estate and rental and leasing	100.000	98.651	80.940	90.809	96.454	97.625
61	Real estate	100.000	98.288	77.925	83.863	85.329	84.259
62	Housing	100.000	98.291	77.922	83.861	85.328	84.258
63	Other real estate	100.000	88.142	88.794	89.007	89.119	86.836
64	Rental and leasing services and lessors of intangible assets	100.000	100.555	96.571	127.886	159.409	175.899
65	Professional and business services	100.000	95.520	98.181	102.052	102.932	113.631
66	Professional, scientific, and technical services	100.000	97.906	107.381	115.107	119.482	127.272
67	Legal services	0.000	0.000	0.000	0.000	0.000	0.000
68	Computer systems design and related services	100.000	80.061	78.410	95.697	98.177	107.796
69	Miscellaneous professional, scientific, and technical services	100.000	98.868	108.959	116.165	120.638	128.346
70	Management of companies and enterprises	0.000	0.000	0.000	0.000	0.000	0.000
71	Administrative and waste management services	100.000	94.902	95.780	98.639	98.599	110.060
72	Administrative and support services	100.000	94.901	95.777	98.634	98.594	110.058
73	Waste management and remediation services	100.000	100.583	113.102	120.260	123.868	120.606
74	Educational services, health care, and social assistance	100.000	95.750	99.807	98.235	99.287	98.304
75	Educational services	100.000	96.466	100.537	97.811	98.288	96.721
76	Health care and social assistance	100.000	92.091	96.079	100.779	105.075	107.519
77	Ambulatory health care services	100.000	93.147	98.651	104.256	110.265	112.972
78	Hospitals	100.000	88.998	90.620	94.788	98.151	100.419
79	Nursing and residential care facilities	100.000	86.386	86.310	86.465	87.132	87.244
80	Social assistance	100.000	103.781	109.171	110.982	105.543	108.337
81	Arts, entertainment, recreation, accommodation, and food services	100.000	97.202	99.644	100.879	101.964	105.132
82	Arts, entertainment, and recreation	100.000	99.217	102.969	99.364	102.643	109.377
83	Performing arts, spectator sports, museums, and related activities	100.000	102.969	109.674	101.006	105.741	109.777
84	Amusements, gambling, and recreation industries	100.000	97.957	100.710	98.840	101.613	109.307
85	Accommodation and food services	100.000	95.525	96.886	102.126	101.376	101.591
86	Accommodation	100.000	104.347	105.016	112.315	110.994	110.328
87	Food services and drinking places	100.000	84.449	86.687	89.320	89.287	90.597
88	Other services, except government	100.000	98.292	100.202	101.214	102.268	103.003
89	Government	100.000	100.996	100.868	100.903	103.250	106.861
90	Federal	100.000	110.314	103.393	101.291	104.258	103.366
91	General government	100.000	107.469	99.683	97.231	101.014	99.932
92	National defense	100.000	138.177	145.667	132.300	143.584	147.661
93	Non-defense	100.000	107.465	99.677	97.226	101.008	99.925
94	Government enterprises	100.000	135.379	136.758	138.396	132.290	133.509
95	State and local	100.000	99.402	100.395	100.769	103.017	107.340
96	General government	100.000	96.712	96.950	98.078	100.759	104.620
97	Government enterprises	−100.000	10.640	34.078	16.137	13.309	16.125

Table 14. Percent Changes in Chain-Type Quantity Indexes for Outdoor Recreation Value-Added by Industry

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
1	All Industries	0.2	0.5	2.0	0.4	3.9
2	Private industries	0.1	0.6	2.1	0.2	3.9
3	Agriculture, forestry, fishing, and hunting	10.9	6.7	5.7	−6.2	1.0
4	Farms	13.9	12.6	4.3	2.8	−0.8
5	Forestry, fishing, and related activities	3.7	−7.1	9.3	−25.5	5.9
6	Mining	−8.0	−9.2	−6.9	−5.6	28.8
7	Oil and gas extraction	1.7	−3.0	27.9	0.3	−27.8
8	Mining, except oil and gas	−13.5	−21.1	−25.3	−6.5	127.6
9	Support activities for mining	−9.9	7.5	−33.0	−16.5	11.2
10	Utilities	−2.5	−16.9	3.1	6.2	−4.3
11	Construction	−7.1	0.5	3.7	3.7	2.1
12	Manufacturing	4.1	−0.3	−2.4	−3.7	9.0
13	Durable goods	2.7	−2.8	−2.0	−2.4	13.7
14	Wood products	6.5	6.2	−0.2	1.8	6.1
15	Nonmetallic mineral products	6.8	0.8	−1.5	1.8	0.8
16	Primary metals	−26.0	20.2	−20.1	5.5	−0.1
17	Fabricated metal products	7.7	−11.5	10.0	2.3	31.2
18	Machinery	−0.1	−11.0	−16.8	−29.6	40.5
19	Computer and electronic products	3.1	20.3	76.0	−24.4	19.7
20	Electrical equipment, appliances, and components	−4.9	−4.8	2.5	−23.0	2.7
21	Motor vehicles, bodies and trailers, and parts	7.5	−2.1	−7.8	0.2	25.3
22	Other transportation equipment	6.3	0.5	−3.8	0.8	0.2
23	Furniture and related products	0.4	−2.9	−11.6	−13.4	−1.4
24	Miscellaneous manufacturing	−9.1	−3.8	−5.2	8.9	10.6
25	Nondurable goods	5.0	1.4	−2.7	−4.7	5.4
26	Food and beverage and tobacco products	2.2	−1.0	−4.2	−0.9	−1.9
27	Textile mills and textile product mills	−15.9	7.9	3.4	3.4	−0.9
28	Apparel and leather and allied products	−3.0	−1.9	−1.3	13.1	5.3
29	Paper products	2.1	9.0	−5.5	−4.2	−6.5
30	Printing and related support activities	−1.5	4.3	0.8	−0.8	−10.9
31	Petroleum and coal products	8.0	3.3	−1.4	−12.9	13.6
32	Chemical products	6.4	−0.5	−6.4	1.4	−0.1
33	Plastics and rubber products	−0.3	−3.8	2.2	2.7	4.6
34	Wholesale trade	−11.7	5.2	4.0	−3.1	−0.6
35	Retail trade	4.7	−1.6	0.9	0.4	4.7
36	Motor vehicle and parts dealers	0.7	−4.7	13.2	10.7	16.6
37	Food and beverage stores	−1.0	−2.6	−2.7	−3.2	2.7

Table 14. Percent Changes in Chain-Type Quantity Indexes for Outdoor Recreation Value-Added by Industry—Continued

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
38	General merchandise stores	7.6	−0.3	3.3	−2.4	0.9
39	Other retail	5.1	−1.4	−1.1	0.0	4.0
40	Transportation and warehousing	5.8	4.0	5.9	3.1	5.0
41	Air transportation	4.9	7.0	12.4	8.7	5.5
42	Rail transportation	−3.1	−0.4	1.3	−0.1	6.0
43	Water transportation	35.6	−1.8	−18.2	−28.9	12.6
44	Truck transportation	−3.0	−2.5	−6.4	−3.5	−0.4
45	Transit and ground passenger transportation	−3.0	−3.0	−3.7	−4.1	3.8
46	Pipeline transportation	2.2	−4.0	30.9	6.8	0.0
47	Other transportation and support activities	7.0	0.3	−6.7	−2.6	−4.7
48	Warehousing and storage	0.9	−3.8	1.4	5.3	−5.3
49	Information	3.3	0.3	7.9	6.6	9.0
50	Publishing industries, except internet (includes software)	−9.1	−4.0	−0.4	0.1	4.4
51	Motion picture and sound recording industries	−10.5	−0.3	11.4	10.9	1.1
52	Broadcasting and telecommunications	13.8	1.4	8.3	7.0	8.2
53	Data processing, internet publishing, and other information services	12.2	10.4	31.5	20.3	23.5
54	Finance, insurance, real estate, rental, and leasing	−3.3	−12.1	11.5	4.1	−1.1
55	Finance and insurance	−12.6	20.4	8.8	−3.7	−10.0
56	Federal Reserve banks, credit intermediation, and related activities	−8.0	2.3	9.9	−2.0	−2.0
57	Securities, commodity contracts, and investments	0.0	0.0	0.0	0.0	0.0
58	Insurance carriers and related activities	−13.2	22.8	8.7	−3.9	−10.9
59	Funds, trusts, and other financial vehicles	0.0	0.0	0.0	0.0	0.0
60	Real estate and rental and leasing	−1.3	−18.0	12.2	6.2	1.2
61	Real estate	−1.7	−20.7	7.6	1.7	−1.3
62	Housing	−1.7	−20.7	7.6	1.7	−1.3
63	Other real estate	−11.9	0.7	0.2	0.1	−2.6
64	Rental and leasing services and lessors of intangible assets	0.6	−4.0	32.4	24.6	10.3
65	Professional and business services	−4.5	2.8	3.9	0.9	10.4
66	Professional, scientific, and technical services	−2.1	9.7	7.2	3.8	6.5
67	Legal services	0.0	0.0	0.0	0.0	0.0
68	Computer systems design and related services	−19.9	−2.1	22.0	2.6	9.8
69	Miscellaneous professional, scientific, and technical services	−1.1	10.2	6.6	3.9	6.4
70	Management of companies and enterprises	0.0	0.0	0.0	0.0	0.0
71	Administrative and waste management services	−5.1	0.9	3.0	0.0	11.6
72	Administrative and support services	−5.1	0.9	3.0	0.0	11.6
73	Waste management and remediation services	0.6	12.4	6.3	3.0	−2.6
74	Educational services, health care, and social assistance	−4.3	4.2	−1.6	1.1	−1.0
75	Educational services	−3.5	4.2	−2.7	0.5	−1.6
76	Health care and social assistance	−7.9	4.3	4.9	4.3	2.3
77	Ambulatory health care services	−6.9	5.9	5.7	5.8	2.5
78	Hospitals	−11.0	1.8	4.6	3.5	2.3
79	Nursing and residential care facilities	−13.6	−0.1	0.2	0.8	0.1
80	Social assistance	3.8	5.2	1.7	−4.9	2.6
81	Arts, entertainment, recreation, accommodation, and food services	−2.8	2.5	1.2	1.1	3.1
82	Arts, entertainment, and recreation	−0.8	3.8	−3.5	3.3	6.6
83	Performing arts, spectator sports, museums, and related activities	3.0	6.5	−7.9	4.7	3.8
84	Amusements, gambling, and recreation industries	−2.0	2.8	−1.9	2.8	7.6
85	Accommodation and food services	−4.5	1.4	5.4	−0.7	0.2
86	Accommodation	4.3	0.6	7.0	−1.2	−0.6
87	Food services and drinking places	−15.6	2.6	3.0	0.0	1.5
88	Other services, except government	−1.7	1.9	1.0	1.0	0.7
89	Government	1.0	−0.1	0.0	2.3	3.5
90	Federal	10.3	−6.3	−2.0	2.9	−0.9
91	General government	7.5	−7.2	−2.5	3.9	−1.1
92	National defense	38.2	5.4	−9.2	8.5	2.8
93	Non-defense	7.5	−7.2	−2.5	3.9	−1.1
94	Government enterprises	35.4	1.0	1.2	−4.4	0.9
95	State and local	−0.6	1.0	0.4	2.2	4.2
96	General government	−3.3	0.2	1.2	2.7	3.8
97	Government enterprises	−110.6	220.3	−52.6	−17.5	21.2

Table 15. Chain-Type Price Indexes for Outdoor Recreation Value-Added by Industry

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	100.000	102.250	104.428	108.191	109.728	110.802
2	Private industries	100.000	102.057	104.092	107.772	109.352	110.420
3	Agriculture, forestry, fishing, and hunting	100.000	102.646	94.965	92.527	90.193	92.397
4	Farms	100.000	101.334	89.292	84.616	80.259	82.832
5	Forestry, fishing, and related activities	100.000	105.996	111.206	115.809	121.287	121.737
6	Mining	100.000	99.765	100.096	77.739	72.960	84.269
7	Oil and gas extraction	100.000	109.456	123.234	69.302	61.111	95.243
8	Mining, except oil and gas	100.000	90.342	81.828	77.964	74.009	70.033
9	Support activities for mining	100.000	111.602	108.614	122.041	129.422	129.293
10	Utilities	100.000	106.754	112.094	123.102	129.483	136.101
11	Construction	100.000	105.926	113.582	121.209	129.112	135.681
12	Manufacturing	100.000	99.351	99.972	102.278	98.115	99.735
13	Durable goods	100.000	104.893	107.167	113.300	116.332	115.249
14	Wood products	100.000	99.091	96.990	101.796	108.993	108.279
15	Nonmetallic mineral products	100.000	100.525	99.966	106.032	108.963	109.257
16	Primary metals	100.000	107.806	109.555	125.391	123.990	112.750
17	Fabricated metal products	100.000	113.853	115.065	117.904	117.881	117.499
18	Machinery	100.000	103.238	107.885	113.490	110.902	109.515
19	Computer and electronic products	100.000	96.964	97.132	90.992	80.493	79.411
20	Electrical equipment, appliances, and components	100.000	101.606	102.683	106.082	107.375	105.156
21	Motor vehicles, bodies and trailers, and parts	100.000	107.643	113.062	125.286	135.309	139.897
22	Other transportation equipment	100.000	103.622	104.796	111.186	116.462	116.747
23	Furniture and related products	100.000	107.332	108.810	120.811	132.593	126.301
24	Miscellaneous manufacturing	100.000	102.596	103.564	108.575	107.543	96.509
25	Nondurable goods	100.000	96.022	95.668	95.769	87.439	90.728
26	Food and beverage and tobacco products	100.000	102.081	108.295	120.356	123.559	120.878
27	Textile mills and textile product mills	100.000	108.255	110.775	113.326	115.671	114.919

Table 15. Chain-Type Price Indexes for Outdoor Recreation Value-Added by Industry—Continued

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
28	Apparel and leather and allied products	100.000	103.875	103.470	105.270	107.552	110.441
29	Paper products	100.000	98.017	95.073	97.481	100.461	96.359
30	Printing and related support activities	100.000	100.048	101.885	107.338	108.704	109.103
31	Petroleum and coal products	100.000	90.775	87.195	80.933	63.503	70.017
32	Chemical products	100.000	102.426	105.965	114.933	118.883	119.142
33	Plastics and rubber products	100.000	99.870	100.508	107.810	110.484	107.061
34	Wholesale trade	100.000	111.874	111.685	113.852	115.151	116.404
35	Retail trade	100.000	99.322	101.295	104.389	105.488	104.305
36	Motor vehicle and parts dealers	100.000	102.707	108.205	106.333	104.345	98.619
37	Food and beverage stores	100.000	102.506	107.068	115.219	120.988	121.526
38	General merchandise stores	100.000	96.519	94.153	92.891	94.460	94.879
39	Other retail	100.000	99.273	101.704	106.285	107.299	106.341
40	Transportation and warehousing	100.000	101.786	105.786	111.704	114.753	115.047
41	Air transportation	100.000	101.640	106.919	111.148	111.501	112.190
42	Rail transportation	100.000	104.881	107.617	112.609	113.187	114.530
43	Water transportation	100.000	99.086	96.845	114.658	148.501	140.076
44	Truck transportation	100.000	103.116	107.667	114.089	115.449	116.666
45	Transit and ground passenger transportation	100.000	103.533	103.691	109.338	114.547	114.756
46	Pipeline transportation	100.000	105.792	115.403	123.639	127.543	128.054
47	Other transportation and support activities	100.000	101.682	103.749	112.803	121.034	124.145
48	Warehousing and storage	100.000	101.199	102.699	100.296	99.431	101.553
49	Information	100.000	102.105	102.868	103.004	102.256	101.574
50	Publishing industries, except internet (includes software)	100.000	102.608	104.068	105.556	107.833	109.559
51	Motion picture and sound recording industries	100.000	119.052	126.244	125.165	115.004	126.585
52	Broadcasting and telecommunications	100.000	100.638	100.685	100.133	98.225	95.139
53	Data processing, internet publishing, and other information services	100.000	101.569	101.556	101.270	100.413	100.627
54	Finance, insurance, real estate, rental, and leasing	100.000	102.732	106.162	107.457	109.360	113.278
55	Finance and insurance	100.000	102.693	104.474	106.989	113.355	121.730
56	Federal Reserve banks, credit intermediation, and related activities	100.000	104.974	106.740	108.748	112.835	115.391
57	Securities, commodity contracts, and investments	0.000	0.000	0.000	0.000	0.000	0.000
58	Insurance carriers and related activities	100.000	102.411	104.195	106.762	113.373	122.416
59	Funds, trusts, and other financial vehicles	0.000	0.000	0.000	0.000	0.000	0.000
60	Real estate and rental and leasing	100.000	102.740	106.546	107.517	108.315	111.238
61	Real estate	100.000	102.828	106.122	110.010	114.206	118.625
62	Housing	100.000	102.828	106.122	110.011	114.208	118.627
63	Other real estate	100.000	102.151	105.820	107.900	110.025	112.350
64	Rental and leasing services and lessors of intangible assets	100.000	102.284	108.455	98.305	88.543	87.397
65	Professional and business services	100.000	101.584	102.781	106.329	109.637	112.737
66	Professional, scientific, and technical services	100.000	102.377	104.355	107.895	111.361	113.822
67	Legal services	0.000	0.000	0.000	0.000	0.000	0.000
68	Computer systems design and related services	100.000	107.336	110.272	108.471	103.292	106.495
69	Miscellaneous professional, scientific, and technical services	100.000	102.140	104.079	107.835	111.673	114.101
70	Management of companies and enterprises	0.000	0.000	0.000	0.000	0.000	0.000
71	Administrative and waste management services	100.000	101.376	102.358	105.909	109.172	112.469
72	Administrative and support services	100.000	101.375	102.358	105.909	109.173	112.469
73	Waste management and remediation services	100.000	107.857	104.949	105.651	106.833	111.679
74	Educational services, health care, and social assistance	100.000	104.335	107.295	111.036	114.961	120.355
75	Educational services	100.000	104.813	107.946	112.313	116.976	123.367
76	Health care and social assistance	100.000	101.871	103.902	104.403	104.696	105.361
77	Ambulatory health care services	100.000	102.355	104.862	103.839	102.554	101.967
78	Hospitals	100.000	102.282	104.226	106.925	109.393	111.715
79	Nursing and residential care facilities	100.000	102.253	104.249	107.852	110.897	113.751
80	Social assistance	100.000	94.500	92.530	94.822	98.252	102.062
81	Arts, entertainment, recreation, accommodation, and food services	100.000	102.431	105.492	111.068	115.271	116.911
82	Arts, entertainment, and recreation	100.000	101.991	104.468	111.184	115.398	115.687
83	Performing arts, spectator sports, museums, and related activities	100.000	102.501	105.662	114.027	118.942	121.740
84	Amusements, gambling, and recreation industries	100.000	101.815	104.047	110.183	114.154	113.585
85	Accommodation and food services	100.000	102.807	106.380	110.992	115.188	118.006
86	Accommodation	100.000	102.704	106.980	111.119	114.896	117.324
87	Food services and drinking places	100.000	102.953	105.445	110.794	115.648	119.068
88	Other services, except government	100.000	103.429	106.203	109.723	112.848	117.731
89	Government	100.000	105.402	109.913	115.044	115.864	117.038
90	Federal	100.000	101.280	103.009	103.717	105.486	108.603
91	General government	100.000	101.941	104.752	106.706	108.505	111.596
92	National defense	100.000	99.968	100.313	100.392	98.502	98.675
93	Non-defense	100.000	101.942	104.753	106.707	108.507	111.599
94	Government enterprises	100.000	96.180	90.855	83.919	85.485	88.752
95	State and local	100.000	106.161	111.192	117.116	117.767	118.606
96	General government	100.000	105.879	110.621	114.472	114.333	115.686
97	Government enterprises	100.000	83.278	142.780	569.888	769.711	634.725

Table 16. Percent Changes in Chain-Type Price Indexes for Outdoor Recreation Value-Added by Industry

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
1	All Industries	2.2	2.1	3.6	1.4	1.0
2	Private industries	2.1	2.0	3.5	1.5	1.0
3	Agriculture, forestry, fishing, and hunting	2.6	−7.5	−2.6	−2.5	2.4
4	Farms	1.3	−11.9	−5.2	−5.1	3.2
5	Forestry, fishing, and related activities	6.0	4.9	4.1	4.7	0.4
6	Mining	−0.2	0.3	−22.3	−6.1	15.5
7	Oil and gas extraction	9.5	12.6	−43.8	−11.8	55.9
8	Mining, except oil and gas	−9.7	−9.4	−4.7	−5.1	−5.4
9	Support activities for mining	11.6	−2.7	12.4	6.0	−0.1
10	Utilities	6.8	5.0	9.8	5.2	5.1
11	Construction	5.9	7.2	6.7	6.5	5.1
12	Manufacturing	−0.6	0.6	2.3	−4.1	1.7
13	Durable goods	4.9	2.2	5.7	2.7	−0.9
14	Wood products	−0.9	−2.1	5.0	7.1	−0.7
15	Nonmetallic mineral products	0.5	−0.6	6.1	2.8	0.3
16	Primary metals	7.8	1.6	14.5	−1.1	−9.1
17	Fabricated metal products	13.9	1.1	2.5	0.0	−0.3

Table 16. Percent Changes in Chain-Type Price Indexes for Outdoor Recreation Value-Added by Industry—Continued

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
18	Machinery	3.2	4.5	5.2	−2.3	−1.3
19	Computer and electronic products	−3.0	0.2	−6.3	−11.5	−1.3
20	Electrical equipment, appliances, and components	1.6	1.1	3.3	1.2	−2.1
21	Motor vehicles, bodies and trailers, and parts	7.6	5.0	10.8	8.0	3.4
22	Other transportation equipment	3.6	1.1	6.1	4.7	0.2
23	Furniture and related products	7.3	1.4	11.0	9.8	−4.7
24	Miscellaneous manufacturing	2.6	0.9	4.8	−1.0	−10.3
25	Nondurable goods	−4.0	−0.4	0.1	−8.7	3.8
26	Food and beverage and tobacco products	2.1	6.1	11.1	2.7	−2.2
27	Textile mills and textile product mills	8.3	2.3	2.3	2.1	−0.7
28	Apparel and leather and allied products	3.9	−0.4	1.7	2.2	2.7
29	Paper products	−2.0	−3.0	2.5	3.1	−4.1
30	Printing and related support activities	0.0	1.8	5.4	1.3	0.4
31	Petroleum and coal products	−9.2	−3.9	−7.2	−21.5	10.3
32	Chemical products	2.4	3.5	8.5	3.4	0.2
33	Plastics and rubber products	−0.1	0.6	7.3	2.5	−3.1
34	Wholesale trade	11.9	−0.2	1.9	1.1	1.1
35	Retail trade	−0.7	2.0	3.1	1.1	−1.1
36	Motor vehicle and parts dealers	2.7	5.4	−1.7	−1.9	−5.5
37	Food and beverage stores	2.5	4.5	7.6	5.0	0.4
38	General merchandise stores	−3.5	−2.5	−1.3	1.7	0.4
39	Other retail	−0.7	2.4	4.5	1.0	−0.9
40	Transportation and warehousing	1.8	3.9	5.6	2.7	0.3
41	Air transportation	1.6	5.2	4.0	0.3	0.6
42	Rail transportation	4.9	2.6	4.6	0.5	1.2
43	Water transportation	−0.9	−2.3	18.4	29.5	−5.7
44	Truck transportation	3.1	4.4	6.0	1.2	1.1
45	Transit and ground passenger transportation	3.5	0.2	5.4	4.8	0.2
46	Pipeline transportation	5.8	9.1	7.1	3.2	0.4
47	Other transportation and support activities	1.7	2.0	8.7	7.3	2.6
48	Warehousing and storage	1.2	1.5	−2.3	−0.9	2.1
49	Information	2.1	0.7	0.1	−0.7	−0.7
50	Publishing industries, except internet (includes software)	2.6	1.4	1.4	2.2	1.6
51	Motion picture and sound recording industries	19.1	6.0	−0.9	−8.1	10.1
52	Broadcasting and telecommunications	0.6	0.0	−0.5	−1.9	−3.1
53	Data processing, internet publishing, and other information services	1.6	0.0	−0.3	−0.8	0.2
54	Finance, insurance, real estate, rental, and leasing	2.7	3.3	1.2	1.8	3.6
55	Finance and insurance	2.7	1.7	2.4	5.9	7.4
56	Federal Reserve banks, credit intermediation, and related activities	5.0	1.7	1.9	3.8	2.3
57	Securities, commodity contracts, and investments	0.0	0.0	0.0	0.0	0.0
58	Insurance carriers and related activities	2.4	1.7	2.5	6.2	8.0
59	Funds, trusts, and other financial vehicles	0.0	0.0	0.0	0.0	0.0
60	Real estate and rental and leasing	2.7	3.7	0.9	0.7	2.7
61	Real estate	2.8	3.2	3.7	3.8	3.9
62	Housing	2.8	3.2	3.7	3.8	3.9
63	Other real estate	2.2	3.6	2.0	2.0	2.1
64	Rental and leasing services and lessors of intangible assets	2.3	6.0	−9.4	−9.9	−1.3
65	Professional and business services	1.6	1.2	3.5	3.1	2.8
66	Professional, scientific, and technical services	2.4	1.9	3.4	3.2	2.2
67	Legal services	0.0	0.0	0.0	0.0	0.0
68	Computer systems design and related services	7.3	2.7	−1.6	−4.8	3.1
69	Miscellaneous professional, scientific, and technical services	2.1	1.9	3.6	3.6	2.2
70	Management of companies and enterprises	0.0	0.0	0.0	0.0	0.0
71	Administrative and waste management services	1.4	1.0	3.5	3.1	3.0
72	Administrative and support services	1.4	1.0	3.5	3.1	3.0
73	Waste management and remediation services	7.9	−2.7	0.7	1.1	4.5
74	Educational services, health care, and social assistance	4.3	2.8	3.5	3.5	4.7
75	Educational services	4.8	3.0	4.0	4.2	5.5
76	Health care and social assistance	1.9	2.0	0.5	0.3	0.6
77	Ambulatory health care services	2.4	2.4	−1.0	−1.2	−0.6
78	Hospitals	2.3	1.9	2.6	2.3	2.1
79	Nursing and residential care facilities	2.3	2.0	3.5	2.8	2.6
80	Social assistance	−5.5	−2.1	2.5	3.6	3.9
81	Arts, entertainment, recreation, accommodation, and food services	2.4	3.0	5.3	3.8	1.4
82	Arts, entertainment, and recreation	2.0	2.4	6.4	3.8	0.3
83	Performing arts, spectator sports, museums, and related activities	2.5	3.1	7.9	4.3	2.4
84	Amusements, gambling, and recreation industries	1.8	2.2	5.9	3.6	−0.5
85	Accommodation and food services	2.8	3.5	4.3	3.8	2.4
86	Accommodation	2.7	4.2	3.9	3.4	2.1
87	Food services and drinking places	3.0	2.4	5.1	4.4	3.0
88	Other services, except government	3.4	2.7	3.3	2.8	4.3
89	Government	5.4	4.3	4.7	0.7	1.0
90	Federal	1.3	1.7	0.7	1.7	3.0
91	General government	1.9	2.8	1.9	1.7	2.8
92	National defense	0.0	0.3	0.1	−1.9	0.2
93	Non-defense	1.9	2.8	1.9	1.7	2.8
94	Government enterprises	−3.8	−5.5	−7.6	1.9	3.8
95	State and local	6.2	4.7	5.3	0.6	0.7
96	General government	5.9	4.5	3.5	−0.1	1.2
97	Government enterprises	−16.7	71.5	299.1	35.1	−17.5

Table 17. Real Outdoor Recreation Gross Output by Activity

[Millions of chained (2012) dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**691,782**	**699,173**	**708,666**	**730,321**	**742,793**	**762,768**
2	**Total Core Outdoor Recreation**	**342,735**	**352,736**	**359,960**	**368,509**	**375,449**	**391,354**
3	**Conventional Outdoor Recreation**	**214,386**	**222,085**	**226,931**	**233,108**	**238,877**	**248,087**
4	Bicycling	3,182	3,353	3,445	3,306	3,729	3,874
5	Boating/Fishing	32,428	32,760	33,153	34,769	35,854	38,039
6	Canoeing	124	121	126	129	133	141
7	Kayaking	580	580	581	618	680	736

Table 17. Real Outdoor Recreation Gross Output by Activity—Continued

[Millions of chained (2012) dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
8	Fishing (excludes Boating)	4,863	4,829	4,947	5,082	5,063	5,031
9	Sailing	1,824	1,888	1,974	2,052	2,151	2,231
10	Other Boating	25,037	25,343	25,527	26,891	27,833	29,913
11	Climbing/Hiking/Tent Camping	5,588	5,823	5,967	5,815	6,102	6,058
12	Equestrian	9,307	9,862	10,663	11,046	11,887	13,446
13	Hunting/Shooting/Trapping	11,371	12,968	12,397	13,267	13,043	14,068
14	Hunting/Trapping	5,844	6,518	6,217	6,779	6,280	6,709
15	Shooting (includes Archery)	5,527	6,451	6,181	6,486	6,772	7,371
16	Motorcycling/ATVing	17,154	17,575	17,989	18,825	18,703	19,592
17	Recreational Flying	2,870	2,849	3,018	3,068	3,251	3,206
18	RVing	26,710	28,869	30,374	31,147	33,016	34,552
19	Snow Activities	10,638	10,733	11,091	11,323	11,298	11,575
20	Skiing	2,929	2,988	3,211	3,321	3,277	3,411
21	Snowboarding	2,534	2,635	2,770	2,864	2,912	3,050
22	Other Snow Activities (includes Snowmobiling) [1]	5,175	5,110	5,108	5,125	5,092	5,067
23	Other Conventional Outdoor Recreation Activities	18,331	18,560	19,923	20,510	21,416	21,970
24	Other Conventional Air and Land Activities [2]	15,308	15,595	16,786	17,153	18,104	18,678
25	Other Conventional Water Activities [3]	3,023	2,966	3,141	3,344	3,338	3,340
26	Multi-use Apparel and Accessories (Conventional) [4]	76,807	78,728	78,969	80,095	80,680	81,727
27	**Other Outdoor Recreation**	**128,349**	**130,650**	**133,030**	**135,421**	**136,652**	**143,306**
28	Amusement Parks/Water Parks	13,206	12,460	12,234	12,685	13,045	14,153
29	Festivals/Sporting Events/Concerts	20,560	20,852	21,587	21,728	22,373	23,189
30	Field Sports	5,232	5,243	5,490	5,720	5,923	6,026
31	Game Areas (includes Golfing and Tennis)	32,082	33,243	32,501	32,621	33,537	34,800
32	Guided Tours/Outfitted Travel	25,481	25,938	26,992	26,062	24,167	26,280
33	Air and Land Guided Tours/Outfitted Travel	13,811	14,382	15,349	15,663	15,277	15,885
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	11,670	11,556	11,646	10,410	8,910	10,406
35	Productive Activities (includes Gardening)	10,703	11,193	12,326	13,258	14,025	14,529
36	Other Outdoor Recreation Activities [5]	14,722	15,022	15,547	16,905	17,072	17,480
37	Multi-use Apparel and Accessories (Other) [4]	6,362	6,728	6,420	6,568	6,678	6,911
38	**Supporting Outdoor Recreation**	**349,046**	**346,420**	**348,688**	**361,855**	**367,350**	**371,099**
39	Construction	9,385	9,060	9,127	10,441	11,184	10,932
40	Local Trips and Travel [6]	71,515	72,271	72,463	73,093	73,031	73,708
41	Trips and Travel [7]	234,570	231,223	232,960	242,296	245,136	248,304
42	Food and Beverages	38,079	31,475	32,171	33,746	34,668	34,852
43	Lodging	49,531	50,373	48,973	51,489	52,619	52,420
44	Shopping and Souvenirs	40,398	41,297	41,968	42,558	43,454	44,251
45	Transportation	106,561	108,119	109,935	114,569	114,187	116,815
46	Government Expenditures	33,576	33,870	34,135	35,772	37,458	37,675
47	Federal Government	3,947	4,176	3,853	3,834	3,985	3,944
48	State and Local Government	29,629	29,696	30,279	31,935	33,470	33,731

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 18. Outdoor Recreation Gross Output by Activity

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**691,782**	**709,072**	**725,728**	**730,955**	**741,630**	**778,487**
2	**Total Core Outdoor Recreation**	**342,735**	**358,561**	**368,355**	**377,843**	**386,701**	**408,053**
3	**Conventional Outdoor Recreation**	**214,386**	**225,790**	**231,538**	**235,600**	**241,433**	**253,955**
4	Bicycling	3,182	3,341	3,454	3,342	3,840	4,011
5	Boating/Fishing	32,428	33,413	34,434	35,757	37,050	39,878
6	Canoeing	124	123	130	136	142	153
7	Kayaking	580	595	616	661	738	805
8	Fishing (excludes Boating)	4,863	5,007	5,171	5,353	5,337	5,346
9	Sailing	1,824	1,906	2,027	2,148	2,282	2,372
10	Other Boating	25,037	25,781	26,489	27,458	28,552	31,202
11	Climbing/Hiking/Tent Camping	5,588	5,910	6,171	6,170	6,327	6,361
12	Equestrian	9,307	10,031	11,106	11,487	12,315	14,174
13	Hunting/Shooting/Trapping	11,371	13,342	12,918	13,942	13,807	15,060
14	Hunting/Trapping	5,844	6,745	6,558	7,227	6,741	7,312
15	Shooting (includes Archery)	5,527	6,597	6,360	6,715	7,066	7,747
16	Motorcycling/ATVing	17,154	17,680	17,996	18,134	18,082	19,553
17	Recreational Flying	2,870	2,957	3,069	2,727	2,747	2,888
18	RVing	26,710	29,388	31,524	31,980	33,974	36,095
19	Snow Activities	10,638	10,754	11,135	10,770	10,670	11,304
20	Skiing	2,929	2,996	3,260	3,438	3,439	3,593
21	Snowboarding	2,534	2,646	2,820	2,979	3,068	3,225
22	Other Snow Activities (includes Snowmobiling) [1]	5,175	5,112	5,055	4,352	4,162	4,486
23	Other Conventional Outdoor Recreation Activities	18,331	18,856	19,026	18,206	18,620	19,669
24	Other Conventional Air and Land Activities [2]	15,308	15,803	15,775	14,687	15,071	16,116
25	Other Conventional Water Activities [3]	3,023	3,054	3,251	3,519	3,550	3,552
26	Multi-use Apparel and Accessories (Conventional) [4]	76,807	80,117	80,705	83,085	84,001	84,963
27	**Other Outdoor Recreation**	**128,349**	**132,772**	**136,817**	**142,243**	**145,268**	**154,099**
28	Amusement Parks/Water Parks	13,206	13,246	13,609	14,708	15,805	17,765

Table 18. Outdoor Recreation Gross Output by Activity—Continued

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
29	Festivals/Sporting Events/Concerts	20,560	21,326	22,660	24,156	25,656	27,153
30	Field Sports	5,232	5,352	5,665	5,983	6,256	6,416
31	Game Areas (includes Golfing and Tennis)	32,082	33,316	32,945	33,674	34,917	36,011
32	Guided Tours/Outfitted Travel	25,481	26,275	27,770	27,387	25,769	28,403
33	Air and Land Guided Tours/Outfitted Travel	13,811	14,547	15,733	16,383	16,186	17,057
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	11,670	11,728	12,037	11,004	9,583	11,346
35	Productive Activities (includes Gardening)	10,703	11,288	11,749	12,322	12,792	13,484
36	Other Outdoor Recreation Activities [5]	14,722	15,195	15,931	17,405	17,411	17,891
37	Multi-use Apparel and Accessories (Other) [4]	6,362	6,775	6,489	6,608	6,663	6,977
38	**Supporting Outdoor Recreation**	**349,046**	**350,511**	**357,372**	**353,112**	**354,929**	**370,433**
39	Construction	9,385	9,429	9,936	11,696	12,956	13,197
40	Local Trips and Travel [6]	71,515	72,417	72,354	64,665	62,214	66,300
41	Trips and Travel [7]	234,570	233,694	239,182	239,604	241,213	251,064
42	Food and Beverages	38,079	32,197	33,699	36,283	38,145	39,281
43	Lodging	49,531	51,543	51,805	55,703	58,250	59,378
44	Shopping and Souvenirs	40,398	41,746	43,215	43,161	43,558	44,975
45	Transportation	106,561	108,208	110,464	104,457	101,260	107,431
46	Government Expenditures	33,576	34,971	35,900	37,147	38,546	39,873
47	Federal Government	3,947	4,247	4,011	4,036	4,247	4,313
48	State and Local Government	29,629	30,724	31,889	33,111	34,299	35,560

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 19. Chain-Type Quantity Indexes for Outdoor Recreation Gross Output by Activity

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**100.000**	**101.069**	**102.441**	**105.571**	**107.374**	**110.261**
2	**Total Core Outdoor Recreation**	**100.000**	**102.918**	**105.026**	**107.520**	**109.545**	**114.186**
3	**Conventional Outdoor Recreation**	**100.000**	**103.591**	**105.851**	**108.733**	**111.423**	**115.720**
4	Bicycling	100.000	105.353	108.245	103.884	117.189	121.722
5	Boating/Fishing	100.000	101.026	102.236	107.221	110.565	117.303
6	Canoeing	100.000	97.093	100.948	103.910	106.698	113.516
7	Kayaking	100.000	100.146	100.252	106.719	117.267	126.939
8	Fishing (excludes Boating)	100.000	99.299	101.714	104.502	104.098	103.459
9	Sailing	100.000	103.516	108.214	112.473	117.947	122.335
10	Other Boating	100.000	101.224	101.959	107.407	111.168	119.477
11	Climbing/Hiking/Tent Camping	100.000	104.210	106.781	104.074	109.196	108.419
12	Equestrian	100.000	105.960	114.564	118.683	127.719	144.470
13	Hunting/Shooting/Trapping	100.000	114.048	109.028	116.680	114.709	123.725
14	Hunting/Trapping	100.000	111.543	106.395	116.009	107.475	114.805
15	Shooting (includes Archery)	100.000	116.712	111.832	117.348	122.521	133.370
16	Motorcycling/ATVing	100.000	102.452	104.870	109.740	109.031	114.214
17	Recreational Flying	100.000	99.280	105.167	106.905	113.285	111.701
18	RVing	100.000	108.080	113.718	116.609	123.608	129.356
19	Snow Activities	100.000	100.889	104.261	106.442	106.205	108.806
20	Skiing	100.000	101.997	109.613	113.391	111.892	116.466
21	Snowboarding	100.000	103.957	109.296	112.996	114.884	120.348
22	Other Snow Activities (includes Snowmobiling) [1]	100.000	98.756	98.713	99.052	98.397	97.915
23	Other Conventional Outdoor Recreation Activities	100.000	101.249	108.680	111.885	116.828	119.848
24	Other Conventional Air and Land Activities [2]	100.000	101.875	109.653	112.051	118.263	122.011
25	Other Conventional Water Activities [3]	100.000	98.101	103.913	110.609	110.401	110.467
26	Multi-use Apparel and Accessories (Conventional) [4]	100.000	102.501	102.816	104.281	105.043	106.406
27	**Other Outdoor Recreation**	**100.000**	**101.793**	**103.647**	**105.510**	**106.469**	**111.654**
28	Amusement Parks/Water Parks	100.000	94.350	92.635	96.054	98.778	107.167
29	Festivals/Sporting Events/Concerts	100.000	101.417	104.991	105.677	108.813	112.784
30	Field Sports	100.000	100.214	104.931	109.327	113.217	115.187
31	Game Areas (includes Golfing and Tennis)	100.000	103.617	101.303	101.678	104.535	108.470
32	Guided Tours/Outfitted Travel	100.000	101.792	105.930	102.279	94.841	103.135
33	Air and Land Guided Tours/Outfitted Travel	100.000	104.133	111.135	113.403	110.608	115.012
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	100.000	99.027	99.794	89.205	76.349	89.169
35	Productive Activities (includes Gardening)	100.000	104.584	115.164	123.879	131.045	135.749
36	Other Outdoor Recreation Activities [5]	100.000	102.039	105.606	114.826	115.961	118.733
37	Multi-use Apparel and Accessories (Other) [4]	100.000	105.752	100.903	103.227	104.963	108.624
38	**Supporting Outdoor Recreation**	**100.000**	**99.248**	**99.897**	**103.670**	**105.244**	**106.318**
39	Construction	100.000	96.532	97.243	111.246	119.163	116.481
40	Local Trips and Travel [6]	100.000	101.057	101.325	102.207	102.119	103.066
41	Trips and Travel [7]	100.000	98.573	99.314	103.294	104.504	105.855
42	Food and Beverages	100.000	82.656	84.485	88.622	91.041	91.526
43	Lodging	100.000	101.699	98.872	103.951	106.234	105.831
44	Shopping and Souvenirs	100.000	102.224	103.886	105.346	107.564	109.536
45	Transportation	100.000	101.462	103.166	107.515	107.157	109.623
46	Government Expenditures	100.000	100.876	101.666	106.540	111.560	112.209
47	Federal Government	100.000	105.796	97.623	97.132	100.955	99.914
48	State and Local Government	100.000	100.226	102.193	107.783	112.965	113.846

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.
[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.
[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.
[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.
[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.
[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.
[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 20. Percent Changes in Chain-Type Quantity Indexes for Outdoor Recreation Gross Output by Activity

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**1.1**	**1.4**	**3.1**	**1.7**	**2.7**
2	**Total Core Outdoor Recreation**	**2.9**	**2.0**	**2.4**	**1.9**	**4.2**
3	**Conventional Outdoor Recreation**	**3.6**	**2.2**	**2.7**	**2.5**	**3.9**
4	Bicycling	5.4	2.7	−4.0	12.8	3.9
5	Boating/Fishing	1.0	1.2	4.9	3.1	6.1
6	Canoeing	−2.9	4.0	2.9	2.7	6.4
7	Kayaking	0.1	0.1	6.5	9.9	8.2
8	Fishing (excludes Boating)	−0.7	2.4	2.7	−0.4	−0.6
9	Sailing	3.5	4.5	3.9	4.9	3.7
10	Other Boating	1.2	0.7	5.3	3.5	7.5
11	Climbing/Hiking/Tent Camping	4.2	2.5	−2.5	4.9	−0.7
12	Equestrian	6.0	8.1	3.6	7.6	13.1
13	Hunting/Shooting/Trapping	14.0	−4.4	7.0	−1.7	7.9
14	Hunting/Trapping	11.5	−4.6	9.0	−7.4	6.8
15	Shooting (includes Archery)	16.7	−4.2	4.9	4.4	8.9
16	Motorcycling/ATVing	2.5	2.4	4.6	−0.6	4.8
17	Recreational Flying	−0.7	5.9	1.7	6.0	−1.4
18	RVing	8.1	5.2	2.5	6.0	4.6
19	Snow Activities	0.9	3.3	2.1	−0.2	2.4
20	Skiing	2.0	7.5	3.4	−1.3	4.1
21	Snowboarding	4.0	5.1	3.4	1.7	4.8
22	Other Snow Activities (includes Snowmobiling) [1]	−1.2	0.0	0.3	−0.7	−0.5
23	Other Conventional Outdoor Recreation Activities	1.2	7.3	2.9	4.4	2.6
24	Other Conventional Air and Land Activities [2]	1.9	7.6	2.2	5.5	3.2
25	Other Conventional Water Activities [3]	−1.9	5.9	6.4	−0.2	0.1
26	Multi-use Apparel and Accessories (Conventional) [4]	2.5	0.3	1.4	0.7	1.3
27	**Other Outdoor Recreation**	**1.8**	**1.8**	**1.8**	**0.9**	**4.9**
28	Amusement Parks/Water Parks	−5.7	−1.8	3.7	2.8	8.5
29	Festivals/Sporting Events/Concerts	1.4	3.5	0.7	3.0	3.6
30	Field Sports	0.2	4.7	4.2	3.6	1.7
31	Game Areas (includes Golfing and Tennis)	3.6	−2.2	0.4	2.8	3.8
32	Guided Tours/Outfitted Travel	1.8	4.1	−3.4	−7.3	8.7
33	Air and Land Guided Tours/Outfitted Travel	4.1	6.7	2.0	−2.5	4.0
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	−1.0	0.8	−10.6	−14.4	16.8
35	Productive Activities (includes Gardening)	4.6	10.1	7.6	5.8	3.6
36	Other Outdoor Recreation Activities [5]	2.0	3.5	8.7	1.0	2.4
37	Multi-use Apparel and Accessories (Other) [4]	5.8	−4.6	2.3	1.7	3.5
38	**Supporting Outdoor Recreation**	**−0.8**	**0.7**	**3.8**	**1.5**	**1.0**
39	Construction	−3.5	0.7	14.4	7.1	−2.3
40	Local Trips and Travel [6]	1.1	0.3	0.9	−0.1	0.9
41	Trips and Travel [7]	−1.4	0.8	4.0	1.2	1.3
42	Food and Beverages	−17.3	2.2	4.9	2.7	0.5
43	Lodging	1.7	−2.8	5.1	2.2	−0.4
44	Shopping and Souvenirs	2.2	1.6	1.4	2.1	1.8
45	Transportation	1.5	1.7	4.2	−0.3	2.3
46	Government Expenditures	0.9	0.8	4.8	4.7	0.6
47	Federal Government	5.8	−7.7	−0.5	3.9	−1.0
48	State and Local Government	0.2	2.0	5.5	4.8	0.8

Legend/Footnotes:
[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.
[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.
[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.
[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.
[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.
[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.
[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 21. Chain-Type Price Indexes for Outdoor Recreation Gross Output by Activity

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	100.000	101.416	102.558	100.234	99.990	102.211
2	**Total Core Outdoor Recreation**	100.000	101.652	102.630	102.831	103.296	104.570

Table 21. Chain-Type Price Indexes for Outdoor Recreation Gross Output by Activity—Continued

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
3	**Conventional Outdoor Recreation**	100.000	101.668	102.502	101.536	101.537	102.838
4	Bicycling	100.000	99.638	100.264	101.079	102.956	103.542
5	Boating/Fishing	100.000	101.993	103.863	102.839	103.338	104.836
6	Canoeing	100.000	101.931	103.380	105.211	106.883	108.185
7	Kayaking	100.000	102.571	106.008	106.843	108.548	109.462
8	Fishing (excludes Boating)	100.000	103.692	104.544	105.338	105.415	106.250
9	Sailing	100.000	100.955	102.700	104.695	106.069	106.309
10	Other Boating	100.000	101.730	103.770	102.110	102.585	104.311
11	Climbing/Hiking/Tent Camping	100.000	101.500	103.429	106.098	103.695	104.993
12	Equestrian	100.000	101.713	104.159	103.997	103.605	105.417
13	Hunting/Shooting/Trapping	100.000	102.886	104.203	105.088	105.856	107.046
14	Hunting/Trapping	100.000	103.489	105.482	106.607	107.334	108.997
15	Shooting (includes Archery)	100.000	102.264	102.899	103.537	104.344	105.099
16	Motorcycling/ATVing	100.000	100.600	100.038	96.332	96.679	99.798
17	Recreational Flying	100.000	103.770	101.688	88.870	84.471	90.066
18	RVing	100.000	101.797	103.784	102.676	102.900	104.466
19	Snow Activities	100.000	100.198	100.391	95.110	94.439	97.661
20	Skiing	100.000	100.276	101.548	103.526	104.944	105.335
21	Snowboarding	100.000	100.427	101.787	104.017	105.376	105.731
22	Other Snow Activities (includes Snowmobiling) [1]	100.000	100.037	98.959	84.917	81.748	88.537
23	Other Conventional Outdoor Recreation Activities	100.000	101.596	101.066	93.936	92.011	94.743
24	Other Conventional Air and Land Activities [2]	100.000	101.329	100.588	91.643	89.099	92.355
25	Other Conventional Water Activities [3]	100.000	102.976	103.491	105.233	106.356	106.371
26	Multi-use Apparel and Accessories (Conventional) [4]	100.000	101.765	102.198	103.733	104.116	103.959
27	**Other Outdoor Recreation**	100.000	101.624	102.847	105.038	106.305	107.531
28	Amusement Parks/Water Parks	100.000	106.303	111.245	115.945	121.159	125.522
29	Festivals/Sporting Events/Concerts	100.000	102.276	104.972	111.178	114.675	117.094
30	Field Sports	100.000	102.079	103.189	104.604	105.624	106.475
31	Game Areas (includes Golfing and Tennis)	100.000	100.219	101.367	103.227	104.113	103.481
32	Guided Tours/Outfitted Travel	100.000	101.299	102.881	105.085	106.631	108.076
33	Air and Land Guided Tours/Outfitted Travel	100.000	101.143	102.500	104.600	105.955	107.379
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	100.000	101.487	103.357	105.707	107.557	109.032
35	Productive Activities (includes Gardening)	100.000	100.843	95.324	92.939	91.203	92.806
36	Other Outdoor Recreation Activities [5]	100.000	101.150	102.466	102.961	101.987	102.351
37	Multi-use Apparel and Accessories (Other) [4]	100.000	100.697	101.082	100.618	99.770	100.952
38	**Supporting Outdoor Recreation**	100.000	101.181	102.491	97.584	96.620	99.821
39	Construction	100.000	104.073	108.890	112.045	115.877	120.747
40	Local Trips and Travel [6]	100.000	100.201	99.849	88.470	85.189	89.949
41	Trips and Travel [7]	100.000	101.069	102.671	98.889	98.400	101.112
42	Food and Beverages	100.000	102.293	104.749	107.517	110.029	112.707
43	Lodging	100.000	102.323	105.783	108.186	110.700	113.274
44	Shopping and Souvenirs	100.000	101.087	102.971	101.417	100.238	101.636
45	Transportation	100.000	100.083	100.481	91.174	88.680	91.966
46	Government Expenditures	100.000	103.250	105.170	103.843	102.906	105.833
47	Federal Government	100.000	101.702	104.104	105.271	106.583	109.365
48	State and Local Government	100.000	103.463	105.317	103.682	102.476	105.420

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Table 22. Percent Changes in Chain-Type Price Indexes for Outdoor Recreation Gross Output by Activity

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
1	**Total Outdoor Recreation**	**1.4**	**1.1**	**−2.3**	**−0.2**	**2.2**
2	**Total Core Outdoor Recreation**	**1.7**	**1.0**	**0.2**	**0.5**	**1.2**
3	**Conventional Outdoor Recreation**	**1.7**	**0.8**	**−0.9**	**0.0**	**1.3**
4	Bicycling	−0.4	0.6	0.8	1.9	0.6
5	Boating/Fishing	2.0	1.8	−1.0	0.5	1.5
6	Canoeing	1.9	1.4	1.8	1.6	1.2
7	Kayaking	2.6	3.4	0.8	1.6	0.8
8	Fishing (excludes Boating)	3.7	0.8	0.8	0.1	0.8
9	Sailing	1.0	1.7	1.9	1.3	0.2
10	Other Boating	1.7	2.0	−1.6	0.5	1.7
11	Climbing/Hiking/Tent Camping	1.5	1.9	2.6	−2.3	1.3
12	Equestrian	1.7	2.4	−0.2	−0.4	1.7
13	Hunting/Shooting/Trapping	2.9	1.3	0.8	0.7	1.1
14	Hunting/Trapping	3.5	1.9	1.1	0.7	1.5
15	Shooting (includes Archery)	2.3	0.6	0.6	0.8	0.7
16	Motorcycling/ATVing	0.6	−0.6	−3.7	0.4	3.2
17	Recreational Flying	3.8	−2.0	−12.6	−5.0	6.6
18	RVing	1.8	2.0	−1.1	0.2	1.5
19	Snow Activities	0.2	0.2	−5.3	−0.7	3.4
20	Skiing	0.3	1.3	1.9	1.4	0.4
21	Snowboarding	0.4	1.4	2.2	1.3	0.3

Table 22. Percent Changes in Chain-Type Price Indexes for Outdoor Recreation Gross Output by Activity—Continued

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
22	Other Snow Activities (includes Snowmobiling) [1]	0.0	−1.1	−14.2	−3.7	8.3
23	Other Conventional Outdoor Recreation Activities	1.6	−0.5	−7.1	−2.0	3.0
24	Other Conventional Air and Land Activities [2]	1.3	−0.7	−8.9	−2.8	3.7
25	Other Conventional Water Activities [3]	3.0	0.5	1.7	1.1	0.0
26	Multi-use Apparel and Accessories (Conventional) [4]	1.8	0.4	1.5	0.4	−0.2
27	**Other Outdoor Recreation**	**1.6**	**1.2**	**2.1**	**1.2**	**1.2**
28	Amusement Parks/Water Parks	6.3	4.6	4.2	4.5	3.6
29	Festivals/Sporting Events/Concerts	2.3	2.6	5.9	3.1	2.1
30	Field Sports	2.1	1.1	1.4	1.0	0.8
31	Game Areas (includes Golfing and Tennis)	0.2	1.1	1.8	0.9	−0.6
32	Guided Tours/Outfitted Travel	1.3	1.6	2.1	1.5	1.4
33	Air and Land Guided Tours/Outfitted Travel	1.1	1.3	2.0	1.3	1.3
34	Water Guided Tours/Outfitted Travel (includes Boating and Fishing Charters)	1.5	1.8	2.3	1.7	1.4
35	Productive Activities (includes Gardening)	0.8	−5.5	−2.5	−1.9	1.8
36	Other Outdoor Recreation Activities [5]	1.2	1.3	0.5	−0.9	0.4
37	Multi-use Apparel and Accessories (Other) [4]	0.7	0.4	−0.5	−0.8	1.2
38	**Supporting Outdoor Recreation**	**1.2**	**1.3**	**−4.8**	**−1.0**	**3.3**
39	Construction	4.1	4.6	2.9	3.4	4.2
40	Local Trips and Travel [6]	0.2	−0.4	−11.4	−3.7	5.6
41	Trips and Travel [7]	1.1	1.6	−3.7	−0.5	2.8
42	Food and Beverages	2.3	2.4	2.6	2.3	2.4
43	Lodging	2.3	3.4	2.3	2.3	2.3
44	Shopping and Souvenirs	1.1	1.9	−1.5	−1.2	1.4
45	Transportation	0.1	0.4	−9.3	−2.7	3.7
46	Government Expenditures	3.3	1.9	−1.3	−0.9	2.8
47	Federal Government	1.7	2.4	1.1	1.2	2.6
48	State and Local Government	3.5	1.8	−1.6	−1.2	2.9

Legend/Footnotes:

[1] Consists of dog mushing, sleighing, snowmobiling, snow shoeing, snow tubing.

[2] Consists of air sports, driving for pleasure, geocaching/orienteering/rock hounding, ice skating, inline skating, land/sand sailing, races, running/walking/jogging, skateboarding, and wildlife watching/birding.

[3] Consists of boardsailing/windsurfing, SCUBA diving, snorkeling, stand-up paddling, surfing, tubing, wakeboarding, water skiing, and whitewater rafting.

[4] Consists of backpacks, bug spray, coolers, general outdoor clothing, GPS equipment, hydration equipment, lighting, sports racks, sunscreen, watches, and other miscellaneous gear and equipment.

[5] Consists of agritourism, augmented reality games, beachgoing, disc golf, hot springs soaking, kite flying, model airplane/rocket/UAV, paintball, photography, stargazing/astronomy, swimming, therapeutic programs, water polo, yard sports.

[6] Trip expenses less than 50 miles away from home, including food and beverages, lodging, shopping and souvenirs, and transportation.

[7] Travel and tourism expenses in the Outdoor Recreation Satellite Account are consistent with the Travel and Tourism Satellite Account, which includes only expenses for travel at least 50 miles away from home.

Editor's note: this table of information was excluded from the pdf submitted, and posted on the U.S. Bureau of Economic Analysis website. It is incoporated herein, in [brackets] and is available in the xlsx file entitled, *Outdoor Recreation Activities in Conventional Definition* (*https://www.bea.gov/system/files/2019-09/orsa0919-GO-Activity_1.xlsx*)

[Activity List *

[Outdoor Recreation Activities in Conventional Definition

[Bicycling (All recreational bicycling, including BMX, E-bikes, Mountain, On-road)
[Boating/Fishing (All recreational boating, including Canoeing, Fishing, Inboard/Outboard, Kayaking, Personal watercraft, Sailing)
[Climbing/Hiking/Tent Camping
[Equestrian
[Hunting/Trapping/Shooting (including Archery)
[Motorcycling/ATVs (Off-road, On-road)
[Recreational flying (Experimental, Glider, Turboprop, Ultralight)
[RVing
[Snow activities (Dog mushing, Skiing, Sleighing, Snowboarding, Snowmobiling, Snow shoeing, Tubing)

[Other Conventional Activities

[Other Conventional Air and Land activities
  [Air sports (Base jumping, Hang gliding, Skydiving)
  [Driving for pleasure (Gas spending only)
  [Geocaching/Orienteering/Rock hounding
  [Ice skating
  [Inline skating
  [Land/Sand sailing
  [Races (includes Bike and Endurance racing)
  [Running/Jogging/Walking
  [Skateboarding
  [Wildlife watching/Birding
[Other Conventional Water activities
  [Boardsailing/Windsurfing
  [SCUBA Diving
  [Snorkeling
  [Stand-up paddling
  [Surfing
  [Tubing/Wakeboarding
  [Water skiing
  [Whitewater rafting

[Outdoor Recreation Activities in Other Definition

[Amusement parks/Water parks
[Festivals/Sporting events/Concerts (includes Professional sports)

[Field sports (*e.g.,* Football, Lacrosse, Soccer)
[Game area sports (*e.g.,* Basketball, Golf, Tennis)
[Guided tours/Outfitted travel (includes Boating and Fishing charters)
[Productive activities (Beekeeping, Foraging, Gardening, Panning for ore)

[Other Activities
[Agritourism (Animal sanctuaries, Petting zoos, Pick-your-own produce farms, Vineyard tours)
[Augmented reality games
[Beachgoing
[Disc golf
[Hot springs soaking
[Kite flying
[Model airplane/rocket/UAV
[Paintball
[Photography
[Stargazing/Astronomy
[Swimming
[Therapeutic Programs
[Water Polo
[Yard sports (*e.g.,* Bocce ball, Croquet)]

Table 23. Real Outdoor Recreation Gross Output by Industry

[Millions of chained (2012) dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	691,782	699,173	708,666	730,321	742,793	762,768
2	Private industries	651,193	658,779	668,072	687,893	698,553	718,236
3	Agriculture, forestry, fishing, and hunting	10,923	12,147	13,010	13,749	13,483	13,372
4	Farms	7,970	8,941	9,930	10,548	11,208	11,014
5	Forestry, fishing, and related activities	2,953	3,207	3,105	3,236	2,497	2,552
6	Mining	576	510	500	405	368	521
7	Oil and gas extraction	194	199	227	215	217	225
8	Mining, except oil and gas	330	263	215	151	123	263
9	Support activities for mining	51	46	50	33	28	31
10	Utilities	2	2	2	2	2	2
11	Construction	8,591	8,598	8,670	9,833	10,555	10,338
12	Manufacturing	147,357	152,559	152,242	154,419	157,223	162,069
13	Durable goods	44,100	46,962	47,691	48,381	48,179	51,889
14	Wood products	4	4	4	4	4	5
15	Nonmetallic mineral products	81	81	82	80	82	84
16	Primary metals	13	10	13	11	10	11
17	Fabricated metal products	3,062	3,443	3,151	3,491	3,763	4,277
18	Machinery	5,009	4,712	4,486	3,769	2,509	3,235
19	Computer and electronic products	789	780	884	1,384	1,098	1,199
20	Electrical equipment, appliances, and components	1,294	1,142	1,176	1,099	1,002	979
21	Motor vehicles, bodies and trailers, and parts	11,160	13,234	14,091	14,189	15,324	16,630
22	Other transportation equipment	15,418	16,393	17,304	17,914	17,628	18,557
23	Furniture and related products	134	143	134	127	111	112
24	Miscellaneous manufacturing	7,136	7,007	6,375	6,354	6,601	6,737
25	Nondurable goods	103,257	105,572	104,473	105,955	109,526	109,450
26	Food and beverage and tobacco products	17,661	17,898	18,002	18,262	18,872	18,925
27	Textile mills and textile product mills	887	790	837	864	894	911
28	Apparel and leather and allied products	4,488	4,368	4,187	4,308	5,582	6,342
29	Paper products	731	712	757	700	686	716
30	Printing and related support activities	208	203	211	217	222	190
31	Petroleum and coal products	72,112	74,010	72,649	73,899	74,543	72,648
32	Chemical products	6,567	7,000	7,193	7,130	7,225	7,289
33	Plastics and rubber products	602	602	595	598	624	622
34	Wholesale trade	58,414	55,224	57,130	56,237	54,317	54,987
35	Retail trade	139,090	146,030	147,038	151,773	154,595	160,768
36	Motor vehicle and parts dealers	12,667	12,684	12,723	15,034	17,044	19,894
37	Food and beverage stores	9,087	8,938	8,930	8,890	8,786	8,878
38	General merchandise stores	22,958	24,890	24,500	25,071	24,367	24,440
39	Other retail	94,377	99,537	100,889	102,735	104,281	107,438
40	Transportation and warehousing	71,843	73,208	75,812	79,716	78,942	81,068
41	Air transportation	46,990	47,877	49,449	53,025	52,701	53,432
42	Rail transportation	1,094	1,082	1,103	1,100	1,116	1,163
43	Water transportation	9,071	9,416	10,168	10,246	9,994	10,747
44	Truck transportation	7,630	7,556	7,689	7,544	7,417	7,466
45	Transit and ground passenger transportation	3,303	3,369	3,425	3,538	3,530	3,704
46	Pipeline transportation	555	559	567	623	600	601
47	Other transportation and support activities	3,159	3,308	3,384	3,617	3,574	3,869
48	Warehousing and storage	42	42	40	41	43	44
49	Information	2,131	2,163	2,262	2,366	2,515	2,717
50	Publishing industries, except internet (includes software)	761	720	716	714	689	739
51	Motion picture and sound recording industries	74	69	68	76	82	83
52	Broadcasting and telecommunications	1,068	1,140	1,236	1,298	1,435	1,521
53	Data processing, internet publishing, and other information services	228	235	244	282	316	381
54	Finance, insurance, real estate, rental, and leasing	28,769	28,521	25,647	27,494	28,772	29,132
55	Finance and insurance	7,238	7,030	7,399	7,674	7,847	7,924
56	Federal Reserve banks, credit intermediation, and related activities	574	563	544	580	587	589
57	Securities, commodity contracts, and investments	0	0	0	0	0	0
58	Insurance carriers and related activities	6,664	6,467	6,855	7,095	7,260	7,336
59	Funds, trusts, and other financial vehicles	0	0	0	0	0	0
60	Real estate and rental and leasing	21,531	21,490	18,264	19,831	20,938	21,221
61	Real estate	15,900	15,701	12,448	13,390	13,687	13,574
62	Housing	15,894	15,697	12,443	13,386	13,682	13,569
63	Other real estate	5	5	5	5	5	5
64	Rental and leasing services and lessors of intangible assets	5,631	5,790	5,820	6,451	7,330	7,795
65	Professional and business services	11,336	11,645	12,177	12,908	13,658	14,717
66	Professional, scientific, and technical services	1,627	1,668	1,827	1,922	2,070	2,242
67	Legal services	0	0	0	0	0	0
68	Computer systems design and related services	64	52	51	60	62	68
69	Miscellaneous professional, scientific, and technical services	1,563	1,616	1,777	1,862	2,009	2,175
70	Management of companies and enterprises	0	0	0	0	0	0
71	Administrative and waste management services	9,709	9,978	10,349	10,984	11,586	12,472
72	Administrative and support services	9,708	9,977	10,348	10,983	11,585	12,471
73	Waste management and remediation services	1	1	1	1	1	1
74	Educational services, health care, and social assistance	6,217	6,152	6,370	6,511	6,590	6,749

Table 23. Real Outdoor Recreation Gross Output by Industry—Continued

[Millions of chained (2012) dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
75	Educational services	5,647	5,600	5,788	5,899	5,949	6,086
76	Health care and social assistance	570	553	582	612	643	666
77	Ambulatory health care services	345	345	369	393	420	437
78	Hospitals	174	156	160	166	172	177
79	Nursing and residential care facilities	24	21	21	21	21	21
80	Social assistance	28	31	32	33	31	31
81	Arts, entertainment, recreation, accommodation, and food services	160,042	156,400	161,405	166,342	171,052	175,455
82	Arts, entertainment, and recreation	73,256	74,346	75,936	77,394	80,026	84,615
83	Performing arts, spectator sports, museums, and related activities	19,373	19,599	20,324	20,587	21,259	22,080
84	Amusements, gambling, and recreation industries	53,884	54,748	55,609	56,808	58,770	62,561
85	Accommodation and food services	86,785	82,060	85,468	88,943	91,020	90,841
86	Accommodation	46,580	48,095	50,429	52,113	53,127	52,790
87	Food services and drinking places	40,205	33,967	35,041	36,833	37,896	38,054
88	Other services, except government	5,902	5,821	5,906	6,015	6,220	6,290
89	Government	40,589	40,399	40,606	42,422	44,196	44,518
90	Federal	4,644	4,811	4,478	4,453	4,587	4,541
91	General government	3,965	4,190	3,870	3,848	4,006	3,964
92	National defense	0	1	1	1	1	1
93	Non-defense	3,964	4,190	3,869	3,848	4,005	3,964
94	Government enterprises	679	619	609	605	575	571
95	State and local	35,944	35,590	36,123	37,960	39,600	39,968
96	General government	33,916	33,700	34,392	36,233	37,910	38,257
97	Government enterprises	2,029	1,891	1,730	1,727	1,695	1,717

Table 24. Outdoor Recreation Gross Output by Industry

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	691,782	709,072	725,728	730,955	741,630	778,487
2	Private industries	651,193	667,458	683,184	686,929	696,061	731,385
3	Agriculture, forestry, fishing, and hunting	10,923	12,386	12,717	12,878	12,038	12,098
4	Farms	7,970	9,050	9,377	9,348	9,285	9,212
5	Forestry, fishing, and related activities	2,953	3,335	3,340	3,530	2,753	2,886
6	Mining	576	508	496	317	271	431
7	Oil and gas extraction	194	209	251	150	135	185
8	Mining, except oil and gas	330	247	191	127	99	206
9	Support activities for mining	51	52	54	41	36	40
10	Utilities	2	2	2	2	2	2
11	Construction	8,591	8,948	9,439	11,020	12,237	12,488
12	Manufacturing	147,357	151,604	148,878	127,511	121,696	133,051
13	Durable goods	44,100	47,946	49,357	50,666	50,630	55,064
14	Wood products	4	4	4	4	5	5
15	Nonmetallic mineral products	81	82	83	83	86	89
16	Primary metals	13	10	13	11	10	10
17	Fabricated metal products	3,062	3,710	3,423	3,786	4,046	4,661
18	Machinery	5,009	4,787	4,662	3,968	2,599	3,360
19	Computer and electronic products	789	763	867	1,285	920	994
20	Electrical equipment, appliances, and components	1,294	1,148	1,192	1,119	1,020	1,002
21	Motor vehicles, bodies and trailers, and parts	11,160	13,543	14,696	15,110	16,545	18,367
22	Other transportation equipment	15,418	16,632	17,707	18,556	18,471	19,771
23	Furniture and related products	134	147	141	136	123	124
24	Miscellaneous manufacturing	7,136	7,119	6,568	6,609	6,806	6,681
25	Nondurable goods	103,257	103,658	99,521	76,845	71,066	77,987
26	Food and beverage and tobacco products	17,661	18,186	19,025	19,123	19,283	19,507
27	Textile mills and textile product mills	887	827	892	921	958	982
28	Apparel and leather and allied products	4,488	4,486	4,302	4,471	5,846	6,748
29	Paper products	731	711	752	694	681	710
30	Printing and related support activities	208	204	213	221	225	195
31	Petroleum and coal products	72,112	71,532	66,278	43,305	35,789	41,337
32	Chemical products	6,567	7,106	7,448	7,501	7,651	7,874
33	Plastics and rubber products	602	608	610	609	632	635
34	Wholesale trade	58,414	59,128	61,302	61,158	59,585	61,089
35	Retail trade	139,090	146,262	149,260	157,377	161,764	168,440
36	Motor vehicle and parts dealers	12,667	12,965	13,523	15,851	17,827	20,318
37	Food and beverage stores	9,087	9,131	9,450	9,872	10,076	10,286
38	General merchandise stores	22,958	24,412	23,665	24,074	23,686	23,960
39	Other retail	94,377	99,754	102,621	107,580	110,175	113,875
40	Transportation and warehousing	71,843	73,622	77,497	78,757	77,800	81,437
41	Air transportation	46,990	48,019	50,719	51,580	50,199	52,127
42	Rail transportation	1,094	1,116	1,153	1,133	1,142	1,226
43	Water transportation	9,071	9,387	10,066	10,221	10,676	11,430
44	Truck transportation	7,630	7,666	7,898	7,599	7,419	7,637
45	Transit and ground passenger transportation	3,303	3,458	3,519	3,674	3,764	4,003
46	Pipeline transportation	555	583	628	723	712	720
47	Other transportation and support activities	3,159	3,351	3,471	3,786	3,844	4,250
48	Warehousing and storage	42	42	41	41	43	45
49	Information	2,131	2,197	2,316	2,427	2,577	2,781
50	Publishing industries, except internet (includes software)	761	735	741	747	734	798
51	Motion picture and sound recording industries	74	76	79	87	90	97
52	Broadcasting and telecommunications	1,068	1,147	1,248	1,307	1,435	1,500
53	Data processing, internet publishing, and other information services	228	238	248	286	319	387
54	Finance, insurance, real estate, rental, and leasing	28,769	29,224	27,041	29,267	31,125	32,541
55	Finance and insurance	7,238	7,173	7,663	8,096	8,594	9,086
56	Federal Reserve banks, credit intermediation, and related activities	574	586	577	623	649	666
57	Securities, commodity contracts, and investments	0	0	0	0	0	0
58	Insurance carriers and related activities	6,664	6,587	7,086	7,474	7,945	8,420
59	Funds, trusts, and other financial vehicles	0	0	0	0	0	0
60	Real estate and rental and leasing	21,531	22,051	19,378	21,171	22,531	23,455
61	Real estate	15,900	16,146	13,206	14,713	15,604	16,065
62	Housing	15,894	16,141	13,201	14,708	15,599	16,060
63	Other real estate	5	5	5	5	5	5
64	Rental and leasing services and lessors of intangible assets	5,631	5,905	6,172	6,457	6,927	7,390
65	Professional and business services	11,336	11,820	12,515	13,541	14,591	15,999

Table 24. Outdoor Recreation Gross Output by Industry—Continued

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
66	Professional, scientific, and technical services	1,627	1,707	1,909	2,066	2,285	2,520
67	Legal services	0	0	0	0	0	0
68	Computer systems design and related services	64	56	56	65	64	72
69	Miscellaneous professional, scientific, and technical services	1,563	1,652	1,853	2,000	2,222	2,447
70	Management of companies and enterprises	0	0	0	0	0	0
71	Administrative and waste management services	9,709	10,113	10,606	11,476	12,306	13,480
72	Administrative and support services	9,708	10,112	10,605	11,474	12,304	13,478
73	Waste management and remediation services	1	1	1	1	1	1
74	Educational services, health care, and social assistance	6,217	6,315	6,660	6,968	7,184	7,558
75	Educational services	5,647	5,753	6,068	6,342	6,523	6,868
76	Health care and social assistance	570	563	592	627	661	690
77	Ambulatory health care services	345	353	373	396	420	438
78	Hospitals	174	159	167	177	187	197
79	Nursing and residential care facilities	24	21	22	22	23	24
80	Social assistance	28	29	30	31	31	32
81	Arts, entertainment, recreation, accommodation, and food services	160,042	159,449	168,847	179,212	188,336	196,288
82	Arts, entertainment, and recreation	73,256	75,602	78,943	83,482	88,259	94,255
83	Performing arts, spectator sports, museums, and related activities	19,373	20,037	21,322	22,849	24,333	25,806
84	Amusements, gambling, and recreation industries	53,884	55,565	57,621	60,633	63,926	68,450
85	Accommodation and food services	86,785	83,847	89,905	95,731	100,076	102,032
86	Accommodation	46,580	49,114	53,206	56,130	58,385	59,153
87	Food services and drinking places	40,205	34,733	36,699	39,600	41,692	42,879
88	Other services, except government	5,902	5,993	6,214	6,492	6,857	7,181
89	Government	40,589	41,614	42,544	44,026	45,569	47,102
90	Federal	4,644	4,871	4,605	4,589	4,787	4,865
91	General government	3,965	4,262	4,028	4,051	4,268	4,334
92	National defense	0	1	1	1	1	1
93	Non-defense	3,964	4,261	4,028	4,050	4,268	4,334
94	Government enterprises	679	610	576	538	518	531
95	State and local	35,944	36,743	37,939	39,437	40,782	42,237
96	General government	33,916	34,792	36,137	37,588	38,924	40,318
97	Government enterprises	2,029	1,951	1,803	1,848	1,859	1,919

Table 25. Chain-Type Quantity Indexes for Outdoor Recreation Gross Output by Industry

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	100.000	101.069	102.441	105.571	107.374	110.261
2	Private industries	100.000	101.165	102.592	105.636	107.273	110.295
3	Agriculture, forestry, fishing, and hunting	100.000	111.204	119.108	125.877	123.436	122.422
4	Farms	100.000	112.189	124.598	132.356	140.632	138.199
5	Forestry, fishing, and related activities	100.000	108.573	105.132	109.556	84.550	86.427
6	Mining	100.000	88.512	86.822	70.378	63.888	90.509
7	Oil and gas extraction	100.000	102.721	117.093	111.024	111.797	115.889
8	Mining, except oil and gas	100.000	79.445	65.052	45.548	37.283	79.520
9	Support activities for mining	100.000	90.060	96.822	64.899	54.217	60.294
10	Utilities	100.000	101.498	86.151	87.632	89.177	86.030
11	Construction	100.000	100.087	100.926	114.457	122.864	120.336
12	Manufacturing	100.000	103.530	103.315	104.793	106.695	109.984
13	Durable goods	100.000	106.490	108.144	109.708	109.250	117.663
14	Wood products	100.000	100.778	107.625	115.268	118.055	127.101
15	Nonmetallic mineral products	100.000	100.975	101.225	99.043	101.447	104.176
16	Primary metals	100.000	75.998	93.904	78.952	76.647	79.514
17	Fabricated metal products	100.000	112.466	102.932	114.018	122.910	139.694
18	Machinery	100.000	94.065	89.566	75.235	50.081	64.575
19	Computer and electronic products	100.000	98.858	112.091	175.409	139.216	151.964
20	Electrical equipment, appliances, and components	100.000	88.243	90.897	84.951	77.466	75.670
21	Motor vehicles, bodies and trailers, and parts	100.000	118.585	126.260	127.143	137.315	149.013
22	Other transportation equipment	100.000	106.323	112.229	116.187	114.330	120.358
23	Furniture and related products	100.000	105.537	100.294	94.629	83.178	83.535
24	Miscellaneous manufacturing	100.000	98.187	89.330	89.037	92.504	94.403
25	Nondurable goods	100.000	102.241	101.177	102.612	106.071	105.997
26	Food and beverage and tobacco products	100.000	101.342	101.931	103.403	106.858	107.158
27	Textile mills and textile product mills	100.000	89.022	94.361	97.333	100.739	102.687
28	Apparel and leather and allied products	100.000	97.327	93.293	95.991	124.387	141.325
29	Paper products	100.000	97.361	103.463	95.745	93.837	97.927
30	Printing and related support activities	100.000	97.473	101.496	104.634	106.663	91.606
31	Petroleum and coal products	100.000	102.632	100.744	102.478	103.371	100.743
32	Chemical products	100.000	106.584	109.532	108.563	110.017	110.989
33	Plastics and rubber products	100.000	99.914	98.743	99.287	103.654	103.167
34	Wholesale trade	100.000	94.539	97.803	96.273	92.987	94.134
35	Retail trade	100.000	104.990	105.715	109.119	111.147	115.586
36	Motor vehicle and parts dealers	100.000	100.132	100.436	118.681	134.551	157.049
37	Food and beverage stores	100.000	98.356	98.272	97.838	96.687	97.696
38	General merchandise stores	100.000	108.415	106.716	109.203	106.136	106.455
39	Other retail	100.000	105.467	106.900	108.855	110.494	113.839
40	Transportation and warehousing	100.000	101.899	105.524	110.958	109.880	112.839
41	Air transportation	100.000	101.888	105.233	112.845	112.154	113.710
42	Rail transportation	100.000	98.944	100.872	100.603	101.999	106.297
43	Water transportation	100.000	103.806	112.090	112.954	110.171	118.474
44	Truck transportation	100.000	99.037	100.783	98.873	97.208	97.853
45	Transit and ground passenger transportation	100.000	102.004	103.691	107.121	106.868	112.127
46	Pipeline transportation	100.000	100.712	102.051	112.209	108.041	108.227
47	Other transportation and support activities	100.000	104.718	107.120	114.493	113.149	122.492
48	Warehousing and storage	100.000	99.781	96.587	98.139	103.719	105.238
49	Information	100.000	101.504	106.164	111.071	118.070	127.529
50	Publishing industries, except internet (includes software)	100.000	94.581	94.103	93.804	90.616	97.142
51	Motion picture and sound recording industries	100.000	93.038	92.486	102.829	110.743	112.002
52	Broadcasting and telecommunications	100.000	106.727	115.747	121.513	134.315	142.392
53	Data processing, internet publishing, and other information services	100.000	103.202	106.812	123.479	138.473	167.258
54	Finance, insurance, real estate, rental, and leasing	100.000	99.137	89.149	95.567	100.011	101.261
55	Finance and insurance	100.000	97.129	102.223	106.030	108.408	109.476
56	Federal Reserve banks, credit intermediation, and related activities	100.000	98.153	94.868	101.032	102.310	102.641

Table 25. Chain-Type Quantity Indexes for Outdoor Recreation Gross Output by Industry—Continued

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
57	Securities, commodity contracts, and investments	0.000	0.000	0.000	0.000	0.000	0.000
58	Insurance carriers and related activities	100.000	97.040	102.872	106.472	108.946	110.078
59	Funds, trusts, and other financial vehicles	0.000	0.000	0.000	0.000	0.000	0.000
60	Real estate and rental and leasing	100.000	99.810	84.825	92.105	97.247	98.561
61	Real estate	100.000	98.752	78.289	84.219	86.084	85.373
62	Housing	100.000	98.756	78.285	84.217	86.083	85.372
63	Other real estate	100.000	88.142	88.794	89.007	89.119	86.836
64	Rental and leasing services and lessors of intangible assets	100.000	102.808	103.355	114.555	130.164	138.417
65	Professional and business services	100.000	102.727	107.415	113.861	120.482	129.824
66	Professional, scientific, and technical services	100.000	102.494	112.291	118.145	127.213	137.823
67	Legal services	0.000	0.000	0.000	0.000	0.000	0.000
68	Computer systems design and related services	100.000	80.829	78.795	94.010	96.236	105.877
69	Miscellaneous professional, scientific, and technical services	100.000	103.404	113.710	119.168	128.513	139.169
70	Management of companies and enterprises	0.000	0.000	0.000	0.000	0.000	0.000
71	Administrative and waste management services	100.000	102.766	106.585	113.133	119.331	128.453
72	Administrative and support services	100.000	102.766	106.585	113.133	119.330	128.454
73	Waste management and remediation services	100.000	100.583	113.102	120.260	123.868	120.606
74	Educational services, health care, and social assistance	100.000	98.952	102.448	104.719	105.991	108.548
75	Educational services	100.000	99.161	102.494	104.467	105.348	107.771
76	Health care and social assistance	100.000	96.875	102.035	107.381	112.759	116.735
77	Ambulatory health care services	100.000	100.100	107.206	114.182	121.812	126.791
78	Hospitals	100.000	89.899	91.955	95.524	98.895	101.974
79	Nursing and residential care facilities	100.000	86.541	86.867	86.268	86.912	87.765
80	Social assistance	100.000	109.848	115.234	117.049	111.737	112.135
81	Arts, entertainment, recreation, accommodation, and food services	100.000	97.725	100.852	103.936	106.880	109.631
82	Arts, entertainment, and recreation	100.000	101.488	103.657	105.648	109.241	115.505
83	Performing arts, spectator sports, museums, and related activities	100.000	101.166	104.912	106.268	109.734	113.976
84	Amusements, gambling, and recreation industries	100.000	101.604	103.201	105.427	109.067	116.103
85	Accommodation and food services	100.000	94.555	98.483	102.486	104.880	104.673
86	Accommodation	100.000	103.253	108.263	111.878	114.056	113.331
87	Food services and drinking places	100.000	84.485	87.156	91.614	94.258	94.651
88	Other services, except government	100.000	98.614	100.055	101.907	105.381	106.559
89	Government	100.000	99.533	100.042	104.516	108.887	109.681
90	Federal	100.000	103.583	96.410	95.875	98.770	97.784
91	General government	100.000	105.691	97.602	97.062	101.029	99.985
92	National defense	100.000	138.629	146.247	133.086	144.098	148.627
93	Non-defense	100.000	105.688	97.597	97.059	101.025	99.981
94	Government enterprises	100.000	91.089	89.571	89.065	84.609	84.008
95	State and local	100.000	99.015	100.496	105.608	110.169	111.195
96	General government	100.000	99.363	101.405	106.833	111.778	112.800
97	Government enterprises	100.000	93.205	85.257	85.143	83.542	84.628

Table 26. Percent Changes in Chain-Type Quantity Indexes for Outdoor Recreation Gross Output by Industry

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
1	All Industries	1.1	1.4	3.1	1.7	2.7
2	Private industries	1.2	1.4	3.0	1.5	2.8
3	Agriculture, forestry, fishing, and hunting	11.2	7.1	5.7	−1.9	−0.8
4	Farms	12.2	11.1	6.2	6.3	−1.7
5	Forestry, fishing, and related activities	8.6	−3.2	4.2	−22.8	2.2
6	Mining	−11.5	−1.9	−18.9	−9.2	41.7
7	Oil and gas extraction	2.7	14.0	−5.2	0.7	3.7
8	Mining, except oil and gas	−20.6	−18.1	−30.0	−18.1	113.3
9	Support activities for mining	−9.9	7.5	−33.0	−16.5	11.2
10	Utilities	1.5	−15.1	1.7	1.8	−3.5
11	Construction	0.1	0.8	13.4	7.3	−2.1
12	Manufacturing	3.5	−0.2	1.4	1.8	3.1
13	Durable goods	6.5	1.6	1.4	−0.4	7.7
14	Wood products	0.8	6.8	7.1	2.4	7.7
15	Nonmetallic mineral products	1.0	0.2	−2.2	2.4	2.7
16	Primary metals	−24.0	23.6	−15.9	−2.9	3.7
17	Fabricated metal products	12.5	−8.5	10.8	7.8	13.7
18	Machinery	−5.9	−4.8	−16.0	−33.4	28.9
19	Computer and electronic products	−1.1	13.4	56.5	−20.6	9.2
20	Electrical equipment, appliances, and components	−11.8	3.0	−6.5	−8.8	−2.3
21	Motor vehicles, bodies and trailers, and parts	18.6	6.5	0.7	8.0	8.5
22	Other transportation equipment	6.3	5.6	3.5	−1.6	5.3
23	Furniture and related products	6.5	−5.9	−5.6	−12.1	0.4
24	Miscellaneous manufacturing	−1.8	−9.0	−0.3	3.9	2.1
25	Nondurable goods	2.2	−1.0	1.4	3.4	−0.1
26	Food and beverage and tobacco products	1.3	0.6	1.4	3.3	0.3
27	Textile mills and textile product mills	−11.0	6.0	3.1	3.5	1.9
28	Apparel and leather and allied products	−2.7	−4.1	2.9	29.6	13.6
29	Paper products	−2.6	6.3	−7.5	−2.0	4.4
30	Printing and related support activities	−2.5	4.1	3.1	1.9	−14.1
31	Petroleum and coal products	2.6	−1.8	1.7	0.9	−2.5
32	Chemical products	6.6	2.8	−0.9	1.3	0.9
33	Plastics and rubber products	−0.1	−1.2	0.6	4.4	−0.5
34	Wholesale trade	−5.5	3.5	−1.6	−3.4	1.2
35	Retail trade	5.0	0.7	3.2	1.9	4.0
36	Motor vehicle and parts dealers	0.1	0.3	18.2	13.4	16.7
37	Food and beverage stores	−1.6	−0.1	−0.4	−1.2	1.0
38	General merchandise stores	8.4	−1.6	2.3	−2.8	0.3
39	Other retail	5.5	1.4	1.8	1.5	3.0
40	Transportation and warehousing	1.9	3.6	5.1	−1.0	2.7
41	Air transportation	1.9	3.3	7.2	−0.6	1.4
42	Rail transportation	−1.1	1.9	−0.3	1.4	4.2
43	Water transportation	3.8	8.0	0.8	−2.5	7.5
44	Truck transportation	−1.0	1.8	−1.9	−1.7	0.7

Table 26. Percent Changes in Chain-Type Quantity Indexes for Outdoor Recreation Gross Output by Industry—Continued

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
45	Transit and ground passenger transportation	2.0	1.7	3.3	−0.2	4.9
46	Pipeline transportation	0.7	1.3	10.0	−3.7	0.2
47	Other transportation and support activities	4.7	2.3	6.9	−1.2	8.3
48	Warehousing and storage	−0.2	−3.2	1.6	5.7	1.5
49	Information	1.5	4.6	4.6	6.3	8.0
50	Publishing industries, except internet (includes software)	−5.4	−0.5	−0.3	−3.4	7.2
51	Motion picture and sound recording industries	−7.0	−0.6	11.2	7.7	1.1
52	Broadcasting and telecommunications	6.7	8.5	5.0	10.5	6.0
53	Data processing, internet publishing, and other information services	3.2	3.5	15.6	12.1	20.8
54	Finance, insurance, real estate, rental, and leasing	−0.9	−10.1	7.2	4.7	1.2
55	Finance and insurance	−2.9	5.2	3.7	2.2	1.0
56	Federal Reserve banks, credit intermediation, and related activities	−1.8	−3.3	6.5	1.3	0.3
57	Securities, commodity contracts, and investments	0.0	0.0	0.0	0.0	0.0
58	Insurance carriers and related activities	−3.0	6.0	3.5	2.3	1.0
59	Funds, trusts, and other financial vehicles	0.0	0.0	0.0	0.0	0.0
60	Real estate and rental and leasing	−0.2	−15.0	8.6	5.6	1.4
61	Real estate	−1.2	−20.7	7.6	2.2	−0.8
62	Housing	−1.2	−20.7	7.6	2.2	−0.8
63	Other real estate	−11.9	0.7	0.2	0.1	−2.6
64	Rental and leasing services and lessors of intangible assets	2.8	0.5	10.8	13.6	6.3
65	Professional and business services	2.7	4.6	6.0	5.8	7.8
66	Professional, scientific, and technical services	2.5	9.6	5.2	7.7	8.3
67	Legal services	0.0	0.0	0.0	0.0	0.0
68	Computer systems design and related services	−19.2	−2.5	19.3	2.4	10.0
69	Miscellaneous professional, scientific, and technical services	3.4	10.0	4.8	7.8	8.3
70	Management of companies and enterprises	0.0	0.0	0.0	0.0	0.0
71	Administrative and waste management services	2.8	3.7	6.1	5.5	7.6
72	Administrative and support services	2.8	3.7	6.1	5.5	7.6
73	Waste management and remediation services	0.6	12.4	6.3	3.0	−2.6
74	Educational services, health care, and social assistance	−1.0	3.5	2.2	1.2	2.4
75	Educational services	−0.8	3.4	1.9	0.8	2.3
76	Health care and social assistance	−3.1	5.3	5.2	5.0	3.5
77	Ambulatory health care services	0.1	7.1	6.5	6.7	4.1
78	Hospitals	−10.1	2.3	3.9	3.5	3.1
79	Nursing and residential care facilities	−13.5	0.4	−0.7	0.7	1.0
80	Social assistance	9.8	4.9	1.6	−4.5	0.4
81	Arts, entertainment, recreation, accommodation, and food services	−2.3	3.2	3.1	2.8	2.6
82	Arts, entertainment, and recreation	1.5	2.1	1.9	3.4	5.7
83	Performing arts, spectator sports, museums, and related activities	1.2	3.7	1.3	3.3	3.9
84	Amusements, gambling, and recreation industries	1.6	1.6	2.2	3.5	6.5
85	Accommodation and food services	−5.4	4.2	4.1	2.3	−0.2
86	Accommodation	3.3	4.9	3.3	1.9	−0.6
87	Food services and drinking places	−15.5	3.2	5.1	2.9	0.4
88	Other services, except government	−1.4	1.5	1.9	3.4	1.1
89	Government	−0.5	0.5	4.5	4.2	0.7
90	Federal	3.6	−6.9	−0.6	3.0	−1.0
91	General government	5.7	−7.7	−0.6	4.1	−1.0
92	National defense	38.6	5.5	−9.0	8.3	3.1
93	Non-defense	5.7	−7.7	−0.6	4.1	−1.0
94	Government enterprises	−8.9	−1.7	−0.6	−5.0	−0.7
95	State and local	−1.0	1.5	5.1	4.3	0.9
96	General government	−0.6	2.1	5.4	4.6	0.9
97	Government enterprises	−6.8	−8.5	−0.1	−1.9	1.3

Table 27. Chain-Type Price Indexes for Outdoor Recreation Gross Output by Industry

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	100.000	101.416	102.558	100.234	99.990	102.211
2	Private industries	100.000	101.317	102.421	100.015	99.799	101.989
3	Agriculture, forestry, fishing, and hunting	100.000	101.967	97.749	93.665	89.282	90.470
4	Farms	100.000	101.224	94.434	88.622	82.843	83.636
5	Forestry, fishing, and related activities	100.000	104.010	107.572	109.112	110.243	113.073
6	Mining	100.000	99.741	99.248	78.233	73.546	82.730
7	Oil and gas extraction	100.000	104.978	110.516	69.456	62.322	82.229
8	Mining, except oil and gas	100.000	94.276	88.888	84.193	80.618	78.486
9	Support activities for mining	100.000	111.600	108.614	122.036	129.416	129.288
10	Utilities	100.000	104.341	108.295	114.535	118.939	124.257
11	Construction	100.000	104.068	108.893	112.102	115.968	120.833
12	Manufacturing	100.000	99.374	97.797	82.580	77.408	82.101
13	Durable goods	100.000	102.096	103.493	104.723	105.088	106.120
14	Wood products	100.000	100.147	99.615	101.825	106.511	107.292
15	Nonmetallic mineral products	100.000	100.907	102.029	103.890	105.222	106.150
16	Primary metals	100.000	100.264	100.488	100.600	97.819	98.102
17	Fabricated metal products	100.000	107.757	108.630	108.455	107.513	108.986
18	Machinery	100.000	101.599	103.915	105.280	103.594	103.881
19	Computer and electronic products	100.000	97.878	98.063	92.842	83.761	82.903
20	Electrical equipment, appliances, and components	100.000	100.546	101.395	101.857	101.760	102.330
21	Motor vehicles, bodies and trailers, and parts	100.000	102.337	104.299	106.488	107.965	110.448
22	Other transportation equipment	100.000	101.457	102.328	103.584	104.785	106.540
23	Furniture and related products	100.000	102.810	104.625	106.968	109.973	110.765
24	Miscellaneous manufacturing	100.000	101.599	103.031	104.008	103.103	99.165
25	Nondurable goods	100.000	98.188	95.270	72.533	64.891	71.260
26	Food and beverage and tobacco products	100.000	101.606	105.681	104.712	102.176	103.072
27	Textile mills and textile product mills	100.000	104.731	106.578	106.716	107.265	107.819
28	Apparel and leather and allied products	100.000	102.701	102.980	104.003	104.942	106.620
29	Paper products	100.000	99.788	99.410	99.101	99.257	99.069
30	Printing and related support activities	100.000	100.481	101.170	101.438	101.738	102.604
31	Petroleum and coal products	100.000	96.652	91.231	58.600	48.011	56.900
32	Chemical products	100.000	101.517	103.544	105.216	105.898	108.021
33	Plastics and rubber products	100.000	100.961	102.531	101.829	101.179	102.137
34	Wholesale trade	100.000	107.070	107.763	109.219	110.169	111.575

Table 27. Chain-Type Price Indexes for Outdoor Recreation Gross Output by Industry—Continued

[index numbers, 2012 = 100]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
35	Retail trade	100.000	100.158	102.018	104.210	105.159	105.294
36	Motor vehicle and parts dealers	100.000	102.215	106.294	105.440	104.596	102.134
37	Food and beverage stores	100.000	102.165	105.877	111.095	114.733	115.921
38	General merchandise stores	100.000	98.079	96.958	96.385	97.574	98.405
39	Other retail	100.000	100.217	102.363	105.381	106.323	106.665
40	Transportation and warehousing	100.000	100.565	102.265	98.839	98.594	100.498
41	Air transportation	100.000	100.296	102.570	97.275	95.253	97.559
42	Rail transportation	100.000	103.129	104.518	102.943	102.335	105.435
43	Water transportation	100.000	99.686	98.997	99.755	106.828	106.355
44	Truck transportation	100.000	101.453	103.112	101.133	100.424	102.691
45	Transit and ground passenger transportation	100.000	102.623	102.757	103.830	106.640	108.084
46	Pipeline transportation	100.000	104.167	110.870	116.063	118.720	119.686
47	Other transportation and support activities	100.000	101.316	102.592	104.683	107.550	109.837
48	Warehousing and storage	100.000	101.453	103.049	101.094	100.331	102.527
49	Information	100.000	101.578	102.394	102.568	102.462	102.383
50	Publishing industries, except internet (includes software)	100.000	102.147	103.521	104.681	106.412	107.962
51	Motion picture and sound recording industries	100.000	111.472	116.094	114.850	109.718	116.881
52	Broadcasting and telecommunications	100.000	100.607	100.935	100.705	100.031	98.658
53	Data processing, internet publishing, and other information services	100.000	101.341	101.806	101.642	101.144	101.513
54	Finance, insurance, real estate, rental, and leasing	100.000	102.467	105.435	106.449	108.175	111.702
55	Finance and insurance	100.000	102.033	103.567	105.497	109.522	114.660
56	Federal Reserve banks, credit intermediation, and related activities	100.000	104.095	105.923	107.365	110.554	113.004
57	Securities, commodity contracts, and investments	0.000	0.000	0.000	0.000	0.000	0.000
58	Insurance carriers and related activities	100.000	101.854	103.364	105.333	109.425	114.780
59	Funds, trusts, and other financial vehicles	0.000	0.000	0.000	0.000	0.000	0.000
60	Real estate and rental and leasing	100.000	102.610	106.104	106.755	107.606	110.526
61	Real estate	100.000	102.832	106.094	109.878	114.004	118.354
62	Housing	100.000	102.833	106.094	109.879	114.006	118.356
63	Other real estate	100.000	102.151	105.820	107.900	110.025	112.350
64	Rental and leasing services and lessors of intangible assets	100.000	101.996	106.048	100.099	94.502	94.804
65	Professional and business services	100.000	101.499	102.775	104.910	106.831	108.714
66	Professional, scientific, and technical services	100.000	102.375	104.488	107.466	110.420	112.377
67	Legal services	0.000	0.000	0.000	0.000	0.000	0.000
68	Computer systems design and related services	100.000	107.136	110.036	108.304	103.191	106.377
69	Miscellaneous professional, scientific, and technical services	100.000	102.200	104.289	107.409	110.618	112.536
70	Management of companies and enterprises	0.000	0.000	0.000	0.000	0.000	0.000
71	Administrative and waste management services	100.000	101.352	102.485	104.472	106.210	108.080
72	Administrative and support services	100.000	101.352	102.485	104.472	106.210	108.080
73	Waste management and remediation services	100.000	107.857	104.949	105.651	106.833	111.679
74	Educational services, health care, and social assistance	100.000	102.646	104.769	107.246	109.234	112.215
75	Educational services	100.000	102.729	104.846	107.500	109.648	112.848
76	Health care and social assistance	100.000	101.818	104.008	104.710	105.144	106.064
77	Ambulatory health care services	100.000	102.225	104.617	104.426	103.821	103.878
78	Hospitals	100.000	102.196	104.683	106.818	108.870	111.112
79	Nursing and residential care facilities	100.000	102.174	104.783	107.668	110.219	112.941
80	Social assistance	100.000	94.661	92.829	95.066	98.325	102.075
81	Arts, entertainment, recreation, accommodation, and food services	100.000	101.949	104.613	107.739	110.106	111.875
82	Arts, entertainment, and recreation	100.000	101.689	103.963	107.869	110.291	111.397
83	Performing arts, spectator sports, museums, and related activities	100.000	102.235	104.911	110.988	114.463	116.875
84	Amusements, gambling, and recreation industries	100.000	101.494	103.622	106.737	108.778	109.417
85	Accommodation and food services	100.000	102.178	105.191	107.632	109.950	112.320
86	Accommodation	100.000	102.119	105.506	107.709	109.896	112.055
87	Food services and drinking places	100.000	102.253	104.732	107.512	110.015	112.680
88	Other services, except government	100.000	102.959	105.223	107.942	110.254	114.185
89	Government	100.000	103.007	104.780	103.787	103.113	105.810
90	Federal	100.000	101.258	102.891	103.109	104.404	107.180
91	General government	100.000	101.700	104.099	105.255	106.562	109.337
92	National defense	100.000	99.954	100.304	100.289	98.446	98.579
93	Non-defense	100.000	101.700	104.100	105.255	106.563	109.338
94	Government enterprises	100.000	98.484	95.070	89.309	90.524	93.346
95	State and local	100.000	103.238	105.029	103.890	102.987	105.675
96	General government	100.000	103.240	105.073	103.741	102.673	105.388
97	Government enterprises	100.000	103.194	104.216	107.001	109.675	111.753

Table 28. Percent Changes in Chain-Type Price Indexes for Outdoor Recreation Gross Output by Industry

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
1	All Industries	1.4	1.1	−2.3	−0.2	2.2
2	Private industries	1.3	1.1	−2.3	−0.2	2.2
3	Agriculture, forestry, fishing, and hunting	2.0	−4.1	−4.2	−4.7	1.3
4	Farms	1.2	−6.7	−6.2	−6.5	1.0
5	Forestry, fishing, and related activities	4.0	3.4	1.4	1.0	2.6
6	Mining	−0.3	−0.5	−21.2	−6.0	12.5
7	Oil and gas extraction	5.0	5.3	−37.2	−10.3	31.9
8	Mining, except oil and gas	−5.7	−5.7	−5.3	−4.2	−2.6
9	Support activities for mining	11.6	−2.7	12.4	6.0	−0.1
10	Utilities	4.3	3.8	5.8	3.8	4.5
11	Construction	4.1	4.6	2.9	3.4	4.2
12	Manufacturing	−0.6	−1.6	−15.6	−6.3	6.1
13	Durable goods	2.1	1.4	1.2	0.3	1.0
14	Wood products	0.1	−0.5	2.2	4.6	0.7
15	Nonmetallic mineral products	0.9	1.1	1.8	1.3	0.9
16	Primary metals	0.3	0.2	0.1	−2.8	0.3
17	Fabricated metal products	7.8	0.8	−0.2	−0.9	1.4
18	Machinery	1.6	2.3	1.3	−1.6	0.3
19	Computer and electronic products	−2.1	0.2	−5.3	−9.8	−1.0
20	Electrical equipment, appliances, and components	0.5	0.8	0.5	−0.1	0.6
21	Motor vehicles, bodies and trailers, and parts	2.3	1.9	2.1	1.4	2.3
22	Other transportation equipment	1.5	0.9	1.2	1.2	1.7
23	Furniture and related products	2.8	1.8	2.2	2.8	0.7
24	Miscellaneous manufacturing	1.6	1.4	0.9	−0.9	−3.8

Table 28. Percent Changes in Chain-Type Price Indexes for Outdoor Recreation Gross Output by Industry—Continued

[Percent Change]

Bureau of Economic Analysis

		2013	2014	2015	2016	2017
25	Nondurable goods	−1.8	−3.0	−23.9	−10.5	9.8
26	Food and beverage and tobacco products	1.6	4.0	−0.9	−2.4	0.9
27	Textile mills and textile product mills	4.7	1.8	0.1	0.5	0.5
28	Apparel and leather and allied products	2.7	0.3	1.0	0.9	1.6
29	Paper products	−0.2	−0.4	−0.3	0.2	−0.2
30	Printing and related support activities	0.5	0.7	0.3	0.3	0.9
31	Petroleum and coal products	−3.3	−5.6	−35.8	−18.1	18.5
32	Chemical products	1.5	2.0	1.6	0.6	2.0
33	Plastics and rubber products	1.0	1.6	−0.7	−0.6	0.9
34	Wholesale trade	7.1	0.6	1.4	0.9	1.3
35	Retail trade	0.2	1.9	2.1	0.9	0.1
36	Motor vehicle and parts dealers	2.2	4.0	−0.8	−0.8	−2.4
37	Food and beverage stores	2.2	3.6	4.9	3.3	1.0
38	General merchandise stores	−1.9	−1.1	−0.6	1.2	0.9
39	Other retail	0.2	2.1	2.9	0.9	0.3
40	Transportation and warehousing	0.6	1.7	−3.3	−0.2	1.9
41	Air transportation	0.3	2.3	−5.2	−2.1	2.4
42	Rail transportation	3.1	1.3	−1.5	−0.6	3.0
43	Water transportation	−0.3	−0.7	0.8	7.1	−0.4
44	Truck transportation	1.5	1.6	−1.9	−0.7	2.3
45	Transit and ground passenger transportation	2.6	0.1	1.0	2.7	1.4
46	Pipeline transportation	4.2	6.4	4.7	2.3	0.8
47	Other transportation and support activities	1.3	1.3	2.0	2.7	2.1
48	Warehousing and storage	1.5	1.6	−1.9	−0.8	2.2
49	Information	1.6	0.8	0.2	−0.1	−0.1
50	Publishing industries, except internet (includes software)	2.1	1.3	1.1	1.7	1.5
51	Motion picture and sound recording industries	11.5	4.1	−1.1	−4.5	6.5
52	Broadcasting and telecommunications	0.6	0.3	−0.2	−0.7	−1.4
53	Data processing, internet publishing, and other information services	1.3	0.5	−0.2	−0.5	0.4
54	Finance, insurance, real estate, rental, and leasing	2.5	2.9	1.0	1.6	3.3
55	Finance and insurance	2.0	1.5	1.9	3.8	4.7
56	Federal Reserve banks, credit intermediation, and related activities	4.1	1.8	1.4	3.0	2.2
57	Securities, commodity contracts, and investments	0.0	0.0	0.0	0.0	0.0
58	Insurance carriers and related activities	1.9	1.5	1.9	3.9	4.9
59	Funds, trusts, and other financial vehicles	0.0	0.0	0.0	0.0	0.0
60	Real estate and rental and leasing	2.6	3.4	0.6	0.8	2.7
61	Real estate	2.8	3.2	3.6	3.8	3.8
62	Housing	2.8	3.2	3.6	3.8	3.8
63	Other real estate	2.2	3.6	2.0	2.0	2.1
64	Rental and leasing services and lessors of intangible assets	2.0	4.0	−5.6	−5.6	0.3
65	Professional and business services	1.5	1.3	2.1	1.8	1.8
66	Professional, scientific, and technical services	2.4	2.1	2.9	2.7	1.8
67	Legal services	0.0	0.0	0.0	0.0	0.0
68	Computer systems design and related services	7.1	2.7	−1.6	−4.7	3.1
69	Miscellaneous professional, scientific, and technical services	2.2	2.0	3.0	3.0	1.7
70	Management of companies and enterprises	0.0	0.0	0.0	0.0	0.0
71	Administrative and waste management services	1.4	1.1	1.9	1.7	1.8
72	Administrative and support services	1.4	1.1	1.9	1.7	1.8
73	Waste management and remediation services	7.9	−2.7	0.7	1.1	4.5
74	Educational services, health care, and social assistance	2.6	2.1	2.4	1.9	2.7
75	Educational services	2.7	2.1	2.5	2.0	2.9
76	Health care and social assistance	1.8	2.2	0.7	0.4	0.9
77	Ambulatory health care services	2.2	2.3	−0.2	−0.6	0.1
78	Hospitals	2.2	2.4	2.0	1.9	2.1
79	Nursing and residential care facilities	2.2	2.6	2.8	2.4	2.5
80	Social assistance	−5.3	−1.9	2.4	3.4	3.8
81	Arts, entertainment, recreation, accommodation, and food services	1.9	2.6	3.0	2.2	1.6
82	Arts, entertainment, and recreation	1.7	2.2	3.8	2.2	1.0
83	Performing arts, spectator sports, museums, and related activities	2.2	2.6	5.8	3.1	2.1
84	Amusements, gambling, and recreation industries	1.5	2.1	3.0	1.9	0.6
85	Accommodation and food services	2.2	2.9	2.3	2.2	2.2
86	Accommodation	2.1	3.3	2.1	2.0	2.0
87	Food services and drinking places	2.3	2.4	2.7	2.3	2.4
88	Other services, except government	3.0	2.2	2.6	2.1	3.6
89	Government	3.0	1.7	−0.9	−0.6	2.6
90	Federal	1.3	1.6	0.2	1.3	2.7
91	General government	1.7	2.4	1.1	1.2	2.6
92	National defense	0.0	0.3	0.0	−1.8	0.1
93	Non-defense	1.7	2.4	1.1	1.2	2.6
94	Government enterprises	−1.5	−3.5	−6.1	1.4	3.1
95	State and local	3.2	1.7	−1.1	−0.9	2.6
96	General government	3.2	1.8	−1.3	−1.0	2.6
97	Government enterprises	3.2	1.0	2.7	2.5	1.9

Table 29. Outdoor Recreation Compensation by Industry

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	177,963	179,837	186,169	195,635	203,145	213,441
2	Private industries	159,068	160,065	165,953	174,536	181,372	190,851
3	Agriculture, forestry, fishing, and hunting	2,010	1,956	2,086	2,214	2,244	2,358
4	Farms	1,582	1,470	1,627	1,651	1,816	1,896
5	Forestry, fishing, and related activities	428	486	459	563	428	462
6	Mining	81	72	61	51	48	69
7	Oil and gas extraction	9	9	10	12	11	8
8	Mining, except oil and gas	57	47	36	27	23	48
9	Support activities for mining	15	16	15	12	14	14
10	Utilities	0	1	0	1	1	1
11	Construction	3,421	3,317	3,498	3,602	4,018	4,465
12	Manufacturing	15,109	15,359	15,704	16,123	16,539	17,941
13	Durable goods	8,680	8,792	8,998	9,358	9,402	10,636
14	Wood products	1	1	1	1	1	1

Table 29. Outdoor Recreation Compensation by Industry—Continued

[Millions of current dollars]

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
15	Nonmetallic mineral products	18	18	18	18	19	18
16	Primary metals	2	2	2	2	2	2
17	Fabricated metal products	736	826	801	920	926	1,215
18	Machinery	834	839	805	771	559	797
19	Computer and electronic products	286	267	307	469	339	413
20	Electrical equipment, appliances, and components	357	323	329	322	291	299
21	Motor vehicles, bodies and trailers, and parts	1,644	1,700	1,696	1,691	1,839	2,651
22	Other transportation equipment	3,004	3,144	3,422	3,450	3,617	3,410
23	Furniture and related products	26	29	29	29	27	25
24	Miscellaneous manufacturing	1,773	1,644	1,588	1,685	1,782	1,806
25	Nondurable goods	6,429	6,567	6,706	6,765	7,137	7,306
26	Food and beverage and tobacco products	1,908	1,996	2,134	2,182	2,318	2,240
27	Textile mills and textile product mills	227	208	227	232	249	231
28	Apparel and leather and allied products	1,853	1,847	1,845	1,797	1,985	2,106
29	Paper products	125	118	127	120	119	86
30	Printing and related support activities	63	61	66	69	70	64
31	Petroleum and coal products	1,307	1,342	1,283	1,309	1,341	1,500
32	Chemical products	839	887	914	943	934	953
33	Plastics and rubber products	108	107	109	112	120	125
34	Wholesale trade	11,364	11,038	11,610	12,260	11,984	12,168
35	Retail trade	44,085	45,357	45,731	47,717	48,207	49,804
36	Motor vehicle and parts dealers	3,504	3,462	3,525	3,896	4,223	4,637
37	Food and beverage stores	3,636	3,712	3,800	4,007	4,056	4,148
38	General merchandise stores	9,955	10,428	9,979	10,199	10,158	10,250
39	Other retail	26,990	27,755	28,426	29,614	29,771	30,769
40	Transportation and warehousing	15,496	16,292	16,943	18,680	20,187	21,373
41	Air transportation	9,731	10,268	10,919	12,403	13,762	14,806
42	Rail transportation	308	293	302	336	335	350
43	Water transportation	1,275	1,467	1,480	1,559	1,600	1,700
44	Truck transportation	2,014	2,057	2,063	2,113	2,106	2,180
45	Transit and ground passenger transportation	1,175	1,132	1,068	1,107	1,153	1,167
46	Pipeline transportation	54	49	48	64	68	69
47	Other transportation and support activities	926	1,011	1,049	1,082	1,146	1,081
48	Warehousing and storage	14	14	14	15	16	20
49	Information	437	460	482	501	511	540
50	Publishing industries, except internet (includes software)	209	209	211	223	214	219
51	Motion picture and sound recording industries	15	18	20	22	23	27
52	Broadcasting and telecommunications	174	188	203	199	212	216
53	Data processing, internet publishing, and other information services	40	45	48	57	62	78
54	Finance, insurance, real estate, rental, and leasing	3,405	3,311	3,182	3,480	3,571	3,804
55	Finance and insurance	1,952	1,855	1,820	1,837	1,819	1,945
56	Federal Reserve banks, credit intermediation, and related activities	141	145	139	164	172	176
57	Securities, commodity contracts, and investments	0	0	0	0	0	0
58	Insurance carriers and related activities	1,811	1,710	1,681	1,673	1,648	1,769
59	Funds, trusts, and other financial vehicles	0	0	0	0	0	0
60	Real estate and rental and leasing	1,453	1,456	1,363	1,643	1,751	1,859
61	Real estate	564	579	459	488	503	525
62	Housing	562	578	457	487	501	524
63	Other real estate	1	1	1	1	1	1
64	Rental and leasing services and lessors of intangible assets	890	876	904	1,155	1,249	1,334
65	Professional and business services	3,611	3,296	3,488	3,886	4,026	4,719
66	Professional, scientific, and technical services	635	557	618	707	776	853
67	Legal services	0	0	0	0	0	0
68	Computer systems design and related services	35	30	31	40	38	43
69	Miscellaneous professional, scientific, and technical services	600	526	587	667	739	810
70	Management of companies and enterprises	0	0	0	0	0	0
71	Administrative and waste management services	2,976	2,740	2,870	3,179	3,250	3,866
72	Administrative and support services	2,975	2,739	2,870	3,179	3,249	3,866
73	Waste management and remediation services	0	0	0	0	0	0
74	Educational services, health care, and social assistance	2,614	2,663	2,880	2,984	3,119	3,237
75	Educational services	2,342	2,393	2,599	2,686	2,808	2,914
76	Health care and social assistance	271	270	282	297	312	324
77	Ambulatory health care services	164	170	179	188	199	208
78	Hospitals	83	76	79	83	86	89
79	Nursing and residential care facilities	13	11	12	12	12	12
80	Social assistance	11	13	13	14	14	14
81	Arts, entertainment, recreation, accommodation, and food services	55,125	54,539	57,754	60,333	64,062	67,329
82	Arts, entertainment, and recreation	27,743	28,812	30,819	31,688	34,120	36,203
83	Performing arts, spectator sports, museums, and related activities	7,148	7,555	8,327	8,531	9,350	9,987
84	Amusements, gambling, and recreation industries	20,595	21,257	22,492	23,156	24,770	26,216
85	Accommodation and food services	27,383	25,726	26,935	28,645	29,942	31,125
86	Accommodation	13,818	14,032	14,605	15,379	15,886	16,321
87	Food services and drinking places	13,565	11,694	12,329	13,266	14,056	14,805
88	Other services, except government	2,309	2,404	2,533	2,705	2,855	3,043
89	Government	18,896	19,772	20,216	21,099	21,773	22,590
90	Federal	1,992	2,148	2,049	2,038	2,147	2,188
91	General government	1,726	1,864	1,778	1,786	1,904	1,933
92	National defense	0	0	0	0	0	0
93	Non-defense	1,726	1,864	1,778	1,786	1,904	1,933
94	Government enterprises	266	283	270	252	243	255
95	State and local	16,904	17,624	18,167	19,061	19,626	20,402
96	General government	15,053	15,448	16,228	16,976	17,549	18,403
97	Government enterprises	1,851	2,177	1,939	2,086	2,077	1,998

Table 30. Outdoor Recreation Employment by Industry

Thousands of full- and part-time employees

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
1	All Industries	4,841	4,794	4,879	4,983	5,081	5,171
2	Private industries	4,557	4,509	4,594	4,694	4,787	4,873
3	Agriculture, forestry, fishing, and hunting	50	47	50	52	53	55
4	Farms	45	41	44	45	47	48
5	Forestry, fishing, and related activities	5	6	6	7	6	7

Table 30. Outdoor Recreation Employment by Industry—Continued

Thousands of full- and part-time employees

Bureau of Economic Analysis

		2012	2013	2014	2015	2016	2017
6	Mining	1	1	1	0	0	1
7	Oil and gas extraction	0	0	0	0	0	0
8	Mining, except oil and gas	1	0	0	0	0	0
9	Support activities for mining	0	0	0	0	0	0
10	Utilities	0	0	0	0	0	0
11	Construction	88	90	93	101	102	103
12	Manufacturing	227	231	230	235	244	256
13	Durable goods	128	134	133	137	144	159
14	Wood products	0	0	0	0	0	0
15	Nonmetallic mineral products	0	0	0	0	0	0
16	Primary metals	0	0	0	0	0	0
17	Fabricated metal products	9	10	10	11	11	11
18	Machinery	9	9	8	8	6	7
19	Computer and electronic products	3	3	4	5	4	4
20	Electrical equipment, appliances, and components	5	4	4	4	4	4
21	Motor vehicles, bodies and trailers, and parts	34	38	38	40	47	58
22	Other transportation equipment	39	41	42	43	46	50
23	Furniture and related products	1	1	1	1	1	0
24	Miscellaneous manufacturing	28	27	26	26	26	25
25	Nondurable goods	99	97	97	97	99	97
26	Food and beverage and tobacco products	35	35	36	37	39	39
27	Textile mills and textile product mills	5	5	5	5	5	5
28	Apparel and leather and allied products	39	37	36	36	36	33
29	Paper products	2	2	2	1	1	1
30	Printing and related support activities	1	1	1	1	1	1
31	Petroleum and coal products	7	7	6	7	6	6
32	Chemical products	9	9	9	9	9	9
33	Plastics and rubber products	2	2	2	2	2	2
34	Wholesale trade	150	147	148	150	148	148
35	Retail trade	1,601	1,610	1,612	1,632	1,629	1,627
36	Motor vehicle and parts dealers	89	91	94	99	102	105
37	Food and beverage stores	126	128	131	134	135	135
38	General merchandise stores	396	381	378	380	376	357
39	Other retail	990	1,010	1,010	1,019	1,016	1,031
40	Transportation and warehousing	216	214	217	226	231	238
41	Air transportation	111	108	111	119	123	130
42	Rail transportation	3	3	3	3	3	3
43	Water transportation	13	14	14	15	15	15
44	Truck transportation	34	34	33	33	33	32
45	Transit and ground passenger transportation	29	28	27	27	27	27
46	Pipeline transportation	1	1	1	1	1	1
47	Other transportation and support activities	25	26	27	28	29	29
48	Warehousing and storage	0	0	0	0	0	0
49	Information	6	6	6	6	6	6
50	Publishing industries, except internet (includes software)	4	4	4	4	3	3
51	Motion picture and sound recording industries	1	1	1	1	1	1
52	Broadcasting and telecommunications	2	2	2	2	2	2
53	Data processing, internet publishing, and other information services	0	0	0	0	0	0
54	Finance, insurance, real estate, rental, and leasing	53	53	49	50	51	52
55	Finance and insurance	18	17	16	16	15	16
56	Federal Reserve banks, credit intermediation, and related activities	2	2	2	2	2	2
57	Securities, commodity contracts, and investments	0	0	0	0	0	0
58	Insurance carriers and related activities	16	15	14	14	13	14
59	Funds, trusts, and other financial vehicles	0	0	0	0	0	0
60	Real estate and rental and leasing	35	36	33	34	35	36
61	Real estate	14	14	10	10	10	10
62	Housing	14	14	10	10	10	10
63	Other real estate	0	0	0	0	0	0
64	Rental and leasing services and lessors of intangible assets	21	22	23	24	25	26
65	Professional and business services	67	68	69	72	77	77
66	Professional, scientific, and technical services	16	17	18	19	20	21
67	Legal services	0	0	0	0	0	0
68	Computer systems design and related services	0	0	0	0	0	0
69	Miscellaneous professional, scientific, and technical services	16	17	18	19	20	21
70	Management of companies and enterprises	0	0	0	0	0	0
71	Administrative and waste management services	51	51	51	53	57	56
72	Administrative and support services	51	51	51	53	57	56
73	Waste management and remediation services	0	0	0	0	0	0
74	Educational services, health care, and social assistance	96	102	108	112	118	123
75	Educational services	91	98	103	108	113	118
76	Health care and social assistance	4	4	4	5	5	5
77	Ambulatory health care services	2	3	3	3	3	3
78	Hospitals	1	1	1	1	1	1
79	Nursing and residential care facilities	0	0	0	0	0	0
80	Social assistance	0	0	0	0	0	0
81	Arts, entertainment, recreation, accommodation, and food services	1,941	1,880	1,948	1,994	2,065	2,123
82	Arts, entertainment, and recreation	870	892	938	953	999	1,036
83	Performing arts, spectator sports, museums, and related activities	73	75	79	80	81	84
84	Amusements, gambling, and recreation industries	796	816	859	873	918	952
85	Accommodation and food services	1,071	988	1,010	1,041	1,066	1,088
86	Accommodation	425	434	441	453	461	470
87	Food services and drinking places	646	554	568	589	604	618
88	Other services, except government	61	61	64	64	64	64
89	Government	284	285	285	289	294	297
90	Federal	24	26	23	23	23	23
91	General government	24	26	23	23	23	23
92	National defense	0	0	0	0	0	0
93	Non-defense	24	26	23	23	23	23
94	Government enterprises	0	0	0	0	0	0
95	State and local	260	259	262	266	271	275
96	General government	236	233	239	242	247	253
97	Government enterprises	23	26	23	24	24	22

STATE LEVEL NEWS RELEASE TABLES

Table 1. Outdoor Recreation Value-Added, Employment, and Compensation as a Percent of Total, 2017

[Millions of current dollars]

Friday, September 20, 2019

	Total Outdoor Recreation Value-Added (Thousands of Dollars)	Percent of Total Value-Added [1]	Total Outdoor Recreation Employment	Percent of Total Employment [1]	Total Outdoor Recreation Compensation (Thousands of Dollars)	Percent of Total Compensation [1]
United States	**427,189,444**	**2.2**	**5,170,670**	**3.4**	**213,440,905**	**2.1**
Alabama	4,133,003	2.0	62,647	3.0	2,083,927	1.8
Alaska	2,187,367	4.2	22,677	6.4	1,030,701	3.8
Arizona	8,654,150	2.7	108,460	3.8	4,327,385	2.4
Arkansas	2,887,050	2.3	39,299	3.1	1,390,053	2.0
California	52,120,252	1.9	588,680	3.3	27,383,466	1.9
Colorado	11,308,942	3.3	146,178	5.3	5,963,912	3.1
Connecticut	3,594,652	1.4	48,390	2.8	1,923,607	1.4
Delaware	1,309,865	1.8	18,485	4.0	611,026	1.9
District of Columbia	1,623,489	1.2	23,651	3.0	977,279	1.1
Florida	42,183,230	4.3	502,939	5.6	20,690,183	3.9
Georgia	12,319,942	2.2	144,203	3.1	6,274,833	2.1
Hawaii	4,794,590	5.4	57,584	7.9	2,437,813	5.1
Idaho	2,328,949	3.2	33,831	4.5	1,182,979	3.0
Illinois	14,725,840	1.8	165,400	2.7	7,737,696	1.7
Indiana	9,658,524	2.8	108,535	3.4	4,486,832	2.4
Iowa	3,442,812	1.9	48,185	3.0	1,634,494	1.8
Kansas	2,918,117	1.8	39,776	2.7	1,425,887	1.7
Kentucky	4,135,194	2.1	53,632	2.7	1,973,149	1.8
Louisiana	5,898,325	2.5	59,460	2.9	2,588,692	2.1
Maine	2,957,847	4.8	40,720	6.4	1,373,098	3.8
Maryland	7,058,582	1.8	92,683	3.3	3,746,066	1.7
Massachusetts	9,210,427	1.7	111,609	3.0	4,907,443	1.6
Michigan	9,954,756	2.0	126,681	2.8	4,755,614	1.7
Minnesota	9,638,553	2.7	101,035	3.4	4,505,794	2.2
Mississippi	2,629,162	2.4	33,111	2.7	1,119,665	1.9
Missouri	6,761,351	2.2	91,090	3.1	3,586,118	2.0
Montana	2,381,709	5.1	28,847	5.9	1,068,201	4.2
Nebraska	2,273,407	1.9	29,863	2.9	1,095,738	1.8
Nevada	4,462,542	2.8	56,940	4.2	2,239,107	2.7
New Hampshire	2,710,336	3.3	37,818	5.5	1,315,354	2.9
New Jersey	11,222,802	1.9	139,017	3.3	6,070,879	1.9
New Mexico	2,314,310	2.5	33,486	3.9	1,167,986	2.4
New York	26,299,866	1.6	293,447	3.0	14,178,838	1.7
North Carolina	11,936,052	2.2	151,589	3.3	5,758,490	2.0
North Dakota	1,208,579	2.3	14,856	3.3	542,894	2.0
Ohio	10,167,019	1.6	137,073	2.4	5,348,251	1.5
Oklahoma	3,836,530	2.0	47,096	2.8	1,793,835	1.8
Oregon	6,538,383	2.9	86,529	4.4	3,583,571	2.8
Pennsylvania	13,173,567	1.8	173,588	2.8	6,826,124	1.7
Rhode Island	1,391,601	2.3	21,642	4.3	748,122	2.2
South Carolina	6,853,918	3.1	101,274	4.7	3,466,434	2.8
South Dakota	1,341,806	2.7	18,718	4.1	615,661	2.6
Tennessee	7,342,537	2.1	101,033	3.3	3,707,056	2.0
Texas	34,565,594	2.1	340,798	2.7	14,285,680	1.7
Utah	5,514,051	3.3	75,143	4.9	2,844,732	3.2
Vermont	1,468,493	4.5	17,301	5.3	612,583	3.2
Virginia	9,285,508	1.8	128,407	3.1	4,795,163	1.6
Washington	11,535,055	2.2	128,991	3.7	5,850,632	2.2
West Virginia	1,497,706	2.0	22,202	3.1	688,507	1.8
Wisconsin	7,785,344	2.4	93,009	3.1	3,889,401	2.1
Wyoming	1,647,761	4.4	23,062	8.0	829,955	4.7

[1] Based on state level data published on *bea.gov*, GDP estimates were published on May 1, 2019, compensation estimates were published on March 26, 2019 and employment estimates were published on September 25, 2018.

Source: U.S. Bureau of Economic Analysis.

Table 2. Outdoor Recreation Value-Added by State, Selected Activities, 2017

[Thousands of dollars]

Friday, September 20, 2019

	Total Outdoor Recreation Activities [1]	Conventional Outdoor Recreation Activities	Boating/Fishing	RVing	Snow Activities	Other Outdoor Recreation Activities	Amusement Parks/ Water Parks	Festivals/Sporting Events/Concerts	Game Areas (including Golf and Tennis)	All Other Supporting Outdoor Recreation	Government Expenditures
United States	**427,189,444**	**130,843,864**	**20,886,503**	**16,887,771**	**5,646,013**	**82,401,718**	**11,858,821**	**14,143,242**	**18,470,569**	**191,428,668**	**22,515,194**
Alabama	4,133,003	1,513,165	287,174	192,640	17,382	705,054	48,474	37,770	228,052	1,687,077	227,708
Alaska	2,187,367	396,836	99,675	67,133	22,454	251,753	10,309	8,553	33,336	1,426,362	112,417
Arizona	8,654,150	2,198,635	275,125	410,065	33,605	1,604,016	77,969	393,827	406,973	4,316,331	535,168
Arkansas	2,887,050	1,169,862	245,991	125,510	4,871	440,253	36,367	40,479	144,598	1,107,668	169,267
California	52,120,252	14,903,257	1,805,319	1,492,339	652,463	11,103,139	2,463,511	2,017,050	2,261,707	23,183,116	2,930,739
Colorado	11,308,942	3,779,399	319,683	338,657	1,542,589	1,678,724	107,085	330,373	379,270	5,186,972	663,848
Connecticut	3,594,652	1,473,762	280,836	100,671	57,557	742,060	53,472	55,665	247,065	1,203,746	175,083
Delaware	1,309,865	316,284	53,390	32,914	4,421	168,869	20,225	11,448	53,363	775,680	49,032
District of Columbia	1,623,489	182,503	29,630	10,124	2,104	266,267	9,138	144,003	22,579	856,311	318,408
Florida	42,183,230	8,823,495	2,692,393	936,806	38,143	9,938,871	4,652,634	1,158,660	1,826,905	21,881,235	1,539,629
Georgia	12,319,942	3,565,188	542,342	351,011	20,616	2,178,995	192,305	322,345	566,169	6,081,781	493,978
Hawaii	4,794,590	567,859	127,848	25,590	5,899	651,644	29,675	20,097	181,338	3,357,456	217,630
Idaho	2,328,949	891,370	112,086	168,340	53,062	317,197	29,776	13,234	98,608	998,799	121,584
Illinois	14,725,840	4,059,338	542,627	324,438	38,319	3,296,306	306,325	624,093	680,335	6,424,837	945,360
Indiana	9,658,524	5,193,968	516,539	2,878,685	44,666	1,727,556	96,387	290,061	268,160	2,430,991	306,008
Iowa	3,442,812	1,389,040	139,288	373,661	13,838	722,578	45,760	56,268	164,808	1,159,670	171,523
Kansas	2,918,117	1,019,262	128,938	90,201	11,752	594,558	33,804	21,233	164,844	1,111,376	192,921
Kentucky	4,135,194	1,423,568	177,406	133,018	9,109	782,697	55,870	90,043	174,357	1,707,784	221,144
Louisiana	5,898,325	1,732,372	317,086	232,828	49,347	771,031	61,229	202,510	142,639	2,979,713	415,209
Maine	2,957,847	905,466	248,946	137,428	75,279	277,110	16,847	22,537	94,552	1,694,895	80,376
Maryland	7,058,582	1,929,167	444,438	160,930	38,592	1,198,978	98,341	271,629	273,773	3,125,590	804,847
Massachusetts	9,210,427	2,862,275	561,534	166,855	124,803	2,177,186	119,437	477,173	622,702	3,818,889	352,077
Michigan	9,954,756	3,271,515	735,330	488,864	73,329	2,074,983	86,816	327,382	523,178	4,159,714	448,544
Minnesota	9,638,553	3,635,061	631,370	319,703	149,706	1,775,834	119,703	290,706	470,772	3,608,163	619,495
Mississippi	2,629,162	891,794	114,900	101,986	21,077	377,259	24,866	7,477	95,054	1,163,174	196,936
Missouri	6,761,351	2,276,350	399,748	253,040	16,152	1,687,485	153,005	447,573	293,834	2,395,916	401,599
Montana	2,381,709	753,790	134,869	132,604	76,189	387,345	13,115	18,072	98,954	1,117,209	123,365
Nebraska	2,273,407	889,006	92,293	65,735	9,300	428,485	22,070	23,684	121,723	835,163	120,753
Nevada	4,462,542	1,109,185	147,494	114,943	40,467	776,603	46,962	143,734	183,061	2,175,122	401,632
New Hampshire	2,710,336	1,020,325	117,569	110,153	151,646	370,199	47,261	23,696	105,782	1,256,029	63,781
New Jersey	11,222,802	3,252,606	576,794	263,841	94,839	2,135,241	280,278	403,538	469,982	5,417,809	417,146
New Mexico	2,314,310	634,520	58,572	89,462	85,949	244,833	23,108	13,573	67,115	1,206,577	228,380
New York	26,299,866	8,505,481	1,087,834	528,351	173,532	5,329,389	269,502	1,686,377	967,921	10,985,837	1,479,158
North Carolina	11,936,052	3,329,353	601,451	351,652	53,031	2,153,456	155,146	509,620	529,178	5,790,064	663,180
North Dakota	1,208,579	414,008	65,609	58,319	6,244	186,838	7,009	4,440	44,902	480,304	127,429
Ohio	10,167,019	3,509,001	495,138	599,483	66,173	2,533,501	304,237	527,545	589,166	3,481,007	643,510
Oklahoma	3,836,530	1,259,053	182,524	235,995	12,636	618,359	48,862	105,046	133,048	1,726,174	232,944
Oregon	6,538,383	2,472,405	298,462	457,202	129,346	887,025	61,760	98,147	215,549	2,797,936	381,017
Pennsylvania	13,173,567	4,300,774	474,598	479,694	230,038	2,993,272	274,095	645,234	716,878	5,339,144	540,377
Rhode Island	1,391,601	365,212	160,492	21,992	5,296	208,147	12,471	16,883	65,659	760,084	58,159
South Carolina	6,853,918	2,162,875	434,601	384,926	6,649	1,014,010	86,955	61,192	364,333	3,352,219	324,815
South Dakota	1,341,806	457,237	50,800	66,977	12,447	189,748	12,355	9,394	52,305	558,877	135,944
Tennessee	7,342,537	2,473,242	596,524	298,012	43,827	1,440,669	145,710	323,178	294,560	3,038,362	390,262
Texas	34,565,594	11,188,472	1,587,775	1,484,522	237,143	5,949,940	643,170	846,453	1,440,466	16,320,292	1,106,890
Utah	5,514,051	1,842,019	192,153	218,329	549,150	871,266	80,599	128,646	250,906	2,398,643	402,122
Vermont	1,468,493	475,685	37,934	42,752	175,855	151,325	4,974	8,404	61,472	804,911	36,572
Virginia	9,285,508	2,394,061	402,411	222,064	23,571	1,524,070	177,989	195,534	398,927	4,661,578	705,799
Washington	11,535,055	3,455,420	662,066	372,139	220,871	2,626,855	85,754	377,657	422,593	4,858,624	594,157
West Virginia	1,497,706	451,005	64,201	42,200	24,564	189,716	18,965	7,728	47,311	721,408	135,577
Wisconsin	7,785,344	3,422,687	495,037	272,915	76,388	1,546,930	82,615	280,390	368,694	2,477,944	337,782
Wyoming	1,647,761	335,653	39,657	60,069	19,726	134,096	4,533	2,889	41,110	1,024,101	153,910

[1] Total outdoor recreation activit[i]es includes core activities, supporting activities, and activities with secondary production that are designated as outdoor recreation.
Source: U.S. Bureau of Economic Analysis.

Table 3. Outdoor Recreation Value-Added by State, Selected Industries, 2017

[Thousands of dollars]

Friday, September 20, 2019

	Total Outdoor Recreation Industries	Private industries	Manufacturing	Retail trade	Finance, insurance, real estate, rental, and leasing	Arts, entertainment, and recreation	Accomodations and food service	All other private industries	Government
United States	**427,189,444**	**401,263,550**	**51,667,166**	**95,660,596**	**24,599,990**	**52,879,893**	**59,990,341**	**116,465,567**	**25,925,894**
Alabama	4,133,003	3,868,776	411,126	1,310,458	224,647	315,368	745,847	861,331	264,227
Alaska	2,187,367	1,902,875	133,404	387,089	135,789	138,851	414,822	692,920	284,492
Arizona	8,654,150	8,066,337	360,525	2,116,316	709,129	1,024,244	1,715,235	2,140,887	587,813
Arkansas	2,887,050	2,697,898	559,630	787,842	137,102	207,343	377,154	628,826	189,152
California	52,120,252	48,774,747	5,773,527	10,838,594	2,675,553	7,461,103	6,634,132	15,391,837	3,345,505
Colorado	11,308,942	10,541,979	449,206	2,241,274	878,328	1,788,763	2,150,763	3,033,643	766,963
Connecticut	3,594,652	3,390,193	451,906	982,530	205,969	478,414	402,647	868,727	204,459
Delaware	1,309,865	1,253,257	112,658	430,046	134,604	95,887	316,596	163,466	56,607
District of Columbia	1,623,489	1,274,056	5,714	232,081	44,616	183,978	576,839	230,828	349,433
Florida	42,183,230	40,458,633	1,147,658	7,640,811	3,337,140	8,604,150	9,358,083	10,370,790	1,724,597
Georgia	12,319,942	11,752,952	1,234,272	2,456,209	489,236	1,298,055	1,340,313	4,934,867	566,990
Hawaii	4,794,590	4,547,173	107,705	665,996	238,976	317,556	1,278,773	1,938,168	247,416
Idaho	2,328,949	2,191,639	295,780	695,638	139,219	206,892	325,647	528,461	137,311
Illinois	14,725,840	13,660,892	1,894,583	2,840,819	667,136	1,708,275	1,199,480	5,350,598	1,064,949
Indiana	9,658,524	9,314,465	4,738,520	1,739,953	219,873	705,935	494,850	1,415,334	344,058
Iowa	3,442,812	3,244,711	744,066	896,247	96,639	301,964	294,473	911,324	198,101
Kansas	2,918,117	2,697,547	684,153	684,044	86,645	211,491	322,902	708,312	220,570
Kentucky	4,135,194	3,880,834	712,851	1,102,575	156,872	354,668	473,982	1,079,887	254,359
Louisiana	5,898,325	5,424,409	1,553,033	1,237,542	237,811	459,348	547,295	1,389,382	473,916
Maine	2,957,847	2,867,990	328,022	610,533	401,661	228,192	986,874	312,709	89,857
Maryland	7,058,582	6,155,998	279,759	1,743,814	385,701	813,696	1,193,063	1,739,966	902,584
Massachusetts	9,210,427	8,803,667	982,280	1,940,554	643,326	1,363,963	1,291,584	2,581,961	406,760
Michigan	9,954,756	9,435,579	1,142,187	2,548,301	892,593	1,085,448	1,170,175	2,596,875	519,177
Minnesota	9,638,553	8,949,024	1,843,732	1,956,471	553,258	885,278	656,192	3,054,092	689,529
Mississippi	2,629,162	2,409,268	647,087	739,081	123,513	119,458	319,220	460,910	219,894
Missouri	6,761,351	6,311,424	1,176,775	1,547,960	354,856	968,809	716,288	1,546,737	449,927
Montana	2,381,709	2,245,956	194,459	518,297	140,878	337,060	509,882	545,381	135,754
Nebraska	2,273,407	2,135,018	416,639	546,354	70,117	181,077	255,271	665,560	138,389
Nevada	4,462,542	4,020,274	93,084	1,079,368	218,216	536,725	682,962	1,409,919	442,268
New Hampshire	2,710,336	2,629,758	317,346	757,303	294,166	294,782	602,650	363,511	80,577
New Jersey	11,222,802	10,744,273	901,545	2,736,368	903,195	1,460,630	1,347,769	3,394,764	478,529
New Mexico	2,314,310	2,054,069	122,001	617,224	185,928	176,106	595,921	356,891	260,241
New York	26,299,866	24,434,332	1,687,444	5,635,691	1,745,373	3,616,572	3,091,380	8,657,873	1,865,533
North Carolina	11,936,052	11,181,670	1,513,993	2,798,488	622,800	1,391,631	1,895,312	2,959,448	754,382
North Dakota	1,208,579	1,064,864	74,471	378,362	50,506	79,538	119,321	362,666	143,716
Ohio	10,167,019	9,432,595	1,620,087	2,667,856	397,680	1,518,966	694,283	2,533,724	734,424
Oklahoma	3,836,530	3,568,921	462,148	998,936	197,984	384,577	360,539	1,164,737	267,609
Oregon	6,538,383	6,109,216	561,501	1,568,294	293,692	561,962	1,217,677	1,906,089	429,168
Pennsylvania	13,173,567	12,534,629	1,679,625	3,073,179	865,696	1,978,941	1,239,418	3,697,772	638,938
Rhode Island	1,391,601	1,324,679	91,310	308,017	76,209	163,119	420,202	265,823	66,922
South Carolina	6,853,918	6,487,440	855,561	1,702,804	371,669	560,882	2,061,767	934,756	366,478
South Dakota	1,341,806	1,193,064	86,596	360,369	50,733	93,594	284,198	317,575	148,741
Tennessee	7,342,537	6,912,889	1,031,143	1,832,094	322,063	892,723	1,287,678	1,547,189	429,648
Texas	34,565,594	33,278,498	7,283,778	8,488,429	1,308,366	3,385,750	2,230,830	10,581,345	1,287,097
Utah	5,514,051	5,065,651	441,331	1,353,907	402,922	670,673	849,359	1,347,458	448,400
Vermont	1,468,493	1,422,689	148,923	294,569	231,625	150,214	413,979	183,382	45,803
Virginia	9,285,508	8,470,711	594,651	2,341,920	428,290	961,205	1,548,477	2,596,170	814,797
Washington	11,535,055	10,846,978	1,547,813	2,781,151	506,584	1,059,994	1,344,415	3,607,022	688,077
West Virginia	1,497,706	1,346,611	99,649	463,473	110,069	122,593	251,044	299,782	151,095
Wisconsin	7,785,344	7,402,179	1,966,479	1,636,411	584,357	880,771	742,139	1,592,021	383,165
Wyoming	1,647,761	1,480,264	105,430	348,956	50,680	92,677	640,641	241,878	167,497

The estimates are based on the 2012 North American Industry Classification System (NAICS).
Source: U.S. Bureau of Economic Analysis

Table 4. Outdoor Recreation Employment by State, Selected Industries, 2017

Friday, September 20, 2019

	Total Outdoor Recreation Industries	Private industries	Manufacturing	Retail trade	Finance, insurance, real estate, rental, and leasing	Arts, entertainment, and recreation	Accomodations and food service	All other private industries	Government
United States	**5,170,670**	**4,873,294**	**255,664**	**1,627,246**	**51,860**	**1,035,899**	**1,087,555**	**815,069**	**297,376**
Alabama	62,647	58,757	4,167	24,498	536	8,835	13,330	7,391	3,890
Alaska	22,677	20,802	202	6,161	179	3,081	6,645	4,533	1,875
Arizona	108,460	102,631	2,255	33,386	1,437	19,829	30,358	15,366	5,829
Arkansas	39,299	36,950	4,568	13,633	270	6,337	7,141	5,002	2,349
California	588,680	554,550	27,339	169,229	5,490	123,559	116,571	112,362	34,130
Colorado	146,178	136,013	2,645	38,330	2,738	35,010	37,188	20,099	10,165
Connecticut	48,390	46,228	1,496	16,698	579	12,025	7,968	7,461	2,162
Delaware	18,485	17,944	335	7,719	161	2,314	5,995	(D)	541
District of Columbia	23,651	21,312	(D)	3,907	80	1,584	12,889	2,097	2,339
Florida	502,939	488,810	11,068	124,273	4,608	128,529	153,556	66,776	14,129
Georgia	144,203	135,841	8,637	47,227	1,280	25,814	25,229	27,653	8,362
Hawaii	57,584	54,626	484	11,405	472	6,883	22,012	13,370	2,958
Idaho	33,831	32,073	2,053	12,066	363	7,071	6,258	4,262	1,758
Illinois	165,400	147,208	7,662	51,859	1,780	30,073	24,094	31,740	18,192
Indiana	108,535	104,160	35,577	30,163	766	16,089	10,117	11,448	4,375
Iowa	48,185	45,727	7,720	16,970	371	8,950	5,544	6,172	2,458
Kansas	39,776	36,383	3,131	14,636	256	6,805	6,314	5,240	3,392
Kentucky	53,632	50,641	2,939	20,130	499	10,287	8,769	8,017	2,991
Louisiana	59,460	55,079	2,606	21,441	512	8,930	10,134	11,456	4,380
Maine	40,720	39,498	2,441	10,512	597	7,429	15,563	2,956	1,222
Maryland	92,683	86,187	1,549	31,266	875	16,944	22,522	13,031	6,496
Massachusetts	111,609	108,041	4,867	32,757	1,396	25,303	24,730	18,989	3,568
Michigan	126,681	121,266	5,660	46,162	1,527	27,247	21,514	19,156	5,415
Minnesota	101,035	92,390	7,943	33,052	1,206	20,062	12,302	17,825	8,645
Mississippi	33,111	30,956	2,559	14,547	231	3,998	6,150	3,473	2,154
Missouri	91,090	84,360	6,548	31,331	842	18,369	14,432	12,839	6,730
Montana	28,847	27,589	711	8,387	285	6,406	8,132	3,668	1,258
Nebraska	29,863	27,996	2,229	9,785	259	5,876	4,633	5,213	1,868
Nevada	56,940	53,012	615	18,153	495	9,793	14,425	9,532	3,927
New Hampshire	37,818	36,902	1,150	13,022	608	7,952	10,457	3,712	916
New Jersey	139,017	131,008	4,516	47,518	1,551	27,370	25,960	24,092	8,009
New Mexico	33,486	30,883	385	10,933	380	5,423	10,231	3,531	2,603
New York	293,447	274,043	9,046	88,847	2,939	56,551	57,011	59,649	19,404
North Carolina	151,589	143,515	7,472	49,948	1,226	30,102	33,952	20,816	8,074
North Dakota	14,856	12,805	230	5,566	104	2,204	2,378	2,321	2,051
Ohio	137,073	125,846	7,083	49,016	1,579	33,818	14,416	19,932	11,227
Oklahoma	47,096	44,274	2,275	18,058	479	8,933	6,819	7,707	2,821
Oregon	86,529	81,082	5,126	25,744	697	13,440	22,121	13,954	5,447
Pennsylvania	173,588	164,944	8,022	56,906	2,227	45,789	24,452	27,549	8,645
Rhode Island	21,642	21,238	785	5,327	180	4,345	8,126	2,179	404
South Carolina	101,274	96,368	5,726	29,885	697	15,048	36,663	8,351	4,906
South Dakota	18,718	16,873	510	6,242	103	2,893	4,810	2,314	1,845
Tennessee	101,033	95,875	6,233	34,829	876	18,118	23,524	12,293	5,158
Texas	340,798	324,713	14,184	132,757	3,352	68,160	44,093	62,167	16,085
Utah	75,143	68,826	3,833	23,228	980	15,010	14,921	10,856	6,317
Vermont	17,301	16,918	581	5,589	232	2,154	6,649	1,713	383
Virginia	128,407	118,037	2,437	42,158	1,042	24,119	30,251	18,030	10,370
Washington	128,991	121,379	7,209	37,077	1,097	23,622	26,729	25,644	7,611
West Virginia	22,202	20,391	274	9,213	185	3,454	4,944	2,322	1,812
Wisconsin	93,009	89,052	8,378	29,528	1,148	21,389	14,157	14,451	3,957
Wyoming	23,062	21,291	(D)	6,172	90	2,572	10,375	(D)	1,772

(D) Data are suppressed to avoid disclosure of confidential information.
The estimates are based on the 2012 North American Industry Classification System (NAICS).
Source: U.S. Bureau of Economic Analysis.

Table 5. Outdoor Recreation Compensation by State, Selected Industries, 2017

[Thousands of dollars]

Friday, September 20, 2019

	Total Outdoor Recreation Industries	Private industries	Manufacturing	Retail trade	Finance, insurance, real estate, rental, and leasing	Arts, entertainment, and recreation	Accomodations and food service	All other private industries	Government
United States	**213,440,905**	**190,850,673**	**17,941,414**	**49,803,996**	**3,804,191**	**36,203,459**	**31,125,464**	**51,972,151**	**22,590,232**
Alabama	2,083,927	1,836,504	167,396	656,008	35,002	206,113	383,589	388,396	247,424
Alaska	1,030,701	855,609	13,367	202,798	10,053	100,387	202,056	326,951	175,091
Arizona	4,327,385	3,911,667	171,258	1,033,321	87,207	748,683	881,278	989,922	415,717
Arkansas	1,390,053	1,234,191	228,658	380,557	15,676	155,889	196,088	257,324	155,862
California	27,383,466	24,223,717	2,139,669	5,804,727	429,890	5,275,931	3,432,888	7,140,612	3,159,749
Colorado	5,963,912	5,294,002	186,924	1,200,145	210,520	1,269,076	1,098,658	1,328,679	669,910
Connecticut	1,923,607	1,756,921	163,870	523,014	68,330	339,726	213,537	448,444	166,686
Delaware	611,026	570,365	25,609	222,975	10,668	62,596	169,369	76,035	40,661
District of Columbia	977,279	751,938	(D)	128,943	6,099	137,529	338,136	(D)	225,341
Florida	20,690,183	19,566,765	529,000	3,982,411	298,301	5,411,340	4,720,704	4,625,008	1,123,418
Georgia	6,274,833	5,687,701	541,765	1,392,935	92,768	849,054	708,207	2,102,973	587,132
Hawaii	2,437,813	2,237,381	27,906	351,466	26,970	217,816	668,783	944,442	200,432
Idaho	1,182,979	1,071,911	123,291	379,802	19,116	161,860	172,278	215,563	111,069
Illinois	7,737,696	6,571,896	731,439	1,547,051	178,949	1,197,759	653,786	2,262,912	1,165,800
Indiana	4,486,832	4,236,457	1,955,843	853,596	52,943	475,626	262,233	636,216	250,375
Iowa	1,634,494	1,474,390	342,683	459,026	26,988	193,816	152,537	299,340	160,103
Kansas	1,425,887	1,238,015	215,912	410,667	19,322	149,186	173,319	269,609	187,872
Kentucky	1,973,149	1,771,477	207,078	528,650	38,676	301,065	244,352	451,655	201,673
Louisiana	2,588,692	2,263,917	294,475	613,824	34,860	322,617	285,247	712,896	324,775
Maine	1,373,098	1,293,114	157,644	313,821	34,284	182,207	478,538	126,619	79,984
Maryland	3,746,066	3,167,505	118,826	935,491	69,292	601,959	633,175	808,763	578,561
Massachusetts	4,907,443	4,546,628	487,878	1,056,129	111,983	958,112	693,052	1,239,475	360,815
Michigan	4,755,614	4,419,974	412,051	1,363,076	100,435	827,337	600,975	1,116,101	335,640
Minnesota	4,505,794	3,945,849	646,592	969,545	103,269	643,558	333,420	1,249,465	559,945
Mississippi	1,119,665	984,995	162,806	376,121	12,568	88,970	167,905	176,625	134,670
Missouri	3,586,118	3,203,870	462,395	891,515	57,478	700,363	380,455	711,664	382,248
Montana	1,068,201	978,075	55,391	256,506	13,520	198,144	250,047	204,467	90,125
Nebraska	1,095,738	985,653	168,047	288,977	20,613	127,509	132,343	248,163	110,085
Nevada	2,239,107	1,961,778	37,992	556,264	29,493	294,709	385,311	658,010	277,329
New Hampshire	1,315,354	1,255,150	120,739	399,670	38,796	198,070	299,392	198,483	60,205
New Jersey	6,070,879	5,380,208	361,543	1,523,860	139,805	1,032,284	722,952	1,599,764	690,671
New Mexico	1,167,986	966,658	27,915	325,587	22,621	126,951	303,237	160,347	201,328
New York	14,178,838	12,108,598	702,857	3,093,606	244,301	2,314,439	1,618,258	4,135,136	2,070,240
North Carolina	5,758,490	5,212,748	434,113	1,411,882	82,776	1,034,961	979,248	1,269,768	545,743
North Dakota	542,894	449,310	19,467	174,464	6,340	54,058	64,121	130,861	93,585
Ohio	5,348,251	4,529,076	484,790	1,365,860	130,263	1,070,871	365,465	1,111,828	819,174
Oklahoma	1,793,835	1,594,219	129,849	526,156	33,557	272,265	188,872	443,519	199,616
Oregon	3,583,571	3,180,745	274,546	860,625	44,450	374,616	633,061	993,446	402,826
Pennsylvania	6,826,124	6,021,655	617,055	1,553,903	164,706	1,415,369	643,184	1,627,438	804,469
Rhode Island	748,122	710,837	39,611	171,309	13,368	121,237	228,240	124,185	37,284
South Carolina	3,466,434	3,154,607	384,565	869,506	41,835	358,725	1,073,339	426,636	311,827
South Dakota	615,661	520,305	35,646	176,065	5,796	59,883	138,167	104,746	95,356
Tennessee	3,707,056	3,375,504	374,536	988,271	57,641	589,153	662,672	703,232	331,551
Texas	14,285,680	13,073,825	1,267,875	3,940,372	248,482	2,286,128	1,161,087	4,169,882	1,211,855
Utah	2,844,732	2,539,561	229,323	726,438	67,217	448,569	438,367	629,647	305,171
Vermont	612,583	580,133	44,766	175,469	13,435	56,407	205,948	84,109	32,449
Virginia	4,795,163	4,106,889	146,074	1,202,353	70,598	694,592	831,889	1,161,383	688,274
Washington	5,850,632	5,153,886	537,080	1,375,660	73,490	711,594	727,135	1,728,927	696,746
West Virginia	688,507	600,895	19,219	242,725	9,992	81,427	134,336	113,192	87,612
Wisconsin	3,889,401	3,591,160	886,836	830,992	74,788	634,183	376,684	787,679	298,240
Wyoming	829,955	702,435	(D)	189,858	4,664	68,739	317,546	(D)	127,520

(D) Data are suppressed to avoid disclosure of confidential information.
The estimates are based on the 2012 North American Industry Classification System (NAICS).
Source: U.S. Bureau of Economic Analysis

SUBMITTED ARTICLE BY HON. CHELLIE PINGREE, A REPRESENTATIVE IN CONGRESS FROM MAINE

Portland Press Herald

Unsung champs of carbon capture, small Maine woodlots can have big impact

https://www.pressherald.com/2019/09/17/unsung-champs-of-carbon-capture-small-maine-woodlots-can-have-big-impact/
Posted September 17
Updated September 17

Fires in the Amazon this summer have increased global awareness of the role of rainforests in tempering climate change. Less appreciated is the carbon storage capacity of forests like Maine's.

By TUX TURKEL (https://www.pressherald.com/author/tux-turkel), *Staff Writer*

Denny Gallaudet has been harvesting his woodlot in Cumberland for 40 years, mostly for firewood to heat his home, but has changed his management techniques to reduce carbon loss from the carbon-rich soil and carbon-banking trees. DEREK DAVIS/*Staff Photographer.*

This story is part of ***Covering Climate Now,*** *a global collaboration of more than 220 news outlets to strengthen coverage of the climate story.*

Cumberland—The big, old pine isn't good for much, at least not financially. A legacy tree from 75 years ago when the rolling woodlands in this Portland suburb were hayfields, it's a landmark on Denny Gallaudet's 25 acre woodlot, its spindly, branch-studded trunk reaching like fingers toward the sky.

A logging contractor might suggest felling it for softwood chips. But to Gallaudet, the misshapen pine has a higher value. By his calculations, it's storing roughly 6 metric tons of carbon as it grows, keeping heat-trapping carbon dioxide out of Earth's warming atmosphere.

Fires in the Amazon this summer have increased awareness of the role of rain forests in blunting climate change. Less appreciated is the carbon storage capacity of northern temperate forests, like the one covering most of Maine.

Now Gallaudet, who's leading a team at Sierra Club Maine, is trying to figure out how the state's small woodlot owners can be encouraged to manage their land not only for income, wildlife and recreation, but to maximize carbon sequestration. Together, these local forests have the potential to become a world-class carbon sink, Gallaudet and other activists say.

America's northern forest covers roughly 176 million acres and its growth has been increasing, according to the most recent USDA survey, in part because of reduced timber harvesting for the region's contracted paper industry. By some measures, today's forest is soaking up 1 to 2 tons of carbon per acre every year.

As the state with the highest percentage of forest land in the nation, Maine is a critical vault in this carbon bank, removing and *storing 1.4 pounds of carbon* (*https://www.mdf.org/wp-content/uploads/2019/04/MOG-FullReport2019-FNL.pdf*) for every pound emitted by burning fossil fuels. Put another way, *5.5 acres of forest* (*https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator*) can capture the annual emissions from one passenger car, according to the Environmental Protection Agency.

But Gallaudet believes the small landowners who control 40 percent of Maine's 17.6 million acres are in a unique position to do more. Collectively, they could substantially offset the CO_2 emitted each year in Maine from cars, factories and energy production.

Transformational Tactics

To get there, many small owners would need to change the way they manage their land and embrace the practices of low-impact forestry.

They'll have to leave more big, carbon-banking trees standing, like Gallaudet's old pine, as well as more dead trees. After a harvest, they'll need to leave more limbs and branches on the forest floor. Both will emit carbon, of course, but slowly, as they decay over time.

Landowners also will need to employ logging methods that have less impact on the soil, where a surprising 50 percent carbon is stored. And in some instances, for some trees, they just shouldn't do any cutting.

In the long run, this transformation will require changes in government policies and perhaps modifications to the nascent markets that offer financial rewards for storing carbon, so small owners can see value from carbon storage, just as they do from pulp, chips or saw logs.

Right now, those financial incentives are largely absent for small woodlots, which in Maine tend to be less than 500 acres.

"We've struggled to find a way for small owners to participate in the carbon market," said Tom Doak, executive director of Maine Woodland Owners, whose members own a total of 500,000 acres. "We've looked at this for years and so far can't make the numbers work."

But simply increasing awareness of how forests store carbon, Doak said, can lead owners to make changes.

"There is an educational role," he said.

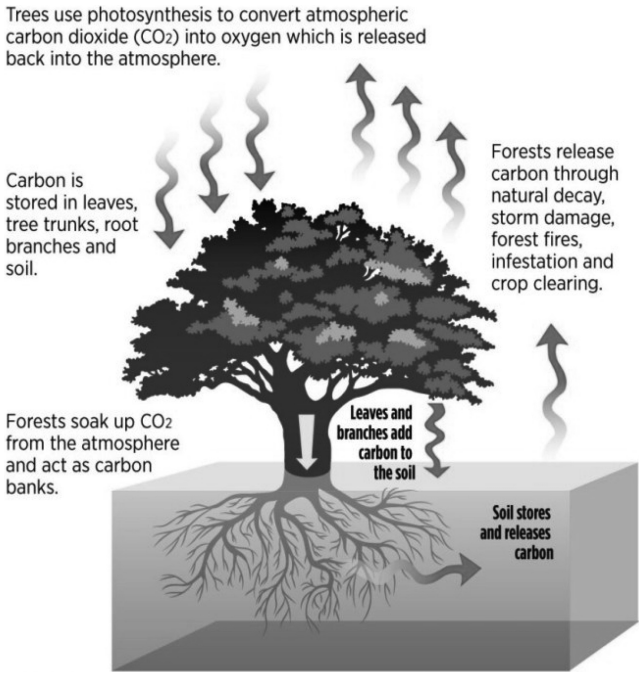
Earning Credit for Carbon

One example is an *upcoming presentation* (*http://www.mofga.org/The-Fair/Schedule*) on carbon-capture forestry techniques, Sept. 21 at the Common Ground

Fair. It will be led by Peter Hagerty, who serves on a low-impact forestry committee with the Maine Organic Farmers and Gardeners Association and logs 100 acres of woodland with draft horses. Hagerty said one challenge in making the transition will be for landowners and policy makers to agree on the science behind carbon-friendly harvesting techniques and not see it as a threat to jobs and traditional logging.

"I'm hopeful that the forest industry in Maine can adapt," he said.

Carbon Cycle



Source: Minnesota Board of Soil and Water Resources, Staff Graphic | Michael Fisher.

Managing woodlands for carbon capture isn't an entirely new idea. Some leading environmental groups with a presence in Maine, as well as the Passamaquoddy Tribe, have been pioneers in what's known as the carbon offsets markets.

Based largely in California, these *markets* (*https://californiacarbon.info/*) require a landowner to maintain a certified level of carbon storage, typically for 100 years. In exchange, they get a given price-per-ton, which recently stood around $15. That's comparable to what they might get paid for stumpage, or timber sales. The credits are sold under what's called a cap-and-trade arrangement with utilities or petroleum companies, which buy them to offset their emissions and meet state mandates.

In 2012, the *Downeast Lakes Land Trust* (*https://downeastlakes.org/the-finite-carbon-lyme-grand-lake-stream-improved-forest-management-project/*) completed the nation's first carbon credit sale. It finished a second project in 2016, earning millions of dollars to buy additional land for its conservation objectives around Grand Lake Stream. Similar sales have been done by the Appalachian Mountain Club and The Nature Conservancy. These projects total more than 200,000 acres.

Maine's large, commercial timberland owners so far haven't embraced this model. In 2017, the Keeping Maine's Forest collaborative group surveyed several land managers and found that while they had explored the California market, they are holding off for now.

The *group's report* (*https://crsf.umaine.edu/wp-content/uploads/sites/214/2017/03/Carbon-Markets-in-Maine.pdf*) found: "While the up-front payout from carbon credits can be substantial and a good way to diversify income from forest land, the land managers found the costs, risks, and the 100 year commitment required by carbon projects not worthwhile at current credit prices."

These cost and time commitments present major hurdles for small owners. Gallaudet, a former bank President, estimated it would cost him $15,000 to have his woodlot's carbon storage certified to meet California standards, or even the less-valuable Regional Greenhouse Gas Initiative standards in the Northeast.

"To my knowledge," Gallaudet said, "there are no lead certifiers in Maine either for California or RGGI. If small Maine landowners chose to forgo timber sales in favor of banking carbon, they currently have no way of monetizing the value they are creating in the form of sequestered metric tons of CO_2."

Careful Stewardship

Denny Gallaudet uses low-impact forestry techniques to preserve as much of his woodlot's carbon storage as he can. He estimates his 25 acre lot has 39 tons of carbon per acre stored in its trees. DEREK DAVIS/*Staff Photographer.*

Gallaudet changed his management practices voluntarily; he thinks it's the right thing to do. He worked with a forestry consultant, who helped with the details. On a recent tour of his woodlot, Gallaudet highlighted some of the techniques he's using.

Gallaudet's old farm includes a mixed stand of softwoods such as pine and hemlock, and hardwoods including, oak, maple and birch. The land is hilly and bisected by a small brook.

Protecting the soil is a top priority. Gallaudet cuts four cords of firewood each year to help heat his home, and occasional saw logs, if a stand gets crowded. He uses a small Massey Ferguson tractor with rubber tires that don't chew up the forest floor. He works when it's dry in the fall. Shallow ruts are barely visible below the leaf litter, along an opening where he pulled out logs using a skidding winch mounted on the rear.

Entering the woodlot, dappled sunlight lit the forest. Overhead, Gallaudet pointed to the tree canopy. He's careful not to cut too many trees in one place, which would let the soil dry out.

During a conventional logging operation on a family woodlot, it's not unusual to clean up the branches and limbs left over from a harvest, to open the forest floor. Maybe they're sold to be burned in a biomass energy plant. Gallaudet keeps the slash, taking the time to create brush piles here and there across his land. They'll decompose slowly, providing homes for wildlife today and, in time, nutrients for the forest.

Future Possibilities

On a knoll, orange flagging tape is tied around trees in a sample plot, noting trunks more than 4″ in diameter. That's a first step in estimating the volume or

weight of a tree and how much carbon a forest can store, based on its species and other factors. *Carbon calculators,* (*https://fsht.org/forestcarbonproject/forestcarbonproject-calculator/*) such as one linked on the website of the Francis Small Heritage Trust in Limerick, make the task easier.

Big hardwoods are denser and store the most carbon. Older stands capture more than new growth. Gallaudet's calculations show that his woodlot holds roughly 39 tons of carbon per acre, nearly eight times the carbon footprint of his home and small farm.

Maine small landowners could join forces to maximize carbon storage and combine their acreage to take advantage of the offset markets, at least in theory. But the existing markets don't recognize so-called aggregation, so Sierra Club Maine and other advocates will be looking at other options in the months ahead.

One idea could be to expand Maine's Tree Growth Tax, the 47 year old law that reduces property taxes for owners who keep at least 10 acres in commercial timberland. But there are high financial penalties for removing land from the program, and Doak said the rules are constantly under assault by interest groups trying to modify them. He wonders if the Farm and Open Space Tax law, which values land at less than fair market value if certain requirements are met, might be a better vehicle.

Another model could be the credits that some major corporations use to offset their power consumption, by getting a percentage of their energy from wind power, for instance. Hagerty foresees the possibility of Maine companies partnering with small woodlot owners, buying local credits to offset their carbon footprint.

"In a state where people know each other well, that could be possible," he said.

SUBMITTED LETTER BY HON. KIM SCHRIER, A REPRESENTATIVE IN CONGRESS FROM WASHINGTON

April 1, 2019

Hon. BETTY MCCOLLUM,
Chairwoman,
House Appropriations Subcommittee on Interior, Environment, and Related Agencies,
Washington, D.C.;

Hon. DAVID JOYCE,
Ranking Minority Member,
House Appropriations Subcommittee on Interior, Environment, and Related Agencies,
Washington, D.C.

Dear Chairwoman McCollum and Ranking Member Joyce:

I am writing requesting your support for watershed restoration and addressing backlogs of road and trail maintenance on our National Forests by appropriating $50 million in funding for the Forest Service Legacy Roads and Trails Remediation Program (CMLG).

Since its authorization in FY 2008, the Legacy Roads and Trails program has significantly enhanced the Forest Service's ability to address key problems associated with its aging and poorly maintained road system. This includes repairing roads and trails needed for public access, replacing failed or undersized culverts to improve aquatic passage and retire unneeded roads to prevent sediment pollution from entering waterways important for salmon, trout, and other aquatic species. The program delivers funds to address road problems in real time, which enables the Forest Service to efficiently plan, design, and implement restoration treatments. It is a critical tool for leveraging non-Federal funds resulting in stronger projects and enhanced community engagement. And because funds primarily go to actual work on the ground, Legacy Roads and Trails creates high wage jobs for contractors, including those who specialize in stream restoration, environmental design, and heavy equipment operation.

From 2008–2018, this unique bipartisan program has invested over $430 million to the following tangible and accountable results on our National Forest watersheds:

- **Maintained and/or storm-proofed 18,057 miles of needed roads,** helping Americans get where they wish to go on Forest Service lands;
- **Reclaimed 7,053 miles of unneeded roads,** preventing sediment from entering streams, many of which supply drinking water to rural and urban towns and cities;

- **Replaced 1,030 culverts restoring fish passage to 1,671 miles of habitat,** aiding the recovery of fish species important to restoration goals, Tribal communities and sportfishing enthusiasts;
- **Improved 5,020 miles of trails,** keeping the $535 million National Forest recreation industry going strong;
- **Created or maintained 697–1,115 jobs annually across the nation,** bringing dollars and jobs into rural communities;
- **Saved America's taxpayers $3.5 million per year in road maintenance costs,** promoting a more sustainable Forest Service road system in the future.

In Washington, D.C. we've seen an interest in rebuilding America's infrastructure. During these conversations we ask that you encourage your colleagues to consider the proven track record of success from the Legacy Roads and Trails program as a model. The program helps adapt the road system to a more manageable size over time, reducing fiscal and environmental burdens and enabling the Forest Service to ensure better and more reliable access. It focuses on the key areas where projects improve up and downstream connections for salmon, improve water quality and ensure road/trail resilience in a changing climate. It's a simple solution to a formidable problem. But it needs funding to succeed.

FY19 was the first year that the Legacy Roads and Trail program was not specifically funded despite making a difference for Forest Service watersheds, fish habitat, recreational infrastructure and local jobs for a decade.

We ask for your support of the program by **reinstating Legacy Roads and Trails as a separate line item in the Fiscal Year (FY) 2020 Interior-Environment Appropriations Bill with a $50M allocation.** This is a small down payment on the growing problem impacting how people access and experience public lands.

Sincerely,

Hon. KIM SCHRIER.

SUBMITTED QUESTIONS

Response from Lenise Lago, Associate Chief, U.S. Forest Service, U.S. Department of Agriculture

Questions Submitted by Hon. Abigail Davis Spanberger, a Representative in Congress from Virginia

Question 1. Associate Chief Lago, how does the Forest Service calculate and classify deferred maintenance?

Answer. The Forest Service determines deferred maintenance for each asset based on condition assessments conducted at different intervals depending on the asset. During these assessments, staff collects information on maintenance and repair needs. Condition surveys for most assets are performed on a 5 year revolving schedule, except for road bridges. Road bridges are required to be inspected every 2 years in accordance with the National Bridge Inspection Standards. Deferred maintenance for National Forest System (NFS) roads for passenger cars is determined bi-annually from a random sample. Deferred maintenance for high clearance/closed roads is not reported at this time.

Question 2. The Forest Service periodically assesses the condition of its assets in order to estimate deferred maintenance. Please provide detail on how the agency conducts these assessments, including whether they differ for the various asset classes (*e.g.,* roads *versus* facilities) and the frequency of the assessments.

Answer. The procedures to conduct condition assessments varies between assets. The assessments occur as follows:

- Facilities—Assessments are generally done every 5 years. Assessments are conducted following the enclosed guidance (see *Facilities Condition Assessment Field Training Guide* [see *Attachment 1*]);
- Roads—A random sample of road segments is surveyed every 2 years using the Deferred Maintenance Protocols for Roads (enclosed [see *Attachment 2*]); and
- Road Bridges—Inspection reports are done every 2 years as required by the National Bridge Inspection Standards. Detailed procedures on how to conduct these inspections can be found in the Bridge Inspection Guide (BIG).

- Trails—A random sample of 1% of Forest Service trails that are Trail Class 1–4 are assessed each year via the Trail Assessment and Condition Surveys. All Class 5 trails, those that are most highly developed, are surveyed every 5 years.

Question 3. The Forest Service receives funding to address deferred maintenance from several sources. They include discretionary accounts (*e.g.,* Capital Improvement and Maintenance), mandatory appropriations (*e.g.,* recreation fees), and other agencies (*e.g.,* the Federal Highway Administration). Please identify all sources of funding that are used for deferred maintenance, and the total from all funding sources used in FY 2018.

Answer. The Forest Service uses different sources of funding to address deferred maintenance including direct appropriations to the Capital Improvement and Maintenance account, and external allocations from the Federal Highway Administration's Federal Lands Transportation Program and Federal Lands Access Program. The Agency also uses partnerships to accomplish some of the deferred maintenance work including cost-share agreements with counties and states, volunteer work on trail improvement, and via the Good Neighbor Authority. Total spending from all sources was approximately $230 million in 2018 to address deferred maintenance directly.

Question 4. Associate Chief Lago, can you speak to the role individual forests, regional foresters, and headquarters will play in prioritizing maintenance projects moving forward?

Answer. Prioritization of routine maintenance, including annual maintenance, and small non-recurring maintenance projects will continue to be identified, prioritized and managed at the forest level with the Regional Forester providing guidance and allocating funding based on the Agency's priorities. The role of the Washington Office is to communicate agency priorities and develop national policies and standards to help determine where appropriated dollars should be allocated for deferred maintenance projects that target larger agency goals.

Question 5. In the past, Forest Service has needed to transfer funds from other accounts to help cover the costs of wildfire suppression. The wildfire funding fix, however, is intended to eliminate some of the need for fire transfer and is set to take effect in FY 2020. Has fire transfer affected the Forest Service's ability to address maintenance needs? If so, in what ways might the wildfire funding fix alleviate those concerns?

Answer. In the past, funds for maintenance were transferred to firefighting efforts usually during the summer season, which is also the time that most of the Agency's maintenance activities are scheduled to occur, when there are an increased number of seasonal staff for oversight of activities and favorable weather conditions. When fire transfers from capital maintenance accounts occurred, planned maintenance activities were deferred to the following year continuing the never-ending cycle of deferring maintenance. The wildland fire suppression funding fix should allow maintenance projects to proceed as planned, allowing for less deferred maintenance to accumulate.

Question 6. How can the Forest Service enhance public-private partnerships to address deferred maintenance projects? What is the staffing level assigned to work on public-private partnerships, how has that changed in recent years, and is the current staffing level sufficient to foster and manage additional partnerships?

Answer. With a $5.2 billion deferred maintenance backlog, the Forest Service recognizes new approaches are needed to address deferred maintenance and infrastructure priorities on NFS lands. The Agency is placing a major emphasis on building capacity for public-private partnerships, with partnership coordinators assigned to every Forest Service region, and an increasing number of National Forests designating specific partnership positions. While we do face staffing capacity challenges due to a workforce that has migrated into wildland fire related work, partnerships are increasingly important to accomplish our mission.

Trails maintenance is already highly leveraged within the Forest Service to maximize maintenance and infrastructure funds. Furthermore, the Forest Service engages a robust volunteer community that annually contributes 4.7 million hours of work valued at $120,000,000 with the help of 110,000 individuals.

Limited capacity to meet competing priorities continues to challenge the Forest Service to find new ways to meet the needs of an aging infrastructure. Conservation finance, through Pay for Success and other funding models, has proven promising in recent pilot projects, as a way of bringing private sector funding to local recreation projects. Growing our skills and staffs in partnership collaboration will allow us to foster new and innovative ways to accomplish work. For example, a collaborative of local governments in Athens County, Ohio, industry partners, nonprofits, Quantified Ventures and the Wayne National Forest are funding sustainable recre-

ation infrastructure by introducing the first-ever Outdoor Recreation Environmental Impact Bond. Together, the partners are developing the 88 mile Baileys Trail System on the Wayne National Forest to revitalize the rural economy of southeast Ohio. The Baileys Trail System will utilize a mix of new and existing trail infrastructure on and adjacent to the National Forest to provide new access to public lands and create new jobs within the Athens County tourism industry. The Forest Service has partnered with the U.S. Endowment for Forestry and Communities to implement a grant fund that hopes to replicate the Baileys Trail System model, among other types of conservation finance projects, in additional communities that rely on the National Forest System.

Questions Submitted by Hon. Marcia L. Fudge, a Representative in Congress from Ohio

Question 1. Ms. Lago, what are the existing pathways for hiring Job Corps students into the Forest Service?

Answer. The Forest Service is committed to connecting our Job Corps Civilian Conservation Centers directly to our mission and continuously improving the performance of our centers and our student outcomes. The current pathways for hiring our Job Corps students include:

- **Public Lands Corps Act.** The Public Land Corps (PLC) allows any student completing 640 hours of special conservation project work under a Natural Resource Agency to apply for a merit vacancy announcement (open to current Federal employees and others with competitive eligibility) for up to 2 years upon program completion. Eligible candidates can be selected for permanent positions and are provided career-conditional appointments.
- **Pathways Program.** Students attending any of our five accredited Job Corps Centers may qualify for the Pathways special hiring authority if their specific trades align with an applicable Forest Service position. A student selected under the Pathways Intern Program must complete 640 paid work hours and additional training upon Job Corps graduation to be eligible for conversion into a permanent or Term Forest Service position. The 640 hours must be performed on a unit-school program hours do not count toward eligibility. In addition, students who have completed an accredited trades program within the last 2 years or are within 9 months of graduation may be selected under the Pathways Recent Graduate Program for a Forest Service position. Those who have not yet graduated will be appointed upon graduation.
- **Schedule A or Veterans Recruitment Action (VRA).** Students who qualify for Schedule A (disability hiring) or VRA may be hired non-competitively, by applying to a vacancy announcement or other recruitment avenues, such as non-competitive direct appointment.
- **Direct Hire Authority for Firefighters.** On August 8, 2019, the Office of Personnel Management authorized the Forest Service to use a direct hire authority to assist in meeting critical hiring needs in support of the FY 2020 wildland firefighting season. This authority enables the Forest Service to streamline the hiring process for permanent and temporary firefighting positions. Every civilian conservation center supports a wildland fire program, training students to serve as firefighters. Eligible, qualifying students can be hired directly upon graduation into Federal firefighter positions.

Question 1a. What does that process look like for a Job Corps student?

Answer. Every center has a student advisor who assists students in creating their resumes and applying for positions under the PLC authority or any other authority they qualify for when applying for a Forest Service job. To date, the PLC program has resulted in over 200 students completing internships that led to receiving a non-competitive hiring authority preference. Of those students, approximately 20 have been placed into permanent, full-time positions with the Forest Service.

Question 1b. Are students made aware of opportunities within the Forest Service?

Answer. Yes. Students who are interested in Forest Service careers learn about those opportunities through the Job Corps Program. Students compete for internship opportunities with the Forest Service, and if they are successful, they complete a 4 month work experience and receive non-competitive application preference status. This status gives students a competitive advantage for permanent Forest Service positions.

Question 2. You mentioned that the Forest Service is interested in working with OPM to create a direct hiring authority for Job Corps students. What is the status of this effort currently?

Answer. The Forest Service Job Corps National Office is working to assemble and approve the appropriate materials through USDA and OPM that will provide:

- Direct hiring authority for Job Corps graduates under the Public Land Corps Authority that is similar to the direct hiring authority available for Resource Assistants.
- Special hiring authority for Job Corps graduates that is similar to the special hiring authority for AmeriCorps and Peace Corps.

Question 3. What activities are Civilian Conservation Corps students trained to assist with? How does that help to reduce the deferred maintenance backlog?

Answer. Student trades include a variety of construction, information technology, and natural resource trades. Construction trades include carpentry, facilities maintenance, masonry, bricklaying, painting, welding, operation of heavy equipment, and floor-covering. Center students perform work on their local unit. In the last 2 years, this work has contributed a total of almost $3 million in deferred maintenance projects.

Question 4. You mentioned that the Forest Service is interested in expanding the conservation trades to all of the Job Corps centers. When do you expect to make that expansion? What impact could that have on the deferred maintenance backlog?

Answer. Currently ten trades directly align with Forest Service conservation work, including forestry, fire suppression, and dispatch. The Forest Service is working to increase the alignment through an expansion of conservation-related training curricula. Centers will also work directly with their local National Forests to fully integrate their curricula into the Forest's annual program of work. In addition, each Center will be represented on their local National Forest's leadership team and will participate in the planning of work for the districts in their forest. Students will take part in work-based learning on National Forests and in communities, including facilities maintenance. The value of these projects could eventually add up to millions of dollars but will still be far less than what would be needed to appreciably slow the growth of deferred maintenance across the agency.

We welcome the opportunity to update the Committee on our efforts to strengthen Job Corps.

Question Submitted by Hon. Tom O'Halleran, a Representative in Congress from Arizona

Question. In Arizona, road and trail repair needs account for nearly 50% of the deferred maintenance backlog on Federal lands. Lack of road and trail access to Federal public lands reduces visitation and limits opportunities for recreation, impacting the economy of gateway communities. Understanding this, our local governments have stepped up to play their part in maintaining roads and other access points. 70% of the 2,100 vehicles using Lake Mary road each day are due to recreational traffic. For nearly a century, Coconino county has maintained this road through a combination of funds, including local taxes. Has the Forest Service explored similar partnerships with local governments and does the forest service see this or other existing partnerships as potential models for tackling deferred maintenance?

Answer. The cooperative road maintenance agreement as described above is widely used on Forest Service transportation systems across the country. This mechanism is actively used and promoted to allow other public entities to participate in maintenance of routes critical to local communities. Other methods of public-public partnerships are also employed and encouraged by the Forest Service. One example of these partnerships is the agreement between the Tennessee Valley Authority (TVA) and the Forest Service under which TVA performs inspections of Forest Service road bridges to meet the requirement under the National Bridge Inspection Standards for a quality assurance check of Forest Service road bridges by an external agency.

Questions Submitted by Hon. Chellie Pingree, a Representative in Congress from Maine

Question 1. The Forest Service has an FY 2020 list of 25 Land and Water Conservation Fund priority projects for acquisition, and 22 for Forest Legacy. These projects would likely be funded under anticipated appropriations for next year, but the agency has unmet needs beyond the current list of projects. Based on need alone, how many acquisition and Forest Legacy projects would the agency need to pursue? Can your agency quantify the backlog, and say how many projects beyond the list could improve management and reduce costs, if LWCF was more fully funded?

Answer. Each year, Forest Legacy Program (FLP) projects are selected through a two-stage competitive process. The first stage is state-level identification and approval. After a project is selected at the state level, the second stage is a national level project review conducted by a panel of representatives from states participating in the FLP and the Forest Service. This two-stage process results in high-quality projects that are supported both locally and nationally.

For FY 2020, 36 projects, with a total request of $123 million, were submitted for consideration through the FLP. Some of these projects received funding when FY 2019 appropriations were enacted, while some of the proposed projects were no longer viable.

Maine has been an active participant in the FLP at 741,000 acres. In terms of funds, Maine has received $76,061,534, which is second only to Montana, which has received $77,405,533.

For land acquisition, the Forest Service works with a variety of non-governmental organizations and willing sellers from the general public. In Fiscal Year 2020, Congress appropriated $57,639,000 for purchase of lands from willing sellers in 18 states. The acquisition projects are prioritized based on: (1) the significance of the acquisition; (2) the urgency of the acquisition; (3) management efficiencies; (4) management cost savings; (5) geographic distribution; (6) threats to the integrity of the land; and (7) the recreational value of the land. The Forest Service's nine regions hold competitions to cull the projects from units within the region's National Forests and Grasslands, then submit top projects to the Washington Office (WO) for a national competition. The WO competition results in a smaller list of projects that is submitted to Congress, which determines the amount of appropriations for the projects.

Question 2. Based on budget documents that I have received from USDA, I understand the Forest Service spent $3.3 million on the climate hubs in 2016, which I think is great, but the 2019 estimate is $400,000. Given the challenges that we are dealing with, why is there such a big drop, and do you see those as a valuable part of what you are doing?

Answer. In FY 2016, the Forest Service allocated $3.3 million for Climate Hubs. The Forest Service allocated $1.85 million per year for both FY 2017 and FY 2018. In FY 2019, Climate Hub allocation was $1.665 million and has been budgeted to remain at this level for FY 2020. The funding drop is reflective of prioritization of urgent forest restoration program and project work. However, the agency continues to support many important initiatives through our multiple Research and Development programs.

Questions Submitted by Hon. Cynthia Axne, a Representative in Congress from Iowa

Question 1. The Forest Service supplies water for agriculture and communities and is a major economic driver for many forest dependent communities. In fact, National Forest System lands are the nation's largest source of municipal drinking water supply, serving more than 66 million people. Ms. Lago, please speak to the importance of these systems to the environment, public health, and safety. Can you speak to the current condition of Forest Service water systems?

Answer. The Forest Service continues to foster conditions for clean, abundant water to help ensure the productive and sustainable use of National Forest System lands. The Agency emphasizes reforestation and revegetation efforts. Restoring ecosystems ensures that vital amenities, such as clean water, are available to society. In FY 2018, the Agency targeted investments in the National Best Management Practices Program to improve tools to meet agency requirements under the Clean Water Act and other statutes to protect clean water. The program made advancements to increase the speed and accuracy of use and sharing of data with state water quality agencies, the Environmental Protection Agency, and other partners.

The Forest Service owns and operates over 4,700 drinking water systems, of which over 30% are in poor or fair condition. Thirty-six percent of all drinking water systems are more than 50 years old with escalating repair costs every year. With a current water system deferred maintenance backlog of $93 million, the impact of not addressing this will affect the ability for the public and employees to access recreation facilities, fire, administration and other facilities.

Question 2. We recognize that restoration and maintenance of our National Forests can be a source of long-term, sustainable jobs in rural communities. Studies have indicated that for every $1 million spent on forest watershed restoration, 14.5 jobs can be generated. Can you provide references to studies documenting the impact of infrastructure improvements on jobs?

Answer. Federal agencies examined job contributions of infrastructure improvements with the American Recovery and Reinvestment Act of 2009 (ARRA) consistent with goals of the act, specifically, to preserve and create jobs and stimulate economic

recovery. Further, USDA agencies used a common general framework for estimating the potential effects of the ARRA using concepts and techniques embodied in a tool called IMPLAN. Infrastructure investments by USDA Rural Development in community facilities, water and waste, rural business support, single family housing support, broadband and Rural Development Salary resulted in 16 jobs per $1 million invested (USDA NRCS, 2010). Infrastructure investments by USDA Farm Service Agency in information technology resulted in 22 jobs per $1 million invested (USDA NRCS, 2010). A 2010 study partially funded by the Forest Service indicated that forest and watershed restoration activities have the potential to create an average of 14 jobs per $1 million invested (M. Nielsen-Pincus and C. Moseley, 2010). A more recent study published by the Public Library of Science, cites up to 33 jobs per $1 million invested from environmental restoration, restoration-related conservation, and mitigation actions (BenDor, *et al.,* 2015). Infrastructure investments by USDA Natural Resource Conservation Service in floodplain, dam and other projects resulted in 220 jobs per $1 million invested (USDA NRCS 2010). Recent examination of Forest Service investment in over $3 billion in infrastructure indicates that 35,000 to 38,000 jobs annually could be sustained across the nation, or 11 to 12 jobs per $1 million invested (USDA Forest Service, 2017). In addition, a 2017 analysis of Forest Service resource management investments ($5.9 billion) in program areas such as infrastructure construction and maintenance, firefighting, ecosystem restoration, research and development, fuels treatments, Job Corps, salaries, *etc.* contributed 120,620 jobs across the nation; or 20 jobs per $1 million invested (USDA Forest Service, 2019).

References

BenDor, T. *et al.* "Estimating the size and impact of the ecological restoration economy," *PLoS ONE,* 10 (6) (2015): e0128339.

M. Nielsen-Pincus and C. Moseley. *Economic and Employment Impacts of Forest and Watershed Restoration in Oregon,* 2010. Available from Oregon State University at *https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/10776/WP24.pdf?sequence=1.*

USDA NRCS 2010. *Job Creation Estimates for Rural Development, FSA, and NRCS Items in the American Recovery and Reinvestment Act.* Available from NRCS at *https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/econ/tools/?cid=nrcs143_009732.*

USDA Forest Service 2017. *Briefing Paper on Forest Service Infrastructure Improvement Opportunities.*

USDA Forest Service 2019. *Briefing Paper on Forest Service Jobs and GDP Economic Contribution. Supporting the FY2020 Budget Justification.*

Questions Submitted by Hon. Kim Schrier, a Representative in Congress from Washington

Capital Improvement Plan Projects

Question 1. What considerations are made to narrow down the list of projects submitted that meet the national priorities outlined?

Answer. The primary considerations for selecting and ranking capital improvement projects are how the projects support our current priorities including the following benefit areas: active management, access to recreation, economic benefits, fire operations, environment and sustainability, and research and technology. In addition, project criticality and readiness are also considered when scheduling implementation.

Question 2. Are Regions allocated a percentage of the CIP budget based on need, miles of road, acres of Forest Service land? Or are simply the top number of projects funded?

Answer. Regions are allocated funds for operations and maintenance based on a distribution formula that includes miles of roads, visitation, timber volume targets and others. Since 2017, the Forest Service has set aside a small portion of the Capital Improvement and Maintenance (CI&M) account for Roads and Facilities to fund competitive Capital Improvement Plan (CIP) and Decommissioning projects.

Question 3. Given that the states with the highest concentration of deferred repairs are: California, Montana, Idaho, Oregon, Colorado, and Washington, respectively, will these states be allocated larger proportion of the CIP budget due to their needs?

Answer. In general, these states get a large portion of CI&M funding for operations and maintenance. However, the national CIP project competition focuses on project specific cost-benefit ratio rather than accumulated deferred maintenance.

The reduction of deferred maintenance as result of implementing a project is a desired outcome.

Question 4. How are Regional priorities considered? For example, in Region 6, if improving Chinook salmon habitat and removing fish passage barriers is of utmost priority, what weight will that be given in the national priorities?

Answer. The CIP model used to rank and prioritize project uses quantitative metrics and criticality scoring. Although the regional ranking of projects is not used in the calculation of the final score, it would be taken into consideration. Before finalizing the CIP list of projects for each fiscal year the Asset Management Review Board (AMRB) would make necessary adjustments to ensure that regional and national priorities are in alignment.

Legacy Roads and Trails Program

Question 5. What direction are you providing to Regional Offices to Legacy Roads and Trails program projects are implemented and tracked?

Answer. While the Legacy Roads and Trails Program was retired from our budget line items starting in FY 2018, the Forest Service continues to plan, implement and track projects which meet the goals of this formerly dedicated funding mechanism.

Question 6. Is the USFS continuing to track and report annual accomplishments under the program?

Answer. The Forest Service continues to track accomplishments from transportation projects that improve watershed conditions, including bettering streams for water quality and aquatic organisms.

Question 7. Across National Forest lands in OR/WA, 6,000 stream miles are designated as critical habitat for federally listed fish, and 5,550 stream miles have been listed as water quality impaired under the Federal Clean Water Act of 1972. What management improvements does the USFS need to make to ensure waters are removed from the listings?

Answer. The Forest Service established a Watershed Condition Framework to provide a consistent, comparable, and credible process for improving the health of watersheds on National Forests and Grasslands in 2011. The Pacific Northwest Region continues to focus on the priority watersheds and choose projects to fund that improve watershed conditions, including bettering streams for water quality and aquatic organisms.

Question 8. How will the USFS meet its obligations to protect water quality and salmon in my state?

Answer. The Pacific Northwest Region continues to leverage existing and new partnerships to invest in watershed improvement projects that address water quality and aquatic organism passage.

Questions Submitted by Hon. Jimmy Panetta, a Representative in Congress from California

Question 1. The Nacimiento-Fergusson Road is a 24 mile long Forest Service road in the Los Padres National Forest. When Big Sur residents face inclement weather like mudslides and wildfires that cause road failures on Highway 1, the Nacimiento-Fergusson road is the only way they can get out of the Big Sur region. After storms in 2017 that shut down Highway 1, there were hundreds of people who had no way to get out of Big Sur. At the same time, the Nacimiento-Fergusson road has suffered as a result of the Forest Service's maintenance backlog. Associate Chief Lago, once the Wildfire Funding Fix is implemented in Fiscal Year 2020, would you be willing to continue this dialogue and work with me to ensure the Big Sur community can access much-needed funding to for deferred maintenance on their roads?

Answer. Yes, the implementation of the Wildfire Funding Fix is going to allow the agency to be more efficient in addressing infrastructure needs and to better plan long term solutions to address the deferred maintenance backlog.

Question 2. In Los Padres National Forest, our deferred maintenance exceeds $24 million. My question is where does that lie relative to other National Forests?

Answer. Los Padres National Forest deferred maintenance is consistent with other National Forests. We have enclosed a file with more detailed information on the deferred maintenance for all units of the National Forest System [see *Attachment 3*].

Question 3. The State of California prides itself on technological innovation. I am consistently impressed when I see the innovation in our agricultural fields, from robotic harvesters to agricultural drones that monitor crop growth. Can you speak to any Forest Service investments in technology, including drones, satellites, and fire surveillance cameras?

Answer. The Forest Service is actively involved in leveraging leading edge technology to support decision-making at all levels of the Forest Service from the field,

to the regional offices, and to the Washington Office. The FY 2021 Forest Service budget proposes $5 million to be used to implement the Wildfire Technology Modernization section of the Dingell Conservation and Management Act (2019). Implementation includes the development of a common, single display of all fire resources and will significantly increase accountability for how the agency uses assets. This will allow the agency to monitor, analyze, and evaluate how tactical decisions and resource utilization influences incident outcomes. This information will create a feedback loop, allowing the agency to learn where, when, and how resources are most effective. When combined with the Risk Management Assistance framework, technology modernization for fire resources will enable improvement in the efficient use of agency resources through early, risk-based decision-making with State and local partners and through transparent deployment of assets. The Forest Service is accelerating adoption of new technologies to modernize the wildland fire system, consistent with direction provided in the Dingell Act. Technology is key not only for real-time incident management, but also to be able to learn where and when resources are most effective. That learning will be key for improved deployment in the future that will reduce risk to responders and be more cost-effective. Investments in technology include (among others):

- **UAS (drones).** The Forest Service began evaluating UAS in 2003, and we now have an established Forest Service—UAS Program Office to manage, support and expand the use of this revolutionary capability. We are actively leveraging UAS technologies to support a number of business needs including fire/disaster support, engineering fieldwork (infrastructure inspection and assessment), invasive species mapping, and environmental cleanup. The Forest Service has also started testing the use of drones to perform bridge inspection. The use of UAS provides new data streams, saves time, and improves personnel safety in the field.
- **Satellite Imagery.** The Forest Service heavily leverages the use of imagery from Federal-civil and commercial satellites to support traditional mapping (paper and digital maps) and fire/disaster support. The remote sensing community continues to evaluate and incorporate new sensor data streams as they come online. The Forest Service is a significant user of commercial high-resolution satellite imagery, which is provided at no cost to Federal-civil agencies by the National Geospatial-Intelligence Agency.
- **Fire Surveillance Cameras.** Federal, state and local fire managers are increasingly relying on both airborne and ground (fixed) fire surveillance cameras. The Forest Service is actively pursuing automated smoke detection in the networked ground surveillance cameras, as well as the use of UAS, new thermal infrared cameras and the use of national systems to support improved fire detection (and reporting) and active fire management.

Questions Submitted by Hon. Doug LaMalfa, a Representative in Congress from California

Question 1. Timber receipts have been down. Back years ago, we are looking at 1991, we could see that there is $680 million in timber receipts, of which ten percent goes directly towards forest roads, and it is also very important, those receipts, for local schools and roads under what is the Secure Rural Schools Fund. And so, now you want $680 million in receipts, and more recently, it is down to $21 million. So, it would seem to me we could be going farther if we had the timber receipts for the road maintenance for that ten percent.

Would you comment upon that?

Question 1a. Do you know that number now compared to the $680 million not-inflation-adjusted 1991 number?

Answer 1–1a. The 2014–2018 5 year average of timber receipts was $32.8 million (see *Table* [*1*] below), as compared to the $686.6 million sold, $845.7 million in receipts, and $84.57 million in "Purchaser Road Credits" in 1991. This 5 year average is roughly 4% of the 1991 timber receipts. In 1991, the Forest Service changed from collecting "Purchaser Road Credits" to the "Specified Road Costs" approach to maintaining Forest Service Roads above the standards necessary for timber harvest. As in the past, where the road maintenance credits were 10% of the receipts, we are very close to that same rate today, as we calculate the road costs to be 9% of total receipts.

Table 1. Total Timber Receipts 2014–2018

[millions of dollars]

Timber	2018	2017	2016	2015	2014	2014–2018 Average
Class 1—Timber	40.83	33.22	29.96	29.93	30.04	32.80
KV Revenue	60.38	68.13	57.61	56.80	50.80	58.74
Specified Road Costs	14.61	15.06	15.48	14.70	9.60	13.89
Timber Salvage Sale	40.06	36.69	35.83	36.69	35.14	36.88
TPTP Revenue	4.29	4.72	5.57	5.51	5.25	5.07
Total Timber	**160.16**	**157.83**	**144.45**	**143.63**	**130.82**	**147.38**

Under *Forest Service Manual* (FSM 2432.34a), the Purchaser pays for the cost of building a road to the standard needed for consistency with applicable environmental laws and regulations and as needed for timber harvest. If the sale contract provides for road design standards in excess of those needed for the harvest and removal of timber from that sale, including measures to protect adjacent resource values, provision shall be made in the contract for compensating the Purchaser for the additional costs, unless the Purchaser elects Government construction under section 14(i) of the National Forest Management Act of 1976. In the absence of supplemental funds, the sale would need to be redesigned or rescheduled.

The FY 2020 and FY 2021 Forest Service budget proposes to use the Roads and Trails for States fund, without regard to the state in which the amounts were derived, to repair or reconstruct roads, bridges, and trails on National Forest System lands or to carry out and administer projects to improve forest health conditions. This work may include the repair or reconstruction of roads, bridges, and trails on National Forest System lands in the wildland-community interface where there is an abnormally high risk of fire.

Question 2. When we were talking about the backlog, when we are seeing the Forest Service absorbing more lands through donations from maybe NGOs or other instances, or the LWCF has also introduced more land back into Forest Service control. How is that contributing to the backlog and your ability to keep up, and as well as updating this $5.2 billion backlog figure?

Answer. The Forest Service has a policy not to acquire properties that will increase deferred maintenance requirements when LWCF funds are utilized. Naturally, there is a long-term maintenance cost to the agency to own any acre of land or asset within the National Forest System.

Question Submitted by Hon. Rick W. Allen, a Representative in Congress from Georgia

Question. In your written testimony, you mentioned that perhaps most critically, forest infrastructure provides fire protection for communities, especially by providing access to forest lands and roads for firefighters and emergency responders during rescue operations.

Due to the deferred maintenance backlog, how many miles of Forest Service system roads have been decommissioned over the past 10 years?

Answer. Historically, the Forest Service has had a targeted road mile decommissioning strategy in order to minimize resource damage to the landscape caused by the presence of built infrastructure. The table below presents those targets and associated decommissioning accomplishments. It should be noted that the targets and accomplishments include both System and non-System mileage. System roads are roads inventoried, maintained and managed by the Forest Service. Non-System roads are roads within National Forest System boundaries, but which are not Forest Service roads. Until FY 2013, System and non-System miles were not reported separately.

Forest Service Road Decommissioning FY 2010–FY 2019

FY	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Target (Mi., Total)	1,519	2,158	2,028	1,936	1,200	1,600	2,000	2,000	2,000	0
System Accomp. (Mi.)	N/A	N/A	N/A	780.78	508.00	416	265.36	296.3	142.7	132.9
Non-System (Mi.)	N/A	N/A	N/A	709.44	908.00	883.32	671.65	548.2	398.1	207.1

ATTACHMENT 1

United States Department of Agriculture

Photo of a moderate-sized building with shingle siding, a concrete foundation, and a steel-ribbed roof. A large brick chimney extends above the roof in the center where the three wings of the building meet. Tall conifer trees and a grass lawn surround the building.

This 1934 building at the Cle Elum Ranger Station on the Okanogan-Wenatchee National Forest, Pacific Northwest Region is still in use and is in serviceable condition.

Forest Service, National Technology & Development Program
1473–2830–MTDC Facilities
January 2015

About the Authors

Kathleen Snodgrass joined the Missoula Technology and Development Center (MTDC) as a project leader in 2001. She began her career with the Forest Service at the Nez Perce National Forest working in facilities, landscape architecture, land line, and general engineering before serving as the facilities architect for about 7 years. She also spent about 10 years working in highway design and construction with the Idaho Division of Highways after graduating from Washington State University in 1974 with a bachelor's degree in architectural studies.

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9E92L11 Facility Inspection Field Guide

January 2015

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The Facility Condition Assessment Form

This training guide is a memory-jogger that you can take with you as you perform facility condition assessments. It contains the same items in the same order as the complex facility condition assessment form that is used to record work items for entry into the Natural Resources Manager (NRM) Infra database. Use this guide to perform condition assessments in a manner consistent with those performed by other inspectors throughout the Forest Service.

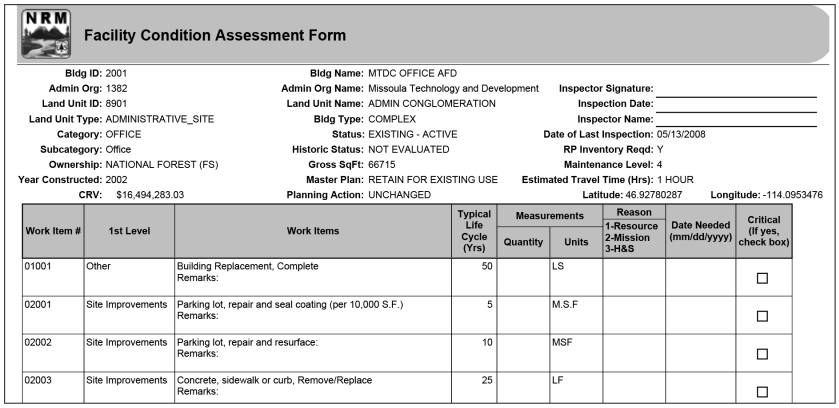
Keep in mind that facility condition assessments are only intended to record major facility maintenance needs. Performing operations work and minor maintenance work on a regular basis is important, but such work is not recorded through the facility condition assessment process. The National Technology and Development Program (T&D) report "So That's Why It's Always Cold in Here: A Guide for Conducting Facilities Condition Assessment Surveys" (0473–2839–MTDC), provides detailed guidance for inspecting buildings and associated assets to determine their condition and what work is needed to correct deficiencies, including operations and minor maintenance. The report is available in printed form from the Missoula Technology and Development Center (MTDC) or electronically at *http://fsweb.mtdc.wo.fs.fed.us/php/library_card.php?p_num=0473 2839*.

This guide does not explain how to properly conduct condition assessments on Forest Service buildings. You will need to take the 7100—Basic Building Condition Assessment and Work Items or 7300—Complex Building Condition Survey Training course in person or through AgLearn before using this guide in the field.

This guide does not explain how to use the NRM Infra database. Please see your supervisor and forest NRM specialist if you need more information about NRM or role assignments to access and modify data in the NRM Infra database.

Before using this guide in the field, print the condition assessment form for each building using the NRM Infra report BLDSRV01JRL: Facility Condition Assessment Form (*figure 1*). NRM Infra automatically populates the header information for the printed form, except for the inspector signature, inspection date, and inspector name. Check to ensure that you've printed the appropriate form (complex *versus* basic building) and that the header information is accurate.

Figure 1



Facility Condition Assessment Form

Bldg ID: 2001 **Bldg Name:** MTDC OFFICE AFD
Admin Org: 1382 **Admin Org Name:** Missoula Technology and Development **Inspector Signature:** _____
Land Unit ID: 8901 **Land Unit Name:** ADMIN CONGLOMERATION **Inspection Date:** _____
Land Unit Type: ADMINISTRATIVE_SITE **Bldg Type:** COMPLEX **Inspector Name:** _____
Category: OFFICE **Status:** EXISTING - ACTIVE **Date of Last Inspection:** 05/13/2008
Subcategory: Office **Historic Status:** NOT EVALUATED **RP Inventory Reqd:** Y
Ownership: NATIONAL FOREST (FS) **Gross SqFt:** 66715 **Maintenance Level:** 4
Year Constructed: 2002 **Master Plan:** RETAIN FOR EXISTING USE **Estimated Travel Time (Hrs):** 1 HOUR
CRV: $16,494,283.03 **Planning Action:** UNCHANGED **Latitude:** 46.92780287 **Longitude:** -114.0953476

Work Item #	1st Level	Work Items	Typical Life Cycle (Yrs)	Measurements		Reason	Date Needed (mm/dd/yyyy)	Critical (If yes, check box)
				Quantity	Units	1-Resource 2-Mission 3-H&S		
01001	Other	Building Replacement, Complete Remarks:	50		LS			☐
02001	Site Improvements	Parking lot, repair and seal coating (per 10,000 S.F.) Remarks:	5		M.S.F			☐
02002	Site Improvements	Parking lot, repair and resurface: Remarks:	10		MSF			☐
02003	Site Improvements	Concrete, sidewalk or curb, Remove/Replace Remarks:	25		LF			☐

Part of the Facility Condition Assessment Form for the Missoula Technology and Development Center office/lab/shop.

Be sure to check the gross square feet (Gross SqFt) of the building to ensure that it is correct. Compute gross square feet using physical or as-built plan measurements to the outside faces of exterior walls for all stories of the building. **Don't include** crawl spaces or areas with less than a 3′ clear ceiling height. **Don't include** the open air over a double height room as part of the floor above; count only the floor area that can be walked on. **Do include** excavated basement areas, indoor mechanical spaces, mezzanines, penthouses and attics with floors, garages, covered porches (with or without walls), balconies you can stand on, and interior or covered corridors or walkways. **Do include** the footprints of stairways, elevator shafts, and vertical duct shafts as gross area on each floor through which they pass. If this explanation is confusing, more details and sketches showing how these rules are applied to a building are available at the U. S. Department of Education's Facilities Inventory and Classification Manual Web page *http://nces.ed.gov/pubs2006/ficm/content.asp?ContentType=Section&chapter=3&section=2&subsection=1*.

All work item costs automatically populate when your inspection data is entered into the NRM Infra database. The costs include the RS Means estimated cost multiplied by 1.10 for design costs, by 1.10 for contracting costs, and by 1.15 for overhead costs. The RS Means costs are updated each year to match the current national average costs of the work.

A multiplier is also applied to all work items to account for the increasing costs as the distance increases from the building to the nearest town with contractors and supplies. The multiplier is based on the Estimated Travel Time (Hrs) value that is entered on the Building Details screen in the NRM Infra database. The multiplier is 1.0 for 1 hour of travel time, 1.5 for 2 hours, 2.0 for 4 hours, 3.0 for 8 hours, and 4.0 for more than 8 hours of travel time. The estimated travel time is shown in the Facility Condition Assessment Form header. Check this value for accuracy. If it is inaccurate, correct it on the Buildings screen before entering work items.

Another multiplier, 1.5, is automatically applied to all work items for buildings with **Historic Status** in the NRM Infra database of EVALUATED/MEETS (has been evaluated and meets National Register criteria), IN/PENDING (included in the National Register of Historic Places or on a pending list), or MEETS AGE/FRTHR (more than 50 years old, but requires further evaluation). The Facility Condition Assessment Form header shows the Historic Status. Check this value for accuracy. If it is inaccurate, correct it on the Buildings screen before entering work items.

Whether you are assessing a complex or basic building, all the standard work items are on the Facility Condition Assessment Form. Complex buildings have 62 standard work items and simple buildings have 16 standard work items. This guide addresses each work item in the same order as on the printed complex building form. If you are inspecting a basic building, ignore the work items in this guide that are not on your form.

Filling in the Facility Condition Assessment Form

You will need to physically inspect each building and fill in **Quantity, Reason,** and **Date Needed** for each item that requires repair, and check the box in the Crit-

ical column, if necessary. The cost for each item self-populates from an interface with the current edition of RS Means Building Construction Cost Data when the information from the printed form is entered electronically into the NRM Infra database.

Quantity of work must be measured, calculated, or counted, unless the preprinted unit is LS (lump sum). If the unit is LS, the quantity is always "1" if the work is needed and "0" if no work is needed.

Other units of measure are:

CSF: 100 square feet
EA: each
LF: linear feet
MSF: 1,000 square feet
M.S.F.: 10,000 square feet
SF: square feet
SQ: 100 square feet
STEP, EA: stair riser
SYSTEM: each complete system

To calculate square feet, measure the length and width (or length and height for vertical surfaces) in feet, then multiply length by width (or length by height). CSF, MSF, SQ, and M.S.F. are variants of SF, and are explained further under items using these units of measure. Do not confuse M.S.F. with MSF. Available fonts prevented use of the Roman numeral for 10,000 on the form. Designating 10,000 square feet as M.S.F. was the workaround.

The **Reason** column identifies the reason for performing the work. It contains only three choices:

1. Resource protection work items must be performed to avoid damage, obstruction, or negative impact to a natural or cultural resource.
2. Mission work items must be completed to ensure the ability of employees to carry out the Forest Service mission. Needs are related to administration and providing services (transportation, recreation, grazing, *etc.*) that do not fall into the H&S or Resource categories.
3. Health and safety (H&S) work items are necessary to address immediate threats to human health and safety.

In the **Date Needed** column, you normally should write in the last day of the fiscal year in which the work needs to be performed.

Check the box in the **Critical** column only if completion of the work item is necessary to correct a serious and immediate threat to health or safety, a natural or cultural resource, or the ability of the Forest Service to carry out its mission. Other work items necessary to address potential risks to public or employee safety or health; compliance with codes, standards, regulations, *etc.;* or needs that address potential adverse consequences to natural resources or mission accomplishment are considered non-critical. For example:

- Complying with Notices of Violation (Occupational Safety and Health Administration [OSHA], Environmental Protection Agency [EPA], *etc.*) is a critical health and safety need.
- Preventing irreversible damage to or loss of a historic structure is a critical resource protection need.
- Providing accessibility for people with disabilities is a non-critical health and safety need.
- Complying with Federal, State, and local building codes is a non-critical health and safety need.
- Making modifications to accommodate increased visitation is a non-critical mission need.
- Energy efficiency or renewable energy retrofits are a non-critical mission need.

Please **DO** check your data to ensure that everything is entered correctly, including the unit of measure.

Inspection Tips

Experienced inspectors provided the following tips to help you perform a quicker, more effective inspection.

- Use two people to survey large labs or office buildings. One person can measure while the other records.
- Use a set of as-built plans (if available) to count light fixtures, windows, *etc.*

- If you don't have as-built plans, sketch a simple floor plan as you inspect to show doors, windows, flooring types, and dimensions. Keep the sketch in the building file for future reference.
- Builders often use rules of thumb to estimate quantities. You can, too, where it seems prudent. For instance:
  - ➢ Multiply the gross square feet of the finished area of a house by 4.5 for a good approximation of the total square feet of gypsum board that would be needed to completely replace the gypsum board inside the house. If the garage is a full-finish structure, multiply its square footage by 2.25 and then add the result to the house total. A reasonable multiplier for small office buildings is 3.2.
    - ◊ These estimating multipliers also work for repainting the entire interior.
  - ➢ Each region has a cooling ratio that is either implied or dictated by the local building officials. The ratio states how many square feet can be conditioned per ton of cooling. If you know this ratio, you can easily estimate the tons of cooling capacity needed for the building.
    - ◊ Use the adjustment factors shown in *table 1* to figure the roof area on the slope, if you know the roof pitch and the horizontal area covered by the roof (including overhangs). Multiply the covered area by the adjustment factor.

Table 1

Roof Slope	Adjustment Factor
3 in 12	1.031
4 in 12	1.054
6 in 12	1.118
8 in 12	1.202
12 in 12	1.414

- After entering the work items into the NRM Infra database, check your entered data to ensure that you entered everything correctly and that you used the unit of measure the work item requires.
  - ➢ Enter roofing and siding quantities in 100 square feet units (CSF), not square feet units (SF).
  - ➢ Enter parking lot seal coat in 10,000 square feet units (M.S.F.), and parking lot resurfacing in 1,000 square feet units (MSF).
- A work item is deferred maintenance if the material has been in place longer than the typical life cycle listed on the page for each work item. A carpet that was installed in 2000 and inspected in 2012 was 12 years old when inspected. Because the life cycle for carpeting is 8 years, replacing the carpet would be considered deferred maintenance using the Forest Service standard, even if the carpet was still in good condition. Whether you agree with this logic or not, please conform to the standard so our practices remain uniform and defensible.
- A list of survey tools a facility inspector may wish to take along to increase efficiency when performing condition assessment inspections is available at *http://fsweb.wo.fs.fed.us/eng/programs/facilities/documents/ToolList.doc*.

Work Items

The remainder of this guide consists of information about the standard work items. Each work item has its own page that includes a photo or two depicting the item as well as information to help you decide whether the item applies to the building you're inspecting, how often this work normally is needed, and how to measure and record the quantity of work. This guide includes much of the information included in the "Building Work Items Data Dictionary" *http://fsweb.wo.fs.fed.us/eng/programs/facilities/documents/BldgsWIDDictionary.pdf*.

In the interest of minimizing the number of work items, similar work is sometimes grouped together under a single work item. The actual replacement costs for these similar items aren't identical, so a representative cost is used. The work item title may not reflect the range of work covered by the item. Check the **considerations** bullets for more information about the work included in the item.

If the standard work items don't cover needed major maintenance work, you may need to create a custom work item, as explained following the standard work item pages.

Notes

Work Item 01001—Building Replacement, Complete

Definition: Remove and replace an entire building (*figures 2* and *3*).
Unit of Measure: lump sum (LS).
Typical Life Cycle: 50 years.

- A well constructed and maintained building can last several hundred years, and a poorly constructed and maintained building may become unusable in a decade or 2. Base the replacement decision on the condition and function and not the age of the building.

Considerations:

- Replacement is justified if a building is still needed, but:
  - ➢ Deferred maintenance costs exceed the current replacement value shown in the NRM Infra database.
  - ➢ The building becomes functionally obsolete.
  - ➢ The building cannot be modified to meet accessibility standards.
- Check the Facilities Master Plan (FMP) to see whether the building is needed.
- Decide whether this work item is appropriate based on the FMP decision and the building's condition.
- If this item is selected, **DO NOT** record any other work items for this building.

Figure 2*

Photo of an old barn building next to a newer, larger barn. The old barn's foundation posts are leaning and the door is propped open with a board braced against the ground.

This old barn is in extremely poor condition. If the Facilities Master Plan shows a continuing need for barn or storage space here, the barn should be replaced. If not, the barn should be removed.

*__Editor's note:__ the following figures, in addition to having a text descriptor, have a description embedded in the picture. These are captured in this publication as well and immediately follow the figure as an italic descriptor.

Figure 3

Photo of an older wood-framed and wood-sided vault toilet with a fiberglass roof, The building is only about 4′ wide by 4′ deep. Green algae is growing up the siding from the concrete slab foundation and there are holes in the bottom of the siding in three places.

Buildings that can't be modified to meet accessibility requirements need to be replaced, if the function they provide is still required. This outhouse is too small to provide the required turning space.

Work Item 02001—Parking Lot, Repair and Seal Coating (per 10,000 S.F.)

Definition: Perform minor repairs, apply emulsified asphalt seal coat to the asphalt-paved surface, and paint traffic and parking markings (*figure 4*).

Unit of Measure: 10,000 square feet (M.S.F.).

- To determine the number of units, calculate the total area in square feet, then divide by 10,000. Round to the nearest tenth. Enter this number as the quantity. Example: 67,543 SF ÷ 10,000 (SF per M.S.F.) = 6.7543 M.S.F. Rounded to the nearest tenth = 6.8 M.S.F.

Typical Life Cycle: 5 years.

Considerations:

- Includes thoroughly cleaning the surface, patching holes, filling cracks, applying two coats of petroleum emulsion, and restriping the parking lot.
- Includes asphalt seal only, not chip seal; use a custom item for chip seal.
- Asphalt parking lots need to be maintained with an emulsified asphalt seal coat about every 5 years to maximize pavement life.
- Use only for pavement associated with a building, not a road.
- Use only for parking lots that are in relatively good condition.

Figure 4

Photo of an asphalt parking lot with faded parking delineation paint and a few cracks that have been coated with tar.

This supervisor's office parking lot is in pretty good condition, but could use a seal and repainting.

Work Item 02002—Parking Lot, Repair and Resurface

Definition: Repair defects, place 2″ thick asphalt pavement overlay on asphalt-paved surfaces, and paint traffic and parking markings (*figure 5*).

Unit of Measure: 1,000 square feet (MSF).

- To determine the number of units, calculate the total area in square feet, then divide by 1,000. Round to the nearest tenth. Example: 485 SF ÷ 1,000 SF per MSF = 0.485 MSF. Rounded to the nearest tenth = 0.5 MSF.

Typical Life Cycle: 10 years.

- Asphalt pavement may last much longer if properly maintained.

Considerations:

- Includes thoroughly cleaning the surface, patching holes, filling cracks, applying an emulsion tack coat, laying an asphaltic concrete wearing course, and re-striping the lot.
- Use only for pavement associated with a building, not a road.
- Use when the aggregate base is generally sound but the asphalt is broken up, has potholes, and, in general, is in poor but salvageable condition.

Figure 5

Photo of an area paved with asphalt in poor condition behind two buildings.

The raveling, developing potholes, and alligatoring on this parking lot and driveway can't be cured by a seal coat; it should have an asphalt overlay.

Work Item 02003—Concrete, Sidewalk or Curb, Remove/Replace

Definition: Replace concrete or asphalt curbs (*figure 6*) or sidewalks (*figure 7*).
Unit of Measure: linear feet (LF) of sidewalk or curb.

- Sidewalk only: measure linear feet to the nearest foot for a sidewalk that is 24″ to 48″ wide. If the sidewalk is wider than 48″, record proportionally more length.
- Curb only: measure linear feet to the nearest foot.
- Both sidewalk and curb: measure linear feet of each to the nearest foot and add the lengths together.

Typical Life Cycle: 25 years.

- Concrete typically has a long life, but may become degraded because of overloading or poor initial construction. Continued exposure to freeze-thaw cycles may shift alignment vertically or horizontally, creating tripping hazardsand making surfaces nonaccessible.

Considerations:

- Includes removing the existing sidewalk or curb, placing a 3″ thick, vibratory-plate-compacted aggregate base and a 4″ thick, broom-finished concrete sidewalk or formed curb with gutter.
- Does not include repair work, such as patching or grinding, which is minor maintenance.

Figure 6

Photo of a section of concrete curb and gutter at the edge of an asphalt-paved parking lot. The concrete is cracked about every 2′, with chipping and spalling at most of the cracks.

This curb and gutter are deteriorating and no longer provide good drainage flow, so they should be replaced.

Figure 7

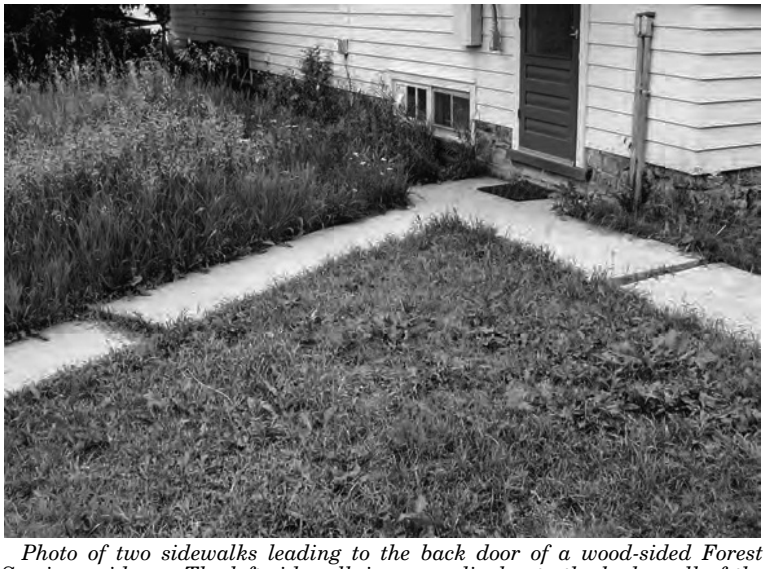


Photo of two sidewalks leading to the back door of a wood-sided Forest Service residence. The left sidewalk is perpendicular to the bade wall of the house and has an 1½″ high "step" where the walk cracked and part of it settled. The right sidewalk is parallel to the back wall of the house and has a 2″ wide gap in the concrete at a joint where the sidewalk separated.

Two short sections of this sidewalk should be replaced to correct the vertical alignment shift on the left and the horizontal shift on the right.

Use work item 15001 to record the needed work to provide accessibility at the door.

Work Item 02004—Fence, All, Remove/Replace or Install New

Definition: Remove and replace existing fencing (*figure 8*) and gates (*figure 9*).
Typical Life Cycle: 20 years.
Unit of Measure: linear feet (LF) of fence.

- Measure to the nearest foot the linear feet of the section of fence that needs to be replaced.

Considerations:

- Includes replacing worn-out fences of all standard quality types (worm, picket, chain link, barbed wire, *etc.*) regardless of height or material, including gates.
- Does not include premium quality fencing, such as replicating an elaborate historic pattern or extensive use of exotic hardwoods. If such work is necessary, it is a custom item.
- Does not include fence repair or routine maintenance, such as tightening wires, staining, or replacing a couple of pickets.

Figure 8

Photo of a low post-and-rail fence beside a sidewalk in back of a wood-sided Forest Service office. Part of the fence is leaning away from the viewer.

Although the stain hides most of the deficiencies, the posts of this fence are rotted at the base, cracked at the top, and the rails are deteriorated. This fence should be replaced.

Figure 9

Photo of a man standing beside a partly opened gate in a tall chain-link fence with three strands of barbed wire on top. A chain and padlock hang from the fence next to the gate latch. The fence separates a parking lot from a wareyard.

This gate may still be fine for use in a low-security area, even though the wire panel is warped. If the gate is in an area with high-security needs, it should be replaced.

Work Item 02005—Electric, Outdoor Pole Lights, Remove/Replace or Install New

Definition: Remove and replace an outdoor light fixture, complete with supporting pole or bollard (*figure 10*).

Typical Life Cycle: 20 years.

Unit of Measure: each (EA).

Considerations:

- Includes replacing security or parking lot site light fixtures. Does not include replacing landscape lights, wall packs, or other less expensive outdoor lights, which are included in work item 13004.
- Includes turning the branch circuit off, positioning the truck, raising and lowering the boom bucket, removing and installing the pole and 400 W HPS fixture with lamp and ballast, testing the pole-mounted fixture, and turning the branch circuit back on.
- Consider relamping costs (labor, equipment, and frequency of bulb replacement) when choosing new site lights. Relamping site lights is an operations expense.
- Before recording this item in the NRM Infra database, check to ensure that the Forest Service owns the light(s). Many utility companies retain ownership of site lights and charge monthly rent for them. If a utility company owns the light, have them replace it.

Figure 10

Photo of a cobra head yard light atop a wood pole behind a brick Forest Service office. The light illuminates a parking lot.

This parking lot light pole has a distinct lean and minor rot at the base. The light fixture lens is cracked. The fixture and pole should be replaced.

Work Item 03001—Concrete Slab or Stem Wall, Minor Repair, Spalls & Cracks

Definition: Repair concrete stem walls, retaining walls (*figure 11*), slabs (*figure 12*), *etc.*

Typical Life Cycle: 15 years.

- Concrete slabs and stem walls last indefinitely unless adversely affected by soil movement, overloading, or poor initial construction (inadequate base, poor-quality concrete, overworked finish, inadequate control joints, *etc.*). Typical "wearing-out" life cycles don't usually drive the need to repair concrete on buildings.

Unit of Measure: square feet (SF).

- Calculate the square feet of the concrete slab or wall that needs work.

Considerations:

- Includes extensive nonstructural repairs or sealing cracks and spalls on formed concrete and concrete masonry units that are part of a building, including entry sidewalks, ramps, and cracked slabs in open buildings, such as carports or picnic shelters.
- Does not include major overlay, repair, or replacement because of failure of the wall or slab. Does not include stone or brick masonry work. Use a custom item for such work.

Figure 11

Photo of a thick concrete wall with a stone cap that separates a grass lawn from an outdoor stairway.

This wall remains sturdy, but the surface layer of the concrete is peeling off. The surface layer should be removed and refinished.

Figure 12

Detail photo of a joint in a concrete walkway slab at the entrance to a building.

This concrete slab is cracked and is spalled at the edge of the control joint. The deficiencies should be repaired.

Work Item 04001—Basic Roof, Fiberglass Shingles, Removal/Replacement

Definition: Remove and replace standard-quality, moderate-cost roofing (*figures 13* and *14*).

Typical Life Cycle: 20 years.

Unit of Measure: square (SQ) of roofing.

- A square of roofing covers about 100 square feet.
- Calculate the square feet of roof **on the slope** and divide by 100; round **up** to the nearest square.

Considerations:

- Includes standard-cost asphalt or fiberglass shingles (30 year shingle or less); V-crimp metal roofing; delta-rib, exposed-fastener metal roofing; asphalt-roll roofing; or other moderate-cost roof materials that typically have about a 20 year life cycle.
- Includes setting up, securing, and taking down the ladder; removing existing roofing; removing damaged metal flashing; installing 15 pound roofing felt; installing new aluminum flashing; installing roofing; and cleaning up.
- Does not include repair work; fixing isolated leaks is operations or minor maintenance work that needs to be completed as soon as possible.
- Does not include replacing sheathing or vents, other than integral ridge vents.

Figure 13

Photo of a small, wood-sided Forest Service "gas house" with a wood-shingle roof that is about half covered with a thick growth of moss.

Timely operations and maintenance work, especially moss and debris removal, could have extended the life of this roof. The roofing has deteriorated to the point that it should be replaced.

Figure 14

Detail photo of an asphalt-shingle roof on a Forest Service warehouse building.

This roof has many patches of missing shingles and the remaining shingles are in poor condition. The roof probably leaks in several places. The shingles should be replaced.

Work Item 04002—Premium Roof, Metal/Membrane/Shakes, Removal and Replacement

Definition: Remove and replace premium-quality roofing (*figures 15* and *16*).

Typical Life Cycle: membrane—20 years; wood, tile, or architectural-grade shingles—30 years; standing-seam metal—50 years.

Unit of Measure: square (SQ) of roofing.

- A square of roofing covers about 100 square feet.
- Calculate the square feet of roof **on the slope** and divide by 100; round **up** to the nearest square.

Considerations:

- Includes replacing wood shakes or shingles; tile roofing; standing-seam metal roofing; slate-, shingle-, or tile-patterned metal roofing; single-ply membrane roofing; architectural-grade composition shingles; and other premium-quality roofing.
- Includes setting up, securing, and taking down the ladder; removing existing roofing; removing flashing metal; installing new flashing; installing a new roof system, including felt or an underlayer; and cleaning up.
- Because removing and reinstalling rooftop equipment, such as condensing units, is often required, a crane might be needed to remove and reinstall equipment. The cost of this work is reflected in this standard work item.
- Does not include replacing nonfunctioning or inadequate roof-mounted equipment or vents. Use a custom item for such work if the work is a major expense.
- Does not include repair work; fixing isolated leaks is operations or minor maintenance work that needs to be completed as soon as possible.

Figure 15

Detail photo of an asphalt-shingle roof on a Forest Service warehouse building.

This roof membrane has been patched so many times that it should be replaced the next time it springs a leak.

Figure 16

Detail photo of a standing-seam metal roof on a partially earth-sheltered wood-sided Forest Service building.

This standing-seam roofing is rusting and has come apart in several places, including at one seam that has been "fixed" with caulking. The roofing should be replaced.

Work Item 04003—Skylight, Remove/Replace

Definition: Remove and replace a typical, unvented, non-opening skylight (*figure 17*).
Typical Life Cycle: 30 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing bubble-type or similar skylights that are broken, brittle, or no longer transmit daylight.
- Includes setting up and securing the scaffold, removing the skylight, removing flashing, installing new flashing, installing the new skylight, and removing scaffold.
- Skylight leaks usually come from worn-out or improperly installed flashing. They may leak through the frame if the frame has separated. Skylights seldom leak through the glass or plastic unless a crack or break is visible.
- Do not reuse the existing flashing.
- It may be necessary to replace some of the roofing immediately surrounding the skylight to properly install new flashing; such work is included in this item.

Figure 17

Detail photo of a rectangular domed skylight set in a sloped composition-shingle roof on a wood-sided Forest Service restroom building.

This building has typical bubble-type skylights. This skylight probably leaks during windblown, heavy rain because of the separated flashing at the lower end. Carefully evaluate whether to replace the skylight or just repair the flashing and roofing.

Work Item 04004—Gutters/Downspouts, Remove/Replace

Definition: Remove and replace downspouts (*figure 18*) and gutters (*figure 19*).
Typical Life Cycle: 15 years.
Unit of Measure: linear feet (LF).

- Measure the length of both gutters and downspouts, including downspout returns, and add all segments for total linear feet.

Considerations:

- Unless downspouts are directly piped into an underground stormwater system, include minimum 3′ downspout returns to carry water away from the building (even if the existing downspouts don't have returns).

Figure 18

Detail photo of the bottom of a square metal downspout with peeling paint. A compressed section is directly above ground level. It is visibly plugged with pine needles.

This downspout is crushed and plugged and should be replaced.

Figure 19

Detail photo of a section of collapsed gutter above the front door of a wood-sided Forest Service residence. The back of the gutter remains securely screwed to the fascia, but the outside wall of the gutter has been bent down so that it is nearly perpendicular to the ground, and the end seam has burst.

An ice dam overloaded this gutter. The outside edge of the gutter is detached from the clip supports and is bent out and down. The end seams have burst. This gutter should be replaced.

Work Item 05001—Steps, Exterior, Remove/Replace

Definition: Remove and replace exterior steps made from concrete (*figure 20*), wood, or other materials.

Typical Life Cycle: 20 years.

Unit of Measure: step, each (STEP, EA).

- Count the stair risers to determine the number of steps. For example, the photo shows three risers, for a count of "3 EA."

Considerations:

- Includes replacing exterior steps from 2′ to 12′ high that are deteriorated or don't meet code requirements for existing buildings.
- Does not include tread resurfacing, painting, *etc.,* which are operations or minor maintenance expenses.
- Does not include replacing railings. Use work item 05003 for railings.
- Does not include replacing the porch, deck, or stoop. Use work item 05002 for a wood deck or porch or a custom item for a concrete porch or stoop.

Figure 20

Photo of a concrete porch and two concrete steps. Corners of two steps have broken off, the front edge of the steps have become rounded because of deterioration, and the surface of both treads and parts of the risers has spalled off, revealing the aggregate.

These deteriorated concrete steps are a tripping hazard and should be replaced.

Work Item 05002—Wood Decks, Removal/Replace

Definition: Remove and replace a deteriorated wood (*figure 21*) or plastic composite deck or porch.

Typical Life Cycle: 20 years.

- If the ultraviolet-resistant finish on wood decks is reapplied as needed, the boards should last about 20 years. If not, they may last no more than 10 to 15 years.

Unit of Measure: square feet (SF).

- Calculate the total square feet of deck that needs to be replaced.

Considerations:

- Includes replacing wood decking, stringers, the substructure, and the foundation.
- Does not include railings. Use work item 05003 for railings.
- Does not include washing, sealing, or waterproofing, which are operations or minor maintenance expenses.

Figure 21

View of a partly snow-covered porch with wood board decking on a concrete foundation, with two concrete steps. Two gaps are visible where deck boards are missing.

The decking on this porch is badly deteriorated. Most of the boards are buckled and several are missing. The decking should be replaced. The joists supporting the deck are probably also rotten and should be replaced.

Work Item 05003—Railing, Porch & Deck, Remove/Replace

Definition: Remove and replace standard-quality exterior guardrail (*figures 22* and *23*) and handrail around porches and decks and along steps and ramps.

Typical Life Cycle: 20 years.

Unit of Measure: linear feet (LF).

- Measure the total length in feet of railing to be replaced.

Considerations:

- Includes porch, deck, and stairway rails that are deteriorated or don't meet code requirements for the intended use of the structure.
- Includes all usual materials, including dimensioned lumber, plastic composites, and metal.
- Includes replacing a complete railing system 36″ to 42″ high, including guardrails and the required scaffolding to accomplish the task.

Figure 22

Photo of a wood-framed guardrail with woven wire panels. The top rail is missing above four of the panels.

This guardrail is in worse condition than is evident in a photo of this size. Aside from the missing boards, many of the bottom rails and posts are not attached to the structure, many of the boards are rotted nearly through, fruiting fungi are growing on many of the boards and posts, and some of the wire panels are held in place with zip ties. The guardrail needs to be completely replaced.

Figure 23

Detail photo of part of the middle rail of an observation deck guardrail. Rot is visible on a 2′ long section of the top of the rail. Part of the rotten wood has fallen off,

This guardrail board on an overlook tower is rotten. If it's the only rotten board, replacement is considered operations work that should be completed as soon as possible. If most of the boards are rotten, the entire guardrail should be recorded under item 05003 and replaced.

Work Item 06001—Siding, All Types, Remove/Replace

Definition: Remove and replace siding (*figures 24* and *25*).
Typical Life Cycle: 25 years.
Unit of Measure: 100 square feet (CSF).

- Calculate the square feet of all siding areas to be replaced, then divide by 100.
- Do not deduct for door and window openings.

Considerations:

- Includes removing all types of siding (cement board, wood, EIFS, plywood, aluminum, vinyl, hardboard, *etc.*) and replacing it with the Forest Service standard: fiber cement board or similar. Includes eaves, trim, fascia, and proper flashing around windows and doors.
- Includes setting up, securing, and taking down the ladder. Includes painting the new siding.

Figure 24

Photo of part of the front of a Forest Service building with wood lap siding and a metal roof.

This is not the original siding, and it's in poor condition. Most siding boards are damaged and some siding is missing near the door where knee braces for an entrance hood were removed. This replacement siding should be replaced.

Figure 25

Detail photo of wood shingles on part of an outside wall of a Forest Service building. Many shingles are broken, rotten, or warped and some have been partly dislodged.

This shingle siding is worse in some places than in others, but all the siding is weather damaged and brittle and should be replaced.

Work Item 06002—Door, Exterior, Remove/Replace

Definition: Remove and replace an exterior pedestrian door (*figures 26* and *27*).
Typical Life Cycle: 20 years.
Unit of Measure: each (EA).

- "Each" means each door. Double doors are counted as 2 EA. An entry with both a door and a screen door is counted as 2 EA if both need to be replaced.

Considerations:

- Includes replacing pedestrian doors up to 4′ wide and 8′ tall (any material-wood, aluminum, steel, *etc.*), insulated vision pane glass (if any), doorframes, closers, and all commercial hardware and locksets.
- Does not include metal-framed glass storefront-type door surrounds, only the door. Use item 07006 for windows not included within doors.
- Does not include custom replication of fancy historic door styles. Use a custom item for such work.

Figure 26

Photo of a small storage building with a badly deteriorated Craftsman style door. Some siding boards are cracked or broken.

The broken-out glass could be replaced, but the delaminating panels on this door can't be repaired without expert restoration skills. Preservation requirements determine whether this historic building's door should be replaced in kind or restored.

Figure 27

Photo of a deteriorated door in an exterior wall. On the bottom quarter of the door, the surface layers are peeling off the pressed wood core and some of the surface layer is missing. The bottom left side of the door frame trim is rotted and cracked.

This door looks like an interior door that was mistakenly installed on an exterior wall. It is badly deteriorated and should be replaced with an exterior door.

Work Item 06003—Door, Garage, Overhead Door

Definition: Remove and replace overhead doors (*figures 28* and *29*).
Typical Life Cycle: 20 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and disposing of doors up to 16′ wide and 9′ high that are broken, rotten, or nonfunctional, including old swinging or sliding doors that need to be replaced with modern overhead doors.
- Includes all door materials (wood, steel, fiberglass, *etc.*) along with any vision panes, rollers, springs, and hardware.
- Does not include replacing swinging or sliding historic garage or warehouse doors in kind. Use a custom item to replace historic doors in kind.

Figure 28

Photo of part of a warehouse and loading dock, centered on a large four-panel overhead door. An irregularly shaped scrape that is about 6′ long and 1′ high is evident on the bottom panel of the door.

This overhead warehouse door is damaged. Because several layers of plywood were peeled off the panel, the strength of the door is compromised. The door should be replaced.

Figure 29

Photo of the end of a garage with a bent and bowed overhead garage door. The four-panel door has windows all across the width of the second panel from the top.

This residential garage door is warped and does not open properly. The door should be replaced.

Work Item 06004—Painting, Exterior, Includes Prep, Prime and Paint

Definition: Repaint the exterior of a building, including preparation and prime coat (*figures 30* and *31*).

Typical Life Cycle: 5 years.

- Typical life cycle is for paint on wood siding and trim. Some other finishes, such as paint on cement composite siding or semitransparent stain on wood siding, may last longer.

Unit of Measure: square feet (SF).

- Calculate the gross square feet of the surface area to be painted. Do not deduct for openings, such as doors and windows.

Considerations:

Includes surface preparation, caulking (if needed), a full or spot prime coat (as needed), and painting or staining of all exterior surfaces, including trim, with latex paint or water-based stain.

- Use this item regardless of how many coats of paint are actually needed, the type of paint (oil base, latex, stain, *etc.*), or the type of siding being painted.
- Does not include lead paint removal. Use work item 16001 for removing lead paint.

Figure 30

Photo of a building with wood Dutch-lap siding. The building has a partial second floor under the roof. The building has two doors, five windows, and a brick chimney 1extending above the wood-shingle roof.

Although the paint is peeling badly, the wood siding of this historic building is in decent condition. New paint will keep the siding serviceable. Because it's a historic building, old layers of paint may contain lead, requiring special preparation (see work item 16001). Follow the building preservation plan and use historic colors when repainting.

Figure 31

Detail photo of part of an outside building wall and a wood-framed, double-hung window. There is little stain left on the siding and some portions have darkened. Nearly all the paint on the window frame is peeling.

The T1–11 siding should be cleaned and restained with a semitransparent penetrating stain. Loose paint should be scraped or sanded from the window frame and trim before they are primed and repainted.

Work Item 07001—Doors, Interior, Remove/Replace

Definition: Remove and replace an interior door (*figure 32*).
Typical Life Cycle: 30 years.
Unit of Measure: each (EA).

- "Each" means each door. Double doors are counted as 2 EA.

Considerations:

- Includes replacing worn-out, damaged, or nonfunctioning interior doors up to 4′ wide and 8′ tall, whether solid or hollow core; wood, steel, fiberglass, or other standard-grade material; casing; and hardware of all types.
- Includes removing the old doors, doorframes, hardware, and door closers (if any); installing new doorframes, hinges, vision panes (if any), and doors; and replacing or reinstalling the door casing, closers, and latches.
- Does not include luxury-grade doors or custom replication of fancy historic door styles. Use a custom item for such work.

Figure 32

Photo of a wood-faced, flat-slab interior door and frame. The face veneer is pulling away from the door on both sides.

This interior door is delaminated at the top and should be replaced. Although only the door should be replaced (not the frame or hardware), use item 07001 and its standard cost. To improve accessibility, the knob should be replaced with a lever-type handle.

Work Item 07002—Toilet Partitions, Per Stall, Remove/Replace

Definition: Remove and replace a toilet partition (*figure 33*) or urinal screen (*figure 34*).

Typical Life Cycle: 20 years.

- Partitions often need to be replaced because of vandalism or abuse rather than for exceeding their expected life.

Unit of Measure: each (EA).

- Count each complete stall or each urinal screen as 1 EA.

Considerations:

- Includes removing and replacing all types and sizes of partitions and doors, all types of hardware and mounting systems, and cleaning up.
- Replacement partitions should be the Forest Service standard-solid phenolic resin. Because of durability and graffiti concerns, do not install wood or painted metal partitions in locations used by the public.

Figure 33

Photo of part of four stalls in a restroom. The door of one stall has been replaced with an unpainted piece of plywood, fastened to the stall frame with heavy-duty hinges that don't match the hinges on the rest of the stall doors.

Although the obvious problem is the mismatched plywood stall door, all these partitions and doors are constructed of aging plastic laminated to pressed board. The edges of the partitions and doors are chipped, some are delaminating in places, and some are warped. The doors and partitions should be replaced.

Figure 34

Photo of a urinal and adjacent painted metal privacy screen. The screen has extensive rust, especially on the portion that is beside the urinal catch basin.

This urinal screen began to rust after the painted finish became scratched and chipped. The screen should be replaced.

Work Item 07003—Drywall, Install & Taped, Remove/Replace

Definition: Remove and replace gypsum wallboard (*figures 35* and *36*).
Typical Life Cycle: 75 years.

- Replacement is usually needed because of water damage, vandalism, or abuse and is not typically related to the expected life of the product.

Unit of Measure: square feet (SF).

Measure the replacement area to the center of the next nearest support (stud, joist, *etc.*), because replacement material must be fastened to a support. Calculate the total square feet to be replaced.

Considerations:

- Includes taping and texturing ½″ or ⅝″ thick type X gypsum wallboard (also called drywall, plasterboard, or Sheetrock).
- Includes removing other wall surfacing, such as plywood or pressed-board paneling, and replacing it with gypsum wallboard.
- Does not include painting. Use work item 09001 for painting.
- Does not include in-kind replacement of plaster, premium wood paneling, or other high-end wall surfaces. Use a custom item for such work.

Figure 35

Detail photo of part of a ceiling. Water drops cling to the painted surface in three large areas. Water coming through the ceiling caused the paint on one area to bubble down from the ceiling.

Water damage from a leaking roof ruined this gypsum wallboard ceiling. The paint is probably the only thing keeping the ceiling in place, because exposure to water degrades the structural integrity of ordinary gypsum wallboard. After the roof is repaired, the gypsum wallboard ceiling should be replaced. See item 16002—Environmental Mitigation, if there is mold.

Figure 36

Detail photo of part of a floor and wall next to an open door. The bottom of the wall is fluted because of swelling and delamination of the paper surface layer of the gypsum wallboard caused by water.

Water damage from a burst pipe during the off-season caused a flood in this crew-quarters building that damaged the bottom of all the kitchen walls. The damaged gypsum wallboard should be replaced.

Work Item 07004—Cabinets, Kitchen, Remove/Replace

Definition: Remove and replace built-in cabinetry and countertops (*figure 37*).
Typical Life Cycle: 30 years.
Unit of Measure: linear feet (LF).

- Measure linear feet along the wall from one end of the cabinets to the other end.
- All cabinets along the same wall are measured together for this work item. The cost per linear foot includes base cabinets and wall cabinets or either of these components alone. For example, if only upper cabinets will be replaced, enter the total length of the upper cabinets under this work item. Do not reduce the length entered because the base cabinets will not be replaced.

Considerations:

- Includes removing and replacing all types of worn-out, broken, or nonfunctioning cabinets, except laboratory cabinets, in all locations. Use item 07005 for laboratory cabinets.
- Includes countertops, base cabinets, wall cabinets, hinges, and pulls.
- Does not include cabinet repair or refinishing, which could be operations or minor maintenance work or a custom work item if the expense is significant.

Figure 37

View of a kitchen wall with old wooden cabinets and a wide, sliding, wood-framed window above the sink. The paint has come off the cabinet drawers and doors in several places.

Although the doors are crooked and the drawers don't slide easily, these cabinets are still functional. Because they are sturdier than most modern cabinets, it may be better to fix than to replace them, especially if they have historic significance.

Work Item 07005—Cabinets, Laboratory, Remove/Replace

Definition: Remove and replace built-in laboratory cabinetry and countertops (*figures 38* and *39*).

Typical Life Cycle: 40 years.

Unit of Measure: linear feet (LF).

- Measure linear feet along the wall from one end of the cabinets to the other end.
- All cabinets along the same wall are measured together for this work item. The cost per linear foot includes base cabinets and wall cabinets or either of these components alone. For example, if only base cabinets will be replaced, enter the total length of the base cabinets under this work item. Do not reduce the length entered because wall-hung upper cabinets are not needed.

Considerations:

- Includes removing and replacing worn-out, broken, or nonfunctioning chemical-resistant countertops, base cabinets, and wall cabinets.
- Does not include cabinet repair or refinishing, which could be operations or minor maintenance work, or a custom item if the expense is significant.

Figure 38

Photo of an old, painted steel base cabinet supporting a lab sink. One cabinet door under the sink won't close completely.

This old lab cabinet has remained in use for more than 50 years, and it shows. Rust and pitting are extensive. The cabinet should be replaced.

Figure 39

Photo of a clear-finish wood cabinet supporting a lab sink and counter. One cabinet door has a large horizontal scratch. The cabinet finish is stained and deteriorating in a few places.

This wooden lab cabinet and countertop look as though they are in poor condition. However, a thorough cleaning and refinishing will probably restore them. They still function well.

Work Item 07006—Window, Remove/Replace

Definition: Remove and replace a window (*figure 40*).
Typical Life Cycle: 30 years.
Unit of Measure: each (EA).

- Count each window unit as 1 EA. Window units are separated by a section of wall or by a vertical support mullion, as shown in *figure 41.* The paired components of sliding or double-hung windows are counted as one window unit.

Considerations:

- Includes removing and replacing existing windows with new windows that meet the Forest Service standard (good quality, thermally efficient). Includes all materials, equipment, and scaffolding required to complete the work, including replacing or repairing trim.
- Includes replacing windows that should be tempered but often aren't, such as windows near doors and stairways or within 18″ of the floor.
- Includes replacing single-pane windows with new windows to increase energy efficiency.
- Does not include storefront windows (large expanses of glass typically surrounding an entry door), which are custom work.
- Does not include window repair (an operations or maintenance expense) or rebuilding historic windows (a custom item).
- Caution: for buildings that are eligible for or listed on the National Register of Historic Places, it is often better to rebuild and/or add storm windows rather than replacing original windows. Such work is a custom item.

Figure 40

Detail photo of part of a steel-frame, multi-pane window in a painted brick wall. Two panes are cracked. The inside half of part of the frame is missing and the glass is held in place at the bottom by a 1″ by 1″ board.

It's difficult to tell in this photo, but the steel frame of this window isn't in any better condition than the cracked windowpanes. The frame is warped, rusted in places, and partially missing. The window should be replaced.

Figure 41

Photo of the inside of a lookout tower cab. A low cabinet, low shelf, woodstove on a ceramic tile base, and an Osborne Firefinder are visible, as are the catwalk rails, mountains, valleys, and lake beyond the windows.

This photo shows nine windows separated by support mullions and a door with three vision panes. Each window has four windowpanes (lites). If you had to replace them all, you would count nine each of work item 07006 (windows) and one each of work item 06002 (exterior door).

Work Item 08001—Stairs, Interior, Remove/Replace

Definition: Remove and replace interior stairs (*figure 42*).
Typical Life Cycle: 40 years.
Unit of Measure: step, each (STEP, EA).

- Count the stair risers to determine the number of steps.

Considerations:

- Includes removing and replacing a complete flight of interior stairs (including pull-down units) up to 42″ wide, constructed of any standard material, that are deteriorated or don't meet code requirements for existing buildings.
- Does not include replacing carpeting or other flooring for the stairs or replacing railings. Use work items 09002, 09003, 09004, 09005, and 08002 for such work.
- Does not include replacing flights of stairs more than 42″ wide (a custom item) or replacing one or two treads, which is an operations or minor maintenance expense.

Figure 42

Sideview photo of an interior stairway in a historic ranger's house. An arrow and dimensions indicate the head clearance for the stair is only 5′6″.

The stairway of this early 20th century log house should be replaced because it is unsafe and doesn't comply with building codes for existing buildings. The stairway doesn't have enough head clearance and the steps are too steep.

Work Item 08002—Railing, Stair, Guards and Handrails, Remove/Replace

Definition: Remove and replace interior handrails and guardrails (*figure 43*).
Typical Life Cycle: 45 years.
Unit of Measure: linear feet (LF).

- Measure the handrail and guardrail separately if they are not integrated and both need to be replaced. Add the linear feet of the handrail and the linear feet of the guardrail to get the total linear feet.

Considerations:

- Includes removing and replacing nonfunctional, worn-out, or non-code-compliant handrails and guardrails constructed of any common building material.

Figure 43

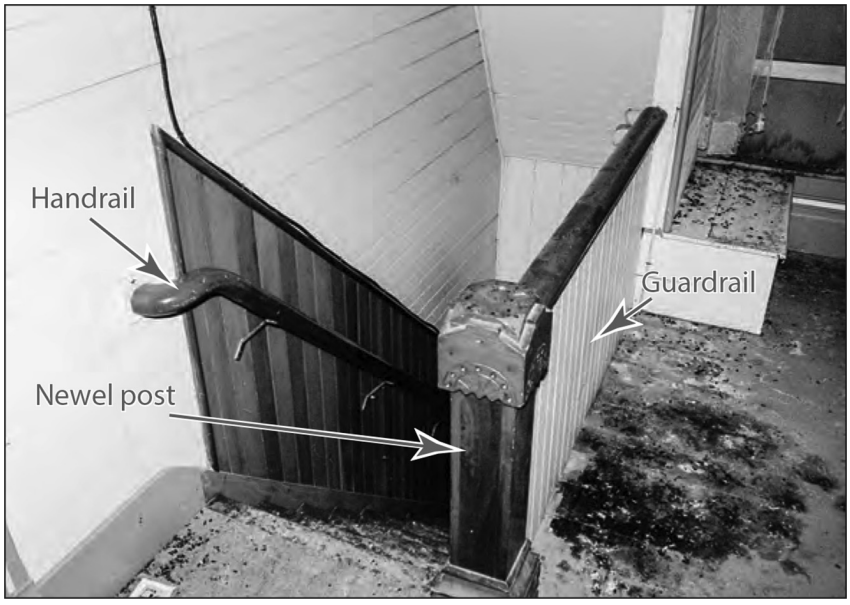


Photo of an interior stairway looking at the top landing and down the stairs. Mouse droppings and other debris litter the floor and steps, but the structure is sound and undamaged. A low hand rail is on the left and on the right is a guardrail with a fancy newel post protecting the landing from the stairwell dropoff.

This handrail is in good condition. It should be raised so that it is 34″ to 38″ above the noses of the steps. The guardrail should be rebuilt so that the top of the rail is 42″ above the floor. Because this structure is historic, the top rail, newel cap, and newel base should be retained, refinished and mounted atop longer balusters and a longer newel post that have the same horizontal dimensions and appearance as the originals.

Work Item 09001—Painting, Interior Walls and Ceiling, Includes Prep, Prime and One Coat Latex

Definition: Prepare and paint interior walls, the ceiling, and trim with prime and topcoat (*figure 44*).

Typical Life Cycle: 5 years.

Unit of Measure: square feet (SF).

- Calculate the total square feet to be refinished. Do not deduct for openings.

Considerations:

- Includes repainting any common wall or ceiling surface, such as gypsum wallboard, plaster, and pressed board.
- Includes masking and providing floor protection; cleaning and preparing the surface; priming or sealing; painting interior walls, ceiling, and trim; and removing masking and drop cloths.
- Does not include removing lead-based paint. Use work item 16001 for removing lead-based paint.

Figure 44

Photo of an inside corner of an attic room. The walls and ceiling are covered with painted plywood with ½″ by 2″ wood battens over the seams.

The walls and ceiling of this second floor room already are sanded in preparation for a badly needed repainting. The varying depth of sanding indicates the paint was in very poor condition.

Work Item 09002—Flooring, Carpet, Repair/Replacement

Definition: Remove and replace standard-quality carpet and padding (*figure 45*).
Typical Life Cycle: 8 years.
Unit of Measure: square feet (SF).

- Calculate the square feet of carpet to be replaced. Unless carpet is unitized (carpet "tiles"), extend the replacement area to a logical joint, such as under a door. Do not "patch" sheet carpet in the middle of a room.

Considerations:

- Includes removing damaged carpet and installing new carpet and pad.
- Includes moving furniture out of the room (if the room is furnished) and moving it back in.
- If the carpet is not badly worn or damaged, consider cleaning it instead of replacing it. Cleaning would be considered an operations cost.
- Consider replacing sheet carpet with carpet tiles to make it easier to remove and replace damaged sections, add floor outlets, *etc.*

Figure 45

Photo of a badly stained and severely worn level loop carpet in an empty office.

This carpet has exceeded its useful life and should be replaced. The pile is completely worn away in some areas, the seam is raveling, and the staining is severe.

Work Item 09003—Flooring, Tile, Remove/Replace

Definition: Remove and replace wood, laminate, ceramic, or quarry floor or wall tiles or boards (*figures 46* and *47*).

Typical Life Cycle: 30 years.

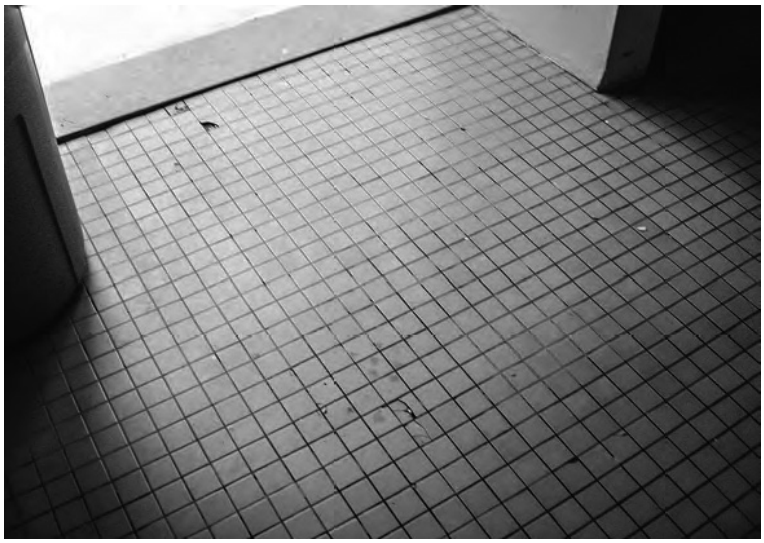
Unit of Measure: square feet (SF).

- Calculate the square feet of flooring to be replaced.
  - ➢ If the material can be matched exactly, replace only the area that is damaged.
  - ➢ If the material cannot be matched exactly, extend the replacement area to a logical joint, such as under a door. Do not install a mismatched "patch" in the middle of a room.

Considerations:

- Includes removing and replacing damaged or excessively worn ceramic, quarry, wood, or laminate wall tiles, floor tiles, or flooring boards. Includes surface preparation.
- Does not include refinishing existing wood flooring. Use work item 09004 for refinishing.
- Does not include vinyl or other composition flooring tiles. Use work item 09005 for vinyl or composition flooring.
- Does not include replacing underlayment, subfloor, or floor joists. Such work is a custom item.

Figure 46



Detail photo of a floor covered with 1″ by 1″ ceramic tiles with narrow grout lines.

Many of the individual tiles in this floor are chipped or cracked. If it is impossible to find matching tiles to individually replace the bad tiles, the entire floor surface should be replaced.

Figure 47

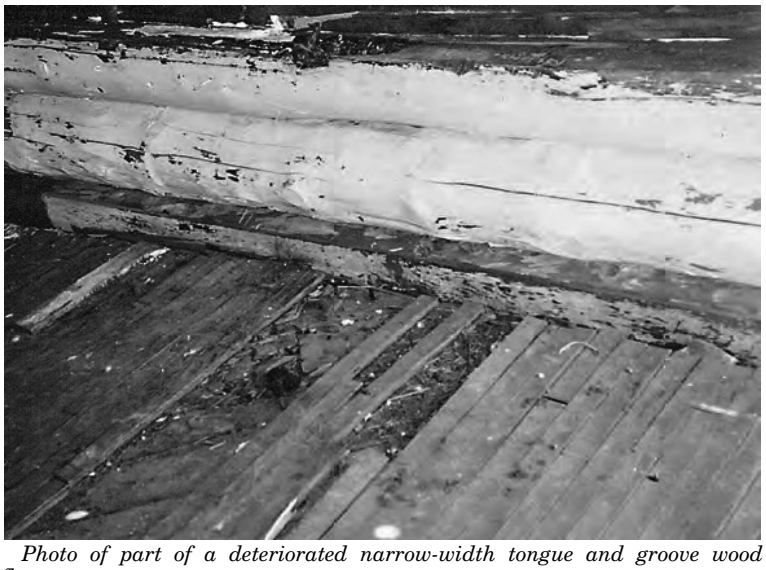


Photo of part of a deteriorated narrow-width tongue and groove wood floor.

The wood flooring of this lookout cabin is warped and pieces are missing. The flooring should be completely replaced before the building is returned to use.

Work Item 09004—Flooring, Wood, Sand and Refinish

Definition: Sand and refinish wood plank or tongue and groove flooring (*figure 48*).

Typical Life Cycle: 10 years.

Unit of Measure: square feet (SF) of flooring to be refinished.

- Calculate the square feet of the entire room. It's not possible to satisfactorily refinish only a portion of a room's wood floor.

Considerations:

- Includes removing any remaining old finish and applying new stain and a wear layer, as appropriate.
- Does not include replacing wood flooring. Use work item 09003 for wood flooring.

Figure 48

Photo of part of a narrow-width tongue and groove wood floor beside a kitchen cabinet. The boards are still perfectly flat and the joints are tight.

The finish of this wood floor is completely worn off in some areas. The entire floor should be sanded and refinished.

Work Item 09005—Flooring, Vinyl, Remove/Replace

Definition: Remove and replace vinyl or other composition flooring, either sheet (*figure 49*) or tile.

Typical Life Cycle: 18 years.

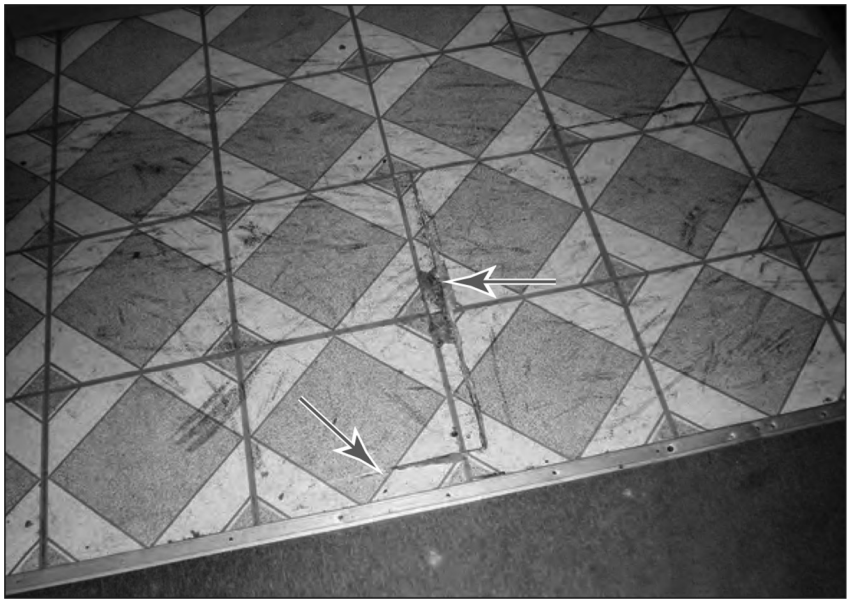
Unit of Measure: square feet (SF).

- Calculate the square feet of flooring to be replaced.
  - ➢ If the material can be matched exactly, measure the area that is damaged to the nearest pattern line that will camouflage the patch.
  - ➢ If the material cannot be matched exactly, measure the replacement area to a logical joint, such as under a door. Do not install a mismatched "patch" in the middle of a room.

Considerations:

- Includes removing damaged flooring, preparing the surface, and installing new vinyl flooring.
- Does not include removing flooring that contains asbestos. Asbestos tiles typically are 9″ by 9″. Test if uncertain. Use work item 16001 for removing asbestos.

Figure 49



Detail photo of part of a sheet vinyl floor. Arrows point to large scratches and scrapes in two locations.

The wearing surface and color layer of this vinyl flooring are completely scraped off in places. This damage cannot be repaired. The flooring should be replaced.

Work Item 09006—Ceiling, Acoustic, Remove/Replace

Definition: Remove and replace acoustic ceiling tiles and the support grid (*figure 50*).

Typical Life Cycle: 20 years.

- Failure more typically results from water damage than wearing out.

Unit of Measure: 100 square feet (CSF).

- Calculate the square feet of the ceiling and divide by 100, then round up to the nearest whole number.
- Unless you can match the material exactly, replace the ceiling of the entire room.

Considerations:

- Includes setting up, securing, and taking down scaffold; removing old ceiling tiles; removing the old ceiling grid; installing the new ceiling grid; installing new ceiling tiles; resetting existing light fixtures, diffusers, grills, *etc.;* and sweeping and cleaning debris.
- Does not include replacing light fixtures, diffusers, or grills. Use work item 13004 for light fixtures. Replacing diffusers or grills can be operations, minor maintenance, or a custom item, depending on the extent and expense of the work.
- Does not include replacing a couple of individual tiles in a room. Such work is operations or minor maintenance.

Figure 50

Photo of part of a suspended acoustic ceiling, including a vent, a grill, and a fire sprinkler set into the ceiling panels.

This ceiling has suffered repeated water damage. Previous stains were covered with spray paint. Darker areas of the ceiling are currently wet. The corners of some of the panels are coming apart and the grid is beginning to rust (circled). The panels should be replaced before they lose structural integrity and fall down. Roof leaks should be corrected before the ceiling is replaced. See item 16002—Environmental Mitigation, if there is mold.

Work Item 10001—Toilet/Urinal Fixture, Remove/Replace

Definition: Remove and replace a toilet (*figure 51*) or urinal, including flush valves.

Typical Life Cycle: 35 years.

Unit of Measure: each (EA).

Considerations:

- Includes turning shutoff valves off and on, removing fixtures, installing new wall- or floor-mounted fixtures (including wax rings and other connectors), installing flush valves and pipes, and checking operation. For public restrooms, use elongated toilet bowls (not round) with open-front seats.
- Includes replacing an old fixture to provide accessibility for employees and the public. Refer to the Architectural Barriers Act (ABA) Accessibility Standards at *http://www.access-board.gov/* for requirements.
- Includes replacing old fixtures to reduce water use. Refer to *http://fsweb.wo.fs.fed.us/eng/programs/facilities/sus_green/fix_pro.htm* for new fixture testing and performance information.
- Does not include replacing grab bars or toilet seats, which usually are operations or minor maintenance work.
- Does not include replacing a flush valve only, which is an operations or minor maintenance expense. Life expectancy for a flush valve is 10 years.

Figure 51

Photo of an old-style, tank-type toilet with an open-front seat set in an alcove with a painted tile-patterned, pressed-board wainscot on the lower half of the wall and composition floor tiles.

This toilet from the 1930s still works, but it uses about 8 gallons of water per flush. Consider historic preservation and accessibility requirements as well as water efficiency before deciding whether to replace or modify historic fixtures in historic buildings. Consult a mechanical engineer to learn whether a historic fixture can be modified to use less water[.]

Work Item 10002—Lavatory Fixture, Remove/Replace

Definition: Remove and replace a sink, including faucets and drain (*figures 52* and *53*).

Typical Life Cycle: 35 years.

Unit of Measure: each (EA).

Considerations:

- Includes bathroom (lavatory) sinks, laundry room sinks, non-freestanding single- and double-bowl kitchen sinks, and other similar sinks.
- Includes shutting off water (hot and cold); disconnecting and removing sinks; and installing new sinks, faucets, drains, and tubing.
- Does not include oversize freestanding sinks or laboratory sinks, which are custom work items.
- Includes replacing sinks to provide accessibility for office or crew-quarters restrooms or kitchens. Refer to the ABA Accessibility Standards at *http://www.access-board.gov/* for requirements.

Figure 52

Detail photo of a one-piece lavatory countertop with integral sink, set on a base cabinet. One corner of the countertop is cracked all the way through diagonally.

This combination lavatory and countertop is broken (circled) and should be replaced.

Figure 53

Detail photo of a double kitchen sink with dirty dishes stacked in one bowl. A sign posted on the wall behind the sink reads: "Notice: Non-potable water. Not for drinking or cleaning.["]

Although it has two bowls, this double kitchen sink would count as "1 each." A larger problem needs to be addressed, however: the water is apparently nonpotable and not suitable for washing the dishes that are stacked

in the sink. To prevent illness, water to the sink should be shut off until the water system is restored to potability.

Work Item 10003—Tub/Shower Complete, Remove/Replace

Definition: Remove and replace a bathtub or shower, including spout, faucet(s), and showerhead (*figure 54*).
Typical Life Cycle: 25 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing a tub, shower, or combo unit, whether porcelain, tile, fiberglass, or other material.
- Includes removing shower enclosures; installing new shower enclosures; and installing new showerheads, arms, faucets and drains, and valves.
- Includes replacing showers or tubs to provide accessibility in offices, fire stations, or crew quarters. Refer to the ABA Accessibility Standards at *http://www.access-board.gov/* for requirements.
- Does not include extensive reframing necessitated by severe deterioration. Use a custom item for reframing.

Figure 54

Photo of two steel shower stalls with open curtains. Rust is on the inside and outside of the stalls.

These old metal shower stalls are rusted, allowing water to escape from the walls and pans of the stalls. The stalls should be replaced.

Work Item 10004—Drinking Fountain, Remove/Replace

Definition: Remove and replace a drinking fountain (*figure 55*).
Typical Life Cycle: 18 years.
Unit of Measure: each (EA).
Considerations:

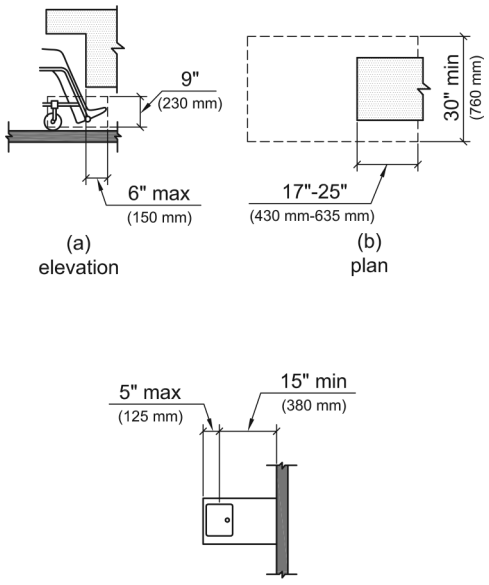
- Includes removing and replacing the complete old drinking fountain or water cooler and installing a new water cooler unit. Don't save or reuse an old refrigerated drinking fountain.
- Includes replacing water coolers or drinking fountains because of compressor failure or to provide accessibility (*figure 56*). Refer to the ABA Accessibility Standards at *http://www.access-board.gov/* for requirements.

Figure 55

Photo of an old electrical panel with a wall-hung drinking fountain directly below it and a wall phone to the right of it.

This is a very bad location for a drinking fountain. The fountain must be outside the 36″ clear area for the electrical panel and should ideally be several feet away. The fountain should be removed. It doesn't meet accessibility requirements. If a drinking fountain is needed, install a new, accessible fountain at a different location.

Figure 56



These drawings show some of the clearance and size requirements for accessible drinking fountains. Refer to the Architectural Barriers Act Accessibility Standards for more information about accessibility requirements.

Work Item 10005—Eye Wash, Remove/Replace

Definition: Remove and replace an eyewash station (*figures 57* and *58*).
Typical Life Cycle: 25 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing eye wash stations that are worn-out, damaged, dysfunctional, or that cannot be sanitized.
- Test existing units during the condition assessment inspection to ensure that they are functional and easy to access.

Figure 57

Photo of a sink faucet with an eyewash station operated using a squeeze lever and automatic flip-up spout covers. The eyewash station has a retractable extension hose so it can be pulled out and over the sink for use. The eyewash station is very dirty and greasy, as are the sink, counter, and sink faucet.

This eyewash station is too dirty to ensure a rinse with uncontaminated water. If a thorough cleaning isn't sufficient to return it to a sanitary condition, it should be replaced.

Figure 58

Photo of a dirty, stained sink with a very old eyewash station mounted on the end of a chrome sink faucet with an "X"-type handle. The eyewash spouts look like sink faucet aerators and have no protective covers. Beside the eye wash is a rough-plumbed pipe extending from the wall with a wheel-type handle and an elbow to a downturned discharge opening that serves as the sink faucet.

The lack of protective covers and an easy-to-operate activator make this eyewash station unsuitable for use. It clearly should be replaced.

Work Item 10006—Water Heater, Remove/Replace

Definition: Remove and replace an electric or gas water heater (*figure 59*) or small boiler (*figure 60*).

Typical Life Cycle: 15 years.

Unit of Measure: each (EA).

Considerations:

- Includes completely removing and replacing commercial water heaters (propane, natural gas, or electric) or small boilers up to about 150,000 British thermal units (Btu) per hour, including valves, venting, *etc.*
  - ➢ Includes an anti-scald device and a pop-off valve with a discharge pipe plumbed to a floor drain or to the outside.
  - ➢ Includes seismic restraints, as required locally.
  - ➢ Includes installing to code standards, including piping, clearances, and elevation of the heater 18″ above the floor if it's in a garage or shop.
  - ➢ Includes checking operation after installation.
- Includes replacing water heaters to improve energy efficiency—older units typically are 60-percent efficient, while new condensing units are 90-percent efficient or more.

Figure 59

Photo of an old-style hot-water storage tank that is about 16″ in diameter and 66″ tall. It is piped at the bottom to the cold-water supply, and hot water would exit the top. To the left are the severed ends of the pipes near the bottom and top of the tank that used to connect the heating coils inside the tank to the heat-extracting coils inside a wood stove.

This old tank held water that was heated by coils inside a wood heat or cook stove that was removed. The tank should be replaced if hot water is still needed at this location.

Figure 60

Photo of an old vertical-tank gas boiler with a large exhaust flue and 1½″ diameter cold- and hot-water pipes entering and leaving the boiler to the left of the photo. Exposed single-strand plastic-coated wires connect various sensors and controls on the boiler tank.

This old boiler may work, but it probably runs inefficiently, and the exposed wiring connections are not safe. It should be replaced.

Work Item 10007—Gas/LP Yard Line, Remove/Replace

Definition: Remove and replace underground natural gas, propane (*figure 61*), or fuel oil piping.

Typical Life Cycle: 30 years.

Unit of Measure: linear feet (LF).

- Measure and include the vertical portions of the line at the tank and up the outside of the building, as well as the horizontal line.

Considerations:

- Includes completely replacing a rusted, corroded, deformed, or leaking gas or oil underground service line.
  - ➢ Includes piping and fittings, as well as trenching and backfill to the building, from either an above-ground or buried tank.
  - ➢ Includes replacing hard or soft copper, black iron, or polyethylene lines with code-compliant, properly sized materials.
  - ➢ Includes obtaining a permit, where required.
  - ➢ Includes checking for breaks or leaks before removing the old line and checking for leaks after installing the new line.
- Check with the local fuel supplier; they may be responsible for part of the work.
- Ensure that the tank is the proper distance from the building and openings. Refer to *http://www.propane101.com/propanetankdistancerules.htm*.
- Use detergent in water to check for leaks on exposed parts. Refer to *http://www.propane101.com/checkingforgasleaks.htm*.

Figure 61

Photo showing one wall of a wood-sided building on the left and a large propane tank about 20′ from the building on the right. Shrubs and a couple of large conifer tree trunks are visible between the building and the tank. A gas pipe runs partway up the building wall and extends into the building. At the tank, a regulator perches atop a gas pipe that runs from the tank into the ground,

What's underground between the propane tank and the building? The consequences can be severe if the line is defective. Defective lines should be replaced immediately.

Work Item 11001—Pump, Circulation, Water or HVAC, Remove/Replace

Definition: Remove and replace a booster, vacuum, or circulation pump (*figure 62*), including mounts, connections, and controls.
Typical Life Cycle: 20 years.
Unit of Measure: each (EA).
Considerations:

- Includes circulation pumps, booster pumps, and vacuum pumps up to about 3 horsepower, including controls.
- Includes needed upgrades of support, vibration mounts, isolation valves, flexible connections, disconnects, and similar items to ensure efficient operation.
- Includes removing flanged connection pumps, replacing pumps and motor assemblies, and installing new flanged connection pumps.
- Does not include potable water, irrigation, or wastewater pumps in pump/control houses or outside. Such pumps are covered under water and wastewater maintenance or improvement.

Figure 62

Close-up photo of a circulation pump mounted on a concrete pedestal and connected to insulated piping at the top and left side. The pump motor is on the right side of the pump.

The motor on this pump looks newer than the pump and fittings. The extent of rust and the pump's marginal performance indicate that the pump and fittings should be replaced.

Work Item 11002—Boiler, Remove/Replace

Definition: Remove and replace a large boiler that uses any fuel (*figure 63*).
Typical Life Cycle: 30 years.
Unit of Measure: each (EA).
Considerations:

- Includes boilers from about 150,000 Btu per hour up to about 2 million Btu per hour, including connections and fittings.
- Old boilers may be cast iron, steel, copper fin, or condensing type.
- Includes replacing boilers to improve energy efficiency.

Figure 63

Photo of a small modern boiler in a rectangular housing that is about 2′ wide by 2′ high by 4′ deep. The boiler is connected to insulated water and glycol pipes and a natural gas line. A gas flue extends from the top of the boiler.

This relatively new and efficient 1 million Btu boiler is about ¼ the size of an older, equal-capacity boiler. This boiler is only about 10 years old and is in good condition.

Work Item 11003—Cooling Tower, Remove/Replace—Average 50 Ton

Definition: Remove and replace a cooling tower and its appurtenances (*figure 64*).

Typical Life Cycle: 15 years.

Unit of Measure: each (EA).

Considerations:

- Includes completely removing and replacing worn-out cooling towers and appurtenances. Unit cost is based on a 50 to 100 ton cooling tower.
- Includes towers located indoors in a mechanical room or outdoors on a roof or in a separate tower.
- Cooling towers typically are used in conjunction with water-cooled chillers (work item 11004).

Figure 64

Photo of a large-enough-to-walk-into cooling tower enclosure. On the front are an access door and controls. A cylindrical pressure tank sits on the top. Ductwork on the right exhausts hot air, and pipes connect to the chiller in ***figure 65.***

This indoor cooling tower was installed in 1962 and is still operating satisfactorily more than 50 years later. It has far exceeded the typical operating life for cooling towers.

Work Item 11004—Chiller, Water Cooled, Remove/Replace—Average 50 Ton

Definition: Remove and replace a water-cooled chiller, including its appurtenances (*figure 65*).

Typical Life Cycle: 20 years.

Unit of Measure: each (EA).

Considerations:

- Includes removing and replacing worn-out centrifugal-, screw-, or piston and cylinder-type chillers or water coolers, 50 to 100 ton capacity, including fittings and connections.
- Water-cooled chillers typically are used in conjunction with cooling towers (work item 11003).
- Units with 60 to 100 tons of cooling capacity are common at Forest Service labs.

Figure 65

Photo of the front of the rectangular control box, support frame, cooling tube, and compressor of a chiller that cools refrigerant for air conditioning. Numerous wires and pipes connect to the chiller.

This indoor chiller, installed in 1962, uses water from the cooling tower shown in *figure 64*. It has far exceeded the typical operating life for chillers. It is inefficient and replacement parts are becoming difficult to obtain. Both the chiller and cooling tower should be replaced in the near future.

Work Item 11005—Chiller, Air Cooled, Remove/Replace

Definition: Remove and replace an air-cooled chiller, including its appurtenances (*figure 66*).
Typical Life Cycle: 15 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing worn-out, air-cooled chillers, 50 to 100 ton capacity, including fittings and connections.
- Includes air-cooled chillers in any location (typically outside on a pad or on the roof).
- Units with 70 to 100 tons of cooling capacity are common at Forest Service labs.

Figure 66

Photo of two Forest Service employees inspecting the housing for four outdoor chillers. The housing is about 8′ wide by 6′ tall by 12′ deep. Grills constitute most of the left side of the enclosure, and four fan guards are on the top. Two large insulated pipes run from the left side of the enclosure through the supporting concrete slab.

These chillers still work, but they are inefficient and repair parts are becoming difficult to find. They should be replaced within a few years.

Work Item 11006—Replace Condenser, Air Cooled, 5 Ton

Definition: Remove and replace an air-cooled condenser (*figure 67*).
Typical Life Cycle: 15 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing a residential or light commercial air-cooled condenser up to 5 tons of cooling capacity, including fittings and connections.
- Includes replacing pipe because of new refrigerant requirements.
- Includes replacing a condenser to improve energy efficiency, to convert to ozone-saving refrigerants, because the refrigerant pipe insulation is damaged, because it has inadequate clearance, because it is not level, or because it has bent fins or guards.
- Does not include larger units up to about 60 tons that are common at Forest Service labs. Use a custom item for condensers with more than 5 tons of cooling capacity.

Figure 67

Photo of a condenser outside a building. mounted on a 1′ high metal stand. Liquid and electric lines run between the condenser and the building. A fuse box on the wall serves the electric lines that run from the building to the condenser. The three sides of the condenser that do not face the building are covered with grills.

This 3 ton condensing unit is only about 5 years old and is in pretty good condition. It should continue to work well for many more years.

Work Item 11007—Replace Furnace

Definition: Remove and replace a furnace (*figure 68*), heat pump (*figure 69*), wood heat stove, or pellet stove.

Typical Life Cycle: 15 years for heat pumps; 20 years for furnaces; 10 to 30 years or more for stoves.

Unit of Measure: each (EA).

Considerations:

- Includes electric, liquid propane, fuel oil, natural gas, wood, coal, or pellet furnaces; water-source or air-source heat pump blower coil units; or free-standing gas, wood, or pellet heat stoves about 20,000 to 150,000 Btu per hour. Includes venting and connection to fuel lines, ductwork, electric power, *etc.*
- Includes replacing heating systems to improve energy efficiency.
- Does not include heat pumps with underground or underwater exchange tubing, which are custom items.
- Does not include replacing carbon monoxide detectors. Use work item 13006 for carbon monoxide detectors.
- Does not include clearing heat pump condensate lines and terminations, increasing clearance from combustibles, repairing leaks in piping, or changing filters, all of which normally are operations or minor maintenance work.
- Does not include replacing masonry flues or chimneys, which are custom items.

Figure 68

Photo of the cast iron front of an old, rusty furnace. Doors for flue cleanout, access to the firebox, access to the vapor fan, and access to the ash pan are arrayed vertically, and a long cleaning lever is at the left.

This pre-1930 Sunbeam Fox 1044–BDA model is a ductless furnace. Although it's possible that it has been well maintained and is safe to operate, it's definitely not as efficient as modern furnaces. It should be replaced.

Figure 69

Photo of two roughly cube-shaped heat pumps mounted or, concrete pads outside a vinyl-sided Forest Service office with a stone-faced base. The concrete pads have settled and aren't level. The heat pumps have grills on the front and sides.

These air-source heat pumps would probably operate acceptably if they were sitting on level pads. The heat pumps are old and not very efficient, however, so they probably should be replaced.

Work Item 11008—Replace Package Terminal HVAC Unit

Definition: Remove and replace a package air-conditioning unit (*figures 70* and *71*).

Typical Life Cycle: 10 years.

Unit of Measure: each (EA).

Considerations:

- Includes removing and replacing worn-out or inoperative through-wall, gas-pack, hotel-type, rooftop, window, suspended-ceiling, or small ductless split-system air conditioners, including fittings and connections, controls, fan motors, compressors, condensers, and refrigerant.
- Includes replacing air conditioners (which vary a lot in efficiency) to reduce energy use.

Figure 70

Photo of a very rusty outside condenser. One of the two electrical conduits has separated from the condenser, exposing two wires.

This split-system air conditioner is severely corroded. If it hasn't already failed, it will soon. It should be replaced.

Figure 71

Photo of an air conditioner mounted nearly flush with the interior wall of an office, surrounded by wood trim.

This window-type air conditioner is permanently mounted in the wall. Check the manufacturer's literature. If this nonstandard installation is unsafe, the air conditioner should be replaced.

Work Item 11009—Unit Heater, Remove/Replace

Definition: Remove and replace an electric (*figures 72* and *73*) or gas unit heater.
Typical Life Cycle: 15 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing unsafe, damaged, or inefficient gas or electric unit heaters (single-room size) or gas-fired radiant or infrared tube heaters, including fittings and connections.
- Does not include replacing carbon monoxide monitors if the heaters are gas or oil fired. Use work item 13006 for carbon monoxide detectors.

Figure 72

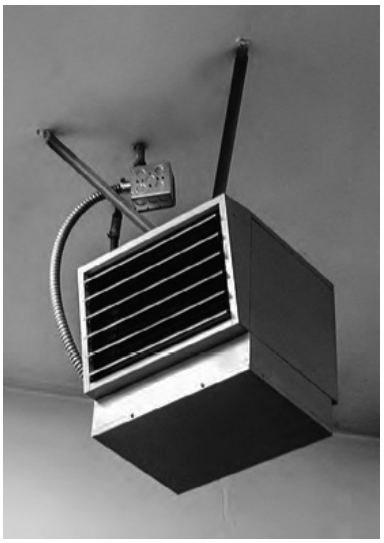


Photo of a boxy electric heater with a discharge face slightly tilted down from vertical, suspended from the ceiling by two angled metal rods. The wiring is inside flexible conduit.

This 5 kilowatt horizontal electric unit heater is suspended from the ceiling. The wiring installation is inelegant, but all the wiring is protected inside conduit.

Figure 73

Photo of an electric heater suspended about 1′ below the ceiling from a frame made from steel L-shaped, perforated bars. Air intakes are on the sides and discharge is downward.

Many heaters are designed to be mounted with a specific orientation and are hazardous if mounted improperly. This electric heater was designed to be installed vertically on a wall. It should be replaced with a heater designed to be suspended from a ceiling.

Work Item 12001—Compressor, Air, Remove/Replace

Definition: Remove and replace a permanently mounted air compressor (*figures 74* and *75*).

Typical Life Cycle: 25 years.

Unit of Measure: each (EA).

Considerations:

- Includes removing and replacing worn-out, damaged, or inoperable air compressors that are permanently mounted to a building.
- Does not include portable air compressors, which are personal property.
- Does not include monthly checks on compressors required by OSHA, which is operations work.

Figure 74

Photo of a floor-mounted permanently wired and piped air compressor inside a screened alcove.

This compressor in a laboratory building is typical of permanently mounted compressors that serve pressure air lines. It operates well and will probably continue to do so for many more years.

Figure 75

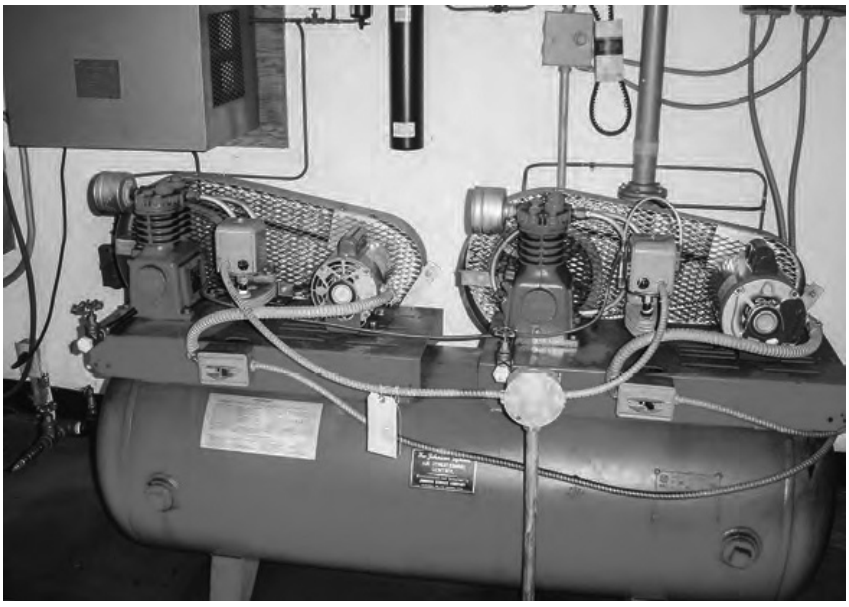


Photo of a large air-compressor tank with two motors on top that have separate switches. Several notes and tags with operating instructions are attached to the tank and wiring conduit.

This permanently mounted compressor is part of an HVAC system. Although it's not new, it has been well maintained and works well.

Work Item 12002—Elevator, Remove/Replace

Definition: Remove and replace an elevator that serves up to three stories (*figures 76* and *77*).

Typical Life Cycle: 50 years.

Unit of Measure: each (EA).

Considerations:

- Includes removing and replacing inoperative or unsafe elevators or lifts serving two or three stories, or installing a new elevator that is needed to provide accessibility.
- Does not include elevators for high-rise buildings or other long vertical distances. For instance, replacing the elevator that descends 216′ into Blanchard Springs Caverns on the Ozark National Forest would be a custom item.
- Does not include annual state inspections, repairing leaks in oil reservoirs and piping, or repairing faulty emergency phones, all of which are operations work.

Figure 76

Photo of an elevator door and frame with a bronze metallic finish. A single elevator call button is on the wall beside the frame. The numeral 2 is attached to the elevator door and another numeral 2 is attached to the doorframe.

This elevator was installed more than 30 years ago. Although the finish on the door and trim is a little worn, it has many years of service left if it is properly maintained.

Figure 77

Photo of part of a two-story lobby with a balcony guarded by an open metal mesh rail at the second floor. Elevator doors are on both the lobby and balcony levels.

This elevator was installed when the building was constructed in 2002. It serves two floors and is a typical size for a Forest Service elevator. It

has had a few operational problems that have been corrected promptly. It is serviced regularly and should continue to work well for a long time.

Work Item 12003—Laboratory Fume Hood/Exhaust Hood, Remove/Replace

Definition: Remove and replace an enclosed laboratory fume hood (*figure 78*).
Typical Life Cycle: 30 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing worn-out or inoperative laboratory-type fume hoods, fume hoods used for painting small items, and other similar enclosed or semi-enclosed countertop exhaust hoods.
- Includes replacement because of inoperative sashes, a compromised enclosure, or because the system is not energy efficient.
- Does not include HVAC exhaust equipment or other exhaust fans not associated with an exhaust hood. Bathroom fans; exhaust fans in shop buildings; residential kitchen hoods; and fans in attics, warehouses, and garages are replaced as maintenance work. These fans have a life expectancy of about 10 years.
- Does not include the annual inspection of fan face velocity and overall function required by OSHA, which is operations work.
- Does not include ductwork. Cleaning, repairing or replacing ducts, duct insulation, duct cement, and duct taping or sealing are usually operations work, but may be a custom item if the work is extensive.

Figure 78

Photo of a 6′ wide fume-hood cabinet with a glass door that is raised about halfway. The hood enclosure rests on a counter over a wood cabinet. The fan and bottom of the vent duct are on top of the hood cabinet.

This fume hood has operated satisfactorily since 1961. It doesn't have modern features, but still works because it is well maintained. The fan motor is probably inefficient, however. Replacing the fan is ordinary maintenance work.

Work Item 13001—Main Service Switchgear, <1,200 Amps, Remove/Replace

Definition: Remove and replace the main switchgear at an electric service entrance (*figures 79* and *80*).
Typical Life Cycle: 20 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing obsolete, corroded, undersized, or worn-out metering and service equipment up to 1,200 amps and 600 volts.
- Includes replacing switchgear for which fuses and breakers are no longer available.
- Does not include transformers.

Figure 79

Photo of an electric panel that is about 6′ wide by 7′ tall, mounted behind a pair of open doors in an alcove under a roof on the outside of a building. A meter is on the left half of the panel and a main disconnect and seven subpanel shutoffs are on the right half of the panel.

This typical 1,200 amp main service panel is in good condition and should continue to work well for many more years.

Figure 80

Photo of an electric panel that is about 4′ wide by 7′ tall, mounted inside a building in a corner on an outside wall. On the panel face are a main disconnect, five subpanel shutoffs, and two rows of nine circuit breakers.

If the rust on the surface of this 100 amp main service panel extends to the interior, it should be replaced.

Work Item 13002—Disconnects or Enclosed Circuit Breakers, Remove/Replace

Definition: Remove and replace an equipment disconnect or enclosed circuit breaker (*figures 81* and *82*).

Typical Life Cycle: 25 years.

Unit of Measure: each (EA).

Considerations:

- Includes replacing fused, unfused, or enclosed circuit breakers (example: a single circuit breaker in a cabinet) or shutoff switches that serve a single piece of equipment and are located within sight of the equipment that they serve.

Figure 81

Photo of two large, exposed shutoff switches and two emergency transfer switches in cabinets mounted on a wall. Smaller unlabeled shutoff switches and flip switches are mounted below each elevator switch.

Shutoff switches are sometimes grouped near the equipment they serve. These heavy-duty switches are for a pair of elevators. The switches are in excellent condition.

Figure 82

Photo of a small shutoff switch mounted on a wall below a panel box. The wire from the shutoff to the circuit-breaker box and to the compressor is in flexible conduit. The conduit from the shutoff to the compressor runs across a large round of wood with an anvil attached to it. The compressor hose is looped over a hose rack mounted on the wall behindthe conduit and anvil block.

The wiring from the disconnect switch to the compressor in this old shop should not be suspended across the anvil block. The disconnect switch should be replaced with a switch closer to the compressor, and the wiring from the panel to the switch should be encased in rigid conduit secured to the wall.

Work Item 13003—Electrical Panel, Remove/Replace

Definition: Remove and replace an electrical panel (*figures 83* and *84*).
Typical Life Cycle: 30 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing an electric load center, lighting, or equipment panel; single- or three-phase; up to 42 spaces and 400 amp rating.
- Includes replacement because of rust and corrosion, growth of the load being served, obsolescence, or possibly because of hot spots revealed by thermography.
- Does not include fitting knockouts with appropriate covers, labeling circuits, or the checking and retightening of electrical connections every few years by a licensed electrician, which are operations or minor maintenance work.

Figure 83

Photo of a 36-space panel box with the door open. Some of the circuit numbers are written beside the breakers in felt pen, some correct circuit numbers are on the breaker switches, some wrong circuit numbers are on the breaker switches, and some breakers are not numbered. Duct tape covers six circuit-breaker switches. Three pieces of the tape are labeled "off" and three are labeled "leave on." Duct tape also covers an empty slot. A note is taped to the inside of the door that says "Audio/Video Equipment. On in morning. Off in evening."

This old electrical panel is a bit rusty. Duct tape was used as an inappropriate substitute for a knockout cover and to indicate which circuits should remain on or off at all times. The circuitry appears to have been modified many times, which is a problem if the work was not performed according to code requirements. This panel should be replaced.

Figure 84

Photo of a 125 amp, 42 space panel box with the door open. All circuit breakers are properly numbered.

The electrical panel in this photo is a good example of a properly wired and well maintained panel, except that labels for a few of the circuits are missing from the list on the door.

Work Item 13004—Light Fixtures, Remove/Replace

Definition: Remove and replace a light fixture.
Typical Life Cycle: 20 years.
Unit of Measure: each (EA).
Considerations:

- Includes removing and replacing broken or unsafe light fixtures and replacing fixtures to increase energy efficiency.
- Includes fluorescent, incandescent, high-intensity discharge (HID), or light-emitting diode (LED) fixtures, both interior (*figure 85*) and exterior (*figure 86*).
- Does not include relamping, replacing yellowed or missing fixture lenses, or replacing wiring channel covers or impact guards, which are operations or minor maintenance work.

Figure 85

Photo of a suspended light fixture in an office. The fixture has two sections, each with two 4′ long fluorescent tubes and metal "egg crate" grills.

This typical, old fluorescent office light fixture uses T–12 tube lamps and a magnetic ballast. It is far less energy efficient than modern fixtures. Although T–12 tubes are still available, this fixture should be replaced in the near future.

Figure 86

Photo of an old storage shed with numerous buckets, a barrel, tires, and miscellaneous equipment stacked around it. The light fixture is on the gable end between the peak of the roof and a screened vent. A sign on the shed door reads: "Danger Flammable."

This exterior light fixture is simply a ceramic bulb socket mounted under a handmade steel hood. It is unsafe and should be replaced.

Work Item 13005—Emergency Light Fixture, Remove/Replace

Definition: Remove and replace an emergency light fixture (*figure 87*) or exit light (*figure 88*).

Typical Life Cycle: 20 years.

Unit of Measure: each (EA).

Considerations:

- Includes removing and replacing obsolete or inoperative emergency light fixtures and exit signs with fluorescent or LED fixtures or signs, or photoluminescent signs.
- Photoluminescent signs must be lit continually by an outside light source to work properly when the power goes out. Work includes adding such a light source.
- Includes replacing fixtures or signs to improve energy efficiency.

Figure 87

Photo of a commercial emergency light two small round floodlights mounted on top of a rectangular box that holds the transfer switches and battery. In the lower left corner of the box are a button to push to test operation on battery and an indicator light showing current power source.

Although this emergency light was only 10 years old, it failed yearly operational testing and was repaired three times before the facilities manager replaced it.

Figure 88

Photo of a photoluminescent "EXIT" sign illuminated by a small strip fight mounted above the sign.

The fluorescent exit signs with battery backup at this building continually failed yearly operating tests and required repair. Finally, the facilities manager purchased photoluminescent signs and lit them with inexpensive LED strip lights so that the signs would always be "charged" should the power go out.

Work Item 13006—Fire Alarm and/or Security System, Install

Definition: Remove and replace a fire alarm system (*figure 89*) or security system.

Typical Life Cycle: 20 years.

Unit of Measure: system (SYSTEM).

Considerations:

- Includes removing and replacing a complete inoperative or obsolete fire alarm or security system, including control panels, fire alarms, hard-wired smoke detectors, carbon monoxide detectors, *etc.*
- Includes installing a system when none exists. A change in occupancy classification may make adding a system necessary. For instance, converting a former office at a work center to crew quarters may necessitate installing fire alarms, smoke detectors, and carbon monoxide detectors.
- Does not include testing and replacing inoperable individual components of a system (*figure 90*), which are operations expenses and should be completed immediately.
- Combination fire alarm/intruder alarm systems are common in larger buildings.

Figure 89

Photo of an old fire alarm manual pull switch and horn mounted on a concrete block wall. The wiring for the horn and alarm pull extends down from the ceiling in metal surface-mounted wire raceway,

This old fire alarm system is obsolete. Even if it still works, it probably should be replaced.

Figure 90

Photo of a small portion of a bedroom showing a wall, two wood doors, and some wires dangling from a recessed box in the ceiling. The dangling wires are where the smoke detector was removed. One door goes to the hall and the other to the closet.

The hard-wired smoke alarm system in this building is fine, but a smoke detector is missing (circled) and should be replaced immediately using operations funding.

Work Item 13007—Lightning Protection System, Remove/Replace

Definition: Remove and replace a lightning protection system (*figures 91* and *92*).
Typical Life Cycle: 25 years.
Unit of Measure: system (SYSTEM).
Considerations:

- Includes removing and replacing a complete lightning protection system for a building or lookout/observation tower.
  - ➢ Refer to "Evaluating Lightning Protection on Lookouts and Communication Facilities" *http://www.fs.fed.us/t-d/php/library_card.php?p_num=0873 2333* for detailed information about inspecting lightning protection systems and requirements for proper systems.
  - ➢ Lightning protection systems are particularly important in rural and remote areas, and are mandatory for all lookout/observation towers.
- Includes design for the particular building or tower and installation under the direction of a licensed professional engineer or a master lightning protection installer certified by the National Fire Protection Association (NFPA), Underwriter Laboratories (or another listing agency), or the Lighting Protection Institute.
- Includes removing and replacing cables, excavating for a ground rod, installing a 5/8″ diameter, 10′ long ground rod and ground clamp or radials, installing lightning rods (air terminals), installing down conductors, installing bonding clamps, and backfilling over the ground rod.
- Does not include systems that protect large electronic equipment from lightning surges. These systems are a custom (and very expensive) item.
- Does not include the yearly preopening inspection of lightning protection systems for lookout towers, which is an operations cost.
- Does not include expert inspection every 5 years, per NFPA 780 B.5. Major work items identified during the expert inspection need to be added to the NRM Infra database. Minor work items should be accomplished using operations or maintenance funds.

Figure 91

Detail photo of a solid guardrail high above the ground. A small, single-wire antenna, a very short air terminal (vertical copper rod), and the lower portion of a galvanized pipe mast for a larger antenna are all mounted on it in close proximity on the rail. An assortment of insulated wires, a braided

steel cable, and a braided, patinated copper cable—all in various stages of deterioration—run horizontally along the rail and are attached to it in a few places.

This lightning protection system includes a clamp that doesn't grab all the strands, an air terminal that is far from being the tallest conductor on the roof, and many unbonded metal items. The system should be given a major overhaul or should be replaced.

Figure 92

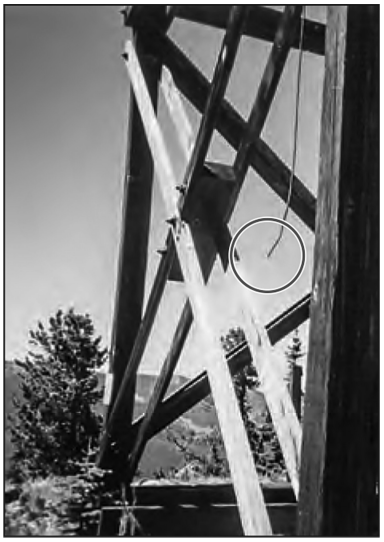


Photo of the base of a timber lookout tower. A braided copper cable dangles from the frame about 6′ above the ground.

This ground conductor isn't secured and the terminus (circled) doesn't even come close to the ground rod. If the rest of the system is as inadequate and poorly maintained, it should be replaced. If the rest of the system is okay, the ground conductor should be replaced immediately using maintenance funds.

Work Item 14001—Fire Sprinkler System, Remove/Replace

Definition: Remove and replace a wet-pipe or dry-pipe fire sprinkler system (*figure 93*).

Typical Life Cycle: 40 years.

Unit of Measure: square feet (SF).

- Calculate the square feet of floor space to be protected by the system.

Considerations:

- Includes removing and replacing inoperative fire sprinkler systems.

  ➢ Be sure to check the code requirements to determine whether the system is adequate. A variety of NFPA standards apply, including NFPA 13, 13D, 13R, 101, and 914.

- Includes installing a new system where required and where none currently exists, especially to comply with code when renovating an existing building.

  ➢ Consider installing fire sprinkler systems to protect sleeping quarters, historic structures, and structures with high-value or irreplaceable contents, even when not required by code.

- Does not include required regular testing on existing systems, which is operations work.

Figure 93

Detail photo of a fire sprinkler in a wood-paneled ceiling.
The system that includes this fire sprinkler is 10 years old and in good condition. Replacement should not be necessary for many years.

Work Item 15001—ABA Mitigation

Definition: Custom work item. Modify a building to provide accessibility to people with disabilities, as required by the Architectural Barriers Act Accessibility Standards.

Typical Life Cycle: none.

Unit of Measure: lump sum (LS).

Considerations:

- Includes any work that must be done to meet accessibility standards inside the building or to the porch, deck, entry steps, or other assemblies directly tied to the building.
  - ➢ Interior barriers often include halls or doors (*figure 94*) that are too narrow or toilet rooms that are too small or configured improperly.
  - ➢ Exterior barriers often include lack of a ramp or door thresholds (*figure 95*) that are too high.
- All work under this item is specific to each building; there is no standard unit cost.
- Enter all building accessibility improvements using this item so that the accessibility work can be tracked.
  - ➢ If any work is consistent with a standard work item, use the unit cost numbers from the standard work item, but calculate the total and enter it as a lump sum under this item. Note how the cost is generated (RS Means or borrowed from a standard work item) in the remarks section.
  - ➢ In some cases, it will be easiest to estimate the cost of completely replacing the affected portion of the building.

Figure 94

Detail photo of the legs, feet, and hands of a man standing in a bathroom doorway, using a tape to measure the width of the door. Part of the bathtub and toilet are visible behind the man. They are about as far apart as the door is wide.

This 26″ wide door opening cannot be widened enough to accommodate a 36″ wide door. The bathroom can't be made accessible. It must be enlarged and completely rebuilt if accessibility is required.

Figure 95

Detail photo of the bottom portion of a new doorframe and threshold for the front door of a log cabin.

This 36″ wide door is retrofitted with a beveled threshold to provide accessibility.

Work Item 16001—Lead Based Paint/Asbestos Mitigation

Definition: Custom work item. Remove or mitigate asbestos material (*figure 96*) or lead-based paint (*figure 97*) in or on a building.

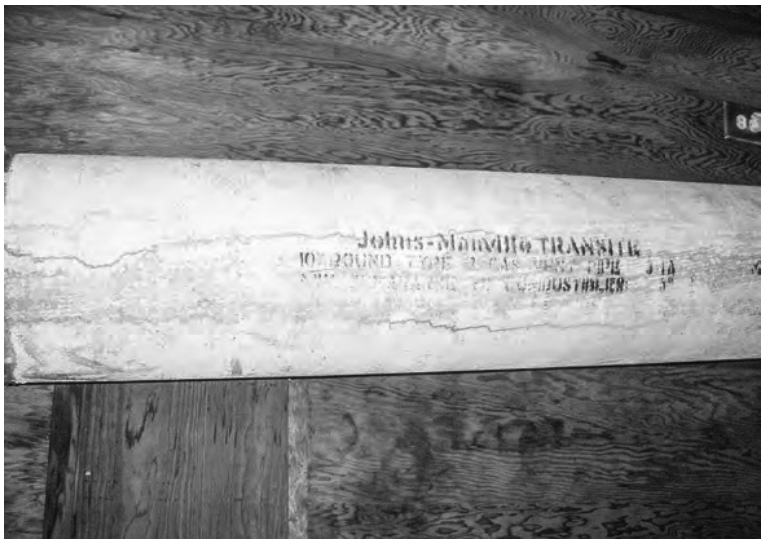
Typical Life Cycle: none.

Unit of Measure: lump sum (LS).

Considerations:

- Includes lead-based paint or asbestos removal or abatement work performed in accordance with National Emission Standards for Hazardous Air Pollutants (NESHAP), EPA, and OSHA requirements.
- All work under this item is specific to each building; there is no standard unit cost.
- Enter all lead-based paint and asbestos work using this item so that the work can be tracked.
  - ➢ Calculate separate totals for lead-based paint and for asbestos work for the building and enter each as a lump sum.
  - ➢ If work is consistent with a standard work item, use the unit cost numbers from the standard work item, but calculate the total and enter it as a lump sum under this item. Note how the cost is generated in the remarks section.
- See the Facilities Toolbox for more information about working with and removing asbestos at *http://www.fs.fed.us/eng/toolbox/haz/haz02.htm* and lead-based paint at *http://www.fs.fed.us/eng/toolbox/haz/haz03.htm*.

Figure 96



Detail photo of a section of pipe in good condition. The legible portion of the text printed on the pipe reads: "Johns-Manville TRANSITE 10" Round Type 2.*"*

This intact transite pipe manufactured before 1980 is a Category II asbestos-containing material. It does not have to be removed unless it is in poor condition or is coming apart.

Figure 97

Photo of three people in full protective suits with hoods and filtered-air-supply pumps strapped to their waists, standing on drop cloths and facing an old, wood-sided building. They are using tools to scrape loose paint off the building.

This crew is properly suited, certified, and equipped to remove lead-based paint from an old Forest Service building.

Work Item 16002—Environmental Mitigation

Definition: Custom work item. Remove or abate an environmental hazard in or on a building.
Typical Life Cycle: none.
Unit of Measure: lump sum (LS).
Considerations:

- Includes removing or abating hazardous substances other than lead-based paint and asbestos in buildings. See the Facilities Toolbox hazardous materials section at *http://www.fs.fed.us/eng/toolbox/haz/index.htm* for more information.
- Includes large mold infestations (*figure 98*).
- Does not include lead-based paint or asbestos—see work item 16001.
- All work under this item is specific to each building; there is no standard unit cost.

➢ Enter all environmental mitigation work using this work item so that the work can be tracked.

➢ If work is consistent with a standard work item, use the unit cost numbers from the standard work item, but calculate the total and enter it as a lump sum under this item. Note how the cost is generated in the remarks section.

Figure 98

Photo of the inside of a pump room. A large electric pump mounted on a cube-shaped concrete base is connected to a large-diameter pipe with various fittings, gauges, and valves that stretches across the width of the room. Most of the wall surfaces of the room are smudged with black or orange (mold) and there are several cracks on the wall surfaces. A thin layer of water covers about half of the concrete floor.

Removing this substantial mold infestation in a pump room requires a lot of work. The leak also must be fixed (a water/wastewater project), and continuous ventilation probably should be added to the room.

Custom Work Item—No Assigned Work Item Number

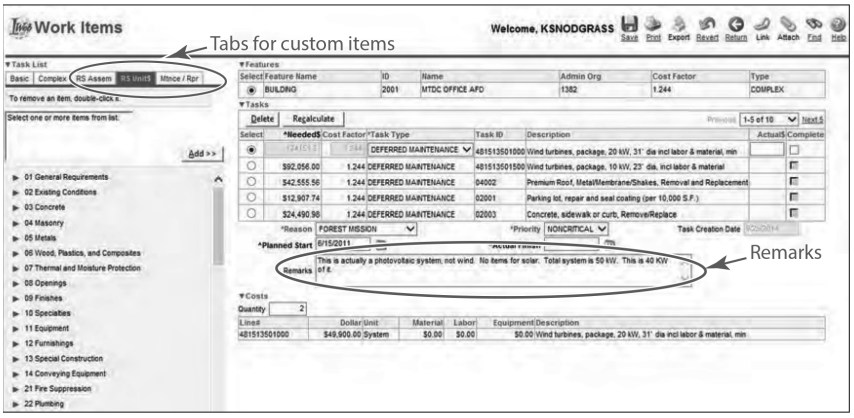
Definition: Custom work item.
Typical Life Cycle: Not applicable.
Unit of Measure: varies.
Considerations:

- Includes work that is not one of the standard items on the form, but is of significant value relative to the building value.

➢ Suggest recording items that are at least one percent of the total building value, or more than $10,000.

- Does not include small or routine items—these items are part of routine facilities operations and maintenance practices.
- Custom work item examples:
  - ➢ Chip sealing a driveway or parking lot.
  - ➢ Replacing a concrete porch or stoop.
  - ➢ Overlaying, repairing, or replacing large concrete or masonry slabs, walls, chimneys, or other structural elements.
  - ➢ Replacing a retardant tank or plumbing at an air tanker base.
  - ➢ Replacing a refrigeration unit for a tree seedling cooler.
  - ➢ Replacing structural components or guy cabling on a fire lookout tower.
  - ➢ Replacing large expanses of glazing or the support structure on a greenhouse.
  - ➢ Conducting extensive restoration work on a historic log structure.
  - ➢ Replacing a snow-damaged flue for a woodburning stove and installing a cricket to protect against future damage.
  - ➢ Replacing swinging or sliding historic garage or warehouse doors in kind.
  - ➢ Replacing large expanses of plaster, premium wood paneling, or other high-end wall surfaces in kind.
  - ➢ Replacing storefront windows (large expanses of metal-framed glass typically surrounding an entry door).
  - ➢ Replacing an oversize, freestanding commercial kitchen or laboratory sink.
  - ➢ Replacing a large, air-cooled condenser with more than a 5 ton capacity.
  - ➢ Replacing underground or underwater exchange tubing for a heat pump.
  - ➢ Exterminating termites or other insects and replacing extensively damaged structural members.
  - ➢ Performing extensive rodent disinfection and deterrence (structure modification).
- To record custom work items, use the "RS Assem," "RS Unit$" or "Mtnce/Rpr" tabs (*figure 99*). You may need to choose the item listed in RS Means that is closest to the work you need and note any differences in the "Remarks" section.
  - ➢ Custom work items not included in RS Means may be needed for specialized assets.

Figure 99



Screen shot of part of the NRM Infra Work Items screen for the Missoula Technology and Development Center office building. At the top of the left column, the "RS Assem," "Rs Units," and "M[t]nce/Rpr" tabs are circled. The "RS Units" tab is open. Below the tabs, the MasterSpec construction divisions are listed. To the right are the "Features," "Tasks," "Remarks," and "Costs" sections. The "Remarks" box is circled.

This screen shot shows the NRM Infra database Work Items tabs for custom items.

That's it. Congratulations! You have completed the facilities condition assessment for the building.

Library Card

Snodgrass, K.; Marks, K. 2014. *Facilities condition assessment field training guide.* 1473–2830–MTDC. Missoula, MT: U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center. 142 p.

This booklet is a training guide and a memory-jogger for Forest Service employees who are trained to do facilities condition assessments. The format enables inspectors to easily reference necessary information onsite and to easily conduct assessments in a manner that is consistent throughout the Forest Service. Each work item has its own page that includes photos, guidance on whether the item applies to the building being inspected, the normal useful life of the item, and how to measure and record the quantity of necessary work.

Keywords: assessment, basic, building, complex, condition, construction, database, deficiencies, energy, facility, facility engineers, facilities, Infra, inspect, inspections, Iweb, maintenance, measure, natural resources manager, NRM, operations, quantity, record, survey, work item[.]

Additional single copies of this document may be ordered from:

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Produced by the National Technology & Development Program Missoula, MT
1473–2830–MTDC

ATTACHMENT 2

FY 2020—Deferred Maintenance Protocols for Roads

Contents

Purpose of National Random Sample

The national random sample for roads is generated solely for:

1. External reporting of:
   a. Critical and non-critical deferred maintenance needs for passenger car roads in FS financial statement
   b. Deferred Maintenance backlog to Congress, and
   c. Condition class of transportation system (Performance Measures—not yet implemented)

The following guidelines are applicable only for collecting and reporting the agency's national deferred maintenance needs.

Thank you to **Catherine Taylor** and **Christina Foreman** of the **Volpe Center** for their work on our Deferred Maintenance Method in accordance with the OIG Audit recommendations and contributing information incorporated into

this document on the revised sample methodology goals and objectives and their *Tables 1–3*.

1. Requirements for Reporting Deferred Maintenance, Annual Maintenance, and Capital Improvement Needs for Roads

Deferred Maintenance

The agency has moved to a national random sample to report deferred maintenance for passenger car roads (operational maintenance level 3–5). See item 2 below. There are no requirements to report deferred maintenance needs at the Regional or Forest level.

Annual Maintenance

There are no national requirements to report annual maintenance needs. Collection of annual maintenance needs, costs, and accomplishments for the random sample is not required for agency reporting purposes.

Reporting annual maintenance accomplishments on all system roads, regardless of the random sample is required. The Road Maintenance Planning tool is now available in NRM to support annual maintenance planning, cost estimating, and accomplishment reporting. The tool can be useful in prioritizing annual maintenance needs within a given budget to produce annual maintenance plans. For more information on the Road Maintenance Planning tool, see the *Travel Routes Road User Board webpage* (*https://usdagcc.sharepoint.com/sites/fs-wo-eng/SitePages/RUB.aspx*)[.]

Capital Improvements

There are no requirements to report capital improvement needs at any level.

2. National Random Sample for Roads

Note: Conclusions and extrapolations determined from national random sample condition survey data for roads are ONLY VALID AT THE NATIONAL LEVEL.

Limitations of National Random Sample

1. Deferred maintenance needs determined from the national random sample are only valid for required reporting at the Forest Service national level.
2. Only deferred maintenance needs must be collected for the random sample. Collection of annual maintenance needs data for the national random sample is optional. Such data will not be used at the national level but may be useful at the forest level for planning purposes
3. All deferred maintenance summaries or extrapolations resulting from the data collected on the random sample are only valid in the context of nationally averaged unit costs.
4. The data gathered through this effort has been analyzed and determine to be statistically invalid for use below the national level reporting.

Business Process for Running the National Random Sample

There are four key considerations to address within the Random Sample process:

1. The total sample size (*i.e.,* the total number of ML3–ML5 road fragments to pull from the national database); and
2. All the fragments in the new subset database have an equal probability of being selected regardless of whether a segment is on the same road has already been selected, and
3. Roads sampled in prior years *are available for inclusion* in the current sample, and
4. The method for ensuring randomness.

Each of the four steps is summarized in the following sections.

Goals and Objectives

Because the goal is to estimate deferred maintenance cost per mile, the statistic of interest is a ratio. The sample size calculation for a ratio estimator is more intricate than the basic estimator because its calculation takes into account variations in both the deferred maintenance costs and segment lengths.

The original sampling method relied on the ROADCORE II database which contains road segments of varying lengths that are defined by natural breakpoints in the road such as county boundaries, bridges, change in surface types like gravel, pavement, *etc.* As the result the length of the segments in the database varied sig-

nificantly from 0.1 miles to 40 miles. This variation in the underlying population of the road segment length is a significant contributor to the large sample size of segments and also increased the total road mileage sampled since long segments would require the entire length to be analyzed for deferred maintenance needs.

To keep the sample size and effort reasonable, while addressing OIG concerns of calculating sample size based on ratio estimators, the Random Roads sample methodology originally created for 2018 and continued for use in 2020 creates fragment (previously based upon Road Core segments) sample sections from the ROADCORE II database (hereinafter referred to as fragments) of more uniform and shorter length.

All fragments included need to meet the following criteria:

```
from ii—Road—Core
where JURISDICTION like 'FS%'
and ROUTE—STATUS like 'EX%'
and SYSTEM like 'NFSR%'
and substr(OPER—MAINT—LEVEL,1,1) in ('3','4','5')
and ADMIN_ORG is not Null
```

The steps involved in this alternative method are:

1. Create a new subset within the database of road fragments with more uniform fragment lengths to be used as the sampling frame for selecting road fragments for analysis of deferred maintenance needs. The roads in the database are divided into 1 mile fragments from the beginning mile post (BMP). Since roads are rarely exact integers in length, the last fragment of a road may be less than a mile.
2. Based on the new fragmentation of the road database, the calculated appropriate sample size to yield a point estimate of deferred maintenance per mile that has a 90 percent confidence interval that is +/- 15% of the point estimate incorporates the concept that the statistic of interest is a ratio (as pointed out by OIG) and is based on data from 2013, 2014, and 2015.
3. The sample stratification plan results in a sample that is representative of the entire FS network.

Total Sample Size

The total target sample size for FY 2020 is **600 road fragments** (the same as for FY 2018). This value represents the estimated required sample size to obtain an estimate of mean deferred maintenance cost per mile with a precision of 15% at the 90% confidence level. Note that in FY 2018, the 600 fragment sample actually yielded a statistically calculated precision of +/- 12% at the 90% confidence level. The resulting data showed less variation than presumed in developing the FY 2018 sampling plan. If this FY 2020 effort similarly results in precision tighter than +/- 15% using a sample size of 600, it may be possible to reduce the sample size in future years.

Table 1 presents the counts and percentages of fragments in the new roads database based on a snapshot of the roads database created for the FY 2018 sample draw. For the purposes of the FY 2020 effort, it is assumed that the underlying characteristics of the roads database has not changed substantially since the FY18 effort. In that database snap shot, 66% of the fragments have uniform lengths of 1 mile while the remaining 34% of the road fragment population has lengths that vary (between 0 and less than 1 mile). This also translates into 85% of the miles from 1 mile fragments and 15% from incomplete fragments (54,913 miles and 10,015 miles).

Table 1. Counts and Percentages of Fragment Types from the new Road Database Subset from the FY 2018 Snapshot

Fragment Type	Count	% Count from Total	Miles	% Miles from Total
Complete One Mile Fragments	54,913	66%	54,913	85%
Incomplete Fragments	27,838	34%	10,015	15%
Total	**82,751**	**100%**	**64,928**	**100%**

For the purposes of this analysis we assume a required sample size that is weighted average of the sample size needed for a ratio statistic that has a uniform denominator of 1 (that is, a statistic that is not actually a ratio) and the sample

size needed for ratio statistic that has a denominator that is variable (that is, a statistic that actually is a ratio).

Previously, the characteristics of deferred maintenance per mile data from 2013, 2014, and 2015 yielded a sample size of 327 road segments (non-ratio statistic). Calculations based on the OIG Audit concerns yielded a required sample size of 1,121 segments (ratio statistic). Taking the weighted average of two yields a sample size of approximately 600 fragments based on ($0.67 \times 327 + 0.33 \times 1{,}121 = 589$).

Region-Level Sample Size

As with the FY 2018 sample, the total FY 2020 sample is stratified by region, proportionally with respect to each region's share of newly created road fragments. The target sample sizes by region are presented in *Table 1,* by number of complete 1 mile fragments, the number of incomplete fragments and the total fragments in the sample:

Table 2 Presents the Resulting Percentages of the New Database by Region Based on FY 2018 Snapshot

Region	Complete Fragments (length = 1 mile)	% of Complete Fragments from Total Complete Fragments	% of Complete Fragments from Overall Total	Incomplete Fragments (length <1 mile)	% of Incomplete Fragments from Total Incomplete Fragments	% of Incomplete Fragments from Overall Total
1	11,186	20.45%	14%	4,267	15.24%	5%
2	5,218	9.54%	6%	2,928	10.46%	4%
3	3,988	7.29%	5%	1,650	5.89%	2%
4	5,051	9.23%	6%	3,239	11.57%	4%
5	6,910	12.63%	8%	3,907	13.96%	5%
6	8,472	15.49%	10%	2,723	9.73%	3%
8	7,809	14.28%	9%	5,089	18.18%	6%
9	5,523	10.10%	7%	3,921	14.01%	5%
10	544	0.99%	1%	269	0.96%	0%
Total	**54,701**	**100%**	**66%**	**27,993**	**100.00%**	**34%**

Table 3 summarizes the proposed stratification plan based on effective sample size. For example, 118 fragments should be drawn from Region 1, and 104 should be drawn from the collection of fragments that are 1 mile in length, and 14 drawn from fragments that are less than 1 mile in length.

Table 3: Region-Level Sample Sizes Based on FY 2018 Snapshot, for Use in FY 2020 Effort

Region	Complete Fragments (length = 1 mile)	Incomplete Fragments (length <1 mile)	Total Fragments
1	104	14	118
2	49	9	58
3	37	5	42
4	47	10	57
5	64	13	77
6	79	9	88
8	73	16	89
9	52	13	64
10	5	1	6
Total	**510**	**90**	**600**

Regional distribution of the total sample does not match the regional distribution of the total ML3–ML5 system mileage.

Randomness

Following are the requirements for ensuring the sample is purely random. **Note that the resulting random sample for FY 2020 is expected to be substantially different than the random sample selected for FY 2018. Therefore, the analyst responsible for drawing the FY 2020 sample should compare it to the random sample drawn for FY 2018 and confirm that few, if any, segments that were drawn in FY 2018 are also drawn for FY 2020.**

1. Each road fragment has an equal probability of being selected within a region and road (It is possible to have multiple fragments in one road.)
2. The target region-level sample sizes in *Table 3* are achieved.
3. An entire road fragment is selected unless the ML changes or the route ends.

FY 2018 Random Sample

The National Random Sample of 600 fragments, generated with the above criteria is available from within NRM by running the roads report RD—DM01L. These roads must receive a deferred maintenance condition survey in FY 2020. The data collected from the condition surveys will be used to determine the Forest Service's agency-wide road deferred maintenance needs for ML 3–5 roads. The accuracy of the data contained in the sixteen required fields listed in the Travel Planning Handbook (FSH 7709.55, Zero Code) must be validated, and corrections made when errors are discovered.

Users will be able to query live NRM data by security ID to monitor condition survey accomplishments and check data entry. A Random Sample List and Accomplishment Report are available for managers on the Corporate Data Warehouse (CDW), under Deferred Maintenance/Roads, using a snapshot of data that will be refreshed regularly.

3. Business Rules for Field Surveys

1. Only Deferred Maintenance needs are required to be collected for the random sample. Collection of Annual Maintenance needs is optional.
2. Deferred maintenance needs should be collected by Priority (Critical/Non-Critical) and Reason (Health & Safety/Resource Protection/Forest Mission), according to Deferred Maintenance Protocols already established.
3. All condition surveys should be based on operational maintenance level needs. This change occurred in FY 2007, and was done to place condition surveys in the context of annual maintenance planning.
4. All deferred maintenance needs will be computed using the National Unit Costs accessed through the Task Tab in NRM or ERL.
5. If ERL is not used to conduct the condition survey, a Condition Survey record must be entered in the Record of Events.
6. Field surveys for random sample roads shall validate all existing deferred maintenance work items and/or create new deferred maintenance work items that reflect current conditions. If a previous year's work item is no longer valid, it should be deleted.
7. Field surveys shall validate and reconcile the data contained in the sixteen required fields listed in the Travel Planning Handbook (FSH 7709.55, Zero Code). Make corrections in the database when errors are found.
8. Deferred Maintenance data for the random sample will be loaded into NRM, and quality checked, by the date specified in the Year-End Schedule.
9. The Regional Engineer shall assure the quality and completeness of the data collected for the Random Sample at the end of each fiscal year. The Forest Staff Officer for Engineering is responsible for the estimate of Deferred Maintenance needs and will select individuals to complete condition surveys based on knowledge, education, and experience.
10. At a minimum, survey and enter work items for the road fragment that is included in the random sample list. Surveying and entering work items for any other portion of the road is optional. Data on fragments not in the random sample will not be used at the national level but may be useful at the forest level for planning purposes.

4. Year-End Schedule and Summarization Processes

Schedule

October 31, 2019–September 29, 2020: Forests and regions enter deferred maintenance needs and validate data for the random sample in NRM. Forests and regions use NRM accomplishment and summarization reports to check NRM data and make appropriate edits before agency summaries are generated.

September 30: NRM is closed to editing.

The following dates are approximate:

October 2–6: Data Summarization Process is executed by NRM Programmers. WO Roads Program Manager validates and approves data. (See Summarization descrip-

tion below.) Once approved, NRM programmers will finalize agency summaries and formats for formal submittal.

October 6: NRM is open for editing. Records cannot be deleted until replication with CPAIS resumes. This can take up to 6 weeks.

Summarization Process

The data summarization process occurs after Forests and Regions have validated their data in NRM and involves calculating total deferred maintenance needs by Priority (Critical/Non-Critical) and Reason (Health & Safety/Resource Protection/Forest Mission) for the Random Sample. The WO Road Program Manager will use the random sample subtotals, prior year needs reports, and other information to validate the data for the Random Sample. Once validated, the random sample data will be used to determine a national average unit cost per mile extrapolated over the total Operational Maintenance Level 3–5 system to determine the agency's deferred maintenance needs by priority and reason.

5. Required Data Fields from FSH 7709.55, Zero Code

1. Route number.
2. Beginning mile post.
3. Ending mile post.
4. System.
5. Jurisdiction.
6. Development status.
7. State.
8. County.
9. Congressional district.
10. Administrative Unit (region, forest, and ranger district).
11. Functional class.
12. Number of lanes.
13. Surface type.
14. Primary maintainer.
15. Operational maintenance level.
16. Objective maintenance level.

6. Frequently Asked Questions:

Field Surveys

Q1. What do I do if the selected road does not physically exist?

- Do not survey a replacement road.
- Document road numbers and explain why they exist in the inventory.
- Forward documentation to the RO User Board Representative.
- Correct data in NRM. For example, update the route status for decommissioned roads.

Q2. What do I do if the selected road does not have any fragments with FS jurisdiction?

- Do not survey a replacement road.
- Document road numbers and explain why Jurisdiction is incorrect in the inventory.
- Forward documentation to the RO User Board Representative.
- Correct data in NRM. For example, update the road fragments with incorrect Jurisdiction values equal to FS.

Q3. What do I do if the road selected is not a ML 3–5?

The random sample business process and NRM scripts are designed to only select ML 3–5 roads. However, there may be situations where data discrepancies or data edits that occurred after the random sample was generated resulted on ML 1–2 roads being selected for the random sample. In such cases:

- Do not survey a replacement road.
- Document road numbers and explain the maintenance level is incorrect in the inventory.
- Forward documentation to the RO User Board Representative.

- Correct data in NRM. For example, update the operational maintenance level.

Q4. How are these condition surveys related to Real Property Roads Inventory?

The purpose of the condition surveys is to allow the Forest Service to estimate its Deferred Maintenance needs on its passenger car road system. As part of those surveys, units are required to validate the 16 required data fields, and update as needed. The Real Property Roads Inventory is done to verify the existence of all roads in our inventory, and to verify some of the data elements. These two efforts are not related.

Q5. What do I do if the selected road has been changed from ML3 to ML2?

- Do not survey a replacement road.
- Document road numbers and explain why they exist in the inventory.
- Forward documentation to the RO User Board Representative.
- Correct data in NRM.

Data

Q1. What date fields are populated in NRM from ERL?

A "Record of Event" entry is made for a Condition Survey type Inspection with the date (Inspection Date) and survey party (to Remarks) from ERL.

For existing tasks:

- The YEAR field is left unchanged
- the DAY_ID field is updated with the date of the current field survey
- The CREATED_DATE is left unchanged
- The MODIFIED_DATE is updated with the date of the upload.

For new tasks:

- The YEAR field is populated with the current FY
- The DAY_ID field is populated with the date of the current field survey
- The CREATED_DATE is populated with the date of the upload
- The MODIFIED_DATE is populated with the date of the upload.

An "Event" entry is made in NRM. An Inspection Event Subtype = CS—Condition Survey is made with the date of the condition survey recorded in ERL.

Q2. Where is the Deferred Maintenance data collected prior to FY 2006?

- Prior to FY06, all tasks (AM, DM, CI) regardless of completion were archived. Beginning in FY06 and forward, only completed tasks were archived. This change occurred due to file size concerns, and accomplishment reporting requirements.
- In addition, a snapshot of all tasks that existed at the end of FY05 is included with the completed tasks on the Archived Tasks screen.
- To date, the Archived Tasks screen (filtered view of the ii tasks table) contains a mix of completed tasks (AM, DM, CI) when the YEAR is >= 2006, and all tasks (completed and uncompleted) when the YEAR equals 2005.
- To access road tasks older than 2005, utilize the Archived Tasks for Roads (II_TASKS_ARCHIVR_ROAD_V) user view or submit a helpdesk ticket. These tasks are stored in a separate table in the database.
- For condition surveys performed using ERL, the Survey Date (DAY_ID) field will retain the original survey date, until the work item is revisited on a subsequent condition survey; at which time it will be overwritten with the latest survey date. The work item date history, which records when the work item was originally identified on a condition survey, is no longer available. This eliminates the ability to determine how long some of the maintenance needs have been languishing.

NRM's business rules for how date fields are handled has changed several times. This has resulted in inconsistencies in date related data for work tasks. It is difficult to establish any pattern for how these dates have been handled since condition survey data was collected in 1999. It is nearly impossible, without a major undertaking, to utilize archived data older than FY 2006 for any kind of accomplishment reporting or trend analysis.

ATTACHMENT 3

USDA Forest Service FY 2018 Deferred Maintenance

By Asset Type

Buildings	$1,236,746,593
Dams	$79,560,275
Drinking Water Systems	$93,021,549
Heritage	$17,503,549
Minor Construction Features	$85,809,375
Road Bridges	$260,505,527
Roads	$3,152,783,200
Trail Bridges	$7,846,506
Trails	$278,012,495
Wastewater Systems	$30,803,655
Grand Total	**$5,242,592,725**

By Region and National Forest

Region 1	**$880,610,366**
Beaverhead-Deerlodge National Forest	$100,438,396
Bitterroot National Forest	$47,513,708
Custer Gallatin National Forest	$62,471,940
Dakota Prairie Grasslands	$31,943,232
Flathead National Forest	$71,878,120
Helena-Lewis and Clark National Forest	$65,673,050
Idaho Panhandle National Forests	$140,540,397
Kootenai National Forest	$108,312,397
Lolo National Forest	$102,044,311
Montana Aerial Fire Depot	$2,372,916
Nez Perce-Clearwater National Forest	$144,904,488
Region 1 Unassigned Unit	$2,517,411
Region 2	**$477,091,648**
Arapaho-Roosevelt National Forest	$39,292,966
Bighorn National Forest	$22,805,899
Black Hills National Forest	$45,180,445
Grand Mesa Uncomp* Gunnison National Forest	$65,629,294
Medicine Bow-Routt National Forest	$81,322,769
Nebraska National Forest	$8,275,636
Pike-San Isabel National Forest	$55,039,152
Rio Grande National Forest	$39,927,539
San Juan National Forest	$48,087,303
Shoshone National Forest	$17,688,978
White River National Forest	$53,841,668
Region 3	**$320,262,246**
Apache-Sitgreaves National Forest	$44,882,535
Carson National Forest	$24,751,450
Cibola National Forest	$22,058,719
Coconino National Forest	$46,245,731
Coronado National Forest	$26,904,461
Gila National Forest	$33,943,741
Kaibab National Forest	$31,023,736
Lincoln National Forest	$18,881,588
Prescott National Forest	$5,136,259
Region 3 Unit Unassigned	$14,522

By Region and National Forest—Continued

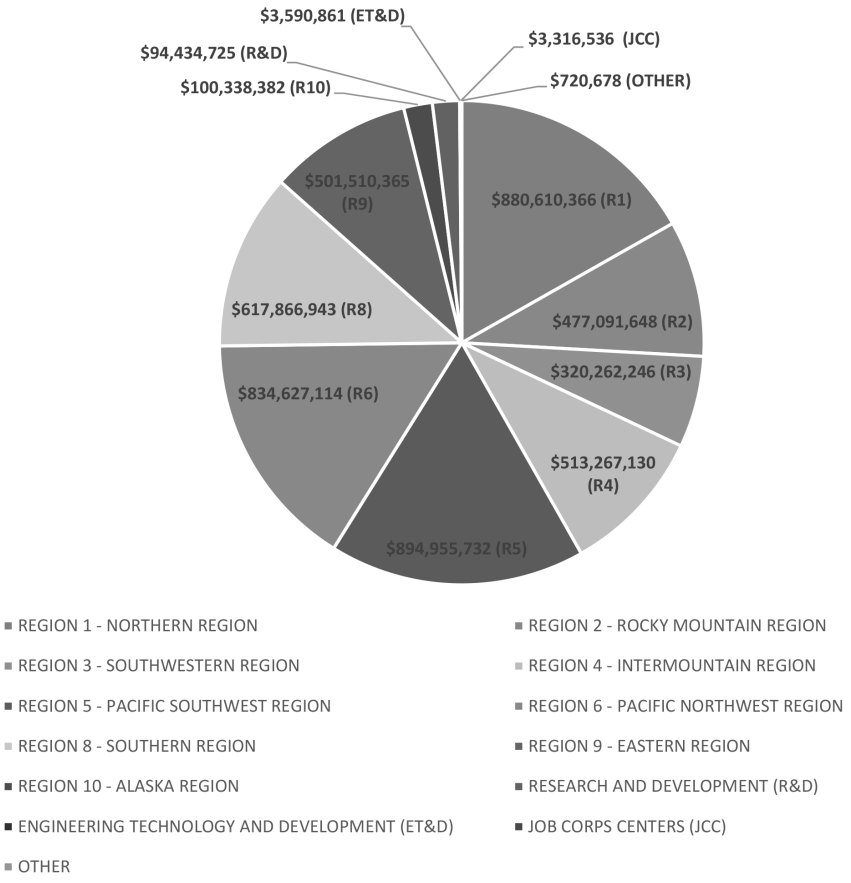
Santa Fe National Forest	$32,271,870
Tonto National Forest	$34,147,634
Region 4	**$513,267,130**
Ashley National Forest	$43,683,425
Boise National Forest	$38,579,411
Bridger-Teton National Forest	$42,720,609
Caribou-Targhee National Forest	$51,928,130
Dixie National Forest	$37,864,379
Fishlake National Forest	$17,193,962
Humboldt-Toiyabe National Forest	$53,186,162
Manti-Lasal National Forest	$18,224,469
Payette National Forest	$43,330,143
Region 4 Unit Unassigned	$510,692
Salmon-Challis National Forest	$70,800,531
Sawtooth National Forest	$34,043,137
Uinta-Wasatch-Cache National Forest	$61,202,080
Region 5	**$894,955,732**
Angeles National Forest	$33,478,687
Cleveland National Forest	$37,143,160
Eldorado National Forest	$71,088,508
Inyo National Forest	$18,387,546
Klamath National Forest	$89,670,357
Lake Tahoe Basin Mgt. Unit	$30,419,417
Lassen National Forest	$42,936,187
Los Padres National Forest	$45,861,623
Mendocino National Forest	$43,412,592
Modoc National Forest	$31,128,839
Plumas National Forest	$50,300,037
Region 5 Unassigned Unit	$527,675
San Bernardino National Forest	$22,804,344
Sequoia National Forest	$46,102,641
Shasta Trinity National Forest	$89,096,956
Sierra National Forest	$95,826,714
Six Rivers National Forest	$59,417,958
Stanislaus National Forest	$34,321,666
Tahoe National Forest	$53,030,825
Region 6	**$834,627,114**
Columbia River Gorge National Scenic Area	$2,888,754
Colville National Forest	$26,799,109
Deschutes National Forest	$49,858,085
Fremont-Winema National Forests	$68,485,067
Gifford Pinchot National Forest	$98,244,205
Malheur National Forest	$28,577,945
Mt. Baker-Snoqualmie National Forest	$66,389,938
Mt. Hood National Forest	$58,798,653
Ochoco National Forest	$24,077,730
Okanogan-Wenatchee National Forests	$108,439,944
Olympic National Forest	$29,816,032
Rogue River-Siskiyou National Forest	$77,923,069
Siuslaw National Forest	$21,575,353
Umatilla National Forest	$37,248,092
Umpqua National Forest	$40,507,099
Wallowa Whitman National Forest	$44,611,060
Willamette National Forest	$50,386,980
Region 8	**$617,866,943**
Chattahoochee-Oconee National Forest	$37,394,009
Cherokee National Forest	$28,185,380
Daniel Boone National Forest	$28,601,485
El Yunque National Forest	$3,578,753

By Region and National Forest—Continued

Francis Marion-Sumter National Forests	$51,765,646
George Washington and Jefferson National Forests	$54,677,814
Kisatchie National Forest	$49,819,841
Land Between the Lakes NRA	$26,163,626
National Forests in Alabama	$32,819,764
National Forests in Florida	$70,172,784
National Forests in Mississippi	$45,479,915
National Forests in North Carolina	$61,401,598
National Forests in Texas	$46,546,327
Ouachita National Forest	$64,184,569
Ozark-St. Francis National Forest	$17,075,432
Region 9	**$501,510,365**
Allegheny National Forest	$38,960,612
Chequamegon-Nicolet National Forest	$122,636,004
Chippewa National Forest	$34,694,078
Green Mountain and Finger Lakes National Forests	$7,180,071
Hiawatha National Forest	$34,043,140
Hoosier National Forest	$4,501,551
Huron Manistee National Forest	$34,167,611
Mark Twain National Forest	$38,385,203
Midewin National Tallgrass Prairie	$16,829,521
Monongahela National Forest	$43,282,272
Ottawa National Forest	$31,491,082
Shawnee National Forest	$15,409,686
Superior National Forest	$41,041,386
Wayne National Forest	$4,535,554
White Mountain National Forest	$34,352,593
Region 10	**$100,338,382**
Chugach National Forest	$11,114,034
Tongass National Forest	$89,224,348
Engineering	**$3,590,861**
Missoula Technology and Development Center	$74,439
San Dimas Technology and Development Center	$3,516,422
Job Corps	**$3,316,536**
Angell Job Corp Center	$412,615
Blackwell Job Corp Center	$108,355
Cass Job Corp Center	$45,726
Curlew Job Corp Center	$260,739
Frenchburg Job Corp Center	$85,043
Jacobs Creek Job Corp Center	$230,663
Ouachita Job Corp Center	$29,171
Pine Knot Job Corp Center	$726,180
Timber Lake Job Corp Center	$701,188
Trapper Creek Job Corp Center	$65,718
Wolf Creek Job Corp Center	$651,139
Other	**$720,678**
Grey Towers National Historic Site	$720,678
Research	**$94,434,725**
Forest Products Laboratory	$4,856,527
International Institute of Tropical Forestry	$2,342,201
Northern Research Station	$19,237,722
Pacific Northwest Research Station	$30,709,039
Rocky Mountain Research Station	$22,267,162
Southern Research Station	$14,667,630
Wood Education and Resource Center	$354,445
Grand Total	**$5,242,592,725**

*__Editor's note:__ the table, as submitted, when referring to the Grand Mesa, Uncompahgre & Gunnison National Forest shortened "Uncompahgre &" to "Uncomp".

By Region



By Region, National Forest, and Asset Type

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
Region 1—Northern	**Northern Region Totals**	**ID, MT, ND, SD**		**$880,610,366**
	Region 1 Unassigned Unit	MT	Buildings	$2,517,411
	Beaverhead-Deerlodge National Forest	MT	Buildings	$4,787,917
	Beaverhead-Deerlodge National Forest	MT	Dams	$9,200
	Beaverhead-Deerlodge National Forest	MT	Drinking Water Systems	$119,708
	Beaverhead-Deerlodge National Forest	MT	Heritage	$11,000
	Beaverhead-Deerlodge National Forest	MT	Minor Constructed Features	$1,079,118
	Beaverhead-Deerlodge National Forest	MT	Road Bridges	$5,094,455
	Beaverhead-Deerlodge National Forest	MT	Roads	$83,278,740
	Beaverhead-Deerlodge National Forest	MT	Trail Bridges	$72,867
	Beaverhead-Deerlodge National Forest	MT	Trails	$5,680,950
	Beaverhead-Deerlodge National Forest	MT	Wastewater Systems	$304,440
	Bitterroot National Forest	ID, MT	Buildings	$1,695,407
	Bitterroot National Forest	ID, MT	Dams	$8,500
	Bitterroot National Forest	ID, MT	Drinking Water Systems	$398,355
	Bitterroot National Forest	ID, MT	Heritage	$0
	Bitterroot National Forest	ID, MT	Minor Constructed Features	$257,785
	Bitterroot National Forest	ID, MT	Road Bridges	$1,671,285
	Bitterroot National Forest	ID, MT	Roads	$40,344,476
	Bitterroot National Forest	ID, MT	Trail Bridges	$31,330
	Bitterroot National Forest	ID, MT	Trails	$3,037,699
	Bitterroot National Forest	ID, MT	Wastewater Systems	$68,870
	Idaho Panhandle National Forests	ID	Buildings	$25,059,093
	Idaho Panhandle National Forests	ID	Drinking Water Systems	$548,530
	Idaho Panhandle National Forests	ID	Heritage	$41,218

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Idaho Panhandle National Forests	ID	Minor Constructed Features	$408,283
	Idaho Panhandle National Forests	ID	Road Bridges	$6,509,244
	Idaho Panhandle National Forests	ID	Roads	$100,686,192
	Idaho Panhandle National Forests	ID	Trail Bridges	$59,550
	Idaho Panhandle National Forests	ID	Trails	$7,110,788
	Idaho Panhandle National Forests	ID	Wastewater Systems	$117,499
	Flathead National Forest	MT	Buildings	$17,006,459
	Flathead National Forest	MT	Dams	$3,000
	Flathead National Forest	MT	Drinking Water Systems	$545,508
	Flathead National Forest	MT	Heritage	$0
	Flathead National Forest	MT	Minor Constructed Features	$299,248
	Flathead National Forest	MT	Road Bridges	$3,517,659
	Flathead National Forest	MT	Roads	$46,374,147
	Flathead National Forest	MT	Trail Bridges	$118,330
	Flathead National Forest	MT	Trails	$3,920,538
	Flathead National Forest	MT	Wastewater Systems	$93,230
	Custer Gallatin National Forest	MT	Buildings	$20,867,935
	Custer Gallatin National Forest	MT	Dams	$132,339
	Custer Gallatin National Forest	MT	Drinking Water Systems	$1,500,418
	Custer Gallatin National Forest	MT	Heritage	$18,000
	Custer Gallatin National Forest	MT	Minor Constructed Features	$459,312
	Custer Gallatin National Forest	MT	Road Bridges	$2,405,159
	Custer Gallatin National Forest	MT	Roads	$30,358,991
	Custer Gallatin National Forest	MT	Trail Bridges	$242,460
	Custer Gallatin National Forest	MT	Trails	$6,071,562
	Custer Gallatin National Forest	MT	Wastewater Systems	$415,764
	Kootenai National Forest	MT	Buildings	$15,911,640
	Kootenai National Forest	MT	Drinking Water Systems	$134,628
	Kootenai National Forest	MT	Heritage	$25,500
	Kootenai National Forest	MT	Minor Constructed Features	$710,621
	Kootenai National Forest	MT	Road Bridges	$6,515,186
	Kootenai National Forest	MT	Roads	$81,677,918
	Kootenai National Forest	MT	Trail Bridges	$28,650
	Kootenai National Forest	MT	Trails	$3,153,765
	Kootenai National Forest	MT	Wastewater Systems	$154,489
	Helena-Lewis and Clark National Forest	MT	Buildings	$8,139,467
	Helena-Lewis and Clark National Forest	MT	Dams	$99,385
	Helena-Lewis and Clark National Forest	MT	Drinking Water Systems	$263,994
	Helena-Lewis and Clark National Forest	MT	Heritage	$8,000
	Helena-Lewis and Clark National Forest	MT	Minor Constructed Features	$955,740
	Helena-Lewis and Clark National Forest	MT	Road Bridges	$4,907,608
	Helena-Lewis and Clark National Forest	MT	Roads	$45,095,462
	Helena-Lewis and Clark National Forest	MT	Trail Bridges	$69,444
	Helena-Lewis and Clark National Forest	MT	Trails	$6,112,010
	Helena-Lewis and Clark National Forest	MT	Wastewater Systems	$21,940
	Lolo National Forest	MT	Buildings	$17,350,923
	Lolo National Forest	MT	Dams	$1,420
	Lolo National Forest	MT	Drinking Water Systems	$618,148
	Lolo National Forest	MT	Heritage	$0
	Lolo National Forest	MT	Minor Constructed Features	$303,601
	Lolo National Forest	MT	Road Bridges	$5,867,533
	Lolo National Forest	MT	Roads	$73,552,902
	Lolo National Forest	MT	Trail Bridges	$28,065
	Lolo National Forest	MT	Trails	$4,134,945
	Lolo National Forest	MT	Wastewater Systems	$186,773
	Nez Perce-Clearwater National Forest	ID	Buildings	$34,716,465
	Nez Perce-Clearwater National Forest	ID	Dams	$368,382
	Nez Perce-Clearwater National Forest	ID	Drinking Water Systems	$1,297,082
	Nez Perce-Clearwater National Forest	ID	Heritage	$45,000
	Nez Perce-Clearwater National Forest	ID	Minor Constructed Features	$255,536
	Nez Perce-Clearwater National Forest	ID	Road Bridges	$7,166,532
	Nez Perce-Clearwater National Forest	ID	Roads	$91,446,468
	Nez Perce-Clearwater National Forest	ID	Trail Bridges	$97,810
	Nez Perce-Clearwater National Forest	ID	Trails	$8,884,326
	Nez Perce-Clearwater National Forest	ID	Wastewater Systems	$626,887
	Dakota Prairie Grasslands	ND, SD	Buildings	$110,705
	Dakota Prairie Grasslands	ND, SD	Dams	$1,006,459
	Dakota Prairie Grasslands	ND, SD	Drinking Water Systems	$800
	Dakota Prairie Grasslands	ND, SD	Heritage	$0
	Dakota Prairie Grasslands	ND, SD	Minor Constructed Features	$29,558
	Dakota Prairie Grasslands	ND, SD	Road Bridges	$3,921
	Dakota Prairie Grasslands	ND, SD	Roads	$30,357,287
	Dakota Prairie Grasslands	ND, SD	Trail Bridges	$0
	Dakota Prairie Grasslands	ND, SD	Trails	$428,503
	Dakota Prairie Grasslands	ND, SD	Wastewater Systems	$6,000
	Montana Aerial Fire Depot	MT	Buildings	$2,372,916
Region 2—Rocky Mountain	**Rocky Mountain Region Totals**	**CO, KS, NE, SD, WY**		**$477,091,648**
	Bighorn National Forest	WY	Buildings	$5,688,418
	Bighorn National Forest	WY	Dams	$275,477
	Bighorn National Forest	WY	Drinking Water Systems	$85,439
	Bighorn National Forest	WY	Heritage	$49,000
	Bighorn National Forest	WY	Minor Constructed Features	$1,451,896
	Bighorn National Forest	WY	Road Bridges	$589,967

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Bighorn National Forest	WY	Roads	$12,681,616
	Bighorn National Forest	WY	Trail Bridges	$0
	Bighorn National Forest	WY	Trails	$1,915,142
	Bighorn National Forest	WY	Wastewater Systems	$68,945
	Black Hills National Forest	SD, WY	Buildings	$6,566,163
	Black Hills National Forest	SD, WY	Dams	$897,670
	Black Hills National Forest	SD, WY	Drinking Water Systems	$1,102,103
	Black Hills National Forest	SD, WY	Heritage	$200,600
	Black Hills National Forest	SD, WY	Minor Constructed Features	$1,050,420
	Black Hills National Forest	SD, WY	Road Bridges	$441,446
	Black Hills National Forest	SD, WY	Roads	$32,163,815
	Black Hills National Forest	SD, WY	Trail Bridges	$35,028
	Black Hills National Forest	SD, WY	Trails	$2,330,336
	Black Hills National Forest	SD, WY	Wastewater Systems	$392,863
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Buildings	$9,242,988
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Dams	$190,797
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Drinking Water Systems	$899,128
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Heritage	$86,216
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Minor Constructed Features	$667,442
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Road Bridges	$4,049,368
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Roads	$44,191,761
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Trail Bridges	$0
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Trails	$6,209,948
	Grand Mesa Uncomp ** Gunnison National Forest	CO	Wastewater Systems	$91,647
	Medicine Bow-Routt National Forest	CO, WY	Buildings	$9,181,056
	Medicine Bow-Routt National Forest	CO, WY	Dams	$126,255
	Medicine Bow-Routt National Forest	CO, WY	Drinking Water Systems	$499,919
	Medicine Bow-Routt National Forest	CO, WY	Heritage	$585,450
	Medicine Bow-Routt National Forest	CO, WY	Minor Constructed Features	$763,323
	Medicine Bow-Routt National Forest	CO, WY	Road Bridges	$2,260,834
	Medicine Bow-Routt National Forest	CO, WY	Roads	$63,748,270
	Medicine Bow-Routt National Forest	CO, WY	Trail Bridges	$14,600
	Medicine Bow-Routt National Forest	CO, WY	Trails	$4,056,263
	Medicine Bow-Routt National Forest	CO, WY	Wastewater Systems	$86,800
	Nebraska National Forest	NE	Buildings	$1,982,720
	Nebraska National Forest	NE	Dams	$655,158
	Nebraska National Forest	NE	Drinking Water Systems	$149,832
	Nebraska National Forest	NE	Heritage	$109,033
	Nebraska National Forest	NE	Minor Constructed Features	$682,706
	Nebraska National Forest	NE	Road Bridges	$60,739
	Nebraska National Forest	NE	Roads	$3,983,380
	Nebraska National Forest	NE	Trail Bridges	$0
	Nebraska National Forest	NE	Trails	$640,401
	Nebraska National Forest	NE	Wastewater Systems	$11,668
	Rio Grande National Forest	CO	Buildings	$5,565,704
	Rio Grande National Forest	CO	Dams	$154,231
	Rio Grande National Forest	CO	Drinking Water Systems	$388,449
	Rio Grande National Forest	CO	Heritage	$80,000
	Rio Grande National Forest	CO	Minor Constructed Features	$319,879
	Rio Grande National Forest	CO	Road Bridges	$1,383,018
	Rio Grande National Forest	CO	Roads	$29,643,992
	Rio Grande National Forest	CO	Trail Bridges	$28,773
	Rio Grande National Forest	CO	Trails	$2,324,870
	Rio Grande National Forest	CO	Wastewater Systems	$38,622
	Arapaho-Roosevelt National Forest	CO	Buildings	$9,643,521
	Arapaho-Roosevelt National Forest	CO	Dams	$109,750
	Arapaho-Roosevelt National Forest	CO	Drinking Water Systems	$3,298,473
	Arapaho-Roosevelt National Forest	CO	Heritage	$264,750
	Arapaho-Roosevelt National Forest	CO	Minor Constructed Features	$920,014
	Arapaho-Roosevelt National Forest	CO	Road Bridges	$1,315,482
	Arapaho-Roosevelt National Forest	CO	Roads	$20,952,906
	Arapaho-Roosevelt National Forest	CO	Trail Bridges	$5,558
	Arapaho-Roosevelt National Forest	CO	Trails	$2,452,555
	Arapaho-Roosevelt National Forest	CO	Wastewater Systems	$329,957
	Pike-San Isabel National Forest	CO, KS	Buildings	$14,825,699
	Pike-San Isabel National Forest	CO, KS	Dams	$403,610
	Pike-San Isabel National Forest	CO, KS	Drinking Water Systems	$1,495,910
	Pike-San Isabel National Forest	CO, KS	Heritage	$59,595
	Pike-San Isabel National Forest	CO, KS	Minor Constructed Features	$1,193,135
	Pike-San Isabel National Forest	CO, KS	Road Bridges	$1,617,872
	Pike-San Isabel National Forest	CO, KS	Roads	$30,891,940
	Pike-San Isabel National Forest	CO, KS	Trail Bridges	$285,262
	Pike-San Isabel National Forest	CO, KS	Trails	$3,665,841
	Pike-San Isabel National Forest	CO, KS	Wastewater Systems	$600,289
	San Juan National Forest	CO	Buildings	$7,572,490

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	San Juan National Forest	CO	Dams	$87,973
	San Juan National Forest	CO	Drinking Water Systems	$148,208
	San Juan National Forest	CO	Heritage	$585,247
	San Juan National Forest	CO	Minor Constructed Features	$1,790,326
	San Juan National Forest	CO	Road Bridges	$846,023
	San Juan National Forest	CO	Roads	$33,246,251
	San Juan National Forest	CO	Trail Bridges	$163,350
	San Juan National Forest	CO	Trails	$3,563,263
	San Juan National Forest	CO	Wastewater Systems	$84,171
	Shoshone National Forest	WY	Buildings	$4,295,397
	Shoshone National Forest	WY	Dams $6,500	
	Shoshone National Forest	WY	Drinking Water Systems	$288,787
	Shoshone National Forest	WY	Heritage	$15,200
	Shoshone National Forest	WY	Minor Constructed Features	$225,196
	Shoshone National Forest	WY	Road Bridges	$931,579
	Shoshone National Forest	WY	Roads	$9,007,450
	Shoshone National Forest	WY	Trail Bridges	$29,920
	Shoshone National Forest	WY	Trails	$2,766,121
	Shoshone National Forest	WY	Wastewater Systems	$122,829
	White River National Forest	CO	Buildings	$20,927,879
	White River National Forest	CO	Dams	$418,796
	White River National Forest	CO	Drinking Water Systems	$234,238
	White River National Forest	CO	Heritage	$460,800
	White River National Forest	CO	Minor Constructed Features	$355,964
	White River National Forest	CO	Road Bridges	$4,299,987
	White River National Forest	CO	Roads	$21,478,297
	White River National Forest	CO	Trail Bridges	$1,145,832
	White River National Forest	CO	Trails	$4,463,015
	White River National Forest	CO	Wastewater Systems	$56,861
Region 3—Southwestern	**Southwestern Region Totals**	**AZ, NM**		**$320,262,246**
	Region 3 Unit Unassigned		Buildings	$14,522
	Apache-Sitgreaves National Forest	AZ	Buildings	$2,783,777
	Apache-Sitgreaves National Forest	AZ	Dams	$266,400
	Apache-Sitgreaves National Forest	AZ	Drinking Water Systems	$428,297
	Apache-Sitgreaves National Forest	AZ	Heritage	$2,018
	Apache-Sitgreaves National Forest	AZ	Minor Constructed Features	$688,981
	Apache-Sitgreaves National Forest	AZ	Road Bridges	$1,038,118
	Apache-Sitgreaves National Forest	AZ	Roads	$37,015,571
	Apache-Sitgreaves National Forest	AZ	Trail Bridges	$0
	Apache-Sitgreaves National Forest	AZ	Trails	$2,479,199
	Apache-Sitgreaves National Forest	AZ	Wastewater Systems	$180,173
	Carson National Forest	NM	Buildings	$2,492,264
	Carson National Forest	NM	Dams	$106,150
	Carson National Forest	NM	Drinking Water Systems	$374,307
	Carson National Forest	NM	Heritage	$71,446
	Carson National Forest	NM	Minor Constructed Features	$231,912
	Carson National Forest	NM	Road Bridges	$955,019
	Carson National Forest	NM	Roads	$19,420,244
	Carson National Forest	NM	Trail Bridges	$1,100
	Carson National Forest	NM	Trails	$1,045,432
	Carson National Forest	NM	Wastewater Systems	$53,577
	Cibola National Forest	NM	Buildings	$4,939,524
	Cibola National Forest	NM	Dams	$175,141
	Cibola National Forest	NM	Drinking Water Systems	$278,391
	Cibola National Forest	NM	Heritage	$678,682
	Cibola National Forest	NM	Minor Constructed Features	$441,703
	Cibola National Forest	NM	Road Bridges	$295,785
	Cibola National Forest	NM	Roads	$13,805,343
	Cibola National Forest	NM	Trail Bridges	$0
	Cibola National Forest	NM	Trails	$1,256,930
	Cibola National Forest	NM	Wastewater Systems	$187,220
	Coconino National Forest	AZ	Buildings	$5,404,267
	Coconino National Forest	AZ	Dams	$141,143
	Coconino National Forest	AZ	Drinking Water Systems	$506,794
	Coconino National Forest	AZ	Heritage	$0
	Coconino National Forest	AZ	Minor Constructed Features	$279,598
	Coconino National Forest	AZ	Road Bridges	$2,220,571
	Coconino National Forest	AZ	Roads	$35,945,363
	Coconino National Forest	AZ	Trail Bridges	$0
	Coconino National Forest	AZ	Trails	$1,641,135
	Coconino National Forest	AZ	Wastewater Systems	$106,860
	Coronado National Forest	AZ	Buildings	$3,469,336
	Coronado National Forest	AZ	Dams	$331,855
	Coronado National Forest	AZ	Drinking Water Systems	$2,434,441
	Coronado National Forest	AZ	Heritage	$238,863
	Coronado National Forest	AZ	Minor Constructed Features	$2,358,430
	Coronado National Forest	AZ	Road Bridges	$1,077,978
	Coronado National Forest	AZ	Roads	$15,094,252
	Coronado National Forest	AZ	Trail Bridges	$0
	Coronado National Forest	AZ	Trails	$1,845,666
	Coronado National Forest	AZ	Wastewater Systems	$53,640
	Gila National Forest	NM	Buildings	$8,934,954
	Gila National Forest	NM	Drinking Water Systems	$910,698

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Gila National Forest	NM	Heritage	$203,069
	Gila National Forest	NM	Minor Constructed Features	$88,530
	Gila National Forest	NM	Road Bridges	$1,247,983
	Gila National Forest	NM	Roads	$19,240,212
	Gila National Forest	NM	Trail Bridges	$0
	Gila National Forest	NM	Trails	$3,110,700
	Gila National Forest	NM	Wastewater Systems	$207,595
	Kaibab National Forest	AZ	Buildings	$3,097,724
	Kaibab National Forest	AZ	Dams	$784,546
	Kaibab National Forest	AZ	Drinking Water Systems	$254,183
	Kaibab National Forest	AZ	Heritage	$152,059
	Kaibab National Forest	AZ	Minor Constructed Features	$831,768
	Kaibab National Forest	AZ	Road Bridges	$205,104
	Kaibab National Forest	AZ	Roads	$24,589,233
	Kaibab National Forest	AZ	Trails	$1,098,940
	Kaibab National Forest	AZ	Wastewater Systems	$10,180
	Lincoln National Forest	NM	Buildings	$1,237,951
	Lincoln National Forest	NM	Drinking Water Systems	$15,405
	Lincoln National Forest	NM	Heritage	$64,500
	Lincoln National Forest	NM	Minor Constructed Features	$94,367
	Lincoln National Forest	NM	Road Bridges	$284,675
	Lincoln National Forest	NM	Roads	$16,094,529
	Lincoln National Forest	NM	Trail Bridges	$0
	Lincoln National Forest	NM	Trails	$911,680
	Lincoln National Forest	NM	Wastewater Systems	$178,480
	Prescott National Forest	AZ	Buildings	$1,077,537
	Prescott National Forest	AZ	Dams	$239,075
	Prescott National Forest	AZ	Drinking Water Systems	$287,201
	Prescott National Forest	AZ	Heritage	$124,300
	Prescott National Forest	AZ	Minor Constructed Features	$62,157
	Prescott National Forest	AZ	Road Bridges	$49,598
	Prescott National Forest	AZ	Roads	$1,449,654
	Prescott National Forest	AZ	Trail Bridges	$0
	Prescott National Forest	AZ	Trails	$1,513,969
	Prescott National Forest	AZ	Wastewater Systems	$332,767
	Santa Fe National Forest	NM	Buildings	$7,764,975
	Santa Fe National Forest	NM	Dams	$72,330
	Santa Fe National Forest	NM	Drinking Water Systems	$238,885
	Santa Fe National Forest	NM	Heritage	$682,516
	Santa Fe National Forest	NM	Minor Constructed Features	$415,085
	Santa Fe National Forest	NM	Road Bridges	$1,202,227
	Santa Fe National Forest	NM	Roads	$20,129,802
	Santa Fe National Forest	NM	Trail Bridges	$0
	Santa Fe National Forest	NM	Trails	$1,555,768
	Santa Fe National Forest	NM	Wastewater Systems	$210,281
	Tonto National Forest	AZ	Buildings	$4,153,314
	Tonto National Forest	AZ	Drinking Water Systems	$687,641
	Tonto National Forest	AZ	Heritage	$4,961,944
	Tonto National Forest	AZ	Minor Constructed Features	$1,593,062
	Tonto National Forest	AZ	Road Bridges	$735,268
	Tonto National Forest	AZ	Roads	$20,284,906
	Tonto National Forest	AZ	Trail Bridges	$1,000
	Tonto National Forest	AZ	Trails	$1,579,496
	Tonto National Forest	AZ	Wastewater Systems	$151,004
Region 4—Intermountain	**Intermountain Region Totals**	**ID, NV, UT, WY**		**$513,267,130**
	Region 4 Unit Unassigned		Buildings	$510,692
	Ashley National Forest	UT	Buildings	$11,687,166
	Ashley National Forest	UT	Dams	$278,656
	Ashley National Forest	UT	Drinking Water Systems	$1,071,097
	Ashley National Forest	UT	Heritage	$67,512
	Ashley National Forest	UT	Minor Constructed Features	$744,309
	Ashley National Forest	UT	Road Bridges	$548,031
	Ashley National Forest	UT	Roads	$27,260,647
	Ashley National Forest	UT	Trail Bridges	$33,102
	Ashley National Forest	UT	Trails	$1,817,060
	Ashley National Forest	UT	Wastewater Systems	$175,845
	Boise National Forest	ID	Buildings	$6,302,105
	Boise National Forest	ID	Drinking Water Systems	$890,648
	Boise National Forest	ID	Heritage	$0
	Boise National Forest	ID	Minor Constructed Features	$405,315
	Boise National Forest	ID	Road Bridges	$2,377,138
	Boise National Forest	ID	Roads	$25,029,547
	Boise National Forest	ID	Trail Bridges	$8,002
	Boise National Forest	ID	Trails	$3,498,329
	Boise National Forest	ID	Wastewater Systems	$68,327
	Bridger-Teton National Forest	WY	Buildings	$2,789,851
	Bridger-Teton National Forest	WY	Dams	$313,541
	Bridger-Teton National Forest	WY	Drinking Water Systems	$1,531,967
	Bridger-Teton National Forest	WY	Heritage	$0
	Bridger-Teton National Forest	WY	Minor Constructed Features	$382,328
	Bridger-Teton National Forest	WY	Road Bridges	$2,432,682
	Bridger-Teton National Forest	WY	Roads	$29,121,237
	Bridger-Teton National Forest	WY	Trail Bridges	$83,300

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Bridger-Teton National Forest	WY	Trails	$5,949,505
	Bridger-Teton National Forest	WY	Wastewater Systems	$116,198
	Dixie National Forest	UT	Buildings	$4,575,170
	Dixie National Forest	UT	Dams	$417,500
	Dixie National Forest	UT	Drinking Water Systems	$1,180,572
	Dixie National Forest	UT	Heritage	$20,000
	Dixie National Forest	UT	Minor Constructed Features	$1,052,979
	Dixie National Forest	UT	Road Bridges	$1,169,318
	Dixie National Forest	UT	Roads	$25,906,380
	Dixie National Forest	UT	Trail Bridges	$0
	Dixie National Forest	UT	Trails	$2,981,382
	Dixie National Forest	UT	Wastewater Systems	$561,078
	Fishlake National Forest	UT	Buildings	$657,759
	Fishlake National Forest	UT	Dams	$7,000
	Fishlake National Forest	UT	Drinking Water Systems	$157,993
	Fishlake National Forest	UT	Heritage	$0
	Fishlake National Forest	UT	Minor Constructed Features	$509,026
	Fishlake National Forest	UT	Road Bridges	$72,007
	Fishlake National Forest	UT	Roads	$10,575,772
	Fishlake National Forest	UT	Trail Bridges	$0
	Fishlake National Forest	UT	Trails	$4,360,463
	Fishlake National Forest	UT	Wastewater Systems	$853,941
	Manti-Lasal National Forest	UT	Buildings	$965,908
	Manti-Lasal National Forest	UT	Dams	$92,560
	Manti-Lasal National Forest	UT	Drinking Water Systems	$189,305
	Manti-Lasal National Forest	UT	Heritage	$401,311
	Manti-Lasal National Forest	UT	Minor Constructed Features	$282,350
	Manti-Lasal National Forest	UT	Road Bridges	$214,448
	Manti-Lasal National Forest	UT	Roads	$14,440,873
	Manti-Lasal National Forest	UT	Trail Bridges	$0
	Manti-Lasal National Forest	UT	Trails	$1,631,198
	Manti-Lasal National Forest	UT	Wastewater Systems	$6,517
	Payette National Forest	ID	Buildings	$15,635,510
	Payette National Forest	ID	Drinking Water Systems	$174,963
	Payette National Forest	ID	Heritage	$1,900
	Payette National Forest	ID	Minor Constructed Features	$174,121
	Payette National Forest	ID	Road Bridges	$646,182
	Payette National Forest	ID	Roads	$23,393,794
	Payette National Forest	ID	Trail Bridges	$148,250
	Payette National Forest	ID	Trails	$3,148,664
	Payette National Forest	ID	Wastewater Systems	$6,760
	Salmon-Challis National Forest	ID	Buildings	$40,249,383
	Salmon-Challis National Forest	ID	Drinking Water Systems	$1,129,587
	Salmon-Challis National Forest	ID	Heritage	$19,500
	Salmon-Challis National Forest	ID	Minor Constructed Features	$616,282
	Salmon-Challis National Forest	ID	Road Bridges	$2,310,770
	Salmon-Challis National Forest	ID	Roads	$19,845,573
	Salmon-Challis National Forest	ID	Trail Bridges	$65,175
	Salmon-Challis National Forest	ID	Trails	$5,915,674
	Salmon-Challis National Forest	ID	Wastewater Systems	$648,587
	Sawtooth National Forest	ID	Buildings	$12,127,509
	Sawtooth National Forest	ID	Drinking Water Systems	$1,260,920
	Sawtooth National Forest	ID	Heritage	$30,000
	Sawtooth National Forest	ID	Minor Constructed Features	$661,385
	Sawtooth National Forest	ID	Road Bridges	$862,545
	Sawtooth National Forest	ID	Roads	$14,947,506
	Sawtooth National Forest	ID	Trail Bridges	$1,456
	Sawtooth National Forest	ID	Trails	$4,069,876
	Sawtooth National Forest	ID	Wastewater Systems	$81,940
	Caribou-Targhee National Forest	ID	Buildings	$3,765,298
	Caribou-Targhee National Forest	ID	Drinking Water Systems	$493,229
	Caribou-Targhee National Forest	ID	Heritage	$0
	Caribou-Targhee National Forest	ID	Minor Constructed Features	$606,523
	Caribou-Targhee National Forest	ID	Road Bridges	$1,699,244
	Caribou-Targhee National Forest	ID	Roads	$38,182,424
	Caribou-Targhee National Forest	ID	Trail Bridges	$272,455
	Caribou-Targhee National Forest	ID	Trails	$6,815,957
	Caribou-Targhee National Forest	ID	Wastewater Systems	$93,000
	Humboldt-Toiyabe National Forest	NV	Buildings	$8,615,628
	Humboldt-Toiyabe National Forest	NV	Dams	$11,000
	Humboldt-Toiyabe National Forest	NV	Drinking Water Systems	$2,474,189
	Humboldt-Toiyabe National Forest	NV	Heritage	$607,625
	Humboldt-Toiyabe National Forest	NV	Minor Constructed Features	$1,186,642
	Humboldt-Toiyabe National Forest	NV	Road Bridges	$220,431
	Humboldt-Toiyabe National Forest	NV	Roads	$33,425,496
	Humboldt-Toiyabe National Forest	NV	Trail Bridges	$0
	Humboldt-Toiyabe National Forest	NV	Trails	$6,103,056
	Humboldt-Toiyabe National Forest	NV	Wastewater Systems	$542,095
	Uinta-Wasatch-Cache National Forest	UT	Buildings	$13,894,929
	Uinta-Wasatch-Cache National Forest	UT	Dams	$395,200
	Uinta-Wasatch-Cache National Forest	UT	Drinking Water Systems	$2,075,973
	Uinta-Wasatch-Cache National Forest	UT	Heritage	$40,592
	Uinta-Wasatch-Cache National Forest	UT	Minor Constructed Features	$4,073,958
	Uinta-Wasatch-Cache National Forest	UT	Road Bridges	$631,752
	Uinta-Wasatch-Cache National Forest	UT	Roads	$34,826,855

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Uinta-Wasatch-Cache National Forest	UT	Trail Bridges	$38,915
	Uinta-Wasatch-Cache National Forest	UT	Trails	$4,324,598
	Uinta-Wasatch-Cache National Forest	UT	Wastewater Systems	$899,308
Region 5—Pacific Southwest	**Pacific Southwest Region Totals**	**CA**		**$894,955,732**
	Region 5 Unassigned Unit	CA	Buildings	$527,675
	Angeles National Forest	CA	Buildings	$15,211,848
	Angeles National Forest	CA	Drinking Water Systems	$2,638,377
	Angeles National Forest	CA	Heritage	$132,100
	Angeles National Forest	CA	Minor Constructed Features	$1,717,297
	Angeles National Forest	CA	Road Bridges	$29,569
	Angeles National Forest	CA	Roads	$9,802,608
	Angeles National Forest	CA	Trail Bridges	$174,816
	Angeles National Forest	CA	Trails	$1,300,705
	Angeles National Forest	CA	Wastewater Systems	$2,471,367
	Cleveland National Forest	CA	Buildings	$24,951,619
	Cleveland National Forest	CA	Dams	$17,600
	Cleveland National Forest	CA	Drinking Water Systems	$5,974,053
	Cleveland National Forest	CA	Heritage	$100,000
	Cleveland National Forest	CA	Minor Constructed Features	$996,639
	Cleveland National Forest	CA	Road Bridges	$4,723
	Cleveland National Forest	CA	Roads	$4,300,701
	Cleveland National Forest	CA	Trail Bridges	$0
	Cleveland National Forest	CA	Trails	$564,442
	Cleveland National Forest	CA	Wastewater Systems	$233,383
	Eldorado National Forest	CA	Buildings	$42,036,548
	Eldorado National Forest	CA	Drinking Water Systems	$1,000,106
	Eldorado National Forest	CA	Heritage	$9,500
	Eldorado National Forest	CA	Minor Constructed Features	$297,304
	Eldorado National Forest	CA	Road Bridges	$40,112
	Eldorado National Forest	CA	Roads	$26,159,328
	Eldorado National Forest	CA	Trail Bridges	$38,132
	Eldorado National Forest	CA	Trails	$1,461,611
	Eldorado National Forest	CA	Wastewater Systems	$45,867
	Inyo National Forest	CA	Buildings	$4,070,414
	Inyo National Forest	CA	Drinking Water Systems	$918,831
	Inyo National Forest	CA	Heritage	$0
	Inyo National Forest	CA	Minor Constructed Features	$3,195,462
	Inyo National Forest	CA	Road Bridges	$69,075
	Inyo National Forest	CA	Roads	$6,066,996
	Inyo National Forest	CA	Trail Bridges	$217,249
	Inyo National Forest	CA	Trails	$2,773,722
	Inyo National Forest	CA	Wastewater Systems	$1,075,796
	Klamath National Forest	CA	Buildings	$37,971,575
	Klamath National Forest	CA	Dams	$7,400
	Klamath National Forest	CA	Drinking Water Systems	$466,679
	Klamath National Forest	CA	Heritage	$0
	Klamath National Forest	CA	Minor Constructed Features	$247,550
	Klamath National Forest	CA	Road Bridges	$6,631,125
	Klamath National Forest	CA	Roads	$42,490,969
	Klamath National Forest	CA	Trail Bridges	$145,073
	Klamath National Forest	CA	Trails	$1,580,694
	Klamath National Forest	CA	Wastewater Systems	$129,292
	Lassen National Forest	CA	Buildings	$6,727,998
	Lassen National Forest	CA	Dams	$34,039
	Lassen National Forest	CA	Drinking Water Systems	$569,941
	Lassen National Forest	CA	Heritage	$150,800
	Lassen National Forest	CA	Minor Constructed Features	$965,884
	Lassen National Forest	CA	Road Bridges	$93,301
	Lassen National Forest	CA	Roads	$33,534,718
	Lassen National Forest	CA	Trail Bridges	$395
	Lassen National Forest	CA	Trails	$775,612
	Lassen National Forest	CA	Wastewater Systems	$83,500
	Los Padres National Forest	CA	Buildings	$22,772,624
	Los Padres National Forest	CA	Dams	$7,900
	Los Padres National Forest	CA	Drinking Water Systems	$2,003,834
	Los Padres National Forest	CA	Heritage	$35,445
	Los Padres National Forest	CA	Minor Constructed Features	$915,972
	Los Padres National Forest	CA	Road Bridges	$394,242
	Los Padres National Forest	CA	Roads	$16,877,867
	Los Padres National Forest	CA	Trail Bridges	$3,500
	Los Padres National Forest	CA	Trails	$2,458,809
	Los Padres National Forest	CA	Wastewater Systems	$391,430
	Mendocino National Forest	CA	Buildings	$26,832,563
	Mendocino National Forest	CA	Dams	$12,648
	Mendocino National Forest	CA	Drinking Water Systems	$267,528
	Mendocino National Forest	CA	Heritage	$205,650
	Mendocino National Forest	CA	Minor Constructed Features	$359,266
	Mendocino National Forest	CA	Road Bridges	$1,709
	Mendocino National Forest	CA	Roads	$14,781,295
	Mendocino National Forest	CA	Trail Bridges	$0
	Mendocino National Forest	CA	Trails	$942,305
	Mendocino National Forest	CA	Wastewater Systems	$9,627
	Modoc National Forest	CA	Buildings	$3,695,401

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Modoc National Forest	CA	Dams	$68,862
	Modoc National Forest	CA	Drinking Water Systems	$235,040
	Modoc National Forest	CA	Heritage	$60,000
	Modoc National Forest	CA	Minor Constructed Features	$449,169
	Modoc National Forest	CA	Road Bridges	$290,304
	Modoc National Forest	CA	Roads	$26,112,251
	Modoc National Forest	CA	Trails	$217,814
	Six Rivers National Forest	CA	Buildings	$19,765,656
	Six Rivers National Forest	CA	Drinking Water Systems	$2,718,682
	Six Rivers National Forest	CA	Heritage	$16,000
	Six Rivers National Forest	CA	Minor Constructed Features	$199,244
	Six Rivers National Forest	CA	Road Bridges	$945,484
	Six Rivers National Forest	CA	Roads	$34,985,688
	Six Rivers National Forest	CA	Trail Bridges	$11,250
	Six Rivers National Forest	CA	Trails	$690,751
	Six Rivers National Forest	CA	Wastewater Systems	$85,203
	Plumas National Forest	CA	Buildings	$16,307,368
	Plumas National Forest	CA	Dams	$12,500
	Plumas National Forest	CA	Drinking Water Systems	$2,956,784
	Plumas National Forest	CA	Heritage	$331,801
	Plumas National Forest	CA	Minor Constructed Features	$702,028
	Plumas National Forest	CA	Road Bridges	$288,643
	Plumas National Forest	CA	Roads	$27,673,908
	Plumas National Forest	CA	Trail Bridges	$4,335
	Plumas National Forest	CA	Trails	$1,447,278
	Plumas National Forest	CA	Wastewater Systems	$575,392
	San Bernardino National Forest	CA	Buildings	$6,201,842
	San Bernardino National Forest	CA	Dams	$177,000
	San Bernardino National Forest	CA	Drinking Water Systems	$379,446
	San Bernardino National Forest	CA	Heritage	$52,600
	San Bernardino National Forest	CA	Minor Constructed Features	$391,597
	San Bernardino National Forest	CA	Road Bridges	$32,870
	San Bernardino National Forest	CA	Roads	$14,247,754
	San Bernardino National Forest	CA	Trail Bridges	$0
	San Bernardino National Forest	CA	Trails	$1,129,135
	San Bernardino National Forest	CA	Wastewater Systems	$192,100
	Sequoia National Forest	CA	Buildings	$11,438,207
	Sequoia National Forest	CA	Dams	$614,638
	Sequoia National Forest	CA	Drinking Water Systems	$2,665,533
	Sequoia National Forest	CA	Heritage	$1,500
	Sequoia National Forest	CA	Minor Constructed Features	$891,520
	Sequoia National Forest	CA	Road Bridges	$1,881,152
	Sequoia National Forest	CA	Roads	$25,168,788
	Sequoia National Forest	CA	Trail Bridges	$256,300
	Sequoia National Forest	CA	Trails	$1,803,156
	Sequoia National Forest	CA	Wastewater Systems	$1,381,848
	Shasta-Trinity National Forest	CA	Buildings	$26,129,162
	Shasta-Trinity National Forest	CA	Drinking Water Systems	$1,372,798
	Shasta-Trinity National Forest	CA	Heritage	$542,500
	Shasta-Trinity National Forest	CA	Minor Constructed Features	$3,378,729
	Shasta-Trinity National Forest	CA	Road Bridges	$4,694,154
	Shasta-Trinity National Forest	CA	Roads	$49,340,979
	Shasta-Trinity National Forest	CA	Trail Bridges	$109,740
	Shasta-Trinity National Forest	CA	Trails	$2,327,104
	Shasta-Trinity National Forest	CA	Wastewater Systems	$1,201,791
	Sierra National Forest	CA	Buildings	$62,001,396
	Sierra National Forest	CA	Drinking Water Systems	$1,109,990
	Sierra National Forest	CA	Heritage	$0
	Sierra National Forest	CA	Minor Constructed Features	$2,608,580
	Sierra National Forest	CA	Road Bridges	$8,291,786
	Sierra National Forest	CA	Roads	$18,850,703
	Sierra National Forest	CA	Trail Bridges	$676,125
	Sierra National Forest	CA	Trails	$2,126,361
	Sierra National Forest	CA	Wastewater Systems	$161,774
	Stanislaus National Forest	CA	Buildings	$5,613,283
	Stanislaus National Forest	CA	Dams	$417,083
	Stanislaus National Forest	CA	Drinking Water Systems	$1,775,722
	Stanislaus National Forest	CA	Heritage	$1,199,033
	Stanislaus National Forest	CA	Minor Constructed Features	$285,563
	Stanislaus National Forest	CA	Road Bridges	$3,292,527
	Stanislaus National Forest	CA	Roads	$19,188,101
	Stanislaus National Forest	CA	Trail Bridges	$78,460
	Stanislaus National Forest	CA	Trails	$2,349,771
	Stanislaus National Forest	CA	Wastewater Systems	$122,123
	Tahoe National Forest	CA	Buildings	$15,501,522
	Tahoe National Forest	CA	Dams	$24,700
	Tahoe National Forest	CA	Drinking Water Systems	$1,212,441
	Tahoe National Forest	CA	Heritage	$20,000
	Tahoe National Forest	CA	Minor Constructed Features	$6,448,256
	Tahoe National Forest	CA	Road Bridges	$448,413
	Tahoe National Forest	CA	Roads	$26,829,070
	Tahoe National Forest	CA	Trail Bridges	$0
	Tahoe National Forest	CA	Trails	$2,504,359
	Tahoe National Forest	CA	Wastewater Systems	$42,063
	Lake Tahoe Basin Mgt. Unit	CA	Buildings	$19,515,980

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Lake Tahoe Basin Mgt. Unit	CA	Dams	$3,901,259
	Lake Tahoe Basin Mgt. Unit	CA	Drinking Water Systems	$1,523,306
	Lake Tahoe Basin Mgt. Unit	CA	Heritage	$2,500
	Lake Tahoe Basin Mgt. Unit	CA	Minor Constructed Features	$1,002,843
	Lake Tahoe Basin Mgt. Unit	CA	Road Bridges	$1,690
	Lake Tahoe Basin Mgt. Unit	CA	Roads	$3,853,392
	Lake Tahoe Basin Mgt. Unit	CA	Trail Bridges	$910
	Lake Tahoe Basin Mgt. Unit	CA	Trails	$617,538
Region 6—Pacific Northwest	**Pacific Northwest Region Totals**	**OR, WA (CA* ID*)**		**$834,627,114**
	Deschutes National Forest	OR	Buildings	$19,473,598
	Deschutes National Forest	OR	Dams	$201,657
	Deschutes National Forest	OR	Drinking Water Systems	$2,908,423
	Deschutes National Forest	OR	Heritage	$10,000
	Deschutes National Forest	OR	Minor Constructed Features	$1,228,740
	Deschutes National Forest	OR	Road Bridges	$867,752
	Deschutes National Forest	OR	Roads	$21,181,879
	Deschutes National Forest	OR	Trail Bridges	$6,878
	Deschutes National Forest	OR	Trails	$3,663,064
	Deschutes National Forest	OR	Wastewater Systems	$316,093
	Fremont-Winema National Forests	OR	Buildings	$13,081,848
	Fremont-Winema National Forests	OR	Dams	$59,200
	Fremont-Winema National Forests	OR	Drinking Water Systems	$783,111
	Fremont-Winema National Forests	OR	Heritage	$0
	Fremont-Winema National Forests	OR	Minor Constructed Features	$756,761
	Fremont-Winema National Forests	OR	Road Bridges	$2,069,057
	Fremont-Winema National Forests	OR	Roads	$49,046,731
	Fremont-Winema National Forests	OR	Trail Bridges	$0
	Fremont-Winema National Forests	OR	Trails	$2,220,160
	Fremont-Winema National Forests	OR	Wastewater Systems	$468,200
	Gifford Pinchot National Forest	WA	Buildings	$29,343,512
	Gifford Pinchot National Forest	WA	Dams	$41,578,834
	Gifford Pinchot National Forest	WA	Drinking Water Systems	$720,741
	Gifford Pinchot National Forest	WA	Heritage	$6,600
	Gifford Pinchot National Forest	WA	Minor Constructed Features	$939,575
	Gifford Pinchot National Forest	WA	Road Bridges	$3,699,340
	Gifford Pinchot National Forest	WA	Roads	$19,297,008
	Gifford Pinchot National Forest	WA	Trail Bridges	$34,426
	Gifford Pinchot National Forest	WA	Trails	$2,524,803
	Gifford Pinchot National Forest	WA	Wastewater Systems	$99,366
	Malheur National Forest	OR	Buildings	$5,689,902
	Malheur National Forest	OR	Dams	$7,084
	Malheur National Forest	OR	Drinking Water Systems	$456,654
	Malheur National Forest	OR	Heritage	$84,000
	Malheur National Forest	OR	Minor Constructed Features	$13,873
	Malheur National Forest	OR	Road Bridges	$2,621,862
	Malheur National Forest	OR	Roads	$17,503,732
	Malheur National Forest	OR	Trail Bridges	$25,400
	Malheur National Forest	OR	Trails	$2,173,439
	Malheur National Forest	OR	Wastewater Systems	$2,000
	Mt. Baker-Snoqualmie National Forest	WA	Buildings	$9,981,698
	Mt. Baker-Snoqualmie National Forest	WA	Dams	$12,418
	Mt. Baker-Snoqualmie National Forest	WA	Drinking Water Systems	$1,107,015
	Mt. Baker-Snoqualmie National Forest	WA	Heritage	$0
	Mt. Baker-Snoqualmie National Forest	WA	Minor Constructed Features	$666,780
	Mt. Baker-Snoqualmie National Forest	WA	Road Bridges	$1,974,233
	Mt. Baker-Snoqualmie National Forest	WA	Roads	$49,504,234
	Mt. Baker-Snoqualmie National Forest	WA	Trail Bridges	$0
	Mt. Baker-Snoqualmie National Forest	WA	Trails	$2,712,189
	Mt. Baker-Snoqualmie National Forest	WA	Wastewater Systems	$431,370
	Mt. Hood National Forest	OR	Buildings	$34,457,234
	Mt. Hood National Forest	OR	Dams	$307,222
	Mt. Hood National Forest	OR	Drinking Water Systems	$346,334
	Mt. Hood National Forest	OR	Heritage	$0
	Mt. Hood National Forest	OR	Minor Constructed Features	$147,241
	Mt. Hood National Forest	OR	Road Bridges	$3,564,357
	Mt. Hood National Forest	OR	Roads	$17,868,047
	Mt. Hood National Forest	OR	Trail Bridges	$4,500
	Mt. Hood National Forest	OR	Trails	$1,930,708
	Mt. Hood National Forest	OR	Wastewater Systems	$173,011
	Ochoco National Forest	OR	Buildings	$10,675,652
	Ochoco National Forest	OR	Dams	$24,996
	Ochoco National Forest	OR	Drinking Water Systems	$82,042
	Ochoco National Forest	OR	Heritage	$19,000
	Ochoco National Forest	OR	Minor Constructed Features	$171,449
	Ochoco National Forest	OR	Road Bridges	$1,823,505
	Ochoco National Forest	OR	Roads	$10,659,800
	Ochoco National Forest	OR	Trail Bridges	$27,900
	Ochoco National Forest	OR	Trails	$587,181
	Ochoco National Forest	OR	Wastewater Systems	$6,204
	Olympic National Forest	WA	Buildings	$3,499,359
	Olympic National Forest	WA	Drinking Water Systems	$578,426
	Olympic National Forest	WA	Heritage	$8,200
	Olympic National Forest	WA	Minor Constructed Features	$505,329

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Olympic National Forest	WA	Road Bridges	$5,275,767
	Olympic National Forest	WA	Roads	$19,357,686
	Olympic National Forest	WA	Trail Bridges	$77,184
	Olympic National Forest	WA	Trails	$493,481
	Olympic National Forest	WA	Wastewater Systems	$20,600
	Rogue River-Siskiyou National Forest	OR	Buildings	$7,902,639
	Rogue River-Siskiyou National Forest	OR	Dams	$113,200
	Rogue River-Siskiyou National Forest	OR	Drinking Water Systems	$2,767,290
	Rogue River-Siskiyou National Forest	OR	Heritage	$0
	Rogue River-Siskiyou National Forest	OR	Minor Constructed Features	$696,953
	Rogue River-Siskiyou National Forest	OR	Road Bridges	$12,043,385
	Rogue River-Siskiyou National Forest	CA*, OR	Roads	$50,137,735
	Rogue River-Siskiyou National Forest	OR	Trail Bridges	$247,384
	Rogue River-Siskiyou National Forest	CA*, OR	Trails	$2,297,395
	Rogue River-Siskiyou National Forest	OR	Wastewater Systems	$1,717,088
	Siuslaw National Forest	OR	Buildings	$8,334,141
	Siuslaw National Forest	OR	Dams	$14,755
	Siuslaw National Forest	OR	Drinking Water Systems	$888,293
	Siuslaw National Forest	OR	Heritage	$0
	Siuslaw National Forest	OR	Minor Constructed Features	$335,484
	Siuslaw National Forest	OR	Road Bridges	$918,300
	Siuslaw National Forest	OR	Roads	$10,497,909
	Siuslaw National Forest	OR	Trail Bridges	$0
	Siuslaw National Forest	OR	Trails	$306,924
	Siuslaw National Forest	OR	Wastewater Systems	$279,545
	Umatilla National Forest	OR, WA	Buildings	$7,372,498
	Umatilla National Forest	OR, WA	Dams	$236,954
	Umatilla National Forest	OR, WA	Drinking Water Systems	$1,070,891
	Umatilla National Forest	OR, WA	Heritage	$0
	Umatilla National Forest	OR, WA	Minor Constructed Features	$86,111
	Umatilla National Forest	OR, WA	Road Bridges	$2,306,646
	Umatilla National Forest	OR, WA	Roads	$22,892,437
	Umatilla National Forest	OR, WA	Trail Bridges	$14,679
	Umatilla National Forest	OR, WA	Trails	$2,398,509
	Umatilla National Forest	OR, WA	Wastewater Systems	$869,367
	Umpqua National Forest	OR	Buildings	$6,168,665
	Umpqua National Forest	OR	Dams	$35,154
	Umpqua National Forest	OR	Drinking Water Systems	$264,681
	Umpqua National Forest	OR	Heritage	$4,000
	Umpqua National Forest	OR	Minor Constructed Features	$160,808
	Umpqua National Forest	OR	Road Bridges	$4,238,804
	Umpqua National Forest	OR	Roads	$26,183,415
	Umpqua National Forest	OR	Trail Bridges	$36,400
	Umpqua National Forest	OR	Trails	$2,135,093
	Umpqua National Forest	OR	Wastewater Systems	$1,280,080
	Wallowa-Whitman National Forest	OR	Buildings	$10,967,001
	Wallowa-Whitman National Forest	OR	Drinking Water Systems	$919,790
	Wallowa-Whitman National Forest	OR	Heritage	$20,000
	Wallowa-Whitman National Forest	OR	Minor Constructed Features	$841,612
	Wallowa-Whitman National Forest	OR	Road Bridges	$5,806,734
	Wallowa-Whitman National Forest	ID*, OR	Roads	$20,732,812
	Wallowa-Whitman National Forest	OR	Trail Bridges	$83,300
	Wallowa-Whitman National Forest	ID*, OR	Trails	$5,096,781
	Wallowa-Whitman National Forest	OR	Wastewater Systems	$143,030
	Okanogan-Wenatchee National Forests	WA	Buildings	$11,011,567
	Okanogan-Wenatchee National Forests	WA	Dams	$8,025
	Okanogan-Wenatchee National Forests	WA	Drinking Water Systems	$2,774,041
	Okanogan-Wenatchee National Forests	WA	Heritage	$0
	Okanogan-Wenatchee National Forests	WA	Minor Constructed Features	$1,832,152
	Okanogan-Wenatchee National Forests	WA	Road Bridges	$8,841,350
	Okanogan-Wenatchee National Forests	WA	Roads	$74,670,153
	Okanogan-Wenatchee National Forests	WA	Trail Bridges	$0
	Okanogan-Wenatchee National Forests	WA	Trails	$8,962,861
	Okanogan-Wenatchee National Forests	WA	Wastewater Systems	$339,794
	Willamette National Forest	OR	Buildings	$4,793,138
	Willamette National Forest	OR	Dams	$5,000
	Willamette National Forest	OR	Drinking Water Systems	$2,365,551
	Willamette National Forest	OR	Heritage	$0
	Willamette National Forest	OR	Minor Constructed Features	$678,208
	Willamette National Forest	OR	Road Bridges	$5,241,651
	Willamette National Forest	OR	Roads	$34,038,691
	Willamette National Forest	OR	Trail Bridges	$41,400
	Willamette National Forest	OR	Trails	$2,852,945
	Willamette National Forest	OR	Wastewater Systems	$370,395
	Colville National Forest	WA	Buildings	$7,366,453
	Colville National Forest	WA	Dams	$1,100
	Colville National Forest	WA	Drinking Water Systems	$208,443
	Colville National Forest	WA	Heritage	$36,500
	Colville National Forest	WA	Minor Constructed Features	$127,078
	Colville National Forest	WA	Road Bridges	$533,305
	Colville National Forest	WA	Roads	$17,109,514
	Colville National Forest	WA	Trail Bridges	$199,800
	Colville National Forest	WA	Trails	$943,946
	Colville National Forest	WA	Wastewater Systems	$272,971
	Columbia River Gorge National Scenic Area	OR, WA	Buildings	$757,430

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Columbia River Gorge National Scenic Area	OR, WA	Drinking Water Systems	$246,164
	Columbia River Gorge National Scenic Area	OR, WA	Heritage	$1,003,700
	Columbia River Gorge National Scenic Area	OR, WA	Minor Constructed Features	$126,125
	Columbia River Gorge National Scenic Area	OR, WA	Road Bridges	$9,840
	Columbia River Gorge National Scenic Area	OR, WA	Roads	$323,539
	Columbia River Gorge National Scenic Area	OR, WA	Trail Bridges	$14,779
	Columbia River Gorge National Scenic Area	OR, WA	Trails	$382,245
	Columbia River Gorge National Scenic Area	OR, WA	Wastewater Systems	$24,932
Region 8—Southern	**Southern Region Totals**	**AL, AR, FL, GA, KY, LA, MS, NC, OK, PR, SC, TX, VA (WV*)**		**$617,866,943**
	National Forests in Alabama	AL	Buildings	$2,738,454
	National Forests in Alabama	AL	Dams	$171,881
	National Forests in Alabama	AL	Drinking Water Systems	$178,782
	National Forests in Alabama	AL	Heritage	$0
	National Forests in Alabama	AL	Minor Constructed Features	$3,682
	National Forests in Alabama	AL	Road Bridges	$3,515,489
	National Forests in Alabama	AL	Roads	$25,472,133
	National Forests in Alabama	AL	Trail Bridges	$46,400
	National Forests in Alabama	AL	Trails	$660,792
	National Forests in Alabama	AL	Wastewater Systems	$32,152
	Daniel Boone National Forest	KY	Buildings	$3,041,591
	Daniel Boone National Forest	KY	Dams	$262,947
	Daniel Boone National Forest	KY	Drinking Water Systems	$214,641
	Daniel Boone National Forest	KY	Heritage	$31,000
	Daniel Boone National Forest	KY	Minor Constructed Features	$2,893,661
	Daniel Boone National Forest	KY	Road Bridges	$139,546
	Daniel Boone National Forest	KY	Roads	$20,454,185
	Daniel Boone National Forest	KY	Trail Bridges	$36,708
	Daniel Boone National Forest	KY	Trails	$1,075,465
	Daniel Boone National Forest	KY	Wastewater Systems	$451,741
	Chattahoochee-Oconee National Forest	GA	Buildings	$2,501,695
	Chattahoochee-Oconee National Forest	GA	Dams	$444,371
	Chattahoochee-Oconee National Forest	GA	Drinking Water Systems	$116,634
	Chattahoochee-Oconee National Forest	GA	Heritage	$6,600
	Chattahoochee-Oconee National Forest	GA	Minor Constructed Features	$584,929
	Chattahoochee-Oconee National Forest	GA	Road Bridges	$3,027,760
	Chattahoochee-Oconee National Forest	GA	Roads	$29,057,083
	Chattahoochee-Oconee National Forest	GA	Trail Bridges	$1,100
	Chattahoochee-Oconee National Forest	GA	Trails	$1,482,610
	Chattahoochee-Oconee National Forest	GA	Wastewater Systems	$171,226
	Cherokee National Forest	TN	Buildings	$3,869,585
	Cherokee National Forest	TN	Dams	$237,001
	Cherokee National Forest	TN	Drinking Water Systems	$162,188
	Cherokee National Forest	TN	Heritage	$0
	Cherokee National Forest	TN	Minor Constructed Features	$1,060,197
	Cherokee National Forest	TN	Road Bridges	$363,365
	Cherokee National Forest	TN	Roads	$21,134,481
	Cherokee National Forest	TN	Trail Bridges	$13,400
	Cherokee National Forest	TN	Trails	$1,277,631
	Cherokee National Forest	TN	Wastewater Systems	$67,531
	National Forests in Florida	FL	Buildings	$2,485,586
	National Forests in Florida	FL	Drinking Water Systems	$106,369
	National Forests in Florida	FL	Heritage	$28,020
	National Forests in Florida	FL	Minor Constructed Features	$935,383
	National Forests in Florida	FL	Road Bridges	$4,797,706
	National Forests in Florida	FL	Roads	$60,441,190
	National Forests in Florida	FL	Trail Bridges	$0
	National Forests in Florida	FL	Trails	$1,347,432
	National Forests in Florida	FL	Wastewater Systems	$31,099
	Kisatchie National Forest	LA	Buildings	$2,467,029
	Kisatchie National Forest	LA	Dams	$73,100
	Kisatchie National Forest	LA	Drinking Water Systems	$1,076,638
	Kisatchie National Forest	LA	Heritage	$0
	Kisatchie National Forest	LA	Minor Constructed Features	$754,362
	Kisatchie National Forest	LA	Road Bridges	$11,589,927
	Kisatchie National Forest	LA	Roads	$32,932,392
	Kisatchie National Forest	LA	Trail Bridges	$119,655
	Kisatchie National Forest	LA	Trails	$600,222
	Kisatchie National Forest	LA	Wastewater Systems	$206,517
	National Forests in Mississippi	MS	Buildings	$5,858,676
	National Forests in Mississippi	MS	Dams	$120,501
	National Forests in Mississippi	MS	Heritage	$0
	National Forests in Mississippi	MS	Minor Constructed Features	$388,327
	National Forests in Mississippi	MS	Road Bridges	$711,552
	National Forests in Mississippi	MS	Roads	$37,596,942
	National Forests in Mississippi	MS	Trail Bridges	$74,337
	National Forests in Mississippi	MS	Trails	$712,423
	National Forests in Mississippi	MS	Wastewater Systems	$17,157
	George Washington and Jefferson National Forests	VA	Buildings	$6,584,161
	George Washington and Jefferson National Forests	VA	Dams	$1,195,768

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	George Washington and Jefferson National Forests	VA	Drinking Water Systems	$127,209
	George Washington and Jefferson National Forests	VA	Heritage	$0
	George Washington and Jefferson National Forests	VA	Minor Constructed Features	$1,195,025
	George Washington and Jefferson National Forests	VA	Road Bridges	$1,149,834
	George Washington and Jefferson National Forests	VA, WV*	Roads	$40,086,227
	George Washington and Jefferson National Forests	VA	Trail Bridges	$232,630
	George Washington and Jefferson National Forests	VA, WV*	Trails	$3,723,931
	George Washington and Jefferson National Forests	VA	Wastewater Systems	$383,028
	Ouachita National Forest	AR, OK	Buildings	$1,485,069
	Ouachita National Forest	AR, OK	Dams	$98,030
	Ouachita National Forest	AR, OK	Drinking Water Systems	$62,798
	Ouachita National Forest	AR, OK	Heritage	$49,591
	Ouachita National Forest	AR, OK	Minor Constructed Features	$326,302
	Ouachita National Forest	AR, OK	Road Bridges	$1,201,080
	Ouachita National Forest	AR, OK	Roads	$59,276,658
	Ouachita National Forest	AR, OK	Trail Bridges	$500
	Ouachita National Forest	AR, OK	Trails	$1,583,277
	Ouachita National Forest	AR, OK	Wastewater Systems	$101,265
	Ozark-St. Francis National Forest	AR	Buildings	$2,766,971
	Ozark-St. Francis National Forest	AR	Dams	$734,916
	Ozark-St. Francis National Forest	AR	Drinking Water Systems	$255,833
	Ozark-St. Francis National Forest	AR	Heritage	$30,000
	Ozark-St. Francis National Forest	AR	Minor Constructed Features	$670,771
	Ozark-St. Francis National Forest	AR	Road Bridges	$111,698
	Ozark-St. Francis National Forest	AR	Roads	$11,377,800
	Ozark-St. Francis National Forest	AR	Trail Bridges	$5,041
	Ozark-St. Francis National Forest	AR	Trails	$1,096,775
	Ozark-St. Francis National Forest	AR	Wastewater Systems	$25,628
	National Forests in North Carolina	NC	Buildings	$7,887,343
	National Forests in North Carolina	NC	Dams	$460,916
	National Forests in North Carolina	NC	Drinking Water Systems	$695,384
	National Forests in North Carolina	NC	Heritage	$534,250
	National Forests in North Carolina	NC	Minor Constructed Features	$2,017,939
	National Forests in North Carolina	NC	Road Bridges	$1,118,414
	National Forests in North Carolina	NC	Roads	$45,101,204
	National Forests in North Carolina	NC	Trail Bridges	$32,750
	National Forests in North Carolina	NC	Trails	$3,344,337
	National Forests in North Carolina	NC	Wastewater Systems	$209,061
	Francis Marion-Sumter National Forests	SC	Buildings	$3,553,169
	Francis Marion-Sumter National Forests	SC	Dams	$72,200
	Francis Marion-Sumter National Forests	SC	Drinking Water Systems	$701,890
	Francis Marion-Sumter National Forests	SC	Heritage	$900,000
	Francis Marion-Sumter National Forests	SC	Minor Constructed Features	$317,884
	Francis Marion-Sumter National Forests	SC	Road Bridges	$2,077,568
	Francis Marion-Sumter National Forests	SC	Roads	$42,964,196
	Francis Marion-Sumter National Forests	SC	Trail Bridges	$0
	Francis Marion-Sumter National Forests	SC	Trails	$1,009,693
	Francis Marion-Sumter National Forests	SC	Wastewater Systems	$169,046
	National Forests in Texas	TX	Buildings	$3,557,152
	National Forests in Texas	TX	Dams	$2,589,000
	National Forests in Texas	TX	Drinking Water Systems	$150,087
	National Forests in Texas	TX	Heritage	$0
	National Forests in Texas	TX	Minor Constructed Features	$525,964
	National Forests in Texas	TX	Road Bridges	$1,159,739
	National Forests in Texas	TX	Roads	$37,021,426
	National Forests in Texas	TX	Trail Bridges	$121,670
	National Forests in Texas	TX	Trails	$753,776
	National Forests in Texas	TX	Wastewater Systems	$667,514
	El Yunque National Forest	PR	Buildings	$1,182,543
	El Yunque National Forest	PR	Drinking Water Systems	$16,612
	El Yunque National Forest	PR	Heritage	$53,800
	El Yunque National Forest	PR	Minor Constructed Features	$1,945,214
	El Yunque National Forest	PR	Roads	$313,102
	El Yunque National Forest	PR	Trail Bridges	$3,600
	El Yunque National Forest	PR	Trails	$33,415
	El Yunque National Forest	PR	Wastewater Systems	$30,467
	Land Between the Lakes NRA	KY, TN	Buildings	$7,646,875
	Land Between the Lakes NRA	KY, TN	Dams $54	
	Land Between the Lakes NRA	KY, TN	Drinking Water Systems	$727,372
	Land Between the Lakes NRA	KY, TN	Heritage	$2,000
	Land Between the Lakes NRA	KY, TN	Minor Constructed Features	$128,038
	Land Between the Lakes NRA	KY, TN	Road Bridges	$562,023
	Land Between the Lakes NRA	KY, TN	Roads	$16,349,447
	Land Between the Lakes NRA	KY, TN	Trail Bridges	$0
	Land Between the Lakes NRA	KY, TN	Trails	$582,986
	Land Between the Lakes NRA	KY, TN	Wastewater Systems	$164,830

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
Region 9—Eastern	**Eastern Region Totals**	**IL, IN, OH, ME, MI, MN, MO, NH, NY, PA, VT, WI, WV**		**$501,510,365**
	Chippewa National Forest	MN	Buildings	$3,643,067
	Chippewa National Forest	MN	Dams	$151,133
	Chippewa National Forest	MN	Drinking Water Systems	$523,783
	Chippewa National Forest	MN	Heritage	$0
	Chippewa National Forest	MN	Minor Constructed Features	$644,795
	Chippewa National Forest	MN	Road Bridges	$2,015,482
	Chippewa National Forest	MN	Roads	$26,495,968
	Chippewa National Forest	MN	Trail Bridges	$16,650
	Chippewa National Forest	MN	Trails	$1,047,106
	Chippewa National Forest	MN	Wastewater Systems	$156,094
	Huron-Manistee National Forest	MI	Buildings	$4,646,900
	Huron-Manistee National Forest	MI	Dams	$141,611
	Huron-Manistee National Forest	MI	Drinking Water Systems	$84,731
	Huron-Manistee National Forest	MI	Heritage	$0
	Huron-Manistee National Forest	MI	Minor Constructed Features	$306,998
	Huron-Manistee National Forest	MI	Road Bridges	$1,052
	Huron-Manistee National Forest	MI	Roads	$25,777,061
	Huron-Manistee National Forest	MI	Trail Bridges	$8,150
	Huron-Manistee National Forest	MI	Trails	$3,147,838
	Huron-Manistee National Forest	MI	Wastewater Systems	$53,271
	Mark Twain National Forest	MO	Buildings	$6,113,981
	Mark Twain National Forest	MO	Dams	$917,102
	Mark Twain National Forest	MO	Drinking Water Systems	$373,380
	Mark Twain National Forest	MO	Heritage	$175,597
	Mark Twain National Forest	MO	Minor Constructed Features	$630,307
	Mark Twain National Forest	MO	Road Bridges	$52,009
	Mark Twain National Forest	MO	Roads	$28,647,991
	Mark Twain National Forest	MO	Trail Bridges	$57,685
	Mark Twain National Forest	MO	Trails	$1,347,198
	Mark Twain National Forest	MO	Wastewater Systems	$69,953
	Ottawa National Forest	MI	Buildings	$2,546,211
	Ottawa National Forest	MI	Dams	$604,555
	Ottawa National Forest	MI	Drinking Water Systems	$590,700
	Ottawa National Forest	MI	Heritage	$12,000
	Ottawa National Forest	MI	Minor Constructed Features	$210,603
	Ottawa National Forest	MI	Road Bridges	$170,181
	Ottawa National Forest	MI	Roads	$23,237,898
	Ottawa National Forest	MI	Trail Bridges	$66,397
	Ottawa National Forest	MI	Trails	$3,934,662
	Ottawa National Forest	MI	Wastewater Systems	$117,874
	Shawnee National Forest	IL	Buildings	$6,397,614
	Shawnee National Forest	IL	Dams	$150,982
	Shawnee National Forest	IL	Drinking Water Systems	$261,148
	Shawnee National Forest	IL	Heritage	$0
	Shawnee National Forest	IL	Minor Constructed Features	$226,632
	Shawnee National Forest	IL	Road Bridges	$1,218,063
	Shawnee National Forest	IL	Roads	$6,235,295
	Shawnee National Forest	IL	Trail Bridges	$3,325
	Shawnee National Forest	IL	Trails	$762,062
	Shawnee National Forest	IL	Wastewater Systems	$154,564
	Superior National Forest	MN	Buildings	$7,431,083
	Superior National Forest	MN	Dams	$237,490
	Superior National Forest	MN	Drinking Water Systems	$145,613
	Superior National Forest	MN	Heritage	$0
	Superior National Forest	MN	Minor Constructed Features	$122,825
	Superior National Forest	MN	Road Bridges	$1,060,838
	Superior National Forest	MN	Roads	$27,341,068
	Superior National Forest	MN	Trail Bridges	$130,700
	Superior National Forest	MN	Trails	$4,529,196
	Superior National Forest	MN	Wastewater Systems	$42,573
	Hiawatha National Forest	MI	Buildings	$5,690,148
	Hiawatha National Forest	MI	Dams	$55,039
	Hiawatha National Forest	MI	Drinking Water Systems	$94,219
	Hiawatha National Forest	MI	Heritage	$326,000
	Hiawatha National Forest	MI	Minor Constructed Features	$39,298
	Hiawatha National Forest	MI	Road Bridges	$1,321,122
	Hiawatha National Forest	MI	Roads	$24,246,986
	Hiawatha National Forest	MI	Trail Bridges	$450,760
	Hiawatha National Forest	MI	Trails	$1,792,726
	Hiawatha National Forest	MI	Wastewater Systems	$26,842
	Hoosier National Forest	IN	Buildings	$230,295
	Hoosier National Forest	IN	Dams	$22,989
	Hoosier National Forest	IN	Drinking Water Systems	$420,000
	Hoosier National Forest	IN	Heritage	$0
	Hoosier National Forest	IN	Minor Constructed Features	$216,126
	Hoosier National Forest	IN	Road Bridges	$190,078
	Hoosier National Forest	IN	Roads	$2,164,872
	Hoosier National Forest	IN	Trail Bridges	$0
	Hoosier National Forest	IN	Trails	$430,891
	Hoosier National Forest	IN	Wastewater Systems	$826,300

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Chequamegon-Nicolet National Forest	WI	Buildings	$9,274,331
	Chequamegon-Nicolet National Forest	WI	Dams	$894,141
	Chequamegon-Nicolet National Forest	WI	Drinking Water Systems	$75,569
	Chequamegon-Nicolet National Forest	WI	Heritage	$5,000
	Chequamegon-Nicolet National Forest	WI	Minor Constructed Features	$264,673
	Chequamegon-Nicolet National Forest	WI	Road Bridges	$4,628,573
	Chequamegon-Nicolet National Forest	WI	Roads	$103,102,919
	Chequamegon-Nicolet National Forest	WI	Trail Bridges	$56,170
	Chequamegon-Nicolet National Forest	WI	Trails	$4,190,988
	Chequamegon-Nicolet National Forest	WI	Wastewater Systems	$143,641
	Wayne National Forest	OH	Buildings	$598,201
	Wayne National Forest	OH	Dams	$1,392,811
	Wayne National Forest	OH	Drinking Water Systems	$79,250
	Wayne National Forest	OH	Heritage	$45,000
	Wayne National Forest	OH	Minor Constructed Features	$99,201
	Wayne National Forest	OH	Roads	$1,518,585
	Wayne National Forest	OH	Trail Bridges	$0
	Wayne National Forest	OH	Trails	$751,355
	Wayne National Forest	OH	Wastewater Systems	$51,150
	Midewin National Tallgrass Prairie	IL	Buildings	$15,473,955
	Midewin National Tallgrass Prairie	IL	Drinking Water Systems	$293
	Midewin National Tallgrass Prairie	IL	Heritage	$800
	Midewin National Tallgrass Prairie	IL	Road Bridges	$1,200,823
	Midewin National Tallgrass Prairie	IL	Roads	$103,105
	Midewin National Tallgrass Prairie	IL	Trail Bridges	$0
	Midewin National Tallgrass Prairie	IL	Trails	$50,544
	Midewin National Tallgrass Prairie	IL	Wastewater Systems	$0
	Allegheny National Forest	PA	Buildings	$9,432,998
	Allegheny National Forest	PA	Dams	$836,737
	Allegheny National Forest	PA	Drinking Water Systems	$211,544
	Allegheny National Forest	PA	Heritage	$0
	Allegheny National Forest	PA	Minor Constructed Features	$1,198,970
	Allegheny National Forest	PA	Road Bridges	$1,292,203
	Allegheny National Forest	PA	Roads	$24,495,783
	Allegheny National Forest	PA	Trail Bridges	$14,700
	Allegheny National Forest	PA	Trails	$1,352,317
	Allegheny National Forest	PA	Wastewater Systems	$125,360
	Green Mountain and Finger Lakes National Forests	NY, VT	Buildings	$1,187,273
	Green Mountain and Finger Lakes National Forests	NY, VT	Dams	$7,050
	Green Mountain and Finger Lakes National Forests	NY, VT	Drinking Water Systems	$9,573
	Green Mountain and Finger Lakes National Forests	NY, VT	Heritage	$33,000
	Green Mountain and Finger Lakes National Forests	NY, VT	Minor Constructed Features	$57,510
	Green Mountain and Finger Lakes National Forests	NY, VT	Road Bridges	$246,865
	Green Mountain and Finger Lakes National Forests	NY, VT	Roads	$3,862,130
	Green Mountain and Finger Lakes National Forests	NY, VT	Trail Bridges	$25,400
	Green Mountain and Finger Lakes National Forests	NY, VT	Trails	$1,738,181
	Green Mountain and Finger Lakes National Forests	NY, VT	Wastewater Systems	$13,090
	Monongahela National Forest	WV	Buildings	$4,920,297
	Monongahela National Forest	WV	Dams	$1,864,610
	Monongahela National Forest	WV	Drinking Water Systems	$368,926
	Monongahela National Forest	WV	Heritage	$75,000
	Monongahela National Forest	WV	Minor Constructed Features	$553,977
	Monongahela National Forest	WV	Road Bridges	$1,793,986
	Monongahela National Forest	WV	Roads	$31,733,627
	Monongahela National Forest	WV	Trail Bridges	$139,092
	Monongahela National Forest	WV	Trails	$1,350,963
	Monongahela National Forest	WV	Wastewater Systems	$481,795
	White Mountain National Forest	ME, NH	Buildings	$9,592,586
	White Mountain National Forest	ME, NH	Dams	$9,309,008
	White Mountain National Forest	ME, NH	Drinking Water Systems	$1,092,901
	White Mountain National Forest	ME, NH	Heritage	$72,000
	White Mountain National Forest	ME, NH	Minor Constructed Features	$278,851
	White Mountain National Forest	ME, NH	Road Bridges	$3,039,285
	White Mountain National Forest	ME, NH	Roads	$7,547,563
	White Mountain National Forest	ME, NH	Trail Bridges	$345,691
	White Mountain National Forest	ME, NH	Trails	$2,885,209
	White Mountain National Forest	ME, NH	Wastewater Systems	$189,500
Region 10—Alaska	**Alaska Region Totals**	**AK**		**$100,338,382**
	Chugach National Forest	AK	Buildings	$3,919,145
	Chugach National Forest	AK	Dams	$21,585
	Chugach National Forest	AK	Drinking Water Systems	$170,065
	Chugach National Forest	AK	Heritage	$50,000
	Chugach National Forest	AK	Minor Constructed Features	$487,357
	Chugach National Forest	AK	Road Bridges	$264,660

By Region, National Forest, and Asset Type—Continued

Region	National Forests & Grasslands/Station	State	Asset Type	Deferred Maintenance
	Chugach National Forest	AK	Roads	$2,821,999
	Chugach National Forest	AK	Trail Bridges	$3,750
	Chugach National Forest	AK	Trails	$3,347,342
	Chugach National Forest	AK	Wastewater Systems	$28,132
	Tongass National Forest	AK	Buildings	$17,808,018
	Tongass National Forest	AK	Dams	$4,523
	Tongass National Forest	AK	Drinking Water Systems	$324,389
	Tongass National Forest	AK	Heritage	$10,016
	Tongass National Forest	AK	Minor Constructed Features	$396,480
	Tongass National Forest	AK	Road Bridges	$37,183,605
	Tongass National Forest	AK	Roads	$27,345,723
	Tongass National Forest	AK	Trail Bridges	$200,348
	Tongass National Forest	AK	Trails	$5,738,741
	Tongass National Forest	AK	Wastewater Systems	$212,505
Other	**Other Totals**			**$102,062,800**
	Forest Products Laboratory		Buildings	$4,856,527
	San Dimas Technology and Development Center		Buildings	$3,516,422
	Missoula Technology and Development Center		Buildings	$74,439
	Frenchburg Job Corp Center		Buildings	$85,043
	Jacobs Creek Job Corp Center		Buildings	$230,663
	Pine Knot Job Corp Center		Buildings	$726,180
	Cass Job Corp Center		Buildings	$45,726
	Ouachita Job Corp Center		Buildings	$29,171
	Blackwell Job Corp Center		Buildings	$108,355
	Trapper Creek Job Corp Center		Buildings	$65,718
	Timber Lake Job Corp Center		Buildings	$701,188
	Wolf Creek Job Corp Center		Buildings	$651,139
	Angell Job Corp Center		Buildings	$412,615
	Curlew Job Corp Center		Buildings	$260,739
	International Institute of Tropical Forestry		Buildings	$2,287,183
	International Institute of Tropical Forestry		Wastewater Systems	$55,018
	Rocky Mountain Research Station		Buildings	$21,444,549
	Rocky Mountain Research Station		Drinking Water Systems	$757,084
	Rocky Mountain Research Station		Wastewater Systems	$65,529
	Northern Research Station		Buildings	$18,938,415
	Northern Research Station		Drinking Water Systems	$78,777
	Northern Research Station		Road Bridges	$82,465
	Northern Research Station		Wastewater Systems	$138,065
	Pacific Northwest Research Station		Buildings	$15,072,737
	Pacific Northwest Research Station		Drinking Water Systems	$415,906
	Pacific Northwest Research Station		Wastewater Systems	$335,584
	Pacific Northwest Research Station		Buildings	$14,177,965
	Pacific Northwest Research Station		Drinking Water Systems	$555,940
	Pacific Northwest Research Station		Wastewater Systems	$150,907
	Southern Research Station		Buildings	$14,649,003
	Southern Research Station		Drinking Water Systems	$3,500
	Southern Research Station		Wastewater Systems	$15,127
	Wood Education and Resource Center		Buildings	$354,445
	Grey Towers National Historic Site		Buildings	$201,931
	Grey Towers National Historic Site		Drinking Water Systems	$450,500
	Grey Towers National Historic Site		Roads	$68,247
Grand Total				**$5,242,592,725**

Deferred maintenance values for passenger car roads and trails are based on a statistically significant random sampling of these assets to generate a national deferred maintenance cost per mile. These national averages are not statistically valid at a regional or forest level, but have been applied for estimation purposes. Deferred maintenance values for high clearance vehicle and basic custodial care (closed) roads cannot be estimated with a suitable degree of confidence and are therefore not included.

*Roads and/or Trails may have segments located in multiple states that may lie outside ofproclaimed unit boundaries.

**__Editor's note:__ the table, as submitted, when referring to the Grand Mesa, Uncompahgre & Gunnison National Forest shortened "Uncompahgre &" to "Uncomp".

For Roads, Trails, and Road Bridges By State

State	Roads	Trails	Road Bridges	Total
AK	$30,167,722	$9,086,083	$37,448,265	$76,702,070
AL	$25,465,968	$645,423	$3,515,489	$29,626,880
AR	$65,004,771	$2,232,089	$1,219,489	$68,456,349
AZ	$133,929,957	$9,977,170	$5,326,637	$149,233,764
CA	$406,953,614	$27,000,212	$27,430,876	$461,384,703
CO	$199,488,371	$24,714,337	$13,511,750	$237,714,459
FL	$60,447,355	$1,317,739	$4,797,706	$66,562,800
GA	$29,057,083	$1,479,095	$3,027,760	$33,563,938
ID	$308,137,988	$39,290,149	$21,571,656	$368,999,793
IL	$6,338,400	$779,887	$2,418,886	$9,537,173
IN	$2,164,872	$430,282	$190,078	$2,785,232

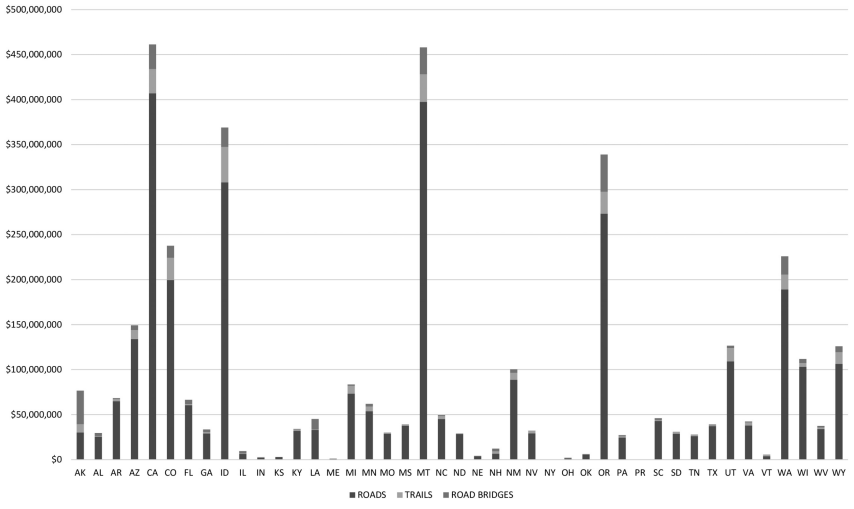
For Roads, Trails, and Road Bridges By State—Continued

State	Roads	Trails	Road Bridges	Total
KS	$2,892,192	$134,463	$0	$3,026,655
KY	$31,898,023	$1,532,881	$701,569	$34,132,472
LA	$32,932,392	$618,531	$11,589,927	$45,140,849
ME	$997,025	$215,141	$0	$1,212,166
MI	$73,261,945	$8,847,679	$1,492,355	$83,601,979
MN	$53,837,036	$5,136,494	$3,076,320	$62,049,851
MO	$28,647,991	$1,344,632	$52,009	$30,044,632
MS	$37,596,942	$726,101	$711,552	$39,034,595
MT	$397,467,099	$30,711,396	$29,978,886	$458,157,381
NC	$45,141,009	$3,334,688	$1,118,414	$49,594,112
ND	$28,575,225	$430,282	$3,921	$29,009,429
NE	$3,919,546	$295,819	$60,739	$4,276,104
NH	$6,550,538	$2,689,264	$3,039,285	$12,279,087
NM	$88,809,831	$7,637,510	$3,985,690	$100,433,031
NV	$29,210,265	$2,716,157	$220,431	$32,146,853
NY	$68,543	$134,463	$0	$203,006
OH	$1,518,585	$752,994	$0	$2,271,579
OK	$5,749,103	$403,390	$93,289	$6,245,781
OR	$273,358,196	$24,203,377	$41,511,893	$339,073,466
PA	$24,564,030	$1,344,632	$1,292,203	$27,200,865
PR	$313,102	$26,893	$0	$339,995
SC	$42,964,196	$995,028	$2,077,568	$46,036,791
SD	$28,651,535	$2,366,552	$0	$31,018,087
TN	$26,000,286	$1,479,095	$363,365	$27,842,747
TX	$37,251,330	$726,101	$1,159,739	$39,137,170
UT	$109,194,877	$14,844,738	$2,635,556	$126,675,171
VA	$37,763,444	$3,442,258	$1,149,834	$42,355,537
VT	$3,793,587	$1,586,666	$246,865	$5,627,117
WA	$189,148,028	$16,458,296	$20,323,995	$225,930,319
WI	$103,102,919	$4,168,359	$4,628,573	$111,899,852
WV	$34,056,410	$1,586,666	$1,793,986	$37,437,061
WY	$106,371,237	$13,016,038	$6,656,507	$126,043,783
Grand Total	**$3,152,762,570**	***$270,859,053**	***$260,423,062**	**$3,684,044,685**

Deferred maintenance values for passenger car roads and trails are based on a statistically significant random sampling of these assets to generate a national deferred maintenance cost per mile. These national averages are not statistically valid at a regional or forest level, but have been applied for estimation purposes. Deferred maintenance values for high clearance vehicle and basic custodial care (closed) roads cannot be estimated with a suitable degree of confidence and are therefore not included.

* Deferred maintenance totals for trails and bridges as shown in this table may differ from FY 2018 national totals as this table excludes assets that do not have a value for 'state' assigned in the system of record.

By State and Transportation Asset Type



For Roads, Trails, and Road Bridges By State and Congressional District

State	Congressional District	Roads	Trails	Road Bridges	Total
AK	01	$30,167,722	$9,086,083	$37,448,265	**$76,702,070**
AL	01	$573,875	$0	$298,693	**$872,568**
	02	$1,122,508	$26,893	$465,144	**$1,614,545**
	03	$9,936,917	$457,175	$769,449	**$11,163,541**
	04	$6,778,593	$161,356	$630,272	**$7,570,221**
	05	$454,411	$0	$857,631	**$1,312,042**
	07	$6,599,664	$0	$494,299	**$7,093,963**
AR	01	$1,549,978	$242,034	$423,976	**$2,215,988**
	02	$20,364,769	$376,497	$298,095	**$21,039,361**
	03	$1,927,594	$242,034	$35,513	**$2,205,140**
	04	$41,162,430	$1,371,525	$461,905	**$42,995,860**
AZ	01	$112,081,190	$8,363,611	$4,236,474	**$124,681,276**
	02	$54,757	$0	$1,382	**$56,138**
	03	$847,221	$80,678	$0	**$927,899**
	04	$4,556,246	$26,893	$101,297	**$4,684,435**
	05	$2,668,069	$322,712	$31,771	**$3,022,552**
	06	$19,320	$134,463	$7,817	**$161,600**
	07	$1,586,871	$268,926	$19,103	**$1,874,900**
	08	$12,116,284	$779,887	$928,793	**$13,824,964**
CA	01	$93,824,731	$1,855,592	$3,313,882	**$98,994,205**
	02	$84,292,128	$5,055,817	$10,247,650	**$99,595,595**
	03	$4,070,622	$3,415,365	$553,998	**$8,039,985**
	04	$125,853,266	$2,958,191	$7,871,414	**$136,682,871**
	08	$145,173	$26,893	$979	**$173,045**
	11	$0	$0	$759,110	**$759,110**
	14	$4,558,236	$0	$0	**$4,558,236**
	17	$2,135,892	$537,853	$69,654	**$2,743,399**
	18	$2,397,636	$0	$0	**$2,397,636**
	19	$16,173,702	$2,474,123	$2,282,012	**$20,929,838**
	20	$1,775,218	$53,785	$0	**$1,829,003**
	21	$22,716,105	$3,280,902	$1,634,700	**$27,631,707**
	22	$7,124,472	$1,048,813	$284,199	**$8,457,484**
	23	$14,563	$0	$31,437	**$46,000**
	24	$12,576,957	$1,586,666	$0	**$14,163,623**
	25	$5,194,645	$2,554,801	$300,744	**$8,050,189**
	26	$0	$510,960	$0	**$510,960**
	27	$0	$0	$30,982	**$30,982**
	28	$0	$26,893	$19,787	**$46,679**
	33	$5,531,960	$0	$0	**$5,531,960**
	35	$11,705,557	$134,463	$0	**$11,840,020**
	37	$2,562,051	$26,893	$0	**$2,588,944**
	41	$0	$591,638	$26,517	**$618,156**
	42	$482,032	$0	$0	**$482,032**
	43	$11,650	$0	$0	**$11,650**
	44	$479,216	$80,678	$0	**$559,894**
	45	$42,184	$322,712	$3,810	**$368,705**
	48	$4,854	$0	$0	**$4,854**
	49	$1,639,278	$215,141	$0	**$1,854,419**
	52	$1,641,486	$242,034	$0	**$1,883,520**
CO	02	$21,226,446	$3,899,433	$1,538,089	**$26,663,968**
	03	$148,481,717	$17,722,251	$11,091,150	**$177,295,117**
	04	$13,616,409	$1,183,276	$52,762	**$14,852,447**
	05	$16,154,576	$1,909,378	$829,749	**$18,893,703**
	06	$9,223	$0	$0	**$9,223**
FL	01	$6,165	$0	$0	**$6,165**
	02	$29,799,917	$376,497	$3,431,375	**$33,607,789**
	03	$9,725,003	$510,960	$0	**$10,235,963**
	04	$14,020,670	$134,463	$1,366,330	**$15,521,463**
	08	$6,895,601	$295,819	$0	**$7,191,420**
GA	03	$1,861,915	$0	$0	**$1,861,915**
	03	$0	$0	$13,813	**$13,813**
	07	$463,100	$0	$0	**$463,100**
	08	$1,646,239	$26,893	$4,870	**$1,678,001**
	09	$16,015,816	$699,209	$2,957,349	**$19,672,373**
	10	$6,163,403	$672,316	$48,407	**$6,884,126**
	11	$2,366,568	$80,678	$3,322	**$2,450,568**
	12	$540,041	$0	$0	**$540,041**
ID	01	$232,804,947	$23,073,886	$16,628,617	**$272,507,450**
	02	$75,333,042	$16,216,263	$4,943,039	**$96,492,343**
IL	01	$195,628	$0	$12,135	**$207,764**
	11	$103,105	$0	$0	**$103,105**
	12	$2,840,989	$188,248	$96,586	**$3,125,823**
	16	$0	$26,893	$1,255,904	**$1,282,797**

For Roads, Trails, and Road Bridges By State and Congressional District—Continued

State	Congressional District	Roads	Trails	Road Bridges	Total
	19	$3,198,678	$564,745	$1,054,261	**$4,817,684**
IN	07	$0	$0	$62,027	**$62,027**
	08	$1,427,407	$215,141	$0	**$1,642,548**
	09	$737,465	$215,141	$128,050	**$1,080,657**
KS	01	$2,892,192	$134,463	$0	**$3,026,655**
KY	01	$11,443,837	$457,175	$554,791	**$12,455,803**
	05	$17,025,982	$806,779	$91,309	**$17,924,070**
	06	$3,428,204	$268,926	$55,469	**$3,752,599**
LA	04	$5,310,459	$215,141	$9,118,841	**$14,644,441**
	05	$21,556,825	$403,390	$2,471,086	**$24,431,301**
	08	$6,065,108	$0	$0	**$6,065,108**
ME	01	$142,231	$0	$0	**$142,231**
	02	$854,794	$215,141	$0	**$1,069,935**
MI	01	$66,599,807	$7,234,120	$869,484	**$74,703,411**
	02	$6,662,138	$1,613,558	$0	**$8,275,697**
	11	$0	$0	$622,871	**$622,871**
MN	07	$3,343,739	$26,893	$190,216	**$3,560,847**
	08	$50,493,298	$5,109,602	$2,886,104	**$58,489,004**
MO	03	$538,827	$53,785	$0	**$592,613**
	04	$1,250,274	$0	$0	**$1,250,274**
	07	$5,565,940	$322,712	$0	**$5,888,652**
	08	$21,176,447	$914,350	$52,009	**$22,142,806**
	09	$116,503	$53,785	$0	**$170,288**
MS	01	$4,673,186	$80,678	$90,755	**$4,844,619**
	02	$1,591,385	$80,678	$65,606	**$1,737,669**
	03	$8,718,551	$188,248	$226,529	**$9,133,328**
	04	$22,607,363	$376,497	$328,662	**$23,312,523**
	05	$6,456	$0	$0	**$6,456**
MT	01	$397,467,099	$30,711,396	$29,978,886	**$458,157,381**
NC	01	$7,120,578	$80,678	$19,825	**$7,221,082**
	02	$0	$26,893	$0	**$26,893**
	03	$150,775	$188,248	$24,747	**$363,770**
	06	$30,291	$0	$0	**$30,291**
	08	$1,446,339	$188,248	$1,131	**$1,635,718**
	10	$5,097,064	$107,571	$29,794	**$5,234,428**
	11	$31,295,963	$2,743,049	$1,042,917	**$35,081,929**
ND	01	$28,575,225	$430,282	$3,921	**$29,009,429**
NE	03	$3,919,546	$295,819	$60,739	**$4,276,104**
NH	01	$1,642,016	$806,779	$593,554	**$3,042,349**
	02	$4,908,523	$1,882,485	$2,445,731	**$9,236,738**
NM	01	$1,546,386	$591,638	$53,846	**$2,191,870**
	02	$42,091,004	$4,544,856	$1,686,923	**$48,322,784**
	03	$45,172,441	$2,501,016	$2,244,921	**$49,918,377**
NV	01	$0	$26,893	$0	**$26,893**
	02	$29,210,265	$2,689,264	$220,431	**$32,119,960**
NY	01	$0	$26,893	$0	**$26,893**
	23	$0	$107,571	$0	**$107,571**
	31	$68,543	$0	$0	**$68,543**
OH	06	$1,459,610	$457,175	$0	**$1,916,785**
	10	$17,543	$0	$0	**$17,543**
	15	$41,431	$295,819	$0	**$337,251**
OK	02	$5,649,687	$0	$93,289	**$5,742,976**
	03	$0	$403,390	$0	**$403,390**
	06	$99,416	$0	$0	**$99,416**
OR	01	$4,113,534	$0	$0	**$4,113,534**
	02	$167,956,246	$16,996,149	$20,974,819	**$205,927,215**
	03	$1,511,144	$699,209	$542,237	**$2,752,589**
	04	$87,000,415	$5,916,381	$16,805,076	**$109,721,872**
	05	$12,776,857	$591,638	$3,189,761	**$16,558,256**
PA	05	$24,495,783	$53,785	$0	**$24,549,569**
	10	$68,247	$0	$0	**$68,247**
	15	$0	$1,290,847	$1,292,203	**$2,583,050**
PR	01	$313,102	$26,893	$0	**$339,995**
SC	01	$2,836,901	$349,604	$199,298	**$3,385,804**
	03	$15,064,155	$376,497	$507,957	**$15,948,609**
	04	$3,383,496	$80,678	$10,361	**$3,474,535**
	05	$7,829,889	$188,248	$81,215	**$8,099,352**
	06	$13,849,755	$0	$1,278,736	**$15,128,491**
SD	01	$28,651,535	$2,366,552	$0	**$31,018,087**
TN	01	$7,323,624	$591,638	$203,701	**$8,118,963**
	02	$5,741,181	$322,712	$128,390	**$6,192,282**

For Roads, Trails, and Road Bridges By State and Congressional District—Continued

State	Congressional District	Roads	Trails	Road Bridges	Total
	03	$8,029,871	$430,282	$21,071	**$8,481,225**
	07	$1,177,168	$134,463	$10,203	**$1,321,834**
	08	$3,728,442	$0	$0	**$3,728,442**
TX	01	$2,295,793	$0	$478,548	**$2,774,340**
	02	$31,635,313	$53,785	$0	**$31,689,098**
	04	$127,425	$0	$0	**$127,425**
	06	$0	$134,463	$199,312	**$333,775**
	08	$2,265,089	$403,390	$428,154	**$3,096,633**
	09	$0	$53,785	$0	**$53,785**
	13	$229,905	$26,893	$53,725	**$310,522**
	17	$697,806	$53,785	$0	**$751,591**
UT	01	$41,294,700	$3,200,224	$935,156	**$45,430,081**
	02	$41,125,096	$6,454,234	$1,251,518	**$48,830,847**
	03	$26,775,081	$4,975,139	$433,873	**$32,184,092**
	04	$0	$215,141	$15,009	**$230,150**
VA	02	$23,689	$0	$0	**$23,689**
	05	$82,426	$53,785	$5,579	**$141,791**
	06	$23,517,384	$1,721,129	$803,911	**$26,042,424**
	07	$249,317	$80,678	$0	**$329,995**
	09	$11,367,023	$1,559,773	$328,479	**$13,255,276**
	10	$2,523,605	$26,893	$11,865	**$2,562,362**
VT	01	$3,793,587	$1,586,666	$246,865	**$5,627,118**
WA	01	$643,195	$2,043,841	$764,922	**$3,451,957**
	02	$28,095,470	$0	$2,685,239	**$30,780,709**
	03	$18,722,744	$2,474,123	$3,145,959	**$24,342,826**
	04	$14,187,226	$7,045,872	$4,940,120	**$26,173,218**
	05	$59,522,698	$3,738,077	$3,565,076	**$66,825,851**
	06	$19,357,686	$484,068	$3,857,479	**$23,699,233**
	08	$48,619,009	$672,316	$1,358,995	**$50,650,320**
	10	$0	$0	$6,205	**$6,205**
WI	07	$93,282,850	$2,258,982	$3,413,728	**$98,955,560**
	08	$9,820,069	$1,909,378	$1,214,846	**$12,944,292**
WV	01	$4,833,815	$215,141	$951,591	**$6,000,547**
	02	$12,970,398	$618,531	$302,409	**$13,891,338**
	03	$16,252,196	$752,994	$539,985	**$17,545,175**
WY	01	$106,371,237	$13,016,038	$6,656,507	**$126,043,782**
Grand Totals		***$3,152,762,570***	****$270,859,053***	***/*****$260,423,062***	***$3,684,044,685***

Deferred maintenance values for passenger car roads and trails are based on a statistically significant random sampling of these assets to generate a national deferred maintenance cost per mile. These national averages are not statistically valid at a regional or forest level, but have been applied for estimation purposes. Deferred maintenance values for high clearance vehicle and basic custodial care (closed) roads cannot be estimated with a suitable degree of confidence and are therefore not included.

*Deferred maintenance totals for trails and road bridges as shown in this table may differ from FY 2018 national totals as this table excludes assets that do not have a value for 'Congressional district' assigned in the system of record.

**Deferred maintenance values for road bridges is estimated based on the proportion of the Congressional district's deferred maintenance compared to the state total deferred maintenance as of March 26, 2019, as data for total deferred maintenance values by congressional district are dynamic and no longer available for September 30, 2018 as of the date of publication of this report.

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