

CADMUS

RESTORING PARKS, CREATING JOBS

How Infrastructure
Restoration in the National
Park System Can Create
or Support Jobs

FY2016 Data Analysis

COMMISSIONED BY:
THE PEW CHARITABLE TRUSTS

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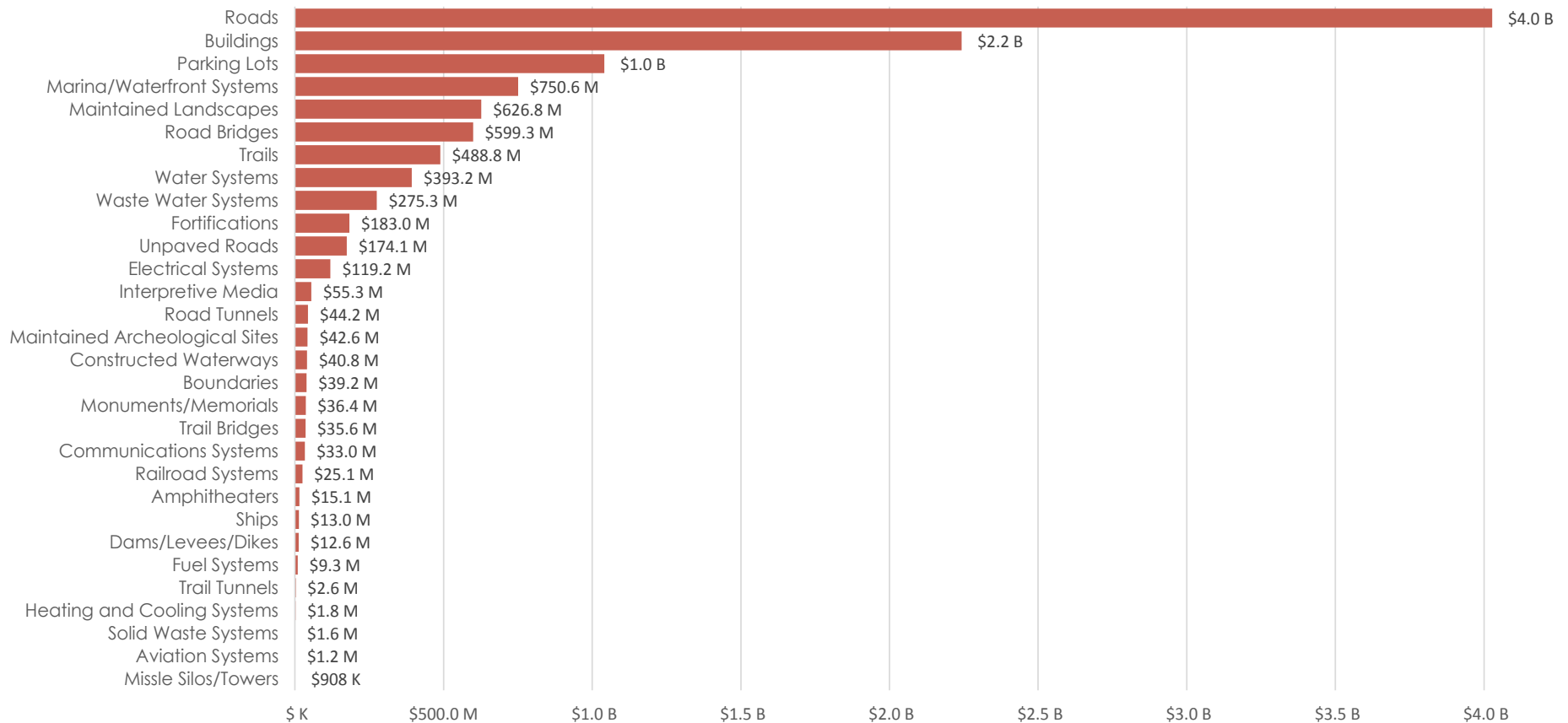
NATIONAL PARK SERVICE OVERVIEW

- The National Park Service (NPS) manages and protects over 400 units nationwide including: wild landscapes, cultural and historical sites, urban areas, waterfronts, battlefields, cemeteries, trail systems, and parkways that preserve and interpret significant pieces of America's history.
- NPS maintains over 75,000 built assets.
- NPS assets include:
 - 12,500 miles of roads
 - 18,000 miles of trails
 - 28,000 buildings
 - 1,800 sewage systems
- NPS is 101 years old.



NATIONAL PARK SERVICE DEFERRED MAINTENANCE: THE NUMBERS

National Park Service Deferred Maintenance Categories
(FY2016 data)



According to NPS, “Deferred Maintenance is maintenance and repairs of assets that was not performed when it should have been and is delayed for a future period.”

INFRASTRUCTURE RESTORATION CREATES AND SUPPORTS JOBS

42,000

NPS ASSETS
WITH DEFERRED
MAINTENANCE
NEEDS

\$11.3B

FEDERAL
INVESTMENT
NEEDED FOR NPS
REPAIRS

110,169

JOBS CREATED
OR SUPPORTED BY
\$11.3B FEDERAL
INVESTMENT IN NPS
INFRASTRUCTURE

- Of the 75,000 NPS assets, 42,000 require repairs.
- The NPS Deferred Maintenance backlog for FY 2016 is estimated at \$11.3 billion.
- 110,169 jobs could be created or supported by investing in infrastructure and preservation projects that are on NPS' complete deferred maintenance list.

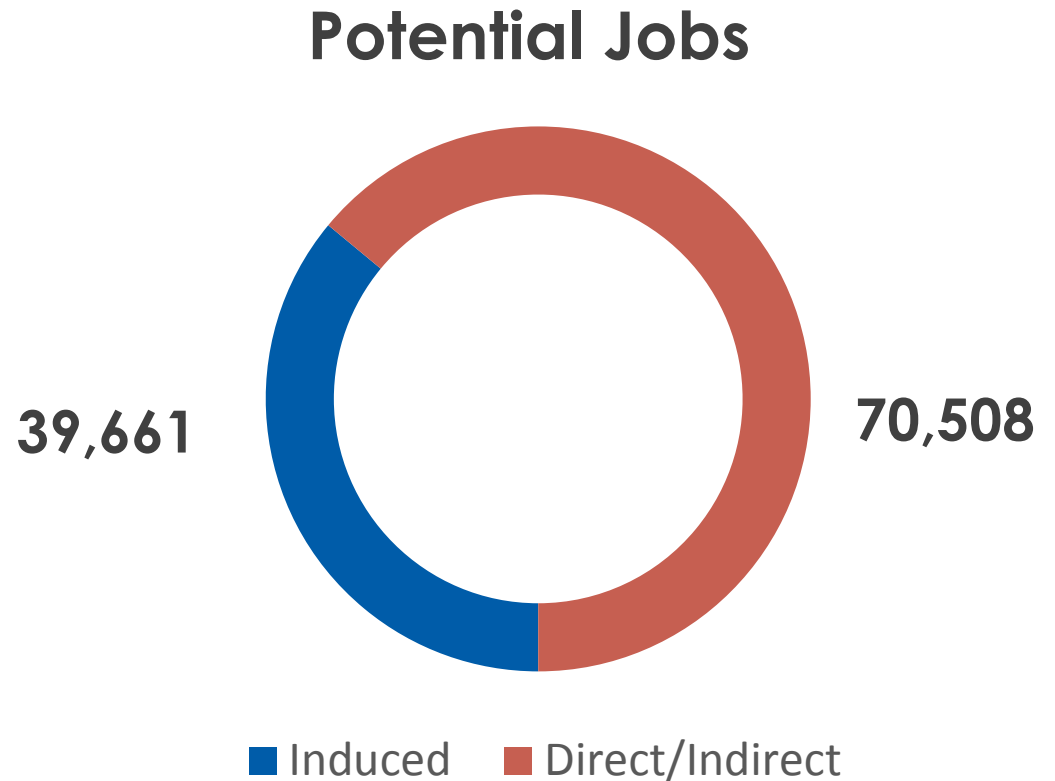
This report measures jobs in terms of job-years. A job-year is the equivalent of one full-time job that lasts for one full year. For example, one person working full-time for two years is equivalent to two job-years. Two people working half-time for one year is equivalent to one job-year.

JOB NUMBERS

Total potential jobs are split across direct, indirect, and induced jobs.

Of the 110,169 potential infrastructure-related NPS jobs, 64 percent would be direct and indirect jobs. Direct jobs are actual restoration and construction-related jobs while indirect jobs refer to supplying materials to the construction site and other off-site support activities.

The remaining 36 percent of potential jobs are induced due to money circulating within the local economy as a result of income generated from NPS infrastructure-related projects.

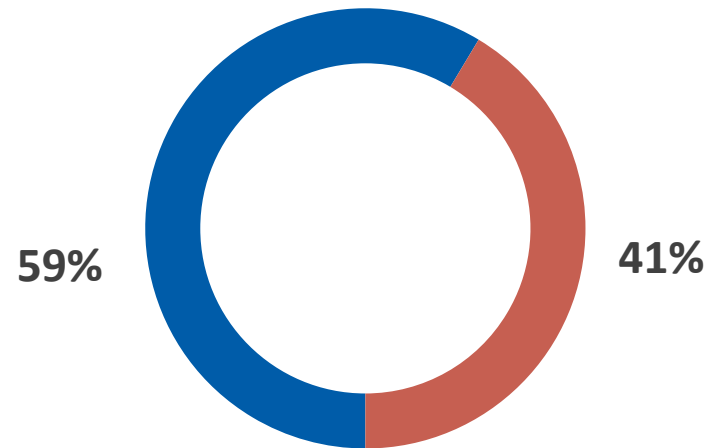


STATES WITH HIGHER UNEMPLOYMENT RATES MAY BENEFIT MOST

Of the NPS infrastructure-related jobs that would be created or supported by addressing the maintenance backlog, 59 percent would be in states with unemployment rates that exceed the National Average Unemployment Rate.*

**Based on June 2017 BLS data; 4.4% National Average Unemployment*

Potential Jobs in States with High Unemployment Rates



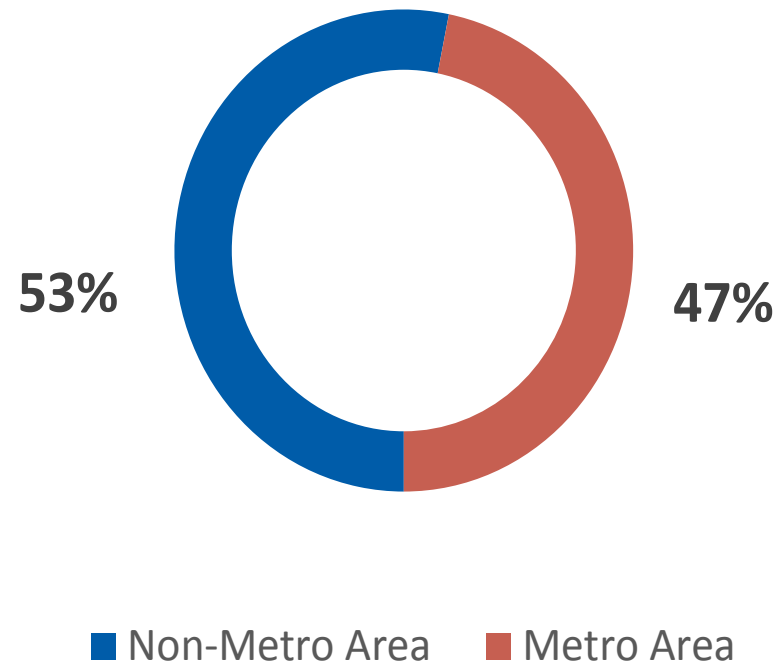
- Jobs in Parks > State Unemployment Average
- Jobs in Parks < State Unemployment Average

POTENTIAL JOBS WOULD BE LOCATED IN METRO & NON-METRO AREAS

Of the potential NPS infrastructure related jobs, 53 percent would be in non-metro areas (areas with less than 100,000 residents).*

**Based on U.S. Census Bureau Data.*

**Potential NPS Jobs
Metro and Non-Metro Areas**



TOP 20 STATES WITH THE MOST JOB POTENTIAL

- 1 California
- 2 District of Columbia
- 3 New York
- 4 Wyoming
- 5 Virginia
- 6 Arizona
- 7 North Carolina
- 8 Washington
- 9 Mississippi
- 10 Pennsylvania
- 11 Utah
- 12 Maryland
- 13 Tennessee
- 14 Florida
- 15 Montana
- 16 Massachusetts
- 17 Colorado
- 18 New Jersey
- 19 Texas
- 20 Nevada

POTENTIAL JOBS BY STATE

State	Jobs	Job Rank	State	Jobs	Job Rank	State	Jobs	Job Rank
AK	1,060	24	KY	1,154	22	OH	774	28
AL	252	37	LA	110	44	OK	194	40
AR	400	34	MA	2,261	16	OR	1,026	26
AS	8	55	MD	2,649	12	PA	2,808	10
AZ	6,246	6	ME	700	29	PR	180	41
CA	16,543	1	MI	452	32	RI	14	54
CO	2,209	17	MN	205	39	SC	279	36
CT	30	53	MO	799	27	SD	618	30
DC	11,652	2	MP	87	47	TN	2,572	13
DE	0	56	MS	3,028	9	TX	1,526	19
FL	2,467	14	MT	2,451	15	UT	2,758	11
GA	1,052	25	NC	4,187	7	VA	7,298	5
GU	62	49	ND	527	31	VI	239	38
HI	1,348	21	NE	72	48	VT	31	52
IA	62	50	NH	51	51	WA	3,826	8
ID	142	43	NJ	2,075	18	WI	91	46
IL	170	42	NM	1,132	23	WV	426	33
IN	317	35	NV	1,370	20	WY	8,054	4
KS	95	45	NY	9,847	3	Other*	186	-

**Other represents potential jobs created or supported from repairing the Appalachian National Scenic Trail, which crosses several state boundaries.*

METHODOLOGY

REPORT PREPARED BY THE CADMUS GROUP

This analysis used Fiscal Year 2016 NPS deferred maintenance data from the National Park Service's Facility Management Software System (FMSS). The NPS FMSS system tracks all of the known deferred maintenance by project and includes several project fields, such as asset type, condition, and estimated repair cost. To transform the cost data into jobs, this report used the Council of Economic Advisors' (CEA) job creation formula (2009). This formula estimates that each \$92,000 of infrastructure investment creates one job-year (1 full-time employee for 1 year). The total government spending required to generate one job-year was adjusted from \$2009 to \$2016 using U.S. Bureau of Labor Statistics CPI inflation data to \$103,000 per job-year. While the CPI index tracks increases in the costs of goods as well as labor, inflation remained low over the period 2009-2016 and adjusted job estimates are substantially similar to those created by adjusting using the Employment Cost Index 2009-2016.

The total job creation is split across direct/indirect and induced job creation. The formula predicts that 64 percent of jobs would be direct and indirect jobs; these are jobs that are either involved at the construction site or in supplying materials and labor to the construction site. The remaining 36 percent of jobs are induced jobs; these jobs are created by spending effects from money circulating within the local economy. While more detailed job estimation models are available, they work best at a local level when supplied with community-specific materials and labor market variables. While the CEA formula is not as accurate on a local level, it should provide a reasonably accurate job-creation estimate at a state and national level across the NPS system.

In addition to data provided by the NPS in their "FY 2016 NPS Asset Inventory Summary Location Report 2016.09.30" this report also uses publicly available information from the U.S. Census Bureau on metropolitan area boundaries and the U.S. Bureau of Labor Statistics on unemployment (as of August 2017). Data analysis is based on the "State" field supplied by the NPS; the state information for some entries was modified to better reflect the on-the-ground physical location of some assets in multi-state parks.