CADMUS

RESTORING PARKS, CREATING JOBS

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

FY 2018 Data Analysis

COMMISSIONED BY:
THE PEW CHARITABLE TRUSTS

June 2019
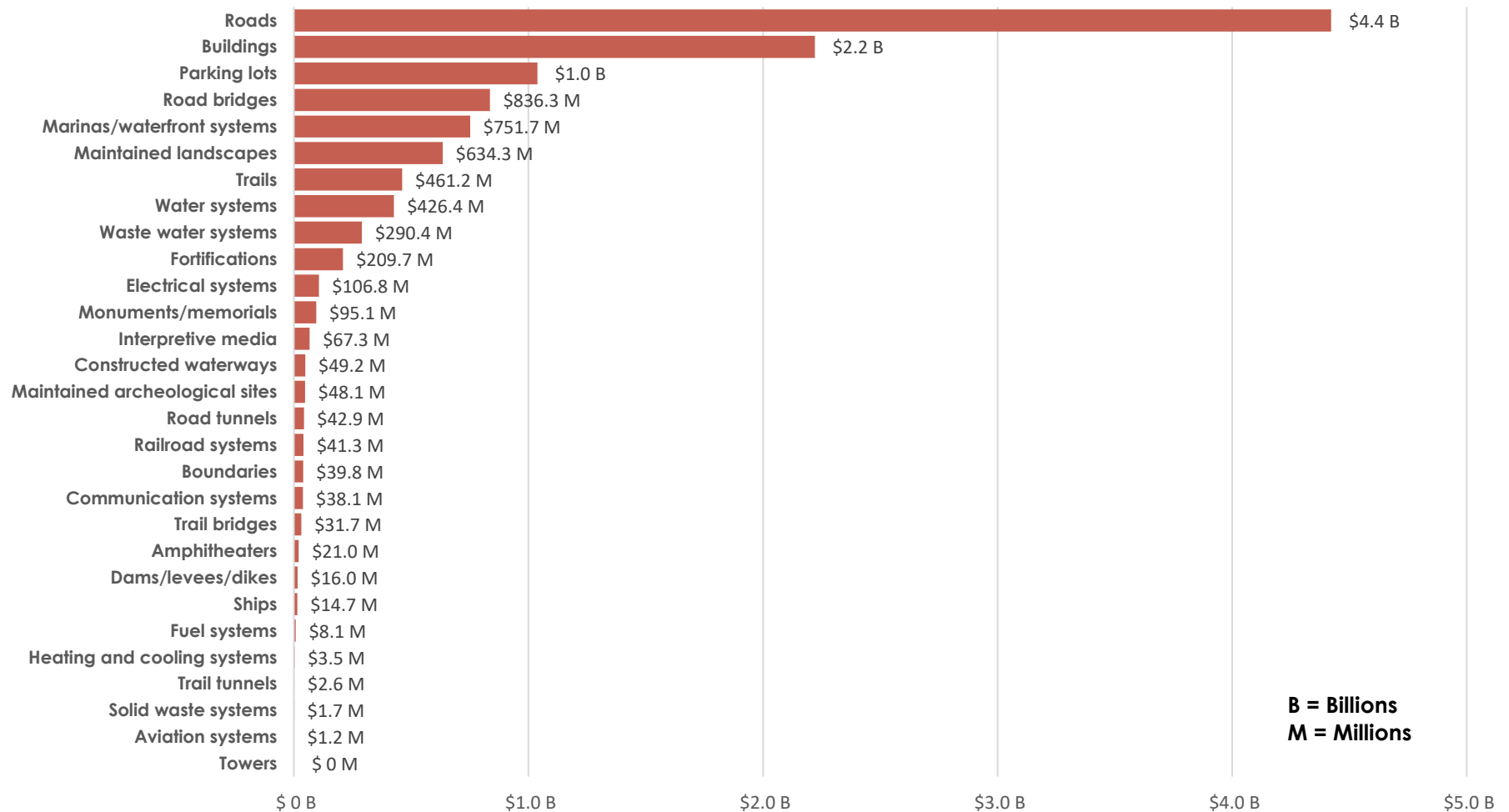
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NATIONAL PARK SERVICE OVERVIEW

- The National Park Service (NPS) manages and protects more than 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 more than 76,000 built assets.

- NPS assets include:
- 14,189 miles of roads.
- 1,421 campgrounds.
- 28,763 buildings.
- 1,831 sewage systems.

- NPS is 103 years old.

NATIONAL PARK SERVICE DEFERRED MAINTENANCE: THE NUMBERS

National Park Service Deferred Maintenance Categories
(FY 2018 data)

Category	Amount
Roads	$4.4 B
Buildings	$2.2 B
Parking lots	$1.0 B
Road bridges	$836.3 M
Marinas/waterfront systems	$751.7 M
Maintained landscapes	$634.3 M
Trails	$461.2 M
Water systems	$426.4 M
Waste water systems	$290.4 M
Fortifications	$209.7 M
Electrical systems	$106.8 M
Monuments/memorials	$95.1 M
Interpretive media	$67.3 M
Constructed waterways	$49.2 M
Maintained archeological sites	$48.1 M
Road tunnels	$42.9 M
Railroad systems	$41.3 M
Boundaries	$39.8 M
Communication systems	$38.1 M
Trail bridges	$31.7 M
Amphitheaters	$21.0 M
Dams/levees/dikes	$16.0 M
Ships	$14.7 M
Fuel systems	$8.1 M
Heating and cooling systems	$3.5 M
Trail tunnels	$2.6 M
Solid waste systems	$1.7 M
Aviation systems	$1.2 M
Towers	$ 0 M

B = Billions
M = Millions

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

41,863
NPS ASSETS WITH DEFERRED MAINTENANCE NEEDS

$11.9B
FEDERAL INVESTMENT NEEDED FOR NPS REPAIRS

108,364
JOBS CREATED OR SUPPORTED BY $11.9B FEDERAL INVESTMENT IN NPS INFRASTRUCTURE

- Of the more than 76,000 NPS assets, nearly 42,000 require repairs.
- The NPS deferred maintenance backlog for FY 2018 is estimated at $11.9 billion.
- 108,364 jobs could be created or supported by investing in infrastructure and preservation projects that are on NPS' 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 among direct, indirect, and induced jobs.

Of the 108,364 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 refers 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.
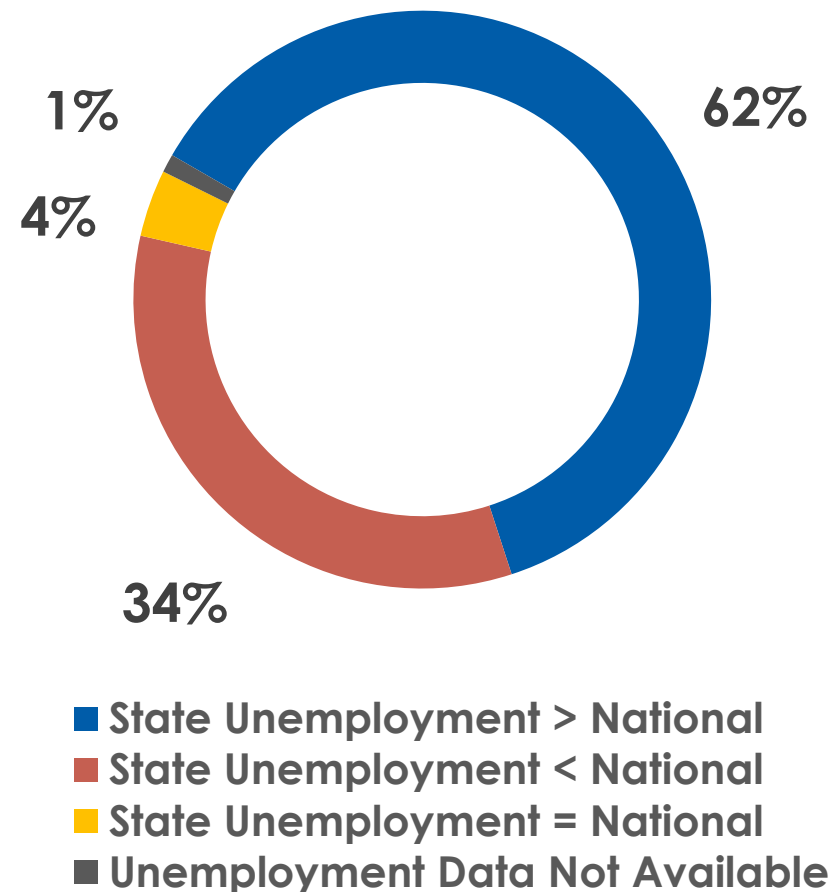
Potential Jobs

39,011

69,353

■ Direct & Indirect Jobs   ■ Induced Jobs
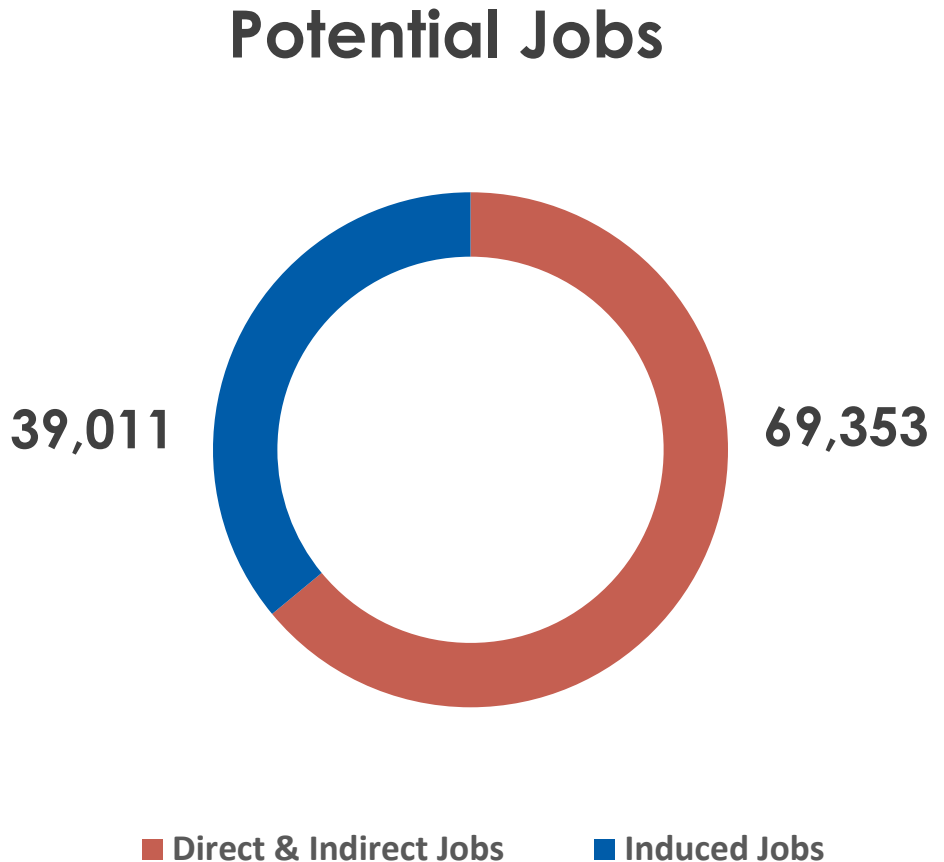
STATES AND TERRITORIES WITH HIGHER UNEMPLOYMENT RATES MAY BENEFIT MOST

Of the NPS infrastructure-related jobs that would be created or supported by addressing the maintenance backlog, 62 percent would be in states with unemployment rates that exceed the national average.*

Based on March 2019 Bureau of Labor Statistics data; 3.8 percent national average unemployment

Potential Jobs in States with High Unemployment Rates

1%

4%

62%

34%

- State Unemployment > National
- State Unemployment < National
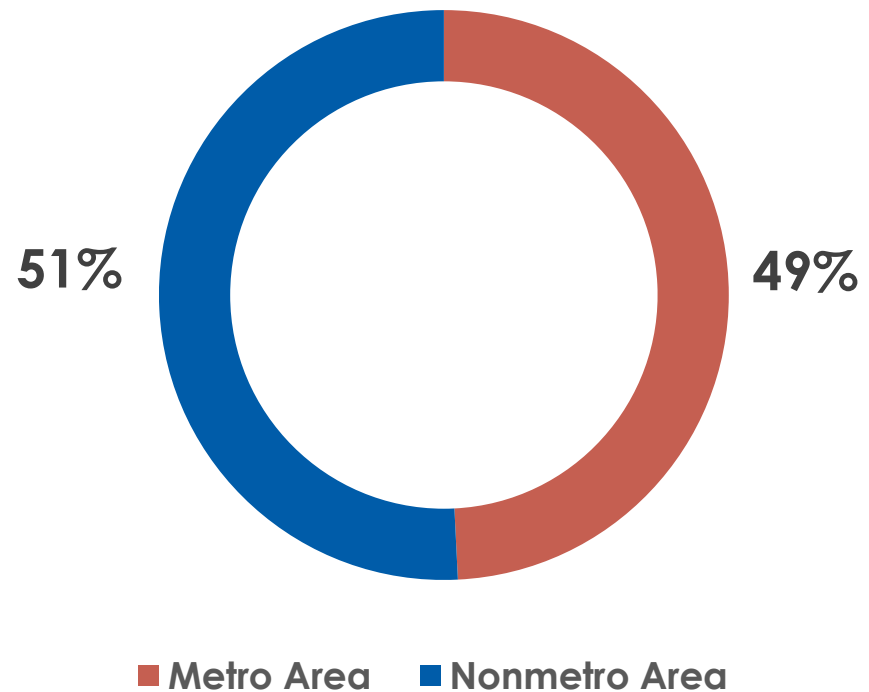- State Unemployment = National
- Unemployment Data Not Available

POTENTIAL JOBS WOULD BE LOCATED IN METRO & NONMETRO AREAS

Of the potential NPS infrastructure-related jobs, 51 percent would be in nonmetro areas (areas with less than 100,000 residents).*

Based on U.S. Census Bureau data

Potential NPS Jobs
Metro and Nonmetro Areas

51%   **49%**

■ Metro Area   ■ Nonmetro Area

TOP 20 STATES AND TERRITORIES WITH THE MOST JOB POTENTIAL

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

POTENTIAL JOBS BY STATE AND TERRITORY

State	Jobs	Job Rank	State	Jobs	Job Rank	State	Jobs	Job Rank
AK	970	27	KY	1,010	25	OH	1,037	24
AL	256	38	LA	105	45	OK	212	40
AR	387	35	MA	2,222	14	OR	1,156	22
AS	12	54	MD	2,660	11	PA	2,858	10
AZ	5,410	6	ME	606	30	PR	365	36
CA	17,179	1	MI	457	32	RI	8	56
CO	2,251	13	MN	127	43	SC	248	39
CT	21	53	MO	666	28	SD	659	29
DC	11,532	2	MP	96	47	TN	2,641	12
DE	12	55	MS	2,963	9	TX	1,401	21
FL	2,182	15	MT	1,703	18	UT	2,026	17
GA	973	26	NC	4,173	7	VA	10,340	3
GU	45	51	ND	459	31	VI	421	33
HI	1,503	19	NE	61	48	VT	33	52
IA	50	50	NH	53	49	WA	3,888	8
ID	131	42	NJ	2,029	16	WI	120	44
IL	179	41	NM	1,100	23	WV	391	34
IN	310	37	NV	1,463	20	WY	7,008	5
KS	104	46	NY	7,921	4	Other*	172	-

"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 deferred maintenance data from the National Park Service's Facility Management Software System (FMSS) for fiscal year 2018. The 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 Advisers' (CEA) job creation formula (2009). This formula estimates that each $92,000 of infrastructure investment creates one job-year (one full-time employee for one year). The total government spending required to generate one job-year was adjusted from $92,000 in 2009 to $110,000 in 2018 using inflation data from the U.S. Bureau of Labor Statistics' consumer price index. Although the index tracks increases in the costs of goods as well as of labor, inflation remained low over the 2009-18 period and adjusted job estimates are substantially similar to those obtained by using the Employment Cost Index 2009-18.

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

In addition to data provided by the NPS in its "FY 2018 NPS Asset Inventory Summary Report 2018.09.30," 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 May 2019). 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 location of some assets in multistate parks.