

The Economic Impacts of the Northern Virginia Regional Park Authority

*An Examination of the Economic Impacts of Northern Virginia
Regional Park Authority Spending.*

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The Center for Regional Analysis, housed in the School of Policy, Government, and International Affairs at George Mason University, is the premier university-based regional economic research center in the Washington, DC Metropolitan Area. The Center provides regionally relevant, globally informed research for businesses, governments, and non-profit agencies.

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Introduction

Parks are a crucial part of urban life. A region's parks help raise the general quality of life for local residents, raise property values, and act as gathering places for the community. Parks also generate a substantial amount of economic activity due to operational spending required to maintain properties and provide amenities and activities, as well as capital improvement program spending. Thus, the economic contributions of local and regional park systems come in many forms, from resident health impacts affecting medical spending, improved air and water quality associated with urban tree canopies and better storm-water management, more beautiful neighborhoods, and affordable recreation amenities. In the following, we focus on the regional economic activity generated by capital and operations spending by the Northern Virginia Regional Park Authority (NOVA Parks).

A key feature of the NOVA Parks system is the degree to which operations spending is supported by enterprise function revenues. About four-fifths of the system's operating budget comes from user-fee and other private source revenues. This business model leverages public investment into a wide range of high quality park facilities from rough camping to urban historical sites that makes NOVA Parks one of the most impactful park systems in the nation.

We begin our assessment with an overview of the NOVA Parks system and its amenities. This is followed by a description of the methodology employed in our analysis. We then present the findings of three separate analyses. The first is an assessment of the total impacts of all local and regional park system spending on the national economy, which forms the key component of our study for the National Recreation and Park Association. We then examine the overall impact of local and regional park spending with the Commonwealth of Virginia. Finally, we examine the regional impacts of operations and capital spending specifically by the Northern Virginia Parks Authority. We close with some brief conclusions.

Northern Virginia Regional Park Authority

The Northern Virginia Regional Park Authority was formed in 1959 under the Virginia Parks Authority Act of 1950. Citizens from different jurisdictions all recognized the need to protect natural spaces from the forces of development and organized collectively to develop a regional parks system.¹ In his address to the Virginia Citizens Planning Association, Dr. Ira Gabrielson noted that spaces in which urban workers can escape modern living to nature are "often underappreciated values, which often outweigh those that can be measured in terms of dollars and cents."² The early recognition of the need to escape urban life for a natural respite has served the region well. Demand for services provided by NOVA Parks has grown with the Washington Metropolitan Area, which roughly doubled in population from around 3 million in the 1960's to approximately 6 million by 2013.

¹ Northern Virginia Regional Park Authority, https://www.nvrpa.org/park/main_site/content/general_info

²In his address to the Virginia Citizens Planning Association in 1960. Quote taken from: <http://www.pwconserve.org/issues/conservation/silverlake/nvrpa.pdf>

NOVA Parks is comprised of six regional jurisdictions, three cities and three counties. The three cities include the City of Alexandria, the City of Falls Church and the City of Fairfax. The three counties include Arlington County, Fairfax County and Loudoun County. Scattered throughout these jurisdictions are 31 regional parks, which comprise nearly 11,000 acres of diverse public space for local citizens. A distinct feature of the NOVA Parks system is the diversity of operations. In keeping with the original motivation, NOVA Parks offers over one hundred miles of trails in a natural escape. In expanding public offerings, NOVA Parks also operates historic American sites such as the Carlyle House and the Ball's Bluff Battlefield. Additionally, the authority operates five water parks, three golf courses, disk golf courses, equestrian trails and soccer fields among its diverse array of operations. Table 1 provides a list of parks in the NOVA Parks system.

Table 1
Northern Virginia Parks Authority System Parks

Park	Description
Aldie Mill	Historic mill with events, meetings and social functions.
Algonkian	Riverfront park with hiking trails, boating, athletic fields, miniature golf course, and picnic areas.
Algonkian golf course	18-hole golf course with pro shop, and putting greens.
Volvano island	Waterpark with a Polynesian theme with pools, waterslide, and sand play area.
Woodlands at Algonkian	Park with meeting facilities for business, civic groups, and weddings.
Algonkian Cottages	Twelve cottages accommodating up to ten people with fireplaces, grills and laundry
Blue Ridge	Celestial viewings and primitive camping for youth groups.
Brambleton Golf Course	18-hole golf course with pro shop, putting greens and a large pavilion accommodating up to 150 people.
Bull Run Regional Park	The 1,500 acre park is the largest in the system. It has a large field for events, hiking trails, camping, disc golf, bridle trails and a soccer complex.
Atlantis Waterpark	Largest waterpark in the NVRPA system with a large pool, water slides and water geysers.
Bull Run Special Events Center	Located on the Bull Run Regional Park, the special events center has a 10,000 person capacity open amphitheater. Used for festivals, concerts and athletic events.
Bull Run Light Show	Located on the Bull Run Regional Park, the lights show is a 2.5 mile drive through themed areas with over 80,000 total lights with hayrides, marshmallow roasting and pictures with Santa.
Bull Run Shooting Center	Located on the Bull Run Regional Park, the facility has 3 skeet fields, 3 trap fields, a wobble trap, and an indoor range.
Bull Run Marina	The marina includes a boat launch, a soccer complex, trails and is used as a rowing facility for local high schools

Park	Description
Cameron Run Reg. Park	An 18-hole miniature golf course, batting cages, picnic shelters, and fishing lake.
Great Waves	A large wave-pool with water slides, rock wall and toddler pool.
Catering	Catering services include food and beverage for events at parks in the system throughout the year.
Carlyse House	Historic house located in Old Town Alexandria that serves as a museum and cultural center. Gardens and Museum are used for educational purposes.
Fountainhead Reg. Park	Boating and fishing center with a bait shop, hiking trails, kayaks, canoes, jon boats, and equestrian trails.
Hemlock Overlook	Regional park with educational, and team building operations for groups, schools and businesses.
Meadowlark Botanical	Botanical gardens with a visitor center, three lakes, paths, and Korean Bell Garden.
Meadowlark Gardens Winter	A winter lights walk with holiday themed displays and two animated displays.
Meadowlark Atrium	Event space with full catering and planning. Among the regions favorite wedding locations.
Mt Zion Gilberts Corner	Historic church built in 1851 on 155 acres of land
Occuquan Park	Recreation area with soccer and baseball fields, a batting cage, boat launch, kayaks, hiking trails, and picnic areas. Events include the Prince William Cruisers Benefit Car Show
Pohick Bay	Recreation area offering hiking and equestrian trails, a miniature golf course, disk golf, large campground, 6 cabins and 4 shelters.
Pohick Golf	18-hole golf course with pro shop, grill, driving range, and putting greens.
Pohick Bay Marina	Concrete boat launches with docks. Rental paddle boats, kayaks, paddleboards, canoes, rowboats, sailboats, and deck.
Pirates Cove Waterpark	Pirate themed waterpark with pool, dump bucket, water slide, and play area. Concessions and birthday rental space.
Potomac Overlook	67- Acre park for natural history and environmental education. Also includes picnic areas, gardens and trails.
Rust Sanctuary	Sanctuary for education purposes. Also hosts wedding receptions and parties.
Sandy Run	Regional park with facilities for rowing and sculling training. Facilities also offer space for regattas and special events.
Upper Potomac	These properties include the Balls Bluff Battlefield, Red Rock Wilderness, Upper Potomac Parklands, and Symington Cabin. Amenities offered on these properties include a National Cemetery, and Civil War battlefield, trails, picnic areas, farmhouse, and a National Scenic Trail.

Park	Description
Upton Hill	Hiking trails, picnic areas, playground, miniature golf, batting cages, fields and an open amphitheater on 27 acres with concerts and events.
Ocean Dunes Waterpark	Waterpark in North Arlington with play pool, dump bucket, slides and a lap pool. Lessons and group events are also hosted.
W&OD Railroad	100 feet wide and 45 mile trail with 32 miles of horse trail running on old railroad tracks from Alexandria to Loudoun County.
White's Ford	A park along the Potomac River with a boat launch, camp grounds, picnic area, and hiking trails.

Given the breadth of NOVA Parks system operations, we forego a detailed description of activities for all system units. However, we can highlight activities at three of the system’s most well-known venues to provide a flavor of the day-to-day operations required to keep such a large system running. These three parks include Bull Run Regional Park, The Carlyle House, and the Upton Hill Regional Park.

The Bull Run Regional Park land was the first purchased by NOVA Parks in the 1960's. It was bought from economist Dr. Gardiner Means and his wife historian Dr. Caroline Ware³. Through multiple acquisitions, the park grew to its 1,563 acres today and is a part of a string of parks along the shores of Bull Run and the Occoquan Reservoir. The Bull Run Regional Park has two major trails for hikers and equestrians; White trail and Blue Trail run through the park and along the natural shoreline. The White Trail is entirely within the Bull Run Regional Park, and the Blue Trail continues for 17 miles through a series of parks to the south. There are several parking lots that make space for hikers and those with horse trailers. There are also numerous options for more organized recreation. These options include a soccer field complex, campgrounds, picnic shelters, disk golf course, shooting range and indoor archery facilities. Bull Run Regional Park also includes the Atlantis Water Park, which has pools, waterslides and a cafe. Finally, the Bull Run Special Events center is a large outdoor open space that hosts performing arts, concerts, fairs, and equestrian shows among other large outdoor gatherings.

In contrast to the Bull Run Regional Park, the Carlyle House is a highly manicured park in the heart of Alexandria, VA. The Carlyle House was finished in 1753 and is registered on the National Register of Historic Places. It was acquired in by NOVA Parks in 1970, a year after Alexandria joined the Regional Park Authority.⁴ The Carlyle House sits on a less than half a city block just across the street from the Alexandria, VA City Hall in Old Town. While relatively small, the Carlyle House provides numerous functions year round. Daily tours include the house, as well as the 18th-century style garden on the property. Special tours designed for schools and scout troops provide insight into daily life of both owners and slaves during the 18th century. The property is also frequently rented out for business and social events including wedding ceremonies and receptions.

The Upton Hill Regional Park is located in the middle of the NOVA Parks region. Although it is surrounded by the densely populated region of Northern Virginia, it offers both a natural retreat and entertainment

³ The Northern Virginia Regional Park Authority - Agency Overview, 2013.

⁴ Ibid.

amenities to the surrounding community. The bulk of the park is a natural forest with trails running throughout. The property includes a playground, Bocce Ball court, horse shoe pit, and picnic shelters. At the southern end of the park are three larger attractions: the Ocean Dunes Water Park has wading pools, a lap pool and water slides; a miniature golf course; and, batting cages.

Method

To estimate the economic impacts of park system spending, we utilize economic input-output models developed by MIG, Inc. These models include Regional Impact Modeling System (RIMS) multipliers developed by the U.S. Bureau of Economic Analysis and the IMPLAN economic input-output model. These models are the most widely used in academic and professional research. The models provide estimates for direct, indirect and induced effects of new spending in a defined region. For the analysis of NOVA Parks system spending, we focus on the Northern Virginia regional economy.⁵ Even though the study region extends beyond the operational boundaries of NOVA Parks, this larger area is a part of the effective labor pool and other economic connections.

Direct economic effects capture spending by the park system for personnel, goods and services, utilities, and capital equipment and projects. Indirect effects are the economic impacts that come from NOVA Park's direct interaction with the local community. For example, NOVA Parks purchases pool chemicals for its water parks from a local vendor. That vendor, in turn, hires workers, fuels their delivery vans, and pays an accounting firm for bookkeeping. The accounting firm rents office space and hires a janitorial service, and so on. The input-output models account for spending that leaves the region. For example, little of the purchase value of gasoline used in park vehicles stays in the region since the fuel is refined elsewhere. Induced effects capture the value of spending by employees of the park system, and a portion of spending by employees of the firms receiving indirect impacts, on goods and services in the region. When added together, the direct, indirect, and induced spending effects are greater than park system spending, which represents the "multiplier" effect.

The models offer estimates of output (a measure of business transactions), labor income (including salaries, wages, and benefits), and employment (jobs). The employment estimates are headcount jobs that include both full-time and part-time positions.

National Analysis

The National Analysis portion of the broader study uses data from the Survey of Local Government Employment from 2013. The data used are the number of employees in parks and recreation department. This employment number is used by the IMPLAN model to estimate total direct output of the parks systems which is treated to be operations spending. The National Recreation and Parks Association's

⁵ The Northern Virginia region includes Arlington County, Clarke County, Fairfax County, Fauquier County, Loudoun County, Prince William County, Spotsylvania County, Stafford County, Warren County, and the independent cities of Alexandria, Fairfax, Falls Church, Fredericksburg, Manassas, and Manassas Park.

PRORAGIS dataset was then used in conjunction with over 400 observed data points from webs searches to determine the capital -operational spending ratios. Applying this average ratio to the total operational spending provided the total expenditures of over 1,169 park systems.

Examining the PRORAGIS system along with the document survey uncovered the fact that most of the capital expenditures recorded were for large, one-time items. Smaller capital purchases that occur relatively frequently are left out as they are often included in the annual budget. This implies that capital expenditures are likely underestimated and therefore the economic impacts with capital expenditures are on the conservative side. The capital expenditure estimates are reported separately in Table 2.

Table 2
Economic Impacts of Local and Regional Public Parks on the United States Economy
2013

	Operating Impacts	Capital Spending Impacts	Total Impact of Local and Regional Parks' Spending
Economic Activity (transactions)	\$79.97 billion	\$59.66 billion	\$139.63 billion
Value Added (GDP)	\$38.78 billion	\$29.17 billion	\$67.95 billion
Labor Income (salaries, wages, benefits)	\$24.18 billion	\$19.61 billion	\$43.79 billion
Employment (jobs)	658,478 jobs	340,604 jobs	999,082 jobs

Source: Center for Regional Analysis—George Mason University for the National Recreation and Park Association

The total operational spending in 2013 for all departments of parks and recreation across the United States was roughly \$32.3 billion covering 356,000 direct jobs. These operational expenditures lead to an additional \$80 billion in economic activity that is supported by parks and recreation spending. This was estimated to increase Value Added by \$38.8 billion and labored income by \$24.2 billion. These monetary impacts lead to a total of 658,478 jobs nationally.

The above numbers only represent operational expenses. Examining now the \$22.4 billion in capital expenditures from 2013, we see that there was \$59.7 billion Economic activity generated. Capital expenditures also led to \$29.2 billion in value added activity, \$19.6 billion in labor income, and a total of 340,604 jobs nationally. Nationally parks and recreation spending generates roughly 1 million jobs, \$140 billion in economic activity, and \$44 billion in labor income. Nationally these numbers are significant. We now turn out attention to the case of Northern Virginia.

State-Level Analysis

Taking a similar approach to the national study, we estimated the economic impacts of local and regional park spending across the Commonwealth of Virginia. This component of the study utilized employment data from the U.S. Census Bureau for local and regional park systems as a proxy measure for operations spending. Estimates of total economic impacts, including direct, indirect and induced effects come from

Regional Impact Modeling System (RIMS-II) multipliers developed by the Bureau of Economic Analysis and packaged by IMPLAN, Inc. The estimates of capital spending are based on proportional relationships between operating and capital spending observed in the national analysis.

The findings of the state level analysis are presented in Table 3. Local and Regional park system spending in Virginia generated over \$3.7 billion in economic activity and supported over 30,700 jobs that paid almost \$1.4 billion in salaries, wages, and benefits in 2013.

Table 3
Economic Impacts of Local and Regional Park Spending
Commonwealth of Virginia, 2013

Description	Impact
Economic Activity (transactions)	\$ 3,742,040,000
Labor Income (salaries, wages, benefits)	\$ 1,380,791,000
Employment (headcount jobs)	30,737

Sources: U.S. Census Bureau, PRORAGIS, IMPLAN (RIMS), Center for Regional Analysis

Northern Virginia Regional Park Authority Analysis

In estimating the economic impacts operating and capital spending by the NOVA Parks system, we utilized budget data for Fiscal Year 2015. Given this more recent information, the estimates of the NOVA Parks system impacts are not directly comparable to the 2013 state level park spending estimates. There is one other adjustment in methodology for estimating the specific impacts of the NOVA Parks system. Budget documents provided by NOVA Parks show the employee counts as full-time-equivalents.⁶ NOVA Parks employs many seasonal, part-time workers. Therefore, we have converted all head-count job estimates provided by the input-output model into full-time-equivalent jobs using national averages for individual industries. This corrects for the relative degree to which industries tend to employ part-time individuals.

In Fiscal Year 2015, the Northern Virginia Parks Authority budgeted \$22.7 million to support operations. This spending included salaries, wages, and benefits paid to park system employees, as well as other operating expenditures. This spending generated almost \$55 million in regional economic activity, supported almost 410 FTE jobs, and increased local labor income by more than \$20.9 million (see Table 4). In addition, the system authorized \$8.2 million in capital program spending. This total spending includes \$578,000 in land acquisition that is not included in our impact assessment. NOVA Parks capital spending supported an additional \$10 million in regional economic activity, boosted labor income by \$3.1 million, and created 42 FTE jobs. Combined, the economic impacts of FY2015 spending by the NOVA Parks

⁶ A full-time-equivalent converts part-time workers proportionately into full-time counts. If an individual part had 1 full time employee and 4 part-time employees, each of whom worked 50% time, then the FTE employment would be $(1 + (4/2)) = (1 + 2) = 3$.

system totaled almost \$65 million and supported 448 FTE jobs paying \$23.7 million in salaries, wages, and benefits.

Table 4
Economic Impacts of Northern Virginia Regional Park Authority
2015

Description	Impact
Operating Impacts	
Spending	\$ 22,700,000
Economic Activity (transactions)	\$ 54,982,000
Labor Income (salaries, wages, benefits)	\$ 20,916,000
Employment (FTE jobs)	407
Capital Spending	
Spending	\$ 8,224,000
Economic Activity (transactions)	\$ 9,953,000
Labor Income (salaries, wages, benefits)	\$ 3,080,000
Employment (FTE jobs)	42
Total Impacts	
Spending	\$ 30,924,000
Economic Activity (transactions)	\$ 64,936,000
Labor Income (salaries, wages, benefits)	\$ 23,695,000
Employment (FTE jobs)	448

Sources: Park systems, NRPA, Center for Regional Analysis

Conclusions

The Northern Virginia Parks Authority system provides critical amenities that enhance the quality of life and provide a wide range of cultural and recreational amenities for the residents of Northern Virginia. From hiking trails to neighborhood playgrounds, area residents rely on these parks and the services and the amenities they offer. In addition to all of this, operating and capital expenditures to support the parks system creates substantial economic activity within the regional economy. In total, for fiscal year 2015 the NOVA Parks system boosted regional economic activity by almost \$65 million and created roughly 450 full-time-equivalent jobs, which in practice means hundreds of seasonal workers. The ability of NOVA Parks to leverage relatively modest, but important, public resources into critical social and cultural infrastructures is a major contributor to the region's economy and quality of life.