



# **SOCIO-ECONOMIC IMPACTS OF CONSERVED LAND IN THE LOWER CHICKAHOMINY RIVER WATERSHED**

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## **1. EXECUTIVE SUMMARY**

The following reports the findings of our analysis of the economic and fiscal impacts associated with conserved lands located in the Lower Chickahominy River Watershed (LCRW) in Charles City County, James City County, and New Kent County in the Commonwealth of Virginia. The analyses performed as a part of this research are based on current land uses and fiscal conditions present in each county. The findings of these reported analyses provide a baseline of data with which local government officials, in collaboration with state agency and private sector stakeholders, can more effectively plan future land use strategies, especially those directly related to preserving natural environs and preventing environmental degradation in critical watershed areas.

The findings of the economic impact analysis are summarized as follows and are shown in Table 1-1:

- Economic activity associated with businesses that directly benefit from the environmental gains of land conservation in the LCRW totals more than \$8 million in 2018, which boosted gross regional product in the three-county area by about \$4.4 million and supports over 100 jobs.
- The benefits of land conservation also flow to other outdoor recreation activities in the study area, though we do not recognize these benefits as directly *causal* as for those businesses described above. For example, Governor’s Land at Two Rivers is an upscale riverfront housing and golf course community. Water quality improvements associated with upstream land conservation clearly impact the desirability and value of these properties. Though we do not specifically assess the land value impacts of better quality water, we can observe that operations of the riverfront golf course boost area economic activity by over \$24 million per year, support 195 jobs, and increase labor income by almost \$6.5 million per year.

Table 1 - 1: Summary of Economic Impact Analysis, 2018

Description	Economic Output	Gross Regional Product	Jobs	Labor Income
Direct Businesses	\$ 8,369,000	\$ 4,376,000	118	\$ 2,486,000
Non-Direct Businesses*	\$24,326,000	\$12,370,000	195	\$ 6,469,000

\* Governor’s Land at Two Rivers, including property operations, marina, and Two Rivers Country Club

Sources: Business-provided data, RefUSA, IMPLAN, Center for Regional Analysis

- In a limited review of one riverside property development, we observed almost \$100 million in private property that would be directly impacted by water quality improvements associated with conservation practices in the study area. This suggests that land conservation in the Lower Chickahominy River Watershed potentially benefits private property owners by millions of dollars in property values.

The findings of the fiscal impact analysis are summarized and are presented in Table 1-2:

- Total estimated real property taxes to be received by Charles City County in tax year 2018 from land with conservation easements is estimated to be \$102,446;
- Total estimated real property taxes to be received by James City County in tax year 2018 from land with conservation easements is estimated to be \$730,969; and
- Total estimated real property taxes to be received by New Kent County in tax year 2018 from land with conservation easements is estimated to be \$29,679.

Table 1 - 2: Real Estate Revenue – Conservation Easements

<b>County</b>	<b>Estimated Assessment Value of Conservation Easements</b>	<b>Estimated Real Estate Taxes in Tax Year 2018</b>
Charles City County	\$13,479,722	\$102,446
James City County	\$87,020,138	\$730,969
New Kent County	\$3,580,100	\$29,679

*Source:* Center for Regional Analysis, George Mason University;  
Urban Analytics, Inc.

Lands in conservation status have a lower use-value tax assessment. The differential in use-value versus fair market valuations lowers total tax revenues and represents foregone property taxes to local jurisdictions. Foregone real estate tax revenues are estimated to be \$144,620 in Charles City County, \$268,522 in James City County and \$181,356 in New Kent County in tax year 2018.

To provide a benchmark for projecting the future budgetary impacts of acquiring either fee simple or lands with conservation easements, a twenty-year fiscal forecast of revenues and expenditures from 2017-2037 was conducted for Charles City County, James City County, and New Kent County. This twenty-year fiscal forecast included all revenues collected by each county (not just real estate taxes) and all expenditures incurred by each county to provide public services supporting residents, businesses, and others. The fiscal forecast for each county in the LCRW is shown in Table 1-3 through Table 1-5.

Table 1 - 3: 20-Year Fiscal Forecast – Charles City County, Virginia

(in thousands of 2017 \$)

	<b>2017</b>	<b>2022</b>	<b>2027</b>	<b>2032</b>	<b>2037</b>
	<b><u>Actual</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>
<b><u>Summary</u></b>					
Total Projected Revenues	\$ 17,160	\$ 17,606	\$ 18,030	\$ 18,388	\$ 18,671
Total Projected Expenditures	\$ 14,597	\$ 14,882	\$ 15,145	\$ 15,357	\$ 15,496
Net Projected Surplus (Deficit)	\$ 2,563	\$ 2,724	\$ 2,885	\$ 3,031	\$ 3,175

**Source:**

The Center for Regional Analysis, Schar School of Policy and Government, George Mason University;  
Urban Analytics, Inc.

Table 1 - 4: 20-Year Fiscal Forecast – James City County, Virginia

(in thousands of 2017 \$)

	<b>2017</b>	<b>2022</b>	<b>2027</b>	<b>2032</b>	<b>2037</b>
	<b><u>Actual</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>
<b><u>Summary</u></b>					
Total Projected Revenues	\$ 205,626	\$ 220,748	\$ 236,462	\$ 252,393	\$ 268,000
Total Projected Expenditures	\$ 188,737	\$ 202,341	\$ 216,492	\$ 230,845	\$ 244,846
Net Projected Surplus (Deficit)	\$ 16,889	\$ 18,407	\$ 19,970	\$ 21,548	\$ 23,154

**Source:**

The Center for Regional Analysis, Schar School of Policy and Government, George Mason University;  
Urban Analytics, Inc.

Table 1 - 5: 20-Year Fiscal Forecast – New Kent County, Virginia

(in thousands of 2017 \$)

	<b>2017</b>	<b>2022</b>	<b>2027</b>	<b>2032</b>	<b>2037</b>
	<b><u>Actual</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>
<b><u>Summary</u></b>					
Total Projected Revenues	\$ 42,186	\$ 45,743	\$ 49,420	\$ 53,116	\$ 56,717
Total Projected Expenditures	\$ 39,751	\$ 43,042	\$ 46,466	\$ 49,938	\$ 53,342
Net Projected Surplus (Deficit)	\$ 2,435	\$ 2,701	\$ 2,954	\$ 3,178	\$ 3,375

**Source:**

The Center for Regional Analysis, Schar School of Policy and Government, George Mason University;  
Urban Analytics, Inc.

Based on each county’s current pattern of revenues generated and expenditures demanded for the provision of public services, it is estimated that Charles City County, James City County, and New Kent County will continue to experience a net fiscal surplus each year over the next twenty-years. For Charles City County, this net fiscal surplus is expected to grow at an average annual rate of 1.076 percent from 2017 through 2027. For James City County, this net fiscal surplus is estimated to grow at an average annual rate of 1.59 percent during the same time period, and 1.65 percent annually for New Kent County. The growth rates for these estimated net fiscal surpluses are modest when compared to the average rate of growth in inflation in the country over the past decade. This analysis includes the impacts of foregone real estate tax revenues associated with conservation easements, conserved land, and other tax-exempt properties. Thus, the presence of land with conservation easements, conserved land that is tax-exempt, and other tax-exempt entities (such as houses of worship, federal, state, and local entities, and other non-profit and not-for-profit entities) on the land-book of each county (at their current percentage share of the total land book in each county) is not projected to reverse the estimated annual net revenue surplus to each county over the next twenty years.

Finally, the fiscal impact of conservation easements in the three counties of the LCRW were analyzed. Real estate tax revenues, hotel occupancy taxes, and local sales and use taxes were calculated and compared against four categories of public service expenditures: general administration; public safety; public works; and other amenities (parks, recreation and culture). Local sales and use taxes and hotel and motel taxes were included to account for spending from visitors and tourists to the LCRW region. The findings of this fiscal impact analysis are presented in Table 1-6.

Table 1 - 6: Net Fiscal Impact – Conservation Easements  
 Counties of Charles City, James City and New Kent, Virginia  
 Fiscal Year End 2017

<u>Jurisdiction</u>	<u>Findings</u>
<b>Charles City County</b>	
Revenues \$	1.28
Expenditures \$	1.00
<b>James City County</b>	
Revenues \$	1.53
Expenditures \$	1.00
<b>New Kent County</b>	
Revenues \$	1.21
Expenditures \$	1.00

Source: The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

For every \$1.00 spent in Charles City County annually to provide public services to support land with conservation easements, revenues to Charles City County are estimated to be \$1.28. In James City County, for every \$1.00 spent annually in the provision of public services to support land with conservation easements, revenues to James City County were estimated to

be \$1.53. For every \$1.00 spent in New Kent County annually to provide public services to support land with conservation easements, revenues to New Kent County are estimated to be \$1.21. The findings of the fiscal impact model indicate that lands with conservation easements do not place a fiscal burden on any of the three counties.

Finally, the Code of Virginia requires counties, cities and towns to classify and quantify the assessed value of tax-exempt properties on the local land books of each jurisdiction. We conducted an analysis of all tax-exempt properties in each county (such as properties owned by the federal government and the Commonwealth of Virginia, local governments, and other tax-exempt organizations such as religious and charitable organizations). In 2018, the three counties collectively contained 30,300.6 acres of tax-exempt land valued at \$316.42 million. Of these 30,300.6 acres, we calculated that 12,500.7 acres (or 41.3 percent) were considered conserved lands and valued at \$83.03 million (or 26.2 percent).

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## 2. Introduction

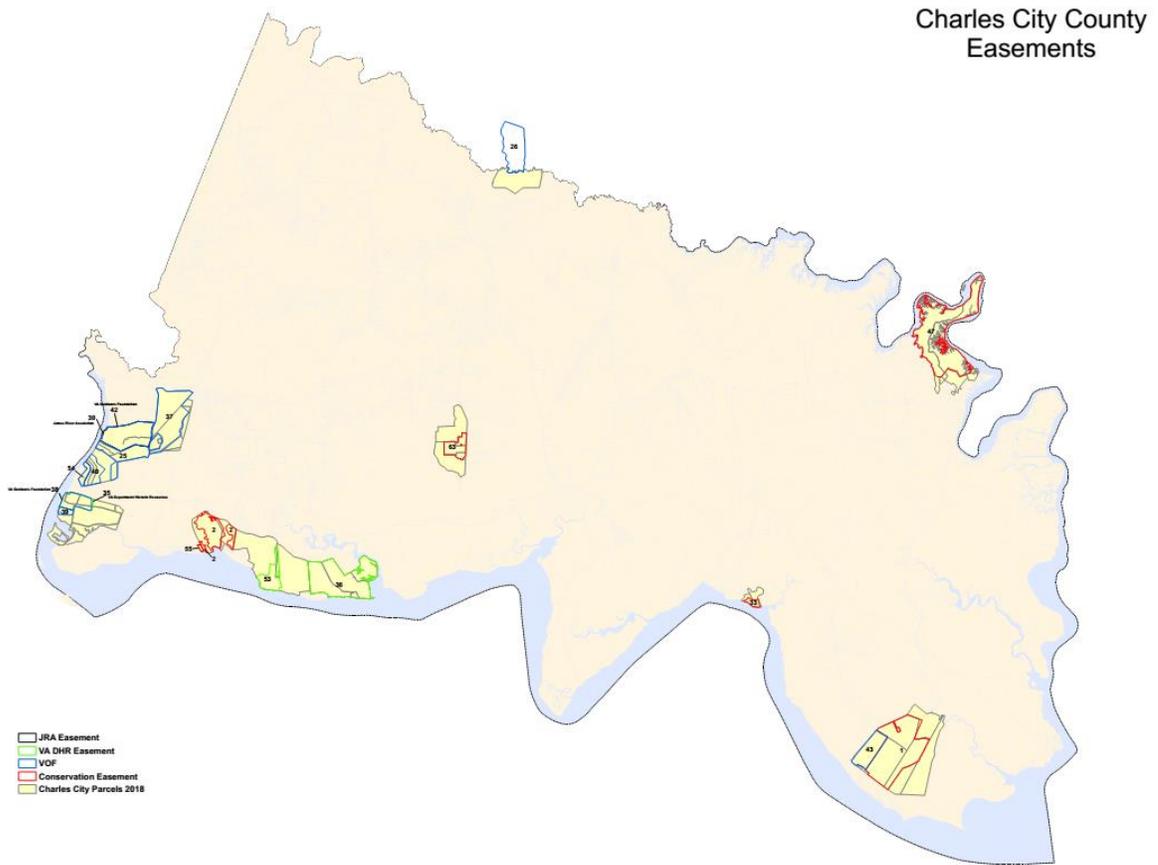
The Lower Chickahominy River Watershed (LCRW) is an environmentally sensitive and culturally significant area of southeastern Virginia encompassing parts of Charles City County, James City County, and New Kent County. The research reported here addresses two key economic issues that are increasingly important to state and local governments and stakeholders in areas with significant portions of land in conservation status: what impacts do land conservation programs and practices have on the local economy? and what are the net fiscal consequences of having conserved lands for localities? In Figure 2-1, a map showing the location of the Lower Chickahominy Study Area in relation to the Virginia counties of Hanover, King William, King & Queen, Gloucester, York, Surry, Prince George, Chesterfield, and Henrico is shown. The York River is shown to the northeast and the James River is shown to the south. Interstate 64 traverses through the Lower Chickahominy Study Area. Interstate 295 runs north-south to the left of the Study Area.

Figure 2 - 1: Map of Study Area – Lower Chickahominy



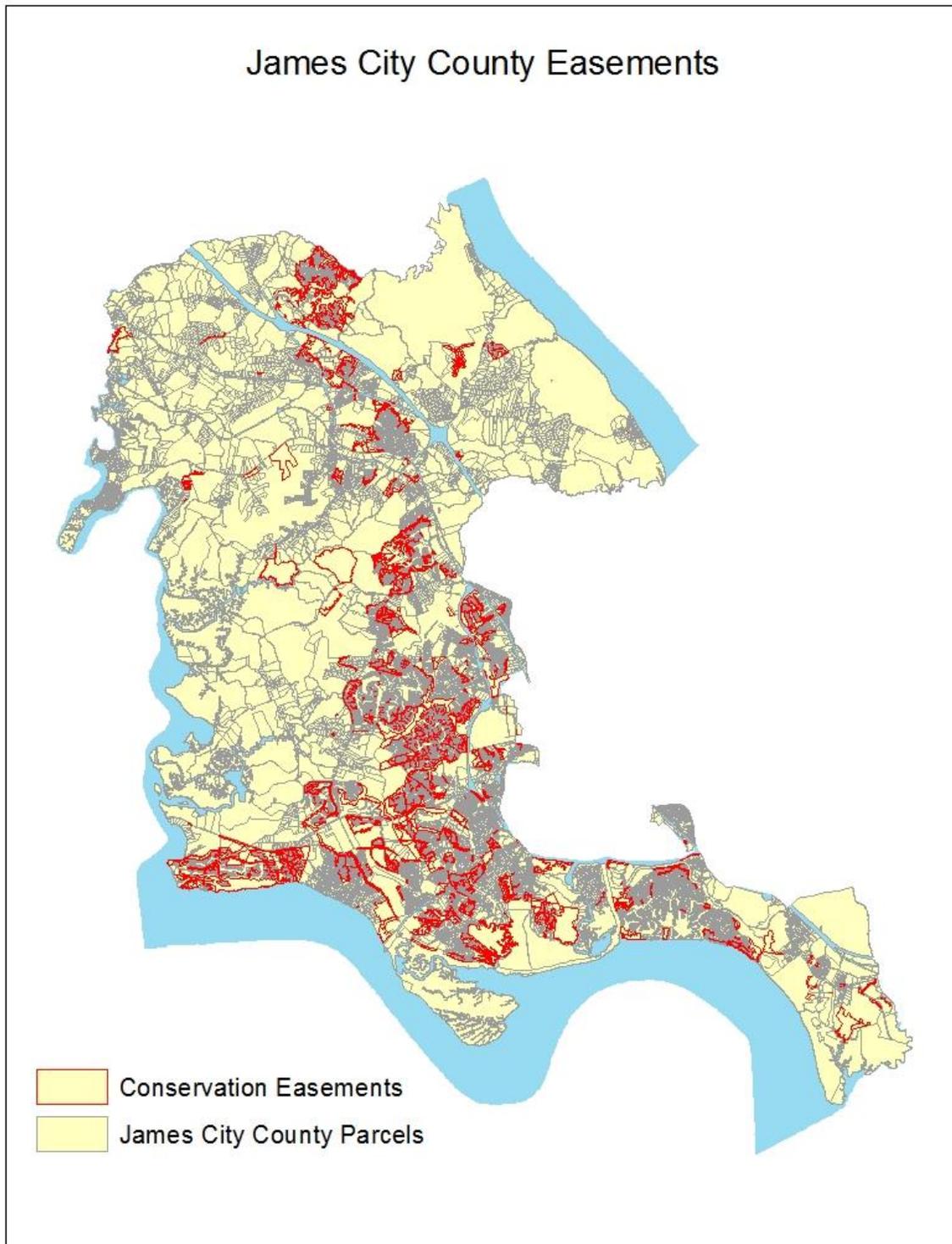
In Figure 2-2, a map showing the conservation easements in Charles City County, Virginia is displayed. The Richmond Regional Planning District Commission used their GIS software to identify and isolate conservation easements in Charles City County. The borders of the conservation easements are delineated by a various colored lines.

Figure 2 - 2: Map of Conservation Easements in Charles City County, Virginia



In Figure 2-3, a map showing the conservation easements in James City County, Virginia is displayed. The Richmond Regional Planning District Commission used their GIS software to identify and isolate conservation easements in James City County. Conservation easements are delineated by a red border.

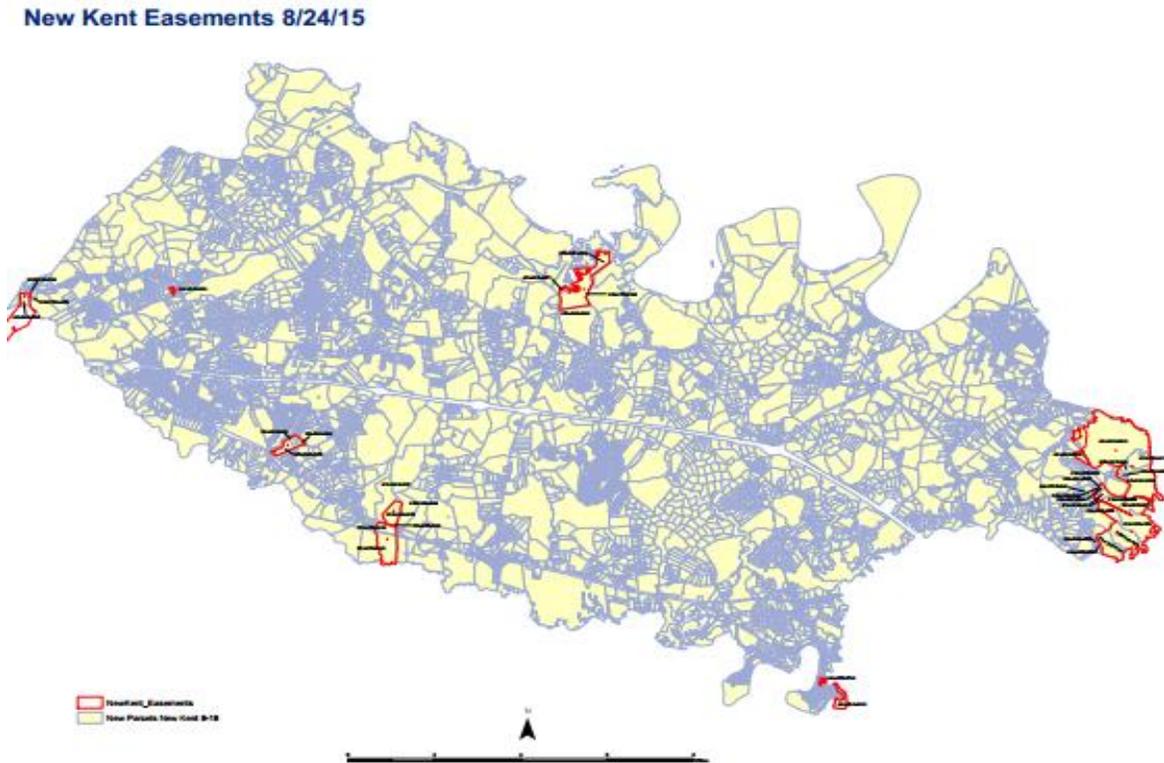
Figure 2 - 3: Map of Conservation Easements in James City County, Virginia



Source: Richmond Regional Planning District Commission (RRPDC)

In Figure 2-4, a map showing the conservation easements in New Kent County, Virginia is displayed. The Richmond Regional Planning District Commission used their GIS software to identify and isolate conservation easements in New Kent County. Conservation easements are delineated by a red border. As of the date of this report, it is unknown if the tax map identification number for each conservation easement in James City County can be plotted.

Figure 2 - 4: Map of Conservation Easements in New Kent County, Virginia



Source: Richmond Regional Planning District Commission

In Section 3 of this report, the methodology and findings of our analysis that quantifies the direct and foregone tax revenues associated with conserved land and conservation easements in the LCRW is described. In Section 4, the economic impacts of businesses whose existence is based on the presence and environmental benefits of conserved lands, as well as an exploration of other business activities that clearly, but indirectly, benefit from improved water conditions in the LCRW is discussed. The net fiscal impact of all conserved land in the LCRW is reported in Section 5. The underlying methodology employed to compute the economic and fiscal impact analyses conducted for this report is described in the Appendix.

### **3. Description and Quantification of Direct and Foregone Tax Revenues**

#### **Introduction**

There are small yet important definitional differences between conserved land, conservation easements, agriculture and forest districts, and tax-exempt properties. In this section, the

definition of each category is described. Data from real estate tax assessment rolls in Charles City, James City, and New Kent counties were identified, collected and analyzed for each category. Foregone real estate tax revenues from each category of land were estimated and the findings are presented.

### Definition of Conserved Land

The use of the phrase “conserved land” and “conservation easements” are often used interchangeably in the literature on land conservation and preservation. “Conserved land” generally refers to the purpose, function or use of land that has been set aside or designated for the protection and preservation of land in its natural state whereas “conservation easement” or “conservation easements” typically refer to a legal restriction placed on the land as to control its current or future use. The general purpose is the same but the method is different. Simply stated, all lands that have a conservation easement on those lands are conserved but not all conserved lands have conservation easements recorded on the deed of ownership. For example, some public lands (such as land owned by the federal government or a state or a county government) are considered conserved for the purpose of their use but do not have conservation easements placed on that public land.

The phrase “conserved land” is sometimes also used interchangeably in the literature with the phrase “open-space land.” According to the Virginia Open-Space Land Act, the phrase “open-space land” means “any land which is provided or preserved for (i) park or recreational purposes, (ii) conservation of land or other natural resources, (iii) historic or scenic purposes, (iv) assisting in the shaping of the character, direction, and timing of community development, or (v) wetlands...”<sup>1</sup> Thus, it is important to note that not all open-space land is conserved. Some open-space land is simply used for recreational purposes (e.g., public parks) and some open-space land is conserved (e.g., for the protection of clean air sheds, watersheds, wetlands, wildlife habitats, etc.).

### Definition of Conservation Easements

Conservation easements are used to retain or protect natural or open-space and to continue in perpetuity the availability of such land for various purposes including agricultural, forestal, recreational, the protection of natural resources, and the preservation of historical, architectural or archaeological characteristics. According to the Code of Virginia, a conservation easement is defined as

“a nonpossessory interest of a holder in real property, whether easement appurtenant or in gross, acquired through gift, purchase, devise, or bequest imposing limitations or affirmative obligations, the purposes of which include retaining or protecting natural or open-space values of real property, assuring its availability for agricultural, forestal, recreational, or open-space use, protecting natural resources, maintaining or enhancing air or water quality, or

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<sup>1</sup>Virginia Open-Space Land Act. Section 10.1-1700. Definitions.

preserving the historical, architectural or archaeological aspects of real property.”<sup>2</sup>

Unless the legal document creating the easement contains a time restriction, conservation easements are perpetual and run with the land.<sup>3</sup> Notwithstanding the perpetual duration of a conservation easement, Chapter 10.1 of Title 10.1 of the Code of Virginia does not restrict, prevent or otherwise limit the power of a court of competent jurisdiction to modify or terminate a conservation easement or to limit the ability of a public body (such as a county) to utilize the power of eminent domain on land that contains a conservation easement.<sup>4</sup>

#### Definition of Agriculture and Forest Districts

The policy of the Commonwealth of Virginia as to the purpose of land used in agricultural and forestal production is explained in Chapter 43, Title 15.2 of the Code of Virginia. Specifically, in this chapter,

“[i]t is the policy of the Commonwealth to conserve and protect and to encourage the development and improvement of the Commonwealth’s agricultural and forestal lands for the production of food and other agricultural and forestal products. It is also the policy of the Commonwealth to conserve and protect agricultural and forestal products as valued natural and ecological resources which provide essential open spaces for clean air sheds, watershed protection, wildlife habitat, as well as for aesthetic purposes. It is the purpose of this chapter to provide a means for a mutual undertaking by landowners and localities to protect and enhance agricultural and forestal land as a viable segment of the Commonwealth’s economy and as an economic and environmental resource of major importance.”<sup>5</sup>

According to the Code of Virginia, “[l]and used in agricultural and forestal production within an agricultural district, a forestal district or an agricultural and forestal district that has been established under Chapter 43...of Title 15.2, shall be eligible for the use value assessment and taxation whether or not a local land-use plan or local ordinance pursuant to [section 58.1-3231 of Chapter 32] has been adopted.”<sup>6</sup>

#### Definition of Fair Market Value versus Land Use Assessment

Land assessed at fair market value (FMV) refers to the value of land for taxation purposes and

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<sup>2</sup>Code of Virginia, Title 10.1 Conservation. Chapter 10.1 Virginia Conservation Act. Section 10.1-1009. Definitions.

<sup>3</sup>Ibid. Section 10.1-1010, paragraph C.

<sup>4</sup>Ibid. Paragraph F.

<sup>5</sup>Code of Virginia, Title 15.2 Counties, Cities and Towns. Chapter 43. Agricultural and Forestal Districts Act, Section 15.2-4301. Declaration of policy findings and purpose.

<sup>6</sup>Code of Virginia, Title 58.1. Taxation. Chapter 32. Real Property Tax. Article 4. Special Assessment for Land Preservation, Section 58.1-3231.

incorporates the concept of highest and best use of the land, as reflected through actual arms-length market transactions. For taxation purposes, land assessed at use value does not consider the highest and best use of land. Use value assessment refers to the non-fair market value assessment of certain categories of land as is permitted by the Code of Virginia.

### Taxation of Land with Conservation Easements in Virginia

In Virginia, land that is subject to conservation easements are assessed for taxation purposes at the use value for open space. According to the Code of Virginia, the use value is the “reduction in the fair market value (FMV) of the land that results from the inability of the owner of the [fee interest in the land] to use such property for uses terminated by the [conservation easement].”<sup>7</sup> It is important to note here that the taxation of land with conservation easements in Virginia is different than tax-exempt land that is also conserved. That is, land that is classified as tax-exempt is classified as such due to the ownership of the land by *specific entities*, such as federal, state and local governments, and not because the land itself has been designated or set-aside as conserved land. Thus, certain entities that are classified as tax-exempt entities do not pay real estate taxes on conserved land that they own, however, entities that are not classified as tax-exempt do pay real estate taxes on land that contains conservation easements.

Title 58.1 of the Code of Virginia that deals with the issues of taxation does encourage land conservation programs in the Commonwealth of Virginia. The purpose of the Virginia Land Conservation Incentives Act of 1999 is to “supplement existing land conservation programs to further encourage the preservation and sustainability of Virginia’s unique natural resources, wildlife habitats, open spaces and forested resources.”<sup>8</sup> Not all land that is conserved is exempt from real estate taxation and tax-exempt entities by choice have the option to pay real estate taxes on conserved land.

### Foregone Revenues from Conservation Easements – Charles City County

We worked very closely with the Information Technology department in Charles City County to identify and analyze land that is conserved; that is, land that contains the physical characteristics associated with conserved land. Our analysis is discussed in the section on tax-exempt and tax-immune properties. The Information Technology department at Charles City County, however, does not have code built into their database system to track (run a query on) data on land with conservation easements. As a result, we then worked very closely with the Richmond Regional Planning District Commission to identify, collect and analyze conservation easements in Charles City County.<sup>9</sup> In Table 3-1, the findings of our analysis are shown.

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<sup>7</sup>Code of Virginia, Title 10.1 Conservation. Chapter 10.1 Virginia Conservation Act. Section 10.1-1011, Taxation, paragraph B.

<sup>8</sup>Code of Virginia, Title 58.1. Taxation. Chapter 3. Income Tax, Section 58.1-510. Purpose.

<sup>9</sup>The authors would like to thank Sarah Stewart at the Richmond Regional Planning District Commission for her assistance in identifying these conservation easements through their GIS software system.

Table 3 - 1: Conservation Easements in Charles City County

2018 Conservation Easements - Total				
Records	2018		Conservation Easements	
	Land Value	Acres	2018 Land Value	Acres
49	\$ 24,648,100	7,376.43	\$ 13,479,722	3,799.28

Source : Richmond Regional Planning District Commission; Urban Analytics, Inc.

In 2018, there were 49 property records in Charles City County that were identified as having either partial conservation easements (some portion of each property contained an easement) or full conservation easements (the conservation easement covered the entire property). These 49 parcels totaled 7,376.43 acres. Of these 7,376.43 acres, there were 3,799.28 acres under conservation easements. The total value of these 7,376.43 acres equaled \$24,648,100. The total value of the 3,799.28 acres listed as containing conservation easements was \$13,479,722.

In Table 3-2, the estimated foregone real estate tax revenues to Charles City County from conservation easements is presented. We reviewed the real estate tax assessment data in the county. We estimated the weighted average fair market value of land and compared this estimate to the weighted average use-value of land with conservation easements. From this approach, we calculated the difference between the weighted average fair market value and the weighted average use-value of the conservation easements. We multiplied this differential by the number of acres of conservation easements (see Table 3-1). We applied the county real estate tax rate to the aggregate value of the differential. Based on this approach, the estimated foregone real estate tax revenues to Charles City County is imputed to be \$144,620 in 2018.

Table 3 - 2: Forgone Revenues from Easements in Charles City County

Records	Conservation Easements		2018 Estimated Foregone Tax Revenues
	2018 Land Value	Acres	
49	\$ 13,479,722	3,799.28	\$144,620

Source : Urban Analytics, Inc.

Foregone Revenues from Conservation Easements – James City County

Data on conservation easements from the real estate tax assessment rolls in James City County were identified, collected and analyzed. The findings of this analysis are shown in Table 3-3. As of January 1, 2018, there were 1,439 tax records in the assessment records of James City County that were coded as containing conservation easements. These 1,439 tax records reflect the total conservation easements listed on the assessment records of James City County. These

1,439 parcels totaled 12,797.19 acres. Of these 12,797.19 acres, there were 5,281.05 acres coded as containing all or part of a conservation easement. The total value of these 12,797.19 acres equaled \$216,999,400. The total value of the 5,281.05 acres listed as containing conservation easements was \$87,020,138. Included in these 5,281.05 acres were 6 tax records totaling 521.21 acres in the County’s Purchase Development Rights (PDR) program. The value of these 521.21 acres was equal to \$497,100.

Table 3 - 3: Conservation Easements in James City County

2018 Conservation Easements by Property Class Code										
Class Code	Classification	Records	2018				Conservation Easements			
			Land Value	% of Total	Acres	% of Total	Land Value	% of Total	Acres	% of Total
10	Single-Family-Urban	1,217	\$ 112,830,300	52.00%	4,834.61	37.78%	\$ 66,466,716	76.38%	2,848.00	53.93%
20	Single-Family-Suburban	87	\$ 14,385,900	6.63%	767.85	6.00%	\$ 2,695,142	3.10%	143.85	2.72%
30	Multi-Family	12	\$ 35,485,800	16.35%	423.54	3.31%	\$ 5,470,468	6.29%	65.29	1.24%
40	Commercial & Industrial	90	\$ 40,319,700	18.58%	3,268.46	25.54%	\$ 6,940,116	7.98%	562.59	10.65%
50	Agricultural (20-99 acres) <sup>1,2</sup>	19	\$ 3,049,100	1.41%	865.86	6.77%	\$ 2,006,838	2.31%	589.35	11.16%
60	Agricultural (100+ acres) <sup>1,3</sup>	14	\$ 10,928,600	5.04%	2,636.87	20.61%	\$ 3,440,858	3.95%	1,071.97	20.30%
<b>Total:</b>		1,439	\$ 216,999,400	100.00%	12,797.19	100.00%	\$ 87,020,138	100.00%	5,281.05	100.00%

Source : James City County, Virginia IT Department; Urban Analytics, Inc.

Note:

<sup>1</sup> Agricultural land includes Undeveloped land.

<sup>2</sup> Includes 3 records totaling 92.45 acres valued at \$133,900 in the Purchase Development Rights (PDR) program.

<sup>3</sup> Includes 3 records totaling 428.76 acres valued at \$363,200 in the Purchase Development Rights (PDR) program.

In our study of conservation easements in the Eastern Shore counties of Accomack and Northampton, we were only able to collect data on the total number of parcels and the total value of conservation easements on those parcels. For James City County, we were able to collect conservation easement data by type of property class code. This information is beneficial to elected officials, land use planners, and other stakeholders as it provides a snapshot of how conservation easements are distributed by land-use type.

Of the 5,281.05 acres containing conservation easements, 2,848 acres (or 53.93 percent) were on land associated with single-family urban properties (property class code 10). Agricultural properties (property class codes 50 and 60) were the second largest land-use type to contain conservation easements at 1,661.32 acres (or 31.46 percent). The remaining conservation easements were distributed across single-family suburban properties (143.85 acres or 2.7 percent), multi-family residential units (65.29 acres or 1.24 percent), and commercial and industrial properties (562.59 acres or 10.65 percent).

The total real estate fair market value of all taxable real estate in James City County at the end of the 2016-2017 tax year was \$11,608,801,433.<sup>10</sup> Of this \$11.61 billion in total fair market value, the value of the land with conservation easements and PDRs in James City County was \$87.02 million or 0.75 percent.

<sup>10</sup>Virginia Department of Taxation. FY 2017 Annual Report. Page 45, Table 6.2.

In Table 3-4, the estimated foregone real estate tax revenues to James City County from conservation easements is presented. We reviewed the real estate tax assessment data by class code in the county. We estimated the weighted average fair market value of land by class code and compared these estimates to the weighted average use value of land with conservation easements. From this approach, we calculated the difference between the weighted average fair market value and the weighted average use value of the conservation easements. We multiplied this differential by the number of acres of conservation easements by class code (see Table 3-3). We applied the county real estate tax rate to the aggregate value of the differential. Based on this approach, the estimated foregone real estate tax revenues to James City County is imputed to be \$268,522 in 2018.

Table 3 - 4: Forgone Revenues from Easements in James City County

Class Code	Classification	Conservation Easements				2018 Estimated Foregone Tax Revenues
		2018 Land Value	% of Total	Acres	% of Total	
10	Single-Family-Urban	\$ 66,466,716	76.38%	2,848.00	53.93%	\$ 205,099
20	Single-Family-Suburban	\$ 2,695,142	3.10%	143.85	2.72%	\$ 8,317
30	Multi-Family	\$ 5,470,468	6.29%	65.29	1.24%	\$ 16,880
40	Commercial & Industrial	\$ 6,940,116	7.98%	562.59	10.65%	\$ 21,415
50	Agricultural (20-99 acres) <sup>1</sup>	\$ 2,006,838	2.31%	589.35	11.16%	\$ 6,193
60	Agricultural (100+ acres) <sup>1</sup>	\$ 3,440,858	3.95%	1,071.97	20.30%	\$ 10,618
<b>Total:</b>		\$ 87,020,138	100.00%	5,281.05	100.00%	\$ 268,522

Source : James City County, IT Department; Urban Analytics, Inc.

Note:

<sup>1</sup> Agricultural land includes Undeveloped land.

#### Foregone Revenues from Conservation Easements – New Kent County

Data on conservation easements in New Kent County were identified, collected and analyzed.<sup>11</sup> The findings of this analysis are shown in Table 3-5. As of January 1, 2018, there were 20 tax records of *non-tax-exempt* individuals or entities in the assessment records of New Kent County that are believed to have conservation easements on all or a portion of their properties.<sup>12</sup> These 20 tax records comprised 1,451.07 acres with a total value of \$4,737,100. Of these 1,451.07 acres, it is estimated that 1,432.15 acres (or 98.7 percent) contained conservation

<sup>11</sup>The authors would like to thank Sarah Stewart and her staff at the Richmond Regional Planning District Commission for her assistance in identifying these conservation easements through their GIS software system.

<sup>12</sup>There were 35 parcels identified as having conservation easements. Of these 35 parcels, 15 parcels were identified as being owned by tax-exempt entities and 20 were owned or controlled by non-tax-exempt entities.

easements. The total value of the 1,432.15 acres with conservation easements equaled \$3,580,100.

Table 3 - 5: Conservation Easements in New Kent County

2018 Conservation Easements by Property Class Code										
Class Code	Classification	Records	2018				Conservation Easements			
			Land Value	% of Total	Acres	% of Total	2018 Land Value	% of Total	Acres	% of Total
10	Single-Family-Urban	0	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
20	Single-Family-Suburban	11	\$ 1,420,800	29.99%	342.22	23.58%	\$ 948,400	26.49%	332.22	23.20%
30	Multi-Family	0	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
40	Commercial & Industrial	0	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
50	Agricultural (20-99 acres) <sup>1</sup>	6	\$ 855,900	18.07%	316.85	21.84%	\$ 690,000	19.27%	312.80	21.84%
60	Agricultural (100+ acres) <sup>1</sup>	3	\$ 2,460,400	51.94%	792.00	54.58%	\$ 1,941,700	54.24%	787.13	54.96%
<b>Total:</b>		20	\$ 4,737,100	100.00%	1,451.07	100.00%	\$ 3,580,100	100.00%	1,432.15	100.00%

Source : New Kent County, Virginia Commissioner of the Revenue, Real Estate Department; Urban Analytics, Inc.

Note:

<sup>1</sup> Agricultural land includes Undeveloped land.

Of the 1,432.15 acres containing conservation easements, 1,099.93 acres (or 76.8 percent) were on land associated with agricultural use (property class codes 50 and 60). The remaining 332.22 acres (23.2 percent) were on land classified as single-family suburban (property class code 20).

The total real estate fair market value of all taxable real estate in New Kent County at the end of the 2016 tax year was \$2,587,428,900.<sup>13</sup> Of this \$2.59 billion in total fair market value, the value of the land with conservation easements in New Kent County was \$3.58 million or 0.138 percent.

In Table 3-6, the estimated foregone real estate tax revenues to New Kent County from conservation easements is presented. We reviewed the real estate tax assessment data by class code in the county. We estimated the weighted average fair market value of land by class code and compared these estimates to the weighted average use value of land with conservation easements. From this approach, we calculated the difference between the weighted average fair market value and the weighted average use value of the conservation easements. We multiplied this differential by the number of acres of conservation easements by class code (see Table 3-5). We applied the county real estate tax rate to the aggregate value of the differential. Based on this approach, the estimated foregone real estate tax revenues to Kent County is imputed to be \$181,356 in 2018.

<sup>13</sup>Virginia Department of Taxation. FY 2017 Annual Report. Page 46, Table 6.2.

Table 3 - 6: Foregone Revenues from Conservation Easements in New Kent County

Class Code	Classification	Conservation Easements				2018 Estimated Foregone Tax Revenues
		2018 Land Value	% of Total	Acres	% of Total	
10	Single-Family-Urban	\$ -	0.00%	0.00	0.00%	\$ -
20	Single-Family-Suburban	\$ 948,400	26.49%	332.22	23.20%	\$ 42,070
30	Multi-Family	\$ -	0.00%	0.00	0.00%	\$ -
40	Commercial & Industrial	\$ -	0.00%	0.00	0.00%	\$ -
50	Agricultural (20-99 acres) <sup>1</sup>	\$ 690,000	19.27%	312.80	21.84%	\$ 39,611
60	Agricultural (100+ acres) <sup>1</sup>	\$ 1,941,700	54.24%	787.13	54.96%	\$ 99,676
<b>Total:</b>		\$ 3,580,100	100.00%	1,432.15	100.00%	\$ 181,356

Source : New Kent County, Virginia Commissioner of the Revenue, Real Estate Department; Urban Analytics, Inc.

Note:

<sup>1</sup> Agricultural land includes Undeveloped land.

### Tax-Exempt Properties – Charles City County

The Code of Virginia requires counties, cities and towns<sup>14</sup> to classify and quantify the assessed value of tax-exempt properties on the local land books of each jurisdiction.<sup>15</sup> The value of tax-exempt and tax-immune properties in Charles City County as of January 1, 2018 is shown in Table 3-7. There are two classifications of tax-exempt properties shown in Table 3-7: Governmental and Non-governmental. The Governmental classification includes tax-exempt properties owned by the United States, the Commonwealth of Virginia, regional governmental entities, and local government. The Non-governmental classification includes tax-exempt properties owned by religious, charitable, educational, and all other tax-exempt or tax-immune entities.

#### Value of Tax-Exempt Properties in Charles City County

As of the end of tax year 2016, the total fair market value of tax-exempt properties in Charles City County was \$77,622,200. These properties accounted for 8.71 percent of the total real estate assessed value of all properties (both taxable and tax-exempt) in Charles City County.<sup>16</sup> Of all tax-exempt properties in Charles City County, the fair market value of those properties that contained all or some conserved land equaled \$23,724,700 and contained 8,279.98 acres.

<sup>14</sup>For the purpose of this report, “towns” refer to the incorporated towns.

<sup>15</sup>Code of Virginia, Title 58.1 Taxation. Chapter 2. Department of Taxation, Section 58.1-208. Classification of real property.

<sup>16</sup>Virginia Department of Taxation, 2017 Annual Report. Page 49, Table 6.3

Upon record by record examination of these tax-exempt properties, it was estimated that conserved land accounted for 2,165.37 acres valued at \$6,027,100. Of the 2,163.37 acres of conserved land, the Commonwealth of Virginia had 1,453.82 acres (or 67.14 percent of total conserved acres), followed by the federal government at 453.17 acres (or 20.93 percent).

Of the five sub-classifications of tax-exempt property ownership in Charles City County as of January 1, 2018, the Commonwealth of Virginia was the largest owner of tax-exempt property in Charles City County, with the total value of their land portfolio equal to \$11,902,800 or 50.17 percent of the total value of \$23,724,700 in properties classified as tax-exempt with some characteristics of conserved land. The second largest tax-exempt entity was Local government, with a total value of their tax-exempt land portfolio at \$7,532,000 (or 31.75 percent).

Table 3 - 7: Value of Tax-Exempt Properties in Charles City County

2018 Tax-Exempt/Immune Classification by Property Class Code									
Class Code	Exempt/Immune Classification	2018 Land Value	% of Total	Acres	% of Total	Conserved Land			
						2018 Land Value	% of Total	Acres	% of Total
<b>Governmental</b>									
71	Federal	\$ 1,735,000	7.31%	454.71	5.49%	\$ 1,653,200	27.43%	453.17	20.93%
72	State	\$11,902,800	50.17%	6,498.92	78.49%	\$ 3,377,100	56.03%	1,453.82	67.14%
73	Regional	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
74	Local	\$ 7,532,000	31.75%	815.10	9.84%	\$ 351,300	5.83%	86.84	4.01%
75	Multiple	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
<b>Sub-Total:</b>		\$21,169,800	89.23%	7,768.73	93.83%	\$5,381,600	89.29%	1,993.83	92.08%
<b>Non-Governmental</b>									
76	Religious	\$ 1,999,600	8.43%	320.39	3.87%	\$ 638,400	10.59%	170.58	7.88%
77	Charitable	\$ 555,300	2.34%	190.86	2.31%	\$ 7,100	0.12%	0.96	0.04%
78	Educational	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
79	All Other	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
<b>Sub-Total:</b>		\$ 2,554,900	10.77%	511.25	6.17%	\$ 645,500	10.71%	171.54	7.92%
<b>Total:</b>		\$23,724,700	100.00%	8,279.98	100.00%	\$6,027,100	100.00%	2,165.37	100.00%

Source : Charles City County, Virginia IT Department; Urban Analytics, Inc.

### Foregone Revenues from Tax-Exempt Properties – Charles City County

The estimated foregone tax revenues to Charles City County from all tax-exempt properties and conserved lands in the County are shown in Table 3-8. Of the \$589,929 in foregone real estate tax revenues in tax year 2016, \$476,592 (or 80.79 percent) were from tax-exempt properties owned by governmental entities and the remaining \$113,337 (or 19.21 percent) were from tax-exempt properties owned by non-governmental entities.

Table 3 - 8: Foregone Revenues from Tax-Exempt Properties in Charles City County

Exempt/Immune Classification	2016 Land Value <sup>1</sup>	% of Total	Foregone Tax Revenues	Conserved Land			
				2018 Land Value	% of Total	Foregone Tax Revenues	Acres
<b>Government</b>							
All governments	\$ 62,709,500	80.79%	\$ 476,592	\$ 5,381,600	89.29%	\$ 40,900	1,993.83
<b>Non-Government</b>							
All entities	\$ 14,912,700	19.21%	\$ 113,337	\$ 645,500	10.71%	\$ 4,906	171.54
<b>Total:</b>	\$ 77,622,200	100.00%	\$ 589,929	\$ 6,027,100	100.00%	\$ 45,806	2,165.37

Source : Virginia Department of Taxation. [FY 2017 Annual Report](#); Charles City County, Virginia [IT Department](#); Urban Analytics, Inc.

Note:

<sup>1</sup> This is the latest year available. The [FY 2018 Annual Report](#) has not yet been released to the public.

Of the \$45,806 in foregone real estate tax revenues in tax year 2018 from conserved lands, \$40,900 (or 89.29 percent) were from tax-exempt properties owned by governmental entities and the remaining \$4,906 (or 10.71 percent) were from conserved lands associated with tax-exempt properties owned by non-governmental entities.

### Tax-Exempt Properties – James City County

As of the end of tax year 2016, the total fair market value of tax-exempt properties in James City County was \$752,958,300. These properties accounted for 6.03 percent of the total real estate assessed value of all properties (both taxable and tax-exempt) in James City County.<sup>17</sup> Of all tax-exempt properties in James City County, the fair market value of those properties that contained all or some conserved land equaled \$248,954,100 and contained 13,716.59 acres (see Table 3-9). Upon record by record examination of these tax-exempt properties, it was estimated that conserved land accounted for 5,262.26 acres valued at \$65,426,700. Of the 5,262.26 acres of conserved land, the Commonwealth of Virginia had 3,095.53 acres (or 58.83 percent of total conserved acres), followed by Local government at 1,469.89 acres (or 27.93 percent).

#### Value of Tax-Exempt Properties in James City County

Of the five sub-classifications of tax-exempt property ownership in James City County with conserved land as of January 1, 2018, the Commonwealth of Virginia was the largest owner with the total value of their land portfolio equal to \$22,999,500 or 35.15 percent of the total value of \$65,426,700 in properties classified as tax-exempt with some characteristics of conserved land. The second largest tax-exempt entity was Local government, with a total value of their tax-exempt land portfolio at \$22,030,400 (or 33.67 percent).

<sup>17</sup>Virginia Department of Taxation, [2017 Annual Report](#). Page 50, Table 6.3

Table 3 - 9: Value of Tax-Exempt Properties in James City County

2018 Tax-Exempt/Immune Classification by Property Class Code

Class Code	Exempt/Immune Classification	2018 Land Value	% of Total	Acres	% of Total	Conserved Land			
						2018 Land Value	% of Total	Acres	% of Total
<b>Governmental</b>									
71	Federal	\$ 87,564,800	35.17%	5,153.02	37.57%	\$ 12,075,900	18.46%	548.68	10.43%
72	State	\$ 49,832,600	20.02%	3,849.32	28.06%	\$ 22,999,500	35.15%	3,095.53	58.83%
73	Regional	\$ 774,800	0.31%	40.16	0.29%	\$ -	0.00%	0.00	0.00%
74	Local	\$ 71,098,400	28.56%	3,644.00	26.57%	\$ 22,030,400	33.67%	1,469.89	27.93%
75	Multiple	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
	<b>Sub-Total:</b>	\$ 209,270,600	84.06%	12,686.50	92.49%	\$ 57,105,800	87.28%	5,114.10	97.18%
<b>Non-Governmental</b>									
76	Religious	\$ 22,730,400	9.13%	660.47	4.82%	\$ 842,500	1.29%	23.59	0.45%
77	Charitable	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%
78	Educational	\$ 4,565,800	1.83%	123.81	0.90%	\$ -	0.00%	0.00	0.00%
79	All Other	\$ 12,387,300	4.98%	245.81	1.79%	\$ 7,478,400	11.43%	124.57	2.37%
	<b>Sub-Total:</b>	\$ 39,683,500	15.94%	1,030.09	7.51%	\$ 8,320,900	12.72%	148.16	2.82%
	<b>Total:</b>	\$ 248,954,100	100.00%	13,716.59	100.00%	\$ 65,426,700	100.00%	5,262.26	100.00%

Source : James City County, Virginia IT Department; Urban Analytics, Inc.

Foregone Revenues from Tax-Exempt Properties – James City County

The estimated foregone tax revenues to James City County from all tax-exempt properties and conserved lands in the County are shown in Table 3-10. Of the \$6,324,850 in foregone real estate tax revenues in tax year 2016, \$5,026,257 (or 79.47 percent) were from tax-exempt properties owned by governmental entities and the remaining \$1,298,593 (or 20.53 percent) were from tax-exempt properties owned by non-governmental entities.

Table 3 - 10: Foregone Revenues from Tax-Exempt Properties in James City County

Exempt/Immune Classification	2016 Land Value <sup>1</sup>	% of Total	Foregone Tax Revenues	Conserved Land			
				2018 Land Value	% of Total	Foregone Tax Revenues	Acres
<b>Government</b>							
All governments	\$ 598,363,900	79.47%	\$ 5,026,257	\$ 57,105,800	87.28%	\$ 479,689	5,114.10
<b>Non-Government</b>							
All entities	\$ 154,594,400	20.53%	\$ 1,298,593	\$ 8,320,900	12.72%	\$ 69,896	148.16
<b>Total:</b>	\$ 752,958,300	100.00%	\$ 6,324,850	\$ 65,426,700	100.00%	\$ 549,584	5,262.26

Source : Virginia Department of Taxation. FY 2017 Annual Report; James City County, Virginia IT Department; Urban Analytics, Inc.

Note:

<sup>1</sup> This is the latest year available. The FY 2018 Annual Report has not yet been released to the public.

Of the \$549,584 in foregone real estate tax revenues in tax year 2018 from conserved lands, \$479,689 (or 87.28 percent) were from tax-exempt properties owned by governmental entities and the remaining \$69,896 (or 12.72 percent) were from conserved lands associated with tax-exempt properties owned by non-governmental entities.

### Tax-Exempt Properties – New Kent County

As of the end of tax year 2016, the total fair market value of tax-exempt properties in New Kent County was \$382,102,100. These properties accounted for 12.5 percent of the total real estate assessed value of all properties (both taxable and tax-exempt) in New Kent County.<sup>18</sup> Of all tax-exempt properties in New Kent County, the fair market value of those properties that contained all or some conserved land equaled \$43,745,400 and contained 8,304.03 acres (see Table 3-11). Upon record by record examination of these tax-exempt properties, it was estimated that conserved land accounted for 5,073.06 acres valued at \$11,573,000. Of the 5,073.06 acres of conserved land, the Commonwealth of Virginia had 3,917.82 acres (or 77.23 percent of total conserved acres), followed by All Other entities at 510.66 acres (or 10.07 percent).

#### Value of Tax-Exempt Properties in New Kent County

Of the six sub-classifications of tax-exempt property ownership in New Kent County with conserved land as of January 1, 2018, Local government was the largest owner with the total value of their land portfolio equal to \$16,949,500 or 38.75 percent of the total value of \$43,745,400 in properties classified as tax-exempt with some characteristics of conserved land. The second largest tax-exempt entity was State government, with a total value of their tax-exempt land portfolio at \$9,103,800 (or 20.81 percent).

<sup>18</sup>Virginia Department of Taxation, 2017 Annual Report. Page 51, Table 6.3

Table 3 - 11: Value of Tax-Exempt Properties in New Kent County

2018 Tax-Exempt/Immune Classification by Property Class Code

Class Code	Exempt/Immune Classification	2018 Land Value	% of Total	Acres	% of Total	Conserved Land				
						2018 Land Value	% of Total	Acres	% of Total	
<b>Governmental</b>										
71	Federal	\$ 883,800	2.02%	278.78	3.36%	\$ 124,100	1.07%	130.76	2.58%	
72	State	\$ 9,103,800	20.81%	3,936.97	47.41%	\$ 8,340,800	72.07%	3,917.82	77.23%	
73	Regional	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%	
74	Local	\$ 16,949,500	38.75%	877.27	10.56%	\$ 690,700	5.97%	165.54	3.26%	
75	Multiple	\$ -	0.00%	0.00	0.00%	\$ -	0.00%	0.00	0.00%	
	<b>Sub-Total:</b>	\$ 26,937,100	61.58%	5,093.02	61.33%	\$ 9,155,600	79.11%	4,214.12	83.07%	
<b>Non-Governmental</b>										
76	Religious	\$ 8,978,800	20.53%	623.21	7.50%	\$ 2,296,100	19.84%	347.28	6.85%	
77	Charitable	\$ 295,000	0.67%	13.82	0.17%	\$ -	0.00%	0.00	0.00%	
78	Educational	\$ 6,132,800	14.02%	1,206.72	14.53%	\$ 56,000	0.48%	1.00	0.02%	
79	All Other	\$ 1,401,700	3.20%	1,367.26	16.47%	\$ 65,300	0.56%	510.66	10.07%	
	<b>Sub-Total:</b>	\$ 16,808,300	38.42%	3,211.01	38.67%	\$ 2,417,400	20.89%	858.94	16.93%	
	<b>Total:</b>	\$ 43,745,400	100.00%	8,304.03	100.00%	\$ 11,573,000	100.00%	5,073.06	100.00%	

Source : New Kent County, Virginia Commissioner of the Revenue, Real Estate Department; Urban Analytics, Inc.

Foregone Revenues from Tax-Exempt Properties – New Kent County

The estimated foregone tax revenues to New Kent County from all tax-exempt properties and conserved lands in the County are shown in Table 3-12. Of the \$3,171,447 in foregone real estate tax revenues in tax year 2016, \$1,513,646 (or 47.73 percent) were from tax-exempt properties owned by governmental entities and the remaining \$1,657,801 (or 52.27 percent) were from tax-exempt properties owned by non-governmental entities.

Table 3 - 12: Foregone Revenues from Tax-Exempt Properties in New Kent County

<u>Exempt/Immune Classification</u>	<u>2016 Land Value<sup>1</sup></u>	<u>% of Total</u>	<u>Foregone Tax Revenues</u>	<b>Conserved Land</b>			
				<u>2018 Land Value</u>	<u>% of Total</u>	<u>Foregone Tax Revenues</u>	<u>Acres</u>
<b><u>Government</u></b>							
All governments	\$ 182,367,000	47.73%	\$ 1,513,646	\$ 9,155,600	79.11%	\$ 75,991	4,214.12
<b><u>Non-Government</u></b>							
All entities	\$ 199,735,100	52.27%	\$ 1,657,801	\$ 2,417,400	20.89%	\$ 20,064	858.94
<b>Total:</b>	\$ 382,102,100	100.00%	\$ 3,171,447	\$11,573,000	100.00%	\$ 96,056	5,073.06

Source : Virginia Department of Taxation. FY 2017 Annual Report; New Kent County, Virginia Commissioner of the Revenue, Real Estate Department; Urban Analytics, Inc.

Note:

<sup>1</sup> This is the latest year available. The FY 2018 Annual Report has not yet been released to the public.

Of the \$96,056 in foregone real estate tax revenues in tax year 2018 from conserved lands, \$75,991 (or 79.11 percent) were from tax-exempt properties owned by governmental entities and the remaining \$20,064 (or 20.89 percent) were from conserved lands associated with tax-exempt properties owned by non-governmental entities.

## **4. Quantification of the Economic Impacts**

### Introduction

This section reports the findings of our analysis of the economic impacts of business activities directly related to land conservation in the LCRW.<sup>19</sup> Our analysis included two separate sets of business activities that we label *causal* or *supported*. In performing this analysis, we took a conservative approach in estimating the economic impacts of the activities associated with conserved lands. Most notably, we have not included an assessment of overall tourism industries operating within the LCRW. In our recent study of the economic impacts of conserved lands in Virginia’s Eastern Shore, we included tourism activities as being supported by land conservation. While we believe that land conservation also supports tourism in the LCRW, the effects cannot be meaningfully separated in the data from the presence of nationally- and internationally-recognized tourism destinations like Colonial Williamsburg and Jamestown Settlement. Therefore, we have not included broad measures of tourism business activity in this analysis, which means that our estimates of the impacts of conserved lands likely understate the total economic benefits that accrue to the jurisdictions in the LCRW.

### Directly Affected and Supported Businesses

In this analysis, we assume that there is a *causal* relationship between directly-affected businesses and the presence of conserved lands. The directly affected businesses included in this analysis self-identify as saying “but for the presence” of conserved lands and their impacts on the environment, their businesses would not exist in the counties included in this study. These businesses include seasonal eco-tourism operations, marinas, restaurants, campgrounds, and retailers who specifically cater to outdoor enthusiasts. We also include relevant local government park operations in this category. Importantly, given a relatively mild climate in this part of Virginia, most of these Direct Businesses are year-round operations, but there are some who boost employment during summer and a few who only operate in warmer months.

Choosing not to include businesses that mostly rely on tourism related to Colonial Williamsburg and other significant attractions limits the number of supported industries included in this analysis. However, we did identify one business operation that undoubtedly benefits from the ecological effects of land conservation – The Governor’s Land at Two Rivers residential resort and golf course community located in Williamsburg. This high end housing community focuses on outdoor lifestyles featuring a Tom Fazio-designed golf course, an amenity-rich marina, and many riverfront/river-view properties.

### The Economic Impacts of Direct Organizations

The Project Advisory Committee provided information on several businesses directly affected by land conservation in the LCRW. The research team and project leadership also engaged in direct observations to identify businesses that are clearly linked to conserved lands and their

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<sup>19</sup>A detailed description of the methodology employed to conduct the economic impact analysis in this section is described in the Appendix.

ecological benefits. These include county riverfront parks, outdoor recreation targeted retailers (bait and tackle shops for example), marinas, dining establishments, campgrounds, and similar businesses. In most cases, business owners or site managers provided us with key operating data used in the analysis, such as the number of full-time, part-time, and seasonal workers. If we could not obtain job counts directly from the businesses, we gathered estimates of headcount employment from staff listings on business websites or obtaining employment estimates from a proprietary database of businesses.

The analysis of the economic impacts of operations related to business spending by directly-affected organizations relies on the IMPLAN economic input-output model. The IMPLAN model provides estimates of the direct, indirect, and induced effects of spending related to businesses and agencies. The Appendix includes a detailed description of the IMPLAN model. Importantly, the IMPLAN model allows the analyst to use either sales or employment as model inputs.

Based on information obtained from surveys and third-party data sources, we estimated job counts by headcount and full-time-equivalent (FTE).<sup>20</sup> The IMPLAN model is based on headcount employment ratios for a given industry sector. However, since industry sector codes aggregate multiple activities, we checked to make sure that the IMPLAN assumption of the work load of a part time job matched with the organizations/industries included in this analysis. In a few instances, we made minor adjustments to the employment counts used as inputs into the economic model.

Organizations directly related to land conservation in the LCRW supported about 100 direct jobs in 2018. The economic activity related to this direct employment generated almost \$8.4 million in regional economic output, boosted area value added by almost \$4.4 million, and supported a total of 118 jobs paying \$2.5 million in salaries, wages, and benefits (see Table 4-1). Local governments received an estimated \$368,000 in revenues associated with this economic activity.

Table 4 - 1: The Economic Impacts of Direct Organization Spending, 2018

Description	Impact
Output (economic activity)	\$ 8,369,000
Gross Regional Product (value added)	\$ 4,376,000
Labor Income (salaries, wages, benefits)	\$ 2,486,000
Jobs (headcount)	118
State Tax Revenues	\$ 228,000
Local Tax Revenues	\$ 368,000

Sources: Business-provided data, RefUSA, IMPLAN, Center for Regional Analysis

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<sup>20</sup>Full-time-equivalent employment adjusts for part-time workers as is based on a total of 2,080 work hours per year. Four (4) workers each with half-time (20-hours per week) positions, for example, would be equal to two (2) FTEs. A tourism company that has 16 employees, but only operates during summer months (one-quarter of the year), could report four (4) FTE jobs.

Economic Impacts of Supported Businesses

As noted above, a challenge in assessing the economic impacts of conserved lands in the LCRW is our inability to specifically separate general tourism related benefits from clean water and healthy wetlands associated with land conservation from those related to major tourism destinations like Colonial Williamsburg. It would not surprise us to find that some families come to the area specifically to take in the attractions at Colonial Williamsburg or Jamestown Settlement, but then extend their stay (and spending) in the area because of the high quality recreation activities enhanced by land conservation. However, we did not have available data to quantify this effect. Therefore, this analysis is limited to describing the economic impacts of one particular economic activity in the LCRW.

The Governor’s Land at Two Rivers is a premier riverfront and golf course residential community located at the confluence of the Lower Chickahominy River and James River. Homes in this development range from the \$500,000s to well over \$2 million in a resort-like setting. Operations at this development include overall property management functions, a marina, and the Two Rivers Country Club. Based on a third-party business database, this development supports many jobs. Even when we use third party estimates, we do not disclose information related to a given business’ direct operating characteristics. Nonetheless, based on our analysis of this data using the IMPLAN economic input-output model, we estimate that the Governor’s Land at Two Rivers development generates over \$24 million in annual economic activity for the study area (see Table 4-2). This level of activity boosts gross regional product by about \$12.4 million and supports 195 jobs that pay almost \$6.5 million in salaries, wages, and benefits. Local tax jurisdictions enjoy a \$649,000 boost to annual revenues while the Commonwealth gains \$482,000 in estimated new revenues, which does not include direct taxes paid on properties located in the development.

Table 4 - 2: The Economic Impacts of Supported Business, 2018

Description	Impact
Output (economic activity)	\$ 24,326,000
Gross Regional Product (value added)	\$ 12,370,000
Labor Income (salaries, wages, benefits)	\$ 6,469,000
Jobs (headcount)	195
State Tax Revenues	\$ 482,000
Local Tax Revenues*	\$ 649,000

Sources: Business-provided data, RefUSA, IMPLAN, Center for Regional Analysis. \* does not include direct taxes on property values in the development.

There is another important contribution of the environmental benefits of conserved land on developments like The Governor’s Land at Two Rivers, the improved value of properties adjacent to comparatively clean water. While the scope of this current study did not allow us to specifically quantify these impacts in the LCRW, we offer a review of relevant studies that show a clear link between water quality and adjacent land values.

In many respects, the general public is increasingly aware of something that residents and businesses in the LCRW, and other environmentally sensitive areas of the Commonwealth,

have long known—clean water is not only essential to health, it is critical to areas with substantial interests in water-based industries and recreation. Changes in land use, driven in no small part by land conservation practices, have resulted in improved water conditions in the LCRW.

There is substantial literature of both academic and professional research linking improved water quality to higher property values. The most common measure of water quality used in these studies is water turbidity measured using a Secchi disk method that measures the depth of a water column for which an object remains visible. Rivers, with their constant flows of sediment, often are more turbid than lakes, but the perception of water users is relative. Under the worst conditions of contamination, water quality deterioration can lead to algae blooms, fish kills, and noxious odors that can turn a highly valued water amenity into a significant liability for property values. Most high quality studies of the impacts of water quality on property values report a range of impacts. This reflects a wide range of directly and indirectly related factors that affect property values, especially residential property values.<sup>21</sup> A 2015 EPA report offered a summary of several such studies that show that for every 1 meter of improved water clarity, property values increased between 1% and 29.7%. Table 4-3 summarizes the findings of these previous studies.

Table 4 - 3: Summary of Property Value Impacts Per 1-Meter Change in Water Clarity<sup>22</sup>

Study	Lower Bound of Impact	Upper Bound of Impact
Boyle, et al (1998)	1.00%	25.00%
Michael, et al. (2000)	1.00%	29.70%
Gibbs, et al. (2002)	1.00%	6.70%
Ara, et al (2006)	1.93%	1.93%
Boyle, et al (2003)	3.50%	8.50%
Krysel, et al (2003)	2.60%	10.40%
Poor, et al. (2001)	3.50%	8.70%

Source: A Compilation of Cost Data Associated with the Impacts and Control of Nutrient Pollution. U.S. Environmental Protection Agency, Office of Water. EPA 820-F-115-096. May 2015. Available at: <https://www.epa.gov/sites/production/files/2015-04/documents/nutrient-economics-report-2015.pdf>

Even with this wide range, it is clear, pun intended, that land conservation’s impacts on water quality in the LCRW is almost certainly providing a boost in the value of properties adjacent and close to the rivers, streams, and other supported bodies of water. To put this into context, we reviewed the taxable values of properties located in the Governor’s Land at Two Rivers property development with apparent direct water views of the Lower Chickahominy River, James River, or directly feeding creek. Using mapping tools available on the James City County website, we identified 74 “waterview” properties, including residential properties and commercial properties for the marina and holes 16, 17, and 18 of the country club with total property values exceeding \$94 million. Even at the lower bound of property value impacts observed in previous studies, and projected to properties throughout the LCRW, the impacts

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21 Hedonic pricing modes of residential property values include factors such as size of house and property, quality of construction, design, amenities (pools, marinas, golf courses), quality of local schools, scenic vistas and other factors.

22 This table is copied with permission from Clower, T. (2017). *Preliminary Economic Analysis of Deteriorating Water Quality in Lavon Lake*. Prepared for the North Texas Municipal Water District.

of land conservation, acting through its impact on water quality, affects hundreds of millions in private property values in the watershed. It also means that the fiscal impact analyses presented in this report are very conservative in nature and almost certainly understate the total value of land conservation on the net revenues enjoyed by local governments in the LCRW.

Figure 4 - 1: Waterview Properties in the Governor’s Land at Two Rivers Development



Sources: James City County and Center for Regional Analysis

## **5. An Overview of Fiscal Impact Models**

Existing studies relevant to the economic and fiscal impact effects of conserved land, conservation easements, open land, and undeveloped land were reviewed, and the strengths and weaknesses in the methodology were identified. The authors of this report (and their research team) reviewed the relevant studies. There were no readily available data in these studies that could be directly applied to this study, simply because the scope-of-work for this study (the economic and fiscal impacts of conserved land in the Lower Chickahominy River Watershed) is unique. However, the various findings reported in the literature reviewed suggest that the estimates (computed by Clower and Bellas) of the economic and fiscal impacts associated with conserved land and conservation easements in the LCRW are likely to be

conservative (i.e., understated). Therefore, the authors of this report can say with confidence that the economic and fiscal impact findings shown in this report can be considered as the minimum baseline for additional research in the future.

### Fiscal Impact Analysis – An Overview

The purpose of fiscal impact analysis studies is three-fold. First, these studies attempt to quantify public revenues (both annual operating revenues and annual revenues from capital assets). Second, these studies attempt to calculate the demand for public services (both annual operating expenditures to provide public services to residents, businesses and their workers, government employees, visitors and tourists, and the annual expenditures required to maintain capital assets). Finally, the net fiscal surplus (*benefit*) or net fiscal deficit (*burden*) on the annual budget of local jurisdictions are determined.

An extensive literature review in the field of fiscal impact analysis reveals that fiscal impact models developed over the past 85-90 years have up to eleven methodological weaknesses inherent in their underlying assumptions and model construction. These eleven major shortcomings include the following (Bellas 2005):

1. “They fail to adequately allocate the generation of local revenues between people (existing residents and newcomers) and workers (jobs filled by residents and by commuters);
2. They fail to adequately allocate the beneficiaries of local expenditures between people (existing residents and newcomers) and workers (jobs filled by residents and by commuters);
3. They fail to adequately distribute the sources of revenues by various land use types (e.g., single family detached, single family attached, multifamily, retail, office, industrial and manufacturing, agricultural and conserved land, government uses);
4. They fail to adequately distribute service level expenditures by land-use type;
5. They fail to adequately estimate the revenues generated and the services demanded by land-use sub-sector. Examples of these sub-sectors include:
  - a. Revenues generated and services demanded by visitors conducting business and tourists;
  - b. Revenues (direct and indirect) generated and services demanded by governmental entities (federal, state and local) and from non-profit (tax-exempt) institutions; and
  - c. Revenues generated and services demanded by limited land-users, such as residents who own seasonal or vacation housing or university students who place limited demands on public services yet spend dollars in the local economy.

6. They fail to adequately differentiate between the capital expenditures required to build public infrastructure (e.g., roads, schools, playgrounds) and the repayment of the bonds (debt service) required to finance these public infrastructure improvements;
7. They fail to adequately identify the relationship between new and existing residential land uses and residentially associated retail and non-retail service sector land uses and employment;
8. They often incorrectly mix some aspects of average costing and marginal costing techniques in the analysis, resulting in a mixed interpretation of the findings;
9. They lack the ability to determine whether per capita levels-of-service provided by local governments are decreasing because local governments provide services more efficiently over time or increasing because excess revenues from new development allows local governments (especially rural governments) to provide more urbanized public services;
10. They fail to calculate the cross-over point from where residential land uses switch from generating a net fiscal deficit to a net fiscal surplus for various land-use types (the break-even point by type of land-use). Fiscal impact analyses for a site-specific project tend to calculate the break-even point but fiscal impact models designed to calculate the fiscal impact of the comprehensive plan fail to calculate the cross-over point where the revenues from new development offset revenues from existing development; and
11. They have limited dynamic features in their design and construction. There are limits to their functional capability to conduct sensitivity analysis on the independent variables. They lack the ability to forecast fiscal revenues and expenditures from existing development and new growth.

A consistent, underlying theme in fiscal impact analysis is the failure to address non-property tax revenues generated by residents (both existing and new) and expenditures (for services) demanded by non-residential land uses.”

The studies in the literature on the fiscal impacts of conserved land and conservation easements reviewed contain some or all of the inherent weaknesses described in items #1 through #11 listed above. Notwithstanding these deficiencies, the studies reviewed were both beneficial and insightful, providing guidance in how to calculate the fiscal impact estimates derived in section six of this report.

## Literature Review – Fiscal Impact Studies

The American Farmland Trust (1999, 9) found that for every \$1.00 in revenues received in Northampton County in FY 1998, farm land and open space required only \$0.23 in public services. This organization conducted additional cost of services studies in Augusta County, Bedford County, Clarke County, Culpepper County, and Frederick County, all in Virginia, between 1994 and 2005. They found that in these counties, the cost of public services ranged from a low of \$0.15 in Clarke County to a high of \$0.80 in Augusta County for every \$1.00 in taxes paid to those counties (American Farmland Trust 2010, 5).

The American Farmland Trust has replicated their study in various states across the country. As will be discussed in section six of this report, the fiscal impact model utilized in this report by the GMU/UAI research team produces outputs that are fiscally more conservative than the model employed by the American Farmland Trust as well as by other researchers. In section six, the findings shown in Table 6-1 by the GMU/UAI team indicate that for every \$1.00 in expenditures (public services) incurred by Charles City County in FY 2017, farm land and land with conservation easements generated \$1.28 in public revenues. For James City County, the GMU/UAI research team found that for every \$1.00 in public expenditures in FY 2017, these lands generated \$1.53 in public revenues. Finally, for New Kent County, the GMU/UAI research team found that for every \$1.00 in public expenditures in FY 2017, these lands generated \$1.21 in public revenues.

The reasons why the model that the GMU/UAI team used produces more conservative estimates are explained in the previous section on the overview of fiscal impact models and analyses. The fiscal impact model that we used corrects for the weaknesses typically found in other fiscal impact models. Other fiscal impact models generally tend to overstate public revenues and understate expenditures for public services.

## **6. Determine the Overall Net Benefits and Costs of all Conserved Land**

### Introduction

In section three, data were identified and gathered from Charles City County, James City County, and New Kent County regarding conservation easements, conserved land, and tax-exempt properties. Real estate tax assessment rolls in each county were examined. In this section the comprehensive annual financial report (CAFR) for each county was reviewed.<sup>23</sup> All operating revenues (not just real estate taxes) generated in each county as reported in the CAFR of each county by type of revenue and source of revenue was identified, analyzed and quantified. All operating expenditures (the cost of providing public services) in each county

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<sup>23</sup>The CAFR is the independently audited financial report that each county and city in Virginia prepares at the end of every fiscal year. The financial data reported in the CAFR reflect actual revenues and expenditures compared to the annual budget document which reports estimated fiscal revenues and expenditures for the next year's budget. In fiscal impact analysis the use of actual financial data reported in the CAFR is the *preferred* data set over the use of budgeted financial data.

were also identified, analyzed and quantified. The net fiscal impact of any benefit (surplus) or cost (deficit) of all conserved land was estimated.

A two-step analysis was conducted to identify and quantify the benefits and costs of all land uses (including conserved land and conservation easements) and to discern how these benefits or costs accrue to either Charles City County, James City County or New Kent County. Land-use multipliers for public operating revenues (taxes and non-tax charges and fees) and expenditures (the cost to provide public services) were developed and localized to each county. These multipliers were then applied to the conservation easements and conserved land to isolate and quantify the net fiscal impact from that land.

### Fiscal Impact Model

There are two computational functions of the fiscal impact model. The first function is to calculate the estimated operating expenditure demand that residential and non-residential land uses place on the operating budget of Charles City, James City, and New Kent counties. The second function is to calculate the estimated operating revenues that will be generated by residential and non-residential land uses in each county. The fiscal impact analysis reflects the increases in fiscal revenues that will be generated by existing and new residents, workers, visitors, tourists, and associated land uses in each county minus the increases in expenditures required to provide public services to existing and new residents, workers, visitors, tourists, and associated land uses in each county. These revenue and expenditure flows are different for each type of land use (existing and new development) in each county.

In order to accurately measure these distinct fiscal flows, a fiscal impact model was developed that allocates local revenues and expenditures by land use type including distributions across different types of residential and non-residential land uses. Charles City County's actual revenues and expenditures for FY 2017 as well as the allocation factors and the contribution margin of each line-item category of revenues and expenditures are shown in Appendix Tables A-1 and A-2. James City County's actual revenues and expenditures for FY2017 are shown in Appendix Tables A-5 and A-6. New Kent County's actual revenues and expenditures for FY2017 are shown in Appendix Tables A-9 and A-10.

The allocation factors calculated for each county are based on a detailed analysis of each county's data provided by the various departments and agencies in each county. For public education services, 100 percent of these costs were allocated to the residential sector. Allocating 100 percent of public education costs to the residential sector is the standard convention in fiscal impact modeling, although an argument can be made that local businesses benefit from employees who receive public education services and graduate from local public schools; thus, some percentage of these services should be borne by the non-residential sector.

A comparison of the allocation factors for Charles City County, James City County, and New Kent County reveal that these factors are different for different line-item categories. This is to be expected as each county and city in Virginia provides public services differently (not the type of service but how it is provided) when converted to dollars expended and measured on a per-capita or per-job basis. Likewise, revenues received in each county and city in Virginia are

based on a number of factors, such as tax rates, assessed values, the number of real estate properties on the land book, et cetera.

### Findings from the Fiscal Impact Model

The findings from the fiscal impact model can provide decision makers in Charles City County, James City County, New Kent County, and the Commonwealth of Virginia with land-use specific assessments for alternative development scenarios spanning twenty years. The fiscal model disaggregates each county’s operating revenues and expenditures into eight land use categories. The results of this analysis provide the fiscal baseline against which any future development policy, strategy, plan, or project approval can be tested. Consequently, the fiscal baseline that is reported herein provides local and state government officials and others involved in the economic development process the starting point for asking and deriving answers to critical questions about the future of land-use in these three counties.

For the model’s application in Charles City County, James City County, and New Kent County, the results of which are reported in the following pages, the fiscal model was calibrated to reflect the expenditure and revenue patterns documented in each county’s Comprehensive Annual Financial Report (CAFR) as of the fiscal year end 2017. Audited revenue and expenditure data are preferred to budgeted data as the former provide an accurate accounting for what was spent, how it was spent, and where the revenues originated to fund this spending. Annual debt service payments to fund capital improvements in each county are included in the model. Each county’s fiscal landscape for 2017 provided the baseline for forecasting revenue and expenditure growth over the next twenty years.

The fiscal impact analyses in this report reflect 2017 real dollar values, fiscal year end 2017 tax rates, 2017 operating revenues, and 2017 levels-of-service for operating expenditures as reported by Charles City County, James City County and New Kent County. If these current levels-of-service (LOS) for operating expenditures (the cost of public services on a per-capita or per-job basis) are changed in future years, then the estimated net fiscal impact for each category of land-use would also change. For the purpose of this analysis, all of these current operating levels-of-service are held constant and this provides an accurate portrayal of the estimated fiscal impacts that the various land-uses would have demanded on Charles City County, James City County or New Kent County as of the end of fiscal year 2017. The results from the fiscal impact model for each county is referred to as “the baseline analysis” and are summarized separately for each county.

#### Fiscal Impact Findings – Charles City County

Operating revenues by source of revenue as of the end of fiscal year 2017 for Charles City County are shown in Appendix Table A-1. In FY2017, Charles City County collected \$17,160,004 in general fund and major fund operating revenues. Of these \$17,160,004 in operating revenues, it is estimated that \$12,617,182 or (73.53 percent) came from the residential sector in the County, and the remaining \$4,542,822 (or 26.47 percent) came from the non-residential sector.

Operating expenditures by use (the cost to provide public services to residents, businesses and their workers, visitors, and tourists to the County) as of the end of fiscal year 2017 in Charles City County are presented in Appendix Table A-2. In FY2017, Charles City County spent \$14,596,842 to provide public services in the County. Of these \$14,596,842 in operating expenditures, \$12,396,426 (or 84.93 percent) are estimated to have been spent on public services to meet the needs of the residents of the County, and the remaining \$2,200,416 (or 15.07 percent) were spent to meet the needs of local businesses and their workers, visitors, and tourists to the County. The County reported a net surplus (revenues greater than expenditures) of \$2,563,162 at the end of FY2017.

#### Fiscal Impact Findings – James City County

Operating revenues by source of revenue as of the end of fiscal year 2017 for James City County are shown in Appendix Table A-5. In FY2017, James City County collected \$205,625,557 in general fund and major fund operating revenues. Of these \$205,625,557 in operating revenues, it is estimated that \$152,116,210 (or 73.98 percent) came from the residential sector in the County, and the remaining \$53,509,347 (or 26.02 percent) came from the non-residential sector.

Operating expenditures by use (the cost to provide public services to residents, businesses and their workers, visitors, and tourists to the County) as of the end of fiscal year 2017 in James City County are presented in Appendix Table A-6. In FY2017, James City County spent \$188,736,906 to provide public services in the County. Of these \$188,736,906 in operating expenditures, \$160,978,838 (or 85.29 percent) are estimated to have been spent on public services to meet the needs of the residents of the County, and the remaining \$27,758,068 (or 14.71 percent) were spent to meet the needs of local businesses and their workers, visitors, and tourists to the County. The County reported a net surplus (revenues greater than expenditures) of \$16,888,651 at the end of FY2017.

#### Fiscal Impact Findings – New Kent County

Operating revenues by source of revenue as of the end of fiscal year 2017 for New Kent County are shown in Appendix Table A-9. In FY2017, New Kent County collected \$42,185,801 in general fund and major fund operating revenues. Of these \$42,185,801 in operating revenues, it is estimated that \$31,777,228 (or 75.33 percent) came from the residential sector in the County, and the remaining \$10,408,573 (or 24.67 percent) came from the non-residential sector.

Operating expenditures by use (the cost to provide public services to residents, businesses and their workers, visitors, and tourists to the County) as of the end of fiscal year 2017 in New Kent County are presented in Appendix Table A-10. In FY2017, New Kent County spent \$39,750,563 to provide public services in the County. Of these \$39,750,563 in operating expenditures, \$33,513,532 (or 84.31 percent) are estimated to have been spent on public services to meet the needs of the residents of the County, and the remaining \$6,237,031 (or 15.69 percent) were spent to meet the needs of local businesses and their workers, visitors, and

tourists to the County. The County reported a net surplus (revenues greater than expenditures) of \$2,435,238 at the end of FY2017.

Net Fiscal Impact Findings – All Three Counties

As previously discussed, the fiscal model disaggregates each county’s operating revenues and expenditures into eight land-use categories. One category is conservation easements. The findings from this land-use category for all three counties is shown in Table 6-1. Real estate tax revenues, local sales and use taxes, and hotel and motel taxes were calculated and compared against four categories of public service expenditures: general government administration; public safety; public works; and parks, recreation and culture. Local sales and use taxes and hotel and motel taxes were included to account for spending from visitors and tourists to the LCRW. The findings of this fiscal impact analysis of conservation easements are presented in Table 6-1.

Table 6 - 1: Net Fiscal Impact Findings – All Three Counties

Counties of Charles City, James City and New Kent, Virginia  
Fiscal Year End 2017

<u>Jurisdiction</u>	<u>Findings</u>
<b>Charles City County</b>	
Revenues \$	1.28
Expenditures \$	1.00
<i>Inverse</i> <sup>1</sup>	
Revenues \$	1.00
Expenditures \$	0.78
<b>James City County</b>	
Revenues \$	1.53
Expenditures \$	1.00
<i>Inverse</i> <sup>1</sup>	
Revenues \$	1.00
Expenditures \$	0.65
<b>New Kent County</b>	
Revenues \$	1.21
Expenditures \$	1.00
<i>Inverse</i> <sup>1</sup>	
Revenues \$	1.00
Expenditures \$	0.83

Source: The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Notes:

<sup>1</sup> Some studies in the literature use the *Inverse* approach.

For every \$1.00 spent in Charles City County annually to provide public services to support land with conservation easements, public revenues to Charles City County were estimated to be \$1.28. In James City County, for every \$1.00 spent annually in the provision of public services to support land with conservation easements, revenues to James City County were estimated to be \$1.53. In New Kent County, for every \$1.00 spent annually in the provision of public services to support land with conservation easements, revenues to New Kent County were estimated to be \$1.21. The findings of the fiscal impact model indicate that lands with conservation easements do not place a fiscal burden on any of the three counties.

The GMU/UAI team reports revenues as a relationship to expenditures. Other studies in the literature (such as The American Farmland Trust) takes the *inverse* approach to estimating fiscal impacts, and reports expenditures as a relationship to revenues. In Table 6-1, both approaches are presented for illustrative purposes only.

## **7. Discussion of Additional Fee Simple or Conservation Acquisition**

In Appendix Table A-3, a twenty-year forecast of revenues by source in Charles City County is presented. Using annual estimates of population, household and employment growth produced by Woods and Poole Economics in Washington, DC, the operating revenues shown in Appendix Table A-1 were forecast to 2037 in five-year increments. In Appendix Table A-4, this same twenty-year forecast was prepared for operating expenditures by use. The summary of the twenty-year forecast is shown at the bottom of this table as well as in Table 7-1.

Table 7 - 1: 20-Year Fiscal Forecast – Charles City County, Virginia

(in thousands of 2017 \$)

	<b>2017</b>	<b>2022</b>	<b>2027</b>	<b>2032</b>	<b>2037</b>
	<b><u>Actual</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>	<b><u>Projected</u></b>
<b><u>Summary</u></b>					
Total Projected Revenues	\$ 17,160	\$ 17,606	\$ 18,030	\$ 18,388	\$ 18,671
Total Projected Expenditures	<u>\$ 14,597</u>	<u>\$ 14,882</u>	<u>\$ 15,145</u>	<u>\$ 15,357</u>	<u>\$ 15,496</u>
Net Projected Surplus (Deficit)	\$ 2,563	\$ 2,724	\$ 2,885	\$ 3,031	\$ 3,175

**Source:**

The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Based on the County’s current pattern of revenues generated and expenditures for public services, it is estimated that Charles City County will experience a modest annual surplus of revenues over expenditures each year over the next twenty-years. Included in this annual surplus is the foregone real estate tax revenues from conserved land and other tax-exempt properties. In other words, notwithstanding the estimated foregone tax revenues shown in Table 3-2, the County is estimated to experience a net fiscal surplus each year for the next twenty years. The acquisition of additional fee simple or conservation easement land will not

affect this annual surplus unless the County elects to change the current (FY2017) LOS that it provides to residents, businesses and their workers, visitors, and tourists to the County in the future.

In Appendix Table A-7, a twenty-year forecast of revenues by source in James City County is presented. Using annual estimates of population, household and employment growth produced by Woods and Poole Economics in Washington, DC, the operating revenues shown in Appendix Table A-5 were forecast to 2037 in five-year increments. In Appendix Table A-8, this same twenty-year forecast was prepared for operating expenditures by use. The summary of the twenty-year forecast is shown at the bottom of this table and also in Table 7-2.

Table 7 - 2: 20-Year Fiscal Forecast – James City County, Virginia

(in thousands of 2017 \$)

	<b>2017 Actual</b>	<b>2022 Projected</b>	<b>2027 Projected</b>	<b>2032 Projected</b>	<b>2037 Projected</b>
<b>Summary</b>					
Total Projected Revenues	\$ 205,626	\$ 220,748	\$ 236,462	\$ 252,393	\$ 268,000
Total Projected Expenditures	<u>\$ 188,737</u>	<u>\$ 202,341</u>	<u>\$ 216,492</u>	<u>\$ 230,845</u>	<u>\$ 244,846</u>
Net Projected Surplus (Deficit)	\$ 16,889	\$ 18,407	\$ 19,970	\$ 21,548	\$ 23,154

**Source:**

The Center for Regional Analysis, Schar School of Policy and Government, George Mason University;  
Urban Analytics, Inc.

Based on the County’s current pattern of revenues generated and expenditures for public services, it is estimated that James City County will experience a modest annual surplus of revenues over expenditures each year over the next twenty-years. Included in this annual surplus is the foregone real estate tax revenues from conserved land and other tax-exempt properties. In other words, notwithstanding the estimated foregone tax revenues shown in Table 3-4, the County is estimated to experience a net fiscal surplus each year for the next twenty years.

The acquisition of additional fee simple or conservation easement land will not affect this annual surplus unless James City County elects to change the current (FY2017) LOS that it provides to residents, businesses and their workers, visitors, and tourists to the County in the future.

In Appendix Table A-11, a twenty-year forecast of revenues by source in New Kent County is presented. Using annual estimates of population, household and employment growth produced by Woods and Poole Economics in Washington, DC, the operating revenues shown in Appendix Table A-9 were forecast to 2037 in five-year increments. In Appendix Table A-12, this same twenty-year forecast was prepared for operating expenditures by use. The summary of the twenty-year forecast is shown at the bottom of this table as well as in Table 7-3.

Table 7 - 3: 20-Year Fiscal Forecast – New Kent County, Virginia

(in thousands of 2017 \$)

	<b>2017</b>	<b>2022</b>	<b>2027</b>	<b>2032</b>	<b>2037</b>
	<b>Actual</b>	<b>Projected</b>	<b>Projected</b>	<b>Projected</b>	<b>Projected</b>
<b>Summary</b>					
Total Projected Revenues	\$ 42,186	\$ 45,743	\$ 49,420	\$ 53,116	\$ 56,717
Total Projected Expenditures	\$ 39,751	\$ 43,042	\$ 46,466	\$ 49,938	\$ 53,342
Net Projected Surplus (Deficit)	\$ 2,435	\$ 2,701	\$ 2,954	\$ 3,178	\$ 3,375

**Source:**

The Center for Regional Analysis, Schar School of Policy and Government, George Mason University;  
Urban Analytics, Inc.

Based on the County’s current pattern of revenues generated and expenditures for public services, it is estimated that New Kent County will experience a modest annual surplus of revenues over expenditures each year over the next twenty-years. Included in this annual surplus is the foregone real estate tax revenues from conserved land and other tax-exempt properties. In other words, notwithstanding the estimated foregone tax revenues shown in Table 3-6, the County is estimated to experience a net fiscal surplus each year for the next twenty years.

The acquisition of additional fee simple or conservation easement land will not affect this annual surplus unless New Kent County elects to change the current (FY2017) LOS that it provides to residents, businesses and their workers, visitors, and tourists to the County in the future.

## **Appendix**

## References

### *References for the water clarity and property value section*

- Ara, S., Irwin, E., and Haab, T. (2006). *Measuring the Effects of Lake Erie Water Quality in Spatial Hedonic Price Models*. Environmental and Resource Economists, Third World Conference, Kyoto, Japan.
- Boyle, K. and Bouchard, R. (2003). Water quality effects on property prices in northern New England. *LakeLine*, 23(3). 24-27.
- Boyle, K., Lawson, S., Michael, H., and Bouchard, R. (1998). *Lakefront Property Owners' Economic Demand for Water Clarity in Maine Lakes*. Misc. Report No. 410, Maine Agricultural and Forest Experiment Station, University of Maine, Orono. Available at:  
<http://www.moosepondassociation.org/Articles/General/Demand%20For%20Water%20Clarity.pdf>
- Gibbs, J., Halstead, J., Boyle, K., and Huang, J. (2002). A hedonic analysis of the effects of lake water quality on New Hampshire lakefront properties. *Agricultural and Resource Economics Review*, 31. 39-46.
- Krysel, C., Boyer, E., Parson, C., and Welle, P. (2003). *Lakeshore Property Values and Water Quality: Evidence from Property Sales in the Mississippi Headwaters Region*. Mississippi Headwaters Board and Bermidji State University. Submitted to the Legislative Commission on Minnesota Resources. May 14, 2003.
- Michael, H., Boyle, K., and Bouchard, R. (2000). Does the measurement of environmental quality affect implicit prices estimated from hedonic models? *Land Economics*, 76. 283-298.
- Poor, P., Boyle, K., Taylor, L., and Bouchard, R. (2001). Objective versus subjective measures of water quality in hedonic property value models. *Land Economics*, 77. 482-492.

### *References for the economic and fiscal impact literature review section*

- American Farmland Trust. "Fact Sheet. Cost of Community Services Studies." August 2010.  
[http://www.farmlandinfo.org/sites/default/files/COCS\\_08-2010\\_1.pdf](http://www.farmlandinfo.org/sites/default/files/COCS_08-2010_1.pdf)
- American Farmland Trust. "The Cost of Community Services in Northampton County, Virginia". June 1999.  
[http://www.farmlandinfo.org/sites/default/files/Northampton\\_Co\\_COCS\\_report\\_1.pdf](http://www.farmlandinfo.org/sites/default/files/Northampton_Co_COCS_report_1.pdf)
- Bellas, Dean D. Fiscal Impact Simulation Modeling: Calculating the Fiscal Impact of Development. Fairfax, VA: School of Public Policy, George Mason University. *Doctoral Dissertation*. May 2005.
- Burchell, Robert W., David Listokin, William R. Dolphin, Lawrence Q. Newton, and Susan J. Foxley with Robert M. Rodgers, Jeffrey L. Greene, Larry W. Canter, David J. Minno, Wonsik Shim, and Wansoo Im. Development Impact Assessment Handbook. Washington, DC: ULI-the Urban Land Institute, 1994.

Clower, Terry L., and Dean D. Bellas. “Socio-Economic Impacts of Conserved Land on Virginia’s Eastern Shore”. Presented to the Virginia Department of Environmental Quality, Virginia Coastal Zone Management Program. July 27, 2017.

Code of Virginia. Title 10. 1 Conservation. Chapter 10.1 Virginia Conservation Easement Act. Richmond, VA: Virginia Acts of Assembly.

Code of Virginia. Title 58. 1 Taxation. Chapter 32 Real Property Tax. Richmond, VA: Virginia Acts of Assembly.

## **Methodology**

### **Economic Impact Model**

The analysis reported here employed the IMPLAN economic input-output model developed by MIG, Inc. The IMPLAN model is widely used in academic and professional research projects and has been in existence for more than 30 years. Economic input-output models provide estimates of how money flows through a designated regional economy based on an input of industry, institution, or household spending. Our study area in this analysis is the combined region that includes Charles City County, James City County and New Kent County in Virginia. The money flows include direct, indirect, and induced effects. Direct effects represent the spending of firms and organizations included in the analysis. For example, a company that is operating a marina purchases supplies, utilities, equipment, and hires workers. This equipment could include boat hoists that are not manufactured in the area, therefore most of the value of that equipment purchase would “leave” the study area and have little impact of regional economic activity. However, the marina may hire an accounting firm for bookkeeping and other services. The accounting firm, in turn, hires employees, rents office space and equipment, and hires a janitorial service to clean the office, and so on. Induced effects capture the economic activity associated with employees of the direct and indirect firms spending a portion of their earnings for goods and services in the regional economy.

The impacts modeled in this research include estimates of economic output, value added, labor income, employment, and indirect taxes. Output measures the value of business transactions expressed in producer prices. Value Added is effectively the regional equivalent of gross domestic product expressing the value of the goods and services delivered net of input costs. Labor Income includes salaries, wages, and benefits paid to workers. Employment is the number of headcount jobs. Indirect taxes capture the value of income taxes, sales taxes, property taxes, fees, and other sources of government revenue at the local, state, and federal levels.

### **Fiscal Impact Model**

The process of calculating the revenue and expenditure flows generated by the residential and non-residential land uses in Charles City County, James City County and in New Kent County

involved formulating a fiscal model that allocates the operating revenues and expenditures of each county to their direct sources. The basis for this analysis was the Charles City County Comprehensive Annual Financial Report (CAFR) for fiscal year 2017, the James City County Comprehensive Annual Financial Report (CAFR) for fiscal year 2017, and the New Kent County Comprehensive Annual Financial Report (CAFR) for fiscal year 2017. Audited operating revenues and expenditures reported in these two documents were separated between (1) revenues generated by residential and non-residential sources and (2) expenditures demanded by use according to distributions developed from a detailed examination of each county's actual revenues and expenditures in fiscal year 2017. These distributions of fiscal revenues and expenditures were calibrated to the demographic and economic characteristics of Charles City County, James City County and New Kent County. The residential share of each category of county revenue and expenditures (that is, the portions generated by local residents as opposed to local business activities or which provide services to local residents as distinguished from local businesses) was converted to a per capita equivalent to facilitate the calculation of fiscal flows associated with each residential land use analyzed. The non-residential share of each category of county expenditures was converted to a per job equivalent to facilitate the calculation of non-residential fiscal flows from commercial development.

The approach to distributing operating expenditures assumes that each person living or working in Charles City County, James City County or New Kent County has access to each respective county's services and therefore potentially shares from the benefits of these services. This cost or expenditure allocation is not based on the actual utilization of county services by specific individuals but rather reflects equal access to and availability of these services to all county residents and persons working in the county. Thus, the findings derived in this report are based on an analysis of average costs, not marginal costs. By using average cost and revenue multipliers in this analysis and not adjusting revenue sources and expenditure demands to reflect the income structure of future residents and workers to each county or the actual utilization rate of specific services, the actual revenue forecast is likely to be conservative and the actual demand for each county's services and programs may be overstated. However, in this analysis, where specific costs and revenues could be assigned based on actual use or values, these were calculated based on available data.

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Terry L. Clower is Northern Virginia Chair and Professor of Public Policy at George Mason University. He is also director of GMU's Center for Regional Analysis. The Center provides economic and public policy research services to sponsors in the private, non-profit and public sectors. Prior to joining GMU, he was director for the Center for Economic Development and Research at the University of North Texas. Dr. Clower also spent 10 years employed in private industry in logistics and transportation management positions.



Dr. Clower has authored or co-authored over 170 articles, book chapters, and research reports reflecting experience in economic and community development, economic and fiscal impact analysis, housing, transportation, land use planning, and economic forecasting. His scholarly articles have appeared in *Economic Development Quarterly*; *Urban Studies*; *Economic Development Review*; *Regional Studies*, *Regional Science*; the *Australasian Journal of Regional Studies*; *Regional Studies Regional Science*, *Sustaining Regions*; and *Applied Research in Economic Development*. He recently completed a term as regional (Americas) editor for the journal *Regional Science Policy and Practice*.

Dr. Clower received a B.S. in Marine Transportation from Texas A&M University in 1982, a M.S. in Applied Economics from the University of North Texas in 1992 and a Ph.D. in Information Sciences from the University of North Texas in 1997 specializing in information policy issues and the use of information resources.

### **Dean D. Bellas, Ph.D.**

Dean D. Bellas, Ph.D., is president of Urban Analytics, Inc., an Alexandria, Virginia-based real estate and urban planning consulting firm providing urban development analytical services to public, private, and institutional – sector clients. Consulting services include fiscal and economic impact studies, market research analysis, real estate asset management, real estate development economics, project feasibility studies, and the analyses of public policy decisions. Since 1996, Dr. Bellas has provided consulting services in 20 states and the District of Columbia (Arizona, California, Florida, Illinois, Indiana, Iowa, Kansas, Maryland, Michigan, Minnesota, Mississippi, New York, North Carolina, Oregon, Texas, Virginia, Washington, West Virginia, Wisconsin, and the District of Columbia). Dr. Bellas has analyzed the fiscal impact on over 96,000 residential units and over 38.7 million square feet of non-residential space. The total value of all land-uses analyzed is estimated to be over \$27 billion. In addition, Dr. Bellas has authored or co-authored over 125 research reports on the fiscal and economic impacts of real estate development.



In addition to Urban Analytics, Dr. Bellas is an adjunct faculty member in the Real Estate program within the School of Continuing Studies at Georgetown University. He has previously

been an adjunct faculty member in the Real Estate Development concentration within the School of Architecture and Planning at the Catholic University of America, an adjunct faculty member in the School of Professional Studies in Business and Education at the Johns Hopkins University, an adjunct faculty member in the School of Management at George Mason University, and a graduate teaching fellow at the George Washington University. Dr. Bellas has also taught candidates for the CFA designation on behalf of the Washington Society of Investment Analysts.

Dr. Bellas received a Bachelor of Science in Business Administration from Western New England University with a concentration in Finance (1982), a Master of Urban and Regional Planning from the George Washington University (1993), and his Doctorate in Public Policy with a concentration in regional economic development policy at George Mason University (2005). His doctoral dissertation was entitled, “*Fiscal Impact Simulation Modeling: Calculating the Fiscal Impact of Development.*” His research interests include regional and local developmental growth patterns, economic and fiscal impact effects of real estate development on municipal government, and economic development policy. Dr. Bellas is a member of the National Economists Club and Lambda Alpha International, an honorary society for the advancement of land economics. He is a full member of the Urban Land Institute. Dr. Bellas previously sat on ULI’s national *Public Development and Infrastructure Council*. He currently sits on the regional ULI Baltimore-Washington, DC *Transit-Oriented Development (TOD) Council*, and locally on ULI’s Washington District *Regionalism Initiatives Council*. Dr. Bellas was the economic advisor to the Southeast Fairfax Development Corporation Board of Directors in calendar year 2012. He was appointed to the Board of Directors for the 2013 – 2014 term by Supervisor Jeffrey C. McKay (Lee District, Fairfax County, Virginia).

Over the past twenty-two years, Dr. Bellas has provided expert testimony on the economic and fiscal impacts of proposed real estate development projects at public meetings and public hearings of planning commissions and county supervisors meetings, as well as at community outreach meetings.

Appendix Table A - 1: Revenues by Source – Charles City County

County of Charles City, Virginia  
FYE June 30, 2017

Category	2017 Revenues	Allocation Factor		Contribution Margin				Multiplier
		Resident	Non-Res.	Residential		Non-Residential		
<b>1 Real Estate</b>								
Residential	\$5,389,560	100.0%	0.0%	\$5,389,560	42.72%			
Non-Residential	\$725,428	0.0%	100.0%			\$725,428	15.97%	
<b>2 Personal Property Taxes</b>	\$2,124,177	62.4%	37.6%	\$1,326,038	10.51%	\$798,139	17.57%	
<b>3 Local Sales and Use Taxes</b>	\$779,228	61.9%	38.2%	\$481,953	3.82%	\$297,275	6.54%	
<b>4 Utility Taxes (Consumers')</b>	\$154,146	65.3%	34.7%	\$100,688	0.80%	\$53,458	1.18%	
<b>5 Public Service Corporation Taxes</b>	\$1,044,000	0.0%	100.0%	\$0	0.00%	\$1,044,000	22.98%	
<b>6 Other Local Taxes</b>	\$89,810 <sup>2</sup>	62.3%	37.8%	\$55,907	0.44%	\$33,903	0.75%	
<b>7 Permits, Fees &amp; Licenses</b>	\$3,204,429	74.7%	25.3%	\$2,395,189	18.98%	\$809,240	17.81%	
<b>8 Fines &amp; Forfeitures</b>	\$28,615	74.7%	25.3%	\$21,389	0.17%	\$7,226	0.16%	
<b>9 Revenues from Use of Money</b>	\$22,263	74.7%	25.3%	\$16,641	0.13%	\$5,622	0.12%	
<b>10 Charges for Services</b>	\$225,241	69.3%	30.7%	\$156,024	1.24%	\$69,217	1.52%	
<b>11 Miscellaneous &amp; Recovered Costs</b>	\$464,051	69.4%	30.6%	\$322,144	2.55%	\$141,907	3.12%	
<b>12 Intergovernmental - Federal</b>	\$610,438	66.3%	33.7%	\$404,720	3.21%	\$205,718	4.53%	
<b>13 Intergovernmental - State</b>	\$2,298,618	84.7%	15.3%	\$1,946,929	15.43%	\$351,689	7.74%	
<b>Total</b>	\$17,160,004			\$12,617,182	100.00%	\$4,542,822	100.00%	
				Contribution Margin:		73.53%	26.47%	

Note:

- 1 Includes General Funds and Debt Service.
- 2 Net of Local Sales and Use Taxes and Utility Taxes (Consumers').

Source:

County of Charles City, Virginia [Comprehensive Annual Financial Report](#) (CAFR) for the FYE June 30, 2017  
The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Appendix Table A - 2: Expenditures by Use – Charles City County

County of Charles City, Virginia  
FYE June 30, 2017

Category	2017 Expenditures <sup>1</sup>	Allocation Factor		Contribution Margin				Multiplier
		Resident	Non-Res.	Resident		Non-Res.		
1 General Government Administration	\$2,155,174 <sup>2,5</sup>	74.7%	25.3%	\$1,610,911	12.99%	\$544,263	24.73%	
2 Judicial Administration	\$731,329 <sup>5</sup>	75.4%	24.6%	\$551,422	4.45%	\$179,907	8.18%	
3 Public Safety	\$2,053,025 <sup>3,5</sup>	65.9%	34.1%	\$1,352,738	10.91%	\$700,287	31.83%	
4 Public Works	\$1,183,781 <sup>5</sup>	71.4%	28.6%	\$845,575	6.82%	\$338,206	15.37%	
5 Health and Welfare	\$1,515,257 <sup>5</sup>	93.5%	6.5%	\$1,417,068	11.43%	\$98,189	4.46%	
6 Parks, Recreation and Cultural	\$609,710 <sup>5</sup>	95.0%	5.0%	\$579,225	4.67%	\$30,486	1.39%	
7 Community Development	\$356,880 <sup>5</sup>	49.7%	50.3%	\$177,369	1.43%	\$179,511	8.16%	
8 Correction and Detention	\$305,946 <sup>5</sup>	57.7%	42.4%	\$176,378	1.42%	\$129,568	5.89%	
9 Education	\$5,685,740 <sup>4,5</sup>	100.0%	0.0%	\$5,685,740	45.87%	\$0	0.00%	
<b>Total</b>	<b>\$14,596,842</b>			<b>\$12,396,426</b>	<b>100.00%</b>	<b>\$2,200,416</b>	<b>100.00%</b>	
				Contribution Margin:	84.93%		15.07%	
<b>Summary</b>								
Total Revenues	\$17,160,004	100.00%		\$12,617,182	73.53%	\$4,542,822	26.47%	
Total Expenditures	\$14,596,842	100.00%		\$12,396,426	84.93%	\$2,200,416	15.07%	
Net Surplus (Deficit)	\$2,563,162	0.00%		\$220,757	-11.40%	\$2,342,405	11.40%	

Note:

- 1 Includes General Funds and Debt Service.
- 2 Includes Contributions to Community College.
- 3 Net of Correction and Detention.
- 4 Net of Contributions to Community College.
- 5 Includes \$546,327 in debt service and \$357,598 in capital projects (apportioned).

Source:

County of Charles City, Virginia Comprehensive Annual Financial Report (CAFR) for the FYE June 30, 2017  
The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Appendix Table A - 3: Revenues Forecast – Charles City County

Projected Operating Revenues in Five-Year Increments 2017 - 2037  
(in thousands of 2017 dollars)

<u>Category</u>	<u>2017</u> <u>Revenues</u>	<u>2022</u> <u>Projected</u>	<u>2027</u> <u>Projected</u>	<u>2032</u> <u>Projected</u>	<u>2037</u> <u>Projected</u>
<b>Real Estate</b>					
Residential	\$5,390	\$5,449	\$5,499	\$5,531	\$5,533
Non-Residential	\$725	\$774	\$824	\$869	\$913
<b>Personal Property Taxes</b>					
Residential	\$1,326	\$1,341	\$1,353	\$1,361	\$1,361
Non-Residential	\$798	\$852	\$906	\$956	\$1,005
<b>Local Sales and Use Taxes</b>					
Residential	\$482	\$487	\$492	\$495	\$495
Non-Residential	\$297	\$317	\$337	\$356	\$374
<b>Utility Taxes (Consumers')</b>					
Residential	\$101	\$102	\$103	\$103	\$103
Non-Residential	\$53	\$57	\$61	\$64	\$67
<b>Public Service Corporation Taxes</b>					
Residential	\$0	\$0	\$0	\$0	\$0
Non-Residential	\$1,044	\$1,114	\$1,185	\$1,250	\$1,314
<b>Other Local Taxes</b>					
Residential	\$56	\$57	\$57	\$57	\$57
Non-Residential	\$34	\$36	\$38	\$41	\$43
<b>Permits, Fees &amp; Licenses</b>					
Residential	\$2,395	\$2,422	\$2,444	\$2,458	\$2,459
Non-Residential	\$809	\$864	\$919	\$969	\$1,019
<b>Fines &amp; Forfeitures</b>					
Residential	\$21	\$22	\$22	\$22	\$22
Non-Residential	\$7	\$8	\$8	\$9	\$9
<b>Revenues from Use of Money</b>					
Residential	\$17	\$17	\$17	\$17	\$17
Non-Residential	\$6	\$6	\$6	\$7	\$7
<b>Charges for Services</b>					
Residential	\$156	\$158	\$159	\$160	\$160
Non-Residential	\$69	\$74	\$79	\$83	\$87
<b>Miscellaneous &amp; Recovered Costs</b>					
Residential	\$322	\$326	\$329	\$331	\$331
Non-Residential	\$142	\$151	\$161	\$170	\$179
<b>Intergovernmental - Federal</b>					
Residential	\$405	\$409	\$413	\$415	\$415
Non-Residential	\$206	\$220	\$234	\$246	\$259
<b>Intergovernmental - State</b>					
Residential	\$1,947	\$1,968	\$1,986	\$1,998	\$1,999
Non-Residential	\$352	\$375	\$399	\$421	\$443
<b>Total Projected Revenues</b>	<u>\$17,160</u>	<u>\$17,606</u>	<u>\$18,030</u>	<u>\$18,388</u>	<u>\$18,671</u>

**Note:** Projections are based on 2017 per capita and per job baseline service level multipliers.

**Source:** The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Appendix Table A - 4: Expenditure Forecast – Charles City County

Projected Operating Expenditures in Five-Year Increments 2017 - 2037  
(in thousands of 2017 \$)

<u>Category</u>	<u>2017 Actual</u>	<u>2022 Projected</u>	<u>2027 Projected</u>	<u>2032 Projected</u>	<u>2037 Projected</u>
<b>General Government Administration</b>					
Residential	\$1,611	\$1,629	\$1,644	\$1,653	\$1,654
Non-Residential	\$544	\$581	\$618	\$652	\$685
<b>Judicial Administration</b>					
Residential	\$551	\$558	\$563	\$566	\$566
Non-Residential	\$180	\$192	\$204	\$215	\$226
<b>Public Safety</b>					
Residential	\$1,353	\$1,368	\$1,380	\$1,388	\$1,389
Non-Residential	\$700	\$748	\$795	\$838	\$882
<b>Public Works</b>					
Residential	\$846	\$855	\$863	\$868	\$868
Non-Residential	\$338	\$361	\$384	\$405	\$426
<b>Health and Welfare</b>					
Residential	\$1,417	\$1,433	\$1,446	\$1,454	\$1,455
Non-Residential	\$98	\$105	\$111	\$118	\$124
<b>Parks, Recreation and Cultural</b>					
Residential	\$579	\$586	\$591	\$594	\$595
Non-Residential	\$30	\$33	\$35	\$36	\$38
<b>Community Development</b>					
Residential	\$177	\$179	\$181	\$182	\$182
Non-Residential	\$180	\$192	\$204	\$215	\$226
<b>Correction and Detention</b>					
Residential	\$176	\$178	\$180	\$181	\$181
Non-Residential	\$130	\$138	\$147	\$155	\$163
<b>Education</b>					
Residential	\$5,686	\$5,748	\$5,801	\$5,835	\$5,837
Non-Residential	\$0	\$0	\$0	\$0	\$0
<b>Total Projected Expenditures</b>	<u>\$14,597</u>	<u>\$14,882</u>	<u>\$15,145</u>	<u>\$15,357</u>	<u>\$15,496</u>

<b>Summary</b>					
Total Projected Revenues	\$17,160	\$17,606	\$18,030	\$18,388	\$18,671
Total Projected Expenditures	<u>\$14,597</u>	<u>\$14,882</u>	<u>\$15,145</u>	<u>\$15,357</u>	<u>\$15,496</u>
Net Projected Surplus (Deficit)	\$2,563	\$2,724	\$2,884	\$3,031	\$3,175

**Note:** Projections are based on 2017 per capita and per job baseline service level multipliers.

**Source:**

The Center for Regional Analysis, Schar School of Public and Government, George Mason University  
Urban Analytics, Inc.

Appendix Table A - 5: Revenues by Source – James City County

FYE June 30, 2017

Category	2017 Revenues <sup>1</sup>	Allocation Factor		Contribution Margin				Multiplier
		Resident	Non-Res.	Residential		Non-Residential		
<b>1 Real Estate</b>								
Residential	\$86,139,596	100.0%	0.0%	\$86,139,596	56.63%			
Non-Residential	\$13,722,801	0.0%	100.0%			\$13,722,801	25.65%	
<b>2 Personal Property Taxes</b>	\$28,231,855	55.0%	45.0%	\$15,537,835	10.21%	\$12,694,020	23.72%	
<b>3 Local Sales and Use Taxes</b>	\$11,085,090	61.9%	38.2%	\$6,856,128	4.51%	\$4,228,962	7.90%	
<b>4 Restaurant Food Taxes</b>	\$7,202,286	61.9%	38.2%	\$4,454,614	2.93%	\$2,747,672	5.13%	
<b>5 Hotel and Motel Taxes</b>	\$2,843,331	0.0%	100.0%	\$0	0.00%	\$2,843,331	5.31%	
<b>6 Other Local Taxes</b>	\$3,424,656 <sup>2</sup>	62.3%	37.8%	\$2,131,848	1.40%	\$1,292,808	2.42%	
<b>7 Permits, Fees &amp; Licenses</b>	\$9,049,208	21.7%	78.3%	\$1,965,488	1.29%	\$7,083,720	13.24%	
<b>8 Fines &amp; Forfeitures</b>	\$270,716	60.9%	39.1%	\$164,789	0.11%	\$105,927	0.20%	
<b>9 Revenues from Use of Money</b>	\$371,886	60.9%	39.1%	\$226,373	0.15%	\$145,513	0.27%	
<b>10 Charges for Services</b>	\$6,471,404	69.3%	30.7%	\$4,482,742	2.95%	\$1,988,662	3.72%	
<b>11 Miscellaneous &amp; Recovered Costs</b>	\$1,931,812 <sup>3</sup>	69.4%	30.6%	\$1,341,064	0.88%	\$590,748	1.10%	
<b>12 Intergovernmental - Federal</b>	\$3,958,707	66.3%	33.7%	\$2,624,623	1.73%	\$1,334,084	2.49%	
<b>13 Intergovernmental - State</b>	\$30,922,209 <sup>4</sup>	84.7%	15.3%	\$26,191,111	17.22%	\$4,731,098	8.84%	
<b>Total</b>	\$205,625,557			\$152,116,210	100.00%	\$53,509,347	100.00%	
				Contribution Margin:		73.98%	26.02%	

Note:

- 1 Includes General Funds, Debt Service, and Nonmajor governmental funds. Does not include Capital Projects.
- 2 Net of Local Sales and Use Taxes, Restaurant Food Taxes, and Hotel and Motel Taxes.
- 3 Includes \$237,580 in Debt Service and \$321,437 in Nonmajor governmental funds.
- 4 Includes \$371,801 from Intergovernmental - Local.

Source:

County of James City, Virginia Comprehensive Annual Financial Report (CAFR) for the FYE June 30, 2017  
 The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Appendix Table A - 6: Expenditures by Use – James City County

County of James City, Virginia  
FYE June 30, 2017

Category	2017 Expenditures <sup>1</sup>	Allocation Factor		Contribution Margin			
		Resident	Non-Res.	Resident		Non-Res.	
1 General Government Administration	\$11,129,284 <sup>3</sup>	60.9%	39.1%	\$6,774,565	4.21%	\$4,354,719	15.69%
2 Judicial Administration	\$6,687,160 <sup>3</sup>	75.4%	24.6%	\$5,042,119	3.13%	\$1,645,041	5.93%
3 Public Safety	\$29,348,230 <sup>2,3</sup>	65.9%	34.1%	\$19,337,549	12.01%	\$10,010,681	36.06%
4 Public Works	\$8,923,488 <sup>3</sup>	71.4%	28.6%	\$6,374,047	3.96%	\$2,549,441	9.18%
5 Health and Welfare	\$8,373,400 <sup>3</sup>	93.5%	6.5%	\$7,830,804	4.86%	\$542,596	1.95%
6 Parks, Recreation and Cultural	\$11,725,444 <sup>3</sup>	95.0%	5.0%	\$11,139,172	6.92%	\$586,272	2.11%
7 Community Development	\$13,472,809 <sup>3</sup>	49.7%	50.3%	\$6,695,986	4.16%	\$6,776,823	24.41%
8 Correction and Detention	\$3,051,934 <sup>3</sup>	57.7%	42.4%	\$1,759,440	1.09%	\$1,292,494	4.66%
9 Education	\$96,025,157 <sup>3</sup>	100.0%	0.0%	\$96,025,157	59.65%	\$0	0.00%
<b>Total</b>	<b>\$188,736,906</b>			<b>\$160,978,838</b>	<b>100.00%</b>	<b>\$27,758,068</b>	<b>100.00%</b>
				Contribution Margin:	85.29%		14.71%
<b>Summary</b>							
Total Revenues	\$205,625,557	100.00%		\$152,116,210	73.98%	\$53,509,347	26.02%
Total Expenditures	\$188,736,906	100.00%		\$160,978,838	85.29%	\$27,758,068	14.71%
Net Surplus (Deficit)	\$16,888,651	0.00%		(\$8,862,628)	-11.32%	\$25,751,279	11.32%

Note:

- 1 Includes General Funds, Debt Service, and Nonmajor governmental funds. Does not include Capital Projects.
- 2 Net of \$2,679,252 Correction and Detention.
- 3 Includes \$23,047,290 in debt service (apportioned).

Source:

County of James City, Virginia Comprehensive Annual Financial Report (CAFR) for the FYE June 30, 2017  
The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Appendix Table A - 7: Revenue Forecast – James City County

Projected Operating Revenues in Five-Year Increments 2017 - 2037  
(in thousands of 2017 dollars)

<u>Category</u>	<u>2017 Revenues</u>	<u>2022 Projected</u>	<u>2027 Projected</u>	<u>2032 Projected</u>	<u>2037 Projected</u>
<b>Real Estate</b>					
Residential	\$86,140	\$92,184	\$98,482	\$104,872	\$111,070
Non-Residential	\$13,723	\$14,863	\$16,041	\$17,233	\$18,429
<b>Personal Property Taxes</b>					
Residential	\$15,538	\$16,628	\$17,764	\$18,917	\$20,035
Non-Residential	\$12,694	\$13,749	\$14,839	\$15,941	\$17,047
<b>Local Sales and Use Taxes</b>					
Residential	\$6,856	\$7,337	\$7,839	\$8,347	\$8,840
Non-Residential	\$4,229	\$4,580	\$4,943	\$5,311	\$5,679
<b>Restaurant Food Taxes</b>					
Residential	\$4,455	\$4,767	\$5,093	\$5,423	\$5,744
Non-Residential	\$2,748	\$2,976	\$3,212	\$3,451	\$3,690
<b>Hotel and Motel Taxes</b>					
Residential	\$0	\$0	\$0	\$0	\$0
Non-Residential	\$2,843	\$3,080	\$3,324	\$3,571	\$3,818
<b>Other Local Taxes</b>					
Residential	\$2,132	\$2,281	\$2,437	\$2,595	\$2,749
Non-Residential	\$1,293	\$1,400	\$1,511	\$1,623	\$1,736
<b>Permits, Fees &amp; Licenses</b>					
Residential	\$1,965	\$2,103	\$2,247	\$2,393	\$2,534
Non-Residential	\$7,084	\$7,672	\$8,280	\$8,896	\$9,513
<b>Fines &amp; Forfeitures</b>					
Residential	\$165	\$176	\$188	\$201	\$212
Non-Residential	\$106	\$115	\$124	\$133	\$142
<b>Revenues from Use of Money</b>					
Residential	\$226	\$242	\$259	\$276	\$292
Non-Residential	\$146	\$158	\$170	\$183	\$195
<b>Charges for Services</b>					
Residential	\$4,483	\$4,797	\$5,125	\$5,458	\$5,780
Non-Residential	\$1,989	\$2,154	\$2,325	\$2,497	\$2,671
<b>Miscellaneous &amp; Recovered Costs</b>					
Residential	\$1,341	\$1,435	\$1,533	\$1,633	\$1,729
Non-Residential	\$591	\$640	\$691	\$742	\$793
<b>Intergovernmental - Federal</b>					
Residential	\$2,625	\$2,809	\$3,001	\$3,195	\$3,384
Non-Residential	\$1,334	\$1,445	\$1,559	\$1,675	\$1,792
<b>Intergovernmental - State</b>					
Residential	\$26,191	\$28,029	\$29,944	\$31,887	\$33,771
Non-Residential	\$4,731	\$5,124	\$5,530	\$5,941	\$6,354
<b>Total Projected Revenues</b>	<u>\$205,626</u>	<u>\$220,748</u>	<u>\$236,462</u>	<u>\$252,393</u>	<u>\$268,000</u>

**Note:** Projections are based on 2017 per capita and per job baseline service level multipliers.

**Source:** The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Appendix Table A - 8: Expenditure Forecast – James City County

Projected Operating Expenditures in Five-Year Increments 2017 - 2037  
(in thousands of 2017 \$)

<u>Category</u>	<u>2017 Actual</u>	<u>2022 Projected</u>	<u>2027 Projected</u>	<u>2032 Projected</u>	<u>2037 Projected</u>
<b>General Government Administration</b>					
Residential	\$6,775	\$7,250	\$7,745	\$8,248	\$8,735
Non-Residential	\$4,355	\$4,717	\$5,090	\$5,469	\$5,848
<b>Judicial Administration</b>					
Residential	\$5,042	\$5,396	\$5,765	\$6,139	\$6,501
Non-Residential	\$1,645	\$1,782	\$1,923	\$2,066	\$2,209
<b>Public Safety</b>					
Residential	\$19,338	\$20,695	\$22,108	\$23,543	\$24,934
Non-Residential	\$10,011	\$10,843	\$11,702	\$12,571	\$13,444
<b>Public Works</b>					
Residential	\$6,374	\$6,821	\$7,287	\$7,760	\$8,219
Non-Residential	\$2,549	\$2,761	\$2,980	\$3,202	\$3,424
<b>Health and Welfare</b>					
Residential	\$7,831	\$8,380	\$8,953	\$9,534	\$10,097
Non-Residential	\$543	\$588	\$634	\$681	\$729
<b>Parks, Recreation and Cultural</b>					
Residential	\$11,139	\$11,921	\$12,735	\$13,562	\$14,363
Non-Residential	\$586	\$635	\$685	\$736	\$787
<b>Community Development</b>					
Residential	\$6,696	\$7,166	\$7,655	\$8,152	\$8,634
Non-Residential	\$6,777	\$7,340	\$7,922	\$8,510	\$9,101
<b>Correction and Detention</b>					
Residential	\$1,759	\$1,883	\$2,012	\$2,142	\$2,269
Non-Residential	\$1,292	\$1,400	\$1,511	\$1,623	\$1,736
<b>Education</b>					
Residential	\$96,025	\$102,764	\$109,784	\$116,907	\$123,816
Non-Residential	\$0	\$0	\$0	\$0	\$0
<b>Total Projected Expenditures</b>	<u>\$188,737</u>	<u>\$202,341</u>	<u>\$216,492</u>	<u>\$230,845</u>	<u>\$244,846</u>
<b>Summary</b>					
Total Projected Revenues	\$205,626	\$220,748	\$236,462	\$252,393	\$268,000
Total Projected Expenditures	<u>\$188,737</u>	<u>\$202,341</u>	<u>\$216,492</u>	<u>\$230,845</u>	<u>\$244,846</u>
Net Projected Surplus (Deficit)	\$16,889	\$18,407	\$19,969	\$21,548	\$23,154

**Note:** Projections are based on 2017 per capita and per job baseline service level multipliers.

**Source:**

The Center for Regional Analysis, Schar School of Public and Government, George Mason University  
Urban Analytics, Inc.

Appendix Table A - 9: Revenues by Source – New Kent County

FYE June 30, 2017

Category	2017 Revenues <sup>1</sup>	Allocation Factor		Contribution Margin			
		Resident	Non-Res.	Residential		Non-Residential	
<b>1 Real Estate</b>							
Residential	\$19,284,907	100.0%	0.0%	\$19,284,907	60.69%		
Non-Residential	\$3,734,580	0.0%	100.0%			\$3,734,580	35.88%
<b>2 Personal Property Taxes</b>	\$5,162,265	41.7%	58.3%	\$2,150,600	6.77%	\$3,011,665	28.93%
<b>3 Local Sales and Use Taxes</b>	\$1,555,073	65.3%	34.7%	\$1,015,774	3.20%	\$539,299	5.18%
<b>4 Utility Taxes (Consumer)</b>	\$303,606 <sup>2</sup>	62.0%	38.0%	\$188,236	0.59%	\$115,370	1.11%
<b>5 Hotel and Motel Taxes</b>	\$19,540	0.0%	100.0%	\$0	0.00%	\$19,540	0.19%
<b>6 Other Local Taxes</b>	\$2,673,113 <sup>3</sup>	62.3%	37.8%	\$1,664,013	5.24%	\$1,009,100	9.69%
<b>7 Permits, Fees &amp; Licenses</b>	\$706,972	73.3%	26.7%	\$518,493	1.63%	\$188,479	1.81%
<b>8 Fines &amp; Forfeitures</b>	\$230,561	72.9%	27.1%	\$168,079	0.53%	\$62,482	0.60%
<b>9 Revenues from Use of Money</b>	\$461,072	72.9%	27.1%	\$336,121	1.06%	\$124,951	1.20%
<b>10 Charges for Services</b>	\$534,491	69.3%	30.7%	\$370,242	1.17%	\$164,249	1.58%
<b>11 Miscellaneous &amp; Recovered Costs</b>	\$952,648 <sup>4</sup>	69.4%	30.6%	\$661,328	2.08%	\$291,320	2.80%
<b>12 Intergovernmental - Federal</b>	\$776,036	66.3%	33.7%	\$514,512	1.62%	\$261,524	2.51%
<b>13 Intergovernmental - State</b>	\$5,790,937 <sup>5</sup>	84.7%	15.3%	\$4,904,924	15.44%	\$886,013	8.51%
<b>Total</b>	<b>\$42,185,801</b>			<b>\$31,777,228</b>	<b>100.00%</b>	<b>\$10,408,573</b>	<b>100.00%</b>
				Contribution Margin: 75.33%		24.67%	

Note:

- 1 Includes General Funds, Debt Service, and Human Services. Does not include Airport and County Capital Improvements.
- 2 Includes consumers' utility taxes, electric consumption taxes, and cable TV franchise taxes.
- 3 Net of Local Sales and Use Taxes, Utilities (Consumers) Taxes, and Hotel and Motel Taxes.
- 4 Includes \$10,424 from Human Services.
- 5 Includes \$601,517 from Human Services.

Source:

County of New Kent, Virginia [Comprehensive Annual Financial Report](#) (CAFR) for the FYE June 30, 2017  
 The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Appendix Table A - 10: Expenditures by Use – New Kent County

FYE June 30, 2017

Category	2017 Expenditures <sup>1</sup>	Allocation Factor		Contribution Margin				Multiplier
		Resident	Non-Res.	Resident	Non-Res.	Resident	Non-Res.	
1 General Government Administration	\$4,354,610 <sup>2,5,6</sup>	72.9%	27.1%	\$3,174,511	9.47%	\$1,180,099	18.92%	
2 Judicial Administration	\$1,817,147 <sup>6</sup>	75.4%	24.6%	\$1,370,129	4.09%	\$447,018	7.17%	
3 Public Safety	\$9,127,412 <sup>2,6</sup>	69.0%	31.0%	\$6,297,002	18.79%	\$2,830,410	45.38%	
4 Public Works	\$1,834,141 <sup>6</sup>	71.4%	28.6%	\$1,310,127	3.91%	\$524,014	8.40%	
5 Health and Welfare	\$3,713,714 <sup>3,6</sup>	94.1%	5.9%	\$3,494,976	10.43%	\$218,738	3.51%	
6 Parks, Recreation and Cultural	\$909,947 <sup>6</sup>	95.0%	5.0%	\$864,450	2.58%	\$45,497	0.73%	
7 Community Development	\$1,258,148 <sup>6</sup>	49.7%	50.3%	\$625,300	1.87%	\$632,848	10.15%	
8 Correction and Detention	\$930,922 <sup>6</sup>	61.5%	38.5%	\$572,517	1.71%	\$358,405	5.75%	
9 Education	\$15,804,522 <sup>4,6</sup>	100.0%	0.0%	\$15,804,522	47.16%	\$0	0.00%	
<b>Total</b>	<b>\$39,750,563</b>			<b>\$33,513,532</b>	<b>100.00%</b>	<b>\$6,237,031</b>	<b>100.00%</b>	
				Contribution Margin:	84.31%		15.69%	
<b>Summary</b>								
Total Revenues	\$42,185,801	100.00%		\$31,777,228	75.33%	\$10,408,573	24.67%	
Total Expenditures	\$39,750,563	100.00%		\$33,513,532	84.31%	\$6,237,031	15.69%	
Net Surplus (Deficit)	\$2,435,238	0.00%		(\$1,736,304)	-8.98%	\$4,171,542	8.98%	

Note:

- 1 Includes General Funds, Debt Service, and Human Services. Does not include Airport and County Capital Improvements.
- 2 Net of \$752,605 Correction and Detention.
- 3 Includes \$1,321,258 in Human Services expenditures.
- 4 Net of \$9,600 in Contribution to community colleges.
- 5 Includes \$9,600 in Contribution to community colleges.
- 6 Includes \$7,614,157 in debt service (apportioned).

Source:

County of New Kent, Virginia [Comprehensive Annual Financial Report \(CAFR\)](#) for the FYE June 30, 2017  
Urban Analytics, Inc.

Appendix Table A - 11: Revenue Forecast – New Kent County

Projected Operating Revenues in Five-Year Increments 2017 - 2037  
(in thousands of 2017 dollars)

<u>Category</u>	<u>2017 Revenues</u>	<u>2022 Projected</u>	<u>2027 Projected</u>	<u>2032 Projected</u>	<u>2037 Projected</u>
<b>Real Estate</b>					
Residential	\$19,285	\$20,830	\$22,457	\$24,133	\$25,792
Non-Residential	\$3,735	\$4,098	\$4,455	\$4,790	\$5,101
<b>Personal Property Taxes</b>					
Residential	\$2,151	\$2,323	\$2,504	\$2,691	\$2,876
Non-Residential	\$3,012	\$3,305	\$3,592	\$3,863	\$4,114
<b>Local Sales and Use Taxes</b>					
Residential	\$1,016	\$1,097	\$1,183	\$1,271	\$1,359
Non-Residential	\$539	\$592	\$643	\$692	\$737
<b>Utility Taxes (Consumer)</b>					
Residential	\$188	\$203	\$219	\$236	\$252
Non-Residential	\$115	\$127	\$138	\$148	\$158
<b>Hotel and Motel Taxes</b>					
Residential	\$0	\$0	\$0	\$0	\$0
Non-Residential	\$20	\$21	\$23	\$25	\$27
<b>Other Local Taxes</b>					
Residential	\$1,664	\$1,797	\$1,938	\$2,082	\$2,226
Non-Residential	\$1,009	\$1,107	\$1,204	\$1,294	\$1,378
<b>Permits, Fees &amp; Licenses</b>					
Residential	\$518	\$560	\$604	\$649	\$693
Non-Residential	\$188	\$207	\$225	\$242	\$257
<b>Fines &amp; Forfeitures</b>					
Residential	\$168	\$182	\$196	\$210	\$225
Non-Residential	\$62	\$69	\$75	\$80	\$85
<b>Revenues from Use of Money</b>					
Residential	\$336	\$363	\$391	\$421	\$450
Non-Residential	\$125	\$137	\$149	\$160	\$171
<b>Charges for Services</b>					
Residential	\$370	\$400	\$431	\$463	\$495
Non-Residential	\$164	\$180	\$196	\$211	\$224
<b>Miscellaneous &amp; Recovered Costs</b>					
Residential	\$661	\$714	\$770	\$828	\$884
Non-Residential	\$291	\$320	\$347	\$374	\$398
<b>Intergovernmental - Federal</b>					
Residential	\$515	\$556	\$599	\$644	\$688
Non-Residential	\$262	\$287	\$312	\$335	\$357
<b>Intergovernmental - State</b>					
Residential	\$4,905	\$5,298	\$5,712	\$6,138	\$6,560
Non-Residential	\$886	\$972	\$1,057	\$1,136	\$1,210
<b>Total Projected Revenues</b>	<u>\$42,186</u>	<u>\$45,743</u>	<u>\$49,420</u>	<u>\$53,116</u>	<u>\$56,717</u>

**Note:** Projections are based on 2017 per capita and per job baseline service level multipliers.

**Source:** The Center for Regional Analysis, Schar School of Policy and Government, George Mason University; Urban Analytics, Inc.

Appendix Table A - 12: Expenditure Forecast – New Kent County

Projected Operating Expenditures in Five-Year Increments 2017 - 2037  
(in thousands of 2017 \$)

<b>Category</b>	<b>2017 Actual</b>	<b>2022 Projected</b>	<b>2027 Projected</b>	<b>2032 Projected</b>	<b>2037 Projected</b>
<b>General Government Administration</b>					
Residential	\$3,175	\$3,429	\$3,697	\$3,973	\$4,246
Non-Residential	\$1,180	\$1,295	\$1,408	\$1,514	\$1,612
<b>Judicial Administration</b>					
Residential	\$1,370	\$1,480	\$1,595	\$1,715	\$1,832
Non-Residential	\$447	\$490	\$533	\$573	\$611
<b>Public Safety</b>					
Residential	\$6,297	\$6,801	\$7,333	\$7,880	\$8,422
Non-Residential	\$2,830	\$3,106	\$3,376	\$3,630	\$3,866
<b>Public Works</b>					
Residential	\$1,310	\$1,415	\$1,526	\$1,639	\$1,752
Non-Residential	\$524	\$575	\$625	\$672	\$716
<b>Health and Welfare</b>					
Residential	\$3,495	\$3,775	\$4,070	\$4,374	\$4,674
Non-Residential	\$219	\$240	\$261	\$281	\$299
<b>Parks, Recreation and Cultural</b>					
Residential	\$864	\$934	\$1,007	\$1,082	\$1,156
Non-Residential	\$45	\$50	\$54	\$58	\$62
<b>Community Development</b>					
Residential	\$625	\$675	\$728	\$782	\$836
Non-Residential	\$633	\$694	\$755	\$812	\$864
<b>Correction and Detention</b>					
Residential	\$573	\$618	\$667	\$716	\$766
Non-Residential	\$358	\$393	\$428	\$460	\$490
<b>Education</b>					
Residential	\$15,805	\$17,071	\$18,404	\$19,778	\$21,138
Non-Residential	\$0	\$0	\$0	\$0	\$0
<b>Total Projected Expenditures</b>	<b>\$39,751</b>	<b>\$43,042</b>	<b>\$46,466</b>	<b>\$49,938</b>	<b>\$53,342</b>

<b>Summary</b>					
Total Projected Revenues	\$42,186	\$45,743	\$49,420	\$53,116	\$56,717
Total Projected Expenditures	\$39,751	\$43,042	\$46,466	\$49,938	\$53,342
Net Projected Surplus (Deficit)	\$2,435	\$2,702	\$2,954	\$3,178	\$3,376

**Note:** Projections are based on 2017 per capita and per job baseline service level multipliers.

**Source:**

The Center for Regional Analysis, Schar School of Public and Government, George Mason University  
Urban Analytics, Inc.

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