For Public and Private
Sector Clients

Williamsburg Landing Expansion

Fiscal Impact Study

James City County, Virginia

Prepared by

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For
Williamsburg Landing, Inc.

James City County, Virginia

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Williamsburg Landing Expansion: Fiscal Impact Analysis

Executive Summary

The applicant, Williamsburg Landing, Inc., is seeking a rezoning of 15.5 acres of a property, located between Williamsburg Landing and the Williamsburg Airport along Marclay Road, from Rural Residential District (R8) to Multifamily Residential District (R5) with a special use permit to allow an expansion of Williamsburg Landing (the "Williamsburg Landing Expansion" or "the proposed development"). The proposed development consists of approximately 65 single-family units in duplex structures and 70 multi-family units in a single apartment building with three wings from the main building. For purposes of this analysis, this expansion is assumed to occur within three years of the requested rezoning. The actual development timeframe will depend on market conditions.

As proposed, this development is projected to have a highly positive fiscal impact on both the general fund of James City County ("the County") and the James City Service Authority (JCSA) over an initial 10-year analysis period and in its stabilization year. Annual cash flow for the County is projected to be more than $445,000 annually, with more than $400,000 annually entering the County's general fund. The annual revenue surplus from the proposed development can be expected to be received by the County each year after the proposed development is built out. Over the ten-year analysis periods, cumulative cash flow is projected to be almost $3 million.

Based on an analysis of proposed entry fees and monthly fees, the average household income for residents of the Williamsburg Landing Expansion was estimated to be $181,250, which is more than double the County's current average household income (about $90,400 in 2015).

Williamsburg Landing is a continuous care retirement community. Because the proposed units will be age restricted, there will be no impact on the County's school system.

The table below summarizes the fiscal impact measures for the proposed development.

Williamsburg Landing Expansion Fiscal Impact Measures, Combined General Fund and JCSA	
Stabilization Period	
Annual Revenues	$511,300
Annual Costs	$ 65,650
Cash Flow	$445,650
Benefit-to-Cost Ratio	7.79-to-1
Cumulative Measures	
Total Revenues	$3,255,100
Total Costs	$ 307,025
Cumulative Cash Flow	$2,948,075
Benefit-to-Cost Ratio	10.6-to-1

Figures rounded to the nearest $25

A more detailed analysis follows.

Background

Williamsburg Landing, Inc. has proposed an expansion of its current operation consisting of 65 single-family units in duplex structures and a four-section, four-story apartment building with 70 independent living units. The duplex units are comparable to the existing Boatwright duplex units and the apartment building is comparable to the existing Earls Court at Williamsburg Landing.

The Williamsburg Landing Expansion, or "the proposed development," will be located on a 15.5 acre parcel on a portion of the parcel at 20 Marclay Road in James City County (the "site"). The site is comprised of a portion of Tax Parcel 4820100012 owned by Short Neck, LLC. Upon rezoning and any other due diligence, the site would be subdivided from the existing 43.7 acre parcel and acquired by Williamsburg Landing, Inc. (the "applicant" or "developer"). The site, which is located between Williamsburg Landing and the Williamsburg Airport, is currently zoned Rural Residential District (R8). The applicant wishes to rezone this parcel to Multifamily Residential District (R5) with a special use permit in order to construct the development.

The duplex units will range in size from 1,900 square feet to 2,000 square feet (3,900 square foot typical structures). The apartment units will range from 1,800 to 1,900 square feet. The apartment building is expected to have 169,000 square feet of conditioned space, including a 2,000 square foot clubhouse. Approximately 31,500 square feet will be enclosed garage space under an upper floor cantilever on the building wings, plus 8,500 square feet of detached garage space. Based on an analysis of entry fees and monthly fees proposed by Williamsburg Landing for the expansion units, household income for Williamsburg Landing Expansion residents is projected to average $188,675 for the duplex units and $173,350 for the apartment units, rounded to the nearest $25. These estimates were confirmed as reasonable with the developer.

Of the 15.5 acre site, approximately 12.8 acres of the site will be developed, with the remainder of the site being critical area open space. The developed area will include four new employee surface parking areas. Stormwater runoff will be managed on site.

Sitework is assumed to start in the late fall or winter of 2019 with construction of the apartment building starting in the spring of 2020 and the first group of duplex units two months later. The first duplex units are assumed to be occupied in the second and third quarters of 2021 (the last quarter of FY 2021 and the first quarter of FY 2022). The apartment units are assumed to be occupied in the last quarter of 2021 and the first quarter of 2022 (the second and third quarters of FY 2022). Thus, the project's stabilization year (the year beyond which costs and revenues do not change) was determined to be FY 2023. A ten-year analysis period (FY 2017-FY 2026) was used for convenience, because the stabilization year falls within the second five-year increment from the anticipated rezoning approval.

These parameters are best estimates of the scope of the proposed development made by the applicant at this point in time. The specifics and timing of the proposed development are subject to change based upon final determinations of site constraints and/or market conditions. Descriptions of the proposed development contained herein are not guarantees by the applicant that the proposed development will be constructed exactly as described above. However, the basic elements of the proposed development are those outlined above. Any change in the fiscal impact of the proposed development on the County due to minor changes in the scope of the proposed development are expected to be in the same magnitude as the revenues and costs which are projected in this analysis and are expected to be in practically the same proportion of revenues to costs as estimated in the fiscal impact analysis report.

Methodology

The fiscal impact of the Williamsburg Landing Expansion on the County and the James City Service Authority, or JCSA, was calculated using the methodology described below. (Henceforth, "County" may refer to both the County and JCSA.) Fiscal impact is defined as the difference between all revenues to the County generated by the development and all costs to the County attributable to the development. Revenues and costs are described in further detail below.

Because the proposed development of the site is a natural extension of the current development at Williamsburg Landing and it is unlikely, given the site's proximity to the Airport, that a developer would find it attractive or economically feasible to develop the site under its current zoning, a fiscal impact of the a by-right development of the site was not calculated. However, it should be noted that, should the site be developed under its current zoning, it is highly unlikely that the product would be age restricted, thus generating education costs for the County that the proposed development does not generate. Also, again given the site's location, it is unlikely that upscale homes would be developed on the site, thus reducing a by-right development's revenue stream to the County compared to the proposed development.

All fiscal impacts are presented in constant 2018 dollars, (i.e., inflation is not applied to either revenues or costs throughout the analysis period). A constant in 2018 dollars was chosen because the analysis is substantially based on the revenue, cost and tax rate assumptions contained in the County's *FY 2017-2018 Two Year Adopted Operating Budgets.*

The constant dollar approach means that no assumptions are made about rates of increase in real estate assessments in the County. Also, no assumptions are made about increasing tax revenues from sales, meals or business license taxes based upon retail price increases. Neither are assumptions made about future increases in the unit costs of government. The practical implication of this approach is that any future systemic imbalances between rising revenues and rising costs are assumed to be adjusted through changes in the County's tax rate, either upward or downward.

A marginal revenue/marginal cost approach was used to calculate expected revenues and costs to the County attributable to the development. This is opposed to an average revenue/average cost approach, in which estimates of a project's revenues and costs are based upon a jurisdiction's per-capita revenues and costs. The marginal revenue/marginal cost methodology counts only variable costs and revenues and, thus, does not count fixed costs and revenues that would be spent or received by the County whether additional development occurs or not. It counts only revenues and costs attributable to an increase in the number of households from the development being analyzed.

It is, thus, a more accurate estimate of future revenues and costs resulting from a development than is the average revenue/average cost approach. The average revenue/average cost approach actually calculates a project's "fair share" of public costs, rather than the incremental impact of a project on a locality's fiscal position. A more detailed description of the methodology used in this analysis is presented in the Appendix.

Revenues estimated for the Williamsburg Landing Expansion fall into three categories: one-time direct revenues, recurring direct revenues and additional tax revenues generated by households. The methodology does not use multipliers to calculate revenues that could be generated through a project's secondary impacts, as such multipliers are considered to be unreliable for small geographic areas. The methodology does not include revenues generated from spending by construction workers at the Williamsburg Landing Expansion, as such spending cannot reliably be said to occur within the County.

One-time direct revenues are revenues to the County derived from the construction of the Williamsburg Landing Expansion. They include all plan review fees, building permit and associated fees (electrical, mechanical and plumbing), other development fees, including water and sewer system facilities fees, and certificate of occupancy fees. No cash proffers are assumed for the Williamsburg Landing Expansion as part of the fiscal impact analysis.

Recurring direct revenues consist of real estate property taxes, personal property taxes (car tax), car rental tax, business personal property taxes paid by Williamsburg Landing, Inc., water and sewer consumption fees, and other fees paid by households to the County. These are taxes and fees paid directly to the County by households and/or property owners. Taxes currently paid on the assessed value of the site's land were deducted from real estate property tax calculations. Taxes were calculated based upon estimates of the assessed property values, the County's per-household user fees or other methodologies explained in the Appendix.

Additional tax revenues generated by households are estimates of taxes paid by County businesses due to purchases made by Williamsburg Landing Expansion residents. These include the local option sales tax, meals tax, and the business license fees paid by businesses on gross receipts from these sales. The methodology for estimating net new sales and gross receipts is presented in the Appendix.

Purchases by Williamsburg Landing Expansion residents are estimated based upon spending patterns according to household estimated income. Spending patterns are derived from the most recent U.S. Bureau of Labor Statistics Consumer Expenditure Survey. An adjustment was made for purchases made outside the County and for meals and services provided by Williamsburg Landing. The methodology for estimating these revenues is presented in the Appendix.

No generated taxes were estimated for construction workers or employees of businesses located in County, as these employees were assumed either to be already living and spending in County or living outside the County and, thus, spending most of their income outside the County.

Costs were divided into three categories: variable operating costs of general government per household, general government capital costs (if any) and public utilities costs (JCSA). Cost data and assumptions were derived from the County's *FY 2017-2018 Two Year Adopted Operating Budgets.*

Per household costs were calculated for various budget line items. State and federal revenues supporting various budget line items were deducted to leave only the County's operating cost. Certain government functions, such as public assistance and public health services, that would not serve the Williamsburg Landing Expansion population were not included in the calculations. Chief executive, legislative and administrative functions, which would be performed regardless of population size, were not included in the calculations. A percentage of certain administrative support services, to the extent that they support operations which would be provided independent of population size, were not included in the calculations. The methodology for estimating the cost of government, including, public utility costs (the per-customer cost of billing and the per-linear foot cost of water and sewer line maintenance), is presented in more detail in the Appendix.

Three measures of fiscal impact were used—cash flow, cumulative cash flow and the benefit-to-cost ratio. Cash flow shows the annual surplus or deficit of revenues less costs for a sample of ramp up years through the stabilization year. Because revenues and costs are reported in constant dollars, there is no change in the projected cash flow after the stabilization year.

Cumulative cash flow is the sum of annual cash flows over the analysis period. Another way of explaining cumulative cash flow is that it is derived by subtracting total costs to the County attributable to a project from total revenues to the County derived from a project over the analysis period, leaving the County's total net revenue from a project.

Finally, the benefit-to-cost ratio is the ratio of total project revenues to the County and total project costs to the County. A benefit-to-cost ratio greater than 1.0-to-1 signals a net fiscal benefit. The magnitude of the benefit-to-cost ratio signals the strength of the fiscal impact on the County. For instance, a benefit-to-cost ratio of 1.5-to-1 indicates that for every additional dollar of spending a project costs the County, the County is expected to receive $1.50 in additional revenue.

Fiscal Impact of Williamsburg Landing Expansion

Williamsburg Landing, Inc. is seeking a rezoning of the site to Multifamily Residential District (R5) with a special use permit. This zoning would permit the development described above. The derivation of the revenues and costs attributed to the Williamsburg Landing Expansion are described in the Methodology section, above, and in the Appendix. The revenues projected for the Williamsburg Landing Expansion are listed in the Table 1 on the following page. Costs generated by the Williamsburg Landing Expansion are displayed in Table 2, located on page 11. Both revenues and costs are shown for the stabilization year and the total for the ten-year analysis period (FY 2017-FY 2026).

Subtracting projected costs from revenues yields a positive overall cash flow (or revenues net of costs) for the development. Annual cash flow from the Williamsburg Landing Expansion is shown in Table 3 on page 11. In the stabilization year, the County and the JCSA are expected to receive more than $500,000 annually in new revenue from the development of the Williamsburg Landing Expansion while incurring only about $65,000 in new annual costs.

Of this revenue surplus, more than $400,000 is projected to enter the County's general fund and more than $35,000 annually is projected to be earned by the JCSA. The JCSA, though separate for administrative and accounting purposes, ultimately impacts the County's general fund. Surpluses are either transferred into the general fund or the funds would be used to enable a faster repayment of debt service, which would result in larger surpluses transferred to the general fund in the future.

Table 4, on page 12, shows the fiscal impact measures for the Williamsburg Landing Expansion. These are highly positive. The County can expect to receive more than $2.1 million in surplus revenue from the proposed development during the ten-year analysis period, while the JCSA can expect to receive more than $800,000 in surplus revenue. Of note, because of expected development timing, the project generates substantial costs or revenues only in the last seven years of the analysis period. Benefit-to-cost ratios in the stabilization year are exceptionally positive (more than 7.75-to-1 for the County's general fund and the JCSA combined). In other words, the County's combined general fund and JCSA are expected to receive $7.79 in revenue for every dollar of cost attributed to the development. Benefit-to-cost ratios for the entire analysis period are also exceptionally positive. The higher benefit-to-cost ratios for the ten-year period are due to the presence of one-time revenues. This is particularly the case with the JCSA. In conclusion, both the County's general fund and the JCSA will receive significant surplus revenues due to the Williamsburg Landing Expansion.

Table 1 **Williamsburg Landing Expansion** **Projected Revenues**		
Revenue Type	Annual Revenues, Stabilization Year	Five-Year Total
Current Real Estate Tax	$ (3,825)	$ (38,375)
Real Estate Property Tax, Land	$ 13,025	$ 93,475
Real Estate Property Tax, Improvements	$294,075	$1,440,500
Personal Property (Car) Tax, Car Rental Tax	$101,475	$ 476,675
Business Personal Property Tax	$ 10,000	$ 45,000
Communication Sales Tax and other fees	$ 14,200	$ 66,225
Elevator Inspection Fees	$ 200	$ 2,000
Subtotal Direct Taxes	*$429,150*	*$2,085,500*
Additional Revenues Derived from Households	$ 42,000	$ 195,925
General Fund Annual Revenues	***$471,150***	***$2,281,425***
Sewer Flow Charge	$ 17,450	$ 81,400
Water Flow Charge	$ 22,700	$ 105,925
JCSA Annual Revenues	***$ 40,150***	***$ 187,325***
Subtotal Annual Revenues	**$511,300**	**$2,468,750**
Building Permit and Review Fees		$ 111,675
Development Review and Inspection Fees		$ 14,750
Erosion Control and Stormwater Fees		$ 15,925
Certificate of Occupancy Fees		$ 1,700
General Fund One-time Revenues		***$ 144,050***
Review and Inspection Fees		$ 7,800
Sewer System Facility Fees		$ 292,500
Water System Facility & Lawn Irrigation Fees		$ 343,400
JCSA One-time Revenues		***$ 643,700***
Value of Off-site Improvements		***$ 0***
Subtotal One-time Revenues		**$ 787,750**
Total Revenues		**$3,256,500**
General Fund Revenues		**$2,425,475**
JCSA Revenues		**$ 831,025**

Figures rounded to the nearest $25.

Table 2 Williamsburg Landing Expansion Projected Costs		
Cost Type	Annual Costs, Stabilization Year	Five-Year Total
General Government Service Operating Costs	$63,325	$295,575
General Government Service Capital Costs		$ 0
Education Operating Costs	$ 0	$ 0
Education Capital Costs		$ 0
Total General Fund Costs	$63,325	$295,575
JCSA Costs	$ 2,325	$ 11,450
Total Costs	**$65,650**	**$307,025**

Figures rounded to the nearest $25.

Table 3 Williamsburg Landing Expansion Projected Cash Flow					
	FY 2017-2019	FY 2020	FY 2021	FY 2022	Stabilization Year FY 2023
General Fund Revenues*	$ 0	$ 132,825	$25,725	$382,300	$471,150
JCSA Revenues	$ 0	$578,250	$65,475	$ 25,300	$ 40,150
Total Revenues	$ 0	$711,075	$91,200	$407,600	$511,300
General Fund Costs	$50	$ 25	$ 1,900	$ 40,325	$ 63,325
JCSA Fund Costs	$ 0	$ 0	$ 0	$ 2,125	$ 2,325
Total Costs	$50	$ 25	$ 1,900	$ 42,450	$ 65,650
General Fund Cash Flow	$(50)	$132,800	$23,825	$341,975	$407,825
JCSA Cash Flow	$ 0	$578,250	$65,475	$ 23,175	$ 37,825
Total Cash Flow	$(50)	$711,050	$89,300	$365,150	$445,650

Figures rounded to the nearest $25.

*The “cost” of taxes currently collected on the site is subtracted from General Fund revenues

Table 4 Williamsburg Landing Expansion Fiscal Impact Measures, General Fund and JCSA		
	Stabilization Year	Ten-Year Total
Cumulative Cash Flow		
General Fund	N/A	$2,129,900
JCSA	N/A	$ 819,575
Total*	N/A	$2,949,475
Benefit-to-Cost Ratio		
General Fund	7.44-to-1	8.21-to-1
JCSA	17.27-to-1	72.58-to-1
Combined	7.79-to-1	10.61-to-1

Williamsburg Landing Expansion

Appendix

Methodology

Approach

Fiscal impact is defined as the difference between all revenues to James City County (the "County") and the James City Service Authority ("JCSA") generated by the project and all costs to the County/JCSA attributable to the project. Henceforth, unless the connotation is otherwise, "County" shall also include the combined County and JCSA account. Only variable revenues and costs are counted in the fiscal impact study. This means that, rather than applying per capita or per household all non-tax revenue and total County per capita or per household expenditures to the proposed expansion of residential units at Williamsburg Landing (the "Williamsburg Landing Expansion"), only those incremental revenues and costs that the County will actually receive or incur due to the increase in households are counted in as having a fiscal impact. Fixed costs that do not rise as population or households increase incrementally are not counted as having a fiscal impact.

Revenues include one-time direct revenues, annual direct revenues from the project and tax revenues generated by households. One-time revenues include building permit fees and other development fees, as well as sewer and water facilities fees.

Annual direct revenues include: real estate property taxes, personal property taxes (paid by both residents and Williamsburg Landing), the portion of the state communications sales tax remitted to the County and various local government fees, fines and user charges. Tax revenues generated by households are taxes paid or collected by James City County businesses due to purchases made by residents of the Williamsburg Landing Expansion. Costs include: operating costs of government per household. No capital costs were presumed to be generated by the Williamsburg Landing Expansion and, since the project is age-restricted, no Williamsburg-James City County Public Schools costs will be generated.

All fiscal impacts are presented in constant 2018 dollars. Inflation is not applied to either revenues or costs throughout the analysis period. The constant dollar approach also means that no assumptions are made about the rate of real estate assessment increases in the County. No assumptions are made about future increases in tax revenues from sales, meals or business license taxes that are based upon retail price increases. Neither are assumptions made about future increases in the unit costs or revenues of government. The practical implication of this approach is that any systemic future imbalances between rising (or falling) revenues and rising costs will be adjusted through changes in the County's tax rate, either upward or downward.

Three measures of fiscal impact are used. One is the annual cash flow through the stabilization year. Cash flow is derived from the net revenue surplus/deficit (revenues minus costs). The second fiscal impact measure is the cumulative cash flow over the five year period. This is equivalent to total revenues less total costs over the analysis period.

Cash flow was calculated for each year of project activity through the stabilization year, the year following the year in which all costs and revenues have been realized. Thus, the stabilization year captures the fully realized cost and revenue impact generated by the project. The stabilization year was determined to be FY 2023. Because revenues and costs are reported in constant dollars, there is no significant change in the projected cash flow after the stabilization year. Although the stabilization year occurs in FY 2023, because this falls within the second five-year period from the start of the analysis, for convenience purposes, the analysis was continued through the tenth year measured from anticipated rezoning approval and purchase of the site.

Finally, the benefit-to-cost ratio is the ratio of total project net revenues to the County and total project net costs to the County. A benefit-to-cost ratio greater than 1.0-to-1 signals a net fiscal benefit. The magnitude of the benefit-to-cost ratio signals the strength of the fiscal impact on the County. For instance, a benefit-to-cost ratio of 1.5.0-to-1 indicates that for every additional dollar of spending the project costs the County, the County is expected to receive $1.50 in additional revenue.

Throughout, revenue and cost data is estimated on a per-household basis. However, in some cases, per-household metrics are influenced by household size, when ultimate consumers of public services are individuals. Whenever the number of persons in a household would have a marginal impact on variable costs or revenues, the per-household metrics were adjusted for household size. This is more fully described below under “Cost Calculation.”

The projected number of households in the County in FY 2018 (31,406) was taken from the County’s *FY 2017-2018 Two Year Adopted Operating Budgets*. The number of business establishments in the County (1880) available from the Virginia Employment Commission’s Quarterly Census of Employment and Wages (first quarter 2016) was used to calculate the per-business cost data that was used to adjust the cost per household estimates in some cases (see under “Cost Calculation” below). The business firm, rather than a per-employee measure, was deemed to be a more appropriate unit to measure the delivery of most County services to the business community.

<u>Parameters and Assumptions</u>

The project consists of 65 duplex units (33 buildings) and a 70 unit four-story apartment building. It is assumed that the apartment building will be constructed with a main wing containing the building’s community areas and three purely residential wings, probably to be designed as a quad-shaped structure. All units will be constructed on land to be acquired by Williamsburg Landing and incorporated into its existing campus.

Marketing for the Williamsburg Landing Expansion is assumed to begin about two years after rezoning approval. Site plans are assumed to be submitted soon after with development reviews occurring in the second half of 2019. Once products are 70% preleased, construction is assumed to begin. For analysis purposes a construction start of April 2020 is assumed, three years after an assumed rezoning request approval. Construction of the apartment building is assumed to begin first and construction of the first 27 duplexes (54 units) is assumed begin in June 2020.

The first duplex units are assumed to receive certificates of occupancy in January 2021 with all of the initial duplex units receiving certificates of occupancy by the September 2021. With preleasing, a three to four month vetting and move-in period was assumed for Williamsburg Landing Expansion residents, resulting in the first duplex unit occupancy occurring in April 2021. It is assumed that seven duplex units will be occupied each month for the first eight months (absorbing the preleased residents) and that absorption for the remaining 9 units will be at a rate of three per month. Thus, the duplex units are assumed to be fully occupied by the end of February 2022.

The apartment building is assumed to receive its certificate of occupancy by August 2021. The first move-ins are assumed in October 2021 and to are assumed continue at a rate of ten per month until preleasing residents are accommodated. Thereafter, absorption is assumed to continue at a rate of between four and five per month, with the apartments fully occupied by the end of August 2022.

Due to anticipated strong demand, both duplexes and apartments are expected to be fully occupied. Vacancy is expected to occur primarily through mortality or residents moving into assisted living or skilled nursing. Based on the latest National Vital Statistics System mortality data for Virginia, approximately 3 units per year are expected to be vacated due to mortality. It is assumed that, during the analysis period, 1 unit per year would be vacated due to incapacity. The incapacity rate can be expected to increase somewhat with time as the average resident age becomes older, but units are also expected to be replenished with younger residents. Assuming a standing waiting list for both duplex and apartment units and a four month vetting and move-in period, this results in 16 unit-months of vacancy per year, or an average vacancy rate of 2%, rounding up.

Revenue Calculations

Revenues estimated for the Williamsburg Landing Expansion fall into three categories: one-time direct revenues, direct annual revenues, and additional annual tax revenues and fees generated by households. The methodology does not use multipliers to calculate revenues that could be generated through the project's secondary impacts. Such multipliers are considered to be unreliable when applied to small economic units, such as localities.

One-time direct revenues are revenues to the County derived from the construction of the Williamsburg Landing Expansion. These were calculated for both the County and the JCSA.

One-time revenues included:

- site plan review fees
- Planning Commission/Design Review Committee (DRC) fees (for the apartment building only)
- all building permit fees
- building plan review fees
- Certificate of Occupancy (CO) and fire inspection fees
- erosion & sediment control review fees
- stormwater installation inspection fees
- VSMP fees
- sewer, and water stormwater system inspection fees
- sewer and water system facilities fees and
- lawn irrigation system fee.

Building permits for the proposed apartments were calculated based on a total building size of 170,400 square feet and for the proposed duplexes based on a building size of 3,900 square feet (2 units). The apartment building size includes enclosed parking space under the cantilevered upper floors in the two building wings, as well as individual garages. The outdoor terrace for the proposed apartments was assumed to be counted as an unenclosed structure and not counted in the computation of the building permit fee.

For calculating plumbing permit fees, as well as sewer and water system facilities fees, three fixtures per full bath were assumed. Each wing of the apartment building was assumed to be equipped with four roof drains. Four manholes were assumed based on an estimated 1,625 linear feet of water and sewer lines. Water and sewer line inspection fees were based on the addition of 875 linear feet of water line connection to buildings.

For calculating electrical permit fees, a 200 amp service was assumed for each duplex and apartment unit. A temporary service permit was assumed to be required for each building. No more than 100 outlets were assumed for any unit. HVAC permits were based on an estimated average cost of $15,000 per duplex or apartment unit. Natural gas piping permits were calculated assuming 1,345 linear feet of gas main at $75 per linear foot, 2,600 linear feet of gas delivery line for the apartment buildings at $25 per linear foot and 35 linear feet of gas delivery line for each duplex unit at $25 per linear foot. This includes gas delivery lines within the apartment building. The apartment building was assumed to be sprinklered, with sprinkler costs estimated at $3.00 per square foot. One traction elevator was assumed to be installed in the main hall and each wing of the apartment building. The entire developable acreage (12.6 acres) was used to calculate erosion control permit fees. The duplex units were not considered to be single-family dwellings for this purpose.

Water and sewer fees were calculated assuming that each duplex unit of the proposed development is served by a 5/8" meter and that the apartment building is master metered with a single 2 inch master meter serving all four building wings. It is assumed that JCSA will assess the water and sewer system facilities fees based on the project's residential use (i.e., per bathroom fixture), with a credit for master metering. A single parcel was assumed for the purposes of calculating the lawn irrigation connection fee.

Recent changes to Virginia's law governing proffers mandate that only actual impacts of a proposed development on public facilities that have reached their service capacity can be considered by a developer when offering (and by a locality when accepting) proffers. A proffer offered based upon a presumed impact on future service capacities or on other facilities not directly impacted by the proposed development constitutes an "unreasonable proffer" which is now illegal. It is not anticipated that the Williamsburg Landing Expansion will not cause any public infrastructure facility to exceed its current capacity. Therefore, no proffers are included as revenues to the County.

Direct annual revenues consist of those revenues paid directly to James City County by the Williamsburg Landing Expansion property owner and residents. These include real estate property taxes, personal property taxes on vehicles, business personal property tax on FFE for the grounds, apartments and clubhouse, water usage, sewer usage and other fees and user charges paid to James City County.

The County's real estate assessment of Williamsburg Landing Expansion was estimated using existing assessments for Williamsburg Landing obtained from the County's Parcel Viewer website and, for detail on building assessments, from the County Real Estate Assessments Director. The proposed apartment unit sizes will range from 1,800 to 1,900 square feet. Thus, Earl's Court, whose apartments range from 1,810 to 1,900 square feet, is the most comparable to the proposed apartment building. However, due to the larger number of apartments in the proposed buildings, the ratio of apartment to community space is higher in the proposed development (2.24-to-1 versus 1.28-to-1). In this respect, the proposed apartment development is more similar to the Manor Houses, which have no community space.

A series of calculations were made to obtain estimates of the likely per-square foot assessment of apartment living space and common/community space. These calculations resulted in an estimated assessment per square foot for the proposed Williamsburg Landing Expansion apartments of $104.92, compared to a per-square foot assessment of $108.19 for Earls Court and $89.49 per square for the Manor House buildings.

Estimates of real estate assessment for the duplex units were based upon per square foot assessments for the Boatwright duplexes, supplemented by assessment data for The Moorings and Edgewood. Per square foot assessments seemed to rise as the size of the unit increased. A simple regression was run on assessment per square foot and average unit size for the Boatwright duplexes, The Moorings and Edgewood 2 and 3 bedroom units. The R-square was .948, indicating a very good fit. The model predicted a per-square foot assessment of $102.96 for the proposed duplexes, using an average size of 1,950 square feet.

Additionally, the per-acre assessment for Williamsburg Landing was computed. All parcels were assessed at $100,000 per acre. This assessment was in addition to all building improvements (individual duplex and apartment assessments did not include land, which was assessed for the entire development) and included critical areas. The 15.3 acre parcel to be developed was deemed comparable to the existing parcels and assumed to be assessed at $100,000 per acre, once developed. The parcel to be developed is currently assessed at only $10,450 per acre. This assessment was assumed to remain in place until construction begins, at which time the property is assumed to be reassessed at $100,000 per acre, with the new assessment effective at the start of FY 2021. Taxes currently generated from the site are counted as negative revenue in the fiscal impact analysis.

The proposed Williamsburg Landing Expansion also includes the addition of four new parking areas. Parking areas are currently assessed at $8,000 per area. Based on the above, the proposed Williamsburg Landing Expansion apartments were assumed to be assessed for $14,940,600, the proposed duplexes were assumed to be assessed for $6,023,200, the site was assumed to be assessed for $1,530,000, and the parking areas were assumed to be assessed for $32,000. Thus, an estimated assessed value of $22,525,800 was calculated when the property is fully developed.

The annual personal property tax to be received by the County from Williamsburg Landing Expansion residents was estimated by first calculating the average personal property tax per vehicle and then adjusting this amount to account for variations in the number and value of vehicles owned by income level, age and tenure. The base car tax per vehicle ($316.02) was calculated by dividing the County's total car tax revenue received from the Commonwealth (PPRTA), as estimated by the County for FY 2018 in the *FY 2017-2018 Two Year Adopted Operating Budgets,* by the percentage (47.5% in 2016, the latest year available) of car tax relief obtained from the County's Commissioner of the Revenue. This dollar amount, representing the total automobile personal property tax estimated to be levied in FY 2018, was divided by the number of vehicles in the County. The number of vehicles as calculated from aggregate vehicle data reported in the 2015 U.S. Census Bureau American Community Survey (ACS) and adjusted for three year's estimated annual household growth calculated by dividing the County's 2018 household estimate, derived from the *FY 2017-2018 Two Year Adopted Operating Budgets,* by the 2015 ACS household estimate.

Data from the U.S. Bureau of Labor Statistics 2015 Consumer Expenditure Survey (CES) were used to estimate the relative value of vehicles owned by households at various income levels. This was done by first calculating the vehicle purchase net outlay for the average income estimated for each type of unit at Williamsburg Landing Expansion from the CES data. This amount was then divided by the amount of vehicle purchase net outlay calculated for the 2015 average household income for James City County derived from the ACS. This ratio was then applied to the average personal property tax per vehicle received by the County.

The resulting estimate of car tax levied per vehicle adjusted by income level was then adjusted for age differences in vehicle expenditure patterns. Adjustments for age were made by dividing the average expenditure for households over age 65 by the average expenditure for households of all age groups in the income group of the average income of age-over-65 households. Age 65 was the nearest CES data point to the Williamsburg Landing entry age of 62. This income and age-adjusted estimate of car tax per vehicle was then multiplied by the estimated number of vehicles owned by Williamsburg Landing Expansion residents for each unit type.

The estimated number of vehicles owned by households for each unit type was calculated by adjusting for differences in vehicle ownership by income using the same methodology used to adjust the average car tax per vehicle. The number of vehicles owned per household was also adjusted for ownership patterns of households age 65 and differences in ownership patterns of owners and renters (residents of the proposed duplexes were assumed to behave as owners and residents of the proposed apartments were assumed to behave as renters). However, these adjustments produced estimates of vehicle ownership that were higher than an assumption of one car per person, adjusted for difference in ownership patterns of households age 65 and older. Therefore, the number of vehicles owned by each Williamsburg Landing Expansion household was fixed at 1.64 vehicles, with this number reduced to 1.31 for apartment dwellers to account for their higher propensity to have given up driving (household sizes were estimated by the developer as 1.86 and 1.865 for apartments and duplexes, respectively). The resulting estimate of car tax paid by households in each Williamsburg Landing Expansion unit type was then was multiplied by the number of occupied units for the appropriate unit type to derive the estimated total car tax received by the County.

The entire calculation can be demonstrated in the series of equations below and on the following page:

$$PPT = \sum PPT/V_{WL} \times V/HH_{WL} \times HH_{OWL}$$

Where, PPT = Total personal property tax paid by Williamsburg Landing Expansion residents

PPT/V_{WL} = Personal property tax per vehicle for each unit type at the Williamsburg Landing Expansion

V/HH_{WL} = Vehicles per Williamsburg Landing Expansion household and

HH_{OWL} = the number of occupied households for each unit type at the Williamsburg Landing Expansion

$$PPT/V_{WL} = PPT/V_{JCC} \times (VPNO_{IWL} / VPNO_{IJCC} \times (VPNO_{A65}/VPNO_{US})$$

Where, PPT/V_{JCC}= Average personal property tax per vehicle for all James City County Households

$VPNO_{IWL}$ = Vehicle purchase net outlay for each type of Williamsburg Landing Expansion unit income level and

$VPNO_{IJCC}$= Vehicle purchase net outlay for households at mean income for James City County

$VPNO_{A65}$ = Vehicle purchase net outlay for households age 65 years and older

$VPNO_{US}$ = Vehicle purchase net outlay for households all ages at the income level equal to the average income of households age 65 years and older

and

$$V/HH_{WL} = P/HH_{WL} \times V/HH_{A65}$$

Where, V/HH_{IWL} = Vehicles per household for each type of Williamsburg Landing Expansion unit income level

P/HH_{WL}= 1.865 for duplex units and 1.86 for apartment units

V/HH_{65} = 0.881758

With respect to business personal property taxes, the developer estimates that $1 million will be spent on equipment and furnishings for the proposed expansion upon which Williamsburg Landing would pay business personal property taxes.

The per household revenue received in FY 2018 from the Commonwealth as the local share of the communication sales tax was estimated to be $41.66. A portion of the remittance by the Commonwealth was assumed to be attributable to tax collections from businesses and, for the purpose of calculating the distribution between households and businesses, telecommunications bills of businesses were assumed to be five times the average residential household bill. (The methodology for distributing revenues between households and businesses is the same as for distributing costs and is explained below under “Cost Calculation.”)

Revenue from the County’s utility consumption fee was also calculated on a per household basis using the same methodology as described above. Again, because this fee is based on electric utility usage and per business usage is presumed to be greater than per household usage, electric bills of businesses were assumed to be five times the average residential household bill.

The car rental sales tax, which, like the communications sales tax and utility consumption fee, is collected by the state and remitted to the County, was also calculated on a per household basis, distributed equally between households and businesses. The per household collection estimated for Williamsburg Landing Expansion residents, however, was adjusted for differences in auto lease expenditure based on income level, using data from the CES.

User fees per residential unit were calculated by dividing revenues estimated to be received in FY 2018 as reported in the *FY 2017-2018 Two Year Adopted Operating Budgets* by the number of households in the County. Per household user fee revenue was calculated for adult recreation fees and park revenues, dog licenses, e-summons fees, fines and forfeitures, and parking tickets. Per household revenues for adult recreation fees and park revenues, e-summons fees, fines and forfeitures, and parking tickets were adjusted for differences between owner and renter household sizes, as household size was deemed to affect revenues from these sources.

With respect to e-summons fees and fines and forfeitures, it was assumed that the Williamsburg Landing Expansion target population will not be involved in the criminal justice system (as criminals) to any great extent. Thus, revenue from criminal fines and fees was reduced by 97% for the Williamsburg Landing Expansion. This was based on data from the *Blackwell Encyclopedia of Sociology*.

The data stated that 80% of all crimes are committed by persons under age 40 and less than 1% of all crimes are committed by persons over 65, with victimization rates following similar (though not precisely the same) trends. Since the population at the Williamsburg Landing Expansion will be over 62, the percentage of this population associated with criminal activity would be closer to 1%. Taking a straight line projection approach, the incidence of involvement with criminal activity would increase by 0.75% for each year under 65.

Thus, taking the conservative approach of taking the highest predicted incidence of criminal activity involvement, the age group at the Williamsburg Landing Expansion would be involved in crimes handled by the James City County criminal justice system only 3% of the time compared to the general population. Thus, variable revenues and costs associated with crime were reduced by 97% for this population. This percentage was adjusted to 75% for costs associated with the Sheriff, however, in recognition that traffic offenses would not be subject to reduction based on age, as well as there being some patrol activity that would take place at the Williamsburg Landing Expansion.

Civil fines and summonses were distinguished from criminal fines and summonses based upon the percentage of cases handled by the Clerk of Court and Commonwealth's Attorney as reported in the County's *FY 2017-2018 Two Year Adopted Operating Budgets*. The percentage of civil cases was calculated as 42.55% of all cases. Thus, the amount of all court fines and summonses attributed to the Williamsburg Landing Expansion was calculated as 42.55% of fines and summonses plus 3% of the remainder (or 44.27% combined).

Table A-1, below, details the County's variable revenues, other than those derived from the direct levy of taxes and water/sewer flow charges on the project. It also shows revenues per duplex and apartment household.

Per household revenue was also calculated for residential water and sewer use charges. A daily flow of about 121 gallons per day was assumed for each residential unit. It is anticipated by the applicant that Williamsburg Landing Expansion will be served by a 2 inch master meter. Water and sewer flow charges will be based on the meter reading. These revenues flow to the JCSA.

Tax rates and fees found on the current James City County website and/or reported in the County's *FY 2017-2018 Two Year Adopted Operating Budgets* were used and assumed to be accurate.

Tax revenues generated by households are estimates of taxes paid by James City County businesses due to purchases made by Williamsburg Landing Expansion residents. Purchases by Williamsburg Landing Expansion residents are estimated based upon their projected spending patterns. These spending patterns were estimated using the most recent (2015) CES.

Table A-1
James City County Non-Direct Revenues, *FY 2017-2018 Two Year Adopted Operating Budgets*

Item	Revenue	Revenue per Owner Household	Revenue per Renter Household
Adult Recreation Fees & Park Revenue	$2,272,300	$ 53.33	$ 53.19
Car Rental Sales Tax	$ 110,000	$ 3.30*	$ 3.30*
Communication Sales from State	$1,700,000	$ 41.66	$ 41.66
Dog License	$ 20,000	$ 0.64	$ 0.64
E-summons Fee	$ 26,000	$ 0.25	$ 0.25
Fines and Forfeitures	$ 300,000	$ 2.94	$ 2.93
Parking Tickets	$ 5,000	$ 0.11	$ 0.11
Utility Consumption Fee	$ 350,000	$ 8.58	$ 8.58
Total	$4,783,300	$110.81	$110.66

*Base rate; adjusted by income level and age

Household incomes were estimated for Williamsburg Landing Expansion residents based upon proforma data for both duplex and apartment units provided by Williamsburg Landing. Two methodologies were used to estimate household income. The first was based on the average entry fee for each product. It was assumed that the entry fee would be paid, in most instances, with the proceeds from the sale of an existing home. It was assumed that most of the buyers would own their home with little or no mortgage and would have purchased it when the mortgage environment rule of thumb was that a house purchase would be 2.5 times annual income.

It was assumed that if the home were purchased more recently (in a 3.5 or 4.5 x income purchase qualification environment) that the smaller incomes this would predict would be offset by sale proceeds remaining after a mortgage is paid off being only a portion of the house price, so house prices would actually be much larger than the proceeds, and the income predicted using a 3.5 or 4.5 formula on the actual house price would be close to using the 2.5 formula on the proceeds. It was also assumed that, for this demographic, income after retirement does not decline substantially because Williamsburg Landing Expansion residents have done good retirement planning, and income from investments, pensions and social security now takes the place of earned income.

Using this method, average income for duplex households was estimated to be between $195,000 and $200,000 annually. Average income for apartment households was estimated to be almost $170,000.

The second method took the gross monthly rent and deducted the cost of meals (at $17.59 per meal, assuming 25 meals per month per person). It was then assumed that households would spend 30% of their monthly income on rent. This is very high but it was assumed that the psychology of entering a CCRC is that many expenses (taxes, upkeep, some housekeeping, etc.) are being taken care of, plus there is less concern about conserving money for future financial security, so people are willing to spend that much of income to live in a place like Williamsburg Landing. Using a lower percentage of income spent on rent would result in much higher income estimates.

Using this method, the average income for duplex households was estimated at about $180,000 and the average income for apartment dwellers was estimated to be almost $178,000. Averaging these two methodologies yielded income estimates of $188,675 for duplex households and $173,350 for apartment dwellers, rounded to the nearest $25. This compares to average household income Countywide of $90,400 (2015 ACS) and a median income of $73,975.

Household income expenditure tables from the CES were then used to calculate average annual household spending on retail items and restaurants (food away from home) and at grocery stores, as well as on personal services. Expenditures were estimated for the household incomes estimated for Williamsburg Landing Expansion households. These initial spending estimates were then adjusted for varying expenditure patterns by age employing the same methodology described to calculate personal property tax, above.

It was assumed that spending for hardware and building supplies would be conducted by Williamsburg Landing's maintenance department in the same magnitude as Williamsburg Landing Expansion residents would if they were the actual owners of the properties. However, none of this expenditure was assumed to occur in James City County, as both the closest Lowes and Home Depot are located in York County. Therefore, those expenditures (for household repair and maintenance) were not included in the calculation of spending generating local tax revenue.

Certain expenditures were then adjusted to take into account expenditures that would be made "on behalf" of Williamsburg Landing Expansion residents by Williamsburg Landing. Williamsburg Landing residents receive between 20 and 30 meals per month included in the monthly fee. It was estimated that this constitutes 43.7% of total food expenditures, divided equally between food at home and food away from home. Williamsburg Landing is exempt from the County's meals tax and, so, meals expenditures at Williamsburg Landing do not contribute to the County's revenues.

Other expenditures by Williamsburg Landing Expansion residents that can be expected to be lower than those of a typical household of the age and income of Williamsburg Landing Expansion households include: household operations and furnishings. Half of predicted expenditures for laundry and cleaning products were deducted to account for cleaning services provided by Williamsburg Landing. Furnishing expenditures were reduced by the predicted expenditures for major appliances and half of expenditures for floor coverings and half of expenditures for household textiles (curtain, drapes).

The spending estimates were then used to calculate local sales and meals taxes generated by Williamsburg Landing Expansion at James City businesses, as well as the business license fees from revenue generated by this spending.

Adjustment was then made for purchases made outside the County. Because of the high volume of spending by tourists and regional outlet shoppers at James City County businesses, the standard model for calculating leakage of retail spending does not work for the County. Apparel, furniture and food and beverage establishments are particularly vulnerable to overestimation of spending in James City County by County residents. Grocery spending, as well, yielded an index indicating a net inflow of dollars from shoppers not residing in James City County.

In order to adjust for the "tourism" effect, a retail shopping gradient model was used to estimate the retention of Williamsburg Landing Expansion residents' retail spending in James City County. The gradient model was calibrated to be sensitive to shopping decisions likely to be made by shoppers of the age and income level that will be found at the Williamsburg Landing Expansion.

The gradient model, briefly described, plots retail locations and their distances from the subject development. All other things held equal, it is assumed that shoppers are less likely to patronize competing retail outlets the farther the distance from their residence. Distance is measured in driving time and the propensity to shop at a given location is calculated as the reciprocal of the distance in minutes, with 1 minute given a weight of 1, 2 minutes a weight of 0.5, 3 minutes a weight of 0.33 and so on.

Only the closest same store location is mapped and stores at which residents are unlikely to shop are either excluded or given a lower weight. Distance weighted scores are disaggregated by locality and summed for the host locality and all other localities. The sum of the host locality score divided by the sum of all distance weighted scores is the best estimate of the percentage of spending retained in the host locality.

Gradient models were developed for grocery spending, food away from home, and shopping goods. Residents of the Williamsburg Landing Expansion cottages were assumed to be as mobile (willing to travel) as the average James City County resident. Residents of the proposed apartments were assumed, on average, to be somewhat less mobile, as some of the older residents will have given up driving. While the area mapped for both unit types was kept the same, the gradient weights for the apartment dwellers were increased for nearer distances with the weights declining as distance increased. A distance within 5 minutes was given a weight of 1.5 with the weight declining by .05 for every minute over 5 minutes, stabilizing at a weight of 1 (15 miles). This differential was not applied to the calculation of the shopping goods distance gradient.

The mapping of grocery stores was limited to a 15 minute drive time (with Whole Foods and Costco being the exceptions). Stores with a substantial grocery section (such as Wal-Mart) were included. For food away from home, fast food, QSR and buffets, casual dining and family style restaurant establishments were plotted within a ten minute drive time. Other restaurants were plotted within a twenty minute drive time. Shopping goods locations were plotted over a radius that included the farthest retail node or mall with a unique store, but not greater than 30 minutes. Shopping goods locations were weighted by the number of unique anchor stores in each location.

Twelve grocery stores or food outlets were identified within the Williamsburg Landing Expansion shopping area. Six—Food Lion at Williamsburg Crossing, Kroger on Ironbound Road, Trader Joe’s, Martin’s, Fresh Market and Farm Fresh on Monticello Avenue—were located in James City County. The other six are located in Williamsburg, York County or Newport News and include: Whole Foods and Costco in Newport News, Harris Teeter in Williamsburg, and the future Sam’s Club at Marquis Center, the Lightfoot Wal-Mart and Farm Fresh on Merrimac Road in York County. There was only a difference of one minute driving distance between Williamsburg Landing and the two Farm Fresh stores and, therefore, each was given a weight of 0.5, assuming that Williamsburg Landing Expansion residents would choose between one or the other. The distance weighting methodology yielded an estimate of 63.34% of spending on food at home, ABC and tobacco expenditures remaining in the County for the Williamsburg Landing Expansion cottage dwellers and 66.57% for the apartment dwellers.

The restaurants plotted are located primarily in or near Williamsburg Crossing, New Town and the Monticello Road area, McLaws Circle and the City of Williamsburg. Seventeen of the 23 fast food, QSR, buffet, casual dining and family style restaurants were located in James City County. However, only 8 of the 17 finer dining restaurants were located in James City County. These latter were weighted twice the other restaurants both because more money is likely to be spent per meal at these establishments and residents of Williamsburg Landing are more likely to favor those restaurants over fast food and casual dining restaurants. The distance weighting methodology yielded an estimated 64.27% of food and beverage spending away from home by Williamsburg Landing Expansion households remaining in the County for cottage dwellers and 65.62% for apartment dwellers.

Williamsburg Landing residents can purchase meals from the Williamsburg Landing dining facilities in addition to those provided in their meal plans. Because of its proximity, the Williamsburg Landing facilities were given a weight of 2 for duplex dwellers and 3 for apartment dwellers. When Williamsburg Landing was added to the distance gradient formula, the percentage of food and beverage spending away from home by Williamsburg Landing Expansion households that was expected to occur in the County increased to 72.14% for duplex cottage dwellers and to 73.53% for apartment dwellers. Thus, it can be estimated that 7.87% of food away from home spending by Williamsburg Landing Expansion duplex residents occurs at Williamsburg Landing and 7.91% of such spending by apartment dwellers, likewise, occurs at Williamsburg Landing.

However, because Williamsburg Landing is exempt from the County's meals tax, this spending is equivalent to spending outside the County. Recognizing that dining at Williamsburg Landing would substitute for dining at restaurants both within and outside the County, this "spending loss" was divided proportionally (according to the original retention percentages) between in-County and out-of-County restaurants. Thus, the originally calculated retention rate for duplex dwellers was reduced by 5.06% to 59.21% and the originally calculated retention rate for apartment dwellers was reduced by 5.19% to 60.43%.

Five retail centers were identified as destinations for shopping goods purchases—Williamsburg Premium Outlets, the New Town/Monticello area, the Marquis Center, Cedar Lane Shopping Center in Lightfoot, and the Patrick Henry retail district. Two of these locations are located in James City County. In addition to the distance weight, each location was weighted for selection, based on the number of unique anchors or cluster of junior anchors. Williamsburg Premium Outlets was given a weight (multiplied by the distance weight) of 7, the New Town/Monticello Avenue area was given a weight of 2, the Marquis Center was given a weight of 4, Cedar Lane Shopping Center in Lightfoot was given a weight of 2 (with Lowes and Home Depot combined as one anchor equivalent) and the Patrick Henry retail district was assigned a weight of 6, which was doubled in recognition of this being the region's dominant shopping district.

The distance gradient model calculated that 38.97% of shopping goods purchases by Williamsburg Landing Expansion residents would take place in James City County. As noted above, 100% of home goods and repair shopping was assumed to occur in York County. For the purpose of calculating total non-food retail spending, 70% of total retail spending was assumed to be for convenience goods with 30% for shopping goods. Grocery spending was used as a proxy for convenience spending, as stores at which convenience spending occurs typically are located near grocery stores. Thus, excluding hardware store expenditures, 56% (the blended rate) of non-food retail spending by Williamsburg Landing Expansion duplex residents was assumed to occur in James City County (58.29% for Williamsburg Landing Expansion apartment dwellers).

Accordingly, for Williamsburg Landing Expansion duplex residents, 63.34% of taxes derived from grocery spending, 59.21% of taxes derived from meals spending, 56% of taxes derived from other retail spending and 0% of taxes derived from home goods and repair spending were assumed to be received by James City County (with the remainder received by other surrounding localities). For Williamsburg Landing Expansion apartment dwellers, these tax revenue retention percentages were 66.57%, 60.43%, 58.29% and 0%, respectively.

James City County does not have an admissions tax or a tobacco tax.

Thus, spending per household according to the income level of Williamsburg Landing Expansion residents (calculated from the CES for each unit type) was multiplied by the appropriate retention percentage estimates in order to capture only spending that would occur in James City County. These per household spending estimates were then multiplied by the number of occupied units at Williamsburg Landing Expansion for each unit type. The resulting retail spending estimates were then multiplied by the 1% local sales tax and 0.2% retail business license fee (or in the case of personal service spending by 0.36%) to calculate those revenue streams. Restaurant spending was multiplied by the County's 4% meals tax to calculate that revenue stream.

Cost Calculations

Costs were variable operating costs of government per household. No capital costs were assumed as adequate infrastructure is presumed to exist or will be installed by the developer and the additional buildings at Williamsburg Landing will not increase the volume of police patrols or create the need for a new fire station or fire equipment. Cost data and assumptions were derived from the County's *FY 2017-2018 Two Year Adopted Operating Budgets*.

When calculating the variable per household cost of public services, some public services are consumed by households only and some public services are consumed by households and businesses (i.e., recreational services would be assigned completely to households, since businesses do not directly consume these services). For those public services that serve businesses and households, the costs generated by businesses and the costs generated by households must be distinguished and only costs generated by households are to be attributed to Williamsburg Landing Expansion. (While Williamsburg Landing is a business, it already exists and the expansion of its operations will not increase the County's cost of providing services to the business.)

Per household and per business variable costs were determined in the following manner. Business establishments and households were considered to be equal units from the standpoint of generating pubic service costs, when both households and business establishments consumed those services A percentage of each service whose consumption was shared by households and businesses was allocated to households and to businesses according to the formula on the following page.

$$\%HH = HH/(HH + B)$$
$$\%B = B/(HH + B)$$

Where, $\%HH$ = Percent Allocated to Households
$\% B$ = Percent Allocated to Businesses
HH = the Number of Households
B = the Number of Businesses

Per household variable costs were then determined according to the following formula:

$$VC_{HH} = VC \times \%HH/HH$$

Where VC_{HH} = Variable Cost per Household
VC = Total Variable Cost (of a government function)

Per business costs are not relevant for this fiscal impact analysis, as no commercial development is proposed for the Williamsburg Landing Expansion. However, it is necessary to calculate these in order to determine true per-household costs.

To calculate revenues per household, revenue is simply substituted for expenditure in the formula above. In the case of those revenues for which businesses are assumed to generate an amount per unit other than do households, the above formula for the calculation of allocation to households and businesses was adjusted by multiplying the number of businesses by the determined factor (see above under the discussion on "Revenues"). The adjustment to the % allocated to households then results in an adjustment to revenues by households.

Governmental functions that serve both households and businesses were:

- Adult criminal and civil justice (Courthouse, Clerk of Court, Commonwealth Attorney, Police, Sheriff), since crimes are committed against (and by) businesses as well as persons (however, the Regional Jail and Regional Juvenile Detention Center costs were attributed only to households, since it is people from households, not businesses, who populate these facilities)
- Commissioner of the Revenue and Treasurer (both businesses and households are taxed)
- E-911 Operations and Fire & Rescue (response events occur at businesses and households) and
- Accounting, Human Resources, Information Resources and Purchasing (which support all County governmental functions).

The cost of government functions which serve only households was distributed across the number of households, only, resulting in a higher per-household cost than if costs were distributed among both households and businesses.

The cost of providing certain government services, though calculated on a per-household basis, was deemed to be sensitive to household size. These are services that are provided directly to individuals, rather than being provided to the household unit. Household sizes at Williamsburg Landing are significantly smaller than the Countywide average. Data on the expected average household size at the Williamsburg Landing Expansion was provided by Williamsburg Landing and was calculated as 1.865 persons per household for the duplex units and 1.86 persons per household for the apartment units. For these functions, per household costs were adjusted to take into account the smaller household sizes at the Williamsburg Landing Expansion.

Data from the ACS was used to compute this adjustment according to the following formula:

$$VC_{WLEHH} = VC_{HH} / PHH \times PHH_{WLE}$$

Where VC_{WLEHH} = Variable Cost per Williamsburg Landing Expansion Household

VC_{HH} = Variable Cost per James City County Household

PHH = Average Persons per Household in James City County

PHH_{WLE} = Persons per Household at Williamsburg Landing Expansion

Those government functions that are sensitive to household size were:

- Adult criminal justice functions, including incarceration
- E-911
- Library
- Recreation services.

However, it was recognized that the police patrol function is less sensitive to household size than other adult criminal justice functions. Therefore, only half of the Police department variable costs were adjusted for household size.

A similar calculation was made in order to determine the Voter Registration and Elections cost per household at Williamsburg Landing Expansion. It was assumed that, for the most part, a household could contain 1 or 2 potential voters, with 1-person households containing 1 potential voter and all other households containing 2 potential voters.

The average variable cost of Voter Registration and Elections services per potential voter was first calculated using the formula shown on the following page.

$$AVC_{pv} = TC / (R_{1pHH} + 2R_{2pHH} + O_{1pHH} + 2O_{2pHH})$$

Where AVC_{pv} = average cost per potential voter
TC = Voter Registration and Elections total variable cost
R_{1pHH} = the number of 1-person renter households
R_{2pHH} = the number of renter households with 2 or more persons
O_{1pHH} = the number of 1-person owner households
O_{2pHH} = the number of owner households with 2 or more persons

Data were derived from the ACS.

As noted above, Williamsburg Landing Expansion apartment dwellers were assumed to act like renters, demographically, and Williamsburg Landing Expansion duplex dwellers were assumed to act like owners. The average number of potential voters per Williamsburg Landing Expansion apartment household was then calculated using the formula shown on the following page.

$$PV_{WLEA} = PPH_{WL} \text{ x } (PPH_{WL}/((R_{1pHH} + R_{2pHH}) / R))$$

Where PV_{WLEA} = the average number of potential voters per Williamsburg Landing Expansion apartment household
PPH_{WL} = Persons per Williamsburg Landing Household
R = the number of renter households in James City County and
the expression $(PPH_{WL}/((R_{1pHH} + R_{2pHH}) / R))$ is the ratio of Williamsburg Landing household size to the adults only household size for James City County renters

The average number of potential voters per Williamsburg Landing Expansion duplex unit was calculated using the same formula but substituting owner households for renter households with the per-voter variable cost for Williamsburg Landing Expansion Duplexes represented by PV_{WLED}. The average variable cost of Voter Registration and Elections services to renter households was then calculated using the formula shown below:

$$AVC_{WLE} = AVC_{pv} \text{ x } (PV_{WLEA} + PV_{WLED})$$

Where AVC_{WLE} = the average variable cost of Voter Registration and Elections services to Williamsburg Landing Expansion households

To calculate the cost per unit of service for water and sewer billing services, the number of sewer customers was used in place of the number of households in the County. It was assumed that sewer customers were also County water customers and that both bills would be sent out together. The County’s sewer system serves a larger number of customers than does its water system. Williamsburg Landing Expansion will be served by both the County’s water and sewer systems.

The apartment building will be served by a single master meter while each duplex unit will be served by an individual meter. Thus, the Williamsburg Landing Expansion will add 31 customers to the County's billing process. Once extended by the developer, the water and sewer main lines will be deeded to the JCSA for maintenance. Although these new lines will require little or no maintenance during the analysis period, a per linear foot maintenance cost was included as a cost to the JCSA.

Variable costs associated with the provision of additional water flow and the collection and/or treatment of additional sewage flow were assumed to be for increased utility payments (by JCSA) and increased operating supplies. With a limited staff devoted to water and sewer line maintenance, personnel costs were deemed to be fixed costs. Fifty percent (50%) of utility costs in the water and sewer operation portion of the JCSA budget was assumed to be for facility heating, cooling and lighting and, therefore, a fixed cost. The number of personnel operating these facilities was assumed not to vary with marginal increases in water or sewage flow.

However, this budget detail was not available in the *FY 2017-2018 Two Year Adopted Operating Budgets*. Therefore, these costs derived previously from the FY 2014 County budget were multiplied by the ratio of FY 2018 "direct expenses" line item cost to the FY 2014 "direct expenses" line item cost.   This assumes that all direct expenses increased at the same rate during this period, which may not be accurate. However, without budget detail, this method provided the best estimate of these variable costs. This methodology was used to calculate both sewer and water operations variable costs. These costs were then used to calculate the per-linear foot cost by dividing them by the length of water and sewer lines estimated to be maintained by the JSCA, respectively, as found in the County's *Operating Budgets*.

The cost per unit of service for the County's Real Estate Assessor was calculated using the number of assessed parcels, rather than the number of households. This was derived from the County's *FY 2017-2018 Two Year Adopted Operating Budgets*. Although technically, the Williamsburg Landing Expansion will add only one service unit to the Assessor's workload, that service unit was deemed equivalent to four service units (land, apartment building, and two duplex styles).

The County's stormwater management division was deemed to have no variable costs associated with the Williamsburg Landing Expansion. Per state and federal regulations, all stormwater will be contained onsite, resulting in no increased stormwater maintenance burden for the County.

Government functions for which Williamsburg Landing Expansion's population would generate no significant demands were then excluded from the calculation of per household variable costs. These functions include those shown on the following page.

- Health Services (the household income levels of residents of Williamsburg Landing Expansion make it extremely unlikely that these households will ever demand health clinic services from the County)
- Regional Juvenile Detention Center contribution (no juveniles reside at Williamsburg Landing)
- Satellite Services Office (this is located in Toano and both the County's main offices and the main DMV office are significantly closer to Williamsburg Landing Expansion)
- Social Services (the household income levels of residents of Williamsburg Landing Expansion make it extremely unlikely that these households will ever demand social services from the County)
- Solid Waste Management (commercial haulers serve Williamsburg Landing and will also serve the proposed expansion)

Government functions that would be performed regardless of population size were also excluded. These include those shown below and on the following page:

- Board of Supervisors
- Building and Safety Permits (the permitting and inspection of Williamsburg Landing Expansion can easily be absorbed with existing staff)
- Capital projects
- Cooperative Extension Service (contribution which is not based on a per-capita formula)
- County Attorney
- County Manager
- Development Management
- Economic Development
- Emergency Management
- Engineering and Resource Protection
- Facilities Maintenance
- Financial and Management Services
- Fleet and Equipment (variable costs of travel and motor fuel are included in relevant department costs)
- General and Capital Services
- Grounds Maintenance
- Health Services contributions which are not based on a per-capita formula
- Non-departmental
- Other regional entities (contributions which are not based on a per-capita formula)
- Outside agencies (contributions which are not based on a per-capita formula)
- Parks and Recreation, parks component
- Planning
- Tourism
- Zoning Enforcement

Certain administrative support functions are substantially fixed costs (since they must be provided) but have a variable cost component (since they serve County functions that incur variable costs from population growth). In order to calculate the percentage of the variable costs of these functions that should be counted (as supporting other variable costs), the personnel expenses for those functions that were primarily variable in nature was divided by all County operating fund personnel expenses. This percentage (54.97%) was then applied to the variable costs incurred by the following functions:

- Accounting
- Human Resources
- Information and Resource Management
- Purchasing

Various adjustments were made to expenditure line items to arrive at the County's variable cost of providing public services.

Generally, positions that must be provided for a department to function and that are not expandable due to population growth ("fixed cost positions") were excluded from the cost analysis. This would typically include director and assistant director positions. Since a detailed breakdown of personnel costs by function was not available from the County, the percentage of total salaries and fringe benefits accounted for by these positions was estimated. In most cases, comparable percentages from the York County operating budget, which did have sufficient detail, were used. The unweighted average of these percentages was 12.365% and the percent of administrative salaries ranged from 4.32% for E-911 Operations to 20.865% for Human Resources. In the case of those functions for which the percentage of administrative salaries was not available from the York County budget, estimates of 10% were used for Information Resources Management and the Regional Jail. For the Real Estate Assessor's office, an estimate of 12.875% was used based on the assumption that the Assessor's salary was 33% greater than the department average.

Various other types of line item costs were also excluded as fixed costs to the County. Among other items, these include:

- advertising, except for Human Resources
- building maintenance
- contractual services
- dues/memberships/subscriptions
- duplicating (although there is a variable cost component, most of the cost is the fixed cost of copier leasing), except Parks and Recreation
- equipment maintenance
- furniture and equipment
- leases and rentals
- recognition
- software
- telephone
- utilities.

Variable cost expenses that were typically included are:

- personnel salaries and fringe benefits
- office supplies
- operating supplies/materials
- travel and training.

Other costs were included as variable costs if they were a function of service provision to citizens or expenses incurred primarily by non-administrative personnel. These costs include:

- clothing purchases/rental and uniform care
- local travel
- motor fuels
- postage
- printing
- records management
- travel and training/staff development/other training.

For the Police department, operating equipment and/or operating equipment replacement was included and, for both the Police and Fire/EMS departments and the Regional Jail, vehicles and/or vehicle replacement were included as a variable cost simply due to the large numbers of equipment and vehicles associated with staffing size and demand for services.

Other line items included for specific functions were:

- food, laundry, medical and security supplies; inmate programs; and transportation for the Regional Jail
- food, medical supplies, merchandise for resale, and trips and events for Parks and Recreation
- juror payments for the Clerk of Court
- medical supplies for Fire/EMS (the EMS function) and
- offender services and non-administrative transition services for Colonial Community Corrections

The County makes lump sum contributions to a number of regional organizations, including Colonial Community Corrections, Regional Jail and Williamsburg Regional Library. As budget detail was unavailable for these regional organizations, budget details obtained for a previous fiscal impact analysis in James City County using FY 2014 data were updated using available data. For the two criminal justice agencies, variable costs previously calculated were assumed to have increased by the growth in the County’s contribution from FY 2014 to FY 2018. With respect to the originally estimated costs, variable costs were first determined from their respective FY 2014 operating budgets.

The County's share of these variable costs was then calculated by applying the County's contribution as a share of the agency's total budget according to the following formula:

$$VC_{JCC} = VC_{A} \times Cont_{JCC}/TC_{A}$$

Where, VC_{JCC} = James City County's share of variable costs
VC_{A} = the agency's variable costs
$Cont_{JCC}$ = James City County's contribution to the agency and
TC_{A} = the agency's total costs.

This result was then updated by applying the percentage growth in the County's contribution from FY 2014 to FY 2018 ($Cont_{JCCFY2018}$/ $Cont_{JCC2014}$).

In the case of the Williamsburg Regional Library, the percentage fixed costs (12.46%) was obtained from information provided by James City County for a separate fiscal impact analysis. The FY 2014 results were then adjusted by using the current ratio of the County's contributions to the total budget and multiplying the FY 2014 data by the change in the Library's total budget from FY 2014 to FY 2018.

Lacking sufficient budget detail, certain adjustments were made to the cost of various functions to exclude fixed cost portions of those functions. Within Parks and Recreation, the parks function is largely a fixed cost, since parks are maintained and patrolled regardless of incremental changes in population size. The recreation component is largely a variable cost function, since services are provided to individual citizens. It was assumed that one-half the cost of personnel and fringe benefits, local travel, medical supplies, motor fuels, office supplies and operating supplies could be assigned to the parks division. Additionally, it was assumed that one-half the cost of trips and special events was for special events, which is a fixed cost.

As noted above, billing associated with water and sewer services was considered to be a variable cost. This function was not broken out in the County's *Adopted Budget* but, based on previous inquiries to County staff, was assumed to reside in the Water Fund. An estimate of the cost of this activity was calculated by adding 10% of salaries, fringe benefits and training in the Administration division to 50% of the cost of duplicating and postage from the Administration and Water accounts and 50% of the cost of office supplies from Administration.

As noted above (under "Revenue Calculation"), Williamsburg Landing Expansion residents are expected to have little involvement with the criminal justice system. Costs associated with criminal justice were, thus, reduced appropriately to Williamsburg Landing Expansion's fiscal impact. Colonial Community Corrections, Commonwealth Attorney, and the Regional Jail costs per Williamsburg Landing Expansion household were reduced by 97%. Accounting for civil case activity (Williamsburg Landing Expansion residents would not generate any deed recordation activity), Clerk of Court and Courts/Judicial costs per household were reduced by 57.25%. Based on the proportion of criminal and civil cases handled by the Sheriff's office, Sheriff's costs were reduced by 11.43%. Accounting for traffic violations and patrol activity, Police costs were reduced by 75%.

E-911 costs were adjusted to count only costs for 911 calls and not internal police calls, which are not expected to rise significantly with the expansion of Williamsburg Landing. The percentage of 911 calls to total calls handled (62.37%) was computed from the *FY 2017-2018 Two Year Adopted Operating Budgets.*

Finally, revenues from the Commonwealth and other non-County sources were deducted from the calculated variable costs to leave only the County's variable operating costs. Revenues deducted included those shown below:

- Commonwealth shared expense contributions to the following functions:
  - Clerk of Circuit Court
  - Commissioner of the Revenue
  - Commonwealth Attorney
  - General Registrar
  - Sheriff
  - Treasurer
- HB 599 distributed proportionally according to budget size among:
  - Commonwealth Attorney
  - Judiciary
  - Police
  - Sheriff
- City of Williamsburg contributions to:
  - Accounting
  - Animal Control
  - Clerk of Court
  - Commonwealth Attorney
  - Courthouse
  - Sheriff
  - Treasurer
- Ambulance fees, ALS/BLS fees and training service fees to Fire/EMS
- Excess clerk fees to Clerk of Courts
- User fees and program income to Parks and Recreation
- Various user agency contributions ("credits/other") to
  - Accounting
  - E-911
  - Human Resources
  - Information Resources Management
  - Police
  - Treasurer

These revenues are, of course, applied to both variable and fixed costs. When subtracted from line item costs, these revenues were, therefore, distributed between variable and fixed costs. This was done using the formula shown on the following page.

$R_{VC} = R \times VC/TC$

Where, R_{VC} = Revenues assigned to variable costs

R = All revenues

VC = Variable costs of the line item function

TC = Total cost of the line item function

Table A-2 on the following page details the County's variable cost expenditures for households and expenditures per household. Table A-3 on page A-27 details the County's variable cost expenditures for per unit other than the household.

Table A-2
James City County Non-School Expenditures: Expenditure per Duplex and Apartment Household, FY 2018

Item	Expenditure	Expenditure per Duplex Household	Expenditure per Apartment Household	Notes
Accounting	$ 66,125	$ 1.99	$ 1.99	54.97% of variable costs; Excludes contributions from various agencies
Animal Control	$ 171,425	$ 5.46	$ 5.46	Excludes costs paid by Williamsburg
Clerk of Circuit Court	$ 49,925	$ 0.47	$ 0.47	Excludes fees and costs paid by Commonwealth and Williamsburg
Colonial Community Corrections	$ 9,025	$ 0.01	$ 0.01	Criminal incidence adjustment
Commissioner of the Revenue	$ 555,675	$ 16.69	$ 16.69	Excludes costs paid by Commonwealth.
Commonwealth Attorney	$ 203,100	$ 0.13	$ 0.13	Excludes costs paid by Commonwealth and Williamsburg; criminal incidence adjustment
Courts/Judicial	$ 305,750	$ 4.14	$ 4.14	Excludes costs paid by Commonwealth and Williamsburg; criminal incidence adjustment
E-911	$ 1,137,100	$ 25.18	$ 25.11	Excludes credits/other; 911 calls only
Fire/EMS	$ 3,737,125	$112.27	$112.27	Excludes fees
Human Resources	$ 214,850	$ 6.46	$ 6.46	54.97% of variable costs; Excludes credit/other
Information Resources Mgmt	$ 1,640,275	$ 49.28	$ 49.28	54.97% of variable costs; Excludes credit/other
Library	$ 3,145,850	$ 69.67	$ 69.48	
Parks & Recreation	$ 1,142,275	$ 25.30	$ 25.23	Excludes estimated costs of Parks; Excludes fees
Police	$ 7,662,825	$113.63	$113.40	Excludes costs paid by Commonwealth and credit/other; criminal incidence adjustment
Purchasing	$ 119,775	$ 3.60	$ 3.60	54.97% of variable costs;
Regional Jail	$ 1,740,250	$ 1.16	$ 1.15	JCC share of variable costs; criminal incidence adjustment
Sheriff	$ 387,875	$ 7.61	$ 7.59	Excludes costs paid by Commonwealth and Williamsburg; criminal incidence adjustment
Treasurer	$ 860,450	$ 25.85	$ 25.85	Excludes costs paid by Commonwealth and Williamsburg.
Total	$23,149,675	$468.90	$468.31	

Rounded to the nearest $25
Source: *James City County FY 2017-2018 Adopted Operating Budgets*

Table A-3 James City County Non-School Expenditures: Expenditures per Service Unit other than Households, FY 2018			
Item	Expenditure	Expenditure per Service Unit	Notes
Assessor	$641,675	$18.62	Per parcel
Sewer Operations	$290,925	$12.03	Per sewer customer
Voter Registration and Elections	$285,125	$ 5.65	Per potential voter; Excludes General Registrar costs paid by Commonwealth; Adjusted for 1-voter households
Water and Sewer billing	$515,525	$21.31	Per sewer customer
Water Operations	$985,900	$43.85	Per water customer

Rounded to the nearest $25

Source: *James City County FY 2017-2018 Adopted Operating Budgets*