

The Economic Impact of the University of Mary Washington



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HIGHLIGHTS

Universities impact their communities in multiple ways; some are quantifiable but many are not. While this analysis emphasizes the economic impacts that flow to the Fredericksburg Region and the Commonwealth as a result of the University of Mary Washington existing in its midst, the value of the University that cannot be measured likely far exceeds the values reported herein.

- Total annual spending by the University of Mary Washington—University outlays including the University foundation and student, visitor and retiree spending—totaled \$110.8 million in 2007. About half of this spending, or \$53.6 million, occurred in the Fredericksburg Region.
- Payroll spending by the University totaled more than \$50 million (including wages and current period benefits) and accounted for the largest share of total spending. More than three-quarters of this spending went to faculty and staff living in the Fredericksburg Region.
- The University's procurement of goods and services from vendors was the second largest source of economic impact totaling \$44.7 million with approximately \$5 million accruing to businesses based in the Fredericksburg Region.
- Spending by the University of Mary Washington supports additional jobs, income and economic activity in the Fredericksburg Region and the Commonwealth. University expenditures in 2007 resulted in economic output totaling \$174.9 million in the Commonwealth of Virginia, generating 2,744 new jobs and \$53.0 million in additional personal income to Virginia residents. About 46% of the total economic output in Virginia (\$80.2 million) was accrued by the Fredericksburg Region, where University spending generated 758 new jobs and \$16.7 million in new personal income.

The Economic Impact of the University of Mary Washington

The University of Mary Washington generated a total of \$110.8 million in direct economic activity in 2007, with \$53.6 million of these operating outlays occurring within the Fredericksburg Region.¹ Additionally, the University had capital outlays totaling \$14.8 million involving renovation and construction of on-campus facilities. These local operating and capital outlays support jobs and generate payroll within the Fredericksburg Region and, as this income is re-spent, it supports additional economic activity to the benefit of the local business community. For each dollar of University-related spending, the regional economy gained an additional \$0.47. Overall, the University's economic impact on the Fredericksburg Region in 2007 totaled \$80.2 million. The University's capital spending of \$14.8 in 2007 generated a total economic impact within the Fredericksburg Region of \$25.5 million.²

The operating and capital outlays of the University also support employment in the region beyond those directly working for the University and generate new personal earnings for local residents who work within the Fredericksburg Region. In 2007, the direct spending associated with the University of Mary Washington supported 758 jobs and generated \$16.7 million in new local personal earnings that accrued to residents of the Fredericksburg Region. The University's capital spending during 2007 supported 176 jobs and generated new local earnings of \$6.2 million that accrued to residents of the Fredericksburg Region.

The annual economic activity associated with the University of Mary Washington generates economic impacts that extend beyond the Fredericksburg Region to the remainder of the State and beyond. Overall, \$84.9 million or 77 percent of the \$110.8 in annual outlays associated with the University in 2007 were spent within the Commonwealth of Virginia (\$53.6 million within the Fredericksburg Region and \$31.3 million elsewhere within the State. This spending contributed a total of \$174.9 million to the State's economy, supported a total of 2,744 jobs and generated new personal earnings totaling \$53.0 million to the benefit of workers residing in the State. Excluded from this current year spending is an additional \$7.3 million in employment benefits paid out by the University on behalf of its employees residing in the State for retirement, health insurance and other payments to be realized at a later date. These employee benefits are not included in this impact analysis as they represent potential future economic benefits.

¹ The Fredericksburg Region is defined by the City of Fredericksburg and the counties of Spotsylvania, Stafford, Caroline, King George and Westmoreland.

² Details on the multipliers used to calculate these impacts can be found in the Appendix.

Table 1. Summary of Total Economic Impacts: 2007
(dollars in millions)

Spending Category	Direct Outlays	Total Output	Personal Earnings	New Jobs
Fredericksburg Region	\$53.6	\$80.2	\$16.7	758
Commonwealth of Virginia*	\$84.9	\$174.9	\$53.0	2,744

*Includes the Fredericksburg region.

The importance of the University of Mary Washington as an economic force beyond its educational and cultural contributions to the Fredericksburg Region is illustrated by the jobs it supports on and off campus, the payroll and additional personal earnings it generates annually to the benefit of residents within the Region and state, and its total output value—its contribution to gross regional product—that is widely distributed across the Region’s economy to the benefit of the business community and local governments.

The Impact of The University of Mary Washington On the Fredericksburg Regional Economy

Sources of Economic Impact

The annual economic benefits associated with the University of Mary Washington result from its spending for operations and capital improvements and the spending by its students and visitors. University retirees residing in the area also represent a continuing source of economic impact. What types and where this spending occurs affect its impacts on the economy. The principal sources of economic impact generated from spending by the University include: payroll, the procurement of goods and services, and capital outlays for new construction. Payroll and other operating outlays by the University recur annually while capital spending generates economic impacts only as long as the construction activity takes place. Student spending, spending that would not have occurred within the Fredericksburg Region had these students now enrolled at the University, is largely spent on retail services and housing. Visitors to the University who are not area residents can also be an important source of local spending although accounting for these visitors is difficult as there is no requirement that they register and be counted. Still, visitors to official events and the many uncounted casual visitors spend money in the area similar to tourists whose spending is recognized as an important source of business activity in the City and surrounding counties.

Where this spending occurs affects the magnitude of its total impact on the local economy. Payroll outlays, which accounts for 43 percent of the annual outlays generated by the University or by its students, visitors and retirees, are predominantly local with 73 percent occurring within the five counties and one city comprising the Fredericksburg Region. In contrast, local firms capture only 10 percent of the University’s annual procurement outlays with 38 percent benefiting businesses located elsewhere in the Commonwealth. This leaves more than one-half of the University’s annual procurement outlays leaking out of the state’s economy. Where this spending takes place affects the indirect and induced economic effects that are generated by these direct outlays; that is, the degree to which the re-spending of these University and related outlays take place within the local economy. The ability to capture the University and related annual spending and to re-spend it within the local economy is measured by multipliers calculated by each type of spending and for each county and determines the total economic impacts, personal earnings and jobs generated and supported by this spending. This direct spending and its economic impacts are presented in the following pages and accompanying tables.

Table 2. Summary of Total Direct UMW and Related Spending: 2007
(dollars in millions)

Spending Category	Total Outlays	Region	Rest of Virginia	Outside Virginia
Payroll	42.9	32.4	8.4	2.1
Procurement	44.7	4.7	17.0	23.0
Student Spending	11.9	7.5	4.4	0.0
Retiree Spending	6.2	4.0	1.5	0.7
Visitor Spending	0.6	0.6	0.0	0.0
University Foundation*	4.4	4.4	0.0	0.0
Totals	\$110.8	\$53.6	\$31.3	\$25.8

*Excludes scholarships and awards.

Benefit payments totaling \$8 million are not included in the impact assessment.

Wages and Salaries

The University of Mary Washington employed 405 full-time faculty and 461 full-time staff for a total of 866 full-time employees. Additionally, the University had 420 part-time personnel (221 were faculty and 199 were staff) for a total workforce of 1,286 in 2007. This workforce generated total payroll outlays by the University of \$42.9 million with current period benefits totaling \$8.0 million.

Seventy-three percent (73%) of the University's payroll and benefits payments totaling \$37.2 were made to employees residing in the Fredericksburg Region (City of Fredericksburg, and Counties of Spotsylvania, Stafford, Caroline, King George, and Westmoreland). University employees residing in the City of Fredericksburg and Spotsylvania County received combined wages and salaries and benefits of \$24.1 million or 65 percent of the Region's total. Employees residing outside the Fredericksburg Region but elsewhere in the Commonwealth of Virginia accounted for \$10.9 million of these payroll and benefit payments or 21 percent of the total. Combined, these payments to University employees living within the Commonwealth of Virginia (inclusive of the Fredericksburg Region) accounted for 95 percent of the total (see Table 4).

The economic impact of the University's payroll outlays paid to employees residing within the Fredericksburg Region derive from the re-spending of these payroll dollars within the local economy for housing, retail goods and services, transportation, utilities, entertainment and the other purchases common to consumer spending. It is estimated that for each payroll dollar re-spent within the Region's economy, a total of \$1.475 of total economic impact occurs. Consequently, the \$32.4 million in University payroll received by employees residing locally, the Region's economy grew by \$47.8 million.

This direct and indirect economic impact within the Fredericksburg Region also supports jobs and additional payroll disbursements (earnings) in the businesses where these monies are re-spent. The re-spending of the \$32.4 million in local payroll outlays supported an estimated 480 additional jobs and generated a total of \$9.91 million in new personal earnings for workers residing within the Fredericksburg Region.

These economic impacts are larger at the State level as more of the payroll spending by Mary Washington employees is retained within the state's economy. With an aggregate multiplier of 1.998, the 1,218 University employees residing within the State, with a total annual payroll of \$40.8 million contributed \$81.5 million to the State's economy in 2007, generated \$25.5 million in additional personal earnings for workers residing within the Commonwealth and supported a total of 1,413 jobs.

Table 3. UMW Faculty and Staff by Location of Residence: 2007

Location	Full-Time Faculty	Full-Time Staff	Part-Time Faculty	Part-Time Staff	Totals
Fredericksburg Region	274	375	161	166	976
City of Fredericksburg	96	73	36	27	232
Spotsylvania	110	139	54	71	374
Stafford	52	110	50	53	265
Caroline	7	22	6	5	40
King George	8	22	14	7	51
Westmoreland	1	9	1	3	14
Rest of Virginia	88	73	53	28	242
Outside Virginia	43	13	7	5	68
Totals	405	461	221	199	1,286

Table 4. UMW Payroll and Current Period Benefits Spending by Location: 2007
(dollars in millions)

Location	Payroll	% of Total	Current Period Benefits	% of Total
Fredericksburg Region	32.4	75.5	4.8	60.5
City of Fredericksburg	8.6	20.0	1.3	16.3
Spotsylvania	12.4	28.8	1.8	23.0
Stafford	8.6	20.1	1.3	15.9
Caroline	1.2	2.7	0.2	2.2
King George	1.2	2.7	0.2	2.1
Westmoreland	0.5	1.2	0.1	1.0
Rest of Virginia	8.4	19.5	2.5	31.2
Outside Virginia	2.1	5.0	0.7	8.3
Totals	42.9	100.0	8.0	100.0

Table 5. UMW Procurement Spending by Location: 2007
(dollars in millions)

Location	Procurement	% of Total
	Spending	
Fredericksburg Region	4.7	10.4
City of Fredericksburg	2.7	6.1
Spotsylvania	1.4	3.1
Stafford	0.5	1.2
Caroline	0.0	0.1
King George	0.0	0.0
Westmoreland	0.0	0.0
Rest of Virginia	17.0	38.0
Outside Virginia	23.0	51.5
Totals	44.7	100.0

Procurement

The University of Mary Washington is a major source of business activity locally, statewide and nationally. Its purchases of goods and services required to operate the University totaled \$44.7 million in 2007. These outlays reflect normal purchases and exclude one-time capital outlays. These annual operating purchases included: supplies, materials and equipment (\$9.8 million), contractual services (\$26.0 million), transfer payments (\$6.1 million), and obligations (\$2.9 million).³

The University’s vendors span both local and non-locate businesses. Local businesses, those located in the Fredericksburg Region, accounted for \$4.7 million in sales during 2007 or 10.4 percent of the University’s total procurement outlays while firms located elsewhere in the State captured \$17.0 million or 38.0 percent of the University’s procurement spending. Combined Virginia-based businesses captured 48.4 percent of these sales. Firms located outside of the State provided the University of Mary Washington with the remaining 51.5 percent of its procurement requirements representing sales totaling \$23.0 million. This pattern of purchases is common among universities and other large businesses that buy a wide range of goods and services many of which are specialized and may not be available locally or require competitive bidding where cost efficiency is

³ Transfer payments include honoraria and unfunded scholarship expenses. Obligations include interest and debt payments.

more important than accessibility. For those goods and services that require regular interface with the University, local businesses hold the competitive advantage.

The economic impacts flowing to the Fredericksburg Region and the State from the University's annual procurement outlays are important sources income for vendors and their employees, generate new payroll, and re-spending that support a wide range of local retail, personal, and professional services firms. Procurement outlays within the Fredericksburg Region, with a multiplier of 1.6787, contributed a total of \$7.89 million to the regional economy in 2007 from the direct outlay of \$4.7 million by the University. These outlays supported 77 jobs and generated \$2.0 million in new personal earnings for workers residing in the Region. Statewide, inclusive of local procurement outlays, the University spending for goods and services in 2007 totaled \$21.67 million. With an economic multiplier of 2.4093, this spending contributed a total of \$52.3 million to the State's economy. This statewide procurement spending by the University also supported 788 jobs and generated \$16.9 million in new personal earnings for workers residing within the Commonwealth of Virginia.

Student Spending

Students constitute a major source of economic activity that is largely captured within the Fredericksburg Region. The principal beneficiaries of this spending potential are retail establishments, venues frequented by students for entertainment, and transportation (e.g., auto repair and services, gasoline purchases). Students living off-campus also impact the housing market. The analysis of student spending attempts to identify "new" spending that would not have occurred in the absence of the University of Mary Washington. As a result, students—and their spending—that had been residents of the Fredericksburg Region prior to admission to the University of Mary Washington were not included in the calculation of economic impact, as their spending potential was not newly attracted to the Region.

UMW had 3,597 full-time and 586 part-time undergraduate students and 121 full-time and 558 part-time graduate students in 2007. Of this total of 4,862 students, 1,042 or 21.4 percent resided out-of-state prior to admission, 2,543 students (52.3%) resided in Virginia beyond the Fredericksburg Region and 1,276 students or 26.3% lived locally prior to admission. This later group of students, accounting for 26 percent of total enrollment was not included in this analysis.

Where the students live after they matriculate also influences their spending patterns. Of the 4,862 students enrolled at the University of Mary Washington in 2007, 2,540 (52%) lived on campus, 1,713 (35%) lived off campus but within the Fredericksburg Region, and 1,268 lived elsewhere in Virginia but outside of the Fredericksburg Region. Twenty students were identified as living out of state.

Spending by the University of Mary Washington students was conservatively estimated only for full-time. While part-time students also incur expenses in the region, it is not possible to separate the proportion of their expenses associated with being a student and the proportion related to their other commitments (e.g. job). Furthermore, it is assumed that off-campus undergraduate students live with their parents and therefore did not incur expenses for off-campus food or for housing. Also excluded from this analysis are beginning-of-the-semester one-time outlays for furniture. Thus, total student spending is underestimated in this analysis.

No survey of the spending patterns of students has been done, so estimates of total student spending were based on data collected through spending surveys at Virginia Tech and George Washington University, both done in 1999. Spending figures were adjusted to 2007 dollars using the CPI-U.

It is estimated that students spent a total of \$4.3 million dollars on non-housing purchases in 2007. Meals, beverages and groceries accounted for 36.9 percent of expenditures. Retail and other goods accounted for 26.7 percent. Entertainment and recreation expenditures comprised 12.5 percent and transportation accounted for 12.3 percent of total expenditures. Based on the residence of students, almost 98 percent of all full-time students spending occurred in the Fredericksburg Region. The economic impact of this student spending totaled \$6.2 million within the Fredericksburg Region, supported 62 jobs and generated \$1.28 million in new personal earnings for workers residing in the State.

Table 6. UMW Students by Type of Student and Residence During the School Year: 2007-2008

	On-Campus	Off-Campus			Totals
		Fredericksburg Region	Rest of Virginia	Outside Virginia	
Undergraduate	2,530	839	814	0	4,183
Full-time	2,487	475	635	0	3,597
Part-time	43	364	179	0	586
Graduate	5	437	227	10	679
Full-time	5	55	56	5	121
Part-time	0	382	171	5	558
Totals	2,540	1,713	1,268	20	4,862

Off-campus housing expenditures were estimated to total \$7.6 million with \$3.3 million or 43.4 percent of these payments occurring within the Fredericksburg Region with the remainder occurring elsewhere in the State. The economic impact of students' \$3.3 million for off-campus housing expenditures within the Fredericksburg Region totaled \$3.86 million, supported 3 jobs and generated \$109,230 in new personal earnings for local resident workers. Statewide, the \$7.6 million in off-campus housing expenditures by UMW students added a total of \$9.5 million to the state economy, supported 21 jobs and generated \$514,520 in new personal earnings for workers residing in the State.

**Table 7. UMW Student Spending in the Fredericksburg Region: 2007-2008
(dollars)**

	On-Campus Students	Off-Campus Students		Totals
		Undergraduate	Graduate	
Meals,	845,820	140,221	16,236	135,331
On-Campus	625,907	0	0	N/A
Off-Campus	135,331	0	0	135,331
Groceries	84,582	0	0	84,582
Entertainment	259,042	48,443	5,609	313,094
Services	64,608	12,082	1,399	78,089
Health	177,359	33,168	3,840	214,367
Transportation	256,860	48,035	5,562	310,457
Retail and Other	555,155	103,818	12,021	670,994
Total Non-Food	1,313,024	245,546	28,432	1,587,002
Totals	3,471,869	631,313	73,099	4,176,281

These estimates of student spending were made conservatively, which means that they could understate the true total impact of student spending on the regional and state economy. Only spending by full-time students was included in the calculations because it was assumed that part-time students would have been in the region anyway even if they were not attending school at the University of Mary Washington. Furthermore, these impacts only include spending during the nine-month school year and do not include spending in the summer by students. If students stay in the region instead of going home, they their summer spending would generate additional economic impacts to the Fredericksburg Region.

Spending by Retirees

The University of Mary Washington reports that it had 183 retired employees in 2007 of whom it is estimated that 118 or 64.5 percent resided in the Fredericksburg Region. In 2007, the retirees who lived within the Region spent an estimated \$4 million within the Fredericksburg Region. This spending impacted the regional economy similarly to the payroll spending of the University's current employees.

This spending by retirees within the Fredericksburg Region contributed an estimated \$5.9 million to the local economy. This spending and re-spending supported 59 jobs and generated \$1.22 million in new personal earnings for workers residing within the Region.

Table 8. UMW Retiree Spending by Location: 2007
(dollars in millions)

	Retiree Spending	% of Total
Fredericksburg Region	4.0	64.5
City of Fredericksburg	3.4	54.6
Spotsylvania	0.5	7.7
Stafford	0.0	0.5
Caroline	0.0	0.0
King George	0.1	1.6
Westmoreland	0.0	0.0
Rest of Virginia	1.5	24.0
Outside Virginia	0.7	11.5
Totals	6.2	100.0

Spending by Visitors

It is difficult to accurately estimate the number of off-campus visitors to the University of Mary Washington each year and it is even more difficult to generate annual visitor expenditures. Spending has been estimated for visitors to campus for graduation events, admissions visits, and family weekend. These calculations provide only a partial measure of the economic benefits associated with visitor spending. Furthermore, these visitor estimates exclude the untold number of

single and small-group visits to individual faculty, departments and campus events which can, in aggregate, represent large numbers of additional people who also may patronize local shops, restaurants and hotels.

Table 9. UMW Visitors by Residence of Visitor: 2007-2008

	Fredericksburg Region	Rest of Virginia	Outside Virginia	Totals
Graduation	1,500	1,500	2,000	5,000
Admissions Visits	4,020	4,020	5,360	13,400
Family Weekend	750	750	1,000	2,500
Totals	6,270	6,270	8,360	20,900

The three major categories of visitors identified in Table 9—graduation, admissions visits and family weekend—generated a total of 20,900 visitors in 2007. These visitors spent an estimated \$621,775 on lodging, meals and retail goods with hotel spending accounting for 53% of these expenditures. This visitor spending had a multiplier of 1.4667 resulting in a total contribution of \$0.88 million to the Fredericksburg Regional economy, supporting 9 jobs and generating \$180,000 in new personal income for workers living within the Region.

University Foundation Spending

The University of Mary Washington Foundation is a non-profit institution that was formed to assist the university in generating private support, and to manage, invest, and administer private gifts, including endowment and real property. Some of the Foundation’s operating expenses represent income to the University, such as student and faculty scholarships and awards, some are capital expenditures or represent investments, and the remaining outlays are direct operating expenditures that generate economic impacts similar to those generated for the University’s payroll and procurement spending each year. Those funds that are directly spending in the regional economy represent new economic activity while those that represent transfers to or income for the University have been reflected in the University’s direct spending and are not included here to avoid double counting of these economic benefits within the Fredericksburg Region.

Table 10 lists the UMW Foundation expenditures. These expenditures totaled \$5.5 million in 2007. The largest category of expenditures is for capital projects (\$1.38 million) followed by grants and

scholarships (\$1.08 million). No information was available about the geographic area where the Foundation purchases took place; therefore, it was assumed that all of the Foundation spending took place within the Fredericksburg Region.

Table 10. UMW Foundation Expenditures: FY2007
(dollars)

Category	Total Outlays
Capital Projects (Bell Tower/Signage)	1,379,500
Student/Faculty Scholarships & Awards	1,084,300
Publications	199,200
Postage	41,300
Professional Fees	66,800
Consulting	24,800
Broker and Banking fees	114,800
Insurance	45,900
Utilities	5,100
Travel	71,600
Professional development	31,000
Program services, events, receptions, etc	89,800
Museums and Orchestra operations	370,300
Academic and Athletic dept. operations	102,000
Services (residual)	589,700
Total	4,216,100

The economic impacts of the Foundation's annual spending that were unique (not included elsewhere in this analysis) totaled \$4.4 million (excludes scholarships and awards). This total included \$1.38 million in capital outlays and \$3.02 million in operating outlays. The economic impacts of the capital outlays totaled \$2.386 million in 2007, supported 16 jobs and generated new personal earnings totaling \$576,800 for workers residing in the Fredericksburg Region. The Foundation's operating outlay, totaling 3.02 million contributed a total of \$5.25 million to the Region's economy while supporting 52 jobs and generating \$1.385 million in new personal earnings for workers residing locally. While the accumulated economic impact of Foundation spending in 2007 totaled the combination of capital and operating outlays and their respective impacts (\$7.636 million in total output value, 68 jobs, and \$1.962 million in personal earnings), this total can be

expected to change as the mix of Foundation spending changes reflecting variation in the magnitude of annual capital outlays.

Capital Spending

The University of Mary Washington's six-year capital plan outlines project improvements totaling \$161.66 million. The economic impacts that would be generated by this capital spending are one-time benefits that are spread out over the construction period and include both soft and hard costs. Once the construction is completed, these economic impacts cease and are replaced by annual operating outlays that generate additional economic benefits annually for the lifetime of the building. For capital outlays planned on the main campus, the construction multiplier is 1.7294. For the proposal capital outlay for the Dahlgren Campus of \$22.93 million, the construction multiplier is 1.2557. While this six-year plan is only a plan, if it were to be realized over the next six years, its total impact on the Fredericksburg Region would equal \$268.7 million and average \$44.9 million per year. This capital spending would support 1,782 jobs and generate new personal earnings totaling \$62.7 million to the benefit of workers residing within the Region. At the state level, this proposed capital spending plan would contribute a total of \$369.6 million to the state's economy, support 4,090 jobs and generate new personal earnings totaling \$112.3 million, over the six-year construction period.

Capital spending during 2007 totaled \$14.8 million. The economic impact of this spending within the Fredericksburg Region was \$25.6 million supporting 176 jobs and generating new personal earnings totaling \$6.2 million to the benefit of local residents. Statewide, the University's capital spending had larger economic impacts reflecting a multiplier of 2.286 and a total contribution to the state's economy of \$33.8 million. This spending supported 374 jobs and generated personal earnings totaling \$9.97 million at the state level.

Appendix I

Economic Multipliers

The total impacts of the University of Mary Washington in 2007 on the Fredericksburg Region (five counties and the City of Fredericksburg) reflects the combination of direct outlays (capital or operating) and their subsequent monetary effects as these funds are circulated through the economy; that is, the re-spending of these direct outlays will generate additional economic activity that otherwise would not have occurred. The total value of these combined direct and indirect values can be estimated by the application of appropriate multipliers that have been calculated for each county (and the Commonwealth of Virginia) by the Bureau of Economic Analysis of the U.S. Department of Commerce employing its Regional Input-Output Model (RIMS II).

The results of these calculations are estimates of (1) output value—total contribution to the local and regional economy, (2) personal earnings—new earnings realized by residents of the county in which the University’s spending occurs and (3) the jobs supported by these outlays—full-time year-round jobs throughout the region. The key variables governing the magnitude and significance of these economic impacts are their dollar value, the category of outlay (e.g., payroll spending, procurement of goods and services by the University, student spending, visitor spending and retiree spending, capital or construction spending), the direct employment and payroll associated with the direct spending by the University, its students and visitors, and the geographic area of analysis and the complexity of the local and regional economy. The size and complexity of the regional economy determine the extent to which the local or regional economies can provide the inputs (goods and services purchased by the University of Mary Washington and its employees as they spend their wages) and retain the outputs of these economic activities; i.e., how self-sufficient the region and its individual counties are. In this analysis, the Fredericksburg Region is relatively independent of its adjacent metropolitan regions for certain levels of economic activities but in other cases it is significantly dependent. In these instances, spending by the University, its employees and students leaks out of the region with little residual economic impact. These regional conditions are reflected in the local economic multipliers. An illustrative listing of major multipliers is presented in the following table.

Table A-1. Selected Economic Multipliers for Fredericksburg Region, By County

Source	Caroline	King George	Spotsylvania*	Stafford	Westmoreland
University	1.4376	1.2202	1.7383	1.5173	1.2708
Payroll	1.1752	1.1752	1.5508	1.3718	1.1752
Capital Outlays	1.4855	1.2557	1.7294	1.5342	1.4075
Rental Housing	1.4524	1.2009	1.6304	1.4186	1.3383

Source: US Bureau of Economic Analysis. *includes the City of Fredericksburg

Appendix II

Definitions

Direct Outlays— all annual spending associated with the operations of the University of Mary Washington, its students, employees, visitors and retirees.

Economic Impact—the generation of new spending (\$s) within a jurisdiction as a result of direct outlays associated with the University.

Gross Regional Product (GRP) and Gross County Product (GCP) - the value of goods and services produced within the economy of the respective geographic area (region/service area, county/city).

Indirect Benefit – the additional economic benefits—measured in dollars or jobs—resulting from the accumulated additional value generated by the direct outlays or expenditures, as these dollars are re-spent within the local, regional or state economies.

Multiplier – a numerical factor that captures the total value of a direct outlay or benefits produced by the outlays made by or associated with the University of Mary Washington on the economy as it is re-spent within that economy; an output multiplier measures the contribution (impact) of a direct outlay on the overall economy, an employment multiplier measures the total number of jobs that can be supported by a direct outlay; and a personal earnings multiplier measures the total personal earnings (wages and salaries) generated within the jurisdiction as a result of the direct outlays and the jobs they supports.

Operating Costs – Costs (expenditures) associated with the day-to-day operation of the University including spending by students, employees, vendors, visitors and retirees within the Region and State.

Total Output – the sum of the direct and indirect impacts (outlays) reflecting the combination of the initial expenditures and their subsequent accumulated value as it is cycled through the economy inclusive of benefits generated by the re-spending of personal earnings; contribution to GDP gross domestic product), GSP (gross state product) or GCP (gross county product).

Unit of Analysis – the geographic unit of analysis, normally a political unit (county, state) for which economic information is reported. In this analysis the five counties comprising the Fredericksburg Region have been added together to provide an aggregate economic impact for the Region.