

**The Impact of MediCorp Health System on the Economy  
Of the Fredericksburg Region in 2005**

**Prepared for**

**Medicorp Health System  
Fredericksburg, Virginia**

**By**

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## **Executive Summary**

MediCorp Health System (MHS) is a major source of employment, payroll, and business investment that benefits the economies of Fredericksburg and the Counties of Spotsylvania, Stafford, Caroline, King George and Westmoreland, defined as the MHS service area. These economic impacts are summarized in Table 1. The magnitude of these economic impacts establishes MHS as the single most important non-governmental source of total output in the Fredericksburg region, accounting for 2.3 percent of its \$8.78 billion economy. When the economic impacts accruing locally from the construction of the new hospital in Stafford County are included, MHS's contribution to the regional economy will increase to 3.6 percent during the construction period. Given the increasing size and complexity of the Fredericksburg regional economy, this magnitude of economic contribution originating from MHS is very significant.

In 2005, MediCorp Health System employed 3,750 workers within the Commonwealth of Virginia with 3,243 or 86.5 percent of these employees residing within the MHS service area. These jobs supported a total payroll outlay of \$148.7 million. The average annual wage for all employees of MediCorp Health System in 2005 was \$39,650.

The operating outlays of MediCorp Health System generate important local economic benefits as well as benefits that extend throughout the Commonwealth of Virginia that recur annually. Additional one-time economic benefits result from capital outlays such as those associated with the construction of the new 100-bed hospital in Stafford County.

Annual operating outlays by MediCorp Health System, exclusive of regular payroll, totaled \$194.4 million in 2005 involving contracts with 3,825 vendors. The 903 vendors located within MHS service area captured \$32.4 million or 16.6 percent of these annual outlays while vendors (1,578) statewide inclusive of those in the local service area accounted for \$83.5 million or 43 percent of total operating outlays.

This analysis demonstrates the magnitude of economic impacts that flow from the operating outlays of MediCorp Health System to the benefit of the City of Fredericksburg and the Counties of Spotsylvania, Stafford, Caroline, King George and Westmoreland as well as the expanded impacts of this spending as it circulates through the local economies. While the direct employment effects and annual spending outlays are

important, it is their multiplier effects that provide the full measure of the importance of these outlays in stimulating additional job and income growth and determine their full contribution to each respective economy as measured by the aggregate addition to their gross city and county products.

The total economic impacts captured within MediCorp’s service area are summarized in Table 1. In addition to MHS’s direct employment of 3,243 residents of its service area, payroll of \$119.7 million and payments to local vendors totaling \$32.4 million, the re-spending of the payroll and vendor income within the area economy increased the regional economy’s total output by \$177 million, supported 1,538 jobs spanning all sectors of the economy and generated new personal income within the local economy totaling \$38.4 million.

Table 1

Summary of Local Economic Impacts from MediCorp Health System:  
2005 Payroll and Operating Outlays  
(in millions of 2005 dollars)

Source of Impact	Direct Outlays	Total Output (1)	Personal Earnings (2)	Jobs Supported (3)
MHS Outlays	\$152.14	\$176.99	\$38.37	1,538
Payroll	\$119.72	\$125.40	\$26.53	1,078
Local Vendors	\$32.42	\$51.59	\$11.85	460
Physicians*	\$20.02	\$22.47	\$4.83	195
Total Impacts**	\$189.62	\$199.46	\$43.21	1,733
Capital Outlays***	\$155.00	\$237.14	\$50.61	1,364

Sources: MediCorp Health System, GMU Center for Regional Analysis  
Notes: (1) the total value of goods and services generated directly and indirectly as a result of the initial MHS outlay; (2) the additional earnings generated within the service area from the new economic activities supported by the initial MHS outlays; (3) the additional new jobs supported by the spending and re-spending of the direct MHS outlays. \*affiliated with but not employed by MHS \*\*These economic impacts from payroll and procurement outlays and related- physician earnings and operating outlays recur annually. \*\*\*Economic impacts from capital outlays for the 100-bed hospital in Stafford County reflect spending over the 2006-2009 period and are expressed in 2005 \$s.

The \$155 million capital investment required to build the new 100-bed hospital in Stafford County will generate significant economic benefits within the Stafford County economy over the construction period. This \$155 million capital outlay, including soft and hard costs and supporting infrastructure, will add a total of \$237.14 million to the County’s gross county product between 2006 and 2009 reflecting a composite multiplier

of 1.53. This capital spending will support 1,364 on- and off-site jobs over the construction period for an average of 455 jobs per year and generate new personal earnings for residents of the County totaling \$50.6 million over this 3-year period.

Additionally, 99 physicians not directly employed by MHS had privileges to provide medical services to their patients at MHS facilities. The estimated economic impacts generated by these physicians added \$22.5 million additional spending within the regional economy, supported 195 new jobs and generated \$4.8 million in new personal earnings.

The economic benefits generated by Medicorp Health System's payroll and operating outlays, the one-time benefits flowing from capital expenditures, and the independent payroll spending and operating outlays of the physicians affiliated with MHS are significant in their magnitudes and they constitute important economic resources far exceeding the direct dollar value of the initial expenditure. As payroll and operating outlays recur annually and are likely to increase over time, these expanded economic benefits will continue to grow and expand the economies of the City of Fredericksburg and the Counties of Spotsylvania, Stafford, Caroline, King George and Westmoreland.

## **The Impact of MediCorp Health System on the Economy**

## **Of the Fredericksburg Region in 2005**

The total economic impacts of spending by MediCorp Health System (MHS) will reflect the combination of direct outlays (payroll, operating and capital) 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 Fredericksburg and Spotsylvania County and the Counties of Stafford, Caroline, King George, and Westmoreland 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 economy; (2) personal earnings—new earnings realized by residents of the jurisdiction; and (3) the jobs supported by these outlays—full-time year-round jobs. The key variables governing the magnitude and significance of these economic impacts are their dollar value, the category of service or product purchased, and the direct employment and payroll associated with the direct spending. In addition, the size of the geographic unit of analysis and the complexity of its economy affect the magnitude of the multiplier by determining the extent to which the local economy can provide the inputs for and retain the outputs of the economic activities being analyzed. In this analysis, the City of Fredericksburg and the five counties comprising the service area represent a well-developed, diverse and expansive regional economy that is able to achieve significant indirect benefits from the direct outlays by MediCorp Health System.

The following analysis will examine the economic impacts of annual outlays associated with the operation of the MediCorp Health System (MHS) in 2005. Additionally, the economic impacts of the outlays that will flow into Stafford County during the three-year construction period of the new 100-bed hospital will be analyzed. MHS's operating outlays and their impacts are annual impacts and recur each year whereas the capital outlays do not recur annually in the same magnitudes. That the operating outlays and their economic impacts are recurring annually magnifies their importance over time; the impacts identified herein reflect only a one-year slice of an on going stream of benefits.

Operating outlays are divided into two categories: payroll and operations. These divisions reflect substantially different economic impact patterns: payroll is spent differently than outlays for operations and therefore has different effects on the local economies. Payroll outlays supports consumer spending while operating outlays support other vendors and day-to-day business activities and may result in profits and new business investment.

### **Overview Of The MediCorp Health System**

MediCorp Health System (MHS) and its subsidiaries provide a wide range of health services to the residents and workforce of Fredericksburg and its surrounding five counties: Spotsylvania, Stafford, Caroline, King George, and Westmoreland. The MHS service area had a total estimated population of 318,520 in 2005 and a job base of 140,910 inclusive of part-time and self-employed and contract workers. This service area (the City and five counties) had an economy that generated \$8.78 billion in goods and services (its gross regional product) in 2005.

MediCorp Health System reported total expenses in 2005 of \$406.6 million with 36 percent of these outlays supporting its personnel costs (wages and salaries). Almost half of total outlay supported the purchase of goods and services from vendors with 43 percent of these outlays being captured by firms located in Virginia. In 2005, MHS had 3,251 employees with a payroll of \$148.7 million and 3,825 vendors under contract totaling \$194.4 million.

These annual outlays support a broad range of facilities and services in the Fredericksburg and surrounding five counties. A partial listing of these include: Mary Washington Hospital with 412 beds and 632,994 square feet; Tompkins Martin Medical Plaza, a joint-venture physician office building (MHS owns 78%) located on the Mary Washington Hospital campus; Medical Imaging of Fredericksburg, a joint-venture (51% MHS ownership) with Radiology Associates of Fredericksburg; Fredericksburg Ambulatory Surgery Center (MHS is 90.25% owner); Snowden at Fredericksburg, a 40-bed inpatient psychiatric facility on the Mary Washington Hospital campus; Kid's Station, a child care center on the Hospital campus; CRNA LLC, a Certified Registered Nurse Anesthetist practice group; Mary Washington Hospital Foundation; MediCorp Properties owns several buildings and underdeveloped land parcels; Homecare America, a medical equipment and health care supply store; Medical Arts Pharmacy, located on the Hospital campus; Rehabilitation Services of Fredericksburg; Sleep Disorders Center; Cancer Center of Virginia, Carriage Hill Rehabilitation and Nursing Center, MWH Home Health and Hospice, Medical Imaging of Lee's Hill; Rappahannock Wound Healing Center, Stafford Hospital Center, a new 100-bed hospital to open January 2009; Rehab Services of North Stafford and various physician office practices throughout the service area. A full listing and description is included in the Appendix.

In 2005, MHS reported that it provided in excess of \$36 million in community benefits of which \$30 million were for uncompensated and charity care. These included free and discounted health and related services. Additionally, MHS donated more than \$1.7 million for scholarships, grants and community health initiatives. MediCorp spent \$4.8 million on clinical training, research, community services such as health fairs and classes, and subsidized health programs. These and other health benefits that may not involve actual expenditures extend the economic benefits of MHS well beyond those that can be documented in financial statements as direct outlays into the local economy.

Outlays by MHS's major cost centers as reported in its 2005 Consolidated Financial Statements are summarized in Table 2.

Table 2

MediCorp Health System and Subsidiaries  
 Consolidated Statements of Operation, 2005  
 (in millions of 2005 dollars)

Unit	Total Expenses
Consolidated	\$406.638
Eliminations	46.339
MediCorp Health System	25,497
Mary Washington Hospital	324.652
MediCorp Properties	10.906
MediCorp Health Services	42.073
Mary Washington Hospital Foundation, Inc.	.798
MediCorp Services, Inc.	44.778
Fredericksburg Professional Risk Exchange	\$4.273

Source: MediCorp Health System, Consolidated Financial Statements, Year Ending December 31, 2005.

**Employment Impacts of the MediCorp Health System**

The economic contribution of any organization is commonly judged by the number of jobs and the value of the payroll it generates. This is true for MediCorp Health System (MHS). MHS is a major source of jobs within its service area with a workforce totaling 3,750 exclusive of attending physicians (not directly employed by MHS) and contract employees. The payroll associated with these workers totaled \$148.7 million in 2005. The residential distribution of these workers and associated payroll outlays are shown in Table 3.

While direct job generation is important, the impacts of this payroll (as it is re-spent within the local economy) generate significant additional economic benefits. The salary multipliers underlying the calculations in Table 4 illustrate the cumulative impacts associated with MHS's employment base. For example, in Fredericksburg and Spotsylvania County, for each dollar in MHS's payroll paid to workers living in the County, the County's economy realizes a total benefit of \$1.58. Additionally, Spotsylvania County residents capture an additional \$348,866 in new personal income (wages and salaries) for each \$1,000,000 of the payroll earned by MHS workers living in Spotsylvania County. Also, this re-spending of MHS's payroll within the local economy supports jobs other than those workers employed directly by MHS. In the City of Fredericksburg and Spotsylvania County 13.9 jobs are supported for each \$1 million in

payroll spending by MHS for its workers residing in the County. Each county has its own multipliers based on the size and complexity of its respective economy as this affects the degree to which resident spending is retained within the county of residence of MHS's workforce.

Table 3

MediCorp Health System Employment Profile, 2005

Place of Residence	Number of Jobs	Percent Of total	Total Payroll*
Fredericksburg	358	9.6	\$13,483,480
Spotsylvania County	1558	41.5	62,054,403
Stafford County	881	23.5	31,777,207
Caroline County	211	5.6	4,078,859
King George County	193	5.2	7,118,702
Westmoreland County	42	1.1	1,202,507
Sub-Totals	3243	86.5	119,715,158
Other Virginia	507	13.5	28,967,523
Totals	3750	100.0	\$148,682,681

Source: MediCorp Health System \*excludes fringe benefits

The calculation of the local economic impacts for MHS's payroll outlays by place of its workers' residence requires that a composite multiplier be developed that reflects the budget (types of household spending) that typifies the allocation of income for retail, housing, health, personal services, transportation and local government (taxes). As federal and state taxes remove a portion of these earnings from the local economy, it has been assumed for the purpose of this analysis that 70 percent of payroll is available for local spending after adjustments for federal and state taxes. To calculate the economic impact of MHS's local payroll spending shown in Table 3, payroll outlays have been reduced to 70 percent and the respective county multipliers applied. The results of these calculations of the economic impact generated by MHS's payroll outlays are presented in Table 4.

The economic impacts of MHS's payroll spending within its service area totaled \$125.4 million in 2005. This value is based on the total local payroll outlay of \$119.7 million adjusted for state and federal taxes to \$83.8 million in disposable income resulting from MHS's initial payroll outlays. The aggregate multiplier for all six jurisdictions is 1.496; that is, for each payroll dollar of disposable local earnings, an additional \$0.50 in economic activity is generated. In total, this payroll spending added \$125.4 million to the local economy, generated \$26.5 million in new personal earnings for residents in MHS's service area and supported 1,078 jobs within the area economy in addition to MediCorp Health System's 3,243 employees who reside within MHS's service area.

Table 4

Economic Impact of Payroll Spent By MediCorp Health System’s Workforce\*  
(in millions of 2005 dollars)

Jurisdiction of Residence	Payroll Outlay (1)	Total Output (2)	Personal Earnings (3)	Jobs Supported (4)
Fredericksburg	\$13.483	\$14.869	\$3.291	131
Spotsylvania County	62.054	68.432	15.145	604
Stafford County	31.777	31.230	5.610	241
Caroline County	4.079	3.826	1.084	45
King George County	7.119	5.982	1.016	43
Westmoreland County	1.202	1.064	0.388	14
Totals	\$119.715	\$125.403	\$26.534	1,078

Sources: MediCorp Health System, GMU Center for Regional Analysis

Notes: (1) includes only wages and salaries of residents of listed jurisdiction; (2) the total value of goods and services generated directly and indirectly as a result of the initial payroll outlay within the jurisdiction; this calculation is based on 70 percent of payroll being available for local spending; (3) the additional earnings occurring within the respective jurisdiction from the new economic activities supported by payroll outlays; (4) the additional new jobs supported by the spending and re-spending of the new payroll dollars. \*These economic impacts recur annually.

**The Economic Impacts of MHS’s Operating Outlays**

While payroll outlays of the MediCorp Health System (MHS) have been shown to have important and recurring benefits to the economies of the City of Fredericksburg and Counties of Spotsylvania, Stafford, Caroline, King George and Westmoreland, MHS’s spending for the purchase of goods and services from local vendors and vendors located elsewhere in the Commonwealth of Virginia have even greater economic impacts as these outlays include a combination of payroll, materials, overhead, and profit. As these outlays are passed through the wide range of suppliers throughout the state, they generate employment and income benefits that span the full breadth of the local, regional and state economies.

Annual spending by MediCorp Health System to operate its facilities across the six jurisdictions of its service area involves both payroll (as discussed previously) and a wide range of supporting non-payroll expenditures. Non-payroll spending includes: service contracts and contract labor, professional and business services, outlays for regular maintenance and repairs, utilities, taxes, leases, and office equipment and supplies. Total

operating outlays reflect a different pattern of expenditures than direct payroll with the 903 vendors located within Fredericksburg and the five adjacent counties comprising MHS’s service area accounting for 16.6 percent of total contractor spending accounting for \$32.4 million of a total \$194.4 million spent by MHS for vendor services throughout the nation.

This procurement pattern reflects differences in the mix of goods and services provided by local and non-local firms. Typically, major equipment purchases (MRI and CT machines) and medical supplies provided by national firms have higher value per purchase than the goods and services provided by local firms. Consequently, the payments accruing to local vendors were smaller in average value than payments received by vendors located elsewhere in Virginia and the nation—local vendors represented 23.6 percent of MHS’s total vendors count but received just 16.6 percent of total vendor payments while non-Virginia vendors accounting for almost 60 percent of MHS’s vendor payments. The geographic distribution and respective total payments to MHS’s vendors in 2005 is shown in Table 5.

Table 5

MHS Vendor Payments by Jurisdiction, 2005  
(in millions of 2005 dollars)

Jurisdiction Of Vendor	Number of Vendors	Percent of Total	Vendor Payments	Percent of Total
Fredericksburg	369	9.6	\$24.953	12.8
Spotsylvania County	266	7.0	3.087	1.6
Stafford County	181	4.7	3.359	1.7
Caroline County	23	0.6	0.259	0.1
King George County	38	1.0	0.398	0.2
Westmoreland County	26	0.7	0.366	0.2
Total Service Area	903	23.6	\$32.422	16.6
Other Virginia	675	17.6	51.079	26.3
Non-Virginia Vendors	2247	58.8	\$110.932	57.1
Grand Totals	3835	100.0	\$194.433	100.0

Source: MediCorp Health System

The economic importance of MHS’s operating outlays beyond their value (903 vendors received \$32.4 million in payments in 2005) is that they recur (and likely increase) each year. Therefore, the economic impacts they generate, as reported in Table 6, are not one-time benefits such as those that flow from capital outlays, but continue to support job and income growth in the local and state economies year after year.

The \$32.4 million in direct operating outlays that MediCorp Health System spent in its service area in 2005 added a total of \$51.6 million to the service area's estimated gross regional product that year reflecting a multiplier of approximately 1.59; that is, for each additional \$1 of spending by MHS for its annual operations, the service area's economy realized a total benefit of \$1.59. Additionally, this local spending generated new annual personal earnings for local residents of \$11.85 million and supported 460 jobs beyond those directly compensated by MHS. The economic impacts of these operating outlays are presented in Table 6 by the jurisdiction in which the vendors were located. These impacts extend elsewhere in the state and throughout the nation reflecting the location of MHS's vendors beyond the local service area.

Table 6

The Economic Impact of Annual Operations Outlays by MHS\*  
(in millions of 2005 dollars)

Jurisdiction of Vendor	Operating Outlays (1)	Total Output (2)	Personal Earnings (3)	Jobs Supported (4)
Fredericksburg	\$24.95	\$40.53	\$9.44	366
Spotsylvania County	3.09	5.01	1.17	45
Stafford County	3.36	4.72	0.90	35
Caroline County	0.26	0.36	0.12	5
King George County	0.40	0.48	0.10	4
Westmoreland County	0.37	0.46	0.13	5
Total Service Area	\$32.42	\$51.59	\$11.85	460
Other Virginia	\$51.08	\$101.14	\$32.16	1,702
Non-Virginia Vendors	\$110.93			
Total Outlays**	\$194.43	\$499.39	\$160.56	5,631

Sources: MediCorp Health System, GMU Center for Regional Analysis  
Notes: (1) reported by location of vendor; (2) the total value of goods and services generated directly and indirectly as a result of the initial operating outlays within the jurisdiction; (3) the additional earnings generated within the respective jurisdiction from the new economic activities supported by the operating outlays; (4) the additional new jobs supported by the spending and re-spending of the new operating expenditures. \*These economic impacts recur annually.\*\*The economic impacts of total vendor outlays include interstate transfers that result in the total being greater than the sum of the state level impacts.

Seventy percent of MHS's 903 local vendors have their places of business in Fredericksburg or Spotsylvania County. These vendors received payments totaling \$28

million representing 86.5 percent of the total MHS payments to vendors located within its service area. This concentration of vendors in proximity to MHS's major health facilities confirms the agglomeration effects that are generated by Mary Washington Hospital and related clinics located nearby within the City and County.

MHS's facilities serve as a catalyst for the attraction of complementary businesses that have contributed to the development of Fredericksburg and Spotsylvania County as a major employment center within its region. In addition to these vendors, other retail, professional, and service activities find location in proximity to MHS's facilities beneficial to their businesses as they serve overlapping markets and benefit from the enlargement of their customer base through co-location with complementary as well as competitive activities. These same ancillary benefits will accrue to businesses in Stafford County following the completion of MHS's new hospital there in 2009.

### **Summary of Economic Benefits from Annual Spending By Mediacorp Health System**

The annual spending by MediCorp Health System (MHS) for its operations makes it a major force in the local economy. While MHS provides essential health care services to the more than 318,520 residents (2005) of its service area, MHS is also a major local economic force as an employer (3,243 jobs held by local residents with a payroll of \$119.7 million) and is an important source of business for local suppliers and contractors. In 2005, 903 local vendors received payments from MHS totaling \$32.4 million.

While the distribution of this spending reflects the residential and business location patterns in the service area that concentrate their impacts in the City of Fredericksburg and Spotsylvania County, all jurisdictions in MHS's service area benefited economically from the \$152 million spent locally by MHS to carry out its health and wellness activities. Additionally, the concentration of MHS's activities has generated agglomeration benefits that have contributed to the City's and County's increasing attractiveness to complementary and other businesses and organizations seeking locations central to a growing employment and market base.

The contribution of this direct spending by MHS (\$152 million) to the service area's overall economy totaled \$177 million in 2005. The direct and indirect effects of this spending resulted in generating \$38.3 million in new personal earnings that accrued to residents of MHS's service area and supported 1,538 jobs. The distribution of MHS's annual operating outlays and their economic impacts—their contribution to the local economy, generation of new personal earnings, and the jobs supported by the spending and re-spending of these MHS outlays—are tabulated in Table 7.

Table 7

Summary of Economic Impacts from MHS Payroll  
and Vendor Payments By Jurisdiction, 2005  
(in millions of 2005 dollars)

Jurisdiction Of Impact	MHS Outlays (1)	Total Output (2)	Personal Earnings (3)	Jobs Supported (4)
Fredericksburg	\$38.5	\$55.4	\$12.7	497
Spotsylvania County	65.1	73.4	16.3	649
Stafford County	35.1	35.9	6.5	276
Caroline County	4.3	4.2	1.2	50
King George County	7.5	6.5	1.1	47
Westmoreland County	1.6	1.6	0.5	19
Total Service Area	\$152.1	\$177.0	\$38.3	1,538

Sources: Table 4 and 6.

**The Economic Impacts Of Capital Spending  
for the Stafford Hospital Center, 2006-2009**

Beyond these annual outlays for payroll and operations, MediCorp Health System’s spending for major capital improvements is another major source of local economic impact. While major capital improvements are not as regular a flow of spending by MHS as are its annual operating outlays, when a capital project is undertaken its economic impacts are significant and relatively concentrated in their effect. The new 100-bed hospital being built in Stafford County by MHS provides an example of the magnitude and significance of these economic impacts.

This capital spending and its re-spending within the local economy supports vendor jobs and jobs having broad-based effects as this spending is recycled through the economy. These impacts are one-time benefits restricted to the construction period. For the proposed Safford Hospital Center, its total outlay of \$155 million for soft and hard costs including infrastructure improvements will generate a total economic impact of \$237.14 million, reflecting Stafford County’s aggregate multiplier (soft and hard costs combined) of 1.53. The direct and indirect impacts of this spending over the planned three-year construction period will support 1,364 on- and off-site jobs and generate an increase in local (county level) personal earnings totaling \$50.6 million.

With a large campus and multiple facilities serving the five-county area, MHS undertakes capital outlays on a periodic basis. For example, a medical office building will be constructed on the site of the Stafford Hospital in the near future.

Table 8

The Economic Impacts for Capital Outlays By Medicorp Health System  
for the 100-Bed Hospital in Stafford County, 2006-2009  
(in millions of 2006 dollars)

Jurisdiction	Capital Outlay (1)	Total Output (2)	Personal Earnings (3)	Jobs Supported (4)
Stafford County	\$155.00	\$237.14	\$50.61	1,364

Sources: MediCorp Health System; GMU Center for Regional Analysis  
Notes: (1) soft and hard costs; (2) the total value of goods and services generated directly and indirectly as a result of the capital outlays in Stafford County; (3) the additional earnings generated by the new economic activities supported by the capital outlays; (4) the additional new on- and off-site jobs supported by the spending and re-spending of the new capital outlays.

The economic impacts that flow from capital outlays are different from those that result from outlays for payroll and operations. The economic impacts from capital projects are not recurring. They occur over the period during which the capital funds are dispersed and then they stop while payroll and operating expenditures recur and likely to increase annually thereby providing a continuing and accumulating source of local economic impacts.

### **The Economic Impact of MHS-Affiliated Physician Spending**

In addition to the more than 400 physicians on the MHS staff, there were 99 physicians in 2005 relying on MHS facilities to provide their patient services but were not compensated directly by MHS. These physicians reflected a wide range of specialties including Anesthesia, Interventional Cardiology, Emergency Medicine, Hospitalists, OB/GYN, Maternal/Fetal Medicine, General and Critical Pulmonary Care, Radiation - Oncology, Invasive and Diagnostic Radiology, Neurosurgery and Cardiovascular Surgery.

It is estimated that these physicians' total annual earnings in 2005 totaled \$31.1 million. These earnings included payments totaling \$13.8 million from MHS (the economic impacts of MHS's payments were included in its operating outlays discussed previously) leaving a total of \$17.3 million in additional physician earnings that could be spent within the regional economy. Adjusting these earnings for taxes and applying appropriate local multipliers to reflect their spending patterns, the total economic impact of this spending by physicians affiliated with MHS within the Fredericksburg region was \$18.1 million. This spending also supported 156 jobs with local personal earnings of \$3.8 million.

In addition to the economic impacts generated by the salary spending by physicians affiliated with MHS, these physicians paid salaries and wages to their private staffs and

some incurred costs for office operations and the purchases of goods and services to support their office functions. Adjusting for those cases where these physicians occupied office space within MHS facilities at no charge, it is estimated that the operating outlays received by local vendors totaled \$2.7 million in 2005.

The outlays associated with these operating outlays generated indirect impacts within the regional economy reflecting a multiplier of 1.59259 for a total impact of \$4.4 million. These operating outlays also supported 39 additional jobs and generated local personal earnings of \$1.0 million. Additionally, vendors serving these physicians located elsewhere in the Commonwealth of Virginia would have received outlays estimated to total \$4.3 million.

In total, the direct payroll spending of these 99 physicians and their estimated local outlays for office operations added an additional \$20.02 million to the local economy. The indirect impacts of these spending as it cycled through the local economy increased the total impact of this spending to \$22.5 million. In total, this spending supported 195 jobs and generated \$4.83 million in new personal earnings to the benefit of local residents. These impacts are presented in Table 9.

Table 9

Local Economic Impacts of Physicians Affiliated With  
The MediCorp Health System\*: 2005 Salary and Operating Outlays  
(in millions of 2005 dollars)

Source of Impact	Direct Outlays	Total Output (1)	Personal Earnings (2)	Jobs Supported (3)
Salaries	\$17.28	\$18.10	\$3.83	156
Operations	\$2.74	\$4.37	\$1.00	39
Total Impacts**	\$20.02	\$22.47	\$4.83	195

Sources: MediCorp Health System, Medical Group Management Association, GMU Center for Regional Analysis. \*non-MHS staff physicians using MHS facilities to provide services to their patients. \*\*These economic impacts from payroll and operations outlays recur annually. Notes: (1) the total value of goods and services generated directly and indirectly as a result of spending by physicians; (2) the additional earnings generated within the service area from the new economic activities supported by the physician spending; (3) the new jobs supported by the spending and re-spending of the physician spending.

## The Importance of Health Care Outlays To the US Economy

The health care industry is a major and growing sector of the national economy. In 2005, spending by the health care industry totaled \$864.4 billion accounting for 6.9 percent of

Gross Domestic Product (GDP) up from 6.1 percent in 2000. Health care spending at the national level increased 44.2 percent over the 2000-2005 period while the economy (GDP) was growing only 27.2 percent.

The above-average rate of economic growth registered by the health care industry translates into significant outlays at the household level. Nationally, average household spending for all items increased 22 percent between 2000 and 2005, a gain of \$8,364 per household. Household spending for health care, including payments of health insurance, increased from \$2,064 to \$2,664, for a gain of \$598 or 28.9 percent. This percentage spending increase was greater than for any other category of personal consumption expenditures (e.g., spending for housing was up 23.1%; for food, spending was up 15%; and for transportation, spending was up 12.5%).

If personal consumption expenditures for health care in the Fredericksburg region mirrored the nation, total health care outlays for the 113,830 households residing within the MHS region would have totaled \$303.2 million. With an aggregate health care multiplier of 1.4441, this spending would have contributed a total of \$437.9 million to the area's \$8.78 billion economy accounting for 5 percent of all economic activity in the region.

## **Summary of Economic Impacts**

The economic impacts generated by MediCorp Health System's annual operating and capital expenditures can be measured in terms of direct and total contribution to the area's economy, the added personal earnings that will accrue to local residents and the additional jobs supported by this spending beyond the direct workforce employed by MediCorp Health System (MHS). These impacts are generated both from MHS's direct payroll and operating outlays for the day-to-day operation of its hospital, clinics, and supporting facilities and health care services within the City of Fredericksburg and surrounding five counties and its periodic capital outlays such as the new Stafford Hospital Center.

In 2005, MediCorp Health System employed 3,243 workers, 86.5 percent of its total workforce, who resided within its service area with a total payroll of \$119.7 million. Additionally, its operating expenditures that were captured by the 903 vendors located within the service area added \$32.4 million to the local economy. These combined annual outlays of \$152 million generated a total of \$177 million to the service area's economy reflecting the indirect impacts of MHS's initial spending as it was re-cycled through the economy. These direct and indirect economic benefits supported 1,538 additional jobs in the service area in addition to those workers employed directly by MHS and generated \$38.4 million in new personal earnings to the benefit of local residents.

Capital spending totaling \$155 million associated with the construction of the new Stafford Hospital Center will add \$237 million to the Stafford County's economy during the three-year construction period, support 1,364 annual jobs over this period and

generate increased personal earnings of \$50.6 million to the benefit of Stafford County residents.

Additionally, 99 physicians not employed by MHS had privileges to provide medical services to their patients at MHS facilities. The estimated economic impacts generated by these physicians added \$22.5 million to the regional economy, supporting 195 additional jobs and \$4.8 million in new personal earnings.

The magnitude of these economic impacts establishes MHS as the single most important non-governmental source of total economic output in the Fredericksburg region accounting for 2.3 percent of its \$8.8 billion gross regional product. MHS's contribution to the regional economy will increase to 3.6 percent with the addition of the economic impacts accruing locally during the construction of the new hospital in Stafford County. Given the increasing size and complexity of the Fredericksburg regional economy, this magnitude of economic contribution originating from a single organization is very significant.

These income and employment impacts are important regardless of whether they consist of recurring economic benefits generated by operating outlays or one-time benefits flowing from capital expenditures. They constitute important economic and fiscal resources for local governments far exceeding the direct dollar value of MediCorp's direct outlays. As MHS's operating expenditures recur and likely increase annually, their expanded economic benefits will help to drive the area's economic growth. The economic importance of MHS within its host jurisdictions has been shown to be significant as a major source of employment, income and business activities. The magnitude and breadth of these impacts both geographically and economically have made MHS a catalyst for business investment and location that will help to accelerate the growth of Fredericksburg and Spotsylvania and Stafford Counties as major business and employment centers within their broader economic region.

## **Appendix I**

### **A Description of the Health Care Services By Location MediCorp Health System**

MediCorp is the sole member of MediCorp at Stafford, Mary Washington Hospital, the Mary Washington Hospital Foundation, MediCorp Properties, and MediCorp Health Services. Health Services is the sole member of Snowden Services. MediCorp is also the sole shareholder of MediCorp Services Inc. (MSI) and the sole subscriber of The Fredericksburg Professional Risk Exchange (Pro Rex). MediCorp and the members of the Affiliated Group (those listed above with the exception of MSI and Pro Rex) are organizations described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended.

#### **THE CITY OF FREDERICKSBURG**

##### **Mary Washington Hospital**

Mary Washington Hospital (MWH) has been serving the Fredericksburg community since 1899, when MWH's first hospital facility opened as an eight-room hospital in Fredericksburg, Virginia. A second hospital was opened on the original site in 1928 with a capacity of 75 beds and served the City and the surrounding counties for nearly a quarter of a century. In 1951, MWH moved to 7 acres located at 2300 Fall Hill Avenue and increased its size to 115 beds. Over the course of the next 25 years, 6 major constructions projects were undertaken to expand the facility to 340 beds, as services expanded to include cardiac, intensive, neonatal, and psychiatric care.

The current MWH facility was completed in 1993 on a portion of a 69-acre site in the City. In 2004, MWH completed a major construction project adding a 94 bed patient tower and additional space for ancillary and support services, taking the MWH facility to 412 beds and 632,994 square feet. It is licensed to operate 292 medical/surgical, 48 intensive/cardiac, 20 pediatric, 42 obstetric, and 10 psychiatric beds. MWH provides general acute care services, ICU including newborn critical care, neurosurgery, rehabilitation services, inpatient and outpatient surgery, cardiology services including open-heart surgery and cardiac catheterization, and diagnostic imaging.

##### **Tompkins Martin Medical Plaza**

Tompkins Martin Medical Plaza (TMMP), a subsidiary of MediCorp Properties Inc, is a physician office building joint venture located in the City of Fredericksburg on the MWH Campus. MediCorp owns 78.5% of TMMP and physician investors own the remainder.

##### **Medical Imaging of Fredericksburg**

Medical Imaging of Fredericksburg (MIF), a subsidiary of Snowden Services Inc, is a medical imaging joint venture with Radiology Associates of Fredericksburg located on the MWH Campus. MIF provides diagnostic radiography and fluoroscopy, ultrasound, MRI, PET/CT, mammography, bone density, and CT services. Between 2002 and 2006,

the total number of annual procedures performed has increased from approximately 77,000 to over 144,000. MediCorp is a 51% owner of MIF.

### **Fredericksburg Ambulatory Surgery Center**

Fredericksburg Ambulatory Surgery Center (FASC), a subsidiary of Snowden Services Inc, is a 6 operating room and 1 procedure room multispecialty outpatient surgery center joint venture with 10 local surgeons. It is located on the MWH Campus. MediCorp is a 90.25% owner of FASC.

### **Snowden at Fredericksburg**

Snowden at Fredericksburg (SAF) is a 40-bed inpatient psychiatric facility located on the MWH Campus. 10 of the 40 beds are licensed under the Mary Washington Hospital license. SAF provides inpatient psychiatric treatment to both adolescents and adults and also operates Snowden Academy. Snowden Academy is an alternative to classroom learning for those students that the counties in the MHS service area refer to MHS. Snowden offers a traditional school curriculum supplemented with social skills training, speech therapy, outdoors adventure with recreation and physical education, and summer school programming. Other services include individual and group counseling, anger management, coordination with outpatient and community support systems, substance abuse prevention, and medication administration and monitoring.

### **Kid's Station**

Kid's Station is MediCorp's childcare center. Located on the MWH Campus, it provides childcare to MediCorp Associates' children, the Physicians' children, and the general population.

### **CRNA LLC**

MediCorp's CRNA LLC, a subsidiary of Snowden Services Inc, is a Certified Registered Nurse Anesthetist (CRNA) practice group that operates within Mary Washington Hospital and FASC, providing anesthesia services to the operating rooms and endoscopy suites.

### **Mary Washington Hospital Foundation**

Mary Washington Hospital Foundation (MWHF) is the fundraising and grant-making arm of MediCorp Health System. MWHF was formed in 1983 and its purposes are to improve and enhance the quality, accessibility, and economy of community health care by supporting the Affiliated Group. MWHF is responsible for corporate fund raising and investment activities for the Affiliated Group and provides financial support to the Affiliated Group through grants, gifts, and contributions received from the community and assures that those gifts and contributions are properly used for the progress of health care. Annually, MediCorp appoints 24 members of the Foundation's Board of Directors, four of whom also serve as directors or officers of MediCorp. The assets of MWHF exceed \$50 million with annual grants to the community in excess of \$1.5 million.

**MediCorp Properties**

Properties currently owns a number of buildings and land located throughout the City of Fredericksburg and the surrounding counties. Building ownership includes the former MWH building, an ambulatory surgery center, a nursing home, a cancer treatment center, and other smaller buildings. Undeveloped land ownership includes 40 acres adjacent to MWH, 5 acres adjacent to the Carriage Hill Rehabilitation and Nursing Center, 70 acres in Stafford County (the site of the Stafford Hospital Center), and other parcels of land.

**Homecare America**

Homecare America is a durable medical equipment and health care supply store located on Route 3 in a shopping center and is a taxable entity and subsidiary of MediCorp Services Inc.

**Medical Arts Pharmacy**

Medical Arts Pharmacy is a retail pharmacy located on the MWH Campus in TMMP and is a taxable entity and subsidiary of MediCorp Services Inc.

**Imaging Center for Women**

The Imaging Center for Women (ICW) is a department of MWH and is located on the MWH campus in TMMP. ICW provides diagnostic, ultrasound, and other radiological services to women.

**Mary Washington Hospital Thrift Shoppe**

The Mary Washington Hospital Thrift Shoppe is located in a shopping mall adjacent to the MWH campus. The Thrift Shoppe is operated by the MWH Auxiliary, with all proceeds being given back to MediCorp Health System.

**Outreach Lab (2 sites):**

The MWH Outreach Labs act as draw stations for laboratory work. One site is located on the MWH campus and the other is in downtown Fredericksburg in a medical office building

**Rehabilitation Services of Fredericksburg**

Rehabilitation Services of Fredericksburg is a department of MWH providing outpatient occupational therapy, physician therapy, speech therapy, etc. They are located on the MWH Campus in the Ambulatory Services Building

**School of Radiologic Technology**

The School of Radiologic Technology is a certificate program run by MediCorp Health System that trains approximately ten students each year to become radiology technicians. The program is located on the MWH Campus.

### **Sleep Disorders Center**

The Sleep Disorders Center is a full service medical facility specializing in sleep disorders and disease. The Center is located in a medical office facility in downtown Fredericksburg.

### **Corporate Services**

The corporate services of MediCorp Health System are housed in the City of Fredericksburg in the building that previously housed Mary Washington Hospital. In a multi-million dollar renovation, the building, located at 2300 Fall Hill Avenue, was transformed from a hospital into Class A office space, housing most of the corporate services of the Health System (HR, Information Services, Regulatory Affairs, etc) and providing tenant space to local companies.

### **Physician Practices**

MediCorp currently operates many physician practices located in both the City and surrounding counties. The practices operating in the City include Virginia Cardiovascular Associates, Rappahannock Neurosurgery, MediDoctors LLC, and Psychiatric Associates (to be spun off at the end of 2006). The physicians and staffs of these practices are employees of the Health System.

### **ODC and Virginia Collections**

MediCorp owns and operates two collection companies, both housed in the 2300 Fall Hill building in the city. ODC Collections and Virginia Collections provide services to the Health System's A/R department.

### **Fredericksburg Professional Risk Exchange Management Company**

MediCorp has formed and operates a Vermont based risk retention group, Fredericksburg Professional Risk Exchange (Pro Rex). Pro Rex, while incorporated in the state of Vermont for legal reasons, is a subsidiary of the Health System and operates in the city of Fredericksburg. Pro Rex was formed to manage the Affiliated Group's general liability and medical malpractice liability risks.

### **Pinnacle Health**

Pinnacle Health is a taxable corporation in which MediCorp owns 50 percent. Pinnacle is a Physician-Hospital Organization, providing various services for 247 physicians, who make up the other 50% ownership. Pinnacle health operates in the City of Fredericksburg.

## **SPOTSYLVANIA**

### **Cancer Center of Virginia**

The Cancer Center of Virginia (CCV), a department of Mary Washington Hospital, operates in Spotsylvania County at MediCorp's Route 3 campus. CCV provides radiation and chemo therapy to cancer patients.

### **Carriage Hill Rehabilitation and Nursing Center**

Carriage Hill Rehabilitation and Nursing Center (CHRNC) is a 150 bed skilled and intermediate nursing care and sub-acute rehabilitation facility located in Spotsylvania County at MediCorp's Route 3 campus. Occupancy rates at CHRNC have remained above 98% since 2003.

### **Diabetes Management and the Coumadin Clinic**

Diabetes Management and the Coumadin Clinic are two MWH departments located in Spotsylvania County at MediCorp's Massaponax Campus. These departments provide outpatient services to their respective patient populations.

### **MWH Home Health and Hospice**

The office for MWH Home Health and Hospice (HH&H) is located in Spotsylvania County at MediCorp's Massaponax Campus. Though the offices for HH&H are located in Spotsylvania County, the nurses who work in this department are deployed throughout the service area, taking care of patients in their homes and nursing facilities.

### **MWH Outreach Labs**

The MWH Outreach Labs have a third site in MediCorp's Lee's Hill site and act as draw stations for laboratory work.

### **Medical Imaging of Lee's Hill**

Like MIF, Medical Imaging of Lee's Hill (MILH) is also a subsidiary of Snowden Services Inc, and is a medical imaging joint venture with Radiology Associates of Fredericksburg. MILH is located at MediCorp's Lee's Hill campus in Spotsylvania County. MILH provides many of the same services as MIF, and also has an open-sided MRI machine.

### **Rappahannock Wound Healing Center**

The Rappahannock Wound Healing Center is a recent addition to the MediCorp family. A department of Mary Washington Hospital, this service is located on the Lee's Hill campus and provides hyperbaric oxygen therapy and other state of the art wound care to the community.

### **Rehab Services of Lee's Hill**

Rehabilitation Services of Lee's Hill is a department of MWH that provides outpatient therapy including physical, occupational, and speech therapy. It is located in Spotsylvania County on MediCorp's Lee's Hill campus.

## **STAFFORD**

### **Stafford Hospital Center**

The Stafford Hospital Center, located in Stafford County, received COPN approval in August 2006 and is expected to be completed in January of 2009. It will have 100 beds,

including 84 medical/surgical, 10 obstetric, 6 ICU, 4 operating rooms, 1 MRI scanner, and 1 CT scanner.

**Rehab Services of North Stafford**

Rehabilitation Services of North Stafford is a department of MWH that provides outpatient therapy, including physical, occupational, and speech therapy. It is located in Stafford County<sup>7</sup> at the North Stafford Medical Mall.

**CAROLINE AND KING GEORGE**

MediCorp owns and operates various physician office practices throughout Caroline and King George Counties.

## Appendix II

### **Economic Multipliers**

The total impacts of the MediCorp Health System (MHS) in 2005 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 MHS 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., architectural and engineering services, building construction, hospital operations, retail sales, food services), the direct employment and payroll associated with the direct spending by MHS, 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 MHS 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, MHS spending 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.

Selected Economic Multipliers for Fredericksburg Region, By County

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Sector	Caroline	King George	Spotsylvania*	Stafford	Westmoreland
Retail	1.3522	1.2069	1.6998	1.4559	1.2362
Health	1.4261	1.2152	1.5599	1.3139	1.2173
Restaurant	1.3386	1.2113	1.5729	1.4357	1.3319
Construction	1.4855	1.2557	1.7294	1.5107	1.4075
Building Ops	1.4524	1.2009	1.6304	1.4186	1.3383
Management	1.2329	NA	1.7609	1.5425	NA

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

## **Appendix III**

### **Definitions**

**Direct Outlays**— all annual spending associated with the operations of MediCorp Health System.

**Economic Impact**—the generation of new spending (\$s) within a jurisdiction as a result of investing in and operating the MediCorp Health System.

**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 economy. Indirect effects are calculated using multipliers and include sales and purchases by businesses supplying goods and services in support of the activities of MediCorp Health System as well as the re-spending of payroll by employees of MediCorp Health System and the workers of its vendors.

**Multiplier** – a numerical factor that captures the total value of a direct outlay of or benefits produced by the outlays made by MediCorp Health System 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 MHS's direct outlay and the jobs its supports.

**Operating Costs** – Costs (expenditures) associated with the day-to-day operation of MediCorp Health System including management, utilities, normal maintenance and repair, custodial services, security, staffing, and purchases of medical and retail supplies and equipment.

**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.

