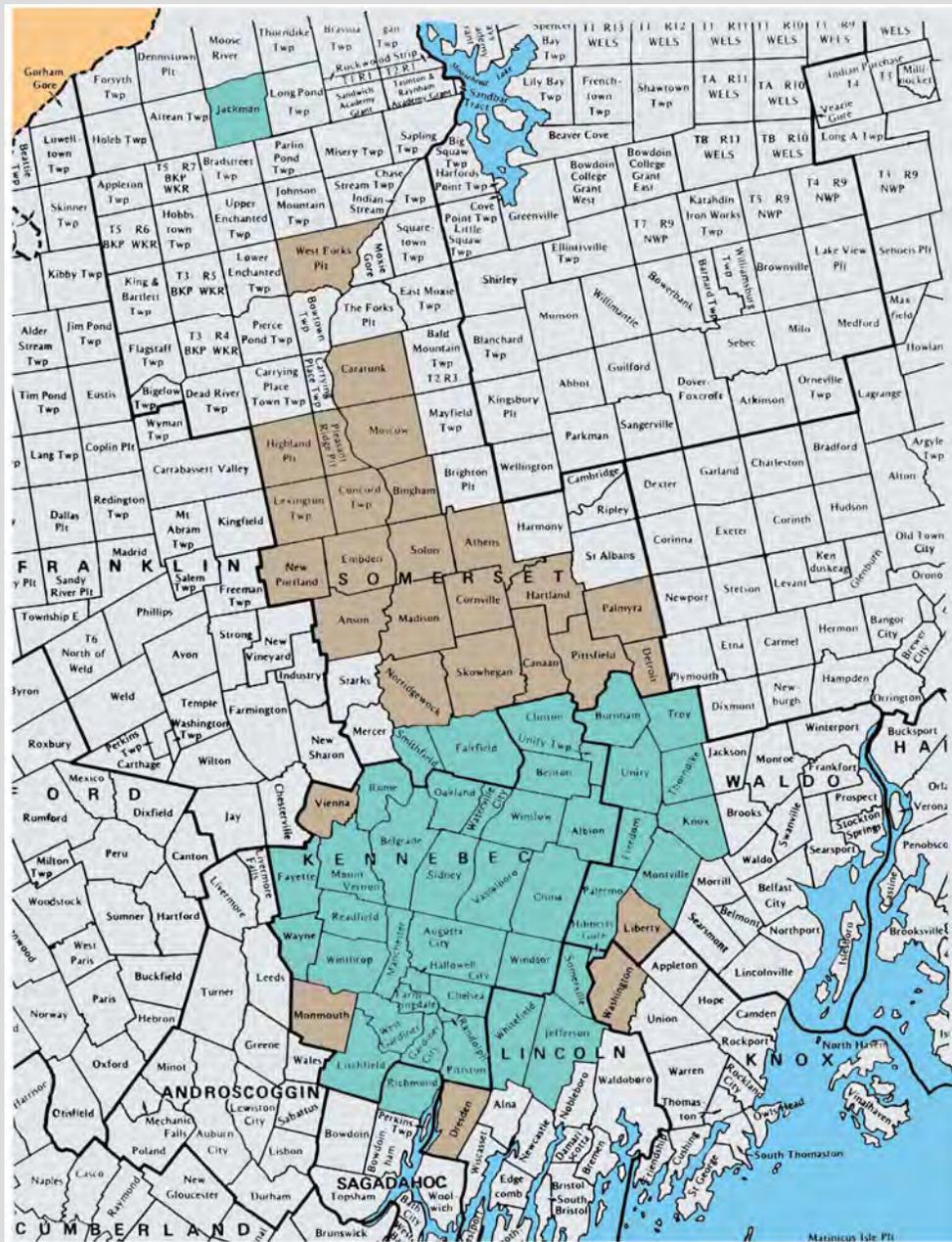


# MaineGeneral Health Contribution to the Economy in Central Maine: An Economic Multiplier Analysis



Prepared by

**MAINE DEVELOPMENT FOUNDATION**

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# **MaineGeneral's Contribution to the Local Economy**

## **\*Highlights of the Economic Multiplier Analysis\***

### **MaineGeneral Health is one of central Maine's Largest Businesses and Employers**

- Employs more than 3,500 people.
- Annual payroll exceeds \$136 million.
- Typical wages are higher than regional average pay.
- Spends more than \$29 million with businesses in central Maine.

### **MaineGeneral's Current Contribution to the Local Economy is Considerable**

- MGH direct spending and employee spending accounts for \$91 million in direct purchases in the local area.
- For every dollar spent by MGH or from its employees' wages, an additional \$0.52 is generated locally. Thus, the total multiplier effect of the spending is \$138 million.
- From the \$138 million economic contribution in the local area, \$34 million goes toward wages for non-hospital jobs.
- The additional spending supports 1,346 area jobs (non-MGH jobs). For every 3 MGH jobs, 1 additional job is supported in the region.

### **Impact of Proposed Consolidation of Inpatient Services to a Single Location**

- Seeks to **retain some of the \$64 million in direct health-care spending** and its associated economic benefit that is currently lost every year when patients leave the region to receive health care in other parts of the state.
- Staffing levels are projected to have 60 fewer positions over today's levels, achieved mostly through attrition and reassignment.
- Efficiencies of consolidation will translate to \$2.6 million in operational savings including direct purchases and employee wages.
- Proposed consolidation is designed to provide a model of care that will attract and retain physicians in the face of a national shortage.

### **Impact of a \$322 Million Construction Project**

- Immediately add \$266 million in direct and indirect spending to the local region.
- Support 352 construction-related jobs.

## **Purpose of the Report**

MaineGeneral Health contracted with study partners Maine Development Foundation and Michael Donihue, Professor of Economics at Colby College to conduct an economic assessment of a proposed reconfiguration of the health-care-delivery system in central Maine.

The purpose of the study was to understand the overall economic contribution of MaineGeneral to the regional economy and then estimate the potential economic impact of a proposed reconfiguration and consolidation of a specific set of services to a new location in Augusta. Three primary data collection efforts informed the assessment: MaineGeneral's spending data by origin and location of vendor, a web-based employee household expenditure survey and an analysis of employee commuting patterns. The analysis explains the impact of the proposal in the context of anticipated changes in the level of employee spending and of health-system spending including operating-cost savings as well as capital investments in a new facility.

As with any study, it is important to understand what questions this analysis cannot answer. The study is not a specific forecast of regional health-care-service demand, patient utilization or of employee behavior change associated with employment relocation. It does not predict the economic outlook for the cities of Augusta or Waterville, the current hosts for most of the services that will be relocated as well as the two service centers for much of the region.

MaineGeneral is a regional service provider serving people and employing workers from over 80 municipalities, thus the region of interest for the economic contribution study is the larger central Maine region. Further, the US Bureau of Economic Analysis does not publish economic multipliers for each municipality in the state and therefore it would neither be appropriate to pull out individual municipalities from the 80 of interest nor is it feasible to estimate complex economic relationships at that micro-level.

Finally, the study does not predict changes in employee purchasing patterns or selection of residence. Rather it focuses on the impact of the changes in levels of spending by the hospital and employees based on today's patterns.

The following Executive Summary provides highlights of findings from the study, including brief discussions of data sources and methods. The complete report follows.

## **Executive Summary**

Central Maine is currently served by two medical centers: MaineGeneral Medical Center and Inland Hospital. MaineGeneral, a 287-bed medical center, is comprised of four primary campuses including the Seton and Thayer campuses in Waterville and the MaineGeneral Medical Center and the Harold Alfond Center for Cancer Care in Augusta. MaineGeneral has revenues of over \$320 million and payroll of more than \$138 million for over 3,500 employees. It serves people from over 80 municipalities and has more than 60 office locations in 9 towns. Inland Hospital, a 48-bed hospital, is located on a single campus in Waterville and serves the surrounding area. These hospitals, like most in poorer, rural areas, not only provide important medical services, but serve as major employers in the area and are important contributors to the local economy.

### **MaineGeneral's Challenges**

MaineGeneral Medical Center is facing several challenges that impact its ability to deliver health-care services to patients. Advances in medical and information technology have significantly changed the management and delivery of health-care services since the medical center buildings were constructed in the 1960s. While the medical center has grown and adopted new technologies and service practices, it remains constrained by the inefficiencies inherent in the disparate locations of its buildings. This has led to a loss of patients and physicians and jeopardizes the medical center's future ability to provide specialty services.

#### *Area Patients Seeking Health-Care Services Outside the MaineGeneral Service Region*

Every year a growing number of central Maine's patient visits are served by medical facilities in other regions with more modern facilities. Patients are traveling out of the area to find health services in more modern facilities that meet their needs. In 2007, the number of non-tertiary care patient visits that left the MaineGeneral service region was equal to 30% of MaineGeneral's total share of patient visits for the year. This represented over \$64 million in community hospital care charges that left the region.

#### *Physicians Looking for Larger Groups and Newer Facilities*

In addition to the lost market share for patient visits, the medical center struggles to compete for physicians in a highly competitive regional and national medical practitioner market. Not only is there an acute national shortage of physicians, but physicians' interests in the structure of their practices has changed significantly since the facilities were built. The highly sought-after physicians are looking to practice where they can reduce their hours on-call by sharing duties

among a larger group of colleagues, work in modern facilities with the latest technology, and have confidence in the future sustainability of the organization.

MaineGeneral has experienced these trends in recent years as more physicians have left the organization than have joined, creating a constant need to recruit new physicians from the shrinking national pool. Currently, the medical center has a 20% physician vacancy rate with projections estimating a shortfall as high as 38% if circumstances do not change. Moreover, the medical center, like most employers in Maine, has an aging workforce. Some specialty practices are served by a single provider over the age of 65. These practitioners will be looking to reduce hours or retire in the coming years.

MaineGeneral requires a critical mass of patients and staff to maintain current services at current access levels. The challenges have raised considerable uncertainty about the future of medical services in central Maine. It is clear to MaineGeneral management that significant changes must be made to adapt to these circumstances, improve services to its patients, and stabilize its financial situation and place as a health-care provider and important economic contributor to the region.

### **MaineGeneral's Proposed Solution**

In order to provide the type of services in the way that both patient and physicians demand, MaineGeneral is proposing to consolidate its inpatient facilities into a single new building on the same campus as the Harold Alfond Center for Cancer Care in north Augusta. Some administrative functions would also be moved into a new building on the same campus. Both the existing hospital in Augusta and the Seton Unit in Waterville would be closed. The Thayer Unit in Waterville would remain open to service its significant outpatient population, but all inpatient services would be moved to the new Augusta facility. These changes would mean contemporary inpatient facilities for patients and staff. The project will result in new, updated facilities and improved service delivery, but will also mean change for the region as employees and services are relocated.

### **Assessing the Impact of the Proposed Changes**

This study was commissioned to assess MaineGeneral's current contribution to the regional economy and the impact of any changes that would result from the proposed consolidation and reconfiguration of services. The analysis contains a demographic and socioeconomic analysis of the region and an in-depth economic multiplier analysis comparing the contributions of the current configuration and estimating the impact of the proposed changes. As part of the economic contribution analysis, the analyses explored hospital spending patterns as well as employee spending and commute patterns. In estimating the economic impact of the anticipated

changes in the levels of spending, both the large investment in construction of the new facility and the operating efficiencies to be realized from the restructuring were considered.

While the study provides a great deal of insight on the proposed changes to the regional medical center, there are many questions it does not answer. Specifically, the study focuses on the impact on the large region served by the medical center and thus does not predict the economic outlook for any specific city including the cities of Augusta or Waterville, the current hosts for most of the services that will be relocated as well as the two service centers for much of the region. In addition, it does not forecast changes in employee purchasing patterns or location of residence nor does it quantify the secondary benefits that may result from the presence of a modernized medical center in central Maine.

This executive summary provides the highlights of the findings. The complete discussion is detailed in the full report.

## **Demographic and Socioeconomic Analysis**

Regional socioeconomic and demographic trends support the need, from both an employment and health-care delivery perspective, for a strong and vibrant health-care system in central Maine. The following are some data and trend highlights that illustrate these points. For purposes of this demographic analysis and the economic-contribution study, the characteristics of Kennebec County and its residents were used to represent the larger labor market and primary-service area for MaineGeneral which serves 88 municipalities across several counties.

### *Regional Incomes and Educational Attainment Levels are lower than the State Averages*

In 2006, Kennebec County had a slightly lower economic standing than the state on average. The county's median income at \$36,498 was lower than the state's median income of \$37,240. County educational-attainment levels were slightly lower at 47% with some education beyond high school as compared to 48% for the state. The county's poverty rate of 11.1% was slightly higher than the 10.9% rate for the state. Research has shown that these lower levels of income and education put the region at a disadvantage for economic growth as well as put its population at risk for health problems.<sup>1</sup>

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<sup>1</sup> Maine State Health Plan 2008-09, Issued by The Governor's Office of Health Policy and Finance with the Advisory Council on Health Systems Development April 2008. Found at <http://www.maine.gov/dhhs/boh/phdata/Additional%20Reports%20Pdf%20Doc/2008-2009%20State%20Health%20Plan.pdf>.

### *County and State Populations Aging*

The county's population, like the state's, is aging with the current median age in the early 40s. The advancing age of the population brings challenges. As people age out of the workforce there are considerable challenges in finding enough trained replacements. The aging population also brings with it an increase in the prevalence of chronic disease and ailments associated with older age. Both these conditions pose potential strains to the health-care workforce and at the same time mean an increase in the need for health-care services.

### *Health Services Sector is a Leader in Employment and Economic Activity in Kennebec County*

MaineGeneral is a part of the health and social-services economic sector. This sector is the largest source of private sector employment in Kennebec County. In 2007, 17% of all workers in Kennebec County were employed in the health and social-services sector. This was similar to the statewide employment share of 16%.<sup>2</sup>

The health and social-services sector also paid the largest annual private payroll in Kennebec County in 2007. The average annual payroll payment per worker in the health and social-assistance sector was 4% higher than the overall county average for all sectors.

As the largest medical facility in the region, MaineGeneral plays an important role in providing more than 3,500 jobs in the local region, many with higher than average wages.

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<sup>2</sup> Excluding self-employed establishments.

## **Economic Multiplier Analysis – Current Configuration**

To estimate the share of economic activity attributable to MaineGeneral, an economic multiplier measurement approach was developed based on health-system spending data and generally accepted statistical methods. The objective of the analysis was to measure MaineGeneral’s current contribution to the regional economy and to measure how this would change under the proposed consolidation and reconfiguration plan.

The study approach was to identify the direct spending by the medical center on purchases, wages and contracts and then to build on that information by identifying the employees’ expenditures. Once the hospital and employee spending patterns were defined, region-specific economic multipliers, developed by the US Bureau of Economic Analysis (BEA), were applied to the expenditures to estimate the full effect of the spending on employment and earnings in the region.

### *MaineGeneral Direct Expenditures – Current Configuration*

The first step in the analysis was to identify MaineGeneral’s annual spending. To accomplish this, MaineGeneral provided wage and salary records as well as records of spending by vendor location for 2008.

Total wages and salaries were just under \$137 million in 2008. Thayer and Seton employees were paid \$46 million and \$34 million was paid to employees in Augusta. The remainder went to employees at other locations within the system.

Non-wage purchases were \$152 million in 2008. Nineteen percent, or \$29 million, of non-wage direct purchases occurred in Kennebec County. Forty percent of those regional purchases occurred in Augusta.<sup>3</sup> The details are shown in Table EX-1.

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<sup>3</sup> Not including state tax and license fees.

**Table EX-1 Direct Spending by MaineGeneral Health 2007 - 2008**

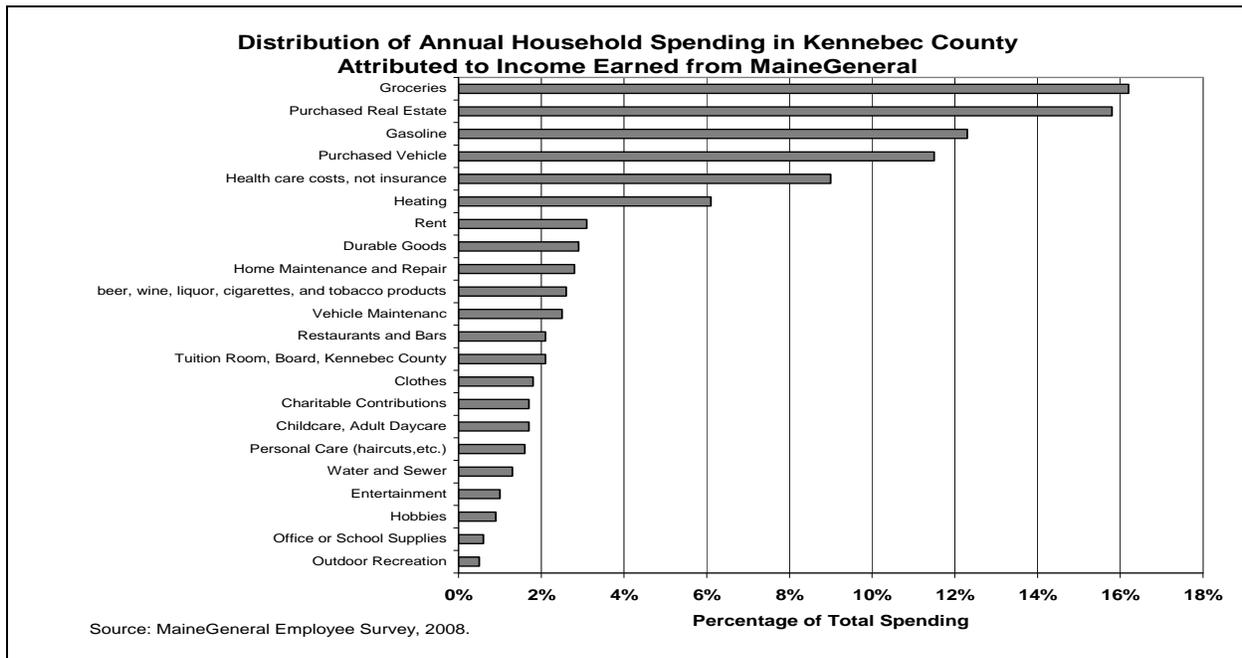
|                                 | <b>Facility/Municipal Subtotal</b> | <b>Total</b>         |
|---------------------------------|------------------------------------|----------------------|
| <b>Wages and Salaries</b>       |                                    |                      |
| Thayer Campus                   | \$33,121,615                       |                      |
| Seton Campus                    | \$13,870,561                       |                      |
| Augusta Campuses                | \$34,278,624                       |                      |
| Other Northern Locations        | \$12,318,741                       |                      |
| Other Southern Locations        | \$43,316,422                       |                      |
| <b>Total Wages and Salaries</b> |                                    | <b>\$136,905,963</b> |
|                                 |                                    |                      |
| <b>Purchases (Non-wage)</b>     |                                    |                      |
| Augusta                         | \$12,432,136                       |                      |
| Waterville                      | \$3,476,373                        |                      |
| Other KV locations              | \$13,367,507                       |                      |
| Outside Region                  | \$122,836,042                      |                      |
| <b>Total Purchases</b>          |                                    | <b>\$152,112,058</b> |

*Employee Expenditures – Current Configuration*

Employees can use their wages to purchase goods and services, to save, or to invest. Because this can happen anywhere, for the purposes of this study, it is important to isolate the portion of employee spending that is attributable to Kennebec County. To do this, a web-based survey of employee spending habits was conducted. The 25-question survey was administered in June 2008 to more than 3,500 MaineGeneral Health employees and resulted in a 41% response rate. The respondents provided detailed information on their spending as well as some important demographic information.

The findings from the survey were weighted by the employee population for each salary range to reflect total spending by employees made in Kennebec County. Total employee in-county spending is estimated to be approximately \$62 million for 2007-2008. Figure EX-1 shows the distribution of total in-region spending for employees.

**Figure EX-1 Distribution of In-Region Household Spending from MaineGeneral Salaries**



*Total MaineGeneral and Employee Contribution – Current Configuration*

Using the estimates of spending by MaineGeneral employees and the regional direct expenditures reported by the hospital, the economic multipliers were applied to determine the total contribution of MaineGeneral spending to the Kennebec County economy. The analysis determined the output effects (direct and indirect effects), the earnings effects, which are a subset of the output effects, and the effect on employment. The findings appear in Table EX-2.

**Table EX-2 Total Contribution of MaineGeneral Annual Spending on the Kennebec County Economy**

|                       | <b>Direct Spending</b> | <b>Output Effect</b> | <b>Earnings Effect*</b> | <b>Employment Effect (Jobs)**</b> |
|-----------------------|------------------------|----------------------|-------------------------|-----------------------------------|
| Hospital Spending     | \$29,276,016           | \$45,479,193         | \$12,004,138            | 398                               |
| Employee Spending     | \$61,999,029           | \$93,275,219         | \$22,359,465            | 948                               |
| <b>Total Spending</b> | <b>\$91,275,045</b>    | <b>\$138,754,412</b> | <b>\$34,363,603</b>     | <b>1,346</b>                      |

\*Earnings effect is the portion of the output effect paid in wages in the region; employment effect is the number of non-MaineGeneral jobs supported by the earnings.

\*\*Jobs created as a result of MGH spending. Does not include MGH jobs.

In 2007, MaineGeneral spending in Kennebec County accounted for \$91 million in direct spending which led to over \$138 million in output of which \$34 million was in additional earnings. This total activity supported 1,346 jobs in the local economy – or approximately one

job is supported for every three MaineGeneral employees. For every \$1 MaineGeneral spends in Kennebec County, \$0.52 in additional spending is generated. This is a multiplier effect of 1.52.

### **Economic Multiplier Analysis – Proposed Reconfiguration**

The proposed consolidation and new facility construction will have visible and lasting effects on the local region. Firstly, the region will have a new medical center that will address the issues of patient and staff attrition and provide modern facilities to an economically challenged region with an aging population. Secondly, the consolidation will realize some operating efficiencies and lead to employee and service relocations as well as a reduction in the number of employees. Finally, the relocation of Augusta and Seton employees to new locations will free-up those buildings for commercial redevelopment and potentially add them to the local property tax rolls. The analysis did not include any forecasting of patient or staff retention or building redeployment and so does not monetize the benefits of these anticipated positive outcomes.

#### *Change in Total MaineGeneral and Employee Contribution – Proposed Reconfiguration*

To estimate the net impact of the proposed project on the local economy, the methods employed in the basic economic contribution analysis were used and applied to the proposed project spending as well as the projected savings due to consolidation. In the proposal, MaineGeneral estimates savings from two cost areas: staff and operations. They are projecting that 62 staff positions will be eliminated and that operating costs will be reduced by \$1.3 million each year.

Using these cost savings data and the employee spending calculations derived for the baseline analysis we estimate the employee spending loss from MaineGeneral’s economic contribution to Kennebec County will be \$1.3 million. Table EX-3 shows the multiplier effects of these reductions. Approximately \$2.6 million in operating costs and employee spending will no longer be attributed to MaineGeneral which, like the overall spending relationships, will lead to a total \$3.9 million reduction in Kennebec County. This reduction represents 2% of the current hospital economic contribution.

**Table EX-3      Impact of Consolidation Efficiencies and Cost Reductions on the Region**

|   | <b>Direct Spending</b> | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect (Jobs)</b> |
|---|------------------------|----------------------|------------------------|---------------------------------|
| Annual Employee Spending Reduction <sup>4</sup> | (\$1,307,258)          | (\$1,939,309)        | (\$442,235)            | -18.9                           |
| Annual Operations Savings <sup>5</sup>          | (\$1,318,857)          | (\$1,980,923)        | (\$989,273)            | -19.5                           |
| <b>Total Spending Reductions</b>                | <b>(\$2,626,115)</b>   | <b>(\$3,920,232)</b> | <b>(\$1,431,508)</b>   | <b>-38.4</b>                    |

<sup>4</sup> Uses spending from the \$35,000 to \$50,000 income range cohort.

<sup>5</sup> Assumes 50% of operating costs are spent within Kennebec County region and spending is in the Facilities and Support Services NAICS 531200.

However, this analysis does not include the anticipated economic benefit from the proposal of retaining and even expanding key health-care practitioners and specialty services in the region. In other words, while the proposal may lead to a slight reduction in economic activity over today’s levels, the alternative of doing nothing may have a more severe negative impact.

*Construction Effect – Proposed Configuration*

The final economic impact of the proposal is the investment in construction of the new facility. MaineGeneral projects that the new facility will incur a one-time cost of \$322 million. To estimate the economic impact of the project, the state-level multipliers for construction services were applied, since county level multipliers are not available from the BEA.

Table EX-4 contains the statewide impact of the project. The analysis shows that, \$128 million or 40% of the \$322 million total will occur in Maine. This investment will lead to \$266 million in increased output, of which \$87.9 million will be in earnings. This induced spending will support an additional 352 non-hospital jobs.

**Table EX-4      Impact of MaineGeneral Proposed Construction Expenditures on the State Economy**

|  | <b>Direct Spending</b> | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect (Jobs)</b> |
|--|------------------------|----------------------|------------------------|---------------------------------|
| <b>Construction Spending<sup>6</sup></b> | \$128,800,000          | \$266,126,560        | \$87,996,160           | 352.71                          |

**Commuting Costs**

The final piece of the analysis was to estimate the potential change in commuting costs for employees relocated to the new facility in Augusta as well as those relocated from Augusta to Thayer. This posed a challenge since it is not known which employees are moving to which locations. So, an *average change* in commute patterns was calculated across all employees at Thayer, Seton and Augusta. While MaineGeneral is not anticipating reassigning every single employee to Augusta, using all employees as our basis for constructing an average provided a robust representation of all the possible combinations of residence and commute patterns. It is important to note that the ultimate change in commute costs will depend on the residence and relocation site for the individual employee. Many will be relocated closer to their homes. Table EX-5 details the average changes computed for employees at each current hospital site.

Current daily commute distances run from 11 miles to 14 miles one-way on average. If every employee were moved to the new facility, average commutes would increase from 1 to 10 miles one-way. Not surprisingly, the change for the Waterville-based employees is greater than the change for the Augusta-based employees. These commute distances are higher than state data

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<sup>6</sup> One-time cost.

that show, on average, workers travel 9 miles one-way to work in Maine. However, workers in all states travel longer distances for these types of professional, higher paying jobs.

Because the commuting statistics are generally in line with state averages and many of the jobs are higher paying, professional occupations, a great number of employees relocating residence as a result of a change in commute is not predicted. Job location and commute distance is only one of many factors that are considered by people in selecting their place of residence. Other factors include quality of life, availability of services, quality of schools, location of family members, to name a few.

**Table EX-5 Average Annual Commute Costs: Current Compared to Moving to North Augusta Campus**

| <b>Employment Location</b> | <b>Current Average Daily Commute Miles (One way)</b> | <b>Current Annual Commuting Costs</b> | <b>New Average Daily Commute Miles (One way)</b> | <b>New Annual Commuting Costs</b> | <b>Average Difference</b> |
|----------------------------|--|---------------------------------------|--|-----------------------------------|---------------------------|
| Augusta Campus             | 14 miles   | \$3,336                               | 15 miles   | \$3,695                           | \$359                     |
| Seton Campus               | 11 miles   | \$2,746                               | 18 miles   | \$4,828                           | \$2,082                   |
| Thayer Campus              | 11 miles   | \$2,589                               | 21 miles   | \$5,152                           | \$2,563                   |

### **Impact of Maintaining Status Quo at MaineGeneral**

MaineGeneral is a considerable economic presence in the region. The medical center currently has revenues of \$320 million and is estimated to contribute over \$138 million in economic activity in Kennebec County. Yet, its ability to continue to provide the current level of services is in question as it faces significant patient and physician out migration. Taken as a whole, the reconfigured medical center facilities will provide more economic and service delivery benefit to the region than if the organization did nothing to address its current challenges and continued to suffer losses.

With the proposed reconfiguration and consolidation, there will be a small reduction in the number of staff as well as a relocation of employees and services compared to today’s operations. In the near term, these changes may lead to a very small negative impact on the local economy (2%) and may increase commute costs for some employees and reduce costs for others. At the same time, this slight reduction in local activity will be more than offset by the large positive impact of the \$322 million construction project. Moreover, the project is anticipated to stem the additional loss of physicians and specialty services in the area.

In the past, concerns have been raised about the impact of changes to the medical center campuses on its current host cities of Augusta and Waterville. While there will be some obvious physical changes to the immediate areas surrounding the existing buildings if they are closed, the economic impact on the specific cities cannot be predicted. MaineGeneral operates as a regional

medical facility serving people from more than 80 municipalities. It has multiple office locations in three counties and its employees come from many communities. Taken as a whole, the medical center provides value as an economic contributor to the wider region and is an important health-service provider to many.

To put the impact analysis in proper context, it is important to weigh the effects of the proposed reconfiguration to the effects of doing nothing or maintaining the “status quo”. This study explored those differences by analyzing three factors:

- Physical facilities and infrastructure
- Patient/Procedure market share
- Physician retention and attraction

*Dated, spread-out facilities are expensive and are a deterrent to patients and physicians*

The facilities are inefficient. The hospital buildings built in the 1950s and 1960s do not accommodate today’s health-service delivery needs. The buildings are in need of upgrades and have a number of functional and infrastructure issues that require attention. Some cannot be addressed due to physical constraints; others are confounded by the multi-location setting of the three buildings. In the current configuration, MaineGeneral would have to make changes to each of the three buildings and yet, after the investment, still be working with a less than optimum setup in the more than 40-year old facilities. Maintaining the current status quo would continue to have a negative impact on patient and physician attraction as both groups consider newer modern options offered by competitors out of the region.

*MaineGeneral losing market share in its service region to competitors*

The service region is currently experiencing an outmigration of patient visits equivalent to 30% of MaineGeneral’s current discharges or \$64 million in total hospital charges. Patients are seeking services that meet their needs and so are leaving the region to go to other health-care facilities. Patient feedback suggests that this will continue and even expand if the facilities are not modernized. Presently, the medical center has the capacity to serve most of these lost patient visits.

In contrast, competitors from the mid-coast and points south as well as in eastern Maine captured market share for all services in MaineGeneral’s primary and secondary service areas. Table EX-6 shows market shares of in-region hospitals over time and table EX-7 shows market share of competitors during the same time.

**Table EX-6 Market Share for Total Services in MaineGeneral Primary and Secondary Service Regions by Hospital 1997-2007**

| Hospitals           | MGMC               | Inland     | Reddington-Fairview | Sebasticook | Total Local Region |
|---------------------|--------------------|------------|---------------------|-------------|--------------------|
| Primary Location(s) | Augusta/Waterville | Waterville | Skowhegan           | Pittsfield  |                    |
| Market Share 1997   | 56.2%              | 7.4%       | 10.2%               | 3.3%        | 77.1%              |
| Market Share 2007   | 54.1%              | 6.8%       | 7.6%                | 2.3%        | 70.8%              |

**Table EX-7 Market Share for Total Services in MaineGeneral Primary and Secondary Service Regions by Hospital 1997-2007**

| Hospitals           | St. Mary's Regional Medical Center | Mid-Coast Hospital | Maine Medical Center | Central Maine Medical Center | Eastern Maine Medical Center | Total Outside Region |
|---------------------|------------------------------------|--------------------|----------------------|------------------------------|------------------------------|----------------------|
| Primary Location(s) | Lewiston                           | Brunswick          | Portland             | Lewiston                     | Bangor                       |                      |
| Market Share 1997   | 1.9%                               | 0.7%               | 7.6%                 | 2.7%                         | 3.6%                         | 16.5%                |
| Market Share 2007   | 2.3%                               | 1.6%               | 9.4%                 | 3.3%                         | 5.4%                         | 22.0%                |

*MaineGeneral has a physician shortage and faces daunting retention/attraction challenges*

MaineGeneral faces a physician shortage. For all specialties, the shortage ranges from 4% to 38% as estimated by four independent studies of physician adequacy. The current MaineGeneral configuration is not conducive to attracting physicians looking to work in situations with more practitioners in their chosen medical practice. These larger medical practice pools mean fewer shifts, fewer hours on call, and more support; all attributes prized by today’s physicians.

The existing medical center workforce is also aging. Mean age across all disciplines is 50. These physicians/specialists will be retiring in the foreseeable future or at the very least, taking fewer responsibilities and hours as they approach the end of their careers. The challenge currently is that there are not enough trained candidates to fill those positions as they open.

Physician retention and attraction is critical to the future of MaineGeneral. Without adequate staffing levels MaineGeneral may be faced with the decision to stop certain service offerings which will lead to a further decline in market share as patients go outside the system.

Overall, a dated and spread-out physical plant is expensive and has negative effects on the ability to attract and retain both patients and physicians. Without some substantive change to the delivery model, it is not likely at this point in time that these downward trends will right themselves. This would mean a loss in access to some health-care services, but also a loss to the local economy.

## **Conclusions – MaineGeneral Present and Future**

Estimates indicate that MaineGeneral is not only the largest health-care provider in central Maine, but also one of the area’s largest employers with an average payroll exceeding \$136 million for more than 3,500 employees.

As a large business and employer, the organization contributes \$91 million directly to the local economy through purchases and employee spending in Kennebec County. This contribution then spurs \$138 million in total output and earnings which support an additional 1,346 jobs. Simply put, for each \$1 spent in the local region, it generates \$0.52 in additional spending stimulated by the initial expense. This is a multiplier effect of 1.52. For every three MaineGeneral employees, one additional job is supported in the region.

The medical center’s proposal to consolidate inpatient service from three locations to a single site in Augusta is likely to have significant economic benefits that far outweigh any short-term loss to the local economy.

- The new medical center will help to maintain the critical mass of patients and physicians needed for a viable health-care provider in a poorer region.
- Reconfigured facilities with a more robust supply of physicians and contemporary amenities will draw in area patients who are currently purchasing medical services outside of the MaineGeneral Health primary-service area.
- Consolidation of inpatient services, larger specialty practices, and modernization of the facilities will be a key tool for physician retention and attraction in an increasingly competitive labor market.
- From a larger economic development perspective, the presence of a new, modern, state-of-the-art medical center serves as a major attraction for people of all ages, business, and a wide array of investments in the region.
- In the short-term, the project will bring more than \$266 million in direct and indirect spending to the state through the large construction project and may add two large commercial properties to local tax rolls.
- The potential negative effects of the project include a short-term reduction to the local area economic activity by \$3.9 million (-2%) through a possible reduction in the number of employees as well as through efficiencies gained through consolidation and associated multiplier effects.
- The project may also increase employee commutes by anywhere from 1 to 10 miles per day, on average, but the increased commute is no greater than typical commutes to high quality jobs for workers in Maine.
- Making no change to the facilities or maintaining the “status quo” will likely lead to a continued loss of patients, practitioners and health-care services at MaineGeneral.



## **1. Introduction**

Currently, central Maine is served by two medical centers: MaineGeneral Medical Center and Inland Hospital. MaineGeneral, a 287-bed medical center, is comprised of four primary campuses including the Seton and Thayer campuses in Waterville and the MaineGeneral Medical Center and the Harold Alfond Center for Cancer Care in Augusta. Inland Hospital, a 48-bed hospital, is located on a single campus in Waterville and serves the neighboring towns. These hospitals, like most in poorer, rural areas, not only provide important medical services, but serve as major employers in the area and are important contributors to the local economy.

Despite its importance in meeting the health care needs of the population and its contributions to the local economy, MaineGeneral faces considerable economic challenges now and in the future. Inefficient facilities, medical technology advancements, physician specialization, and an aging population are challenges to the medical center's current operations and require changes in how services are provided. In recent years, these pressures have resulted in the loss of key physicians as well as the out migration of patients from MaineGeneral's primary service area to other places outside the area with newer facilities.

To address these challenges, the MaineGeneral Health System Board of Directors has approved a plan to consolidate inpatient operations into a single campus in Augusta. The plan for the new campus modernizes facilities to meet patient needs, allows for more flexibility in the use of inpatient rooms, creates a better work environment for practitioners, and increases efficiencies through consolidation of services to a single site. The following report is an assessment of the overall contribution of MaineGeneral Medical Center to the local economy as well as an estimate of the impact of a proposed reconfiguration of services. The analysis of the proposal includes an estimate of the changes in health-system costs as well as a change in commuting costs for employees.

### **Central Maine's Hospital Systems**

MaineGeneral Medical Center, central Maine's largest medical center and the anchor of the MaineGeneral Health System, provides emergency and critical care, inpatient and outpatient surgery, diagnostic services, substance abuse and mental health services, cancer care, maternity services and newborn and child-health programs to patients in central Maine. MaineGeneral's primary service area includes Kennebec, Somerset and parts of Lincoln counties, covering 88 cities and towns. The medical center is located across four campuses: Seton and Thayer in Waterville and MaineGeneral Medical Center and Alfond Cancer Center in Augusta.

The 126-bed MaineGeneral Medical Center in Augusta and the 110-bed Thayer campus in Waterville provide 24-hour emergency care, medical surgical care, maternal and child health, and inpatient and outpatient-diagnostic services. Thayer also supports an on-site helicopter pad. The 52-bed Seton campus in Waterville administers inpatient and outpatient treatment and rehabilitation services for patients with mental health and substance-abuse needs. Each of these facilities was built in the 1960s and has provided health services for more than 44 years. The newest campus, the Harold Alfond Center for Cancer Care in Augusta, was opened in 2007 with a full range of outpatient cancer diagnostic and treatment services.

| <b>Central Maine Hospitals</b> | <b>Beds</b> | <b>Year Built</b> |
|--------------------------------|-------------|-------------------|
| <b>Maine General</b>           | <b>287</b>  |                   |
| Augusta Campuses               | 126         | 1964              |
| Thayer Campus                  | 110         | 1960              |
| Seton Campus                   | 52          | 1965              |
| <b>Inland Hospital</b>         | <b>48</b>   |                   |
| <b>Regional Total</b>          | <b>335</b>  |                   |

In addition to the medical center services, MaineGeneral Health, Maine’s third largest health-care system, offers comprehensive health support and medical services including: physician practices, nursing homes, rehabilitation services, home health and hospice services, special care for patients with memory loss, community-outreach programs and retirement living options.

“In 2007, MaineGeneral Medical Center employed 2,738 people and had revenues of more than \$320 million.”

In 2007, the MaineGeneral Medical Center employed 2,738 people and had revenues exceeding \$320 million.<sup>7</sup> Including all affiliates, the MaineGeneral Health System employed more than 3,500 people both full and part time and its collective revenues were more than \$420 million.

Central Maine is also served by Inland Hospital, a 48-bed hospital located in Waterville. Inland’s services include acute care, ambulatory surgery; a birthing center, radiology, rehabilitation, home care, 24-hour emergency care with on-site LifeFlight helicopter pad, sleep center, specialized clinics, and laboratory services. In 2006, Inland Hospital employed 400 people and earned approximately \$34 million in revenues.<sup>8</sup>

<sup>7</sup> IRS Form 990 filings for MaineGeneral Health and MaineGeneral Health and Affiliates for fiscal year 2007.

<sup>8</sup> IRS Form 990 filing for Inland Hospital 2006.

## **2. MaineGeneral's Challenges**

MaineGeneral Medical Center, like other health-care centers in Maine, is facing some significant challenges in meeting patient needs, recruiting and retaining medical staff, and accommodating changes in medical technology. MaineGeneral's challenges are made more difficult being spread across three 40-year old buildings in two municipalities. While the buildings were designed to support health-care services and health-care needs in the 1960s, today's providers and patients have different needs and expectations. Moreover, medical and information technology have different requirements. These physical and technological challenges have resulted in lost patient market share and difficulty in recruiting and retaining physicians.

### **Patient Market Share and Health Care Spending is Leaving the Area**

Since the time the hospital buildings were constructed in the 1960s, inpatient services have become more competitive and more specialized, with patients preferring private rooms, private bathrooms, more selection from food service and access to state-of-the-art diagnostic and treatment procedures. MaineGeneral is constrained in meeting these needs. Currently, only 60% of the patient rooms are private in the Augusta and Thayer hospitals, fewer than 20% have showers and even fewer than 7% have ADA-compliant bathrooms.

Looking at the MaineGeneral primary service area for 2007, almost 4,000 inpatient visits for services currently provided by MaineGeneral Medical Center were provided by out-of-area hospitals.<sup>9</sup> This represents approximately 30% of the medical center's current inpatient volume. This is a trend that has increased over the last 10 years. This loss of patient visits for services otherwise available at MaineGeneral, translates to \$64 million in health-care spending that left the central Maine area in the last year alone. Most importantly, the medical center has the capacity to accommodate at least one-third of this lost market.

### **Physician Recruitment and Retention is a Constant Challenge**

At the same time, patient expectations have changed, physicians, too, have changed their views of attractive work environments. They are now looking for quality working situations where they can share their work loads with other physicians resulting in fewer and shorter rotations.

Physician recruitment and retention have become and are projected to be more challenging in the future. Like other hospitals in the state, MaineGeneral is competing for a limited pool of trained physicians while facing projections for an increased need for services. In the past few years,

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<sup>9</sup> This excludes Inland Hospital's patient visits.

MaineGeneral has had more physicians and specialists leave the medical center than join. This outmigration of physicians combined with an increased demand for specialized services, has left a 20% vacancy rate in clinical specialty care positions. Moreover, several studies show that, based on current conditions, in the future the central Maine area will be underserved by specialty physicians, with estimates ranging from a 4% to 38% shortage with several specialties severely understaffed.<sup>10</sup>

In addition to physician recruitment to meet growing health-care needs, the medical center is also challenged with an aging workforce and needs to take steps to retain existing staff and to recruit new staff. The average age of today's medical and ambulatory care staff at MaineGeneral is 50 years old, with about 30 physicians or 14% over 60 years of age and close to retirement age.

### **Current Medical Practice Supports the Need for Co-location of Services**

Advances in medicine over the last 40 years have replaced many inpatient procedures that once required lengthy stays, with day procedures that are now conducted as outpatient services. That means there is no longer a need for as many people to stay over night, this translates to a reduced need for inpatient beds in the hospital. Additionally, today's outpatient facilities need to offer space for day surgeries, diagnostic procedures, and private spaces for patients to receive and recover from care. MaineGeneral Medical Center has invested in new outpatient facilities at its Thayer campus including operating rooms, endoscopy, and diagnostic imaging to continue providing these services to the area.

The fragmented nature of MaineGeneral's operations, with three inpatient campuses requiring 24/7 coverage by physicians, makes MaineGeneral a very challenging and unattractive work environment for physicians. Today's physicians want to be members of large practice groups, work scheduled hours and have reduced on-call coverage requirements. Co-location of the multiple locations to a single site for inpatient services will reduce the number of locations requiring call coverage and will facilitate the pooling of physicians into larger call groups allowing for fewer days and evenings on 24-hour call. This change to a more efficient service delivery model will improve MaineGeneral's ability to recruit and retain the hard-to-hire specialty physicians such as cardiologists, oncologists, orthopedic surgeons, and general surgeons.

Medical advances and the cost of new medical technology have created some natural consolidation and efficiencies in the statewide medical services industry. Due to the costs and the highly specialized nature of some specialty care and the national shortage of specialty physicians, some services have become too expensive for community hospitals to sustain and

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<sup>10</sup> MGH Analysis Recruitment Committee, Updated July 30, 2008. Based on GMENAC, Hicks and Glenn, Group Health Inclusive Staffing and AMA 1993 Actual versus Phys/Pop Ratios.

these specialties such as trauma and some cardiac procedures are now only offered by the state's tertiary hospitals. MaineGeneral has recognized the efficiency and patient benefits of centralizing these services and sends its trauma, neurosurgery, and some cardiac patients to other hospitals for these services. MaineGeneral is focused on providing the services that are widely needed in the local area.

### **Region's Population is Aging and Requiring More Health-Care Services**

In addition to the service related challenges, MaineGeneral, like many hospitals in the rural Northeast, faces an aging client population and the increase in demand for the associated care. The 2008 Maine State Health Plan projects an increase in health-care needs that will include more cardiac care, orthopedic surgery, rehabilitation needs, chronic care disease management, and end of life care, to name a few. Older patients will need a facility close to their homes that is easy to access and configured for easy movement for those with limited mobility.

### **Maintaining the Status Quo is Not an Option for MaineGeneral Health**

The challenges that MaineGeneral Medical Center currently faces are jeopardizing its ability to provide medical services to the region. Inefficiencies of multiple campuses and issues of physician retention as well as patient attrition have already created substantial financial strain on the medical center. In order to continue to serve the region in a sustainable manner, the medical center feels it must take steps to reduce costs, modernize and focus on providing core services to the region.

### **3. Kennebec County Demographics and Socioeconomic Characteristics**

To put this analysis in context with the overall health and economic needs of the region, a descriptive analysis of the demographic and economic characteristics of the area was conducted. These factors not only describe the role of the health-care industry in the local economy, but also describe the implications for health-services delivery in the region. Currently, MaineGeneral serves 88 municipalities with its primary medical center facilities located in Kennebec County. A closer look at the demographic and socioeconomic characteristics of the area, can provide insight not only into the patients' backgrounds and health-care needs, but also describe the labor markets for the hospitals and general trade area.

For purposes of this demographic analysis and economic contribution study, the characteristics of Kennebec County and its residents were used to represent the larger labor market and primary service area for MaineGeneral. Since the hospital's primary service area covers portions of several counties, and detailed demographic data are only available at the county level, it was determined that Kennebec County data served as the best proxy to describe the characteristics of the medical center's service area.

#### **Kennebec County Population**

Kennebec County, located in central Maine, covers 29 municipalities and is home to more than 117,000 people. The two major service centers for the county, Augusta and Waterville, house close to one-third of all the county's residents, with the remaining population spread across the large geographic area. The county is rural in topography and has a low population density. It is also home to the state's capitol and offers many of the services that contribute to the political process and support the provision of public services. In addition to the two local hospital systems, the county also has a federal Veterans Affairs Medical Center, Togus Hospital, and a state-run psychiatric hospital, Riverview, in Augusta. Table 3.1 contains specific demographic information for Kennebec County as well as the State of Maine.

#### **Kennebec County Incomes**

U.S. Census data show that Kennebec County residents had a lower economic status compared to the state overall in 2006 (the most recent year for comparable data). The county median household income was 2% lower than the state median and the proportion of the population living in poverty (11.1%) was greater than the overall state proportion (10.9%). Taking a closer look at specific municipalities shows great variation within the county. The service centers of Augusta and Waterville had lower median household incomes and higher rates of poverty than their neighboring communities. Median household income was \$26,000 in Waterville and \$39,000 in neighboring Winslow, a \$13,000 difference. Similarly, Augusta had median

household income levels at \$29,000 while Hallowell/Gardiner was \$35,000. The poverty rates followed the same patterns. The proportion of the population living in poverty in Waterville was 19% or one out of every five persons, while Winslow was 7%, or less than one out of every ten persons. Augusta had 15% of its population living in poverty compared to its Hallowell/Gardiner neighbors with 12% in these circumstances.

### **Kennebec County Educational Attainment**

Another indicator of economic status as well as a determinant of health status is the educational attainment level of the population.<sup>11</sup> In 2006, Kennebec County had a lower level of educational attainment than the state average. Among the select communities in the county, Augusta and Fairfield showed the lowest overall attainments with only 45% of the Augusta population with education experience beyond high school and 19% with a college degree or higher. Fairfield was the lowest in 2000, with only 38% of its population seeking education beyond high school and very low degree attainment prevalence among adults over 25 years of age, 14%. Overall the county's rates were lower than the state's level of 48% with education beyond high school and 23% adult-degree attainment rates. The low levels of education put the county at a disadvantage for economic growth as well as put its population at risk for health problems. See Table 3.1.

**Table 3.1 Demographic Data for Kennebec County and Maine - 2006**

|                          | <b>Kennebec County</b> | <b>Maine</b> |
|--------------------------|------------------------|--------------|
| Total Population         | 117,114                | 1,274,923    |
| Housing Units            | 56,364                 | 691,132      |
| Median Age               | 41.1                   | 41.1         |
| Median Household Income  | \$36,498               | \$37,240     |
| Poverty Rate             | 11.1%                  | 10.9%        |
| High School Degree       | 37.7%                  | 36.3%        |
| Some College             | 26.9%                  | 26.3%        |
| College Degree or Higher | 20.7%                  | 22.8%        |

Source: US Census: American Community Survey 2006.

<sup>11</sup> Maine State Health Plan 2008-09, Issued by the Governor's Office of Health Policy and Finance with the Advisory Council on Health Systems Development April 2008. Found at <http://www.maine.gov/dhhs/boh/phdata/Additional%20Reports%20Pdf%20Doc/2008-2009%20State%20Health%20Plan.pdf>.

## Kennebec County’s Changing Economic Mix

Up until 25 years ago, the greater Kennebec County’s economy was largely manufacturing-based with paper mills, shoe factories, and textile and clothing manufacturers serving as the major employers. As lower cost labor in other markets and technological advances reduced the need for Maine workers, those mills closed and the county began searching for new sources of income and stability for families and workers. Slowly, the lost industrial jobs have been replaced with more service-oriented businesses including call centers, data processing, and retail operations. There has also been strong growth in the health-care services sectors including a growing need for direct care and home-based care support workers.<sup>12</sup>

## Employment in Kennebec County

Kennebec County’s workforce comprises about 9% of the state’s total workforce. In 2007, the county’s unemployment rate (4.6%) was slightly lower than the state average (4.7%). Within the county, unemployment rates were higher in the service center communities of Augusta (5.1%) and Waterville (5.5%) as well as in the municipalities with lower educational attainment levels. See Table 3.2.

**Table 3.2 Labor Market for Kennebec County Including Select Municipalities – 2007**

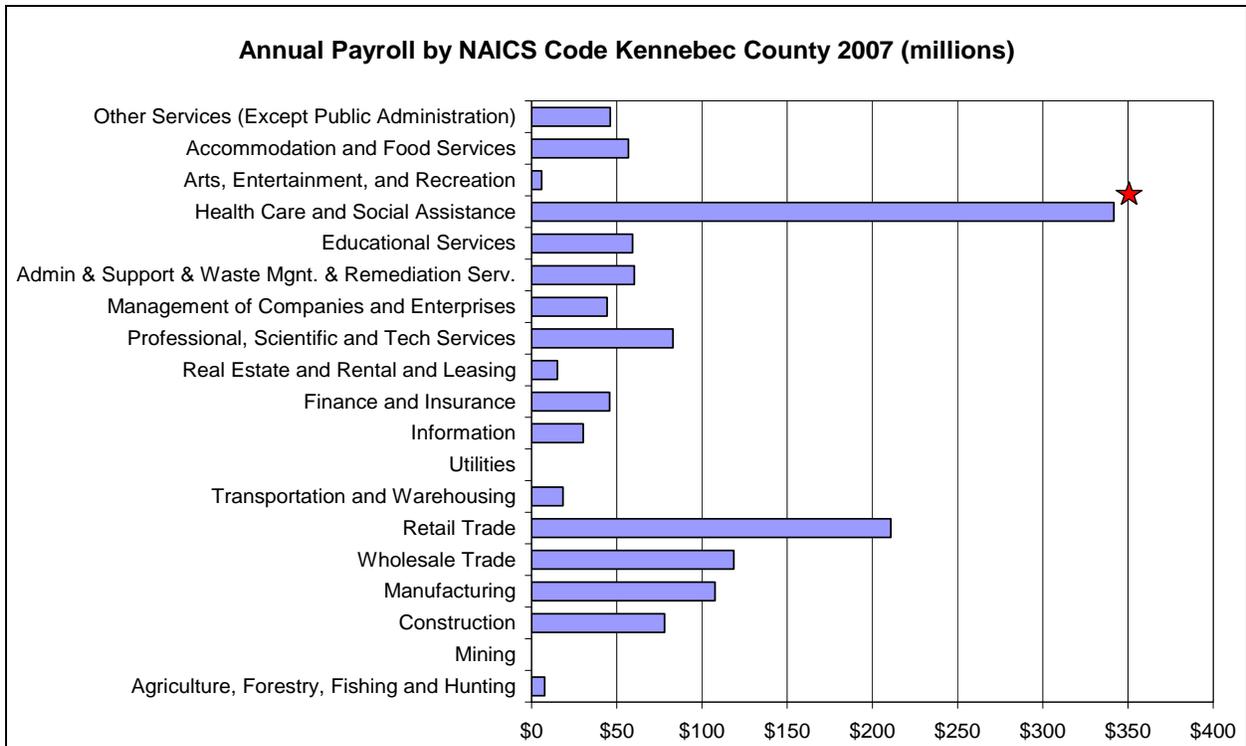
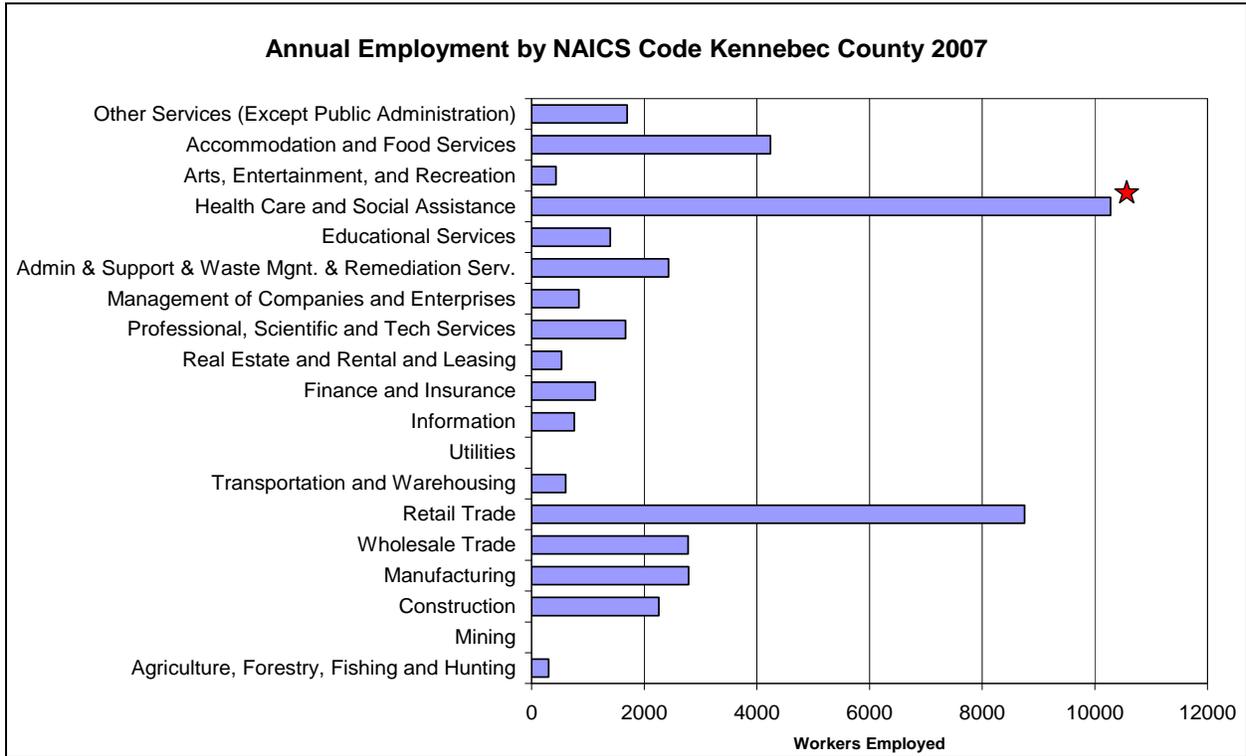
|   | <b>Waterville</b> | <b>Augusta</b> | <b>Kennebec County</b> | <b>Maine</b> |
|---|-------------------|----------------|------------------------|--------------|
| Resident Labor Force 2007               | 7,469             | 9,352          | 63,145                 | 704,693      |
| Unemployment Rate                       | 5.5%              | 5.0%           | 4.6%                   | 4.7%         |
| Employment All Industries               | 12,325            | 27,571         | 59,435                 | 602,262      |
| Employment Health & Social Services     | 4,161             | 4,510          | 10,277                 | 101,376      |
| Health & Social Services Share of Total | 34%               | 16%            | 17%                    | 17%          |

Source: Maine Department of Labor, Labor Market Information System, accessed March 16, 2009.

The health-care and social-assistance sector is the largest private source of employment in Kennebec County with 10,277 jobs. In 2007, 17% of all workers were employed in the health and social-services sector, similar to the statewide employment share (16%). The retail sector, the second largest private-sector employer, employed 15% of the total workforce, also similar to the statewide share, 16%. See Figure 3.1.

<sup>12</sup>Department of Labor, Quarterly Census of Employment and Wages (QCEW), 2007.

**Figure 3.1 Kennebec County Employment and Payroll by NAICS Code**



Source: Maine Department of Labor, Quarterly Census of Employment and Wages (QCEW), 2007.

## Health-Care Sector Pays Higher Wages

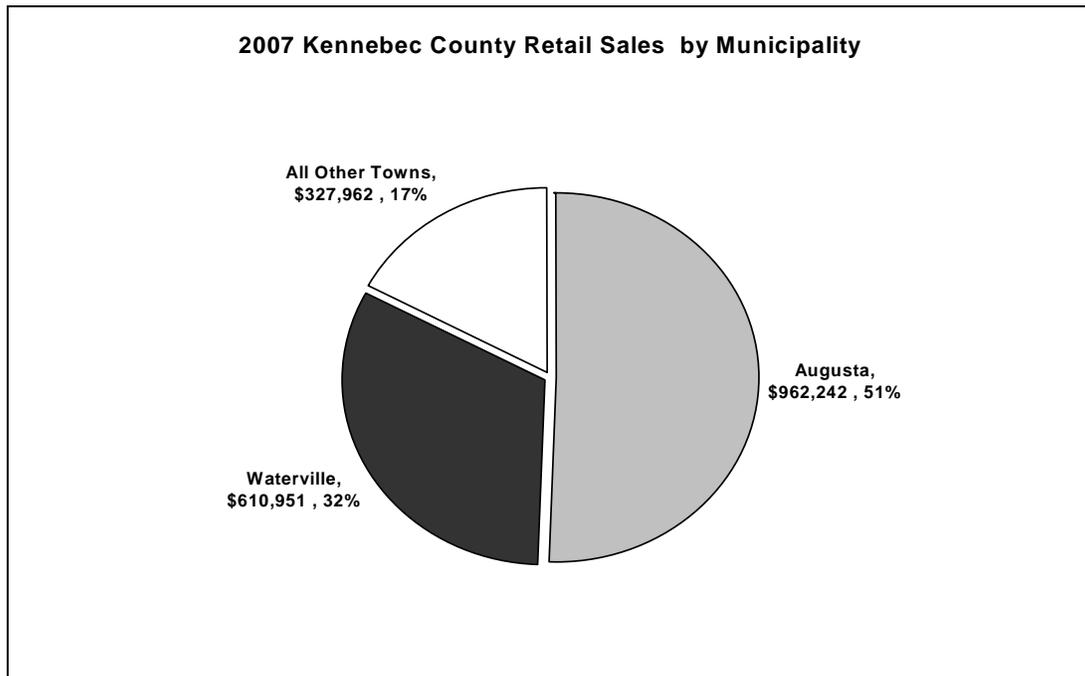
Along with the greatest share of private sector employment, the health and social-services sector paid the largest annual payroll in the Kennebec County in 2007, with the retail sector following in second. The average annual payroll payment per worker for the private health and social-assistance sector was higher (5%) than the overall county average payroll payment. In comparison, the average for the retail sector was lower than overall county average (-30%).

## Retail Activity in Augusta and Waterville Service Centers

MaineGeneral contributes to the local economy as an active purchaser of goods and services. Not only do its employees make purchases, but the hospital also purchases supplies and services from local enterprises. The contribution to the retail sector by MaineGeneral and its employees is a function of how much they spend in-county as well as what goods and services are available for purchase in the area.

A closer look at overall retail sales reveals some differences across communities. Figure 3.2 shows the majority of retail activity occurs in Augusta and Waterville, the municipalities with the greatest population and the largest number of day-time laborers. Augusta accounted for 51% of all retail sales in Kennebec County with Waterville recording 32% in 2007.

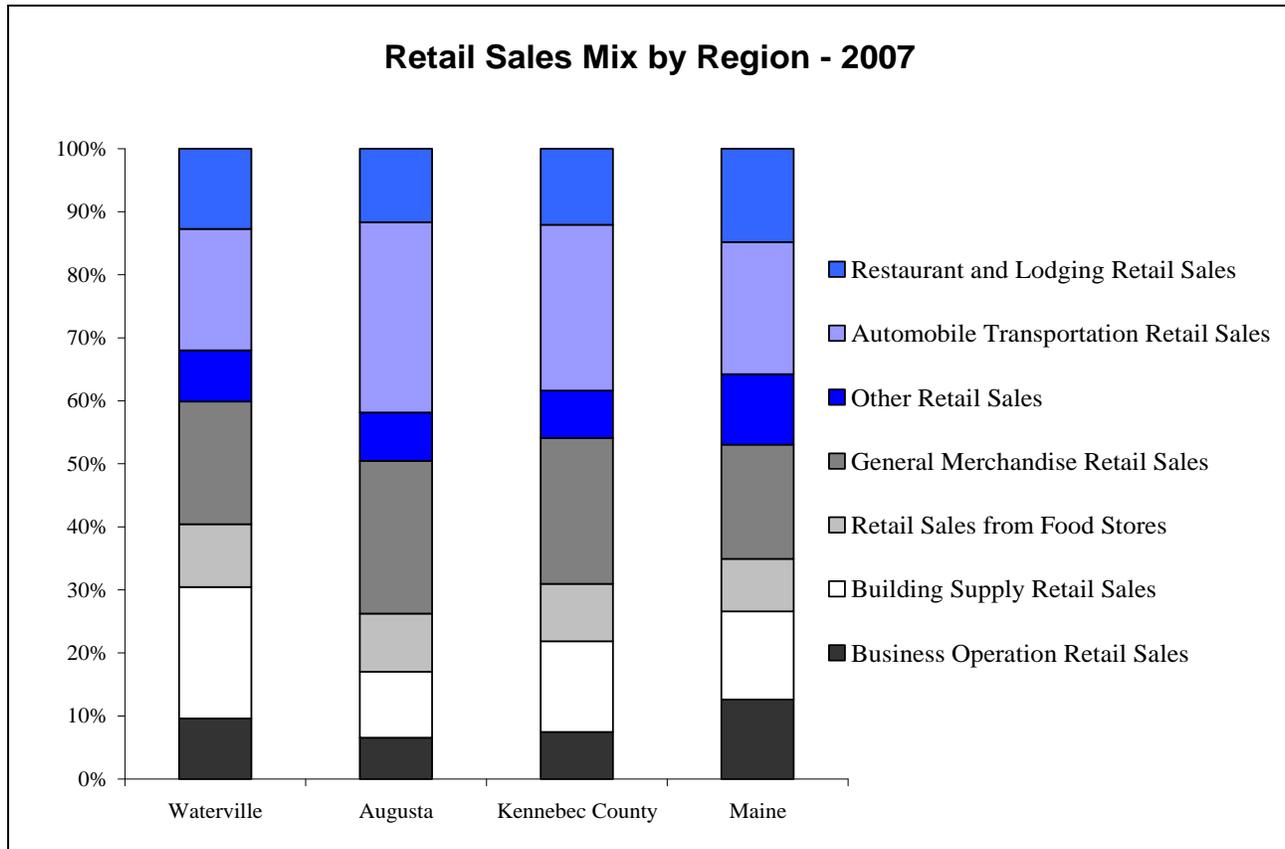
Figure 3.2 Retail Sales in Kennebec County Municipalities – 2007



Source: Maine State Planning Office Retail Sales data, 2007.

Further analysis shows that each community supports a slightly different mix of retail products sold. See Figure 3.3. Augusta has a larger share of automobile sales in its retail mix and Waterville has a larger share of building material sales.

**Figure 3.3 Retail Sales Mix by Region – 2007**



Source: Maine State Planning Office Retail Sales data, 2007.

Since both automobile and building supply sales are highly sensitive to economic conditions, both communities are exposed to the fluctuations of economic cycles and pressures. As seen in Table 3.4, Augusta retail sales have stayed flat during the last five years, as has Kennebec County as a whole. Waterville has experienced growth during this period, which may be a result of new store openings. These openings may have lured some market share from the Augusta area, particularly in the building supply sector.

**Table 3.4 Retail Sales 5-Year Inflation Adjusted Average Growth, 2002-2007**

|                           | <b>Augusta</b> | <b>Waterville</b> | <b>Kennebec<br/>County</b> | <b>Maine</b> |
|---------------------------|----------------|-------------------|----------------------------|--------------|
| Business Operating        | 2.0%           | 3.4%              | 2.0%                       | 4.0%         |
| Building Supply           | -1.0%          | 3.2%              | 1.0%                       | 3.0%         |
| Food Store                | -2.0%          | 0.6%              | -1.0%                      | 1.0%         |
| General Merchandise       | 3.0%           | 0.1%              | 2.0%                       | 1.0%         |
| Other Retail              | 1.0%           | -0.6%             | 0.0%                       | 0.0%         |
| Auto Transportation       | -2.0%          | -2.5%             | -2.0%                      | -2.0%        |
| Restaurant and<br>Lodging | 3.0%           | 1.8%              | 3.0%                       | 1.0%         |
| <b>Total</b>              | <b>0%</b>      | <b>1.8%</b>       | <b>0%</b>                  | <b>1.0%</b>  |

Source: Maine State Planning Office Retail Sales data, 2002-2007.

## 4. MaineGeneral's Current Economic Contribution to the Local Economy

To estimate the share of economic activity attributable to MaineGeneral, an economic multiplier measurement approach based on hospital spending data and generally accepted statistical methods was adapted. The approach was to identify the direct spending by the hospitals on purchases, wages and contracts and then to build on that information by identifying the employees' expenditures. Once the hospital and employee spending patterns were defined, region-specific economic multipliers were applied to the expenditures to estimate the full effect of the spending on employment and earnings in the region. Like the demographic analysis, Kennebec County data and multipliers were the best data available and thus were used to represent the larger MaineGeneral primary service area and labor market.

### Economic Impact Multipliers

Economic impact multipliers are developed by the US Bureau of Economic Analysis (BEA) to quantify the full impact of expenditures on the economy. Based on analyses of actual expenditures and resultant economic activity, these multipliers are used by economists to determine the relationship among expenditures and the associated impact when changes are made in a region. When a single dollar is spent, it spurs economic activity beyond the initial expenditure made called a **direct effect**. That dollar expenditure creates an **indirect effect** when the receiving business in-turn uses that dollar to purchase goods and services or to pay workers. The indirect effect, then leads to what is called an **induced effect** when the workers spend the dollar that contributed to their wages.

A regional economic multiplier takes into account all three effects: direct, indirect and induced. The **output multiplier** calculates the **output effect**, representing the total value of new sales that will be stimulated in the economy for each dollar increase in direct spending. The **income multiplier** calculates the **earnings effect**, the portion of the output that is attributed to new income or wages that will be generated for workers in the industry directly affected by the increased spending. The earnings effect is a fraction of the output effect, the two effects are not additive.

The **employment multiplier** estimates the number of total jobs in the economy that will be supported directly by a given increase in spending.

### Estimation Methodology

There were two objectives to this analysis. The first objective was to estimate MaineGeneral's current contribution to the regional economy, using Kennebec County data as the best representation. The second was to estimate the economic impact of the proposed

reconfiguration. To conduct the analysis key inputs were assembled: direct spending by MaineGeneral (wages and non-wage purchases) and an estimate of induced spending by employees in Kennebec County. MaineGeneral Medical Center provided proprietary records of purchases, wages, and contracts paid out in fiscal year 2008 to define annual direct spending. An employee survey was conducted to identify spending patterns within Kennebec County to calculate the induced effects.

Once completed, economic impact multipliers for Kennebec County were applied to the hospital and employee spending data to calculate final effect on outputs, earnings and employment. For this analysis, the BEA's Kennebec County multiplier dataset was the closest geographic match to the region of interest for the health system. Moreover, since the county contains the two largest service centers and the current home to the current and proposed medical facilities, it was believed that these multipliers accurately reflect the spending relationships for the larger hospital primary service area.

### **Methodology Limitations**

As with any statistical analysis, this analysis has limitations due to the data collection methods and estimation techniques employed. While the analysis and interpretation of findings shed light on the contribution of the MaineGeneral Health to the local economy, it is important to keep in mind the specific limitations when considering the results and drawing conclusions.

This study differs from typical *economic impact analyses* in several ways. Economic impact results from spending that originates from outside a region and thus creates new activity or an impact on the region. Dollars that originate from within a region and are spent in a region are considered transfer payments and are important contributors to a local economy, but do not cause a net impact. A traditional economic impact study would only include the portion of MaineGeneral's expenditures supported by revenue sources that originated from outside of the local area. For this analysis, all expenditures made in Kennebec County were included to understand the full contribution in the region.

The BEA and the U.S. Census Bureau have estimated the set of economic multipliers to translate the complex relationships among thousands of industries. These multipliers serve as the best estimate of state and regional relationships for a given point in time, but they do have limitations in their application. Markets are not static and changes in the price or availability of fundamental resources or services can widely influence spending patterns and reset the underlying economic relationships. The best example of this is the recent increase in the price of oil and the subsequent increase in the costs of goods and services that use oil products for inputs and/or for transportation. This price increase led to fundamental changes in spending patterns as consumers' disposable income was diminished. Moreover, the regional multipliers may not

reflect more recent migrations of key businesses in and out of a region. For example, highly specialized medical-equipment service providers are few in numbers in Maine and thus a relocation of a single vendor to another region could change the regional final demand effect by 100%.

Overall, the economic multiplier analysis will yield a solid description of the regional economic activity attributed to MaineGeneral as well as a good understanding of the relative impact of its proposal. It is important to keep in mind that the multipliers are best estimates of the spending relationships and the findings should be considered directional rather than exact predictions of economic activity within a region.

### **Survey Limitations**

To understand MaineGeneral Health employees' expenditures in Kennebec County, a web-based survey was administered to learn about their spending patterns. The respondents provided a best guess of their typical purchases and the share conducted in Kennebec County as well as in Augusta and Waterville.

Employees were not asked to reference their personal financial records and their responses were not verified. Moreover, the survey was designed to be brief to boost response rates and could not cover every conceivable spending category. For example, several survey respondents pointed out that pet care costs were not included in the survey. The expenditure data is subject to self-report bias and should be considered as a best estimate rather than exact expenditures. Bias may exist in the estimates of the amount of the expenditures as well as in reports of spending in Kennebec County.

Finally, the economic analysts used their best judgment to assign the employee and vendor expenditures to specific industry multiplier categories. Since the expenditure data were based on self-report survey responses, there was no way to tie the expenditure to the specific industries providing the good or service. Therefore, the assignments may not reflect actual industry allocations.

### **MaineGeneral Direct Spending in Kennebec County**

The first step in the analysis was to identify MaineGeneral's annual spending. To accomplish this, MaineGeneral provided wages and salary records as well as records of non-wage spending by vendor location for 2008.

Total wages and salaries were just under \$137 million in 2008. Thayer and Seton employees were paid \$46 million and \$34 million was paid to employees in Augusta. The remainder went to employees at other locations within the system.

Spending on vendors and purchases includes all non-wage spending for operating the health system. Non-wage purchases were \$152 million in 2008. Nineteen percent, or \$29 million, of non-wage direct purchases occurred in Kennebec County. Forty percent of those in-county purchases occurred in Augusta.<sup>13</sup> The details are shown in Table 4.1.

**Table 4.1 Direct Spending by MaineGeneral Medical Center, 2007-2008**

|                                 | <b>Facility/Municipal Subtotal</b> | <b>Total</b>         |
|---------------------------------|------------------------------------|----------------------|
| <b>Wages and Salary</b>         |                                    |                      |
| Thayer Campus                   | \$33,121,615                       |                      |
| Seton Campus                    | \$13,870,561                       |                      |
| Augusta Campuses                | \$34,278,624                       |                      |
| Other Northern Locations        | \$12,318,741                       |                      |
| Other Southern Locations        | \$43,316,422                       |                      |
| <b>Total Wages and Salaries</b> |                                    | <b>\$136,905,963</b> |
|                                 |                                    |                      |
| <b>Purchases (Non-wage)</b>     |                                    |                      |
| Augusta                         | \$12,432,136                       |                      |
| Waterville                      | \$3,476,373                        |                      |
| Other KV locations              | \$13,367,507                       |                      |
| Outside Kennebec County         | \$122,836,042                      |                      |
| <b>Total Purchases</b>          |                                    | <b>\$152,112,058</b> |

\*Estimate based on actual data from June 2007 – May 16, 2008.

### **MaineGeneral Employee Spending in Kennebec County**

The next input to the economic multiplier analysis was the estimation of employee expenditures made in Kennebec County with their wages received from MaineGeneral. In 2007, MaineGeneral paid \$137 million in wages to more than 3,500 people.

While MaineGeneral supports a large payroll, the monies paid to employees are not spent entirely in the local area and must be adjusted for several factors. The first is the amount an employee may save and not spend until some time in the future. The second is the portion spent in the local area and the types of goods and services purchased. The amount spent in the local

<sup>13</sup> Not including state taxes, licenses or fees. The billing address was used as the place of purchase.

area is a function of the location of the employee residence, work location as well as the availability of goods and services in a particular area. This was accomplished through a survey.

## **Employee Survey**

MaineGeneral Health employees' participated in a web-based survey to provide information on their spending patterns in Kennebec County.<sup>14</sup> The survey, designed to be brief and easy to answer, was reviewed by survey experts and pre-tested by independent respondents for clarity. On average, the survey took 15 minutes to complete. The survey asked employees about their spending habits as well as the share of their MaineGeneral income that supported those expenditures. Respondents were also asked to estimate what share of their spending occurred in Augusta and/or Waterville.

The 30-question survey was administered to the more than 3,500 employees from the MaineGeneral Health system in June 2008. Of the total receiving the survey, 1,640 completed it, yielding a 41% response rate. Comparisons of wage, gender and work location data from the survey respondents to the overall employee characteristics showed that the survey participants were representative of the employee population.

## **Survey Findings – Employee Characteristics**

The survey findings revealed that 84% of the respondents were women, 55% were between the ages of 35 and 54, and 59% reported having at least one child under the age of 18 in the household.

Thirty-four percent of all respondents reported having a child in a K-12 school in Kennebec County. Forty-five percent of the survey respondents indicated that their MaineGeneral income accounted for more than 50% of the household income, with 18% reporting the income as the sole source for the household. Eighty-two percent own their own home, with the balance reporting renting at an average cost of \$577 per month.

Survey responses showed that the MaineGeneral health-care employee households have higher earnings than other households in Kennebec County. Specifically, 81% of the respondents reported household incomes greater than the median household income, \$44,758, for Kennebec County for 2007.

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<sup>14</sup> Paper copies were provided to employees who were unable to complete a web-based survey.

## **Survey Findings - Employee Spending in Local Region**

The survey findings show that four categories of spending account for 55% of all household spending attributed to MaineGeneral wages: groceries, real estate, gasoline, and the purchase of vehicles. A few households reported spending large sums of money on health-care costs (other than for health insurance), real estate, and vehicle purchases, but for the most part households did not spend much in these categories. For all other categories, spending was consistent and increased for households within higher income brackets. Those households with children incurred higher costs associated with goods and services needed by children such as groceries, daycare, tuition, and supplies.

While the survey covered the major categories of household spending, real estate and vehicle loan payments, insurance and taxes were not explicitly included. These large items are usually financed through borrowing and are not direct out-of-pocket expenses like groceries or gasoline, thus requiring a different analytic technique. Furthermore, expenditures on these categories are typically made outside the local area and have little direct impact on the local economy.

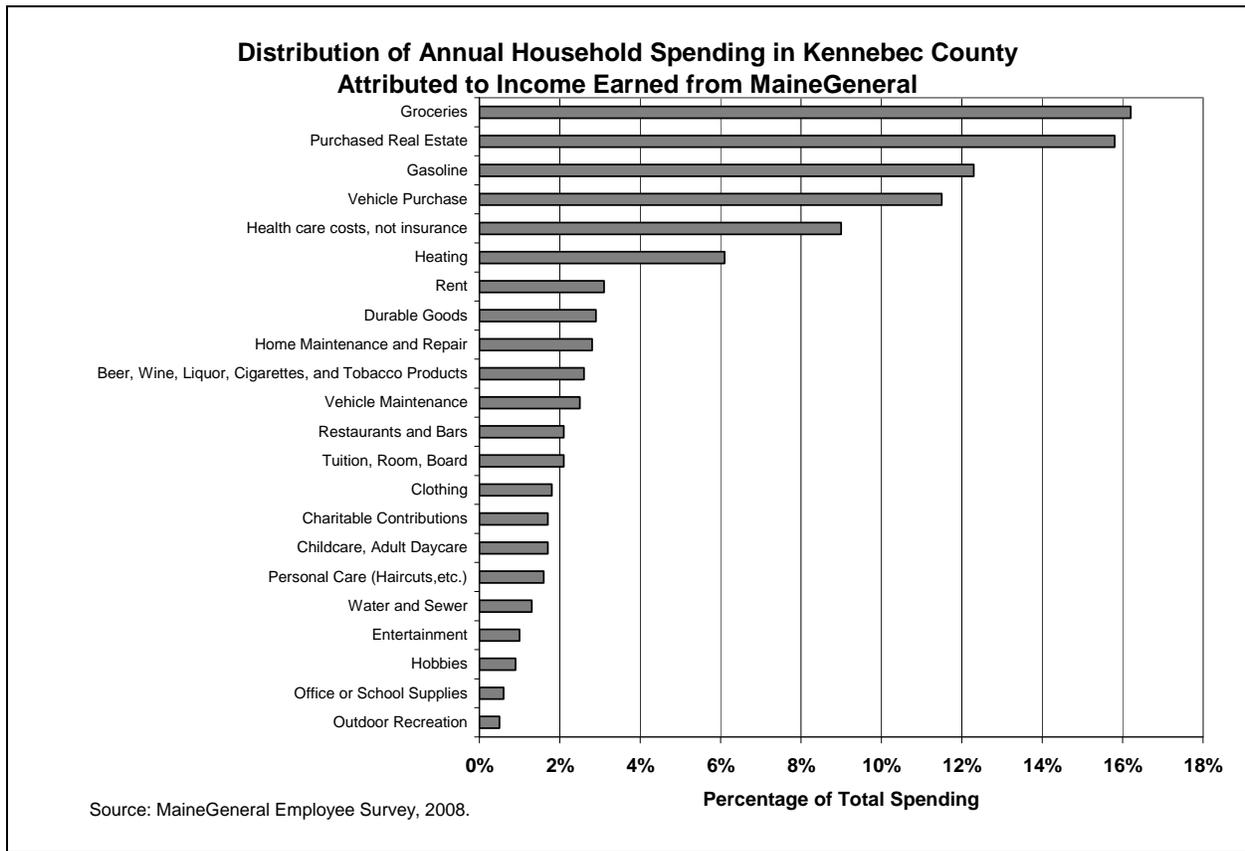
For this analysis, the analysts used the past year reports of the full purchase price of real estate and vehicles as a measure of employee spending in the local area, assuming the full value transferred to the owner at the time of sale. Taxes were not included as an explicit category, as these items are often considered as part of the purchase price of any given item. Health insurance, for the hospital employees is provided as a benefit and is included in the vendor spending data from the hospital.

## **Estimating Employee Spending in Kennebec County and the Multiplier Effect**

The employee reports of spending in Kennebec County served as the basis for estimating the total spending that could be attributed to wages from MaineGeneral. The estimation of total in-county spending was calculated first by converting all estimates reported in the survey to annual figures. Then, the annual figures were adjusted for the portion of household spending supported by the MaineGeneral wages. (Appendix A details the estimates of employee spending in Kennebec County by survey question.)

Figure 4.1 shows the distribution of the annual household spending attributed to the health-system wages by category. Finally, for each employee income range, the analysts identified a typical consumer and used their spending to represent all other employees in the salary range. The estimates of typical annual spending were then multiplied by the number of MaineGeneral employees in each income range to calculate a weighted estimate of total spending by all employees. Using this method, total direct employee spending in Kennebec County was estimated to be \$62 million per year in 2007/08.

**Figure 4.1**      **Distribution of Annual Household Spending Attributable to MaineGeneral Wages, Employee Survey Findings 2007**



### Calculating the Full Contribution of MaineGeneral Spending to Regional Economy

Regional economic multipliers were applied to MaineGeneral’s expenditures and the estimates of spending by its employees to determine the total economic contribution in Kennebec County. Since the economic multipliers are expressed as ratios for each industry by its North American Industry Classification System Code (NAICS), the expenditures were classified by specific NAICS category in order to use the corresponding multiplier. The multipliers were then applied to each spending category to determine the total output effects as well as the earnings effects of the spending. The output effect is the total contribution to the county including both the direct and indirect effects on the economy and the earnings effect is the sub-component of the output that can be attributed to wages and income.<sup>15</sup> Finally, employment multipliers were used to estimate the number of jobs, or employment effect, associated with the spending.

<sup>15</sup> The earnings effect is a portion of the output effect attributable to wages and income. The two effects should not be added together.

Table 4.2 contains the findings of the multiplier analysis. In 2007, the total MaineGeneral in-county direct spending of \$91 million led to \$139 million in new output (new sales) of which \$34 million was earnings (local wages and income). For every \$1 MaineGeneral spends in the region, \$0.52 in additional spending is generated in the region. This is a total multiplier effect of 1.52.

Moreover, this spending supported an additional 1,346 jobs in the county through the economic activity. Simply put, one job is supported by every three MaineGeneral employees.

**Table 4.2 Total Contribution of MaineGeneral Annual Spending on the Kennebec County Economy, 2007**

|                       | <b>Direct Spending</b> | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect (Jobs)</b> |
|-----------------------|------------------------|----------------------|------------------------|---------------------------------|
| Hospital Spending     | \$29,276,016           | \$45,479,193         | \$12,004,138           | 398                             |
| Employee Spending     | \$61,999,029           | \$93,275,219         | \$22,359,465           | 948                             |
| <b>Total Spending</b> | <b>\$91,275,045</b>    | <b>\$138,754,412</b> | <b>\$34,363,603</b>    | <b>1,346</b>                    |

See Appendix C for a detailed listing of direct spending and multiplier effects of total direct purchases in Kennebec County by NAICS category. Appendix B has the specific economic multiplier effects for non-wage purchases only.

## 5. MaineGeneral’s Economic Impact – Proposed Reconfiguration

In order to provide the type of product that both patient and physicians demand, MaineGeneral is proposing to consolidate its inpatient facilities into a single new building on the same campus as the Harold Alfond Center for Cancer Care in north Augusta. Some administrative functions would also be moved into a new building on the same campus. Both the existing hospital in Augusta and the Seton Unit in Waterville would be closed. The Thayer Unit in Waterville would remain open for outpatient services and back office functions but all inpatient services would be moved to the new Augusta facility.

This new configuration will not only move services, but redistribute employees among the three facilities. Most Augusta hospital employees will move to the new facility, but 68 will move to other locations in the health system. All Seton employees will move either to Thayer or the new facility. Thayer will keep some employees and some will go to Augusta. Table 5.1 compares the current levels of staffing to the proposed levels for each facility.

**Table 5.1 Reallocation of Staff among the MaineGeneral Medical Center Hospital Locations: Current Compared to the Proposed Configuration**

|                      | <b>Current (FTEs)</b> | <b>Future Configuration (FTEs)</b> |
|----------------------|-----------------------|------------------------------------|
| Thayer               | 664                   | 496                                |
| Seton                | 282                   | 0                                  |
| Augusta              | 678                   | 0                                  |
| New Augusta Location | 0                     | 1,034                              |

\*\*Numbers cannot be totaled, 68 additional positions transfer to other locations in the health system.

### Calculating Change and the Effects on the Kennebec County Economy

Like the overall spending, there are two major sources of spending that must be considered to estimate the potential change in MaineGeneral’s share of the local economic activity due to the reconfiguration of services. The first component is the change in employee spending; the second is the change in organizational spending. In this instance where the proposal includes the building a new facility, there is a third impact on the local economy from the construction activity.

### Proposed Changes in Staffing

MaineGeneral estimates that the future configuration will not only reassign staff members to the newly configured facilities, but will also relocate some to other sites within the system. The proposal also includes an increase in the number of employees for some functions. The proposal

does contain a slight reduction in the number of employee positions due to the efficiencies of consolidating and the elimination of two older buildings. It is important to note that the reduction may be achieved through attrition. The estimated change in employee count is net 62 employees with an average annual salary of \$50,000. The total wages for this group is \$3,100,000. In addition to the reduction in staff members, the estimates include a reduction in turnover and staff outmigration for certain clinical positions.

### **Projected Change in Employee Spending**

Calculating the change in the regional economy due to the changes in the proposed health system configuration follows the same steps as the estimation of the overall contribution. First, estimate the potential employment and salary reductions and calculate the multiplier effects for the reduced spending in the region. Second, use the employee-spending patterns established in the analysis of the overall economic contribution to estimate impact of spending loss associated with 62 employees' salaries.

Assuming 62 employees are paid on average \$50,000, the impact on the local economy from the loss in employee-spending activity is estimated to be \$1,307,258. The associated output and earnings effects equal close to \$2.8 million or 3% reduction from the current-health-system economic contribution from employee spending. The effect on indirect employment is approximately 19 jobs or 1% reduction in this category of spending. See Table 5.2 for details.

This analysis assumes that all 62 employees spend the same portion of their MaineGeneral income in Kennebec County as the average of all employees. This estimation does not include any of the anticipated benefit from retaining and attracting medical practitioners to the area.

### **Change to Operating Costs**

A major reason for consolidation and restructuring is to reduce duplication of services and to realize efficiencies from co-location of inpatient services. The new facility is projected to provide some savings in operating costs, both on-going costs and capital costs. Current operating costs for the two older facilities are close to \$10 million per year. The new facility is expected to require \$3.4 million less in operating and capital costs. Table 5.2 details the breakdown of the current operating costs and the projected savings.

**Table 5.2 MaineGeneral Medical Center Estimated Savings in Operating Costs**

|                          |             |
|--------------------------|-------------|
| <b>Current Costs</b>     |             |
| Operating (non-wage)     | \$8,792,383 |
| Engineering Capital      | \$1,000,000 |
| <b>Estimated Savings</b> |             |
| Operating (non-wage)     | \$2,637,714 |
| Engineering Capital      | \$ 800,000  |

**The Full Effects of the Project on the Local Economy**

Considering the proposed changes to employee allocation, building operations, and capital investments (including construction costs), the full effects of the proposal on the Kennebec County economy were estimated. See Table 5.3. With input from MaineGeneral management it was assumed that 50% of operating cost savings will be realized within Kennebec County and that all engineering capital savings will be realized outside the county. This leaves a figure of \$1.3 million in savings to be used for the multiplier analysis.

Approximately \$2.6 million in operating costs and employee spending in-county will no longer be attributed to MaineGeneral which, like the overall spending relationships will lead to a \$3.9 million total reduction in contribution from the region. This reduction represents 2% of the current contribution. It is important to note that this is a static estimate and does not factor in the benefits of retaining and attracting physicians and medical services to the area that might otherwise be lost.

**Table 5.3 Impact of Consolidation Efficiencies and Cost Reductions on the Region**

|  | <b>Direct Spending</b> | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect (Jobs)</b> |
|--|------------------------|----------------------|------------------------|---------------------------------|
| Annual Employee Spending Reduction <sup>16</sup> | (\$1,307,258)          | (\$1,939,309)        | (\$442,235)            | -18.9                           |
| Annual Operations Savings <sup>17</sup>          | (\$1,318,857)          | (\$1,980,923)        | (\$989,273)            | -19.5                           |
| <b>Total Spending Reductions</b>                 | <b>(\$2,626,115)</b>   | <b>(\$3,920,232)</b> | <b>(\$1,431,508)</b>   | <b>-38.4</b>                    |

<sup>16</sup> Uses spending from the \$35,000 to \$50,000 income range cohort.

<sup>17</sup> Assumes 50% of operating costs are spent within Kennebec County region and spending is in the Facilities and Support Services NAICS 531200.

## One-Time Contribution to the State Economy from the Construction Costs

The construction of the new facility will infuse a large investment into the regional economy. The one-time cost is projected to be approximately \$322 million. This estimate includes the costs of construction as well as outfitting the building with new furniture, office equipment, and medical equipment.

Several factors were considered to determine the portion of construction costs that will occur in Maine. Firstly, the construction project is likely to use a mix of in-region and out-of-region materials. Steel beams, for example, would come from outside the state, while concrete and earth moving services might come from within. Secondly, the soft materials such as building supplies that will ultimately outfit the building may also be purchased in the region. In fact, the Harold Alfond Center for Cancer Care is in the final stages of meeting LEED certification, a standard developed by the U.S. Green Building Council to promote design and construction practices that reduce the negative environmental impacts of buildings and improve occupant health and well-being. MaineGeneral intends that the new facility meet these or similarly rigorous environmental standards. A requirement of the certification is that materials be purchased locally, if possible, to reduce the underlying transportation costs and the resulting carbon emissions. Based on all of these factors, 40% of the building costs or \$128.8 million are considered in-state purchases. Table 5.4 details the output, earnings and employment effects for this one-time investment.

**Table 5.4** Impact of MaineGeneral Proposed Construction Expenditures on the State Economy

|   | <b>Direct Spending</b> | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect (Jobs)</b> |
|---|------------------------|----------------------|------------------------|---------------------------------|
| <b>Construction Spending<sup>18</sup></b> | \$128,800,000          | \$266,126,560        | \$87,996,160           | 352.71                          |

To estimate the economic impact of the project, the state-level multipliers for construction services were applied because the BEA does not have these types of multipliers at the regional level. Compared to retail and service multipliers which account for most of the economic activity stimulated by the health-system direct and indirect spending, the construction multipliers' are larger and will have a greater relative impact dollar for dollar.

The analysis shows that the project will add \$128 million in direct spending to the state, which will lead to \$266 million in increased indirect sales, of which \$87.9 million will be in earnings. This induced spending will support an additional 352 non-hospital jobs.

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<sup>18</sup> One-time cost.

## **Non-Quantified Benefits of the Proposed Reconfiguration**

The analysis includes some very specific assumptions about changes to the operations of MaineGeneral, but does not include an estimation of the other potential economic benefits derived from the new facility. MaineGeneral contemplates that the proposal will recapture a portion of lost local market share for services, be an effective draw for physician retention and recruitment, and allow the hospital greater flexibility in providing much needed services to the region. The new facility may increase patient visits as more area residents seek medical services at MaineGeneral and choose to keep their health-care spending in the region. This increase in use would increase the services provided and in turn further stimulate the economy.

Moreover, a new facility may attract new businesses and residents to the region as they seek to locate near a modern health-care facility. The local area will also benefit from the potential redeployment of the Seton and Augusta hospital sites to commercial properties. These benefits would include adding the two sizeable facilities to local tax rolls and attracting new businesses and jobs to the region.

## 6. Commuting Patterns

The MaineGeneral reconfiguration proposal will relocate many employees to different facilities, thus impacting their commuting patterns. According to the most recent estimates, most of the Augusta employees will be reassigned to the new building; some will go to Thayer. All of the Seton employees will be reassigned either to Thayer, the new Augusta location or other health-system site. Finally, a large portion of the Thayer employees will be assigned to the new facility in Augusta. For employees, this will mean a change in their travel patterns and associated annual expenses. Because the health system draws its employees from a wide region, some employees will have a reduced commute and others will have an increased commute. Some will travel further from home, others closer to home.

### Estimating the Current Commuting Costs

The change in commuting costs was calculated by first estimating the employees' current commute using Geographic Information Systems tools (GIS) and multiplying the commute by the 2008 reimbursement rate (\$0.58/mile) approved by the Internal Revenue Service (IRS) to cover full travel costs. These costs were adjusted by employee employment status (defined by full-time equivalent (FTE) status) to account for days worked and the number of vehicle trips per year. Table 6.1 shows the current commuting costs for employees at each of the three medical center sites. Appendix D contains full calculations of commuting times and costs as well as four maps illustrating the commutes for current employees to the medical center facilities: Augusta, Seton, Thayer and Harold Alfond Center for Cancer Care.

### Calculating the Net Change in Commute

Since it is not known which employees will be relocated to the new and existing sites, the average change in commute was calculated as if every employee was assigned to the new Augusta site. While there are countless possibilities and combinations of reassignment by residence, the change in commute from the employee's home to their current work location was assumed and compared to commuting to the new Augusta facility. This was determined to be the best approach to estimate *the average* impact on the employees who change work locations. However, it is important to note that the ultimate impact on the individual will depend on the location of their home and new work assignment.

MaineGeneral provided a dataset with location of employee residence by work location that was used to calculate current commute miles and the commute to the proposed facility location. The estimates are shown in Table 6.1.

Not surprisingly, the employees from the Waterville locations incur the highest increase in costs if transferred to Augusta. For Augusta-based employees, a move adds one mile to the average one-way commute, for the Waterville-based employees, the new trip will add 10 miles one-way for the average employee from Thayer and 7 miles one-way for the average employee from Seton. The ultimate impact on commute costs will depend on the combination of the relocation assignment as well as the employee's place of residence.

**Table 6.1 Average Annual Commute Costs: Current Compared to Moving to North Augusta Campus**

| <b>Employment Location</b> | <b>Current Average Daily Commute Miles (One way)</b> | <b>Current Annual Commuting Costs</b> | <b>New Average Daily Commute Miles (One way)</b> | <b>New Annual Commuting Costs</b> | <b>Average Difference</b> |
|----------------------------|--|---------------------------------------|--|-----------------------------------|---------------------------|
| Augusta Campus             | 14 miles   | \$3,336                               | 15 miles   | \$3,695                           | \$359                     |
| Seton Campus               | 11 miles   | \$2,746                               | 18 miles   | \$4,828                           | \$2,082                   |
| Thayer Campus              | 11 miles   | \$2,589                               | 21 miles   | \$5,152                           | \$2,563                   |

### **New Commutes Not Likely to Lead Employees to Change Residence**

The change in commute raises some questions about potential relocation by employees moving closer to their place of employment. While the ultimate decisions of employees are unknown, some comparison information offers perspective. On balance, the commute data look similar to commuting statistics for the state and for the general occupation class. The current and projected commute distances are slightly higher than the state average commute distance of 9 miles, one-way. However, the commute times are likely similar to the state average time, which is between 18 and 24 minutes.

This is not surprising because the central Maine region is not densely populated and so requires longer distance commutes which will likely take less time than an urban-area commute. Further, the national studies show that workers in highly skilled or professional occupations, like health care, are more likely to spend more time commuting as well as employees seeking higher paying jobs.<sup>19</sup> Commuting distance is only one of many factors that are considered by people in selecting their place of residence. Other factors include quality of life, availability of services, quality of schools, location of family members, to name a few. Because the commuting statistics are generally in line with state averages and many of the jobs are higher paying, professional occupations, a great number of employees relocating residence as a result of the new facility is not predicted.

<sup>19</sup> National Household Travel Survey, US Department of Transportation, Federal Highway Administration, November 2006.

## **7. Impact of Maintaining Status Quo at MaineGeneral**

Two major objectives of this report were to measure the economic contribution of MaineGeneral to the central Maine economy and to estimate how that might change if the proposed reconfiguration is pursued. The purpose is to inform decision making and planning as MaineGeneral looks to remain a viable and secure community health-care provider and employer in the region well into the future.

MaineGeneral, today, is a considerable economic presence in the region. The Medical Center currently has revenues of \$320 million and is estimated to contribute over \$138 million in economic activity to Kennebec County. With the proposed reconfiguration and consolidation, there will be some reductions in the number of staff compared to today's staffing levels as well as a relocation of employees and services. As the analysis shows, this may lead to a very small negative impact (2%) on the local economy compared to current levels. The move will also increase commuting costs for some relocated employees. However, these small impacts will be more than offset by the large positive impact of the sizeable construction project (\$322 million) and the improvement to health-care services in the region. Moreover, the analysis does not quantify the benefits of retaining and attracting new physicians and thus certain specialty practices in the area. The possible future loss of health-care spending dollars that will go to other regions may more than offset the reduction in hospital spending and employee spending.

Because of these issues and concerns as well as to put the project in context, it is important to weigh the effects of the proposed reconfiguration to the effects of doing nothing or maintaining the status quo. Simply asked, what will happen to the local areas if MaineGeneral does not make any changes? To answer this question, three underlying factors were considered:

- Physical facilities and infrastructure
- Patient/Procedure market share
- Physician retention and attraction

### **Physical Facilities and Infrastructure**

The facilities are dated. The hospital buildings were built in the 1960s. They are spread out across each campus and community in a number of buildings. They have a number of functional and infrastructure issues that require attention. Some cannot be addressed due to constraints. MaineGeneral provided a 2007 summary of facility conditions that lists a number of issues. Some of the highlights include:

#### Site Location

- Moderately difficult access to all three hospitals
- Remote or indirect access to all three hospitals from I-95
- Patient parking access issues for all three hospitals

## Function

- Poor patient privacy for all three hospitals
- Insufficient family waiting areas for all three hospitals
- Lack of sufficient private rooms for all three hospitals

## Infrastructure and Systems

- All three hospitals are energy inefficient
- Old systems and questionable reliability for electric, plumbing, and fire protection systems for all three hospitals
- Asbestos present in all three hospitals

The three sites, themselves, pose challenges to any modifications or modernization. Tucked in the older, more densely populated areas of each city, the medical center is limited by space as well as constrained by zoning requirements.

With MaineGeneral's current configuration, should nothing change, considerable and continued investment will be needed to address the current challenges presented by the aging facilities in multiple locations. Even as those investments are made, the inefficient facilities will not be able to accommodate modern health-care service delivery needs, patient demands or physician requirements. Maintaining the status quo would have a continued negative impact on patient visits and physician retention/attraction as both groups consider newer more modern options in-state offered by competitors.

## **Losing Market Share Argument**

The region is currently experiencing an outmigration of patient visits equivalent to 30% of MaineGeneral's current inpatient discharges or \$64 million in total hospital charges. Presently, the medical center has the capacity to serve at least one-third of these lost patient visits.

MaineGeneral reports that they lost two percentage points of market share for all services from 1997 to 2007 in their primary and secondary service areas. Three other competitor hospitals in central Maine also lost overall market share in MaineGeneral's service region during that time. See Table 7.1.

In contrast, competitors from the mid-coast and points south as well as in eastern Maine captured market share for all services from MaineGeneral's primary and secondary service areas. Table 7.2 details the market share for each location.

**Table 7.1 Market Share for Total Services in MaineGeneral Primary and Secondary Service Regions by Hospital 1997-2007**

| <b>Hospitals</b>    | <b>Maine General Medical Center</b> | <b>Inland Hospital</b> | <b>Reddington-Fairview General Hospital</b> | <b>Sebasticook Valley Hospital</b> |
|---------------------|-------------------------------------|------------------------|---|------------------------------------|
| Primary Location(s) | Augusta/Waterville                  | Waterville             | Skowhegan                                   | Pittsfield                         |
| Market Share 1997   | 56.2%                               | 7.4%                   | 10.2%                                       | 3.3%                               |
| Market Share 2007   | 54.1%                               | 6.8%                   | 7.6%  | 2.3%                               |

**Table 7.2 Market Share for Total Services in MaineGeneral Primary and Secondary Service Regions by Hospital 1997-2007**

| <b>Hospitals</b>    | <b>St. Mary's Regional Medical Center</b> | <b>Mid-Coast Hospital</b> | <b>Maine Medical Center</b> | <b>Central Maine Medical Center</b> | <b>Eastern Maine Medical Center</b> |
|---------------------|---|---------------------------|-----------------------------|-------------------------------------|-------------------------------------|
| Primary Location(s) | Lewiston                                  | Brunswick                 | Portland                    | Lewiston                            | Bangor                              |
| Market Share 1997   | 1.9%                                      | 0.7%                      | 7.6%                        | 2.7%                                | 3.6%                                |
| Market Share 2007   | 2.3%                                      | 1.6%                      | 9.4%                        | 3.3%                                | 5.4%                                |

This trend becomes more apparent when looking at specific services. From 1997 to 2007, MaineGeneral’s market share in its primary and secondary service areas decreased by four and ten percentage points, respectively, for general medicine and general surgery services. In contrast, Eastern Maine Medical Center in Bangor captured two and six additional percentage points of market share in MaineGeneral’s service area for those two services during that same time period.

Patients are seeking services that meet their needs and so are leaving MaineGeneral’s service area to go to more modern health-care facilities in other areas. Patient feedback suggests that this will continue and even expand if the facilities are not modernized.

Should nothing change it is not likely that the situation will improve and it is more likely that the trends will continue as competitors continue to make changes and updates to meet patient needs. If this should continue to deteriorate over time and market share loss is accompanied by real decrease in patient volume for certain services it could lead to the loss of some specialty services in the local area. This downward cycle will further jeopardize the economic viability of the hospital, limit health-care services to the central Maine region and erode economic activity from the local economy.

## Physician Supply

MaineGeneral used four independent methodologies to estimate local area need for physicians to inform its plans for physician retention and recruitment. All four estimates show that MaineGeneral faces a significant physician shortage. Across all specialties that shortage currently ranges from 4% to 38% depending on the report referenced. For specific specialties that ranges up and down. For internal medicine and family practice, the shortage ranges from 30% to 123%. For pediatrics, the shortage ranges from 68% to 138%.

A report from Dr. Diane Campbell, President of the MaineGeneral medical staff, summarizes the challenges of attracting physicians/specialists. Today's candidates are looking for the following:

- Less on-call shifts
- Fewer work hours
- Mentoring opportunities
- Group practices
- Salaried positions and support to handle the business side

MaineGeneral is not alone in facing physician shortages; the local situation is part of a greater national trend. Thus, the local medical center is competing in a national market to retain and attract physicians. These highly sought-after practitioners have many options to choose from. Consolidating inpatient services to a single location, updating facilities and accommodating the latest medical and office technologies would not only improve medical services, but would also shore-up the medical center's ability to retain and attract physicians and other practitioners. In the current multi-campus, multi-community setup and given the aging facilities, the medical center is not competitive in attracting a solid workforce. Multiple facilities spread staff more thinly and require more shifts and longer hours.

In addition to physician retention and attraction, there is an added challenge due to the nature of the existing workforce. Like much of Maine's workforce, the current pool of physicians/specialists in Maine is also aging. The Maine Department of Labor released a report on the state of the health-care workforce in 2004. Highlights include high mean ages (low 50s) across physician disciplines, a male-dominated composition and high annual needs projected through 2012. See Table 7.3.

**Table 7.3 Maine Physicians and Surgeon Overview - 2004**

|                                 | <b>Anesthesiologists</b> | <b>Family and General Practitioners</b> | <b>Internists</b> | <b>OBGYN</b> | <b>Pediatricians</b> | <b>Psychiatrists</b> | <b>Surgeons</b> |
|---------------------------------|--------------------------|---|-------------------|--------------|----------------------|----------------------|-----------------|
| Mean Age                        | 50.6                     | 49.4                                    | 49.6              | 51.1         | 49.3                 | 53                   | 53.5            |
| Over 60                         | 18.7%                    | 15.2%                                   | 18.8%             | 22.0%        | 22.4%                | 28.2%                | 35.2%           |
| Male                            | 78.9%                    | 62.0%                                   | 68.5%             | 56.1%        | 51.6%                | 68.1%                | 89.9%           |
| Female                          | 21.1%                    | 38.0%                                   | 31.5%             | 43.9%        | 48.4%                | 31.9%                | 10.1%           |
| Inactive                        | 3.3%                     | 4.8%                                    | 7.8%              | 9.8%         | 10.4%                | 4.1%                 | 6.1%            |
| Average Pay Maine               | \$191,693                | \$125,362                               | \$146,203         | \$184,891    | \$137,363            | \$159,411            | \$196,955       |
| Percent of National Average     | 109.8%                   | 90.9%                                   | 93.2%             | 106.0%       | 98.1%                | 105.3%               | 108.3%          |
| Estimated Annual Need 2002-2012 | 5                        | 30                                      | 10                | 5            | 5                    | 7                    | 17              |

Source: 2006 Health Care Occupation Report, Maine Department of Labor.

A look at MaineGeneral’s data confirms these findings. Mean age for physicians across all disciplines is 50. In specific disciplines it can run into the 60s and the as high as the upper 70s. These physicians/specialists will be retiring in the foreseeable future or at the very least, taking fewer responsibilities and hours as they approach the end of their careers. The challenge currently is that there are not enough trained candidates to fill those positions that open. Again, from Dr. Campbell’s report, a few key reasons are:

- There are fewer medical school student seats due to an inaccurate physician oversupply projection conducted in past decades.
- Not all physicians in training go on to practice medicine.
- Burdensome medical school bills and the subsequent need for higher earnings limit many physicians’ options for employment.
- The current insurance reimbursement rates and necessary business structures required to support health-services delivery no longer make small practices appealing or viable.

For Maine there are additional factors. Maine does not have a large research-funded medical school. The University of New England has a Doctor of Osteopathy program but it is not on a scale similar to other larger medical schools in New England and around the country. This is a key means of attracting physicians and placing them around the state. Also, referring to Table 7.3 again, relative salaries in Maine differ by specialty. For some practice areas, salaries are on par or better than the national averages. For others, like family and general practitioners and internists, average salaries fall below national averages. These are two areas where the greatest need is projected over the next few years.

Physician retention and attraction is critical to the future of MaineGeneral. Without adequate staffing levels for various services demanded by patients, MaineGeneral may be faced with the decision to stop certain service offerings which will lead to a further decline in market share as patients leave the area for services. Some specialty areas with only one or two physicians are in a more precarious position than others.

Overall, these factors are compromising MaineGeneral's future viability as both a health-care provider and large employer in the region. An inefficient and spread-out physical plant has negative effects on the ability to attract and retain both patients and physicians. Without some substantive change to the delivery model it is not likely at this point in time that these downward trends will right themselves.

## **8. Conclusion – MaineGeneral Present and Future**

Estimates indicate that MaineGeneral is not only the largest health-care provider in central Maine, but also one of the area's largest employers with an average payroll exceeding \$136 million for more than 3,500 employees.

As a large business and employer, the organization contributes \$91 million directly to the local economy through purchases and employee spending in Kennebec County. This contribution then spurs \$138 million in total output and earnings which support an additional 1,346 jobs. Simply put, for each \$1 spent in the local region, it generates \$0.52 in additional spending stimulated by the initial expense. This is a multiplier effect of 1.52. For every three MaineGeneral employees, an additional job is supported in the region.

The medical center's proposal to consolidate inpatient service from three locations to a single site in Augusta is likely to have significant economic benefits that far outweigh any short-term loss to the local economy.

- The new medical center will help to maintain the critical mass of patients and physicians needed for a viable health-care provider in a poorer region.
- Reconfigured facilities with more up-to-date amenities will draw in area patients who are currently purchasing medical services outside of the MaineGeneral Health primary service area.
- Consolidation of inpatient services, larger specialty practices, and modernization of the facilities will be a key tool for physician retention and attraction in an increasingly competitive labor market.
- From a larger economic development perspective, the presence of a new, modern, state-of-the-art medical center serves as a major attraction for people of all ages, business, and a wide array of investments in the region.
- In the short-term, the project will bring more than \$266 million in direct and indirect spending to the state through the large construction project and may add two large commercial properties to local tax rolls.
- The potential negative effects of the project include a short-term reduction to the local area economic activity by \$3.9 million (or -2%) through a possible reduction in the number of employees as well as through efficiencies gained through consolidation.
- The project may also increase employee commutes by anywhere from 1 to 10 miles per day, on average, but the increased commute is no greater than typical commutes to high quality jobs for workers in Maine.
- Making no change to the facilities or maintaining the "status quo" will likely lead to a continued loss of patients, practitioners and health-care services at MaineGeneral.

## Appendix A. Employee Spending in Kennebec County

| <b>Estimated Total Spending in Kennebec County by All MaineGeneral Medical Center Employees</b>   |                       |                            |
|---|-----------------------|----------------------------|
| <b>Survey Question</b>  | <b>Total Spending</b> | <b>% of Total Spending</b> |
| How much does your household typically spend on groceries each year?  | \$10,020,967          | 16.2%                      |
| What was the price purchased real estate, if any?   | \$ 9,812,172          | 15.8%                      |
| How much does your household typically spend on gasoline each year?   | \$ 7,610,749          | 12.3%                      |
| What was the total price of purchased vehicle(s)?   | \$ 7,118,004          | 11.5%                      |
| How much did your household spend on visits to the doctor or dentist and/or other health-care related expenses in the past YEAR (do not include payments covered by insurance)? | \$ 5,578,928          | 9.0%                       |
| How much did your household spend on heating your home(s) in the past YEAR?   | \$ 3,802,012          | 6.1%                       |
| How much do you pay in rent, if anything?   | \$ 1,937,367          | 3.1%                       |
| How much did your household spend on durable goods in the past YEAR?  | \$ 1,805,084          | 2.9%                       |
| How much did your household spend on maintenance and repairs for your home in the past YEAR (lawn care, snow removal, plumbing, gardening supplies, paint, etc.)?               | \$ 1,730,100          | 2.8%                       |
| How much does your household typically spend on beer, wine, liquor, cigarettes, and tobacco products each year (not including spending at bars and restaurants)?                | \$ 1,624,931          | 2.6%                       |
| How much did your household spend on regular maintenance for your vehicles in the past YEAR (including boat storage)?   | \$ 1,530,001          | 2.5%                       |
| Approximate Spending on tuition, room and board per year in Kennebec County?  | \$ 1,295,784          | 2.1%                       |
| How much does your household typically spend at restaurants or bars each year (dining in or take-out)?  | \$ 1,276,372          | 2.1%                       |

**Estimated Total Spending in Kennebec County by All MaineGeneral Medical Center Employees**

| <b>Survey Question</b>  | <b>Total Spending</b> | <b>% of Total Spending</b> |
|---|-----------------------|----------------------------|
| How much does your household typically spend on clothes or shoes each year?   | \$ 1,119,417          | 1.8%                       |
| How much did your household donate to charities in the past YEAR (money donations only)?  | \$ 1,069,312          | 1.7%                       |
| How much does your household spend on childcare, preschool, and/or adult daycare each year?   | \$ 1,063,324          | 1.7%                       |
| How much does your household spend on personal care each year (haircuts, manicures, make-up, laundry, dry cleaning, etc.)?                                    | \$ 969,309            | 1.6%                       |
| How much does your household spend on water and sewer each year (excluding heating your home)?  | \$ 806,347            | 1.3%                       |
| How much does your household typically spend on entertainment each year (movies, bowling, etc.)?  | \$ 592,533            | 1.0%                       |
| How much did your household spend on other hobbies in the past YEAR?  | \$ 552,728            | 0.9%                       |
| How much does your household typically spend on office or school supplies each year (paper, pencils, ink cartridges, etc.)?                                   | \$ 373,779            | 0.6%                       |
| How much did your household spend on outdoor recreation in the past YEAR (camping, kayaking/canoeing, sailing, hunting, fishing, skiing, snowmobiling, etc.)? | \$ 309,809            | 0.5%                       |
| <b>Total</b>  | <b>\$61,999,029</b>   | <b>100%</b>                |

### Maine General Health Annual Employee Spending in Kennebec County by Employee Income Level

| Spending Category   | Over 100k |           | 75k - 100k |           | 50k - 75k |             | 35k - 50k |             |
|---|-----------|-----------|------------|-----------|-----------|-------------|-----------|-------------|
|   | Average   | Total     | Average    | Total     | Average   | Total       | Average   | Total       |
| Tuition, Room And Board   | \$1,385   | \$173,125 | \$555      | \$68,760  | \$546     | \$345,326   | \$204     | \$147,456   |
| Childcare, Preschool, And/Or Adult  | \$535     | \$66,847  | \$316      | \$39,151  | \$464     | \$293,909   | \$303     | \$218,893   |
| Rent  | \$11,348  | \$50,658  | \$10,170   | \$38,604  | \$7,269   | \$315,158   | \$6,182   | \$449,265   |
| Water And Sewer   | \$503     | \$62,824  | \$250      | \$31,059  | \$335     | \$211,758   | \$280     | \$202,185   |
| Real Estate   | \$191,875 | \$856,585 | \$150,458  | \$942,264 | \$73,767  | \$1,918,944 | \$135,338 | \$3,807,026 |
| Groceries   | \$5,155   | \$644,328 | \$4,774    | \$591,978 | \$3,716   | \$2,352,274 | \$3,096   | \$2,235,068 |
| Beer, Wine, Liquor, Cigarettes, And Tobacco Products                      | \$908     | \$113,554 | \$672      | \$83,298  | \$629     | \$398,343   | \$442     | \$319,032   |
| Gasoline  | \$3,426   | \$428,248 | \$3,094    | \$383,714 | \$2,811   | \$1,779,359 | \$2,309   | \$1,667,049 |
| Restaurants Or Bars   | \$732     | \$91,494  | \$680      | \$84,347  | \$555     | \$351,252   | \$372     | \$268,939   |
| Office Or School Supplies   | \$218     | \$27,205  | \$210      | \$26,068  | \$151     | \$95,460    | \$102     | \$73,990    |
| Entertainment   | \$357     | \$44,619  | \$254      | \$31,447  | \$241     | \$152,632   | \$176     | \$127,342   |
| Clothes Or Shoes  | \$555     | \$69,427  | \$520      | \$64,487  | \$452     | \$286,367   | \$326     | \$235,611   |
| Personal Care   | \$607     | \$75,903  | \$430      | \$53,297  | \$374     | \$236,804   | \$266     | \$191,940   |
| Vehicle(S)  | \$17,223  | \$538,221 | \$12,398   | \$465,851 | \$13,657  | \$2,161,278 | \$9,120   | \$1,753,117 |
| Regular Maintenance For Vehicles  | \$923     | \$115,313 | \$665      | \$82,455  | \$620     | \$392,722   | \$409     | \$295,555   |
| Outdoor Recreation  | \$156     | \$19,557  | \$132      | \$16,387  | \$114     | \$72,320    | \$112     | \$80,555    |
| Other Hobbies   | \$727     | \$90,868  | \$228      | \$28,288  | \$205     | \$129,576   | \$178     | \$128,333   |
| Durable Goods   | \$1,243   | \$155,376 | \$873      | \$108,244 | \$601     | \$380,177   | \$576     | \$415,633   |
| Maintenance And Repairs For Your Home                                     | \$1,361   | \$170,078 | \$821      | \$101,849 | \$819     | \$518,266   | \$490     | \$354,112   |
| Visits To The Doctor Or Dentist And/Or Other Health-Care Related Expenses | \$4,085   | \$510,605 | \$2,699    | \$334,713 | \$2,276   | \$1,440,514 | \$1,714   | \$1,237,614 |
| Heating   | \$3,166   | \$395,709 | \$1,832    | \$227,156 | \$1,640   | \$1,038,415 | \$1,152   | \$831,737   |
| Charitable Donations  | \$1,725   | \$215,622 | \$640      | \$79,339  | \$489     | \$309,832   | \$253     | \$182,782   |

### Maine General Health Annual Employee Spending in Kennebec County by Employee Income Level

| Spending Category   | 25k - 35k |             | 10k - 25k |             | Under 10k |           |
|---|-----------|-------------|-----------|-------------|-----------|-----------|
|   | Average   | Total       | Average   | Total       | Average   | Total     |
| Tuition, Room And Board   | \$295     | \$203,808   | \$359     | \$262,128   | \$129     | \$95,181  |
| Childcare, Preschool, And/Or Adult  | \$239     | \$165,002   | \$244     | \$178,270   | \$137     | \$101,251 |
| Rent  | \$5,442   | \$527,240   | \$3,454   | \$409,843   | \$1,172   | \$146,598 |
| Water And Sewer   | \$183     | \$126,121   | \$152     | \$110,694   | \$83      | \$61,706  |
| Real Estate   | \$83,447  | \$1,372,902 | \$32,210  | \$712,514   | \$19,375  | \$201,937 |
| Groceries   | \$3,022   | \$2,088,092 | \$1,944   | \$1,419,387 | \$932     | \$689,840 |
| Beer, Wine, Liquor, Cigarettes, And Tobacco Products                      | \$439     | \$303,062   | \$375     | \$273,967   | \$181     | \$133,675 |
| Gasoline  | \$2,305   | \$1,592,662 | \$1,622   | \$1,184,357 | \$778     | \$575,361 |
| Restaurants Or Bars   | \$352     | \$242,889   | \$223     | \$163,075   | \$101     | \$74,376  |
| Office Or School Supplies   | \$102     | \$70,620    | \$68      | \$49,908    | \$41      | \$30,528  |
| Entertainment   | \$164     | \$113,041   | \$113     | \$82,602    | \$55      | \$40,849  |
| Clothes Or Shoes  | \$329     | \$227,308   | \$209     | \$152,205   | \$114     | \$84,012  |
| Personal Care   | \$284     | \$196,389   | \$186     | \$135,587   | \$107     | \$79,390  |
| Vehicle(S)  | \$8,158   | \$1,237,788 | \$4,592   | \$674,088   | \$2,300   | \$287,662 |
| Regular Maintenance For Vehicles  | \$433     | \$299,501   | \$318     | \$231,804   | \$152     | \$112,651 |
| Outdoor Recreation  | \$79      | \$54,779    | \$64      | \$46,543    | \$27      | \$19,667  |
| Other Hobbies   | \$127     | \$87,524    | \$77      | \$55,963    | \$43      | \$32,176  |
| Durable Goods   | \$526     | \$363,416   | \$328     | \$239,503   | \$193     | \$142,735 |
| Maintenance And Repairs For Your Home                                     | \$459     | \$317,411   | \$239     | \$174,248   | \$127     | \$94,137  |
| Visits To The Doctor Or Dentist And/Or Other Health-Care Related Expenses | \$1,452   | \$1,003,605 | \$997     | \$727,800   | \$438     | \$324,077 |
| Heating   | \$902     | \$623,581   | \$653     | \$476,807   | \$282     | \$208,609 |
| Charitable Donations  | \$228     | \$157,762   | \$133     | \$97,321    | \$36      | \$26,654  |

## Appendix B. MaineGeneral Direct Spending and Contribution to the Local Economy

| <b>MaineGeneral Health Vendor Spending Multiplier Effects</b> |                   |                      |                        |                          |
|---|-------------------|----------------------|------------------------|--------------------------|
| <b>Multiplier Category</b>                                    | <b>Sum Amount</b> | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect</b> |
| 111400 - Greenhouse and nursery production                    | \$2,515           | \$3,433              | \$765                  | 0.1                      |
| 2211A0 - Power generation and supply                          | \$3,160,644       | \$4,150,241          | \$690,285              | 13.7                     |
| 221200 - Natural gas distribution                             | \$5,479           | \$5,479              | \$0                    | -                        |
| 221300 - Water, sewage and other systems                      | \$526,862         | \$526,862            | \$0                    | -                        |
| 230000 - Construction   | \$12,301,845      | \$19,922,839         | \$5,327,929            | 175.5                    |
| 314120 - Curtain and linen mills                              | \$9,664           | \$9,664              | \$0                    | -                        |
| 31499A - Other miscellaneous textile product mills            | \$452             | \$657                | \$113                  | 0.0                      |
| 315200 - Cut and sew apparel manufacturing                    | \$39,295          | \$59,674             | \$10,248               | 0.3                      |
| 32311A - Commercial printing                                  | \$64,500          | \$98,170             | \$20,956               | 0.6                      |
| 332710 - Machine shops  | \$250             | \$406                | \$117                  | 0.0                      |
| 339113 - Surgical appliance and supplies manufacturing        | \$15,413          | \$22,237             | \$4,175                | 0.1                      |
| 339910 - Jewelry and silverware manufacturing                 | \$210             | \$210                | \$0                    | -                        |
| 339950 - Sign manufacturing                                   | \$2,662           | \$3,948              | \$929                  | 0.0                      |
| 420000 - Wholesale trade                                      | \$362,484         | \$559,856            | \$145,356              | 3.9                      |
| 484000 - Truck transportation                                 | \$26,528          | \$40,234             | \$8,746                | 0.3                      |
| 485A00 - Transit and ground passenger transportation          | \$33,520          | \$56,283             | \$18,996               | 1.1                      |
| 491000 - Postal service                                       | \$13,998          | \$21,183             | \$8,281                | 0.2                      |
| 4A0000 - Retail trade   | \$4,840,274       | \$7,776,385          | \$2,106,003            | 92.1                     |
| 511110 - Newspaper publishers                                 | \$149,417         | \$230,206            | \$65,982               | 2.2                      |
| 5111A0 - Database, directory, and other publishers            | \$28,431          | \$28,431             | \$0                    | -                        |

| <b>MaineGeneral Health Vendor Spending Multiplier Effects</b>           |                   |                      |                        |                          |
|---|-------------------|----------------------|------------------------|--------------------------|
| <b>Multiplier Category</b>  | <b>Sum Amount</b> | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect</b> |
| 512100 - Motion picture and video industries                            | \$10,520          | \$15,129             | \$3,249                | 0.1                      |
| 513100 - Radio and television broadcasting                              | \$36,925          | \$36,925             | \$0                    | -                        |
| 513300 - Telecommunications   | \$68,450          | \$97,637             | \$17,954               | 0.4                      |
| 514100 - Information services   | \$125,000         | \$211,063            | \$78,488               | 2.9                      |
| 522A00 - Nondepository credit intermediation and related activities     | \$979             | \$1,394              | \$293                  | 0.0                      |
| 524200 - Insurance agencies, brokerages, and related                    | \$202,110         | \$285,844            | \$61,239               | 1.6                      |
| 525000 - Funds, trusts, and other financial vehicles                    | \$3,680           | \$5,350              | \$831                  | 0.0                      |
| 52A000 - Monetary authorities and depository credit intermediation      | \$3,179           | \$4,344              | \$892                  | 0.0                      |
| 531000 - Real estate  | \$1,020,555       | \$1,356,113          | \$171,963              | 8.5                      |
| 532A00 - General and consumer goods rental except video tapes and discs | \$8,016           | \$11,050             | \$2,071                | 0.1                      |
| 541100 - Legal services   | \$1,276,988       | \$2,083,406          | \$776,281              | 16.6                     |
| 541200 - Accounting and bookkeeping services                            | \$2,327           | \$3,727              | \$1,372                | 0.1                      |
| 541300 - Architectural and engineering services                         | \$40,924          | \$64,554             | \$24,129               | 0.6                      |
| 541400 - Specialized design services                                    | \$6,625           | \$10,505             | \$3,571                | 0.2                      |
| 541511 - Custom computer programming services                           | \$220             | \$330                | \$103                  | 0.0                      |
| 541512 - Computer systems design services                               | \$69,575          | \$106,881            | \$33,187               | 0.8                      |
| 541610 - Management consulting services                                 | \$25,665          | \$39,837             | \$12,822               | 0.5                      |
| 541700 - Scientific research and development services                   | \$15              | \$22                 | \$5                    | 0.0                      |
| 541800 - Advertising and related services                               | \$35,979          | \$52,159             | \$12,629               | 0.4                      |
| 541920 - Photographic services  | \$3,343           | \$5,041              | \$1,365                | 0.0                      |
| 5419A0 - All other miscellaneous professional and technical services    | \$80,602          | \$103,590            | \$16,427               | 0.4                      |
| 550000 - Management of companies and enterprises                        | \$8,460           | \$14,080             | \$5,146                | 0.1                      |

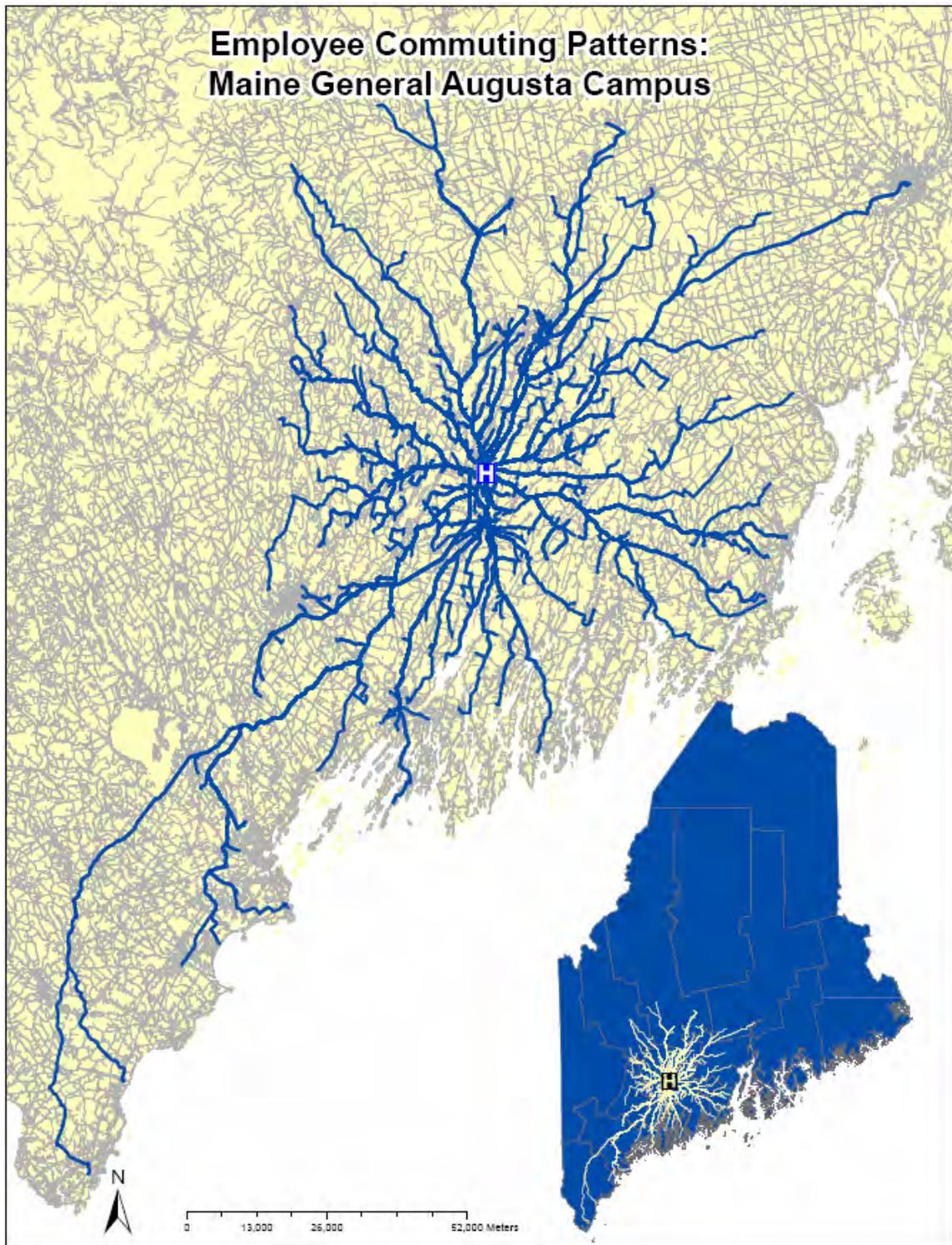
| <b>MaineGeneral Health Vendor Spending Multiplier Effects</b>                  |                   |                      |                        |                          |
|--|-------------------|----------------------|------------------------|--------------------------|
| <b>Multiplier Category</b>   | <b>Sum Amount</b> | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect</b> |
| 561200 - Facilities support services   | \$2,875           | \$4,319              | \$1,436                | 0.0                      |
| 561300 - Employment services   | \$28,522          | \$42,373             | \$15,944               | 0.9                      |
| 561400 - Business support services   | \$73,334          | \$109,466            | \$29,759               | 1.5                      |
| 561500 - Travel arrangement and reservation services                           | \$53,328          | \$91,660             | \$26,493               | 1.1                      |
| 561600 - Investigation and security services                                   | \$24,529          | \$38,039             | \$14,121               | 0.7                      |
| 561700 - Services to buildings and dwellings                                   | \$167,294         | \$275,014            | \$77,089               | 4.4                      |
| 561900 - Other support services  | \$45,533          | \$66,924             | \$16,196               | 0.7                      |
| 562000 - Waste management and remediation services                             | \$6,275           | \$9,817              | \$2,361                | 0.1                      |
| 611100 - Elementary and secondary schools                                      | \$23,733          | \$40,554             | \$12,856               | 0.6                      |
| 611A00 - Colleges, universities, and junior colleges                           | \$144,860         | \$238,802            | \$76,921               | 3.0                      |
| 611B00 - Other educational services  | \$18,123          | \$27,655             | \$6,678                | 0.3                      |
| 621A00 - Offices of physicians, dentists, and other health practitioners       | \$742,469         | \$1,168,127          | \$408,284              | 9.5                      |
| 621B00 - Other ambulatory health-care services                                 | \$489,511         | \$808,575            | \$239,175              | 7.4                      |
| 622000 - Hospitals   | \$54,630          | \$88,315             | \$26,938               | 0.8                      |
| 623000 - Nursing and residential care facilities                               | \$475             | \$785                | \$273                  | 0.0                      |
| 624400 - Child day care services   | \$95,691          | \$146,082            | \$36,171               | 2.3                      |
| 624A00 - Social assistance, except child day care services                     | \$22,465          | \$36,624             | \$10,543               | 0.5                      |
| 711100 - Performing arts companies   | \$1,000           | \$1,427              | \$334                  | 0.0                      |
| 711A00 - Promoters of performing arts and sports and agents for public figures | \$12,585          | \$17,953             | \$3,749                | 0.2                      |
| 713940 - Fitness and recreational sports centers                               | \$22,979          | \$38,118             | \$11,563               | 0.9                      |
| 713950 - Bowling centers   | \$120             | \$191                | \$57                   | 0.0                      |
| 713A00 - Other amusement, gambling, and recreation industries                  | \$11,486          | \$17,822             | \$5,446                | 0.3                      |

| <b>MaineGeneral Health Vendor Spending Multiplier Effects</b>      |                     |                      |                        |                          |
|--|---------------------|----------------------|------------------------|--------------------------|
| <b>Multiplier Category</b>   | <b>Sum Amount</b>   | <b>Output Effect</b> | <b>Earnings Effect</b> | <b>Employment Effect</b> |
| 7211A0 - Hotels and motels, including casino hotels                | \$57,037            | \$84,277             | \$22,672               | 1.2                      |
| 722000 - Food services and drinking places                         | \$64,840            | \$102,363            | \$30,864               | 2.0                      |
| 811192 - Car washes  | \$424               | \$627                | \$166                  | 0.0                      |
| 8111A0 - Automotive repair and maintenance, except car washes      | \$9,473             | \$14,183             | \$3,552                | 0.2                      |
| 811200 - Electronic equipment repair and maintenance               | \$53,676            | \$82,135             | \$26,119               | 0.9                      |
| 811400 - Household goods repair and maintenance                    | \$9,780             | \$13,749             | \$3,240                | 0.1                      |
| 812300 - Dry-cleaning and laundry services                         | \$1,688             | \$2,653              | \$824                  | 0.0                      |
| 812900 - Other personal services                                   | \$620               | \$880                | \$145                  | 0.0                      |
| 813A00 - Grant making and giving and social advocacy organizations | \$125,083           | \$216,831            | \$54,561               | 2.0                      |
| 813B00 - Civic, social, professional and similar organizations     | \$331,610           | \$577,697            | \$150,319              | 7.8                      |
| S00A00 - Other government enterprises                              | \$96,915            | \$149,860            | \$29,530               | 0.8                      |
|  |                     |                      |                        |                          |
| <b>Total Effect</b>  | <b>\$27,407,543</b> | <b>\$42,539,278</b>  | <b>\$10,977,280</b>    | <b>374.0</b>             |

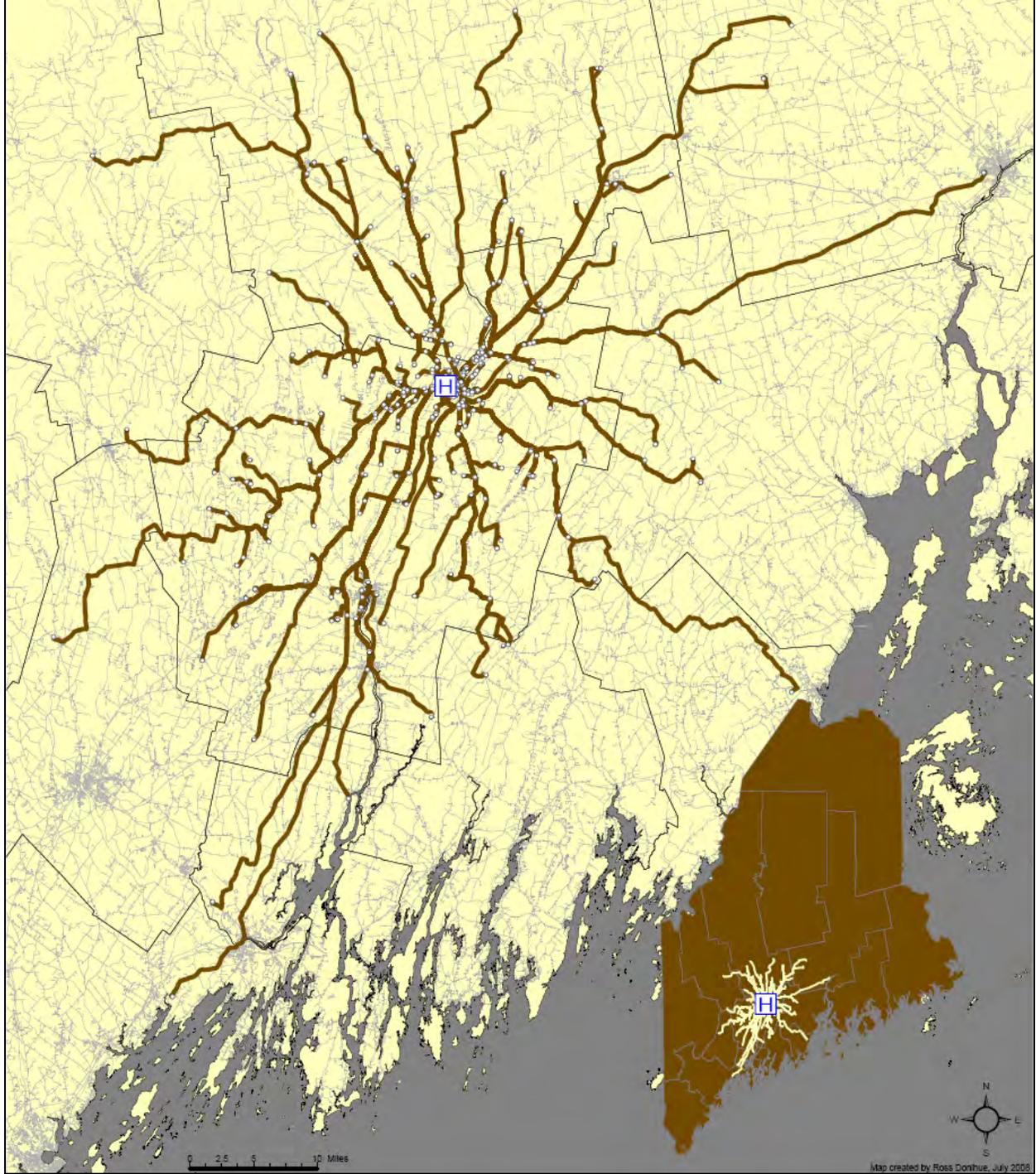
## Appendix C. Total Contributions of MaineGeneral Spending on the Local Economy

| <b>MaineGeneral Health- Net Effects of Direct and Induced Spending</b> |   |   |                                  |
|--|---|---|----------------------------------|
|  | <b>Total effects of Employee Spending</b> | <b>Total Effects of Vendor Spending</b> | <b>Total Effects of Spending</b> |
| 1. Agriculture, forestry, fishing, and hunting                         | \$228,132                                 | \$141,994                               | \$370,126                        |
| 2. Mining  | \$519                                     | \$3,691                                 | \$4,210                          |
| 3. Utilities   | \$5,750,098                               | \$4,084,240                             | \$9,834,338                      |
| 4. Construction  | \$2,280,994                               | \$12,508,404                            | \$14,789,398                     |
| 5. Manufacturing   | \$1,554,285                               | \$1,375,855                             | \$2,930,140                      |
| 6. Wholesale trade   | \$1,904,091                               | \$1,657,433                             | \$3,561,524                      |
| 7. Retail trade  | \$33,387,796                              | \$7,026,469                             | \$40,414,266                     |
| 8. Transportation and warehousing                                      | \$1,295,760                               | \$776,384                               | \$2,072,144                      |
| 9. Information   | \$1,602,491                               | \$1,099,778                             | \$2,702,270                      |
| 10. Finance and insurance  | \$1,443,891                               | \$990,923                               | \$2,434,815                      |
| 11. Real estate and rental and leasing                                 | \$16,456,831                              | \$3,071,834                             | \$19,528,666                     |
| 12. Professional, scientific, and technical services                   | \$2,189,301                               | \$2,984,613                             | \$5,173,914                      |
| 13. Management of companies and enterprises                            | \$2,695,444                               | \$736,797                               | \$3,432,241                      |
| 14. Administrative and waste management services                       | \$1,854,953                               | \$1,106,682                             | \$2,961,635                      |
| 15. Educational services   | \$1,822,547                               | \$469,103                               | \$2,291,650                      |
| 16. Health care and social assistance                                  | \$9,945,827                               | \$5,063,603                             | \$15,009,430                     |
| 17. Arts, entertainment, and recreation                                | \$1,121,769                               | \$162,315                               | \$1,284,084                      |
| 18. Accommodation and food services                                    | \$2,740,043                               | \$941,973                               | \$3,682,016                      |
| 19. Other services   | \$5,001,605                               | \$1,380,648                             | \$6,382,253                      |

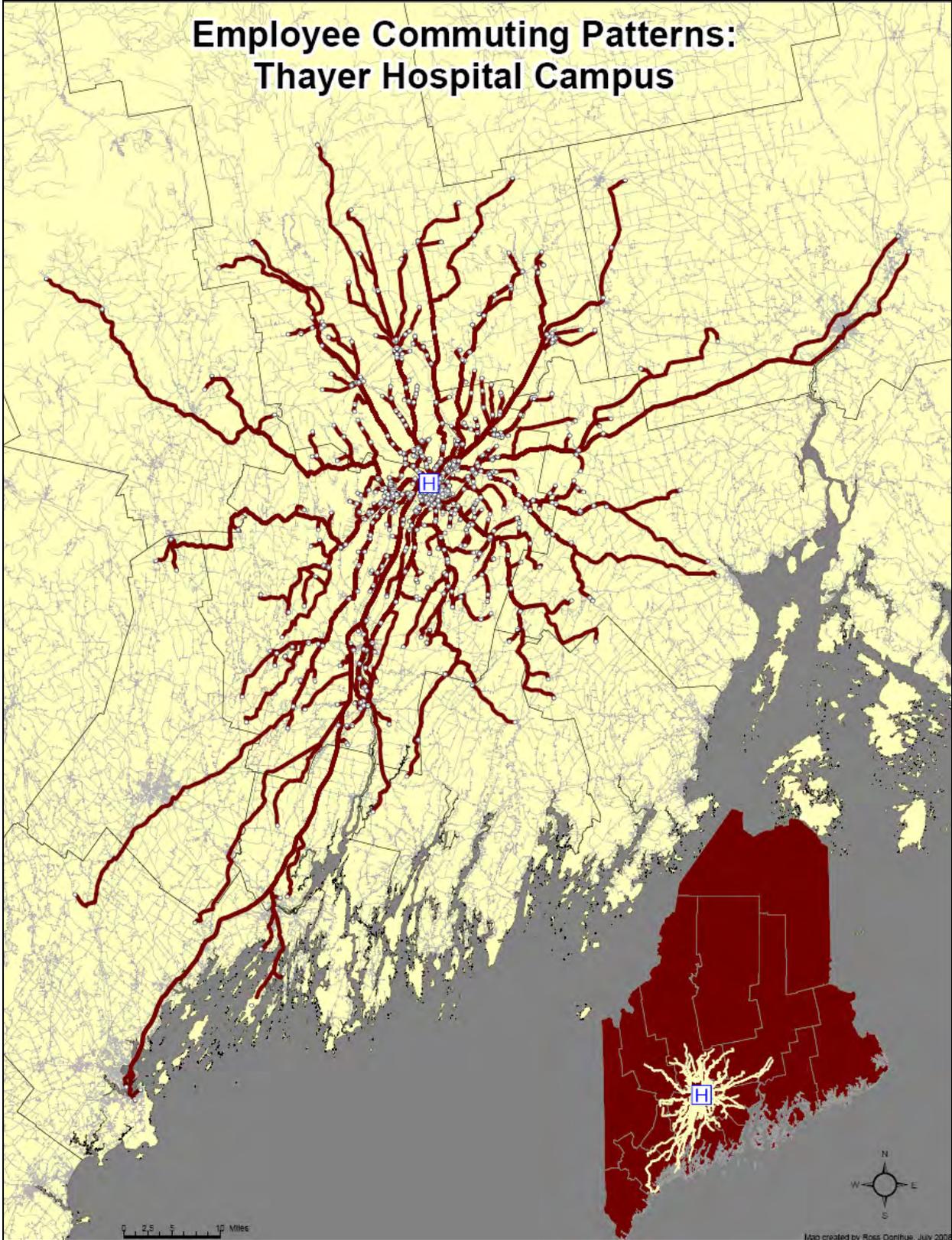
**Appendix D. Maps of Current Commutes for MaineGeneral Employees**



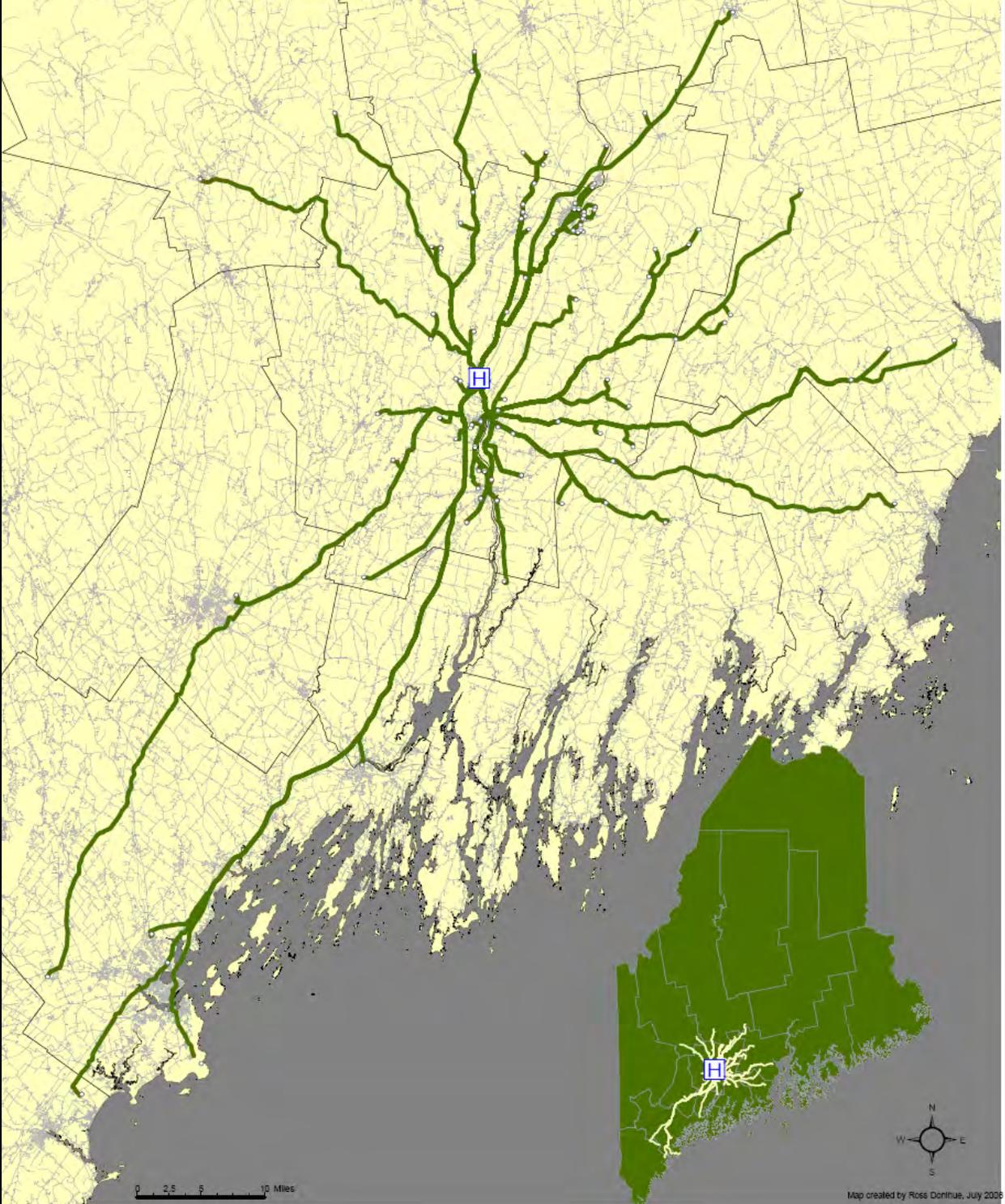
# Employee Commuting Patterns: Seton Hospital Campus



# Employee Commuting Patterns: Thayer Hospital Campus



# Employee Commuting Patterns: Augusta Cancer Center Campus



Map created by Ross Dornhues, July 2005

**Appendix D. Detailed Analysis of Commuting Costs and Impacts Due to Relocation of Employees**

| <b>Average Annual Commute Costs by Place of Employment 2008</b> |              |                   |                                       |                            |
|---|--------------|-------------------|---------------------------------------|----------------------------|
| <b>Augusta Employees 2008</b>                                   |              |                   |                                       |                            |
| <b>Description of Commute</b>                                   |              | <b>FTE Status</b> | <b>Average annual commuting costs</b> | <b>Number of Employees</b> |
| Employees   | 740          | 0.1 to 0.35       | \$ 1,382                              | 10                         |
| Average commute (one-way)                                       | 14 miles     | 0.35 to 0.55      | \$ 1,198                              | 24                         |
| Average annual commuting cost per employee                      | \$ 3,336     | 0.45 to 0.75      | \$2,316                               | 56                         |
| Total commuting costs - all employees                           | \$ 2,468,757 | 0.75 to 0.95      | \$ 3,451                              | 285                        |
|   |              | 0.95 to 1.0       | \$ 3,597                              | 365                        |
| <b>Seton Employees 2008</b>                                     |              |                   |                                       |                            |
| <b>Description of Commute</b>                                   |              | <b>FTE Status</b> | <b>Average annual commuting costs</b> | <b>Employees</b>           |
| Employees   | 314          | 0.1 to 0.35       | \$ 289                                | 1                          |
| Average commute (one- way)                                      | 11 miles     | 0.35 to 0.55      | \$ 1,142                              | 10                         |
| Average annual commuting cost per employee                      | \$ 2,746     | 0.45 to 0.75      | \$2,491                               | 22                         |
| Total commuting costs - all employees                           | \$ 862,162   | 0.75 to 0.95      | \$ 2,961                              | 71                         |
|   |              | 0.95 to 1.0       | \$ 2,788                              | 210                        |
| <b>Thayer Employees 2008</b>                                    |              |                   |                                       |                            |
| <b>Description of Commute</b>                                   |              | <b>FTE Status</b> | <b>Average annual commuting costs</b> | <b>Employees</b>           |
| Employees   | 740          | 0.1 to 0.35       | \$ 395                                | 4                          |
| Average commute (one-way)                                       | 11 miles     | 0.35 to 0.55      | \$ 1,574                              | 26                         |
| Average annual commuting cost per employee                      | \$ 2,589     | 0.45 to 0.75      | \$1,957                               | 55                         |
| Total commuting costs - all employees                           | \$ 1,915,912 | 0.75 to 0.95      | \$ 2,670                              | 274                        |
|   |              | 0.95 to 1.0       | \$ 2,715                              | 381                        |

**Estimated Change in Commute for MaineGeneral Employees  
Scenario-All Employees Relocated to the Harold Alfond Center for Cancer Care**

| Location          | Current Commute                          |                                | Alternative Scenario:<br>Commute to the Augusta<br>Cancer Center Location |                                | Differences                              |                                |
|-------------------|--|--------------------------------|---|--------------------------------|--|--------------------------------|
|                   | Average<br>One-Way<br>Commute<br>(miles) | Annual Cost -<br>All Employees | Average<br>One-Way<br>Commute<br>(miles)                                  | Annual Cost -<br>All Employees | Average<br>One-Way<br>Commute<br>(miles) | Annual Cost -<br>All Employees |
| Augusta           | 14                                       | \$ 2,468,757                   | 15  | \$ 2,734,322                   | 1  | \$ 265,565                     |
| FTE: 0.1 to 0.35  | 17                                       | \$ 13,825                      | 18  | \$ 14,973                      | 1  | \$ 1,148                       |
| FTE: 0.35 to 0.55 | 9  | \$ 28,740                      | 11  | \$ 36,232                      | 2  | \$ 7,492                       |
| FTE: 0.45 to 0.75 | 14                                       | \$ 129,706                     | 15  | \$ 143,030                     | 1  | \$ 13,324                      |
| FTE: 0.75 to 0.95 | 15                                       | \$ 983,414                     | 16  | \$ 1,089,211                   | 1  | \$ 105,797                     |
| FTE: 0.95 to 1.0  | 13                                       | \$ 1,313,072                   | 14  | \$ 1,450,876                   | 1  | \$ 137,804                     |
| Seton             | 11                                       | \$ 862,162                     | 18  | \$ 1,515,934                   | 7  | \$ 653,772                     |
| FTE: 0.1 to 0.35  | 10                                       | \$ 289                         | 25  | \$ 706                         | 15                                       | \$ 417                         |
| FTE: 0.35 to 0.55 | 8  | \$ 11,419                      | 23  | \$ 30,061                      | 15                                       | \$ 18,642                      |
| FTE: 0.45 to 0.75 | 15                                       | \$ 54,811                      | 17  | \$ 61,602                      | 2  | \$ 6,791                       |
| FTE: 0.75 to 0.95 | 13                                       | \$ 210,215                     | 21  | \$ 352,199                     | 8  | \$ 141,984                     |
| FTE: 0.95 to 1.0  | 10                                       | \$ 585,428                     | 18  | \$ 1,071,365                   | 8  | \$ 485,937                     |
| Thayer            | 11                                       | \$ 1,915,912                   | 21  | \$ 3,812,578                   | 10                                       | \$ 1,896,666                   |
| FTE: 0.1 to 0.35  | 5  | \$ 1,580                       | 13  | \$ 4,066                       | 8  | \$ 2,486                       |
| FTE: 0.35 to 0.55 | 12                                       | \$ 40,916                      | 21  | \$ 75,232                      | 9  | \$ 34,316                      |
| FTE: 0.45 to 0.75 | 12                                       | \$ 107,639                     | 21  | \$ 194,797                     | 9  | \$ 87,158                      |
| FTE: 0.75 to 0.95 | 11                                       | \$ 731,490                     | 22  | \$ 1,394,107                   | 11                                       | \$ 662,617                     |
| FTE: 0.95 to 1.0  | 10                                       | \$ 1,034,287                   | 20  | \$ 2,144,376                   | 10                                       | \$ 1,110,089                   |
| Cancer Center     | 16                                       | \$ 382,130                     |   | \$ 382,130                     |  | 0                              |
| FTE: 0.45 to 0.75 | 20                                       | \$ 29,830                      |   |                                |  |                                |
| FTE: 0.75 to 0.95 | 15                                       | \$ 103,018                     |   |                                |  |                                |
| FTE: 0.95 to 1.0  | 17                                       | \$ 249,282                     |   |                                |  |                                |
| <b>TOTALS</b>     |  | <b>\$ 5,628,961</b>            |   | <b>\$ 8,444,964</b>            |  | <b>\$ 2,816,003</b>            |



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