

ECONOMIC IMPACT OF THE UNIVERSITY OF ROCHESTER MEDICAL CENTER'S STRATEGIC PLAN

Prepared for:
University of Rochester Medical Center

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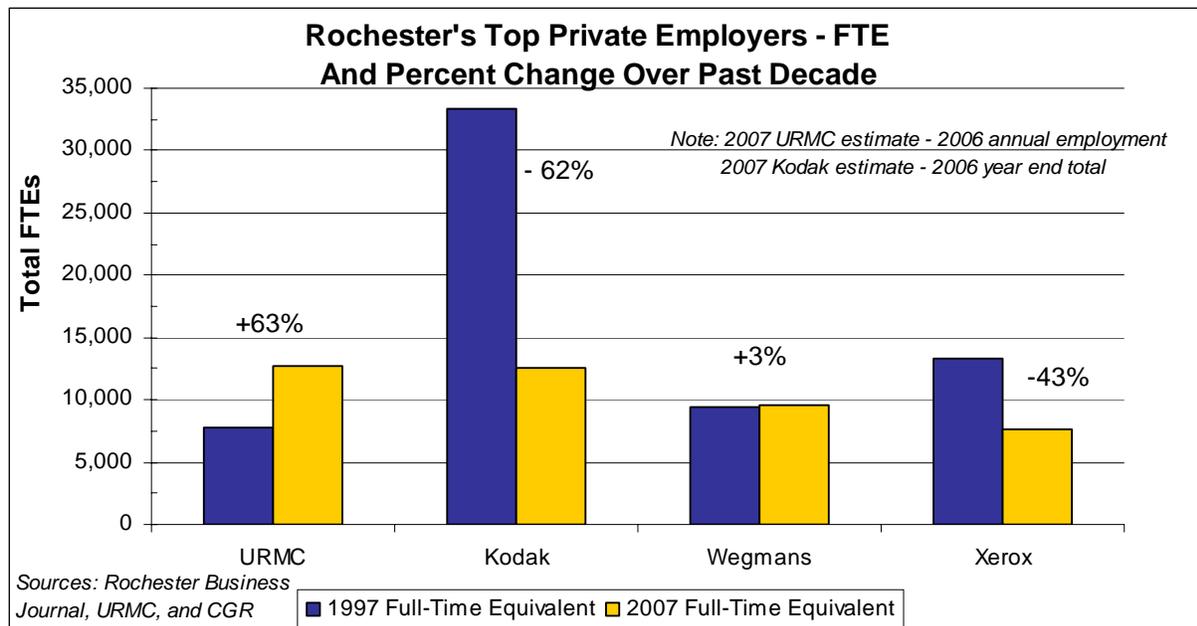
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January 2008

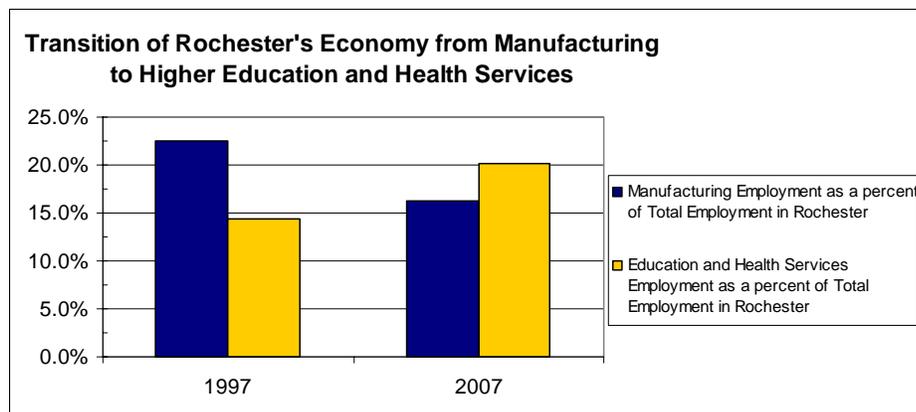
SUMMARY

The University of Rochester Medical Center (URMC) plays a major and vital role in the Rochester area's 21st century economy.

In 1996, URMC created a 10-year Strategic Plan for 1997-2006. At the beginning of that time frame, URMC was the fourth largest private employer in the Rochester region with full-time equivalent employment of approximately 7,800. As a result of that plan, URMC now has full-time equivalent employment of approximately 12,700, and today is the largest private employer in the Rochester region.



In 1997, the manufacturing sector accounted for more than one-fifth of employment in the Rochester Metropolitan Statistical Area (RMSA).^{*} By 2007, less than 15% of employment is in this sector. Over the past decade, education and health services education has



risen from 16% to 20% of the Rochester region's employment. URMC has been a major contributor to this growth and change. Employment is one aspect of the transition from a manufacturing based

economy to one where higher education and health care play major roles. Another aspect is the creation of knowledge through research. The latter has become increasingly central to the economic vitality of the Rochester region today and for the future.

Recently URMC announced a Strategic Plan for 2007-2012 that highlights many areas for growth, including an ongoing commitment to biomedical research. This research area has the potential to serve as both a catalyst and a resource for the region's technology-based commercial sectors. While stimulating research, URMC's new Strategic Plan also has implications for local employment.

This report provides:

- ❖ Baseline economic and fiscal impacts of URMC.
- ❖ Estimates of the economic and fiscal impact of the new five-year Strategic Plan, including:
 - Estimates of the economic impact for 2012.

^{*} RMSA is defined as the five-county region of Wayne, Livingston, Monroe, Ontario, and Orleans counties.

- Estimates of the economic impact for 2015.

URMC Today

In calendar year 2006, URMC was responsible for almost 20,000 jobs (full-time, part-time, and time-as-reported) in the Rochester region for a total payroll of more than \$860 million. Of the 20,000 jobs, CGR estimates approximately 9,200 of them fell in the traded sector, accounting for a total of \$500 million in wages.* During the Fall 2007 semester, there were approximately 1680 full- and part-time students plus more than 700 fellows and residents. CGR provides an estimate of the economic and fiscal impact URMC has today by considering four main components – URMC capital expenditures and purchases, employees, students, and visitors.

CGR estimates the current economic impact of the traded sector of URMC on the RMSA. The direct economic impact consists of the actual expenditures of URMC in the community. Spillover expenditures result from the follow-on spending of the recipients of the direct expenditures.† Results of analysis on the traded sector are as follows:

- ❖ Overall, URMC is responsible for \$742 million in wages, both direct and spillover, in the Rochester region.
- ❖ These wages translate into almost 17,000 jobs (direct and spillover).

* Traditional economic impact analysis considers the economic consequences if the entity were to disappear. Some activities at URMC would still remain in the community if it were to close. The need for routine medical procedures, for example, would be satisfied by other health care providers were these services not available from URMC. Employees related to these types of procedures are considered “local” and are not counted in the economic impact analysis of the “traded sector”. The “traded sector” is defined as those elements of URMC that expand the economy and attract additional income from outside the region. The traded sector consists of those aspects of URMC that would disappear if URMC were not in existence. Further explanation of the calculation of these different components is included in the methodological section of the report.

† See the Methodology section of the report for a fuller explanation of direct and spillover impacts.

Impact of URMC's Strategic Plan

- ❖ The spending of employees and URMC suppliers generates income and sales tax to New York State and sales tax to the local community of more than \$55 million.

The recently unveiled URMC Strategic Plan involves the capital expenditure of more than \$300 million in the next five years for the construction of three buildings: Ambulatory Surgery Center (ASC), Clinical and Translational Sciences Building (CTSB), and Pediatric Replacement and Imaging Sciences Modernization (PRISM).*

The economic and fiscal impact is as follows:

- ❖ The construction phase will result in an additional 1,430 jobs annually, on average (both direct and spillover) totaling 7,000 over the five years of the Strategic Plan. *Note:* the annual economic impact varies depending on the capital expenditures for the year.
- ❖ The cumulative effect of the construction period generates almost \$270 million in wages (both direct and spillover).
- ❖ The construction period provides for a little over \$19 million in NYS and local taxes (both sales and income).

In addition to the construction of the three new buildings, the Strategic Plan calls for the creation of the Integrated Disease Programs (IDPs) and Innovative Scientific Programs (ISPs), which will involve recruitment of additional faculty and support staff. The PRISM and ASC buildings also will require staff once construction is complete.

* This estimate only includes \$13 million in equipment purchases for ASC. URMC will lease the ASC building from a developer who plans to undergo construction even if URMC does not lease the building.

CGR estimates:

- ❖ By 2015, URMC will have 771 additional employees as a result of faculty and staff hiring spurred on by the Strategic Plan.
- ❖ By 2015, URMC will increase its purchasing as a result of the Strategic Plan by \$78.5 million, of which more than \$38 million is estimated to be spent locally.

CGR provides an estimate of the economic and fiscal impact of these additional faculty and staff members by considering the additional purchases of both URMC and its new employees. These estimates are provided for both the local and the traded sector combined, as well as the traded sector only.* The summary of these results is as follows:

- ❖ For the traded sector and local sector together:
 - By 2015, the Strategic Plan will add an additional \$90.2 million in labor income (direct and spillover) in the Rochester regional economy.
 - By 2015, the Strategic Plan will add an additional 1,800 jobs (direct and spillover) to the Rochester-area community.
 - By 2015, as a result of the Strategic Plan, the spending of employees and suppliers of URMC will generate income and sales tax to New York State and sales tax to the local community of \$6.5 million.

* The local sector includes those estimated impacts that may be provided in the community even if the Strategic Plan were not to come to fruition. The traded sector portion of the impact is the estimated impact that would not occur if the Strategic Plan were not implemented. The traded sector portion would not exist in the community if it were not for the actions in the Strategic Plan. See the methodological section of the report for details on calculations of these sectors.

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- By 2015, the projected incremental growth in jobs in the Rochester community as a result of the Strategic Plan (traded and local sector combined) is equivalent to the addition of a prominent company the size of Bausch and Lomb.
 - ❖ If CGR excludes the portions of URMC purchases and employee spending that are local, then we estimate the economic impact of the Strategic Plan as follows:
 - By 2015, the Strategic Plan will add a little over \$64 million in wages to the community in the traded sector.
 - By 2015, the Strategic Plan will add approximately 1,100 jobs in the community in the traded sector.
 - Note: Another way of making the two points above is that this is the labor income and jobs that would “go away” immediately if the Strategic Plan were not to be executed.
 - By 2015, as a result of the Strategic Plan, the spending of employees and suppliers in the traded sector of URMC will generate income and sales tax to New York State and sales tax to the local community of \$4.6 million.

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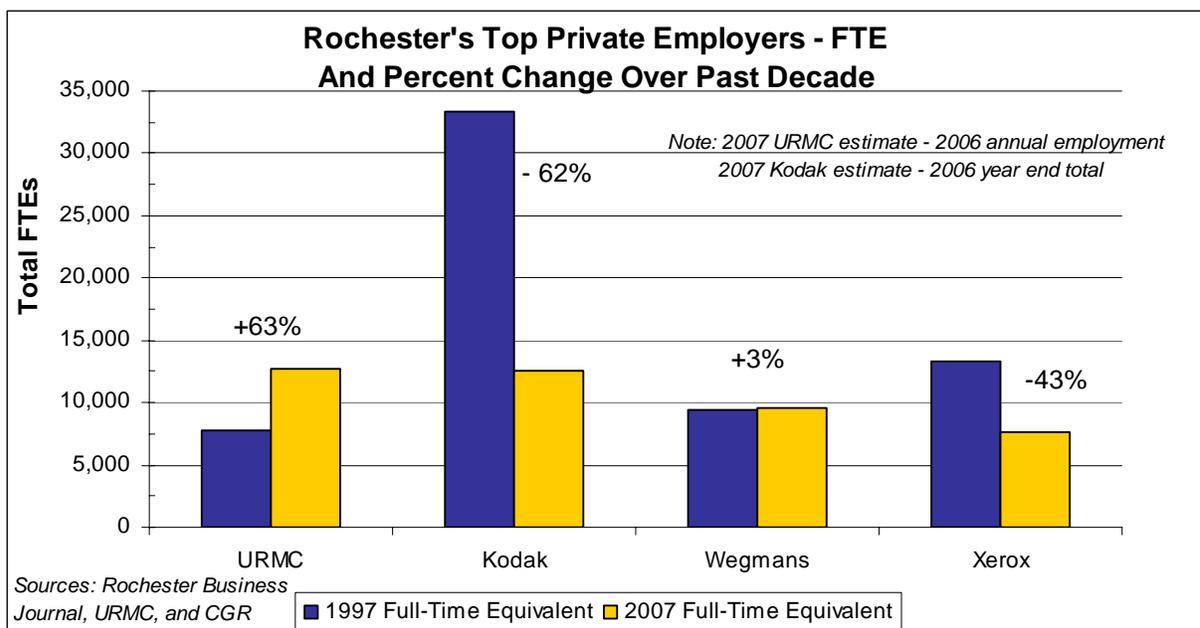
Staff Team

Rochelle Ruffer Ph.D., Associate Director of Economic Analysis, analyzed the data, developed most of the analyses, and wrote the report. Kent Gardner Ph.D., Chief Economist, provided advice and guidance on methodological issues and study design, and edited the report. Staff members David Landry, Scott Sittig and Katherine McCloskey provided technical support.

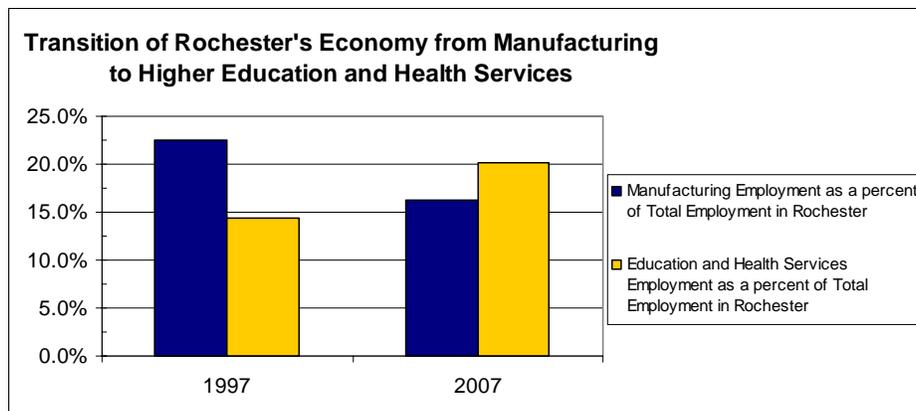
INTRODUCTION

The University of Rochester Medical Center (URMC) has been a significant contributor to the Rochester economy and medical science for more than 80 years. Its many top-ranked programs and research centers have garnered URMC national and international recognition. There is no doubt that URMC plays a major and vital role in the Rochester area's 21st century economy.

In 1996, URMC's leaders developed a strategic plan to drive the institution's future growth from 1997 - 2006. Over the ensuing decade, URMC grew dramatically, from a \$600 million enterprise in 1996 to a \$1.7 billion enterprise in 2006. At the beginning of the last Strategic Plan, URMC was the fourth largest private employer in the Rochester region with full-time equivalent employment of approximately 7,800. As a result of that plan, URMC now has full-time equivalent employment of approximately 12,700, and today is the largest private employer in the Rochester region.



In 1997, the manufacturing sector accounted for more than one-fifth of employment in the Rochester Metropolitan Statistical Area (RMSA).^{*} By 2007, less than 15% of employment is in this sector.



Over the past decade, education and health services education has risen from 16% to 20% of the Rochester region's employment. URMC has been a major contributor to this growth and change. Employment is one aspect of the transition from a

manufacturing based economy to one where higher education and health care play major roles. Another aspect is the creation of knowledge through research. The latter has become increasingly central to the economic vitality of the Rochester region today and for the future.

Today University and Medical Center leaders are assessing the strategic direction for URMC for the next five years and have created a Strategic Plan for 2007 through 2012. (Note: references to "Strategic Plan" in the remainder of this report refer to this new plan.) The Strategic Plan highlights many areas for growth, including an ongoing commitment to biomedical research. This research area has the potential to serve as both a catalyst and a resource for the region's technology-based commercial sectors. While stimulating research, URMC's new Strategic Plan also has implications for local employment.

^{*} RMSA is defined as the five-county region of Wayne, Livingston, Monroe, Ontario, and Orleans counties.

The Strategic Plan is built on an ambitious strategy that calls for strengthening existing areas by:

- ❖ Creating **Integrated Disease Programs** (IDP) that will integrate science, education and clinical care in the following designated focus areas: Cancer, Cardiovascular Disease, Immunology and Infectious Disease, Musculoskeletal Disease, and Neuromedicine.
- ❖ Growing new research areas through investment in specific **Innovative Scientific Programs** (ISP) including Stem Cells, Biomedical Imaging and Biomarkers, Nanomedicine, and Genomics and Systems Biology.
- ❖ Making capital investments with construction for the **Ambulatory Surgery Center** (ASC), **Clinical and Translational Sciences Building** (CTSB), and **Pediatric Replacement and Imaging Sciences Modernization** (PRISM). Once these three building projects are completed, ASC and PRISM are expected to trigger a need for more staff.

This report has been developed by CGR, at the request of URM, to assess the economic impact of the Strategic Plan on the Rochester community. While there are many ways in which URM contributes to the community that are not measurable, this report provides data and statistics for ways in which the benefits can be quantified. Thus, CGR assessed the capital projects and planned improvements, as well as all projected increases in staffing and purchasing, in order to provide an estimate of both the economic and fiscal impacts of the Strategic Plan on the Rochester area.

In determining the economic impact, CGR focused on the Rochester Metropolitan Statistical Area (RMSA) as our level of analysis. While the statewide impact is obviously larger than the local impact, CGR found most of the statewide impact is felt in the immediate five-county region. Thus, CGR measures the economic impact of the URM Strategic Plan on the RMSA.

However, for estimation of the fiscal impact, our level of analysis focused on New York State.

CGR's report is presented in three parts:

- 1) **The “Current” Impact of URM**C, which provides estimates of the economic impact of five components of URM C in its current form, including purchases, employees, capital spending, student spending, and visitor spending. The impact is estimated both in terms of employment and labor income. CGR also provides estimates of the fiscal impact in terms of sales and income tax revenue generated.
- 2) **The Strategic Plan and Its Impact**, based upon our consideration of the impact of three major components of the plan: capital spending, employees, and purchasing. Like above, the impact is estimated both in terms of employment and labor income. CGR also provides estimates of the fiscal impact in terms of sales and income tax revenue generated. CGR notes that our analysis of this impact relates strictly to the incremental changes that result from the new plan.
- 3) **Methodology**, or how we estimated the economic impact. This section of the report includes definitions and explanations for the methodology used during the analysis.

THE CURRENT CONTRIBUTION OF URMIC TO THE ROCHESTER ECONOMY

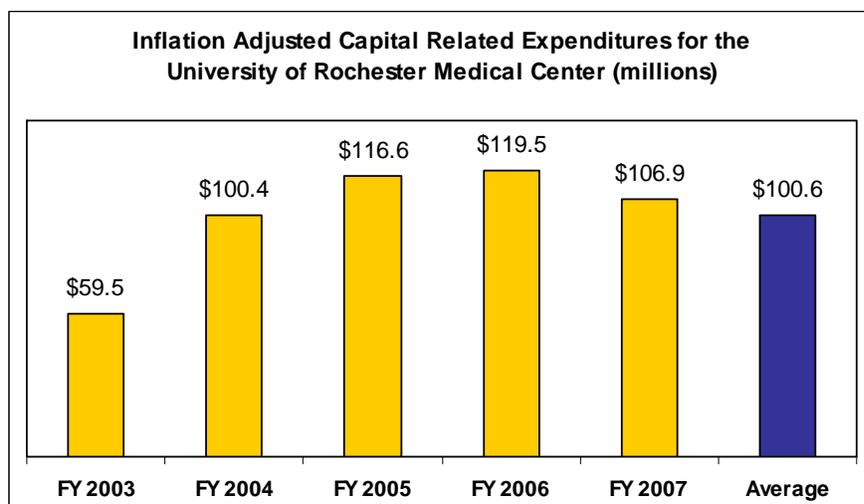
Before considering the impact of the Strategic Plan, we provide information on the current status of URMIC'S impact on the region.

URMIC Purchases

For Fiscal Year (FY) 2007*, URMIC is responsible for spending a little more than \$322.8 million for goods and services. Of this amount, CGR estimated that approximately \$170 million was spent in the RMSA.

Capital Expenditures

Over the past five years (FY 2003 – FY 2007), the Medical Center has spent over \$475 million in capital-related expenditures. Over that five-year period, URMIC averaged \$100.6 million (2007



dollars) in major projects and acquisitions. The accompanying graph shows the capital expenditures, in inflation-adjusted terms, for the past five years. In general, there has been an upward trend in capital expenditures, with a slight decrease for FY 2007.

* URMIC's fiscal year runs from July 1 to June 30. Thus, FY 2007 is from July 1, 2006 to June 30, 2007.

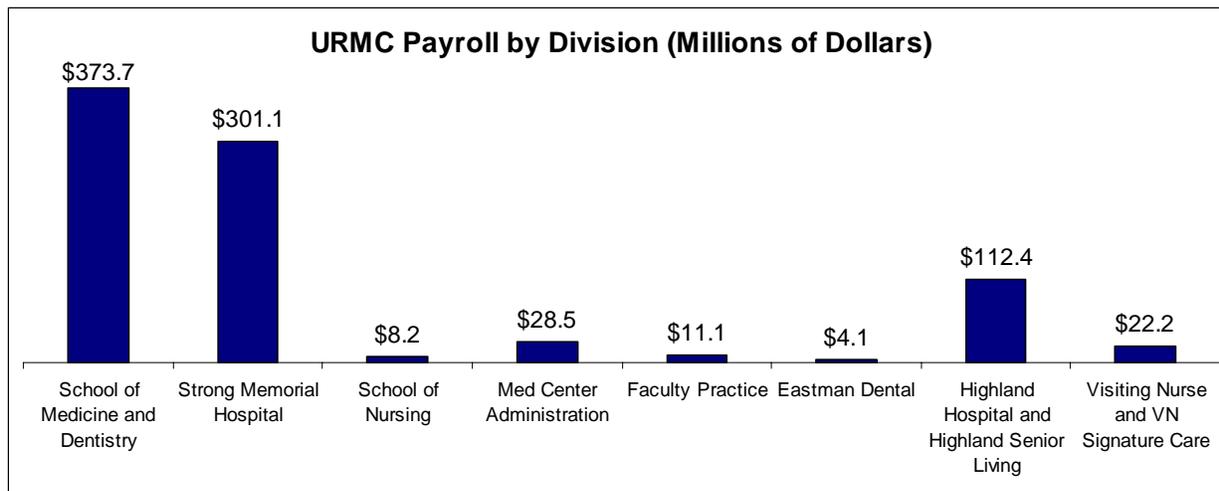
Employees

During the 2006 calendar year, URM and its affiliates provided employment to a total of 19,740 individuals. The total includes full-time, part-time and time-as-reported (TAR) positions for adjunct faculty, faculty, post-doctoral students, research/teaching fellows, medical residents, staff, Strong Memorial Hospital staff, graduates, undergraduates, and also employees at Highland Hospital, Highland senior facilities, Visiting Nurse and VN Signature Care.

Number and Payroll of URM Employees and Affiliates (FT, PT, and TAR) by Type

<u>Employee Type</u>	<u>Number</u>	<u>Payroll (millions of dollars)</u>
Faculty and Adjunct Faculty	2,031	\$ 273.1
Undergraduate and Graduate Students	1,113	\$ 11.6
Post-Doctorates, Residents, Research/Teaching Fellows	1,180	\$ 39.2
Staff	11,615	\$ 402.8
Highland Hospital and Highland Senior Living	3,026	\$ 112.4
Visiting Nurse and VN Signature Care	775	\$ 22.2
TOTAL	19,740	\$ 861.4

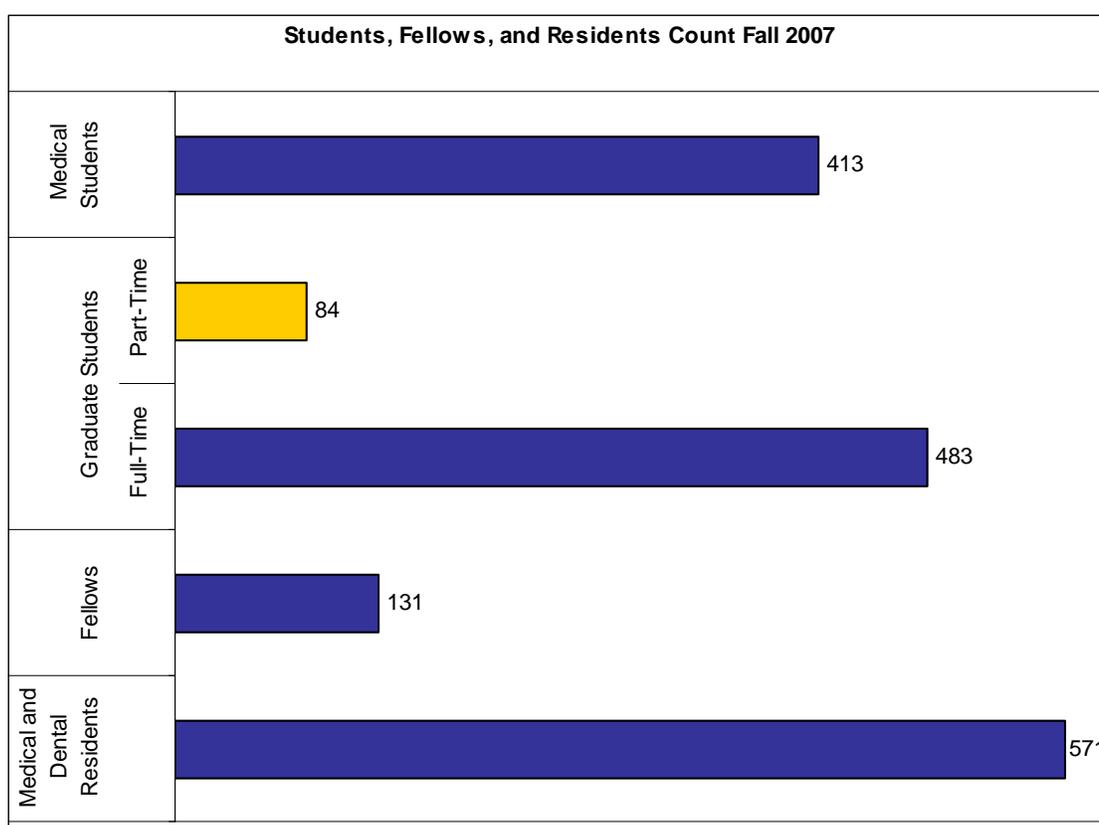
The table above shows the distribution of employment across URM and its affiliates as well as the 2006 payroll for each employee type. CGR analysis estimates that more than 9,200 employees are part of the “traded sector” activities for total wages



of over \$500 million. The majority of this purchasing power is spent within the Rochester area, supporting a range of product and service providers.* The preceding chart also shows payroll by division.

Students

During the Fall 2007 semester, there were 980 full- and part-time students in the University of Rochester School of Medicine and Dentistry. In addition, there were more than 700 fellows and residents. All medical students (MD) are full-time. The chart below summarizes student enrollment for the Fall 2007 semester.



* Since URMC does not directly enroll undergraduate students and CGR did not have information about the other income from which these students might draw – parents, savings, borrowing or non-URMC jobs – CGR did not consider the payroll of undergraduates when estimating the economic impact.

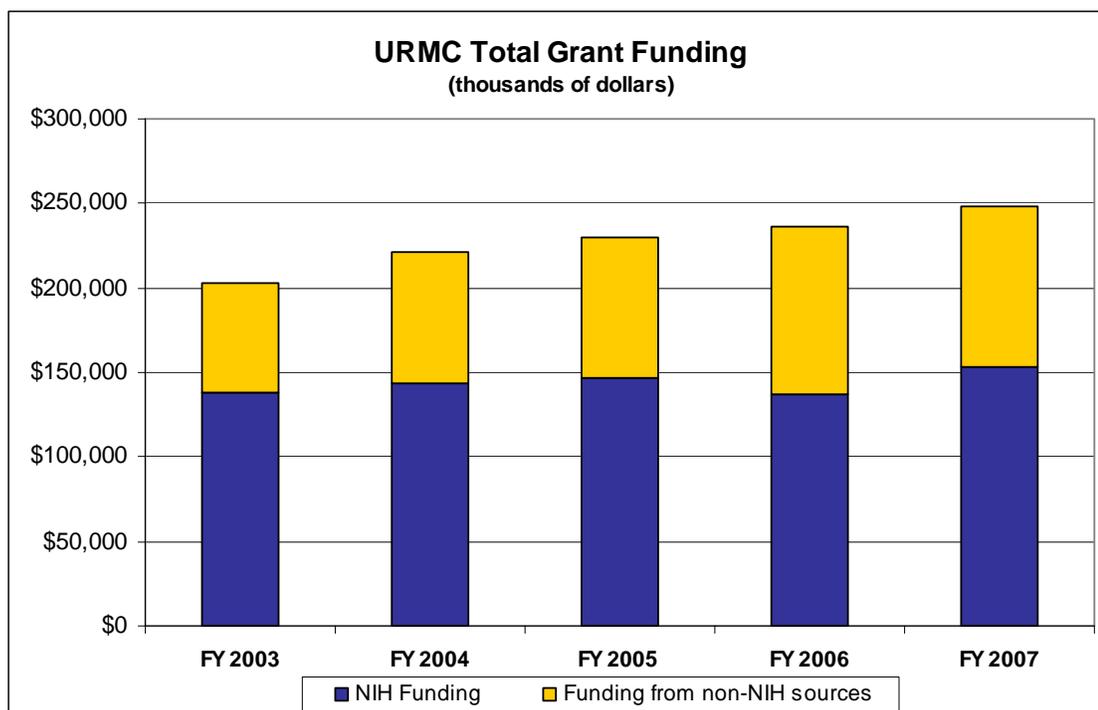
Visitors

Visitors to Strong Memorial Hospital patients represent the largest number of visitors for URMC. According to the Strong Guest Hotel Services, they serviced 5,203 guest reservations for an estimated 11,752 hotel nights. The visitor impact represents the impact of those visitors to the Rochester community, as well as three smaller events – URMC White Coat Ceremony, URMC Family and Friends, and URMC Alumni Weekend. CGR acknowledges there are other events on campus that bring visitors, who then spend their money in the Rochester community, but we were unable to document these events.

Grant Activity

For any medical center, grants play an important role in how an institution is regarded and how it is ranked. Annual funding received by the Medical Center (from all sources) has increased over the past five years. For 2006, URMC is ranked 29th in the nation by the National Institutes of Health (NIH) in terms of NIH funding awards. On average, URMC has secured more than \$225 million in funding annually for the past five years from all sources.

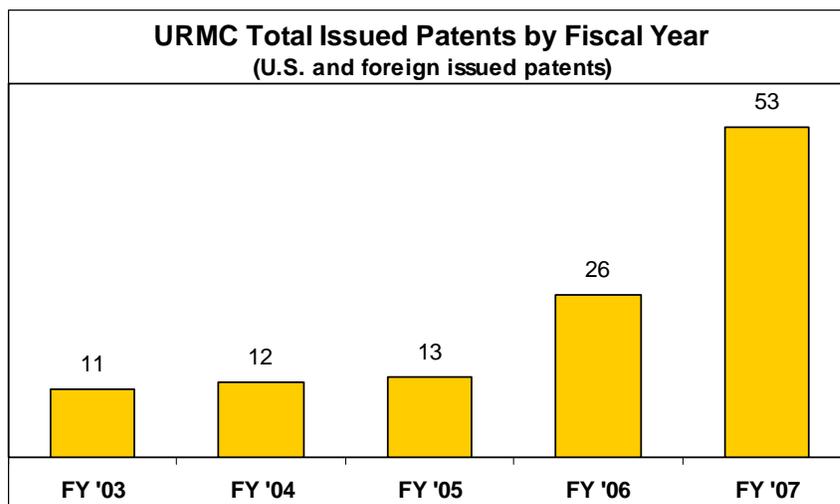
The accompanying chart shows the total funding to URMC, both from NIH as well as from other sources of funding. Later in this report, CGR estimates the impact on the growth of funding as a



result of the additional hiring that is projected to occur from the Strategic Plan.

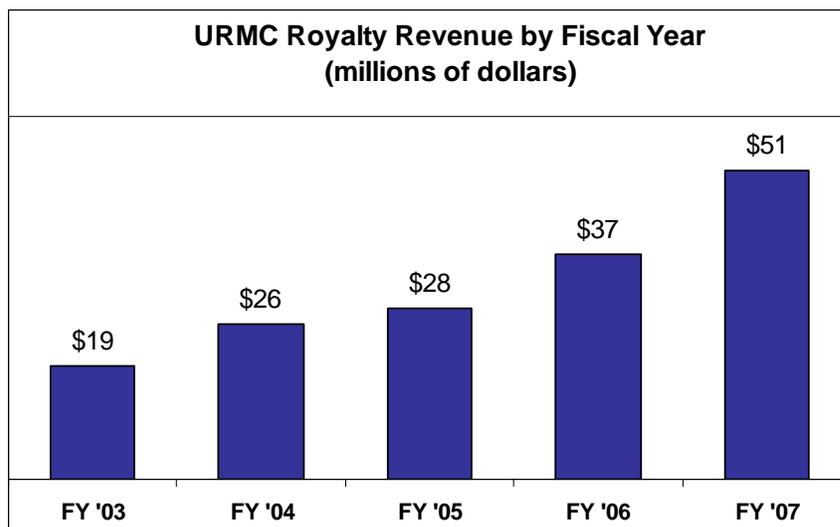
Patents, Royalties and Start-Ups

The Medical Center's technology transfer department has experienced outstanding productivity over the past five years. The



number of patents issued (both U.S. and foreign) has grown tremendously. The chart to the left depicts the growth in total issued patents from Fiscal Year 2003 to Fiscal Year 2007. The cutting-edge research that results in these patents has also produced a number of start-up companies over the past decade.

In addition, royalty revenue has grown as well over the past five years. The chart to the left shows the royalty revenue received by



URMC. Over the past five years, for every one million dollars in extramural funding, CGR analysis indicates approximately \$140,000 in royalty revenue is generated. According to data from The Association of University Technology Managers (AUTM) 2006 Annual Report, 158 universities

reported a total of \$39.2 Billion in research expenditures for a total of \$1.25 billion in licensing revenue. These data imply that, on average, each institution receives approximately \$31,855 in royalty

revenue per \$1 million in extramural funding.* At almost four times the average for 2006, URMC's track record in royalty revenue for the past five years is clearly on the cutting edge in terms of generating royalty revenue from research expenditures.

Economic Impact Estimates

This study is not meant to be a complete report of the economic impact of the University of Rochester Medical Center as it exists today. Rather, the estimates below are meant to serve as a baseline for comparison when considering the economic impact of the Strategic Plan. For comparison purposes, CGR provides below our estimates of the current economic impact, in terms of labor income and employment, for URMC purchases, capital expenditures (one year average), employee spending, student spending and visitor spending as described in the previous section.

Traded Sector

CGR reports the current economic impact of URMC in terms of the traded sector only - the portion of employees and URMC spending that would not be absorbed by another entity in the Rochester area. The traded sector can be defined as those aspects of URMC that would disappear if URMC were not in existence. There are certain portions on the clinical side of URMC that would still remain in the community if it were to close. The need for routine medical procedures, for example, would be satisfied by other health care providers were these services not available from URMC. Employees related to these types of procedures are considered "local" and are not counted in the economic impact analysis of the traded sector. The "traded sector" is defined as those elements of URMC that expand the economy and attract additional income from outside the region. The traded sector of URMC is most relevant on the clinical side and includes only 25% of the impact from Strong Memorial Hospital's employees and purchases. Further explanation of the calculation of these different components is included in the methodological section of the report.

* CGR recognizes the inherent lag between royalty revenue and research expenditures. The calculations provided are to present a steady state number for a point in time.

Direct and Spillover Impacts

CGR reports impacts in terms of both direct impacts and spillover impacts. The direct economic impact consists of the actual expenditures of URMC in the community. Spillover expenditures result from the follow-on spending of the recipients of the direct expenditures. For more explanation, see the discussion in the methodology section.

Labor Income Impact

The table below provides CGR's estimate of the value (in terms of labor income) of the jobs that are generated as a result of the current expenditures of the Medical Center and its employees. CGR estimated the Medical Center helps to generate more than \$740 million in the local economy. Recall that the total payroll of URMC for 2006 was over \$860 million. However, a portion of that payroll is from local services – jobs that would be in a community this size without a powerhouse academic medical center.

URMC Impact on Rochester MSA in terms of LABOR INCOME (traded sector only)

	Labor Income (Million Dollars)		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
URMC Purchasing in RMSA	\$13.0	\$7.1	\$20.1
URMC Employee Spending	\$501.5	\$135.3	\$636.8
1 year average capital expenditures	\$51.0	\$30.1	\$81.1
Student Spending	\$2.1	\$1.1	\$3.2
Visitor Spending	\$0.5	\$0.3	\$0.8
TOTAL	\$568.1	\$173.9	\$742.0

Of the \$860 million in payroll, slightly over \$500 million is part of the traded sector. An additional \$135 million in labor income is generated as a result of the spending of those employees that are part of the traded sector. In addition, labor income is created directly from the spending of URMC, the capital projects of URMC, URMC student spending, and visitors to URMC. In total, URMC is responsible for \$742 million in labor income as a result of its existence. That is to say, if URMC were not part of the economy, labor income in the Rochester region would be about \$742 million lower.

Employment Impact

The table below provides an estimate of the number of jobs that are generated as a result of the current expenditures of the Medical Center and its employees. Results are reported for the traded sector only. A similar discussion as above is relevant for the employment impact. While URMC and its affiliates employed almost 20,000 individuals (full-time, part-time, and TAR), many of those employees would have jobs even if URMC were to go away tomorrow (local). CGR estimates that 9,300 of the jobs at URMC are part of the traded sector. In addition, URMC directly creates another 1,700 jobs. As a result of the spending of URMC, employees, students, and visitors, another 5,900 jobs are created in the Rochester community. As a total, URMC helps to generate almost 17,000 jobs in the Rochester community that would not exist if it weren't for URMC.

URMC Impact on Rochester MSA in terms of EMPLOYMENT (traded sector only)

	Thousands of Jobs		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
URMC Purchasing in RMSA	0.4	0.2	0.6
URMC Employee Spending	9.3	4.7	14.0
1 year average capital expenditures	1.2	0.9	2.1
Student Spending	0.1	0.05	0.2
Visitor Spending	0.03	0.00	0.03
TOTAL	11.0	5.9	16.9

Fiscal Impact

CGR also estimated the sales and income taxes of the labor income reported above. The table to the left summarizes the statewide fiscal impact of URMC. CGR estimated URMC provides over \$55 million in state and local income and sales tax revenue.

URMC Fiscal Impact on New York State (traded sector only)

	Millions of Dollars		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
NYS and Local Sales Tax	\$16.4	\$5.0	\$21.4
NYS Personal Income Tax	\$26.8	\$7.4	\$34.2
TOTAL	\$43.2	\$12.4	\$55.6

THE STRATEGIC PLAN OF UPMC AND ITS IMPACT

The Strategic Plan of UPMC is a comprehensive document that covers the time period from 2007 to 2012. While there are many components of interest, this report concentrates only on those aspects of the Strategic Plan that are able to be quantified and that can then be used to estimate an economic impact. Specifically, the Strategic Plan outlines high priority areas for capital investment: Ambulatory Surgery Center (ASC), Clinical and Translational Sciences Building (CTSB), and Pediatric Replacement and Imaging Sciences Modernization (PRISM). The economic impact will be felt in both the construction phase as well as the staffing of ASC and PRISM.

The other major component of the Strategic Plan in which economic impact is measurable is from the growth of two programs: Integrated Disease Programs (IDPs) and Innovative Scientific Programs (ISPs). There are five relevant components of the Strategic Plan that CGR addresses: capital expenditures, employees, purchasing, impact on grant activity, and fiscal impact.

Incremental Impact

CGR provides estimates of the economic impact in terms of labor income and employment for the incremental change of the Strategic Plan. We also estimate the additional sales tax and income tax estimates generated for New York State and the RMSA as a result of the Strategic Plan. All estimates are of the incremental impact that will result based on the Strategic Plan.

Construction Impact

The Strategic Plan includes the integration of three major projects: CTSB, ASC, and PRISM. Taken together, these three projects require a total expenditure of more than \$330 million. For this report, CGR considered expenditures through 2012, which we

estimated will total a little more than \$318 million. The table to the left shows the annual planned expenditure for construction of the three projects.*

Consolidated Capital Expenditures						
Strategic Plan Projects						
(\$ million)						
	FY 08	FY 09	FY 10	FY 11	FY 12	Total
CTSB	-	35.5	20.8	-	-	56.3
ASC	4.0	9.0	-	-	-	13.0
PRISM	-	24.0	80.0	80.0	65.0	249.0
Total	\$ 4.0	\$ 68.5	\$ 100.8	\$ 80.0	\$ 65.0	\$ 318.3

The estimated annual employment impact of the above planned construction is provided in the table below.

Employment Impact of Strategic Plan Construction						
Phase (thousands of jobs)						
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Total
Direct	0.2	0.8	1.2	1.0	0.8	4.0
Spillover	0.2	0.6	0.9	0.8	0.6	3.1
Total	0.4	1.4	2.1	1.8	1.4	7.1

On average, the annual direct employment impact of construction is a little over 800 jobs. The average annual spillover impact is approximately 630 jobs, for a total average annual impact of about 1,430 jobs. The distribution of the impact changes depending on the capital expenditures for the year. Over the same five year period, the construction phase will account for more than 7,000 total jobs (direct and spillover).

Expenditures for ASC only include \$13 million in equipment purchases, and not the cost of actual construction of the building. URM will lease the ASC building from a developer who plans to undergo construction even if URM does not lease the building. Thus, we do not consider the actual construction phase of ASC as an impact of the Strategic Plan.

The cumulative effect of these three capital projects is shown in the table below. The 7,000 jobs will account for approximately \$270 million in labor income over the five year period. The table also shows the fiscal impact as a result of the planned construction. The planned construction will generate an additional \$7.8 million in sales tax revenue to both NYS and the local region as well as more than \$11 million in income tax revenue to the state.

URMC Strategic Plan Construction Impact on Rochester MSA			
Impact through 2012			
	Direct	Spillover	TOTAL
Labor Income (millions of dollars)	\$169.4	\$100.1	\$269.5
NYS and Local Sales Tax	\$4.9	\$2.9	\$7.8
NYS Personal Income Tax	\$7.2	\$4.2	\$11.4

Employees and Purchasing

The Strategic Plan is a dynamic, ambitious plan that will result in the addition of staff and faculty over the next eight years as well as additional purchasing by URMC. The impact of each of these two components varies on the treatment of the traded sector versus local sector.

Traded Sector

In order to understand the economic impact of additional employees and URMC purchases, CGR must define the traded sector for the Strategic Plan. While it is always difficult to estimate the local vs. traded sector portions of the economy, it is especially difficult to do so for events in the future. The local sector includes those estimated impacts that may be provided in the community even if the Strategic Plan were not to come to fruition. For example, CGR believes that a portion of the out-patient services that would be provided by ASC would be provided by another entity in Rochester if URMC were not to provide those services. Similarly, there are some clinical services that will be provided as a result of PRISM's existence that might be picked up by other providers if URMC were not to offer them. Any URMC purchases that result from those services are also assumed to be local. The traded sector portion of the impact is the estimated impact that

would not occur at all if it were not for the actions outlined in the Strategic Plan. The traded sector includes all research components of the Plan as well as those clinical aspects that are considered such that they would not be provided by other providers in the community. See the methodological section for further discussion of the calculation of these sectors.

Employees

The table below summarizes annual additional employment as a result of IDP research/clinical faculty hires*, ISP faculty hires, support staff for IDP and ISP faculty†, growth in clinical faculty, staffing of ASC, and staffing of PRISM, as estimated by URMC and audited by CGR.

TOTAL NUMBER OF ADDITIONAL HIRES									
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total
Clinical and Research Faculty Recruits	28	29	29	29	26				141
ISP and IDP Support Staff	39	41	41	39	33	9	4	1	207
ASC Staffing			92		34				126
PRISM Staffing						136		161	297
Total	67	70	162	68	93	145	4	162	771

At the end of Strategic Plan implementation, CGR estimates there will be an additional 771 employees on campus above the current level of URMC faculty and staff. Of these employees, some of

them are not considered to be in the traded sector. The table to the left summarizes CGR's assumptions about the portion of additional employees that are considered part of the traded sector – those whose jobs would disappear if URMC were not to

Employment and Wages from Strategic Plan				
	2012		2015	
	Local and Traded Sector	Traded Sector	Local and Traded Sector	Traded Sector
Employment (# of Jobs)	458	383	771	472
Wages (In Millions)	\$44.2	\$41.3	\$61.1	\$45.9

* IDP Research/Clinical Faculty are assumed to be 75% research and 25% clinical. The support staff and grant expectations are calculated reflecting the 75% appointment.

† Support staff includes additional Administrative Staff, Research Assistant Professors, Lab Technicians, Post-Docs, Office of Research and Project Administration (ORPA)/Office of Research Accounting and Costing Standards (ORACS) Staffing, and School of Medicine and Dentistry Finance Staffing.

fully execute the Strategic Plan. The table also provides the wages associated with each group.

Purchasing

The Strategic Plan will also generate additional spending on goods and services, above and beyond what is currently being purchased. The Medical Center estimates that URMC will spend an additional \$28 million on goods and services (this includes movable equipment) by 2012 and a total of an additional \$78 million in goods and services by 2015. Approximately \$43 million of the \$78 million will be traded sector purchases. CGR estimates that

URMC Purchasing from Strategic Plan				
(In Millions)				
	2012		2015	
	URMC Purchasing	URMC Purchases in RMSA	URMC Purchasing	URMC Purchases in RMSA
Local and Traded Sector	\$28.1	\$13.8	\$78.5	\$38.3
Traded Sector	\$19.1	\$8.2	\$43.0	\$18.8

approximately \$18.8 million of \$43 million is spent locally in the RMSA. The table to the left summarizes CGR's assumptions and calculations, based on purchasing information provided by URMC.

Economic Impact of Strategic Plan Purchasing and Employee Spending

Given the dynamic nature of the plan, CGR estimates the impact of the steady state for both 2012 (the end of the actual Strategic Plan) and 2015 (the time at which the PRISM hiring will be complete). The estimates provided reflect the impact in the year in which the analysis was performed. CGR provides economic impact estimates for two scenarios given the difficulty in predicting the local and traded sector for the future. The first scenario assumes that the additional employment and URMC purchasing will all provide an economic impact (local and traded sector combined). That is, we assume that if the Strategic Plan were not executed, the additional jobs and additional purchases would not be provided by anyone else in the community. The second scenario is a more conservative estimate of the economic impact and only considers the impact or the traded sector of the Strategic Plan, as estimated by CGR.

The two tables below report the two estimations of labor income generated as a result of the additional spending of new employees hired as a result of the Strategic Plan, and additional Medical Center purchasing as a result of the Strategic Plan for both the steady state of 2012 and 2015. The estimates in the first table combine the local and traded sector. If all employee and URMC spending is included in the impact, then:

- ❖ The Strategic Plan is estimated to create (direct and spillover) of over \$60 million in wages in 2012 and almost \$90 million in wages in 2015.*

URMC Strategic Plan Impact on Rochester MSA in terms of LABOR INCOME (local and traded sector combined)

	Labor Income (Million Dollars)		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
Strategic Plan Employees - 2012	\$44.7	\$11.1	\$55.8
Strategic Plan Employees - 2015	\$61.6	\$15.8	\$77.4
Strategic Plan URMC Purchasing - 2012	\$3.2	\$1.8	\$5.0
Strategic Plan URMC Purchasing - 2015	\$8.3	\$4.5	\$12.8

The estimates in the second table below provide the impact from the employee and URMC spending of the traded sector. If one considers only the traded sector calculated by CGR, then:

- ❖ the Strategic Plan is estimated to create (direct and spillover) of almost \$55 million in wages in 2012 and

URMC Strategic Plan Impact on Rochester MSA in terms of LABOR INCOME (traded sector only)

	Labor Income (Million Dollars)		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
Strategic Plan Employees - 2012	\$41.6	\$10.2	\$51.8
Strategic Plan Employees - 2015	\$46.2	\$11.5	\$57.6
Strategic Plan URMC Purchasing - 2012	\$1.9	\$1.1	\$3.0
Strategic Plan URMC Purchasing - 2015	\$4.2	\$2.3	\$6.5

* Recall the impact of the construction phase of the Strategic Plan was provided earlier.

approximately \$64 million in wages in 2015.

The tables below provide the estimated employment impact that occurs from this additional spending by URMC and its employees. The estimates in the first table combine the local and traded sector. Results include:

- ❖ the Strategic Plan is estimated to create (direct and spillover) an additional 1,100 jobs by 2012 and 1,700 total jobs in the community from employee spending and URMC purchasing. Approximately 900 of these jobs are additional jobs, created outside of URMC.

**URMC Strategic Plan Impact on Rochester MSA in terms of
EMPLOYMENT (local and traded sector combined)**

	Thousands of Jobs		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
Strategic Plan Employees - 2012	0.5	0.4	0.9
Strategic Plan Employees - 2015	0.8	0.5	1.3
Strategic Plan URMC Purchasing - 2012	0.1	0.1	0.2
Strategic Plan URMC Purchasing - 2015	0.3	0.2	0.5

The employment impact is also estimated for the traded sector only. The results are presented in the table below.

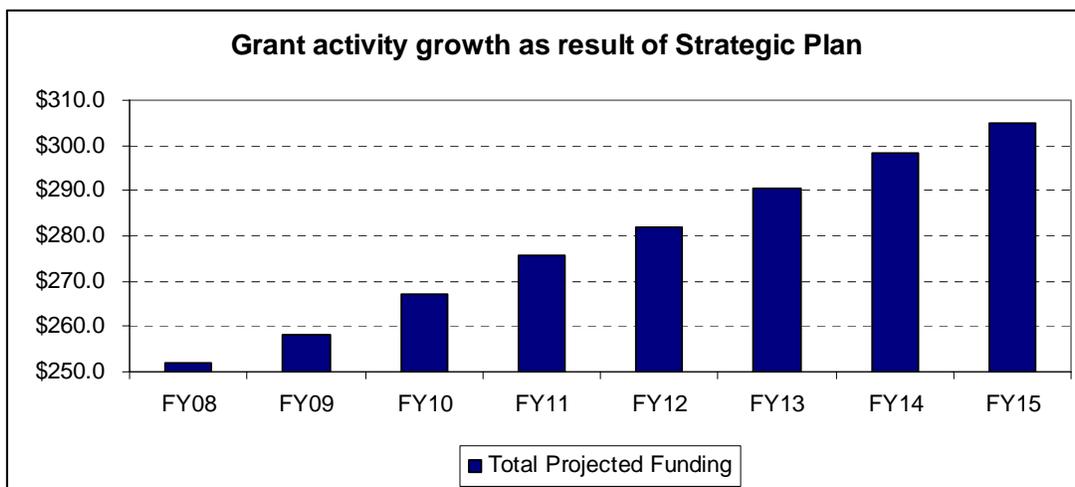
- ❖ If the Strategic Plan were not to be executed at all, then the Rochester community would lose out on the 1,100 jobs created by 2015 (approximately 500 at URMC and an additional 600 outside of URMC) that would otherwise not exist.

**URMC Strategic Plan Impact on Rochester MSA in terms of
EMPLOYMENT (traded sector only)**

	Thousands of Jobs		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
Strategic Plan Employees - 2012	0.4	0.4	0.8
Strategic Plan Employees - 2015	0.5	0.4	0.9
Strategic Plan URMC Purchasing - 2012	0.1	0.0	0.1
Strategic Plan URMC Purchasing - 2015	0.1	0.1	0.2

Impact on Grant Activity

Given the research expectations of additional hires for IDP and ISP, the cumulative effect of those hires on projected grant activity is rather large. There will be an impact on both NIH funding as well as non-NIH funding. At the end of the Strategic Plan period (2012), CGR estimated that grant activity will grow by an additional \$24.2 million, or almost 10% of the 2007 dollar value of extramural funding. By 2015, the growth in grants will add an additional \$49.7 million, or 20% above 2007 funding levels.* The graph below shows the growth in the total estimated funding from NIH and non-NIH sources from fiscal year 2008 to fiscal year 2015. CGR estimates total funding from NIH and non-NIH sources to be over \$300 million by 2015.†



CGR recognizes that the graphical depiction is only a small part of the impact that activity may have on URMC and consequently the Rochester region. As URMC receives more extramural funding, its reputation will grow and thus, they may be able to attract even higher quality researchers than before. In addition, the Strategic

* The expectations of grants are dependent on the rank of the faculty member. CGR based its calculations on the rank of the faculty member at the time of hire. The projections provided may be underestimated to the extent that faculty members may be promoted in rank during the time period and subsequently assume a higher level of grant activity. These projections also do not consider indirect costs, which will create economic impact.

† In addition to the assumptions for grant expectations of those hired as a result of the Strategic Plan, CGR assumed a 2.5% annual rate of growth (or inflation) for existing funding.

Plan provides a commitment to specific research areas that ultimately may produce patents and commercialization of products. While it is not possible to forecast the impact that grant activity may have on technology transfer (in terms of royalties, patents, or spinoffs), it is clear the Strategic Plan will help to build upon the research platform where the region has been headed in its transition away from manufacturing toward a more knowledge-focused environment. The execution of the Strategic Plan will contribute to the Rochester community in many more ways than what are quantified in this document.

Fiscal Impact

CGR estimated the fiscal impact of employee spending and URMC purchasing in 2012 and 2015 for the local and traded sector as well as the traded sector only. The tables below present those estimates. In 2015, the Strategic Plan will generate approximately \$6.5 million in state income and sales tax for New York State and the Rochester region, for the local and traded sector combined.

URMC Strategic Plan Fiscal Impact on NYS and Rochester MSA (local and traded sector combined)

	Millions of Dollars		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
NYS and Local Sales Tax through 2012	\$1.4	\$0.4	\$1.8
NYS and Local Sales Tax through 2015	\$2.0	\$0.6	\$2.6
NYS Personal Income Tax through 2012	\$2.0	\$0.5	\$2.5
NYS Personal Income Tax through 2015	\$3.0	\$0.9	\$3.9

In the table below, we report the results of the fiscal impact from the traded sector. In the case of the traded sector only, employee

URMC Strategic Plan Fiscal Impact on NYS and Rochester MSA (traded sector only)

	Millions of Dollars		
	<u>Direct</u>	<u>Spillover</u>	<u>TOTAL</u>
NYS and Local Sales Tax - 2012	\$1.3	\$0.3	\$1.6
NYS and Local Sales Tax - 2015	\$1.5	\$0.4	\$1.9
NYS Personal Income Tax - 2012	\$1.8	\$0.5	\$2.3
NYS Personal Income Tax - 2015	\$2.1	\$0.6	\$2.7

spending and URMC purchasing (direct and spillover) is estimated to generate approximately \$4.6 million in state income and sales tax for New York State and the RMSA.

METHODOLOGY

CGR used IMPLAN, a regional input-output modeling system, for estimating the economic impact. IMPLAN is widely acknowledged as one of the best models of economic activity available.*

Direct and Spillover Impacts

Economic impacts are reported in two portions – direct and spillover impacts.

The “direct” economic impact consists of the actual expenditures of URMC in the community. For example, if URMC decides to construct a new building, the direct effect of that expenditure would be the construction jobs created as a result of the expenditure.

The “spillover” economic impact results from the follow-on spending of the recipients of the direct expenditures. For example, the firm hired to construct a new building will buy materials from local businesses. The local businesses will, in turn, have income to hire workers. Those workers will then spend money in the community. The spending of the businesses affected by the construction, and also the spending of the employees of those businesses, is considered spillover.† Similarly, employees of URMC spend their wages, which become income for other businesses in the region. For example, if a URMC faculty member goes out to dinner, the restaurant uses the money to pay suppliers and staff. These spillover types of expenditures occur daily and add to the overall economic impact of URMC.

* For more information, see www.implan.com.

† This explanation actually describes two different kinds of spillover impacts: indirect and induced. While we measure them separately, CGR chooses to report them together to minimize confusion.

**“Traded Sector”
Impacts:
Implications for
Clinical Revenue**

The Strategic Plan calls for an increase in expenditure by URMC in two main areas: construction and staffing. For these two components, CGR estimates the direct and spillover impacts in terms of both the number of jobs created (employment) and the labor income generated. To do so, we use the IMPLAN tool to develop multipliers for these activities for the RMSA.

The goal of any economic impact study is to assess how the economy in question is larger as a consequence of the activity being studied. In layman’s terms the question posed is this: How is the economy larger because the activity occurs in this community? Thus, what economists call the “traded sector” is defined as that portion of URMC activity that would likely not be replaced by a local alternative—income that is earned by “trading” with other regions.

In answering the question posed above, economists distinguish between economic activities that bring dollars into a region from those that simply reallocate dollars already “earned” from other regions. Routine surgery—an appendectomy, for example—would be performed in the Rochester area regardless of whether Strong or Highland hospitals existed. On the other hand, Strong’s highly regarded liver transplant program is unusual and attracts patients from outside the region. Local residents who receive liver transplants would travel to another city if Strong did not provide this service. Similarly, when URMC enters into a contract to conduct a clinical trial of a new pharmaceutical the community receives dollars that could just as easily have gone to Houston, Cleveland or Rochester, Minnesota.

CGR recognizes the importance of this distinction, but also understands that it is impossible to divide every dollar of revenue flowing to a complex institution such as URMC according to source. To address the issue and remain consistent with previous CGR studies of the economic impact of URMC, CGR defines the traded sector of Strong Memorial Hospital’s economic activity based on the portion of clinical revenue that is “highly specialized”. URMC staff estimate that one quarter of in-patient

revenue flowing to Strong Memorial Hospital (SMH) is “highly specialized” --that is, patient revenue flowing from services such as the liver transplant program discussed above. This is the component of the clinical service revenue that CGR includes as part of URMC’s unique contribution to the Rochester economy.

There are two situations where the traded sector vs. local services is relevant in reference to the Strategic Plan. ASC and PRISM are two capital investments where the effects may not be all traded sector. CGR assumes the capital expenditures related to the construction of these two buildings are all part of the traded sector. However, the subsequent purchasing and employment that results from the construction of these two buildings is not necessarily all part of the traded sector. It is, however, somewhat difficult to predict the traded sector of these two entities due to the uncertainty of new demand.

URMC estimates that 84% of the total out-patient cases for 2006 are from patients who live in the Rochester metropolitan statistical area. The economic impact (traded sector) of that outpatient business comes from the 16% of clients who choose to come to the RMSA from outside that area. CGR assumes the distribution of those patients inside RMSA and outside RMSA will remain similar for ASC. Thus, CGR calculates the traded sector for ASC as 16% for that portion of ASC volume that is shifted from local surgicenters and the SMH main Operating Room (about 70% of volume). The additional remaining volume (30%) is assumed to be completely part of the traded sector. The traded sector of PRISM is calculated in a similar way as for SMH using the assumption that the percentage of highly specialized clinical revenue generated from PRISM will be similar to the current situation across SMH. Thus, CGR assumes that 25% of the purchasing and employment resulting from PRISM is part of the traded sector.

CONCLUSION

The Strategic Plan of URMC generates employment through the construction phase, the additional purchases of URMC, and the additional employment of faculty and staff to realize the goals of the Strategic Plan. The impacts of these expenditures can be estimated treating the entire expenditure as part of the impact, or siphoning out the portion of the expenditure believed to be part of the traded sector. However, it is difficult to estimate the traded sector of a proposed plan that is in part based on expected increases in demand. Due to this complexity, CGR reports both estimates of the economic impact. Regardless of which method is used, the economic impact of the Strategic Plan on the Rochester community is significant.

The table below summarizes the results of the economic impact

University of Rochester Medical Center NOW		
	Labor Income (millions of dollars)	employment (thousands of jobs)
Direct Impact	\$568.1	11.0
Spillover	\$173.9	5.9
Total	\$742.0	16.9

Incremental Impact of Strategic Plan		
Construction Period	Labor Income (millions of dollars)	employment (thousands of jobs)
Direct	\$169.4	4.0
Spillover	\$100.1	3.1
Total	\$269.5	7.1
Employees and URMC Purchasing through 2015 - Traded and Local Sector Combined		
Direct	\$69.9	1.1
Spillover	\$20.3	0.7
Total	\$90.2	1.8
Employees and URMC Purchasing through 2015 - Traded Sector Only		
Direct	\$50.4	0.6
Spillover	\$13.8	0.5
Total	\$64.2	1.1

analysis for both the current URMC and the incremental impact of the Strategic Plan.

Rochester would be a very different community without the University of Rochester Medical Center and its affiliates. The research and clinical service missions of URMC contribute to expanding the frontiers of medical knowledge and addressing the day-to-day health care needs of the community, plus many of the very complex health care needs of a much larger region. As Rochester manufacturing continues to decline in importance, it is higher education and knowledge-rich services that have assumed its central role in the economy. No institution better captures Rochester's hope for the future than the University's Medical Center.