

Economic Impact of University of Rochester and its Affiliates

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University of Rochester Office of Government and Community
Relations

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SUMMARY

It is hard not to recognize the fiscal, economic and social impact of the University of Rochester on the Greater Rochester metropolitan region. Whether you are visiting the Memorial Art Gallery and its popular annual Clothesline Festival, strolling down East Main Street during the Jazz Festival, attending events at the Eastman Theater or are in the unfortunate position to be treated by the capable doctors and nurses at either Highland or Strong Memorial Hospitals, you are interacting with the UR. The UR invests in our community by renovating and building both campus and off-campus housing and related buildings (I.e. Brooks Landing), lobbies for significant improvements in the community (I.e. ARTWalk near the Memorial Art Gallery), and works closely with local, state and federal officials to bring millions of dollars into our region that sponsor cutting edge research and foster new business ventures.

Ranked as the 6th largest private employer in New York State, the UR remains firmly entrenched as the number one employer in the Rochester region with 19,610 Full Time Equivalent (FTE) employees and almost 8,000 full-time undergraduate and graduate students as of December 31, 2009. Even during the most painful recession since the Great Depression, the UR has continued to expand its economic impact in the area creating more jobs and generating more labor income than it did just two years ago. The UR is clearly the leader in the transition of Rochester's economy that is now driven by the education and health services sectors.

This report provides quantifiable evidence of the economic impact of the University of Rochester on the Rochester Metropolitan Statistical Area (RMSA) – Livingston, Monroe, Ontario, Orleans, and Wayne counties. While there are many intangible ways in which the University contributes to the community, this report provides the figures and statistics to highlight the economic role of the UR in the RMSA.

University Profile

A brief overview of the University of Rochester and its affiliates reveals that during calendar year 2009 the UR:

- Purchased goods and services in excess of \$654 million. Of this total, more than \$184 million was spent to purchase goods and services in the RMSA.
- Spent an average of \$214 million per year (in 2009 dollars) for capital improvements including building and fixed equipment and movable equipment.
- Provided employment to 22,730 people (full-time, part-time, and timeas-reported) at year-end, December 31, 2009.
- Paid wages of almost \$1.25 billion of which more than \$1.21 billion was to employees living in the RMSA and an additional \$14.2 million was to employees living outside the RMSA but still in close proximity to Rochester.[†]
- Received more than \$1.8 billion in external funding (federal and non-federal agencies) from FY 2005 to FY 2009.
- Based upon CGR's 2008 Economic Impact study of the UR, the university has ties to approximately 46% of the active patient care physicians in the RMSA. [‡] 17% of the physicians were graduates of URMC in 2009.

The students of UR also contribute to the economic activity of the RMSA in the following ways:

^{*} Employees of University of Rochester include all adjunct faculty, faculty, post doctorates, research and teaching fellows, medical residents, and staff at the University of Rochester. In addition, all employees of Strong Memorial Hospital, Visiting Nurse Service (VNS), Visiting Nurse Signature Care, Highland Hospital, High Tech Rochester and Rochester BioVenture, and all three Highlands – Highlands at Pittsford, Highlands at Brighton, and Highlands Living Center are included. CGR will refer to this entire body as University of Rochester employees. We do not include undergraduate students and graduate students in the employee spending part of the report, but rather in the student spending component of the economic impact. Including graduate students, UR provided employment to 24,428 as of 12/31/09.

[†] Includes employees living in Allegany, Cattaraugus, Cayuga, Chemung, Genesee, Schuyler, Seneca, Tompkins, or Yates counties.

[‡] Similar data was not available for this study. The number not only included graduates of URMC, but also physicians from other schools doing their residencies at Strong or Highland hospitals.

- More than 3,300 students were eating off-campus on a regular basis spending their money locally in restaurants or shopping at grocery stores.
- Over 3,300 undergraduate and graduate students lived off-campus, contributing their living expenses to the Rochester economy.

During 2009, visitors to UR accounted for:

- Over 26,600 hotel reservations; and
- More than 31,500 hotel night stays.

Economic Impact Results

CGR provides economic impact estimates for two scenarios.

- Local and Traded Sector Combined: Assumes that every component of UR provides an economic impact to the RMSA. That is, we assume that if the UR were not here tomorrow, the jobs and spending generated by the UR and each of its affiliates would not be provided by anyone else in the community.
- **Traded Sector:** A more conservative estimate of the economic impact. The traded sector can be defined as only certain aspects of UR that would disappear if UR were not in existence. For instance, if the UR did not exist and Highland Hospital folded, it could be argued that the services performed by Highland Hospital would be continued by other hospitals in the region.

For the *Local and Traded Sector* combined the University of Rochester and its affiliates generate:

- approximately 47,000 jobs (direct and spillover) in the RMSA; and
- more than \$2.3 billion in wages (direct and spillover) in the RMSA; and
- approximately \$141 million in sales tax, personal income tax, and local property taxes to the RMSA and NYS economy.

For the *Traded Sector* the University of Rochester and its affiliates generate:

- more than 31,000 jobs (direct and spillover) in the RMSA; and
- more than \$1.6 billion in wages (direct and spillover) in the RMSA; and
- slightly more than \$101 million in sales tax, personal income tax, and local property taxes to the RMSA and NYS economy.

The Results in Perspective

The economic impact of the University of Rochester and its affiliates on the Rochester community is substantial. To put this impact into perspective, University of Rochester's traded sector impact of 31,000 jobs equates to:

- 5.8% of the employment for the entire labor force of the RMSA;§ and
- 5.0% of the potential working population for the RMSA.**

If one considers the local and traded sector combined, UR and its affiliates employ or generate employment for approximately 47,000 people. This equates to:

- 8.8% of the employment for the entire labor force of the RMSA; and
- 7.6% of the potential working population for the RMSA.

The above statistics help to reinforce the results in this report: The University of Rochester continues to be a driving economic force in the Rochester community. Beyond the economic and fiscal impact, the reality of the size and scope of the UR within the region is being increasingly felt by leaders throughout our community.

§

[§] Source for Labor Force: Local Area Unemployment Statistics (LAUS) – Bureau of Labor Statistics for 2008 RMSA. This is defined as those actively employed or actively looking for work.

^{**} Working force population is defined by CGR as the RMSA population between the ages of 18 and 64. Source of data: US Census Bureau, 2008 American Community Survey.

Acknowledgements

CGR wishes to thank all of the University of Rochester employees who provided data for this study. The report is a team effort between CGR and many employees of UR who helped to provide the necessary data needed to perform the analysis. We thank all those employees who gave generously of their time and answered countless questions regarding data and the specific operations within University of Rochester. In particular, we thank Josh Farrelman and Mark Michaud for their time in coordinating data requests, answering questions, and providing feedback on the report.

Staff

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INTRODUCTION

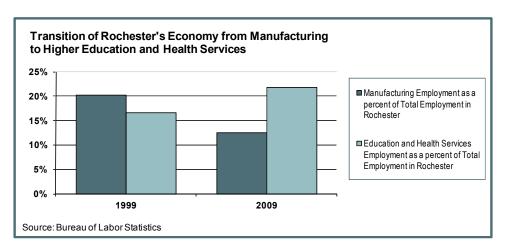
The University of Rochester (UR) is a complex academic institution which includes many top-ranked programs and research centers. Each of these contributes to the Rochester community. The reputation of UR also extends around the globe bringing additional value to the Rochester economy. This large and complex institution is comprised of:

- The River Campus, which includes:
 - o The College
 - Arts & Sciences
 - Engineering (including the Laboratory for Laser Energetics LLE);
 - o William E. Simon Graduate School of Business Administration;
 - Margaret Warner Graduate School of Education and Human Development; and
 - o The Eastman School of Music.
- The University of Rochester Medical Center (URMC), which includes:
 - School of Nursing;
 - School of Medicine and Dentistry;
 - Eastman Institute for Oral Health;
 - Strong Memorial Hospital;
 - o University of Rochester Medical Faculty Group; and
 - o Health Affairs Division.
- Memorial Art Gallery
- University of Rochester affiliates, which include:
 - Visiting Nurse Service (VNS) and Visiting Nurse Signature Care (VNSC);
 - The Highlands Highlands at Pittsford; Highlands Living Center; and Highlands at Brighton; and
 - o Highland Hospital.

- Other affiliates including:
 - Excell Partners;
 - o HTR (High Technology Rochester); and
 - Rochester BioVenture Center.

Transition of the Local & State Economy

Education and health care have become key drivers of local and regional economic growth throughout the United States. The increasing sophistication of medical science, rising affluence, and the aging of the population all contribute to the growing significance of the health sector. Fueled by the downsizing of the region's manufacturing sector, the Rochester region's employment picture has changed significantly over the past decade. In 1999, the manufacturing sector accounted for just over one-fifth of employment in the Rochester Metropolitan Statistical Area (RMSA).* In contrast, by 2009 less than 13% of employment was in this sector. Over the past decade, education and health services education rose from 17% to 22% of the Rochester region's employment. Employment is one aspect of the transition from a manufacturing based economy to one where higher education and health care play major roles. UR has been a major contributor to this growth and change.



Another aspect of the transition has been the creation of new business ventures fueled by innovative and knowledge based research. UR has received more than \$1.8 billion in external funding over the past five years. Their future plans demonstrate this continued commitment to research. For example, the University of Rochester Medical Center

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

(URMC) has a Strategic Plan for 2007-2012 that highlights many areas for growth, including ongoing 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. In 2009 alone, the UR generated proposals of more than \$1.8 billion dollars. Research has become increasingly central to the economic vitality of the Rochester region both today and for the future.

Ongoing research activities help to build the reputation of URMC. This causes a larger demand for medical residents, which in turn helps the Rochester economy. The training that occurs at Strong Memorial Hospital and Highland Hospital is critical to the Rochester region. Of the 3,108 active patient care physicians in the RMSA, 17% of them graduated from URMC. In a previous study conducted by CGR it was reported that nearly 46% of active care physicians either graduated or received residency training at either Highland or Strong Memorial Hospital.* While a similar statistic was not available for this report, graduate data suggests these numbers are fairly stable.

Outline of Report

This report provides evidence of the economic impact of the University of Rochester on the Rochester community. While there are many ways in which the University contributes to the community which are not measurable, this report provides the figures and statistics for those ways in which the benefits of the University of Rochester can be quantified. CGR focuses on the Rochester Metropolitan Statistical Area (Counties of Monroe, Wayne, Livingston, Orleans, Ontario) as the level of analysis in determining the economic impact. New York State is the level of analysis for estimation of the fiscal impact.

CGR's report is presented in three parts:

- 1) "Profile of University of Rochester and its Affiliates" which provides information about the size of UR's staff and students as well as actual expenditures by UR. These are the categories and "raw data" used to estimate the economic and fiscal impact. This section also includes information about the research productivity of UR in terms of grant activity, patents, and royalty revenues.
- 2) "Methodology" which discusses the difference between the traded sector, and the local and traded sector combined. This section provides

^{*} Source: New Health Workforce Data System: Center for Health Workforce Studies; SUNY Albany.

explanations of terminology as well as the methodological procedures CGR used to estimate the economic impact.

3) "Economic and Fiscal Impact Estimates" which provides estimates of the economic impact of UR, 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, income and property tax revenue generated.

PROFILE OF UNIVERSITY OF ROCHESTER AND ITS AFFILIATES

An economic impact study estimates the wages and jobs that an institution is responsible for generating as a result of its economic activity. Essentially, it answers the question, "How is the economy larger because of this institution's activity in the community?" The data on which the analysis for the UR is based are summarized in this section.

University of Rochester Purchases

During calendar year (CY) 2009*, the University of Rochester and its affiliates:

- purchased goods and services in excess of \$654 million;
 - of this total, more than \$184 million was spent to purchase goods and services in the Rochester MSA.

Capital Expenditures

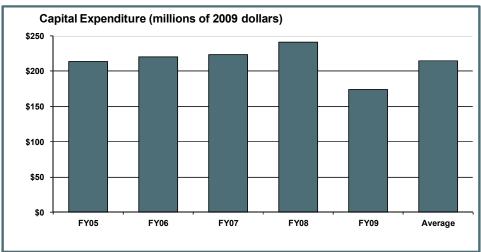
Given the variable nature of capital expenditures, CGR uses a rolling average over five years to estimate the economic impact of capital expenditures.

During the past five years (FY2005 – FY2009), the University of Rochester:

• spent an average of \$214 million per year (in 2009 dollars) on capital additions including building, renovation and construction equipment.

^{*} Where possible, CGR has captured all dollars for the calendar year. For reference, the fiscal year at UR is defined as July 1 to June 30. Thus, fiscal year 2009 runs from July 1, 2008 to June 30, 2009.

o this equates to \$1.07 billion (in 2009 dollars) of capital expenditures over the five year period.



Recently Completed Capital Projects

There are a number of projects that have been completed in the past five years that have been responsible for this wave of capital spending by UR.*

Robert B. Goergen Hall for Biomedical Engineering and Optics (\$32 million)

On May 17, 2007, Goergen Hall officially opened. This five-story, 101,000-square-foot building is the first home to the Department of Biomedical Engineering, and connects to the Wilmot Building, home of the Optics Institute. The teaching laboratories, high-tech demonstration areas, and gathering spaces of Goergen Hall thus encourage interdisciplinary collaboration as they are easily accessible to biomedical engineers and optics researchers alike. Goergen Hall also houses the Center for Institute Ventures, an economic development initiative that seeks ways for the Rochester economy to benefit from UR research. The building is specifically designed to be eco-friendly and energy smart.

James P. Wilmot Cancer Center (\$63.7 million)

On May 15, 2008, the James P. Wilmot Cancer Center was officially dedicated. Growth in patient demand was a driving force in the creation of a new four-story, 164,000-square-foot building, which is visited by over 10,000 patients annually. The new Center consolidates all outpatient cancer care and research programs into a single location and allows for many programs, including medical oncology clinical space and radiation

^{*} Expenditures are given as cumulative through FY2009 unless otherwise noted. Amounts are reported at historical cost and not inflated to reflect 2009 dollars.

oncology to grow in size through expanded space and/or equipment. The new Center also allows for state-of-the-art techniques in various areas—from the use of the new Trilogy radiation system, which can target the size and location of tumors more precisely than previous systems to a team-approach to breast cancer treatment which can drastically reduce delays in diagnosis and treatment.

Omega EP Laser Facility (\$97.4 million)

On May 16, 2008, UR dedicated the new Omega EP (Extended Performance) laser facility at the Robert L. Sproull Center for Ultra High Intensity Laser Research at the Laboratory for Laser Energetics (LLE). The Omega EP comprises a new set of four ultra-high-intensity laser beams that will unleash more than a petawatt—a million billion watts—of power onto a target just a millimeter across. Working in conjunction with LLE's original 60-beam Omega laser, the Omega EP will open the door to a new concept called "fast ignition," which may be able to dramatically increase the energy derived from fusion experiments and provide a possible new avenue toward clean fusion power. If successful, fast ignition could lead to the highest energy densities ever achieved in a laboratory.

Wolk (Highland Hospital) Emergency Department (\$9.2 million)

Highland Hospital's emergency department was last renovated in 1975. Its emergency department patient volumes had increased by 67 percent in the five years prior to the project groundbreaking in October 2006. After a three-year construction project that concluded in August 2009, Highland Hospital has expanded its emergency department from 7,000 to approximately 16,000 square feet and the number of acute care beds from 18 to 26. Highland currently treats approximately 30,000 patients annually in its emergency department. The project received early and substantial support from local lawmakers and major donors, including the Louis S. and Molly B. Wolk Foundation. Highland named the renovated facility the Wolk Emergency Department in recognition of the Foundation's \$1 million gift.

Aab Cardiovascular Research Institute

The University of Rochester Medical Center opened the Aab Cardiovascular Research Institute (CVRI) in 2007. More than 100 scientists, students and technicians that were housed across the Medical Center's campus were brought together under one roof. The 12 cardiovascular research laboratories in the institute currently conduct more than 50 research projects with the goal of furthering the understanding of heart disease. Along with cardiovascular scientists, the newly renovated facility will house 12 researchers from Functional Genomics, a core facility that services researchers throughout the University and Medical Center, providing analysis of genetic material using state-of-the-art

techniques. The CVRI facility was formerly occupied by Wyeth-Lederle Vaccines and Pediatrics.

URMC Surgery Center (\$13 million)

The URMC Surgery Center opened in July 2009. The Center contains 10 operating rooms and two procedure rooms, as well as space for pre- and post-operative care, a materials processing unit for instrument sterilization and preparation, and patient/family waiting room areas. The 52,000-square-foot facility is located at 180 Sawgrass Drive, just off Westfall Road. The building was constructed by a private developer which is leasing the facility to the Medical Center. The Medical Center provided the \$13 million investment necessary to outfit the facility with state-of-the-art surgical equipment.

Capital Projects in Progress

Kodak Hall at Eastman Theater and other Eastman School Renovations (\$46.9 million)

On October 7, 2009, the ribbon was cut on the newly renovated Kodak Hall at Eastman Theater. The updated theater features a new sound system, new patron amenities, mezzanine-level boxes, and a new sound wall that will help both performers and patrons while maintaining the grand renaissance feel.

Renovations will continue with the construction of a new building that includes a recital hall, a rehearsal hall large enough to accommodate large Eastman ensembles and the RPO, teaching studios for Eastman School of Music faculty, and a new recording studio. An earlier phase of the renovation of the Eastman Theatre was completed in October 2004 and focused on improvements to acoustics, stage lighting, the orchestra pit, and various backstage areas.

Clinical and Translational Science Building (\$76.4 million)

The CTSB, scheduled to be completed in FY2011, consists of the construction of a 4-story building for clinical, scientific and medical research and to house the Clinical and Translational Science Institute. It will bring together many clinician scientists who previously worked separately and serve as the hub of resources, expertise, and networks necessary to accelerate the clinical application of biomedical research as well as increase the effectiveness of clinical research and clinical education.

Based upon a previous study conducted by CGR, the combined immediate and catalytic impacts of CTSB were projected to be nearly \$30 million annually. The direct and spillover impacts of this project were projected to total \$43 million in labor income and result in the creation of 830

construction jobs along with 600 permanent jobs. Additionally, the CTSB should enable the University to aggressively expand the number of clinical and translational investigators over the next 10 years, which could yield an additional \$25 million in external research revenue per year.

The facility is the first of its kind, with the building incorporating several design features to increase energy efficiency—the Medical Center intends to seek a Leadership in Energy and Environmental Design (LEED) certification, which will make CTSB the first LEED-certified building on the University of Rochester campus.

Strong Memorial Hospital Bed Expansion Project — Phase I (\$45 million)

Expected to be completed in FY2012, the initial phase of expanding the James P. Wilmot Cancer Center consists of constructing 3 additional floors on the Cancer Center, which will house 20-30 additional adult medical/surgical beds and provide for the imaging needs of the Cancer Center.

Planned Future Capital Expenditures

Strong Memorial Hospital Bed Expansion Project — Phase II (\$148.5 million)

Phase II of the Pediatric and Imaging Tower project would involve constructing a new clinical tower to enhance pediatric care and imaging science. This would be the second phase of a larger project with total capital investment of nearly \$250 million aimed at increasing expanding the number of beds and increasing space for a pharmacy and pediatric imaging. This phase of the expansion isn't expected to be completed until FY2016.

Warner School Building (\$21.5 million)

A plan has been proposed outlining the construction of a new building on the River Campus for the Warner School of Education. The 50,000 square foot state-of-the-art facility will provide new classrooms, research facilities, administrative and faculty office space, conference rooms, and space to host community events. The space will be designed to model best practices in teaching and learning, including cutting-edge technology that supports educational goals, group study spaces and demonstration classrooms to model effective pedagogical approaches with K-12 students. This space will also serve as a home for educators with whom we partner, connecting teachers, counselors and administrators with the resources of the University and providing a space to convene leaders in education to tackle common community challenges. The building will allow for the addition of faculty and a 30% increase in students, expanding the ability to provide a high-quality, research-based education to teachers, counselors,

leaders and researchers. The construction would likely be completed in FY2012.

Anderson & Wilder Towers Renovations (under review)

The university plans on renovating two of its existing undergraduate residence halls, Anderson and Wilder Towers. Updates would include fire safety upgrades and other major renovations throughout the two buildings. Construction is expected to be completed sometime in FY2012 or FY2013.

I-390 Interchange Project

The University is working with Federal, State and Local officials, and the community to redesign interstate 390 between exits 15 and 17. The proposed I-390 Interchange Project will support and accommodate increased traffic flow by making a number of new and structural improvements to I-390 at Routes 15 and 15A, East River Road, and Kendrick Road. This includes direct access to I-390 from the University via a proposed Kendrick Road ramp that would provide relief and a significant traffic benefit to the surrounding roadway network and among the surrounding residential neighborhoods. The proposed changes would also greatly improve access for emergency and non-emergency medical services to Strong Memorial Hospital.

The I-390 Interchange Project has significant potential to bring economic benefits to the entire region. Initial estimates show the project may generate 1,660 jobs and produce nearly \$83.5 million in labor income with the primary benefit resulting from the construction related work during implementation of the project. Non-construction or "catalytic" economic impacts have not been quantified. The project may improve land values and make some areas accessible for development that was previously undesirable. In addition to the direct and indirect economic impacts, the project should continue to facilitate the growth of the University, the Medical Center and several other planned expansion efforts.

UR Community Expansion Plan (College Town)

The University of Rochester's 2008 Campus Master Plan, which stresses connecting with surrounding neighborhoods, calls for the development of a College Town along Mt. Hope Avenue. This development is designed to serve as a gateway to its campus and help stimulate commercial development in the area that could include retail, dining, office space and housing. The University, the City of Rochester, the Mt. Hope Business Association, the Upper Mt. Hope Neighborhood Association, and the South East Area Coalition all worked together to develop a vision for Mt. Hope Avenue that will help facilitate the University's plans for expansion. To facilitate this growth, the City of Rochester has rezoned this section of

Mt. Hope Avenue for dense mixed-use development and also plans about \$5 million in road upgrades that will include the widening of Mt. Hope, the development of a median, and some on-street parking.

ARTWalk Phase II

ARTWalk II builds on the success of the original ARTWalk by extending the permanent urban trail to connect with art centers and public spaces in Rochester's Neighborhood of the Arts. The City of Rochester, partnering with the nonprofit community group - ARTWalk, the Memorial Art Gallery, and more than a dozen other cultural, educational and business organizations plans on using federal funds from the American Recovery and Reinvestment Act to extend ARTWalk in every direction and improve University Avenue to match the sections of the road to the east.

The project plans also include sections of artistic sidewalk trails along University Avenue to the west, and on Goodman Street; a raised pedestrian crosswalk along North Goodman to create a safe connection between the art trail and Village Gate; and a new artistic bus shelter for RTS buses at College Avenue and Goodman Street. A pedestrian welcome plaza at the corner of University and North Goodman on the Memorial Art Gallery grounds will offer seating, lighting, iconic public art and interpretive elements.

The University of Rochester and Stern Properties, which owns Village Gate, will also contribute financially to the project. Construction is scheduled to begin in the spring of 2010. According to the City of Rochester, since ARTWalk began in 2000, neighborhood housing prices have increased by 30 percent and crime has subsided.

Jefferson Avenue Revitalization

In 2008, Congresswoman Slaughter and the City of Rochester engaged citizen leaders, the faith community, the Urban League of Rochester, the University of Rochester, and community organizations like the Southwest Area Neighborhood Association and Sector 4 Community Development Corporation to begin the community dialogue to create a vision for redevelopment of Jefferson Avenue. The City of Rochester assessed improvements to the area's infrastructure and the University's Simon School contributed economic analysis and support to this process. Thanks to public and private funding, \$2.3 million is slated for streetscape enhancements to Jefferson Avenue including substantial upgrades to street lighting, street resurfacing, additional street trees, creating gateway features at the commercial core and decorative sidewalk treatments. Jefferson Avenue community groups continue their revitalization efforts and are working closely with the City, developers and other key stakeholders to engage in the development process.

Brooks Landing

Development at Brooks Landing is fundamentally changing the face of Rochester's southwest side. The University, the City of Rochester, neighborhood groups, and private developers all partnered in the development of Brooks Landing – a privately-funded waterfront development between Brooks Avenue and Genesee Street that includes the 80-room Staybridge Suites hotel as well as a retail and office building occupied in part by the University, a coffee shop, and additional retail space. Nearly 100 University of Rochester finance and human resources employees occupy office space in a 28,000-square-foot two-story business center built at 910 Genesee St. The City's new Brooks Landing public waterfront promenade, street redevelopment and its Neighborhood Service Center with adjacent sporting goods store, along with Boulder Coffee at Brooks Landing, are all part of the Brooks Landing development project and contribute to the ongoing revitalization of the neighborhood. The private developer has also proposed using part of the land surrounding the hotel to build a 5,000-square-foot restaurant, with student housing above it, and sell a portion of the land for additional development.

In the summer of 2008, the University and the community also celebrated the opening of the Riverview Apartments, a five-building, 120-unit complex, which is the largest private development in the Brooks-Genesee area in more than four decades. The apartments, leased by the University, provide housing to about 400 University students and help further connect the University to its neighbors across the river.

Employees

For the purposes of this report, employees of University of Rochester include all adjunct faculty, faculty, post doctorates, research and teaching fellows, medical residents, and staff at the University of Rochester. In addition, all employees of Strong Memorial Hospital, Visiting Nurse Service (VNS), Visiting Nurse Signature Care, Highland Hospital, High Tech Rochester and Rochester BioVenture and all three Highlands — Highlands at Pittsford, Highlands at Brighton, and Highlands Living Center. In expressing the economic impact, CGR will refer to this entire body as University of Rochester employees.*

The table below provides the employee count as of 12/31/09. This includes full-time, part-time and TAR (time as reported which includes per diem, casual, and temporary) individuals and is not a full-time

^{*} We do not include undergraduate students and graduate students in the employee spending part of the report, but rather in the student spending component of the economic impact.

equivalent number. The table does not include graduate students and undergraduate students.*

All Employees of University of Rochester and its Affil	iates
University of Rochester	18,801
Highland Hospital	2,399
The Highlands**	773
Visiting Nurse Service/Signature Care	743
High Tech Rochester/BioVenture	14
Total	22,730
**Includes Highlands at Brighton, Highlands at Pittsford, and Highlands Living Center	

The table below summarizes the full-time equivalent number of UR employees reported on December 31, 2009, including graduate students.

Full-Time Equivalent of U	niversity	of Rock	nester Em	ployees
Counts by FTE	Full-Time	Part-Time	TAR/Per Diem	Total
University of Rochester	14,453	1,579	459	16,491
Highland Hospital	1,455	322	183	1,960
The Highlands**	397	41	105	543
Visiting Nurse Service/Signature Care	441	118	43	602
High Tech Rochester/BioVenture	13	1	0	14
Total	16,759	2,061	790	19,610
**Includes Highlands at Brighton, Highlan	ids at Pittsford	d, and Highla	ands Living Cent	er

During the 2009 calendar year, UR:

• Paid wages of almost \$1.25 billion, of which more than \$1.21 billion was to employees living in the RMSA.

The geographic distribution of wages for all employees (not including graduate and undergraduate students) is presented in the table below:

Distribution of Wag	es by Region
Rochester MSA	\$1,210,312,006
Rochester Finger-Lakes*	\$14,295,519
Rest of NYS	\$13,328,249
Outside NYS	\$6,835,517
Total	\$1,244,771,290
*Defined as Allegany, Cattaraugus, Cayu Schuyler, Seneca, Tompkins, or Yates c	0 .

^{*} Including graduate students, UR provided employment to 24,428 as of 12/31/09.

[†] CGR redistributed wages of those employees who were not active at the end of the year (retired, terminated, etc) based on the distribution of the wages of all active employees.

CGR only includes the wages of those employees living in the RMSA (\$1.21 billion) to estimate the economic impact of UR on the RMSA. However, it is clear that an employee living in nearby Genesee County, for example, might still spend a large portion of their income in the RMSA. Thus, the economic impact estimates presented later in this report may be slightly underestimated as they do not include any expenses of employees living outside the RMSA. In addition, there are a few employees who have a permanent address outside NYS. However, some of them may rent an apartment as well as buy groceries and gas in the RMSA during the week. Due to the case-by-case nature of these situations, CGR chose to only include those wages of employees with an address/zip code in the RMSA.

• In addition, UR provided employment to a total of 5,426 undergraduate and graduate students during the 2009 calendar year for a total of \$31.5 million in wages.

UR is one of New York State's Top Employers

In order to put UR's role as a major employer in context, CGR set out to construct a list of the top private employers in New York State. Since employee counts are not public information, sources such as various local business journals, market research firms, and the employers themselves were utilized to gather the most accurate information. The following table represents what CGR believes to be the top 20 private employers in NYS:

	Top 20 Employers in NYS				
		NYS			
Rank	Company Name	Employment			
1	NY Presbyterian Healthcare System	29,000			
2	Walmart*	28,000			
3	Citigroup	27,000			
4	IBM Corp.	21,000			
5	JP Morgan Chase	21,000			
6	University of Rochester/Strong Health**	20,000			
7	Verizon	18,000			
8	Cornell University/Weill Medical	17,000			
9	Federated Department Stores	17,000			
10	Montefiore Medical Center	17,000			
11	New York University/School of Medicine	16,000			
12	Columbia University/Medical Center	15,000			
13	Golub Corp Price Chopper	14,000			
14	Wegmans Food Markets	13,000			
15	Kaleida Health	11,000			
16	Merrill Lynch	10,000			
17	Eastman Kodak	7,000			
18	Rochester General Health System	7,000			
19	Xerox	7,000			
20	Memorial Sloan-Kettering Cancer Center	7,000			

**Full time equivalent, UR & affiliates

*75% of total reported by Walmart at http://goo.gl/gaPO to adjust for likely part time workers.

UR ranks 6th among private employers in New York State with close to 20,000 full time equivalent employees. UR is the highest ranked higher education institute on the list and the 2nd highest as a healthcare provider. Firms in higher education, health care, retail and the financial services industry make up the majority of the state's largest employers. While half of the firms on the list have operations based in New York City, the remainder are scattered across communities throughout upstate NY.

Students

The students of UR contribute to the economic activity of the Rochester MSA. In particular, during the spring semester, UR:

- enrolled 7,986 full-time undergraduate and graduate students;
- provided housing to 4,680 undergraduate and graduate students; and
- provided meal plans to 4,618 undergraduate and graduate students.

During the fall 2009 semester, UR:

- enrolled 8,318 full-time undergraduate and graduate students;
- provided housing to 4,819 undergraduate and graduate students; and
- provided meal plans to 4,889 undergraduate and graduate students.

The above statistics imply that during the 2009 calendar year:

- More than 3,300 students (3,368 during spring semester and 3,429 during fall semester) were eating off-campus on a regular basis—spending their money locally to eat in restaurants or shopping at grocery stores.
- Over 3,300 undergraduate and graduate students (3,306 during spring semester and 3,499 during fall semester) lived off-campus, contributing their living expenses to the Rochester economy.

Visitors

The University of Rochester hosted visitors throughout the year for events such as Meliora weekend, graduation, concerts, recitals, athletic events, and admission visits. The visitors include alumni; prospective students and their families; family and friends of current students; visiting faculty that

attend conferences or use research equipment; family and friends of Strong Memorial Hospital patients; musicians; athletic opponents and their fans; and UR fans and families of student athletes. Visitors bring new dollars to the Rochester community. Overall, during 2009, visitors to UR accounted for:

- Over 26,600 hotel reservations; and
- More than 31,500 hotel night stays.

The largest events contributing to the visitor impact are discussed below:

Admission Visits

Prospective students represent a significant pool of visitors. The undergraduate admissions office on River Campus estimates that more than 15,000 visitors came to visit during 2009. The Eastman admissions office also provided tours to approximately 1,000 people during 2009. Many of these people are from out of town and stay overnight in the Rochester area.

Athletic Events

Athletic events also draw a large number of visitors, composed of the visiting teammates as well as parents and other spectators from out of town coming to watch a game. During the 2009 calendar year, there were 97 home games with nearly 2,400 visiting teammates from places far enough away to warrant staying in a hotel. In addition, parents of players and fans of the visiting teams come from outside the area.

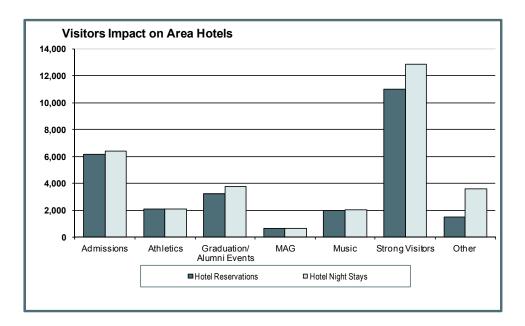
Arts

The Memorial Art Gallery (MAG) had 56,514 visitors to their exhibits during 2009. More than 210,000 people came to MAG for school tours, creative workshops, weddings, corporate events, visits to the gift shop and restaurant, and the annual Clothesline Festival. The Clothesline Festival drew 379 exhibit artists, many of them from outside the Rochester region.

Graduation/Alumni Events

Meliora Weekend (MW) is one of the biggest annual events on campus. It is the combined weekend for Homecoming, Family Weekend, and Reunion. In 2009, MW attendees (specifically alumni, parents, and guests) numbering 1,177 came from outside the Rochester region and occupied approximately 589 hotel rooms. The average length of stay was three days. These visitors, and any out-of-town visitors to campus, affect the local economy by spending money at places such as hotels, restaurants, retail establishments, gas stations, car rental agencies, and the airport.

Another major visitor event is graduation weekend. The University awarded 2,624 degrees during the May 2009 commencement. The Conference and Events Office at UR estimates five visitors per graduate. Many of these are from out of town and pump out-of-town dollars into the Rochester economy.



Music

The Eastman Theatre draws thousands of outside visitors for a number of different events such as the Rochester Philharmonic Orchestra and local graduation ceremonies. Smaller events such as Eastman School of Music student recitals concerts brought 750 visitors from outside the area, and the Eastman Rochester Organ Initiative Festival had 150 visitors.

The Rochester International Jazz Festival (RIJF) is one of the top attractions of the year, with total attendance of 133,000 in 2009. 14,000 of those were for headline concerts at the Eastman Theatre and 11,000 were for Kilbourn Hall performances. CGR also considered the 800 musicians that come from out of town to perform during the week of the festival.

Strong Memorial Hospital

Visitors to patients of Strong Memorial Hospital also make an economic contribution. The Strong Guest Hotel Services processed 11,003 guest reservations for a total 12,880 hotel nights during 2009.

Other

This category encompasses many visitors for academic conferences. The LLE brought 697 researchers to use the facilities, many of which come

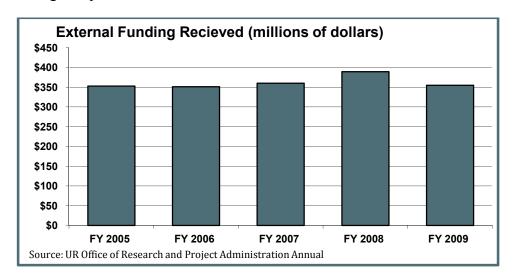
from abroad. These researchers typically stay in local hotels for 4 days to perform their research.

Research Funding at University of Rochester

While the University's employment and spending are a critical foundation of the region's economy, of equal importance is the catalytic impact of the institution's research enterprise. Research activities – both basic science and clinical research – are an integral part of University of Rochester. Research has become increasingly central to the economic vitality of the Rochester region both today and for the future. The boundaries of "science" are pushed through research and development. In the case of medical research, the research results in improved health care for our community by bringing advances in health care to the practice of medicine in physician offices and hospitals. Whether it's medical research, the research at the LLE facilities, or the many other ongoing research activities across UR's campus, the advances are impressive and help to create intellectual capacity in the Rochester region.

Grant Activity at UR

UR has received more than \$1.8 billion in external funding (federal and non-federal agencies) over the last five years. Total awards to University of Rochester averaged \$361.5 million per year (in constant dollars) from FY2005 to FY2009. The graph below shows the annual funding to UR during that period.



Partnerships Generating External Funding

Excell Partners is a regional economic development partnership established in cooperation with UR and NYS to manage a state-supported fund which provides pre-seed and seed stage financing to high-tech start-

up companies in the upstate NY region. Since its inception in 2005, Excell has invested \$2.4 million in 21 companies throughout the Upstate region. Total co-investor and follow on funding for these companies has resulted in \$58.8 million with the potential for additional economic growth in the region.

Patents, Royalties, and Start-Ups

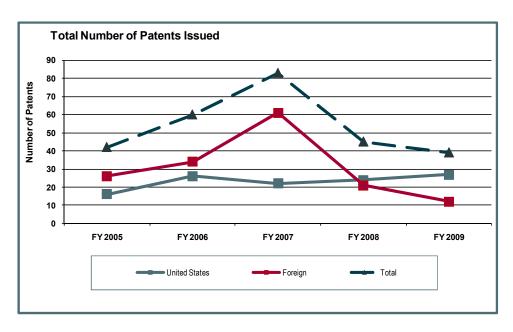
UR's Office of Technology Transfer has experienced strong productivity over the past five years. There has been substantial growth in the total invention disclosures, the number of domestic patents issued, and the royalty revenue earned. This strong history of growth and innovation represents a potential pool of intellectual property that can be tapped for economic development purposes.

Patents

The total invention disclosures have grown by 9.6% over the past five years. The growth is primarily driven by the Medical Center, where they have experienced a 15% invention disclosure growth rate from FY2005 to FY2009.

Invention Disclosures						
FY 2005 FY 2006 FY 2007 FY 2008 FY 2009						
LLE	2	2	5	7	3	
Engineering	32	29	30	26	35	
Arts and Sciences	and Sciences 9 8 7 6 4					
URMC 92 101 107 109 106						
Total	135	140	149	148	148	

The total number of patents issued has fallen slightly over the past five years, due to a significant decrease in patents issued abroad. But domestic patents remain a bright spot for UR, exhibiting growth of over 68% since 2005. The chart on the next page depicts the change in total issued patents from FY2005 to FY2009. The cutting-edge research that results in these patents has also produced a number of start-up companies over the past decade.



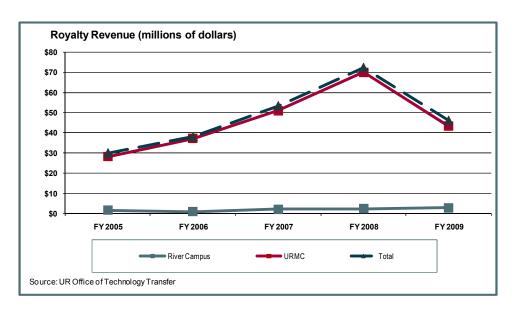
Royalty Revenue

In the past five years, the royalty revenue has grown by 54% for the University of Rochester. According to data from the Association of University Technology Managers (AUTM), the University of Rochester was ranked ninth nationally in 2008 in terms of licensing revenues.* 2009 revenues were down but still ranked 3rd highest in university history. Revenue generated from royalty payments is reinvested back into the University to support its core missions, as well as its technology commercialization efforts.

Over the past five years, for every one million dollars in extramural funding, CGR analysis indicates an average of \$105,909 in royalty revenue is generated by UR. According to the 2006 AUTM 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 more than three times the average for 2006, UR'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.

^{* 2008} was the most recent available data for this ranking.

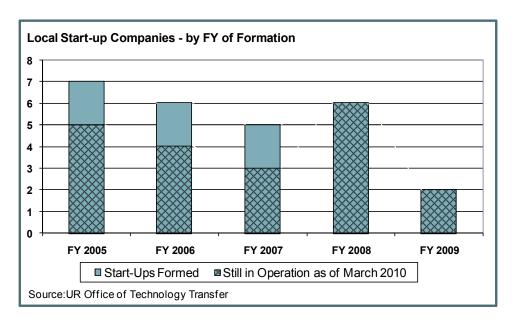
[†] CGR recognizes the inherent lag between royalty revenue and research expenditures. The calculations provided are to present a steady state number for a point in time.



Start-up Companies

One of the more important manifestations of the potential of the University of Rochester to serve as an economic catalyst is the commercial ventures that emerge from its research programs. Because these new companies often remain closely tied to ongoing research and university-based faculty, many remain in the region. With proper support and resources, these companies can form the critical mass necessary to attract outside investment and skilled workers and make the region a hub for technology research and industry.

From FY2005 through FY2009, there have been a total of 26 start-up companies formed as a result of research at the University of Rochester, both the River campus and URMC. Of those 26 companies, 20 are still operating in the Rochester area. It is clear that the University of Rochester is a major catalyst for economic growth and has helped Rochester become a technologically adept region.



Fueling the Innovation Economy

In recent years, the University of Rochester has sought to create an integrated system of technology commercialization services that foster the development of early stage technology companies. Many of these services—such as the funding support provided by Excell Partners discussed in the previous section—serve not only the University but other regional technology companies as well.

The University of Rochester recently opened the Rochester BioVenture Center in a converted Wyeth laboratory building in Henrietta. The BioVenture Center is the region's only incubator with the wet lab facilities that are required by early stage life science companies.

In 2007, the University also announced a partnership with High Tech Rochester (HTR). HTR, which is the NYSTAR Regional Technology Development Center for the Finger Lakes region, provides a wide array of business services including market assessment, business plan development, management coaching, capital access, and resource connections. HTR also operates two technology incubators, including the BioVenture Center on behalf of the University. Under the agreement, HTR is now an affiliate of the University of Rochester which will enable the organization to develop stronger ties with the University scientists, technologies and entrepreneurs.

By consolidating these services under one roof, the University of Rochester has placed itself in the vanguard of institutions nationwide in terms of efforts to harness and accelerate the commercialization of university research. These business development services should enable university technologies to migrate more rapidly to the market, while at the same time serving the needs of the region's most innovative companies.

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. The IMPLAN database, created by MIG, Inc., consists of two major parts: 1) a national-level technology matrix and 2) estimates of sectorial activity for final demand, final payments, industry output and employment for each county in the U.S. along with state and national totals. Data are updated annually. IMPLAN estimates the direct, indirect and induced impacts of economic change through the use of multipliers, and estimates the impact of an increase in demand in a particular sector on 440 different industries/sectors of the local economy.

CGR provides the economic impact in terms of labor income and employment (number of jobs). In addition, we estimate the fiscal impact in terms of sales tax revenue and personal income tax (both to NYS and Rochester MSA). The economic impact is reported in two portions: direct and spillover.

In calculating the economic impact, CGR only includes the wages of those employees living in the RMSA, though we recognize that many employees living just outside of the RMSA (e.g. Leroy in Genesee County) spend much of their wages inside the RMSA. Given the definition of the RMSA and the case-by-case nature of these situations, CGR chose to include only wages for employees who resided in the RMSA based upon zip code.

Note: Between CGR's previous study completed in 2008 (based upon 2007 calendar year data) and the current study (based upon 2009 calendar year data), the IMPLAN model updated the underlying tables used to determine the relationships between sectors for employment and labor income. In some cases, the updated tables produced multiplier impacts that were different from the previous study. CGR is confident that the current models represent an accurate picture of the total economic impact. However, since the results of this study differ from the 2008 study, the differences must be understood not just in terms of the change in data provided by the University, but also in terms of the underlying changes in the model used to calculate the impacts.

Direct Impact

The direct economic impact consists of the actual expenditures of University of Rochester in the community—i.e., the institution is directly involved with the transaction. Added to the direct expenditures is the

local spending of students and visitors to campus and/or the hospital. Examples of direct expenditures include:

- University of Rochester's payroll expenditures for faculty, physicians, staff, residents, and students;
- University of Rochester's purchases of goods and services from a variety of suppliers; and
- University of Rochester's payment to a construction firm for a capital improvement project (new building).

Spillover Impact

Spillover expenditures result from the subsequent spending of the recipients of the direct expenditures. For example, a vendor company that supplies a product or service to the University of Rochester uses the proceeds of that sale to make an expenditure of its own, typically for both materials and labor. Similarly, employees of the University of Rochester spend their wages, which become income for other businesses in the region. These types of expenditures are categorized as spillover. Specific examples of types of spillover impacts include:

- The firm hired to construct a new building buys 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.
- A resident or lab tech purchases dinner in a restaurant, and the restaurant then uses the money to pay suppliers or staff.

"Traded Sector" Impacts: Implications for Clinical Revenue

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 would the economy be smaller if the activity were to disappear?

In answering this question, economists distinguish between economic activities that bring dollars into a region from those that simply reallocate dollars already "earned" from other regions. A new grocery, for example, will not attract shoppers from another region. Income to support a grocery must be earned some other way. A new grocery will only reallocate spending from another store. When the University of Rochester Medical Center (URMC) enters into a contract to conduct a clinical trial of a new

pharmaceutical, however, the community receives dollars that could just as easily have gone to Houston or Cleveland or Rochester, Minnesota.

While this is an important distinction, it is impossible to divide every dollar of revenue flowing to a complex institution like the University of Rochester according to source. For example, strictly speaking, tuition from students who would have attended Nazareth College had they not been accepted at the University of Rochester should be excluded from the impact assessment. We do not have the information available to make this kind of distinction.

One adjustment that CGR has made in this analysis, however, is in health services revenue. Consistent with the many previous studies of the economic impact of URMC, CGR distinguishes between clinical service revenue to Strong or Highland hospitals that would likely be earned in the local economy anyway if these hospitals were to close. Routine surgery—an appendectomy, for example—would be performed in the Rochester area regardless. Yet Strong's highly regarded (and quite large) liver transplant program is unusual and attracts patients from outside the region. Local residents who receive liver transplants would otherwise travel to another city if Strong did not provide this service.

The traded sector can be defined as those aspects of UR that would disappear if UR 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 UR that expand the economy and attract additional income from outside the region.

URMC staff estimate that about one third of clinical revenue flowing to Strong Memorial Hospital is highly specialized. This is the component of the clinical service revenue that CGR includes as part of the University's unique contribution to the Rochester economy.

ECONOMIC AND FISCAL IMPACT ESTIMATES

CGR provides economic impact estimates for two scenarios. The first scenario assumes that every component of UR will provide an economic impact (local and traded sector combined). That is, we assume that if the UR were not here tomorrow, the jobs and 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 on the traded sector of UR, as estimated by CGR.

Employment Impacts

The employment impact can be interpreted as the number of jobs—direct and spillover— within the Rochester MSA that are attributed to UR. CGR reports employment impacts in terms of thousands of jobs. As a result of the University of Rochester and its affiliates:

 If one considers the traded sector only, CGR estimates that UR and its affiliates generate more than 31,000 jobs (direct and spillover) in Rochester MSA.

Economic Impact on	Rochester:	Traded S	ector Only
Employment (thousands of jobs)	Direct	Spillover	Total
Employee Spending	13.7	11.9	25.6
Purchasing	0.9	0.5	1.4
Capital Expenditures	1.6	1.2	2.8
Student Spending	0.9	0.3	1.2
Visitor Spending	0.1	0.0	0.1
Total	17.2	13.9	31.1

• For both the local and traded sector combined, approximately 47,000 jobs (direct and spillover) are generated in the Rochester MSA.

Economic Impact on Rochester: Local and Traded Sector Combined						
Employment (thousands of jobs) Direct Spillover Total						
Employee Spending 22.7 17.0 39.7						
Purchasing 2.0 1.1 3.1						
Capital Expenditures	1.6	1.2	2.8			
Student Spending	0.9	0.3	1.2			
Visitor Spending 0.1 0.0 0.1						
Total 27.3 19.6 46.9						

Labor Income Impacts

By creating jobs—many well-paid—UR is also responsible for the paychecks of many residents of the Rochester region.

CGR estimates UR helps to generate:

• More than \$1.6 billion in wages (direct and spillover) to the Rochester region in the traded sector.

Economic Impact on	Rochester:	Traded S	Sector Only
Labor Income (millions of dollars)	Direct	Spillover	Total
Employee Spending	\$829.7	\$552.2	\$1,381.9
Purchasing	\$45.4	\$19.5	\$64.9
Capital Expenditures	\$80.4	\$59.1	\$139.5
Student Spending	\$23.4	\$13.7	\$37.1
Visitor Spending	\$2.9	\$1.9	\$4.8
Total	\$981.8	\$646.4	\$1,628.2

• More than \$2.3 billion in wages (direct and spillover) in the Rochester region to the local and traded sector combined.

Economic Impact on Rochester: Local and Traded Sector Combined				
Labor Income (millions of dollars)	Direct	Spillover	Total	
Employee Spending	\$1,210.3	\$785.4	\$1,995.7	
Purchasing	\$97.8	\$46.9	\$144.7	
Capital Expenditures	\$80.4	\$59.1	\$139.5	
Student Spending	\$23.4	\$13.7	\$37.1	
Visitor Spending	\$2.9	\$1.9	\$4.8	
Total	\$1,414.8	\$907.0	\$2,321.8	

Fiscal Impact

CGR's estimates of the fiscal impact of University of Rochester and its affiliates show that when considering the traded sector only, UR helps to generate:

• More than \$101 million in sales tax, personal income tax, and local property taxes to RMSA and NYS.

University of Rochester Traded	Impact on Sector Onl		State:
Millions of Dollars	Direct	Spillover	Total
NYS and Local Sales Tax	\$28.5	\$18.8	\$47.3
NYS Personal Income Tax	\$37.8	\$15.7	\$53.5
Local Property Tax paid by UR	\$0.8		\$0.8
Total	\$67.1	\$34.5	\$101.6

The labor income of the local and traded sector combined helps to generate:

 Approximately \$141 million in sales tax, personal income tax, and local property taxes to RMSA and NYS.

University of Rochester Impact on New York State: Local and Traded Sector Combined			
Millions of Dollars	Direct	Spillover	Total
NYS and Local Sales Tax	\$41.1	\$26.4	\$67.5
NYS Personal Income Tax	\$49.8	\$22.1	\$71.9
Local Property Tax paid by UR	\$1.4		\$1.4
Total	\$92.3	\$48.5	\$140.8

CONCLUSION

The economic impact of the University of Rochester and its affiliates on the Rochester community is substantial. To put their impact into perspective, the 47,000 jobs that the University of Rochester's local and traded sector generates equates to:

- 8.8% of the employment for the entire labor force of the RMSA*; and
- 7.6% of the potential working population for the RMSA.

If one only considers the traded sector, UR and its affiliates still employ or generate employment for over 31,000 people. This equates to:

- 5.8% of the 2007 RMSA labor force; and
- 5.0% of the potential working population for the RMSA.

The above statistics reinforce what the results in this report suggest: The University of Rochester is a driving economic force in the Rochester community. Beyond the economic and fiscal impact, the reality of the size and scope of the UR within the region is being increasingly felt by leaders throughout our community.

*

^{*} Source for Labor Force: Local Area Unemployment Statistics (LAUS) – Bureau of Labor Statistics for 2008 RMSA. This is defined as those actively employed or actively looking for work and does not include discouraged workers, so thus may underestimate the true labor force.

[†] Source of data: US Census Bureau, 2008 American Community Survey. The working force population is defined by CGR as the population living in the RMSA between the ages of 18 and 64. While it is a proxy for the labor force, it most likely overestimates the working population.