

TARGET SECTOR ANALYSIS ROCHESTER AREA, MINNESOTA

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PROJECT OVERVIEW

The Rochester Area Economic Growth Plan is a comprehensive five-year strategy coordinated by Rochester Area Economic Development, Inc. (RAEDI) and the Rochester Area Chamber of Commerce to effectively grow and diversify the economy of the Rochester metropolitan area consisting of Dodge, Olmsted, and Wabasha Counties. While health care will always be critical to the Rochester Area's economy, the eight-month planning effort will focus on creating a competitive environment for business growth across a wide range of different Rochester Area employment sectors. The Economic Growth Plan's full regional approach will determine the strategic actions necessary to enable the Rochester Area to truly think and act like a region.

The Economic Growth Plan complements Mayo Clinic's Destination Medical Center (DMC) initiative, the city of Rochester's forthcoming Comprehensive Plan, and any number of local and regional planning efforts that will launch in the coming months and years. The organizers of the Rochester Area Economic Growth Plan, DMC, and other efforts are working closely together to ensure that processes are complementary, research does not overlap, and information is shared. The Economic Growth Plan is a four-phase process:

The **Community and Programmatic Analysis** answered the question: how is greater Rochester doing? The research assessed the metro area's trends along three areas of competitiveness – People, Prosperity, and Place – benchmarking its performance to three peer regions (Ann Arbor, MI; Madison, WI; and Sioux Falls, SD), the state, and the nation. Leadership and Stakeholder Input sessions augmented the perspectives brought by the Steering Committee and served as an opportunity for diverse constituents to offer solutions and innovative ideas for the Economic Growth Plan.

This **Target Sector Analysis** assesses the Rochester Area's economic structure, business sector trends, occupational composition, training resources, and other factors to identify a well-refined list of business sectors to target that will highlight the most important existing and the most promising emerging opportunities for RAEDI and other partners to pursue.

Findings from the first two phases will frame the challenges and opportunities that need to be addressed in the **Economic Growth Plan**. The Plan will activate the Chamber and RAEDI's mission to promote economic growth and diversification through a focus on expansion, small business development, and selective marketing, recognizing the partners and holistic elements that must also be considered for maximum success.

The final stage of the process is the **Implementation Plan**, an action-oriented report that operationalizes the Growth Plan recommendations and assesses the capacity, resources, timing, and partnerships necessary for implementation to be successful. Importantly, the final report also provides benchmarks and performance measures to track implementation progress and assess the Rochester Area's success in activating the Growth Plan's recommendations.

At the end of the process, RAEDI, the Chamber, and its partners will have a clear roadmap for promoting regional economic growth and diversification.

INTRODUCTION

The economic development strategy of targeting various “clusters” of economic activity within a region has become an increasingly common method for developing and diversifying local economies and creating viable communities for businesses, families, and workers. It is important to note that the term “cluster” is not a blanket concept related to all targeting activities. A targeted sector – or simply a “target” – is any type of business activity that is strategically pursued by an economic development organization and its partners for growth and development. That is to say, a “target” is an area where financial and staff resources, and the programs and policies they support, are specifically focused. “Targets” are ideally those segments of an economy where competitive advantages exist, prospects for future growth are greatest, and return on investment is highest. A “target” can be a single business sector with high growth potential or a “cluster” of businesses in related sectors. The ultimate goal is to build clusters where they do not yet exist through the targeted development of high-value sectors.

This report proposes specific business sectors and niches for the Rochester Area to target for growth in the coming five years. Leveraging feedback from Rochester Area public input, findings from the Community and Programmatic Analysis, and proprietary datasets from econometrics firm EMSI, *Market Street* performed a comprehensive analysis of the three-county Rochester metro area’s highest priority target business sectors for development. Overriding concerns were not only the continued growth of the Rochester Area’s world-class healthcare sector, but also opportunities to diversify the regional economy so that wealth can be more dispersed among the three metro counties and employment options for non-healthcare talent can be improved. Key criteria in the identification of potential target sectors were:

- ✓ Current employment totals and concentrations
- ✓ Future development opportunities
- ✓ Sector and sub-sector growth trends
- ✓ Presence of top employers
- ✓ Average wage data and trends
- ✓ Supportive resources such as research and training capacity
- ✓ Diversification potential and competitive position of suburban/rural Rochester Area counties

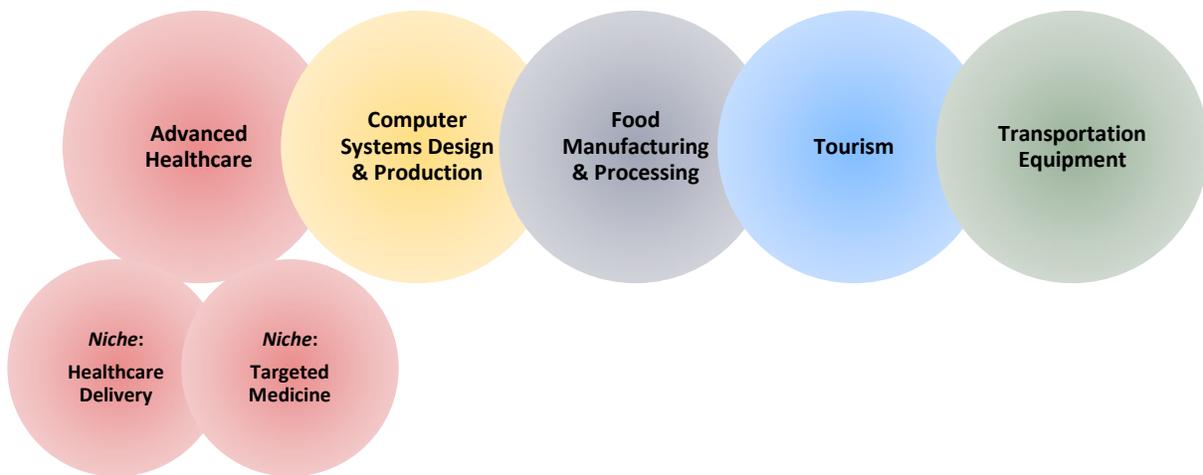
Employment data from 2002 and 2012 was analyzed for growth/decline trends, concentrations versus national sectors, shift share calculations determining the region’s “competitive effect,” and comparative local and national wage trends. As noted, data assessment was balanced and complemented by public input feedback to arrive at the Rochester Area’s five proposed target sectors. *Market Street* also examined import/export data to determine if spending by target sector companies was “leaking” from the region or being directed towards existing Rochester Area firms.

The full analysis led to the identification and recommendation of a set of proposed target sectors for economic developers and partners in greater Rochester to focus on for priority investment. The sectors reflect the strengths and opportunities of the three-county Rochester Area encompassed by Dodge,

Olmsted, and Wabasha Counties. All told, Rochester’s proposed target sectors comprise 61.0 percent of total regional employment as of 2012. Even taking out healthcare employment, the remaining four sectors still employ 25.6 percent of Rochester Area workers. *Market Street* feels that the recommended target sectors represent the most viable opportunities to increase economic diversification in the Rochester Area. These categories are either, 1) already well concentrated in the region, or, 2) provide strong growth potential based on pending investments (i.e., DMC), regional and national trends, or potentially enhanced relationships between sector firms (i.e., Food Manufacturing and Processing and Tourism).

Metro Rochester’s target sectors are listed alphabetically and should not imply any hierarchy or prioritization. They include:

ROCHESTER AREA TARGET SECTORS



Only one of the sectors – Advanced Healthcare – has so-called component “**niches**” included in the proposed target. Niches are differentiated sub-categories within the sector that require separate but ultimately complementary development strategies.

To support these proposed sectors, *Market Street* has included comprehensive information in this report on each target’s trends and composition, competitive needs and issues, detailed employment and occupational data, current and future workforce demands, potential inter-industry linkages and import-substitution opportunities, and a high-level list of potential strategic actions to best grow these targets.

NAICS codes used to “define” the sub-sector composition of each target come from the federal government’s employment classification system and serve to categorize the components of Rochester Area’s targets based on existing strengths and opportunities. Though these definitions will help frame target-development efforts, they will not constrict strategic efforts to narrowly defined categories. Target-development activities will have a holistic focus on creating a competitive development and business environment, supporting the growth needs of companies, marketing Rochester’s opportunities to outside

prospects and influencers, supporting entrepreneurial and small business growth, and optimizing education and training pipelines for these priority sectors.

It is critical to note that the Rochester Area’s proposed target sectors are meant to represent the region’s highest value business categories to prioritize for growth and development. Facilitating this growth will not be the sole responsibility of Mayo Economic Development Authority (MEDA)¹, RAEDI, the Rochester Area Chamber, Rochester Public Schools, or any other entity. Rather, targeted growth and development will result from coordinated efforts and partnerships among all local and regional development organizations and personnel. Certainly, each of these organizations will take ownership of one or more key target-development strategies, but the practice of cluster-building cannot be successful unless all public and private partners are committed to working collaboratively towards this end.

The specific dynamics of which entities will lead and support the development of each target will be referenced in this report, but complete matrices detailing these responsibilities will be included in the Rochester Area Economic Growth Plan’s Implementation Plan report.

¹ This entity will be established and staffed by Mayo Clinic to implement the forthcoming DMC strategy. The agency has yet to be officially named, but for the sake of clarity in this report is being labeled the “Mayo Economic Development Authority.” Monitoring implementation and approving DMC investments will be the Board of Directors of the Destination Medical Center Corporation formalized through state code to oversee the initiative.

Methodology and Concepts

In the field of economic development, there are many methods used to identify target sectors; however, many are based on incomplete or strictly industry-focused methodologies. Such approaches ignore a variety of important issues from workforce attributes to educational assets to geographic advantages, all of which are vital to businesses' success. *Market Street's* approach to target identification is rooted in an examination of the region's workforce – the occupations and types of knowledge that support the region's business activities – as opposed to strictly focusing on business sector composition and growth. This approach stands in contrast to the traditional method long utilized in cluster identification and analysis; it recognizes the ever-increasing importance of talent and workforce sustainability to the business community. It is complemented by an evaluation of the region's business climate, infrastructure, research assets, educational programs, and many other items that factor into site location decisions for specific types of business activity.

CLASSIFICATION

Our approach does not strictly define targets based on North American Industry Classification System (NAICS) codes or Standard Occupational Classification (SOC) codes. Though these codes are used to help quantify important trends and activity within each target, they should not be interpreted as rigid definitions of the composition of economic activity within a given target. Classification codes are helpful in understanding target composition and growth, but they cannot adequately capture certain niche technologies and opportunities that may deserve strategic attention in certain communities. While sector-based employment data using NAICS codes provides a useful overview of current trends in business activity, occupational data using SOC codes can provide deeper insights into the types of activities that occur within sectors relative to the nation as a whole and the types of skill sets embedded within the community's workforce. For instance, high concentrations of employment in certain occupations may indicate the presence of a specialization within a line of business, while understanding the educational requirements of a given occupation may clarify the challenges of preparing a sustainable workforce.

GEOGRAPHIES

The research related to business sector and occupational composition within this report is based on analysis of trends observed in the three-county Rochester, Minnesota Metropolitan Statistical Area (MSA) consisting of Dodge, Olmsted, and Wabasha Counties. Though the regional "labor shed" employers draw from to staff their companies is larger than this three-county territory, the MSA designation is the *de facto* geography of choice used by site consultants and other economic development influencers when they compare communities as locations for investment. However, implementation of target-driven strategies and the Rochester Area Economic Growth Plan itself will take into account the broader Southeast Minnesota labor shed and partners outside the three-county metro that can assist with – and benefit from – implementation activities.

LOCATION QUOTIENTS

Location quotients (LQs) are used to measure the relative concentration of local employment in a given business sector or occupation. When applied to business sector employment, they measure the ratio of a business sector's share of total local employment to that business sector's share of total national employment. A business sector with an LQ equal to 1.0 possesses exactly the same share of total local employment as that business sector's share of national employment. When regional local business sector possesses a location quotient greater than 1.0, this signals that the business sector is more heavily concentrated in the community than it is nationwide. Those business sectors with relatively large LQs are often assumed to benefit from one or more sources of competitive advantage derived from locating in the community being studied. In the employment charts that accompany this report, an LQ designated by a **RED** dot indicates a concentration below the national average; a **YELLOW** dot indicates a roughly equivalent concentration; and a **GREEN** dot indicates a high Rochester Area concentration, i.e., a competitive advantage and likely "export" sector (see below description). Location quotients can also be applied to occupational employment in the same manner that they are applied to business sector employment, helping to determine which occupations and corresponding skill sets – irrespective of the business sectors that employ them – are highly concentrated in the local workforce.

EXPORTS AND INTER-INDUSTRY LINKAGES

A key concept in economic development is the difference between employment that only serves a local market versus employment that draws in outside investment. The latter category is considered to be an "export" job because it produces either goods or services consumed outside the Rochester Area. Export jobs are considered much more valuable than local-serving jobs because each new dollar of outside investment creates what is called a "multiplier effect." In other words, that one non-local dollar circulates through the economy and generates additional impacts in spending and employment growth. Two principal ways to determine if a job is export-based are LQs and input/output analysis. As noted previously, an LQ above 1.0 indicates a higher local concentration of employment; the surplus employment above 1.0 is considered to be export-focused (also termed "basic" or "traded" employment) because its products or services are consumed outside the region. Higher LQs correspond to higher rates of exported employment. Input/output calculations can also determine goods and services purchased either locally or externally. If an employment sector imports its purchases, then it is assumed that certain opportunities to satisfy those demands locally have been lost. Conversely, if an employment sector exports goods or services, it is assumed that this surplus corresponds to outside investment and therefore creates opportunities for export-based (or traded/basic) jobs.

Data covering inter-industry purchases provides insight into the degree to which firms benefit from co-location and the ability to purchase products and services from local suppliers. By examining the percentage of a sector's requirements (expenditures) that are satisfied within the community (Rochester MSA), it is possible to determine areas of expenditure leakage. When firms purchase goods from suppliers outside the region, money is leaving the local economy. When leakage is reduced, employment and income multipliers rise. That is to say, when leakage is reduced and clustered firms are sourcing locally, the economic impact of each new job created is maximized.

DATA SOURCES

The Target Sector Analysis presents a variety of data points covering concepts such as business sector employment composition, wages, establishments, occupational composition, workforce demographics, exports, inter-industry expenditures, job openings, and degree completions. All of the aforementioned quantitative data is sourced from Economic Modeling Specialists, Inc. (EMSI), an industry-leading provider of proprietary data, aggregated from public sources such as the Census Bureau, the Bureau of Labor Statistics, the Bureau of Economic Analysis, the National Center for Education Statistics, CareerBuilder, and many others. EMSI was acquired by CareerBuilder in 2012.

Advanced Healthcare

The healthcare sector dominates the Rochester Area's economy. Concentration of healthcare employment was cited as a challenge as well as an advantage by local stakeholders. While a key thrust of the target sector report and the Economic Growth Plan itself will be greater diversification of metro Rochester's economy, it would be shortsighted to take the region's healthcare sector for granted or assume it will grow solely through the efforts of Mayo Clinic without at least some support from local and regional economic development partners. There is also the opportunity to leverage healthcare itself as a diversification opportunity by capitalizing on Mayo Clinic's network of partners and its buyer/supplier network. The proposed target is named Advanced Healthcare in recognition of the fact that the targeted components of the sector will focus on innovation in service delivery, targeted treatments, individualized medicine, and other areas of emphasis prioritized by Mayo. Advanced Healthcare implementation will be seamlessly integrated into the Destination Medical Center economic development initiative. The breadth, scope, and resources of DMC make it the single most transformative effort defining Rochester's economic future. Economic development entities such as RAEDI and the Rochester Area Chamber will lend support to DMC's implementation efforts.

Target Components: The Advanced Healthcare target is divided into two niches: **Healthcare Delivery** and **Targeted Medicine**. Healthcare delivery concerns the optimization of the actual process of delivering healthcare to the patient, both locally and globally. Mayo's research focus on the "science" of healthcare delivery has led to exciting advances in patient treatment protocols and processes, both through face-to-face interaction as well as leveraging new technologies to connect patients to information, treatment options, and wellness strategies. For example, patients can now go online to access personalized health portals where they can manage all aspects of their care and wellness regimens. Targeted Medicine reflects Mayo's research focus on individualized and regenerative medicine. The Clinic is at the forefront of advances in genomics, stem cell research, and tissue regeneration techniques that could one day transform the practice of medicine. This niche not only captures that research capacity but also the potential to commercialize research into new enterprise development and manufacturing employment. Pursuing new opportunities to commercialize research is a key component of the DMC initiative.

Large Employers: The following is a partial but representative list of large employers within the Advanced Healthcare Target:

Employer	Total Emp.	Source	Sub-sector
Mayo Clinic	34,223	Mayo	Medical/Hospital
Olmsted Medical Center	1,166	RAEDI	Medical/Hospital Services
Samaritan Bethany, Inc.	430	RAEDI	Health care for the aging
Hiawatha Homes	380	RAEDI	Resident services/Dev. Disabilities
Cardinal of Minnesota, Ltd	300	RAEDI	Res. Services/Dev. Disabilities
Rochester Medical Corp	250	RAEDI	Medical device manufacturer

Employer	Total Emp.	Source	Sub-sector
Ability Building Center	211	RAEDI	Rehabilitation services
Home Instead Senior Care	199	RAEDI	Home care services
Gold Cross	230	EMSI	Ambulance services
Wabasha County Family Services Collaborative	230	EMSI	All other professional, scientific, and technical services

National Trends: The nation’s healthcare sector has shown tremendous resiliency during periods of economic uncertainty; in fact, healthcare was the only private employment sector to grow jobs during the Great Recession. Responding to the needs of an increasingly aging population, the nation’s healthcare sector experienced an employment increase of 20.3 percent between 2002 and 2012, adding 3.1 million new healthcare-related jobs nationwide. Home Health Care Services (162,204 jobs added), Outpatient Care Centers (106,540), Offices of Physicians (104,181), Community Care Facilities for the Elderly (72,933) and Offices of Other Health Practitioners (71,590) were leaders in Advanced Healthcare employment gains. Though the Advanced Healthcare sector is slated to expand even more during the next 20 years, challenges within the sector remain. Policy uncertainty, specifically with the announced delays of certain key provisions of the Affordable Care Act (ACA), increased focus on health outcomes and population health management, and changing consumer preferences will place growth pressures on those regions unable to innovate and lead the transformation of healthcare delivery.

BUSINESS ACTIVITY AND SECTOR COMPOSITION

In 2012, Advanced Healthcare firms employed 39,419 workers in the Rochester Area, representing 35.4 percent of total regional employment. Economic activity within the Advanced Healthcare target is divided into two specialized niches: Healthcare Delivery and Targeted Medicine. Of the two niches, Healthcare Delivery (as defined for this analysis) employed 37,680 workers in 2012, representing nearly 96.0 percent of total Advanced Healthcare employment. In contrast, Targeted Medicine (1,739) employs a small, but growing percentage of the target sector’s workforce. This is to be expected as the health sciences components of the healthcare economy typically feature less employment than the services side with its large hospitals, medical offices, diagnostic labs, convalescent care facilities, and other businesses.

ADVANCED HEALTHCARE: SECTOR COMPOSITION

NAICS Description	2012			Change 2002 - 2012		
	Emp.	LQ		# Chg.	% Chg.	U.S.
Healthcare Delivery						
3391 Medical Equipment and Supplies Manufacturing	338	1.41	●	19	6.0%	1.6%
4234 Professional/Commercial Equipment/Supplies WHSLE	398	0.84	●	156	64.5%	-5.8%
6211 Offices of Physicians	22,290	12.07	●	4,685	26.6%	19.0%
6213 Offices of Other Health Practitioners	305	0.49	●	93	43.9%	39.9%
6214 Outpatient Care Centers	202	0.40	●	-767	-79.2%	56.4%
6216 Home Health Care Services	780	0.83	●	236	43.4%	72.9%
6219 Other Ambulatory Health Care Services	425	1.88	●	157	58.6%	32.1%
6221 General Medical and Surgical Hospitals (Private)	9,464	2.85	●	1,881	24.8%	13.3%
6231 Nursing Care Facilities	1,061	0.84	●	264	33.1%	5.9%
6232 Residential Mental Retardation/Health/Substance Abuse Facil.	1,432	3.27	●	634	79.4%	20.9%
6233 Community Care Facilities for the Elderly	985	1.65	●	276	38.9%	47.7%
Targeted Medicine						
3251 Basic Chemical Manufacturing	58	0.54	●	28	93.3%	-15.2%
3254 Pharmaceutical and Medicine Manufacturing	0	0.00	●	-44	-100.0%	-8.0%
3345 Navigational/Measuring/Electromedical/Ctrl. Instruments Mfg.	132	0.43	●	-82	-38.3%	-11.0%
4246 Chemical and Allied Products Merchant Wholesalers	25	0.26	●	8	47.1%	-6.0%
5112 Software Publishers	260	1.23	●	150	136.4%	12.2%
5182 Data Processing, Hosting, and Related Services	25	0.13	●	-	-	-16.1%
5416 Management, Scientific, and Technical Consulting Services	156	0.15	●	36	30.0%	49.3%
5417 Scientific Research and Development Services	37	0.08	●	25	208.3%	18.8%
5419 Other Professional, Scientific, and Technical Services	409	0.76	●	155	61.0%	23.0%
6215 Medical and Diagnostic Laboratories	637	3.37	●	423	197.7%	33.6%
Total, Healthcare Delivery	37,680	3.68	●	7,634	25.4%	20.9%
Total, Targeted Medicine	1,739	0.51	●	724	71.3%	16.4%
Total, All Subsectors	39,419	2.90	●	8,358	26.9%	19.8%

Source: EMSI

Steady growth trends define the Rochester Area's Advanced Healthcare target. Growth in the sector surged 26.9 percent over the most recent ten-year period, nearly 7.1 percentage points above the national average. Within the niche sectors, Targeted Medicine exhibited robust growth (70.8 percent) while Healthcare Delivery employment expanded at a significant, albeit slower rate (25.4 percent). The expansion of greater Rochester's Targeted Medicine niche reflects the billions of dollars of investment Mayo Clinic has made in its facilities, personnel, research capacity, and business-development operations.

Along with stable growth trends, the Advanced Healthcare sector provides relatively high wage employment opportunities and multiple entry points for a diverse range of regional workers. Occupations require workers with a variety of degree-attainment levels and also provide quality employment to the Rochester Area's burgeoning international migrant population. Average earnings per job totaled \$84,810 within the Advanced Healthcare sector, a full \$14,780 above the national average.

Target Niche: Healthcare Delivery

Healthcare Delivery is the core of the Advanced Healthcare target – predicated upon Mayo’s world-class treatment capacity and reputation. The Rochester Area’s level of Healthcare Delivery employment concentration is testament to the overwhelming impact Mayo has on the local economy. Offices of Physicians employment was more than 12 times as concentrated as the average community nationwide, while General Medical and Surgical Hospitals was nearly three times as concentrated. Nationally, Healthcare Delivery employment added 2.3 million jobs over a ten-year period (2002-2012) In the Rochester MSA, Healthcare Delivery featured even more robust gains. Between 2002 and 2012, these companies added 7,635 jobs, a 25.4 percent rise. Only one subsector – Outpatient Care Centers – had fewer employees in 2012 than it did in 2002. All other subsectors posted dramatic increases in excess of 20 percent. Above average growth trends are likely to continue as Mayo invests heavily in the Rochester Area through the Destination Medical Center initiative. Conservative estimates project that DMC will add 14,000 jobs within the Healthcare Delivery sector over the next twenty years. An example of a recent Mayo Clinic partnership in Healthcare Delivery is its multiyear agreement with China-based Valurise Health Solutions to integrate components of Mayo’s suite of Healthy Living services into the company’s existing product line. As part of the deal, Mayo will provide its Ask Mayo Clinic triage algorithms; EmbodyHealth programs, tools, and newsletters; health information content; Mayo Clinic Health Letter; and condition management content and materials to Valurise. Another new Mayo Healthcare Delivery product is Mayo Clinic Healthy Living, a new personalized health assessment tool with biometric upload capability and a host of other customized features.

Target Niche: Targeted Medicine

Targeted Medicine is an emerging niche within Advanced Healthcare. Local employment almost doubled over the last decade, far outpacing national growth trends (70.8 percent). Even so, the Rochester Area’s Targeted Medicine niche, as defined, still remains far less specialized than the nation as indicated by a sub-1.0 LQ. In fact, only two subsectors within the Targeted Medicine niche possessed employment concentrations above the national average: Software Publishers (1.23) and Medical and Diagnostic Laboratories (3.37). Some of this data might be counter-intuitive, especially considering Mayo’s \$634 million in research expenditures in 2012 alone. An explanation may lie in the way employment data is reported. Because much of Mayo’s research is conducted by physicians, they are most likely categorized under the Hospitals or Offices of Physicians NAICS sectors as opposed to Scientific Research and Development Services. Nevertheless, low health sciences LQs are indicative of an under-developed core of non-Mayo Targeted Medicine companies in greater Rochester.

As the Targeted Medicine sector continues to evolve through DMC implementation, opportunities for high growth start-ups and corporate partnerships will emerge. Some of these may lead to companies either starting or moving to Rochester to take advantage of Mayo Clinic partnerships. An example of a recent Mayo Clinic deal in the Targeted Medicine niche is its patent license and joint development agreement with Sanovas, Inc. to commercialize innovation in the emerging science of bronchial smooth muscle modification. Another example is Mayo Clinic’s partnership with Cancer Genetics Inc. to launch OncoSpire Genomics, a joint venture with the goal of improving cancer care by discovering and commercializing diagnostic tests that leverage next-generation sequencing. Mayo is combining its unique strengths in

Targeted Medicine to further innovation in Healthcare Delivery through the launch of Individualized Medicine Clinics at all three of its campuses. The Individualized Medicine Clinic (IM Clinic) is a consulting service within Mayo that is using whole exome sequencing to find solutions for patients with serious conditions that modern medicine has yet to solve.

Exports²

Companies within the Advanced Healthcare sector generated approximately \$5.0 billion in export activity in 2012. Combined, Advanced Healthcare comprised 39.9 percent of all exports within the Rochester Area and represented 16.1 percent of all Minnesota Advanced Healthcare exports. This is a true testament to the national and global reach of Mayo Clinic and its services and products. Typically, healthcare is considered a local-serving “non-export” sector that does not generate employment multiplier effects. But, the investment Mayo is attracting from outside metro Rochester is clearly transformative for the local economy and likely leading to thousands of spin-off jobs across multiple employment sectors. Subsectors with the largest exporting activity are:

- Offices of Physicians (\$3.5 billion)
- General Medical and Surgical Hospitals (\$960 million)
- Professional and Commercial Equipment and Supplies Merchant Wholesalers (\$109 million)
- Medical and Diagnostic Laboratories (\$89 million)
- Medical Equipment and Supplies Manufacturing (\$60 million)

Export activity in the Healthcare Delivery niche (\$4.8 billion) is far more pronounced than the nascent Targeted Medicine niche (\$289 million). Healthcare Delivery exports generated by the Rochester Area represented more than a quarter (27.1 percent) of all state Healthcare Delivery exports. Cited as a justification for the eventual state passage of DMC legislation, Mayo Clinic’s tremendous impact on the regional and state economies is very evident through this analysis of export data.

Inter-Industry Linkages

Communities throughout the United States have begun to take advantage of institutional purchasing power to promote local economic activity within their community. The Cleveland-based Evergreen Cooperative – a partnership between the Cleveland Foundation, Cleveland Clinic, University Hospitals, Case Western Reserve University, and the municipal government – launched Evergreen Cooperative Laundry in 2009 to fuel economic growth by leveraging the Cleveland Clinic’s demand for laundry services. Many higher education institutions have also begun to proactively examine their supply chains to identify opportunities to source or incubate businesses based upon their purchasing needs. The Mayo Clinic has made similar efforts towards locally sourcing products and services, most recently through a partnership with the Rochester Area Chamber on a supplier diversity program.

² Please see the Methodology section of this report (page 8) for an explanation of the concept of exported economic activity.

Identifying inter-industry linkages is a first step in determining which sectors of the economy possess the most potential to locally source investments currently being made outside the region. In total, the Rochester Area's Advanced Healthcare sector procured \$2.0 billion worth of goods and services from other national economic sectors. Nearly 75 percent of this was purchased outside of the region. This affords the region a tremendous opportunity to recapture some of this lost economic activity by supplying locally made goods and services to the Advanced Healthcare sector.

**ECONOMIC IMPACT ANALYSIS: ADVANCED HEALTHCARE PURCHASING
TOP SUBSECTORS WITH HIGHEST IMPORT POTENTIAL**

NAICS Code	Industry	Leakage	Sales Change	Total Jobs	Total Earnings	Average Earnings Per Job
Total		\$451,399,898	\$45,139,990	613	\$36,299,363	\$59,201
551114	Corporate, Subsidiary, and Regional Managing Offices	\$ 96,072,373	\$9,607,237	141	\$9,741,690	\$69,090
325412	Pharmaceutical Preparation Manufacturing	\$ 70,295,462	\$7,029,546	46	\$2,908,994	\$63,239
541611	Administrative Management/General Management	\$ 48,101,027	\$4,810,103	95	\$4,951,115	\$52,117
541110	Offices of Lawyers	\$ 41,151,161	\$4,115,116	64	\$3,998,016	\$62,469
561110	Office Administrative Services	\$ 40,907,472	\$4,090,747	88	\$4,291,320	\$48,765
524126	Direct Property and Casualty Insurance Carriers	\$ 40,061,681	\$4,006,168	44	\$2,631,420	\$59,805
325413	In-Vitro Diagnostic Substance Manufacturing	\$ 30,496,109	\$3,049,611	22	\$1,333,068	\$60,594
524114	Direct Health and Medical Insurance Carriers	\$ 30,184,795	\$3,018,480	31	\$1,990,200	\$64,200
524113	Direct Life Insurance Carriers	\$ 27,733,734	\$2,773,373	31	\$1,909,507	\$61,597
339116	Dental Laboratories	\$ 26,396,084	\$2,639,608	51	\$2,544,033	\$49,883

Source: EMSI

The previous table lists ten sectors with the largest leakage (goods or services procured by the Advanced Healthcare sector outside of the region). Data in the table represent the potential impact on the local economy if only ten percent (\$451 million) of this leakage was recaptured. In other words, recapturing ten percent of leaked Advanced Healthcare investment would generate \$45 million in additional regional sales and create 613 jobs. Total additional earnings would be just over \$35 million. Factoring in the multiplier effect of these export jobs would raise the number of new positions created in the Rochester Area by a notable amount.

One key opportunity is in the Pharmaceutical Preparation Manufacturing subsector. Currently, the Advanced Healthcare sector purchases \$70.3 million worth of pharmaceutical products, all of which are purchased outside the Rochester Area. Attracting or developing products in the Rochester Area would add 21 jobs to the local economy, generating \$1.5 million in new wealth. Numerous investment recapture opportunities also exist within professional services subsectors. Forging stronger links between the Advanced Healthcare sector and local law firms, attracting new firms, or facilitating the launch of startup firms would further promote professional service opportunities within the region. Advanced Healthcare companies only procure 24.0 percent of their legal services within the Rochester Area, leaving \$41.2 million in lost potential economic activity. Increasing sales at local law firms by just \$4.1 million – a ten percent

recapture of regional leakage – has the potential to create 64 jobs, adding \$3.9 million in wages to the local economy.

WORKFORCE ATTRIBUTES AND OCCUPATIONAL COMPOSITION

Advanced Healthcare occupations require varying degrees of educational attainment levels and skill sets. Educational requirements range from short-term on-the-job training (OJT) to advanced professional degrees. This breadth of qualifying factors reinforces that the Advanced Healthcare sector provides employment opportunities for workers across the full skills spectrum.

The most required skill set – represented as the percentage of total sector employment in the following table – is comprised by Registered Nurses with 18.1 percent of total Advanced Healthcare employment. These positions pay an average hourly wage of \$38.56 and require an Associate’s Degree. Hiring within the occupation has remained strong; the region added 2,230 registered nurses (45.4 percent) over a ten-year period, far outpacing the national average (18.0 percent).

OCCUPATION BY EMPLOYMENT: TOP 10 OCCUPATIONAL CATEGORIES

SOC	Occupation	Sector Employment			Change		Education Level
		2002	2012	% of total sector employment	#	%	
29-1111	Registered Nurses	4,908	7,138	18.1%	2,230	45.4%	Associate's degree
43-6013	Medical Secretaries	1,440	2,004	5.2%	564	39.2%	Moderate-term OJT
31-9799	Healthcare Support Workers, All Other	994	1,447	3.6%	453	45.6%	Short-term OJT
31-1012	Nursing Aides, Orderlies, and Attendants	1,194	1,443	3.5%	249	20.9%	Postsecondary, ND
29-2011	Medical and Clinical Laboratory Technologists	1,102	1,378	3.4%	276	25.0%	Bachelor's degree
43-9061	Office Clerks, General	1,046	1,280	3.3%	234	22.4%	Short-term OJT
31-1011	Home Health Aides	584	1,195	3.1%	611	104.6%	Short-term OJT
29-1069	Physicians and Surgeons, All Other	883	1,010	2.6%	127	14.4%	Professional degree
29-2061	Licensed Practical and Licensed Vocational Nurses	724	809	2.1%	85	11.7%	Postsecondary, ND
43-3021	Billing and Posting Clerks	704	720	1.9%	16	2.3%	Short-term OJT

Source: EMSI

Home Health Aides (104.6 percent), Medical Secretaries (39.2) and Nursing Aides, Orderlies, and Attendants (20.9) occupational employment expanded significantly during the last decade. Due to the short-to-moderate training requirements, these positions provide quality job opportunities for the region’s workers who have yet to attain a college degree or certificate. Median hourly earnings within these occupations ranged from \$10.98 to \$19.56 per hour. Compared to the national Advanced Healthcare sector, the Rochester Area’s occupations are extremely specialized, a testament to the region’s standing as a global medical hub. Compared to the U.S. average, greater Rochester has nearly five times the concentration of specialty physicians and surgeons, over four and a half times the concentration of Registered Nurses, and 14 times the concentration of Medical and Clinical Laboratory Technologists.

Workforce Demographics

Analysis of the Rochester Area's occupational dynamics allows for an assessment of future workforce needs and potential shortages. This is principally accomplished by looking at the percentage of workers who are near retirement age compared to the cohort of workers available to replace them.

Among Rochester Area Advanced Healthcare occupations, the availability of Medical Secretaries will likely be strongly impacted by pending retirements. Fifty-six percent of Medical Secretaries within the Rochester Area are over age 45, while only 42 percent were aged 24 to 44; this leaves the region with a deficit of 290 jobs within this occupation. It should be noted that this deficit does not account for any increased demand due to growth within the sector. National trends reinforce these shortages; the U.S. faces an 11.0 percentage point gap between the number of Medical Secretaries aged 24 to 44 and those nearing retirement (aged 45 and older). Nationwide, 57,279 positions may go unfilled due to retirement.

Other Rochester Area occupations that may be adversely impacted by retiring workers in the coming years include Neurologists, Pathologist, Urologists, and Nuclear Medicine Physicians. Combined, the Rochester MSA faces a potential shortage of 61 workers within the broader Physicians and Surgeons category. As retirements across the U.S. begin to take effect, the nation will have 60,135 fewer physicians and surgeons with these specialty skills, further intensifying talent competition for medical hubs like Rochester.

Not all Rochester Area Advanced Healthcare occupations will be negatively impacted by retirements. In fact, the region is strongly positioned compared to the national average in many healthcare-related occupations. In greater Rochester, Registered Nurses aged 25 to 44 outnumber the potential retiree workforce by 291 workers; this is compared to a deficit of 27,996 workers at the national level. Because RNs account for the Rochester Area's largest occupational share of the Advanced Healthcare sector, the region is well positioned to remain competitive, especially in light of projected national shortages in this category.

COMPETITIVE FACTORS AND REGIONAL ASSETS

Trained Workforce: The most critical factor for competitiveness in the Advanced Healthcare subsectors is the presence of workers trained at all levels of the healthcare hierarchy, including specialty physicians and researchers. As occupational data showed, the Rochester Area has strong specializations for multiple Advanced Healthcare skill categories. Mayo Clinic is famous for not only offering a physician specialized in a particular medical field, but a whole team of physicians with this expertise. These teams partner across the Clinic to provide unparalleled diagnostic and medical care to the Clinic's patients. Supporting the Clinic's physicians are thousands of medical and administrative personnel. The same holds true for the medical sciences, where over 400 Mayo research clinicians manage 8,968 active human-research studies and publish thousands of articles in peer-reviewed journals.

Supporting Advanced Healthcare in the Rochester Area is an education and training system customized for the needs of Mayo Clinic and its partners. Local school districts report strong allegiances with Mayo, which invests large sums in building training capacity to support healthcare occupations. At the higher education level, Rochester Community and Technical College offers dozens of medical-focused certificates and degrees. Data in the Rochester Area's Community and Programmatic Analysis highlighted the region's

tremendous capacity for medically-focused degree awards, which also includes Winona State-Rochester and the University of Minnesota-Rochester, the system's newest campus and an institution customized to address the region's healthcare training needs. The Mayo Graduate School enrolls over 150 Master's and PhD candidates in programs such as Biochemistry, Biomedical Engineering, Immunology, and many others. Mayo Medical School complements these other institutions and programs by graduating 50 medical doctors per year, many of whom remain in Rochester for residency or eventually return to the region to practice.

A good barometer of a region's workforce skill level is the number and percentage of so-called "STEM" (science, technology, engineering, and mathematics) workers it can offer local companies. In 2012, the Rochester MSA featured 30,875 workers in STEM occupations, accounting for 27.7 percent of the region's total workforce. This is compared to a national figure of 13.5 percent. Companies that rely upon an interdisciplinary workforce – ranging from medical device manufacturers to health information technology companies – would likely benefit from the Rochester Area's labor capacity in multiple STEM-related occupations.

Access to Research Capacity: Many Advanced Healthcare companies – especially those in the Targeted Medicine niche – benefit from proximity to a major research institution and accessibility to its storehouse of intellectual property, research facilities, equipment, and labs, professors and undergraduate / graduate / doctoral / post-doctoral research personnel, and many other resources. Although the Rochester Area does not feature a major research university, the Mayo Clinic as well as neighboring University of Minnesota's Hormel Institute provide local Targeted Medicine firms with comparable access to basic and advanced scientific research as well as potential joint research opportunities. In January 2012, Mayo's board of governors funded the centers for Regenerative Medicine, Individualized Medicine, and Science of Health Care Delivery to further advance the Clinic's capacity to identify revolutionary treatments and service-delivery protocols for its patients, partners, and the world at large.

Mayo has also committed time and resources to the commercialization of its research portfolio through the creation of Mayo Clinic Ventures and support of the Minnesota BioBusiness Center. In fact, many of the Center's initial startup businesses have been derived from Mayo research. Mayo research in regenerative medicine – treatments that fully heal damaged tissues and organs – not only advances the science of healthcare but provides ample opportunities for licensing income and business commercialization. Leveraging genomics to unlock opportunities to advance individualized medical treatments is another principal opportunity area generated by Mayo research. Other research opportunities occur at the intersection of Targeted Medicine and the Rochester Area's other targeted sectors; nutraceuticals (Food Manufacturing and Processing) is just one example of the potential for interdisciplinary innovation.

Outside of the Mayo campus, a potential opportunity for biosciences research and development can be found in Pine Island at the Biobusiness Park at Elk Run, a 200-acre business park targeting institutions and firms specializing in medical devices, diagnostics, pharmaceuticals, animal health, renewable materials, and bioinformatics. Though it has yet to secure its first tenant, the Park is fully supplied by infrastructure, including a new Highway 52 offramp to be funded by MDOT.

Patient Accessibility: In order for Advanced Healthcare to continue to be a “traded” sector for the Rochester Area, potential patients must be able to effectively access Mayo Clinic and other regional healthcare facilities. Rochester International Airport provides an important access point for regional visitors, though many travelers instead land at the Minneapolis-St. Paul International Airport (MSP) and travel to Rochester via Highway 52. Rochester is connected via four-lane highway to Interstate 90, though accessibility to the north-south Interstate 35 is compromised by a two-lane chokepoint along Highway 14 from Owatonna to Dodge Center. A key thrust of the Destination Medical Center initiative will be improved accessibility to Mayo Clinic via multiple transportation modes. Expanded road and highway infrastructure will be accommodated through over \$500 million in public investment for DMC, while accessibility to MSP could be transformed through the development of high-speed rail between Rochester and the Twin Cities. DMC also includes a proposed rail circulator (potentially a streetcar) for patients, visitors, and workers within the Rochester core.

STRATEGIC ROLE FOR ECONOMIC DEVELOPMENT

Advanced Healthcare is the Rochester Area’s largest employment sector now and likely well into the future. Part of the future growth of this target sector will occur naturally as the Mayo Clinic expands its multiple business units based on predicted demand. However, the goal of the Destination Medical Center initiative is to stimulate increased demand by attracting more patients from across the globe. A strategy specifically developed for DMC will lay out detailed actions to realize the goals and ambitions of the initiative. The niches and employment subsectors of the Advanced Healthcare target will be directly affected by DMC implementation, especially as Mayo Clinic incorporates much of its overall institutional strategy into the framework of DMC. The Mayo Economic Development Authority created by the Clinic will be charged with overseeing DMC implementation under the parameters of the state-enabling legislation that also formalized a Destination Medical Center Corporation as the governance entity for the initiative. MEDA staff will oversee programs, activities, projects, and investments corresponding to the future DMC economic development strategy.

Local, regional, and state economic development partners will be among the coalition of entities contributing to successful DMC implementation. These partners will work with MEDA to sync efforts to align with the specific activities of DMC. As such, RAEDI and the Rochester Area Chamber will communicate often with Authority staff to determine how they can best assist and supplement DMC-implementation efforts to effectively grow the Advanced Healthcare sector. This might include the marketing of Mayo’s storehouse of intellectual property; attraction of entrepreneurs to the Rochester Area; support with commercialization activities, advocacy for Mayo-supported policies; facilitation of talent-pipeline development in the region and beyond; support in ensuring that sites and buildings are available for Mayo and partners’ expansion; and other activities. Opportunities also exist to work with Mayo to identify business relationships that might lead to the focused attraction of its partners, buyers, or suppliers to the region.

Computer Systems Design and Production

Nationally, Computer Systems Design and Production has shown steady post-recession job growth (4.8 percent) – adding 372,933 jobs from 2009 to 2012. Although the target sector displayed favorable national trends, prospects are said to be less promising in the Rochester Area, at least on the manufacturing side. IBM has already divested thousands of production jobs from its Rochester campus with indications that it will eventually move all this employment out of the region. Despite this pending reality, greater Rochester is still home to thousands of skilled production employees, either currently working at IBM or formerly on the payroll, who can be an attractive potential labor pool for Computer Systems Design and Production prospects. The outlook for IBM’s research and innovation division remaining in Rochester is significantly brighter than the production arm. Already, it is IBM’s top patent-producing unit, accounting for nearly ten percent of the company’s total patent output. Capitalizing on this research capacity for future growth and partnership opportunities is a promising strategy for the Rochester Area to pursue. The confluence of computer technologies and healthcare also provides strong development opportunities for the region. Though a past Mayo/IBM partnership proved to be unsustainable, future opportunities to leverage greater Rochester’s healthcare and computer-design capacities should remain a potential strategic focus.

Target Components: The Computer Systems Design and Production target encompasses the research and design aspects of computer systems development as well as the manufacture of physical components. The wholesale and supply chain elements of the production process are also captured. On a per capita basis, the Rochester Area is a highly innovative area, ranking among the nation’s top patent producing regions. IBM’s Rochester facility strongly contributes to this capacity, producing 3,016 patents over an 11-year period – or roughly 78 percent of the region’s output. Although IBM has been shifting its Rochester-based production capacity to lower cost areas overseas, many business units within IBM’s Rochester campus will remain. Target development will be comprised of a focus on retaining production employment while leveraging research and design capacities for local growth, partnerships with other Rochester Area businesses, and attraction of complementary firms. Leveraging idled production workers to supply current or prospective manufacturers – or start their own businesses – will also be a potentially impactful activity.

Large Employers: The following is a partial but representative list of large employers within Computer Systems Design and Production:

Employer	Total Emp.	Source	Sub-sector
IBM	2,500*	RAEDI	Electronics -computer
Benchmark Electronics	420	RAEDI	Contract mfg./design/engineering
Hitachi Global Storage Technology	368	EMSI	Computer storage device manufacturing
Texas Instruments	100	EMSI	Semiconductor and related device manufacturing

*Estimate by local officials

National Trends: The national Computer Systems Design and Production sector has largely weathered the general shift towards low-cost labor overseas (China, Taiwan, Mexico, etc.) by focusing on research and

development, prototyping, and other activities tied to knowledge and innovation-based processes. “Offshoring” of employment has also been curtailed by uncertainty over the security of intellectual property, communication difficulties between research and production arms, and a desire to co-locate production facilities next to research and development centers. Computer System Design and Production employment nationwide grew 2.1 percent over a ten-year period (2002 -2012), its growth only impeded by the bursting of the tech bubble in the late 2000s and the Great Recession. Post-recession job growth (5.7 percent) has been robust, with Computer Systems Design and Related Services (183,934), Management, Scientific, and Technical Consulting Services (129,180), Other Professional, Scientific, and Technical Services (35,528), and software publishers (25,267) leading the sector’s U.S. job growth.

Key Site Considerations: Site requirements vary based on the sub-specialization of the Computer Systems Design and Production employer. General site considerations for the overall sector include: reliability and redundancy of power grids, limited susceptibility to blackouts, access to low-cost energy options, quality of fiber networks, tax climate competitiveness, and sustainable supplies of engineering and production workers, including proximity to supportive training programs and institutional research capacity.

BUSINESS ACTIVITY AND SECTOR COMPOSITION

The Rochester Area’s Computer Systems Design and Production sector has lost employment over the last decade, primarily because of the restructuring and layoffs at IBM’s Rochester campus. Manufacturing employment will likely further decline as IBM continues its restructuring process through the shifting of manufacturing operations to its Mexico and New York locations. However, the target remains viable based on IBM’s robust research and development operations in Rochester as well as the presence of other firms in this sector. Though greater Rochester has shed 3,391 Computer Systems Design and Production jobs (35.9 percent) over the last decade, the sector still accounts for 5.4 percent of total regional employment, employing approximately 5,813 workers within the Rochester Area. Workers within this target are extremely productive – as the patent data demonstrates – and represent another viable employment path for the region’s highly educated technical workforce.

COMPUTER SYSTEMS DESIGN AND PRODUCTION: SECTOR COMPOSITION

NAICS Description	2012		Change 2002 - 2012			
	Emp.	LQ	# Chg.	% Chg.	U.S.	
3341 Computer and Peripheral Equipment Manufacturing	3,360	28.1	●	-3,714	-52.5%	-36.2%
3344 Semiconductor and Other Electronic Component Manufacturing	429	1.47	●	368	603.3%	-26.4%
3345 Navigational, Measuring, Electromedical, and Control Instruments	132	0.43	●	-82	-38.3%	-11.0%
3353 Electrical Equipment Manufacturing	31	0.29	●	-	-	-18.4%
3359 Other Electrical Equipment and Component Manufacturing	<10	-	-	-	-	-16.1%
5415 Computer Systems Design and Related Services	442	0.33	●	-239	-35.1%	34.6%
4235 Metal and Mineral (except Petroleum) Merchant Wholesalers	260	2.83	●	49	23.2%	-4.3%
4236 Electrical and Electronic Goods Merchant Wholesalers	198	0.82	●	-1	-0.5%	-12.8%
5112 Software Publishers	260	1.23	●	150	136.4%	12.2%
5182 Data Processing, Hosting, and Related Services	25	0.13	●	-	-	-16.1%
5413 Architectural, Engineering, and Related Services	312	0.29	●	-161	-34.0%	4.9%
5416 Management, Scientific, and Technical Consulting Services	156	0.15	●	36	30.0%	49.3%
5417 Scientific Research and Development Services	37	0.08	●	25	208.3%	18.8%
5419 Other Professional, Scientific, and Technical Services	409	0.76	●	155	61.0%	23.0%
Total, All Manufacturing Subsectors	4,026	3.14	●	-3,430	-46.5%	-21.6%
Total, All Subsectors	5,813	1.00	●	-3,391	-35.9%	2.1%

Source: EMSI

Even with employment losses, the Computer Systems Design and Production sector employment remains concentrated within the region relative to the national average. Employment in the Computer and Peripheral Equipment Manufacturing subsector, for example, is over 28 times more concentrated than the national average. This figure underscores the importance of this sub-sector to greater Rochester despite recent declines. The region would have to lose almost all of its employment within this subsector (3,241 jobs) for concentrations to reach the national average (LQ = 1.00). The Semiconductor and Other Electronic Component Manufacturing sub-sector is also a strength (LQ = 1.47) at nearly 1.5 times the national average; it has also shown strong growth trends (603.3 percent). Growth within this subsector was potentially aided by the absorption of former Computer and Peripheral Equipment Manufacturing employees. A strong LQ in Metal and Mineral Merchant Wholesalers shows that the Rochester Area also has capacity related to the movement of production materials. This could be an important growth niche for the Rochester Area to pursue.

As the *New York Times* has reported, many manufacturers “re-shoring” their production lines have identified proximity to research and development capacity as well as greater control over intellectual property as key location factors. Regions like the Rochester Area with strong research and development capacity will likely remain important production centers for computer systems technology development and remain potential “re-shoring” candidates. Thus, while Computer Systems Design and Production manufacturing employment has declined, this sub-sector is still well concentrated and is a viable retention target with slight, though conceivable, growth opportunities.

Exports

Computer Systems Design and Production companies contribute strongly to the region's export base. In 2012, companies within the target sector exported approximately \$1.6 billion worth of finished or component electronic goods to domestic and international markets. In total, Computer Systems Design and Production exports accounted for 12.5 percent of the regional export total. The strong export presence of this sector makes Computer Systems Design and Production jobs especially valuable because they bring significant investment into the region. The "multiplier effect" of this investment leads to creation of many more jobs than if sector products were sold principally to other regional firms. Many subsectors within Computer Systems Design and Production demonstrated impressive export activity, especially given the nation's inconsistent recovery from recession. Examples include:

- Computer and Peripheral Equipment Manufacturing (\$1.26 billion)
- Semiconductor and Other Electronic Component Manufacturing (\$84.9 million)
- Software Publishers (\$84.1 million)
- Metal and Mineral (except Petroleum) Merchant Wholesalers (\$32.0 million)
- Electrical and Electronic Goods Merchant Wholesalers (\$31.0 million)

Despite employment losses, the Computer and Peripheral Equipment Manufacturing subsector alone comprised 79.1 percent of total exports within the sector and 9.9 percent of total regional exports.

Inter-Industry Linkages

Inter-industry linkages are identified by using purchasing patterns to describe the economic relationships between target sector components in metro Rochester's economy and other sectors and subsectors of the entire U.S. economy. For example, data can pinpoint the amount companies in Computer Systems Design subsectors purchase from firms in other subsectors both within the Rochester MSA and outside the region. By differentiating between purchases made from other local firms and from companies outside the region, economic developers can identify opportunities to "insource" some of the external purchasing to Rochester Area companies or perhaps recruit a new company to the region to fill the local need for this product or service.

Computer Systems Design and Production purchasing patterns in the Rochester Area are heavily influenced by local manufacturing and research and development operations and their respective parent companies. The local facilities of two of the sector's largest companies, IBM-Rochester and Western Digital, maintain robust relationships with their parent companies. As such, data show that, of the \$30.6 million in purchases by sector companies from firms in the Corporate, Subsidiary, and Regional Managing Offices subsector, roughly \$28.2 million of this spending is made outside of the Rochester MSA. The following table shows that if the Rochester Area were to reverse only ten percent (\$2.8 million) of this leakage, the region could create 29 new jobs and nearly \$2 million in additional earnings.

Other crucial inter-industry linkages between Computer Systems Design and Production firms and other U.S. companies demonstrate the highly complex nature of computer hardware manufacture. For example, high volume relationships exist between Computer Systems Design and Production firms and companies in

Semiconductor and Related Device Manufacturing (\$28.0 million in purchased inputs), Computer Storage Device Manufacturing (\$17.6 million), Printed Circuit Assembly Manufacturing (\$14.7 million), and Software Publishers (\$26.1 million). However, per the following table, nearly ALL of these purchases of goods and services were made from companies outside the Rochester Area and therefore constitute "leakage."

**ECONOMIC IMPACT ANALYSIS: COMPUTER SYSTEMS DESIGN & PRODUCTION PURCHASING
TOP SUBSECTORS WITH HIGHEST IMPORT POTENTIAL**

NAICS Code	Industry	Leakage	Sales Change	Total Jobs	Total Earnings	Average Earnings Per Job
Total		\$102,156,432	\$10,215,643	72	\$5,191,494	\$72,104
551114	Corporate, Subsidiary, and Regional Managing Offices	\$28,157,115	\$2,815,712	29	\$1,957,339	\$52,963
334413	Semiconductor and Related Device Manufacturing	\$27,716,944	\$2,771,694	14	\$1,407,574	\$100,613
511210	Software Publishers	\$24,569,294	\$2,456,929	17	\$987,922	\$56,679
334112	Computer Storage Device Manufacturing	\$10,929,895	\$1,092,990	6	\$584,339	\$104,752
334418	Printed Circuit Assembly Manufacturing	\$10,783,183	\$1,078,318	6	\$254,320	\$43,137

Source: EMSI

All told, the Rochester Area's Computer Systems Design and Production sector purchased \$355 million worth of inputs from other economic sectors in 2012. Of this, 80.1 percent (\$284.3 million) was purchased outside of the region, with \$102 million comprised by the five sectors shown above. Capturing even ten percent of the leakage from these five sectors would result in the creation of 72 new regional jobs and over \$5 million in new income. While this data demonstrates that the Rochester Area likely does more product assembly than product manufacture, there are nevertheless opportunities to potentially attract parts and component manufacturers to greater Rochester who may benefit from closer proximity to one or more of their large clients.

WORKFORCE ATTRIBUTES AND OCCUPATIONAL COMPOSITION

Target sector development is a complex activity. It is therefore beneficial to examine not only employment data based on a company's reported industry but also occupational data reported across all companies in the region. This provides a much better understanding of the Rochester Area's skills base and the potential to position and reposition talent effectively based on current demand. It also enables economic developers to provide valuable detail on the region's labor force to external prospects.

Trends in the occupations associated with Computer Systems Design and Production are more concerning than the target's employment sectors. Every one of the target's top ten occupations saw declines between 2002 and 2012 of at least 30 percent. Nearly 1,000 jobs were lost in the two Software Development categories alone, which combined comprise over 25 percent of all regional occupations in this target sector. Notably, declines were seen not only in production jobs but also design, analysis, and engineering positions. The implications of these trends is likely that there is significant "churn" among the remaining Computer Systems Design and Production employees in greater Rochester, with workers moving from one company to the next with little talent in-migration. Indeed, this echoes feedback received in public input in

which information technology companies said it is difficult to retain certain talent because high demand provides them with many opportunities to pursue more lucrative jobs with better benefits. Employers also reported difficulty attracting new technology workers to the Rochester Area.

The benefit of facilitating growth in the Computer Systems Design and Production occupations is enhanced because of these jobs high average annual earnings (\$89,501 per year).

OCCUPATION BY EMPLOYMENT: TOP 10 OCCUPATIONAL CATEGORIES

SOC	Occupation	Sector Employment			Change		Education Level
		2002	2012	% of total sector employment	#	%	
15-1133	Software Developers, Systems Software	1,495	984	16.2%	(511)	-34.2%	Bachelor's degree
15-1132	Software Developers, Applications	1,018	630	10.4%	(388)	-38.1%	Bachelor's degree
15-1159	Computer Support Specialists	423	239	4.0%	(184)	-43.5%	Associate's degree
17-2061	Computer Hardware Engineers	435	221	3.7%	(214)	-49.2%	Bachelor's degree
11-3021	Computer and Information Systems Managers	292	161	2.7%	(131)	-44.9%	Bachelor's/higher*
13-1199	Business Operations Specialists, All Other	249	155	2.6%	(94)	-37.8%	Long-term OJT
51-2022	Electrical and Electronic Equipment Assemblers	254	150	2.6%	(104)	-40.9%	Short-term OJT
11-9041	Architectural and Engineering Managers	271	142	2.4%	(129)	-47.6%	Bachelor's/higher*
15-1121	Computer Systems Analysts	229	119	2.0%	(110)	-48.0%	Bachelor's degree
17-3023	Electrical and Electronics Engineering Technicians	174	116	2.0%	(58)	-33.3%	Associate's degree

Source: EMSI

Despite job losses over the last decade, concentrations within many Computer Systems Design and Production occupations are significantly above the national average. The following occupations were particularly concentrated within the metropolitan area:

- Software Developers, Systems Software (LQ = 3.68)
- Software Developers, Applications (2.04)
- Computer Hardware Engineers (3.94)
- Computer Occupations, All Other (3.27)

These concentrations reinforce the notion that the Rochester Area's true future opportunities in Computer Systems Design and Production lie in the design, innovation, engineering, and development specializations. While production employment is still important to the current regional economy, it is the Rochester Area's capacity in occupations that have led to its demonstrably high patent rates that hold the most benefit for the community's future.

Workforce Retention

Because the Computer Systems Design and Production sector has experienced so much volatility in recent years – largely due to shifting staffing patterns at IBM's Rochester facility – the issue of how to address these changes has become paramount. The ultimate goal of local officials should be to retain these

workers in the region either through retraining for new occupations, absorption of workers by other firms in the sector, or attraction of outside firms with demand for these skill sets.

Data show that employment levels within the Software Developers, Systems Software occupation in the Rochester MSA declined by 34.2 percent over the ten-year study period. This is despite the fact that most of IBM's workforce reductions were in production-based operations. Opportunities to repurpose workers in this occupation for other positions can be found across multiple Rochester Area employment sectors, most prominently healthcare IT. Another heavily impacted occupational category is Computer Systems Analysts, where employment nearly halved between 2002 and 2012. Potential transition subsectors that utilize Computer Systems Analysts include General Medical and Surgical Hospitals, Offices of Physicians, Corporate, Subsidiary, and Regional Managing Offices, and Computer Systems Design Services. In general, alternative career pathways exist for many of the software and computer systems administrator functions and translate easier to other sectors of the economy, especially healthcare, financial services, and other companies with large computer networks. What is critical is 1) identifying these workers, 2) positioning them for retraining, and 3) connecting them to employment opportunities in their new field.

Unfortunately for the Rochester Area, occupations involved in the design and manufacture of actual computer components tend to have fewer opportunities to transition to other sectors of the local economy. Transitional positions for Computer Hardware Engineers, for example, were limited only to other Computer Systems Design and Production subsectors, including Printed Circuit Assembly, Computer Storage Device Manufacturing, and Other Electronic Component Manufacturing. With these options potentially limited, retaining these workers in greater Rochester will therefore involve either a complete retraining for an entirely different skill set or the attraction of a new firm to the region that is looking for a trained cohort of Computer Hardware Engineers.

Another retention strategy is encouraging entrepreneurship within these displaced workers. Creating relationships between information technology entrepreneurs and displaced IT workers may further their entrepreneurial ambitions and create the potential for new startup companies.

Workforce Demographics

In order for target development to be successful, sector companies must have a reliable and sustainable source of talent well into the future. Otherwise, they will either curtail investment or else relocate their operations altogether. External prospects will also not look at the Rochester Area as a potential employment location. The significant job losses in greater Rochester's Computer Systems Design and Production sector partially obscure the tenuous position of the target's workforce sustainability. A number of key occupations in the sector feature a large gap between the number of older workers moving towards retirement and the percentage of younger workers in the Rochester Area to take their place. The following are the Computer Systems Design and Production occupations with the most impacted pipelines between the replacement workforce (age 25 to 44) and the potential retiree workforce (age 45 and older):

- Architectural and Engineering Managers (38.0% gap)
- Electrical and Electronics Engineering Technicians (25%)
- Electrical and Electronic Equipment Assemblers (24%)

- Management Analysts (16%)
- Computer Hardware Engineers (10%)

Compounding the challenge of replacing older workers is the reported difficulties employers in this sector face recruiting outside workers. Though the Rochester Area will become more competitive for skilled talent – especially in the Midwest – as its quality of life and place improve through DMC implementation, in the short term most of this replacement will likely have to occur locally. With limited four-year degree options in information technology, engineering, and manufacturing fields, the Rochester Area’s challenge is further exacerbated. While certain of these workers may delay retirement due to future economic uncertainty, clear communication between higher education institutions, workforce development organizations, and local employers will be critical to ensuring worker shortages do not occur in this target sector.

COMPETITIVE FACTORS AND REGIONAL ASSETS

Innovation Capacity: Firms in Computer Systems Design and Production involved in research, development, process and product optimization, and other knowledge-intensive practices require a constant stream of new technology and innovation to ensure that the development pipeline remains full of new and promising products and services. While the Rochester Area does not have a prominent research institution, the research output of the largest company in this sector – IBM – meets or exceeds the patent production of any top university. The challenge for greater Rochester is that IBM is a private company that does not feature the type of commercialization pipeline typical of a research institution. Leveraging IBM’s research output for potential spinoff companies and corporate partnerships will be a critical strategy for local economic developers to translate IBM’s research capacity into good local jobs. Perhaps the region’s most fruitful interdisciplinary research potential exists between its two legacy business sectors: Computer Systems Design and Production and Advanced Healthcare. A previous partnership between IBM and Mayo Clinic did not prove to be sustainable. But all future opportunities should be pursued. There is also the potential to evolve IBM’s Rochester campus into a type of “innovation district” that is becoming more common in technology hubs across the country. Innovation-rich metro areas such as Boston, North Carolina’s Research Triangle; and Austin, Texas, have all leveraged this approach.

Computer Science and Related Training Programs: Technology entrepreneurs and Computer Systems Design and Production business leaders voiced strong concern that the Rochester Area did not produce a workforce to meet their specific employment needs. Many stated that they recruited throughout the Midwest, with a few employers leveraging telecommuting policies allowing workers to live in other communities across the United States. In 2011, the region awarded only two information technology, five computer science, and 15 computer systems networking and telecommunications degrees. In the same year, the higher education institutions throughout the region awarded 280 liberal arts degrees. Regional assets to support computer science and related training programs include Rochester Community and Technical College, Minnesota School of Business-Rochester, and Winona State University-Rochester. The University of Minnesota’s Rochester campus is solely focused on producing healthcare graduates and is not a current resource for this sector. Proximity to the University of Minnesota-Twin Cities campus could be an

asset for Rochester Area firms if connections can be made to these students to communicate employment opportunities in greater Rochester.

Entrepreneurship Capacity: Entrepreneurs within the Rochester Area described the region's entrepreneurial ecosystem as "emerging" during public input. The Cube and Mayo's BioBusiness Center were identified as crucial first steps to sustaining a vibrant culture of entrepreneurship in the Rochester Area. In the online survey, areas of concern among local entrepreneurs applicable to the Computer Systems Design and Production target included availability of seed, startup, and bridge capital, and incubation capacity. Entrepreneurial networking capacity and a sufficient talent pool to support start-up growth were also highly ranked concerns by entrepreneurs.

Business Climate: Many local officials and employers are concerned that recent state policy changes that raised personal and corporate income taxes, revised business-to-business taxation, and repealed the foreign royalty tax will negatively impact companies in the Computer Systems Design and Production target, especially IBM. Because it is not a right-to-work state, Minnesota is also less competitive for certain manufacturing operations that source labor for heavily-unionized occupations.

STRATEGIC ROLE FOR ECONOMIC DEVELOPMENT

Many potential strategies to grow the Computer Systems Design and Production target have already been discussed throughout this section. These examples and others include:

- Improved commercialization of IBM research and patent activity
- Partnerships between IBM and other regional companies and institutions
- Retention of IBM's production employment in Rochester
- Attraction of targeted firms to capitalize on the Rochester Area's large talent pool of computer-production workers
- Development of IBM's campus into an "innovation" district
- Insourcing of "leaked" employment and services to greater Rochester through existing business and attraction activities
- Redistributing displaced production workers to growing regional sectors and companies
- Enhanced regional training capacity for Computer Systems Design and Production occupations
- Improvement of the Rochester Area's entrepreneurial "ecosystem"

These activities will largely be coordinated by RAEDI in partnership with the Mayo Economic Development Authority, the Rochester Area Chamber, regional governments, Minnesota Department of Employment and Economic Development (DEED), and education and training institutions.

Food Manufacturing and Processing

Food Manufacturing and Processing leverages the Rochester region’s proximity to agricultural production and historic competitiveness in value-added food production. The sector within the Rochester Area has proven resilient despite national employment losses. Moreover, the target provides growth opportunities in all three Rochester MSA counties and can be a key diversification factor for the regional economy. Dynamic opportunities are present in Food Manufacturing and Processing to produce goods that can supply not only Mayo Clinic and other large Rochester Area employers, but also hotels, restaurants, and other enterprises launched as the result of DMC implementation.

Target Components: As defined, the Food Manufacturing and Processing target encompasses the full breadth of the product cycle. Companies within this target sector transform agricultural crops and livestock into components of value-added products or goods for final consumption. While the region’s food processing is diverse in nature, fruit and vegetable preserving and dairy product manufacturing activity is particularly specialized within the local economy. Concerns over food safety, a growing epidemic of obesity throughout the nation, and efforts to improve access to healthy foods present both challenges and opportunities for food manufacturers and processors within the Rochester Area, especially given the region’s world-class healthcare assets. Components of the target also include companies producing equipment and vehicles for use in Food Manufacturing and Processing as well as businesses that facilitate the movement of raw materials and finished products.

Large Employers: The following is a representative list of the region’s largest Food Manufacturing and Processing companies:

Employer	Total Emp.	Source	Sub-sector
Reichel Foods	450	RAEDI	Refrigerated lunch and snacks
Seneca Food	400	RAEDI	Food processing
Kemps	335	RAEDI	Food processing
Pace Dairy	320	RAEDI	Food processing
Rochester Meat Company	250	RAEDI	Meat processor
Lawrence Transportation Co.	150	RAEDI	Refrigerated over-the-road-trucking
Kingsway Transportation Systems	100	EMSI	General freight trucking
Excel Manufacturing³	100	EMSI	Industrial machinery and equipment merchant wholesalers

National Trends: Food Manufacturing and Processing has undergone a variety of structural shifts over the last decade. Continued automation of production lines has dampened employment growth as firms

³ Excel is listed in the Food Manufacturing and Processing sector, but the company also sells their products to companies in other industry sectors.

require fewer but more skilled workers to operate computer interfaces in equipment and solve complex mathematical problems. The national Food Manufacturing and Processing sector was adversely impacted by the Greater Recession, losing 6.0 percent of total employment (394,209 jobs) between 2007 and 2009. Though the sector has added 132,518 jobs (2.0 percent) since the official end of the recession, employment still remains below its pre-recession peak. Losses in Animal Slaughtering, Animal Production, Fruit and Vegetable Preserving, and Specialty Manufacturing sub-sectors continue to weigh on the Food Manufacturing and Processing sector nationwide.

Key Site Considerations: Food Manufacturing and Processing site considerations vary according to the company and sub-sector specialization. Overall site considerations for the target include: proximity to raw materials, suppliers, and end users; low cost and reliable energy; proximity to high-capacity transportation infrastructure; and tax incentives on industrial machinery. Building considerations vary based upon product, but must meet the USDA's stringent sanitation guidelines. Washable floors, walls, and ceilings with special coatings are generally needed to prevent bacteria growth. As a special consideration, Food Manufacturing and Processing companies engaged in just-in-time production processes require increased ceiling heights to allow for greater storage capacity.

BUSINESS ACTIVITY AND SECTOR COMPOSITION

Food Manufacturing and Processing employs 6,194 workers within the Rochester Area, representing 6.2 percent of total regional employment. Positive growth trends within the Food Manufacturing and Processing sector contrast with employment declines in the national sector. Over the last decade (2002 – 2012), food manufacturers, processors, and related sectors added 1,149 jobs to the local economy, a gain of 23.4 percent compared to a nationwide employment decline of 0.8 percent. Rochester Cheese's \$3.25 million expansion to accommodate new production lines is a recent example of local manufacturers' contributions to growth within the target sector. Other leading growth areas include the sub-sectors of Crop Production (260 jobs), General Freight Trucking (256), Animal Production (213), Fruit and Vegetable Preserving and Specialty Food Manufacturing (165), and Other Food Manufacturing (79). Although employment throughout the target sector is cyclical and seasonal, positive growth trends over the last decade – in spite of employment declines in the national sector – point to positive future growth potential in the Rochester MSA.

FOOD MANUFACTURING AND PROCESSING: SECTOR COMPOSITION

NAICS Description	2012			Change 2002 - 2012		
	Emp.	LQ		# Chg.	% Chg.	U.S.
1110 Crop Production	507	0.83	●	260	105.3%	-7.1%
1120 Animal Production	1,242	3.76	●	213	20.7%	-5.4%
1151 Support Activities for Crop Production	174	0.52	●	69	65.7%	20.8%
1152 Support Activities for Animal Production	71	2.34	●	26	57.8%	-1.4%
3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing	831	6.39	●	165	24.8%	-9.5%
3115 Dairy Product Manufacturing	884	8.86	●	-37	-4.0%	-3.5%
3116 Animal Slaughtering and Processing	205	0.56	●	-33	-13.9%	-7.1%
3118 Bakeries and Tortilla Manufacturing	106	0.47	●	30	39.5%	-4.2%
3119 Other Food Manufacturing	135	1.03	●	79	141.1%	14.9%
4238 Machinery, Equipment, and Supplies Merchant Wholesalers	247	0.5	●	50	25.4%	-4.6%
4244 Grocery and Related Product Merchant Wholesalers	265	0.47	●	15	6.0%	5.4%
4245 Farm Product Raw Material Merchant Wholesalers	136	2.37	●	-3	-2.2%	-3.0%
4249 Miscellaneous Nondurable Goods Merchant Wholesalers	143	0.56	●	1	0.7%	-13.1%
4821 Rail Transportation	28	0.16	●	6	27.3%	5.1%
4841 General Freight Trucking	766	0.91	●	256	50.2%	-1.2%
4842 Specialized Freight Trucking	423	1.29	●	64	17.8%	4.4%
4884 Support Activities for Road Transportation	31	0.42	●	-12	-27.9%	19.8%
Total, All Manufacturing Subsectors	2,161	2.37	●	204	10.4%	-3.8%
Total, All Subsectors	6,194	1.24	●	1,149	22.8%	-1.1%

Source: EMSI

Though Food Manufacturing and Processing posted steady gains throughout the last decade, the target sector had a brief contraction after the Great Recession. In 2010, the sector declined 1.6 percent, but quickly rebounded the following year (4.2 percent). The resiliency of the sector during the Great Recession and ability to rebound after a slight decline indicate specific local competitive advantages for this target category. These local strengths will further benefit the region as it diversifies its economic base.

Relatively concentrated employment within many Food Manufacturing and Processing subsectors further highlights the region's capacity in this target. Bakeries and Tortilla Manufacturing employment was nearly nine times as concentrated as the average community nationwide. Other particularly concentrated subsectors include Animal Production (LQ = 3.76), Animal Slaughtering and Processing (6.39), Farm Product Raw Material Merchant Wholesalers (2.37), and Dairy Product Manufacturing (2.34). Given the general decline of the national sector and rising employment within the local economy, the Rochester Area's Food Manufacturing and Processing sector will likely enjoy even greater degrees of specialization relative to the average community nationwide in coming years.

Wages within the Food Manufacturing and Processing target tend to underperform relative to the target's nationwide average. Only three sectors within the target paid average wages above the national average, two of which are related to product transportation: Machinery, Equipment, and Supplies Merchant Wholesalers (6.8 percent above U.S. average), Support Activities for Road Transportation (5.4), and Animal

Slaughtering and Processing (0.9). On average, local food manufacturing, processing, and related businesses compensated employees \$41,646 annually, nearly 18.1 percent below the national average (\$50,846). On the one hand, lower wages within the target sector diminish local Food Manufacturing and Processing employees' purchasing power. Conversely, lower labor costs compared to the national and state averages can also serve as a competitive advantage as food manufacturers and processors must operate at very thin profit margins and require lower-cost labor and product inputs.

Exports

Due to their relatively high product outputs and volume-dependent profitability, companies in the food manufacturing and food processing subsectors are typically export-oriented. Rarely do these firms rely solely upon the local market for consumption of their goods. Pace Dairy Food Co., for instance, processes millions of pounds of cheese per year for ultimate sale at Kroger's under its private label brand. Combined, local food manufacturers and processors exported \$1.7 billion in intermediate and final goods for end use in 2012. In total, this target sector composed more than a tenth of the Rochester Area's \$12.7 billion export economy. The most active export subsectors include:

- Animal Productions (\$419 million)
- Fruit and Vegetable Preserving and Specialty Food Manufacturing (\$368 million)
- Dairy Product Manufacturing (\$538 million)
- Animal Slaughtering and Processing (\$75 million)

Food products manufactured and processed within the Rochester Area are likely to be exported to domestic markets; however, some products such as canned fruit and vegetables as well as frozen dairy products may have an international clientele.

Inter-Industry Linkages

Companies in the national Food Manufacturing and Processing sector purchase billions annually from a variety of economic sectors, ranging from flavored syrup manufacturing to commercial banking. Due to tight operating margins, each mile a raw material or final good travels is an important component of profitability. The sector's high purchasing activity and slim margins increase the likelihood that producers would want suppliers to be co-located in their regions. The following table shows the percentage of Rochester Area Food Manufacturing and Processing purchases that are made outside the region.

**ECONOMIC IMPACT ANALYSIS: FOOD MANUFACTURING AND PROCESSING PURCHASING
TOP SUBSECTORS WITH HIGHEST IMPORT POTENTIAL**

NAICS Code	Industry	Leakage	Sales Recapture	Total Jobs	Total Earnings	Average Earnings Per Job
Total		\$433,903,160	\$43,390,316	348	\$11,729,057	\$33,683
112000	Animal Production	\$259,221,608	\$25,922,161	202	\$6,256,608	\$30,098
111000	Crop Production	\$63,130,102	\$6,313,010	79	\$2,095,524	\$26,238
311119	Other Animal Food Manufacturing	\$45,419,567	\$4,541,957	12	\$549,718	\$47,656
551114	Corporate, Subsidiary, and Regional Managing Offices	\$33,371,216	\$3,337,122	44	\$2,319,546	\$52,963
311511	Fluid Milk Manufacturing	\$32,760,668	\$3,276,067	11	\$570,661	\$47,901

Source: EMSI

Of all Food Manufacturing and Processing purchases, 83 percent are sourced from firms located outside of the Rochester Area. Capturing only ten percent of the \$433 million dollars of goods and services in the five subsectors with the greatest leakage would result in the creation of 348 regional jobs paying nearly \$12 million in earnings. This is a significant economic boost for greater Rochester and furthers the ambition of diversifying the regional economy.

Sectors with the highest leakage include Animal Production (\$259 million), Crop Production (\$63 million), Other Animal Food Manufacturing (\$45 million), Corporate, Subsidiary, and Regional Managing Offices (\$33 million), and Fluid Milk Manufacturing (\$32 million).

WORKFORCE ATTRIBUTES AND OCCUPATIONAL COMPOSITION

As a contrast to sectors like Computer Systems Design and Production that require workers to have, at a minimum, a two- or four-year college degree, Food Manufacturing and Processing relies on occupations with varying degrees of on-the-job training (OJT). Of the 86 occupational categories comprise the Food Manufacturing and Processing sector, 61 required short (31), medium (23), or long (7) term OJT. These relatively low barriers to entry for sector workers lessen the challenges target companies have in finding available and qualified workers. That said, Rochester Area manufacturers, many of whom require very specialized skill sets, said in public input that they often have difficulty sourcing qualified employees.

OCCUPATION BY EMPLOYMENT: TOP 10 OCCUPATIONAL CATEGORIES

SOC	Occupation	Sector Employment			Change		Education Level
		2002	2012	% of total sector employment	#	%	
11-9013	Farmers, Ranchers, and Other Agricultural Managers	835	1,054	16.2%	219	26.2%	Related Experience
53-3032	Heavy and Tractor-Trailer Truck Drivers	503	696	10.8%	193	38.4%	Short-term OJT
45-2092	Farmworkers/Laborers (Crop/Nursery/Greenhouse)	295	463	7.4%	168	56.9%	Short-term OJT
51-9111	Packaging and Filling Machine Operators and Tenders	248	277	4.5%	29	11.7%	Moderate-term OJT
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	224	255	4.1%	31	13.8%	Short-term OJT
53-7051	Industrial Truck and Tractor Operators	148	178	2.8%	30	20.3%	Short-term OJT
41-4012	Sales Representatives (Wholesale and Manufacturing)*	117	133	2.1%	16	13.7%	Moderate-term OJT
51-9399	Production Workers, All Other	113	130	2.1%	17	15.0%	Moderate-term OJT
53-7064	Packers and Packagers, Hand	85	102	1.6%	17	20.0%	Short-term OJT
51-1011	First-Line Supervisors of Production/Operating Workers	85	101	1.6%	16	18.8%	Related Experience

Source: EMSI

As shown in the previous table, all of the largest metro Rochester Food Manufacturing and Processing occupations require either OJT or work experience in a related field; these occupations represent roughly half of the target’s total employment. Particularly high growth occupations include Farmworkers and Laborers (56.9 percent); Heavy and Tractor-Trailer Truck Drivers (38.4 percent); Farmers, Ranchers, and Other Agricultural Managers (26.2 percent); and Industrial Truck and Tractor Operators (20.3 percent). Annual openings for Farmers and Agricultural Managers (67 annual openings); Heavy and Tractor-Trailer Truck Drivers (66), Laborers Material Movers (52); and Sales Representatives (27) bode well for future demand for highly skilled agricultural production managers and moderately skilled wholesale trade workers.

Workforce Demographics

While regional Food Manufacturing and Processing employers principally rely on OJT to fulfill their training needs, this does not preclude labor shortages for talent skilled in more computer-based and knowledge-intensive occupations. As Food Manufacturing and Processing companies further automate their production lines, labor demands for degree-holding employees will increase. Exacerbating potential talent needs will be the pending retirement of the sector’s older workforce. In the Rochester Area, the following Food Manufacturing and Processing occupations are the most at risk of talent shortages due to a smaller “replacement” (age 25 to 44) cohort for older (45+) workers. Percentage figures relate to the size of the replacement group versus the older labor force.

- Farmers, Ranchers, and Other Agricultural Managers (42.0% differential)
- Bookkeeping, accounting, and auditing clerks (24.0%)
- Maintenance and Repair Workers, General (24.0%)
- Heavy and Tractor-Trailer Truck Drivers (22.0%)
- Industrial Machinery Mechanics (18.0%)

Continued employment growth within these occupational categories will further challenge local manufacturers and processors to find and attract a skilled workforce to support their operations.

COMPETITIVE FACTORS AND REGIONAL ASSETS

Proximity to Raw Materials, Suppliers, and Markets: Agricultural activity within the Rochester Area enhances the region's viability for the manufacture of food products. However, though the region contains thousands of acres of farmland to support agricultural processing and product manufacturing, low location quotients in related employment sectors – Crop Production (LQ = 0.83) and Support Activities for Crop production (0.52) – indicate that much of this employment is sourced outside the region. Export data confirmed this issue with 93 percent of food manufacturers and processors raw material requirements filled outside of the region. Conversely, subsectors related to livestock are highly concentrated regionally. Animal Production employment is nearly four times as concentrated as the average community nationwide, while employment to support animal production is twice as concentrated.

Electricity Reliability and Cost: Reliability is paramount in an industry in which the failure of refrigeration equipment could mean lost raw materials, compromised final products, government fines and sanctions, and a public backlash over food safety concerns. Low-cost power is also important for equipment manufacturers. In 2012, the Rochester Public Utilities (RPU) received national recognition by the American Public Power Association for providing their consumers with the highest degree of reliable and safe electric service. RPU was one of 176 public utilities across the nation to receive the Reliable Public Power Provider recognition from the APPA. Public input participants were also complimentary of RPU and People's Energy Cooperative's (PEC) cost and reliability. PEC is a member-owned electric power utility serving all of the rural areas surrounding Rochester. The Cooperative has approximately 11,500 members in Olmsted, Dodge, Fillmore, Mower, Wabasha, and Winona Counties.

Transportation Capacity: Close proximity to Interstate 90 provides east-west connectivity to Midwest metropolitan markets including Chicago, IL; Madison, WI; Cleveland, OH; and Sioux Falls, SD. Linkages to north-south connector Interstate 35 are less robust, with state Highway 14 lacking uninterrupted four-lane access to the interstate from Rochester. Rochester is served by an east-west Canadian Pacific Class I trunk line, but does not have direct Class I connectivity to Minneapolis-St. Paul. There are no multi-modal trans-load facilities in the metro area. While Rochester International Airport does have cargo-handling capacity, cargo tonnage at the airport has declined notably in recent years.

Business Climate: Through the Minnesota Investment Fund and tax code, manufacturers throughout the state have access to a variety of options to finance industrial equipment. Minnesota manufacturers can recoup the sales tax paid on the purchase or lease of industrial equipment if it is essential to the manufacturing or processing of goods ultimately bound for a retail market. Grant funding via the Minnesota Investment Fund affords local governments with the ability to offer below-market rate loans to manufacturers for the purchase machinery, equipment, and land. These tax rebates and below market-rate loans serve to improve the economic feasibility of investing in new production lines, retrofitting existing lines, and otherwise expanding manufacturing operations within the local community. As noted previously,

recent changes to Minnesota's tax code compromise the Rochester Area's competitive position for manufacturers. In the latest session, state legislators raised personal and corporate income taxes, revised business-to-business taxation, and repealed the foreign royalty tax. Lack of right-to-work status also adversely affects Minnesota's competitive position in the minds of many site consultants and corporate real estate personnel.

STRATEGIC ROLE FOR ECONOMIC DEVELOPMENT

Multiple strategies can be applied to grow the Rochester Area's Food Manufacturing and processing target sector. Among these are:

- Working with existing employers to ensure they are able to effectively retain and expand their companies
- Marketing the Rochester Area's advantages for the Food Manufacturing and Processing sector to outside firms and relocation specialists
- Small-business development opportunities related to the creation of value-added agriculture firms and "specialty foods" manufacturers, smaller farms producing specialized crops for value-added products, farm-to-table restaurants, or farmer's markets, and wholesalers coordinating the import and export of specialty products to the region
- Facilitating purchasing opportunities between Food Manufacturing and Processing companies and Mayo Clinic and other regional employers
- Increasing local purchasing and/or production of multiple raw material crop inputs to value-added production and processing functions
- Partnering with other regions to reverse recent changes to state tax law that compromised Minnesota's competitive position to retain and attract manufacturers and product assemblers

Existing business retention and expansion, marketing/attraction, and small business development activities will primarily be coordinated by RAEDI. The Rochester Area Chamber will lead public policy efforts and support RAEDI with certain existing business activities, especially as they relate to workforce development. The Mayo Economic Development Authority could work with RAEDI on the coordination of purchasing opportunities at the Clinic and with certain key businesses locating in the DMC legislation's implementation zone.

Tourism

Research shows that 40 percent of individuals who travel to access healthcare services are seeking more advanced technological treatments while 32 percent are seeking better overall quality of care. As the home of Mayo Clinic, the Rochester Area already is globally competitive on both counts. Currently, it is estimated that the Clinic attracts 350,000 patients per year. Canadian Honker, the area's largest catering and restaurant firm, reports that 50 to 60 percent of its customers are Mayo Clinic patients.⁴ A survey⁵ by Mayo found that its visitors have roughly four to five hours of free time outside the Clinic to experience local amenities and attractions. The same survey found that 34 percent of patients and their families who travel to Mayo for healthcare services would return to the Rochester Area for recreation. These findings confirm that a tremendous opportunity exists to enhance and expand the region's Tourism sector. To grow its already robust non-local patient base, Mayo Clinic has launched the Destination Medical Center initiative to position greater Rochester as a more desirable worldwide destination for healthcare. To ensure thousands of additional medical tourists travel to Rochester, DMC will seek to provide the cultural, recreational, dining, hospitality, and entertainment resources that will distinguish Rochester as a healthcare destination and attract wealthy travelers who can choose from multiple locations to access medical services. However, Tourism in the Rochester Area should not be about Mayo and DMC alone. The three metro Rochester counties offer a wealth of potential Tourism attractions and destinations beyond the Rochester core and should be supported to the extent necessary to ensure the impact of DMC is shared beyond Downtown Rochester and its immediate neighborhoods.

Target Components: The Rochester Area's Tourism target is composed of multiple subsectors that all impact and/or benefit from the tourist experience. These include everything from accommodation, dining, entertainment, and retail services to subsectors such as air transportation, taxi services, and charter bus companies. Clearly, not all the employment activity in these sectors will result from visitor spending; to varying degrees, local purchases will also contribute to the vitality of these subsectors. However, because a greater supply and diversity of visitor-serving amenities not only makes the Rochester Area more competitive for Tourism but also a more compelling destination for companies and talent, growth in the Tourism sectors will deliver benefit to existing residents and businesses as well.

Large Employers

Employer	Total Emp.	Source	Sub-sector
The Kahler Grand Hotel	805	EMSI	Full-service restaurants
Interstate Hotels and Resorts	680	RAEDI	Hotel/Restaurant Services
Herbergers	150	EMSI	Department store

⁴ Destination Medical Center Blog "A patient experience worth honking about" Destination Medical Center accessed August 29, 2013 at : <http://dmc.mn/blog/tag/canadian-honker/>

⁵ Mayo Clinic "DMC: A Global Destination for Health and Healing" Mayo Clinic accessed August 29, 2013 at: http://www.dmc.mn/sites/default/files/aug_14_revised_community_presentation.pdf

National Trends: Growth within the national Tourism sector has been aided by an improving U.S. economy and rising consumer purchasing power throughout the world. Increased disposable income in developing countries – especially China, Brazil, and India – has supplied a new source of visitors to top national markets and attractions. The U.S. Tourism sector grew 8.0 percent from 2002 to 2012, adding approximately 1.3 million jobs. Post-recession employment growth has been especially positive. Sectors demonstrating the strongest growth include Full-Service Restaurants (714,333), Traveler Accommodations (23,488), and Special Food Services (82,561). Though many key Tourism subsectors enjoy stability, continued consolidation of major airlines could impact consumer travel decisions as ticket prices increase. Rising prices for fuel could also curtail travel and impede the growth of Tourism businesses.

Key Site Considerations: In general, the Tourism sector relies on a competitive base of visitor attractions and infrastructure to serve travelers once they arrive. This includes hotels and resorts, restaurants and entertainment venues, theme parks, outdoor and indoor recreation venues, retail activity centers, and, often, amenities for families and children. Of course, not all Tourism destinations are cut from the same cloth; the Rochester Area, for example, is a destination for medical travel so visitor expectations are different than for, say, Orlando, Florida. But as the aforementioned Mayo survey data showed, travelers to the Rochester Area have the inclination to spend more time and money in the region if amenities to their liking are provided. Accessibility is another site consideration. The Rochester Area's proximity to MSP – a major hub airport – is an advantage, especially if travelers are not concerned about renting a car or taking a shuttle into Rochester. Though its number of direct destinations and frequency of flights is low, the Rochester International Airport was also said by input participants to be a practical alternative for visitors traveling to the Rochester Area. Greater Rochester's highway accessibility is strong, with a quick connection to I-90 and a more limited, but still viable link to I-35.

BUSINESS ACTIVITY AND SECTOR COMPOSITION

Data show that the Rochester Area's Tourism sector, as defined for this analysis, is quite under-developed when compared to the national concentration. In total, Tourism employs nearly 12,000 greater Rochester workers and has an LQ of .83; a significant number of jobs would need to be created to bring the Rochester Area up to the U.S. concentration for this sector. Nearly every subsector – as well as broader categories like retail, restaurants/bars, and entertainment – has an LQ below 1.0. The exceptions are Other Miscellaneous Store Retailers (1.07 LQ), Taxi and Limousine Service (1.90), Other Amusement and Recreation Industries (1.02), Traveler Accommodation (1.06), and Drinking Places (Alcoholic Beverages) (1.37). These data corroborate feedback from public input which indicated that the Rochester Area does not have a critical mass of "things to do" for residents, visitors, and young professionals. Findings from Mayo's analysis of visitor and employee perceptions of central Rochester also echo these findings and – as has been noted – was the basis for the eventual design and development of the DMC initiative.

TOURISM: SECTOR COMPOSITION

NAICS Description	2012			Change 2002 - 2012		
	Emp.	LQ		# Chg.	% Chg.	U.S.
4452 Specialty Food Stores	120	0.67	●	10	9.1%	-15.0%
4481 Clothing Stores	740	0.90	●	95	14.7%	9.0%
4482 Shoe Stores	125	0.87	●	-22	-15.0%	2.0%
4483 Jewelry, Luggage, and Leather Goods Stores	87	0.71	●	-121	-58.2%	-17.0%
4521 Department Stores	1,003	0.87	●	-934	-48.2%	-10.0%
4539 Other Miscellaneous Store Retailers	264	1.07	●	-68	-20.5%	-10.0%
4811 Scheduled Air Transportation	-	-	-	-24	-100.0%	-19.0%
4812 Nonscheduled Air Transportation	<10	-	-	-	-	-7.0%
4852 Interurban and Rural Bus Transportation	<10	-	-	-	-	-18.0%
4853 Taxi and Limousine Service	203	1.90	●	-30	-12.9%	15.0%
4855 Charter Bus Industry	23	0.98	●	7	43.8%	-13.0%
4871 Scenic and Sightseeing Transportation, Land	-	-	-	0	#DIV/0!	20.0%
4881 Support Activities for Air Transportation	53	0.43	●	-36	-40.4%	17.0%
5615 Travel Arrangement and Reservation Services	103	0.65	●	14	15.7%	-24.0%
7111 Performing Arts Companies	52	0.53	●	10	23.8%	-1.0%
7112 Spectator Sports	62	0.47	●	-10	-13.9%	5.0%
7113 Promoters of Performing Arts, Sports, and Similar Events	13	0.15	●	-1	-7.1%	38.0%
7115 Independent Artists, Writers, and Performers	92	0.44	●	-13	-12.4%	5.0%
7121 Museums, Historical Sites, and Similar Institutions	55	0.52	●	28	103.7%	19.0%
7131 Amusement Parks and Arcades	14	0.10	●	-	-	16.0%
7139 Other Amusement and Recreation Industries	915	1.02	●	-80	-8.0%	10.0%
7211 Traveler Accommodation	1,400	1.06	●	-252	-15.3%	1.0%
7212 RV (Recreational Vehicle) Parks and Recreational Camps	37	0.86	●	8	27.6%	6.0%
7221 Full-Service Restaurants	3,146	0.88	●	641	25.6%	18.0%
7222 Limited-Service Eating Places	2,656	0.83	●	567	27.1%	19.0%
7223 Special Food Services	404	0.78	●	62	18.1%	14.0%
7224 Drinking Places (Alcoholic Beverages)	377	1.37	●	-254	-40.3%	-10.0%
Total, Retail	2,339	0.86	●	-1,040	-30.8%	-5.2%
Total, Restaurants and Bars	6,583	0.84	●	1,016	18.3%	16.7%
Total, Entertainment	1,203	0.71	●	-52	-4.6%	12.0%
Total, All Subsectors	11,944	0.83	●	-286	-2.5%	8.0%

Source: EMSI

Despite low LQs, data show that there has been growth in certain key subsectors from 2002 to 2012, narrowing the gap between the Rochester Area and the nation for relative employment concentrations. Travel Arrangement and Reservation Services (63.5 percent growth) overcame negative national trends (-24.0 percent) to add 40 new jobs during this time period. Traveler Accommodation (4.6 percent) also saw notable employment gains that outpaced national growth rates (1.0 percent). Strong growth within

Spectator Sports (44.2 percent vs. 5.0 percent nationally) and Amusement Parks and Arcades (27.3 percent vs. 16.0 percent nationally) point to greater diversity in entertainment options for local travelers.

Though it will take time as a critical mass of amenities and services builds, the Destination Medical Center strategy will almost certainly help improve the Rochester Area's competitive position for Tourism employment and boost location quotients for Tourism subsectors in the region. DMC projections estimate that between 1,000 to 1,500 hotel jobs will be created by the initiative over the next 20 years, with a further 1,500 to 2,500 in restaurant and retail jobs developed through investment in downtown Rochester.

Exports

Tourism is an export sector. Travelers purchase local goods and services supporting economic activity that would otherwise not have occurred. By importing visitor dollars from outside of the region in exchange for local goods and services, the resulting positive inflow of capital into the region represents an export. In the Rochester Area, Tourism export activity represented a far smaller portion of total regional exports - \$188 million, or 1.5 percent – than other targeted economic sectors. In comparison, statewide Tourism exports represented 2.4 percent of total Minnesota export activity.

Top regional exporting Tourism subsectors include:

- Full-Service Restaurants (\$43.7 million)
- Traveler Accommodation (\$32.8 million)
- Limited-Service Eating Places (\$23.1 million)
- Special Food Services (\$16.0 million)
- Other Amusement and Recreation Industries (\$12.5 million)

By spurring increased Tourism growth through DMC implementation, the Rochester Area will be poised to dramatically increase exported goods and services and benefit from the resulting multiplier effect of these investments on regional economic activity.

Inter-Industry Linkages

By examining the purchasing relationships of the Rochester Area Tourism sector with other employment sectors across the country, opportunities to capture investment "leakage" emerge. In total, businesses in the region's Tourism sector procured \$262 million worth of inputs from other U.S. economic sectors, both within the Rochester MSA and elsewhere across the nation. Of that total, nearly 75 percent (\$195 million) was sourced from outside the Rochester Area in 2012. This high rate of leakage represents a real opportunity for the region to identify local sources for these goods and services and bring investment back to metro Rochester. The following chart displays the top five subsectors with the greatest investment leakage from the Rochester Area economy.

**ECONOMIC IMPACT ANALYSIS: TOURISM PURCHASING
TOP SUBSECTORS WITH HIGHEST IMPORT POTENTIAL**

NAICS Code	Industry	Leakage	Sales Recapture	Total Jobs	Total Earnings	Average Earnings Per Job
Total		\$32,126,346	\$3,212,635	53	\$1,910,389	\$36,095
551114	Corporate/Subsidiary/Regional Managing Offices	\$17,962,159	\$1,796,216	24	\$1,248,398	\$52,963
311615	Poultry Processing	\$3,203,570	\$320,357	2	\$61,257	\$38,076
541611	Admin. Mgmt/General Mgmt Consulting Svcs.	\$3,448,802	\$344,880	11	\$258,828	\$23,219
531210	Offices of Real Estate Agents and Brokers	\$4,187,601	\$418,760	9	\$124,213	\$14,322
541810	Advertising Agencies	\$3,324,214	\$332,421	8	\$217,694	\$27,465

Source: EMSI

Rochester Area Tourism firms purchased slightly over \$32 million in goods and services from companies in these five subsectors. Capturing just ten percent of this leakage through business relationships with Rochester MSA firms would result in the creation of 53 new jobs and nearly \$2 million in additional earnings.

One potential opportunity for greater supply chain relationships exists between Poultry Processing and local restaurants. So-called “farm-to-table” restaurants – eating establishments sourcing much of their food products locally – has been a growing craze across many of the nation’s metropolitan area. The Rochester Area’s existing strengths in Food Manufacturing and Processing likely create a number of potential providers of poultry (and possibly meat and produce as well) for Rochester Area restaurants.

Reducing leakage in the procurement of professional services is another economic development opportunity for metro Rochester. However, to accomplish this, the Rochester Area will have to greatly enhance its capacity in numerous professional services subsectors. An example is Advertising Agencies; Rochester Area Tourism businesses imported \$3.3 million (88 percent of total subsector spending) worth of advertising services in 2012. However, a low concentration of regional Advertising Agency employment (LQ = 0.15) is the likely reason that these firms are forced to go outside the Rochester MSA for these services. The proximity of the Twin Cities and its strong concentrations of professional services employment is one potential reason for this disparity. Even so, for the Rochester Area to truly become a self-sustaining economy, it must strive to develop competitive capacity not only in its targeted sectors, but supportive employment subsectors as well. By working closely with existing businesses to examine their supply chain relationships, Rochester Area economic developers can identify opportunities to insource certain investments and stimulate small business development and entrepreneurship opportunities in subsectors such as Advertising Agencies.

WORKFORCE ATTRIBUTES AND OCCUPATIONAL COMPOSITION

Though certain of its occupations are low-paying, the Tourism sector provides well-proven benefits as a source of entry-level employment and advancement opportunities for a region’s lower-skilled workforce. A full 63.4 percent of Rochester Area tourism jobs offer on-the-job training as opposed to requiring a two- or

four-year college degree. As hiring qualifications increase, so do average wages for Tourism positions. For example, General and Operation Managers earn a median hourly wage of \$41.05 per hour; at a minimum, general managers are required to have a Bachelor’s degree along with related work experience. Arts and entertainment-related professions are another source of high earning potential within the Tourism sector. Writers and Authors (\$23.38), Athletes and Sports Competitors (\$21.34), and Art Directors (\$23.24) all earn above \$20 per hour and require differing degrees of career preparation, ranging from long-term on the job training to a bachelor’s degree or higher (plus work experience).

OCCUPATION BY EMPLOYMENT: TOP 10 OCCUPATIONAL CATEGORIES

SOC	Occupation	Sector Employment			Change		Education Level
		2002	2012	% of total sector employment	#	%	
35-3031	Waiters and Waitresses	1,511	1,716	14.0%	205	13.6%	Short-term OJT
35-3021	Combined Food Preparation/Serving Workers	1,050	1,387	12.0%	337	32.1%	Short-term OJT
41-2031	Retail Salespersons	1,636	1,247	10.7%	(389)	-23.8%	Short-term OJT
35-2014	Cooks, Restaurant	570	702	5.8%	132	23.2%	Moderate/term OJT
35-3011	Bartenders	589	533	4.3%	(56)	-9.5%	Short-term OJT
37-2012	Maids and Housekeeping Cleaners	527	469	4.0%	(58)	-11.0%	Short-term OJT
35-1012	First-Line Supervisors of Food Prep./Serving	400	471	4.0%	71	17.8%	Work experience
35-3022	Counter Attend./Cafeteria/Food Concession*	312	383	3.3%	71	22.8%	Short-term OJT
41-2011	Cashiers	470	388	3.2%	(82)	-17.4%	Short-term OJT
43-4081	Hotel, Motel, and Resort Desk Clerks	299	269	2.3%	(30)	-10.0%	Short-term OJT

Source: EMSI

*Includes Coffee Shop Workers

There is also the potential that the sector’s largest occupational category – Waiters and Waitresses – features higher wages than listed due to the fact that many of these workers do not report tips to their employers. The same may be true for Bartenders and Retail Salespersons who work on commission. What this means is there is likely more income circulating through the regional economy than is reported to the government.

Certain long-term opportunities to increase the average wage of the Rochester Area Tourism sector involve reducing investment leakage as discussed in the previous section. Many high-wage professional services occupations could be created by insourcing some of this leaked employment to the Rochester Area. Whether or not these jobs are technically categorized as Tourism employment does not matter; the end result will be the expansion of the regional economy and the creation of good, well-paying jobs.

Workforce Demographics

Workforce sustainability issues within the Rochester Area Tourism sector are less of a concern than other targeted sectors described in this report. Over 75 percent of the sector’s workforce is aged 44 or below, while 40 percent is aged 24 or below. While Tourism sector positions may be filled by a variety of workers,

Tourism occupations offer the potential for part-time job opportunities for local college and high school students attempting to supplement their incomes. As such, the target sector may face a dearth of worker supply in particular seasons, but, in general, does not face long term structural changes engendered by a large soon-to-retire workforce.

That said, there are certain Rochester Area Tourism occupations that face potential workforce shortages caused by future retirements. Fifty-three percent of General and Operations Manager workers are approaching retirement (age 45 and older). A potential shortage of 296 positions could arise over the next 20 years if new workforce capacity does not become available. The shortage may be worsened by the higher level of education attainment requirements relative to other occupations within the Tourism sector.

General Maintenance and Repair Workers is another occupation with a negative workforce sustainability outlook. Workers aged 45 and above represent 59.0 percent of the Rochester Area's total workforce within this occupational category; conversely, 24 to 44 year olds comprise just 19.0 percent of the occupational workforce. If the Rochester Area's entire Tourism maintenance workforce retired today, 257 positions would be vacant (assuming younger workers fulfilled all vacated positions). At the U.S. level, the gap between retiree and replacement workforce is less severe for this occupation. Thirty-eight percent of the national maintenance workforce was between the ages of 24 and 44, with the potential retiree workforce only representing 56.0 percent of all workers.

Other potential Rochester Area occupational shortages caused by retirements over the next 20 years include Taxi Drivers and Chauffeurs (181 potential vacancies); Musicians and Singers (46); Bookkeeping, Accounting, and Auditing Clerks (420); General Office Clerks (466), and Janitors and Cleaners (527). All of the listed occupations only require on-the-job training to qualify for employment.

COMPETITIVE FACTORS AND REGIONAL ASSETS

Arts, Culture, and Recreation: Mayo Clinic research, feedback during the Rochester Area Economic Growth Plan process, and analysis of employment and occupational data all confirmed that the region has a lower concentration of visitor-serving amenities than most U.S. regions. However, even before DMC was announced, the Rochester Area has been moving to address this deficit. Spearheaded by Concerned Citizens for a Creative Community, Downtown Rochester's arts and cultural scene has been evolving. Events like The Venue – a one-day art festival to celebrate and bring awareness to the benefits of arts and culture within the Rochester Area – add to the area's Tourism capacity. Other Rochester venues, events, and organizations include the Mayo Civic Center, Riverside Concerts, the Rochester Arts Center, the Rochester Arts Council, the Rochester Chamber Music Society, the Rochester Community Bank, the Rochester Symphony Orchestra and Chorale, and the many events coordinated by the Rochester Downtown Alliance, including SocialICE, Thursdays on First & 3rd, Summer Market and Music Festival, STYLE – The Runway Experience, Whiteout Wednesday, and Holiday Events. Restaurants such as Sontes have also spearheaded a burgeoning "foodie" scene in Downtown Rochester.

Destination Medical Center implementation will surely increase the number of assets and amenities to enhance the visitor, worker, and resident experience in Downtown Rochester. However, limiting the

perspective of the Rochester Area's Tourism growth to only the Rochester core would ignore the potential to broaden the scope of visitor destinations across the full three-county region. Numerous compact, historic, walkable downtowns and Main Streets dot the landscape in Olmsted, Dodge, and Wabasha Counties. Many are only a short drive from central Rochester. The same is true of compelling historic sites, recreational opportunities at Lake Pepin⁶ and Robinson Lake, numerous golf courses in the Rochester MSA and adjacent counties, established tourist destinations like Lake City, wineries, tours of Amish country, and many other assets. Connecting these regional amenities to DMC efforts and communicating the Tourism opportunities available regionally to Mayo Clinic visitors could be fruitful strategies for growing the Rochester Area's Tourism sector.

Accommodations: The presence of Mayo Clinic and its global reputation for providing world-class healthcare has already resulted in the development of thousands of local hotel rooms to serve visitors from across the country and globe traveling to Rochester for treatment. However, opportunities exist through DMC implementation to further expand the community's collection of hospitality facilities, including boutique hotels, bed and breakfasts, extended stay hotels, historic hotels, and other properties. Incorporating the development of hospitality destinations across the Rochester metro, including lakeside resorts, woodland hotels and cabins, and even agri-tourism related destinations would enhance DMC efforts and diversify the region's portfolio of accommodations to support the transformation of the Rochester Area into a global destination for visitors.

Destination Medical Center: The DMC initiative is and will be the single most transformative strategy for developing a critical mass of Tourism-serving amenities, environments, and destinations in Rochester. Of the initiative's seven core pillars, four directly influence the region's Tourism sector: Livable City; Hotel and Hospitality; Retail, Dining, and Entertainment, Arts, and Culture; and Sports and Recreation. Each of these areas improves the region's overall Tourism product and appeals to both domestic and international travelers. While the core focus of Destination Medical Center is improvements to downtown Rochester, as has been said, it is incumbent upon local officials to ensure that communities throughout the region further develop their Tourism-related products to provide opportunities for recreation, entertainment, and retail outside of the downtown area.

STRATEGIC ROLE FOR ECONOMIC DEVELOPMENT

As with the Advanced Healthcare sector, implementation of Tourism development strategies will largely be coordinated by the Mayo Economic Development Authority in the context of DMC implementation. MEDA's key Tourism partner will be the Rochester Convention and Visitors Bureau; however, multiple local and regional entities such as arts organizations, hospitality and restaurant associations, parks and recreation departments, the Rochester International Airport, and many others will impact how competitive the Rochester Area is for new and repeat visitors.

⁶ Said to be the place where waterskiing was invented.

The DMC strategy will stipulate the specific actions, investments, programs, and development that will support Tourism growth in the Rochester core. The CVB and others will determine how to expand and coordinate these benefits to the full three-county Rochester MSA.

Economic development organizations such as the RAEDI and the Rochester Area Chamber will also have roles to play related to workforce development, small business funding, and advocacy. They will also be able to facilitate regional connectivity between assets and entities in the Rochester core and Tourism firms and assets in non-Rochester Olmsted County communities, Dodge County, and Wabasha County. Local governments and economic development entities across metro Rochester can serve as effective partners for the funding, development, and promotion of Tourism destinations and amenities outside the Rochester core.

Transportation Equipment

After a number of fallow years in which reduced consumer spending on durable goods and uncertainty over the future of the “Big 3” American automotive manufacturers led to employment declines in the Transportation Equipment sector, prospects are now looking up as post-recession growth in car buying has buoyed the fortunes of original equipment manufacturers (OEMs) and parts manufacturers alike. There have been massive new investments by U.S. and foreign car and truck makers across the country, with many of these jobs being created in the Midwest. Companies such as CAT, Cummins, Ford, GM, and Chrysler have led the charge. These trends are also borne out in the Rochester Area where Transportation Equipment employment has increased almost 25 percent since the end of the Great Recession. The sector not only features strong regional employment concentrations, but is also well dispersed across the three Rochester MSA counties.

Core Sectors: Economic activity within the Transportation Equipment sector incorporates the assembly of heavy industrial equipment such as concrete mixers as well as the manufacture of motor vehicle engines and engine parts. The Transportation Equipment target also includes a broad array of supporting subsectors that provide raw inputs and intermediate goods integral to the production supply chain. These materials include fabricated metals, motor vehicle bodies and trailers, rubber products, and precision-machined components. Because timely receipt of these inputs is critical to manufacturers adopting just-in-time (JIT) production techniques, the role of (and growth opportunities for) Transportation Equipment distributors and wholesalers is also robust. The economic performance of the region’s Transportation Equipment manufacturers is also closely tied to national and international trends in the extraction, farming, and construction sectors.

Large Employers: Top Transportation Equipment firms within the Rochester Area include:

Employer	Total Emp.	Source	Sub-sector
McNeilus Truck and Manufacturing	900	RAEDI	Mobile concrete mixers, garbage trucks
Crenlo	703	RAEDI	Fabricated metal
McNeilus Steel, Inc.	302	RAEDI	Steel fabrication
Nuss Truck Group	200	EMSI	Automobile and other motor vehicle merchant wholesalers
Rochester Transportation Systems	190	EMSI	Specialized freight
Nott. Co	100	EMSI	Industrial machinery and equipment merchant wholesalers
Kingsway transportation System	100	EMSI	General freight trucking

National Trends: Extensive restructuring of the national automotive industry led to substantial employment losses during the years before, during, and immediately after the Great Recession. Many transportation manufacturers and suppliers reduced their workforces, shifted to part-time temporary labor, or were forced to close their doors altogether. Overall, national employment in the sector remains 7.1

percent below its 2002 levels. The recession was especially tough on the U.S. Transportation Equipment sector, which experienced a 14.6 percent decline in total employment during this period. Though the Great Recession has forever changed the face of automotive manufacturing in America, the industry's post-recession performance has been a story of rebirth as the sector has regained 7.9 percent of its employment since the end of the downturn. Future prospects appear promising as OEMs continue to bring production back to the United States, car companies and parts suppliers make huge investments in new and additional production capacity, and consumers fulfill pent-up demand for high-cost goods such as automobiles.

Key Site Considerations: Workforce quality and quantity is a critical factor to many Transportation Equipment companies. In lieu of an incumbent workforce, access to workforce training programs offered at higher education institutions is crucial to building sufficient workforce capacity. Utility costs and proximity to local suppliers and/or markets are also key considerations. Transportation Equipment firms typically seek large-acreage sites that can accommodate expansive assembly lines and the in- and outflows of raw materials, component parts, and finished goods. This also means that access to a competitive transportation network is a prerequisite of Transportation Equipment firms when expanding or scouting new locations. Business climate, especially related to tax liabilities and incentives availability, are also key site concerns for companies in this sector.

BUSINESS ACTIVITY AND SECTOR COMPOSITION

The Rochester Area's Transportation Equipment sector is highly specialized in heavy industrial product manufacturing, including concrete mixers and municipal waste trucks. Agricultural, Construction, and Mining Machinery (LQ = 3.54) manufacturing activity is more than three and a half times as concentrated as the national average. This high degree of specialization is due in part to large employers such as Crenlo and McNeilus. A comparatively specialized Metal and Mineral Wholesalers (LQ = 2.83) indicates the presence of supply chain relationships that enhance raw material access for local transportation equipment firms.

Transportation Equipment manufacturing activity within the region was particularly vulnerable to the Great Recession. In total, the region lost 866 Transportation Equipment jobs during the recessionary years, a decline of 22.9 percent. Even with the restructuring of the automotive industry, the nation suffered a smaller (-14.6 percent), but significant decline during the recession. Much like the national automotive industry, the Rochester Area's Transportation Equipment sector emerged from the recession leaner and stronger. Regional Employment – supported by an increasingly stabilized building construction sector – posted a 24.0 percent increase since the official end of the recession in 2009, a far faster rate than the national average (6.6 percent). Even so, Transportation Equipment employment in the Rochester MSA remains 29.6 percent below its 2002 levels.

TRANSPORTATION EQUIPMENT: SECTOR COMPOSITION

NAICS Description	2012			Change 2002 - 2012		
	Emp.	LQ		# Chg.	% Chg.	U.S.
3262 Rubber Product Manufacturing	39	0.40	●	-	-	-29.5%
3321 Forging and Stamping	87	1.18	●	-454	-83.9%	-12.4%
3327 Machine Shops/Turned Product/Screw/Nut/Bolt Mfg.	298	1.08	●	116	63.7%	11.7%
3328 Coating, Engraving, Heat Treating, and Allied Activities	22	0.21	●	-218	-90.8%	-10.1%
3329 Other Fabricated Metal Product Manufacturing	67	0.33	●	25	59.5%	-10.6%
3331 Agriculture/Construction/Mining Machinery Manufacturing	649	3.54	●	301	86.5%	22.4%
3362 Motor Vehicle Body and Trailer Manufacturing	0	0.00	●	-352	-100.0%	-19.4%
3363 Motor Vehicle Parts Manufacturing	454	1.26	●	-136	-23.1%	-34.7%
4231 Motor Vehicle/Motor Vehicle Parts/Supplies Wholesalers	281	1.13	●	62	28.3%	-7.4%
4235 Metal and Mineral (except Petroleum) Wholesalers	260	2.83	●	49	23.2%	-4.3%
4238 Machinery, Equipment, and Supplies Wholesalers	247	0.50	●	50	25.4%	-4.6%
4821 Rail Transportation	28	0.16	●	6	27.3%	5.1%
4841 General Freight Trucking	766	0.91	●	256	50.2%	-1.2%
4842 Specialized Freight Trucking	423	1.29	●	64	17.8%	4.4%
Total, All Manufacturing Subsectors	1,616	1.11	●	-679	-29.6%	-14.6%
Total, All Subsectors	5,237	1.00	●	-192	-5.0%	-7.1%

Source: EMSI

The highest-growth subsectors of Transportation Equipment have been in Machine Shops (116 new jobs since 2002), Agriculture/Construction/Mining Machinery Manufacturing (301 jobs), and General Freight Trucking (256 jobs). Of these subsectors, only the latter has employment concentrations below the national average. Annual wages paid by Rochester Area transportation manufacturers averaged \$73,095 in 2012, a full 7.5 percent above the national average. Linking opportunities in Transportation Equipment with raw material production in the Food Manufacturing and Processing target sector could also be a growth opportunity for the region.

Exports

The Rochester MSA's Transportation Equipment sector exported \$833 million worth of finished and intermediate goods in 2012, comprising 6.6 percent of total regional exports. In comparison, Minnesota's Transportation Equipment sector represented just 5.6 percent of total state exports in 2012. Rochester Area Transportation Equipment subsectors with the highest export activity included:

- Agriculture, Construction, and Mining Machinery Manufacturing (\$288 million)
- Motor Vehicle Parts Manufacturing (\$194 million)
- Machine Shops, Turned Product, and Screw, Nut, and Bolt Manufacturing (\$54 million)
- Motor Vehicle and Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers (\$40 million)
- Machinery, Equipment, and Supplies Merchant Wholesalers (\$34 million)

Export opportunities for Transportation Equipment will continue to be robust as demand in developing countries such as India, China, and Brazil increases with their rates of industrialization and urbanization.

Inter-Industry Linkages

The manufacture of Transportation Equipment components is resource-intensive, requiring a variety of specialized products that meet the manufacturer’s stringent quality guidelines. While the sector’s supply chains are increasingly globalized, parts and intermediate products with low value-to-weight ratios – the monetary value of a product per pound – are likely to be produced locally or domestically. Those with high ratios are candidates for import.

In the Rochester Area, Transportation Equipment companies purchased \$484 million in inputs ranging from raw materials (iron and steel) to plastic and rubber products. Along with these durable goods, sector firms procured services in Corporate Management (\$24.6 million), Couriers and Express Delivery Services (\$7.9), Wholesale Trade Agents (\$7.3), and Temporary Help Services (\$5.7 million). Metro Rochester firms sourced more than 88.0 percent (\$428 million) of raw inputs – goods and services – from international and domestic markets outside of the region. As with the other sectors profiled in this report, good opportunities exist to capture at least a small percentage of that leakage in the Rochester MSA economy.

ECONOMIC IMPACT ANALYSIS: TRANSPORTATION EQUIPMENT PURCHASING TOP SUBSECTORS WITH HIGHEST IMPORT POTENTIAL

NAICS Code	Industry	Leakage	Sales Recapture	Total Jobs	Total Earnings	Average Earnings Per Job
Total		\$57,207,514	\$5,720,751	55	\$2,959,951	\$53,572
551114	Corporate, Subsidiary, and Regional Managing Offices	\$23,408,379	\$2,340,838	31	\$1,626,532	\$52,963
333618	Other Engine Equipment Manufacturing	\$12,477,132	\$1,247,713	4	\$247,001	\$65,316
332710	Machine Shops	\$9,919,828	\$991,983	8	\$469,176	\$55,757
492110	Couriers and Express Delivery Services	\$4,588,905	\$458,890	6	\$262,100	\$43,036
425120	Wholesale Trade Agents and Brokers	\$6,813,270	\$681,327	6	\$355,142	\$56,782

Source: EMSI

Forging relationships between raw material producers and Transportation Equipment manufacturers/assemblers within the Rochester region is particularly challenging. Many Transportation Equipment supplier facilities like steel mills and petroleum refineries require significant initial capital outlays. Indeed, steel and fuel were two of the largest imported materials into metro Rochester’s Transportation Equipment sector. Other inputs, however, have more potential to capture sales leakage. These include intermediate goods and services with lower barriers-to-entry than raw material production. For example, Rochester Area Transportation Equipment companies procured more than 95 percent (\$23.4 million) of their Corporate, Subsidiary, and Managing Office services from outside the region. These services are generally engaged in providing local manufacturers with organizational and strategic planning as well as serving as a decision making body for the larger organization. Importing just ten percent of this total would create 31 regional jobs paying a total of \$1.6 million in annual wages.

Importing wholesale trade and the express shipping of goods investments is another potential source for job growth. Roughly 75 percent of these purchases by Rochester Area Transportation Equipment firms were made outside the region. Capturing just ten percent of this leakage regionally would not only bring in \$355 thousand in new wages but also potentially provide spillover benefits for other manufacturing subsectors across the Rochester Area economy.

Potential also exists for strengthening metro Rochester’s capacity to supply intermediate goods used in the manufacture of Transportation Equipment. Sectors with high import potential include Other Engine Equipment (\$12 million in leakage) and Machine Shops (\$9 million in leakage). Combined, regional Transportation Equipment firms purchased \$23.7 million in goods from these two sectors, but only spent \$1.3 million (5.7 percent) locally.

WORKFORCE ATTRIBUTES AND OCCUPATIONAL COMPOSITIONS

Manufacturing occupations, by and large, offer high earnings potential for local residents with lower levels of educational attainment. Few of the top-employing occupations within the Transportation Equipment sector required a post-secondary degree. Of Transportation Equipment’s 228 occupational categories, only 72 (31.7 percent) required a post-secondary education. These include welders and mechanics as well as management, sales, and engineering positions. Conversely, 63 percent of Transportation Equipment occupational categories in the Rochester Area required some form of on-the-job training. These include: Heavy and Tractor-Trailer Truck Drivers (833 employees); Machinists (269); Laborers and Freight, Stock and Material Movers (159); Sales Representatives (119); and Light Truck or Delivery Services Drivers (75). Median wages within these occupations ranged from \$11.75 an hour to \$20.59 for those positions requiring more advanced training.

OCCUPATION BY EMPLOYMENT: TOP 10 OCCUPATIONAL CATEGORIES

SOC	Occupation	Sector Employment			Change		Education Level
		2002	2012	% of total sector employment	#	%	
53-3032	Heavy and Tractor-Trailer Truck Drivers	604	833	22.8%	229	37.9%	Short-term OJT
51-4041	Machinists	195	269	7.4%	74	37.9%	Long-term OJT
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	143	159	4.4%	16	11.2%	Short-term OJT
51-4121	Welders, Cutters, Solderers, and Brazers	146	140	3.9%	-6	-4.1%	Postsecondary, ND
41-4012	Sales Representatives/Wholesale and Manufacturing	116	119	3.3%	3	2.6%	Moderate-term OJT
53-3033	Light Truck or Delivery Services Drivers	66	75	2.0%	9	13.6%	Short-term OJT
51-2092	Team Assemblers	174	69	2.0%	-105	-60.3%	Moderate-term OJT
51-2099	Assemblers and Fabricators, All Other	84	71	2.0%	-13	-15.5%	Moderate-term OJT
51-4031	Cutting/Punching/Press Machine, Setters/Operators	134	69	1.9%	-65	-48.5%	Moderate-term OJT
51-1011	First-Line Supervisors of Production/Operating Workers	97	64	1.8%	-33	-34.0%	Related Work Exp.

Source: EMSI

Growth trends among Transportation Equipment occupations in the Rochester Area from 2002 to 2012 were largely mixed. While production-related positions including Team Assemblers, Cutting / Punching / Press Machine, Setters / Operators, and First Line Production Supervisors declined, logistics-focused and machinist occupations were notable growth areas. In addition, despite trends towards part-time and temporary staffing, many Transportation Equipment manufacturing operations pay high wages and offer health benefits and retirement packages.

Workforce Demographics

Manufacturers across the nation are continually faced with workforce sustainability issues, partially a result of recent stigmas against manufacturing-related employment and a secondary education system focused on college preparation. Throughout public input, manufacturers within the Rochester Area voiced concern regarding their ability to attract qualified production talent. Age demographics indicate a potential shortage in certain occupations within the Rochester Area's Transportation Equipment sector, including:

- Heavy and Tractor-Trailer Truck Drivers (294 vacant positions due to retirement)
- Light Truck or Delivery Services Drivers (85)
- Machinists (35)
- Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (48)
- First-Line Supervisors of Production and Operating Workers (33)

National shortages will likely further stress regional labor force shortages over the next 20 years. For example, there are currently 264,594 fewer Heavy and Tractor-Trailer Truck Drivers aged 24 to 44 than aged 45 and over, signaling a huge potential labor shortage. Within Machinist occupations, there are 83,275 fewer workers aged 24 to 44 than pending retirees. Other national occupations likely to be impacted by retirements include: Sales Representatives (104,906), Light Truck or Delivery Services Drivers (73,980) and First-Line Supervisors of Production and Operating Workers (81,702).

COMPETITIVE FACTORS AND REGIONAL ASSETS

Workforce Training Capacity: With current reports from Rochester area manufacturers of labor shortages for production workers and pending deficits in the replacement workforce for retiring employees, increasing the capacity to train local adults for Transportation Equipment occupations will be paramount. Rochester Community and Technical College is the principal local institution charged with preparing workers in the production fields. Related programs at the institution include Welding, Precision Manufacturing Technology, and Engineering. Though institutional budgets are increasingly tight, identifying resources to expand manufacturing-supportive training programs will be critical to ensuring that the capacity exists to meet employer demand. Secondary school training capacity for production skills in Rochester will be enhanced with the opening of the community's new technical high school, C-Tech, a partnership between community stakeholders, employers, and Rochester Public Schools. C-Tech will graduate a steady stream of students with the skill sets necessary to succeed in manufacturing related

professions. Simply offering these programs is a first step in getting students interested in alternative career paths that may not entail a four-year college education.

Utility Costs: Transportation Equipment manufacturers require a steady supply of cheap, reliable power to run their increasingly sophisticated and automated production processes. Industrial utility rates, on average, were higher in the Rochester Area than all the comparison communities profiled in the Community and Programmatic Analysis report. According to the Energy Information Administration (EIA), industrial electricity costs for Rochester Public Utilities totaled 8.21 cents per Kilowatt hour in 2011. Rates have also risen nearly 40 percent over a five-year period (2006 – 2011). Rates were not published by EIA for People's Cooperative Services, which principally serves the region's rural communities.

Business Climate: As was mentioned previously, recent changes to Minnesota's tax code concern many local executives, as does the state's lack of right-to-work status. While a host of available state and local incentives help allay some of these costs, Minnesota must seriously reassess its competitive position for manufacturers or risk losing top local employers and future prospects to competing states. Many employers in the Transportation Equipment sector – especially manufacturers and distributors – require low-cost, large-acreage development sites with good transportation access, connections to utilities, and proximity to buyers and suppliers. While the Rochester Area does not have an abundance of large-scale "shovel-ready" development sites to offer prospects in the Transportation Equipment sector, there are numerous potential parcels across the region that could serve these purposes if investments are made at the state and local level in infrastructure development and site preparation.

STRATEGIC ROLE FOR ECONOMIC DEVELOPMENT

Multiple strategies can be applied to grow the Rochester Area's Transportation Equipment target sector. Among these are:

- Working with Rochester Area companies to assess the dynamics of their supply chains to identify potential opportunities for regional growth
- Advocacy and policy development to ensure that Minnesota's tax climate is as competitive as necessary for Transportation Equipment manufacturers and distributors
- Marketing the Rochester Area's advantages for the Transportation Equipment sector to outside firms and relocation specialists
- Ensuring that the Rochester Area has a competitive array of development sites suited for Transportation Equipment manufacturers and distributors
- Addressing critical workforce development needs among Transportation Equipment firms (especially manufacturers) that economic development practitioners can help mitigate in partnership with education and training providers

Existing business retention and expansion, marketing/attraction, and site development activities will be the purview of RAEDI. The Rochester Area Chamber will lead public policy efforts and support RAEDI with certain existing business activities, especially as they relate to workforce development.

Conclusion

The healthcare economy will always define the Rochester Area and be its largest employment sector. The Economic Growth Plan and this Target Sector Analysis do not seek to alter this future nor promote economic diversification at the expense of healthcare development. Rather, the goal is to leverage healthcare's dominance and the transformative presence of Mayo Clinic to explore opportunities for diversification in other sectors and improve economic outcomes for all Rochester Area counties and communities. Mayo Clinic and its affiliated Mayo Economic Development Authority, through their implementation of Destination Medical Center, will drive the results of targeted strategies in the Advanced Healthcare and Tourism sectors.

However, as is written in the Frequently Asked Questions section of the DMC website, "In order for the DMC vision to become a reality, many players must work together toward this common goal. These critical players include the City of Rochester and Mayo Clinic, but extend to other key community organizations, county and regional leaders, and state leaders as well. Only by working together will we realize the significant benefits offered by the DMC." Therefore, opportunities for partners such as RAEDI, the Rochester Area Chamber, and others to support Mayo in DMC implementation will be beneficial to the initiative's outcomes. This includes the potential extension and connection of DMC to regional assets in Dodge and Wabasha Counties and Olmsted communities outside the City of Rochester.

There are also many target-development opportunities outside the purview of DMC. Growth and attraction of businesses in computer design, food processing, transportation equipment, and related subsectors will require different strategies, different partnerships, different workforce skills, and different approaches to advocacy, business climate, site and building development, infrastructure, and other issues. Greater regional economic diversification will ultimately be to the benefit of the City of Rochester and Mayo Clinic as good jobs in non-healthcare sectors provide opportunities for "trailing" spouses and skilled graduates in non-healthcare fields.

The Target Sector Analysis is a research report, not a strategic document. Detailed strategies to foster the growth of the Rochester Area's target sectors will be included in the region's Economic Growth Plan. When finalized, the Destination Medical Center strategy will supersede the Growth Plan as the blueprint for development of the region's Advanced Healthcare and Tourism sectors. The Implementation Plan, formalized after the Economic Growth Plan has been approved, will operationalize the Growth Plan through the inclusion of prioritized implementation schedules, lists of lead and support implementation partners, identification of resource and personnel needs and potential sources of investment, and launch dates and durations of key actions.