Enhancing the Upper Red River Valley Workforce Ecosystem

This project aims to understand the workforce development and realignment needs in a 14 county region of North Dakota and Minnesota surrounding the Grand Forks Metropolitan area – then to assemble a strategic approach to augment workforce efforts and to bridge any gaps in the region. The study region includes Grand Forks, Trail, Nelson, Walsh, Cavalier, Pembina, and Steele counties in ND and Polk, Marshall, Norman, Pennington, Kittson, Roseau, and Red Lake counties in MN.

After an initial economic and demographic analysis the project team spoke with workforce development practitioners and various employers in the region in a series of group meetings and interviews.

Employers in the region – including those who have hired hundreds of employees recently – indicate an ability to find employees at entry level and middle skill production jobs, and in entry level sales positions. However, many of the same employers indicate an inability to locate quality employees farther up the career ladder – those in management or other middle career occupations with 8 – 15 years experience. Recruiting professionals from outside the region can be problematic.

This expressed need for management in middle to high-level employees is supported by the preceding "Occupations Most in Demand" table. The table lists fastest growing higher pay occupations in the region.

Many find easy access to bachelor's degree level entry employees (such as recent engineering graduates) in job categories where a local four-year program exists.

Other Key Occupational takeaways

- Some employers indicate a lack of qualified Information Technology and specialized business and finance candidates. This is confirmed by regional competency analyses.
- Employers feel that area students at high school and college levels are unaware of local employment opportunities that already exist, and have a poor understanding of the local economy. Perceived lack of careers counseling at the secondary and post-secondary level.
- Need a more coherent and seamless career ladder, especially for non-traditional students
- Employers find "soft skills" and management training useful, especially for employees moving up into management from skilled labor positions.
- "Hidden Job Market" exists for professional positions that could benefit from better exchange of information between employers and career assistance providers.
- Career and workforce development service providers could benefit from more regular exchange of information and more focused coordination.
- Approximately 100 "New American" refugees will be relocated to the Grand Forks Region this year. Relocation service providers indicate the flow is constrained by job placement. More

immigrants could be brought to the area by improving coordination between potential employers and New American placement agents at Lutheran Social Services, but staffing capacity does not currently exist within that organization.

Workforce Knowledge and Skills Key Takeaways:

- The region has a surplus of science knowledge, particularly in biology and chemistry, and to a lesser extent in physics.
- There is a surplus of liberal arts knowledge in the area, likely due to the presence of two four year universities,
- Manufacturing and technical knowledge is comparable to the rest of the nation, however the region is low in computers and electronics and telecommunications knowledge.
- Among general knowledge areas, the region is most significantly lacking in business knowledge. See skills and knowledge maps appearing later in this report.
- Among general skills areas, the region is high in resource management skills and basic skills, but low in system skills and technical skills.

Age Demographics

The chart below shows the age location quotients, the local share in an age group divided by the national share. Largely due to the presence of two four year universities, the age composition of the Grand Forks metropolitan area is dominated by college-age residents in their late teens and early 20s (13.3% locally age 20-24 vs. 7% nationally). However, the chart below shows a clear lack of individuals in the early 30s to early 40s age group, topping out with a 30% lower concentration of residents age 35-39 (5.4% vs 6.6%). Yet the Grand Forks Metropolitan area still holds 9% more residents in the late 20s demographic than the national norm.

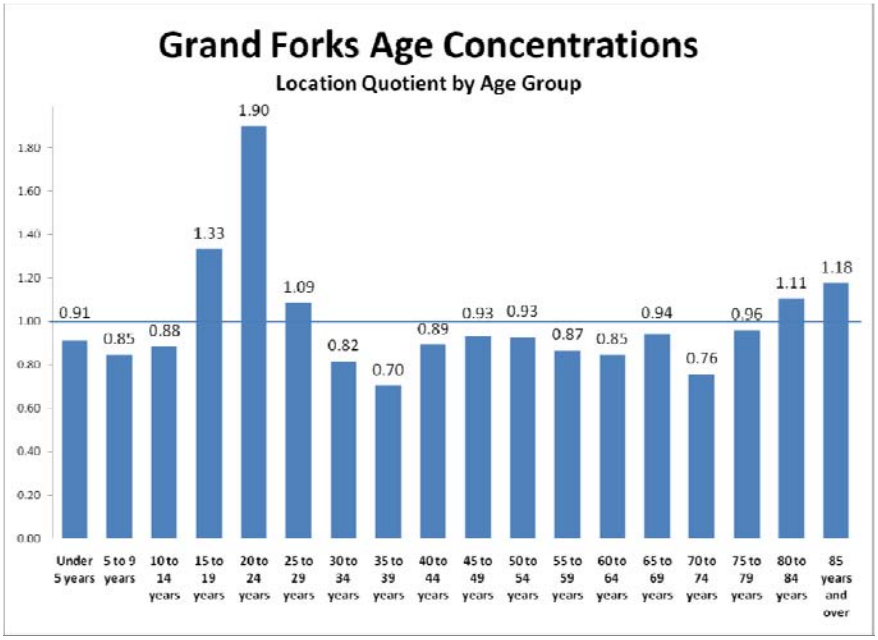
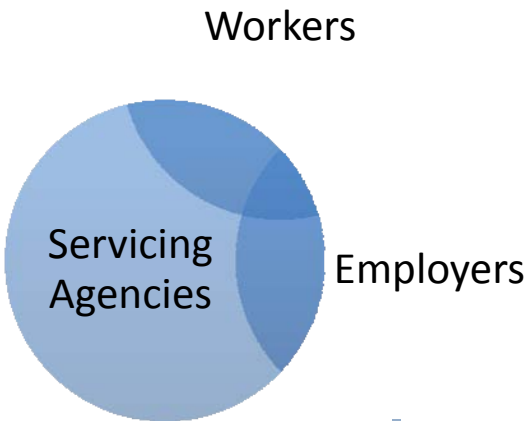


Figure 1: U.S. Census 2005-2007 American Community Survey

This missing age demographic is consistent with employer reports of recruitment problems of mid-career professionals.

A need for coordination

The regional workforce puzzle is comprised of three main stakeholder groups:



Workers:

Incumbent workers and job seekers. Hired by employers and interact directly with service agencies and education/training institutions

Servicing agencies:

This group includes a wide variety of intermediaries interacting with employers and workers: including job service centers; primary, secondary, and post-secondary education intuitions; adult basic education services; university career service agencies; non-profit or privately finances service and training agencies; state and local economic development groups; and many other agencies providing vocational rehab, senior services, welfare to work programs, and more. Some of this group's activities include career counseling, prepare individuals for employment and overcome employment barriers, assist employers in finding qualified applicants, provide skills and other training to new and incumbent workers, and interpret and disseminate regional labor market data.

Employers:

These are firms hiring employees and accessing support services at all employment and skill levels.

While each of the three components of the workforce puzzle benefit from cooperating, ultimately each must act according to its own mission – more robust communication and collaboration will help each reach its respective goals.

The Red River Valley labor region is challenged by competing political jurisdictions, sometimes making it hard to transfer needed resources and programs across state lines.

The upper Red River Valley region could benefit from new, active leadership to take responsibility for building a more robust workforce development network and to coordinate existing and new activities via the network.

Many in the region point to a need for more substantive and more frequent information exchange among participants in the workforce ecosystem:

- Workforce development practitioners would like to meet more regularly
- University and High School students have little understanding of the regional economy and its opportunities

- A “hidden job market” exists – professional jobs materializing organically in companies, but not communicated to job placement agencies
- Employers have nowhere to turn to place professional-level spouses of potential new recruits
- Employers report difficulty reaching experienced professional-level candidates possessing key knowledge sets such as project management, business management, and IT/Software Development
- Refugee employment services lack the administrative capacity to locate employment for New Americans, yet some employers report a lack of supply of entry-level workforce
- Poorly defined career ladders among regional employers and training providers

As one prominent regional workforce development official stated the area is missing key interagency intermediaries, a problem exacerbated by sometimes insular and competing political jurisdictions. Previous coordination has proven unsuccessful, partly because these initiatives were led by one of the primary participants. This undermines the effort in the long run since the leading group must ultimately act according to its own mission, instead of acting and devoting attention to the best interest of the network.

The challenge is to develop social capital among these agencies gain commitment and mobilize towards collective action for common benefit, regional policy alignment, and the leveraging of additional resources.

Moving Towards Regional Workforce Development Collaboration

Beginning in mid-2009 a coalition of workforce developers, educational and training institutions and economic developers began meeting to forge the relationships necessary to enhance collaboration among all parties.

Using more robust and more frequent collaboration and communication, we can improve the efficiency and quality of workforce services delivered to workers and employers.

Benefits to collaboration:

1. Reduce a “disjointed feeling” among workforce development agencies
2. Connect workforce development to economic developers and educators

3. Better leverage ARRA dollars – work to build bridges during a time of increased resources
4. Leverage resources from industry, workforce, education, training and economic development to better prepare the workforce
5. Present a more unified front to employers, possibly modeled after MN DEED Business Services Group's "listen first" model
6. Pool and share information gained direct from employers
7. Increase flow of and sharing of labor market and economic data to better understand the regional economy
8. Produce an ongoing collective assessment of the region, identifying acute regional skills and occupation deficiencies
9. Increase chance of accessing federal resources and other grants – Department of Labor is looking for bi-state collaborations
10. Lubricate direct connections between the two four-year universities in the region, area employers, and the workforce and economic development systems.
11. Promote a common agenda and strategy for regional workforce development without regard for political boundaries.

Key activities of the workforce development system

1. Expose secondary youth to occupations, meet with educational service cooperatives
2. Incumbent worker training and potential worker education
3. Skill up underrepresented workers
4. Accommodate aging workforce
5. Legal immigration
6. Expand, attract, and retain talent
7. Identify occupations in demand and skills the region requires to compete

Overall, the workforce development system must increase the quality and quantity of the workforce by responding to the regional targeted high wage or high demand employment needs, increasing short term (2 years or less) educational and training opportunities, and ensuring these offerings are affordable and accessible to the current workforce, producing potential employees needed by regional employers.

A Foundation for Action

Based upon a series of group meetings, interviews with area employers and discussions with trainers and educators, the workforce development coalition identified areas of attention for the Upper Red River Valley.

Expose secondary youth to occupations

Challenges:	Solutions:
Limited career counseling in high schools	Reach high school counselors with **local** occupations in demand information Create ways to connect with students directly: • Online networking • Information transfer outside of school umbrella – events? Offer "on call" connection point into workforce development agencies for interested counselors and students – develop referral network. ND and MN one-stop workforce shops do not currently have the staffing capacity to meet this need. Centralize point of contact to set up student – employer matches for internships and job shadowing
Federal legislation is a barrier to direct school participation (No Child Left Behind)	Create career counseling opportunities outside of school system umbrella
Parents and family members providing students with inaccurate information	Create a communications initiative targeting parents

Skill up underrepresented workers

Challenges:	Solutions:
Adult learners do not always understand opportunities, students are not being reached or retained **ABE system struggles to develop better relationships with employment agencies and colleges to be sure there is a job or education program for graduating adult learners** **Some adult learners to do not complete programs to the extent required for employment**	Improve referral network – new FastTrack grant coordinator working on referral directory. New transitions coordinator for NW region. Improve communication between ABE and area employer/employment agencies and post-secondary institutions Continue policy language changes to allow adults to more easily access employment related training service – share good policy within region.
Programs may not be affordable to some potential students	Access state and federal funding for scholarship programs

	Maintain interagency collaboration for state-state and region-region funding applications

Incumbent worker training and potential worker education

Challenges:	Solutions:
Region is home to a number of dominant world class industries	Maintain open communication and labor market information to adapt curricula to the evolving needs of key industries Implement education for skilled employees
Economy (and funding sources) shifting towards "green " occupations and industries	Monitor newly evolving occupational definitions and associated job knowledge, skills, abilities profiles Collect and disseminate "green economy" data among workforce development agencies
States cannot necessarily share learners	Maintain interagency collaboration for state-state and region-region funding applications Lobby state governments to open up to needs of the local economy – include direct input from employers
Disjointed career ladders for some critical occupations	Improve student–educator and educator–educator communication Share economic and labor market data with regional educators Develop bridge curricula – Pre-certification training for in-demand sectors, such as Pre-CNA and Pre-Welding curricula in place in MN ABE system

Attract and retain talent

Challenges:	Solutions:
Region is short in the 28-40 year old age group, impacts school enrollments	Implement communications program to connect directly with workers considering relocation via direct contact or Leverage family connections – communicate job opportunities direct to local residents Develop relocation or recruiting "how to" information for small employers

	Provide "go-to" point for employers looking to place spouses of new recruits
High concentration of 18-24 year olds just "passing through" the region	Create more robust local internship programs to create direct employer-student connections

Legal immigration

Challenges:	Solutions:
Grand Forks Lutheran Social Services office constrained by employer-worker match	Collect and supply employer needs directly to LSS Facilitate employer/LSS meetings and introductions
Skilled immigration constrained by federal policy	Create briefings and open communication lines to congressional representatives and staffs
Limited access to immigration sources outside of metropolitan areas	Create a connection point to immigrants arriving at regional higher education institutions Use Adult Basic Education infrastructure (such as ESL) as a connection point for newly arriving immigrants

General Challenges

Challenges:	Solutions:
Employers unwilling or unable to participate directly in workforce and economic development initiatives. Employers looking for simplification and direct benefit, "bring them to me job ready."	Streamline employer interface with focused resource and information brokers Once employer information is obtained, improve information sharing among workforce and economic development agencies
Programs suffer from intermittent shortages of funds	Increase state-state and region-region applications, especially to Department of Labor

New Actions

Action1: continue workforce development collaborative

The Upper Red River Valley Regional Economy and labor shed spans many counties and crosses two states. The Workforce Development Collaborative helps bridge the state boundary and offers a regular vehicle to share information, compare initiatives, and build multi-county and multi-state projects. Participants have bought into the need for and the benefits coming from a group partnership; it must continue.

Within the collaborative, name an expressed Workforce Development Advisory Committee comprised of representatives from workforce and economic development agencies in Minnesota and North Dakota. This Advisory Committee is a concrete entity to act on behalf of the collaborative in any future projects or proposals.

Action2: hire a coalition coordinator housed within the Grand Forks Region Economic Development Corporation

For any regional network to be successful in the long run, it must have the appropriate administrative capacity in place to move forward. Someone must go to work every day with the express purpose of moving the initiative forward and coordinating activities of the participants.

The Grand Forks Region Economic Development Corporation sits with the geographic and economic hub of the region and the GFREDC has shown the willingness and the aptitude to lead this effort. Without an explicit "workforce development" function, the GFREDC's primary goal is to increase overall regional prosperity.

Coalition Coordinator Functions:

Coordinator	Broker	Facilitator
•Coordinate workforce coalition activities •Maintain dialog with workforce and economic orgs, and education institututions •Convene workforce coalition meetings •Coordinate and implement any specific activities of workforce coalition •Adminsiter funding awards for jointly implemented projects	•Maintain open dialog with private business to serve as "business node" in workforce coalition •Accumulate and share workforce intelligence information •Share hard and soft data about workforce trends amonst coalition and educators	•Close the triangle among developers, educators, business and other agencies when necessary •Serve as a "face of the workforce system" to secondary educators, career counselors, and other educators •Streamline business connections for internship placement

Action3: Pursue funding for an Incumbent Workforce Training FUnd

Create a workforce training fund to finance customized training program for specific industries or companies to upgrade the skills of the workforce present in the region. Traditional funding sources often do not translate well across state lines, and offer limited utility because of a lack of flexibility.

- Targeted to businesses
- Dispersed by coalition advisory committee
- Flexibility in the application process
- Flexibility toward rural communities and small employers recognizing that every job created is important, especially in our small rural communities
- Set percentage to be reserved for communities fewer than 6,000? Less than 10 people?
- Emphasis on talent development. Emphasis on entrepreneurship. Emphasis on employment growth at above average wages.
- Key industries; manufacturing, healthcare, service related, agriculture, tourism, information technology, energy, UAS, Transportation. New ideas, new entrepreneurial talent.
- Much of training delivered by Workforce Coalition partners
- Each project could include skill gap assessments and customized training design where appropriate, dictated by advisory committee
- Target Funding level: up to $500,000

Action4: Create an individual training/scholarship fund

Targeted to under- employed, working poor and those in great need of skill-upgrades to compete for new positions that require new skills. There is a significant population of workers unable to qualify for Workforce Investment Act funding but are unable to finance education themselves or to reduce work hours to improve their skills.

- Use WorkKeys testing to qualify, targeted to region's workforce needs
- Up to $10,000 per individual
- Program will include flexibility to allow individuals to continue working while enrolled in the program with targeted completion times 3 years out
- Generous income limits to be incorporated as goal is more towards motivated and successful completers that the region's employers need rather than simply providing training for that are working but struggling to make ends meet
- Leverage WIA dollars where appropriate
- We will train folks with regional ties to regional opportunities. These are the folks most likely to stay in the area.
- Target Funding level: up to $500,000

Action5: create a region-wide career expo for secondary level youth

Young people in the region tend to be unaware of exciting but uncommon or under the radar career opportunities yet few avenues are available to do so. Many professionals in all industries mentioned a perceived need for more career counseling for the region's students.

- annual one day Career Event
- Seeks to educate and inform area youth of in-demand career opportunities in our region, and to fill worker pipelines to ensure business viability and growth in our region
- could be a series of regional events
- **Use of funds:**
    - Bus all students to the event
    - Free Meal
    - Speakers
    - Educational Institutions
    - Parent Program
    - Hands-on Demos
    - Large employer presence
    - Target short-term training opportunities
- Budget: $100,000

Action6: Focus resources on planning to increase high school graduation and post-secondary continuation rates

Graduation rates at some high schools in the region hover below 80%, and many students are not continuing to college or do not have a strong sense of career path upon leaving high school. Many tools exist to improve student self-awareness and confidence, and applied appropriately, have been shown to increase high school and college success for students. Form a committee to obtain planning funds to explore this issue.

Target issues for a planning project:

- Source funding to provide training and support for high school personnel in use of tools, interpretation of results, and integration of resources into the curriculum
- may include software and support that has demonstrated a track record of positively influencing student choices about career and educational planning -- example: Naviance
- services delivered by vendors
- enable school districts to implement specific software to promote career and life planning

- provide for accompanying training for counselors and faculty and the addition of counseling staff for high schools
- Students who have received such training: are retained as student at higher rates, show increased hope, optimism, self-acceptance, goal-directedness, and self-confidence, and realism in expectation, have elevated levels of academic engagement, have higher levels of perceived academic control
- Primary goal is to increase graduation and success rates of area students
- provide training for counselors and faculty in strengths-based interventions
- Northland Community and Technical College has developed expertise in training in the Gallup organization's *Strengths-based Development©* tools.
- directly augments stretched HS counseling resources
- Planning grant target: $50,000

Action7: create a recruitment and reconnection initiative for the region's expatriates

With two four-year and two technical school locations, the region plays host to many more student age residents than its communities can accommodate over the long term. This along with general net migration loss in some smaller towns has created a substantial population of individuals and families nation-wide with some personal connection to the Upper Red River Valley.

Demographic analysis shows a low relative population of 30-45 year olds and regional employers express difficulties recruiting mid-career professionals.

1. Create and communicate a single contact point for individuals thinking about moving to the region
2. Build and maintain a direct contact list of interested individuals and send them regular information
3. Maintain an online social network using an existing or newly created networking platform
4. Promote and maintain a search engine optimized online source of timely and authentic information about the region

Regional Economic Analysis

Sitting in 2009 at just over 130,000 jobs, the fourteen county region added more than 5,400 net new jobs since 2002. This includes 1,900 jobs lost during the recession in 2008-2009.

The economy has diversified greatly since the early 1990s when the region was dominated by institutional employment in Military, Government, and Education and Health Sectors. Recent growth in manufacturing and professional and business services has led to a balancing of the economy, though professional and business services is still 50% under concentrated compared to the national norm.

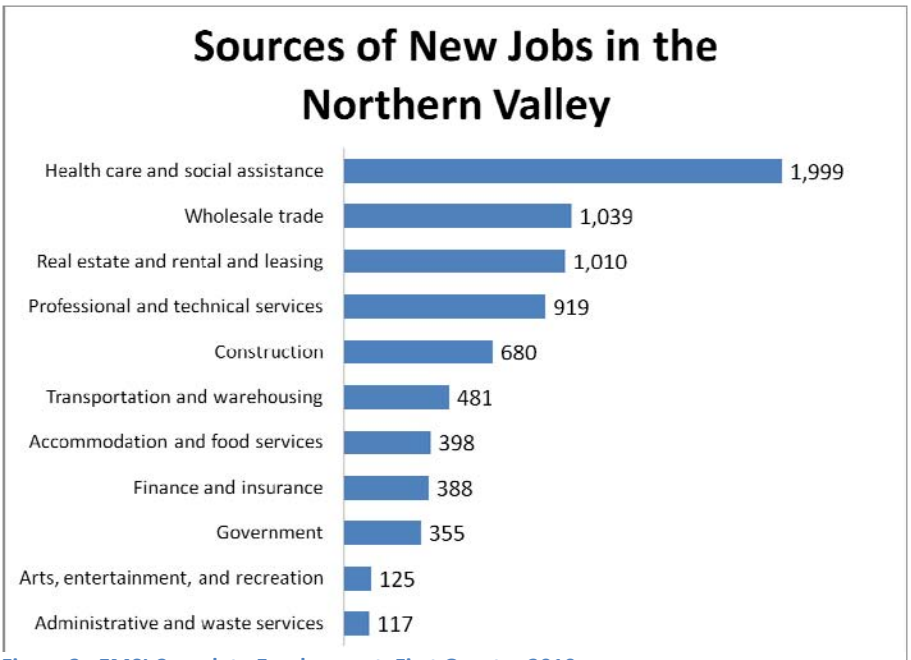


Figure 2 : EMSI Complete Employment, First Quarter 2010

A crude growth measure does not always tell the whole story, however. While health care sectors lead in total jobs gained since 2002, decline in local concentration and a negative shift share analysis result (-1,100) are both indications that the region trailed the nation in health care industry employment growth since 2002. Considering the senior-heavy age distribution in the region, this could be a sign of more severe health care worker shortages in the future.

Similarly, while the manufacturing sector lost more than 900 jobs, this sector increased its concentration and produced a highly posititve shift share result (+1,555), indicating that this region's manufacturers have siginificantly out performed the rest of the nation in terms of employment. Coupled with the Grand Forks Metropolitan area's consistent placement in the top 5 lowest unemployment rates of all regions through the recession, performance in these staple sectors fortells continued continued workforce shortages into the forseeable future.

Looking at industry clusters, the region's competitive advantage lies in Energy, Information Technology and Telecommunications, machinery manufacturing clusters. Collectively these clusters each added roughly more than 4,800 jobs to the region due to local competitive advantage since 2002. Expected change measures number of jobs gained or lost if this region had performed exactly like the industries in the rest of the nation. Competitive effect shows the number of jobs attributable to local factors. A

positive competitive effect is an indication the region outperformed the nation in that cluster. Including farmers and ranchers, even the agribusiness cluster showed positive performance.

The cluster map shows current cluster intensities by concentration, or the number of jobs for that cluster in Manitowoc County compared to a "typical" economy. The cluster map shows the current concentration in the county in 2009 and the change in concentration from 2002-2009 by measuring Location Quotient (LQ). Clusters with a high LQ tend to be importing a great deal of economic output from outside the region. Clusters with an increasing LQ tend to be outperforming their national counterparts either by growing faster than the rest of the nation, or shrinking slower than the rest of the nation.

The cluster map (Figure 2) for the upper red river valley region identifies a number of high performing and emerging clusters. Notable here is the Transportation Equipment Sector (includes snowmobile manufacturing) maintaining its significant role in the regional economy and the emergence of Information Technology, Advanced Materials, Fabricated Metal Products, and Chemical Products. These

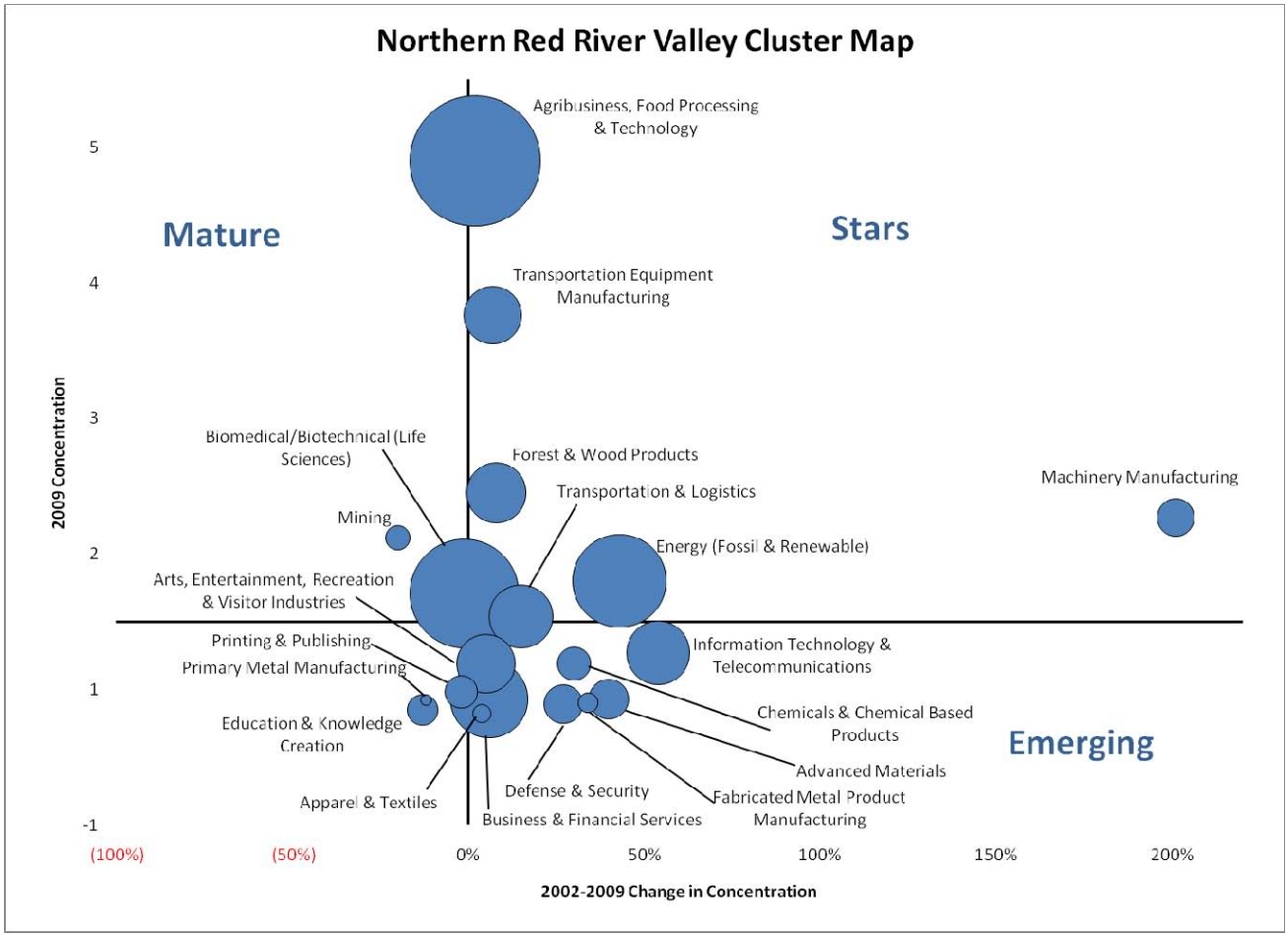


Figure 3 : EMSI Complete Employment, First Quarter 2010

clusters are considered “emerging” because each has a historically low concentration in the region, yet this concentration has been increasing since 2002.

Growth in lagging sectors (especially manufacturing and IT) indicates a strong trend towards diversification in the regional economy – away from historically “institutional” sectors. However, the metropolitan area’s role as a health care center and its university and other government oriented jobs have somewhat insulated it from the national recession.

Table 1: Most Competitive Clusters, 2002-2009

Cluster Name	Job Change	Expected Change	Competitive Effect
Energy (Fossil & Renewable)	2,949	407	2,543
Information Technology & Telecommunications	1,240	(143)	1,382
Machinery Manufacturing	860	(83)	944
Transportation & Logistics	659	177	482
Advanced Materials	256	(184)	440
Defense & Security	453	137	317
Business & Financial Services	1,138	881	257
Chemicals & Chemical Based Products	62	(182)	243
Forest & Wood Products	(619)	(843)	223
Transportation Equipment Manufacturing	(927)	(1,083)	156
Agribusiness, Food Processing & Technology	(905)	(1,010)	105
Arts, Entertainment, Recreation & Visitor Industries	305	201	104
Fabricated Metal Product Manufacturing	51	(48)	99

A shift share analysis breaks down cluster employment changes by attributing some job growth to national shifts in a sector or the entire

Figure 4 : EMSI Complete Employment, 1st Quarter 2010

economy (such as mechanization reducing the need for agricultural workers) and attributes the remainder to local factors, such as a local competitive advantage in an industry. The "competitive effect" estimates job growth due to these local factors and provides a comparison to a cluster's performance in this region compared to other regions.

The most competitive clusters (Table 1) in the Upper Red River Valley include Energy, Information Technology, Machinery Manufacturing, Transportation and Logistics, Advanced Materials. Many of these same clusters appear as "stars" or "emerging" on the cluster targeting map.

Conclusions from the shift share chart analysis (Figure 3):

- Most bubbles appear towards the right hand side of the page, indicating that most clusters in this region are outperforming their national counterparts.
- Growth in Biomedical/Biotechnical cluster (including health care) is due mostly to national growth factors. While this region trails the nation for job growth in this cluster, this is likely due to the cluster's already strong concentration in the region, there are already 20% more jobs in this cluster in the region than the national norm level.
- Three high employment, highly concentrated clusters are feeling a strong national pull of job decline: Forest and wood products (3700 jobs, includes windows and doors), Transportation equipment (includes personal recreational vehicles), and agribusiness. These important clusters must be assessed for their future growth prospects, for new industries developing under their umbrella or supplying the cluster, and for workers in declining occupations that must be re-trained for occupations in other growing sectors.

Economic Base Analysis

The economic base analysis outlines which industries are bringing new money into the region, as opposed to just re-circulating dollars already present in the economy. The sectors listed below are economic base sectors, not necessarily the same industry groupings discussed elsewhere in the report. These are groupings of broadly related industries or other broad activities that bring money into a region such as outside income or visitors.

The sectors below include the number of jobs in that industry category, along with any jobs supported by that sector in other industries. For instance, while the manufacturing employs 12,200 people in the region, the new income – primary sector activity – generated by the sector supports a total of 23,390 jobs including locally-oriented industries such as restaurants, retail, and health care.

Base Analysis

Sector	Jobs	Earnings(K)	Jobs %	Earnings %	EPW(K)
Government	32,386	$1,422,868	25%	28%	$44
Manufacturing	23,390	$1,013,622	18%	20%	$43
Agriculture	16,687	$635,760	13%	13%	$38
Services	14,929	$460,478	11%	9%	$31
Residents` Outside Income	14,233	$412,131	11%	8%	$29
All Other	11,946	$525,378	9%	10%	$44
Visitors	6,077	$136,120	5%	3%	$22
Finance	5,212	$185,053	4%	4%	$36
Exogenous Investment	3,534	$133,643	3%	3%	$38
Construction	1,748	$82,862	1%	2%	$47
Communications	514	$16,983	0%	0%	$33
Mining	257	$9,587	0%	0%	$37

Government brings in the most "new money" into the region, partly due to the existence of two four-year universities. Manufacturing accounts for 18% of jobs and 20% of earnings, followed by agriculture and services sectors.

Outside income accounts for 11% of jobs and 8% of earnings. Residents' outside income includes income from various sources outside the region, such as residents commuting to jobs outside the region, capital or property income, or transfer payments. This income is then spent in the local economy.

Sectors that support a higher percentage of earnings than jobs, such as manufacturing, tend to be higher-value sectors that support higher paying jobs.

Manufacturing base

Four critical manufacturing sub-sectors drive the majority of activity in manufacturing: sugar beet manufacturing, other transportation equipment (recreational and all-terrain vehicles, wood windows and doors, and turbine equipment (wind power blade manufacturing). If something were to eliminate just these four critical manufacturing sectors, it would wipe out 18% of all jobs and 20% of earnings in the region.

Sector	Jobs	Earnings (K)	Jobs %	Earnings %	EPW (K)
All Other Manufacturing	6,019	$247,587	5%	5%	$41
Beet Sugar Manufacturing	5,303	$230,298	4%	5%	$43
Other Transportation Equip Manufacturing (Recreational Vehicles)	5,094	$232,081	4%	5%	$46
Wood Window and Door Manufacturing	5,061	$212,305	4%	4%	$42
Turbine and Turbine Generator Set Units Equipment Manufacturing	1,912	$91,351	1%	2%	$48
Total Manufacturing	23,389	1,013,622	18%	20%	$43

Industry Clusters in the Region

The Upper Red River valley region is home to a number of highly concentrated industry clusters, led by agribusiness and food processing, transportation equipment manufacturing, machinery manufacturing, and forest and wood products, all more than twice (and some three or four times) as concentrated in this region as the rest of the nation.

The fastest growing clusters include:

- Energy, 3,040 new jobs (containing the fast growing turbine and generator set units and electronic parts wholesaling industries,
- Information Technology and Telecommunications, 1,297 new jobs
- Biomedical/Biotechnical (Life Sciences and Health Care), 1,266 new jobs
- Business and financial services, 1,141 new jobs.

Smaller but rapidly emerging clusters include machinery manufacturing, chemicals and chemical products, fabricated metal products, and advanced materials. Many of these clusters showed modest growth during a period of national decline, indicating a possible competitive advantage for these clusters in the valley.

The region is a manufacturing powerhouse, with a total manufacturing industry concentration 30% higher than the rest of the nation. The region has held its total manufacturing employment steady through the recession, a time of great decline in manufacturing jobs in the U.S. This is evidence of the region's manufacturing competitiveness, and it provides an opportunity to retrain workers in declining industries into new jobs.

Summary of Clusters in the Region

Cluster Name	2002 Jobs	2010 Jobs	Change	% Change	2002 LQ	2010 LQ	Percent Change LQ
Agribusiness, Food Processing & Technology	18,455	17,368	(1,087)	(6%)	4.38	4.45	2%
Transportation Equipment Manufacturing	4,277	3,413	(864)	(20%)	3.05	3.22	5%
Machinery Manufacturing	556	1,646	1,090	196%	0.58	2.04	253%
Forest & Wood Products	4,339	4,041	(298)	(7%)	1.74	2.01	16%
Mining	746	589	(157)	(21%)	2.02	1.51	(25%)
Energy (Fossil & Renewable)	5,703	8,743	3,040	53%	0.95	1.39	47%
Biomedical/Biotechnical (Life Sciences)	10,468	11,734	1,266	12%	1.26	1.23	(2%)
Transportation & Logistics	3,450	4,093	643	19%	0.91	1.04	14%
Information Technology & Telecommunications	2,556	3,853	1,297	51%	0.52	0.86	65%
Chemicals & Chemical Based Products	1,075	1,157	82	8%	0.54	0.72	33%
Arts, Entertainment, Recreation & Visitor Industries	3,245	3,547	302	9%	0.66	0.69	4%
Primary Metal Manufacturing	181	138	(43)	(24%)	0.48	0.49	3%
Printing & Publishing	1,182	1,068	(114)	(10%)	0.51	0.48	(5%)
Fabricated Metal Product Manufacturing	358	442	84	23%	0.30	0.44	45%
Business & Financial Services	4,979	6,120	1,141	23%	0.41	0.43	5%
Advanced Materials	1,138	1,228	90	8%	0.28	0.37	32%
Education & Knowledge Creation	959	948	(11)	(1%)	0.40	0.34	(14%)
Defense & Security	940	1,158	218	23%	0.29	0.33	12%
Apparel & Textiles	410	322	(88)	(21%)	0.30	0.31	5%
Electrical Equipment, Appliance & Component Manufacturing	45	38	(7)	(16%)	0.12	0.13	11%
Glass & Ceramics	43	14	(29)	(67%)	0.15	0.07	(54%)
Computer & Electronic Product Manufacturing	143	52	(91)	(64%)	0.12	0.06	(51%)

Agribusiness, Food Processing & Technology

Agribusiness is the largest cluster in the 14-county region, with more than 17,000 jobs in 2010. Even though the cluster lost 1,000 jobs in the past eight years, it remains a strong part of the economy and the region's most concentrated cluster. As the population in the U.S. and world is projected to increase over the next 40 years, products produced by the agriculture and food manufacturing industries will still provide a valuable source of new income for the region.

Cluster Summary, 2002-2010

2002 Industry Jobs	18,455
2010 Industry Jobs	17,368
Total Change	-1,087
Total % Change	-6%
Current Average Earnings per Worker	$45,057
2002 Location Quotient	4.38
2010 Location Quotient	4.45
Shift Share: Regional Competitiveness Effect	384
Shift Share: Industrial Mix Effect	-2,579
Shift Share: National Effect	1,092

Much of the job decline in the cluster is in crop and animal production, including individual producers and small farms. However, the region is seeing growth in individual value-added agriculture sectors, including the critical beet sugar manufacturing. At the same time, agriculture wholesaling industries are remaining strong.

Key Cluster Industries	2002 Jobs	2010 Jobs	Job Change	Current EPW	Estab.
Crop and animal production	12,433	11,267	(1,166)	$42,372	329
Beet Sugar Manufacturing	890	960	70	$74,180	4
Grain and Field Bean Merchant Wholesalers	747	847	100	$57,553	127
Farm & Garden Machinery & Equipment Merchant Wholesalers	654	731	77	$56,720	56
Farm Supplies Merchant Wholesalers	672	554	(118)	$49,914	80
Soil Preparation, Planting, and Cultivating	391	445	54	$36,240	35
Postharvest Crop Activities (except Cotton Ginning)	398	436	38	$38,223	33
Farm Labor Contractors and Crew Leaders	378	374	(4)	$20,588	0
Frozen Fruit, Juice, and Vegetable Manufacturing	407	313	(94)	$32,771	1
Farm Machinery and Equipment Manufacturing	238	293	55	$49,146	15
Other Farm Product Raw Material Merchant Wholesalers	195	187	(8)	$58,709	5
Dried and Dehydrated Food Manufacturing	133	127	(6)	$59,069	2
All Other Miscellaneous Food Manufacturing	36	107	71	$54,135	2
Dry Pasta Manufacturing	39	106	67	$40,534	3
Commercial Bakeries	47	84	37	$26,063	3
Poultry Processing	<10	79	79	--	1
Crop Harvesting, Primarily by Machine	58	64	6	$20,177	6
Other Animal Food Manufacturing	116	62	(54)	$41,509	5
Pesticide and Other Agricultural Chemical Manufacturing	98	58	(40)	$60,020	2
Farm Management Services	34	50	16	$23,591	3
Spice and Extract Manufacturing	41	41	0	$58,139	1
Retail Bakeries	34	32	(2)	$15,551	6
Animal (except Poultry) Slaughtering	106	27	(79)	$34,545	3
Wineries	<10	23	23	--	1
Roasted Nuts and Peanut Butter Manufacturing	31	21	(10)	$31,410	1
Perishable Prepared Food Manufacturing	<10	13	13	--	1

However, as agriculture and manufacturing productivity increases, it's likely that these agriculture industries will require fewer workers in the future. Occupation projections for the next five years indicate a number of declining occupations that, with the correct training, could provide needed workers for other industries in the regional economy, including truck drivers, business services workers and managers, truck drivers, and general manufacturing occupations.

Cluster Labor Force Projections

Declining Occupations	2015 Jobs	2010-2015 Change	% Change
Farmers and ranchers	7,040	(242)	(3%)
Miscellaneous agricultural workers	1,719	(106)	(6%)
Farm, ranch, and other agricultural managers	1,917	(68)	(3%)
Laborers and freight, stock, and material movers, hand	274	(27)	(9%)

Declining Occupations	2015 Jobs	2010-2015 Change	% Change
Truck drivers, heavy and tractor-trailer	233	(14)	(6%)
Bookkeeping, accounting, and auditing clerks	296	(13)	(4%)
Sales representatives, wholesale and manufacturing, except technical and scientific products	214	(13)	(6%)
Conveyor operators and tenders	185	(11)	(6%)
Farm equipment mechanics	170	(8)	(4%)
General and operations managers	75	(7)	(9%)
Packaging and filling machine operators and tenders	156	(5)	(3%)
Office clerks, general	127	(5)	(4%)
Secretaries, except legal, medical, and executive	58	(5)	(8%)
Production workers, all other	114	(4)	(3%)
Parts salespersons	113	(4)	(3%)
Truck drivers, light or delivery services	79	(4)	(5%)

Growing Occupations	2010 Jobs	2010-2015 Change	% Change
Food batchmakers	203	17	8%
Managers, all other	99	10	10%
Animal trainers	219	9	4%
Nonfarm animal caretakers	166	9	5%
Bakers	55	9	16%
Industrial machinery mechanics	87	7	8%
Welders, cutters, solderers, and brazers	80	6	8%
Team assemblers	114	5	4%
Retail salespersons	93	3	3%
Food and tobacco roasting, baking, and drying machine operators and tenders	45	3	7%
First-line supervisors/managers of production and operating workers	98	2	2%

Transportation Equipment Manufacturing

The transportation equipment manufacturing cluster is a major employer in the region. While the cluster has lost more than 800 jobs in the past 8 years, much of the decline occurred during the 2008-2009 period of the Great Recession. The cluster in this region consists mostly of the "other transportation equipment" sector, mostly manufacturers of recreational and all terrain vehicles. While this sector and the heavy truck manufacturing sector – both high value sectors – have seen some recent employment decline, other small manufacturing sectors higher in the supply chain show some growth. The clusters increasing location quotient and slightly negative regional competitiveness effect value for 2002-2010 indicate the cluster is remaining competitive compared to the same cluster in other regions.

Cluster Summary, 2002-2010

2002 Industry Jobs	4,277
2010 Industry Jobs	3,413
Total Change	-864
Total % Change	-20%
Current Average Earnings per Worker	$54,964
2002 Location Quotient	3.05
2010 Location Quotient	3.22
Shift Share: Regional Competitiveness Effect	-310
Shift Share: Industrial Mix Effect	-807
Shift Share: National Effect	253

Key Cluster Industries	2002 Jobs	2010 Jobs	Job Change	Current EPW	2009 Establ.
All Other Transportation Equipment Manufacturing	3,087	2,434	(653)	$58,086	17
Heavy Duty Truck Manufacturing	886	433	(453)	$51,080	3
Other Aircraft Parts and Auxiliary Equipment Manufacturing	245	189	(56)	$49,153	1
Gasoline Engine and Engine Parts Manufacturing	<10	102	102	--	1
Motor Vehicle Seating and Interior Trim Manufacturing	11	88	77	$24,813	1
Travel Trailer and Camper Manufacturing	<10	47	47	--	2
Truck Trailer Manufacturing	<10	42	42	--	3
Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	43	37	(6)	$35,180	1
All Other Motor Vehicle Parts Manufacturing	<10	30	30	--	2
Motor Vehicle Body Manufacturing	0	12	12	$45,376	3

Cluster Labor Force Projections

Declining Occupations	2015 Jobs	Change	% Change
Team assemblers	528	(59)	(10%)
Assemblers and fabricators, all other	324	(47)	(13%)
Welders, cutters, solderers, and brazers	231	(19)	(8%)
Production workers, all other	79	(12)	(13%)
Laborers and freight, stock, and material movers, hand	62	(12)	(16%)
Machinists	133	(11)	(8%)
Painters, transportation equipment	48	(10)	(17%)
First-line supervisors/managers of production and operating workers	98	(8)	(8%)
Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	64	(6)	(9%)
Electricians	22	(6)	(21%)
Inspectors, testers, sorters, samplers, and weighers	69	(5)	(7%)
Grinding, lapping, polishing, & buffing machine tool setters, operators, & tenders, metal and plastic	54	(5)	(8%)
Tool and die makers	40	(5)	(11%)
Industrial engineers	61	(4)	(6%)
Metal workers and plastic workers, all other	20	(4)	(17%)

Growing Occupations	2015 Jobs	Change	% Change
Computer-controlled machine tool operators, metal and plastic	135	4	3%
Aircraft structure, surfaces, rigging, and systems assemblers	18	3	20%
Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic	27	0	0%
Purchasing agents, except wholesale, retail, and farm products	26	0	0%
Engineering managers	15	0	0%
Customer service representatives	14	0	0%
Industrial engineering technicians	50	(1)	(2%)
Industrial machinery mechanics	36	(1)	(3%)
Coating, painting, and spraying machine setters, operators, and tenders	36	(1)	(3%)
Sales representatives, wholesale and manufacturing, except technical and scientific products	23	(1)	(4%)
Structural metal fabricators and fitters	23	(1)	(4%)
Sheet metal workers	22	(1)	(4%)
Production, planning, and expediting clerks	20	(1)	(5%)
Installation, maintenance, and repair workers, all other	17	(1)	(6%)
Welding, soldering, and brazing machine setters, operators, and tenders	17	(1)	(6%)
Helpers--Production workers	16	(1)	(6%)
Executive secretaries and administrative assistants	15	(1)	(6%)
Commercial and industrial designers	12	(1)	(8%)

Cluster Gap Analysis

The gap analysis uses input/output modeling to compare the typical purchasing requirements of the other transportation equipment manufacturing cluster with what is currently offered in the region to identify potential sources of economic leakage. Some of these industries could be good sources of new business in the region to fit with the local cluster, while others are unrealistic.

Sector	Total Requirements (K)	% Satisfied in Region	Potential Leakage (K)
Other Engine Equipment Manufacturing	$42,710	0%	$42,710
All Other Transportation Equipment Manufacturing	$42,272	95%	$2,114
Iron and Steel Mills	$37,968	0%	$37,968
All Other Miscellaneous Fabricated Metal Product Manufacturing	$32,780	10%	$29,502
Machine Shops	$32,382	27%	$23,639
Paint and Coating Manufacturing	$29,883	0%	$29,883
Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	$22,183	33%	$14,863
Rubber Product Manufacturing for Mechanical Use	$20,014	0%	$20,014
Corporate, Subsidiary, and Regional Managing Offices	$19,470	8%	$17,912
All Other Rubber Product Manufacturing	$16,776	4%	$16,105
Wholesale Trade Agents and Brokers	$16,087	9%	$14,639
All Other Motor Vehicle Parts Manufacturing	$14,930	17%	$12,392
Plastics Bag and Pouch Manufacturing	$12,034	8%	$11,071
Motor Vehicle Transmission and Power Train Parts Manufacturing	$11,763	0%	$11,763
Motor Vehicle Metal Stamping	$10,724	0%	$10,724
Iron and Steel Forging	$10,127	0%	$10,127
Electroplating, Plating, Polishing, Anodizing, and Coloring	$8,244	19%	$6,678
Iron Foundries	$7,876	0%	$7,876
Enameled Iron and Metal Sanitary Ware Manufacturing	$7,641	0%	$7,641
Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	$7,595	51%	$3,722
Gasoline Engine and Engine Parts Manufacturing	$7,489	88%	$899
Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	$6,884	1%	$6,815
Metal Coating, Engraving (except Jewelry and Silverware), & Allied Services to Manufacturers	$6,693	1%	$6,626

Machinery Manufacturing

The machinery manufacturing cluster has exploded in the region due to rapid growth in turbine and turbine generator set units manufacturing and heating equipment, along with a steady farm machinery manufacturing sector. At nearly $60,000 in earnings per worker, the cluster provides high value jobs and is now twice as concentrated in the upper Red River Valley Region as the rest of the nation. The cluster is projected to add another 450 jobs over the next five years. The machinery manufacturing cluster is the fastest emerging cluster in the regional economy.

Cluster Summary

2002 Industry Jobs	556
2010 Industry Jobs	1,646
Total Change	1,090
Total % Change	196%
Current Average Earnings per Worker	$59,101
2002 Location Quotient	0.58
2010 Location Quotient	2.04
Shift Share: Regional Competitiveness Effect	1,123
Shift Share: Industrial Mix Effect	-70
Shift Share: National Effect	33

Key Cluster Industries	2002 Jobs	2010 Jobs	2002-2010 Change	Current EPW	2009 Estab.
Turbine and Turbine Generator Set Units Manufacturing	73	853	780	$64,374	1
Heating Equipment (except Warm Air Furnaces) Manufacturing	81	337	256	$60,463	4
Farm Machinery and Equipment Manufacturing	238	293	55	$49,146	15
Construction Machinery Manufacturing	19	54	35	$46,419	1
All Other Miscellaneous General Purpose Machinery Manufacturing	11	51	40	$39,758	5
Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing	10	19	9	$39,306	1
Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	<10	16	16	--	1
Packaging Machinery Manufacturing	18	10	(8)	$57,292	1
Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing	49	0	(49)	$0	0
Other Commercial and Service Industry Machinery Manufacturing	47	<10	--	--	1
Industrial and Commercial Fan and Blower Manufacturing	<10	<10	--	--	1
Industrial Mold Manufacturing	0	<10	--	--	0
Cutting Tool and Machine Tool Accessory Manufacturing	0	<10	--	--	0
Pump and Pumping Equipment Manufacturing	0	<10	--	--	1

The projected five year growth of the machinery manufacturing cluster translates to a need for a number of manufacturing, management, and engineering workers.

Cluster Labor Force Projections

Growing Occupations	2015 Jobs	2010-2015 Change	% Change
Team assemblers	261	57	28%
Machinists	137	34	33%
Engine and other machine assemblers	74	22	42%
Welders, cutters, solderers, and brazers	147	21	17%
First-line supervisors/managers of production and operating workers	90	21	30%
Inspectors, testers, sorters, samplers, and weighers	69	18	35%
Grinding, lapping, polishing, & buffing machine tool setters, operators, & tenders, metal and plastic	61	15	33%
Computer-controlled machine tool operators, metal and plastic	54	15	38%
Maintenance and repair workers, general	53	15	39%
Structural metal fabricators and fitters	49	11	29%
Assemblers and fabricators, all other	59	10	20%
Mechanical engineers	38	10	36%
Industrial machinery mechanics	33	10	43%

Growing Occupations	2015 Jobs	2010-2015 Change	% Change
Industrial engineers	32	9	39%
Helpers--Production workers	36	8	29%
Multiple machine tool setters, operators, and tenders, metal and plastic	32	8	33%
Bus and truck mechanics and diesel engine specialists	22	7	47%
Electrical engineers	12	7	140%
Lathe and turning machine tool setters, operators, and tenders, metal and plastic	33	6	22%
Milling and planing machine setters, operators, and tenders, metal and plastic	11	6	120%
Engineering managers	11	6	120%
Purchasing agents, except wholesale, retail, and farm products	11	6	120%
Industrial engineering technicians	11	6	120%
Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	40	5	14%
Electrical and electronic equipment assemblers	26	5	24%
Coating, painting, and spraying machine setters, operators, and tenders	25	5	25%
Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic	19	5	36%
Production, planning, and expediting clerks	10	5	100%

Forest and Wood Products Cluster

The forest and wood products cluster is dominated by the important wood window and door manufacturing industry. The cluster has seen modest decline but has performed much better locally than similar industries in the rest of the country. Much of the rest of the cluster is comprised of wood product contractors and installers.

Cluster Summary

2002 Industry Jobs	4,339
2010 Industry Jobs	4,041
Total Change	-298
Total % Change	-7%
Current Average Earnings per Worker	$43,082
2002 Location Quotient	1.74
2010 Location Quotient	2.01
Shift Share: Regional Competitiveness Effect	576
Shift Share: Industrial Mix Effect	-1,136
Shift Share: National Effect	257

Key Cluster Industries	2002 Jobs	2010 Jobs	2002-2010 Change	Current EPW	2009 Estab.
Wood Window and Door Manufacturing	3,250	3,026	(224)	$47,059	3
Residential finish carpentry contractors	195	192	(3)	$25,567	18
Residential siding contractors	102	101	(1)	$32,526	10
Residential flooring contractors	66	86	20	$29,193	4
Nonresidential finish carpentry contractors	51	70	19	$33,673	4
Residential framing contractors	64	67	3	$21,212	9
Nonresidential roofing contractors	113	67	(46)	$34,344	5
Wood Kitchen Cabinet and Countertop Manufacturing	96	66	(30)	$31,521	10
Manufactured Home (Mobile Home) Manufacturing	29	42	13	$37,461	1
Truss Manufacturing	<10	36	36	--	1
Nonupholstered Wood Household Furniture Manufacturing	46	36	(10)	$35,676	3
Logging	26	35	9	$45,465	4
All Other Converted Paper Product Manufacturing	56	31	(25)	$29,344	2
Nonresidential flooring contractors	37	29	(8)	$35,251	1
Support Activities for Forestry	30	26	(4)	$19,025	1
Wood Container and Pallet Manufacturing	27	24	(3)	$30,241	3
Nonresidential framing contractors	<10	22	22	--	4
Residential roofing contractors	16	22	6	$37,781	5
Sawmills	16	12	(4)	$30,362	1
Corrugated and Solid Fiber Box Manufacturing	<10	10	10	--	1
Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers	<10	10	10	--	2

Cluster Labor Force Projections

Growing Occupations	2010 Jobs	2015 Jobs	2010-2015 Change	% Change
Woodworking machine setters, operators, and tenders, except sawing	291	330	39	13%
Team assemblers	429	454	25	6%
Carpenters	428	445	17	4%
Sawing machine setters, operators, and tenders, wood	190	199	9	5%
Cabinetmakers and bench carpenters	207	215	8	4%
First-line supervisors/managers of production and operating workers	119	123	4	3%
Industrial truck and tractor operators	60	64	4	7%
Coating, painting, and spraying machine setters, operators, and tenders	41	45	4	10%

Growing Occupations	2010 Jobs	2015 Jobs	2010-2015 Change	% Change
Truck drivers, heavy and tractor-trailer	74	77	3	4%
Construction laborers	73	76	3	4%
Helpers--Production workers	68	71	3	4%
Bookkeeping, accounting, and auditing clerks	63	66	3	5%
Office clerks, general	54	57	3	6%

Declining Occupations	2010 Jobs	2015 Jobs	2010-2015 Change	% Change
Assemblers and fabricators, all other	165	153	(12)	(7%)
Roofers	36	29	(7)	(19%)
Machine feeders and offbearers	71	66	(5)	(7%)
Laborers and freight, stock, and material movers, hand	125	124	(1)	(1%)
Packers and packagers, hand	29	28	(1)	(3%)
Shipping, receiving, and traffic clerks	26	25	(1)	(4%)
Cutting and slicing machine setters, operators, and tenders	14	13	(1)	(7%)
General and operations managers	44	44	0	0%
Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	31	31	0	0%
Janitors and cleaners, except maids and housekeeping cleaners	26	26	0	0%
Managers, all other	20	20	0	0%
Sheet metal workers	15	15	0	0%
Cementing and gluing machine operators and tenders	15	15	0	0%
Packaging and filling machine operators and tenders	13	13	0	0%
Secretaries, except legal, medical, and executive	13	13	0	0%
Production, planning, and expediting clerks	13	13	0	0%

Biomedical/Biotechnical (Life Sciences and Health Care)

Cluster Summary	
2002 Industry Jobs	10,615
2010 Industry Jobs	12,215
Total Change	1,600
Total % Change	15%
Current Average Earnings per Worker	$33,406
2002 Location Quotient	1.22
2010 Location Quotient	1.22
Shift Share: Regional Competitiveness Effect	29
Shift Share: Industrial Mix Effect	640
Shift Share: National Effect	628

The biomedical/biotechnical cluster employs over 12,000 people in the region, many of them in health care sectors. While the cluster grown 15% since 2002, this is a pace keeping with the national growth rate. This is an indication that growth in health care in this region is due more to general health care employment expansion, and has less to do with a regional competitive advantage for the cluster. While health care sectors typically do not fall within the scope of economic development activates, this cluster is a key source of good paying jobs in the region, and its expansion will create specialized worker shortages in the future. The region is some increase in scientific research and development activities within this cluster.

Key Cluster Industries	2002 Jobs	2010 Jobs	2002-2010 Change	Current EPW	2009 Estab.
General Medical and Surgical Hospitals	4,953	5,174	221	$44,149	21
Nursing Care Facilities	2,882	2,955	73	$26,689	32
Residential Mental Retardation Facilities	760	775	15	$21,404	31
Home Health Care Services	313	635	322	$21,682	12
Pharmacies and Drug Stores	428	403	(25)	$39,415	40
Research & Development in the Physical, Engineering, & Life Sciences (except Biotechnology)	141	376	235	$22,635	8
Homes for the Elderly	402	322	(80)	$16,004	11
Continuing Care Retirement Communities	0	274	274	$18,615	5
Cosmetics, Beauty Supplies, and Perfume Stores	108	132	24	$10,711	5
Ambulance Services	140	126	(14)	$21,107	8
Other Residential Care Facilities	14	116	102	$31,759	3
Diagnostic Imaging Centers	60	113	53	$20,537	0
Medical Laboratories	16	111	95	$24,362	2
Research and Development in Biotechnology	<10	105	105	--	8
Psychiatric and Substance Abuse Hospitals	38	102	64	$46,815	1
Research and Development in the Social Sciences and Humanities	19	101	82	$10,749	6
Residential Mental Health and Substance Abuse Facilities	53	59	6	$43,002	3
Blood and Organ Banks	35	56	21	$39,576	1
All Other Miscellaneous Ambulatory Health Care Services	33	49	16	$35,890	7
All Other Health and Personal Care Stores	31	44	13	$31,503	7
Food (Health) Supplement Stores	24	36	12	$9,385	4
Kidney Dialysis Centers	26	30	4	$63,906	1
Family Planning Centers	<10	29	29	--	4
Optical Goods Stores	59	25	(34)	$25,168	10
Outpatient Mental Health and Substance Abuse Centers	23	15	(8)	$26,504	2

This cluster is projected to add another 1,200 jobs in the region over the next five years, creating a number of high-demand occupations.

Cluster Labor Force Projections

Description	2010 Jobs	2015 Jobs	2010-2015 Change	% Change
Home health aides	936	1,154	218	23%
Nursing aides, orderlies, and attendants	1,936	2,131	195	10%
Registered nurses	1,366	1,486	120	9%
Licensed practical and licensed vocational nurses	875	974	99	11%
Personal and home care aides	271	329	58	21%
Managers, all other	64	84	20	31%
Physical scientists, all other	48	68	20	42%
Medical and health services managers	188	207	19	10%
Cooks, institution and cafeteria	202	220	18	9%
Food servers, nonrestaurant	133	148	15	11%
Social and human service assistants	163	175	12	7%
Pharmacy technicians	156	168	12	8%
Psychiatric aides	114	126	12	11%
Office clerks, general	182	192	10	5%
Physicians and surgeons	117	127	10	9%
Combined food preparation and serving workers, including fast food	104	114	10	10%
Recreation workers	52	62	10	19%
Receptionists and information clerks	102	110	8	8%
Healthcare support workers, all other	99	107	8	8%
Maintenance and repair workers, general	88	96	8	9%
First-line supervisors/managers of office & administrative support workers	73	81	8	11%
Pharmacists	124	131	7	6%
Executive secretaries and administrative assistants	77	84	7	9%
Bookkeeping, accounting, and auditing clerks	94	100	6	6%
First-line supervisors/managers of retail sales workers	82	88	6	7%
Physical therapists	68	74	6	9%
Child care workers	59	65	6	10%

Business and Financial Services

While the business and financial services cluster is large and contains many high-paying industries, the cluster is significantly undersized (57% less concentrated) for the size of the economy in the region. The cluster grew by 23% in the past eight years but this growth is roughly keeping pace with the expansion of business services across the nation.

Executive Summary	
2002 Industry Jobs	4,979
2010 Industry Jobs	6,120
Total Change	1,141
Total % Change	23%
Current Average Earnings per Worker	$35,945
2002 Location Quotient	0.41
2010 Location Quotient	0.43
Shift Share: Regional Competitiveness Effect	16
Shift Share: Industrial Mix Effect	816
Shift Share: National Effect	295

Many of the largest sectors in the cluster are locally oriented, such as insurance agencies, investment advisors, and real estate. However, as many of these more specialized, higher value services become easier to export – technical services and consulting, engineering, architecture, and even legal – economic developers should not overlook their importance.

Key Cluster Industries	2002 Jobs	2010 Jobs	2002-2010 Change	Current EPW	2009 Estab.
Insurance Agencies and Brokerages	1,003	1,094	91	$41,608	172
Investment Advice	344	463	119	$6,446	7
Other Activities Related to Real Estate	180	442	262	$4,551	2
Offices of Lawyers	445	408	(37)	$43,566	74
Residential Property Managers	200	276	76	$15,482	20
Engineering Services	239	250	11	$71,924	27
Offices of Certified Public Accountants	192	231	39	$74,721	36
Administrative Management and General Management Consulting Services	164	231	67	$59,810	13
Computer Systems Design Services	42	183	141	$38,224	15
Other Accounting Services	248	173	(75)	$20,076	19
All Other Nondepository Credit Intermediation	118	169	51	$54,956	18
Other Scientific and Technical Consulting Services	116	167	51	$39,425	22
Claims Adjusting	169	155	(14)	$20,452	4
Testing Laboratories	79	117	38	$39,094	13
Tax Preparation Services	80	106	26	$19,393	15
Portfolio Management	144	103	(41)	$14,053	2
Miscellaneous Intermediation	61	98	37	$11,543	1
Direct Property and Casualty Insurance Carriers	63	83	20	$48,975	26
Securities Brokerage	80	73	(7)	$54,987	23
Process, Physical Distribution, and Logistics Consulting Services	23	72	49	$57,046	2
Advertising Agencies	36	69	33	$46,338	6
Architectural Services	57	68	11	$55,683	6
Direct Health and Medical Insurance Carriers	71	66	(5)	$62,721	5
Custom Computer Programming Services	86	63	(23)	$33,337	17
Investment Banking and Securities Dealing	38	60	22	$28,780	2
Other Management Consulting Services	18	51	33	$31,304	6
Data Processing, Hosting, and Related Services	53	49	(4)	$42,359	5
Marketing Consulting Services	41	48	7	$23,577	2
Miscellaneous Financial Investment Activities	30	47	17	$5,491	0
Display Advertising	12	44	32	$39,117	4
Commodity Contracts Dealing	21	42	21	$52,577	2
Graphic Design Services	52	42	(10)	$32,730	3
Third Party Administration of Insurance and Pension Funds	38	39	1	$32,327	1
Commodity Contracts Brokerage	25	37	12	$134,227	4

Key Cluster Industries	2002 Jobs	2010 Jobs	2002-2010 Change	Current EPW	2009 Estab.
Title Abstract and Settlement Offices	49	37	(12)	$33,924	13
All Other Insurance Related Activities	31	36	5	$39,498	4
Nonresidential Property Managers	29	36	7	$8,492	2
Interior Design Services	36	32	(4)	$35,695	2

Even as the export of services increases, the business and financial services cluster is currently too small to meet the purchasing requirements of the local economy. A gap analysis for all industries in the Upper Red River Valley confirms that aside from gasoline purchases, pharmaceuticals, and lumber, some of the largest leakage flows to outside the region are in business services sectors.

Gap Analysis for All Industries

Sector	$ Required(K)	$ Satisfied in Region(K)	Difference(K)	In Region?
Petroleum Refineries	$319,142	$0	$319,142	no
Corporate, Subsidiary, and Regional Managing Offices	$214,002	$17,251	$196,751	yes
Wholesale Trade Agents and Brokers	$125,150	$11,644	$113,506	yes
Engineering Services	$105,607	$4,230	$101,376	yes
Pharmaceutical Preparation Manufacturing	$98,016	$33	$97,983	yes
Offices of Real Estate Agents and Brokers	$120,190	$25,119	$95,071	yes
Offices of Lawyers	$114,578	$29,506	$85,072	yes
Colleges, Universities, and Professional Schools	$84,620	$4	$84,616	yes
Direct Property and Casualty Insurance Carriers	$95,231	$16,132	$79,099	yes
Sawmills	$78,232	$1,687	$76,544	yes

Unmanned Aircraft Systems Cluster

Including the new unmanned aircraft systems (UAS) mission at the Grand Forks Air Force Base, the flight school and Center of Excellence in UAS at the University of North Dakota, budding aerospace business activity, and the region's strong manufacturing base, local leaders have targeted the UAS cluster as an area of growth for the region.

The following table lists approximate definition of the UAS cluster and the number of jobs in each industry in this region. The federal industry classification system does not account for UAS by itself, but the cluster contains a wide variety of industries, from aircraft and parts manufacturing, to research and development and design, to remote sensing and data capture and analysis. At this time the region is home to 1,152 jobs in UAS related industries. While much of the UAS activity in the region is tied to federal and state public sectors, efforts are being made to boost private sector activity and spin out new companies from university research.

NAICS Code	Description	2002 Jobs	2010 Jobs	Current EPW	2009 Estab.
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	141	376	$22,635	8
541330	Engineering Services	239	250	$71,924	27
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	245	189	$49,153	1
488190	Other Support Activities for Air Transportation	94	73	$51,434	12
611512	Flight Training	58	66	$31,945	3
541511	Custom Computer Programming Services	86	63	$33,337	17
441229	All Other Motor Vehicle Dealers	78	52	$35,700	10
488119	Other Airport Operations	0	51	$25,799	2
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	39	13	$59,630	2
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	<10	<10	--	1
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	82	<10	--	1
541360	Geophysical Surveying and Mapping Services	0	<10	--	0
541370	Surveying and Mapping (except Geophysical) Services	24	<10	--	1
541420	Industrial Design Services	<10	<10	--	0
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	0	0	$0	0
332510	Hardware Manufacturing	<10	0	--	0
332912	Fluid Power Valve and Hose Fitting Manufacturing	18	0	$0	0
332995	Other Ordnance and Accessories Manufacturing	0	0	$0	0
333314	Optical Instrument and Lens Manufacturing	0	0	$0	0
333315	Photographic and Photocopying Equipment Manufacturing	0	0	$0	0
334511	Search, Detection, Navigation, Guidance, Aeronautical, & Nautical System & Instrument Manufacturing	0	0	$0	0
334519	Other Measuring and Controlling Device Manufacturing	0	0	$0	0
335314	Relay and Industrial Control Manufacturing	<10	0	--	0
335911	Storage Battery Manufacturing	0	0	$0	0
335931	Current-Carrying Wiring Device Manufacturing	0	0	$0	0
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	0	0	$0	0
336411	Aircraft Manufacturing	0	0	$0	0
336412	Aircraft Engine and Engine Parts Manufacturing	0	0	$0	0
336414	Guided Missile and Space Vehicle Manufacturing	0	0	$0	0
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing	0	0	$0	0
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	0	0	$0	0
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers	0	0	$0	0
	Total	**1,109**	**1,152**	**$42,344**	**84**

UAS Cluster Growth Scenario

Regional leaders have identified a goal of 300 new UAS jobs in the region. The following analysis estimates the economic impact in jobs across the economy of these 300 new jobs spread across various industries in the cluster.

Scenario:

NAICS Code	Description	New Jobs
336411	Aircraft Manufacturing	40
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	40
336412	Aircraft Engine and Engine Parts Manufacturing	35
541330	Engineering Services	30
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	30
334511	Search, Detection, Navigation, Guidance, Aeronautical, & Nautical System & Instrument Manufacturing	25
488190	Other Support Activities for Air Transportation	25
611512	Flight Training	20
541420	Industrial Design Services	15
334519	Other Measuring and Controlling Device Manufacturing	10
541360	Geophysical Surveying and Mapping Services	10
541370	Surveying and Mapping (except Geophysical) Services	10
541511	Custom Computer Programming Services	10
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	
332510	Hardware Manufacturing	
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	
332912	Fluid Power Valve and Hose Fitting Manufacturing	
332995	Other Ordnance and Accessories Manufacturing	
333314	Optical Instrument and Lens Manufacturing	
333315	Photographic and Photocopying Equipment Manufacturing	
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	
335314	Relay and Industrial Control Manufacturing	
335911	Storage Battery Manufacturing	
335931	Current-Carrying Wiring Device Manufacturing	
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	
336414	Guided Missile and Space Vehicle Manufacturing	
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing	
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers	
441229	All Other Motor Vehicle Dealers	
488119	Other Airport Operations	
	Total	300

Impacts:

Description	In Cluster	Out of Cluster	Total
Jobs Change	310	208	518
Earnings Change (in thousands)	$20,219	$6,384	$26,603
Earnings per Worker Change	$4,853.03	-$12.34	$50.89
Sales Multiplier	1.02	0.28	1.31
Jobs Multiplier	1.03	0.69	1.73
Earnings Multiplier	1.02	0.32	1.34

This injection of 300 new jobs into the UAS cluster in the Upper Red River Valley would result in a total of 518 jobs in all sectors, and an increase of $26.6 million in earnings paid out across the economy.

Impacts: Jobs by Sector

Description	Original Jobs	Current Jobs	Change	% Change	EPW(K)
Agriculture, Forestry, Fishing and Hunting	12,842	12,844	2	0%	$41
Mining, Quarrying, and Oil and Gas Extraction	277	277	0	0%	$41
Utilities	483	483	0	0%	$99
Construction	6,169	6,176	7	0%	$47
Manufacturing	12,256	12,419	163	1%	$52
Wholesale Trade	6,911	6,918	7	0%	$50
Retail Trade	13,652	13,686	34	0%	$23
Transportation and Warehousing	4,791	4,826	35	1%	$49
Information	1,437	1,442	5	0%	$39
Finance and Insurance	4,489	4,494	5	0%	$40
Real Estate and Rental and Leasing	3,372	3,377	5	0%	$17
Professional, Scientific, and Technical Services	3,972	4,093	121	3%	$39
Management of Companies and Enterprises	206	208	2	1%	$55
Administrative & Support & Waste Management & Remediation Services	3,316	3,329	13	0%	$21
Educational Services	782	804	22	3%	$15
Health Care and Social Assistance	16,829	16,867	38	0%	$37
Arts, Entertainment, and Recreation	1,684	1,688	4	0%	$10
Accommodation and Food Services	7,864	7,889	25	0%	$13
Other Services (except Public Administration)	5,576	5,590	14	0%	$25
Government	24,006	24,020	14	0%	$50

Three hundred new jobs projects to 121 job growth (3%) in professional and technical services, 22 new jobs in educational services (3%), and 163 new jobs in manufacturing. Economic activity caused by these new UAS jobs are projected to indirectly create 34 new retail jobs, 38 jobs in health care, and 25 jobs in accommodations and restaurants.

Most Affected Sectors

Sector	Original Jobs	Current Jobs	Change	% Change	EPW(K)
Other Aircraft Parts and Auxiliary Equipment Manufacturing	189	236	47	25%	$49
Aircraft Manufacturing	0	40	40	--	$0
Aircraft Engine and Engine Parts Manufacturing	0	35	35	--	$0
Research and Development in the Physical, Engineering, & Life Sciences (except Biotechnology)	376	409	33	9%	$23
Engineering Services	250	280	30	12%	$72
Search, Detection, Navigation, Guidance, Aeronautical,& Nautical System & Instrument Manufacturing	0	25	25	--	$0
Other Support Activities for Air Transportation	73	98	25	34%	$51
Flight Training	66	86	20	30%	$32
Local government	10,544	10,558	14	0%	$42
General Medical and Surgical Hospitals	5,174	5,185	11	0%	$44
Other Measuring and Controlling Device Manufacturing	0	10	10	--	$0
Custom Computer Programming Services	63	73	10	16%	$33
Full-Service Restaurants	2,879	2,889	10	0%	$13
Limited-Service Restaurants	1,954	1,961	7	0%	$12
Supermarkets and Other Grocery (except Convenience) Stores	1,736	1,741	5	0%	$20
Child Day Care Services	1,900	1,905	5	0%	$13
Other Direct Selling Establishments	1,420	1,424	4	0%	$7
All Other Professional, Scientific, and Technical Services	508	512	4	1%	$31

Sector	Original Jobs	Current Jobs	Change	% Change	EPW(K)
Offices of Physicians (except Mental Health Specialists)	1,369	1,373	4	0%	$101
Hotels (except Casino Hotels) and Motels	1,354	1,358	4	0%	$14
Religious Organizations	1,287	1,291	4	0%	$12
New Car Dealers	724	727	3	0%	$43
Janitorial Services	778	781	3	0%	$10
Nursing Care Facilities	2,955	2,958	3	0%	$27
Gasoline Stations with Convenience Stores	1,297	1,299	2	0%	$21
Discount Department Stores	531	533	2	0%	$18
Warehouse Clubs and Supercenters	613	615	2	0%	$33
Postal Service	586	588	2	0%	$51
Couriers and Express Delivery Services	405	407	2	0%	$34
Commercial Banking	1,532	1,534	2	0%	$51
Temporary Help Services	342	344	2	1%	$23
Landscaping Services	421	423	2	0%	$17
Home Health Care Services	635	637	2	0%	$22
Beauty Salons	413	415	2	0%	$31
Civic and Social Organizations	791	793	2	0%	$12

Sub-regional Analysis

Between 2002 and 2009 the region added more than 5,400 jobs for 4% overall growth. We divided the fourteen county region into five sub regions by county:

- GF metro: Grand Forks, ND and Polk, MN counties
- Northern ND: Walsh, Pembina, Cavalier, ND counties
- Southern Valley: Steele, Trail, ND and Norman, MN counties
- Thief River Falls Region: Red Lake, Pennington, and Marshall counties
- Northern MN: Kittson and Roseau, MN counties

The table below illustrates job growth for each of the separate regions. The region's growth was led by nearly 2,000 new jobs in health care and about 1,000 in wholesale trade, real estate, and professional and technical services. Note that this data includes workers not covered by unemployment insurance such as

some farm or real estate workers. Much of the health care growth and nearly all of the professional and technical services growth occurred in the two-county Grand Forks Metropolitan area (GFMSA). Wholesale trade actually declined within the GF MSA but added more than 950 jobs in the Thief River Falls region primarily due to a single employer. Thief River Falls also added 226 new retail jobs, while retail employment across the region remained flat over the period, and declined within the GFMSA. At the same time GFMSA added more than 500 jobs in accommodation and food service, a sector that lost jobs everywhere else.

Most notable for the GFMSA is a net gain of 443 manufacturing jobs, an industry sector in the midst of job decline nationally. The Northern ND region showed strong construction growth, along with more than 150 new jobs in wholesale trade and health care. Construction growth was also strong in the Southern Valley region along with nearly 50 new jobs in professional and technical services. Large employers in manufacturing and wholesale trade dominate the Theif River Falls region and this region showed the strongest retail trade growth. In the two Northern MN counties manufacturing dominates, and this was the only sub region with an overall decline in employment.

Sources of Competitive Advantage

The following table uses a shift share analysis to gauge each sector's performance to that sector in the rest of the country. Each sector is affected by different trends, with some such as health care adding jobs rapidly, and others such as manufacturing may be shedding jobs due to productivity gains, industry relocations, or shifts in consumer demand.

These trends affect industries within our region. By estimating these national affects and removing them from the employment growth numbers in this region, we are left with an estimate of job change due to local factors within our region. This job change number is the Competitive Effect, an estimate of job changes due to local competitive advantage or disadvantage. The competitive effect percent illustrates the competitive shift as a share of that sector's employment in 2002.

Industries in the table are sorted by the competitive effect across the entire region starting with the most competitive, manufacturing, and ending with the least competitive, health care. Note that in this case the most competitive sector of manufacturing actually lost jobs overall and the least competitive sector, health care, grew by nearly 2,000 jobs. This is an indication that the region's economy is somewhat insulated from the booms and busts of the rest of the country. This is also an indication that the region's economy is becoming more diverse, traditionally underrepresented sectors (such as manufacturing in the Grand Forks MSA) are growing faster than the rest of the nation, while traditionally over-concentrated sectors, such as health care are growing at a slower pace than the rest of the nation.

On a percentage basis, the region shows greatest competitive advantage in wholesale trade, manufacturing, professional and business services, and transportation and warehousing.

The largest sources of competitive advantage on a percentage basis for each sub region are:

- GF metro: manufacturing, professional and technical services, management of companies, transportation and warehousing, information, administrative and waste services, and finance and insurance

- Northern ND: construction, utilities, wholesale trade, and transportation and warehousing
- Southern Valley: real estate, manufacturing, construction, transportation and warehousing, and administrative and waste services
- Thief River Falls Region: wholesale trade, retail trade, utilities, and real estate
- Northern MN: real estate, professional and technical services, manufacturing, and utilities

		14 County Region			GF Metro			Northern ND			Southern Valley			TRF Region			Northern MN		
NAICS Code	Description	Job Change	Competitive Effect	Competitive Effect%	Job Change	Competitive Effect	Competitive Effect%	Job Change	Competitive Effect	Competitive Effect%	Job Change	Competitive Effect	Competitive Effect%	Job Change	Competitive Effect	Competitive Effect%	Job Change	Competitive Effect	Competitive Effect%
31-33	Manufacturing	(951)	1,555	12%	443	1,135	33%	(330)	(10)	-1%	32	116	28%	(542)	(122)	-6%	(552)	437	9%
42	Wholesale trade	1,039	874	16%	(48)	(112)	-5%	154	128	15%	(36)	(49)	-10%	953	901	51%	17	7	2%
23	Construction	680	675	12%	208	205	6%	397	396	48%	92	91	21%	(1)	(2)	0%	(16)	(16)	-4%
54	Professional & technical services	919	361	12%	792	448	24%	(3)	(70)	-20%	49	10	5%	3	(66)	-18%	79	39	18%
48-49	Transportation & warehousing	481	360	8%	320	261	12%	124	100	12%	77	68	20%	(1)	(19)	-3%	(39)	(50)	-14%
11	Ag., forestry, fishing & hunting	(768)	235	2%	(189)	64	2%	(25)	233	7%	(60)	85	4%	(267)	(72)	-3%	(226)	(74)	-4%
53	Real estate and rental & leasing	1,010	127	6%	552	9	1%	122	14	5%	132	58	30%	101	12	5%	102	35	20%
44-45	Retail trade	64	103	1%	(66)	(43)	-1%	(27)	(23)	-1%	(56)	(53)	-6%	226	230	14%	(11)	(7)	-1%
51	Information	(89)	63	4%	18	96	12%	(10)	17	6%	(38)	(20)	-11%	(21)	(7)	-5%	(37)	(23)	-15%
22	Utilities	34	38	8%	0	2	1%	26	26	44%	(2)	(1)	-3%	3	4	8%	6	7	24%
56	Administrative & waste services	117	38	1%	261	210	11%	(120)	(134)	-26%	19	16	12%	(13)	(20)	-8%	(29)	(34)	-17%
52	Finance and insurance	388	28	1%	274	119	7%	4	(71)	-8%	61	18	4%	44	(3)	-1%	6	(34)	-8%
55	Mgmt of companies & enterprises	2	(20)	-6%	34	22	13%	(27)	(29)	-107%	(32)	(37)	-54%	58	0	--	(30)	(34)	-63%
61	Educational services	82	(74)	-10%	27	(83)	-16%	18	4	7%	8	2	7%	23	4	5%	8	0	0%
71	Arts, entertainment, & recreation	125	(110)	-7%	122	(9)	-1%	39	11	6%	16	(2)	-2%	(32)	(70)	-28%	(19)	(41)	-29%
21	Mining	(80)	(202)	-66%	(38)	(113)	-61%	(14)	(27)	-79%	(5)	(14)	-67%	(23)	(44)	-80%	(1)	(5)	--
72	Accommodation and food services	398	(407)	-6%	510	(22)	0%	(25)	(115)	-14%	(35)	(81)	-19%	(39)	(122)	-16%	(13)	(67)	-14%
90	Government	355	(939)	-4%	411	(415)	-3%	(62)	(215)	-8%	(53)	(136)	-9%	164	21	1%	(105)	(194)	-12%
81	Other services, expt public admin	(389)	(1,006)	-17%	(41)	(347)	-12%	(126)	(223)	-24%	(56)	(102)	-23%	(97)	(197)	-21%	(68)	(136)	-21%
62	Health care and social assistance	1,999	(1,135)	-8%	1,376	(485)	-6%	162	(221)	-12%	93	(130)	-12%	222	(159)	-9%	146	(141)	-10%
	Total	5,416	566	0%	69,495	941	1%	7.7%	(210)	-1%	2%	(161)	-2%	2%	267	2%	4%	(329)	-2%

Regional Specialization

Occupations Analysis

Dissecting the labor market by occupation can produce a fire hose stream of data.

What new high-paying jobs can our region's residents aspire to? The following table lists the fastest growing occupation categories near or above median hourly pay of $15.00.

Recent gains in manufacturing are reflected in a survey of regional occupations in demand. The region has seen strong growth in higher-skill, higher-pay manufacturing and production-oriented occupations at all levels, including supervisory, management, and higher-end technical occupations – even as lower skill and medium-skill manufacturing occupations have declined.

Other general areas of higher pay growth include health care, higher-skill administrative and business services (especially wholesale sales), and increasingly scientists and engineers and associated technicians.

Overall, the region shows strong and growing demand for mid- to high-skill level workers.

Description	2009 Jobs	2002-2009 Change	New & Rep. Jobs	Current Median Hourly Earnings
Driver/sales workers and truck drivers	4,119	380	896	$15.60
First-line supervisors/managers of retail sales workers	2,224	216	547	$13.96
Registered nurses	1,788	193	412	$26.54
Postsecondary teachers	1,617	174	371	$44.05
Managers, all other	934	148	317	$13.32
Sales representatives, wholesale and manufacturing, technical and scientific products	1,158	143	331	$22.72
Bookkeeping, accounting, and auditing clerks	2,242	115	304	$13.52
Executive secretaries and administrative assistants	2,438	109	339	$14.03
Industrial machinery installation, repair, and maintenance workers	1,188	104	231	$15.76
Chief executives	685	93	228	$21.32
Construction laborers	740	93	128	$14.14
Business operation specialists, all other	842	79	210	$19.35
First-line supervisors/managers of office & administrative support workers	913	75	219	$17.72
Psychologists	230	72	118	$18.17
Miscellaneous community and social service specialists	818	69	190	$12.85
Construction equipment operators	584	65	135	$17.42
Therapists	442	64	119	$21.15
Elementary and middle school teachers	1,825	62	353	$27.32
Management analysts	309	61	98	$14.77
Miscellaneous healthcare support occupations	596	61	117	$13.14
Counselors	542	60	137	$17.00
Accountants and auditors	692	59	141	$17.51
Social workers	578	54	156	$16.67
Licensed practical and licensed vocational nurses	1,202	54	317	$15.89
First-line supervisors/managers of construction trades & extraction workers	591	50	130	$18.96
Construction managers	438	48	72	$18.19
Loan counselors and officers	359	46	73	$27.03
Painters and paperhangers	313	45	80	$15.00
Heavy vehicle and mobile equipment service technicians and mechanics	396	43	96	$17.71
Miscellaneous electrical and electronic equipment mechanics, installers, and repairers	199	42	70	$17.69
Engineering technicians, except drafters	350	40	86	$19.28
Medical and health services managers	295	37	76	$29.23
Physicians and surgeons	340	35	77	$47.63
Miscellaneous installation, maintenance, and repair workers	468	35	117	$13.79
Machine tool cutting setters, operators, & tenders, metal and plastic	334	34	73	$14.73
Health diagnosing and treating practitioner support technicians	435	33	110	$13.57
Radio and telecommunications equipment installers and repairers	195	33	57	$23.07
Physical scientists, all other	58	32	42	$15.94
Pipelayers, plumbers, pipefitters, and steamfitters	286	32	72	$17.83
Compliance officers, except agriculture, construction, health & safety, & transportation	137	31	41	$21.59

The workforce development system is often framed in terms of skills and skills improvement by training. Many programs are organized by the level of training or education required for a given job category. This analysis looks at occupation growth in the upper Red River Valley region by framing occupations in terms of the education level required for the job. The first chart (Figure 1) shows job growth by occupation in terms of actual jobs added or lost. Numbers after year 2009 are projected needs for the region based upon trends and the local industry mix, while numbers prior to 2009 show actual job shifts in the region.

Up until 2008, the fastest growing job categories in the region were those at the lowest end of the skills spectrum, requiring short term or medium-term on the job training. However these jobs have been the hardest hit – along with long term on the job and related work experience categories – during the Great Recession in the last two years.

At the same time jobs requiring a post secondary certificate or associate's degree saw no decline during the recession, bachelor's degree jobs declined slightly, and professional, master's, and doctorate level employment actually increased.

This left bachelor's degree level and certificate/AA level jobs as the fastest growing over the 2002-2009 period, followed closely by the lowest skill occupations requiring only short term on the job training. Future projections indicate these two categories requiring moderate post-secondary education up to a bachelor's degree will be the fastest growing in the area over the next ten years.

On a percentage gain basis, the certificate/AA level jobs and the professional degree and above level jobs have led growth since 2002 and will continue to do so into the future.

The following tables detail the fastest growing and fastest declining occupations for each education level for the years 2002-2009.

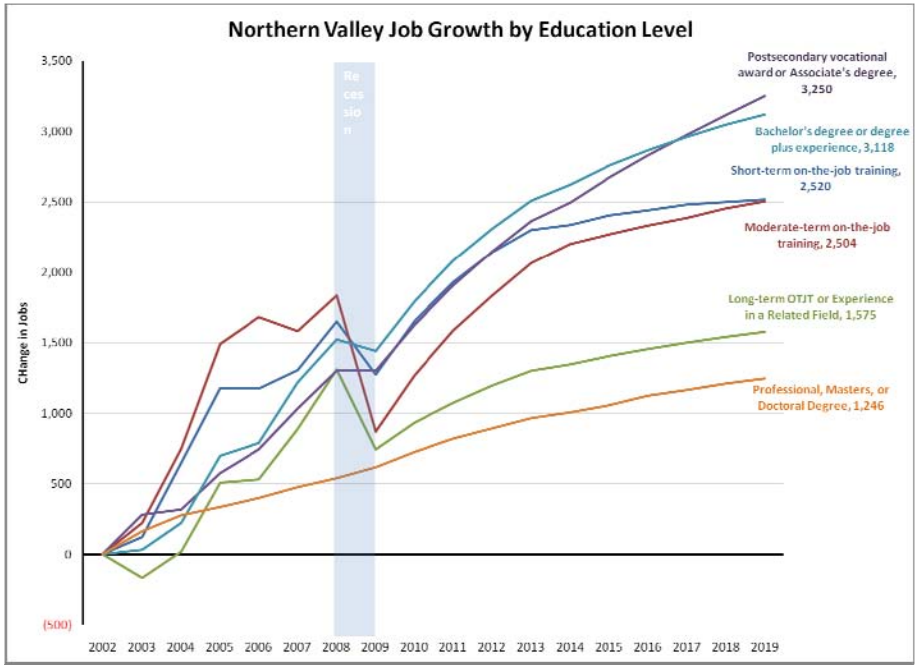


Figure 1 : EMSI Complete Employment, Second Quarter 2010

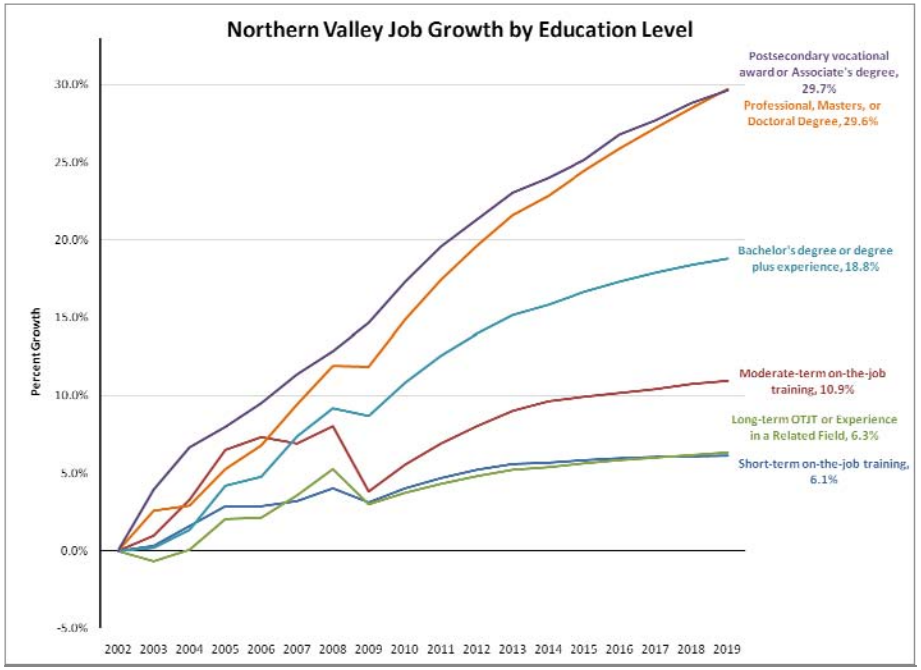


Figure 2 : EMSI Complete Employment, Second Quarter 2010

Short Term on the Job Training Occupations

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
31-1011	Home health aides	1,089	339	45%	1.41	415	55%	$9.44
39-9021	Personal and home care aides	827	302	58%	1.15	374	71%	$9.90
41-9091	Door-to-door sales workers, news and street vendors, and related workers	1,116	172	18%	1.65	314	33%	$7.26
35-3021	Combined food preparation and serving workers, including fast food	2,086	135	7%	1.02	445	23%	$8.25
43-9061	Office clerks, general	2,309	103	5%	1.03	323	15%	$10.91
41-2031	Retail salespersons	3,464	79	2%	0.95	755	22%	$8.84
43-4081	Hotel, motel, and resort desk clerks	301	77	34%	1.81	148	66%	$8.53
39-9011	Child care workers	1,860	72	4%	1.24	453	25%	$7.34
53-3033	Truck drivers, light or delivery services	887	60	7%	1.07	171	21%	$15.17
41-2011	Cashiers, except gaming	2,749	58	2%	1.04	922	34%	$7.85
43-3071	Tellers	670	56	9%	1.43	249	41%	$10.45
43-4171	Receptionists and information clerks	869	44	5%	1.02	208	25%	$10.97
37-2019	Building cleaning workers, all other	312	43	16%	0.74	84	31%	$7.37

Fastest growing occupations are led by home health care, food service workers, retail workers, and office clerks. Note that nearly all of these job categories show a high concentration in the region (LQ over 1.0). Few of these occupations are high-paying, aside from light truck drivers. Truck driving at all skill levels shows high growth in the region.

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
37-2012	Maids and housekeeping cleaners	1,536	(101)	(6%)	0.94	193	12%	$8.21
45-209A	Miscellaneous agricultural workers (aggregation of 45-2091,2,3,9)	1,889	(96)	(5%)	3.11	357	18%	$11.80
41-9041	Telemarketers	77	(61)	(44%)	0.31	14	10%	$8.34
37-2011	Janitors and cleaners, except maids and housekeeping cleaners	1,877	(50)	(3%)	1.11	248	13%	$10.50
43-5053	Postal service mail sorters, processors, and processing machine operators	106	(44)	(29%)	0.82	7	5%	$18.27
43-5052	Postal service mail carriers	318	(38)	(11%)	1.26	69	19%	$21.67
51-9111	Packaging and filling machine operators and tenders	218	(29)	(12%)	0.88	26	11%	$12.69
53-7064	Packers and packagers, hand	332	(28)	(8%)	0.61	39	11%	$9.20
53-7063	Machine feeders and offbearers	71	(27)	(28%)	0.80	6	6%	$15.03
41-2021	Counter and rental clerks	339	(25)	(7%)	1.03	63	17%	$9.92
43-2011	Switchboard operators, including answering service	78	(22)	(22%)	0.69	11	11%	$11.09
43-4071	File clerks	162	(21)	(11%)	1.02	28	15%	$10.36
53-3022	Bus drivers, school	324	(16)	(5%)	0.90	40	12%	$16.01

Aside from declines in postal service employment, declines here appear to be due to increases in per-worker productivity and technology shifts in agriculture production and manufacturing occupations. Declines in packaging could also be a product of lower employment requirements for agriculture. School bus drivers could be candidates for a shift towards truck driving.

Moderate-Term on the Job Training

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
53-3032	Truck drivers, heavy and tractor-trailer	2,523	303	14%	1.86	619	28%	$16.28
43-3031	Bookkeeping, accounting, and auditing clerks	2,242	115	5%	1.37	304	14%	$13.52
41-4012	Sales representatives, wholesale and manufacturing, except technical & scientific prod.	989	108	12%	0.86	268	30%	$22.03
47-2061	Construction laborers	740	93	14%	0.76	128	20%	$14.14
49-9042	Maintenance and repair workers, general	877	73	9%	0.86	167	21%	$14.66
21-1093	Social and human service assistants	623	60	11%	2.30	152	27%	$11.25
43-6011	Executive secretaries and administrative assistants	961	60	7%	0.79	151	17%	$15.33
47-2073	Operating engineers and other construction equipment operators	524	58	12%	1.76	121	26%	$17.64
47-2141	Painters, construction and maintenance	296	42	17%	0.81	77	30%	$15.00
43-4051	Customer service representatives	1,010	40	4%	0.60	262	27%	$11.86
41-4011	Sales representatives, wholesale and manufacturing, technical and scientific products	169	35	26%	0.44	62	46%	$26.77
31-9091	Dental assistants	177	34	24%	0.79	57	40%	$16.24
41-9011	Demonstrators and product promoters	119	31	35%	1.36	55	63%	$9.80
51-9061	Inspectors, testers, sorters, samplers, and weighers	323	30	10%	0.98	68	23%	$15.02

Since 2002 the region has needed to fill 619 heavy truck driving jobs due to growth and replacement. Other fast growing jobs include medium-skill construction occupations and a strong growth in wholesale sales. Middle skill office occupations have are growing rapidly along with short term on-the-job-training (OTJT) in are a sign that the area's business services sectors are catching up to the rest of the nation.

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
51-2092	Team assemblers	1,195	(191)	(14%)	1.62	188	14%	$15.12
51-2099	Assemblers and fabricators, all other	406	(115)	(22%)	2.06	64	12%	$14.58
51-6031	Sewing machine operators	53	(62)	(54%)	0.37	2	2%	$13.26
51-3023	Slaughterers and meat packers	93	(59)	(39%)	1.29	21	14%	$9.76
51-9199	Production workers, all other	460	(28)	(6%)	2.53	75	15%	$12.67
51-4199	Metal workers and plastic workers, all other	49	(23)	(32%)	1.73	5	7%	$15.05
51-7041	Sawing machine setters, operators, and tenders, wood	155	(19)	(11%)	4.11	20	11%	$13.66
41-3011	Advertising sales agents	67	(12)	(15%)	0.44	9	11%	$14.50
51-7042	Woodworking machine setters, operators, and tenders, except sawing	348	(11)	(3%)	6.16	50	14%	$13.59
45-3011	Fishers and related fishing workers	65	(10)	(13%)	0.96	12	16%	$9.13
47-5041	Continuous mining machine operators	12	(10)	(45%)	1.02	1	5%	$17.30
51-4193	Plating and coating machine setters, operators, and tenders, metal and plastic	20	(10)	(33%)	0.71	4	13%	$13.76

General manufacturing and production occupations are declining. This a symptom of national manufacturing employment declines because of per-worker productivity gains while local manufacturing firms still remain relatively competitive. Note that many of the declining occupations still show a very strong presence in the region (high Location Quotient), so shifts could also be due to a regression towards national "norm" levels as the region diversifies.

Long Term on the Job Training or Related Work Experience

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
41-9021	Real estate brokers	862	328	61%	0.61	427	80%	$7.54
11-9199	Managers, all other	934	148	19%	0.75	317	40%	$13.32
41-1012	First-line supervisors/managers of non-retail sales workers	585	113	24%	0.84	198	42%	$19.94
41-1011	First-line supervisors/managers of retail sales workers	1,639	103	7%	0.96	349	23%	$11.82
43-1011	First-line supervisors/managers of office and administrative support workers	913	75	9%	0.79	219	26%	$17.72
47-1011	First-line supervisors/managers of construction trades and extraction workers	591	50	9%	0.82	130	24%	$18.96
27-4021	Photographers	325	39	14%	0.56	85	30%	$8.77
49-9041	Industrial machinery mechanics	257	34	15%	1.27	60	27%	$19.29
13-1041	Compliance officers, except agriculture, construction, health & safety, & transp.	137	31	29%	0.73	41	39%	$21.59
13-1051	Cost estimators	194	28	17%	1.20	58	35%	$19.68
49-2022	Telecommunications equipment installers and repairers, except line installers	170	28	20%	1.20	49	35%	$24.73
27-2022	Coaches and scouts	179	26	17%	1.04	50	33%	$21.36
25-3021	Self-enrichment education teachers	192	23	14%	0.62	44	26%	$10.69
49-9051	Electrical power-line installers and repairers	64	23	56%	0.76	39	95%	$24.32

The region shows strong growth in managers for sales, office, and construction workers, and general managers all occupations that have been traditionally under-concentrated in the Upper Red River Valley. This is another sign that business services are trending upwards. Real estate employment is growing quickly but the region still trails the nation in the share of workers in real estate; this growth is most likely due to national trends and workers engaging in speculative part time real estate jobs. However, the housing market in the area is generally healthy.

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
11-9012	Farmers and ranchers	7,168	(552)	(7%)	6.16	307	4%	$13.19
51-9122	Painters, transportation equipment	99	(46)	(32%)	2.56	18	12%	$18.31
49-3021	Automotive body and related repairers	156	(38)	(20%)	1.20	28	14%	$17.84
51-7011	Cabinetmakers and bench carpenters	161	(34)	(17%)	1.85	25	13%	$16.58
51-4041	Machinists	177	(32)	(15%)	0.64	16	8%	$16.07
51-8031	Water and liquid waste treatment plant and system operators	167	(21)	(11%)	1.99	25	13%	$17.16
11-9131	Postmasters and mail superintendents	69	(19)	(22%)	3.77	10	11%	$21.90
27-3011	Radio and television announcers	35	(17)	(33%)	0.95	7	13%	$8.72
39-6031	Flight attendants	18	(11)	(38%)	0.26	3	10%	$14.49
51-3021	Butchers and meat cutters	114	(10)	(8%)	1.19	26	21%	$12.62
51-4111	Tool and die makers	58	(8)	(12%)	1.06	2	3%	$20.07
47-2111	Electricians	422	(7)	(2%)	0.83	71	17%	$19.89
11-3051	Industrial production managers	93	(6)	(6%)	0.87	23	23%	$35.77

Farming and ranching continues long-term slow systemic decline. Other declines shown in the table are smaller in scale, or in occupations traditionally over-concentrated in the region. These mid-high skill occupations would be good candidates for transition into other growing occupations.

Postsecondary Vocational Award or Associate's Degree

Aside from real estate, certificate and AA level occupations show strong growth in health-care oriented occupations.

Other notable growth areas include farm and heavy equipment mechanics and scientific technician level jobs in biology, electrical engineering, and mechanical engineering.

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
41-9022	Real estate sales agents	879	329	60%	0.59	430	78%	$7.53
29-1111	Registered nurses	1,788	193	12%	0.91	412	26%	$26.54
31-1012	Nursing aides, orderlies, and attendants	2,295	134	6%	1.99	294	14%	$11.08
39-3011	Gaming dealers	328	98	43%	4.42	195	85%	$7.45
13-2021	Appraisers and assessors of real estate	213	70	49%	0.64	97	68%	$9.91
29-2061	Licensed practical and licensed vocational nurses	1,202	54	5%	2.12	317	28%	$15.89
43-6013	Medical secretaries	288	34	13%	0.68	61	24%	$12.85
49-3031	Bus and truck mechanics and diesel engine specialists	217	28	15%	1.08	63	33%	$18.23
15-1041	Computer support specialists	315	26	9%	0.76	87	30%	$13.85
29-2021	Dental hygienists	127	23	22%	0.95	41	39%	$26.97
49-3041	Farm equipment mechanics	246	23	10%	9.32	56	25%	$16.08
49-3042	Mobile heavy equipment mechanics, except engines	121	16	15%	1.28	32	30%	$20.89
51-9141	Semiconductor processors	27	16	145%	0.97	20	182%	$15.21
19-4021	Biological technicians	79	14	22%	1.46	33	51%	$14.46
17-3023	Electrical and electronic engineering technicians	60	13	28%	0.52	21	45%	$18.32
17-3027	Mechanical engineering technicians	33	12	57%	1.02	16	76%	$17.83

The most notable point about declining certificate and AA level jobs is the general lack of decline in this job category.

All signs point to a strong and growing need for vocational certificate- and associate's degree-level workers in the fourteen-county upper Red River Valley Region.

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
49-3023	Automotive service technicians and mechanics	605	(15)	(2%)	1.01	81	13%	$18.65
41-3041	Travel agents	40	(12)	(23%)	0.48	2	4%	$8.54
39-5012	Hairdressers, hairstylists, and cosmetologists	186	(11)	(6%)	0.43	19	10%	$14.30
11-9061	Funeral directors	34	(5)	(13%)	1.42	5	13%	$23.08
43-9031	Desktop publishers	36	(5)	(12%)	0.88	4	10%	$11.60
51-5022	Prepress technicians and workers	31	(5)	(14%)	0.71	3	8%	$14.44
17-3011	Architectural and civil drafters	31	(3)	(9%)	0.38	5	15%	$16.57
27-4012	Broadcast technicians	15	(3)	(17%)	0.54	3	17%	$11.11
39-5092	Manicurists and pedicurists	28	(3)	(10%)	0.57	3	10%	$11.21
17-3026	Industrial engineering technicians	105	(2)	(2%)	2.13	14	13%	$19.62
49-2011	Computer, automated teller, and office machine repairers	52	(2)	(4%)	0.43	6	11%	$13.02
17-3021	Aerospace engineering and operations technicians	10	(1)	(9%)	1.30	1	9%	$17.11
19-4011	Agricultural and food science technicians	19	(1)	(5%)	1.26	5	25%	$12.31

Bachelor's Degree or Degree plus Experience

This region has seen strong growth in bachelor's degree-level business services jobs, including managers, accountants, analysts and other finance oriented occupations. Many of these occupations area still highly under-concentrated in the region, but it appears that area companies are beginning to look within the region for business services, and may be choosing to locate more management functions locally in the valley.

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
11-9141	Property, real estate, and community association managers	523	185	55%	0.56	248	73%	$7.79
11-1011	Chief executives	685	93	16%	0.77	228	39%	$21.32
13-1199	Business operation specialists, all other	842	79	10%	1.07	210	28%	$19.35
13-1111	Management analysts	309	61	25%	0.37	98	40%	$14.77
13-2011	Accountants and auditors	692	59	9%	0.58	141	22%	$17.51
25-2021	Elementary school teachers, except special education	1,474	57	4%	1.17	292	21%	$27.93
13-2052	Personal financial advisors	339	54	19%	0.51	80	28%	$8.76
11-9021	Construction managers	438	48	12%	0.86	72	18%	$18.19
41-3031	Securities, commodities, and financial services sales agents	270	44	19%	0.48	102	45%	$9.50
11-9111	Medical and health services managers	295	37	14%	1.20	76	29%	$29.23
13-2072	Loan officers	323	37	13%	1.31	62	22%	$28.51
41-3021	Insurance sales agents	659	34	5%	1.20	141	23%	$12.81
19-2099	Physical scientists, all other	58	32	123%	2.20	42	162%	$15.94
11-3031	Financial managers	288	26	10%	0.56	62	24%	$26.64
15-1021	Computer programmers	159	26	20%	0.46	47	35%	$21.40
15-1071	Network and computer systems administrators	149	25	20%	0.58	42	34%	$21.86
11-2022	Sales managers	180	21	13%	0.65	48	30%	$26.48

This region has more than doubled its physical scientists, and now holds more than twice the national concentration in this category. Computer programming and systems administration has also seen strong growth, but each is still 40-50% under concentrated. This could be an area of growth and should be targeted by economic developers.

There are very few job categories requiring a bachelor's degree that are declining in the Upper Red River Valley Region.

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
11-9011	Farm, ranch, and other agricultural managers	2,001	(110)	(5%)	5.38	285	14%	$15.74
27-3022	Reporters and correspondents	27	(6)	(18%)	0.65	5	15%	$9.57
17-2112	Industrial engineers	126	(5)	(4%)	0.85	22	17%	$30.23
25-2031	Secondary school teachers, except special & vocational education	832	(5)	(1%)	0.96	169	20%	$26.64
27-3041	Editors	50	(3)	(6%)	0.44	9	17%	$12.38
11-1031	Legislators	65	(2)	(3%)	1.35	13	19%	$11.37
15-1032	Computer software engineers, systems software	31	(1)	(3%)	0.10	2	6%	$21.52
17-2141	Mechanical engineers	79	(1)	(1%)	0.48	14	18%	$28.03
19-1012	Food scientists and technologists	15	(1)	(6%)	1.51	4	25%	$22.77
11-2011	Advertising and promotions managers	24	0	0%	0.64	4	17%	$28.01
11-2031	Public relations managers	25	0	0%	0.55	4	16%	$30.24
15-1061	Database administrators	12	0	0%	0.13	1	8%	$19.18
17-2011	Aerospace engineers	13	0	0%	0.24	2	15%	$23.22
17-2021	Agricultural engineers	13	0	0%	3.73	2	15%	$22.43
17-2041	Chemical engineers	15	0	0%	0.66	3	20%	$25.80

Master's, Doctoral, or Professional Degree

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	New & Rep. Jobs	% New & Rep.	Current Median Hourly Earnings
25-1099	Postsecondary teachers	1,617	174	12%	1.39	371	26%	$44.05
29-1069	Physicians and surgeons	340	35	11%	0.51	77	25%	$47.63
19-3031	Clinical, counseling, and school psychologists	127	30	31%	0.88	55	57%	$21.90
19-2041	Environmental scientists and specialists, including health	164	25	18%	2.41	58	42%	$33.79
21-1012	Educational, vocational, and school counselors	308	24	8%	1.49	68	24%	$18.45
19-3032	Industrial-organizational psychologists	51	22	76%	0.73	33	114%	$14.94
19-3039	Psychologists, all other	53	22	71%	0.69	32	103%	$12.31
29-1123	Physical therapists	124	19	18%	0.79	30	29%	$27.22
21-1023	Mental health and substance abuse social workers	146	16	12%	1.30	42	32%	$16.46
29-1127	Speech-language pathologists	121	13	12%	1.07	28	26%	$21.67
19-1042	Medical scientists, except epidemiologists	22	10	83%	0.28	13	108%	$18.84
21-1014	Mental health counselors	41	9	28%	0.44	15	47%	$15.21
21-1015	Rehabilitation counselors	66	9	16%	0.67	18	32%	$15.64
29-1021	Dentists, general	47	9	24%	0.63	18	47%	$70.99
29-1081	Podiatrists	30	9	43%	0.98	13	62%	$34.42
23-1011	Lawyers	215	8	4%	0.33	36	17%	$23.33
25-9031	Instructional coordinators	70	8	13%	0.68	19	31%	$23.33
29-1131	Veterinarians	38	8	27%	0.68	13	43%	$25.24
21-1011	Substance abuse and behavioral disorder counselors	52	7	16%	0.70	14	31%	$16.20
29-1011	Chiropractors	44	6	16%	0.91	11	29%	$23.34
29-1024	Prosthodontists	21	6	40%	1.96	9	60%	$52.86
15-1011	Computer and information scientists, research	19	5	36%	0.38	8	57%	$14.91
21-1019	Counselors, all other	39	5	15%	1.04	11	32%	$12.33
29-1051	Pharmacists	189	5	3%	0.94	34	18%	$45.38
29-1122	Occupational therapists	41	5	14%	0.50	10	28%	$20.27
21-1013	Marriage and family therapists	35	4	13%	1.05	9	29%	$15.33
29-1023	Orthodontists	22	4	22%	1.60	8	44%	$62.58
29-1029	Dentists, all other specialists	21	4	24%	1.53	8	47%	$36.30

While master's, doctoral, and professional degree required occupations are projected to be one of the fastest growing in the region by percentage, this growth is driven by two areas: health care and post-secondary educators.

One other notable growth occupation is environmental scientists. This is a highly concentrated, growing occupation, showing an area of strength in the region. This, combined with growing bachelor's degree level physical scientists could be a major area of strength for the region.

Transitioning Workers

Continued productivity increases in manufacturing industries tend to reduce employment in the long run. The following table shows the fastest declining occupations across the 14 county upper Red River Valley Region. Team Assemblers is a general manufacturing occupation currently comprised of 63% high school graduates, 23% with less than a high school diploma, and 12% with a post-secondary certificate.

SOC Code	Description	2009 Jobs	Change	% Change	2009 National LQ	Current Median Hourly Earnings
55-9999	Military Occupations	3,246	(651)	(17%)	2.04	$16.03
11-9012	Farmers and ranchers	7,168	(552)	(7%)	6.16	$13.19
51-2092	Team assemblers	1,195	(191)	(14%)	1.62	$15.12
51-2099	Assemblers and fabricators, all other	406	(115)	(22%)	2.06	$14.58
11-9011	Farm, ranch, and other agricultural managers	2,001	(110)	(5%)	5.38	$15.74
37-2012	Maids and housekeeping cleaners	1,536	(101)	(6%)	0.94	$8.21
45-209A	Miscellaneous agricultural workers (aggregation of 45-2091,2,3,9)	1,889	(96)	(5%)	3.11	$11.80
51-6031	Sewing machine operators	53	(62)	(54%)	0.37	$13.26
41-9041	Telemarketers	77	(61)	(44%)	0.31	$8.34
51-3023	Slaughterers and meat packers	93	(59)	(39%)	1.29	$9.76
37-2011	Janitors and cleaners, except maids and housekeeping cleaners	1,877	(50)	(3%)	1.11	$10.50
51-9122	Painters, transportation equipment	99	(46)	(32%)	2.56	$18.31
43-5053	Postal service mail sorters, processors, & processing machine operators	106	(44)	(29%)	0.82	$18.27
43-5052	Postal service mail carriers	318	(38)	(11%)	1.26	$21.67
49-3021	Automotive body and related repairers	156	(38)	(20%)	1.20	$17.84
51-7011	Cabinetmakers and bench carpenters	161	(34)	(17%)	1.85	$16.58
51-4041	Machinists	177	(32)	(15%)	0.64	$16.07
51-9111	Packaging and filling machine operators and tenders	218	(29)	(12%)	0.88	$12.69
51-9199	Production workers, all other	460	(28)	(6%)	2.53	$12.67
53-7064	Packers and packagers, hand	332	(28)	(8%)	0.61	$9.20
53-7063	Machine feeders and offbearers	71	(27)	(28%)	0.80	$15.03
41-2021	Counter and rental clerks	339	(25)	(7%)	1.03	$9.92
51-4199	Metal workers and plastic workers, all other	49	(23)	(32%)	1.73	$15.05
43-2011	Switchboard operators, including answering service	78	(22)	(22%)	0.69	$11.09
43-4071	File clerks	162	(21)	(11%)	1.02	$10.36
51-8031	Water and liquid waste treatment plant and system operators	167	(21)	(11%)	1.99	$17.16
11-9131	Postmasters and mail superintendents	69	(19)	(22%)	3.77	$21.90
51-7041	Sawing machine setters, operators, and tenders, wood	155	(19)	(11%)	4.11	$13.66
27-3011	Radio and television announcers	35	(17)	(33%)	0.95	$8.72
53-3022	Bus drivers, school	324	(16)	(5%)	0.90	$16.01
49-3023	Automotive service technicians and mechanics	605	(15)	(2%)	1.01	$18.65
43-9051	Mail clerks and mail machine operators, except postal service	71	(13)	(15%)	0.68	$10.22
41-3011	Advertising sales agents	67	(12)	(15%)	0.44	$14.50
41-3041	Travel agents	40	(12)	(23%)	0.48	$8.54
47-3016	Helpers, roofers	15	(12)	(44%)	1.09	$11.15
51-9198	Helpers--Production workers	146	(12)	(8%)	0.45	$11.46
35-2021	Food preparation workers	475	(11)	(2%)	0.70	$9.55
35-3011	Bartenders	787	(11)	(1%)	1.99	$8.05
39-5012	Hairdressers, hairstylists, and cosmetologists	186	(11)	(6%)	0.43	$14.30
39-6031	Flight attendants	18	(11)	(38%)	0.26	$14.49
51-7042	Woodworking machine setters, operators, and tenders, except sawing	348	(11)	(3%)	6.16	$13.59

Employing a crosswalk of knowledge skills, and abilities between Team Assemblers and other occupations in the region, we can identify potential new occupations for workers in this declining occupation. Ideally we look for target occupations in growing job categories with a high degree of compatibility and requiring minimal retraining, and offer a higher wage if possible.

Occupation	Openings	Wages	Compatibility	Training
Solderers and Brazers	130	$16.36	97	Available
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	23	$15.37	97	Available
Welders, Cutters, and Welder Fitters	130	$16.36	96	Available
Inspectors, Testers, Sorters, Samplers, and Weighers	67	$15.02	95	Available
Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	25	$14.55	94	Unknown
Structural Metal Fabricators and Fitters	34	$14.60	93	Unknown
Painters, Construction and Maintenance	77	$15.00	92	Unknown
Security Guards	64	$11.12	91	Unknown
Construction Laborers	128	$14.14	91	Unknown
Home Health Aides	415	$9.44	91	Unknown

The compatibility score is calculated based upon the degree of compatibility for the most important knowledge, skills, and abilities (KSA) areas. Let's take a look at a specific potential transition: Team Assemblers (Source) to Welders, Cutters, and Welder Fitters (Target).

Education Level

The chart below compares the education levels of each occupation, allowing you to see whether the occupations focus on higher or lower education levels.

Education Level	Source Occupation	Target Occupation
Post-Doctoral Training	0%	0%
Doctoral Degree	0%	0%
First Professional Degree	0%	0%
Post-Master's Certificate	0%	0%
Master's Degree	0%	0%
Post-Baccalaureate Certificate	0%	0%
Bachelor's Degree	0%	0%
Associate's Degree (or other 2-year degree)	0%	0%
Some College Courses	2%	8%
Post-Secondary Certificate	12%	27%
High School Diploma (or GED or High School Equivalence Certificate)	63%	27%
Less than a High School Diploma	23%	39%

Wages

Wages are the median hourly wage for this occupation for the region. The chart below shows wages for the source occupation and the target occupation by percentile, comparing the earnings potential of each occupation. By moving into welding, displaced team assemblers could actually increase their earngings.

O*NET Code	Title	Pct. 10	Pct. 25	Median	Pct. 75	Pct. 90
51-2092.00	Team Assemblers	$10.55	$13.07	$15.12	$17.34	$20.81
51-4121.06	Welders, Cutters, and Welder Fitters	$11.41	$13.51	$16.36	$19.05	$21.74

The following web charts compare KSA levels of Team Assemblers (Source) to Welders, Cutters, and Welder Fitters (Target). By comparing specific KSA areas, we can get a read if a particular candidate is a good fit for the target occupation, or how to specifically tailor training programs to address the most glaring deficiencies. The charts can be read clockwise from 12 o'clock in order of relative importance to the target occupation.

Knowledge

Knowledge refers to organized sets of principles and facts applying in general domains (e.g., knowledge of principles and methods for moving people or goods by air).

The most significant knowledge gaps between the two occupations are in building and construction (-25), design (-15), engineering and technology (-14), and mechanical (-13).

Skill

Skills refer to developed capacities that facilitate the more rapid acquisition of knowledge or the performance of activities (e.g., determining what is causing an operating error and deciding what to do about it).

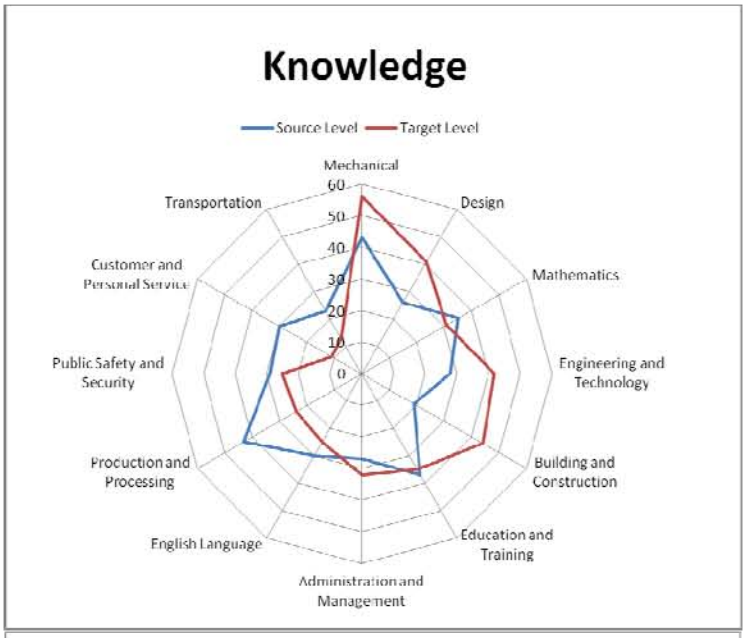
The biggest skill deficiencies occur in the reading comprehension (-10), mathematics (-10), and repairing (-9) skills areas.

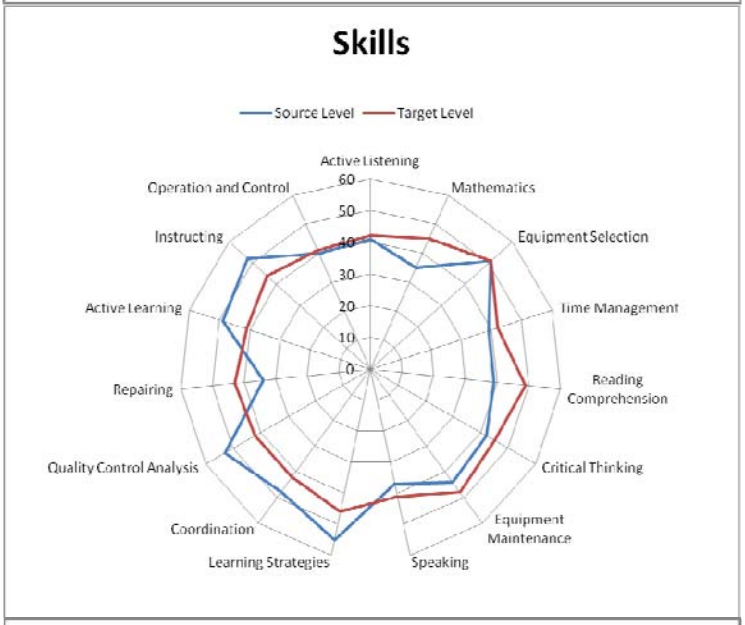
Ability

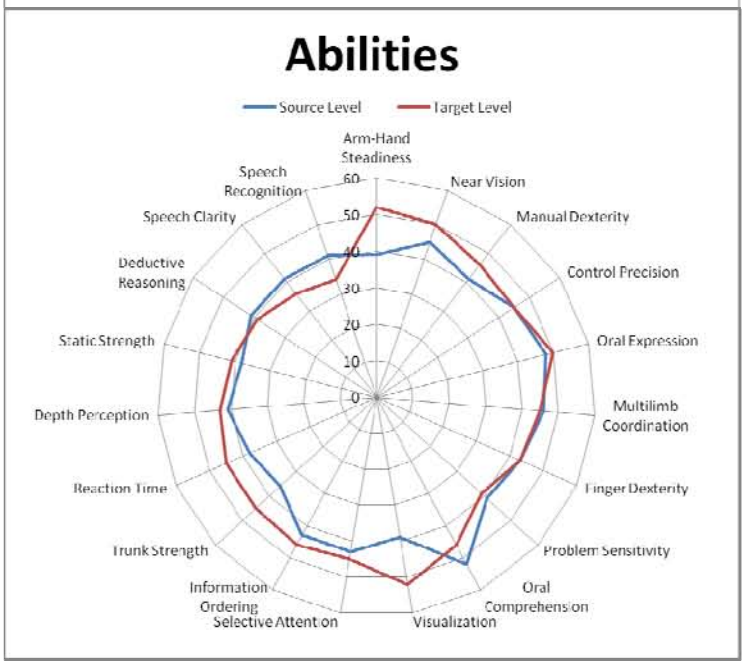
Abilities refers to enduring attributes of the individual that influence performance (e.g., the ability to come up with a number of ideas about a topic).

The largest abilities gaps occur in arm-hand steadiness (-13, the single most important factor in the target occupation), visualization (-13), extent flexibility (-11), trunk strength (-9), and reaction time (-7).

Most of the skills and abilities areas show tight congruence between team assemblers and welders, cutters, and welding fitters. Assuming a new candidate for the target welding occupation possesses the necessary arm hand steadiness and







other physical abilities, a potentially downsized team assembler could be a fit for a knowledge training program to address the mechanical, design, engineering and building construction knowledge areas for the new job category.

Transitioning Workers into "In-Demand" Occupations

A similar approach can identify likely sources of new workers into fast growing, in-demand occupations. One of the fastest growing occupations in the fourteen-county upper Red River Valley Region is heavy and tractor-trailer truck drivers. By looking at occupational compatibility combined with job growth and openings, we can identify declining occupations sharing job characteristics with truck drivers. This analysis could also identify similar occupations already existing in the workforce that could be a source of new workers for new and growing companies in the region, even if those existing workers are retrained.

Title	2002 Jobs	2002-2009 Growth	Current Hourly Earnings	Job Zone	Yearly Turnover	Compatibility Index
Truck Drivers, Heavy and Tractor-Trailer	**2,220**	**303**	**$16.28**	**2**	**45**	**100**
Rail Yard Engineers, Dinkey Operators, and Hostlers*	86	(9)	$19.12	2	2	95
Railroad Brake, Signal, and Switch Operators	34	(3)	$20.44	2	1	95
Bus Drivers, Transit and Intercity	65	11	$13.64	2	1	95
Excavating and Loading Machine and Dragline Operators	43	11	$19.32	2	2	94
Railroad Conductors and Yardmasters	68	(7)	$22.22	2	2	94
Paving, Surfacing, and Tamping Equipment Operators	30	1	$14.56	2	1	94
Tree Trimmers and Pruners	57	8	$9.17	2	1	94
Septic Tank Servicers and Sewer Pipe Cleaners	19	(1)	$12.01	1	0	94
Truck Drivers, Light or Delivery Services	827	60	$15.17	2	16	93
Sailors and Marine Oilers	13	3	$15.36	2	1	93
Loading Machine Operators, Underground Mining	25	(9)	$17.08	2	0	93
Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	11	7	$14.53	2	1	93
Mine Cutting and Channeling Machine Operators	17	(7)	$16.06	2	0	93
Bridge and Lock Tenders	16	1	$19.50	1	1	93
Ambulance Drivers and Attendants, Except Emergency Medical Technicians	29	0	$9.31	2	1	93
Mates- Ship, Boat, and Barge*	17	5	$24.03	3	1	93
Tank Car, Truck, and Ship Loaders	17	0	$15.35	2	0	93
Locomotive Engineers*	86	(9)	$19.12	2	2	93
Nursery Workers*	**1,985**	**(96)**	**$11.80**	**1**	**51**	**92**
Highway Maintenance Workers	235	6	$16.77	2	7	92
Helpers--Brickmasons, Blockmasons, Stonemasons, & Tile & Marble Setters	20	(5)	$11.88	1	0	92
Tire Repairers and Changers	107	(7)	$10.10	1	2	92
Rail-Track Laying and Maintenance Equipment Operators	13	0	$12.52	2	0	92
Crane and Tower Operators	19	3	$18.80	3	1	92
Automotive Body and Related Repairers	**194**	**(38)**	**$17.84**	**2**	**4**	**92**
Hazardous Materials Removal Workers	17	(4)	$16.67	2	0	92

Job Zone:	1	2	3	4	5
Description:	Little or No Preparation Needed	Some Preparation Needed	Medium Preparation Needed	Considerable Preparation Needed	Extensive Preparation Needed

Two large and seemingly likely sources of new heavy truck drivers emerge: nursery workers and auto body repairers. By comparing the KSA profiles we can begin to define more precisely the best fit for new truck drivers.

Both potential source occupations would require significant training in transportation and public safety knowledge areas. While the most important truck driving skills profiles match nicely, the potential transitions would most come down to a particular job candidate's abilities. Perhaps a physical screening program could be developed to assess the reaction time, response, rate control, special orientation, and peripheral vision abilities of the displaced worker group on a case-by-case basis. Only those fitting the abilities profile would be moved on into training for truck driving.