

# WORKFORCE INTELLIGENCE NETWORK

QUARTERLY REPORT • **GENESEE & SHIAWASSEE**  
Q4 2015 & 2015 Annual Summary





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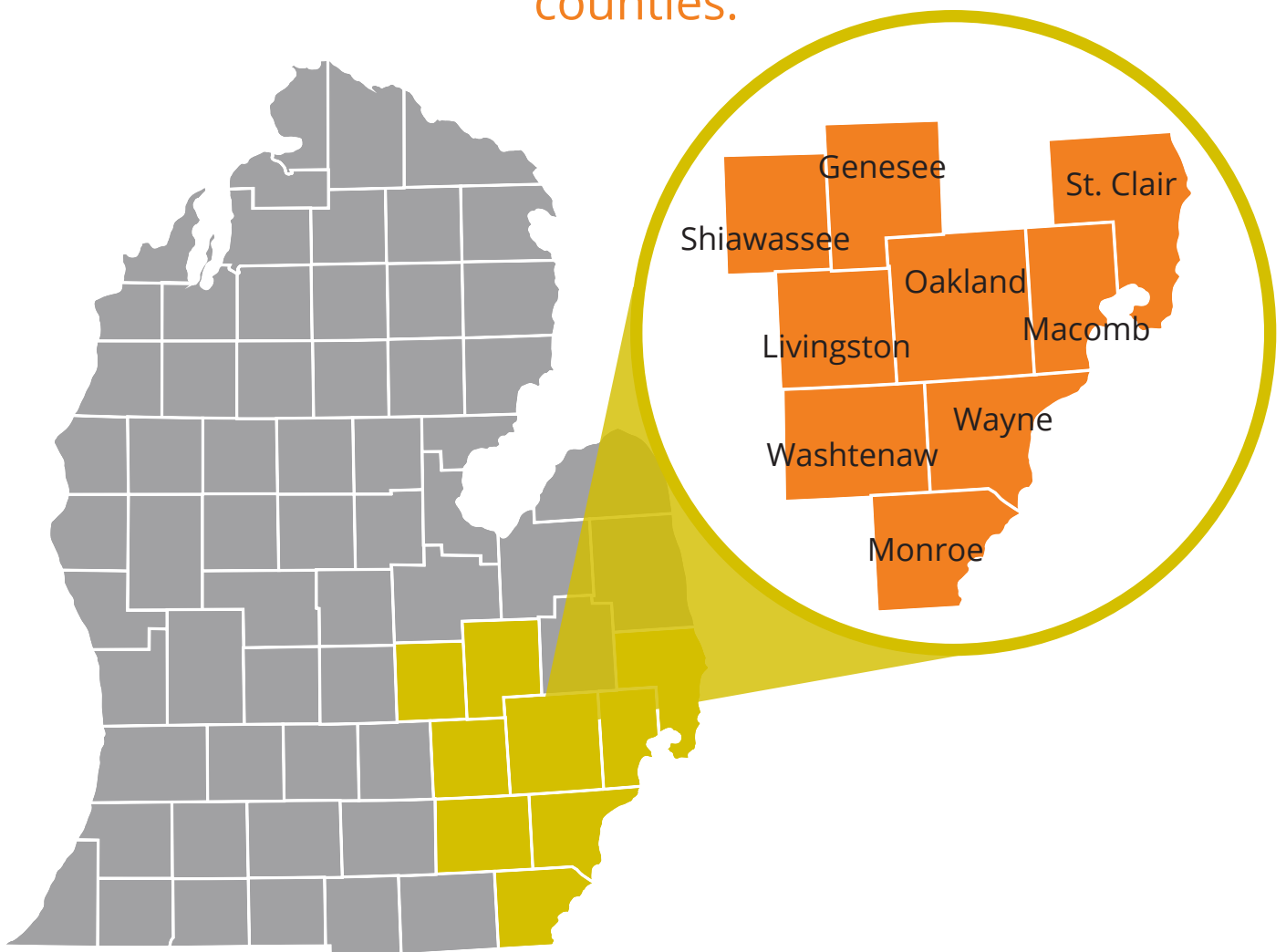
Data Notes and Sources



Southeast Michigan WIN region includes  
9 counties:

**Genesee, Livingston, Monroe, Macomb, Oakland,  
Shiawassee, St. Clair, Washtenaw, and Wayne.\***

This report focuses on Genesee and Shiawassee  
counties.



\* The original WIN partnership included the 9 counties in this report. The WIN partnership expanded to include 16 counties as of late 2015. Hillsdale, Huron, Jackson, Lapeer, Lenawee, Sanilac, and Tuscola counties were added. While this report is still focused on the original 9-county labor shed, much of the analysis (wages, location quotients, recent graduates, and educational attainment requirements), are shown in all reports for the new broader 16-county area.

# SECTION ONE

## EXECUTIVE SUMMARY

### **Employment is growing in Genesee and Shiawassee counties! (See pages 10-12)**

*As of November 2015, employment in the region increased two percent in 2015 over 2014, adding 3,976 jobs during the year. As of November 2015, 207,571 individuals were employed (both part-time and full-time) in Genesee and Shiawassee counties. The current fourth quarter average estimate of 206,215 individuals is 1.5% (3,034 individuals) higher than the third quarter average of 203,181.*

### **The unemployment rate in Genesee and Shiawassee counties has been falling. (See pages 10-12)**

*The unemployment rate has been falling since its peak in January 2015. As of November 2015, the rate was estimated at 4.7%. This is lower than the average rate for November 2015 across Michigan of 5.1%. The unemployment rate declined during 2015 as a result of jobs gained.*

### **Demand for registered nurses has increased by over 180% over the past year, and truck drivers remained the most in-demand occupation. (See page 7)**

*Compared to one year ago (Q4 2014) the top jobs have shifted. Truck drivers remained the most in-demand occupation and demand for registered nurses has increased by over 100% (182.4%, 166 postings).*



## **Employers have increased posting levels to recoup employment losses. (See page 9)**

*Postings are continuing to increase at a consistent rate. Employment, however, has declined slightly since last year, explaining the influx of online job postings as employers try to fill demand and replace employees lost to retirements and turnover.*

## **Health care employment and demand trends highlight it as a nearly “recession-proof” occupational field. (See pages 57-67)**

*Employment levels of health care workers in Genesee and Shiawassee Counties has grown steadily since 2001, with only slight drops or stagnations. 2015 employment was estimated at 20,828 individuals, up 208 workers (1.0%) compared to 2014. The net employment gain over the last several years is strong and employers are in consistent need of more workers despite recession drops experienced in other occupation groups.*





# SECTION TWO

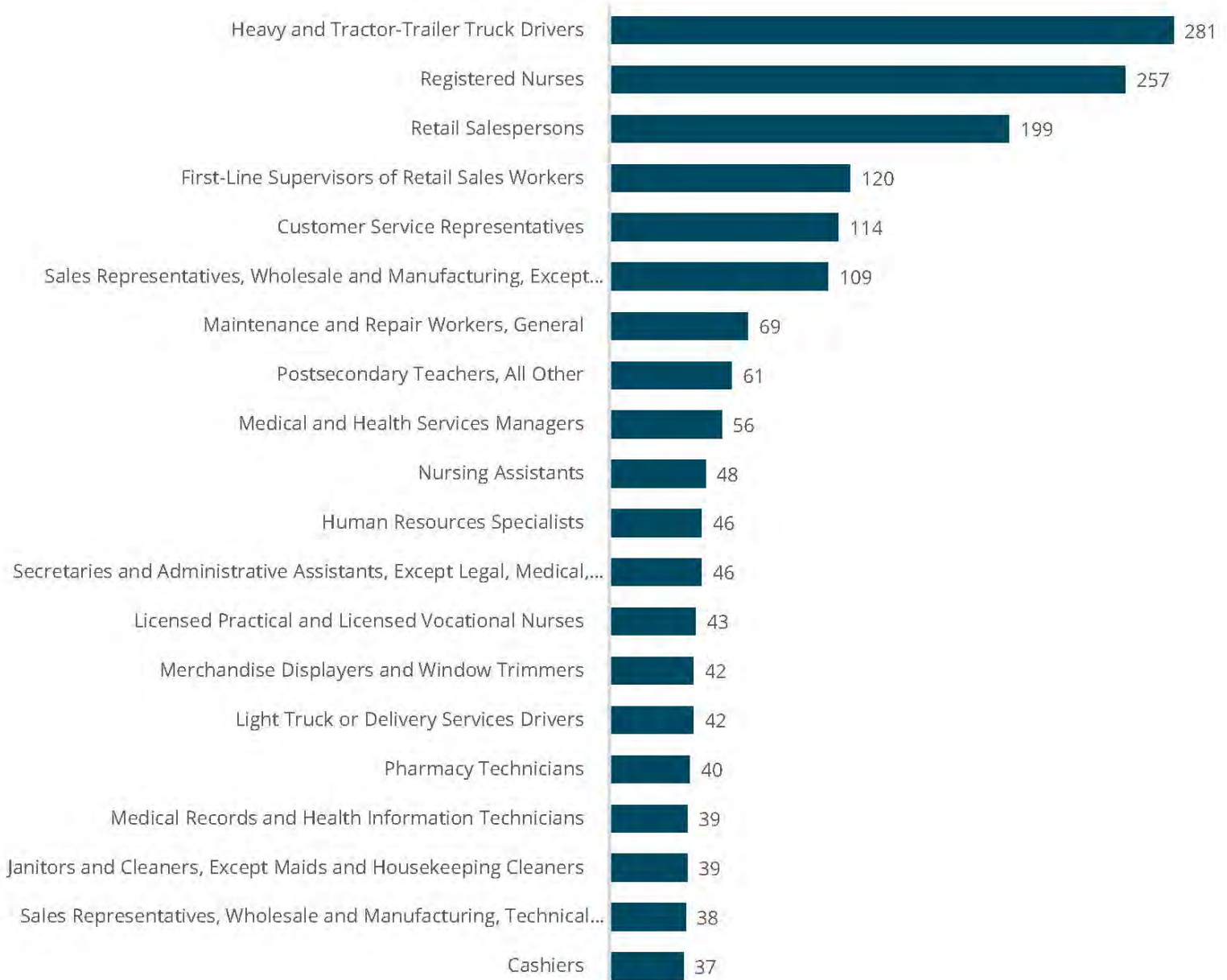
## LABOR MARKET AND DEMAND OVERVIEW





# TOP 20 JOBS IN DEMAND

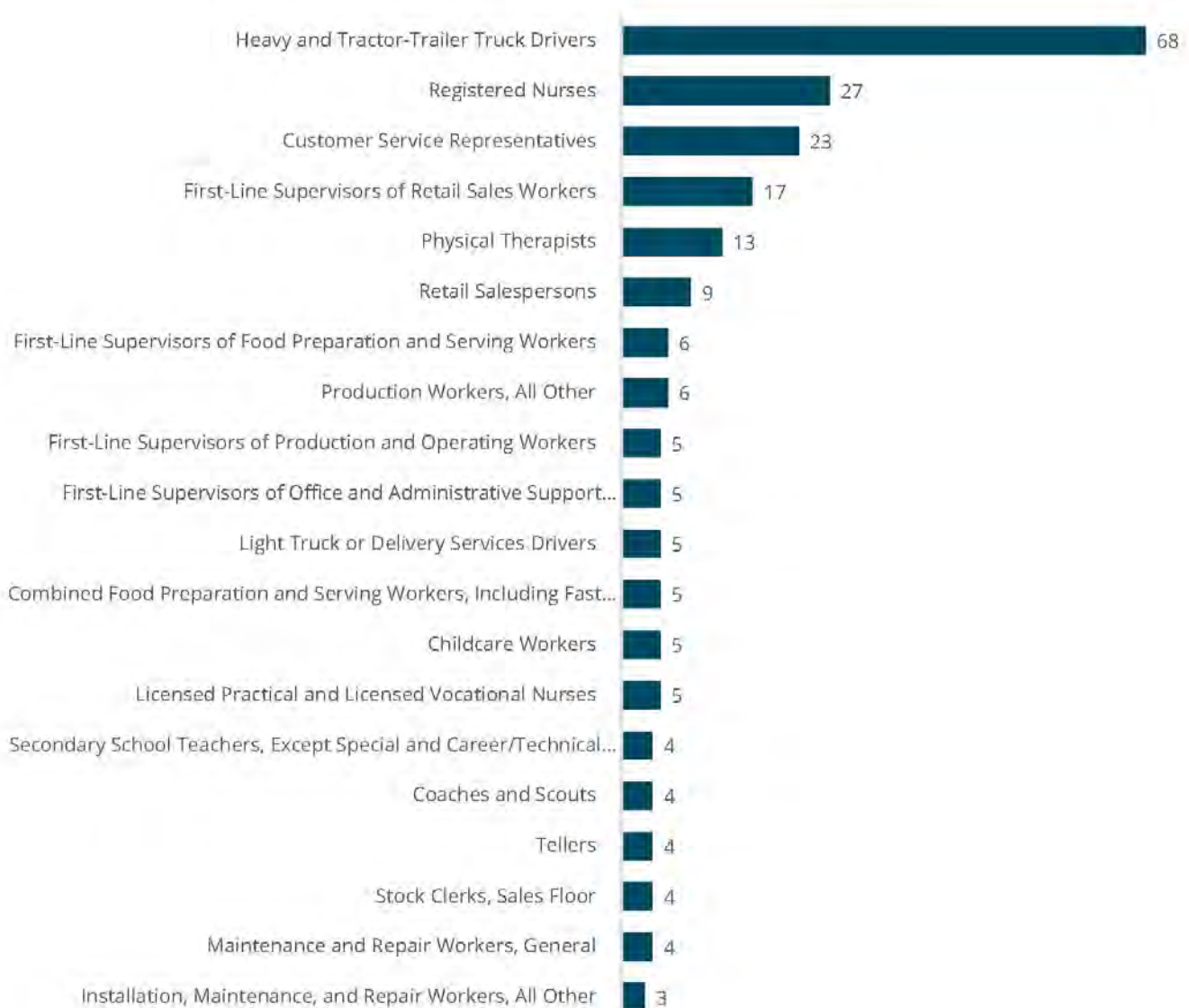
OCTOBER - DECEMBER 2015  
Genesee County



During the fourth quarter of 2015, truck drivers maintained the top posting position, while registered nurses moved from third to second. Compared to quarter three 2015, truck drivers had an increase in postings of 11, 4.1%, and registered nurses had an increase of 40, 18.4%. Retail salespersons were previously second in job postings, but have fallen to third this quarter. Demand for retail salespersons dropped 17.4% from 165 in quarter three (Q3) to 199 in Q4 2015. Compared to one year ago (Q4 2014) the top jobs have shifted. Truck drivers remained the most in-demand occupation and demand for registered nurses has increased by over 100% (182.4%, 166 postings). New to the top occupations in 2015 were maintenance and repair workers, postsecondary teachers, and medical records technicians. No longer in the top twenty compared to one year ago are physical therapists, childcare workers, and food preparation and serving workers. Postings for the top ten occupations represents 31.1% of total job postings in the county.

# TOP 20 JOBS IN DEMAND

OCTOBER - DECEMBER 2015  
Shiawassee County



During the fourth quarter of 2015, truck drivers maintained the top posting position, while laborers were supplanted by registered nurses for second. Truck drivers saw a 27 posting increase, up 65.9% from Q3 2015. Registered nurses also saw an increase, improving by 11 postings, 68.8%. Demand for laborers dropped 82.4% from 17 in Q3 to 3 in Q4 2015, falling from second to twenty-fifth most in-demand. Compared to one year ago (Q4 2014) the top jobs have shifted. Although truck drivers were still the most in-demand occupation, demand for registered nurses has increased by 22.7%, 5 postings. New to the top occupations in 2015 were production workers, production and operating supervisors, and office and administrative support supervisors. No longer in the top twenty compared to one year ago are merchandise displayers, nannies, and nursing assistants. Postings for the top ten occupations represents 18% of total job postings in the county, low relatively as the labor market in Shiawassee is not heavily focused on one or two industries.



# EMPLOYER DEMAND

OCTOBER -DECEMBER 2015

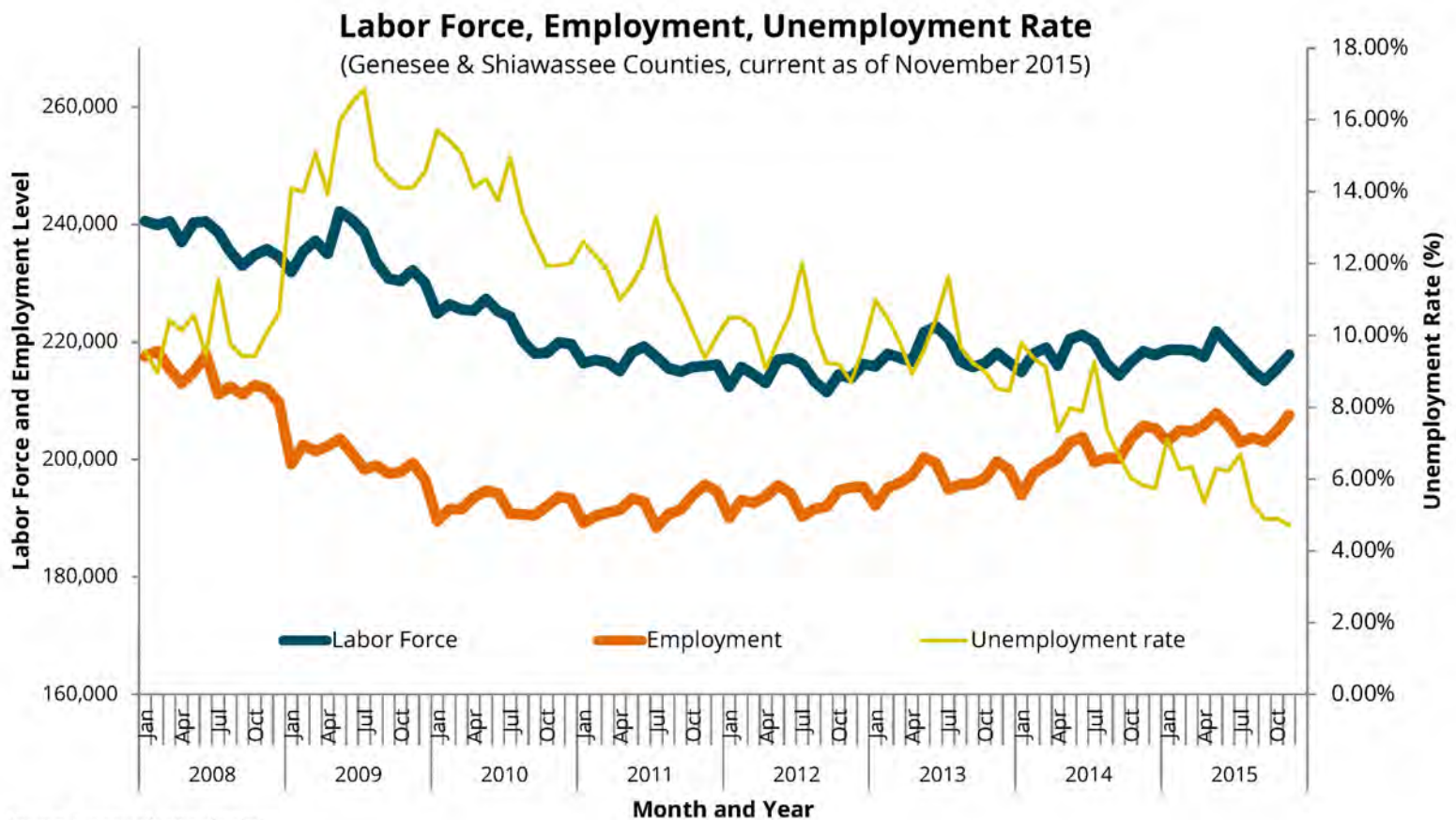
Genesee & Shiawassee Counties Online Job Postings



Source: Burning Glass Technologies  
Analysis: Workforce Intelligence Network

Online job ads dropped by 678 postings, 12.8%, from 5,305 in Q3 2015 to 4,627 in Q4 2015. Historically, Q4 postings drop compared to Q3 each year. In general, postings have remained steady, with a peak in Q3 2015. Employment has also remained generally stable, highlighting the connection between online job ads and hiring.

# EMPLOYMENT AND LABOR FORCE



Employment is growing in Genesee and Shiawassee counties and has been increasing steadily since the 2010 recession low. As of November 2015 (most recently available data as of report writing), employment in the region increased 2% in 2015 over 2014, adding 3,976 jobs during the year. The labor force is not experiencing the same steady growth. Genesee and Shiawassee counties' labor force is in a modest decline after a small post-recession increase, dropping by 116 individuals (0.1%) between 2014 and 2015. The unemployment rate has been steadily falling since the recession high in 2010 of 13.8%. The drop is due to both a combination of individuals gaining jobs and the labor force's modest declines.



# EMPLOYMENT AND LABOR FORCE OVERVIEW

## Annual Labor Market Data

	2010 Annual	2011 Annual	2012 Annual	2013 Annual	2014 Annual	2015 To-Date	Change from 2014	Percent Change from 2014
Labor Force	222,897	216,492	214,603	218,001	217,733	<b>217,617</b>	-116	-0.1%
Employment	192,152	191,882	193,194	196,777	200,967	<b>204,942</b>	3,976	2.0%
Unemployment	30,746	24,610	21,409	21,224	16,766	<b>12,675</b>	-4,091	-24.4%
Unemployment Rate	13.8%	11.4%	10.0%	9.7%	7.7%	<b>5.8%</b>	-1.9%	na

Data: Bureau of Labor Statistics

## Quarterly Labor Market Data

	4th Quarter 2014	1st Quarter 2015	2nd Quarter 2015	3rd Quarter 2015	4th Quarter Estimate	Change from 3rd Quarter 2015	Percent Change from 3rd Quarter 2015
Labor Force	217,572	218,635	219,598	215,289	<b>216,613</b>	1,324	0.6%
Employment	204,812	204,272	206,525	203,181	<b>206,215</b>	3,034	1.5%
Unemployment	12,760	14,363	13,073	12,108	<b>10,398</b>	-1,710	-14.1%
Unemployment Rate	5.9%	6.6%	6.0%	5.6%	<b>4.8%</b>	0	na

\*Note: Monthly data averaged by quarter

Data: Bureau of Labor Statistics

# EMPLOYMENT AND LABOR FORCE OVERVIEW

As of November 2015, 207,571 individuals were employed (both part-time and full-time) in Genesee and Shiawassee counties. The current fourth quarter average estimate of 206,215 individuals is 1.5% (3,034 individuals) higher than the third quarter average of 203,181. Employment grew between Q3 and Q4 2015, a positive change when compared to the drop that occurred between Q2 and Q3 2015. The labor force, as of November 2015, is set at 217,815 individuals in the combined counties. The fourth quarter average estimate of 216,613 is 0.6% (1,324 individuals) higher than the Q3 2015 average of 215,289 individuals.

The unemployment rate has been falling since its peak in January 2015. As of November 2015, the rate is estimated at 4.7%. This is lower than the average rate for November 2015 across Michigan of 5.1%. The unemployment rate declined during 2015 as a result of jobs gained.

## Monthly Labor Market Data

	October 2014	November 2014	December 2014	January 2015	February 2015	March 2015	April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	October 2015	November 2015
Labor Force	216,585	218,395	217,736	218,636	218,701	218,567	217,477	221,759	219,557	217,400	215,046	213,420	215,411	217,815
Employment	203,521	205,692	205,223	203,093	204,990	204,733	205,835	207,841	205,898	202,866	203,685	202,991	204,859	207,571
Unemployment	13,064	12,703	12,513	15,543	13,711	13,834	11,642	13,918	13,659	14,534	11,361	10,429	10,552	10,244
Unemployment Rate	6.0%	5.8%	5.7%	7.1%	6.3%	6.3%	5.4%	6.3%	6.2%	6.7%	5.3%	4.9%	4.9%	4.7%

\* Note: Data shown for 14 most recently available months

Data: Bureau of Labor Statistics








# SECTION THREE

## OCCUPATIONAL CLUSTERS



# GENESEE & SHIAWASSEE DEMAND OVERVIEW

	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Change over time	Share of Total Postings Q4 2015
Total	4,398	4,250	4,821	5,305	4,627		
Skilled Trades & Technicians	116	123	136	157	166		3.6%
Engineers & Designers	114	105	119	123	100		2.2%
IT	137	133	254	201	171		3.7%
Health Care	642	640	790	828	815		17.6%
Retail & Hospitality	1,076	1,125	1,073	1,399	1,105		23.9%
TDL	494	452	607	490	475		10.3%
Agriculture	76	115	113	99	80		1.7%



# ADVANCED MANUFACTURING

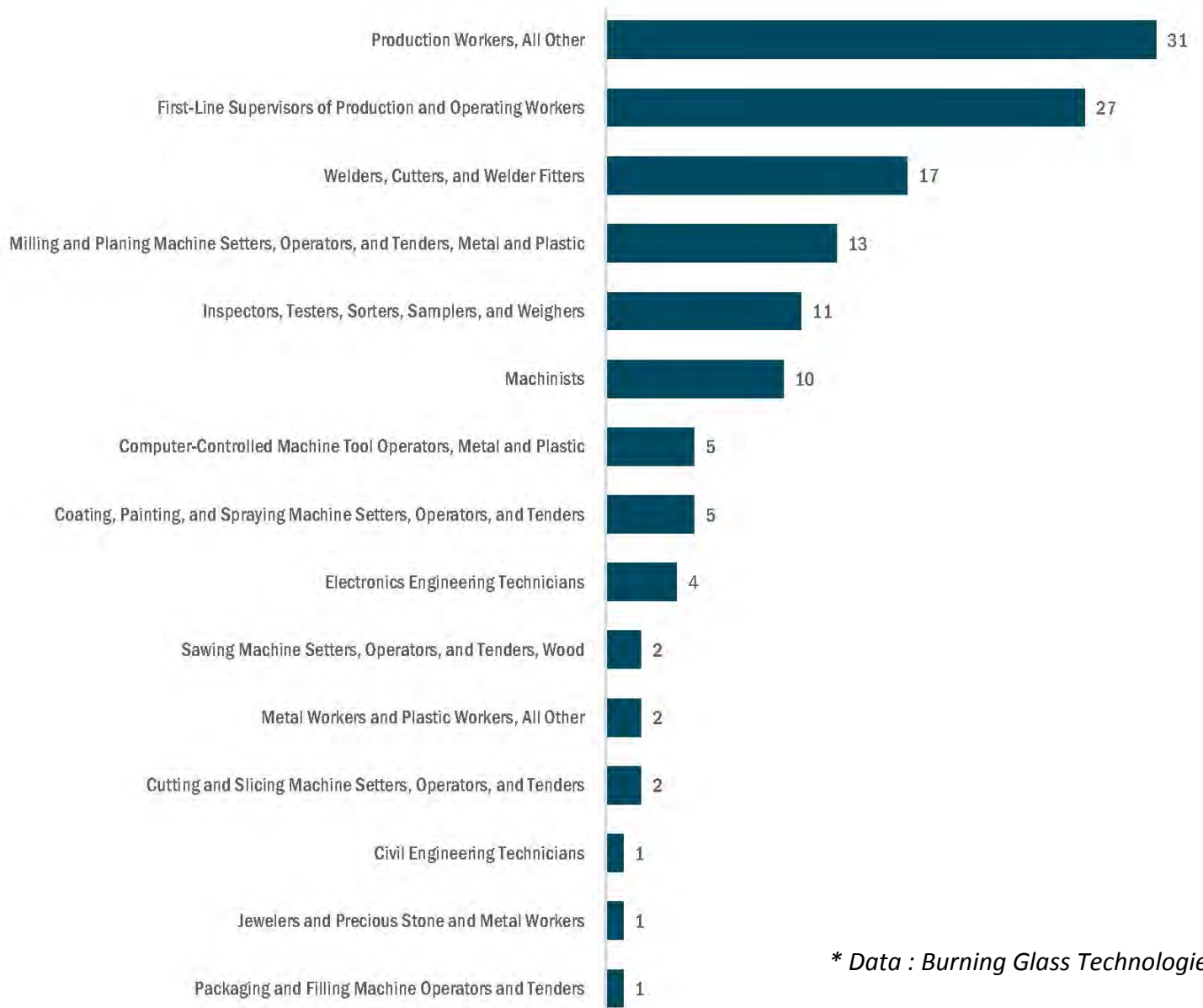
## SKILLED TRADES AND TECHNICIANS

*WIN's technicians/skilled trades category includes jobs related to advanced manufacturing. Southeast Michigan has more demand for skilled- trades labor, such as CNC machinists and welders, than almost anywhere else in the country. In 2015, skilled trades employment reached 4,423 individuals in Genesee & Shiawassee counties.*

*NOTE: Skilled trades related to construction and repair are not included in this cluster, as the focus is on advanced manufacturing.*

# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: TOP JOBS GENESEE COUNTY



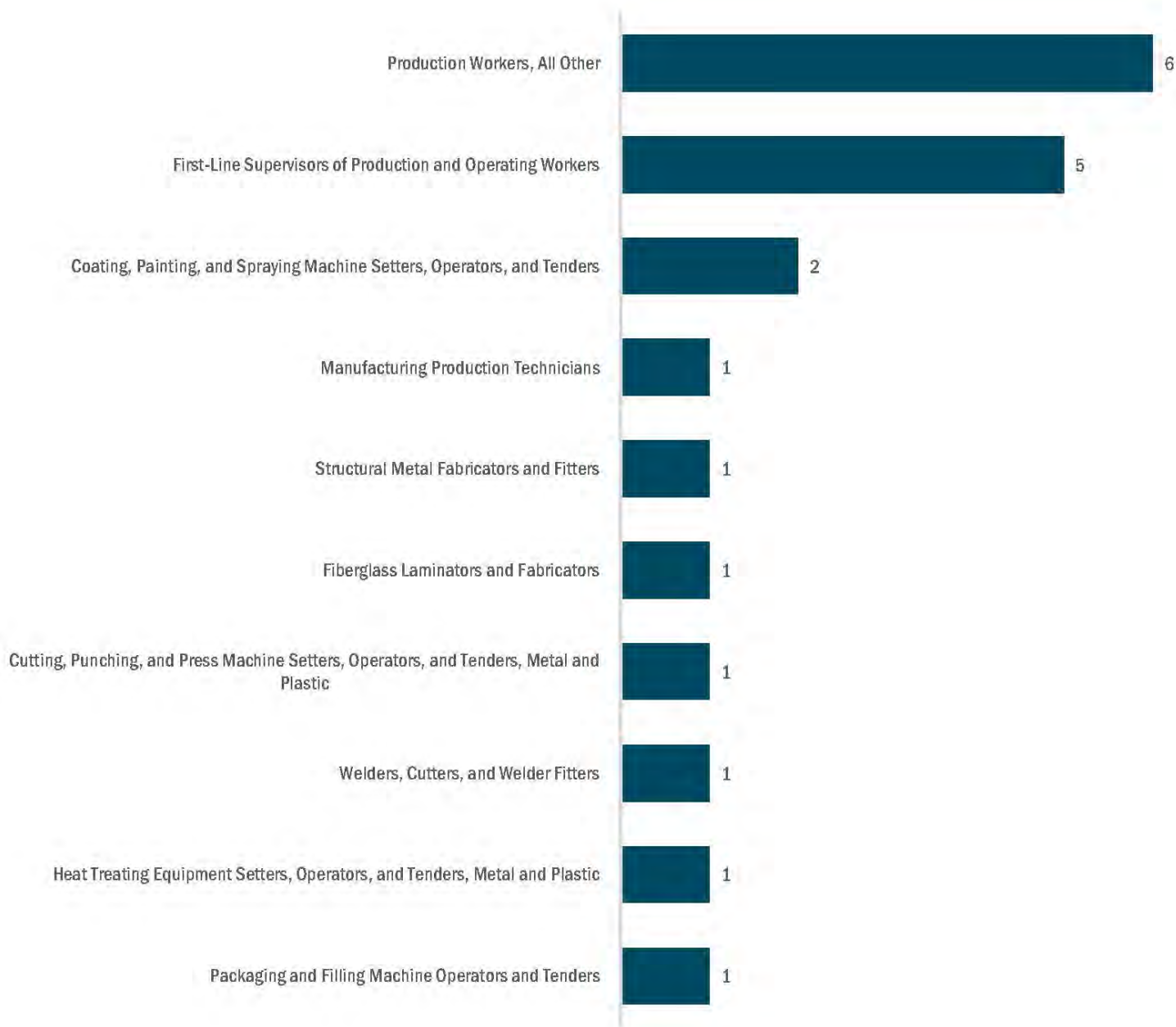
*\* Data : Burning Glass Technologies*

The top jobs remained the same for Q4 2015. Production workers and production supervisors remained the top-posted occupations and did not experience any position fluctuation. Production workers saw a decrease in postings of 7, 18.4%, while production supervisors saw an increase of 11, 68.8%. Compared to one year ago (Q4 2014) the top jobs have shifted. Production workers and production supervisors have reversed order, with production workers overtaking production supervisors for the top spot with an increase of 93.8%, or 15 postings. New to the top occupations are coating, painting, and spraying machine setters, electronics engineering technicians, and sawing machine setters. No longer in the top twenty compared to one year ago are computer numerically controlled machine tool programmers, dental laboratory technicians, and potters. Postings for the top ten occupations represents 86% of total job postings.



# ADVANCED MANUFACTURING

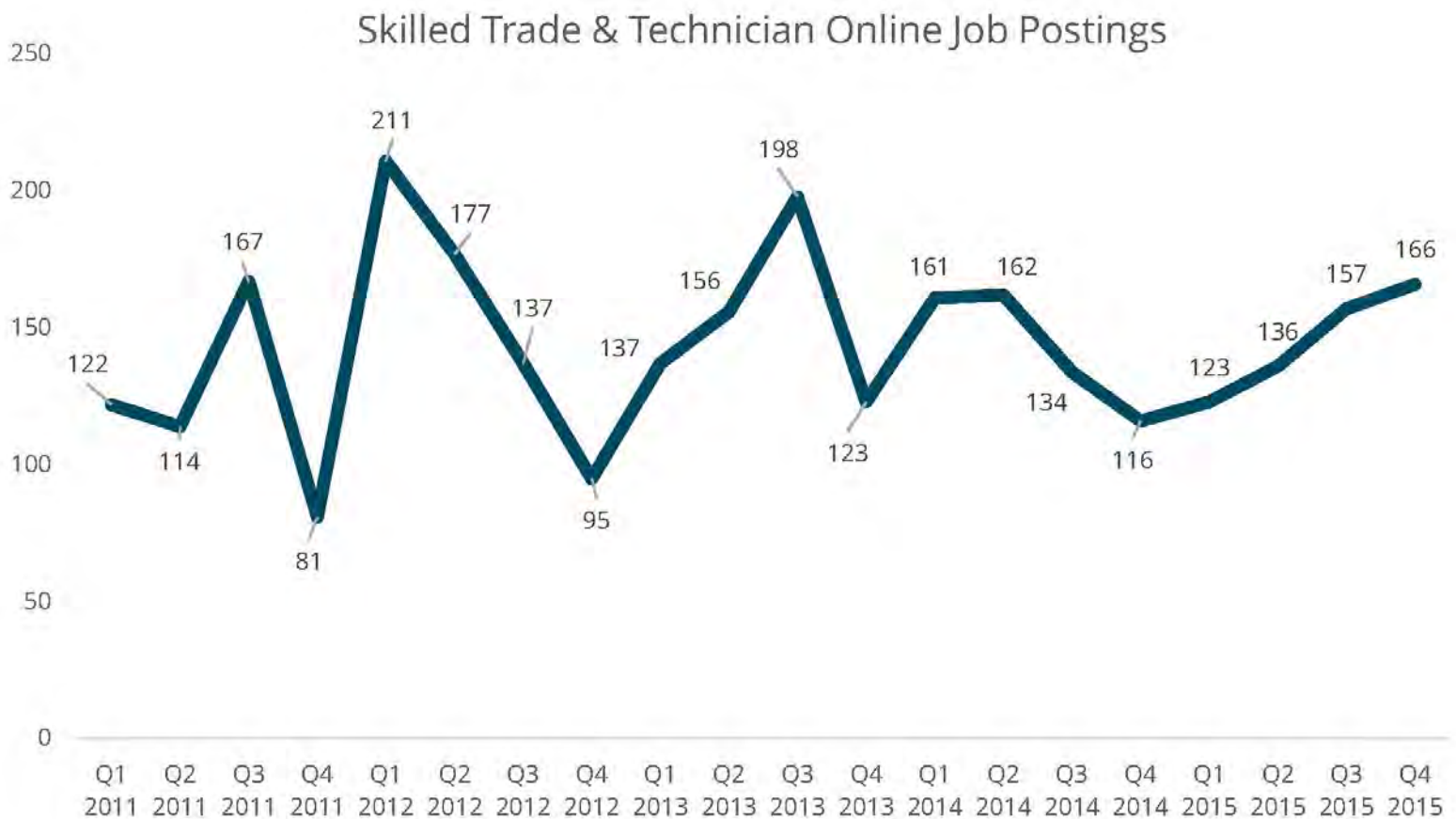
## SKILLED TRADES AND TECHNICIANS: TOP JOBS SHIAWASSEE COUNTY



The two top-posted jobs reversed order in Q4 2015 as production workers rose to the top-posted occupation and production supervisors fell to second. Production workers saw an increase in postings of 1, 20.0%, and production supervisors contracted by 2 postings, 28.6%. The top jobs have shifted compared to one year ago (Q4 2015). Production supervisors were no longer the top job, falling to second, and welders fell from the second top-posted occupation to ninth. Production workers saw an increase in demand of 200%, 4 postings, to become the most in-demand job. New to the top occupations are coating, painting and spraying machine setters, manufacturing production technicians, and structural metal fabricators and fitters. No longer in the top jobs compared to one year ago are computer-controlled machine tool operators, electrical equipment assemblers, and inspectors. Postings for the top two occupations represents 55% of total job postings.

# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: ONLINE JOB POSTINGS OVER TIME GENESEE & SHIAWASSEE COUNTIES



Source: Burning Glass Technologies

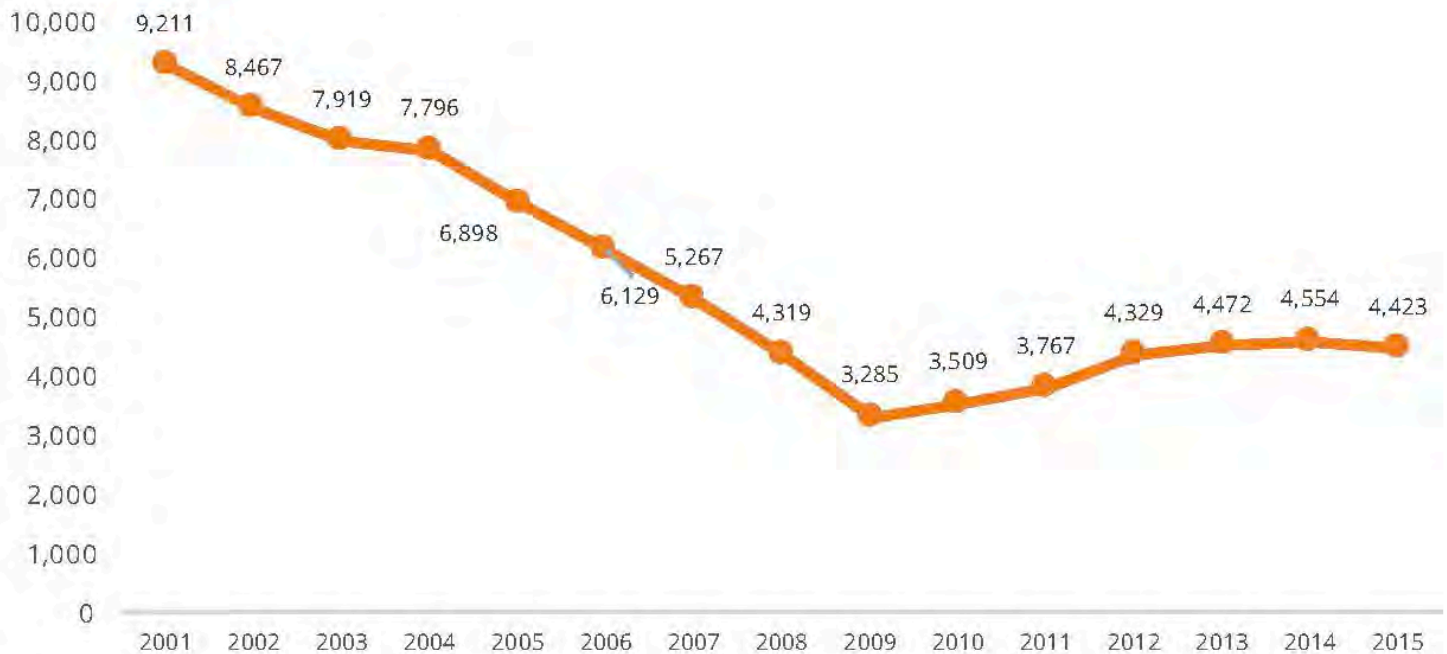
Analysis: Workforce Intelligence Network

General increase or decrease quarter-to-quarter, if any, referencing both number change and online job ads improved by 9, 5.7%, from 157 in Q3 2015 to 166 in Q4 2015. Contrary to historic trends in which Q4 postings typically slump compared to Q3, Q4 outpaced Q3 in 2015. Postings are continuing to increase at a consistent rate. Employment, however, has declined slightly since last year, explaining the influx of online job postings as employers try to fill demand and replace employees lost to retirements and turnover.

# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: EMPLOYMENT OVER TIME GENESEE & SHIAWASSEE COUNTIES

Skilled Trade & Technician Occupational Employment



Source: EMSI

Analysis: Workforce Intelligence Network

Employment in the skilled trades in Genesee and Shiawassee counties was estimated at 4,423 individuals during 2015. Employment has been relatively stable since 2012, however between 2014 and 2015 employment dropped 2.9%, 131 jobs. The fluctuation in employment has been relatively modest, despite the fact the combined counties are not on a growth trajectory. While employment is still about 5,000 workers shy of where it was in 2001 (a pre-recession peak), 1,138 jobs have been recovered since the 2009 recession low (34.6% growth). To reach the pre-recession high, employment will need to double.



# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS WAGES, GENESEE COUNTY

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
51-9199	Production Workers, All Other	\$10.31	\$13.11	\$15.94	\$18.96	\$23.51
51-1011	First-Line Supervisors of Production and Operating Workers	\$17.29	\$21.96	\$29.26	\$38.23	\$46.05
51-4121	Welders, Cutters, and Welder Fitters	\$12.37	\$14.81	\$17.64	\$22.22	\$27.73
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	\$12.32	\$13.99	\$17.56	\$20.92	\$24.08
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$9.81	\$11.83	\$15.89	\$22.92	\$28.71
51-4041	Machinists	\$12.13	\$15.41	\$19.60	\$25.32	\$30.41
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	\$10.63	\$12.79	\$17.88	\$22.00	\$27.37
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	\$8.87	\$9.90	\$12.66	\$16.48	\$19.48
17-3023	Electronics Engineering Technicians	\$15.41	\$19.53	\$24.81	\$31.27	\$36.14
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	\$12.41	\$14.18	\$17.01	\$20.31	\$22.79
51-4199	Metal Workers and Plastic Workers, All Other	\$9.62	\$11.15	\$13.96	\$19.70	\$24.17
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	\$10.11	\$11.63	\$14.60	\$17.89	\$21.40
17-3022	Civil Engineering Technicians	\$13.23	\$16.35	\$20.49	\$25.89	\$28.83
51-9071	Jewelers and Precious Stone and Metal Workers	\$11.07	\$14.21	\$16.29	\$19.81	\$22.73
51-9111	Packaging and Filling Machine Operators and Tenders	\$8.37	\$9.43	\$12.49	\$16.11	\$19.67

Most occupations within the skilled trades offer upward mobility in wages, however few offer wages over \$15 per hour to start. Many of these are commensurate with experience and skill. Most occupations in the cluster offer wages over \$15 per hour at the median with some offering over \$25 per hour, meaning that after several years of experience nearly all of these jobs will pay \$25,000 to \$52,000. Wages for the skilled trades are modestly higher than the U.S. on average.

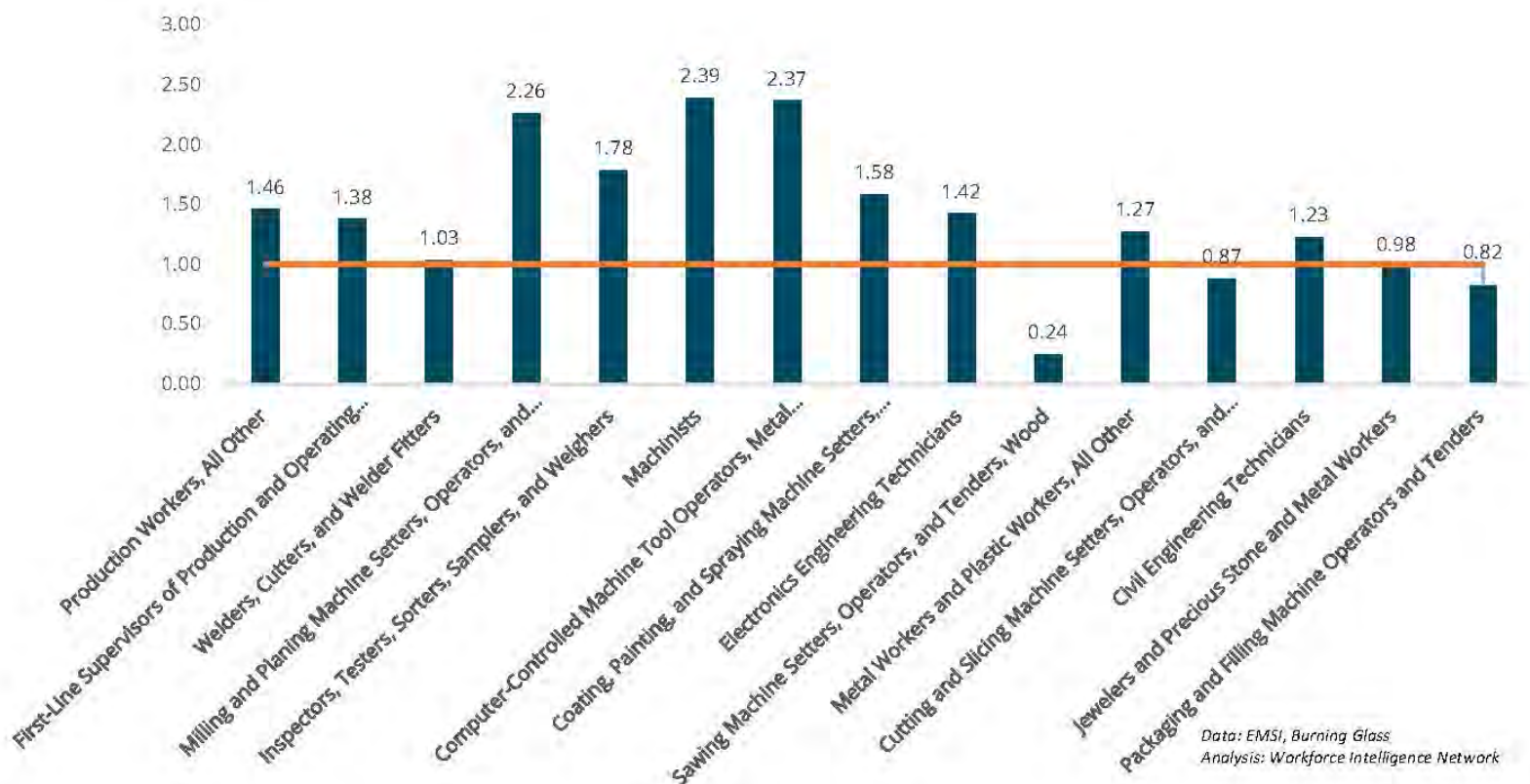
# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS LOCATION QUOTIENT, GENESEE COUNTY

Location Quotient\*  
(2015)

Above orange line = more competitive  
Below orange line = less competitive  
At orange line = national average

\*Note: the location quotient measures the relative concentration of workers in the analysis area compared to the nation as a whole.



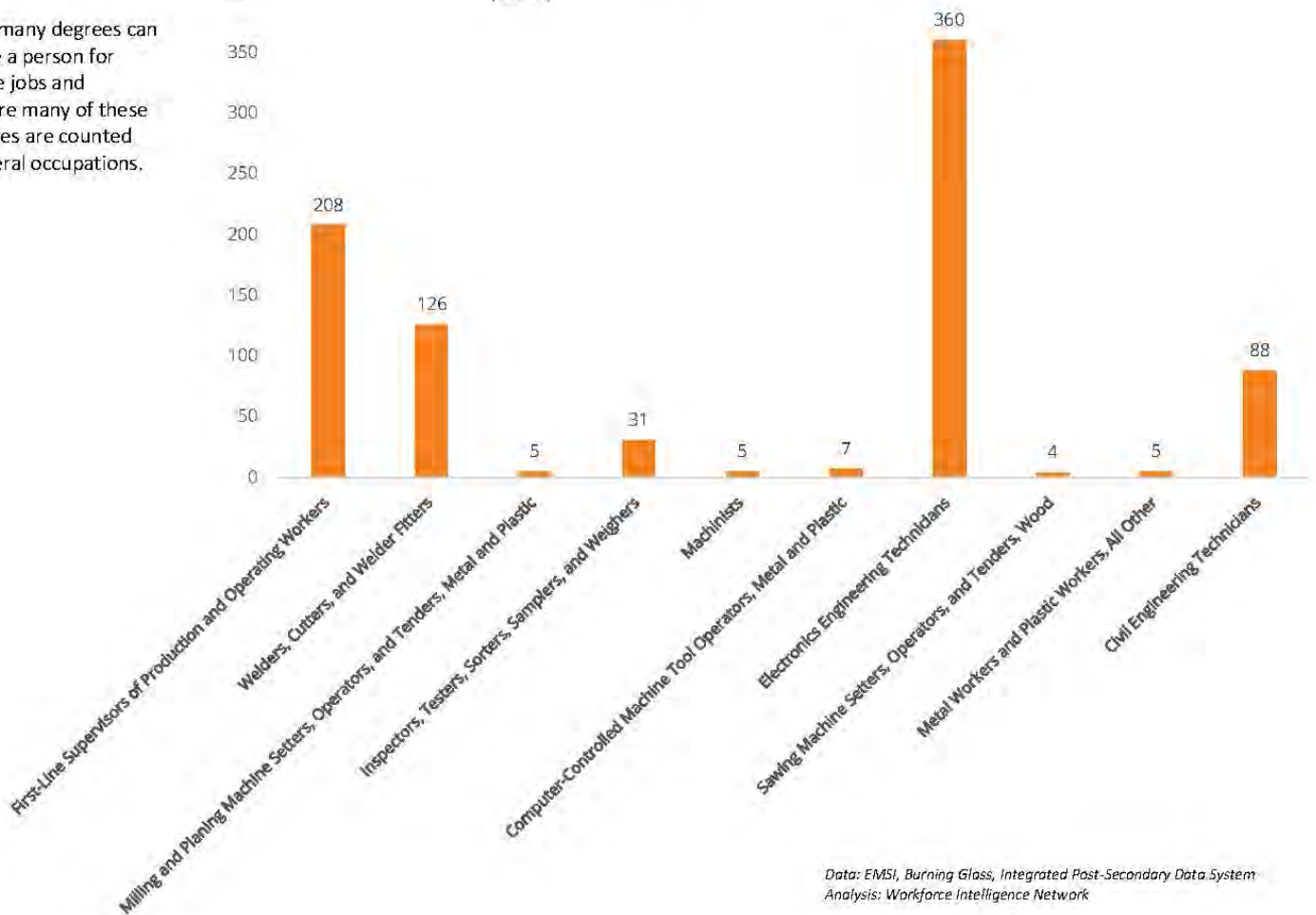
The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Machinists are the most concentrated skilled trade job in the county with an LQ of 2.39 meaning that there are 139% more workers in this occupation in Genesee County than in the U.S. on average. Sawing machine setters are the least competitive occupation, with 76% less concentration than the U.S. on average.

# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS RECENT REGIONAL GRADUATES, GENESEE COUNTY

Recent Area Grads with Degrees Related to Top Jobs\*  
(2014)

\*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.



Due to the regional nature of the labor force in southeast Michigan data, is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. In 2014, graduates with certificates and degrees in the skilled trades were most likely training as electronics engineering technicians and production supervisors. The number of graduates grossly outweighs the demand for electronics engineering technicians by 8,900%. This disparity is due to regional completion data coupled with local posting data. For all occupations, regional supply is sufficient to meet local demand.



# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, GENESEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
51-9199	Production Workers, All Other	High school diploma or equivalent	None	None
51-1011	First-Line Supervisors of Production and Operating Workers	Postsecondary non-degree award	Less than 5 years	Less than 5 years
51-4121	Welders, Cutters, and Welder Fitters	High school diploma or equivalent	None	None
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	None
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma or equivalent	None	None
51-4041	Machinists	High school diploma or equivalent	None	None
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	High school diploma or equivalent	None	None
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	None
17-3023	Electronics Engineering Technicians	Associate's degree	None	None
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	High school diploma or equivalent	None	None
51-4199	Metal Workers and Plastic Workers, All Other	High school diploma or equivalent	None	None
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	None
17-3022	Civil Engineering Technicians	Associate's degree	None	None
51-9071	Jewelers and Precious Stone and Metal	High school diploma or equivalent	None	None
51-9111	Packaging and Filling Machine Operators and Tenders	High school diploma or equivalent	None	None

Many skilled trade occupations do not require a formal degree, and most jobs do not officially require training outside of a high school diploma. However, many companies prefer to hire workers with some post-secondary training, a co-op, internship, certificate, or similar. This is not always reflected in data on required education and training. A handful of skilled trade occupations require a two-year associate's degree or training in a registered apprenticeship. For many occupations, the level of education required aligns with higher wages. Electronics engineering technicians and production supervisors are examples of this. They require more training and also pay a higher starting wage with more upward mobility.

# ADVANCED MANUFACTURING

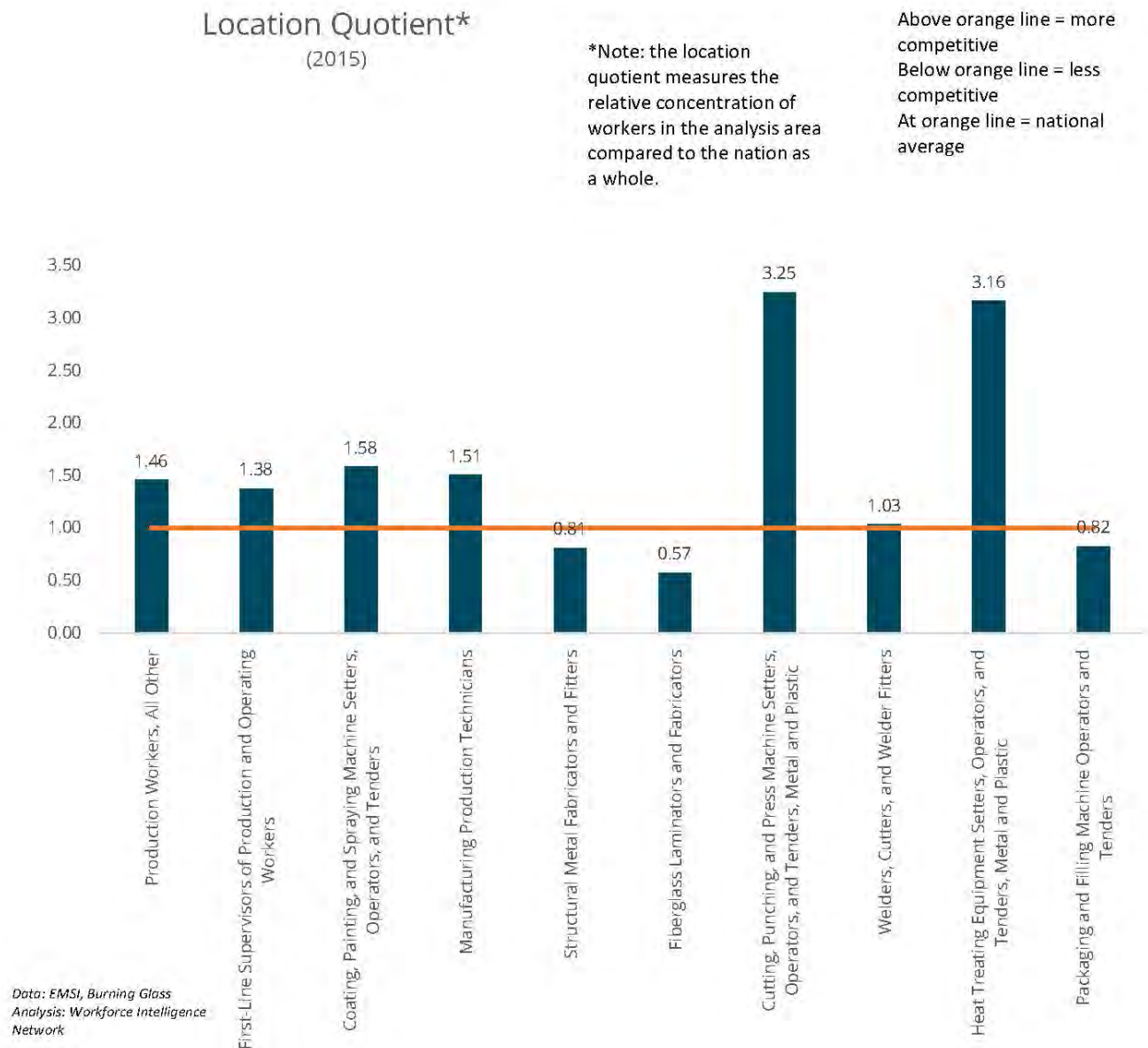
## SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS WAGES, SHIAWASSEE COUNTY

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
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51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	\$8.87	\$9.90	\$12.66	\$16.48	\$19.48
17-3029	Manufacturing Production Technicians	\$16.14	\$21.60	\$29.62	\$36.20	\$45.68
51-2041	Structural Metal Fabricators and Fitters	\$10.27	\$13.82	\$17.58	\$22.28	\$27.89
51-2091	Fiberglass Laminators and Fabricators	\$11.29	\$13.41	\$17.23	\$20.29	\$22.46
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	\$10.26	\$12.24	\$16.09	\$22.54	\$28.04
51-4121	Welders, Cutters, and Welder Fitters	\$12.37	\$14.81	\$17.64	\$22.22	\$27.73
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	\$11.35	\$12.86	\$16.16	\$19.38	\$22.43
51-9111	Packaging and Filling Machine Operators and Tenders	\$8.37	\$9.43	\$12.49	\$16.11	\$19.67

Most occupations within the skilled trades offer upward mobility in wages, however few offer wages over \$15 per hour to start. Many of these are commensurate with experience and skill. Most occupations in the cluster offer wages over \$15 per hour at the median with some offering over \$25 per hour, meaning that after several years of experience nearly all of these jobs will pay \$25,000 to \$52,000. Wages for the skilled trades are modestly higher than the U.S. on average.

# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS LOCATION QUOTIENT, SHIAWASSEE COUNTY

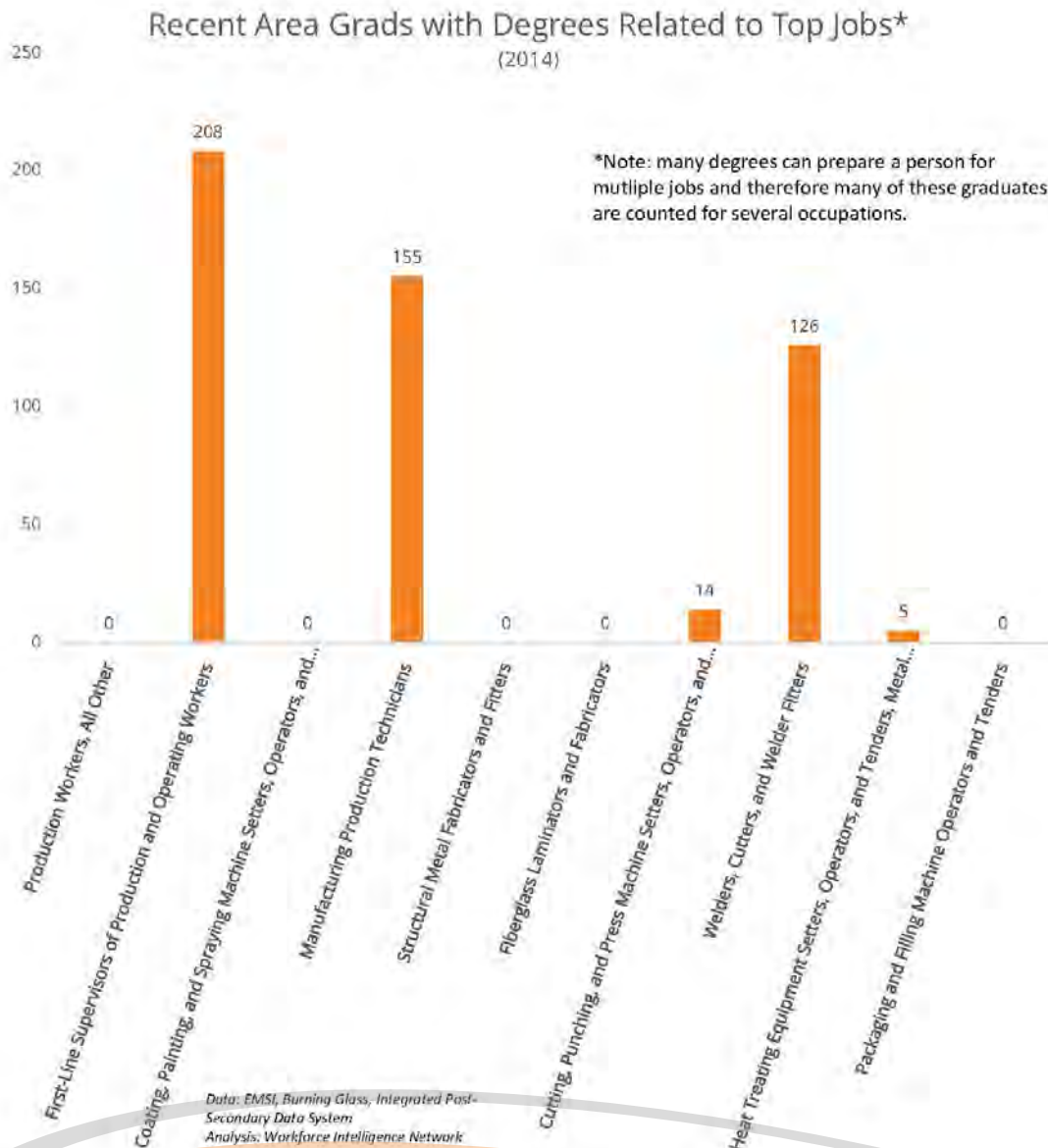


The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Machinists are the most concentrated skilled trade job in the county with an LQ of 3.25 meaning that there are 225% more workers in this occupation in Genesee County than in the U.S. on average. Fiberglass laminators and fabricators are the least competitive occupation, with 43% less concentration than the U.S. on average.



# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS RECENT REGIONAL GRADUATES, SHIAWASSEE COUNTY



Due to the regional nature of the labor force in southeast Michigan data, is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. In 2014, graduates with certificates and degrees in the skilled trades were most likely training as first-line supervisors and manufacturing production technicians. The number of graduates grossly outweighs the demand for first-line supervisors by over 200 graduates. This disparity is due to regional completion data coupled with local posting data. For all occupations, regional supply is sufficient to meet local demand.


# ADVANCED MANUFACTURING

## SKILLED TRADES AND TECHNICIANS:

### TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, SHIAWASSEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
51-9199	Production Workers, All Other	High school diploma or equivalent	None	None
51-1011	First-Line Supervisors of Production and Operating Workers	Postsecondary non-degree award	Less than 5 years	Less than 5 years
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	None
17-3029	Manufacturing Production Technicians	Associate's degree	None	None
51-2041	Structural Metal Fabricators and Fitters	High school diploma or equivalent	None	None
51-2091	Fiberglass Laminators and Fabricators	High school diploma or equivalent	None	None
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	None
51-4121	Welders, Cutters, and Welder Fitters	High school diploma or equivalent	None	None
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	None
51-9111	Packaging and Filling Machine Operators and Tenders	High school diploma or equivalent	None	None

Many skilled trade occupations do not require a formal degree, and most jobs do not officially require training outside of a high school diploma. However, many companies prefer to hire workers with some post-secondary training, a co-op, internship, certificate, or similar. This is not always reflected in data on required education and training. A handful of skilled trade occupations require a two-year associate's degree or training in a registered apprenticeship. For many occupations, the level of education required aligns with higher wages. First-line supervisors are examples of this. They require more training and also pay a higher starting wage with more upward mobility.

A group of four professionals, three men and one woman, are wearing blue hard hats and business attire. They are looking at a document together, with one man pointing at it. The background is a bright, out-of-focus industrial setting.

# ADVANCED MANUFACTURING

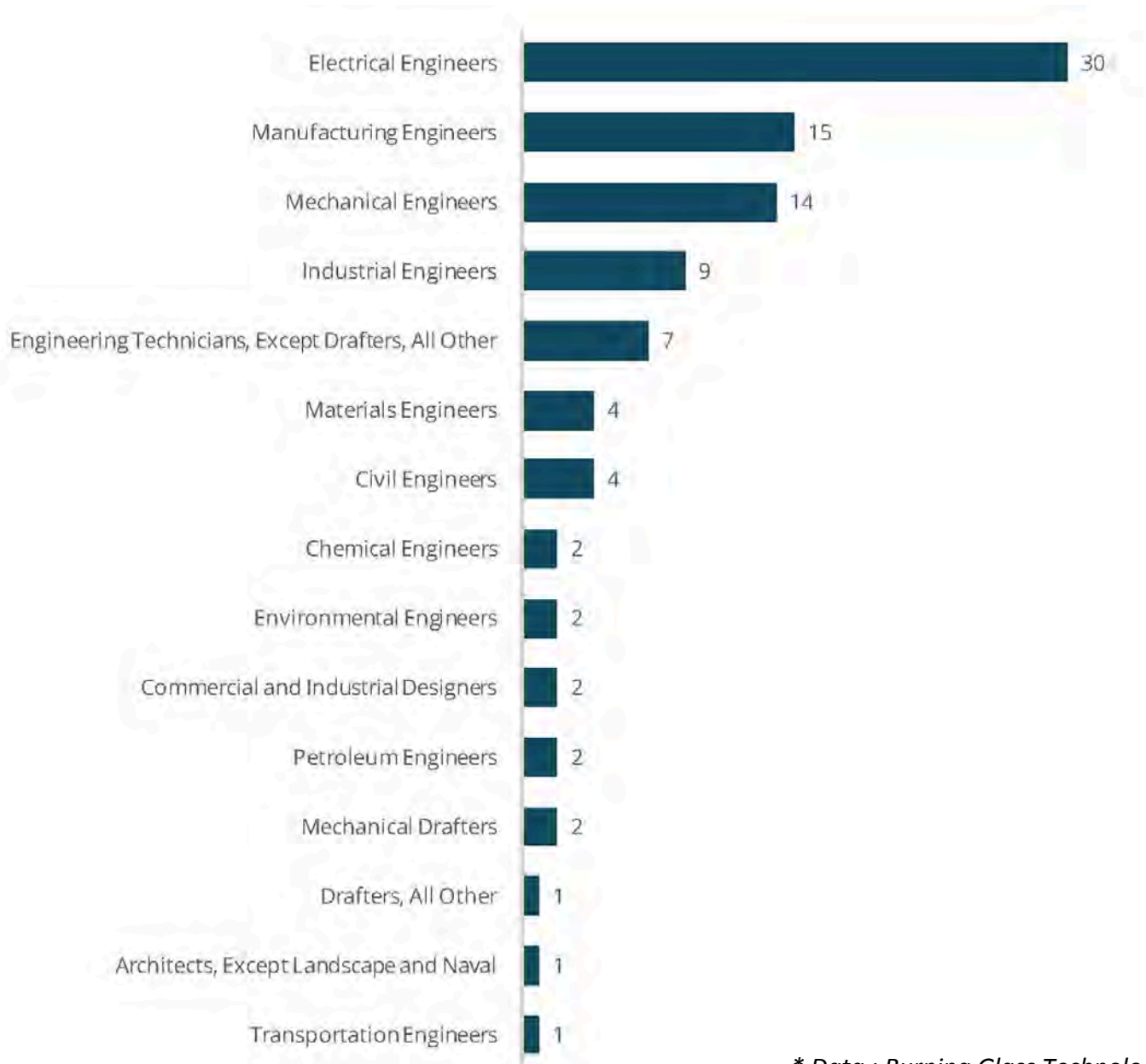
## ENGINEERS AND DESIGNERS

*Jobs in the manufacturing industry can range from assembly and production, to skilled trades and technicians, designers and engineers, and even computer-related occupations such as software development. This section focuses on engineers & designers, which represent 1,178 employed individuals in Genesee & Shiawassee counties during 2015. Demand for engineers in the region has been consistent, and employment has been growing quickly.*



# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS : TOP JOBS GENESEE COUNTY

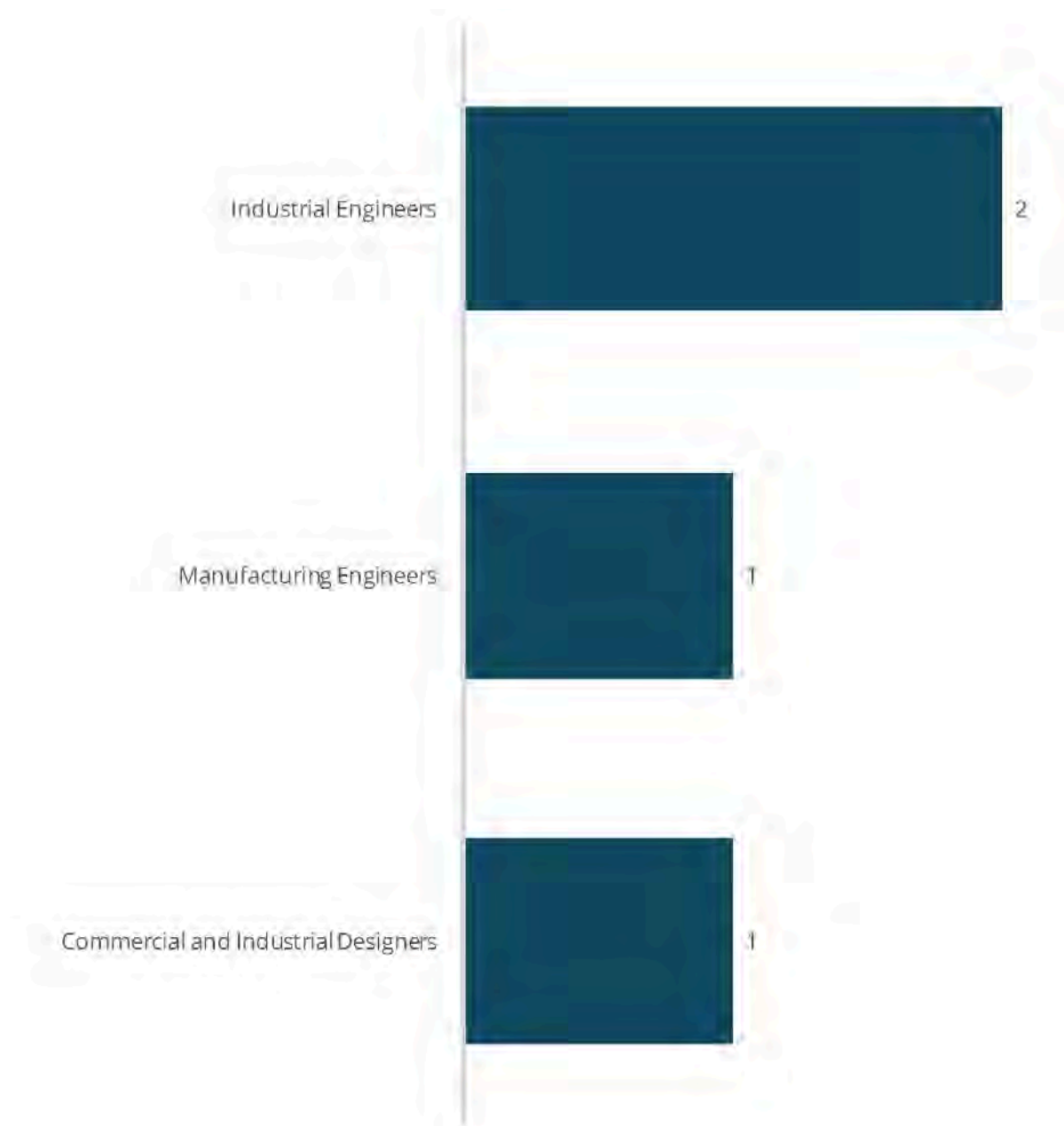


*\* Data : Burning Glass Technologies*

During Q4 of 2015, electrical engineers maintained the top posting position, while manufacturing engineers moved from fifth to second. Compared to Q3 2015, electrical engineers saw a decrease in postings of 12, 28.6%, and manufacturing engineers had an increase of 4, 36.4%. Industrial engineers were previously second in job postings, but have fallen to fifth this quarter. Compared to one year ago (Q4 2014) the top jobs have shifted. Civil engineers have fallen from being the top-posted job to eighth. Electrical engineers vaulted to the top of the list with demand increasing by over 100% (172.7%, 19 postings). New to the top occupations are engineering technicians and material engineers, while no longer in the top ten compared to one year ago are mechanical drafters and all other drafters. Postings for the top ten occupations represents 93% of total job postings.

# ADVANCED MANUFACTURING

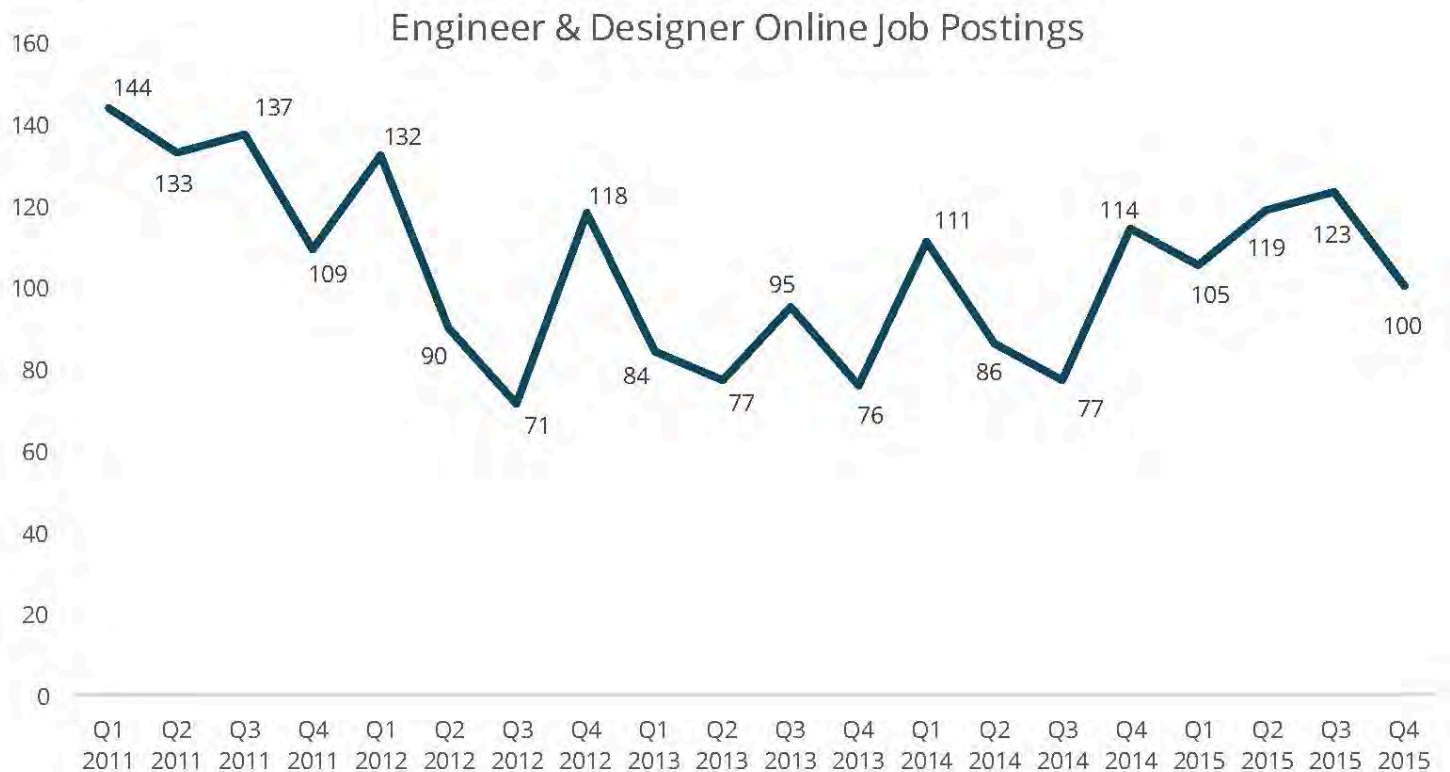
## ENGINEERS AND DESIGNERS: TOP JOBS SHIAWASSEE COUNTY



Demand remained minimal in Q4 2015. Manufacturing engineers joined the short list of postings advertised in the county since Q3, expanding from 2 occupations to 3 in Q4. Industrial engineers maintained its place as the top-posted occupation, while manufacturing engineers and commercial engineers each had the same amount of postings, 1. Demand remained constant for industrial engineers with 2 postings, while commercial engineers saw a 50%, 1 posting, decline. The top jobs have shifted completely compared to one year ago (Q4 2014). Civil engineers, environmental engineers, and robotics engineers each had 1 posting apiece, but in Q4 2015 they all failed to garner a single posting, resulting in a wholly new set of posted occupations. Postings for the top occupation represented 50% of total job postings.

# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS : ONLINE JOB POSTINGS OVER TIME



Source: Burning Glass Technologies

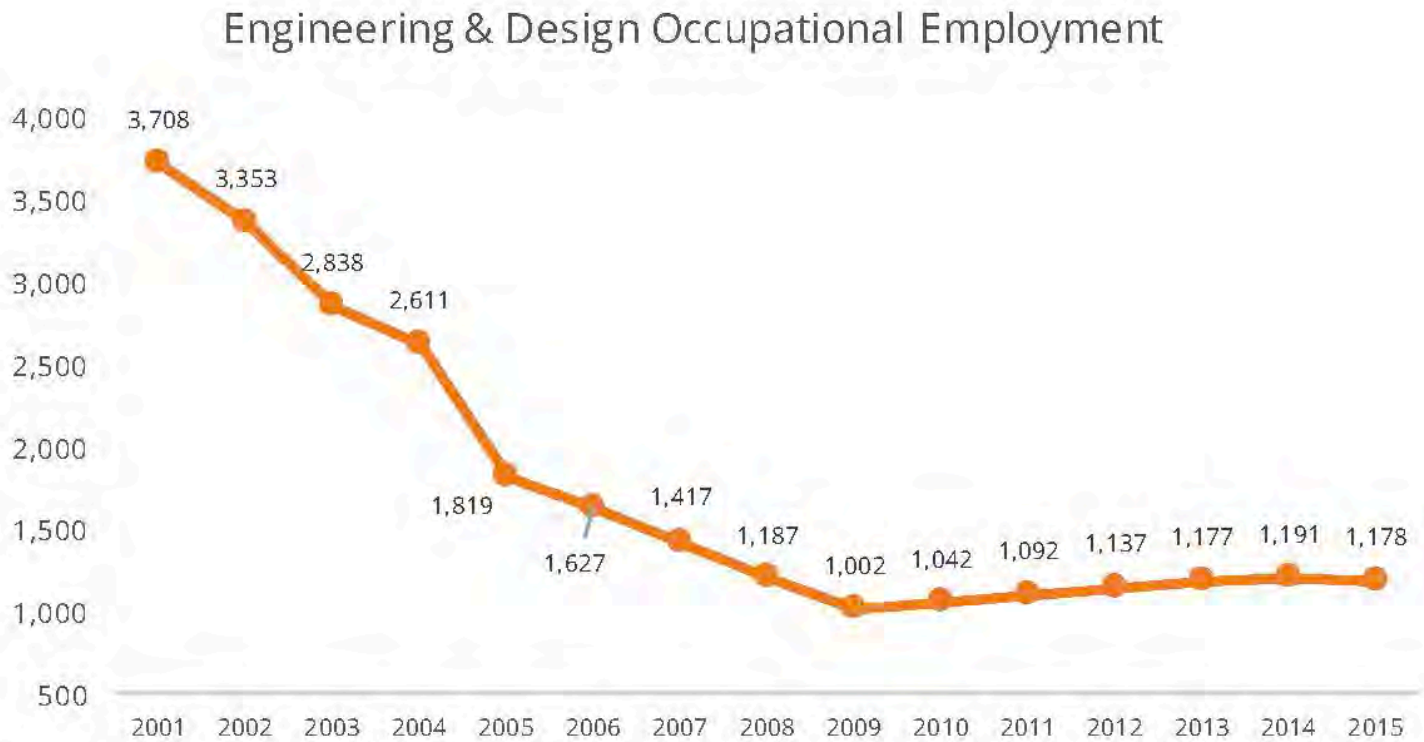
Analysis: Workforce Intelligence Network

Online job adds for engineers and designers dropped by 23, 18.7%, from 123 postings in Q3 2015 to 100 in Q4 2015, a level similar to that seen in Q2 2015. Historically, postings fall during the fourth quarter. The posting trend has been consistently erratic, failing to reach its previous high in 2011 of 144 postings. Employment has similarly declined slightly, although the general trend has been of steady improvement since the recession low in 2009. Although employment has remained consistent, the dual decrease of both postings and employment indicates little new job creation, while previously existing jobs remain occupied by current workers. The lack of desire to replenish lost workers may indicate permanent job loss in the combined Counties of Genesee and Shiawassee.



# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS: EMPLOYMENT OVER TIME



Source: EMSI

Analysis: Workforce Intelligence Network

Employment for engineers and designers in Genesee and Shiawassee counties was estimated at 1,178 individuals during 2015. Employment has been relatively stable since 2009, and postings between 2014 and 2015 employment only dropped by 1.1%, 13 jobs. Despite the modest drop, employment in 2015 still exceeds that of the 2009 low. Employment is still about 2,530 workers shy of where it was in 2001 (a pre-recession peak). To reach the pre-recession high, employment will need to increase by 68.2%.

# ADVANCED MANUFACTURING

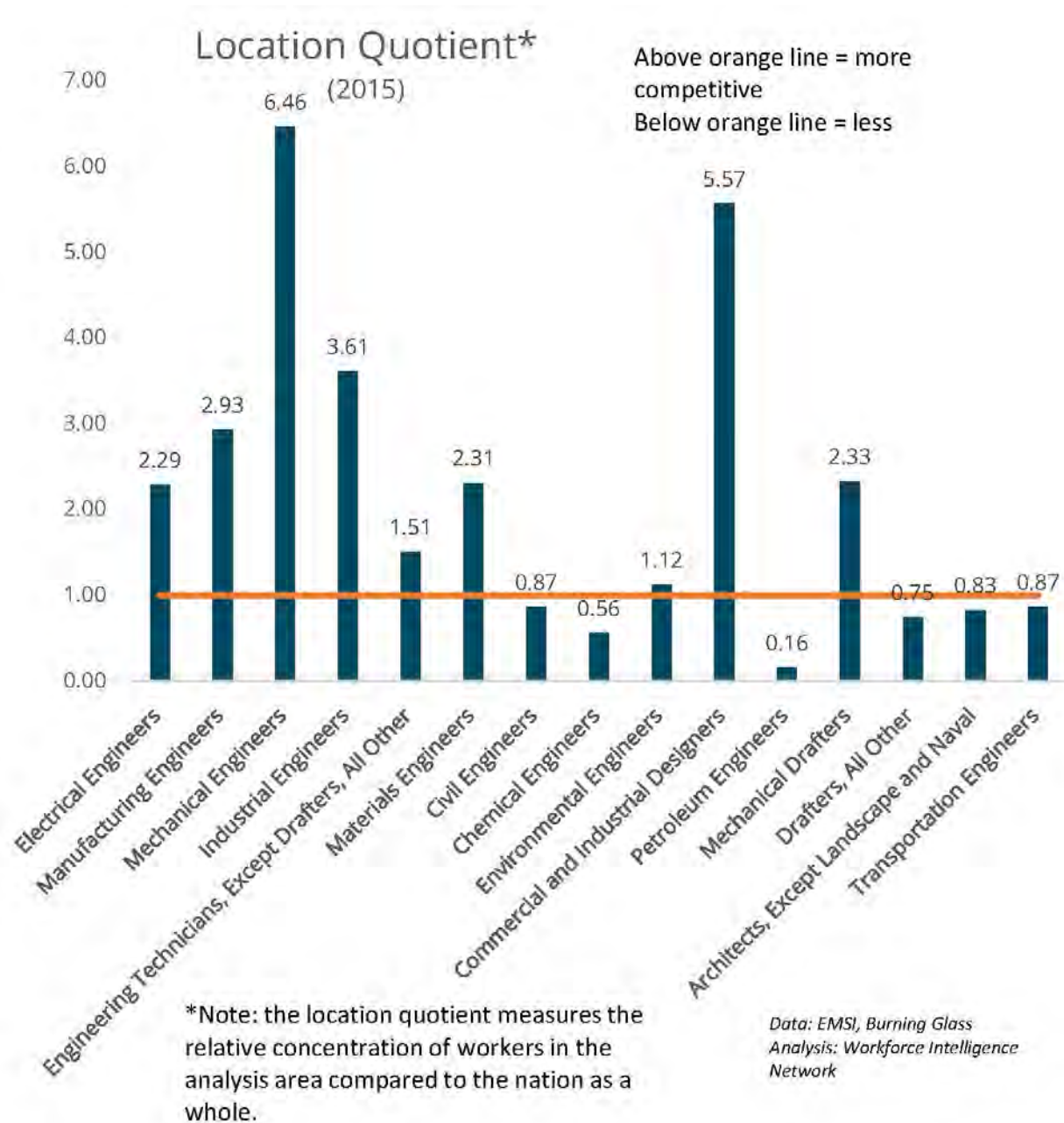
## ENGINEERS AND DESIGNERS : TOP 15 JOBS WAGES, GENESEE COUNTY

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
17-2071	Electrical Engineers	\$28.63	\$34.35	\$41.89	\$49.10	\$57.09
17-2199	Manufacturing Engineers	\$24.18	\$35.80	\$44.80	\$54.72	\$65.93
17-2141	Mechanical Engineers	\$29.77	\$36.77	\$44.46	\$53.21	\$59.58
17-2112	Industrial Engineers	\$27.86	\$33.64	\$40.59	\$47.63	\$55.91
17-3029	Engineering Technicians, Except Drafters, All Other	\$16.14	\$21.60	\$29.62	\$36.20	\$45.68
17-2131	Materials Engineers	\$25.60	\$31.02	\$38.44	\$48.01	\$58.55
17-2051	Civil Engineers	\$23.14	\$27.72	\$33.64	\$39.22	\$46.33
17-2041	Chemical Engineers	\$27.53	\$31.53	\$37.82	\$45.31	\$54.09
17-2081	Environmental Engineers	\$25.94	\$35.07	\$42.71	\$50.88	\$58.52
27-1021	Commercial and Industrial Designers	\$25.72	\$31.72	\$37.52	\$43.28	\$48.42
17-2171	Petroleum Engineers	\$43.38	\$49.75	\$57.86	\$69.83	\$87.27
17-3013	Mechanical Drafters	\$16.44	\$20.81	\$26.26	\$32.63	\$38.29
17-3019	Drafters, All Other	\$15.97	\$17.50	\$19.97	\$25.42	\$31.05
17-1011	Architects, Except Landscape and Naval	\$20.30	\$25.98	\$32.97	\$40.22	\$49.53
17-2051	Transportation Engineers	\$23.14	\$27.72	\$33.64	\$39.22	\$46.33

Wages for engineers and designers are highly competitive. Nearly all occupations have starting wages over \$20 per hour and many start at over \$25 per hour. This translates to a starting salary of \$41,600 to \$52,000 annually. Nearly all occupations experience strong wage growth, with petroleum engineers receiving the highest salary in the cluster at \$181,000 per year. In general, the median salary for engineers and designers is lower than national averages in the same occupations.

# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS : TOP 15 JOBS LOCATION QUOTIENT, GENESEE COUNTY

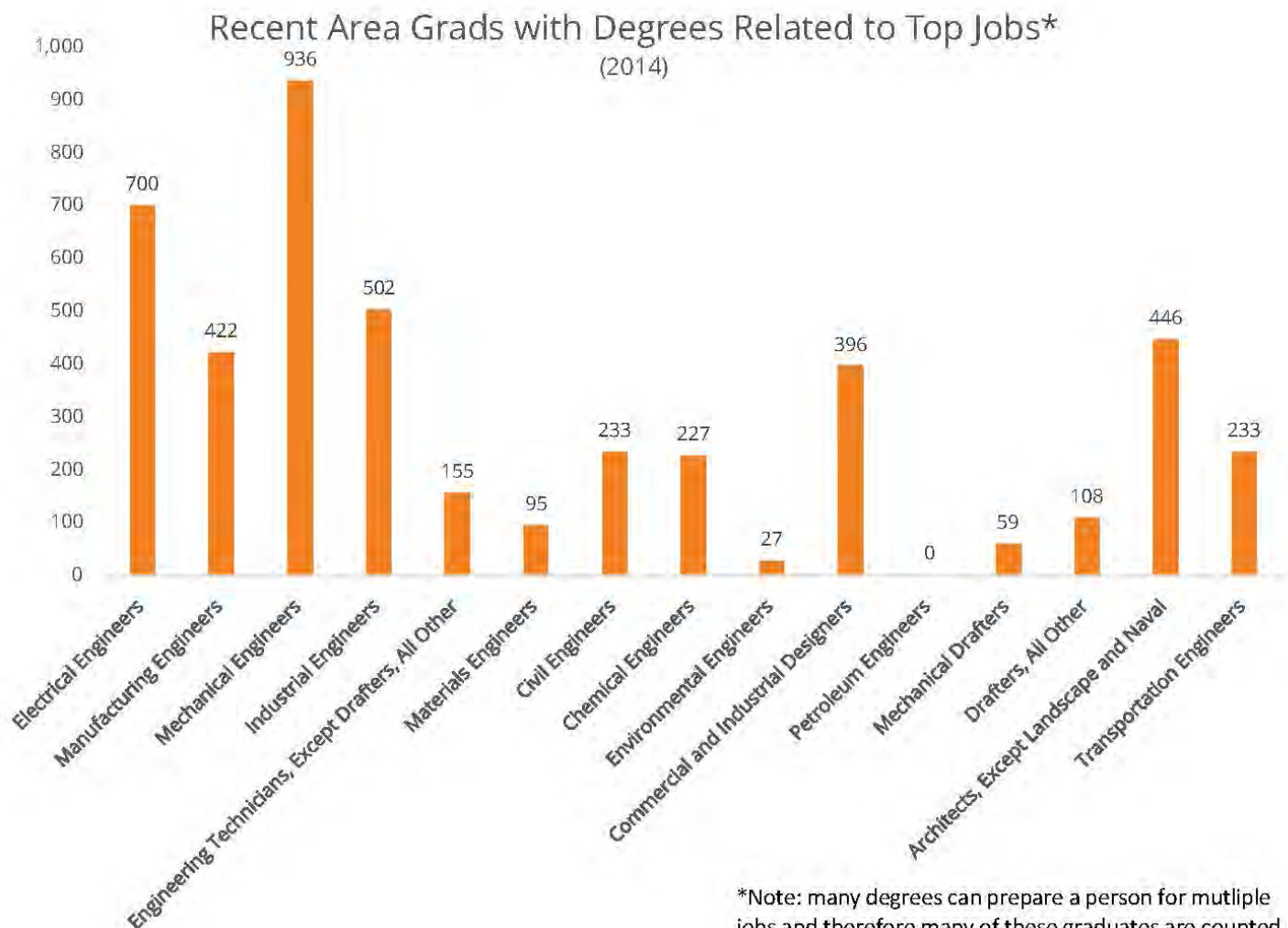


The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Mechanical engineers are the most concentrated occupation among engineers and designers with an LQ of 6.46 meaning there are 546% more workers in these occupations in Genesee County than in the U.S. on average. Despite its high wage earning, petroleum engineers are the least competitive occupation, with 84% less concentration than the U.S. on average.



# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS : TOP 15 JOBS RECENT REGIONAL GRADUATES, GENESEE COUNTY



\*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Data: EMSi, Burning Glass, Integrated Post-Secondary Data System  
Analysis: Workforce Intelligence Network

Due to the regional nature of the labor force in southeast Michigan data, is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. In 2014, graduates with certificates and degrees in engineering and design fields were most prevalent in mechanical engineering, and electrical engineering also saw significant completions. However, postings more mechanical and electrical engineers were not enough to match the abundance of individuals graduating in these fields. With concentrations already above the national average the county risks oversaturation.

# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS :

### TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, GENESEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
17-2071	Electrical Engineers	Bachelor's degree	None	None
17-2199	Manufacturing Engineers	Bachelor's degree	None	None
17-2141	Mechanical Engineers	Bachelor's degree	None	None
17-2112	Industrial Engineers	Bachelor's degree	None	None
17-3029	Engineering Technicians, Except Drafters, All Other	Associate's degree	None	None
17-2131	Materials Engineers	Bachelor's degree	None	None
17-2051	Civil Engineers	Bachelor's degree	None	None
17-2041	Chemical Engineers	Bachelor's degree	None	None
17-2081	Environmental Engineers	Bachelor's degree	None	None
27-1021	Commercial and Industrial Designers	Bachelor's degree	None	None
17-2171	Petroleum Engineers	Bachelor's degree	None	None
17-3013	Mechanical Drafters	Associate's degree	None	None
17-3019	Drafters, All Other	Associate's degree	None	None
17-1011	Architects, Except Landscape and Naval	Bachelor's degree	None	None
17-2051	Transportation Engineers	Bachelor's degree	None	None

Every in-demand engineering and design occupation requires at least a two-year degree or apprenticeship for an entry-level positions. Most require a bachelor's degree. While work experience is not an explicit requirement for these occupations in general, many employers require an internship, co-op, apprenticeship, or other workplace experience before hiring an applicant. This is true even at the entry level.

# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS : TOP 15 JOBS WAGES, SHIAWASSEE COUNTY

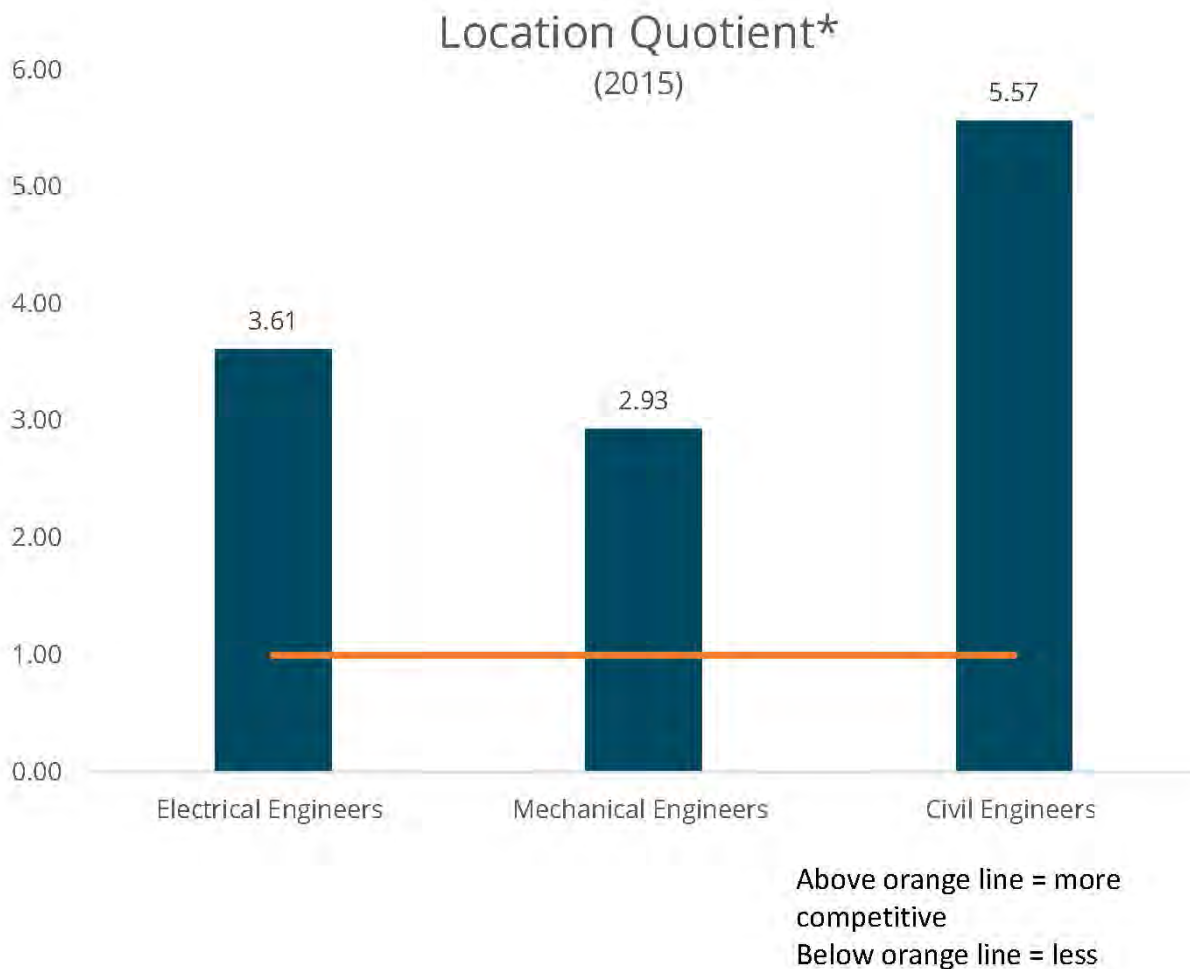
ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
17-2112	Electrical Engineers	\$27.86	\$33.64	\$40.59	\$47.63	\$55.91
17-2199	Mechanical Engineers	\$24.18	\$35.80	\$44.80	\$54.72	\$65.93
27-1021	Civil Engineers	\$25.72	\$31.72	\$37.52	\$43.28	\$48.42

Wages for engineers and designers are highly competitive. All occupations have starting wages over \$20 per hour. This translates to a starting salary of \$50,000 to \$58,000 annually. Nearly all occupations experience strong wage growth, with mechanical engineers experiencing the largest lifetime wage growth with a 172% increase. In general, the median salary for engineers and designers is lower than national averages in the same occupations.



# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS : TOP 15 JOBS LOCATION QUOTIENT, SHIAWASSEE COUNTY



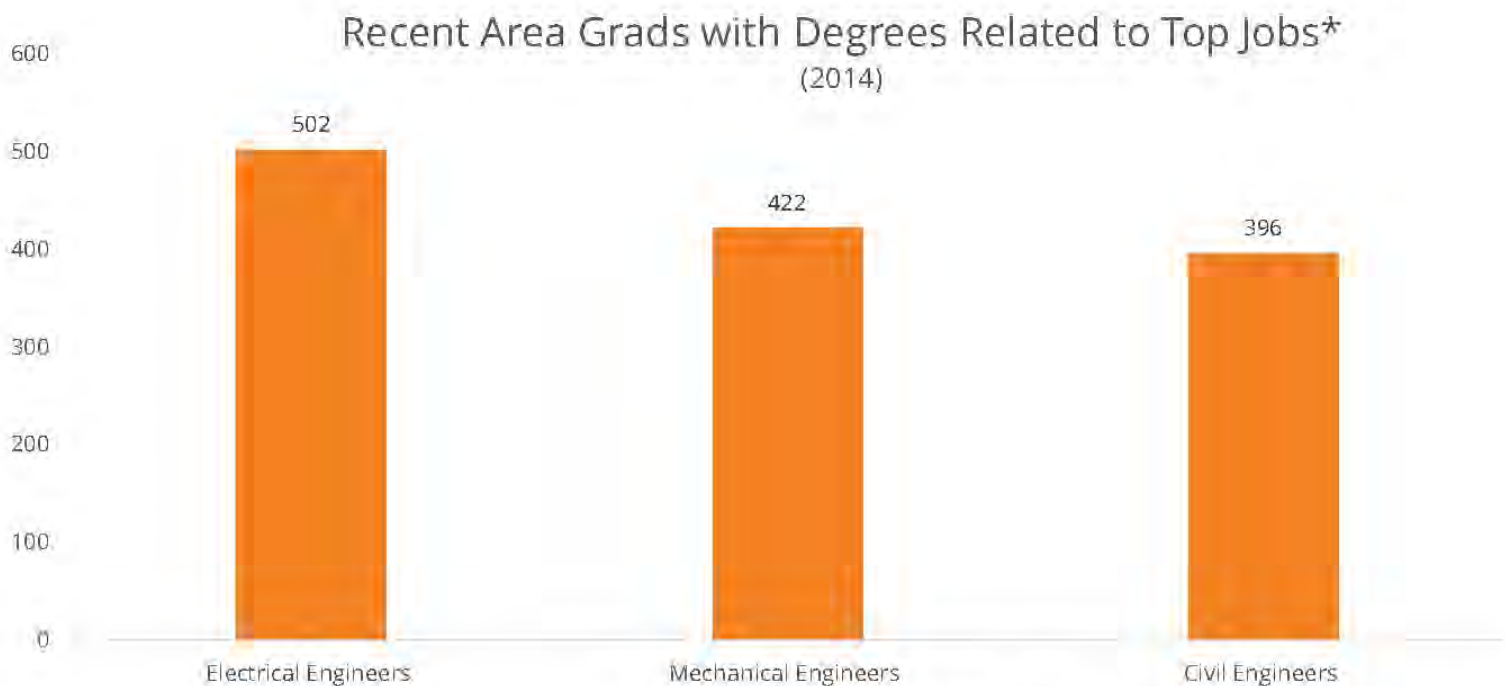
\*Note: the location quotient measures the relative concentration of workers in the analysis area compared to the nation as a whole.

Data: EMSI, Burning Glass  
Analysis: Workforce Intelligence Network

The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Civil engineers are the most concentrated occupation among engineers and designers with a LQ of 5.57 meaning there are 457% more workers in this occupation in Shiawassee County than in the U.S. on average. Although mechanical engineers are the least competitive occupation, there are still 193% more workers in this occupation in Shiawassee County than in the U.S. on average.

# ADVANCED MANUFACTURING

## ENGINEERS AND DESIGNERS : TOP 15 JOBS RECENT REGIONAL GRADUATES, SHIAWASSEE COUNTY



\*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Data: EMSI, Burning Glass, Integrated Post-Secondary Data System  
Analysis: Workforce Intelligence Network

Due to the regional nature of the labor force in southeast Michigan data, is shown for degree and certificate completions awarded by colleges and universities from all 16 counties in the WIN partnership. In 2014, of the three occupations with degree or certificate completions in the county electrical engineers were the most abundant. Without a single job posting in any of the occupations with degree and certificate completions, many graduates will struggle to find full-time work in Shiawassee County.

# ADVANCED MANUFACTURING

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## SKILLED TRADES AND TECHNICIANS:

### TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, SHIAWASSEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
17-2112	Electrical Engineers	Bachelor's degree	None	None
17-2199	Mechanical Engineers	Bachelor's degree	None	None
27-1021	Civil Engineers	Bachelor's degree	None	None

Every in-demand engineering and design occupation requires a bachelor's degree. While work experience is not an explicit requirement for these occupations in general, many employers require an internship, co-op, apprenticeship, or other workplace experience before hiring an applicant. This is true even at the entry level.

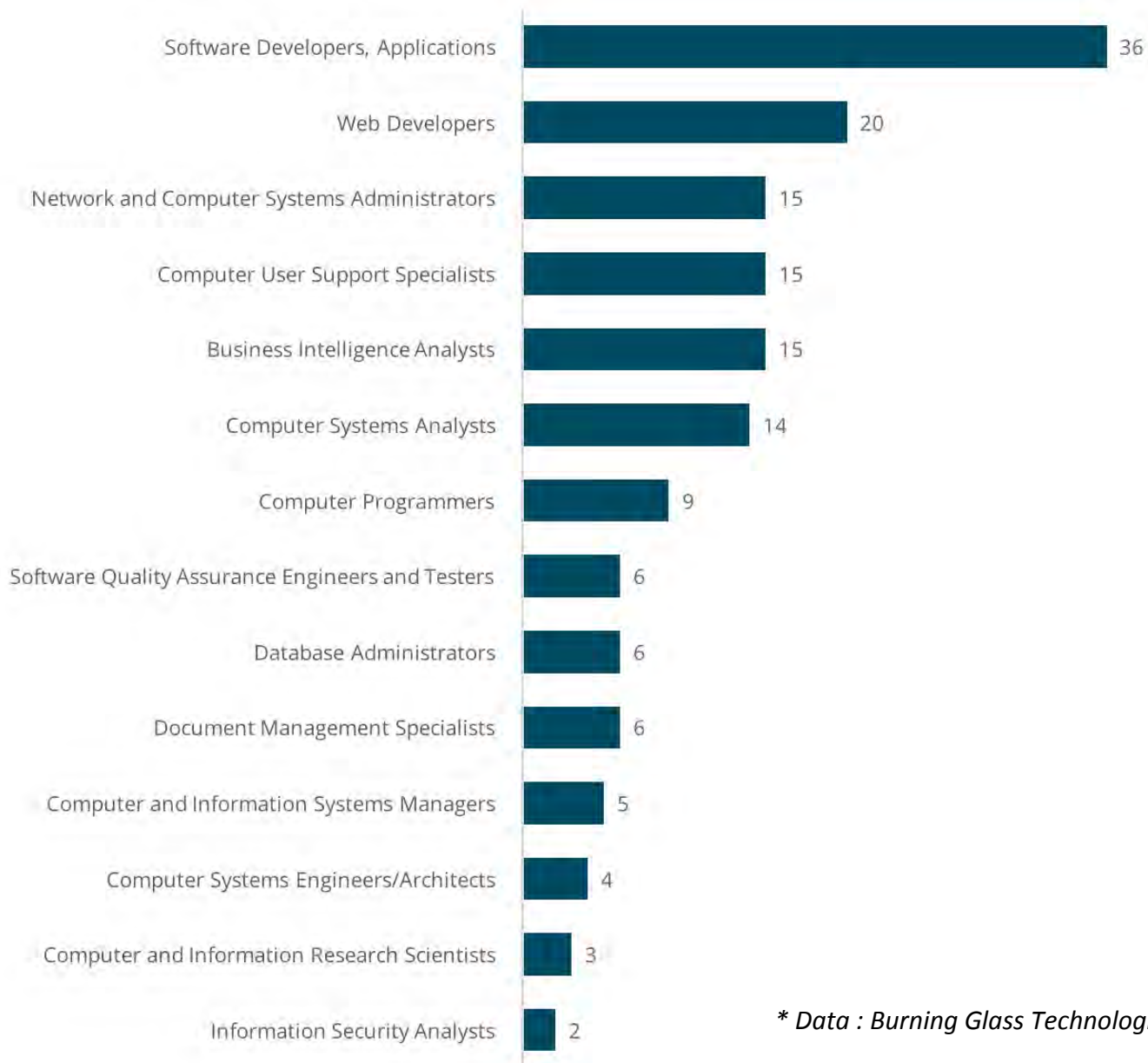




*Information technology jobs include occupations that are associated with entry level, technical, and professional careers related to the design, development, support and management of hardware, software, multimedia, and systems integration services. While the information technology cluster does not currently meet the employment levels of the other clusters, it is quickly growing. In 2015, IT occupational employment was 3,294 in Genesee & Shiawassee counties. Top jobs in this cluster include computer support specialists, computer systems analysts, and software developers for applications.*

# INFORMATION TECHNOLOGY

## TOP JOBS GENESEE COUNTY



*\* Data : Burning Glass Technologies*

During Q4 of 2015, software developers maintained the top posting position, while web developers moved from ninth to second. Compared to Q3 2015, software developers saw a decrease in postings of 2, 5.3%, and web developers had an increase of 12, 150%. Computer systems analysts were previously second in job postings, but fell to seventh this quarter. Compared to one year ago (Q4 2014) the top jobs have shifted. Computer support specialists have fallen from being the top-posted job to fifth. Software developers secured the top position with a posting increase of 50%, 12 postings. New to the top occupations are document management specialists; systems software developers are no longer in the top ten compared to one year ago. Postings for the top ten occupations represents 86% of total job postings.

# INFORMATION TECHNOLOGY

## TOP JOBS SHIAWASSEE COUNTY



Demand in Q4 2015 was modest. Database administrators maintained its position as the top posted job, and there was a three-way tie for second among telecommunications engineering specialist, computer engineers, and software developers. Demand for database administrators saw a steep decline with a loss of 13 postings, 81.3%. Demand remained constant for software developers at one posting, and telecommunications engineering specialists and computer engineering were posted for the first time. The top jobs have shifted compared to one year ago (Q4 2014). Software developers fell from being the top-posted job to fifth. Database administrators did not receive a single posting in Q4 2014. The only posted occupation to carry over into Q4 2015 are software developers, although it saw a decrease of 6 postings, 85.7%. Postings for the top occupation represented 50% of total job postings.



# INFORMATION TECHNOLOGY

## ONLINE JOB POSTINGS OVER TIME



Source: Burning Glass Technologies

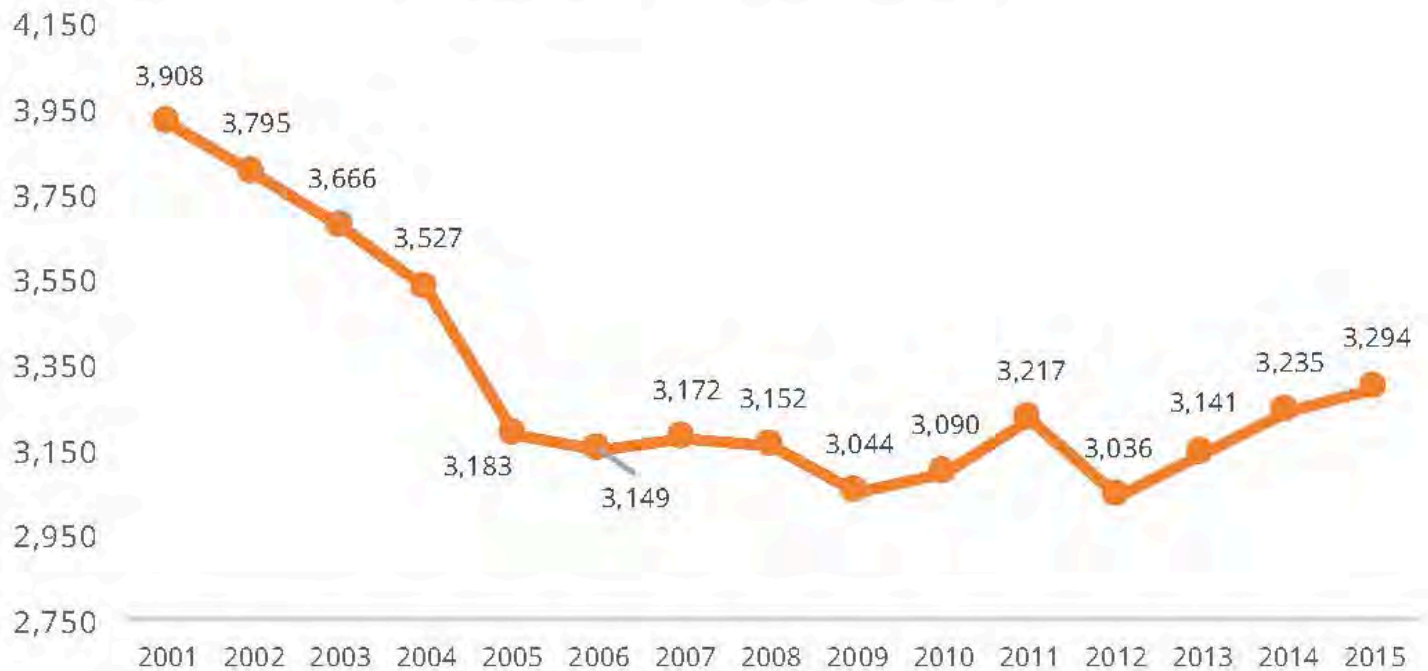
Analysis: Workforce Intelligence Network

Online job adds for IT occupations fell by 2,330 postings, 11.3%, from 20,553 postings in Q3 2015 to 18,223 in Q4 2015, just above Q2 2015 levels. Historically, postings fall during the fourth quarter. Despite the recent down turn, postings remain on a generally positive trend. Growth is expected to continue into 2016. Although employment is consistently improving it has yet to reach its pre-recession high.

# INFORMATION TECHNOLOGY

## EMPLOYMENT OVER TIME

IT Occupational Employment



Source: EMSI

Analysis: Workforce Intelligence Network

Employment for IT workers in Genesee and Shiawassee counties was estimated at 3,294 individuals during 2015. Employment experienced a drop between 2011 and 2012, however it has been consistently improving since the 2009 recession low. Despite this growth, employment is still about 600 workers, 15.7%, shy of where it was in 2001 (a pre-recession peak). Information Technology is a lucrative field with continued growth projected, as evidenced by the upward trend in online job postings.

# INFORMATION TECHNOLOGY

## TOP 15 JOBS WAGES, GENESEE COUNTY

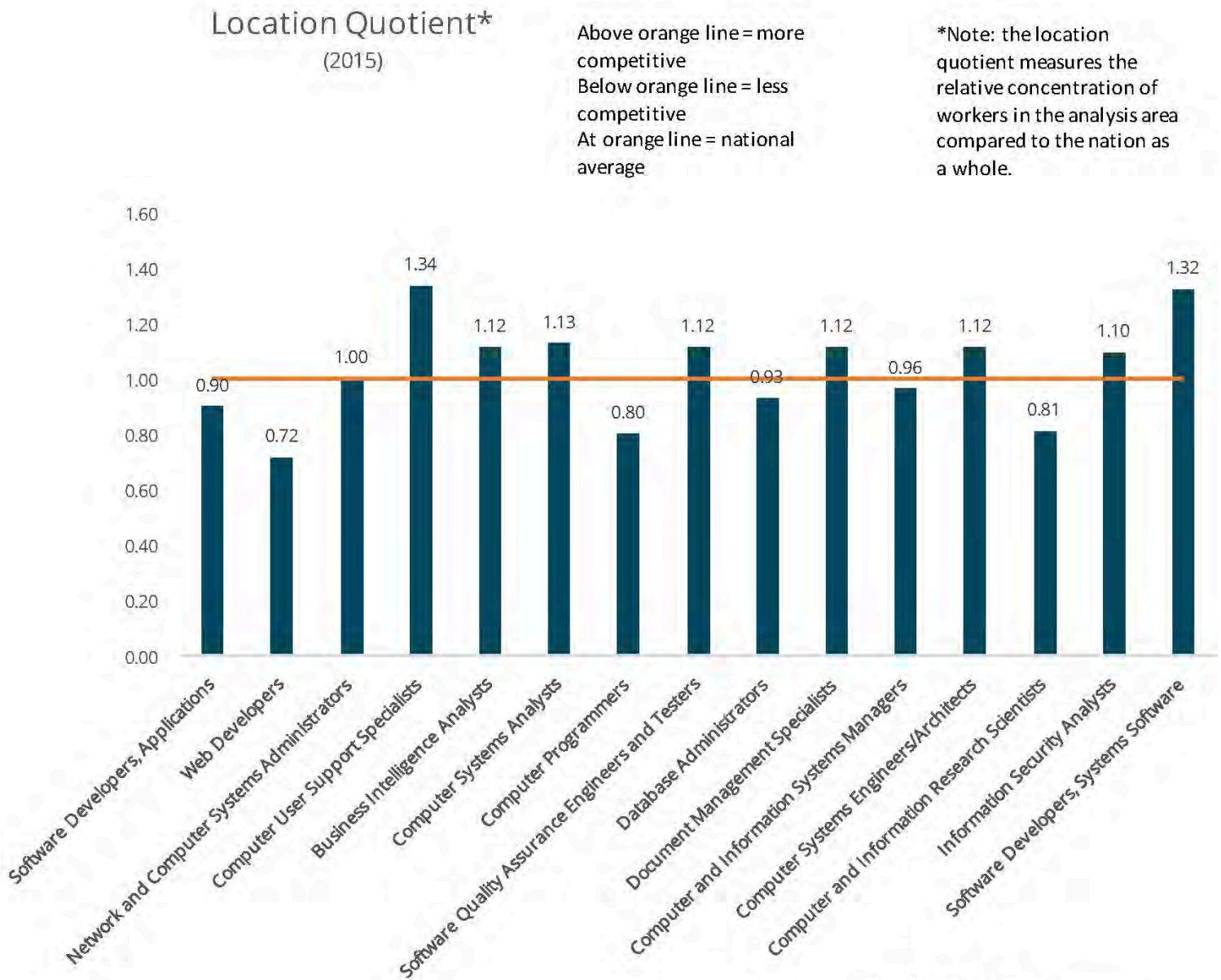
ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
15-1132	Software Developers, Applications	\$25.18	\$31.35	\$39.38	\$49.47	\$58.83
15-1134	Web Developers	\$18.03	\$21.59	\$27.32	\$33.96	\$40.35
15-1142	Network and Computer Systems Administrators	\$21.59	\$27.21	\$35.57	\$43.28	\$51.30
15-1151	Computer User Support Specialists	\$12.38	\$15.95	\$21.56	\$29.06	\$36.96
15-1199	Business Intelligence Analysts	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1121	Computer Systems Analysts	\$25.22	\$32.05	\$39.84	\$49.08	\$58.30
15-1131	Computer Programmers	\$23.77	\$28.94	\$34.77	\$43.65	\$51.99
15-1199	Software Quality Assurance Engineers and Testers	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1141	Database Administrators	\$23.80	\$31.38	\$41.07	\$50.08	\$58.17
15-1199	Document Management Specialists	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
11-3021	Computer and Information Systems Managers	\$35.39	\$42.93	\$54.91	\$68.37	\$85.92
15-1199	Computer Systems Engineers/Architects	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1111	Computer and Information Research Scientists	\$32.58	\$39.75	\$47.41	\$54.67	\$63.97
15-1122	Information Security Analysts	\$24.03	\$28.45	\$39.29	\$48.80	\$57.24
15-1133	Software Developers, Systems Software	\$26.94	\$33.62	\$42.38	\$51.79	\$60.54

Wages for IT workers are highly competitive. Nearly all occupations have starting wages over \$20 per hour and many start at over \$25 per hour. This translates to a starting salary of \$41,600 to \$52,000 annually. The strongest wage growth across the career spectrum is experienced by applications software developers, computer systems analysts, database administrators, information security analysts, and systems software developers. Wages for IT workers in Genesee County are below national averages for the same occupations indicating potential growth for pay in the future as workers are more in-demand.



# INFORMATION TECHNOLOGY

## TOP 15 JOBS LOCATION QUOTIENT, GENESEE COUNTY

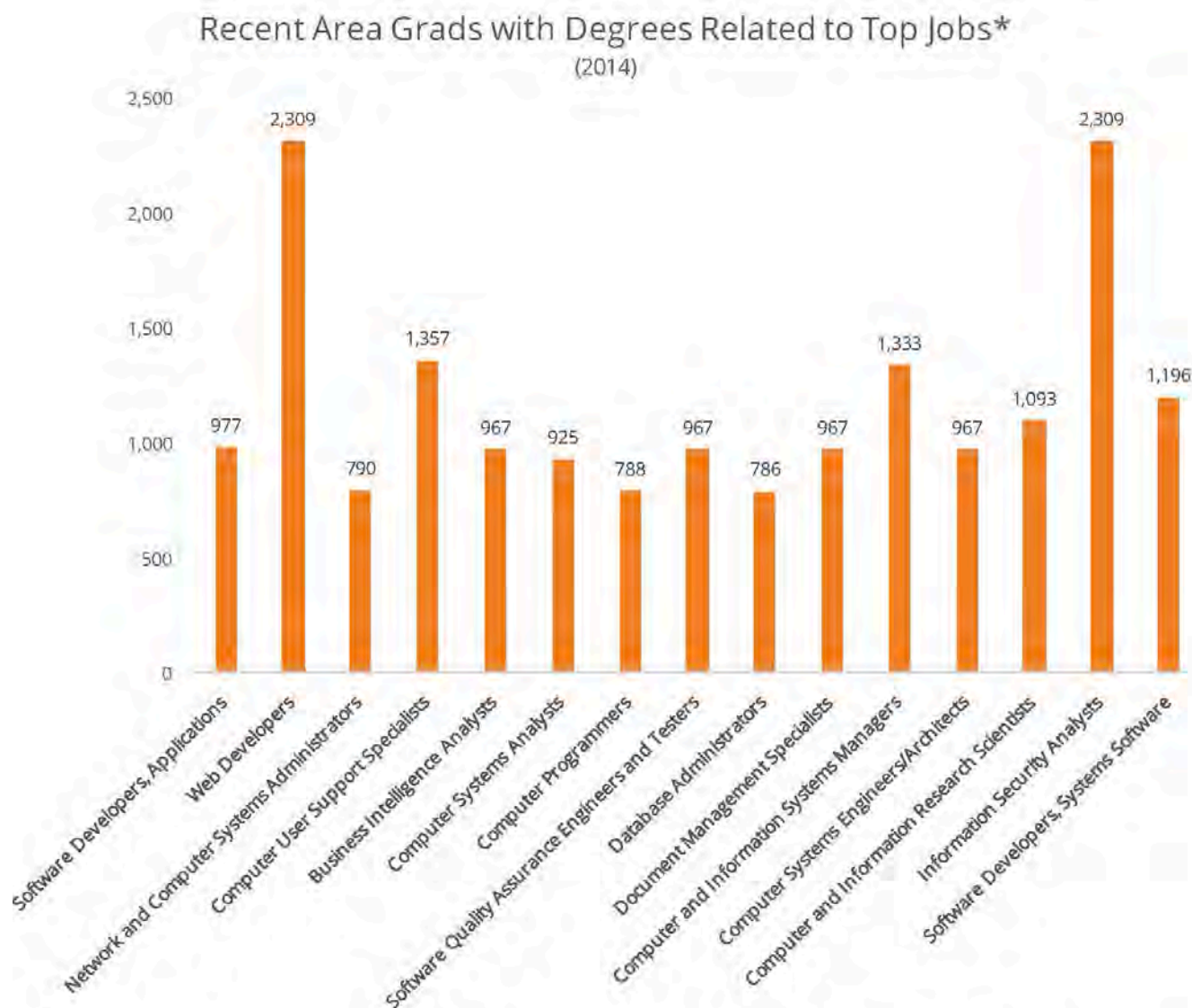


Data: EMSI, Burning Glass  
Analysis: Workforce Intelligence Network

The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Network and computer systems administrators are the most concentrated jobs among IT occupations with an LQ of 1.34 meaning there are 34% more workers in this occupation in Genesee County than in the U.S. on average. Web developers are the least competitive occupation, with 23% less concentration than the national average. Concentration of IT jobs in Genesee County are all relatively on par with the national average.

# INFORMATION TECHNOLOGY

## TOP 15 JOBS RECENT REGIONAL GRADUATES, GENESEE COUNTY



Data: EMSI, Burning Glass, Integrated Post-Secondary Data System  
Analysis: Workforce Intelligence Network

\*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Due to the regional nature of the labor force in southeast Michigan data, is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. In 2014, graduates with certificates and degrees in IT were most prevalent in web development and information security analysis. Both web development and information security analysis each had 2,309 regional graduates. With demand on a growth trajectory, grads will not struggle to find employment.

# INFORMATION TECHNOLOGY

## TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, GENESEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
15-1132	Software Developers, Applications	Bachelor's degree	None	None
15-1134	Web Developers	Associate's degree	None	None
15-1142	Network and Computer Systems Administrators	Bachelor's degree	None	None
15-1151	Computer User Support Specialists	Some college, no degree	None	None
15-1199	Business Intelligence Analysts	Bachelor's degree	None	None
15-1121	Computer Systems Analysts	Bachelor's degree	None	None
15-1131	Computer Programmers	Bachelor's degree	None	None
15-1199	Software Quality Assurance Engineers and Testers	Bachelor's degree	None	None
15-1141	Database Administrators	Bachelor's degree	Less than 5 years	Less than 5 years
15-1199	Document Management Specialists	Bachelor's degree	None	None
11-3021	Computer and Information Systems Managers	Bachelor's degree	5 years or more	5 years or more
15-1199	Computer Systems Engineers/Architects	Bachelor's degree	None	None
15-1111	Computer and Information Research Scientists	Doctoral or professional degree	None	None
15-1122	Information Security Analysts	Bachelor's degree	Less than 5 years	Less than 5 years
15-1133	Software Developers, Systems Software	Bachelor's degree	None	None

Every in-demand IT occupation required post-secondary training for an entry-level position. Most required a bachelor's degree, and only computer and information scientists required graduate education. For select occupations—database administrators, computer systems managers, and information security analysts—on-the-job training and work experience are essential for an entry-level position. This means that an internship, co-op, apprenticeship, or other workplace learning experience is necessary.



# INFORMATION TECHNOLOGY

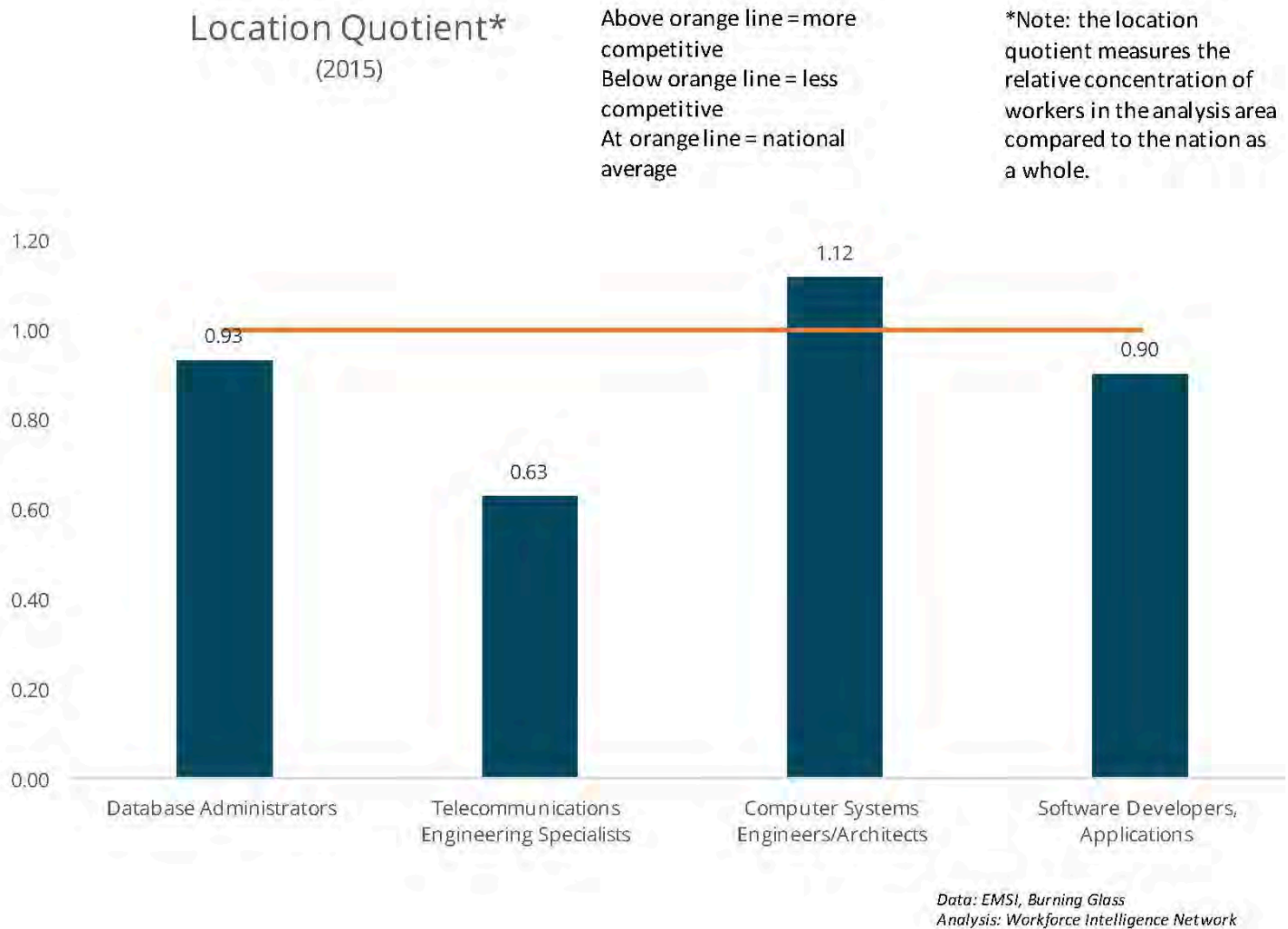
## TOP 15 JOBS WAGES, SHIAWASSEE COUNTY

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
15-1141	Database Administrators	\$23.80	\$31.38	\$41.07	\$50.08	\$58.17
15-1143	Telecommunications Engineering Specialists	\$29.97	\$38.46	\$48.60	\$57.12	\$67.27
15-1199	Computer Systems Engineers/Architects	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1132	Software Developers, Applications	\$25.18	\$31.35	\$39.38	\$49.47	\$58.83

Wages for IT workers are highly competitive. Nearly all occupations have starting wages over \$20 per hour and two start at over \$25 per hour. This translates to a starting salary of \$41,600 to \$52,000 annually. All occupations experience strong wage growth, evidenced by the fact each more than doubles earnings throughout its life span. Wages for Shiawassee County are below national averages for the same occupations indicating potential growth for pay in the future as workers are more in-demand.

# INFORMATION TECHNOLOGY

## TOP 15 JOBS LOCATION QUOTIENT, SHIAWASSEE COUNTY

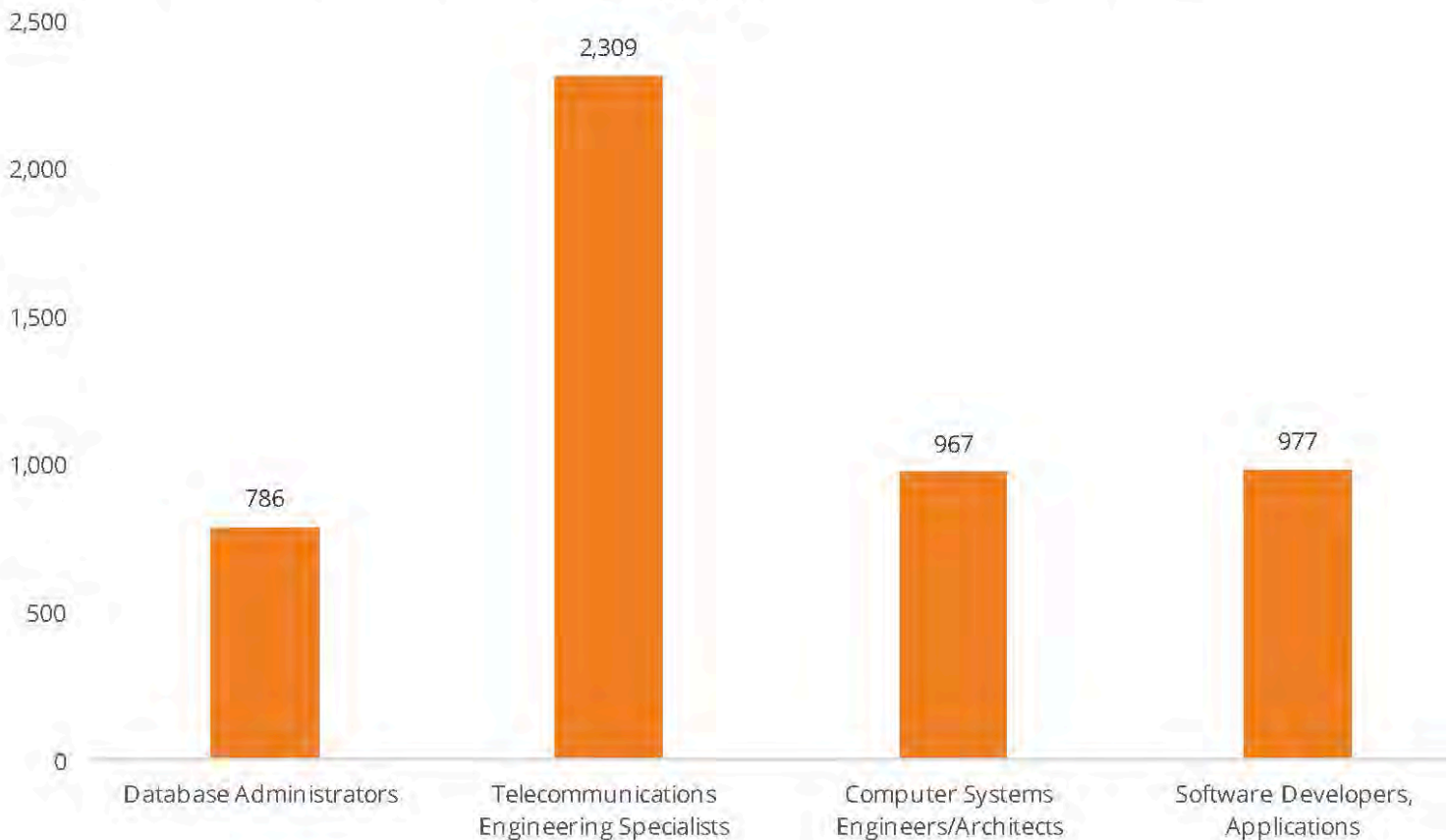


The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Computer systems administrators are the most concentrated jobs among IT occupations with an LQ of 1.12 meaning there are 12% more workers in this occupation in Shiawassee County than in the U.S. on average. It is the only job in the county to exceed national concentration levels. Telecommunications engineering specialists are the least competitive occupation, with 37% less concentration than the national average.

# INFORMATION TECHNOLOGY

## TOP 15 JOBS RECENT REGIONAL GRADUATES, SHIAWASSEE COUNTY

Recent Area Grads with Degrees Related to Top Jobs\*  
(2014)



Data: EMSI, Burning Glass, Integrated Post-Secondary Data System  
Analysis: Workforce Intelligence Network

\*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Due to the regional nature of the labor force in southeast Michigan data, is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. In 2014, graduates with certificates in IT were most prevalent in telecommunications engineering, with a 2,309 individuals graduating in that field. Despite the strong graduation rate for telecommunications engineering, Shiawassee County had only one online posting for the field, and the top-posted job, database administrators, had only 3 postings. This disparity indicates a potential talent exodus as graduates struggle to find employment locally.



# INFORMATION TECHNOLOGY

## TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, SHIAWASSEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
15-1141	Database Administrators	Bachelor's degree	Less than 5 years	Less than 5 years
15-1143	Telecommunications Engineering Specialists	Bachelor's degree	5 years or more	5 years or more
15-1199	Computer Systems Engineers/Architects	Bachelor's degree	None	None
15-1132	Software Developers, Applications	Bachelor's degree	None	None

Every in-demand occupation required a bachelor's degree for an entry level position. Half of the occupations, database administrators and telecommunications engineers, required on-the-job training and work experience for an entry-level position. This means that an internship, co-op, apprenticeship, or other workplace learning experience is necessary.

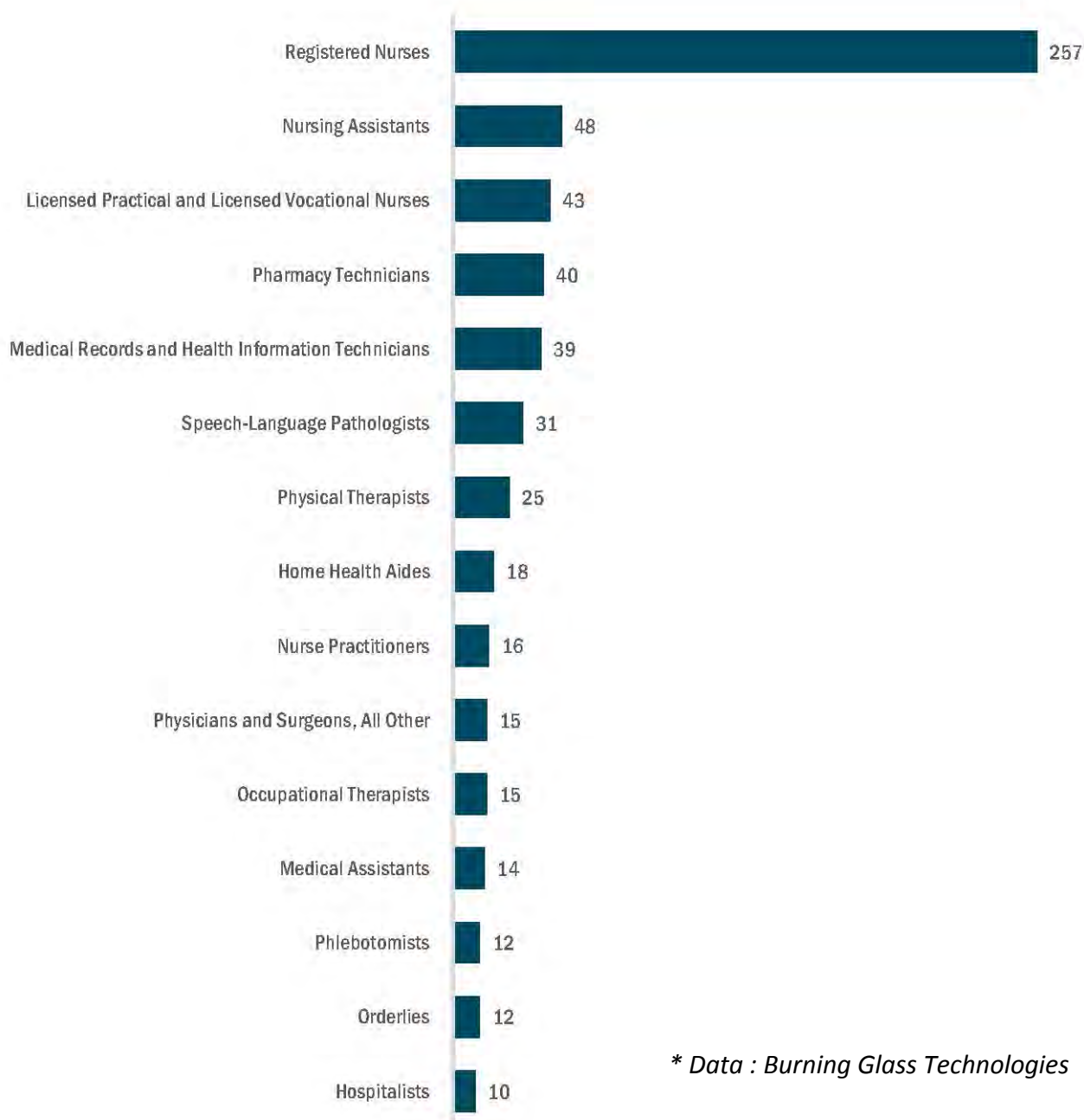
A photograph of two healthcare workers, a woman and a man, sitting at a desk in a clinical setting. The woman on the left is wearing a red scrub top and has a name tag. The man on the right is wearing a light blue scrub top and is holding a pen. They are both smiling at the camera. The background is slightly blurred, showing office equipment and papers.

# HEALTH CARE

*WIN's health care occupation cluster includes jobs related to health care support and practitioners. This cluster is one of Southeast Michigan's largest with 20,828 employees in 2015 in Genesee & Shiawassee counties. Employment in this cluster has been consistently growing, more health care workers needed to care for Michigan's aging population and in response to regulatory and other changes. Registered nurses are routinely the most in-demand job in this cluster.*

# HEALTH CARE

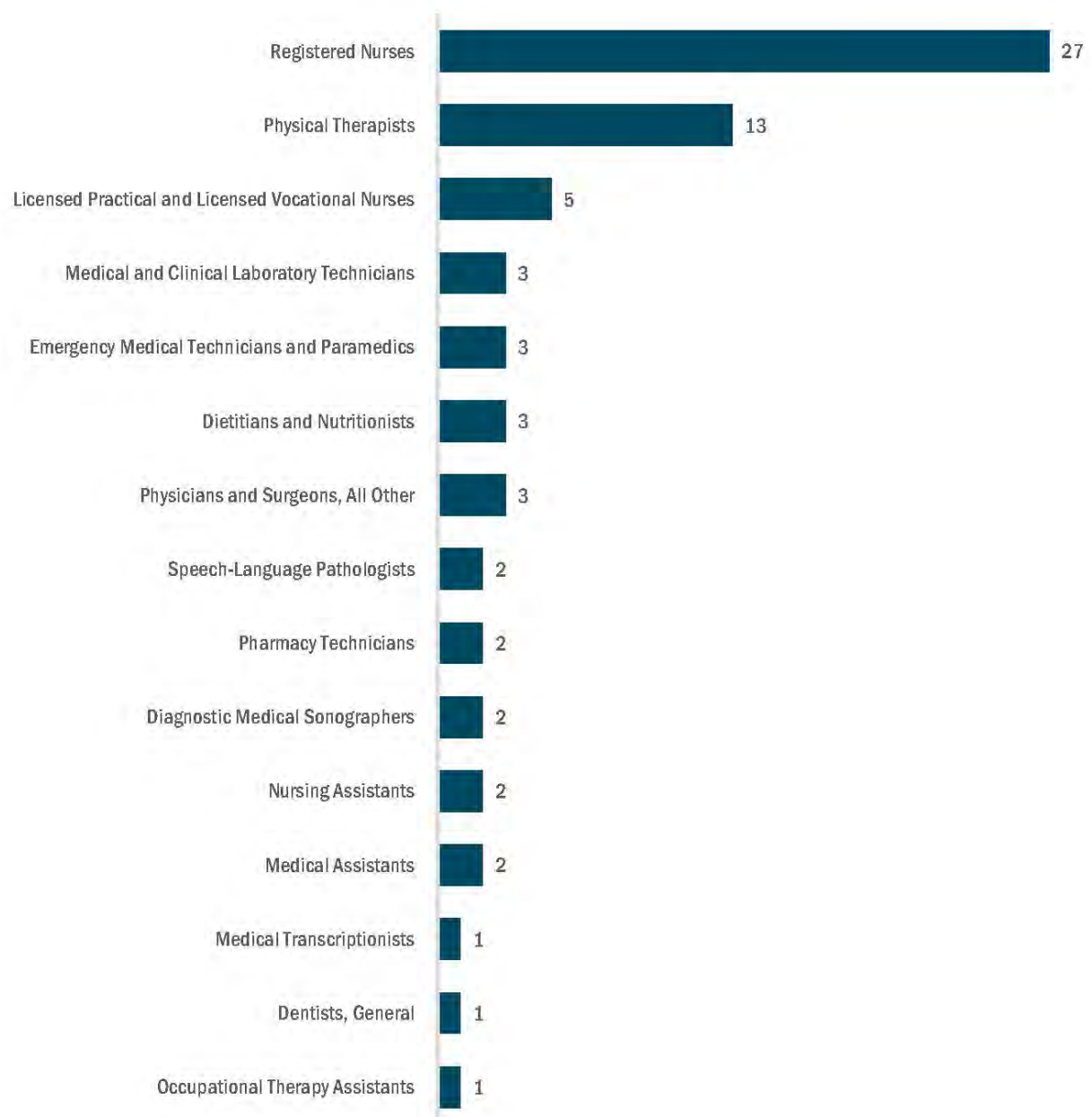
## TOP JOBS GENESEE COUNTY



The top posting health care jobs during Q4 2015 shifted very little compared to Q3 2015. The two top-posted occupations, registered nurses and nursing assistants, remained first and second, respectively. Postings for the top position, registered nurses, increased 18.4%, gaining 40 postings, and nursing assistants saw a drop in demand of 23.8%, 15 postings. Many other top jobs dropped in postings, following the quarter four trend from the past several years. The top jobs have shifted compared to one year ago (Q4 2014). Nursing assistants overtook physical therapists for the second most in-demand occupation as physical therapists fell from second to seventh. New to the top occupations are orderlies, phlebotomists, and hospitalists. No longer in the top occupations compared to one year ago are physician assistants, medical laboratory technicians, and pharmacists. Postings for the top fifteen occupations represents 81% of total job postings.



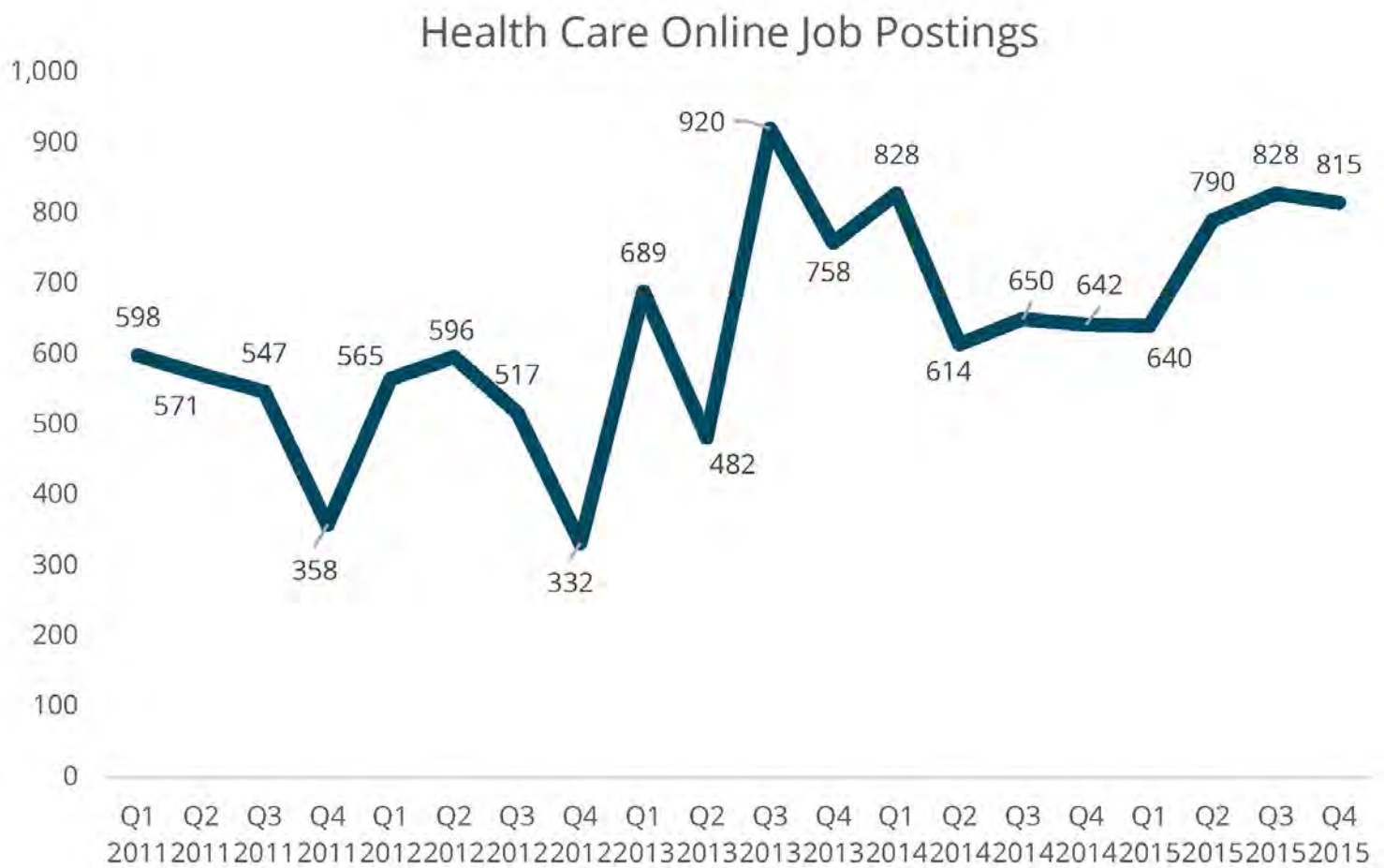
## TOP JOBS SHIAWASSEE COUNTY



The two top-posted jobs reversed order in Q4 2015 as registered nurses rose to the top-posted occupation and physical therapists fell to second. Registered nurses saw an increase in postings of 11, 68.8%, and physical therapists contracted by 3 postings, 18.8%. The top jobs have shifted compared to one year ago (Q4 2014), showing the same order reversal seen between Q3 2015 and Q4 2015. Falling from first to second, physical therapists saw a decrease in demand of 30 positions, 69.8%. Rising from second to first, registered nurses saw an increase in demand of 5 positions, 22.7%. New to the top occupations are dietitians and nutritionists, paramedics, and medical technicians. No longer in the top jobs compared to one year ago are nurse practitioners, psychiatric nurses, and phlebotomists. Postings for the top two occupations represents 52% of total job postings.

# HEALTH CARE

## ONLINE JOB POSTINGS OVER TIME



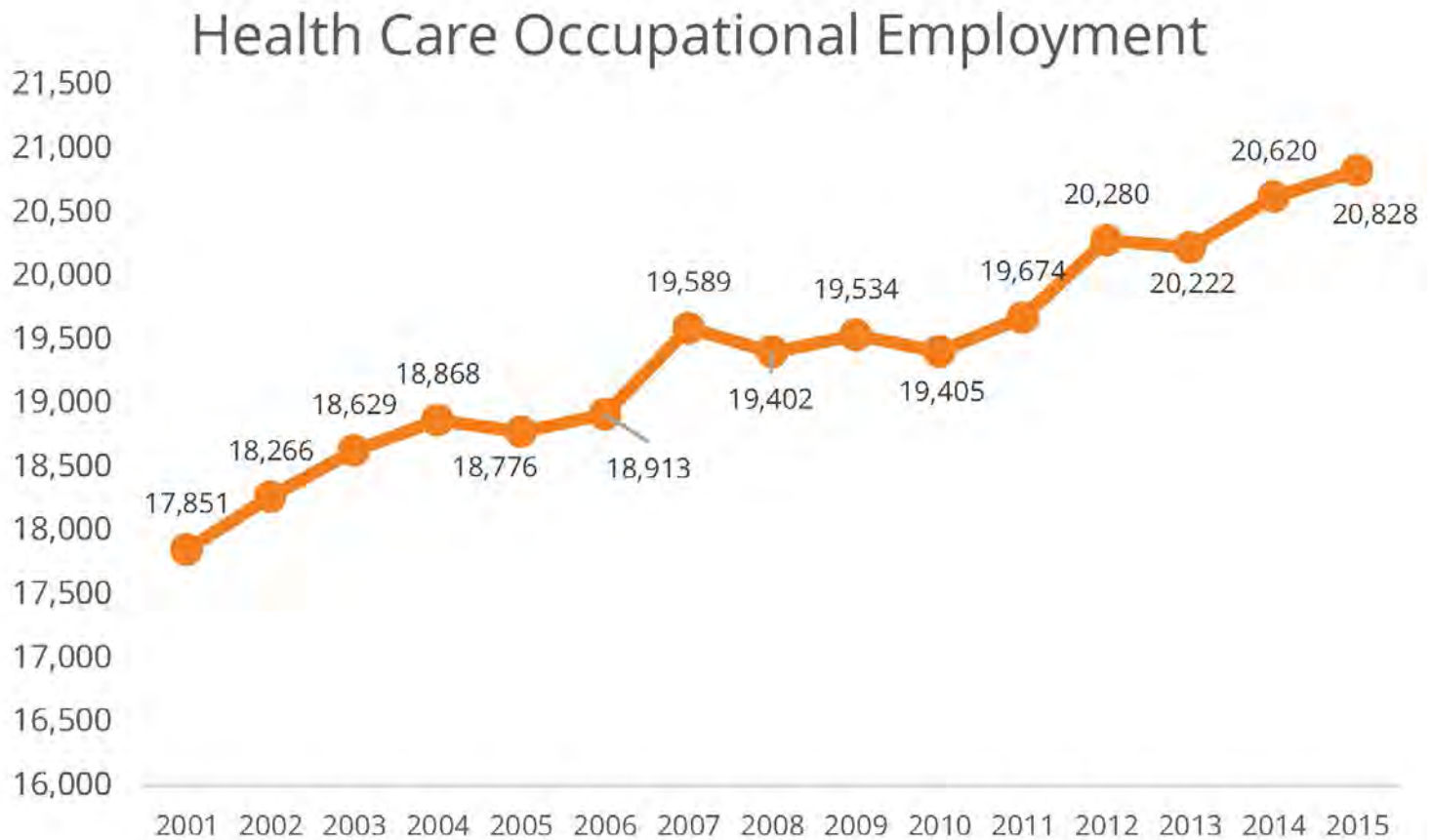
Source: Burning Glass Technologies

Analysis: Workforce Intelligence Network

Online job adds for health care occupations fell just slightly (1.5%) from 828 postings in Q3 2015 to 815 postings in Q4 2015. Historically, postings fall during the fourth quarter, but the general trend is positive as health care postings maintain higher levels throughout 2015 after a trough in 2014. Additional growth is anticipated in 2016 with postings remaining close to 800. Postings for health care workers represent 17.6% of total postings in Genesee and Shiawassee counties, making health care one of the most active posting industries in this area.

# HEALTH CARE

## EMPLOYMENT OVER TIME



Source: EMSI

Analysis: Workforce Intelligence Network

Employment levels of health care workers in Genesee and Shiawassee Counties has grown steadily since 2001, with only slight drops or stagnations. 2015 employment was estimated at 20,828 individuals, up a modest 208 workers (1.0%) compared to 2014. The net employment gain over the last several years is strong and employers are in consistent need of more workers despite recession drops experienced in other occupation groups. During 2015, there were about ten online job ads for each net new employee hired. With such consistent employment growth, health care is almost a “recession-proof” field.



# HEALTH CARE

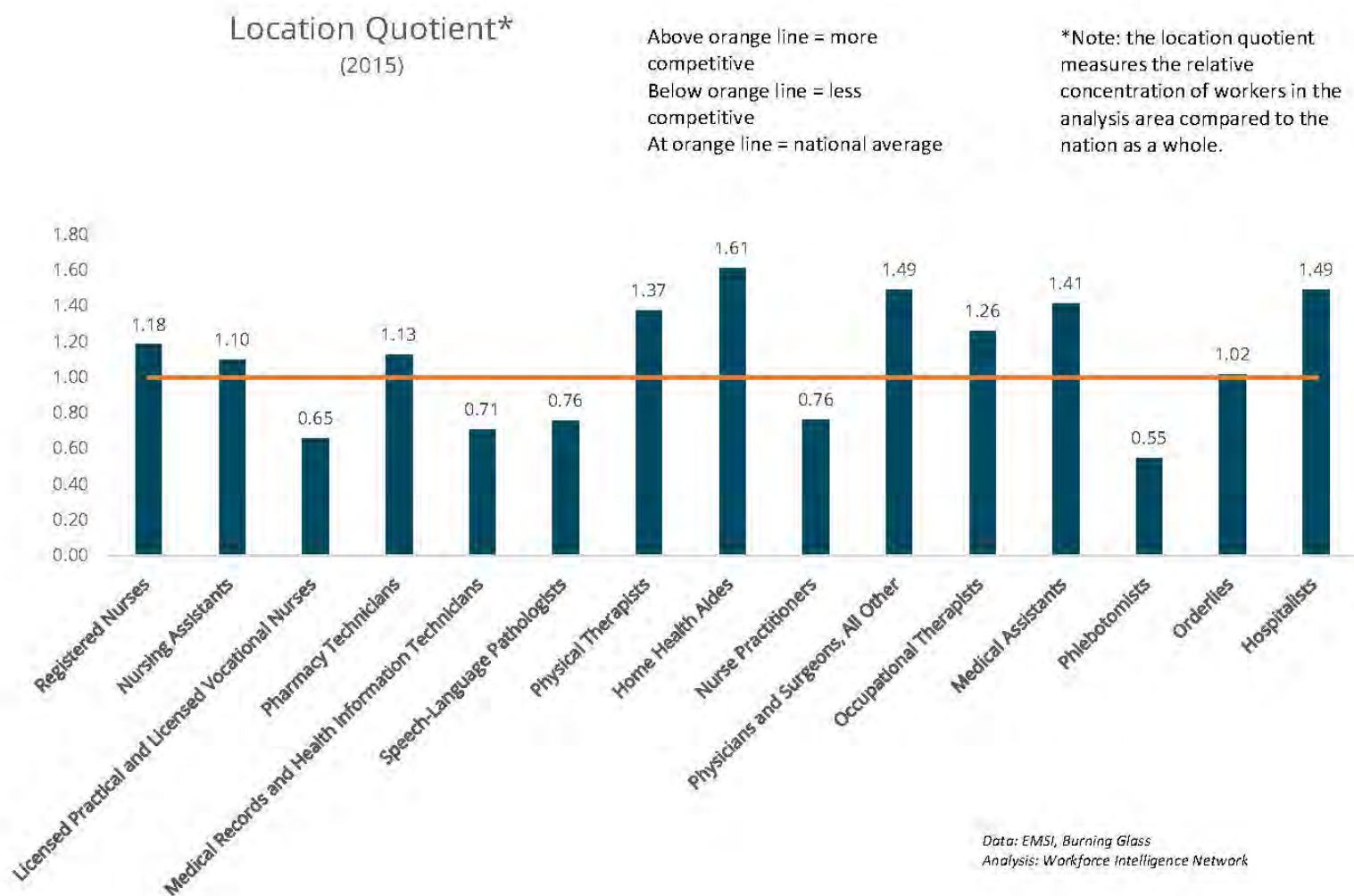
## TOP 15 JOBS WAGES, GENESEE COUNTY

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
29-1141	Registered Nurses	\$24.99	\$28.50	\$32.85	\$37.31	\$46.89
31-1014	Nursing Assistants	\$10.13	\$11.69	\$13.42	\$15.30	\$17.31
29-2061	Licensed Practical and Licensed Vocational Nurses	\$17.60	\$19.89	\$22.71	\$25.74	\$28.08
29-2052	Pharmacy Technicians	\$9.48	\$11.58	\$14.28	\$16.91	\$19.19
29-2071	Medical Records and Health Information Technicians	\$11.72	\$14.03	\$17.80	\$21.92	\$25.68
29-1127	Speech-Language Pathologists	\$24.88	\$29.69	\$35.59	\$44.25	\$61.80
29-1123	Physical Therapists	\$27.31	\$32.99	\$39.33	\$47.40	\$62.90
31-1011	Home Health Aides	\$8.08	\$8.79	\$9.90	\$11.30	\$13.57
29-1171	Nurse Practitioners	\$33.61	\$39.39	\$44.63	\$51.83	\$58.61
29-1069	Physicians and Surgeons, All Other	\$30.16	\$49.14	\$81.42	\$96.19	\$147.67
29-1122	Occupational Therapists	\$24.71	\$28.86	\$33.91	\$40.61	\$57.03
31-9092	Medical Assistants	\$10.65	\$12.19	\$13.94	\$16.27	\$18.70
31-9097	Phlebotomists	\$10.45	\$12.25	\$13.99	\$16.26	\$18.42
31-1015	Orderlies	\$9.54	\$10.53	\$12.39	\$15.01	\$17.06
29-1069	Hospitalists	\$30.16	\$49.14	\$81.42	\$96.19	\$147.67

Wages for health care workers are not consistent from occupation to occupation. While some jobs start workers (10th percentile) at wage well above \$20 per hour, some of the more entry-level occupations start workers closer to \$10 per hour. There is considerable wage growth with additional educational attainment in this field. An exponential increase in wages is experienced as workers move from being a medical assistant to an RN or a physician. While some health care jobs are not high paying at the onset, they do offer upward mobility with experience. Wages for health care workers in the region are generally on par with national averages. For lower level occupations, nursing assistants, medical assistants, etc. wages are below national averages.

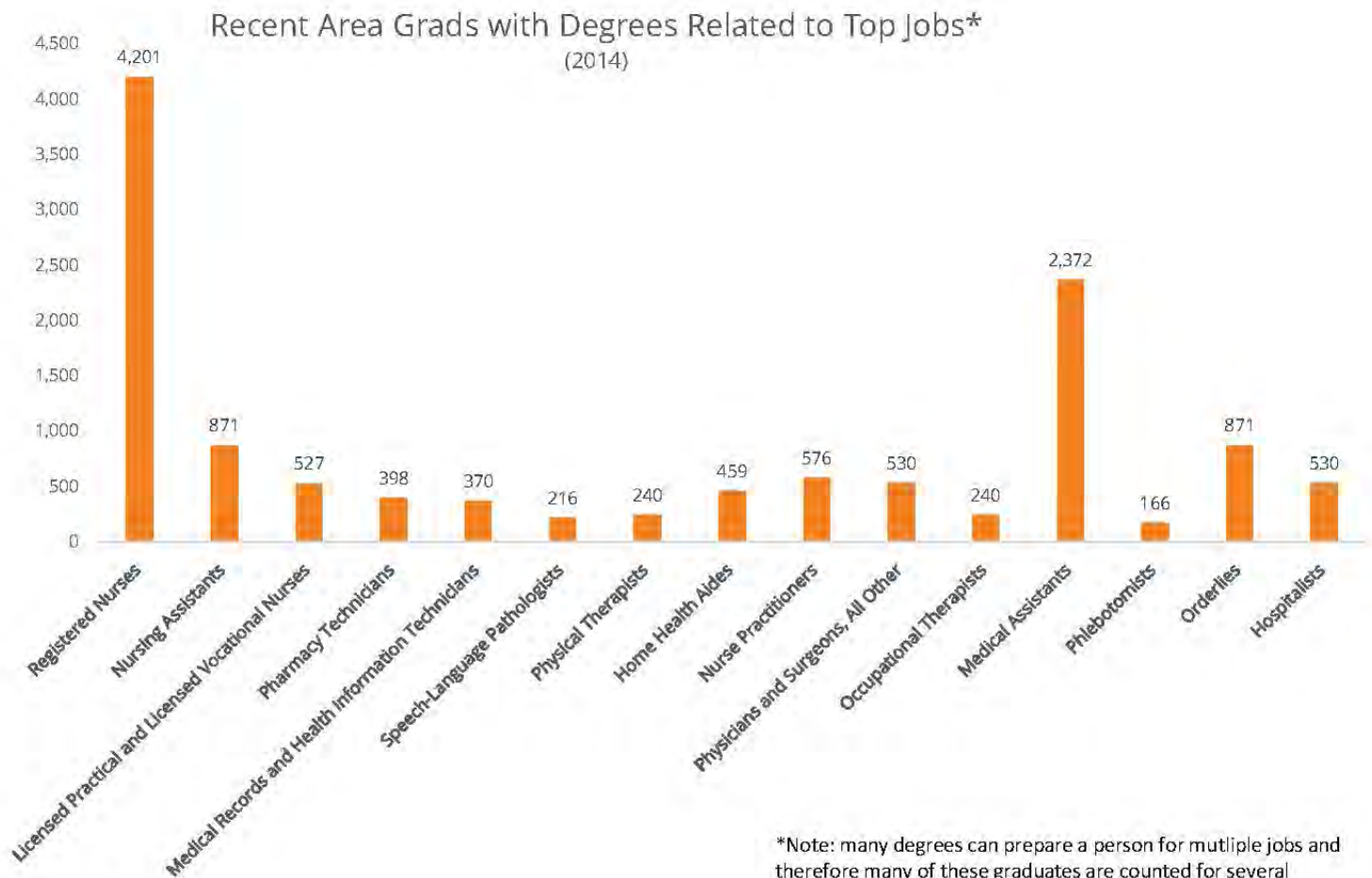
# HEALTH CARE

## TOP 15 JOBS LOCATION QUOTIENT, GENESEE COUNTY



The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQs typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQs will make filling open positions more difficult. Genesee County is not particularly competitive in its concentration of health care workers, but some occupations have a larger pool of workers, such as physicians and surgeons and home health aides. Genesee County is not as competitive for LPNs, nurse practitioners, phlebotomists, information technicians or speech pathologists—all of which appear in the top posting jobs in this county. These workers are in high demand and employers are likely having trouble filling open positions. For those positions that are lower paying and in high demand, wages may rise if demand continues to increase.

## TOP 15 JOBS RECENT REGIONAL GRADUATES, GENESEE COUNTY



\*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Data: EMSI, Burning Glass, Integrated Post-Secondary Data System  
Analysis: Workforce Intelligence Network

Due to the regional nature of the labor force in Southeast Michigan data, is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. In 2014, graduates with certificates and degrees in many in-demand health care fields were insufficient to meet demand. The most graduates available have degrees in nursing but there is a disconnect between the level of degree required for nursing and the level of degree graduates attain. Many individuals complete two-year degrees in nursing to become an LPN. Most health systems and hospitals now require a higher share of their nursing staff to hold four-year degrees. This, and demand for other nursing specialists, is furthering the divide between employer demand and the supply of qualified workers. IT



# HEALTH CARE

## TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, GENESEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
29-1141	Registered Nurses	Associate's degree	None	None
31-1014	Nursing Assistants	Postsecondary non-degree award	None	None
29-2061	Licensed Practical and Licensed Vocational Nurses	Postsecondary non-degree award	None	None
29-2052	Pharmacy Technicians	High school diploma or equivalent	None	None
29-2071	Medical Records and Health Information Technicians	Postsecondary non-degree award	None	None
29-1127	Speech-Language Pathologists	Master's degree	None	None
29-1123	Physical Therapists	Doctoral or professional degree	None	None
31-1011	Home Health Aides	Less than high school	None	None
29-1171	Nurse Practitioners	Master's degree	None	None
29-1069	Physicians and Surgeons, All Other	Doctoral or professional degree	None	None
29-1122	Occupational Therapists	Master's degree	None	None
31-9092	Medical Assistants	Postsecondary non-degree award	None	None
31-9097	Phlebotomists	Postsecondary non-degree award	None	None
31-1015	Orderlies	High school diploma or equivalent	None	None
29-1069	Hospitalists	Doctoral or professional degree	None	None

Nearly every in-demand health care occupation requires post-secondary training for an entry-level position. Most require a bachelor's degree or higher. For select occupations, such as pharmacy technicians and health technicians, on-the-job training is important. Like many other clusters, wages increase with educational attainment and health care is a field where education is transferable and stackable. Once a person gets a foot in the door, each new opportunity in education can utilize the learning and experience from a more entry-level position.

# HEALTH CARE

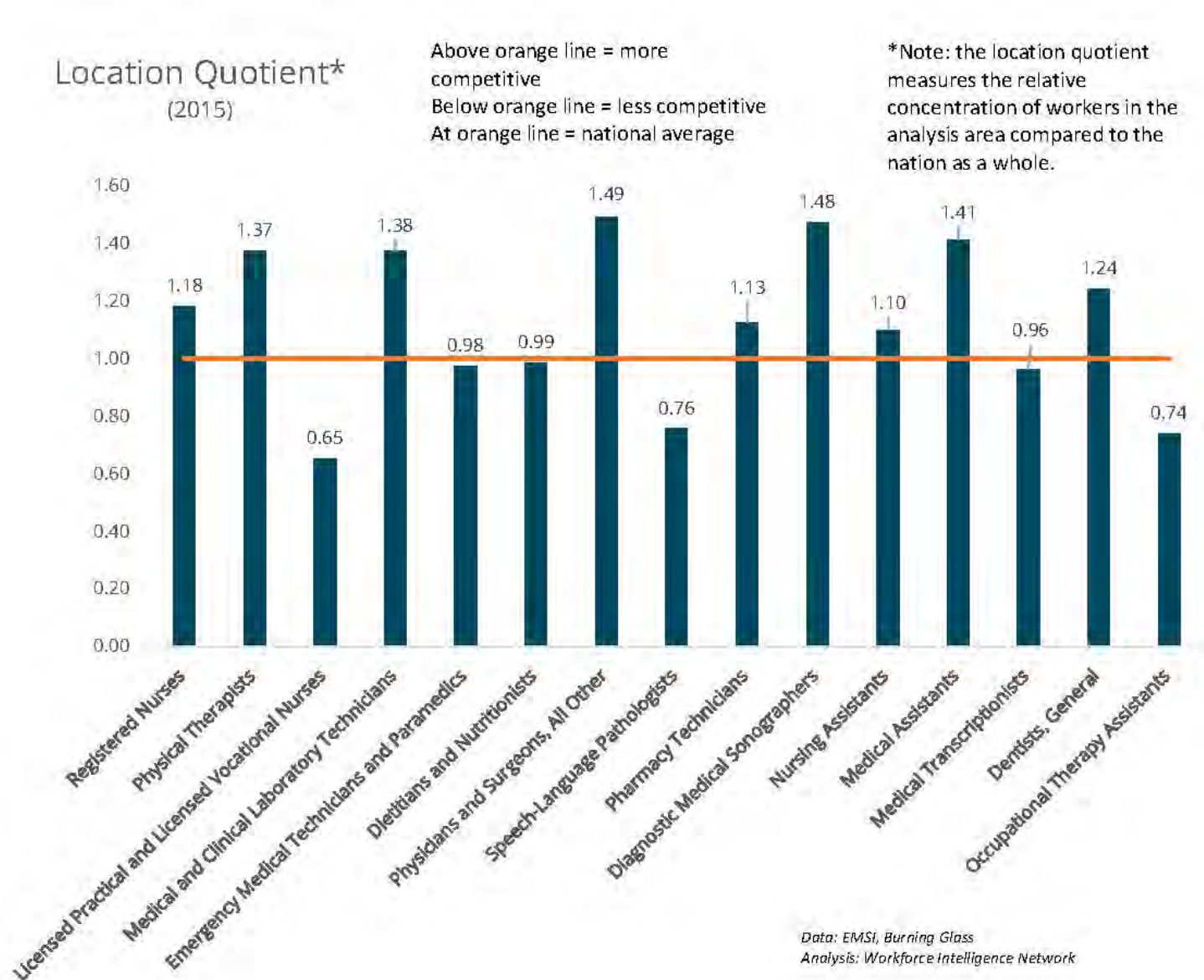
## TOP 15 JOBS WAGES, SHIAWASSEE COUNTY

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
29-1141	Registered Nurses	\$24.99	\$28.50	\$32.85	\$37.31	\$46.89
29-1123	Physical Therapists	\$27.31	\$32.99	\$39.33	\$47.40	\$62.90
29-2061	Licensed Practical and Licensed Vocational Nurses	\$17.60	\$19.89	\$22.71	\$25.74	\$28.08
29-2012	Medical and Clinical Laboratory Technicians	\$11.24	\$12.90	\$15.76	\$20.29	\$27.64
29-2041	Emergency Medical Technicians and Paramedics	\$9.79	\$11.62	\$14.50	\$17.69	\$20.73
29-1031	Dietitians and Nutritionists	\$19.79	\$22.53	\$25.90	\$29.44	\$34.25
29-1069	Physicians and Surgeons, All Other	\$30.16	\$49.14	\$81.42	\$96.19	\$147.67
29-1127	Speech-Language Pathologists	\$24.88	\$29.69	\$35.59	\$44.25	\$61.80
29-2052	Pharmacy Technicians	\$9.48	\$11.58	\$14.28	\$16.91	\$19.19
29-2032	Diagnostic Medical Sonographers	\$23.17	\$25.98	\$29.42	\$33.37	\$35.85
31-1014	Nursing Assistants	\$10.13	\$11.69	\$13.42	\$15.30	\$17.31
31-9092	Medical Assistants	\$10.65	\$12.19	\$13.94	\$16.27	\$18.70
31-9094	Medical Transcriptionists	\$11.38	\$13.43	\$15.76	\$18.16	\$20.42
29-1021	Dentists, General	\$36.17	\$45.30	\$64.04	\$91.59	\$120.20
31-2011	Occupational Therapy Assistants	\$14.55	\$16.56	\$20.21	\$25.61	\$30.41

Wages for health care workers are not consistent from occupation to occupation. While some jobs start workers (10th percentile) at wage well above \$20 per hour, some of the more entry-level occupation start workers closer to \$10 per hour. There is considerable wage growth with additional educational attainment in this field. An exponential increase in wages is experienced as workers move from being a medical assistant to an RN or a physician. While some health care jobs are not high paying at the onset, they do offer upward mobility with experience. Wages for health care workers in the region are generally on par with national averages. For lower level occupations, nursing assistants, medical assistants, etc. wages are below national averages.

# HEALTH CARE

## TOP 15 JOBS LOCATION QUOTIENT, SHIAWASSEE COUNTY



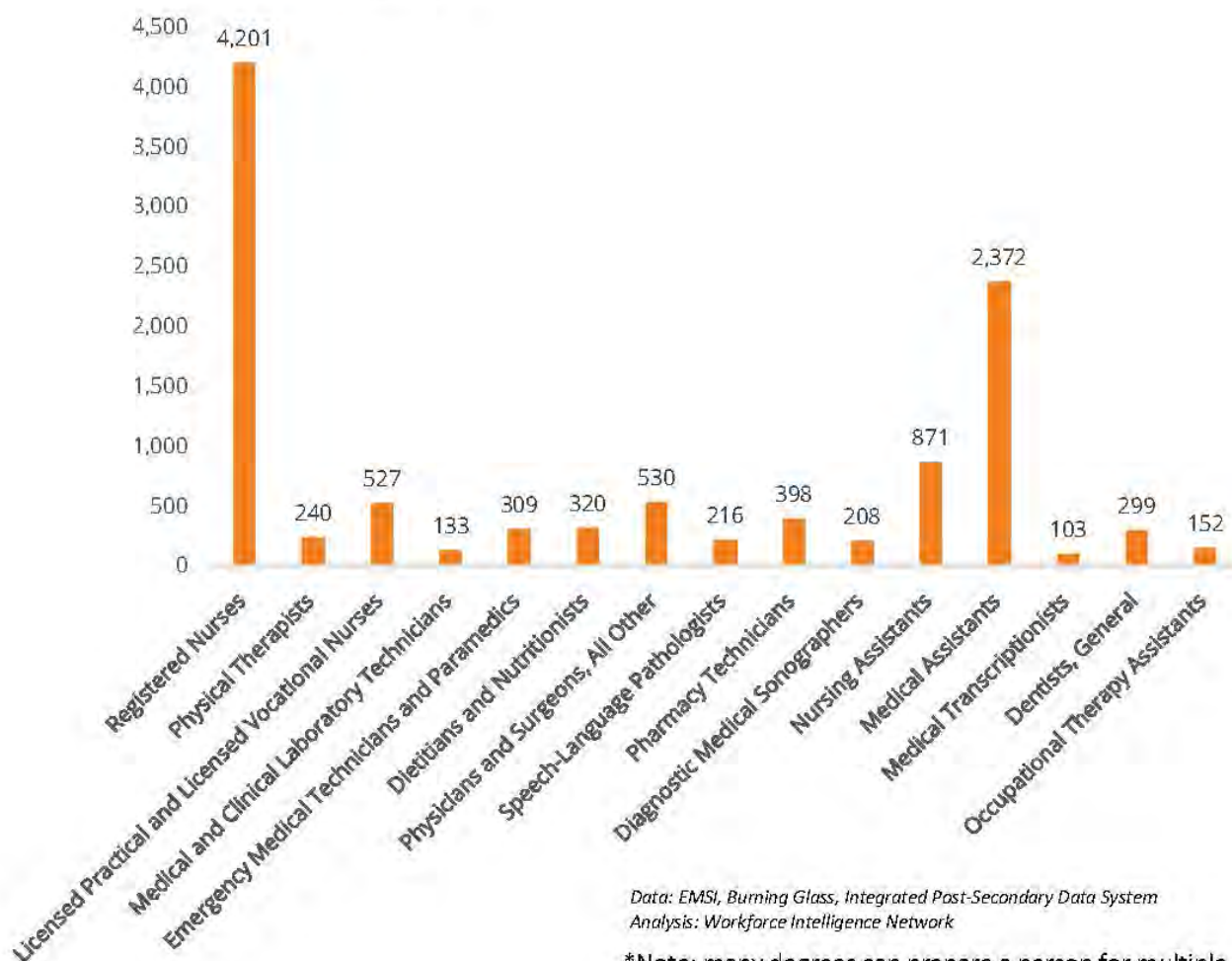
The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQs typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQs will make filling open positions more difficult. Shiawassee County is not particularly competitive in its concentration of health care workers with many occupations at approximately the national average or slightly higher. Shiawassee County is not as competitive for LPNs, occupational therapy assistants, or speech pathologists. These workers are in high demand and employers are likely having trouble filling open positions. For those positions that are lower paying and in high demand, wages may rise if demand continues to increase.



# HEALTH CARE

## TOP 15 JOBS RECENT REGIONAL GRADUATES, SHIAWASSEE COUNTY

Recent Area Grads with Degrees Related to Top Jobs\*  
(2014)



\*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Due to the regional nature of the labor force in Southeast Michigan data is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. In 2014, graduates with certificates and degrees in many in-demand health care fields were insufficient to meet demand. The most graduates available have degrees in nursing but there is a disconnect between the level of degree required for nursing and the level of degree graduates attain. Many individuals complete two-year degrees in nursing to become an LPN. Most health systems and hospitals now require a higher share of their nursing staff to hold four-year degrees. This, and demand for other nursing specialists, is furthering the divide between employer demand and the supply of qualified workers.



# HEALTH CARE

## TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, SHIAWASSEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
29-1141	Registered Nurses	Associate's degree	None	None
29-1123	Physical Therapists	Doctoral or professional degree	None	None
29-2061	Licensed Practical and Licensed Vocational Nurses	Postsecondary non-degree award	None	None
29-2012	Medical and Clinical Laboratory Technicians	Associate's degree	None	None
29-2041	Emergency Medical Technicians and Paramedics	Postsecondary non-degree award	None	None
29-1031	Dietitians and Nutritionists	Bachelor's degree	None	None
29-1069	Physicians and Surgeons, All Other	Doctoral or professional degree	None	None
29-1127	Speech-Language Pathologists	Master's degree	None	None
29-2052	Pharmacy Technicians	High school diploma or equivalent	None	None
29-2032	Diagnostic Medical Sonographers	Associate's degree	None	None
31-1014	Nursing Assistants	Postsecondary non-degree award	None	None
31-9092	Medical Assistants	Postsecondary non-degree award	None	None
31-9094	Medical Transcriptionists	Postsecondary non-degree award	None	None
29-1021	Dentists, General	Doctoral or professional degree	None	None
31-2011	Occupational Therapy Assistants	Associate's degree	None	None

Nearly every in-demand health care occupation requires post-secondary training for an entry-level position. Most require a bachelor's degree or higher. For select occupations, such as pharmacy technicians and health technicians, on-the-job training is important. Like many other clusters, wages increase with educational attainment and health care is a field where education is transferable and stackable. Once a person gets a foot in the door, each new opportunity in education can utilize the learning and experience from a more entry-level position.

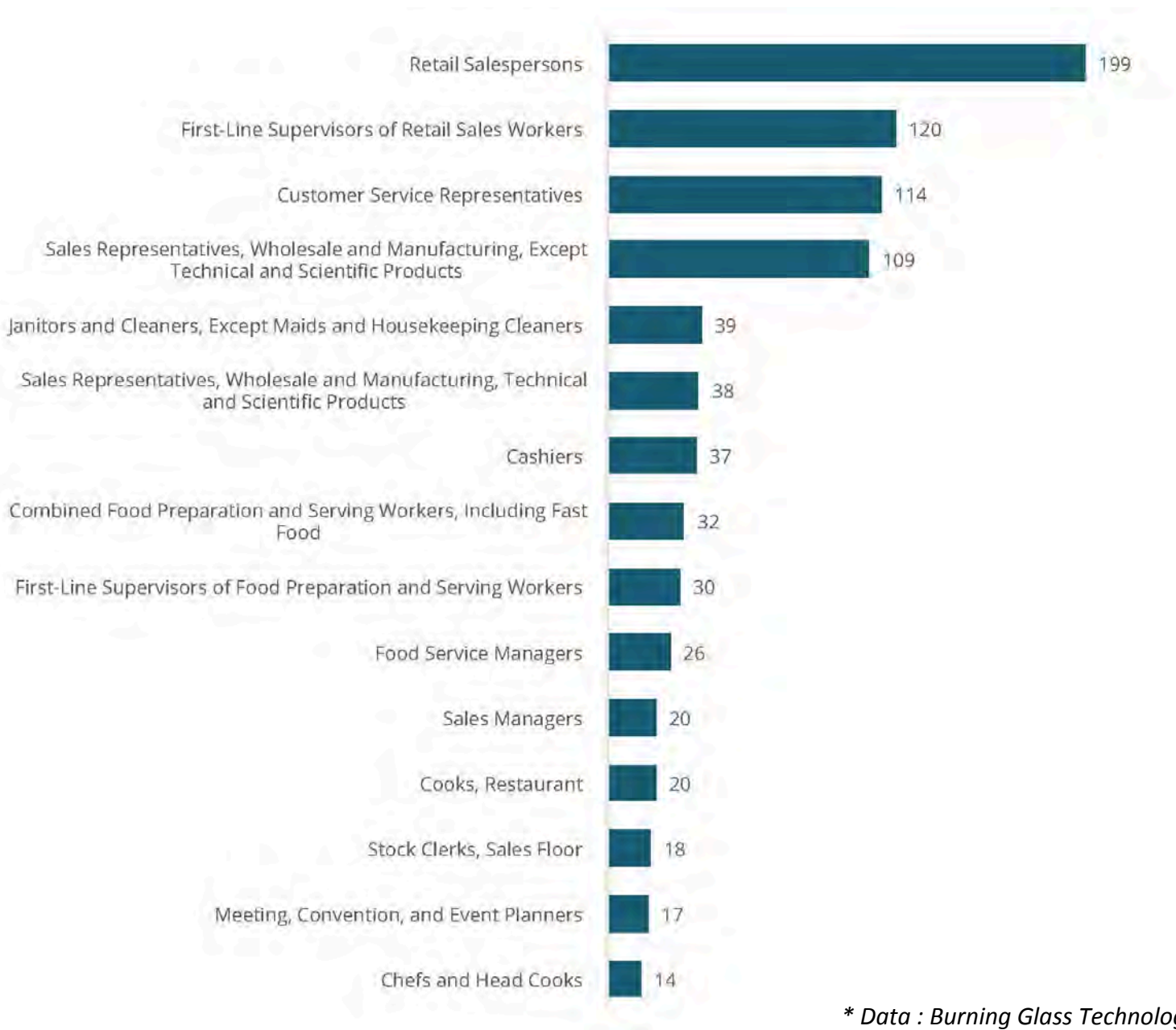


# RETAIL AND HOSPITALITY

*The retail and hospitality cluster is the largest occupational cluster that WIN analyzes, both in terms of employment and online job postings. This cluster is of very high importance to the region because it is the first to grow when the economy expands and the first to contract in a downturn: It is often a leading indicator. As defined by WIN, the retail and hospitality cluster encompasses all customer service occupations, with skills transferable across the retail sector, the hotel industry, food and beverage service industry, call centers, and other areas. In 2015, 47,842 individuals were employed in retail and hospitality related occupations in Genesee & Shiawassee counties.*

# RETAIL & HOSPITALITY

## TOP JOBS GENESEE COUNTY



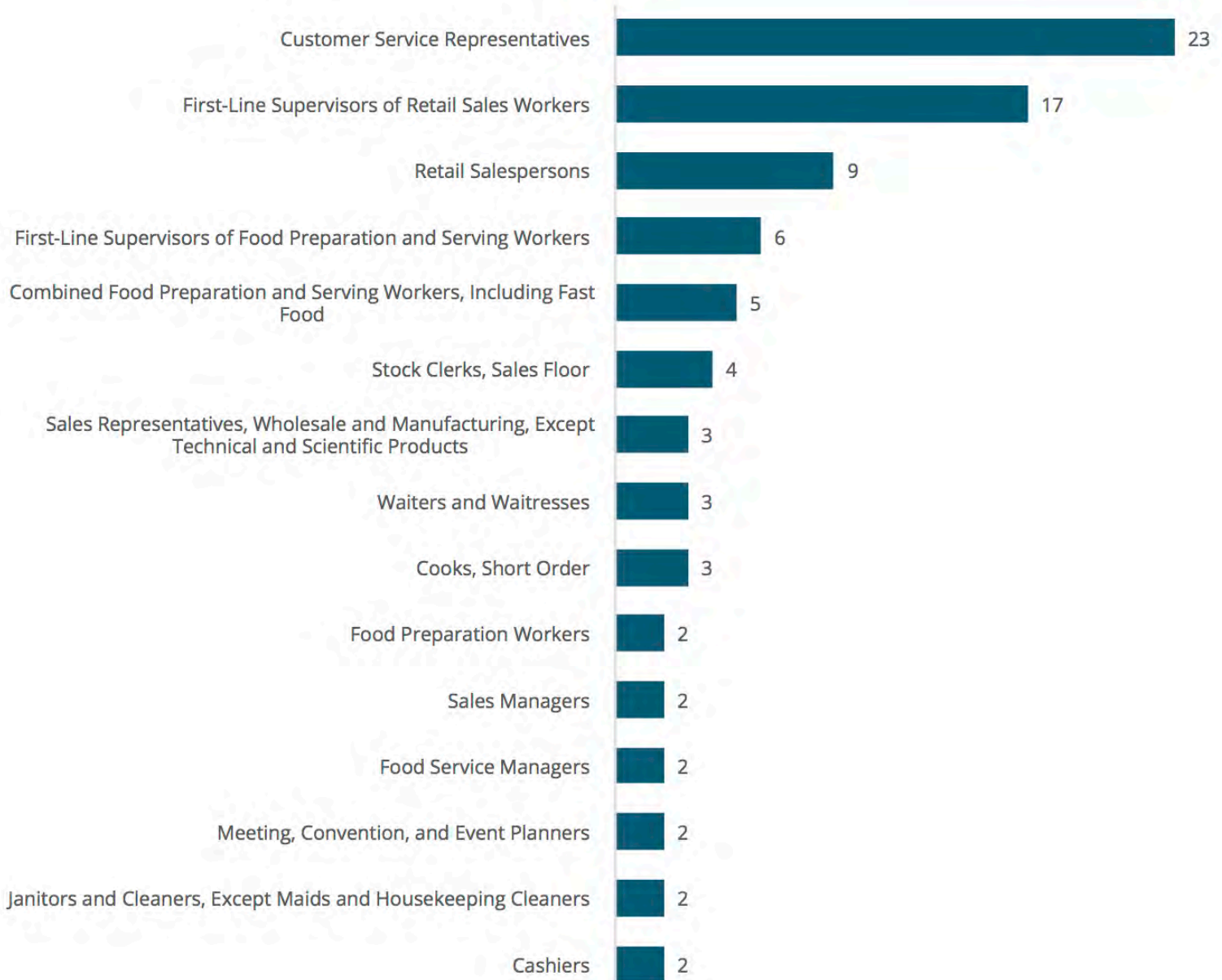
\* Data : Burning Glass Technologies

The top posting retail and hospitality jobs during Q4 2015 shifted very little compared to Q3 2015 with the same several occupations remaining in high demand across several quarters. The top posting occupations re-ordered slightly, but retail sales remains the most in-demand position in the county, which is replicated throughout the region. Postings for the top in-demand position, retail sales persons, dropped by 17.4% losing 42 postings. Sales representatives have dropped by 80 postings (42.3%) knocking it down to the fourth highest posting position from the second position for the previous three quarters.



# RETAIL & HOSPITALITY

## TOP JOBS SHIAWASSEE COUNTY

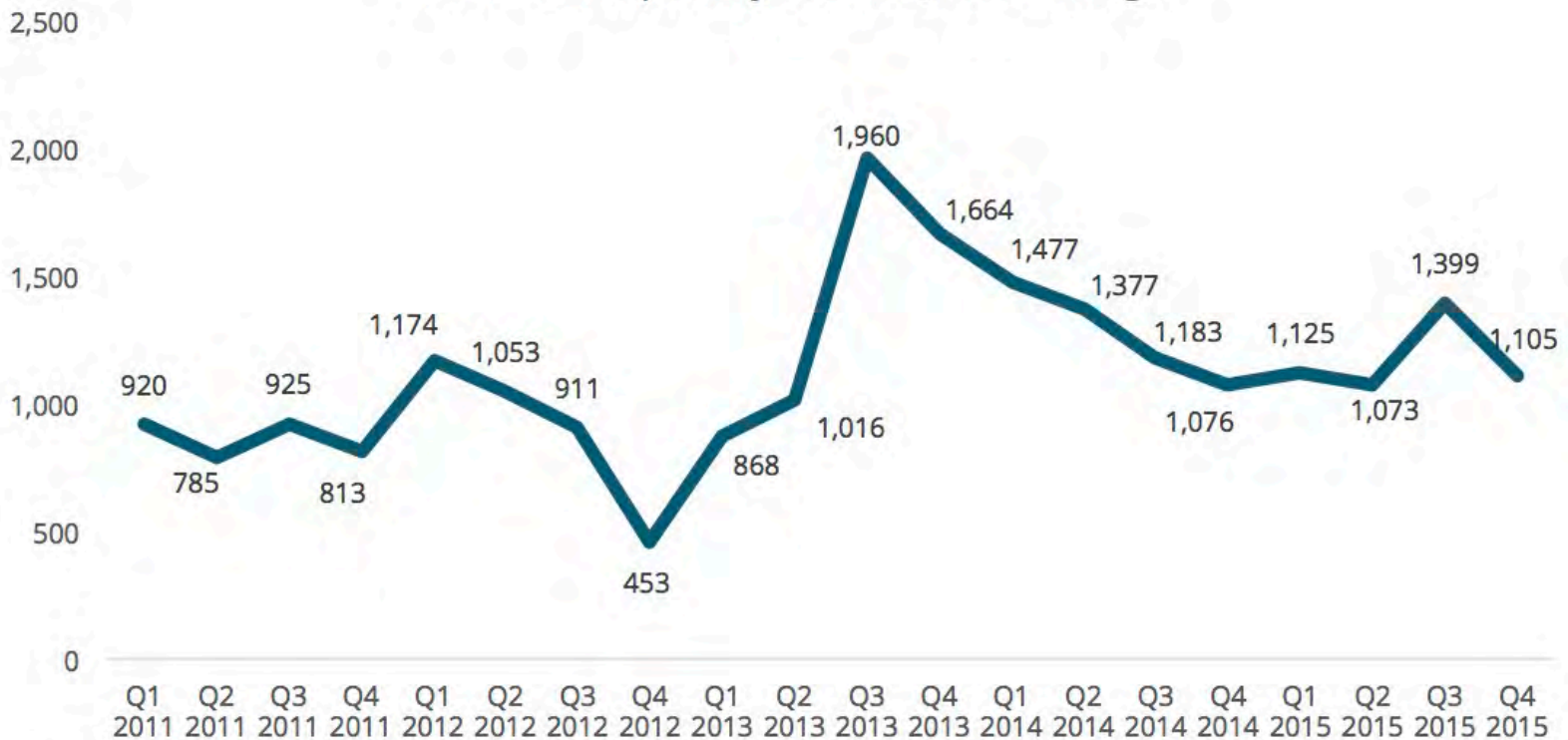


The top posting retail and hospitality jobs during Q4 2015 shifted very little compared to Q3 2015 with the same several occupations remaining in high demand across several quarters. Customer service representatives overtook supervisors of retail sales workers as the top posting occupation in retail, regardless of an increase in postings for supervisors. Demand more than doubled for customer service representatives with 12 additional postings or 52.1%. Since Q4 2014 the top fifteen in-demand retail and hospitality jobs have remained the same, shifting only slightly in order quarter-to-quarter. Unlike most other counties in the region, retail salespeople are not the highest posting position in Shiawassee County. In fact, this position is third on the list. Interestingly, this occupation has not made an appearance as the number one poster since a full year ago, in Q4 2014.

# RETAIL & HOSPITALITY

## ONLINE JOB POSTINGS OVER TIME

Retail & Hospitality Online Job Postings



Source: Burning Glass Technologies  
Analysis: Workforce Intelligence Network

Online job adds for health care occupations dropped this quarter (21.0%) from 1,399 postings in Q3 2015 to 1,105 postings in Q4 2015. Historically, postings fall during the fourth quarter, particularly for retail and hospitality positions as the holiday hiring season winds down. This drop brings postings back to the average seen in this area for the past year, since a record peak in Q3 2013. Postings appear to be steady, and 2016 will determine whether the approximately 1,100 posting trend is here to stay. Retail postings account for 23.9% of total postings in Genesee and Shiawassee Counties, making it the most active posting industry in this area.

# RETAIL & HOSPITALITY

## EMPLOYMENT OVER TIME



Source: EMSI

Analysis: Workforce Intelligence Network

Employment levels of retail and hospitality workers in Genesee and Shiawassee Counties have grown steadily since the 2010 recession low, but have not yet rebounded to pre-recession peak levels. 2015 employment was estimated at 47,842 individuals, up a modest 375 workers (0.7%) compared to 2014. The net employment gain over the last several years has been somewhat level and steady. During 2015, there were about seven online job ads for each net new employee hired. This is relatively low compared to other clusters showing strong demand and employment growth in the field.



# RETAIL & HOSPITALITY

## TOP 15 JOBS WAGES, GENESEE COUNTY

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
41-2031	Retail Salespersons	\$8.35	\$8.98	\$10.24	\$13.13	\$19.00
41-1011	First-Line Supervisors of Retail Sales Workers	\$11.18	\$13.60	\$17.23	\$21.87	\$27.40
43-4051	Customer Service Representatives	\$9.36	\$11.52	\$15.01	\$19.07	\$24.48
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$12.94	\$18.83	\$27.15	\$39.50	\$55.51
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	\$8.37	\$9.47	\$11.71	\$14.97	\$18.31
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$18.93	\$26.15	\$36.68	\$50.95	\$68.91
41-2011	Cashiers	\$8.21	\$8.72	\$9.61	\$11.65	\$15.09
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	\$8.15	\$8.52	\$9.14	\$9.92	\$12.12
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	\$8.92	\$10.54	\$14.22	\$19.22	\$23.99
11-9051	Food Service Managers	\$12.37	\$15.46	\$19.44	\$26.51	\$35.87
11-2022	Sales Managers	\$28.89	\$38.96	\$52.65	\$70.34	\$106.63
35-2014	Cooks, Restaurant	\$8.32	\$9.14	\$10.69	\$12.73	\$14.30
43-5081	Stock Clerks, Sales Floor	\$8.41	\$9.23	\$11.13	\$14.53	\$18.71
13-1121	Meeting, Convention, and Event Planners	\$12.69	\$16.84	\$21.99	\$27.89	\$33.98
35-1011	Chefs and Head Cooks	\$10.39	\$13.01	\$17.20	\$24.54	\$34.28

Wages for retail and hospitality workers are not consistent from occupation to occupation. Very few jobs start workers (10th percentile) at wages above \$20 per hour, many of these occupations are considered entry-level and start workers below \$10 per hour. Most wage growth in these fields can be had with experience and training rather than degree attainment. Jobs in technical sales and management require more education and experience, thus these jobs pay considerably more. Retail and hospitality workers in southeast Michigan have similar wage levels to workers nationally with some occupations, specifically sales managers, making higher wages than the national average.

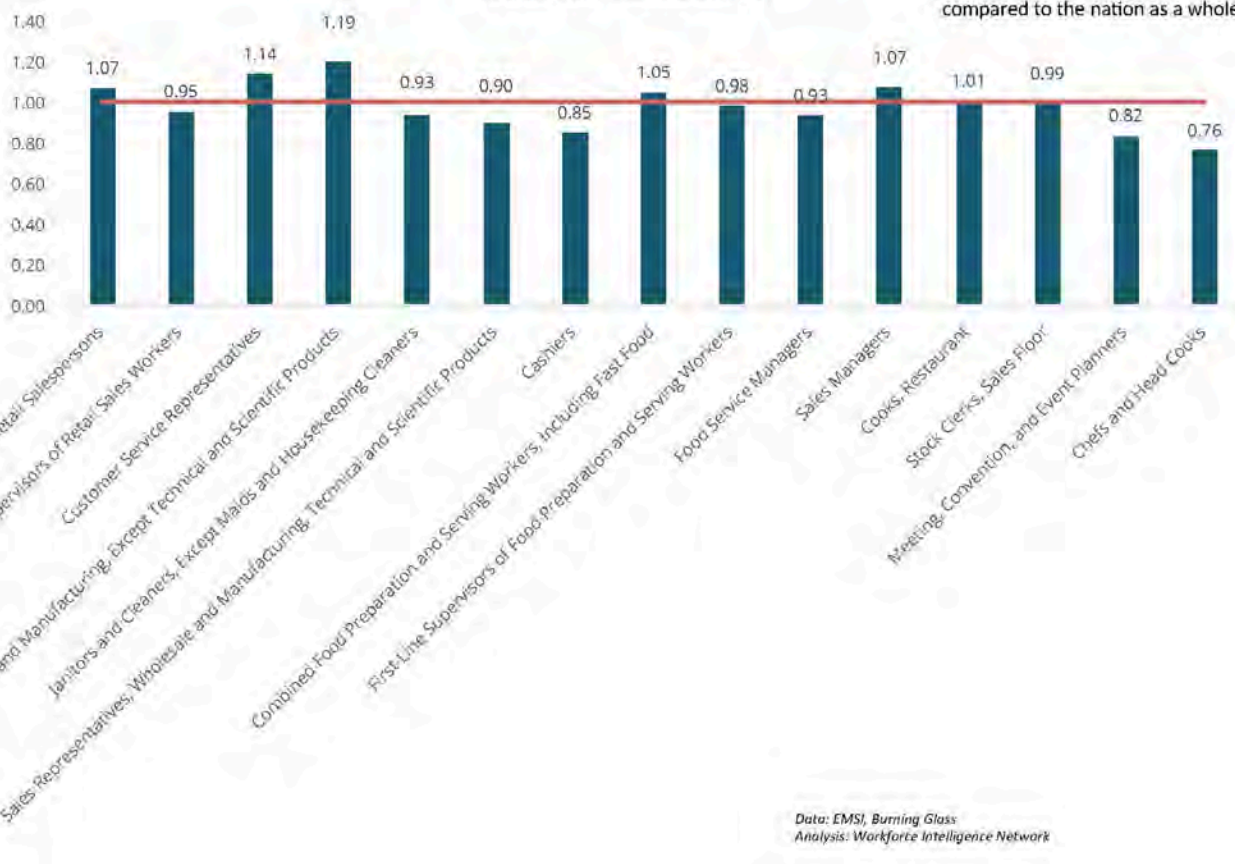
# RETAIL & HOSPITALITY

## TOP 15 JOBS LOCATION QUOTIENT, GENESEE COUNTY

Location Quotient\*  
(2015)

Above orange line = more competitive  
Below orange line = less competitive  
At orange line = national average

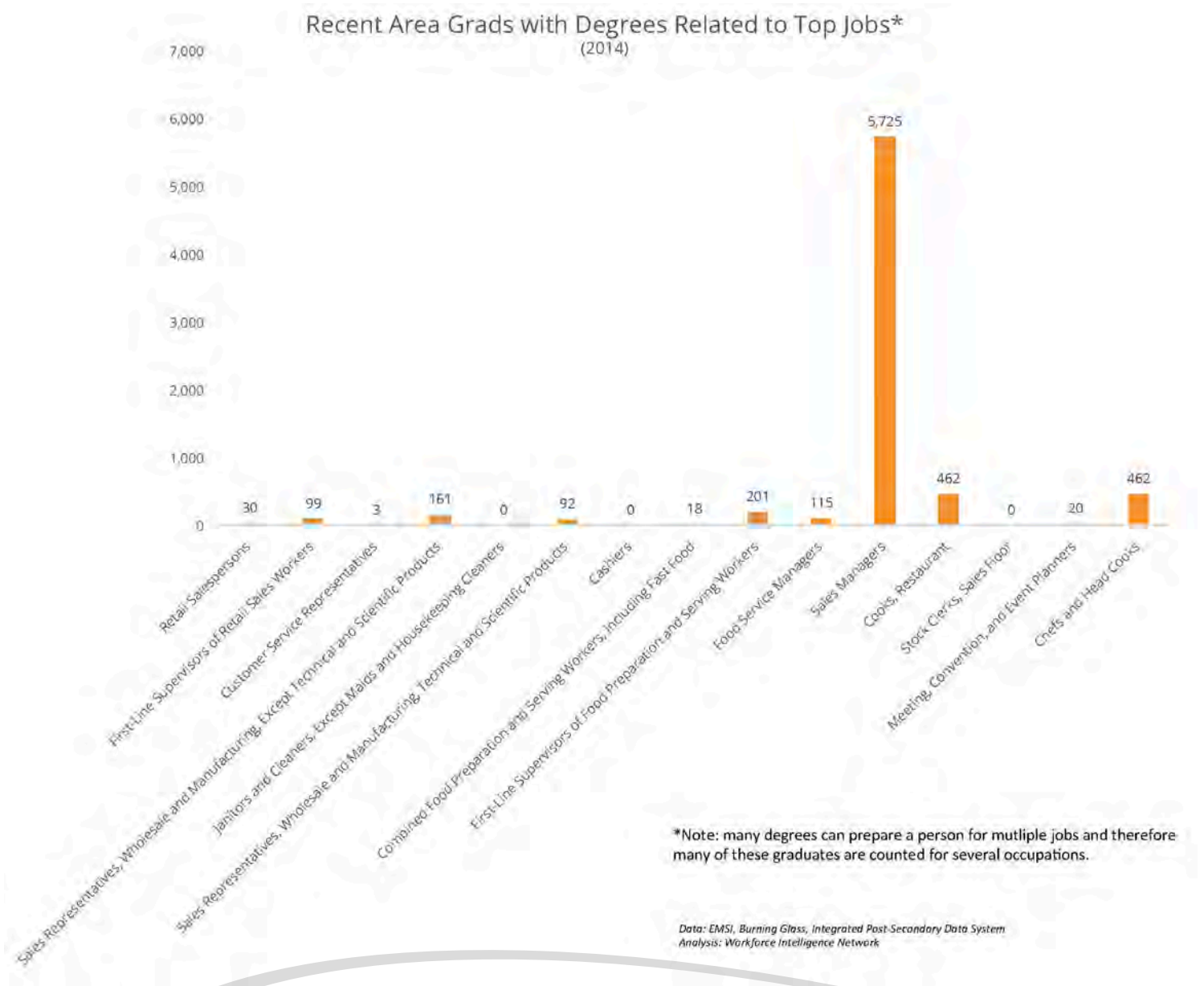
\*Note: the location quotient measures the relative concentration of workers in the analysis area compared to the nation as a whole.



The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQs typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQs will make filling open positions more difficult. Genesee County is not particularly competitive in its concentration of retail hospitality workers. This makes sense because employment in this cluster is driven by consumer demand and is roughly similar across all metro areas. The most concentrated occupation in this cluster is sales representatives (non-scientific/technical products) with 19% higher employment concentration than the national average.

# RETAIL & HOSPITALITY

## TOP 15 JOBS RECENT REGIONAL GRADUATES, GENESEE COUNTY



Due to the regional nature of the labor force in Southeast Michigan data is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. Most retail and hospitality jobs do not require an advanced degree. Sales managers have a large number of graduates with related degrees because the region's educational program graduates a large number of students with training in business management. For certain occupations where specialized training is essential, marketing managers, cooks, technical sales, etc. very few graduates exist to fill employer needs.



# RETAIL & HOSPITALITY

## TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, GENESEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
41-2031	Retail Salespersons	Less than high school	None	None
41-1011	First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent	Less than 5 years	Less than 5 years
43-4051	Customer Service Representatives	High school diploma or equivalent	None	None
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	None	None
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	Less than high school	None	None
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	Bachelor's degree	None	None
41-2011	Cashiers	Less than high school	None	None
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	Less than high school	None	None
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	Less than 5 years	Less than 5 years
11-9051	Food Service Managers	High school diploma or equivalent	Less than 5 years	Less than 5 years
11-2022	Sales Managers	Bachelor's degree	Less than 5 years	Less than 5 years
35-2014	Cooks, Restaurant	Less than high school	Less than 5 years	Less than 5 years
43-5081	Stock Clerks, Sales Floor	Less than high school	None	None
13-1121	Meeting, Convention, and Event Planners	Bachelor's degree	None	None
35-1011	Chefs and Head Cooks	High school diploma or equivalent	5 years or more	5 years or more

Like wages, educational attainment requirements in retail and hospitality require a spectrum of credentials. Many entry-level occupations require only a high school diploma and on-the-job training while other occupations require a bachelor's degree. Wages follow education in this cluster with the most competitive wages and upward mobility found in jobs that require the most higher education and training.

# RETAIL & HOSPITALITY

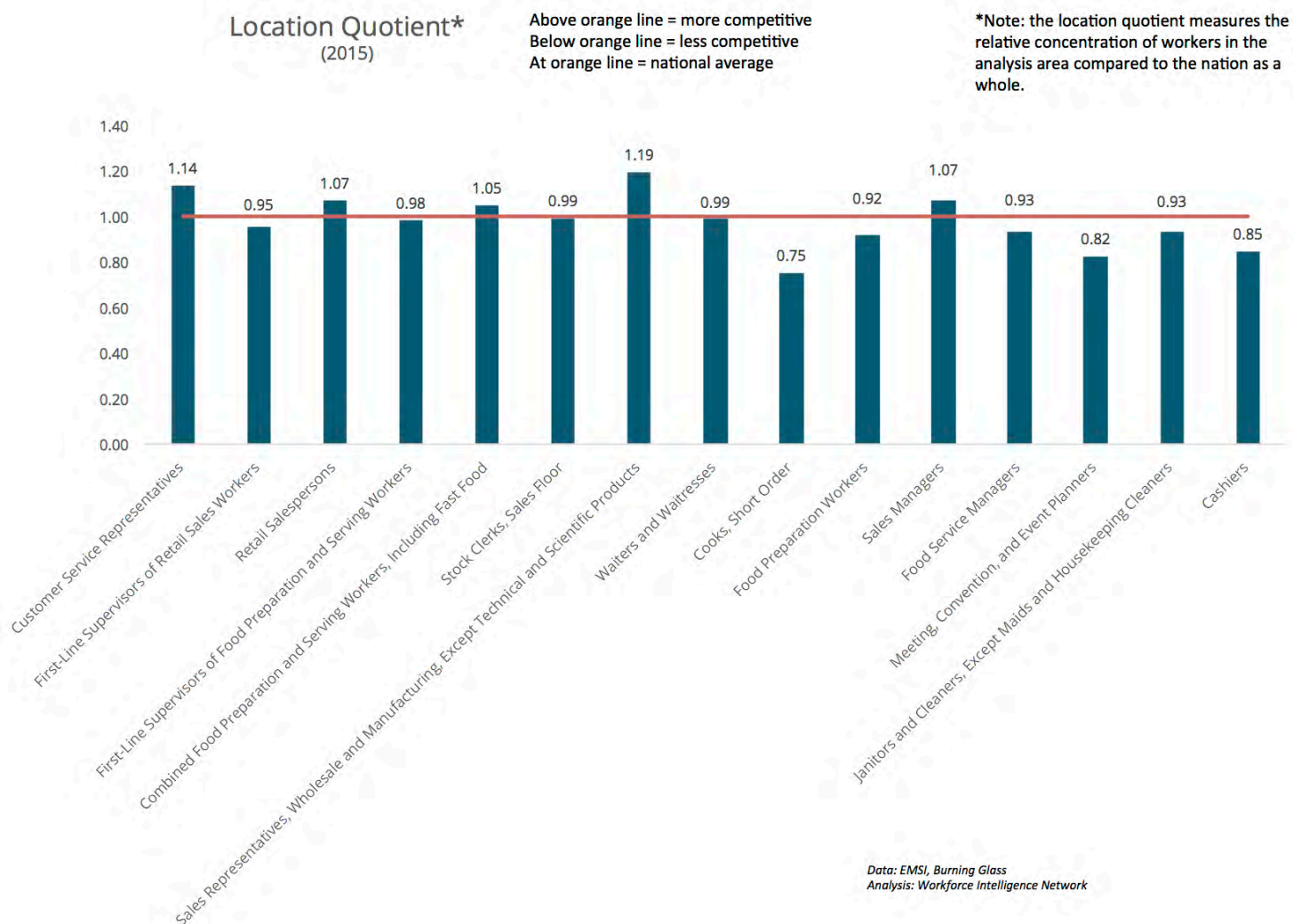
## TOP 15 JOBS WAGES, SHIAWASSEE COUNTY

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
43-4051	Customer Service Representatives	\$9.36	\$11.52	\$15.01	\$19.07	\$24.48
41-1011	First-Line Supervisors of Retail Sales Workers	\$11.18	\$13.60	\$17.23	\$21.87	\$27.40
41-2031	Retail Salespersons	\$8.35	\$8.98	\$10.24	\$13.13	\$19.00
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	\$8.92	\$10.54	\$14.22	\$19.22	\$23.99
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	\$8.15	\$8.52	\$9.14	\$9.92	\$12.12
43-5081	Stock Clerks, Sales Floor	\$8.41	\$9.23	\$11.13	\$14.53	\$18.71
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$12.94	\$18.83	\$27.15	\$39.50	\$55.51
35-3031	Waiters and Waitresses	\$8.24	\$8.63	\$9.28	\$10.58	\$14.90
35-2015	Cooks, Short Order	\$8.18	\$8.63	\$9.37	\$10.55	\$12.09
35-2021	Food Preparation Workers	\$8.25	\$9.02	\$10.72	\$13.38	\$15.69
11-2022	Sales Managers	\$28.89	\$38.96	\$52.65	\$70.34	\$106.63
11-9051	Food Service Managers	\$12.37	\$15.46	\$19.44	\$26.51	\$35.87
13-1121	Meeting, Convention, and Event Planners	\$12.69	\$16.84	\$21.99	\$27.89	\$33.98
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	\$8.37	\$9.47	\$11.71	\$14.97	\$18.31
41-2011	Cashiers	\$8.21	\$8.72	\$9.61	\$11.65	\$15.09

Wages for retail and hospitality workers are not consistent from occupation to occupation. Very few jobs start workers (10th percentile) at wages above \$20 per hour, many of these occupations are considered entry-level and start workers below \$10 per hour. Most wage growth in these fields can be had with experience and training rather than degree attainment. Jobs in technical sales and management require more education and experience, thus these jobs pay considerably more. Retail and hospitality workers in southeast Michigan have similar wage levels to workers nationally with some occupations, specifically sales managers, making higher wages than the national average.

# RETAIL & HOSPITALITY

## TOP 15 JOBS LOCATION QUOTIENT, SHIAWASSEE COUNTY



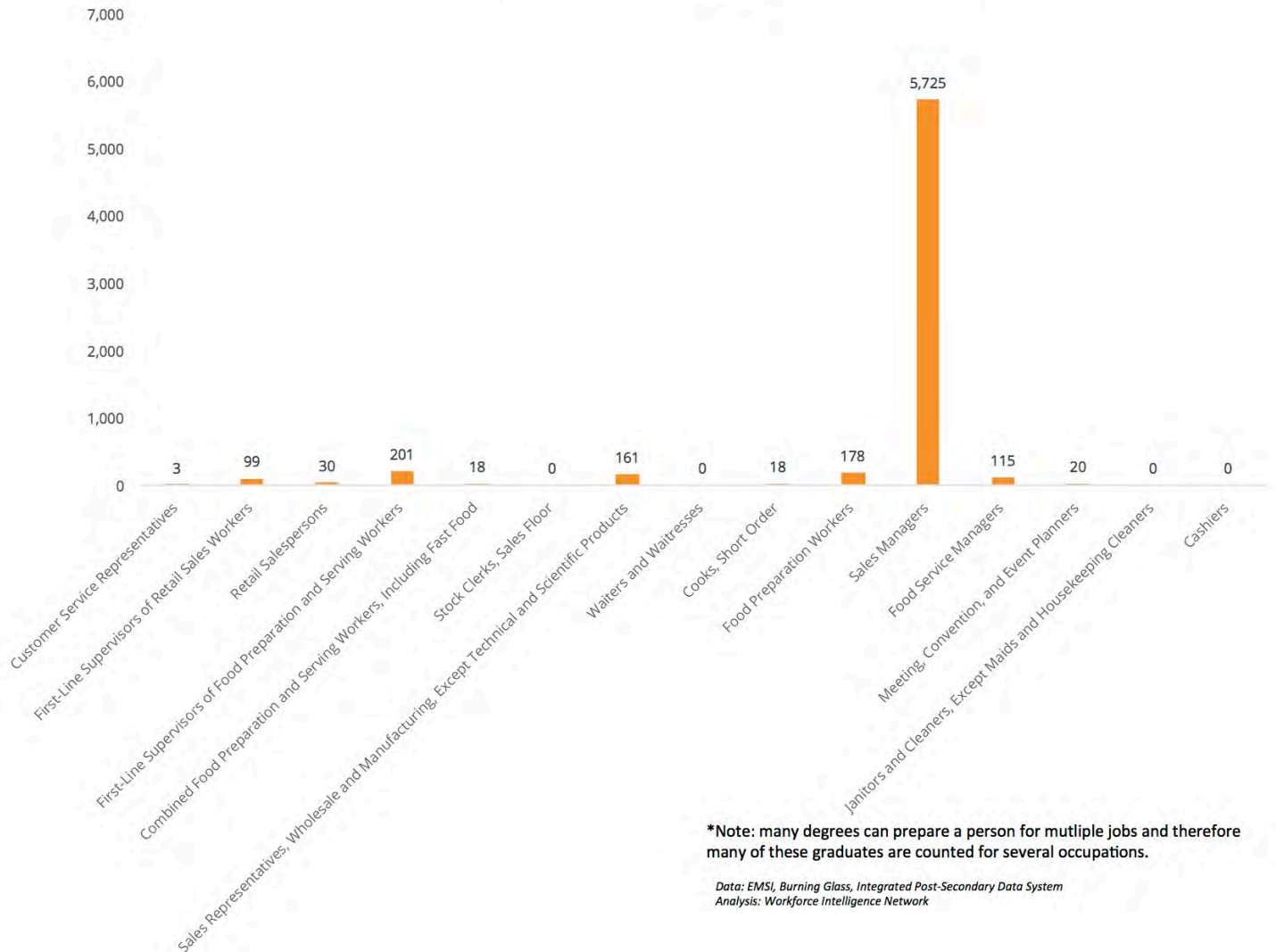
The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQs typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQs will make filling open positions more difficult. Shiawassee County is not particularly competitive in its concentration of retail hospitality workers. This makes sense because employment in this cluster is driven by consumer demand and is roughly similar across all metro areas. The most concentrated occupation in this cluster is sales representatives (non-scientific/technical products) with 19% higher employment concentration than the national average.



# RETAIL & HOSPITALITY

## TOP 15 JOBS RECENT REGIONAL GRADUATES, SHIAWASSEE COUNTY

Recent Area Grads with Degrees Related to Top Jobs\*  
(2014)



Due to the regional nature of the labor force in Southeast Michigan data, is shown for degree and certificate completions awarded by colleges and universities from all 16-counties in the WIN partnership. Most retail and hospitality jobs do not require an advanced degree. Sales managers have a large number of graduates with related degrees because the region's educational program graduates a large number of students with training in business management. For certain occupations where specialized training is essential, marketing managers, cooks, technical sales, etc. very few graduates exist to fill employer needs.

# RETAIL & HOSPITALITY

## TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS, SHIAWASSEE COUNTY

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
43-4051	Customer Service Representatives	High school diploma or equivalent	None	None
41-1011	First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent	Less than 5 years	Less than 5 years
41-2031	Retail Salespersons	Less than high school	None	None
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	Less than 5 years	Less than 5 years
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	Less than high school	None	None
43-5081	Stock Clerks, Sales Floor	Less than high school	None	None
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	None	None
35-3031	Waiters and Waitresses	Less than high school	None	None
35-2015	Cooks, Short Order	Less than high school	None	None
35-2021	Food Preparation Workers	Less than high school	None	None
11-2022	Sales Managers	Bachelor's degree	Less than 5 years	Less than 5 years
11-9051	Food Service Managers	High school diploma or equivalent	Less than 5 years	Less than 5 years
13-1121	Meeting, Convention, and Event Planners	Bachelor's degree	None	None
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	Less than high school	None	None
41-2011	Cashiers	Less than high school	None	None

Like wages, educational attainment requirements in retail and hospitality span a spectrum of required credentials. Many entry-level occupations require only a high school diploma and on-the-job training while other occupations require a bachelor's degree. Wages follow education in this cluster with the most competitive wages and upward mobility found in jobs that require the most higher education and training.

The background of the page is a blurred cityscape with warm, golden-yellow and orange tones. Overlaid on the left side are several thick, wavy, translucent lines in orange, dark blue, and yellow, which curve upwards and outwards. The text is centered in the lower half of the page.

# SECTION FOUR

## DATA NOTES AND SOURCES



# DATA NOTES AND SOURCES

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## SPECIAL DATA NOTE

- Due to changes in Burning Glass's aggregation, parsing, and deduplication methods implemented in December 2014, data from previously released reports should not be compared to data in reports starting in Q4 2014 and moving forward. For the Q4 2014 report, the WIN team re-gathered and analyzed all of the data (postings from 2011 through 2014) to ensure that all numbers are up-to-date. If you would like information on the differences between the updated data and data from previous reports, please contact WIN's Research Director Colby Spencer Cesaro at [colby.cesaro@win-semich.org](mailto:colby.cesaro@win-semich.org).
- Wage, location quotient, completion, and education requirement data is shown for the 16 county region that is part of the WIN partnership.
- All numbers included in this report are the correct and updated data.
- Wage and educational attainment data available varies depending on the occupation. All wage and educational attainment data provided is for the 6-digit SOC code. Some 6-digit codes do not have education or wage data available, in this case we leave the information blank.
- Educational attainment data available refers to the share of the current workforce in each bracket, not what is shown in postings. Employers may require different educational attainment than what is in this report.
- Quarterly reports: Due to a data update in Burning Glass Technologies' Labor Insight tool, comparisons should not be made between data from each quarterly report and the annual review data should not be compared to data from previous quarterly reports.
- Adjustments to the labor force information were also made to reflect and incorporate updated inputs, re-estimation, and controlling to new statewide totals. Much of the information related to monthly and quarterly employment is updated several months after the initial release. More information can be found here: <http://www.bls.gov/lau/launews1.htm>
- This report uses \$15 as a "living wage" estimate. Any job paying more than this is considered to pay at least a living wage. Below \$15 is less than a living wage. This definition is based on a median household income in Michigan which is close to \$50,000 per year. If we assume that most homes have two income earners and both earn at least \$15 per hour, then that household's annual income would be at least \$62,000 putting these jobs above the median.

# DATA NOTES AND SOURCES

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## UNDERSTANDING DEMAND VS EMPLOYMENT

- Employment refers to actual employment numbers—the number of people in jobs—in targeted industries or occupations.
- Demand refers to statistics derived from employer job postings, which indicate the potential for employment but may or may not materialize into actual jobs.
- Job posting-related demand, as presented in this report, is measured by online job postings. Employer demand may be larger than what is highlighted in this report if employers find talent by other means.

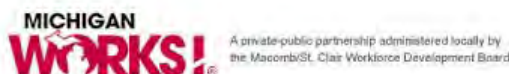
## DATA SOURCES

- Labor market demand data for this report was compiled using Burning Glass Technologies' Labor Insight Tool, and analyzed by the Workforce Intelligence Network. Other data sources include, the Bureau of Labor Statistics, and Economic Modeling Specialists Inc. (EMSI). Check out our website <http://www.win-semich.org> for more data and detailed information about our sources.

## UNDERSTANDING CLUSTERS

- Rather than focusing on talent demand within industries (types of firms), WIN generally emphasizes exploring talent demand based on occupations, including the skills, educational credentials, and experience needed to work in them.
- WIN research examines industry data, as the health of companies can be useful for economic development purposes. However, shifting focus from industry to occupation is important as different types of occupations with extremely different skillsets may work within and across industries. For example, accountants, computer specialists, and engineers all may work in the manufacturing industry.
- By clustering occupations, the talent system can identify employer demand for particular skillsets across multiple industry types and develop a response through training and pipeline development to meet that demand.

# BOARD ORGANIZATIONS







FOR MORE INFORMATION ABOUT RESEARCH AND DATA,  
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[WWW.WIN-SEMICH.ORG/DATA-RESEARCH](http://WWW.WIN-SEMICH.ORG/DATA-RESEARCH)

