COMPREHENSIVE REGIONAL WORKFORCE ASSESSMENT

MidAmerica Industrial Park
Pryor, Oklahoma

SUMMARY REPORT

September 2017

Site Selection Group™
Strategic Location Solutions

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EXECUTIVE SUMMARY

UNDEREMPLOYMENT IN MANUFACTURING

Utilizing the underemployment analysis, SSG quantifies the range of the available workforce with critical manufacturing skill sets in the MidAmerica labor shed. These estimates were derived using both the broad underemployment rates for the MAIP region, along with cross-referencing typically age and educational requirements for those occupational clusters. The table further below quantifies the results for each individual occupational cluster of interest.

1,367

Accessible Target Workforce

Estimate of severely underemployed, part-time seeking full-time, and temp seeking full-time opportunities in target occupational clusters. These are individuals more likely to be candidates for new and expanding operations.

3,277

Potential Target Workforce

Estimate of those classified as broadly underemployed in target occupational clusters. These are individuals potentially accessible for new and expanding operations.

Detailed Breakdown by Occupational Cluster

		ABSOLUTE NUMBERS		AS % OF CURRENT WORKFORCE	
Industry Cluster	**Occupation Cluster**	**Accessible Workforce (Underemployed)**	**Potential Workforce (Broadly Underemployed)**	**Accessible Workforce (Underemployed)**	**Potential Workforce (Broadly Underemployed)**
Manufacturing	Skilled Production	286	673	14.3%	33.6%
	General Production	841	1,983	14.1%	33.3%
	Maintenance	177	434	13.7%	33.7%
	Engineering	63	187	10.7%	31.9%
	TOTAL	**1,367**	**3,277**	**13.9%**	**33.3%**

STRATEGIC STRENGTHS AND WEAKNESSES

The graphic below summarizes what Site Selection Group sees as MAIP's critical workforce strengths and weaknesses, especially as they relate to attracting new advanced manufacturing operations, and helping existing ones grow.

STRENGTHS & OPPORTUNITIES

- ✓ **Very Strong Manufacturing Presence**: Whether measured using industry statistics or key occupational statistics, by place of residence or place of employment, the MAIP labor shed shows extremely high concentration levels in the manufacturing industry along with strong historical and projected growth rates.
- ✓ **Outflow of Residents:** As a more rural area, MAIP has the opportunity to attract nearby residents who are currently commuting to jobs in the central Tulsa region. Data from multiple sources demonstrate the current net outflow of residents to other parts of the region.
- ✓ **Competitive Wages:** Derived through interviews and using secondary data sources, the MAIP region can demonstrate competitive wages compared to other markets.
- ✓ **Workforce Development Opportunities:** Employers in the park were generally positive about the state and trajectory of workforce development efforts in the immediate region. The presence of local facilities like the Northeast Technology Center and the Oklahoma State Institute of Technology (directly on site) are differentiators. In addition, it's important to lift up training and educational institutions in the broader region like OSU for engineering.
- ✓ **Park "Atmosphere":** Although certainly a qualitative factor, multiple park interviewees noted a strong sense of camaraderie among employers. Although they clearly "compete" for workforce at times, employers also noted significant collaboration to lift up park advantages along with addressing workforce challenges.

WEAKNESSES & CHALLENGES

- × **Maximizing Labor Pull**: Individuals in the central Tulsa region are accustomed to relatively short commutes. As a result, it can be challenging to fully leverage the larger labor force in and around central Tulsa, asking them to commute 30-40 minutes, when they could access other work opportunities within 20-30 minutes.
- × **Sheer Size of Market:** While not all prospective companies may be looking for "safety" in a large market, many are biased towards locations with larger sheer numbers of individuals and workers.
- × **Showing up in the Education "Stats":** While a minor point, the full range of key degree completions in the region may not be apparent if a prospect was looking too narrowly. For example, the OSU IT completion statistics are only evident for its main campus at Okmulgee. For the broader region, if a prospect was examining the Tulsa MSA, they would miss the strong pipeline of engineering and related completions coming out of OSU in Stillwater. As a result, it's very important to continue to lift up the range of educational and workforce development support available at MAIP and in the broader region.

PROJECT OBJECTIVES & APPROACH

PROJECT OVERVIEW

MidAmerica INDUSTRIAL PARK

Just south of Pryor, Oklahoma, and 40 minutes from downtown Tulsa, MidAmerica Industrial Park ("MAIP") is the state's largest industrial park. Encompassing more than 9,000 acres and housing Fortune 500 companies like Google, Chevron, and DuPont, among other manufacturers and logistics operations, the park is an industrial powerhouse of northeast Oklahoma.

To ensure that the park is able to best recruit new businesses, along with supporting the workforce needs of existing ones, MAIP engaged Site Selection Group ("SSG"), a location advisory firm, to conduct a labor market assessment of the region. This project leverages the broader workforce analysis conducted by SSG for the entire eleven county Tulsa region. As a result, SSG was able to utilize those same tools and methods for the MAIP region as it did for the overarching region while limiting project costs significantly.

To summarize, MAIP hopes to receive the following benefits from this project:

- **Underemployment Analysis:** Leveraging a broader regional workforce survey, SSG provides MAIP with detailed information about its underemployed population, that is, individuals more likely to be attracted to work for new and expanding operations.
- **Employer Interviews:** In its corporate work, employer testimony can oftentimes play a critical role in landing (or losing) a new company. As a result, SSG interviewed current MAIP firms to understand the strengths and weaknesses of workforce in the park from their perspective.
- **Commuting Analysis:** Using both primary and secondary data, SSG performed a comprehensive commuting analysis to better document the real labor shed and commuting zones for MAIP, critical to giving comfort to new and expanding firms that they can access workers.
- **Competitive Data:** Finally, SSG used key secondary data variables to show MAIP's competitive positioning for advanced manufacturing projects.

COMPREHENSIVE LABOR ANALYSIS PROCESS OUTLINE

The remainder of this report section addresses the major elements that MidAmerica and SSG have utilized to create the report. The collaborative process can be broadly broken down into four stages, which are included in the graphic below.

- Select target industries
- Identify key occupations
- Create surveys
- Develop interview guide

- Launch surveys
- Interview employers
- Pull secondary data for study region and benchmark MSAs

- Outline labor sheds
- Join primary and secondary data

- Evaluate results
- Highlight key findings
- Provide summary via maps, charts and narratives

APPROACH TO COMPREHENSIVE LABOR ANALYSIS

Whether for its corporate clients or for an economic development engagement, SSG believes that in order for a labor market assessment to be as comprehensive as possible, it must strive to meet the criteria listed below:

- **Targeted** – In order to realize its optimal value to both economic and workforce development in the community, the analysis should be targeted on the specific industries and/or occupational clusters that are most important to the client's overarching strategy. In this case, the analysis is focused on attracting and growing advanced manufacturing jobs in MAIP.

- **Primary research** – Data from public sources like the Census or the Bureau of Labor Statistics provide a wealth of information on local and regional workforces. However, like all data sources, they have their weaknesses. For one, data can oftentimes lag real-time market conditions. In addition, data can also lack certain specificity at highly localized geographies (e.g. the concept of "underemployment" at a sub-national level). As a result, a comprehensive workforce assessment should incorporate primary research as one critical leg on which to build the assessment. More specifically, it's critical to gather real time information whether by survey or interview from the two primary actors in the employment equation: workers and employers.

- **Diverse Secondary Sources** – That being said, the data provided by public sector agencies and third-party subscription services provide a plethora of critical workforce information that cannot be realistically or efficiently gathered by primary research alone. As a result, a quality workforce analysis leverages the best and most appropriate secondary data sources and uses them to complement, not replace, primary research.

- **Real Commuting Patterns** – SSG leverages both secondary and primary research in order to understand true and reasonable commuting patterns within a region. Communities can lose creditability when marketing to new companies if they are either too aggressive with documenting a labor shed (e.g. claiming hour+ drive times are common) or on the contrary and especially in more rural areas, limiting the realistic labor pull. As a result, SSG believes it critical to conduct a thorough, but reasonable commuting analysis within a broader labor market report.

- **Comparative** – Finally, economic and labor market data are relatively meaningless unless they're put in context relative to similar or aspiration communities. For example, a six percent unemployment rate looks a lot different if others have a four (or ten) percent rate. Further, while comparisons against national or state averages are helpful, in SSG's view, it's far more useful to lay out how a community looks relative to those in which it most regularly competes (or wants to compete) for corporate investment. While not all data in a comprehensive assessment is fully comparable it's nevertheless imperative to benchmark variables that are available to give more context on the true competitive positioning of a community.

SECONDARY DATA SOURCES

While primary research is one of the most critical components of a comprehensive workforce analysis, leveraging the best available secondary data resources is another key part. In short, primary research is not a substitute for secondary research or vice versa. Instead, both should complement one another to form a clearer vision of a community's strengths and weaknesses.

As a result, throughout this process, SSG leveraged the data resources shown in the graphic at right. These sources represent a mix of both publicly available resources (e.g. labor dynamics via Quarterly Workforce Indicators, or commuting data via LODES) in addition to subscription based databases (e.g. EMSI or Economic Research Institute).

All data have their strengths and weaknesses, and as a result, it's important to utilize the best and most appropriate data sources, but not to rely wholly on one result or one indicator. For example, SSG uses two sources of wage data in the specific target industry analyses later herein to better show either consistency or discrepancy between sources.

Finally, secondary data is important for showing comparisons between the MidAmerica labor shed, greater Tulsa, and other markets of interest. Few, if any, analyses can generate and leverage primary data in multiple markets simultaneously. As a result, secondary data sources provides a level playing field on which to compare MidAmerica and Tulsa overall against other markets of interest. Furthermore, the sources help provide more context on what are real and unique challenges in a community, and which ones are more acute to a location. For example, many manufacturers across the country say that they have a tough time finding skilled production workers (and the same holds true in MidAmerica and Tulsa overall). Secondary data like job postings analyses can help identify whether that is a bigger challenge in this region, or whether it is just like other communities.

DATA SOURCES

WORKFORCE SURVEY & UNDEREMPLOYMENT

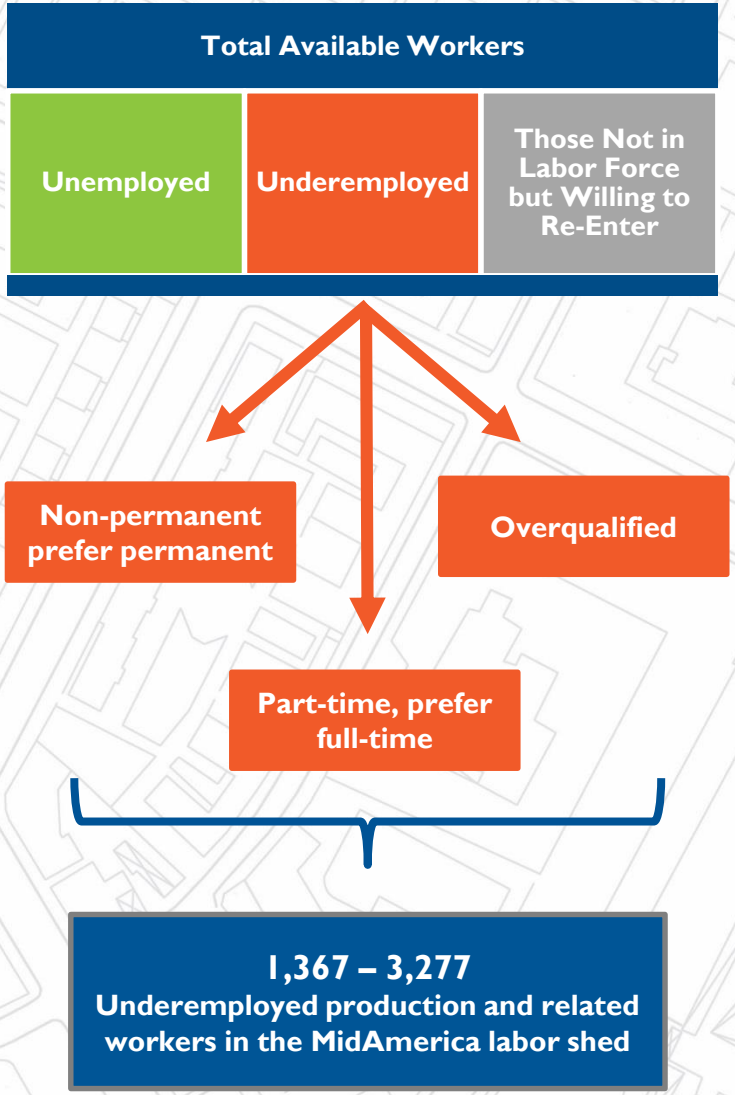
UNDEREMPLOYMENT: WHY IT'S IMPORTANT

While the concept of unemployment often garners the headlines, underemployment remains just as important to the overall health of a local economy and the ability to attract and retain jobs. However, the concept is a bit more elusive than a simple measurement of whether a person is working or not working.

In SSG's experience, above and beyond relocating individuals from other locations, there are three main sources companies can rely on for their immediate staffing needs when establishing a new operation. Those concepts are displayed in the graphic at right. In a growing macro-economic environment near full employment, the first source of talent, the "unemployed" typically provides a small share of workers. While some companies can leverage a singular downsizing and rehire workers immediately, for the most part, many unemployed individuals may require significant training or upskilling. The last concept, those willing to re-enter the labor force, again, typically comprises a small number of an operation's needed workforce.

As a result, companies are left with hiring from the ranks of the underemployed, that is, individuals who are currently working but would much prefer a different job. Two components of underemployment are relatively easy to measure. The first is part-time workers who would prefer full-time work (the concept is captured in part by the U-6 measure of unemployment at the national level). The second concept, those with non-permanent positions (e.g. contract, temporary, or seasonal jobs) who would prefer a full-time, permanent position, is also relatively simple to measure and estimate.

However, the final component – "overqualified" – can be challenging to rigorously define and measure. Most approaches to defining this component rely on some mixture of individuals who are not utilizing their skills or formal training, who are unsatisfied with their compensation relative to skill/training, or some combination thereof. While difficult to define, this nonetheless is in SSG's judgement the most important measure in terms of how it helps quantify the potential workforce for a company considering a location or an expanded operation. Stated another way, it's a measure of the actual and realistic labor pool a company could draw from, especially at the critical point in time when it is establishing new or expanded operations.



WORKFORCE SURVEY: SUMMARY

Underemployment Summary

Because quantifying the underemployed population is an important part of demonstrating the real, available workforce for new and expanding companies, herein, SSG has leveraged the results of the broader regional workforce survey for specific application to the MAIP labor shed (an approximate 45 minute drive time radius surrounding the park). The summary results of this portion of the analysis are as follows:

- **SSG estimates that 12.7% of all survey responders in the labor shed are "underemployed" under a strict definition of the term.** This means those part-time workers seeking full time work, contract/temporary workers seeking full time positions, and those survey responders reporting significant underutilization of their skill sets and/or significant dissatisfaction with their current positions.
    - This rate is similar but slightly lower that the estimate for the broader eleven county Tulsa region at 13.6%

- Using a much wider estimate of the "underemployed", **SSG estimates that 33.2% of the labor shed is broadly underemployed**. This estimate relaxes that last constraint in the above to include survey responders who reported some underutilization of their skill sets and/or some dissatisfaction with their current positions. In SSG's judgement, this broader number is an upper bound estimate on the number of individuals in the labor shed who would be available to work for a new or expanding operation.
    - This estimate is slightly lower, but in-line with the estimate for the broader eleven county Tulsa region of 35.4%.

Summary of Survey Methodology

The results of this sub-analysis for the MAIP labor shed are derived from the broader workforce survey conducted in the Tulsa region from March to May of 2017. This survey resulted in 940 responses overall in the region, and approximately 276 responses within the MAIP labor shed. While SSG believes this to be a reasonable sample size for this sub-analysis of the MAIP labor shed, because of a smaller sample size herein, SSG is unable to explore the underemployment analysis at the same level of granularity as it did for the broader, eleven county Tulsa region. For example, SSG is not comfortable making estimates on specific components of the underemployed (e.g. part-time workers preferring full time work, as the survey sample size is simply too small). In addition, certain categories of interest (e.g. age groups, educational completions) have been combined to ensure appropriate sample size and results. For further details on the survey methodology and broader regional results, please see the full regional report.

UNDEREMPLOYED: DEMOGRAPHICS

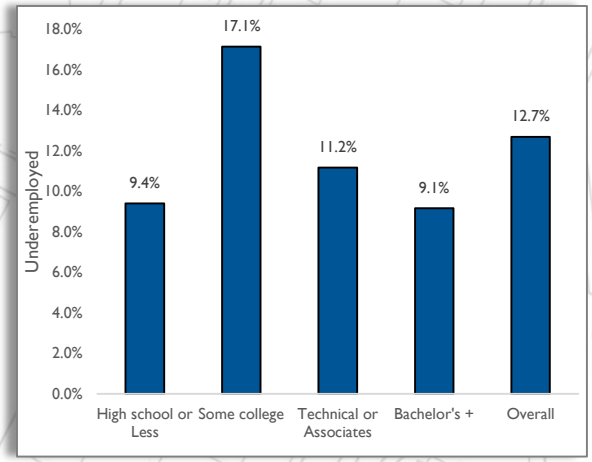
The following pages further examine the characteristics for that more conservative estimate of the underemployed. Again, these are individuals who reported working part-time positions who would prefer full-time, contract and temporary workers preferring permanent work, and individuals report a significant underutilization of their skills and/or significant job dissatisfaction.

The graphs below breakdown underemployment rates for specific demographic categories. For example, those reporting some college but no degree or certificate show significantly higher levels of underemployment compared to those holding a degree or certificate. This is generally in line with the findings for the entire Tulsa region.

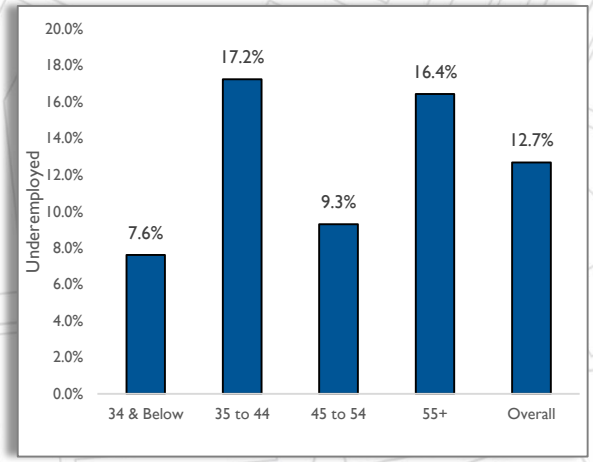
When examining the data by age, the highest levels shown are for those between the ages of 35-44 and 55 and above. Again, the overall pattern is relatively consistent with the overall Tulsa region, with the exception of older workers showing relatively higher levels of underemployment in the MAIP labor shed.

In terms of gender, women show relatively higher levels of underemployment in the MAIP region compared to men (and compared to the Tulsa region overall). This may be in part due to the presence of large, primary employers like MAIP's constituent firms and others in the region, providing more opportunities in traditionally-male dominated industries.

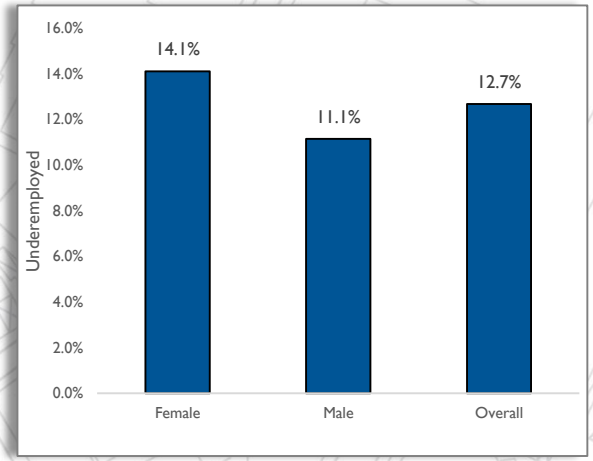
Education



Age



Gender



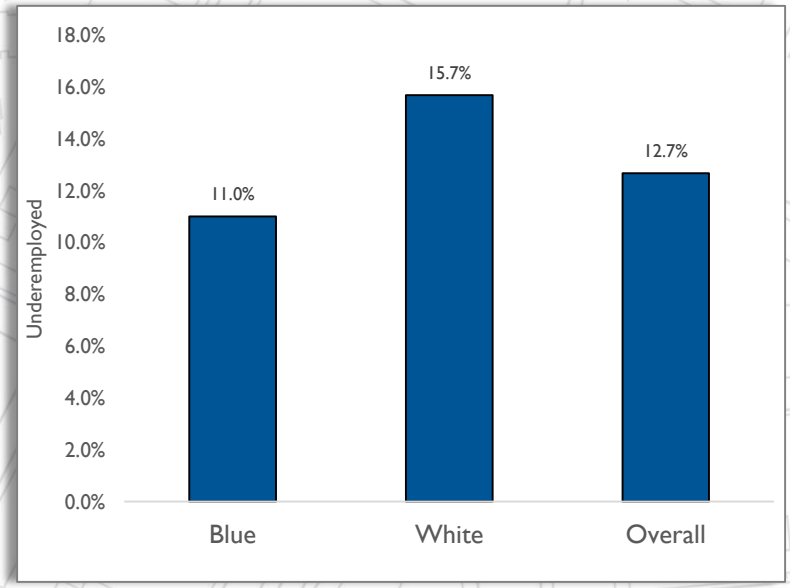
UNDEREMPLOYED: OCCUPATION & INDUSTRY

SSG further examines the characteristics of the underemployed by broad industry and occupational categorization. The graphic at bottom left shows underemployment rates in the MAIP labor shed by broad industry category. That is, blue collar industries are defined as those like manufacturing, distribution & warehouse, and so forth. "White collar" industries are those like professional services, finance & accounting, and retail. Overall, individuals are blue collar industries show lower levels of underemployment relative to their white collar counterparts, again, consistent with the overall results for the broader Tulsa region. This also provides some evidence of overall labor market tightness, especially in industries like manufacturing.

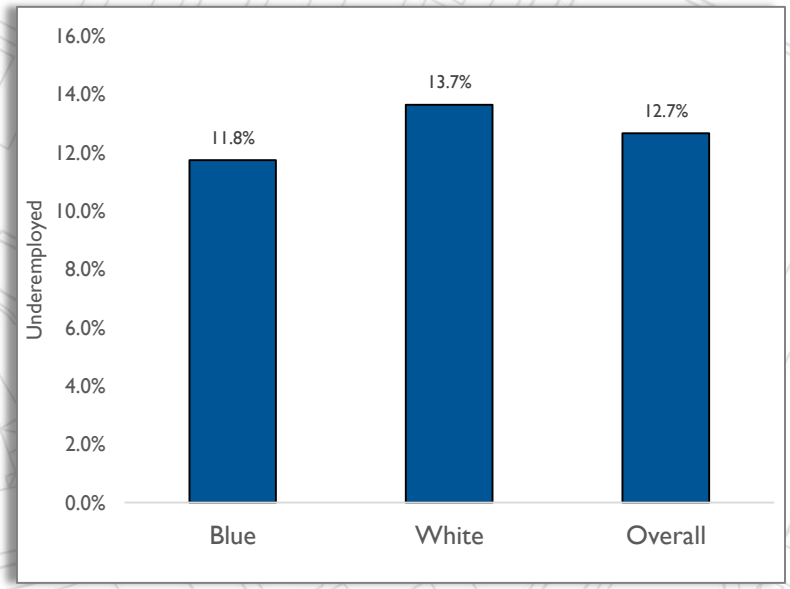
The graphic at bottom right shows the same data, but breaks it down by blue collar vs. white collar occupations. For example, blue collar occupations include production, maintenance, material moving, and others. White collar occupations include accountants, sales, and human resources managers. Like the industry data, the occupational side shows a similar pattern, with relatively higher levels of underemployment among white collar workers.

The Appendix includes specific occupational and industry definitions used in this analysis.

Underemployment by Broad Industry



Underemployment by Broad Occupation



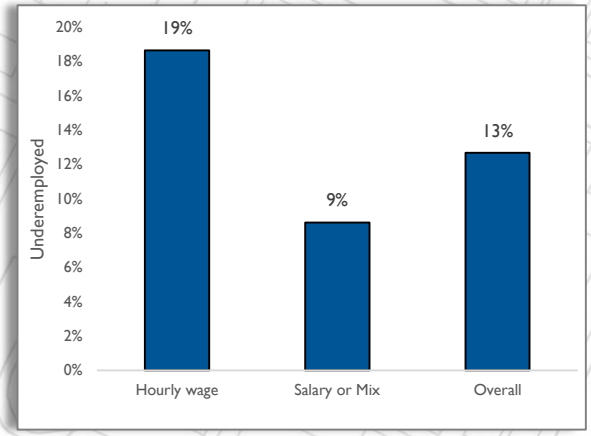
UNDEREMPLOYED: JOB CHARACTERISTICS

The graphics at right show additional job characteristics of those classified as underemployed. For example, individuals paid via hourly wages instead of salary show higher levels of underemployment, as do workers at the lower end of the wage at salary spectrum. This is very much in line with results for the entire Tulsa region.

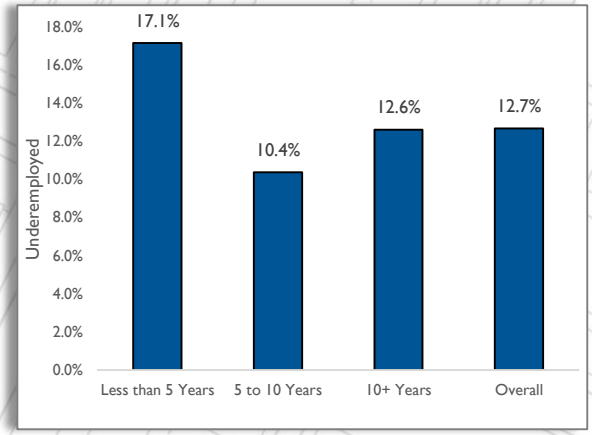
Further, underemployment tends to be more concentrated among individuals with less job tenure as seen in the graphic at far top right.

Finally, SSG asked respondents about their average commute times. The graphic at far bottom right breaks down this question by those classified as underemployed compared to other workers. Unlike the broader regional result, this graphic shows slightly higher rates of underemployment for those traveling between 40 and 60 minutes for their work, indicating some connection between underemployment and commute time. This result was not as evident in the broader regional report and provides one piece of evidence of the challenge of pulling workers via relatively longer commutes to MAIP. At the same time, however, a relative higher proportion of the underemployed reported very short (less than 10 minute commutes), demonstrating that underemployment is not isolated to only those with long commutes.

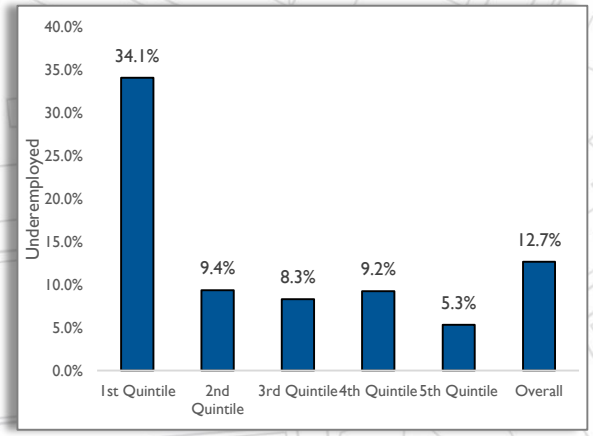
Pay Type



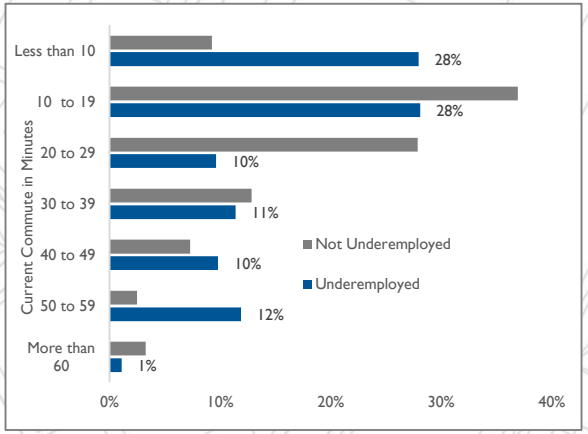
Job Tenure



Pay Category



Reported Commute Times (in minutes)

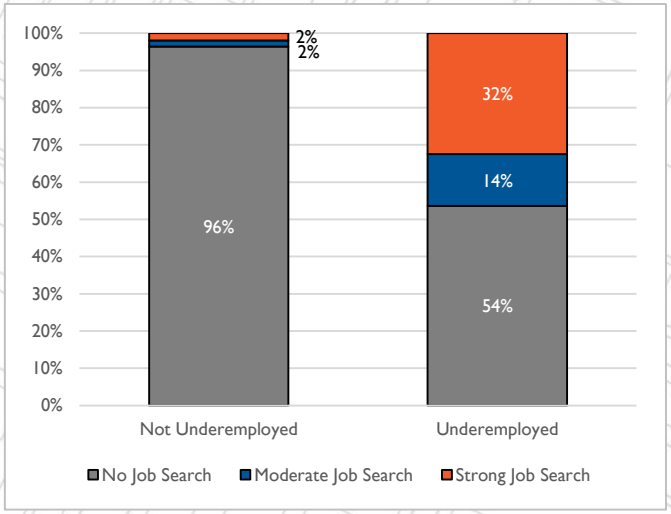


UNDEREMPLOYED: JOB SEARCH

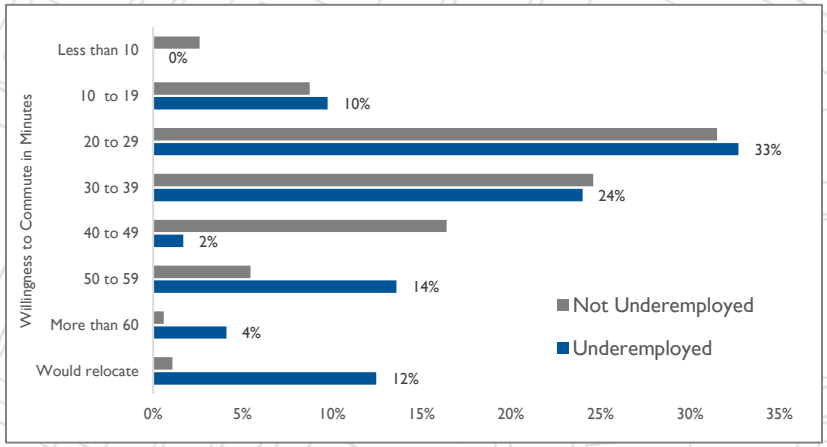
Finally, SSG examined the intensity of job searching among the underemployed compared to those those not classified as underemployed. The survey asked whether responders were actively searching for another job, but also asked them to indicate the actions they had taken in their job search (e.g. updated a resume, attended a job fair, interviewed for another position). There were some minor discrepancies where individuals reported looking for another job, but listed no activities related to a job search As a result, SSG identified those looking for a job based on their actual efforts, further segmenting that into a "moderate" job search (e.g. 1 or 2 activities) or a "strong" job search (e.g. more than 2 activities). Overall, as one might expect, those identified as underemployed show significantly stronger job search tendencies relative to others in the workforce.

SSG asked job seekers to indicate their willingness to commute for a job opportunity and motivations for their job search (they could select multiple options). The table at bottom left generally shows that the underemployed's commute preferences generally align with other job seekers. In terms of job drivers, while higher pay had the largest number of responses, healthcare, advancement, hours, and full-time showed higher concentration of responses among the underemployed in the MAIP labor shed.

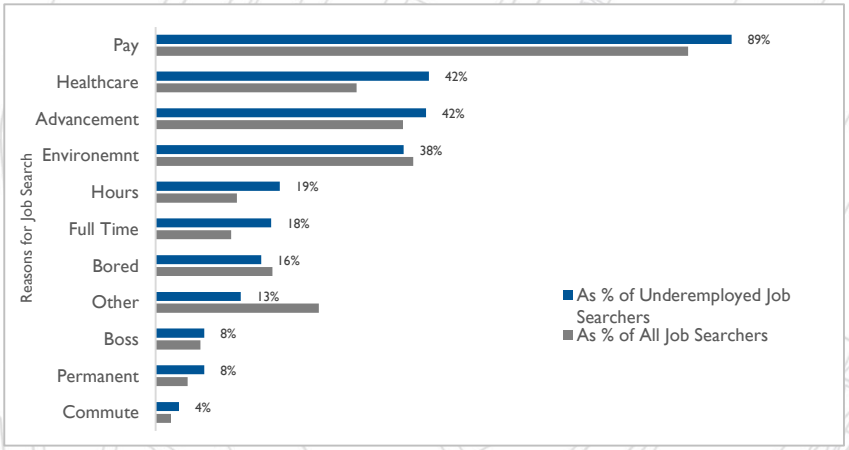
Job Search Activity



Willingness to Commute



Drivers of Job Search



EMPLOYER INTERVIEWS

EMPLOYER INTERVIEWS: OVERVIEW

In its corporate advisory work, interviewing employers in candidate communities can be one of the most important parts of the in-depth site selection process. In SSG's experience, prospective companies need to hear the candid opinions of current employers in the community on the true (and perceived) strengths and weaknesses of the regional workforce.

As a result, SSG incorporates employer interviews into all of its economic development engagements. In the case of this project, MAIP provided SSG with recommended interview contacts at the park. These conversations were conducted by phone and typically lasted approximately 30 to 45 minutes. While all conversations were designed to cover specific workforce topics of interest, they were also meant to be open and free-flowing to gather the candid opinions of employers.

The following summarizes the broad characteristics of the interview completed:

- **Six interviews of MAIP employers**
- **Representing approximately 1,150 workers**
- **One large operations (i.e. more than 500 workers), and four medium sized operations (i.e. less than 500 workers).**
- **All manufacturing operations**
- **Mix of human resources, operations, and executive responses**
- **Steady employment levels. Employers reported some previous expansions and/or contractions, but reported general stable employment levels at present.**

EMPLOYER INTERVIEWS AND SURVEYS: SUMMARY

Key Strengths

On balance, most employers were complimentary of the workforce. With some exceptions, employers noted good labor availability, especially for entry-level work and positions requiring significant physical outlay. "Hardworking" was a common descriptor used, again, with some exceptions Employers also generally noted that even with challenges and tight labor markets, the skill level of the workforce was a differentiator compared to other markets and previous experience.

Key Weaknesses

Like many other large production markets, employers cited challenges in finding skilled workers, maintenance employees, and mid/upper level production management. For example, like the broader Tulsa market, skilled welders was often cited as a challenging skill set to hire. National searches and pulling workers from Tulsa was very important especially for engineering others requiring advanced degrees. Another common theme was that despite entry-level worker availability, "work readiness" continues to be a challenge. Employers reported issues with tardiness, attendance, and overall "soft skills".

Pay & Benefits

Rigorously assessing pay and benefits is challenging as one entry-level operator job may be significantly different from another. With that caveat, a few key trends emerged in the employer interviews. Starting wages cited by some employers started as low as $10.00 and rose to $12.00-$13.00. Despite a rural area, SSG was a bit surprised to hear starting wages at that level; in many other markets (including rural ones) SSG sees starting production wages starting in the $13.00 to $14.00 range. On that note, however, MAIP employers reported very little recent wage escalation, likely in part due to the recent slow-down in oil and gas. However, as noted by employers in the broader region, wages have recently begun to tick up. Again, benefits are difficult to assess on a standardized basis. One employer noted a full 6% match on a 401k, and others reporting benefits starting on day one as especially competitive, while another noted that quality benefits were more important for retaining workers, rather than an initial hire.

Education & Workforce Development

Overall, employers were complimentary of workforce development efforts in the park (and the trajectory of those efforts), especially those provided by Northeast Technology Center, the Oklahoma State University Institute of Technology, and Rogers State. While interviewees provided some critiques (e.g. work readiness could be improved, not enough students coming out of key programs, etc.) the overall tone was positive. Paraphrasing one employer, workforce development is "listening to employers now more than ever." Praise for K-12 education and training was a bit more reserved, with some concerns that too many students are currently pushed to degree programs, rather than job training and the like. Given educational funding questions across the state, one employer put it succinctly that local K-12 is doing the best they can given their budgetary restrictions.

Commuting Patterns

Commuting patterns was another area of concern, with employers noting challenges with pulling workforce out of central Tulsa. While many noted that they could attract higher-level skill sets and management out of communities like Tulsa and Broken Arrow, it could be difficult to convince some to make the 30-40 minute drive compared to more proximate job opportunities in the metro area. Based on SSG's analysis of shorter commute times in the central Tulsa region, that challenge appears to be justified.

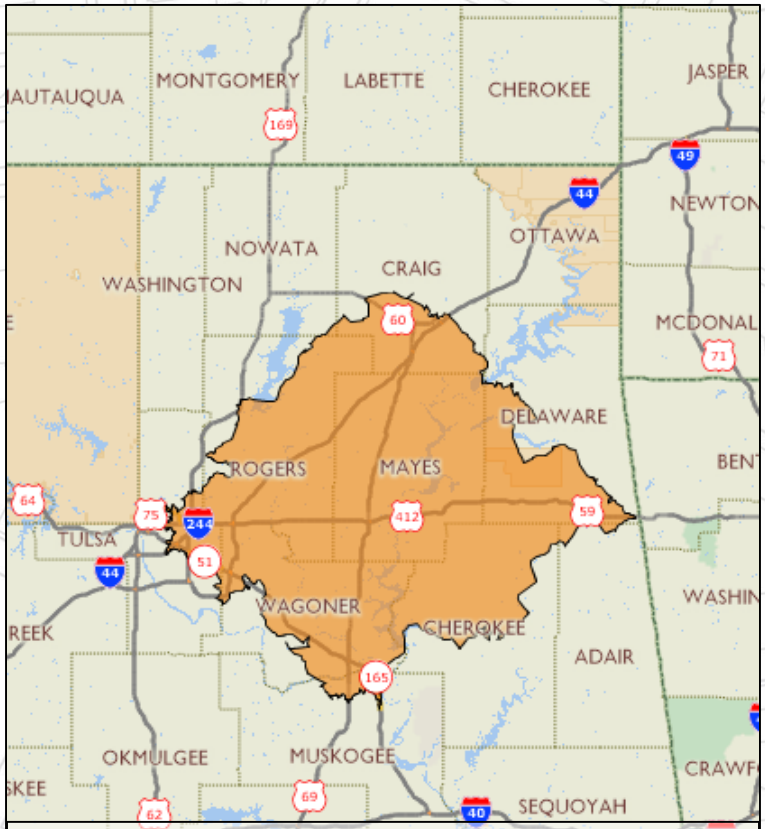
Park "Atmosphere"

One interesting note expressed by a couple respondents was the overall congenial and/or collaborative relationships among companies and HR managers in the park. While a seemingly minor point, in SSG's judgment, this attitude can go a long ways in helping convince new employers that they will face fewer hurdles in accessing talent and workforce development, along with participating in strategic efforts to support all employers' ongoing growth.

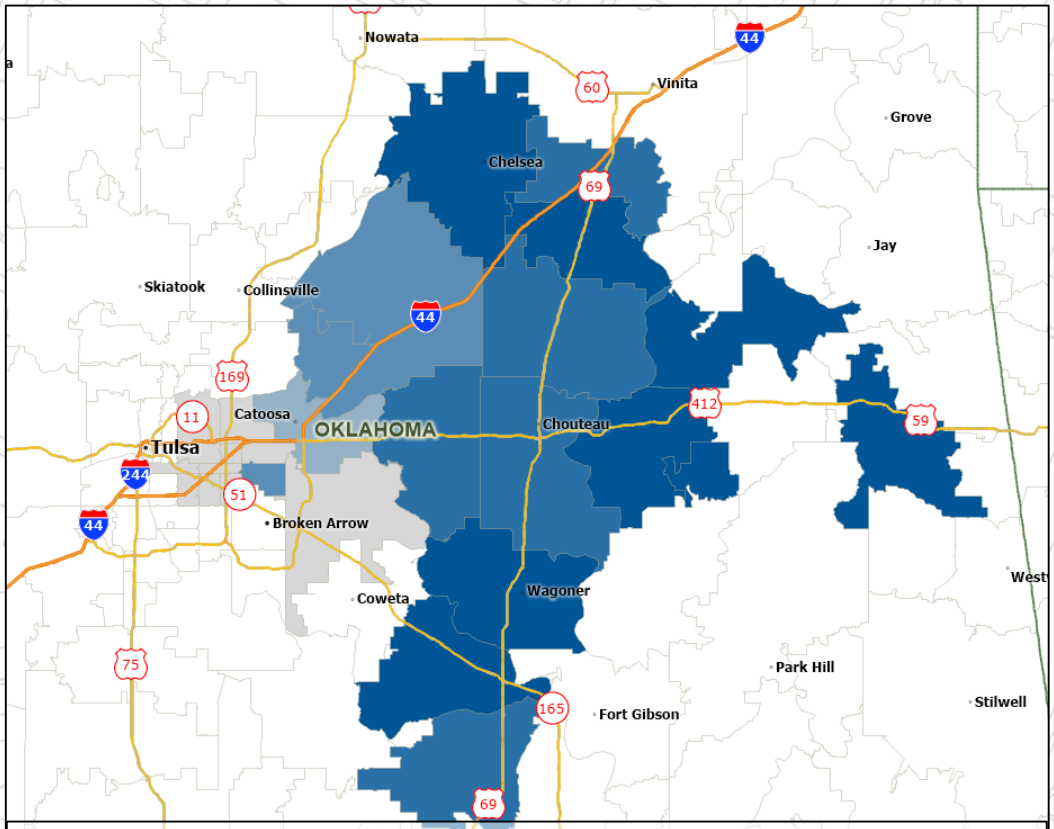
COMMUTE & LABOR SHED ANALYSIS

MIDAMERICA LABOR SHED MAP

The maps below detail the labor shed identified for the MAIP region, using an approximate 45-minute drive-time around the park. Again, this analysis aligned with primary data both in the form of the workforce survey and employer interviews who noted that they did draw workers from Tulsa, Broken Arrow, and other more centrally located municipalities. The map on the right plots commute times based on data gathered from the workforce survey and additional commuting data provided by employers. Those ZIPS in darker blue show a relatively longer commute compared to those ZIPS shaded in light blue and gray, where overall commutes from those areas are shorter.



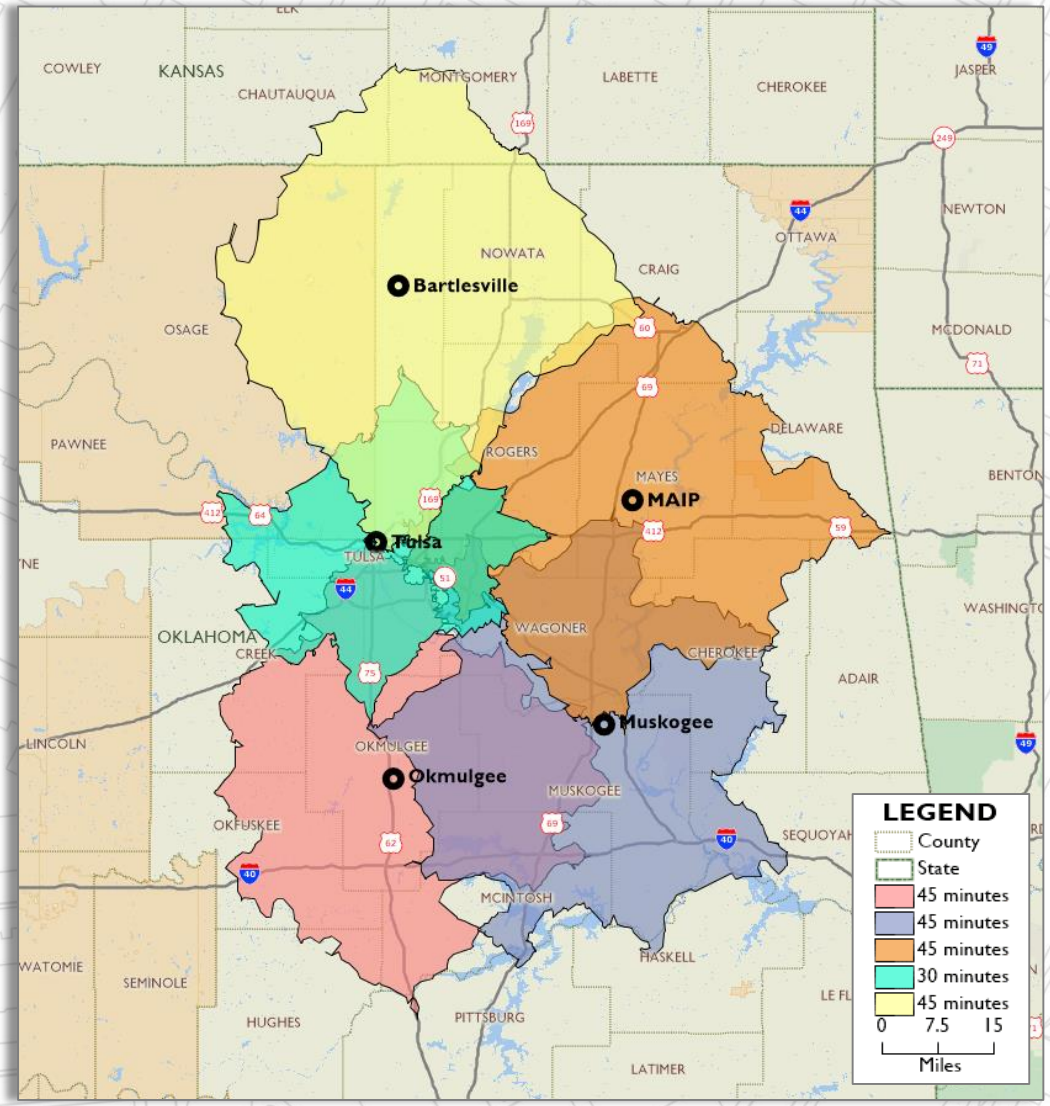
45-Minute Drive-Time Radius



Primary Research Commute Pattern by ZIP Code

REGIONAL LABOR SHEDS: SUMMARY

As part of the overarching regional analysis, SSG used both primary research and secondary data to identify specific labor sheds within the broader 11-county Tulsa region. The results of that analysis are shown in the map at right. SSG used 45-minute drive-times to construct labor sheds for all regions outside of central Tulsa, where it used a tighter, 30 minute drive time radius that more accurately reflected shorter commute times in the core of the metro area.



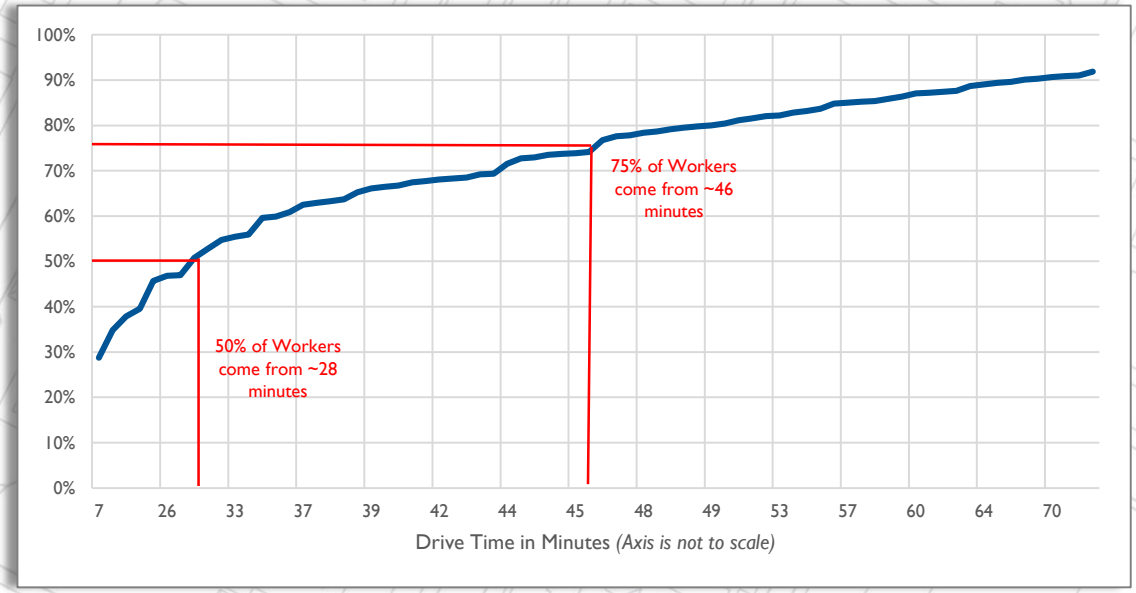
DISTRIBUTION OF COMMUTES

To give more context on commuting patterns for the MAIP labor shed compared to other parts of the region, SSG utilized the Census Bureau's LODES commuting data to estimate key break points in the various labor sheds of how far workers travel in those areas.

The first graph at top right shows that distribution for the area immediately surrounding MAIP (i.e. a 5 mile radius surrounding the park). For those individuals working within that radius, approximately half travel 28 minutes or less from their places of residence to work. Seventy-five percent of workers travel approximately 46 minutes or less, and so on.

SSG performed this analysis for all labor sheds in the region, and the results at key cutoff points are shown in the table at bottom right. One critical finding is that commute times in the core of central Tulsa are generally shorter than those in outlying areas, including MAIP. As a result and as supported by employer testimony, it can be challenging to fully access the full Tulsa workforce in MAIP, even in areas within the labor shed like east Tulsa and Broken Arrow as workers there are likely to have other work options nearer their places of residence.

Drive Time Distribution: Workers Employed in and around MAIP



Drive Time Distributions: Regional Tulsa Labor Sheds

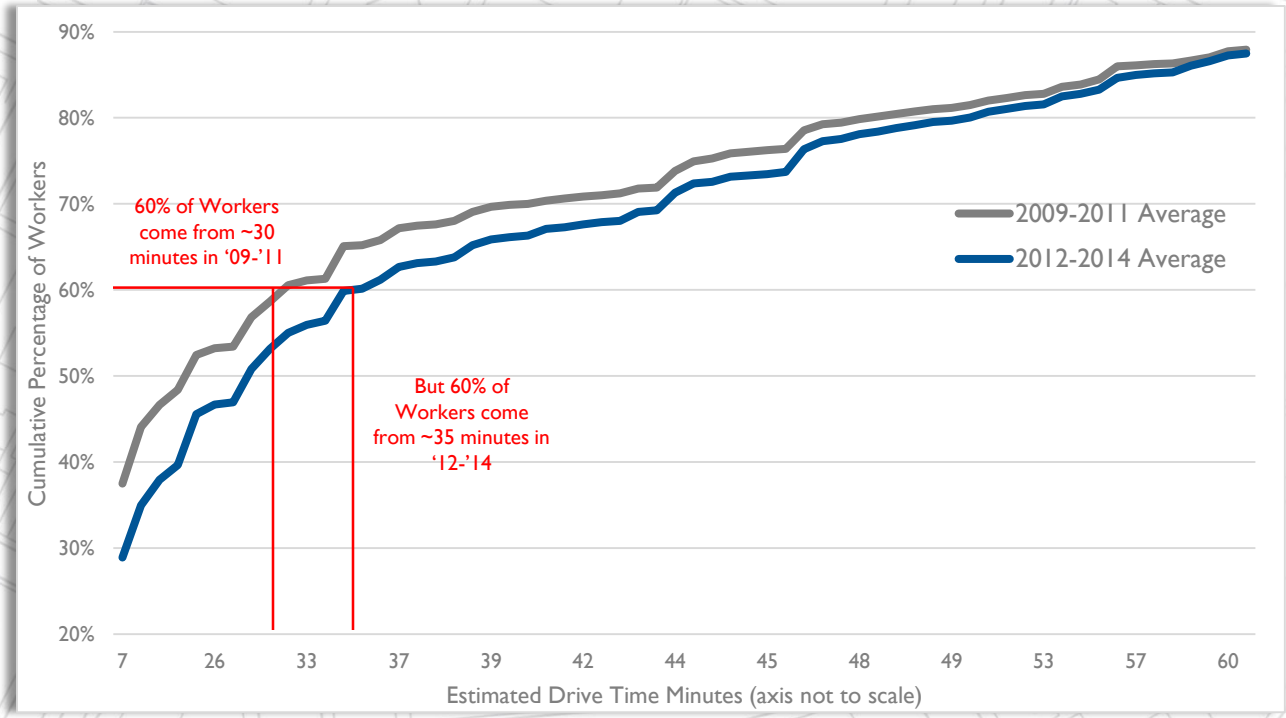
Labor Shed	50% of Workers	75% of Workers
Central Tulsa	19.48	25.45
Bartlesville	18.43	45.48
MidAmerica	**28.53**	**46.22**
Muskogee	20.52	47.80
Okmulgee	25.63	49.72

Source: LODES, Primary Workers working within 5 mile radius surrounding MAIP. Drive time via Google.

CHANGE IN COMMUTES OVER TIME

Despite those challenges, commuting data do show that folks are more willing to drive longer distances now than in the past. The graph below shows that same distribution of commute times for the area immediately surround MAIP, but breaks it out over time. Because this data source can be "lumpy" on a year to year basis, SSG averaged three-year results – the first for 2009-11 in **grey**, and the second for 2012-14 in **blue** (most recent data available). The flatter, more recent blue curve shows that the MAIP area is attracting more and more individuals from further away. For example, in the 2009-11 dataset approximately 60% of workers came from within 30 minutes. However, that number shifted to more than 35 minutes in the 2012-14 data. This data helps demonstrate that indeed, workers are traveling greater distances to work in MAIP and in surrounding areas.

Drive Time Cumulative Distribution Over Time: Workers Employed in and around MAIP



Source: LODES, Primary Workers working within 5 mile radius surrounding MAIP. Individual year data can be variable from year to year, so averages presented here for clarity. Drive time via Google.

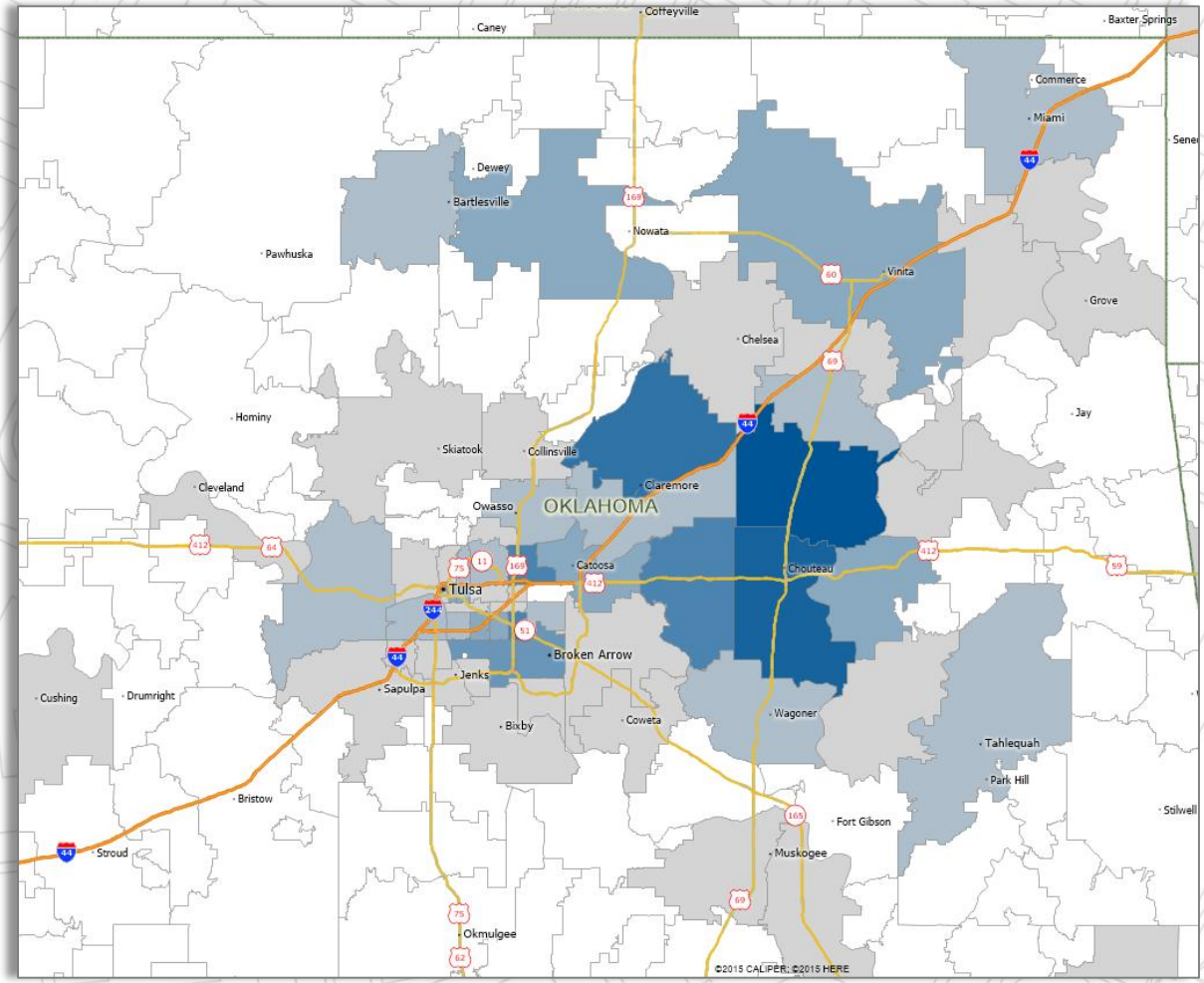
OUTFLOW OF RESIDENTS

The map at right shows the work destination of individuals who live within that same five mile radius in and around the park. Darker shading indicates a larger absolute number of individuals working in those ZIP codes.

As one might expect, a large number of those individuals live and work broadly in the same location in the ZIPs in and around Mayes County. However, darker sheds in and around Tulsa and Broken Arrow, along with the Claremore area do show that those destinations remain work destinations for individuals living in near Pryor and MAIP.

While it's certainly not possible to "capture" all resident workers in an area, the data here do demonstrate opportunities to better leverage the workforce leaving the area in and around MAIP for more localized employment opportunities.

Outflow of Residents: Where do Residents in and around MAIP work?



Source: LODES, Primary Workers residing within 5 mile radius surrounding MAIP.

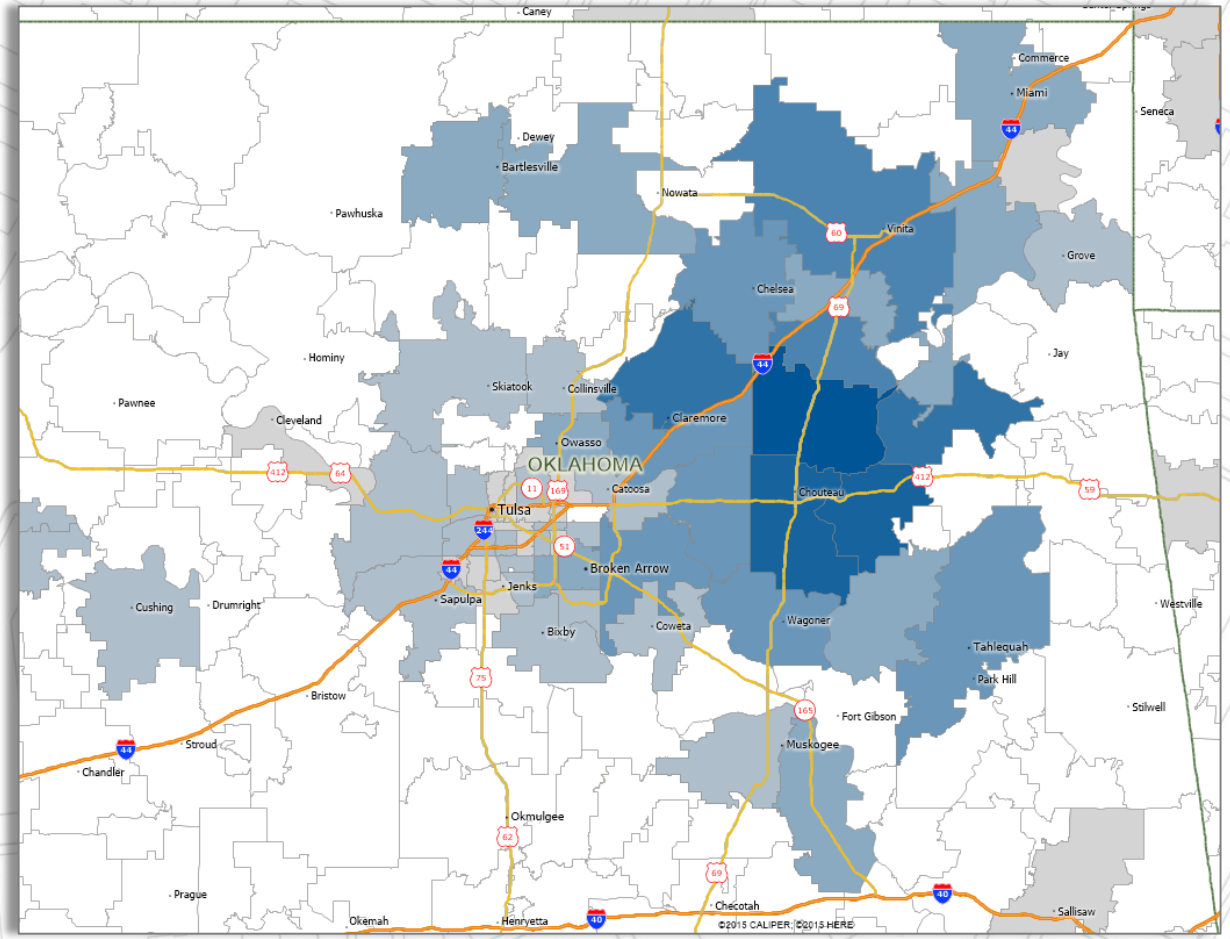
INFLOW OF WORKERS

The map at right shows the inverse as on the previous page – that is, the home ZIP codes of individuals who work within that same 5 mile radius in and around MAIP. Darker shading indicates a larger absolute number of individuals coming from those ZIP codes to work in or near MAIP.

The map shows that overall, the MAIP area draws very well from the more rural areas east of the core Tulsa market. It also shows relatively higher levels of workers coming from in and near Owasso and Broken Arrow, although drawing from other more central or western parts of the core Tulsa metro area is more challenging.

The data here support employer testimony that it is possible to draw workers from the more heavily populated areas around Tulsa and Broken Arrow to jobs in the park.

Inflow of Workers: Where do Workers in MAIP and Nearby Come From?



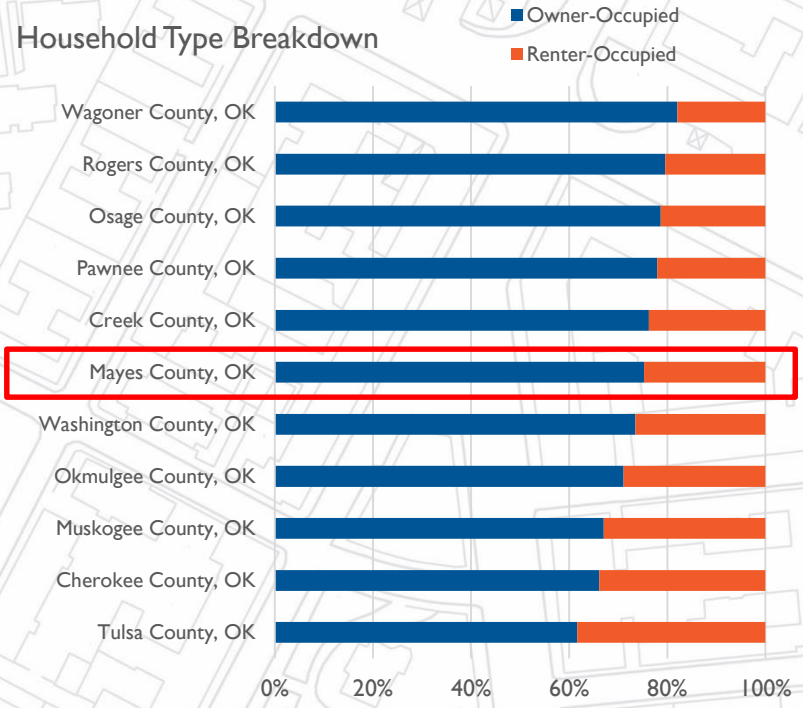
Source: LODES, Primary Workers working within 5 mile radius surrounding MAIP.

KEY HOUSING TRENDS

While it did not stand out as a major concern among interviewees, some commented on concerns regarding the housing stock for workers in MAIP. Some commented that workers seeking a rural lifestyle could find housing options, other preferring more updated housing or rental-options were faced with challenges. SSG examined the baseline data for Mayes County to explore this question. While housing availability is not always a primary consideration in a site selection search, it can be a larger factor later on in the process, when companies and consultants alike are drawing fine distinctions between options.

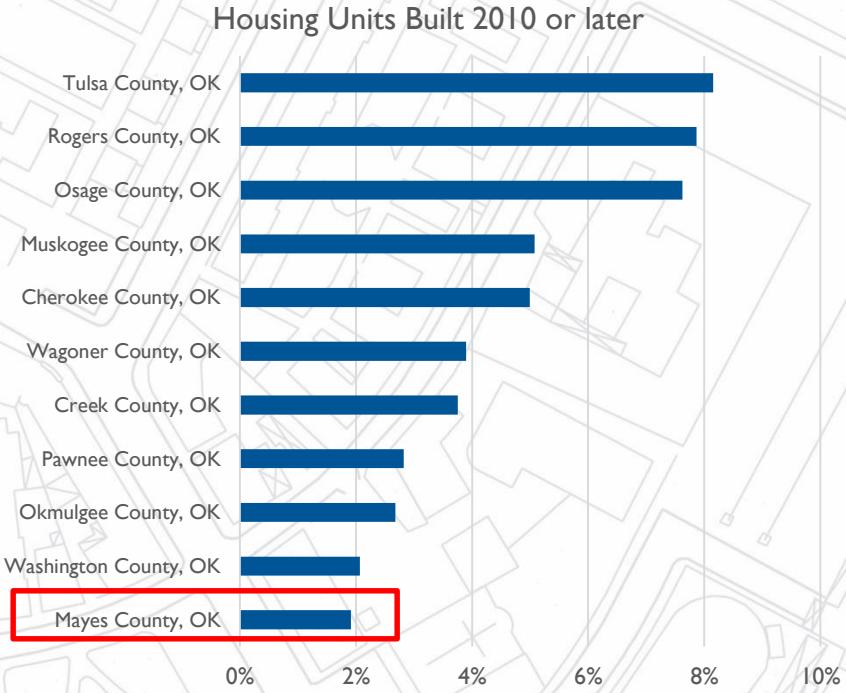
Rental vs. Owner-Occupied Housing

Rental housing is generally more available in urban areas due to space constraints. However, it also can be an indicator of how attractive an area is for younger or lower earning workers who cannot afford a house or prefer not to own. Mayes County has about 75% owner-occupied housing, which is about average for the region, but well above the rate for more centrally located Tulsa County.



Age of Housing Stock

Age of housing is also another consideration when assessing housing inventory. Mayes scores lowest in housing units built in 2010 or later with less than 2% of total units. Again, this could be a concern for companies concerned with having an adequate, updated housing stock for their workforces.



ADVANCED MANUFACTURING TARGET ANALYSIS

MANUFACTURING BENCHMARKING: OVERVIEW

Building upon the broader Tulsa regional report, this section uses secondary data sources to benchmark the MAIP labor shed against both the overall Tulsa region, along with a number of competitor communities identified earlier. Those communities are listed within the following analyses.

SSG focuses this particular analysis on the key components of advanced manufacturing operations, namely general production, skilled production, maintenance and engineering occupational clusters. Specifically, this section highlights the following analyses:

Industry Summary: Industry growth, concentration, and size relative to competitor communities.

Labor Supply: Occupational presence, including counts, concentration, historic growth, and projected growth.

Educational Pipeline: Historic and most recent completions in degree programs of interest for each sector, namely engineering and precision production.

Labor Demand (Job Postings): Up-to-date and historic job postings data compared against current labor supply.

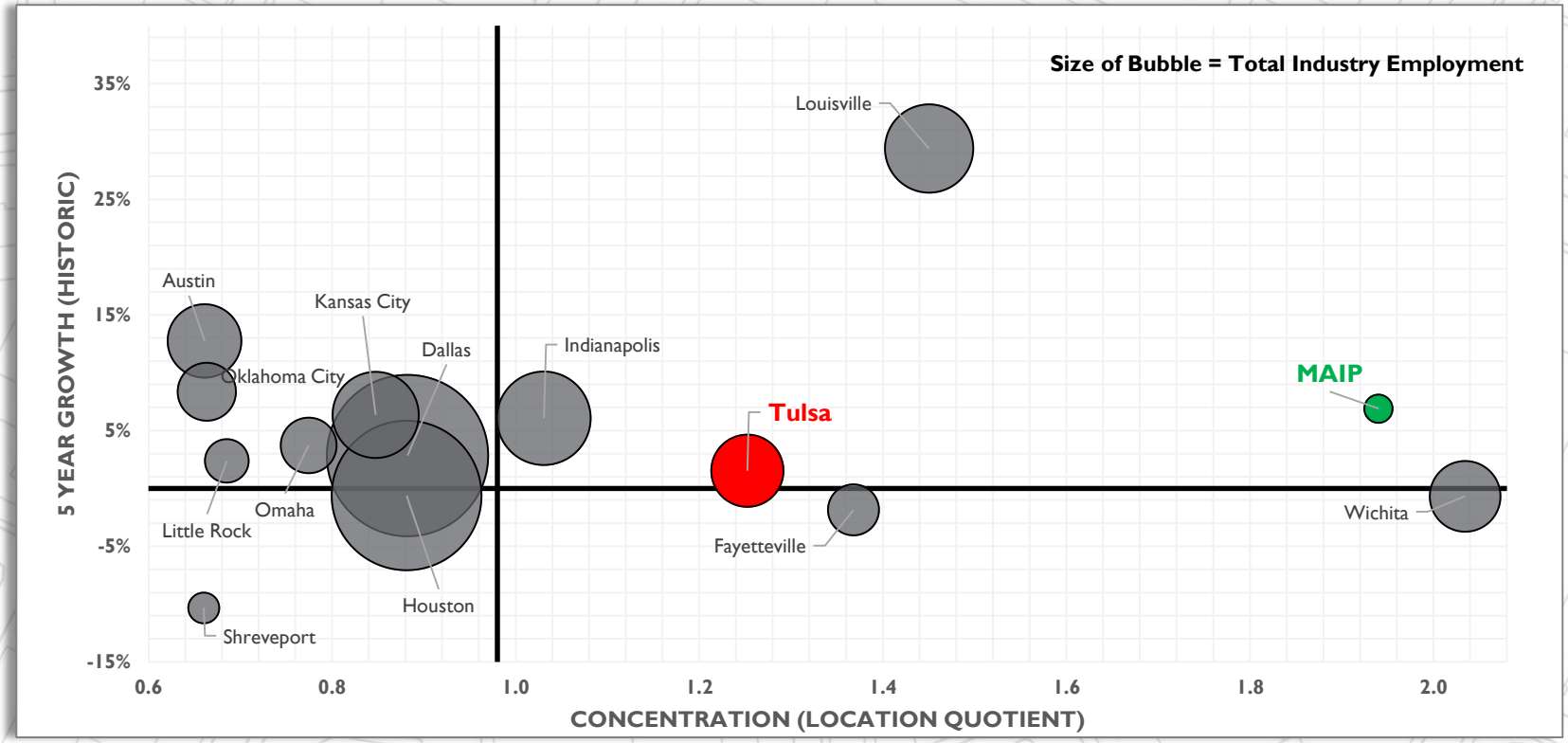
Wages & Salary: Market wages and salaries for key occupational clusters.

While most of the concepts presented should be accessible to most readers, the concept of "location quotient" deserves special attention. Simply, this metric shows the relative concentration of an industry or occupation in a location compared to a larger benchmark location (typically, and in this case, the United States overall). It's calculated by taking the percentage of Industry A in one location as a percentage of all industries, and dividing that by the percentage of that same Industry A in the nation. For example, if the automotive industry makes up 4% of Detroit's overall employment, but only 2% of the nation's overall, then Detroit has an "LQ" of 2.00 (4% divided by 2%) indicating a heavier concentration of that industry. Simply put, LQ's greater than 1.00 indicate a higher concentration of that industry or occupation relative to the national average.

INDUSTRY PRESENCE

The chart below compares the size (by employment), concentration, and historic 5-year growth of all manufacturing sectors in the MAIP labor shed (i.e. 45 minute drive time surrounding the park), the 11-county Tulsa region, and selected competitor communities. Overall, while the manufacturing presence in the MAIP labor shed is certainly smaller from an absolute standpoint, the area overall boasts a very strong concentration in the manufacturing industry. In addition, growth statistics in the MAIP labor shed have been positive over the past five years, and higher than several of the comparison communities.

Advanced Manufacturing: Industry Size, Concentration, and Growth (5-Year)



Source: EMSI, 2017.2 QCEW Employees

INDUSTRY PRESENCE

The table below shows the detailed manufacturing industry statistics as shown in the graph on the previous page. Again, the MAIP region has shown significant growth over the past five years, along with very strong concentration industry concentration levels. Data for MAIP and Tulsa are outlined in **green** and **red**, respectively.

Manufacturing Presence: MAIP Labor Shed, Tulsa, and Comparison Communities

	INDUSTRY PRESENCE					INDUSTRY CONCENTRATION				
	HISTORIC			PROJECTED		HISTORIC			PROJECTED	
MSA	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2011 Location Quotient	2016 Location Quotient	Change (Historic)	2021 Location Quotient	Change (Projected)
Wichita	52,452	52,093	-0.7%	48,294	-7.3%	2.081	2.054	-0.027	1.985	-0.070
MAIP	**8,214**	**8,921**	**8.6%**	**9,534**	**6.9%**	**1.92**	**1.96**	**0.040**	**2.00**	**0.040**
Louisville	62,011	80,231	29.4%	84,574	5.4%	1.225	1.470	0.245	1.544	0.073
Fayetteville	27,795	27,279	-1.9%	27,361	0.3%	1.585	1.388	-0.196	1.330	-0.058
Tulsa	**53,183**	**53,998**	**1.5%**	**54,703**	**1.3%**	**1.289**	**1.272**	**-0.017**	**1.302**	**0.030**
Indianapolis	84,618	89,753	6.1%	90,789	1.2%	1.064	1.051	-0.014	1.049	-0.001
Dallas	255,247	262,497	2.8%	259,405	-1.2%	0.977	0.902	-0.075	0.852	-0.050
Houston	227,539	226,149	-0.6%	227,058	0.4%	0.990	0.901	-0.089	0.867	-0.034
Kansas City	71,868	76,431	6.3%	79,058	3.4%	0.858	0.868	0.009	0.902	0.034
Omaha	31,387	32,554	3.7%	33,436	2.7%	0.797	0.795	-0.002	0.821	0.027
Little Rock	19,784	20,253	2.4%	20,674	2.1%	0.678	0.705	0.027	0.737	0.032
Oklahoma City	32,661	35,391	8.4%	37,297	5.4%	0.653	0.684	0.031	0.723	0.040
Austin	49,716	56,055	12.8%	59,699	6.5%	0.703	0.681	-0.021	0.672	-0.009
Shreveport	11,657	10,453	-10.3%	10,946	4.7%	0.697	0.680	-0.016	0.737	0.057

Source: EMSI, 2017.2 QCEW Employees

OCCUPATIONAL PRESENCE

The data below show presence, growth, and concentration statistics for the key occupational clusters needed for manufacturing operations. These data do not simply count the number of these occupations within manufacturing, but across all industry types (e.g. engineers working for a consulting firm). Like the industry data, the occupational data here show an extremely strong concentration and growth rates across the board for key production related occupations. Further, the data at far right show the same data but from a place of residence perspective – that is, where these individuals actually live rather than just work. Supporting the commuting data presented earlier, this labor shed shows an outflow of individuals to work in other parts of the Tulsa market. This data help demonstrate the potential opportunity to better attract those individuals to jobs at MAIP. The second table at bottom shows occupational statistics for the related transportation and logistics cluster. While the statistics here are not quite as strong as those on the production side, they nevertheless show a reasonable concentration of material moving and other similar workers.

Occupational Presence: Advanced Manufacturing – MAIP Labor Shed

	OCCUPATIONAL PRESENCE (PLACE OF WORK)							OCCUPATIONAL PRESENCE (PLACE OF RESIDENCE)				
Occupational Cluster	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient	Median Cluster Wages	2011 Workers	2016 Workers	% Growth (Historic)	2016 Location Quotient	Current Outflow
Skilled Production	1,788	2,003	12.0%	2,170	8.3%	3.26	$20.12	2,106	2,285	8.50%	2.38	282
General Production	5,476	5,961	8.9%	6,382	7.1%	1.90	$16.04	7,625	7,918	3.84%	1.61	1,957
Maintenance	1,005	1,289	28.3%	1,530	18.7%	1.47	$18.45	1,488	1,706	14.65%	1.24	417
Engineering	556	587	5.6%	630	7.3%	1.07	$39.55	910	938	3.08%	1.09	351

Occupational Presence: Logistics – MAIP Labor Shed

	OCCUPATIONAL PRESENCE (PLACE OF WORK)							OCCUPATIONAL PRESENCE (PLACE OF RESIDENCE)				
Occupational Cluster	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient	Median Cluster Wages	2011 Workers	2016 Workers	% Growth (Historic)	2016 Location Quotient	Current Outflow
Material Moving	2,296	1,918	-16.5%	2,116	10.3%	0.92	$14.45	3,216	3,549	10.35%	1.09	1,631
Support	1,466	1,611	9.9%	1,810	12.4%	0.83	$11.98	2,696	2,926	8.53%	0.96	1,315
Professional	414	468	13.0%	527	12.6%	0.39	$26.00	950	1,024	7.79%	0.54	556

Source: EMSI, 2017.2 QCEW Employees

EDUCATIONAL COMPLETIONS

Employers in MAIP generally reported positive opinions about technical training in the community. Degree completion data also help demonstrate the presence of key programs in the area. The first table below shows the last five years of academic programs of interest in Mayes County, more specifically, Northeast Technology Center. The presence (and growth) of completions in key programs like welding is positive, especially given the relatively rural setting. Presence of vehicle-related programs, although not directly related to production, can be leveraged for student's overall mechanical aptitude and cross-training, as noted by employers in the broader Tulsa region. The table further below shows broad regional completions in programs like welding and machining. Again, this demonstrates the strong competitive advantage the overall Tulsa region possesses.

Select Degree Completions in Mayes County, OK

		COMPLETIONS						GROWTH	
CIP Code	Program Name	2010	2011	2012	2013	2014	2015	1 Year Growth	3 Year Growth
48.0508	Welding Technology/Welder	27	32	61	52	48	53	10%	-13%
47.0604	Automobile/Automotive Mechanics Technology/Technician	13	16	22	24	26	28	8%	27%
47.0613	Medium/Heavy Vehicle and Truck Technology/Technician	0	0	8	13	22	28	27%	250%
47.0603	Autobody/Collision and Repair Technology/Technician	15	9	17	10	23	27	17%	59%
46.0201	Carpentry/Carpenter	0	0	14	18	21	20	-5%	43%
46.0302	Electrician	0	11	7	8	7	9	29%	29%

Precision Production Completions in Tulsa Region and Comparison Markets

	COMPLETIONS						GROWTH		
MSA	2010	2011	2012	2013	2014	2015	1 Year Growth	3 Year Growth	5 Year Growth
Tulsa (with OSU)	**1,010**	**1,056**	**1,169**	**1,061**	**1,274**	**1,190**	**-7%**	**2%**	**18%**
Shreveport	385	334	426	372	508	1,119	120%	163%	191%
Houston	437	430	517	774	1,018	1,103	8%	113%	152%
Tulsa	**847**	**936**	**973**	**872**	**1,064**	**1,029**	**-3%**	**6%**	**21%**
Indianapolis	38	44	256	317	464	547	18%	114%	1339%
Dallas	636	361	285	238	295	499	69%	75%	-22%
Kansas City	39	52	65	101	163	200	23%	208%	413%
Wichita	34	42	46	44	81	134	65%	191%	294%
Oklahoma City	109	111	111	94	117	129	10%	16%	18%
Austin	51	65	86	76	72	102	42%	19%	100%
Louisville	102	91	60	91	84	99	18%	65%	-3%
Little Rock	144	62	4	36	87	72	-17%	1700%	-50%
Omaha	19	9	18	31	26	27	4%	50%	42%
Fayetteville	25	24	23	22	21	17	-19%	-26%	-32%

Source: IPEDS via EMSI. Mayes County data is for Northeast Tech.

EDUCATIONAL COMPLETIONS: ENGINEERING

While there is not an engineering school in Mayes County or directly near the park, demonstrating a clear pipeline of engineering talent from regional universities is important for those critical skill sets. While included in the broader Tulsa regional report, the table below shows a count of engineering completions for the overarching region. Including data with and without Oklahoma State University is meant to show just how important "claiming" that regional institution is in terms of demonstrating a full engineering pipeline.

Further, the MidAmerica Career Center, with contributors like Oklahoma State University Institute of Technology ("OSUIT"), Rogers State University, and Northeast Tech cannot be undersold – it's a differentiator for the park. However, as a note, completion presence (and even campus presence) for OSUIT is assigned to Okmulgee under the IPEDS database (a commonly used source of educational institution and completion data), and as a result, the "data" may not give the MidAmerica Career Center its full due. Like in the main Oklahoma State University data from Stillwater, it's critically important to lift up this collaborative institutional presence in the park.

Engineering Degrees – All Completion Levels

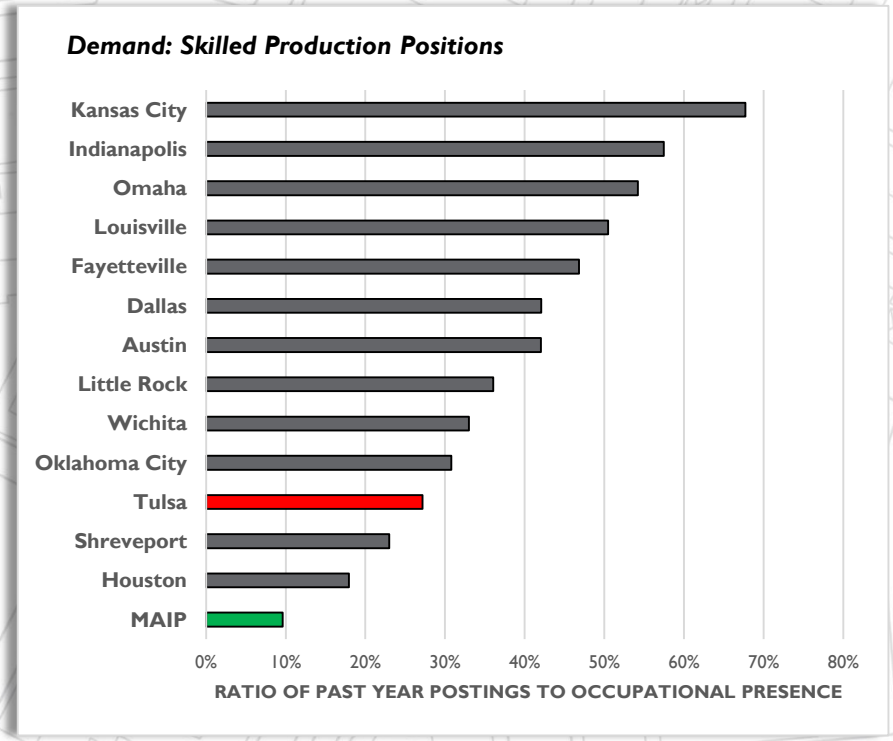
	COMPLETIONS						GROWTH		
MSA	2010	2011	2012	2013	2014	2015	1 Year Growth	3 Year Growth	5 Year Growth
Dallas	1,584	1,655	1,833	1,895	2,139	2,434	14%	33%	54%
Austin	1,660	1,722	1,790	1,784	1,931	1,862	-4%	4%	12%
Houston	914	1,123	1,138	1,129	1,279	1,644	29%	44%	80%
Tulsa (with OSU)	**744**	**830**	**863**	**971**	**1,001**	**1,056**	**5%**	**22%**	**42%**
Oklahoma City	566	591	714	753	686	821	20%	15%	45%
Wichita	335	431	393	426	482	593	23%	51%	77%
Fayetteville	328	378	388	427	494	554	12%	43%	69%
Louisville	510	533	538	540	504	513	2%	-5%	1%
Kansas City	184	204	174	221	201	346	72%	99%	88%
Indianapolis	164	203	240	251	259	342	32%	43%	109%
Tulsa	**226**	**274**	**281**	**382**	**369**	**320**	**-13%**	**14%**	**42%**
Little Rock	20	31	48	48	34	59	74%	23%	195%
Shreveport	0	0	0	2	16	7	-56%	--	--
Omaha	13	3	7	10	5	5	0%	-29%	-62%

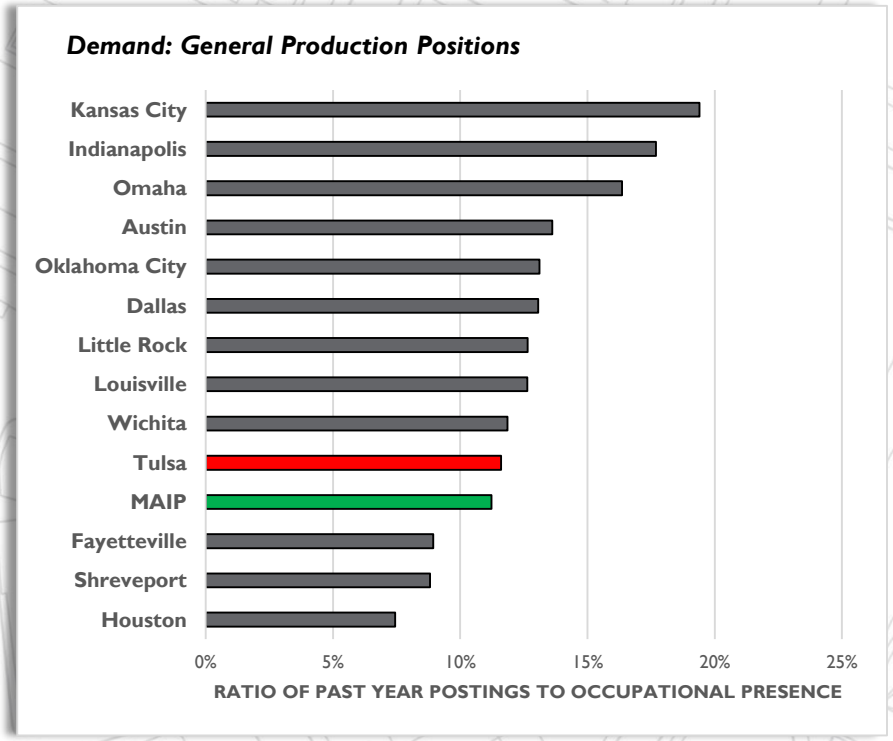
Source: IPEDS via EMSI

JOB POSTINGS/DEMAND

Analyzing online job postings is another way to uncover recent trends in demand for skill sets in a market. While this data is oftentimes "noisier" than traditional labor market indicators, nevertheless, it remains another tool for analyzing labor market conditions. The data below takes the most recent 12 months of unique online job postings for each cluster of interest (i.e. eliminating the same job posting that appears in multiple places) and divides by the most recent annual count of individuals in those same occupational clusters in each market to give an indicator of relative demand.

Compared to other, mostly larger markets, relative demand is generally lower in MAIP. In part, this is a function of just a large number of existing individuals within these occupational clusters already present in the labor force, but it also speaks to the demand side as well, where there is comparatively lower demand at present. Considering the significant demand for both skilled and unskilled production workers across the country, showing both an ample supply and comparatively lower demand in MAIP could be attractive for certain operations considering the region.

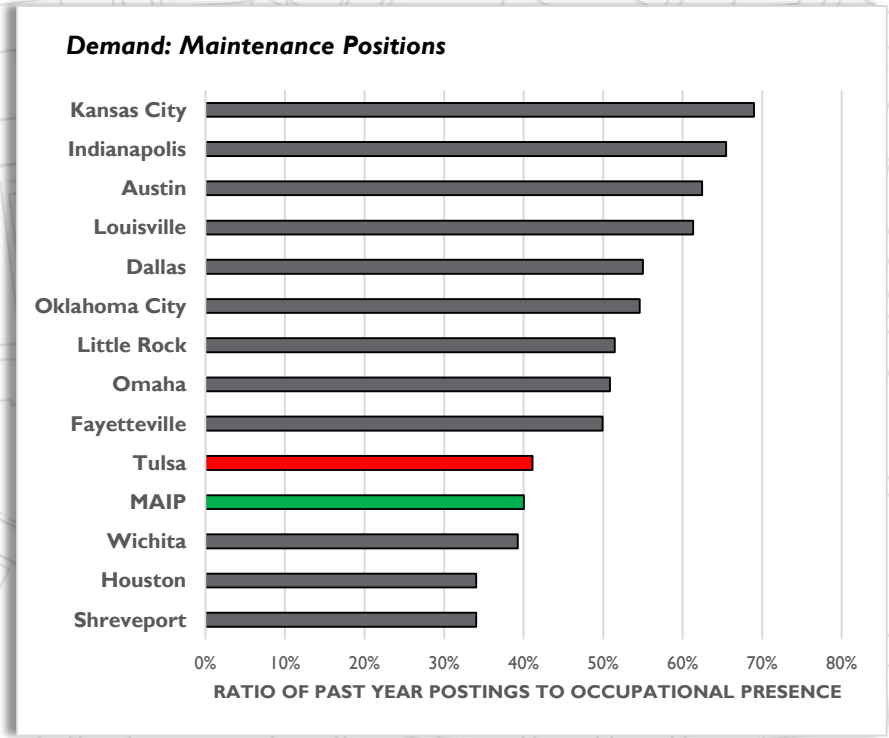


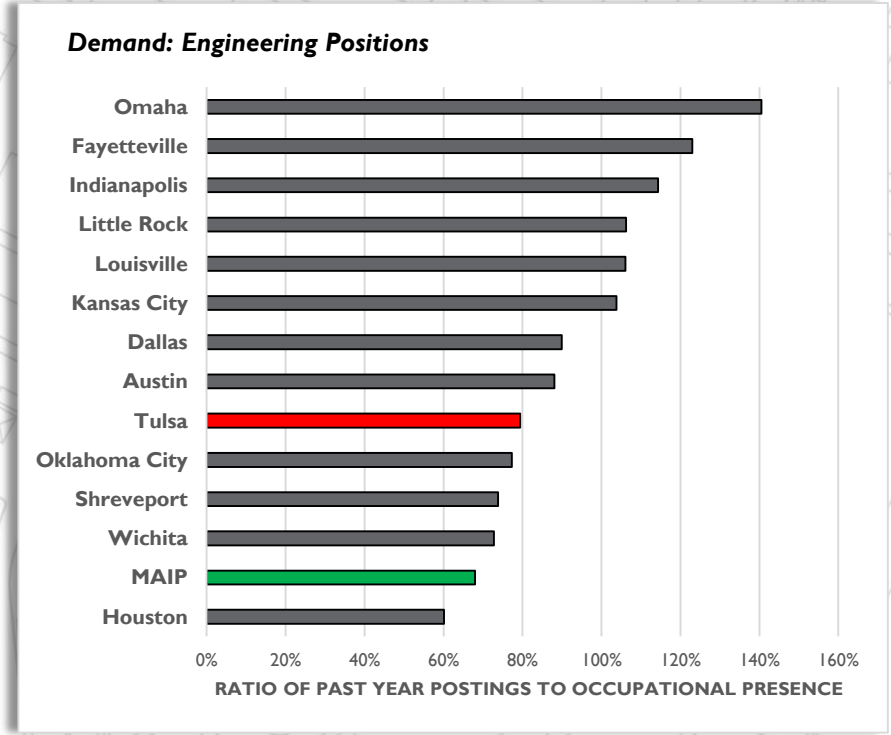


Source: EMSI/CareerBuilder. Because data is available at the county level only, SSG used Mayes, Cherokee, Craig, Delaware, Rogers, and Wagoner counties to approximate the 45 minute drive time from MAIP. SSG did not include Tulsa County in order to draw distinctions between MAIP and the central Tulsa market.

JOB POSTINGS/DEMAND

The graphics below show the same data as on the preceding page, but for the Maintenance and Engineering clusters. However, the story remains the same as there is comparatively lower demand in MAIP (and Tulsa overall) compared to most competitor markets. Again, this is also a function of a strong current presence of individuals in these occupational clusters. But they also demonstrate the potential competitive positioning for MAIP to draw key distinctions on its value proposition. In other words, it could be easier to compete for talent compared to those other markets.





Source: EMSI/CareerBuilder. Because data is available at the county level only, SSG used Mayes, Cherokee, Craig, Delaware, Rogers, and Wagoner counties to approximate the 45 minute drive time from MAIP. SSG did not include Tulsa County in order to draw distinctions between MAIP and the central Tulsa market.

LABOR COSTS

Finally, SSG examined key wage and salary levels for occupational clusters of interest to compare MAIP and Tulsa against comparison markets. SSG utilized two sources of data. The first is a broader salary for the entire occupational cluster via EMSI. Because this data can be subject to composition effects (e.g. one market's cluster may have a higher presence of higher wage positions compared to another), SSG also utilized example wages for specific job titles via ERI to provide a more "apples-to-apples" comparison. The charts below are sorted by the overall cluster wage, and higher salary levels are highlighted in red, and lower salary levels are highlighted in green.

The tables clearly demonstrate that overall, the Pryor/MAIP area offer companies competitive wage structures compared to other markets. There is, however, a slight difference in the median cluster wage vs. example wages under the General Production cluster – likely an industry composition effect. Although these are secondary data sources, they can be important in showing broad wage advantages as compared to other markets.

Skilled Production Positions

		EXAMPLE WAGE AND SALARY (ERI)		
MSA	Median Cluster Salary (EMSI)	CNC Programmer (3)	Machinist (3)	Welder (Experienced) (3)
Fayetteville	$18.99	$23.27	$17.93	$19.72
Pryor, OK	**$19.39**	**$22.14**	**$17.75**	**$18.70**
Shreveport	$20.06	$24.52	$18.56	$20.59
Little Rock	$20.33	$23.60	$18.25	$20.06
Oklahoma City	$20.52	$23.24	$17.90	$19.72
Omaha	$21.01	$24.55	$19.15	$20.97
Austin	$21.03	$24.56	$18.69	$20.66
Tulsa	**$21.25**	**$24.72**	**$18.99**	**$20.92**
Wichita	$21.36	$25.16	$19.33	$21.29
Dallas	$21.53	$25.18	$19.10	$21.14
Indianapolis	$21.71	$25.28	$19.53	$21.47
Louisville	$21.75	$25.50	$19.66	$21.67
Kansas City	$22.58	$26.28	$20.32	$22.33
Houston	$24.12	$26.53	$19.83	$22.01

General Production Positions

		EXAMPLE WAGE AND SALARY (ERI)		
MSA	Median Cluster Salary (EMSI)	Machine Operator (3)	Bench Assembler (3)	Production Helper (3)
Fayetteville	$12.93	$15.75	$13.63	$11.45
Austin	$14.38	$16.48	$14.37	$12.10
Dallas	$14.52	$16.86	$14.70	$12.19
Indianapolis	$14.73	$17.13	$15.09	$12.79
Pryor, OK	**$14.75**	**$15.06**	**$13.16**	**$11.06**
Omaha	$14.86	$17.03	$14.85	$12.49
Oklahoma City	$15.11	$15.75	$13.80	$11.72
Little Rock	$15.36	$16.26	$14.08	$11.70
Louisville	$16.21	$17.92	$15.71	$12.80
Shreveport	$16.43	$16.56	$14.42	$11.89
Tulsa	**$17.17**	**$16.83**	**$14.74**	**$12.49**
Kansas City	$17.63	$18.58	$16.38	$13.41
Houston	$17.85	$17.28	$14.99	$12.45
Wichita	$18.66	$17.46	$15.33	$12.73

Source: EMSI for Median Cluster Salary, ERI for example wages and salaries. For the ERI baseline data, SSG assumes 3 years' experience for each position and the median salary thereof.

LABOR COSTS: MAINTENANCE & ENGINEERING

The data below go on to show additional wage data for the Maintenance and Engineering occupational clusters. Like their counterparts on the direct production side, both these clusters also demonstrate relatively wage competitiveness compared to other markets.

Maintenance Positions

		EXAMPLE WAGE AND SALARY (ERI)		
MSA	Median Cluster Salary (EMSI)	Maintenance Mechanic	Electrical Maintenance	Millwright
Shreveport	$16.78	$22.54	$22.36	$25.27
Fayetteville	$16.98	$22.19	$21.42	$24.89
Little Rock	$17.90	$22.11	$21.79	$24.70
Dallas	$18.69	$24.26	$23.24	$27.26
Pryor, OK	**$18.90**	**$21.06**	**$21.63**	**$23.60**
Oklahoma City	$19.20	$22.42	$22.35	$25.04
Austin	$19.26	$23.94	$22.76	$26.86
Tulsa	**$19.28**	**$22.99**	**$22.53**	**$25.75**
Houston	$20.32	$24.93	$24.48	$28.16
Omaha	$20.64	$23.93	$23.65	$26.63
Wichita	$20.70	$23.65	$22.69	$26.39
Kansas City	$21.06	$24.66	$26.31	$27.55
Louisville	$21.17	$23.78	$23.52	$26.51
Indianapolis	$21.56	$24.58	$25.52	$27.41

Engineering Positions

		EXAMPLE WAGE AND SALARY (ERI)		
MSA	Median Cluster Salary (EMSI)	Industrial Engineer	Validation Engineer	Quality Control Engineer
Fayetteville	$73,600	$81,078	$81,349	$77,147
Pryor, OK	**$75,878**	**$81,058**	**$75,088**	**$77,043**
Louisville	$76,018	$83,096	$80,954	$79,331
Little Rock	$77,262	$81,432	$78,978	$77,563
Omaha	$81,352	$83,200	$83,429	$79,518
Indianapolis	$81,519	$84,594	$83,886	$80,725
Wichita	$82,789	$82,410	$80,350	$78,770
Shreveport	$82,967	$83,262	$79,872	$79,394
Kansas City	$83,056	$86,299	$86,362	$82,534
Oklahoma City	$84,357	$82,451	$77,605	$78,645
Tulsa	**$85,881**	**$85,030**	**$82,118**	**$81,182**
Dallas	$90,826	$91,437	$91,374	$87,214
Austin	$94,589	$91,853	$90,709	$87,506
Houston	$100,957	$100,693	$94,536	$95,971

Source: EMSI for Median Cluster Salary, ERI for example wages and salaries. For the ERI baseline data, SSG assumes 3 years' experience for each Maintenance position and 10 years for Engineering positions, along with the median salary thereof.

APPENDIX
- ADDITIONAL LOGISTICS DATA

ADDITIONAL DATA: LOGISTICS

Industry Presence: Logistics – MidAmerica Labor Shed

Industry	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient
Distribution & Logistics	**2,660**	**1,850**	**-30.5%**	**1,969**	**6.4%**	**0.66**

The Distribution & Logistics sector has shown a significant drop-off over the past five years in the MidAmerica labor shed. While this decline could be genuine, it may also be caused be the recategorization of a component firm, or another data nuance. Looking more closely at the data, the decline was caused almost exclusively by a fall in one particular category, "General Freight Trucking, Long Distance", that declined by nearly 900 jobs in this time period. SSG is not certain whether this is an actual decline in jobs, or a data aberration or re-categorization of industries.

Occupational Presence: Logistics – MidAmerica Labor Shed

	OCCUPATIONAL PRESENCE (PLACE OF WORK)							OCCUPATIONAL PRESENCE (PLACE OF RESIDENCE)				
Occupational Cluster	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient	Median Cluster Wages	2011 Workers	2016 Workers	% Growth (Historic)	2016 Location Quotient	Current Outflow
Material Moving	2,296	1,918	-16.5%	2,116	10.3%	0.92	$14.45	3,216	3,549	10.35%	1.09	1,631
Support	1,466	1,611	9.9%	1,810	12.4%	0.83	$11.98	2,696	2,926	8.53%	0.96	1,315
Professional	414	468	13.0%	527	12.6%	0.39	$26.00	950	1,024	7.79%	0.54	556

While not boasting extremely high absolute numbers or concentration, the material moving and support occupational clusters do show presence in the MidAmerica labor shed, along with very high projected growth.

Source: EMSI, 2017.2 QCEW Employees

ADDITIONAL DATA: LOGISTICS

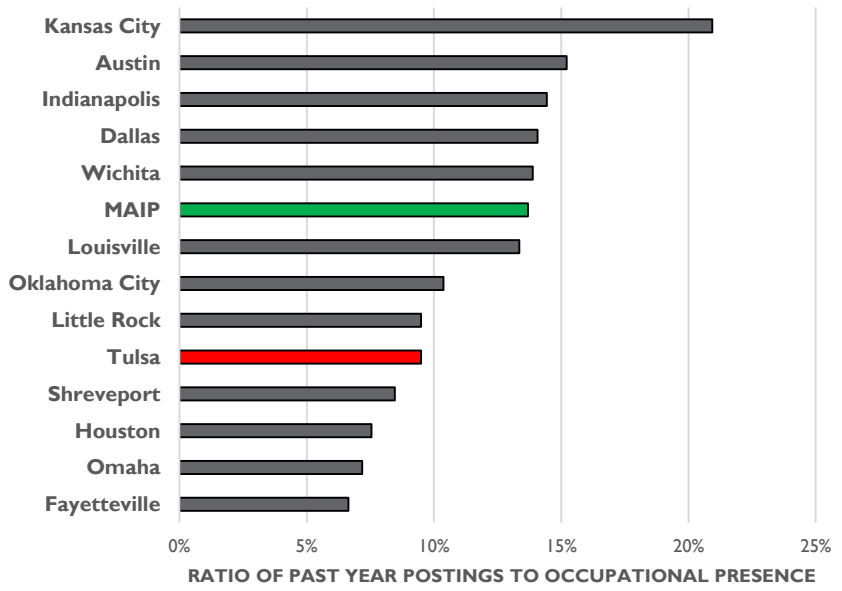
The graphics below show wage/salary data along with job postings data for the material moving positions within the logistics and distribution cluster. On the wage side, as in previous, some composition effects appears to be inflating the broad cluster salary, but individual job title analysis shows very competitive wage levels.

On the job postings analysis, MAIP shows moderate levels of demand for material moving positions compared to other markets, and higher than the broader Tulsa market. This is partially due to simply lower levels and concentrations of these types of workers in the MAIP labor shed compared to production and related occupational clusters.

Logistics: Material Moving Positions

		EXAMPLE WAGE AND SALARY (ERI)		
MSA	Median Cluster Salary (EMSI)	Warehouse Laborer (3)	Forklift Operator (3)	Packer/Crater (3)
Little Rock	$11.19	$12.10	$13.21	$11.75
Fayetteville	$11.19	$12.01	$13.12	$11.66
Dallas	$11.48	$12.93	$14.14	$12.52
Austin	$11.58	$12.71	$13.87	$12.33
Shreveport	$11.64	$12.05	$13.17	$11.68
Wichita	$11.80	$12.71	$13.88	$12.33
Indianapolis	$12.20	$13.38	$14.58	$12.98
Houston	$12.22	$13.15	$14.46	$12.71
Pryor, OK	**$12.53**	**$11.17**	**$12.82**	**$11.42**
Oklahoma City	$12.66	$12.55	$13.66	$12.18
Tulsa	**$12.67**	**$12.65**	**$13.77**	**$12.27**
Omaha	$12.68	$13.08	$14.28	$12.70
Kansas City	$12.95	$13.75	$14.95	$13.34
Louisville	$13.21	$13.29	$14.46	$12.90

Demand: Material Moving Positions



Source: EMSI/CareerBuilder. Because data is available at the county level only, SSG used Mayes, Cherokee, Craig, Delaware, Rogers, and Wagoner counties to approximate the 45 minute drive time from MAIP. SSG did not include Tulsa County in order to draw distinctions between MAIP and the central Tulsa market.

APPENDIX
- OTHER REGIONAL TARGETS

MIDAMERICA: PROFESSIONAL SERVICES

Industry Presence: Professional Services – MidAmerica Labor Shed

Industry	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient
Professional Services	**3,201**	**3,462**	**8.1%**	**3,841**	**10.9%**	**0.47**

While the overall concentration of Professional Services in the MidAmerica labor shed is relatively small, this industry cluster has grown significantly in recent years and is projected to do so in the future, as well.

Occupational Presence: Professional Services – MidAmerica Labor Shed

	OCCUPATIONAL PRESENCE (PLACE OF WORK)							OCCUPATIONAL PRESENCE (PLACE OF RESIDENCE)				
Occupational Cluster	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient	Median Cluster Wages	2011 Workers	2016 Workers	% Growth (Historic)	2016 Location Quotient	Current Outflow
Financial Services - Higher Skill	1,152	1,251	8.6%	1,393	11.4%	0.54	$28.40	2,261	2,381	5.31%	0.66	1,130
Financial Services - Lower Skill	981	1,034	5.4%	1,089	5.3%	0.94	$16.41	1,806	1,898	5.09%	1.10	864
IT Positions	334	381	14.1%	430	12.9%	0.44	$25.26	723	784	8.44%	0.58	403
Support Positions	4,283	4,693	9.6%	5,204	10.9%	0.85	$14.12	7,799	8,244	5.71%	0.96	3,551

While the Professional Services industry is not well concentrated in this labor shed, key occupational skill sets, especially those requiring more entry-level skills are present in the community This can be most readily observed in the relatively high concentration metrics for occupational presence by place of residence. In conjunction with the net outflow of these workers to neighboring areas, there exists opportunities to better retain these workers in the community.

Source: EMSI, 2017.2 QCEW Employees

MIDAMERICA: INFORMATION TECHNOLOGY

Industry Presence: Information Technology – MidAmerica Labor Shed

Industry	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient
Information Technology	**70**	**153**	**119.4%**	**195**	**27.0%**	**0.15**

Although posting a very strong historic growth rate in percentage terms (more than doubling in the past five years) the overall size and concentration of the IT industry in the MidAmerica labor shed is small.

Occupational Presence: Information Technology – MidAmerica Labor Shed

	OCCUPATIONAL PRESENCE (PLACE OF WORK)							OCCUPATIONAL PRESENCE (PLACE OF RESIDENCE)				
Occupational Cluster	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient	Median Cluster Wages	2011 Workers	2016 Workers	% Growth (Historic)	2016 Location Quotient	Current Outflow
Computer/IT Positions	545	616	13.0%	688	11.7%	0.42	$26.61	1,209	1,299	7.44%	0.56	683
Engineering	120	127	5.8%	142	11.8%	0.46	$41.02	267	274	2.62%	0.63	147

Like the IT sector overall, the MidAmerica labor shed does not boast a large number of concentration of key IT workers. However, historic and projected growth rates are relatively highly, and there exists an outflow of workers with the opportunity to keep those workers from exiting the labor shed.

Source: EMSI, 2017.2 QCEW Employees

MIDAMERICA: AEROSPACE

Industry Presence: Aerospace – MidAmerica Labor Shed

Industry	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient
Aerospace	**71**	**116**	**62.5%**	**151**	**30.6%**	**0.24**

The Aerospace sector is small in the MidAmerica labor shed, although a large percentage growth jump (albeit from a low starting point) is a positive factor.

Occupational Presence: Aerospace – MidAmerica Labor Shed

	OCCUPATIONAL PRESENCE (PLACE OF WORK)							OCCUPATIONAL PRESENCE (PLACE OF RESIDENCE)				
Occupational Cluster	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient	Median Cluster Wages	2011 Workers	2016 Workers	% Growth (Historic)	2016 Location Quotient	Current Outflow
Production	2,995	3,253	8.6%	3,506	7.8%	2.41	$18.09	3,975	4,238	6.62%	2.01	985
Maintenance & Repair	838	980	16.9%	1,120	14.3%	1.26	$16.75	1,437	1,559	8.49%	1.28	579
Engineering	399	413	3.5%	438	6.1%	0.92	$33.78	681	696	2.20%	0.99	283
Support	1,010	1,017	0.7%	1,111	9.2%	0.88	$12.20	1,981	2,126	7.32%	1.17	1,109

Like the manufacturing sector more broadly, the MidAmerica labor shed boasts very strong numbers for production and maintenance occupation clusters, although slightly less positively for engineering and support positions. Again, although the industry's concentration is very small in this labor shed currently, the broad skill sets are present affording opportunities in the future.

Source: EMSI, 2017.2 QCEW Employees

MIDAMERICA: ENERGY

Industry Presence: Energy – MidAmerica Labor Shed

Industry	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient
Energy	**694**	**1,066**	**53.6%**	**1,352**	**26.8%**	**1.00**

Compared to other parts of the broader Tulsa region, the Energy sector is not as large or concentrated in the MidAmerica labor shed as it is in other areas. The strong growth figures above, both historic and project, should be taken with a grain of salt given the significant fluctuations inherent to this industry that are not always captured by secondary data sources.

Occupational Presence: Energy – MidAmerica Labor Shed

	OCCUPATIONAL PRESENCE (PLACE OF WORK)							OCCUPATIONAL PRESENCE (PLACE OF RESIDENCE)				
Occupational Cluster	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient	Median Cluster Wages	2011 Workers	2016 Workers	% Growth (Historic)	2016 Location Quotient	Current Outflow
Production	2,700	2,545	-5.7%	2,887	13.4%	1.28	$21.13	3,731	3,974	6.51%	1.28	1,429
Engineering & Support	335	361	7.8%	394	9.1%	1.17	$36.21	571	594	4.03%	1.23	233

When viewed from an occupational perspective, the MidAmerica labor shed shows a high concentration and count of key Energy related production and engineering workers in the area.

Source: EMSI, 2017.2 QCEW Employees

MIDAMERICA: HEALTH & LIFE SCIENCE

Industry Presence: Health & Life Sciences – MidAmerica Labor Shed

Industry	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient
Health/Life Science - Production	5	10	100.0%	10	0.0%	0.03
Health/Life Science – Support	58	112	94.3%	127	12.5%	0.29

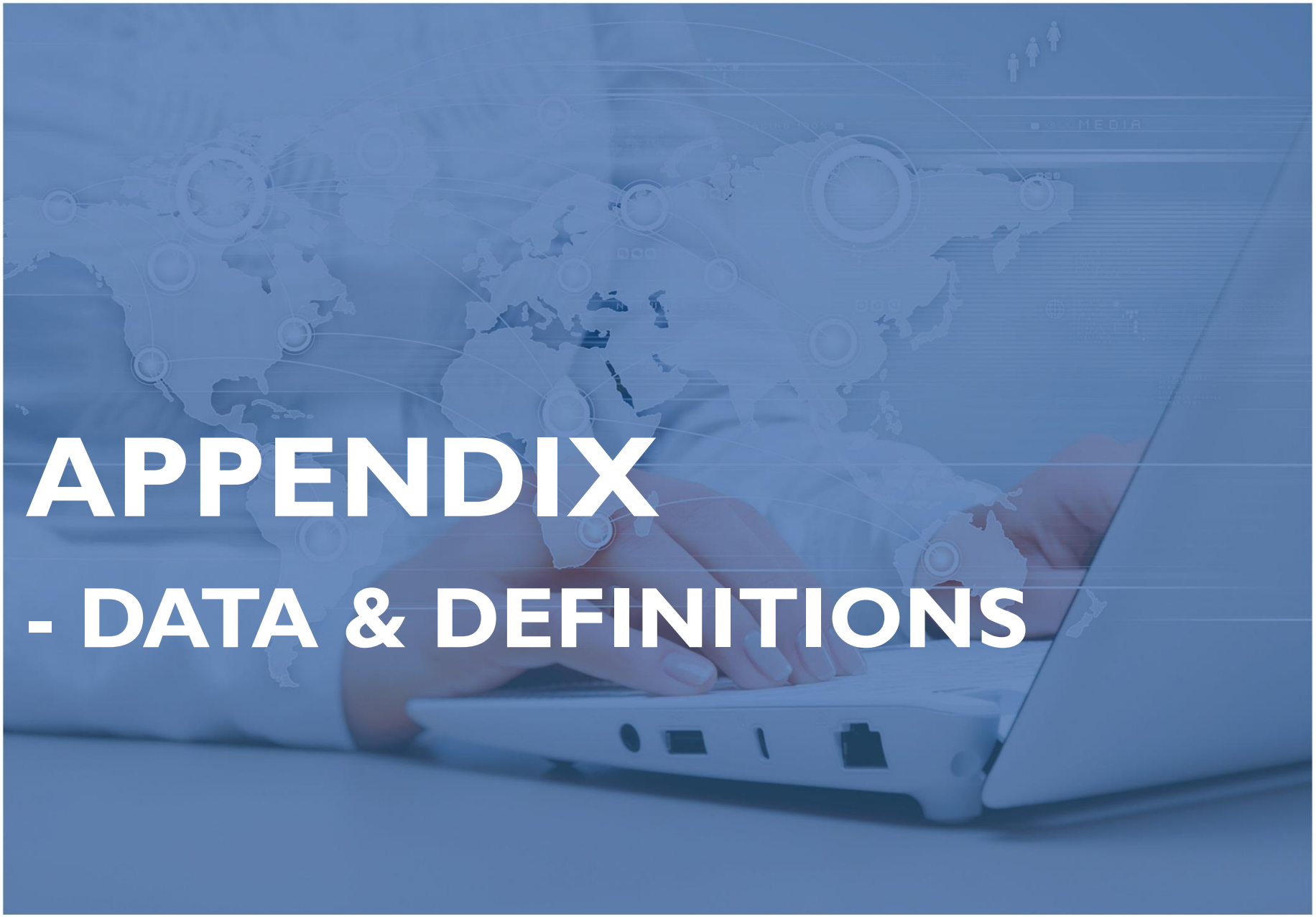
The Health & Life Science sectors, both in terms of support and service and production are very small and not highly concentrated in the MidAmerica labor shed.

Occupational Presence: Health & Life Sciences – MidAmerica Labor Shed

	OCCUPATIONAL PRESENCE (PLACE OF WORK)							OCCUPATIONAL PRESENCE (PLACE OF RESIDENCE)				
Occupational Cluster	2011 Jobs	2016 Jobs	% Growth (Historic)	2021 Jobs	% Growth (Projected)	2016 Location Quotient	Median Cluster Wages	2011 Workers	2016 Workers	% Growth (Historic)	2016 Location Quotient	Current Outflow
Science	166	192	15.7%	211	9.9%	0.52	$26.55	331	342	3.32%	0.59	150
Engineering	222	229	3.2%	243	6.1%	1.00	$35.60	348	358	2.87%	1.00	129
IT & Mathematics	409	465	13.7%	524	12.7%	0.39	$26.33	928	1,000	7.76%	0.53	535
Production	2,298	2,482	8.0%	2,682	8.1%	1.88	$17.57	3,120	3,339	7.02%	1.61	857

The MidAmerica labor shed shows a relatively small concentration and count of key science and related occupations, critical to the Health & Life Science industry overall. Like other parts of the region, however, the relatively large number and concentration of production workers with potentially applicable skill set could support the value proposition to attract more production-oriented companies in this area to the area.

Source: EMSI, 2017.2 QCEW Employees



APPENDIX
- DATA & DEFINITIONS

OCCUPATIONAL DEFINITIONS

MANUFACTURING

Skilled Production

SOC	Description
51-1011	First-Line Supervisors of Production and Operating Workers
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic
51-4041	Machinists
51-4111	Tool and Die Makers
51-4121	Welders, Cutters, Solderers, and Brazers
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Maintenance

SOC	Description
47-2111	Electricians
49-9041	Industrial Machinery Mechanics
49-9043	Maintenance Workers, Machinery
49-9071	Maintenance and Repair Workers, General

Engineering

SOC	Description
11-3051	Industrial Production Managers
11-9041	Architectural and Engineering Managers
17-2071	Electrical Engineers
17-2072	Electronics Engineers, Except Computer
17-2112	Industrial Engineers
17-2131	Materials Engineers
17-2141	Mechanical Engineers
17-3023	Electrical and Electronics Engineering Technicians
17-3026	Industrial Engineering Technicians
17-3027	Mechanical Engineering Technicians

General Production

SOC	DESCRIPTION
51-2010	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers
51-2020	Electrical, Electronics, and Electromechanical Assemblers
51-2030	Engine and Other Machine Assemblers
51-2040	Structural Metal Fabricators and Fitters
51-2090	Miscellaneous Assemblers and Fabricators
51-3010	Bakers
51-3020	Butchers and Other Meat, Poultry, and Fish Processing Workers
51-3090	Miscellaneous Food Processing Workers
51-4010	Computer Control Programmers and Operators
51-4020	Forming Machine Setters, Operators, and Tenders, Metal and Plastic
51-4030	Machine Tool Cutting Setters, Operators, and Tenders, Metal and Plastic
51-4040	Machinists
51-4050	Metal Furnace Operators, Tenders, Pourers, and Casters
51-4060	Model Makers and Patternmakers, Metal and Plastic
51-4070	Molders and Molding Machine Setters, Operators, and Tenders,
51-4080	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4110	Tool and Die Makers
51-4120	Welding, Soldering, and Brazing Workers
51-4190	Miscellaneous Metal Workers and Plastic Workers
51-5110	Printing Workers
51-6010	Laundry and Dry-Cleaning Workers
51-6020	Pressers, Textile, Garment, and Related Materials
51-6030	Sewing Machine Operators
51-6040	Shoe and Leather Workers
51-6050	Tailors, Dressmakers, and Sewers
51-6060	Textile Machine Setters, Operators, and Tenders
51-6090	Miscellaneous Textile, Apparel, and Furnishings Workers
51-7010	Cabinetmakers and Bench Carpenters
51-7020	Furniture Finishers
51-7030	Model Makers and Patternmakers, Wood
51-7040	Woodworking Machine Setters, Operators, and Tenders
51-7090	Miscellaneous Woodworkers
51-8010	Power Plant Operators, Distributors, and Dispatchers
51-8020	Stationary Engineers and Boiler Operators
51-8030	Water and Wastewater Treatment Plant and System Operators
51-8090	Miscellaneous Plant and System Operators
51-9010	Chemical Processing Machine Setters, Operators, and Tenders
51-9020	Crushing, Grinding, Polishing, Mixing, and Blending Workers
51-9030	Cutting Workers
51-9040	Extruding, Forming, Pressing, and Compacting Machine Setters
51-9050	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders
51-9060	Inspectors, Testers, Sorters, Samplers, and Weighers
51-9070	Jewelers and Precious Stone and Metal Workers
51-9080	Medical, Dental, and Ophthalmic Laboratory Technicians
51-9110	Packaging and Filling Machine Operators and Tenders
51-9120	Painting Workers
51-9140	Semiconductor Processors
51-9150	Photographic Process Workers and Processing Machine Operators
51-9190	Miscellaneous Production Workers

LOGISTICS

Material Moving

SOC	Description
53-3032	Heavy and Tractor-Trailer Truck Drivers
53-7051	Industrial Truck and Tractor Operators
53-7062	Laborers and Freight, Stock, and Material Movers, Hand
53-7063	Machine Feeders and Offbearers
53-7064	Packers and Packagers, Hand

Support

SOC	Description
43-4051	Customer Service Representatives
43-5071	Shipping, Receiving, and Traffic Clerks
43-5081	Stock Clerks and Order Fillers

Professional

SOC	Description
13-1081	Logisticians
15-1121	Computer Systems Analysts
15-1131	Computer Programmers
15-1132	Software Developers, Applications
15-1133	Software Developers, Systems Software
15-1142	Network and Computer Systems Administrators
15-1151	Computer User Support Specialists
15-2031	Operations Research Analysts

INDUSTRY & OCCUPATIONAL CLASSIFICATIONS

SSG used the following broad industry and occupational classifications in both the workforce survey and employer interview portions of this analysis. While certainly broad, these are designed to help give further insights on trends in the Tulsa region for broad occupational categories. For example, while there are certainly differences between firms categorized as Manufacturing and those categorized as Transportation, they can have very similar attributes and workforce requirements that make analyzing them together more appropriate.

Broad Industry Classifications

Industry	Type
Agriculture	Blue
Call Center	White
Construction	Blue
Corporate or Regional Headquarters	White
Don't know	Unclear
Education	White
Finance, Insurance, Accounting	White
Health Care	White
Hospitality (Hotel, Restaurant, Entertainment)	White
Information Technology	White
Manufacturing	Blue
Mining or Oil & Gas Extraction	Blue
Other Business or Consumer Service	White
Public Sector	Unclear
Research or Consulting	White
Retail	White
Transportation Provider	Blue
Utility	Blue
Warehouse or Distribution Center	Blue

Broad Occupational Classifications

Occupation	Type
Accounting	White
Administrative	White
Communications	White
Construction	Blue
Contact Center Representative	White
Don't know	Unclear
Education, Training, or Library	White
Engineering	White
Finance	White
General Manufacturing or Assembly	Blue
Healthcare or Medical	White
Hotel, Food, or Restaurant Service	White
Human Resources	White
Information Technology	White
Legal Services	White
Maintenance, Installation, or Repair	Blue
Marketing	White
Other	Unclear
Other General Business	White
Protective Service	Blue
Retail	White
Sales	White
Scientist or Research	White
Transportation	Blue
Warehousing	Blue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