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INDIANA LTAP WORKFORCE REPORT

RESEARCH REPORT

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Executive Summary

With over 97,000 miles of roadway, local road agencies are essential to the safe, reliable, and effective transport of people and goods across Indiana's local economies. These agencies employ a dedicated, hardworking public servant workforce that ensures Hoosiers across the state have access to properly maintained roadways. As the post-pandemic workforce issues reverberate across the economy, local road agencies have not been immune to those impacts. These agencies have been facing numerous challenges related to worker shortages and adapting to certain regulatory changes.

The purpose of this report was to investigate the workforce issues faced by Indiana's local road agencies and provide strategies to inform local road agency and policy maker decisions. Distilling industry best practices, this report provides foundational guidelines for managers across Indiana's local road agencies to establish a framework for effective recruitment, compensation, and retention. These best practices outline the basis of building a proper job description and job posting to yield a larger pool of qualified candidates for positions within local road agencies. Guidelines for successfully building a compensation plan that will appeal to applicants with increased work-life balance, attractive benefits, and stability are discussed in a national, state, and local context. Further, the best practices for employee retention via increased engagement strategies are reviewed. This project also provides examples of success stories across the state that highlight the implementation of effective recruiting plans, compensation programs, and retention strategies to help guide similarly situated local road agencies.

A survey was conducted to document the overarching workforce issues central to local road agencies across the state. A comprehensive salary study was also conducted for this report and provides the necessary connection for needs analyses and benchmarking as salaries are noted throughout the literature as directly impacting recruiting and retention.

The key findings and recommendations delineated below are discussed and supported in the following report.

Key Findings

- Indiana **local road agencies' top workforce concerns** were related to:
 - Filling vacancies;
 - Offering a competitive salary; and
 - Retaining talent.
- **Competitive salaries were consistently noted as the greatest concern** from the survey. Local agency salaries lag comparable to state level positions in Indiana. Every local agency position analyzed in this report was found to be below the state government salary by between 3 to 25% depending on the position as shown in Table E-1.
- On average, **local agency maintenance workers earn 22% (or \$9,519 annually) less than at a comparable state level position** as shown in Figure E-1. Local agency maintenance workers represent over a fifth of the local agency workforce.

- A significant proportion of the local road agency workforce is older (50+), with substantial retirements on the horizon and potential exacerbation of current workforce shortages.
- From 2021-2022, one-year retention across a sample of local agencies is estimated to be at 88%, below the preferred standard of 90% but higher than the national average retention rate.
- Local agency workforce salaries are lower than the average salaries identified by the Indiana Department of Workforce Development (DWD) which includes both public sector and private sector data for most job categories. The difference varies depending on the job category, and in some cases may be tens of thousands.

Table E-1. Comparison of Indiana Local Agency Salaries and Indiana State Government Salaries (including INDOT)

Job Category	Percent of Workforce	Local Ave	IN State Govt Ave	Difference	
Driver/Operator	45%	\$42,251 \$20.31/hr	\$46,800 \$22.50/hr	\$4,549	11%
Maintenance Worker	22%	\$41,987 \$20.19/hr	\$51,506 \$24.76/hr	\$9,519	23%
Foreman and Working Foreman	9%	\$51,267 \$24.65/hr	\$63,869 \$30.71/hr	\$12,602	25%
Mechanic	7%	\$45,808 \$22.02/hr	\$50,980 \$24.51/hr	\$5,172	11%
Clerical/Office/Admin Support	5%	\$39,599	\$44,252	\$4,653	12%
Mgr/Asst Super/Other Admin	4%	\$61,640	\$66,679	\$5,039	8%
Director/Superintendent	3%	\$68,763	\$76,265	\$7,502	11%
Technician	2%	\$53,547	\$55,096	\$1,549	3%
Head mechanic/Shop Foreman	1%	\$49,790	\$52,490	\$2,700	5%
Engineer	1%	\$79,413	\$81,530	\$2,117	3%
Engineer Administrator	1%	\$102,746	\$123,724	\$20,978	20%

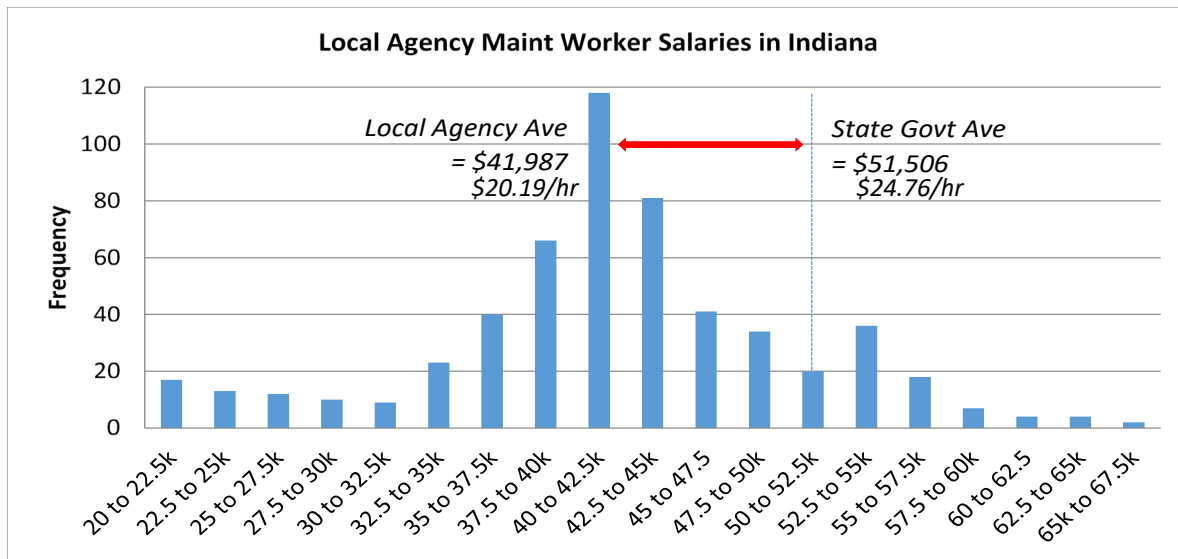


Figure E-1. Histogram of Local Agency Maintenance Worker Salaries in Indiana

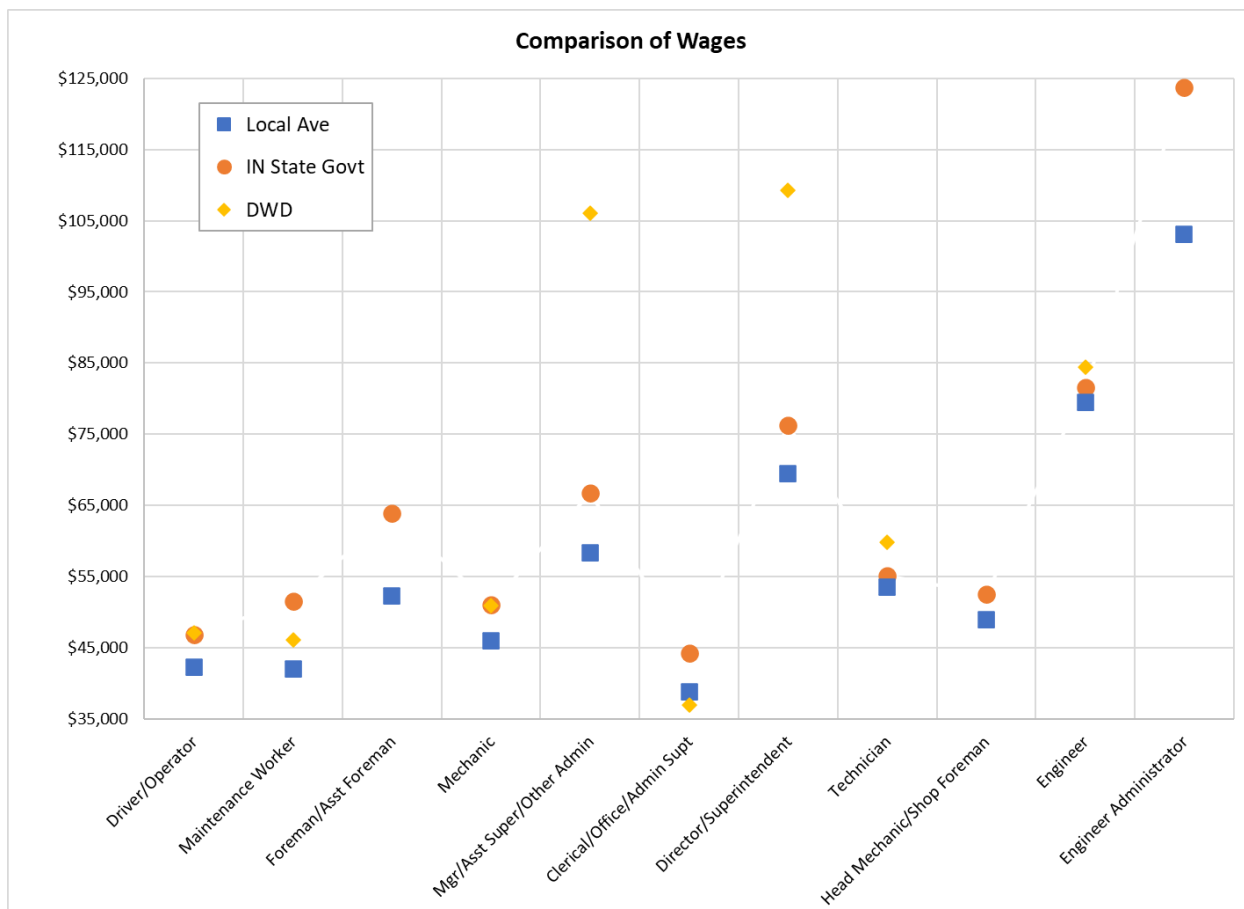


Figure E-2. Comparison of Local Agency Average Wages with State Government Wages and Wages per the Indiana Department of Workforce Development (DWD, includes private sector wages)

Recommendations

- Local road agencies should **work with public officials to increase resources** available to build competitive compensation packages to ensure proper staffing for continued access to safe, reliable roads.
- **Salary benchmarking** with both private and public sector positions should be used to improve the likelihood of recruitment of candidates and retention of current talent. Benchmarking should be accomplished periodically to maintain competitiveness in the labor market.
- **Employee engagement surveys** and programs should be developed to aid in retention problems related to issues beyond wages and benefits (i.e., workplace culture problems and supervisory issues).
- Local road agencies should focus on **developing a stronger recruiting pipeline** (i.e., built with local high schools, community colleges, and non-traditional populations) that will aid in bringing new talent to alleviate shortages and prepare for future retirements.

Chapter 1. Overview of Workforce Issues

Local transportation agencies in Indiana have been faced with workforce challenges due to a very competitive market for workers and changing labor force demographics. Requirements for diverse skill sets, along with a need for a commercial driver license (CDL), exacerbate the challenges for local agencies.

Local roads are essential to their communities and are critical to support economic activities at all levels. Local road personnel maintain roadways to ensure safety and mobility for the public and to ensure the provision of necessary goods.

This research will identify the current framework for the local transportation agency workforce and provide information to support local agency workforce development. Chapter 1 provides the context for local agency workforce issues by providing an overview of the literature related to workforce considerations, overviewing three topics of greatest interest to Indiana local agencies: compensation, recruitment, and retention. Chapter 2 shares success stories from local agencies in Indiana and information about Indiana LTAP resources. Many of these success stories provide useful strategies that may benefit other local agencies. Chapter 3 of the report provides the methodology used and Chapter 4 provides salary data for Indiana local agencies by worker category and by region. Chapter 5 provides recommendations and conclusions. The Appendices include background information (e.g., survey data) and additional information that may be useful (e.g., information about job descriptions, job specifications and job analysis).

Background

The roadway system in the US includes over 4 million miles of public roadways and 617,000 bridges (American Society of Civil Engineers (ASCE), 2021). These roads and bridges are critical for the mobility and welfare of individuals, communities and businesses, and roads are used to move 72% of the nation's goods (ASCE, 2021). Indiana has about 97,110 miles of public road (BTS, 2020 data) and 19,367 bridges (BTS, 2022 data); 11,200 of these centerline roadway miles and 5,700 of these bridges are maintained by the Indiana Department of Transportation (INDOT, n.d.). The remainder and majority of Indiana's roadway miles and bridges (an estimated 85,910 centerline miles and 13,667 bridges) are maintained by local agencies, including counties, cities, and towns.

The local agency transportation workforce and their duties have evolved significantly over time.

Local roads and bridges are often maintained by local agency employees, and in some cases, by contractors hired by the local agency. The local agency transportation workforce and their duties have evolved significantly over time. Ensuring a safe local transportation system and maintaining local roads is not constrained to shovels and trucks, it now encompasses advanced machinery and equipment, work management systems and software programs, advanced communications with teams and stakeholders, and improved materials, performance-based activities, and asset management (Bergner, 2019). In

addition to changes in the technical components of the job, the context for employees and their work has broadened to encompass more sophisticated safety and environmental considerations, and the regulations for work have expanded, and now include workplace conduct, drug testing and other policies and regulations (Bergner, 2019). Many of these changes have occurred as duties expanded and, in some cases, as staff levels have decreased.

National Workforce Trends

Almost 10% of the US workforce supports the transportation infrastructure (building, operating, and maintaining) which is essential to ensure supply chains, economic development, and personal mobility (Transportation Economic Trends 2019). A shortage of skilled laborers is always a challenge in the transportation and construction sectors, and this challenge was exacerbated by the pandemic and the ongoing labor repercussions after the pandemic (Azzez et al. 2019, Karimi et al. 2018).

One challenge in the transportation and local agency sector is aging workers. Numerous workers have recently retired or will retire soon.

Maintaining a dedicated workforce has become increasingly challenging due to demographic characteristics of the transportation sector and the local agency workforce. One challenge in the transportation and local agency sector is aging workers. Numerous workers have recently retired or will retire soon. The BLS reports that 1.7 million people working in infrastructure are expected to leave their jobs each year for the rest of the decade. This turnover reflects retirements since the workforce tends to be older (sometimes called the “silver tsunami”) as well as an increase in the number of workers leaving the sector; the number of workers leaving increased 20% in recent years (Murakami, 2022).

Maintaining the workforce has also been challenged by labor force changes since COVID-19. There have been significant worker shortages in all sectors. Many people have changed jobs and left the workforce, dubbed the *Great Resignation*, and workforce disruptions continue as employers face ongoing challenges not only with staffing but with worker productivity and *Quiet Quitting*.

The Great Resignation. This term was first used by Anthony Klotz of Texas A&M to describe the record 68.7 million Americans who quit their jobs in 2021, in the wake of the pandemic. Klotz attributes the Great Resignation to four primary factors:

- a backlog of workers who stayed at their job due to pandemic uncertainty;
- burnout;
- personal re-assessment of work and work life balance in the context of their priorities and values;
- and unwillingness to give up remote work when the pandemic was over (Kellet, 2022).

Klotz suggests organizations invest in their employees if they want to remain competitive. They should consider organizational culture and adopt employee friendly policies that align with this culture, such as flexible schedules, higher pay, better benefits for working parents, and an inclusive workplace. Klotz also recognizes that as organizations change to attract new workers, it is likely they may lose some existing workers, which is important to consider since turnover is contagious, and when one employee leaves, others start thinking about doing the same (Kellet, 2022).

Remote Work Challenges. Remote work is not suitable for all jobs, especially most local agency jobs. When it is feasible, it can create challenges. There are often challenges onboarding new employees, managing remote employees, supporting organizational culture, mentoring, and collaborating. Clear expectations may be harder to communicate and reinforce, as evidenced by the statistic that only four in 10 of remote or hybrid workers under 35 know what is expected of them at work. Engagement is especially low for younger workers (e.g., Gen Z and younger millennial workers) who are working remotely; these employees may not have mentors or connections with other workers and do not feel cared for in the workplace (O’Connell-Domenech, 2022). The decline in employee engagement also reflects a lack of clarity for work expectations and a lack of opportunities to learn and grow (O’Connell-Domenech, 2022).

Clear expectations may be harder to communicate and reinforce, as evidenced by the statistic that only four in 10 of remote or hybrid workers under 35 know what is expected of them at work.

Disengagement and positive culture can be challenging, even for in-person work. The number of young workers who feel like someone at work cares about them or encourages their development has dropped by 10%, and worker engagement began to drop off at the same time people chose to leave their jobs in the second half of 2021.

Quiet quitting. The term quiet quitting is used to describe people who continue to be employed but begin to disengage and reduce the time and effort put into their work. Workers set boundaries and do the minimum required work, refusing to take initiative or take on tasks that require extra effort. It may be the result of re-prioritizing work in the context of their life, burnout, dissatisfaction with work or a negative work environment. Quiet quitting may create more challenges for employers than actual quitting, as described by Kotz and Blino in HBR (2022). Quiet quitting reduces productivity, compromises workplace culture, and places additional burdens on workers who are not quiet quitting. Quiet quitting is an ongoing problem as actively disengaged workers increased to 18% and less than a third (32%) of workers consider themselves engaged (O’Connell-Domenech, 2022).

Quiet quitting reduces productivity, compromises workplace culture, and places additional burdens on workers who are not quiet quitting.

Most jobs are not completely defined through formal descriptions or contracts, and most organizations rely on adaptable employees who are willing to take on tasks that arise as needed. In a positive work culture, when employees take on these tasks, their initiative is rewarded with increased social capital, wellbeing, and career success. Quiet quitting may occur if employees feel like the balance has shifted and their employer is demanding extra work without investing in the employees or otherwise providing reciprocal benefits. Some experts suggest that quiet quitting may become increasingly prevalent as the economy softens and people are less inclined to leave their job. Another perspective is that as the economy softens and good jobs become scarcer, employees may be more attentive to ensure their continued employment.

Managers can counter quiet quitting by calibrating employee’s core job responsibilities to reflect the work that is necessary, identifying what work is extra, and motivating employees to perform their essential tasks at a high level, and give them space to ensure an appropriate work/life balance. In some

cases, quiet quitting evolved from a pandemic workload in which additional activities became and expected part of jobs. One poll in September 2022 reported that half of US workers said they are “quiet quitting” and do not take on tasks that are above and beyond their required duties (O’Connell-Domenech, 2022).

Workforce by the Numbers. As can be seen in Figure 1, the labor force dropped significantly in 2020 and is not expected to return to previous levels until after 2026. This is partly due to the population trends, with reduced population growth as seen in Figure 2 and workforce participation rates decreasing overall and for the age group from 35 to 54, as shown in Figure 3.

Only 11% of infrastructure workers are less than 25 years old.

In recent years it has been increasingly hard to recruit young people to infrastructure jobs and only 11% of infrastructure workers are less than 25 years old (Murakami, 2022). The infrastructure workforce also has fewer women and fewer minorities than other professions, which may present challenges as the overall workforce becomes increasingly diverse.

The workforce is one of the most important components of any transportation infrastructure project (Pamidimukkala et al, 2021; Halpin et al, 2017; Sing et al, 2016) and one of the most important assets of a local road agency. Local agency personnel provide human capital to execute maintenance activities in the field, maintain vehicles and equipment, provide technical expertise, and administrative and managerial support.

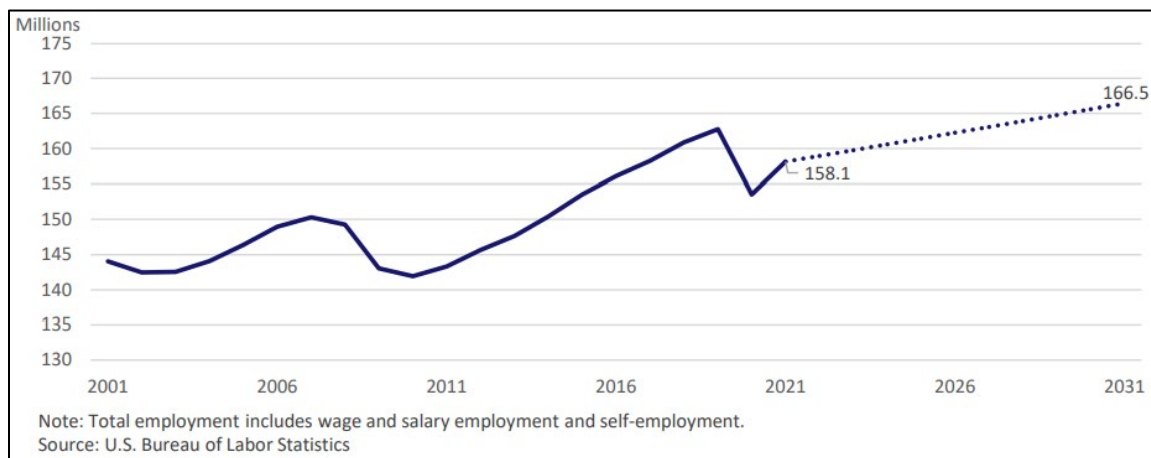


Figure 1. Total Employment (Source: BLS, 2022 Sept 8)

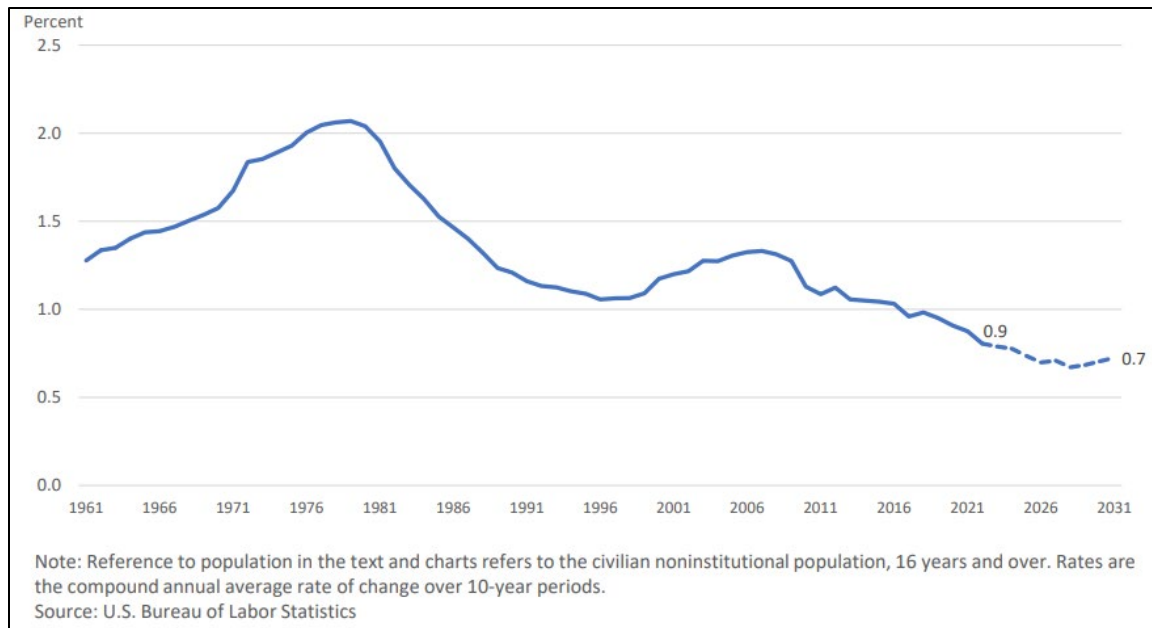


Figure 2. Population Trend, 10-year Compound Annual Average Rate of Change (Source: BLS, 2022 Sept 8)

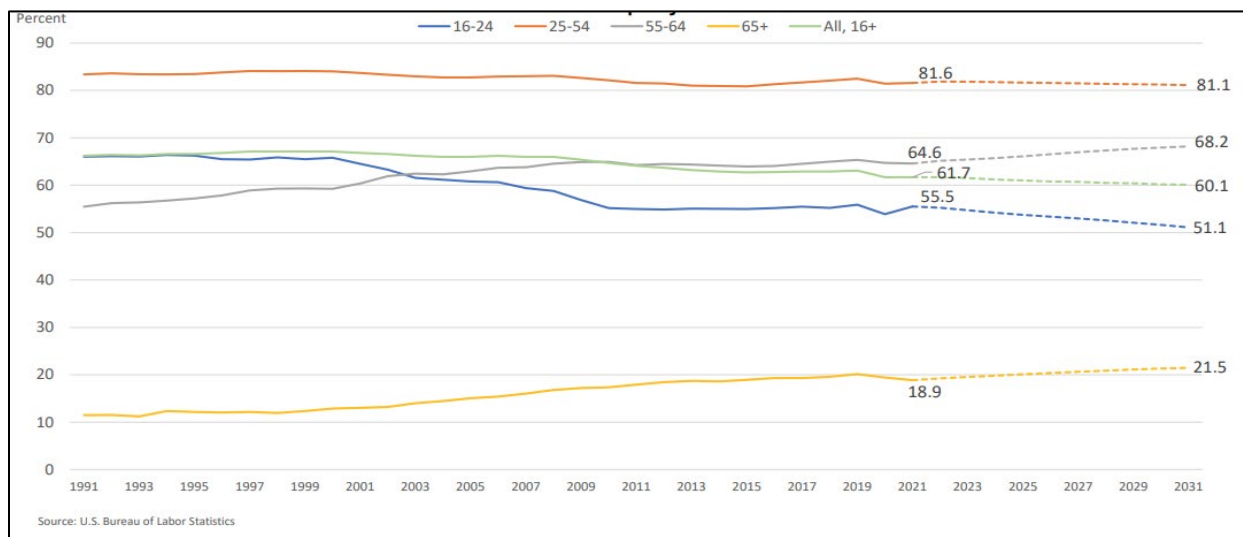


Figure 3. Labor Participation Rate by Age Group (Source: BLS, 2022 Sept 8)

Workforce issues have come to the forefront in recent years due to a variety of challenges. One catalyst for workforce challenges was the pandemic, when communities were challenged by stay-at-home orders, concerns about health and welfare for employees and their families, transitions to remote work for some employees, and disruption from school and childcare closures for parents. While workers in some sectors stayed home and/or worked remotely, most local agency road workers were deemed essential workers, and they continued to come to work despite the challenges and uncertainty.

As the immediate concerns of the pandemic eased and stay-at-home orders were lifted, workplace challenges changed to reflect vaccine mandates and worker shortages in many sectors. Local agencies faced increasing competition from the private sector (and in some cases, from local and government agencies in other jurisdictions) for skilled labor, including employees with a Commercial Driver License (CDL) and other valuable skills. In many cases, salaries in the private sector increased, making it more difficult for the public sector to compete.

Wages Can't Keep Up with Inflation. Although wages for some workers have increased, for most workers the value of their wages has decreased due to rising inflation, especially after mid-2020 (Spencer, 2022). This trend can be seen by the data in Figure 4, which reflects employer compensation costs. This trend is exacerbated when the rising cost of benefits is considered. In December 2022, wages represented 62% of total compensation (BLS, 2023 Mar 17), whereas 25 years ago, wages represented over 70% of compensation, and in 1968, wages represented over 80% of compensation. As employer costs shift from wages to benefits, and as inflation decreases the buying power of wages, real employee wages have not increased despite increases in wage rates.

For local public agency employees, it is practically impossible for wages to keep up with inflation since wage increases are typically given on an annual basis, and are often 2 to 3 percent a year, at best.

Many current wage issues are due to inflation. The consumer price index (CPI), a standard measure of inflation, rose 7.7% in October 2022 whereas average hourly earnings rose only 4.7% in the same month (Zinkula, 2022). The CPI reached a high of 9.1% in June 2022 and has been at least 5% for over a year and a half (Zinkula and Hoff, 2022); high rates like this had not been seen since the late 1970s and early 1980s. For local public agency employees, it is practically impossible for wages to keep up with inflation since wage increases are typically given on an annual basis, and are often 2 to 3 percent a year, at best.

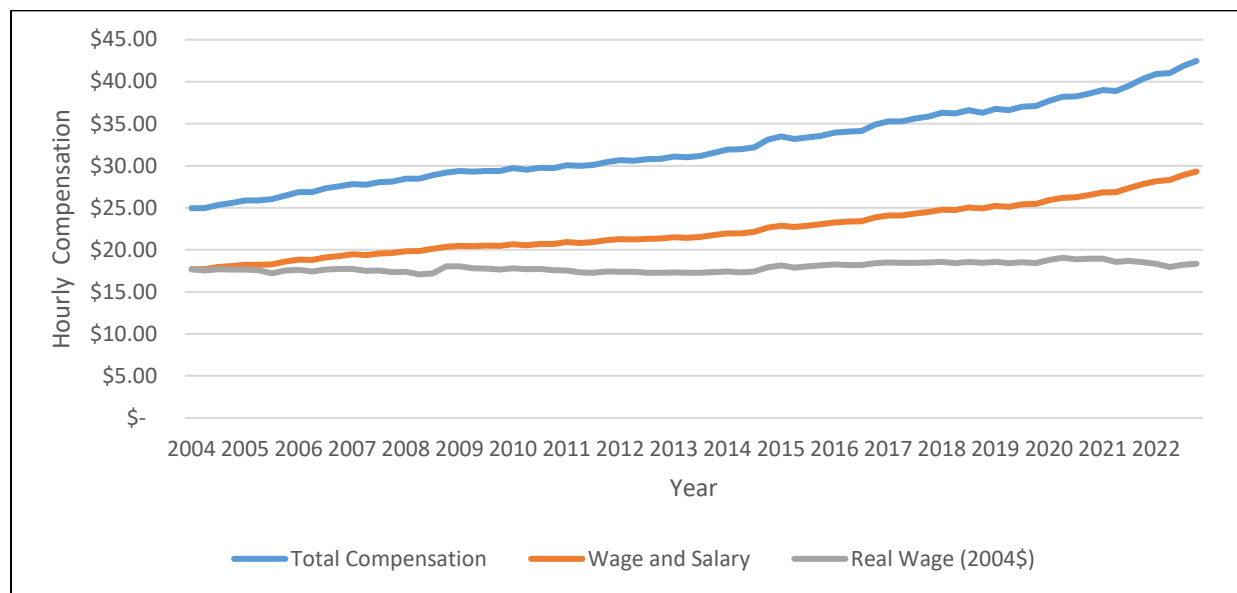


Figure 4. Average Total Compensation, Wages and Salary, and Real Wages in the US

Wages are especially challenging since cities and counties are also facing budgetary issues due to rising costs associated with inflation.

"Wage growth has not been beating inflation. So if anything, wage growth is actually pulling down on inflation," according to economist Elise Gould. Most of the wage growth has been realized by the top earners while pay for the average worker has fallen behind rising costs for healthcare, housing and food (Zinkula and Hoff, 2022).

Indiana Workforce Information

Indiana has faced the same challenges that have been faced across the country, in terms of an inadequate supply of workers in the transportation and construction sectors. Previous research sponsored by the Indiana DOT (INDOT) and published by the Joint Transportation Research Program (JTRP) in 2020 provides an overview of the transportation workforce in Indiana (Kumar et al, 2020). This research provides a discussion of jobs in the highway, street and bridge construction industries based on the North American Industry Classification System (NAICS) category 237310. NAICS 237310 is part of NAICS 237000 Heavy and Civil Engineering Construction. The NAICS was developed in 1997 and is used by federal agencies such as the Bureau of Labor Statistics to provide a standard way to analyze and present data about jobs. The NAICS is used by the US, as well as Canada and Mexico. NAICS 237310 includes jobs in the Highway, Street, and Bridge Construction sector. Although there were revisions for content and coding beginning with NAICS 2022 (this affects Current Employment Statistics (CES)); these changes should not affect the jobs in the transportation maintenance and construction sectors (BLS, 2022 Nov 4) and primarily affects the retail trade and information sectors. A description and example category titles for NAICS Code 23710 is shown in Table 1.

Table 1. NAICS Code 23710. Description and Example Titles

NAICS Code 23710: Highway, Street and Bridge Construction (Construction Sector 23)	Example Titles
Description: This industry comprises establishments primarily engaged in the construction of highways (including elevated), streets, roads, airport runways, public sidewalks, or bridges. The work performed may include new work, reconstruction, rehabilitation, and repairs. Specialty trade contractors are included in this industry if they are engaged in activities primarily related to highway, street, and bridge construction (e.g., installing guardrails on highways).	Asphalt paving (i.e., highway road, street, public sidewalk)
	Concrete paving (e.g., highway road, street, public sidewalk)
	Culverts, highway, road and street, construction
	Grading, highway, road, street and airport runway
	Guardrail construction
	Highway line painting
	Pothole filling, highway road, street or bridge
	Repair, highway, road, street, bridge or airport runway
	Tarring roads
	Traffic lane painting

The INDOT research includes a brief report (6 pages) and a website and dashboard that presents associated data, available at <https://storymaps.arcgis.com/stories/674afba92eb0440299ddd96384c8be39> (some website features require ArcGIS Online to access). The dashboard presents data and a report for the entire state and for each of the six INDOT districts: LaPorte (northwest), Fort Wayne (northeast), Crawfordsville (west central), Greenfield (east central), Vincennes (southwest), and Seymour (southeast). Each district report includes district information (cities and counties), the top ten 237310 category occupations in the district (e.g., construction laborers, operating engineers, truck drivers, highway maintenance workers, construction managers, office clerks), median hourly earnings for each category based on 2018 data, typical education and on-the-job training requirements for each category, and industry data for construction firms in the district (number and size of employers).

Half of the Indiana road construction sector is aged 35 to 54, over 20% are 55 or older, 90% are male, and 92% are white.

As shown in Figure 5 and according to this data, half of the Indiana road construction sector is aged 35 to 54, over 20% are 55 or older, 90% are male, and 92% are white. Characteristics of each INDOT district are shown in Figures 6 through 11. The maps show circles that represent businesses that employ workers in the Highway, Street and Bridge Construction industry (NAICS 237710). The smallest circles are yellow and represent businesses with one employee (stage 0), the small green circles represent businesses with 2 to 9 employees (stage 1), the orange circles represent businesses with 10 to 99 employees (stage 2), the larger pink circles represent businesses with 100 to 499 employees (stage3). These categories reflect the maturity and size of the business and are based on categorization developed by Edward Lowe. Lowe's work also identified stage 5 businesses with 500 or more employees, but there are no stage 5 businesses identified in this sector in Indiana (as referenced by St. Germain et al, 2020).

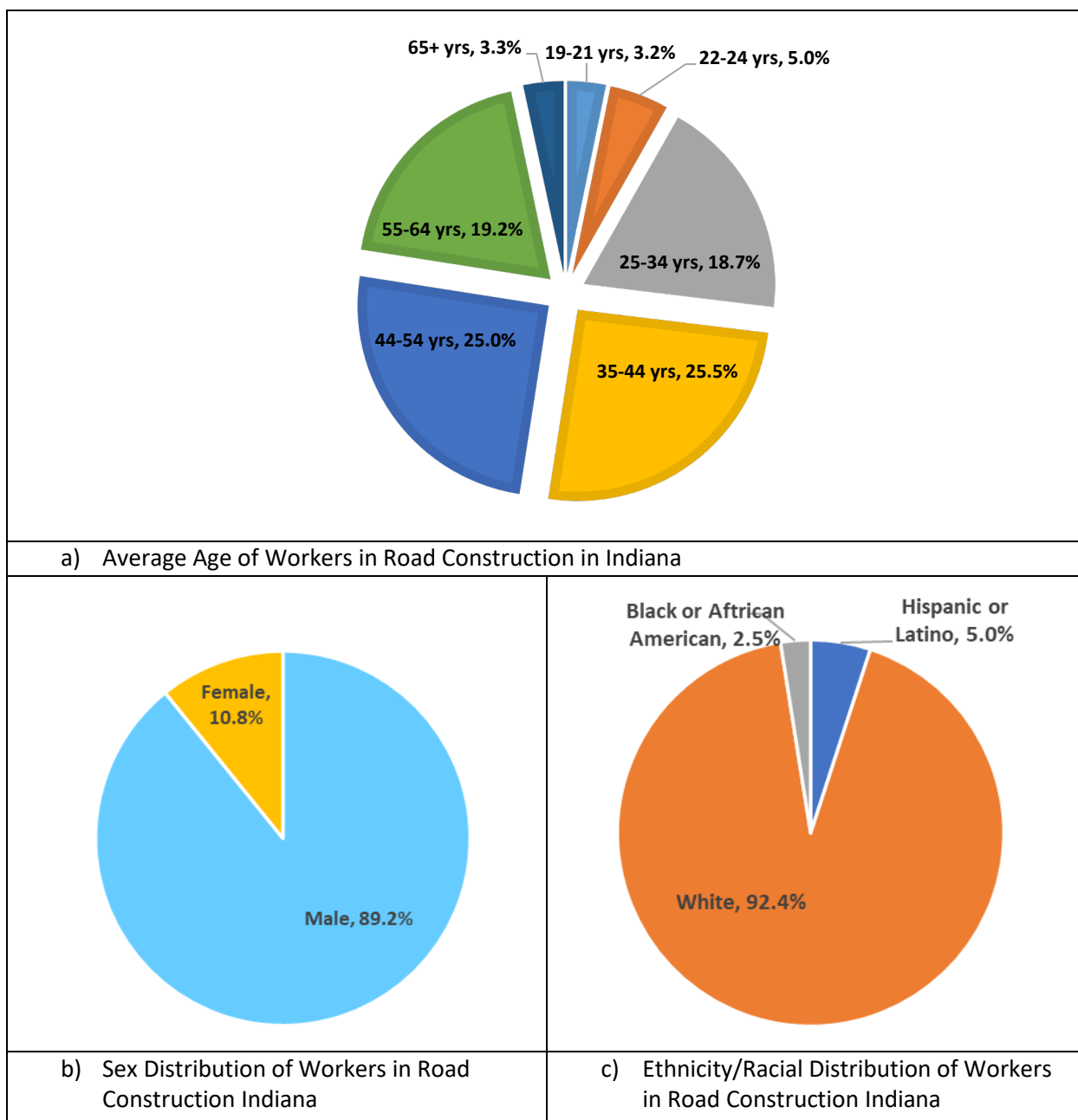
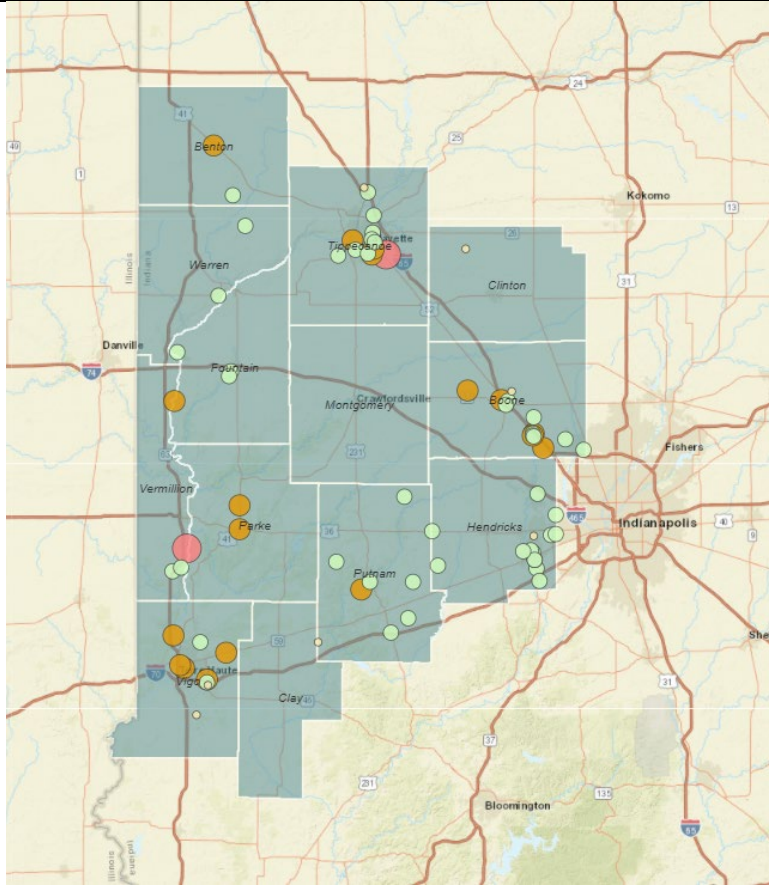
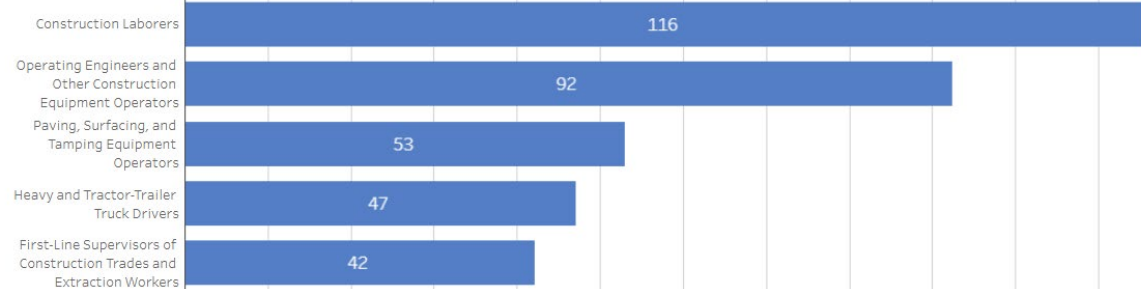


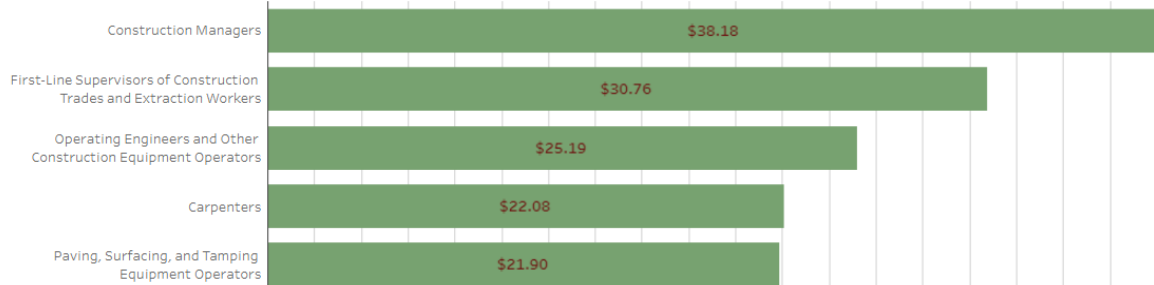
Figure 5. Characteristics of Indiana Highway Construction Workforce (Source: SPR 4446, St. Germain et al, 2020)



a) Crawfordsville District: 73 organizations provide 988 jobs in the Highway, Street and Bridge Construction industry (NAICS 237710).

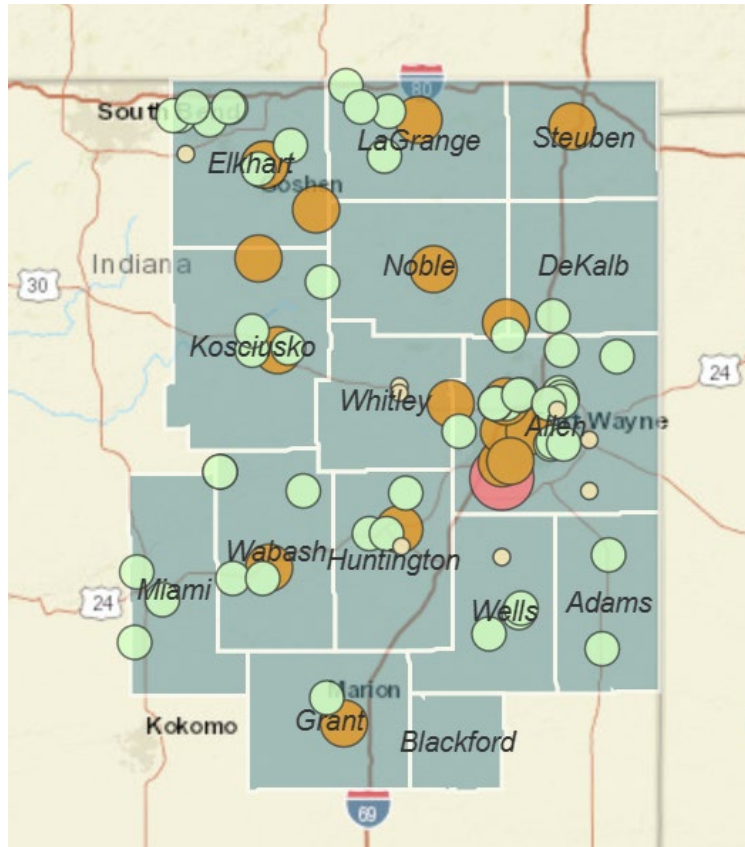


b) Top Occupations in the Crawfordsville District

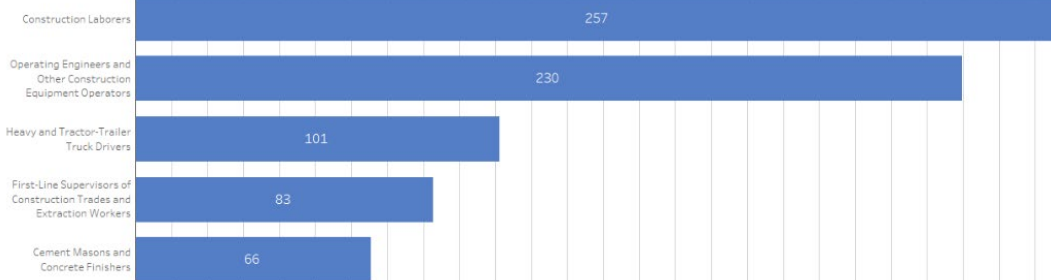


c) Median Hourly Earnings in the Crawfordsville District

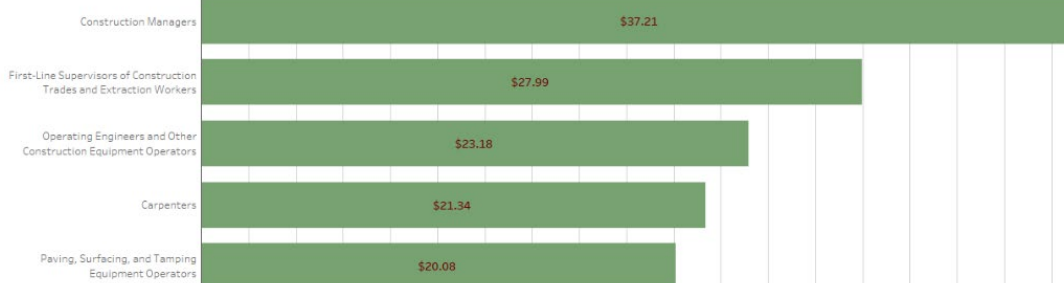
Figure 6. Crawfordsville District Data (Source: SPR 4446, St. Germain et al, 2020)



a) Fort Wayne District: 81 organizations provide 1,697 jobs in the Highway, Street and Bridge Construction industry (NAICS 237710).

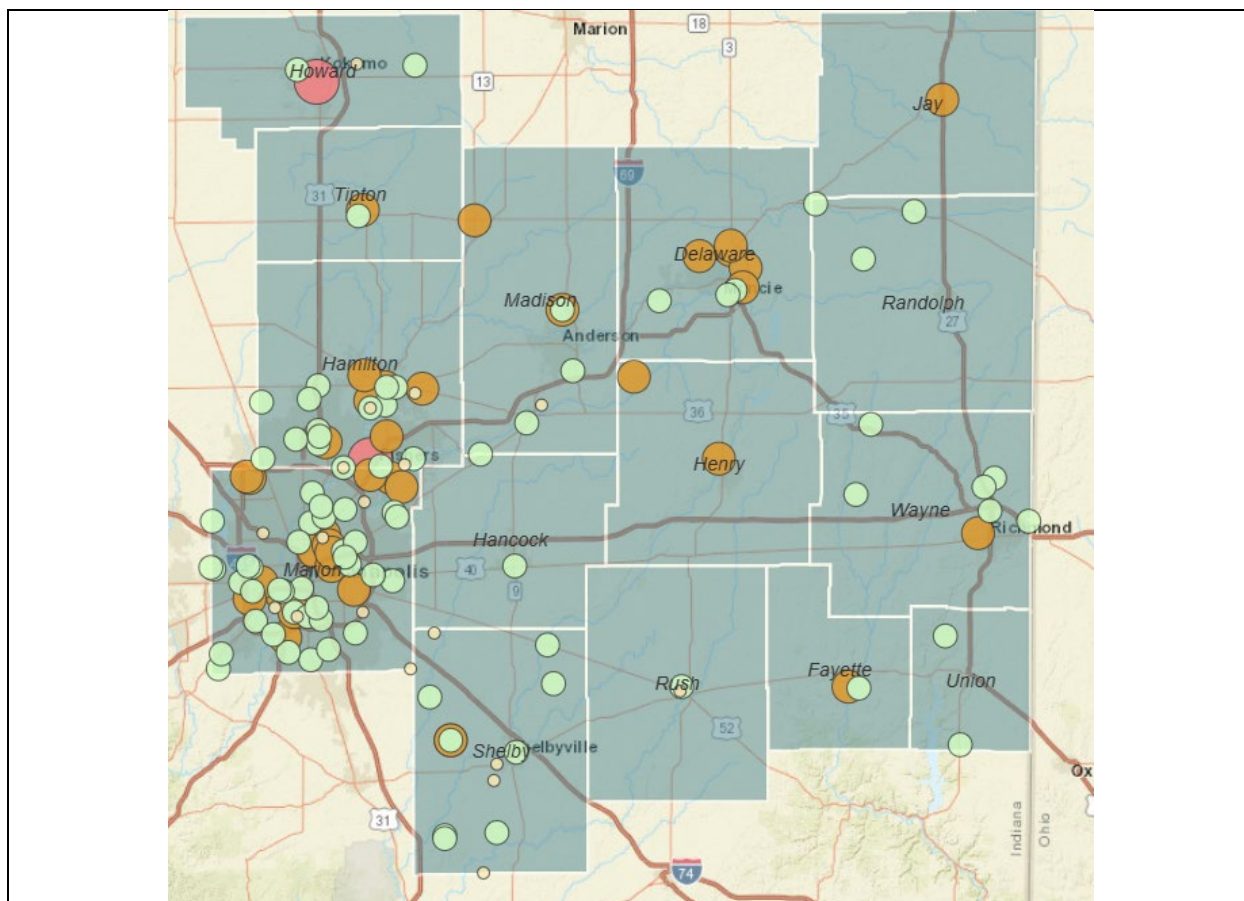


b) Top Occupations in the Fort Wayne District

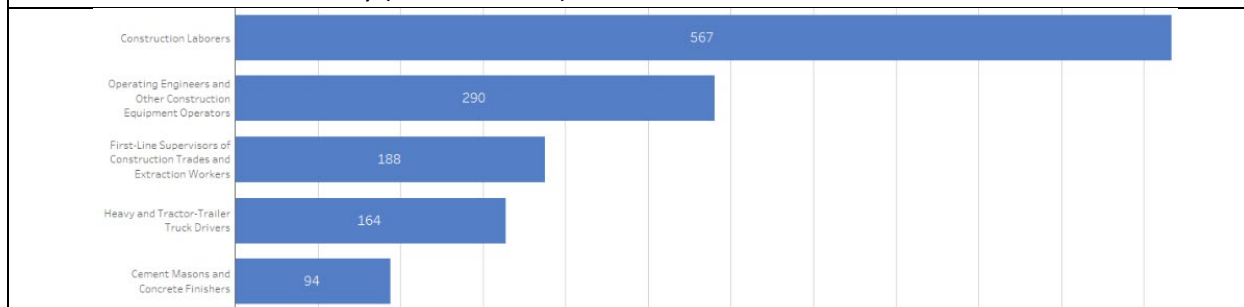


c) Median Hourly Earnings in the Fort Wayne District

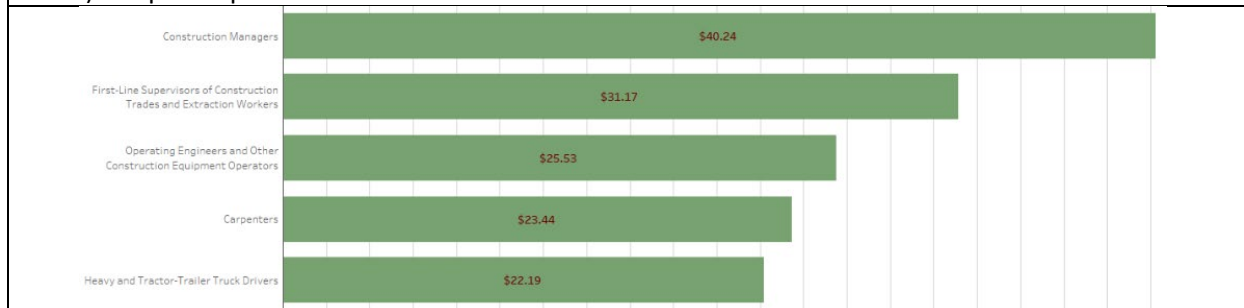
Figure 7. Fort Wayne District Data (Source: SPR 4446, St. Germain et al, 2020)



a) Greenfield District: 142 organizations provide 1,743 jobs in the Highway, Street and Bridge Construction industry (NAICS 237710).

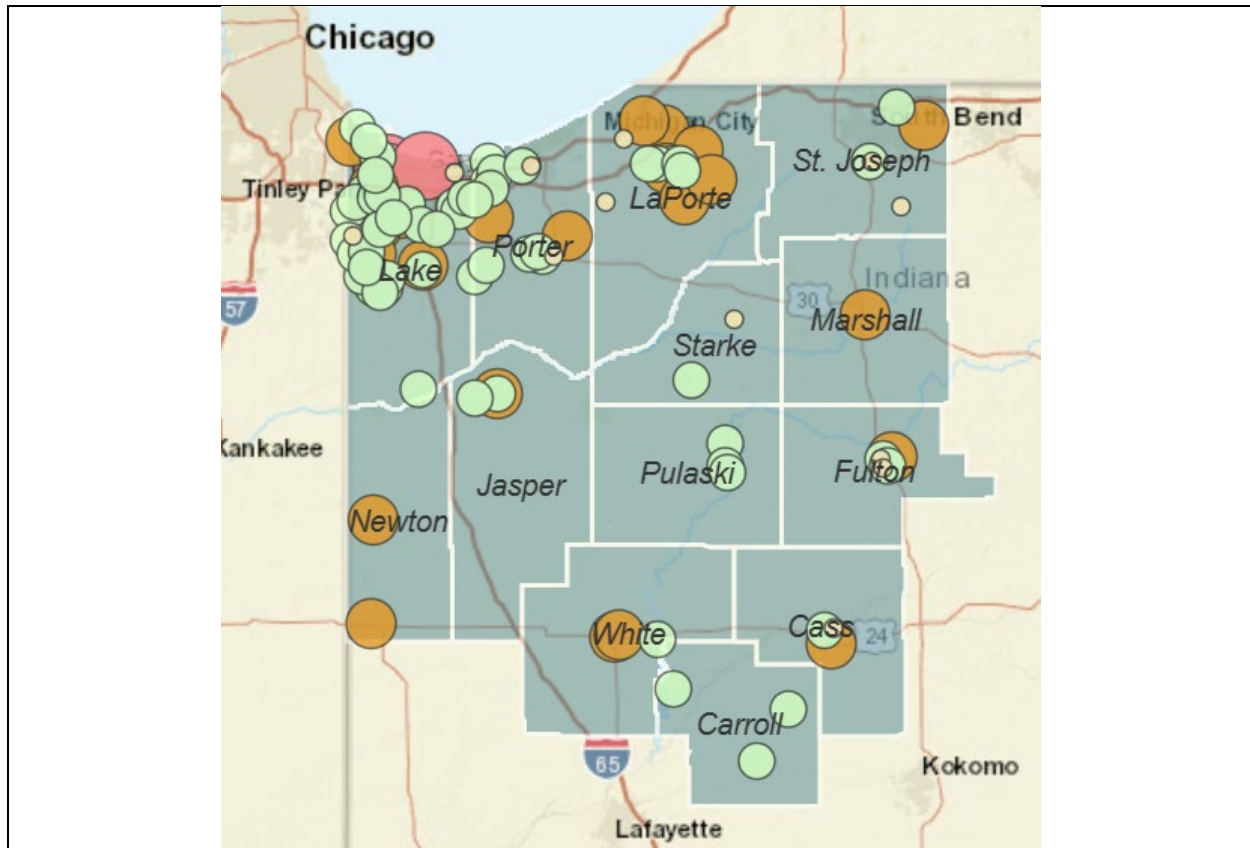


b) Top Occupations in the Greenfield District

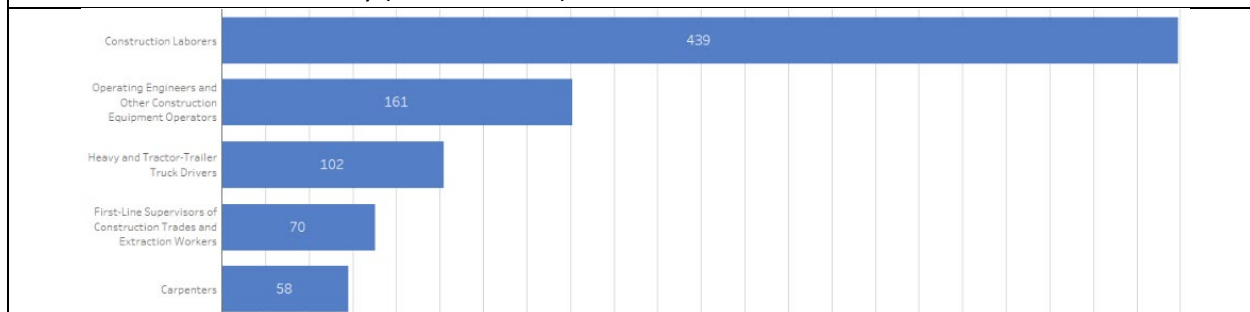


c) Median Hourly Earnings in the Greenfield District

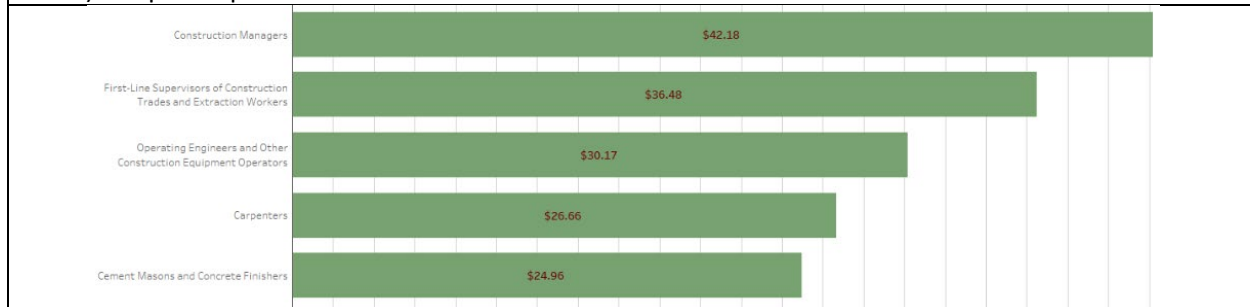
Figure 8. Greenfield District Data (Source: SPR 4446, St. Germain et al, 2020)



a) LaPorte District: 98 organizations provide 1,195 jobs in the Highway, Street and Bridge Construction industry (NAICS 237710).

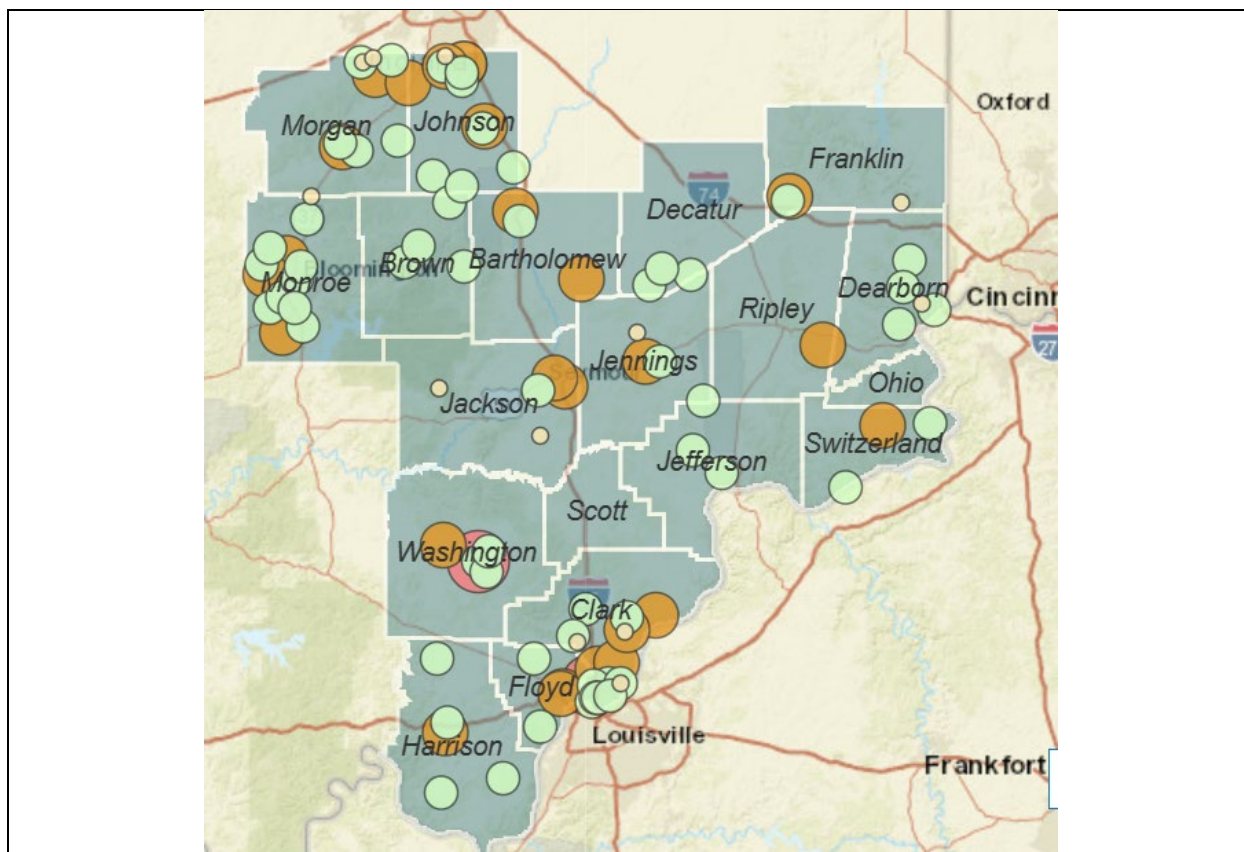


b) Top Occupations in the LaPorte District

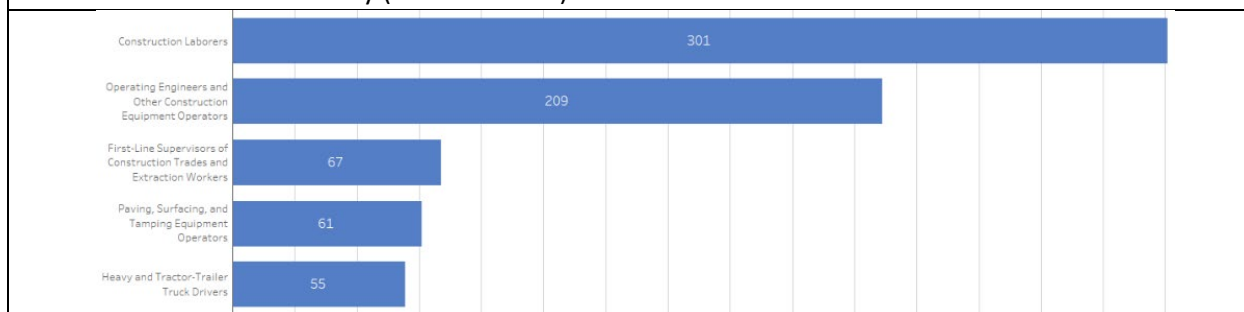


c) Median Hourly Earnings in the LaPorte District

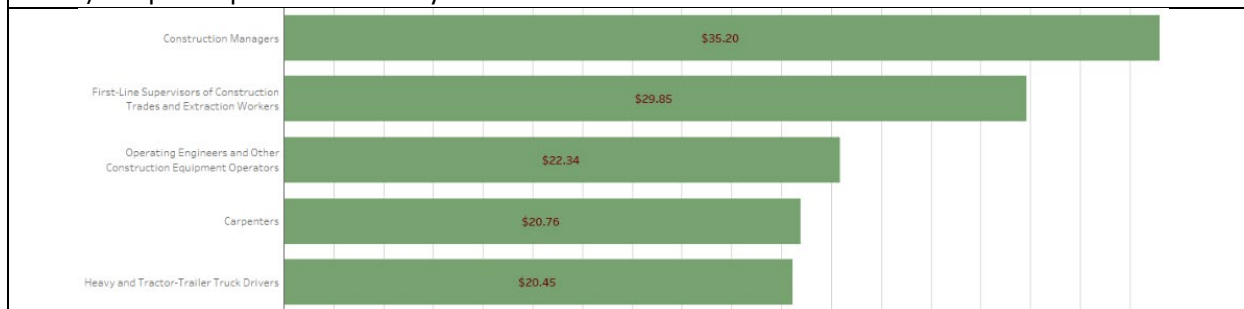
Figure 9. LaPorte District Data (Source: SPR 4446, St. Germain et al, 2020)



a) Seymour District: 101 organizations provide 1,118 jobs in the Highway, Street and Bridge Construction industry (NAICS 237710).

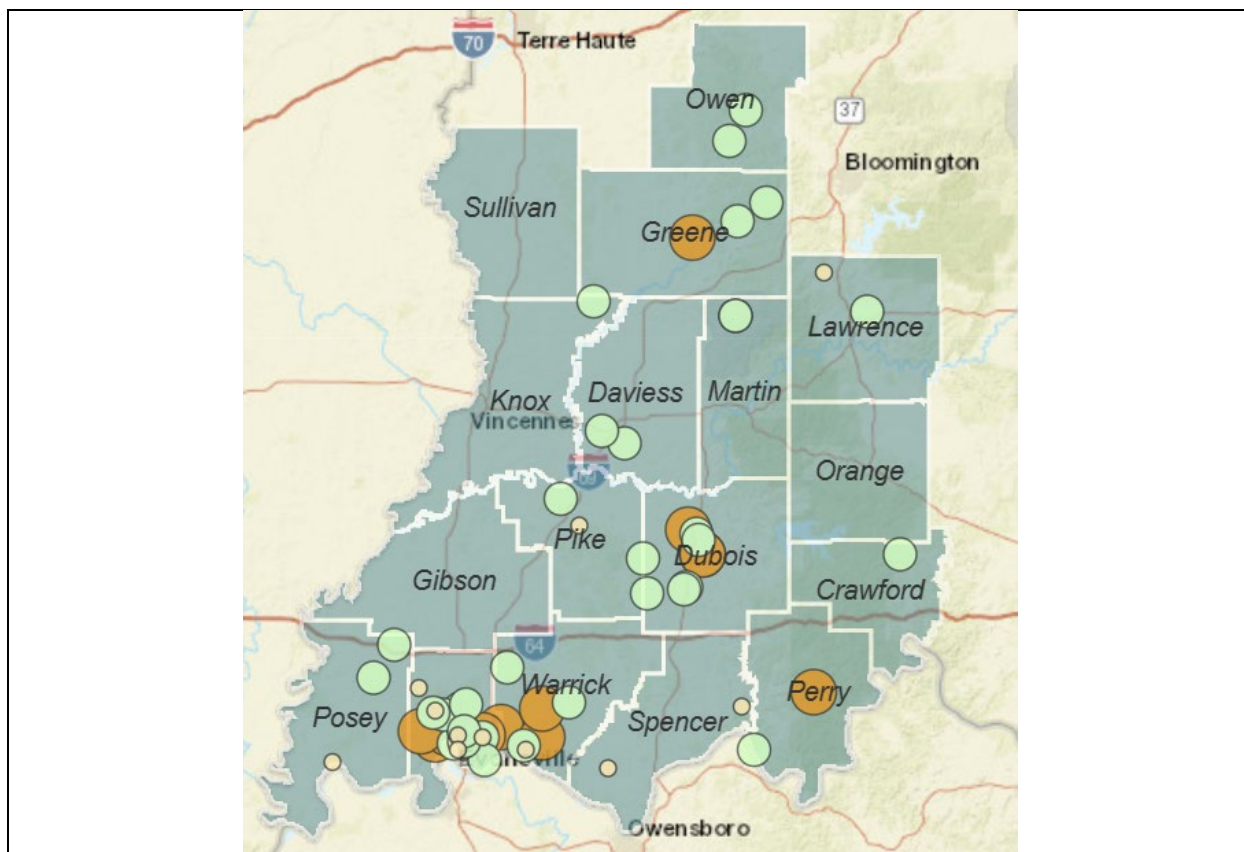


b) Top Occupations in the Seymour District

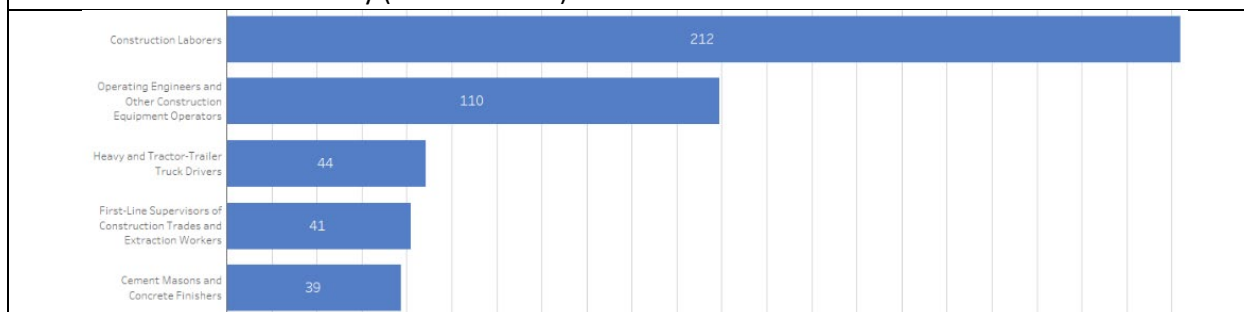


c) Median Hourly Earnings in the Seymour District

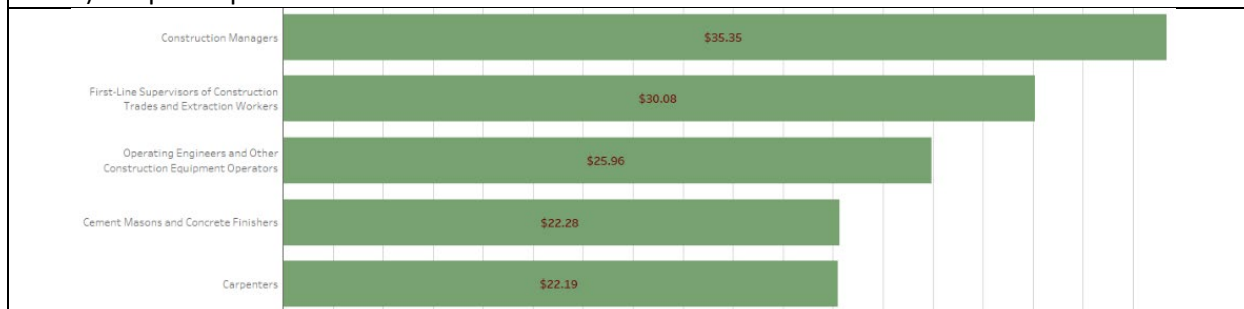
Figure 10 Seymour District Data (Source: SPR 4446, St. Germain et al, 2020)



a) Vincennes District: 60 organizations provide 3,333 jobs in the Highway, Street and Bridge Construction industry (NAICS 237710).



b) Top Occupations in the Vincennes District



c) Median Hourly Earnings in the Vincennes District

Figure 11. Vincennes District Data (Source: SPR 4446, St. Germain et al, 2020)

Compensation

This section contains a broad overview of compensation information. More detailed salary information for Indiana is provided in [Chapter 4. Indiana Local Agency Salary Data](#). Worker compensation includes wages and salary, overtime pay (if applicable), and benefits. Benefits reflect policies for paid time off, sick leave, health care benefits for the employee and their family, disability, life insurance and retirement. When considering benefits for Indiana workers in the public sector, the Public Employees' Retirement Fund (PERF) is managed by the Indiana Public Retirement System (INPRS) and there are two plans, the PERF Hybrid Plan (defined contributions and defined benefits with vesting after 10 years) and the My Choice (retirement savings plan with full vesting after 5 years); the Hybrid Plan is available to all employees and the PERF My Choice plan is only available to new employees (INPRS, 2023).

Eligibility to make a PERF plan election is by employer. If an employee leaves the public sector and then returns to the same employer, the participation election stays the same. If the employee begins with a new employer, the employee may make a new election with the new employer if the new employer offers both PERF Hybrid and PERF MyChoice. Each local agency employer will designate which plan an employee will participate in by default if the employee does not make an election within 60 days of the date of hire. Questions about the plans can be addressed online at <https://www.in.gov/inprs/> or by contacting INPRS at 1-888-876-2707.

Often the most prominent feature of compensation is wage and salary, which represents 62% of employer costs; benefits reflect the remaining 38% of employer costs (based on national statistics provided by the Bureau of Labor Statistics (BLS, 2023 Mar 17). The term wage is often used to reflect the hourly pay for an employee, and the term salary often reflects annual pay. For some discussions, the terms have implications regarding whether an employee is paid mandatory overtime; salaried employees often are not eligible for overtime pay and are not required to be paid overtime in accordance with federal law (for overtime strategies used by one local agency in Indiana, see Appendix E). These distinctions are beyond the scope of this report. In some cases, wage refers to hourly pay and salary refers to annual pay, but generally these terms are used interchangeably to reflect worker pay in this report. This reflects the BLS practice of combining both and referring to this pay as “wages and salaries.” This report follows the BLS convention of translating wage into salary by multiplying wage by 40 hours per week and 52 weeks per year. A breakdown of the costs for different components of compensation is shown in Tables 3 and 4.

Many of the local road agency positions in Indiana can be broadly grouped into the BLS category of U.S. Highway Maintenance Workers (BLS 47-4051). For the workers in the lower wage levels (10% and 25% wage) the wages are above the average wage for all U.S. workers as shown in Table 2. Most of these workers do not have a college degree: 65% having a high school diploma or less compared with the general workforce of 31.6%. This indicates that the position of a highway maintenance worker provides an above average salary for workers without a college degree. Highway maintenance salaries are strong compared to other professions that do not require a college degree. The potential for salary growth may be somewhat limited for highway maintenance workers. The average and median salaries for highway maintenance workers are lower than the average and median salaries for all workers. For all US workers, the average salary (aka mean salary) is 34% greater than the median salary. This reflects that fact that salaries for all US workers are skewed to the right, because salaries for the top US earners is many times higher than the salaries for average US workers.

In Indiana, the average salary for local road employees may be lower than the average salary for a similar job in the private sector, however, nationwide, the average salary for state and local and government employees is higher than the average salary for the private sector, as shown in Table 3.

Comparisons between government and private sector averages may be interesting to understand how important benefits are to total compensation. Although, comparisons of salaries for state and local agencies and the private sector are of limited value when investigating local road agencies. The overall mix of employees and skills in the private sector is not the same as the mix of employees and skills in the public sector for state and local governments. White-collar occupations in professional specialty and technical occupations are more common in state and local governments and historically have comprised over 40% of employment in state and local jobs but only about 12.5% of private jobs (Schwenk, 1999). For example, the public sector includes public universities which have numerous jobs that require a master's or PhD degree; there are not as many jobs that require a master's or PhD degree in the private sector. Comparisons are further limited when state and local government jobs are combined by BLS.

When comparing jobs in local agencies with the private sector, it is important to ensure the value of the benefits are understood and communicated to current and prospective employees.

Nonetheless, Tables 3 and 4 are interesting because they provide insight regarding the contribution of compensation elements beyond wages and salaries to total benefits. At the national level, government employee benefits are almost twice as high as benefits in the private sector (\$21.91 in the public sector vs. \$11.86 in the private sector). The employer contribution for local and state government workers is significantly higher than in the private sector: for insurance, it is more than twice as high (\$6.52 in the public sector vs. \$3 in the private sector) and for retirement and savings, it is more than five times as high as the employer contribution in the private sector (\$7.48 in the public sector vs. \$1.36 in the private sector). When comparing jobs in local agencies with the private sector, it is important to ensure the value of the benefits are understood and communicated to current and prospective employees.

Table 4 provides wage and salary information for the Midwest and by occupational and industry group. This information is only available for the private sector since the employment categories provided by BLS do not adequately represent the predominant workers at local road agencies. The BLS categories include teachers, sales, service, health care and public administration; there are no categories for drivers, operators, maintenance workers or constructors.

The regional data in Table 4 indicates that the total compensation for the private sector in the Midwest region in which Indiana resides is slightly higher than the national average for the private sector (\$40.82 for the Midwest vs. \$40.23 for the nation); the wages and salaries in the Midwest region are slightly lower than the national average (\$28.08 for the Midwest vs. \$28.37 for the nation), however, the total benefits are higher in the Midwest region (\$12.75 for the Midwest vs. \$11.86 for the nation). The total compensation for Construction, Extraction, Farming, Fishing and Forestry in the occupational group Natural Resources Construction and Maintenance (\$42.47) is similar to the total compensation for the Industry and Occupational Group Construction (\$43.58).

In some local agencies, the workforce is unionized, and the wages and benefits are defined by the collective bargaining agreement. The workers in most local agencies are not union members (exceptions include Lake County, in northwest Indiana near Chicago, and Monroe County, home to

Bloomington, Indiana, in southcentral Indiana, both of which are unionized). In some counties, employees from some offices are unionized (for example, in Marion County, employees in the Clerk, Auditor, Assessor and Surveyor offices are unionized). In the US overall, 10.3% of all workers are union members; 12.6% of workers in construction are union members, and 14.7% in transportation and warehousing workers are union members (Brookings analysis of BLS unionization data in Kane, 2022). At the national level, union membership correlates with increased wages in all of these sectors.

Competition for hiring workers can occur between many entities including public and private sectors, within public sectors (e.g., INDOT), and between the states. Table 5 provides information on salaries for highway maintenance workers in the neighboring states to Indiana from the BLS data set 47-4051. For the surrounding states, Indiana salaries for maintenance workers are lower than all the states except for Kentucky. The largest difference is with Illinois, however, the Chicago metro region may tend to skew these salaries because of a higher cost of living and tendency to be more unionized. Within the state of Indiana there is also differences for the various regions. Table 6. Provides general wage and salary data for cities within the State. Additional information based on Economic Growth Regions (EGR) is provided in [Chapter 4](#).

Table 2. Characteristics of US Highway Maintenance Workers (Source: BLS (2023, April 25a) data for May 2022; Education data from (Kane, 2022) for infrastructure workers).

	All US Workers	US Highway Maintenance Workers
Number of Workers	147,886,000	143,330
Education: Percent of Workers with HS diploma or less	32%	54% ¹
10% salary	\$27,340	\$29,940
25% salary	\$33,330	\$36,640
Median salary	\$46,300	\$44,930
Mean salary	\$61,900	\$45,790

Table 3. Compensation in Private Sector Compared to State and Local Government Sector (Wages and Benefits) (Source: BLS)

	Private Industry ¹		State and Local Govt ¹	
	Cost (\$)	Percent of compensation	Cost (\$)	Percent of compensation
Total compensation²	40.23	100	57.6	100
Wages and salaries	28.37	70.5	35.69	62
Total benefits	11.86	29.5	21.91	38
Paid leave	3.01	7.5	4.23	7.3
Vacation	1.54	3.8	1.58	2.7
Holiday	0.89	2.2	1.21	2.1
Sick	0.41	1	1.09	1.9
Personal	0.16	0.4	0.34	0.6
Supplemental pay	1.49	3.7	0.56	1
Overtime and premium ³	0.39	1	0.25	0.4
Shift differentials	0.07	0.2	0.05	0.1
Nonproduction bonuses	1.03	2.6	0.26	0.5
Insurance	3	7.4	6.52	11.3
Life	0.04	0.1	0.08	0.1
Health	2.82	7	6.36	11
Short-term disability	0.09	0.2	0.03	0.1
Long-term disability	0.05	0.1	0.05	0.1
Retirement and savings	1.36	3.4	7.48	13
Defined benefit	0.41	1	6.98	12.1
Defined contribution	0.95	2.4	0.51	0.9
Legally Required benefits	3.01	7.5	3.12	5.4
Social Security and Medicare	2.39	5.9	2.45	4.3
Social Security ⁴	1.91	4.8	1.87	3.2
Medicare	0.47	1.2	0.59	1
Federal unemployment insurance	0.03	0.1	(5)	(6)
State unemployment insurance	0.15	0.4	0.07	0.1
Workers' compensation	0.45	1.1	0.59	1

¹ Includes workers in the private nonfarm economy except those in private households, and workers in the public sector, except the federal government.

² Includes costs for wages and salaries and benefits.

³ Includes premium pay for work (such as overtime, weekends, and holidays) in addition to the regular work schedule.

⁴ Social Security refers to the Old-Age, Survivors, and Disability Insurance (OASDI) program.

⁵ Cost per hour worked is \$0.01 or less.

⁶ Less than 0.05 percent.

Table 4. Comparison of Compensation by Region and Sector (Source: BLS).

	Total Compensation		Wages and Salaries		Total Benefits		Paid Leave		Supplemental Pay		Insurance		Retirement and Savings		Legally required benefits	
	Cost (\$)	%	Cost (\$)	%	Cost (\$)	%	Cost (\$)	%	Cost (\$)	%	Cost (\$)	%	Cost (\$)	%	Cost (\$)	%
Public Sector																
State and local government workers (national)	57.6	100	35.69	62	21.91	38	4.23	7.3	0.56	1	6.52	11.3	7.48	13	3.12	5.4
Private Sector																
National average all sectors	40.23	100	28.37	70.5	11.86	29.5	3.01	7.5	1.49	3.7	3	7.4	1.36	3.4	3.01	7.5
Private Industry Midwest Region East North Central (IN, IL, MI, OH, WI) (regional private)	40.82	100	28.08	68.8	12.75	31.2	3.03	7.4	1.81	4.4	3.35	8.2	1.64	4	2.92	7.2
Occupational Group: Natural Resources, Construction and Maintenance Construction, extraction, farming, fishing, and forestry (national private)	42.47	100	28.75	67.7	13.72	32.3	1.7	4	1.69	4	3.41	8	2.89	6.8	4.03	9.5
Industry and Occupational Group: Construction Industry (national private)	43.58	100	30.51	70	13.07	30	2.03	4.6	1.63	3.7	3.19	7.3	2.24	5.1	3.99	9.2

Table 5. Salary Information for Highway Maintenance Workers (BLS 47-4051)

	Employment		Median		75 th percentile		90 th percentile	
	2021	2022	2021	2022	2021	2022	2021	2022
US	141,150	143,330	\$45,880	\$44,930	\$48,500	\$52,400	\$60,970	\$63,440
State								
Indiana	4,390	4,080	\$41,610	\$44,330	\$47,880	\$48,260	\$56,110	\$55,450
Michigan	2,960	2,960	\$46,630	\$49,140	\$50,500	\$53,460	\$59,280	\$59,760
Ohio	6,730	5,500	\$44,590	\$45,880	\$48,500	\$52,750	\$61,140	\$63,240
Illinois	6,080	6,330	\$55,430	\$60,840	\$71,580	\$75,590	\$77,320	\$79,980
Kentucky	2,570	2,630	\$32,900	\$31,440	\$36,990	\$38,230	\$45,090	\$44,790
Government								
Local Government ¹		99,350		\$ 46,000 ²				
State Government ¹		35,830		\$ 46,500 ²				
Top Paying Industries								
Rental and Leasing Services ³				\$ 70,200 ²				
Facility Support Services				\$ 60,940 ²				
Federal Executive Branch				\$ 54,890 ²				
Services to Buildings and Dwellings				\$ 48,080 ²				
Real Estate				\$ 48,010 ²				

Data reflects wage and salary for May 2021 extracted in 2022 and data for May 2022 extracted in May 2023 (BLS, 2023 April 25b).

¹ Excluding schools and hospitals.

² Mean Wage.

³ 5322, 5323, 5324 only.

Table 6. Worker Wage and Salary Data for Highway Maintenance Workers in Indiana (47-4051)

Location	% of Indiana Hwy Maint Workers ¹	Wage and Salary (\$)									
		Median (50 th Percentile)				75th Percentile			90th Percentile		
		2021 hourly	2022 hourly	% change	2022 annual	2021 hourly	2022 hourly	2022 annual	2021 hourly	2022 hourly	2022 annual
Bloomington	1.35%	17.83	20.03	12%	41,670	18.36	20.03	41,670	21.08	21.79	45,320
Central Indiana nonmetropolitan areas	10.24%	18.25	19.79	8%	41,150	20.20	21.35	44,410	22.85	22.61	47,020
Columbus	0.81%	19.73	20.85	6%	43,370	22.47	22.96	47,760	22.47	24.10	50,120
Elkhart-Goshen	1.62%	21.01	22.89	9%	47,600	23.06	22.89	47,600	25.29	26.12	54,330
Evansville	4.31%	20.34	20.53	1%	42,700	23.88	22.22	46,210	26.94	24.98	51,960
Fort Wayne	7.28%	20.40	22.50	10%	46,800	22.81	24.79	51,550	27.91	28.97	60,260
Indianapolis-Carmel-Anderson	27.76%	20.95	22.26	6%	46,290	23.14	24.78	51,540	26.99	27.29	56,760
Kokomo	0.81%	18.80	NA ²	-	NA ¹	21.89	NA ¹	NA ¹	22.06	NA ¹	NA ¹
Lafayette-West Lafayette	4.31%	21.35	NA ²	-	NA ¹	27.97	NA ¹	NA ¹	28.24	NA ¹	NA ¹
Michigan City-La Porte	4.31%	18.58	20.53	10%	42,700	17.95	22.50	46,800	26.95	23.96	49,840
Muncie	1.62%	19.07	19.42	2%	40,400	22.40	23.30	48,470	23.79	26.50	55,120
Northern Indiana nonmetropolitan areas	11.86%	18.32	19.61	7%	40,800	22.19	22.30	46,390	22.85	24.55	51,070
South Bend-Mishawaka	4.58%	21.38	19.69	-8%	40,960	23.48	23.92	49,760	27.97	26.01	54,100
Southern Indiana nonmetropolitan areas	14.56%	18.82	20.53	9%	42,700	20.85	22.50	46,800	22.62	23.71	49,320
Terre Haute	4.58%	19.54	19.15	-2%	39,830	23.06	21.01	43,700	23.26	23.60	49,090

Data reflects wages for May 2021 extracted in 2022 and for May 2022 extracted in 2023 (source BLS, n.d.).

¹ Percent of Indiana Highway Maintenance Workers in this metropolitan area in 2021.

² No data available.

47-4051 Highway Maintenance Workers: Maintain highways, municipal and rural roads, airport runways, and rights-of-way. Duties include patching broken or eroded pavement and repairing guard rails, highway markers, and snow fences. May also mow or clear brush from along road, or plow snow from roadway. Excludes “Tree Trimmers and Pruners” (37-3013). Definition: (BLS, 2023 April 25b).

See Appendix F for more BLS tables providing characteristics about workers categories.

Compensation is an important consideration, and it is a significant factor both for recruitment and retention. According to a recent Gallup poll, important factors that employees consider include the following (Wigert, 2022):

1. **Income and benefits.** Pay has consistently been a significant factor for employees, and benefits are increasing in terms of priority; 64% of job seekers consider it very important.
2. **Work-life balance and personal wellbeing.** Work-life balance and personal wellbeing is important to employees and 61% of job seekers consider it very important. This can mean different things to different employees, sometimes it means limited overtime (especially if it is not compensated), work flexibility or the opportunity for remote work and/or alternative work schedules.
3. **Ability to do what they do best.** Employees want to do work they can do well, that utilizes their skills, which increases job satisfaction; 58% of job seekers identified this as a critical factor.
4. **Job stability and security.** Local government jobs are typically very stable and this is a strength for recruitment that resonates during recessions. Job stability may be a lower priority when there are a lot of job openings; however, 53% of job seekers identify it as a priority.

As one local agency leader said, many of our employees do this job and consider their work a contribution to the community.

As one local agency leader said, many of our employees do this job and consider their work a contribution to the community. While compensation isn't the only consideration, it's important not to take advantage of our employee's goodwill. With a different perspective, an executive leader at a national construction firm observed that their company pays what the market demands and as a result does not have a problem finding employees.

Recruitment

Employee recruitment is essential to ensure a strong workforce for local agencies. In recent years, recruitment has been more challenging due to a tight labor market, as evidenced by reports that 83 percent of HR professionals have reported challenges recruiting appropriate people into their organizations (SHRM, 2019). A survey conducted for this report found that 71% of construction companies and 72% of the public sector local agencies had challenges recruiting employees (Hubbard, et al, 2023). These challenges have been exacerbated by the pandemic and recovery. While recruiting encompasses promoting internal candidates or finding external candidates for open positions, most of the challenges for local agencies usually focus on finding suitable external candidates. For external recruiting, the local agency must promote itself to candidates and communicate the benefits of working for a local agency; successful external recruitment relies on effective marketing strategies. Organizations will realize success when they identify their potential audience and then create specific messages and activities to reach them.

71% of construction companies and 72% of the public sector local agencies had challenges recruiting employees.

Recruitment is part of a larger process of human resource management (HRM). Recruitment provides a pool of qualified candidates for open positions. Before an agency recruits, it must develop a staffing plan and forecast future budget and staffing requirements in the short and long term (University of Minnesota, 2011).

Recruitment Plan. A recruitment plan does not need to be long or formal, but it is helpful to outline the framework for the hire. The recruitment plan should outline how you will find candidates (including where the position will be posted and advertised), basic steps in the interview process, and expected timelines (Indeed Editorial Team, 2022 July). Your department or county may have a general recruitment plan that can be tailored for the specific position. By outlining a structured process for hiring, the recruitment plan is a step to ensure compliance with the fair hiring process. Fair hiring laws are intended to ensure all qualified candidates have an equal opportunity in the hiring process.

Job Descriptions and Job Postings. An important part of the recruitment process is providing information to the public about the open position. Regardless of what media you use to advertise the position you will need to develop both a job description and a job posting. These two items are often considered synonymous but have different functions. The job posting is a marketing tool to invite applications, a job description identifies the required tasks, duties, and responsibilities and includes the job specifications; job specifications are the skills and abilities needed for the job (University of Minnesota, 2011). Some agencies use detailed job postings that may be the same as the job description.

A job description provides the specific requirements, tasks, skills, and fine-print details. A job description is a detailed description of a job and is an internal document that provides an overview of the role. The job description represents all the responsibilities of the job; it is often used during employee assessment to help measure performance and productivity.

A job posting is an external document used for recruiting and is typically posted on a website or job board. A job posting is a shorter marketing piece, ideally 250 to 500 words, to persuade someone to join this team to do this job.

Key points for effective job descriptions and postings (McCarthy, 2021):

- The job posting should be “short and sweet,” should grab the candidate’s attention, and can link to the job description, which should be more detailed.
- It should capture all the good things about your agency in the job posting: the benefits, perks, culture, people, and positive impact on the community.
- It should make sure the job description is thorough, accurate and up to date.
- The job posting and job description should also communicate what it takes to be successful in the job and provide guidance about what to expect for the employee’s position.

If there is an existing job description on file, review it carefully and modify it to reflect the current responsibilities. If there is not already a job description with job specifications on file, it may be appropriate to perform a job analysis to provide the information needed for the job description and job specifications. Think of the analysis as “everything an employee is required and expected to do.” See Appendix G for an example job posting and an example job description. See Appendix H for an example job specification for a maintenance worker; job specifications are often used to outline duties for union workers but the information in job specifications may be helpful when developing job descriptions regardless of whether the position will be held by a union or non-union worker. See Appendix I for additional directions for completion of the job analysis as well as templates that can be used.

As you develop the job description and refine the job posting, it may be helpful to review similar postings on job websites (indeed.com and ziprecruiter.com are some of the largest). Job websites can provide examples of current postings and title keywords. Be realistic about the demands of the job, and also make sure and include benefits of working at your agency, which reflects an important reason why you and your team joined the agency and continue to work there. Many younger workers think it is important that their work makes a difference, so make sure you communicate the value of the work. Examples of things to consider including in the job posting are shown below (according to University of New Hampshire Technology Transfer Center (NH T2, n.d.) as mentioned by McCarthy, 2021).

- Takes pride in personal efforts and feels accomplishment supporting our community
- Enjoys some independent work time and likes to participate on a collaborative team
- Realizes the importance of safety and efficiency in a varied work environment
- Enjoys being active and working outdoors
- Likes to stay busy with a variety of tasks (provide an overview of typical week in the job description)
- Wants to join a team that is innovative and collaborative (provide an example in the job description)
- Enjoys using new technologies (add information about specific technology used).
- Wants to make a difference
- Seeks great benefits, retirement, stable and reliable employment

Tips for writing job listings (Indeed Editorial Team, 2022 Dec):

- **Outline the company.** Give an overview of the company, including its size, the number of employees and its location.
- **Describe the position well.** Summarize the position and its duties, mentioning if it is a new role, who the candidate may report to and what the expectations are.
- **Be specific about requirements.** Mention educational and work requirements, including how many years of experience you expect and whether candidates need a degree. Also, describe some characteristics and skills that the ideal candidate may have.
- **Describe the process.** State if you will be performing any background checks and mention when you would like to hire somebody.
- **Give information about yourself.** Detail contact information and link to your website.

Advertise the Position. Post the job on websites and social media, as well as on the break room and community bulletin boards. Reach out via emails and to partners at community colleges, community groups and other local contacts.

- **Websites.** There are many employment websites and many of them are fairly inexpensive. The downside to this method is the immense number of résumés you may receive from these websites, which may or may not be qualified. Many organizations, to combat this, implement software that searches for keywords in résumés, which can help combat this problem. Some examples of websites might include the following:
 - Your own agency website and the county or city website
 - Indiana LTAP Job Listings (see <https://www.purdue.edu/inltap/resources/jobs.php>)
 - Indeed
 - Ziprecruiter
 - LinkedIn
 - Monster
 - CareerBuilder
 - JobCentral
 - Yahoo HotJobs
- **Social Media.** Many local agencies use Facebook, X (formerly Twitter), and LinkedIn, and some use YouTube and Instagram. These social media accounts can be a good place to post job announcements and are also a good way to raise awareness in the community about the great work of the local agency. Sharing brief photos and stories about agency work, employees, and training help showcase the important role of your agency and increase visibility in the community which supports recruitment efforts. Social media is relatively inexpensive and may be a good job for an intern or part time employee. Consider the target applicants and kind of job when choosing the social media platform (LinkedIn may be a good venue for an engineer position, whereas Instagram may be a better venue for a high school graduate).

Facebook allows free job postings in Facebook Marketplace, and the company Facebook page can also be used as a recruiting tool. Job links can be posted on individual or agency LinkedIn pages. Links allow applicants to go directly to the online application and messaging features allow interested people to ask questions privately if they are interested. According to Minnesota LTAP (McCarthy, 2021), social media can be a good resource for local agencies.

Regular use of social media can show that your local agency is a good place to work. Build your “brand” using social media posts to engage community members and instill trust, confidence, and understanding in your local agency. Popular social media platforms include Facebook, Nextdoor, X (formerly Twitter), Instagram, Snap Chat, TikTok, and LinkedIn. Many of these platforms link together so you only need to post once. (p. 3)

Social media tips from MN LTAP are shown in Figure 12 (McCarthy, 2021) and additional information about public agency use of social media can be found in this video created by UNH Technology Transfer Center (New Hampshire LTAP):

<https://www.youtube.com/watch?v=PuvCPv5hxAk>.

If you want to go the “extra mile”, you may want to make a recruitment video, as recommended by NCHRP Report 685. This may be a great project for an intern or a local high school student because many make and post videos to social media sites and have a better understanding of what may be of interest to potential young recruits. Videos should be short (less than 90 seconds) and use video-editing tools on a smartphone or the internet. A video interview with a recent hire or a long-time employee can help showcase the people that make your agency a great place to work. A video of an upcoming or recently completed project can highlight how the work of your agency contributes to the local community. There are ten sample videos to support hiring (aka talent acquisition) from the University of New Hampshire Technology Transfer Center that focus on local agencies and careers in public works. The list of videos is available online on YouTube at: <https://www.youtube.com/playlist?list=PL-hYi2uiD7LI3Zy4lIX18BnLZso8l8nJN>.

Basic tips

Here are tips for using social media to connect citizens with public works—and establish a new way to attract interest in related career opportunities:

1. **Share the good**
Show the public the good things you are doing. Share pictures of improvement projects or new initiatives.
2. **Update on the bad**
Social media is one of the first places people check for information. Provide timely updates of road conditions and closures due to weather and construction.
3. **Build trust**
If the public feels you care about them, they will be more likely to get on-board with a new initiative. Build trust through consistency by providing updates, warnings, or news about construction projects.
4. **Provide answers**
Respond to the public directly in the social media platform used.
5. **Show personality**
Use enthusiasm, humor, and warmth in social media posts to communicate your commitment to the community.



Figure 12. Social Media Tips from MN LTAP (Source: McCarthy, 2021).

- **Employee Referrals.** Your current employees may provide a link to a future employee, so encourage them to be ambassadors for your agency, especially when there is a vacancy on your team. Email the position posting to current employees in the department and in the county or city. Sending an email with a link to the application makes it easy for people to get more information and complete the online application.

Employee referrals are a good way to fill vacancies since employees usually recruit good workers that they would like to work with. Employee referrals also facilitate the integration of new employees and mentoring relationships. Some companies have a formal employee referral program with incentives for a successful hire if the new employee stays employed for a specified period. While a formal program is probably not applicable at a local agency, informal employee referrals may work very well.

- **Personal Contacts.** Personal contacts and word of mouth can be a good method to communicate job openings, especially in smaller communities where hires are traditionally from within the community.
- **Events, Partnerships and Special Interest Groups.** Some high schools and community colleges have job fairs and career open houses. Participation in these activities may make sense if the timing is right, especially if there are multiple openings in your agency. Some local agencies partner with high schools and community colleges to raise awareness and foster interest in the work of local road agencies. See Success Story in Chapter 2, [Working with High School Students to Broaden the Road and Bridge Workforce](#). Special interest groups (SIG) may be another

source of applicants. For an engineer, it is worth reaching out to the IACHES and ITE to see if they will share the listing with their members.

While there are not special interest groups for maintenance workers or drivers, ask current employees if they know of groups that may have connections with candidates. One agency mentioned that many of their employees are also farmers, in which case 4H and FFA may be good resources to connect with younger employees. If you are trying to fill a position that requires construction project management experience, consider sharing the posting with an association such as the Associated General Contractors (AGC) of Indiana or the Associated Builders and Contractors (ABC) of Indiana Kentucky.

Local agencies usually do not have the luxury of a recruiter, which is someone who focuses solely on the recruiting function of human resources. However, there may be someone at the county or city who is experienced in the hiring process and can support the recruitment activities. Table 7 provides a list of different recruiting methods and the advantages of each method.

While it is great to leverage employee referrals and personal contacts can be a good source of applicants, make sure to also use other methods that ensure broader exposure of your job posting. Broad exposure helps support diversity of applicants and ensure a fair hiring process. A recruitment plan with a structured process for recruitment and candidate assessment helps avoid nepotism. Nepotism exists when relatives of current employees have an advantage in the hiring process; nepotism can create problems with a lack of diversity and management issues on the workplace (U of MN, 2011).

Candidate Screening and Interviews. One way to screen candidate applications is to compare the information on the resumes received with the listed job requirements. Candidate screening will help you narrow down the applicant pool to a manageable number for interviews. Keep the application simple to streamline the screening process. Sample interview questions and a sample scoring matrix are shown in Appendix J.

It may be helpful to have a short, screening interview via phone or video conference before bringing candidates on-site for an in-person interview. Once you have identified candidates for an on-site interview, it is helpful to let candidates know what they can expect during the interview. Ask candidates for feedback so you can improve the process next time and save applicant information in case you have an unexpected vacancy. (Indeed Editorial Team, 2022 July). Also, keep candidates informed of their status and let them know as soon as you have a definite answer for them, even if the decision is not to hire. Since many of the applicants will be local it is good to keep a positive and courteous connection with all applicants.

Close the Process. Once you have successfully identified a candidate, and made an offer that has been accepted, close out the process by notifying candidates who were not selected and removing the job posting. If you use social media, you can now use that platform to introduce your newest employee to the community.

Table 7. Advantages and Disadvantages of Recruiting Methods (Source: U of MN, 2011. Chapter 4).

Recruitment Method	Advantages	Disadvantages
Outside recruiters, executive search firms, and temporary employment agencies	Can be time saving	Expensive
		Less control over final candidates to be interviewed
Campus recruiting/educational institutions	Can hire people to grow with the organization	Time consuming
	Plentiful source of talent	Only appropriate for certain types of experience levels
Professional organizations and associations	Industry specific	May be a fee to place an ad
	Networking	May be time-consuming to network
Websites/Internet recruiting	Diversity friendly	Could be too broad
	Low cost	Be prepared to deal with hundreds of résumés
	Quick	
Social media	Inexpensive	Time consuming
		Overwhelming response
Events	Access to specific target markets of candidates	Can be expensive
		May not be the right target market
SIG	Industry specific	Research required for specific SIGS tied to jobs
Referrals	Higher quality people	Concern for lack of diversity
	Retention	Nepotism
Unsolicited résumés and applications	Inexpensive, especially with time-saving keyword résumé search software	Time consuming
Internet and/or traditional advertisements	Can target a specific audience	Can be expensive
Employee leasing	For smaller organizations, it means someone does not have to administer compensation and benefits, as this is handled by leasing company	Possible costs
	Can be a good alternative to temporary employment if the job is permanent	Less control of who interviews for the position
Public employment agencies	The potential ability to recruit a more diverse workforce	May receive many résumés, which can be time-consuming
	No cost, since it's a government agency	
	2,300 points of service nationwide	

Recruitment Method	Advantages	Disadvantages
Labor unions	Access to specialized skills	May not apply to some jobs or industries
		Builds relationship with the union

Candidate Requirements. Some agencies have waived educational requirements and requirements for skill certifications. A college degree has been waived for jobs in state agencies in Alaska, Maryland, Pennsylvania and Utah (O’Connell-Domenech, 2023). Typically, job descriptions are reviewed and revised to allow practical experience to replace a four-year college degree requirement; this approach supports the knowledge and skills gained through apprenticeships, military training, trade schools and on-the-job training and is intended to address a labor shortage that has been particularly challenging for state agencies (O’Connell-Domenech, 2023). If requirements are changed during the candidate review process, it is a good practice to repost the position with the new requirements to be fair to potential applicants that may not have applied because they did not meet the initial job requirements.

Diversity. The demographics for local agency employees are narrow, which reflects state and national trends. Nationally, only about 1 in 5 infrastructure workers are women (Kane, 2022). When recruiting, recognize that different recruitment strategies may be appropriate to reach diverse candidates, and consider that recruiting diversity may encompass diversity with respect to age, experience, and skills as well as demographic characteristics such as sex, gender and racial identification. Strategies to reach younger workers are different than those to reach mid-career workers, similarly, outreach to diverse candidates may require strategies that have not been taken in the past, including advertising in different places and partnering with different organizations. A recent Brookings Institute report on the infrastructure workforce recommends the following strategies to recruit diverse candidates (Kane, 2022)

- Collaborate with other local agencies, educational institutions and other stakeholders to target key skill and training needs (discussed in greater detail below)
- Increase visibility of recruitment through community outreach
- Support internships and mentorship to facilitate succession planning and transfer of institutional knowledge

Partnerships. A longer-term strategy to recruiting young workers for local agencies include partnering with high schools, community colleges, and trade schools. These partnerships take some additional time but can provide a long-term pipeline line for new workers. Since many public and private entities are experiencing similar recruitment issues, there are already programs in place that a local agency may be able to connect with for potential recruits. The Indiana Constructors Incorporated (ICI) has a Director of Talent Development that supports these types of programs that may be a partnership opportunity for a local agency. More information on these types of programs is provided in [Chapter 2. Indiana Success Stories, Working with High School Students to Broaden the Road and Bridge Workforce.](#)

Recruitment Challenges. One of the greatest challenges of recruitment activities is that local agencies have limited time and effort to undertake recruitment, and they must do it while they continue to meet the day-to-day demands of their organization, which is often functioning with less than a full staff.

Recruitment incurs both soft costs (e.g., time spent) and hard costs (e.g., the cost to advertise the position). Costs for temp services are between 15% to 50% of hourly wages, which is significant and why local agencies rarely use temp services through a temp agency. Advertising on Indeed is \$5 per day for a “sponsored ad”.

It is also helpful to consider the effectiveness of recruiting methods, which is reflected in the yield ratio. A yield ratio is the percentage of applicants from one source who make it to the next stage in the selection process (e.g., they get an interview). For example, if you received fifty resumes from an ad, and thirteen of those make it to the interview state, this means a 26 percent yield (13/50). The yield ratio helps determine the best place to recruit for a particular position. The yield ratio may vary for different kinds of jobs, and a higher yield ratio must also consider the cost of recruitment. For an entry-level job, recruiting in partnership with local organizations may yield a better ratio than paying for ads with Indeed or LinkedIn.

Alternatives. Consider if a contract job can replace hiring workers in house either permanently or on a trial or temporary basis. For example, contract mowing is one strategy that has been successfully used by local agencies in Indiana (see [Chapter 2. Indiana Success Stories, Marshall County: Realizing the Benefits of Outsourced Mowing](#)).

Key Takeaways

- **It is important to have a recruiting plan before posting any job description.** The plan should outline where the job announcements will be posted and how the management of candidate materials, such as résumés, will occur. The plan should also reflect the expected cost of recruitment.
- **Some organizations use recruiters.** Public agencies don’t usually use executive recruiters (which means an outside firm performs the search), however, they may use a temp agency or staffing firm for some temporary positions. Alternately, some organizations may contract out some work when in-house personnel cannot accomplish all the required tasks.
- **Almost every profession has at least one professional association.** Posting announcements on their websites can be an effective way of targeting for a specific job. Consider posting on the Indiana LTAP website.
- **Most local agencies will also use their own city or county website for job postings,** as well as other websites such as Indeed, Monster and CareerBuilder.
- **Social media is also a popular way to recruit.** X (formerly Twitter), Facebook and LinkedIn can help get the word out about a specific job opening or give information about the agency.

- **Recruiting at special events such as job fairs is another option.** Some organizations have specific job fairs they attend every year. Consider partnering with other agencies and taking turns attending these job fairs to raise general agency awareness in the community; this awareness helps when jobs are available.
- **Employee referrals can be a great way to generate interest** for a posted position and help assure that new hires are a good fit with the team. Incentives may be offered to an employee who refers a candidate that is hired and stays for specified period of time. Incentives may be monetary and may be modest such as a gift card for lunch. Make sure that referrals do not foster a lack of diversity or result in nepotism.
- **Consider recruitment costs** and determine the total amount spent on all recruiting efforts compared to the number of hires. If you want to benchmark costs with metrics, use the yield ratio to determine the effectiveness of recruiting efforts: consider the number of total applicants received from a particular form of media, and divide that by the number of those applicants who make it to the next step in the process (e.g., they receive an interview).

Retention

Employee retention is a top employer concern for local agencies in Indiana and employee retention was ranked the top concern by almost half of HR professions even before the labor challenges in the wake of the pandemic (Society for Human Resource Management (SHRM), 2018 Jan). Low retention rates correspond with high turnover rates¹ and can cause challenges due to a reduced workforce, increased demands on retained employees, reduced morale, loss of institutional knowledge and skills, and time spent training new employees. A survey conducted for this report found that 40% of construction companies and 72% of public sector local agencies reported that employees left their organization for a better position elsewhere (Hubbard, et al, 2023).

40% of construction companies and 72% of public sector local agencies reported that employees left their organization for a better position elsewhere

Lower employee retention results in lost productivity for the agency workforce, as well as lost time due to the hiring process, including recruitment, applicant reviews, interviews, and employee selection. When an employee leaves, the new employee may not have the same skill set, especially given the recent challenges with recruitment and a tight labor market. This results in additional losses.

Employee retention rates above 90% are generally considered desirable, this corresponds to an annual employee turnover rate of less than 10% (Walker, 2022). In 2021, the average retention rate was about 50%, although turnover typically varies depending on the employer and sector (Walker, 2022). It may be helpful to separate retention rate and turnover data to reflect whether it is voluntary (retirement or resignation) or involuntary (termination) since termination of a low performing employee and replacement with a new, more productive employee will improve agency performance.

Important elements to support employee retention include compensation; leadership and culture; work characteristics; employee feedback, recognition, and acknowledgement; opportunities for career growth; and job security (Figure 13). Each of these is discussed in greater detail below.

Compensation, including pay and benefits. Compensation should be competitive and personal contributions should be rewarded (Walter, 2022). It is hard to keep good employees if they are underpaid or if their benefits are not competitive. Compensation includes pay (regular pay and overtime) as well as benefits such as insurance (health and disability) and pension or other retirement. If compensation does not reflect the market, employees will look at, and take, jobs with other employers who will pay them more. None of the other factors that affect retention are likely to keep employees if the compensation is low, which implies that their contributions are not valued as they would be elsewhere.

It is also helpful to **quantify and communicate the value of employee benefits**. Government jobs may provide better benefits than the private sector. Make sure employees know the value of the benefits

¹ Retention rate measures the rate at which employees stay and turnover rate measures the rate at which employees leave. Both are reported for a given time period, such as annually, quarterly or monthly. The retention rate is calculated as the number of employees at the end of the period/number of employees at the beginning of the period. An annual retention rate of 90% means that 9 out of 10 employees employed on Jan 1 are still employed on Dec 31 and one employee has left the agency; the annual turnover rate in this case would be 10%.

they receive by providing information about the employer contribution to health care and pensions or retirement plans on an annual basis.

See additional information about [Compensation](#) in the previous section and see additional information about Indiana local agency salaries in Chapter 4.

Leadership and Culture. Strong and positive leadership and culture are an important consideration for employee satisfaction and retention. Important elements of positive leadership and culture are described below.

- **Strong and effective leadership (Tenney, n.d.) and trust between employees and management (Walter, 2022).** Such leadership and trust are critical for employee retention. Poor leadership and toxic work cultures increase turnover and contributed to the high turnover of “The Great Resignation” and quiet quitting. Positive leaders model values, reinforce positive employee behavior and ensure workplaces do not become toxic.
- **Respectful treatment of employees at all levels.**
- **Supervision.** Fair treatment by supervisors is one of the most important determinants of retention (SHRM, 2023). Clear policies and transparent decision-making increase trust and employee’s perception of fair treatment.
- **Mission and values alignment (SHRM, 2018).** A strong culture will ensure employees recognize how their work has a positive impact on the community. Local roads have been identified as a priority by both citizens and leaders in many cities and counties.

Work Characteristics. Maintaining local roads is not a “work from home” job, however, there may be other ways to support employee satisfaction and retention. Including work/life balance, flexibility, autonomy and employee engagement. Each of these is described in greater detail below.

- **Good work/life balance.** This balance can be supported by not requiring workers to put in long hours on a regular basis, supporting a positive culture and dealing with potentially toxic situations in a timely manner, and limiting communications to work hours only so employees can disconnect from work when they are off the clock (Tenney, n.d.). To avoid burnout, it’s best not to take your work home with you (Boyles, 2022).
- **Flexibility.** Maintaining local roads is not a “work from home” job, however, there may be other ways to support flexibility.
 - It may be possible to provide some flexibility with work hours and allow employees to shift their work hours and start early to accommodate childcare arrangements or other activities.
 - Some agencies provide the opportunity to work four 10-hour days (either all the time, one week a month, or during some seasons of the year).
 - It may be practical to allow workers to flex time and take a few hours off one day and make it up another day.
 - Some agencies allow their workers to report directly to their first work location rather than the county garage to reduce commute time and increase efficiency and productivity.
- **Autonomy.** Autonomy gives employees the responsibility and the opportunity to make a difference (Tenney, n.d.). Giving workers the opportunity to provide input and providing

autonomy when practical increases satisfaction and retention. This may translate to letting employees prioritize the order of their work or encouraging them to find a better way to do their job.

- **Employee engagement.** Employee engagement reflects the connections employees have with their co-workers, organization, and leadership and the enthusiasm they have for their work. Increased engagement is reflected by workers who are motivated and interested in putting in extra effort to do their job well. Increased engagement is correlated with better retention, less burnout and higher performance (Stein et al, 2021).
 - **Engagement is increased when people think their job is important and take pride in their contributions.** Emphasize how local road work supports the community and everyone in it, and how each person's work helps people safely get to work, school, doctor appointments and the grocery store. Share this message both in the organization and publicly through venues such as social media and community newsletters.
 - **Create teams for some activities to support engagement with co-workers.** Rotate team members so everyone gets to know each other.
 - **Encourage formal and informal mentoring.** Experienced employees are a great source of institutional knowledge and traditional methods. New employees may be a good source for newer technologies. Encourage employees who have training opportunities to share what they have learned.

Employee Feedback, Recognition and Acknowledgement. Recognizing employee effort improves morale and loyalty (Walter, 2022) and frequent feedback is important to support employee retention (Tenney, n.d.). Employees need feedback on a regular basis to excel and reciprocal feedback is critical for employee engagement. Additional considerations related to feedback are provided below.

- **Leadership that welcomes employee feedback increases loyalty, gives employees a voice, and helps build trust (Tenney, n.d.).** Specific recognition of employee contributions ensures that employees know the work they do is recognized and appreciated.
- **Setting clear expectations is the first component of feedback.** Following up with praise and employee recognition provides positive reinforcement for work well done and is a powerful mechanism for employee engagement and a positive culture.
- **Identifying and addressing situations that require corrective actions is very important** since a lack of accountability and ignoring an underperforming employee is demoralizing for employees who are working hard and doing their jobs well.
- **Utilize interviews for employee feedback.** Get specific feedback about your agency during exit interviews and "stay interviews" with retained employees.

Opportunities for Career Growth. Opportunities for career growth ensure employees utilize their skills and abilities at work. Additional considerations regarding career growth are provided below.

- **Opportunities for advancement (Tenney, n.d.) enhance employee satisfaction and can increase the capabilities of the department.** Some Indiana local agencies provide incentives for employee certifications (see [Local Agency Success Story Huntington County](#)); other Indiana local agencies have added positions such as working foreman to provide additional opportunities for interested employees.

- **Training and development increases satisfaction and builds skills.** If employees are not given opportunities to continually update their skills, they are more inclined to leave. Providing learning opportunities for all employees builds employee skills and agency institutional knowledge and also increases employee satisfaction (Bersin, 2018).
 - Indiana LTAP provides numerous opportunities for on-line and in-person training for all local agency employees.

Job Security (SHRM, 2018). Job security is one area in which local agencies may provide an advantage over the private sector. Recognizing employee anniversaries and retirements may reinforce the benefits of job security offered by local agencies.

Trends and Data. It is valuable to benchmark data for your agency related to employee retention and the factors that contribute to retention (SHRM, 2023). Track retention data and compare it with other local agencies (external comparison) as well as data from your own agency over time (internal comparison).

If turnover is a problem, identify a plan of action that may include both broad strategies (e.g., ensure compensation is competitive) and targeted strategies (e.g., provide more training opportunities for all employees in the next quarter).

ELEMENTS OF RETENTION

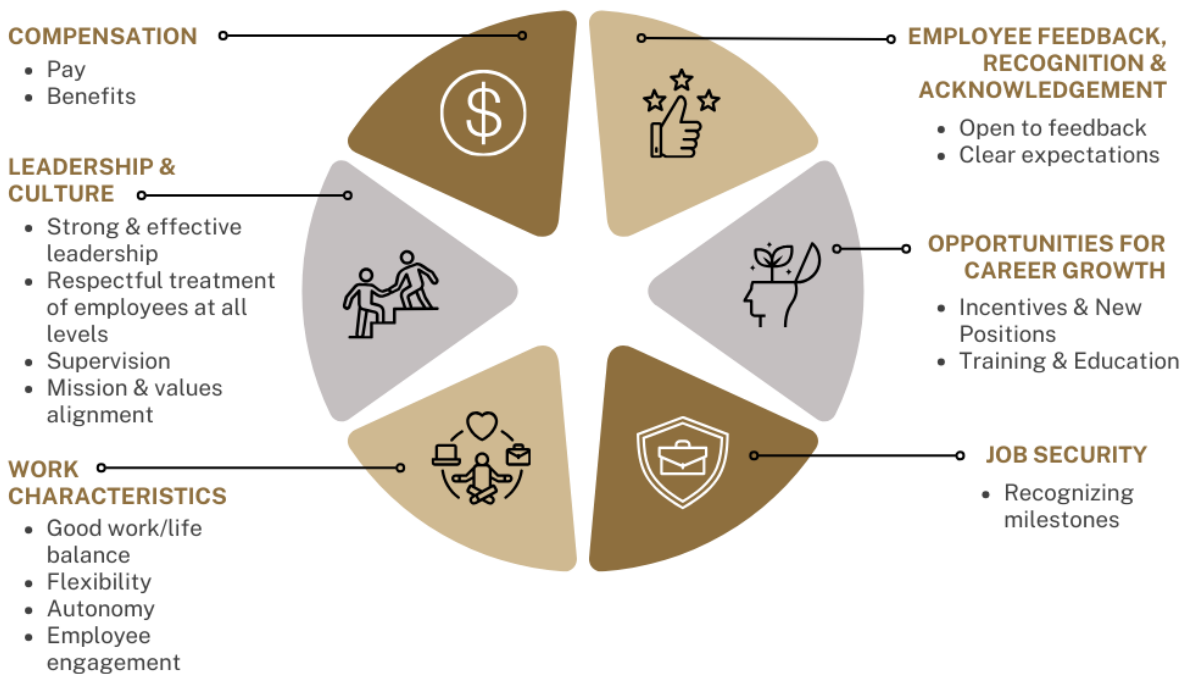


Figure 13. Elements of Retention

A Theoretical Framework for Employee Retention

The “Two-factor” theory, also known as the “Motivator-Hygiene” theory, was developed by Frederick Herzberg and suggests that two sets of factors influence employee motivation (Herzberg, 1968). The factors that cause employee dissatisfaction and unhappiness are not the same factors that motivate employees. Figure 14 shows the factors identified by Herzberg in his original research, which was based on 12 investigations and encompassed 1,844 events on the job that led to extreme dissatisfaction and 1,753 events on the job that led to extreme satisfaction (Herzberg, 1968).

Hygiene/maintenance factors cause dissatisfaction if not met and generally reflect whether physiological employee needs are met. Hygiene factors such as salary and leadership decrease dissatisfaction. If hygiene factors are not met, the employee will be dissatisfied, however, these factors may be met and the employee may still be unhappy. Hygiene factors may also be considered maintenance factors and are often external to the work itself.

Motivators/satisfyer factors enhance worker creativity, commitment, and productivity. These factors cause satisfaction and increase motivation and performance; motivators are more closely related to the job itself and associated rewards. Once the hygiene factors are met, it is the motivating factors that are important to ensure employee performance and commitment.

This framework provided a strong foundation for examining employee satisfaction and retention and is still widely referenced (e.g., Crail, 2023). Current discussions of factors affecting employee retention may not be separated into the regimes of hygiene and motivators, however it is valuable to recognize that the factors that cause dissatisfaction are not always the same as the factors that motivate employees and to recognize that hygiene factors are foundational to the organization and may not relate to the work itself. The factors shown in Table 8 and Figure 14 are all included in the previous discussion; and the framework has broadened to encompass additional factors. Table 9 provides data that compares how HR and employees (EE) rank retention factors. There is a difference in the relative importance for employees and HR.

The “Motivator-Hygiene” theory suggests that two sets of factors influence employee motivation

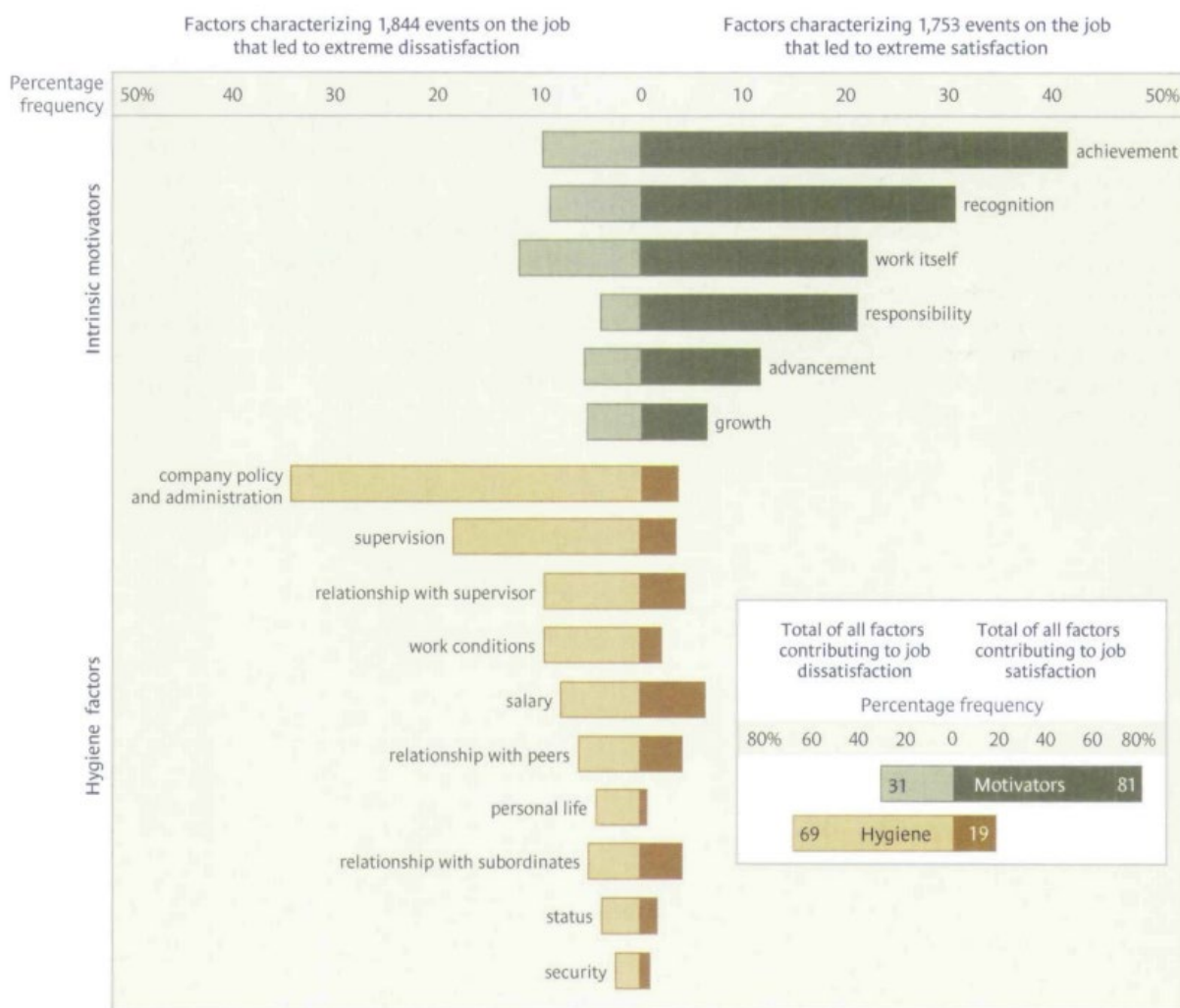


Figure 14. Factors Affecting Job Attitudes (Source: Herzberg, 1968).

Table 8. Factors That Influence Employee Motivation (Source: adapted from Crail, 2023)

Hygiene (dissatisfiers)	Motivators (satisfiers)
Compensation	The work itself
Leadership and supervision	Responsibility
Relationships with Co-workers	Job Satisfaction
Company policies	Achievement
Status (position in company)	Growth Opportunities
Working Conditions	Advancement
Job Security	Recognition



STAY ALIVE



BE HAPPY

Table 9. HR and Employee (EE) Rank of Retention Factors (Source: Ameen, 2022)

HR Rank	EE Rank	Retention Factors
4	1	Quality of relationship with supervisor or manager (Motivational Fit)
5	2	Ability to balance work and home life (Home Life)
19	3	Amount of meaningful work—the feeling of making a difference (Motivational Fit)
20	4	Level of cooperation with coworkers (Cooperation and Trust)
21	5	Level of trust in the workplace (Cooperation and Trust)
2	6	Quality of compensation package (External Rewards)
1	7	Opportunities for growth and advancement (External Rewards)
15	8	Clear understanding of work objectives (Motivational Fit)
11	9	Link between pay and individual contributions (External Rewards)
8	10	Other (Undefined)
16	11	Company responsiveness to needs/requests (External Rewards)
7	12	Level of challenge in work (Motivational Fit)
18	13	Autonomy—freedom to direct work (Motivational Fit)
6	14	Amount of recognition for work (External Rewards)
14	15	Quality of vision and strategy from senior management (Company Direction)
12	16	Ability of the organization's selection practices to choose the right employees (Company Direction)
9	17	How well individual goals and style match the organization's (Motivational Fit)
3	18	Amount of job stress (Workplace Discord)
10	19	Desirability of the company's geographic location (Home Life)
13	20	Volatility of work environment, such as downsizing, mergers, etc. (Workplace Discord)
17	21	Amount of internal politics/bureaucracy (Workplace Discord)

Chapter 2. Indiana Success Stories and LTAP Resources

This chapter highlights some of the activities underway in Indiana to support the workforce needs of Indiana local road agencies. This chapter includes local agency success stories, as well as a brief description of some of the training and resources provided by Indiana LTAP.

Indiana Local Agency Success Stories

Indiana local agencies have a great tradition of innovation and excellence. Below is a list of some of the success stories and innovative approaches taken by some of our Indiana local road agencies. Additional information is provided on the following pages.

- **Huntington County:** Salary Incentives for LTAP Master Road Builder and Other Certifications,
- **Marshall County:** Realizing the Benefits of Outsourced Mowing,
- **City of Angola:** Reduce Frequency of Brush Collection in Angola,
- **City of South Bend:** Activities to Support Employee Retention,
- **Wells County:** Salary Matrix Provides Retention Incentives and Supports Culture,
- **Indiana Constructors, Inc:** Working with High School Students to Broaden the Road and Bridge Workforce.

Representatives of the local agencies were interviewed and researchers wrote case studies based on the interviews. Each representative interviewed was given an opportunity to review the case study and suggest modifications.

Huntington County: Salary Incentives for LTAP Master Road Builder and Other Certifications

Troy Hostetler, Highway Superintendent, Huntington County

Summary. Huntington County Highway Department has implemented salary incentives for the completion of LTAP Road Builder, LTAP Master Road Builder and other certifications that enhance employee knowledge and capabilities. This program rewards employees for their effort to gain these certifications, and supports the department by ensuring well trained employees that are knowledgeable about relevant information.

Background. Like many public agencies, Huntington County had a number of vacant positions in the Highway Department that they were trying to fill, and it was challenging to compete with the private sector in terms of pay. In October 2022, the Highway Department, in conjunction with the Wage Commission and the County Council, increased salaries and added additional salary incentives for the Foremen to complete LTAP Road Builder and LTAP Master Road Builder certifications.

New Policy. The new salary incentives include a \$2,000 salary incentive for the LTAP Road Builder designation and a \$4,000 salary incentive for the Master Road Builder designation. There are also salary incentives for other certifications, including the INDOT ERC certification, pesticide certification for employees who do vegetation management, and sign and safety certifications for the sign technician. These salary incentives have worked out well: the incentives reward employees, and also increase the skills and knowledge in the department.

Building the Department Skill Set. Increased skills and knowledge gained through certification increase department capabilities and reduce liability. An example of increased capabilities is the use of more effective chemicals that are available for vegetation management with pesticide certification. Another example of increased capabilities is safety and sign certifications to ensure that our sign shop provides signs that are compliant with the MUTCD.

Incentives Are One Component of Compensation and Workplace Culture. The salary incentives have worked out well for our agency, and are one component of our compensation program. We also were able to increase our base salaries from \$20 to \$24.50 per hour for equipment operators. This increase helped us fill the five openings that we have had over the last year and a half. With a department of 24 people (including the superintendent and secretary), five openings is pretty significant. The incentive programs also help promote a positive culture in the department.

Incentives Are Used for Numerous Employees. Incentives aren't just used for our foreman. Our employees who spray bridges maintains a pesticide license, which requires annual certification, and correlates with a salary incentive of 25 cents per hour. One of our employees who works in our sign shops has completed three certifications for safety and sign training, and realized a salary incentive of 35 cents per hour. This sign and safety certification helps reduce county liabilities and ensures that we have a certified sign expert who can testify in the event of a roadway crash. As the superintendent, I also have incentives, such as the INDOT ERC (Employee in Responsible Charge) designation, which

requires annual certification. Salary incentives for certifications has benefits for our employees, as well as for the department, and for the county residents we serve.

Marshall County: Realizing the Benefits of Outsourced Mowing

Jason Peters, Superintendent, Marshall County Highway Department

Summary. Marshall County has successfully used contract mowing for the last couple years. This has saved money and freed up personnel for other tasks.

Background. We traditionally would hire and train four or five seasonal workers to help with mowing and other jobs in the summer. A few years ago, we started noticing reduced interest in our seasonal position, which were often filled by college students and part time workers. Without this seasonal help, we faced some workforce challenges since we have limited workers in-house and any time spent mowing would come at the expense of paving, chip-sealing, and other important tasks.

The other option was having employees stay over or come in on weekends to try to keep up and not lose time on construction, re-construction or preservation projects for the road program. But overtime results in added expense.

Build on the Experience of Others. INDOT started subcontracting mowing a few years ago, and Elkhart County also had a company doing some contract mowing. Given our challenges, and after taking a look at the expenses of training and supervising our mowing workforce as well as the equipment expenses, contract mowing looked like an idea worth exploring.

Successful Implementation. The first year we did a one-year contract, and it was so successful that we now have a five-year contract. We have a contingency in the contract that will cover an escalation in fuel costs, but otherwise, we have a known cost that is lower than what we would spend if we used our own labor and equipment.

We are now in the third year of our contract mowing and it has been a success. We have reduced our expenses and it allows our team to focus on road maintenance, repairs and other tasks.

Benefits of Contract Mowing. Contract mowing has provided a number of benefits, including cost savings, reduced liability for the county, and reduced work for our crews, which frees them up to do other work. Another benefit is that the mowing contractor often mows late at night when there isn't much traffic, so there is minimal disruption.

Contract Mowing Saves Money and Frees Crew for Other Work. When we consider the cost of the seasonal help, the wear and tear on our equipment, and the fuel expense, contract mowing has definitely been less expensive. We also save a lot of time since we are not training seasonal hires, taking them out or overseeing their work.

Fewer Problems. Our seasonal workers did a good job but since they were often new hires, we did have some issues with mowing. Flowers or plantings (landscaping) close to the right-of-way might get mowed

by accident. It's not unusual to hit phone peds (telecom pedestal), delineator markers, mailboxes, and other things in the right-of-way; this occurs more often with new hires. Mowing can be a hot topic for the public, and unfortunately, we also had some problems with members of the public giving our workers a hard time. Since we have contracted mowing out, we have not had to many problems, and any problems that occur are passed on to the contractor and they address them.

Reduced Liability. Another benefit is the reduced liability since the contractor is liable for their own work. If they hit a sign or fence, they can often fix it themselves, and if not, it's covered by their insurance. Most of the time if there is an issue they will call or text so we can address it the next day. Our contract mowers have let us know about trash, dead deer, or a flooding issue they have noticed.

Our mowing contractors run GPS on their units, so if the contractor has mowed and hit something, or left a lot of grass or other debris that might appear to be from county, our contractor can pull up their GPS data and show where they mowed. This has really helped out on a few occasions when it was reported that the county mowed over a phone ped. When our mower sent their GPS information, it was clear that they were not even in that township when it happened, and the contract mower and the county were not responsible.

Contract Mowers Work When Traffic is Low. Our mowing contractor often mows at night, often starting at 11 or 12 midnight. At this time of night there is a lot less traffic, so it is safer for both the public and the people doing the mowing. All mowers are lit for safety.

Basic Contract Details. The contractor will usually mow about 4 times a summer, although it may be less (as few as two times if it's unusually dry), or more (perhaps five times if we get rain throughout the season). Our contractor mows when we give them a call, so there is no wasted mowing if it's not needed.

Our contractor provides a price per centerline mile, which includes mowing in both directions on both sides of the road. We still have a few areas we mow ourselves where the right-of-way is wide and we use a batwing mower, but that is a pretty limited area and doesn't take a lot of time. We also have quite a few areas where the homeowners maintain their yard right up to the road.

Expansion to Include Contract Spraying. Our mowing program was so successful that last year we went out for bid for a spraying contract to manage our roadside vegetation. We had some areas with a lot of vegetation, and over the winter we cut back a lot of brush, so our contract sprayer will come through and we hope we can get ahead on our vegetation management. Our contract sprayer can use stronger chemicals than we can since they have a pesticide license. We are optimistic that our aggressive approach will work well.

Words of Wisdom. It's been helpful to work with counties and other local agencies both to learn from each other and to collaborate. Long term, it might be helpful to find more ways to share equipment since equipment is expensive and some specialty equipment is not always being used.

City of Angola: Reduce Frequency of Brush Collection in Angola

Amanda Cope, City Engineer, City of Angola

Summary. Angola City Council recently approved changing the brush pick up schedule from twice a month to once a month. This will save money and allow personnel to take on other important tasks.

Background. Brush pickup is a hot topic in Angola and most of the calls to the city street department and city engineer are related to brush, limbs and leaf pick up. The street department does all the brush pickup in-house, and has traditionally collected twice a month. It takes about a week to pick up for all of the city. With a twice monthly brush pickup schedule, it really limited the in-house capabilities for other work to get done since brush pick up consumed about half the time of our workforce in the street department (our street department is nine people, with seven driver/operators). Brush pickup usually begins in April and continues through October (although it may extend until the first snow); this coincides with the prime construction season when our team could be doing road repair and other jobs that are best done in warmer weather.

New Policy. The new brush policy changes pickup from twice a month to once a month, and implements a new size guideline of 4 ft by 4 ft by 4 ft. This is about the size of a load in a full-size pick-up truck which is a great visual reminder that resonates with our residents. Formerly there were no size restrictions for homeowners who did the work themselves, although professional services were expected to take care of the brush and branches they cleared.

Leveraging Newly Available Time. Now the street department can spend more time on other tasks, including road repair and ditch cleaning. We may even be able to take on some road striping and crack sealing; we have the equipment and the skills to do these tasks, and now there will be more available time so we may be able to manage these or other jobs in-house.

Leveraging the Crew's Skills. It's also nice for the street department personnel, who now will be able to utilize their broader skill sets that extend beyond brush pickup and street cleaning.

Communicating the Changes. Since the new schedule will be a change, we are working hard to communicate the new policy with the public. We will post the new policy on Facebook, will share information in utility bills, and the Street Department will also provide information directly to homeowners via door hangers. The Street Department expects this will just take a couple of days, but it will assure that everyone knows about the new policy. A copy of the door hanger information is provided in Figure 15.

Flexibility and Responsiveness. The new schedule is brush pickup once a month, however, if there is a storm we will provide special collections, if needed. The crew just finished five weeks of cleaning up after a rough spring storm. During these five weeks, we collected twice the tonnage that we usually collect in a year. This effort shows our public that we are able to step up and get the job done, when it's needed.

Working Effectively across Departments. One thing that is great about this project is the collaboration it represents. This endeavor was the result of coordination with the City Engineer’s Office and the Street Department, which is led by Street Commissioner Chad Ritter.

Working with City Council. We worked with the City Council, who approved the change at the last council meeting. Involving our elected officials is important since brush removal is a service that is important to our citizens. We calculated the estimated dollar amount that is associated with this change in service, and this calculation included employee time, equipment costs, mileage, and fuel. We estimate the value of the savings this year will be \$45,000 in labor and \$2,500 in fuel. It will be great to be able to devote these labor hours to other important tasks in the city.

CITY OF ANGOLA
BRUSH AND YARD WASTE PICK-UP

WHEN:
COLLECTION STARTS ON THE **FIRST** MONDAY OF THE MONTH, APRIL-OCTOBER. WE WILL MAKE **ONE** PASS THROUGH THE CITY STARTING IN THE NORTHEAST QUADRANT AND WORK CLOCKWISE. BRUSH MUST BE AT THE CURB BY **7:00 AM** ON MONDAY.

WHAT IS ACCEPTED:

- BRUSH MUST BE STACKED IN ONE DIRECTION ALONG THE CURB
- YOUR PILE SHOULD BE NO MORE THAN APPROXIMATELY **4 FEET WIDE, 4 FEET HIGH AND 8 FEET LONG**
- DO NOT STACK BRUSH BEHIND CARS, MAILBOXES, UTILITY POLES/BOXES, HYDRANTS, OR SIGNS
- BRUSH PILES MAY NOT CONTAIN ROCKS, DIRT, LUMBER, FIREWOOD, HOUSEHOLD TRASH OR FOREIGN OBJECTS
- SEPARATE BRUSH PILES FROM YARD AND GARDEN WASTE PILES
- IF YOU HIRE A CONTRACTOR FOR TREE/YARD WORK, IT IS YOUR RESPONSIBILITY TO MAKE ARRANGEMENTS FOR REMOVAL
- WE **DO NOT** PICK UP GRASS CLIPPINGS
- EXCESSIVE BRUSH AND GRASS CLIPPINGS CAN BE TAKEN TO THE NORTHEAST INDIANA SOLID WASTE MANAGEMENT DISTRICT COMPOST SITE NORTHWEST OF ANGOLA. THEY CAN BE REACHED AT 260-587-3063
- WE WILL COLLECT BRUSH CAUSED BY STORM DAMAGE AS NEEDED

FOR MORE INFORMATION
CALL THE STREET DEPARTMENT AT 260-665-7656

Figure 15. Brush and Yard Waste Pick-up Information for Angola Residents

City of South Bend: Activities to Support Employee Retention

Kara M. Boyles, PE, PhD, City Engineer, City of South Bend

Summary. The City Engineer has investigated characteristics to support retention and implemented a number of supporting activities. These activities enhance employee engagement, support onboarding of new employees and develop leadership.

Background. The Division of Engineering in South Bend has lost a number of employees in the last few years. After the pandemic, many employees re-assessed their lives, and some redefined what success meant to them and sometimes this meant a job change. For engineers and other professionals, financial considerations were often not the main driver for this job change. Kara Boyles has done research in the area of retention and has developed and validated a model that reflects workplace factors that affect employee retention and related workplace considerations. Work focused on retention of women in engineering suggests that job attitude, job involvement, job satisfaction, identification as an engineer, work/family conflict, and work exhaustion (burnout) are substantial factors; these factors probably extend to the broader workforce. As a result of her research, a number of activities have been initiated in the Division of Engineering.

Journey Map for New Hires. Four new engineers joined the staff recently and to support their onboarding, a journey map was developed to identify activities and milestones to support their integration and development. This journey map is an excellent tool to communicate topics that new hires should learn about, and helps ensure that all new hires meet appropriate milestones and are able to find mentors and other resources to enhance their employment. Table 10 shows an example of a journey map to support new employees.

Expand Career Ladder. Traditionally, there is limited career progression at most cities with one city engineer, one or two assistant city engineers, and numerous project engineers. The City of South Bend broadened the career ladder and added three new engineering levels, including three positions with the new designation of Senior Project Engineer. The addition of new levels gives more people the opportunity to gain responsibility, and takes some of the day-to-day tasks off the shoulders of the City Engineer and Assistant City Engineer. Leadership roles are also identified for engineers, with one engineer managing the summer intern program, another leading the weekly development meeting, and a third leading the weekly professional development meeting. The City has a staff of 12 engineers, and has replaced 4 of these engineers in the last few years since the pandemic.

Leadership Training. For the first time, the city has offered leadership training. This gives department heads the opportunity to share best practices and identify opportunities for enhanced collaboration.

Onboarding. The Engineering Division has developed onboarding for the department. This helps ensure that new hires learn important information to do their job, and supports the culture, engagement and belonging.

Professional Development. Weekly professional development meetings support engagement, provide an opportunity for informal feedback, and support dissemination of institutional knowledge. One of the

engineers in the department takes responsibility for leading the meeting, which provides another leadership opportunity. Professional development can encompass a wide variety of topics. One meeting explored how the work of the department supports the city's mission and values. This reinforces a variety of cultural elements including transparency and inclusion.

Surveys. The department conducts employee surveys to support feedback and enable metrics for a wide variety of employee characteristics.

Engineering education is focused on technical topics. Success in a local agency involves a broad range of topics beyond the technical, and it incorporates communication and a lot of tasks related to working with people. The City Engineer in South Bend has done a lot of related research and has implemented a number of best practices to support retention and help ensure employee satisfaction.

Table 10. Journey Map for South Bend Employees

	Milestones
Day 1	<p>8:30 - 9:30 am Human Resources Onboarding/Training Session</p> <p>9:30 - 11:30 am Settle into the Engineering Office</p> <ul style="list-style-type: none"> • Meet mentor at entrance to County City Building • Log into workstation • Log into software (i.e., Teams, Outlook, etc.) • Ask mentor to help you navigate to Engineering Team SharePoint> Documents > Journey Mapping to Check out New Hire documents and Journey Map <p>11:30 am - 1pm Lunch with City Engineer and Mentor</p> <p>1 - 2:00 pm Attend the Construction & Engineering Meeting(weekly)</p> <p>2 - 2:45 pm Project Engineer Meeting</p> <p>3 - 3:30 pm Meet 1:1 with Mentor</p> <p>3:30 - 5 pm Work on assignments from Mentor</p>
Week 1	<ul style="list-style-type: none"> • Construction safety training overview and outfitting with construction manager • Meet everyone in the office (mentor introductions) • Get out to a job site or Public Works facility <ul style="list-style-type: none"> • Shadow an engineer • Shadow an inspector • Know how to view other calendars in Outlook, schedule meetings, and join in on meetings based on interests • Meet 1:1 (~30 minutes) with: <ul style="list-style-type: none"> • Engineer Mentor • City Engineer <ul style="list-style-type: none"> - Review projects/programs of interest - Discuss expectations of City employees and City values: Accountability, Excellence, Inclusion, Innovation, and Empowerment
Month 1	<ul style="list-style-type: none"> • Assist with meaningful tasks on other PM's projects • Be familiar with SOPs, PSMJ resources, quote documents, and bid documents • Visit several job sites/Public Works facilities • Attend the following: <ul style="list-style-type: none"> • BPW meeting • MWBE meeting • Development Review meeting • Identify a project(s) where new employee will be PM <ul style="list-style-type: none"> • Meet 1:1 (~30 minutes) with <ul style="list-style-type: none"> • All engineers in office • MWBE engineer • Construction Manager • Research available construction site trainings or what might fit with your role, and what would be interesting/helpful <ul style="list-style-type: none"> • Confined space training; excavation training; traffic control and safety training; water/wastewater safety training • Construction inspection trainings • <i>Optional, if helpful: Set up recurring check-ins with the Project Engineer group, perhaps including City Engineer</i>
Month 3	<ul style="list-style-type: none"> • Review project plans (i.e., city project or development project)

	Milestones
	<ul style="list-style-type: none"> • Understand City Standards and Specs, INDOT Design Manual, Indiana Construction manual • Apply knowledge of standards and specs to project plans • Prepare project quote documents • Use GIS sandbox and employ GIS as needed • General site inspection • Get hands on experience entering a PR in DFO • Review design drawings for a PM • Observe project kickoff meeting, pre-bid/pre-quote, pre-con meetings (your own projects or others') • Meet staff from other DPW divisions <ul style="list-style-type: none"> • Streets & Sewers/Traffic & Lighting, Wastewater, Water Works, and Solid Waste
Month 6	<ul style="list-style-type: none"> • PM project with a quote (i.e., small scope, internal design) <ul style="list-style-type: none"> • Prepare plans and specs • Communicate to contractors • Submit to BPW • Award quote • Construction transfer • PM project with a quote by consultant <ul style="list-style-type: none"> • Scope and budget with City Engineer • Project kickoff • Design Phase with consultant • Review Plans and Specs • Submit to BPW • Award quote • Construction transfer • Review PSA/manhour justification for scope of work <ul style="list-style-type: none"> • Be able to identify differences between EJCDC and PSA to legal department
Year 1	<ul style="list-style-type: none"> • Engage on a project from concept to completion. It's a good learning experience to see a project from start to finish. • You will still need assistance with lots of things, including: <ul style="list-style-type: none"> • Review of PSAs/bids/contracts • Managing larger, multi-year projects • Embrace and identify with being a Project Manager/Engineer. <ul style="list-style-type: none"> • Be able to do things like: • Create a project schedule • Implement a project using Projectmates • Review and pay invoices • Discern when and how to make decisions or request guidance • Find yourself not needing to check in with someone on a daily basis

Wells County: Salary Matrix Provides Retention Incentives and Supports Culture

Nate Rumschlag, PE, MCM & CPESC, County Engineer, Wells County

Shawn Bonar, County Highway Supervisor, Wells County

Summary. The Wells County Highway Department workforce includes experienced employees as well as numerous newly hired employees. Development of a salary matrix and associated salary increases has ensured that veteran employees are rewarded for their commitment, and that new employees can look forward to regular salary increases over time and as their increased skill sets enable them to move into different positions. The salary matrix has already improved retention and culture.

Background. The workforce in the County Highway Department in Wells County has experienced significant turnover recently, and almost 40% of employees have less than five years of service, as shown in Figure 16. Turnover is likely to continue, since almost 20% of the workforce is eligible for retirement. Recently, there has also been turnover of employees with less than five years of experience, with three positions in which employees have less than one-year experience has been replaced six times in the last 18 months. Employees have left for better paying jobs, both at nearby public agencies and in the private sector. Almost half of the total experience in the department is with four employees, who will likely retire in the next few years. The new hires brought challenges for the department, since experienced employees needed to spend significant time and effort training the new hires. Increasing wage rates for new hires also meant that employees with significant experience were not making much more than new employees who did not have much experience or a well-developed skillset. While compensation needs to be competitive, it is also important to make sure that compensation for experienced personnel is greater than for new hires. These challenges are exacerbated by the shortage of people with CDL training, changes to the training requirements, and a lack of candidates with the CDL credential. The department works with the local high school ICE program (a work study program in Wells County), which has been the primary source of job candidates in the past, however, recently this has resulted in no high school students even willing to participate with the Highway Department.

Wells County Highway Department successfully addressed these challenges by modifying their pay structure, introducing a salary matrix to communicate future earnings and a career ladder, establishing in-house CDL training, and developing a Lifetime Earning Calculator tool to communicate the benefits of working with the highway department in the long run.

Salary Matrix and Career Ladder. The salary structure in 2022 was fairly flat and a tight labor market meant that the starting wage rate had increased and new hires were making as much as the employees with decades of experience who were training them. This created morale problems. Moreover, since salaries still were not as high as the private sector and nearby public agencies, employee turnover was still a problem.

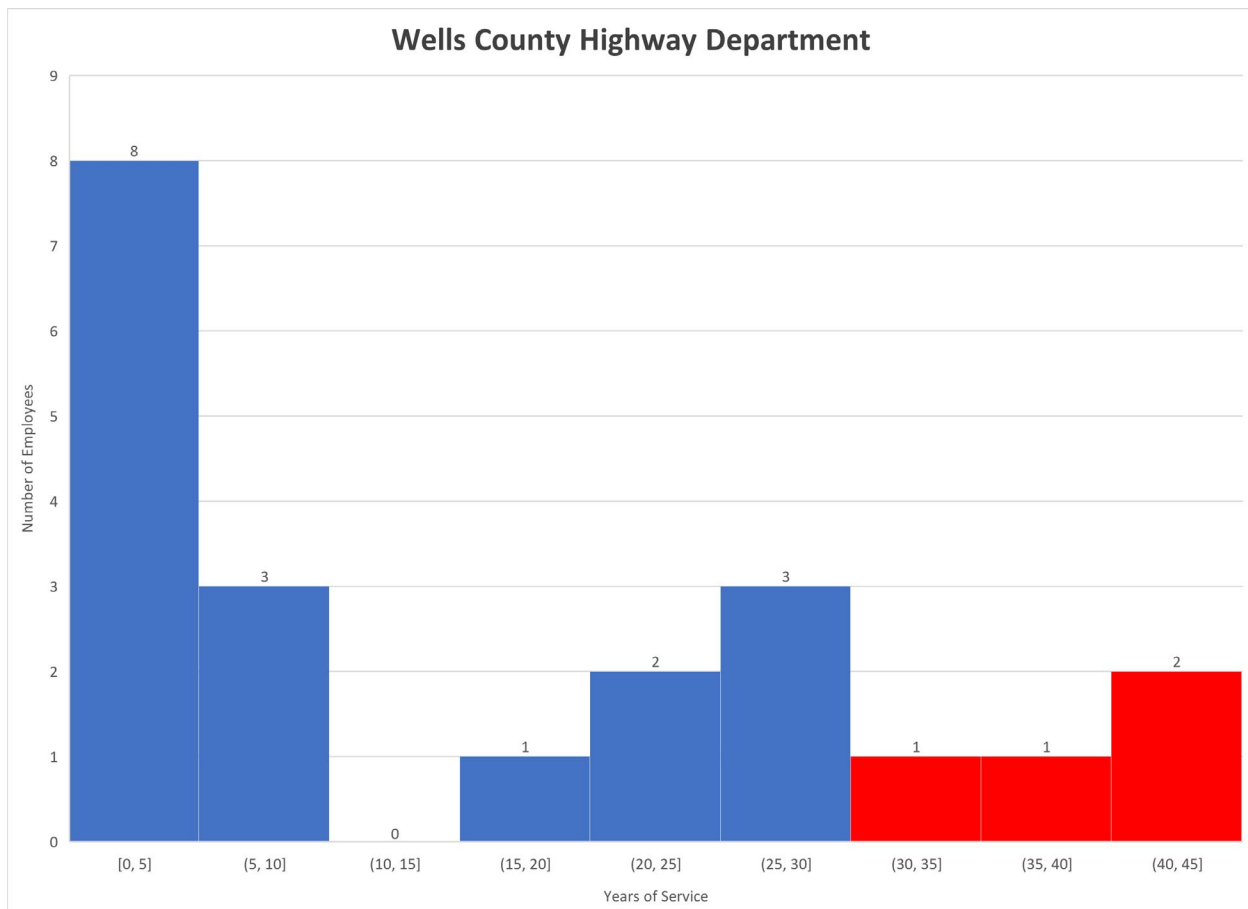


Figure 16. Highway Department Workforce: Almost 40% of Employees Have Less Than 5 Years Service and Almost 20% Are Retirement Eligible

To address these issues, the overtime budget was reduced and salary increases were provided for all employees. It was reasonable to reduce the overtime budget since the overtime budget exceeded the typical needs (Wells County does not get lake effect snow and usually only has 3 to 4 snow storms a year; in previous years, the overtime budget was 100 hours for each person, which was higher than needed).

Salary increases were graduated so experienced personnel had a greater increase, recognizing the skills they bring to the agency’s work. A wage and salary matrix, shown in Table 11, was developed and shared with employees so they could see both the wages they could expect in the future as they gained experience, as well as the wage increases they could expect if they gained additional skills and progressed in their career to become an equipment operator, or with more time in the agency, a sign manager, or mechanic, or a foreman (there are two in the department, one covers the north half of the county and one covers the south half), or the supervisor (there is one that provides management of all personnel and activities in the department).

Table 11. Wage and Salary Matrix for County Highway Department Employees

	Non- CDL	CDL-B		CDL-A								
Year	Laborer	Driver	%	Equip. Operator	%	Sign Manager	%	Mechanic	%	Foreman	%	Supervisor
0	\$23.50	\$ 23.50		\$ 23.97		\$ 24.45		\$ 24.68		\$ 24.92		
1		\$ 23.62	0.5%	\$ 24.09	0.5%	\$ 24.57	0.5%	\$ 24.80	0.5%	\$ 25.05	0.5%	
2		\$ 23.74	0.5%	\$ 24.21	0.5%	\$ 24.69	0.5%	\$ 24.92	0.5%	\$ 25.17	0.5%	
3		\$ 23.85	0.5%	\$ 24.33	0.5%	\$ 24.82	0.5%	\$ 25.05	0.5%	\$ 25.30	0.5%	
4		\$ 23.97	0.5%	\$ 24.45	0.5%	\$ 24.94	0.5%	\$ 25.17	0.5%	\$ 25.42	0.5%	
5		\$ 24.09	0.5%	\$ 24.58	0.5%	\$ 25.07	0.5%	\$ 25.30	0.5%	\$ 25.55	0.5%	
6		\$ 24.21	0.5%	\$ 24.70	0.5%	\$ 25.19	0.5%	\$ 25.42	0.5%	\$ 25.68	0.5%	
7		\$ 24.33	0.5%	\$ 24.82	0.5%	\$ 25.32	0.5%	\$ 25.55	0.5%	\$ 25.81	0.5%	
8		\$ 24.46	0.5%	\$ 24.95	0.5%	\$ 25.44	0.5%	\$ 25.68	0.5%	\$ 25.94	0.5%	
9		\$ 24.58	0.5%	\$ 25.07	0.5%	\$ 25.57	0.5%	\$ 25.81	0.5%	\$ 26.07	0.5%	
10		\$ 24.70	0.5%	\$ 25.20	0.5%	\$ 25.70	0.5%	\$ 25.94	0.5%	\$ 26.20	0.5%	
11		\$ 24.83	0.5%	\$ 25.32	0.5%	\$ 25.83	0.5%	\$ 26.07	0.5%	\$ 26.33	0.5%	
12		\$ 24.95	0.5%	\$ 25.45	0.5%	\$ 25.96	0.5%	\$ 26.20	0.5%	\$ 26.46	0.5%	
13		\$ 25.07	0.5%	\$ 25.58	0.5%	\$ 26.09	0.5%	\$ 26.33	0.5%	\$ 26.59	0.5%	
14		\$ 25.20	0.5%	\$ 25.70	0.5%	\$ 26.22	0.5%	\$ 26.46	0.5%	\$ 26.72	0.5%	
15		\$ 25.33	0.5%	\$ 25.83	0.5%	\$ 26.35	0.5%	\$ 26.59	0.5%	\$ 26.86	0.5%	
16		\$ 25.45	0.5%	\$ 25.96	0.5%	\$ 26.48	0.5%	\$ 26.72	0.5%	\$ 26.99	0.5%	
17		\$ 25.58	0.5%	\$ 26.09	0.5%	\$ 26.61	0.5%	\$ 26.86	0.5%	\$ 27.13	0.5%	
18		\$ 25.71	0.5%	\$ 26.22	0.5%	\$ 26.75	0.5%	\$ 26.99	0.5%	\$ 27.26	0.5%	
19		\$ 25.84	0.5%	\$ 26.35	0.5%	\$ 26.88	0.5%	\$ 27.13	0.5%	\$ 27.40	0.5%	
20		\$ 25.97	0.5%	\$ 26.48	0.5%	\$ 27.01	0.5%	\$ 27.26	0.5%	\$ 27.54	0.5%	\$ 68,729

The wage rate for drivers and operators ranged from 5.4% for drivers with less than one-year experience to 18.8% for equipment operators with over 20 years of experience. The raises and new salary matrix have been successful. There has been reduced turnover for the employees with less experience, and the employees with significant experience are glad to have their increased compensation reflect their increased skills and institutional knowledge.

CDL Training. In response to the need for CDL drivers in the department and the new training requirements, the department began training drivers in-house. This incurs an expense of approximately \$5,000 per employee. Since the county has made an investment in these employees and they have gained a valuable credential, the employee is expected to work at the county for at least two years. If they leave before this time, they need to pay back the county's investment in their training. If an employee leaves immediately upon earning the CDL, they must pay the county back \$5,000; the obligation is reduced by \$1,250 for every six months of their employment, as shown in Table 12. By the

end of the second year, it is likely that the employee will be well integrated into the department and will be less likely to leave.

Table 12. Obligation to Pay Back Cost of CDL Training Provided by County for Employees Leaving the County

Time after CDL Completed	Amount Paid to County by Employee
Less than 6 months	\$ 5,000
6 months to less than 12 months	\$ 3,750
12 months to less than 18 months	\$ 2,500
18 months to less than 2 years	\$ 1,250
2 years or more	\$ 0

An addition to the pay scale was to include a non-CDL “new hire” rate at 80% of the starting drive rate. This position within the ordinance allows the department to bring in candidates for a driver’s position and while they are being trained, they are not being paid at the full CDL licensed rate. This did not exist previously and did not provide an incentive for completing their licensing.

Lifetime Earnings Calculator. The salary matrix provides an excellent tool to emphasize the benefits of continued employment with the highway department. It’s also helpful for employees and potential employees to understand the benefits of beginning their career with the highway department and not incurring student loans for college. To illustrate the long-term benefits of working in the highway department, the annual and cumulative earnings for a highway department driver and a teacher are shown in Table 13. The teacher incurs expenses associated with tuition for the first four years and then the annual starting salary of \$41,570 is earned for the first year; this is the average starting salary for a teacher in Indiana. The highway department drivers start with a salary of \$48,880, and by the time a teacher makes their first year’s salary, it is expected that their salary will be \$55,041 based an annual cost of living adjustment of 2.5%. If both teachers and drivers make the same 2.5% cost of living increase, the teacher doesn’t “catch up” in terms of salary until year 28. By year 21, the highway department driver is at the maximum pay scale for their specific job classification and will earn a pension upon retirement even if they choose to leave the highway department. This earnings calculator illustrates the long-term financial benefits of working for the highway department.

Benefits of County Employment. Working with the highway department offers numerous benefits, including four ten-hour days during the summer, which is great for work/life balance and allows employees to spend time with their families, or other things. Many of the employees farm, and this schedule works well for these farmers. The increased salary has been important to ensure the county employees are treated fairly. Many employees like working at the county and ensuring the community has good roads to support their daily needs. While they may tolerate making a slightly lower salary than they would make in the private sector since they do have a strong sense of community and value their place in the community, it is important not abuse this goodwill.

Table 13. Lifetime Earnings Calculator

Years	Annual Salary Indiana Teacher	Teacher Cumulative Earnings	Cumulative Difference	Driver Cumulative Earnings	Annual Salary Cnty Highway Driver	Cost of Living Adj
0	\$ (20,000.00)	\$ (20,000.00)	\$ 68,880.00	\$ 48,880.00	\$ 48,880.00	2.50%
1	\$ (22,000.00)	\$ (42,000.00)	\$ 141,232.51	\$ 99,232.51	\$ 50,352.51	
2	\$ (24,000.00)	\$ (66,000.00)	\$ 217,101.89	\$ 151,101.89	\$ 51,869.38	
3	\$ (26,000.00)	\$ (92,000.00)	\$ 296,533.83	\$ 204,533.83	\$ 53,431.94	
4	\$ 41,570.00	\$ (50,430.00)	\$ 310,005.42	\$ 259,575.42	\$ 55,041.58	
5	\$ 43,634.25	\$ (6,795.75)	\$ 323,070.87	\$ 316,275.12	\$ 56,699.71	
6	\$ 45,750.11	\$ 38,954.36	\$ 335,728.56	\$ 374,682.91	\$ 58,407.79	
7	\$ 47,918.86	\$ 86,873.22	\$ 347,977.02	\$ 434,850.24	\$ 60,167.32	
8	\$ 50,141.83	\$ 137,015.05	\$ 359,815.05	\$ 496,830.10	\$ 61,979.86	
9	\$ 52,420.38	\$ 189,435.42	\$ 371,241.68	\$ 560,677.11	\$ 63,847.01	
10	\$ 54,755.89	\$ 244,191.31	\$ 382,256.20	\$ 626,447.50	\$ 65,770.40	
11	\$ 57,149.78	\$ 301,341.09	\$ 392,858.14	\$ 694,199.23	\$ 67,751.73	
12	\$ 59,603.53	\$ 360,944.62	\$ 403,047.37	\$ 763,991.99	\$ 69,792.75	
13	\$ 62,118.62	\$ 423,063.23	\$ 412,824.01	\$ 835,887.25	\$ 71,895.26	
14	\$ 64,696.58	\$ 487,759.81	\$ 422,188.54	\$ 909,948.35	\$ 74,061.10	
15	\$ 67,339.00	\$ 555,098.81	\$ 431,141.73	\$ 986,240.54	\$ 76,292.19	
16	\$ 70,047.47	\$ 625,146.28	\$ 439,684.76	\$ 1,064,831.04	\$ 78,590.50	
17	\$ 72,823.66	\$ 697,969.94	\$ 447,819.14	\$ 1,145,789.07	\$ 80,958.04	
18	\$ 75,669.25	\$ 773,639.18	\$ 455,546.79	\$ 1,229,185.97	\$ 83,396.90	
19	\$ 78,585.98	\$ 852,225.16	\$ 462,870.03	\$ 1,315,095.20	\$ 85,909.23	
20	\$ 81,575.63	\$ 933,800.79	\$ 469,791.65	\$ 1,403,592.44	\$ 88,497.24	
21	\$ 84,640.02	\$ 1,018,440.81	\$ 475,861.30	\$ 1,494,302.11	\$ 90,709.67	
22	\$ 87,781.02	\$ 1,106,221.83	\$ 481,057.70	\$ 1,587,279.53	\$ 92,977.42	
23	\$ 91,000.55	\$ 1,197,222.38	\$ 485,359.00	\$ 1,682,581.38	\$ 95,301.85	
24	\$ 94,300.56	\$ 1,291,522.94	\$ 488,742.84	\$ 1,780,265.78	\$ 97,684.40	
25	\$ 97,683.07	\$ 1,389,206.01	\$ 491,186.27	\$ 1,880,392.29	\$ 100,126.51	
26	\$ 101,150.15	\$ 1,490,356.16	\$ 492,665.79	\$ 1,983,021.96	\$ 102,629.67	
27	\$ 104,703.90	\$ 1,595,060.07	\$ 493,157.30	\$ 2,088,217.37	\$ 105,195.41	
28	\$ 108,346.50	\$ 1,703,406.57	\$ 492,636.10	\$ 2,196,042.66	\$ 107,825.30	
29	\$ 112,080.16	\$ 1,815,486.73	\$ 491,076.86	\$ 2,306,563.59	\$ 110,520.93	
30	\$ 115,907.17	\$ 1,931,393.90	\$ 488,453.65	\$ 2,419,847.55	\$ 113,283.95	
31	\$ 119,829.85	\$ 2,051,223.75	\$ 484,739.85	\$ 2,535,963.60	\$ 116,116.05	
32	\$ 123,850.59	\$ 2,175,074.34	\$ 479,908.21	\$ 2,654,982.55	\$ 119,018.95	
33	\$ 127,971.86	\$ 2,303,046.20	\$ 473,930.78	\$ 2,776,976.98	\$ 121,994.43	
34	\$ 132,196.16	\$ 2,435,242.36	\$ 466,778.91	\$ 2,902,021.26	\$ 125,044.29	
35	\$ 136,526.06	\$ 2,571,768.41	\$ 458,423.25	\$ 3,030,191.66	\$ 128,170.39	
36	\$ 140,964.21	\$ 2,712,732.62	\$ 448,833.69	\$ 3,161,566.31	\$ 131,374.65	
37	\$ 145,513.32	\$ 2,858,245.94	\$ 437,979.39	\$ 3,296,225.33	\$ 134,659.02	
38	\$ 150,176.15	\$ 3,008,422.09	\$ 425,828.74	\$ 3,434,250.83	\$ 138,025.50	
39	\$ 154,955.55	\$ 3,163,377.64	\$ 412,349.32	\$ 3,575,726.96	\$ 141,476.13	
40	\$ 159,854.44	\$ 3,323,232.08	\$ 397,507.92	\$ 3,720,740.00	\$ 145,013.04	
41	\$ 164,875.80	\$ 3,488,107.88	\$ 381,270.48	\$ 3,869,378.36	\$ 148,638.36	
42	\$ 170,022.70	\$ 3,658,130.58	\$ 363,602.11	\$ 4,021,732.69	\$ 152,354.32	
43	\$ 175,298.26	\$ 3,833,428.85	\$ 344,467.02	\$ 4,177,895.87	\$ 156,163.18	
44	\$ 180,705.72	\$ 4,014,134.57	\$ 323,828.56	\$ 4,337,963.13	\$ 160,067.26	
45	\$ 186,248.36	\$ 4,200,382.93	\$ 301,649.14	\$ 4,502,032.07	\$ 164,068.94	
46	\$ 191,929.57	\$ 4,392,312.50	\$ 277,890.23	\$ 4,670,202.73	\$ 168,170.66	
47	\$ 197,752.81	\$ 4,590,065.32	\$ 252,512.35	\$ 4,842,577.66	\$ 172,374.93	
48	\$ 203,721.63	\$ 4,793,786.95	\$ 225,475.02	\$ 5,019,261.97	\$ 176,684.30	
49	\$ 209,839.67	\$ 5,003,626.62	\$ 196,736.76	\$ 5,200,363.38	\$ 181,101.41	

Working with High School Students to Broaden the Road and Bridge Workforce

Eric Fisher, ICI

Summary. Eric Fisher works with Indiana Constructors, Inc. (ICI) to support initiatives that engage high school students with careers in Indiana's highway, heavy and utility construction industry. ICI has developed a program for high school teachers so they can learn about careers in highway, heavy and utility construction and then introduce their students to these careers. Eric is uniquely qualified to support these activities, since he was a teacher through 2022, when he retired from teaching and joined ICI to lead their secondary education efforts to bolster the workforce.

Example Activities. ICI has a number of activities underway to support the education of high school students and their work in the road and bridge construction industry. Some of these activities build on work that Eric did when he was a secondary education teacher, and other activities are supported by Indiana contractors and agencies.

- ICI is building on curriculum developed by the National Center for Construction Education Research (NCCER) and is working with four Indiana teachers who are writing supporting content and developing student activities. These modules are focused on roads, bridges and utility construction.
- Eric has placed high school students with a variety of constructors during the summer, where they gain experience while earning a good wage (about 2/3 the wage of a union laborer, so approximately \$16 an hour).
- Reith Riley and McAllister Caterpillar have developed an Indiana version of the Extreme Sandbox that was built in Minnesota. Extreme Sandbox (learn more at <https://www.extremesandbox.com/>) is an adventure park that gives people an opportunity to drive heavy construction equipment. This Indiana initiative gives high school students an opportunity to drive construction equipment on a controlled field site in a safe environment. Eric did a variation of this when he was a teacher, and looking forward to the chance to drive heavy equipment was a big motivator for student involvement and learning.
- Students are always interested in technology. Technology may include equipment such as a desktop simulator that allows students to operate heavy equipment in the classroom (it was always busy at Eric's high school and one can be purchased for about \$20k), construction drones for surveying and the development of 3D maps of the construction site, and On Station, an app to virtually explore and to complete tasks on a virtual construction site.
- Field trips to construction sites are a great way to foster interest, teach students and expose students to the work and future work opportunities. On field trips they can see firsthand how much of the work is outside and attract those people that enjoy working outside (getting their boots muddy).

Partners. ICI works with a variety of owners, constructors and associations to support their activities. He noted that collaborations and coalitions were imperative to increase the number of people interested in the field and pool resources. ICI also works closely with Indiana high schools and their teachers. One partnership is the Indiana Transportation Team, which includes ACEC representing designers, INDOT, representing owners, and ICE (Indiana Constructors & Engineers), representing

constructors. This partnership has numerous active members, and at a meeting last fall with about 1,000 people, workforce issues were identified as the top priority.

ICI is also working with Indiana LTAP, and Indiana LTAP will help in the teacher training program in Summer 2023.

The workforce issue is complex and big, and a variety of stakeholders will need to work together to help address the challenge. In addition to the organizations mentioned above, associations such as the Indiana Chapter of the American Concrete Pavement Association, the Asphalt Pavement Association of Indiana, the Indiana Public Surveyors, the Indiana Ready Mix Association, the Indiana Mine Association, Indiana Mineral Aggregate Association are all partners in developing the future workforce through ICI.

Opportunities to Work with Local High Schools. ICI is already working with a high school and is planning program activities for additional high schools in the Indianapolis area, in addition to the connections they are making with teachers through their summer program scheduled for 2023. A local road agency could work with a local high school to start building a relationship and to let students know about job opportunities in the road sector. Local agencies can partner with local constructors and Indiana associations for a field trip, a technology demo, or other activities that would interest students. Many of the construction technical education programs are focused on vertical constructions (buildings) rather than road, bridge and utility construction so these programs are a good opportunity to expand student interest in this area.

Building Skill Sets. There are a variety of things that can be provided to introduce high school students to the roadway sector, including OSHA 10 training, Flagger Certification, and an introduction to Skid Steers.

CDL Early Start. Educating students on the many opportunities available when you have a commercial driver's license is another approach to get young people interested in road, bridge, and utility construction. Students can complete the online knowledge component for their CDL prior to turning 18 so they can get their CDL learner permit when they turn 18. Students could quickly leverage the certification for full time and part time high paying jobs.

LTAP Training and Resources

Indiana LTAP provides a wide variety of training resources to support local agencies and their employees.

Online Learning. LTAP provides a variety of online learning modules including the twelve courses that contribute to the Road Builder Certification. Online courses can be taken when it is convenient to minimize disruption to regular duties. Online resources also include a variety of webinars and videos relevant to local agency duties.

Training Records. LTAP maintains a database of training records, certifications, credits and upcoming events for each employee.

Commercial Motor Vehicle Training. LTAP provides support for Commercial Motor Vehicle Training including access to resources, ELDT courses, and a simulator.

Other Resources. LTAP provides a wide variety of resources including conferences, an equipment loan program, an Innovation Program, and resources to support asset management, safety audits, and on-site hands-on training. Visit their website at <https://www.purdue.edu/inltap/> or contact the LTAP office for more information.

Chapter 3. Methodology

This research included a literature review to provide context for local agency workforce issues, a survey to determine workforce priorities for local agencies and investigation of compensation data.

Survey

The online survey of local agency personnel was advertised via the LTAP newsletter and email. The survey included a variety of questions to determine challenges and priorities related to the workforce. The three primary challenges included Recruitment, Retention and Compensation. The results of this survey supported the need for the information on recruitment, retention and compensation provided in Chapter 1 as well as the salary data provided in Chapter 4. Survey response information is provided in Appendix D.

Salary Data

The research included development of a database of local agency salaries based on public employee compensation information in the Indiana Gateway (<https://gateway.ifionline.org/>). Data for each county was downloaded into a master spreadsheet -for analysis. Information is presented for the state and for each economic development region, as defined by the Indiana Department of Workforce Development (DWD), as shown in Figure 17.

Salary information is also provided based on information from the Bureau of Labor Statistics (BLS), Indiana State Government (including Indiana Department of Transportation (INDOT), the Association of Indiana Counties (AIC), and Indiana Department of Workforce Development (DWD)).

There are a number of challenges related to the salary data. It is valuable to consider the wage rate for different employee categories (e.g., drivers vs. clerks) and all data was categorized based on the title and the duties. There are limitations with the analysis given the differences between agencies (e.g., some agencies gave all employees the same title, Road Maintenance Worker, and other agencies gave each employee a different title). Similarly, different organizations such as the BLS, INDOT, and APWA also use different job titles. As a result, the data and analysis should be considered useful but individual agencies should recognize the potential limitations of comparing their data with other agencies and organizations. Given the limitations with categorization, the duties for any individual may differ from the duties of others within the same category.

Demographic information such as age and sex was determined for Driver/Operator and Maintenance Worker categories. This information is based on a sampling technique and reflects a minimum sample of 287 Driver/Operators (database population 1,125) and 227 Maintenance workers (database

As a result, the data and analysis should be considered useful but individual agencies should recognize the potential limitations of comparing their data with other agencies and organizations.

population 550) and 121 Mechanics (database population 175)¹. Results and additional information are provided in Chapter 4.

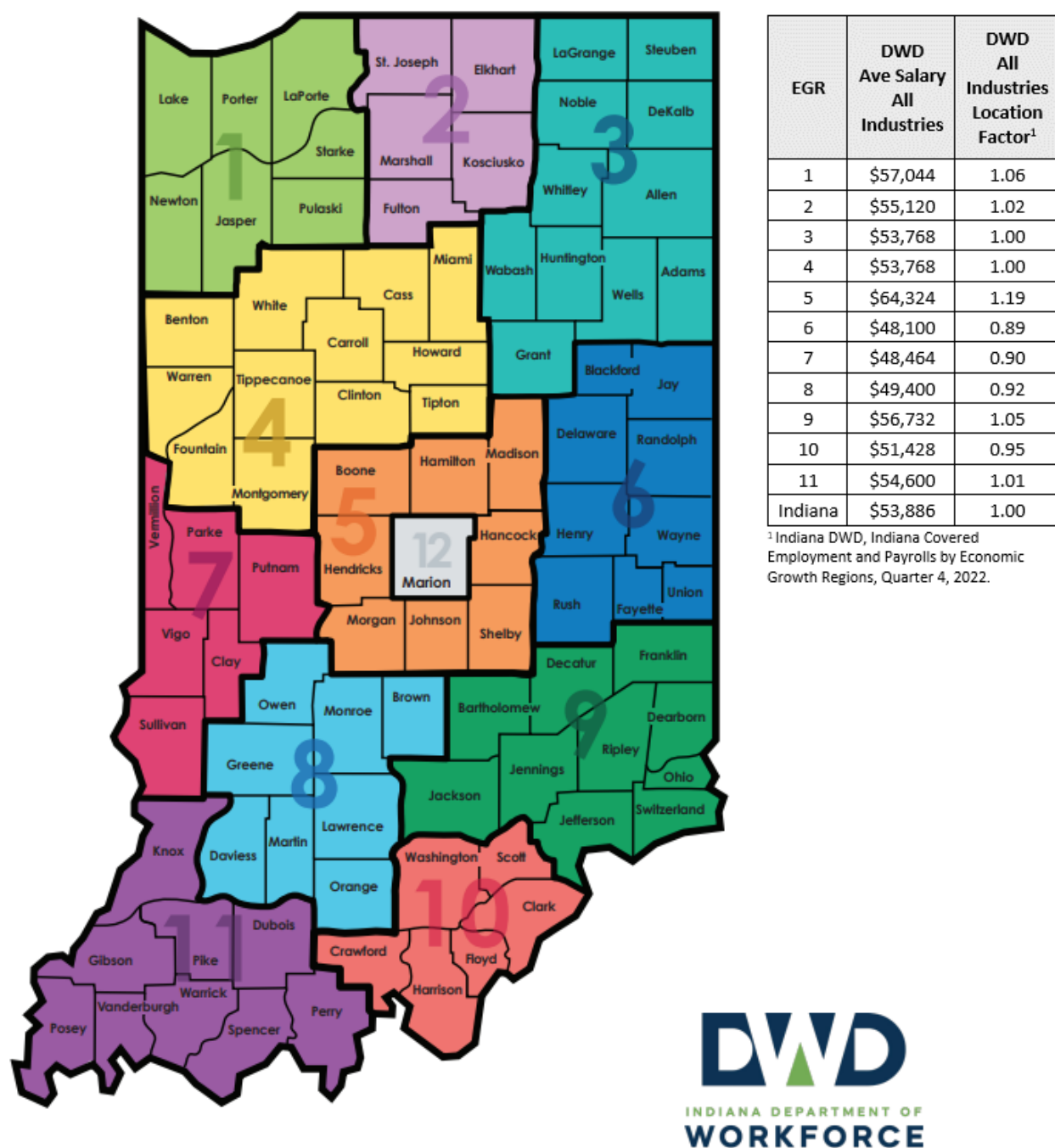


Figure 17. Indiana Regions as Defined by Indiana Department of Workforce Development (DWD)

¹ Sampling methodology reflects 95% confidence level and 5% margin of error, and 50% population proportion per <https://www.calculator.net/sample-size-calculator.html>.

Employee retention was estimated using an eight-county sample consisting of Adams, Fayette, Floyd, Fountain, Hamilton, Lawrence, Pike and White Counties (this is the sample used for the 2001 and 2009 Indiana LTAP Needs Assessment for Local Roads and Streets). This sample included 275 employees¹ in 2022. To determine retention, the employees in the Indiana Gateway salary database for each county highway department was downloaded for 2021 and compared to the database for 2022. The retention rate was calculated as the number of employees that were in the 2021 database but not in the 2022 database divided by the number of employees in the 2021 database. Although it is not possible to completely account for part-time positions, when positions were labeled part time or seasonal (per the Job Title/Duties column) they were excluded from the calculation.

¹ Based on the retention results, the sample size exceeded the minimum sample size of 143 which reflects a 95% confidence interval, a 5% margin of error, a population proportion of 89% (the calculated retention rate) and a population size of 2552 (the number of observations in the 2022 salary database) per <https://www.calculator.net/sample-size-calculator.html>

Chapter 4. Indiana Local Agency Salary Data

A salary database for local road agency employees in Indiana was developed based on publicly available compensation data. Salary data for Indiana local agency employees was retrieved from Indiana Gateway for each county. Data from 2022 was used, except for a few counties that had not submitted 2022 data, in which case 2021 data was used¹. Data was not included for Marion County, since the City of Indianapolis manages local roads and bridges in Marion County and since the workforce situation in Indianapolis is not representative of the other local agencies served by Indiana LTAP.

Within the Gateway Employee Compensation Report, the Employees in the Highway Department were selected for inclusion in the salary database; in some cases, these employees were designated by the Department category Highway, in other cases, Department categories such as Highway Fund Administrative, 1176, 1176 Highway Fund Admin, Cum Bridge, 1135 Cum Bridge were used. The Job Title/Duties were used to confirm that the correct Department categories were selected, since each local agency can designate their department titles at their discretion.

Job Title/Duties are designated for each employee, and categories may include Mechanic, Highway Driver/Operator, Director, Labor, and so forth. Since each local agency can designate their own Job Title/Duties for each employee, it was necessary to provide some grouping of job titles for analysis.

The following job categories were used.

- Driver/Operator
- Maintenance Worker
- Foreman (this included Working Foreman²)
- Mechanic
- Clerical/Office/Administrative Support
- Manager/Assistant Super/Other Administration
- Director/Superintendent
- Technician
- Engineering Administration
- Head mechanic/Shop Foreman
- Engineer

There were a number of challenges associated with the development and interpretation of the salary database. Challenges included designation of job duties, and use of part time employees.

One of the greatest challenges was the fact that each agency can designate their employees with their own descriptors, so categorizing employees appropriately presents some challenges. Although some

¹ 2021 data was used for Switzerland and Tipton Counties since 2022 data was not available as of March 1, 2023, the deadline for uploading information.

² Working Foreman and Assistant Foreman are not common designations and the salary characteristics were similar to salary for the Foreman category. See the Appendix for more information.

agencies provided a distinction between CDL and non-CDL drivers, most agencies did not so it is not practical to provide this distinction in the database.

Some agencies use part time and seasonal employees. Employees making less than \$20,000 were excluded from the database to reduce the impact of these seasonal employees. Similarly, any employees that had part time or intern in their title were excluded from the database.

Reasonable efforts were made to check the data, for example, each agency was double checked to assure that they had an administrator, either a Director, Superintendent or Engineer. Some agencies did not have a Superintendent, and instead had multiple Assistant Superintendents; some smaller agencies did not apparently have any designated highway administrator based on the designations in the Job Title/Duties, which was double checked with the LTAP directory and the county website.

The total number of employees by job category statewide is shown in Table 14 and Figure 18. The following sections provide more detailed salary data for each job category, starting with Driver/Operator, which about 44% of all employees, followed by Maintenance Workers, which represents about 22% of all employees, and the remaining job categories.

Table 14. Employees and Salary by Job Category for Local Agencies in Indiana

Job Category	Employee Count	Percent of all employees	Salary		
			Ave	Min	Max
Driver/Operator	1,158	45%	\$42,251	\$20,002	\$72,845
Maintenance Worker	555	22%	\$41,987	\$20,098	\$65,942
Foreman and Working/Asst Foreman	218	9%	\$51,267	\$20,299	\$83,065
Mechanic	176	7%	\$45,808	\$20,816	\$73,800
Clerical/Office/Admin Support	130	5%	\$39,599	\$20,256	\$59,464
Mgr/Asst Super/Other Admin	104	4%	\$61,640	\$23,000	\$138,806
Director/Superintendent	81	3%	\$68,763	\$41,624	\$132,632
Technician	39	2%	\$53,547	\$21,560	\$85,858
Head mechanic/Shop Foreman	33	1%	\$49,790	\$21,406	\$75,884
Engineer	29	1%	\$79,413	\$27,471	\$125,113
Engineer Administrator	28	1%	\$102,746	\$51,000	\$142,376
Indiana	2,551	100%	\$46,045	\$20,002	\$142,376

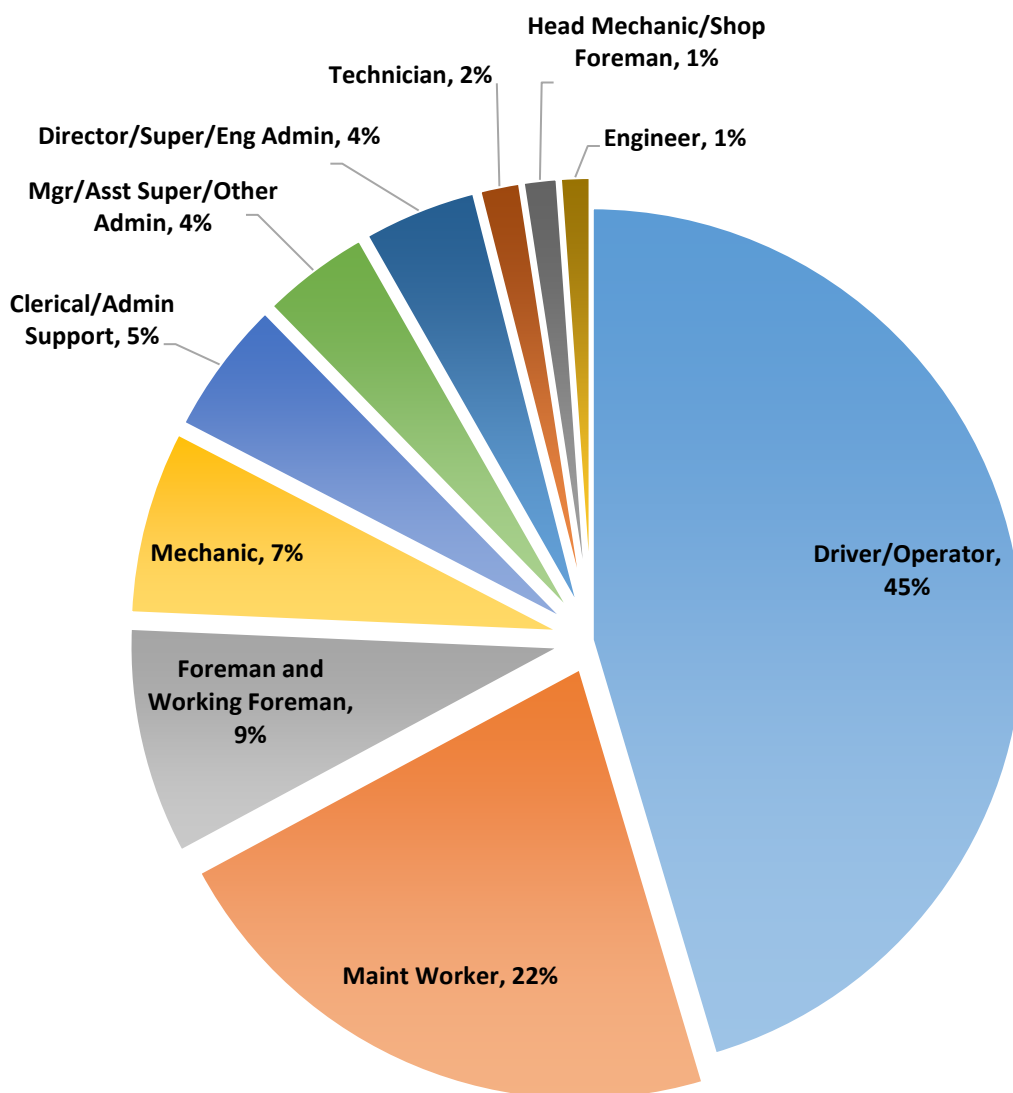


Figure 18. Characteristics of Indiana Local Road Agency Workforce

For job categories with a significant number of workers (e.g., Driver/Operator and Maintenance Worker categories), salary data is also presented based on the regions identified by the Indiana Department of Workforce Development (DWD), as previously shown in Figure 17. These eleven DWD regions are also referred to as Economic Growth Regions (EGR) since they share some common characteristics in terms of industry and demographic factors. Presentation of data by EGR region enables agencies to compare their internal agency data with data for the region. Be wary of data presented by region when there are few data points; ideally there would be thirty observations to ensure a reasonable sample but in many cases this minimum is not available. Salaries may tend to be lower for smaller agencies in more rural areas.

Demographics. The demographics of the Indiana Driver/Operators and Maintenance Workers are shown in Figures 19 and 20. The age and gender data are from a smaller sample set of the local agency employee data. A sample size of 290 randomly chosen individuals was used for the Driver Operator data and 229 for the Maintenance workers. Most Driver/Operators (60%) and Maintenance workers (60%) are over 50 years old. This large percentage of older workers would indicate a need to recruit and train a younger work force since many of these workers will be retiring in the coming years. The aging workforce in the United States is well documented and is something that all industries are facing. Potential solutions include increased [recruitment](#) efforts as discussed previously in this report.

Most Driver/Operators (60%) and Maintenance workers (60%) are over 50 years old.

Another possible solution to the issue of retiring workers, is to recruit non-traditional workers. As can be seen by the gender pie charts in Figures 19 and 20, most workers are male (97%). This is similar to the percentage of men in the construction trades (96.1%) (National Center for Construction Education and Research (NCCER), 2023). This gender gap indicates a possible recruitment strategy to recruit non-traditional workers into the field. The National Center for Construction Education and Research (NCCER) recently did a comprehensive study on women in the building trades (2023). This study provides insights into why women join the construction industry, some of the unique qualities they bring to the job, and best practices for retention and recruitment.

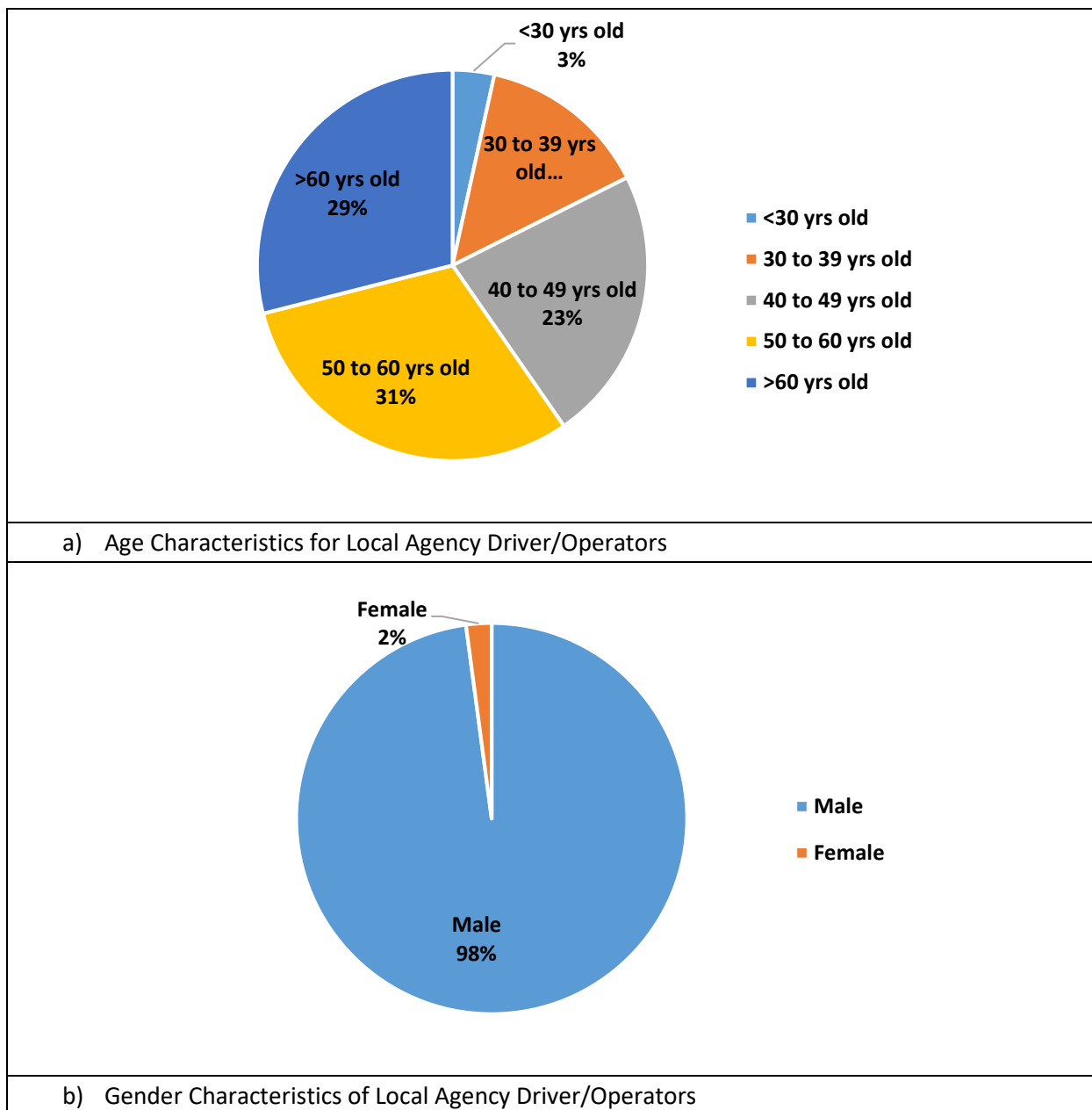


Figure 19. Demographics of Indiana Local Agency Driver/Operators

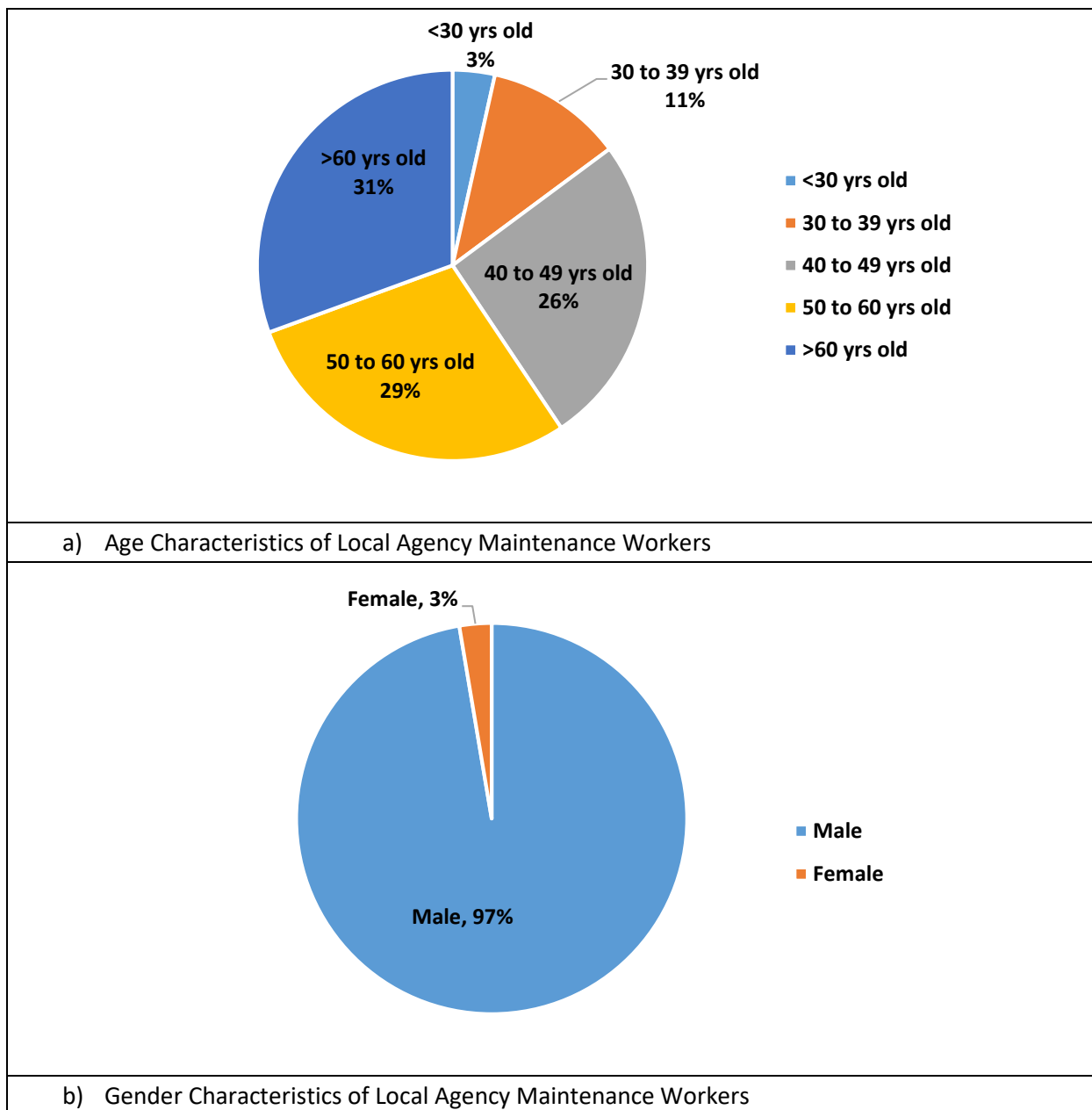


Figure 20. Demographics of Indiana Local Agency Maintenance Workers

Retention. Employee retention supports agency stability and ensures institutional knowledge is maintained. Retention is often calculated on an annual basis, dividing the number of employees that remain employed by the total number of employees. Calculation of retention requires downloading data for 2021 and matching individual employees so a sample was used to provide an estimate of retention. The results are shown in Table 15. Retention for Indiana local road agencies was 88% and ranged from 78% to 95% for the agencies considered.

Additional information is provided in the following sections. This includes comparisons and information for specific job categories in the next sections. Driver/operators and road maintenance workers are the top categories for local road agencies, so additional data and graphs for each region are provided for these two categories.

Table 15. Estimation of Retention for Local Agencies in Indiana

County	Employee Count in 2021 ¹	Number of Employees Who Left Agency ¹	Estimated Retention
Adams	25	3	88%
Fayette	19	1	95%
Floyd	40	9	78%
Fountain	27	3	89%
Hamilton ¹	44	6	86%
Lawrence	30	3	90%
Pike	21	1	95%
White	38	4	89%
Total	244	30	
Average			89%
Weighted Average			88%

¹ Does not include employees with Seasonal, Part time or PT in Job Title/Duties

Salary Characteristics and Comparisons

Figure 21 and Table 16 provide information about the distribution of salaries and the average and range for salaries for local agency employees. The most common salary range for local agency employees is from \$40,000 to \$50,000, and salary values from just over \$20,000 to a maximum of \$142,376. Salaries less than \$20,000 were not included the salary averages in an effort to reduce the impact of employees who work part time and/or part of the year.

Table 17 provides a comparison between the average salary for local road agency personnel and the average salary for state employees. The average for local agency employees is always lower, ranging from 3% to 25% lower, depending on the position. The four categories that represent most of local agency employees, Driver/Operator, Maintenance Worker, Foreman, and Mechanic, are 11%, 23%, 25% and 11% lower than similar state jobs (respectively). This salary difference suggests that local agency salaries may need to increase to be competitive with the market and to ensure that local agency employees are fairly compensated for their efforts.

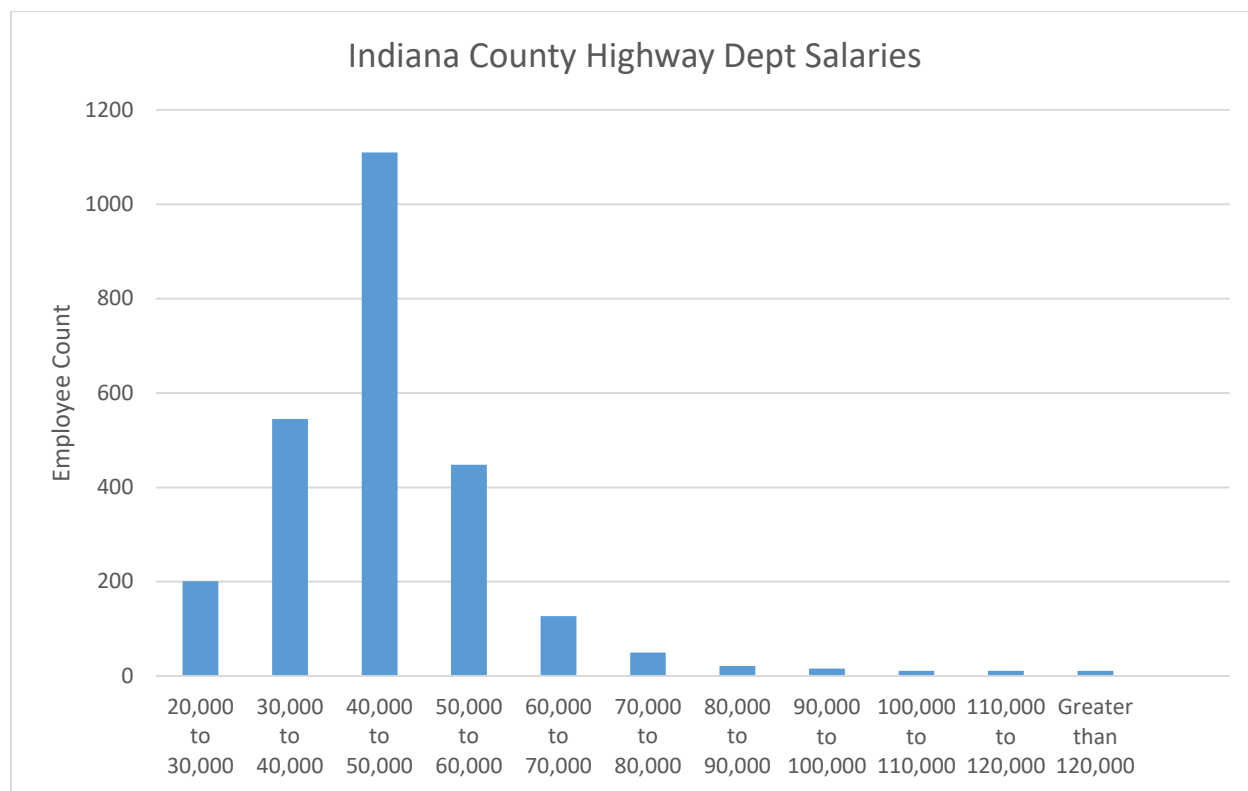


Figure 21. Histogram of Salaries for County Highway Workers in Indiana

Table 16. Annual Salary by Region (all local agency job categories)

EGR	Count	Salary		
		Average	Min	Max
1	262	\$47,420	\$20,272	\$132,632
2	188	\$51,136	\$20,156	\$118,668
3	304	\$50,247	\$20,816	\$140,800
4	327	\$44,346	\$20,098	\$118,247
5	251	\$54,122	\$20,097	\$142,376
6	199	\$42,070	\$20,002	\$130,000
7	173	\$41,444	\$21,484	\$99,257
8	208	\$44,965	\$20,288	\$97,296
9	210	\$41,347	\$20,465	\$99,339
10	139	\$41,313	\$20,770	\$101,556
11	289	\$44,117	\$20,081	\$120,826
Indiana	2,551	\$43,797¹	\$20,002	\$142,376

¹Weighted average.

Table 17. Comparison of Local Agency and Indiana State Government Salaries

Job Category	Local Ave	IN State Govt Ave ¹	Difference	Percent Difference ²	Local as % of State
Driver/Operator	\$42,251 \$20.31/hr	\$46,800 \$22.50/hr	\$4,549	11%	90%
Maintenance Worker	\$41,987 \$20.19/hr	\$51,506 \$24.76/hr	\$9,519	23%	82%
Foreman and Working Foreman	\$51,267 \$24.65/hr	\$63,869 \$30.71/hr	\$12,602	25%	80%
Mechanic	\$45,808 \$22.02/hr	\$50,980 \$30.71/hr	\$5,172	11%	90%
Mgr/Asst Super/Other Admin	\$61,640	\$66,679	\$5,039	8%	92%
Clerical/Office/Admin Supt	\$39,599	\$44,252	\$4,653	12%	89%
Director/Superintendent	\$68,763	\$76,265	\$7,502	12%	90%
Technician	\$53,547	\$55,096	\$1,549	3%	97%
Head mechanic/Shop Foreman	\$49,790	\$52,490	\$2,700	5%	95%
Engineer	\$79,413	\$81,530	\$2,117	3%	97%
Engineer Administrator	\$102,746	\$123,724	\$20,978	20%	83%

¹IN State Ave includes INDOT personnel and is the average of midpoint salary for relevant job classifications. ²Percent difference is the Difference divided by the Local Average.

The Association of Indiana Counties (AIC) provides salary data for jobs that would be of interest for local agencies (AIC 2022). The data from the report was analyzed and sorted by the Economic Growth Region and comparisons to local job titles were made. There are limitations with respect to comparisons given the differences in titles used by difference sources (i.e., AIC data does not have the same titles or work categories used by local agencies), therefore job categories that represent the local job titles were selected and averaged to match the local job category. Detailed job category salaries and a list of job category comparisons can be found in Appendix K. Results of the AIC wage comparison for the state is shown in Table 18. It should be noted that Marion County was not included in the analysis for Region 5.

The Indiana Department of Workforce Development (DWD) also provides salary data by EGR for both private and public entities combined and is shown in Table 18 (DWD, 2023). Since this is a combination of both public and private entities the job titles are different, however,

it still provides a good basis for salaries in each economic region since public entities have to compete for workers from the private industry. Detailed job category salaries and a list of job category comparisons can be found in Appendix K along with additional information on construction trade salaries. It should be noted that Marion County was not included in the analysis for Region 5.

Public entities have to compete for workers from the private industry.

Figure 22 is a plot of the salary data provided in Table 18. For job categories where DWD data is available, the DWD is generally higher than the other salaries. This reflects that most private sector salaries tend to be higher than the public sector salaries. In addition to private salaries being higher than local salaries, the Indiana State Government salaries tend to be higher than local agency salaries for most categories. There is good general agreement between the local agency salaries and the AIC salaries which validates the accuracy of the database used for local agency salary analysis. The data for Job Listings in Table 18 reflects current salary information based on summary data for internet job postings for Indiana per Talent.com.

Table 18. Salary Comparison: Local Agencies, Indiana State Government, Association of Indiana Counties (AIC), and Indiana Department of Workforce Development (DWD)

Job Category	Salary				
	Local Ave	IN State Govt	AIC Data	DWD	Job Listings ¹
Driver/Operator	\$42,251 \$20.31	\$46,800 \$22.50	\$42,431 \$20.40	\$47,015 \$22.60	\$64,246 \$30.89
Maintenance Worker	\$41,987 \$20.19	\$51,506 \$24.76	\$39,662 \$19.07	\$46,037 \$22.13	\$45,883 \$22.06
Foreman/ Asst Foreman	\$51,267 \$24.65	\$63,869 \$30.71	\$47,963 \$23.06		\$54,054 \$25.99
Mechanic	\$45,808 \$22.02	\$50,980 \$24.51	\$44,556 \$21.42	\$50,943 \$24.49	\$52,979 \$25.47
Mgr/Asst Super/Other Admin	\$61,640	\$66,679	\$54,604	\$106,051	
Clerical/Office/Admin Support	\$39,599	\$44,252	\$40,301	\$36,878	
Director/Superintendent	\$68,763	\$76,265		\$109,269	
Technician	\$53,547	\$55,096		\$59,815	
Head mechanic/Shop Foreman	\$49,790	\$52,490			
Engineer	\$79,413	\$81,530	\$72,846	\$84,215	
Engineer Administrator	\$102,746	\$123,724		\$47,015	

¹ Job Listings value reflects the average salary for current job listings in Indiana based on information provided by Talent.com in June 2023. Driver/Operator reflects average for Local Truck Driver, CDL Truck Driver and CDL Driver. Maintenance Worker reflects average for Highway Maintenance, Road Construction and Road Worker. Foreman/Asst Foreman reflects average for Working Foreman and Crew Foreman. Mechanic reflects average for Heavy Equipment Mechanic and Maintenance Mechanic.

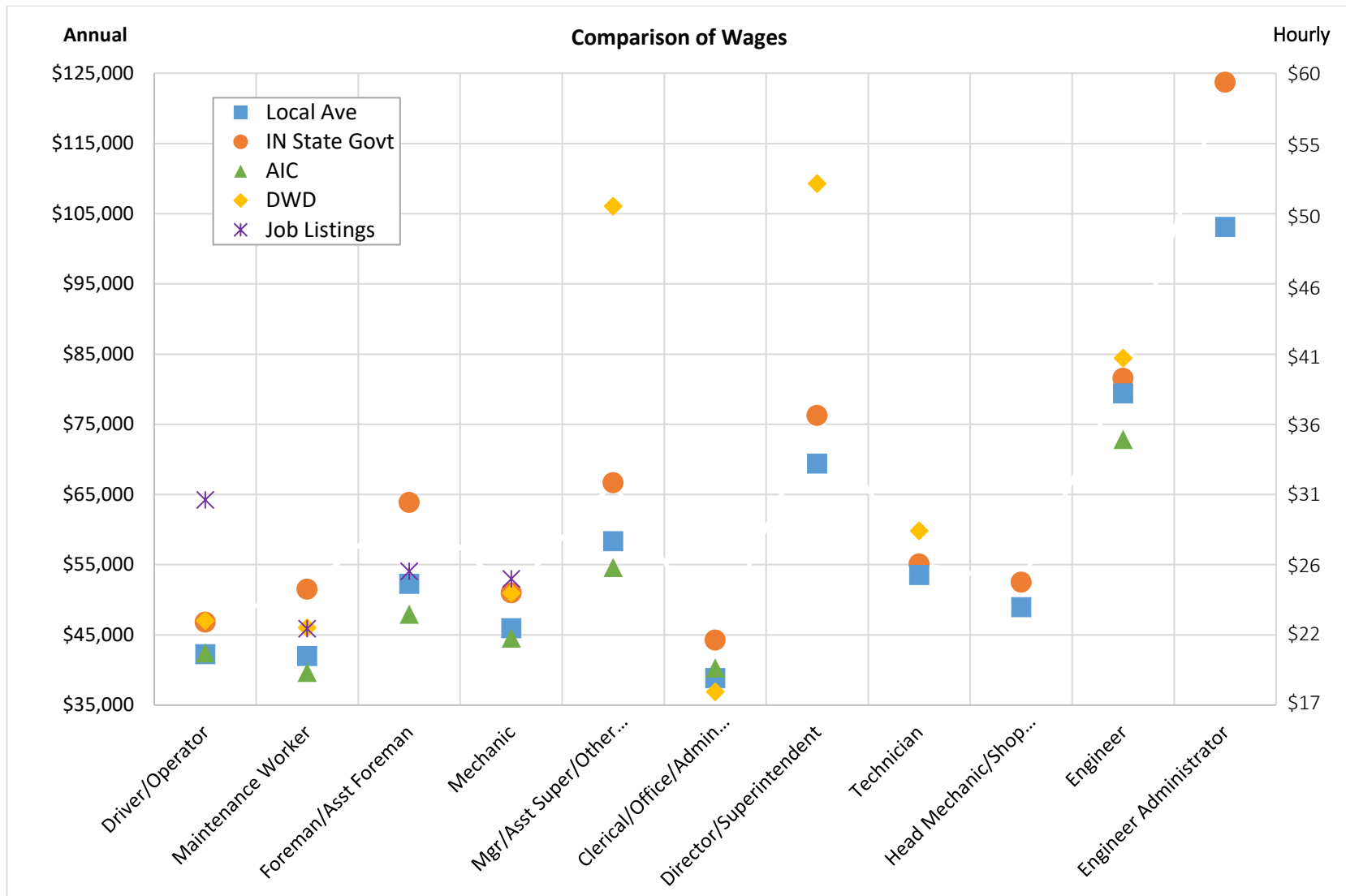


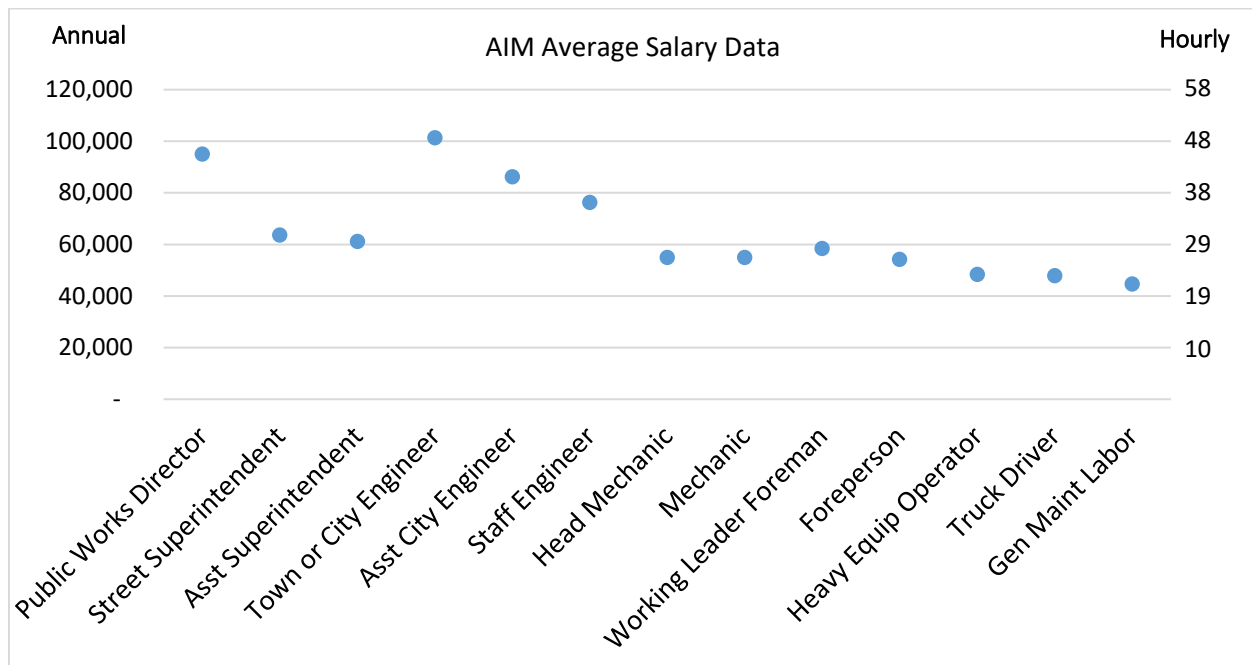
Figure 22. Plot of Wages from Local Agencies, Indiana State Government Salaries, Association of Indiana Counties (AIC), Indiana Department of Workforce Development (DWD), and Current Job Listings

Accelerate Indiana Municipalities (AIM) provides salary data for jobs provided by Indiana cities and towns (AIM 2023a, AIM 2023b, AIM 2023c). Summary data from this report is provided in Table 19 and Figure 23. Note that the categories are similar but not identical to the categories shown in Table 18 and Figure 22. The categories in Table 19 and Figure 23 are not combined so additional information can be discerned for the wider variety of categories such as those for engineers.

Table 19. Indiana Cities and Towns Salary Data (Source: AIM, 2023a, AIM 2023b, AIM 2023c)

Job Category	Count	Average	Median	Min	Max
Public Works Director	26	\$95,037	\$93,436	\$55,702	\$133,164
Street Superintendent	100	\$64,256	\$64,665	\$27,071	\$108,150
Asst Superintendent	23	\$61,174	\$59,640	\$43,160	\$84,459
Town or City Engineer	27	\$101,396	\$98,950	\$20,592	\$143,063
Asst City Engineer	7	\$86,298	\$82,150	\$72,760	\$117,861
Staff Engineer	8	\$76,360	\$74,643	\$60,117	\$97,687
Head Mechanic	30	\$54,951 \$26.42/hr	\$53,425	\$38,106	\$83,761
Mechanic	11	\$54,962 \$26.42/hr	\$52,853	\$35,360	\$80,829
Working Leader Foreman	13	\$58,516 \$28.03/hr	\$59,280	\$42,354	\$73,362
Foreperson	25	\$54,234 \$26.07/hr	\$55,145	\$38,264	\$69,035
Heavy Equip Operator	24	\$48,450 \$23.29/hr	\$47,632	\$35,360	\$58,427
Truck Driver	28	\$47,911 \$23.03/hr	\$46,704	\$33,658	\$60,201
Gen Maint Labor	41	\$44,674 \$21.48/hr	\$44,158	\$35,880	\$58,552

Figure 23. Plot of Indiana Cities and Towns Salary Data (Source: AIM, 2023a, AIM 2023b, AIM 2023c)



Additional Information by Job Category

Below is additional salary information for each job category. More extensive information is provided for driver/operators and maintenance workers since these job categories include the majority of workers at local road agencies in Indiana.

Driver/Operator

Drivers and equipment operators represent almost half (45%) of the local agency employees in the database. Many of these drivers have a commercial driver's license (CDL) which is required to operate the large and heavy equipment required for many road agency tasks. Typical duties of a driver/operator may include the following (ZipRecruiter, 2023).

Drivers and equipment operators represent almost half (45%) of the local agency employees in the database.

- Operates various trucks, equipment and hand tools in clearing and maintaining county roads and rights-of-way, such as dump truck, snowplow, chain saw, chipper, front-end loader, hole patcher, etc.
- Hauls and spreads road materials, including gravel, sand, top dirt, asphalt and salt
- Installs/removes permanent and emergency road signs
- Performs preventive maintenance on trucks and equipment, such as washing, maintaining fluid levels and lubricating, and records on maintenance log as required
- Operates chain saws, mowers and chipper in removing weeds, brush and storm-damaged trees from rights-of-way, including roadsides, culverts, guard rails and bridges
- Performs duties such as lifting/loading pipes and guard rails, shoveling and spreading road patching materials, and picking up trash
- Periodically assists with flagging/traffic control at work sites, assists in excavating ditch/drainage sites and installing/repairing tile and culverts as needed
- Serves on 24-hour call for emergency situations as designated by Superintendent or other department leadership

Characteristics of driver/operator salaries for each region are shown in Table 20 and Table 21. Histograms of these salaries for Indiana are shown in Figure 24, with the gap between local agency salaries and stage agency salaries in Figure 25. Histograms for driver/operator salaries in each region are shown in Figure 26.

The statewide average salary for driver/operator is \$42,251; this is approximately 11% and \$4,549 less than the average salary of \$46,800 for similar state government employees. The highest average salary is in Region 2 (northern central Indiana) followed by Region 5 (counties in the Indianapolis region except Marion County) and Region 1 (northwest Indiana). The lowest average salary is in Region 10 (southern central Indiana), followed by Region 9 (southeastern Indiana) and Region 6 (eastern central Indiana). Statewide, the most frequent salary range is \$37,500 to \$40,000.

Table 20. Driver/Operator Salary by EGR Region

Region	Count	Most Frequent Salary Range	Ave	Min	Max
1	107	\$45,000 to \$47,500 \$52,500 to \$55,000	\$45,052	\$20,929	\$60,910
2	51	\$50,000 to \$52,500	\$48,303	\$20,156	\$62,990
3	134	\$40,000 to \$42,500 \$47,500 to \$50,000	\$44,140	\$20,889	\$57,713
4	171	\$42,500 to \$45,000	\$42,095	\$20,377	\$63,876
5	104	\$42,500 to \$45,000 \$45,000 to \$47,500	\$45,991	\$20,097	\$70,884
6	115	\$42,500 to \$45,000	\$38,838	\$20,002	\$72,845
7	61	\$40,000 to \$42,500	\$40,131	\$21,484	\$47,711
8	115	\$37,500 to \$40,000	\$41,882	\$20,288	\$62,355
9	95	\$37,500 to \$40,000	\$38,860	\$20,545	\$52,771
10	68	\$37,500 to \$40,000	\$38,477	\$23,526	\$45,423
11	137	\$37,500 to \$40,000	\$41,657	\$20,081	\$59,109
Indiana Total	1,158	\$37,500 to \$40,000	\$42,251	\$20,002	\$72,845

Table 21. Driver/Operator Salary by EGR Region including AIC and DWD Data

Region	Local Average	AIC Truck Driver	AIC Heavy Equipment Operator	DWD
1	\$45,052	\$47,880	\$51,160	\$53,157
2	\$48,303	\$47,229	\$40,709	\$46,340
3	\$44,140	\$42,707	\$43,797	\$46,012
4	\$42,095	\$41,574	\$43,111	\$46,630
5	\$45,991	\$45,676	\$48,786	\$48,826
6	\$38,838	\$40,257	\$42,393	\$45,215
7	\$40,131	\$38,659	\$38,815	\$46,812
8	\$41,882	\$39,536	\$41,331	\$42,442
9	\$38,860	\$38,976	\$41,726	\$45,297
10	\$38,477	\$37,814	\$39,010	\$50,468
11	\$41,657	\$40,798	\$41,532	\$45,969
Indiana Total	\$42,251	\$41,919	\$42,943	\$47,015

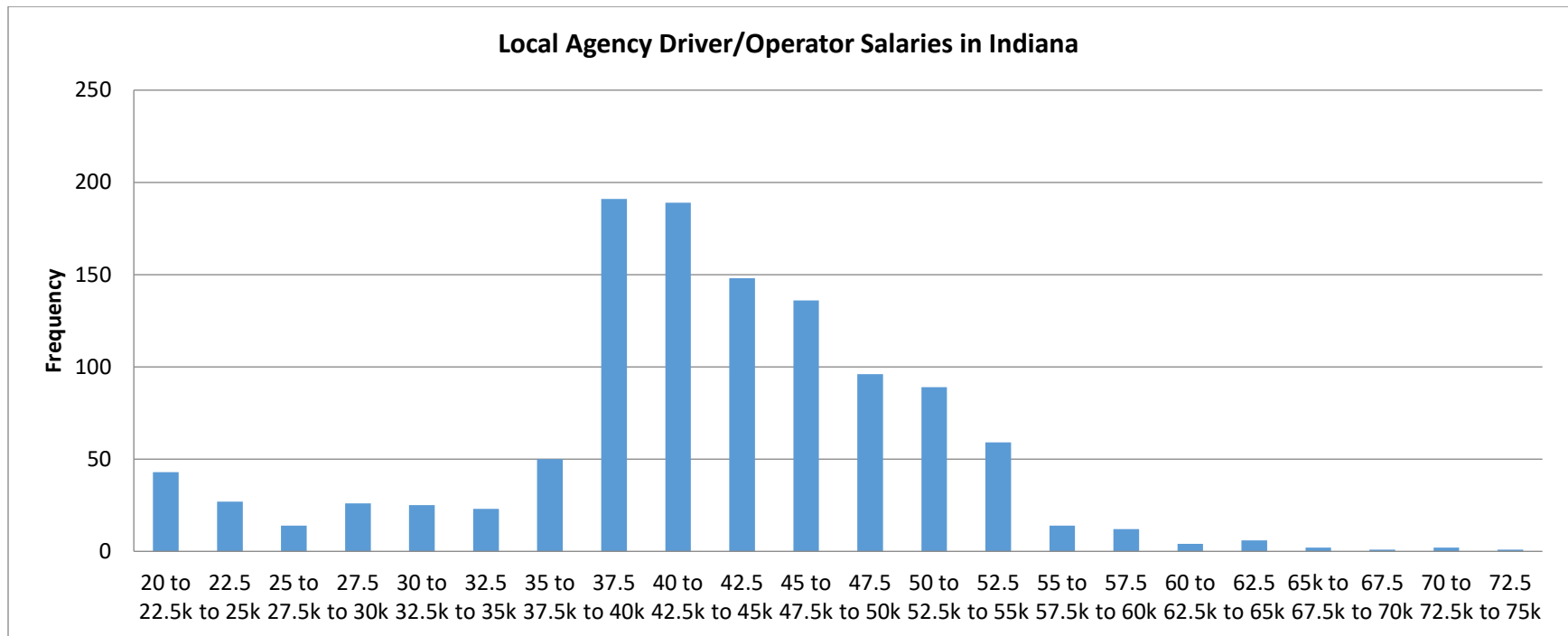


Figure 24. Histogram of Local Agency Driver/Operator Salaries in Indiana

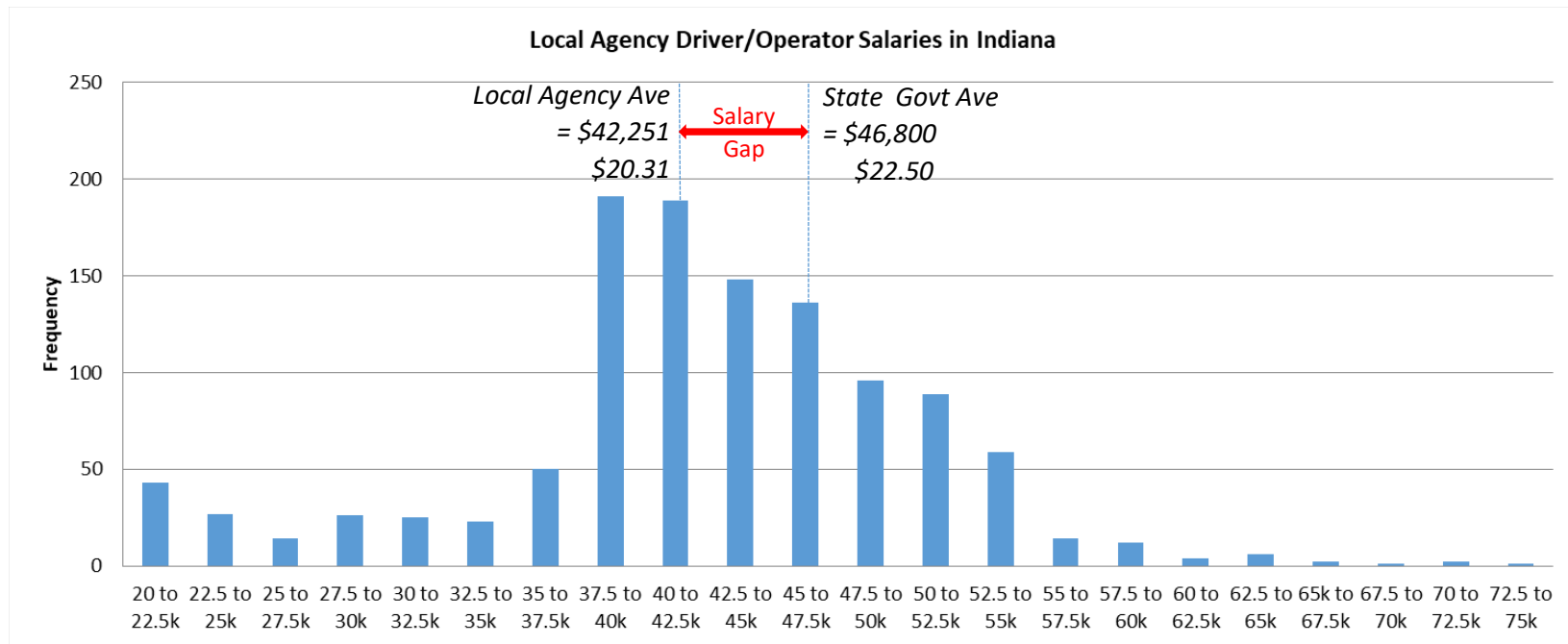
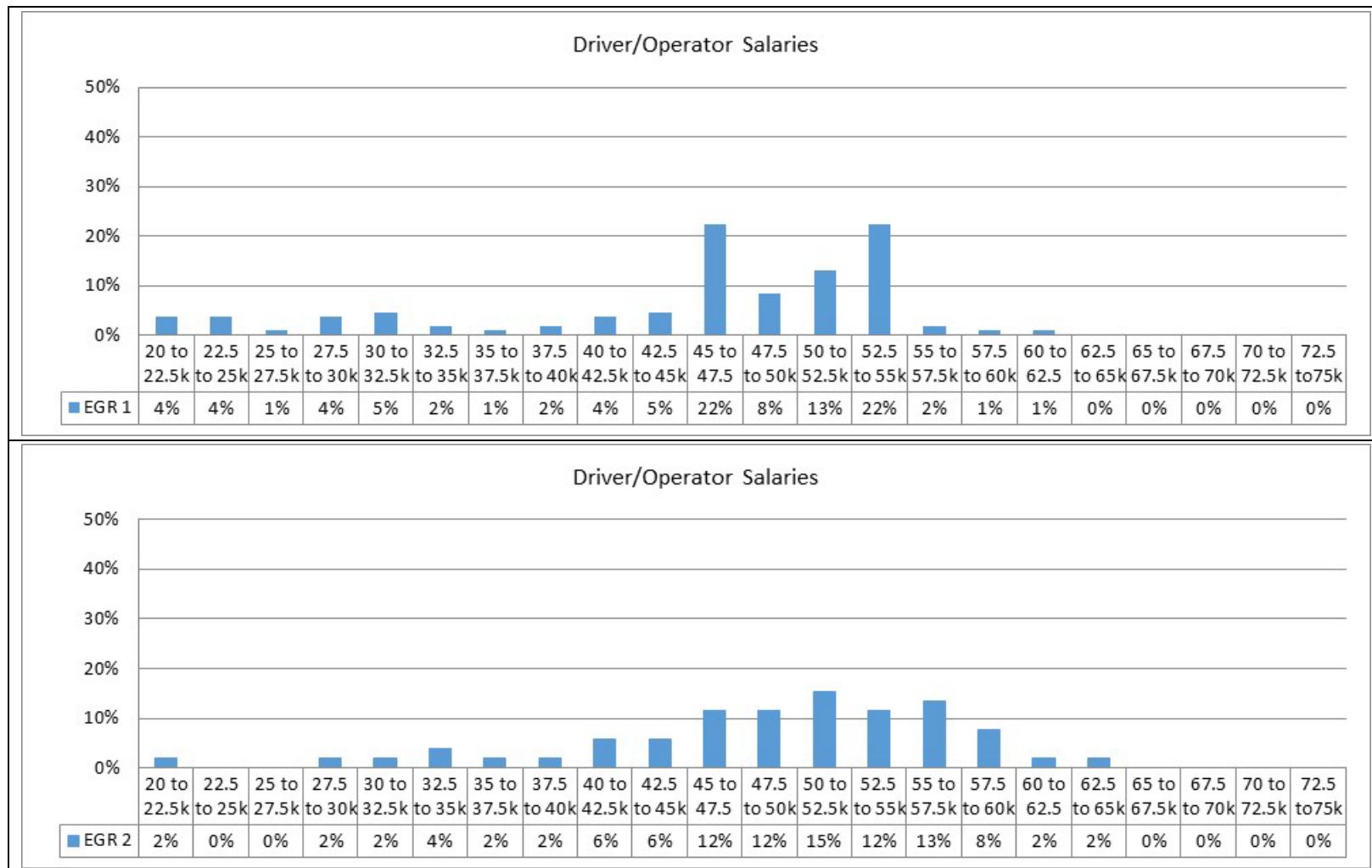
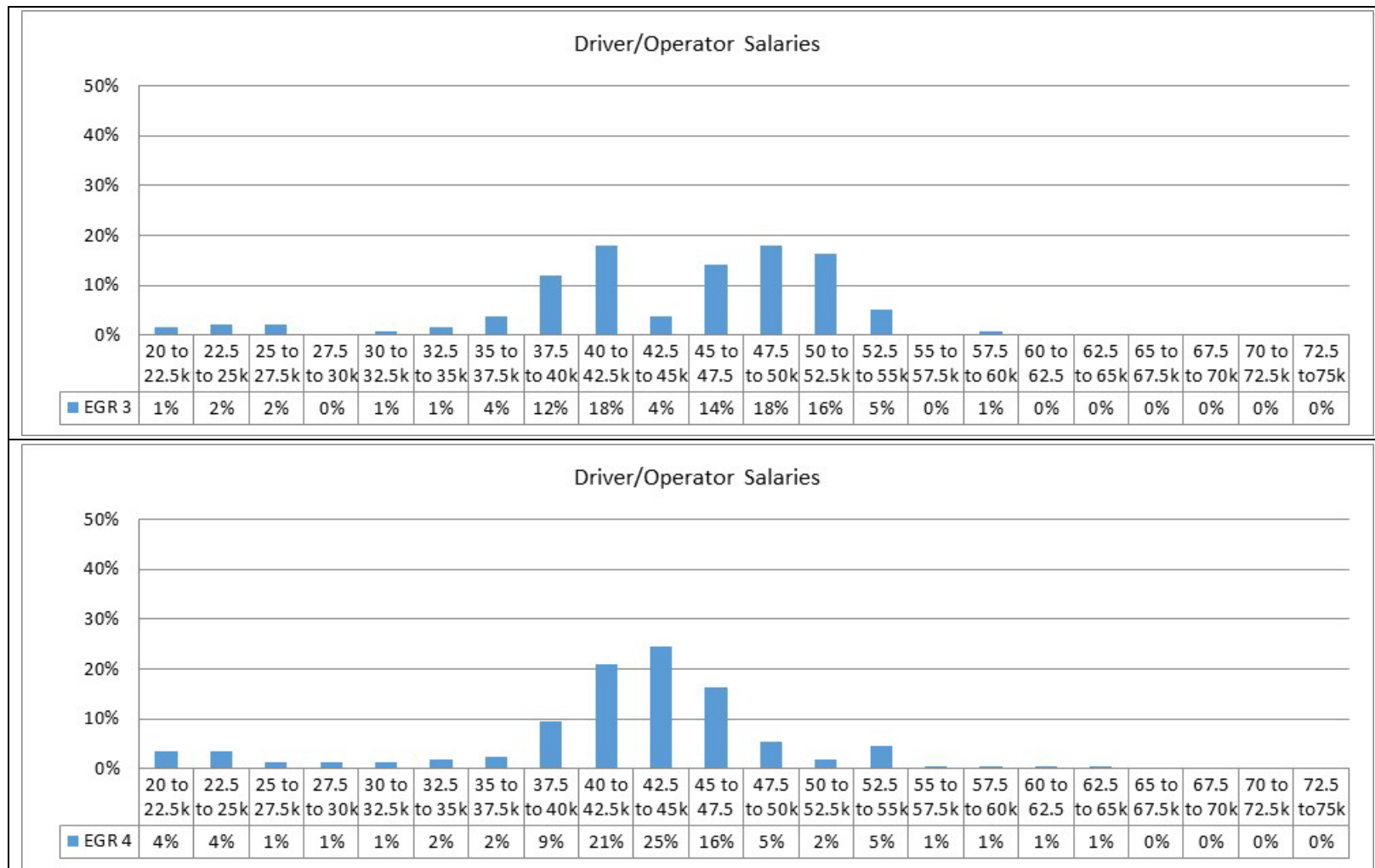
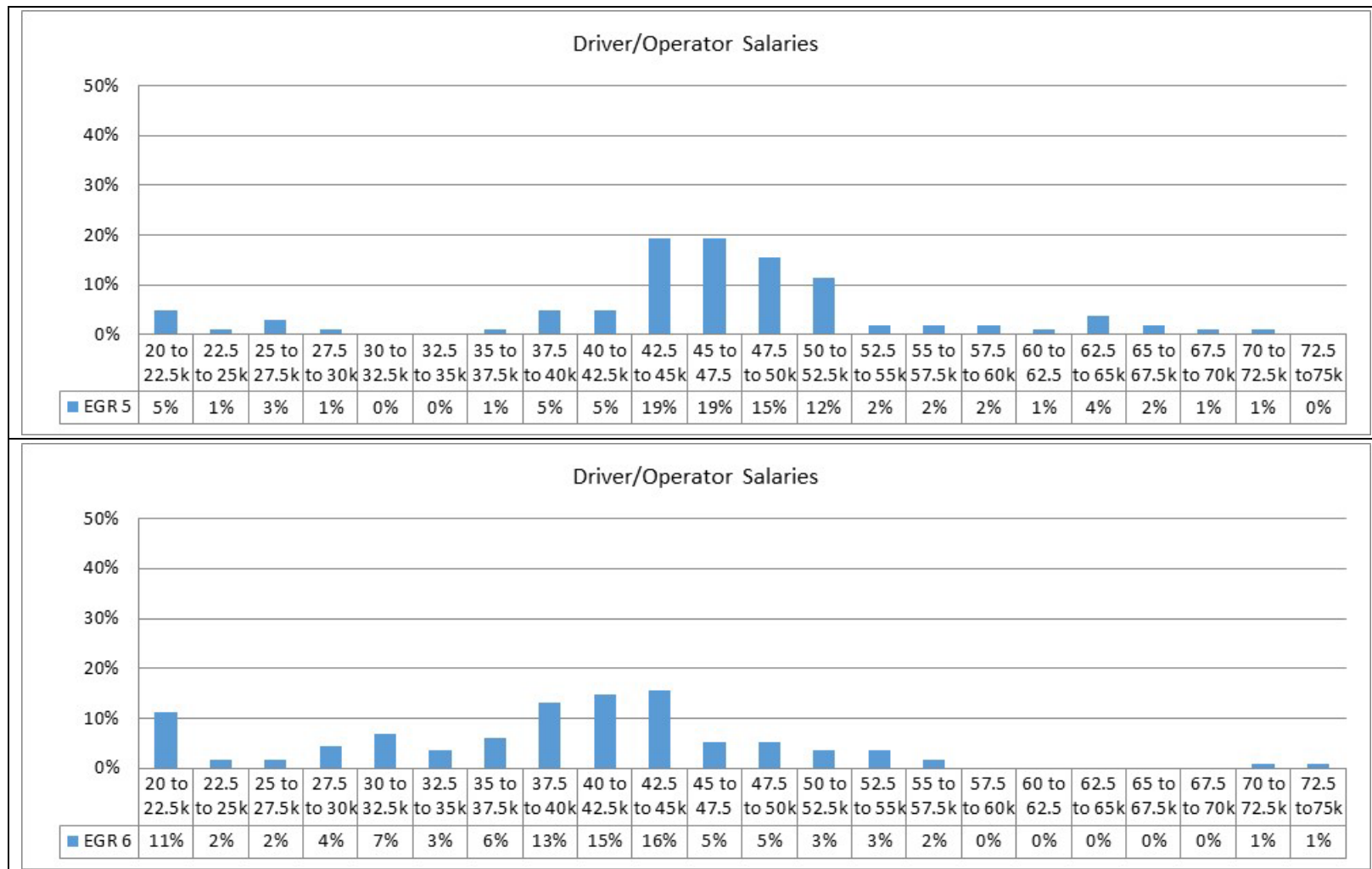


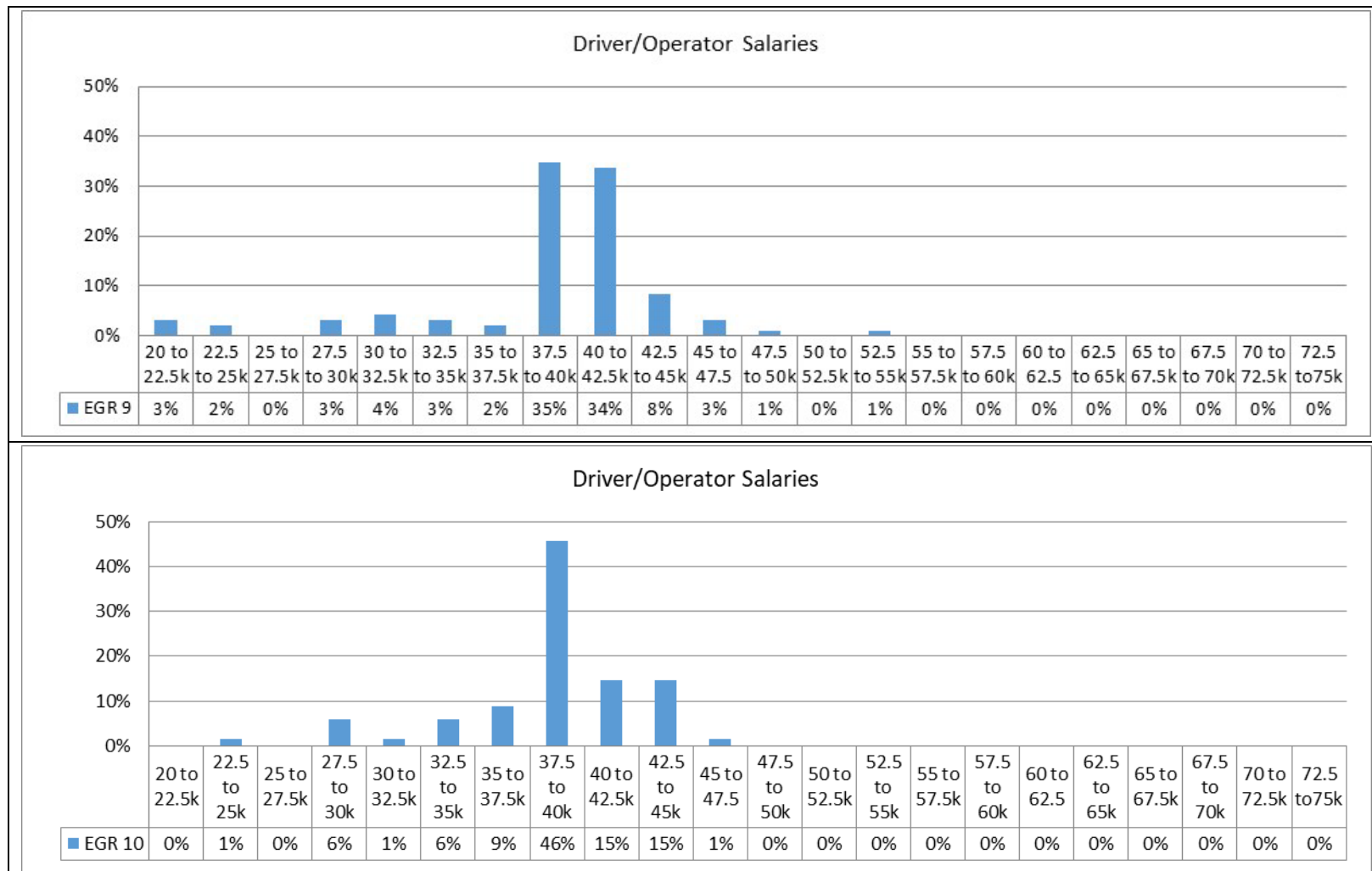
Figure 25. Histogram of Local Agency Driver/Operator Salaries in Indiana (with salary gap)











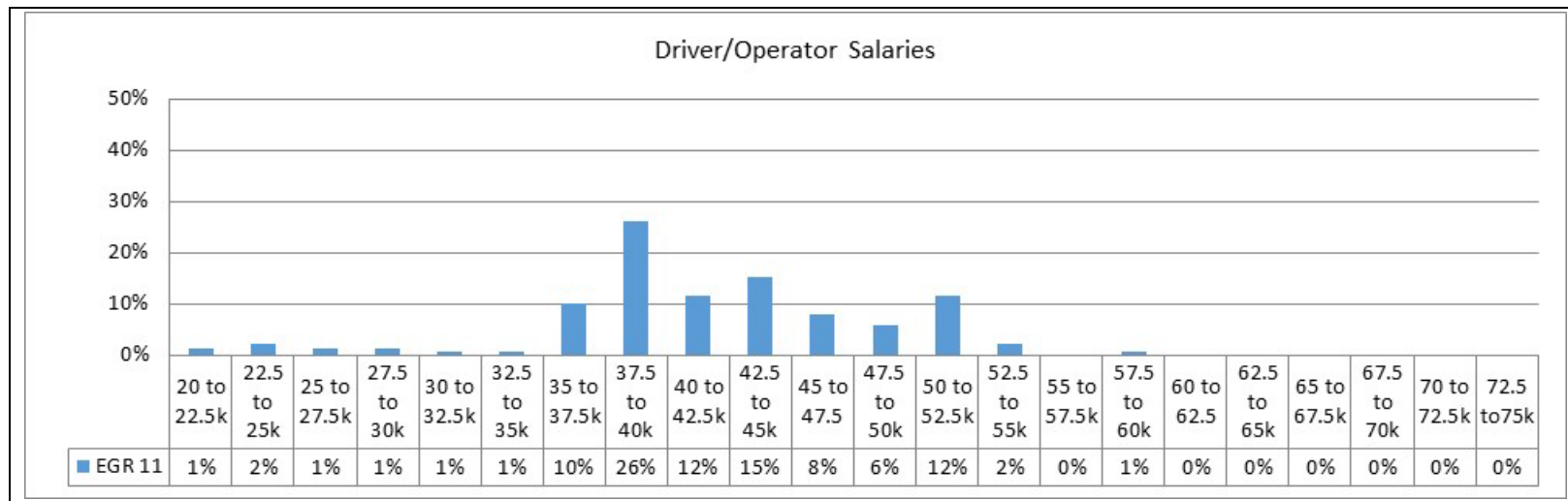


Figure 26. Histograms of Driver/Operator Salaries for Each Region in Indiana

Maintenance Worker

Maintenance workers are the second largest group of employees after driver/operators and comprise 22% of the local agency workforce database. Some local agencies designate all their employees as maintenance workers (which suggests that some employees in this category have CDL credentials) whereas in other agencies, these workers may be laborers that serve a wide range of duties. Example job duties for maintenance workers may include the following (DiversityJobs, n.d.):

- Operates basic highway maintenance/ traffic equipment to maintain, repair and clean highways and rights-of-way
- Moves and load supplies and materials
- Performs winter operations duties including snow and ice removal
- Performs emergency response activities such as clean-up, traffic control, lane closures, placement of signs and erecting barricades
- Performs regular inspections and routine equipment maintenance such as: minor repairs, preventative maintenance, refueling, and pre-trip inspections
- Performs miscellaneous labor tasks such as pothole patching, debris removal, line painting, and removal of roadkill

Characteristics of maintenance worker salaries for each region are shown in Table 22 and Table 23. Histograms of these salaries for Indiana are shown in Figure 27, with the gap between local agency salaries and state agency salaries in Figure 28. Histograms for driver/operator salaries in each region is shown in Figure 29.

The statewide average salary for maintenance worker \$41,987; this is approximately 23% and \$9,519 less than the average salary of \$51,506 for similar state government employees. The highest average salary is in Region 3 (northeast Indiana) followed Region 1 (northwest Indiana). The lowest average salary is in Region 7 (western southcentral Indiana) followed by Region 4 (western northcentral Indiana). Statewide, the most frequent salary range is \$40,000 to \$42,500.

Maintenance workers are the second largest group of employees after driver/operators and comprise 22% of the local agency workforce database.

Table 22. Maintenance Worker Salaries by Region

Region	Count	Most Frequent Salary Range	Ave	Min	Max
1	72	\$52,500 to \$55,000	\$43,651	\$20,272	\$63,444
2	56	\$42,500 to \$45,000	\$41,537	\$23,194	\$49,972
3	52	\$42,500 to \$45,000	\$50,255	\$32,141	\$65,942
4	56	\$37,500 to \$40,000	\$38,582	\$20,098	\$55,967
5	52	\$52,500 to \$55,000	\$44,078	\$20,551	\$56,624
6	29	\$47,500 to \$50,000	\$44,897	\$23,377	\$53,944
7	62	\$40,000 to \$42,500	\$37,369	\$21,687	\$49,647
8	31	\$40,000 to \$42,500	\$42,270	\$23,198	\$54,959
9	50	\$37,500 to \$40,000	\$39,014	\$20,465	\$48,398
10	25	\$40,000 to \$42,500	\$39,598	\$20,770	\$43,218
11	70	\$40,000 to \$42,500	\$41,402	\$20,120	\$56,238
Indiana Total	555	\$40,000 to \$42,500	\$41,987	\$20,098	\$65,942

Table 23. Maintenance Worker Salaries by Region including AIC and DWD Data

Region	Local Ave	AIC Laborer	DWD Maintenance Worker
1	\$43,651	\$41,911	\$49,777
2	\$41,537	\$44,234	\$43,527
3	\$50,255	\$38,891	\$43,542
4	\$38,582	\$42,496	\$50,085
5	\$44,078	\$39,458	\$44,026
6	\$44,897	\$35,901	\$44,461
7	\$37,369	\$35,249	\$46,812
8	\$42,270	\$37,138	\$42,442
9	\$39,014	\$40,166	\$45,297
10	\$39,598	\$40,206	\$50,468
11	\$41,402	\$40,631	\$45,969
Indiana Total	\$41,987	\$39,662	\$46,037

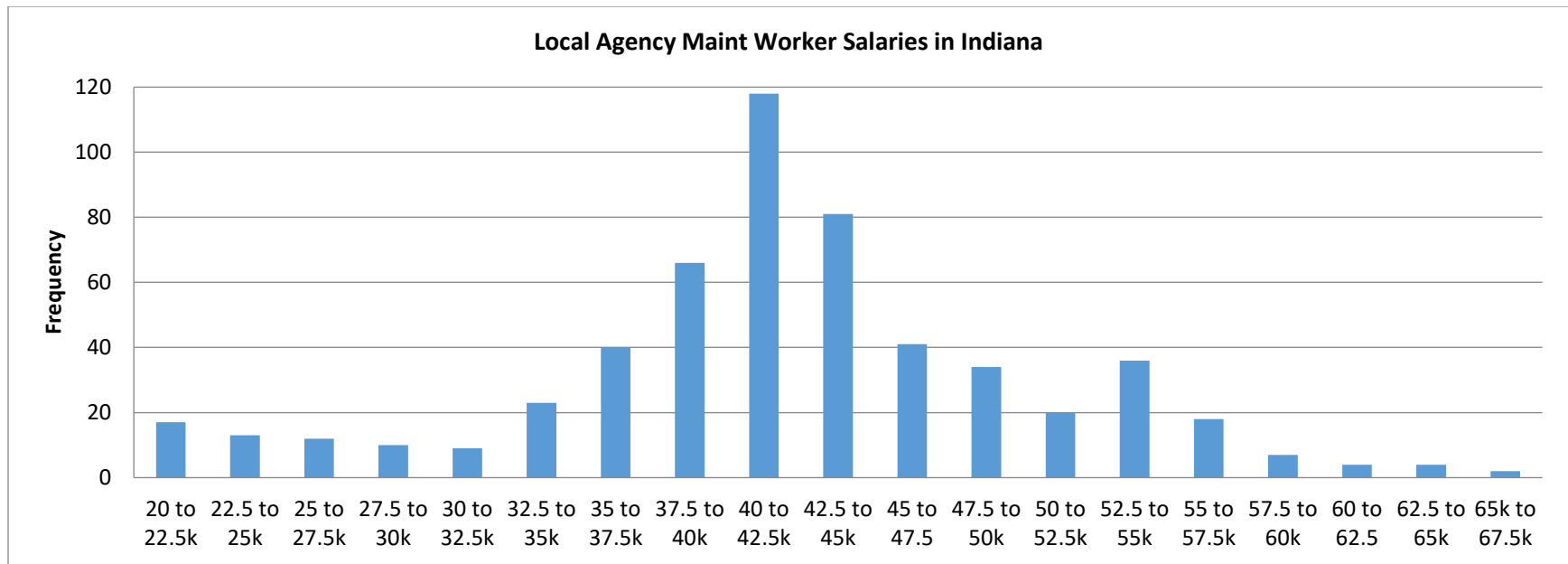


Figure 27. Histogram of Local Agency Maintenance Worker Salaries in Indiana

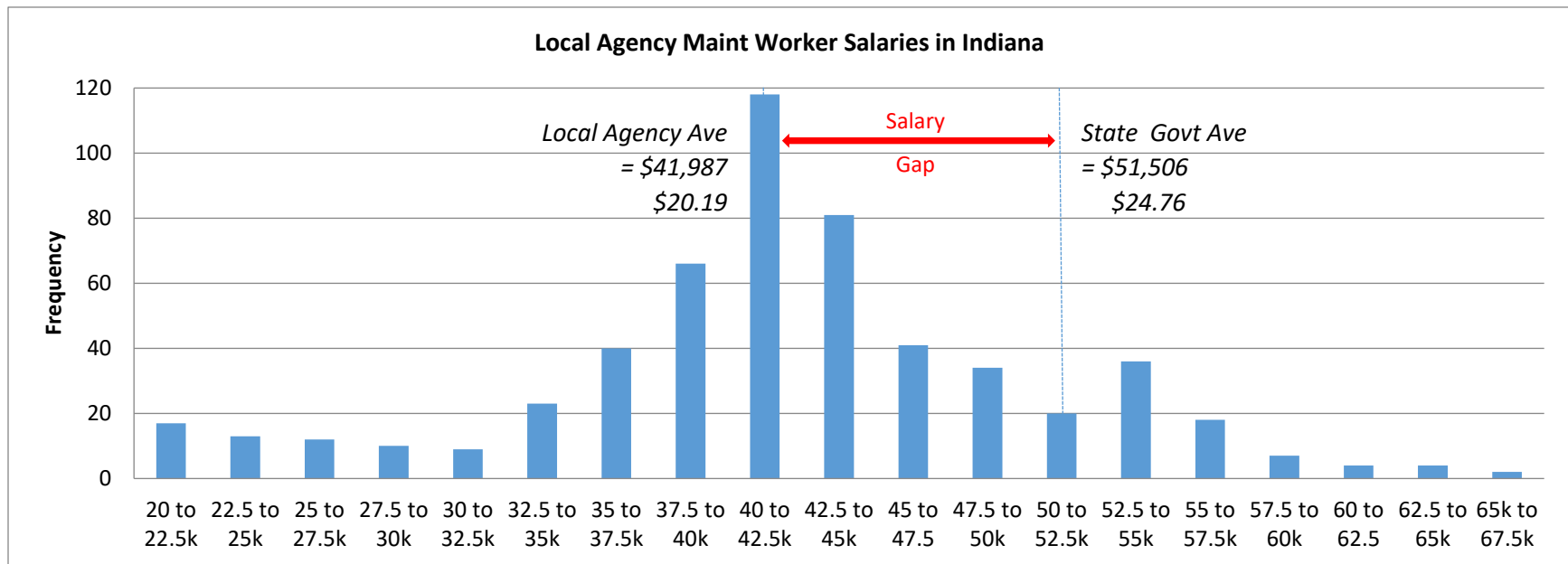
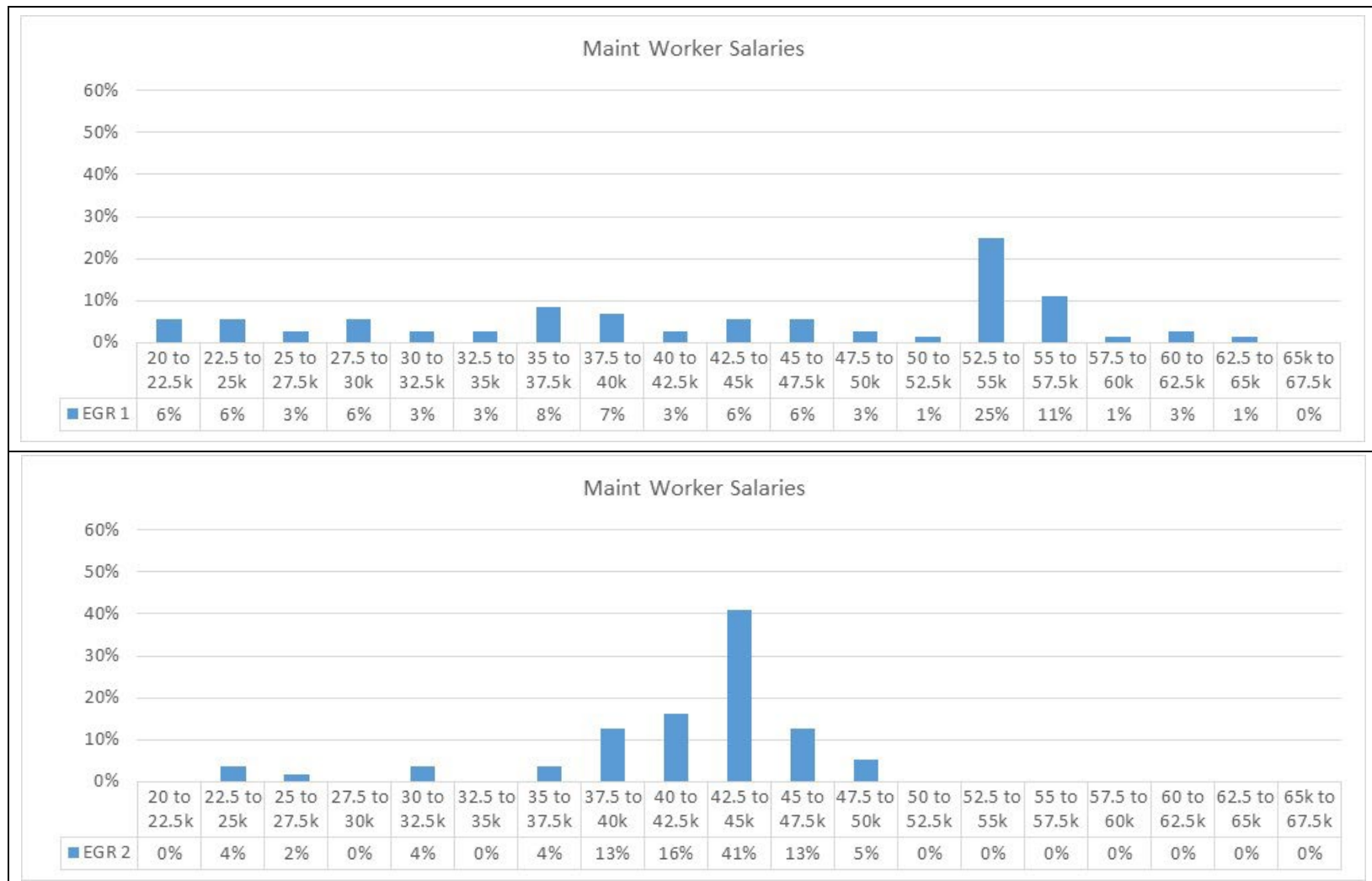
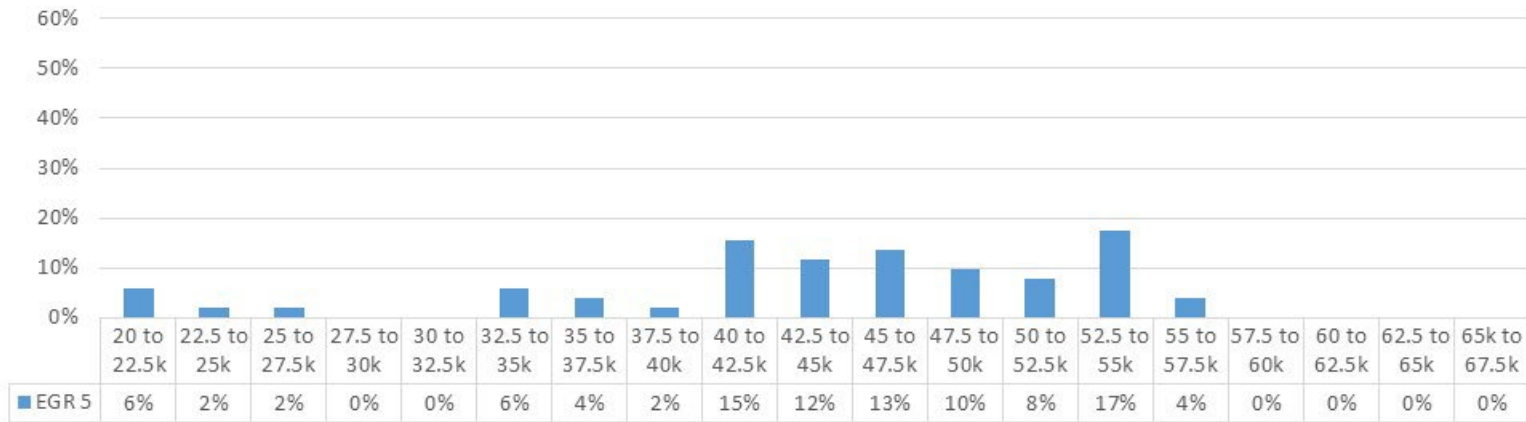


Figure 28. Histogram of Local Agency Maintenance Worker Salaries in Indiana (with salary gap)

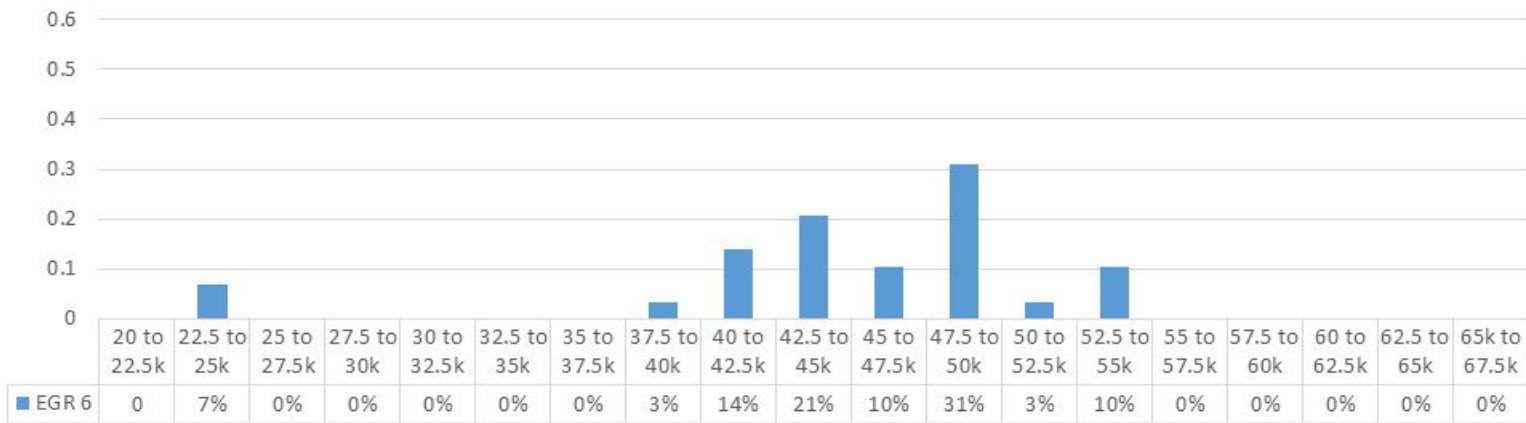


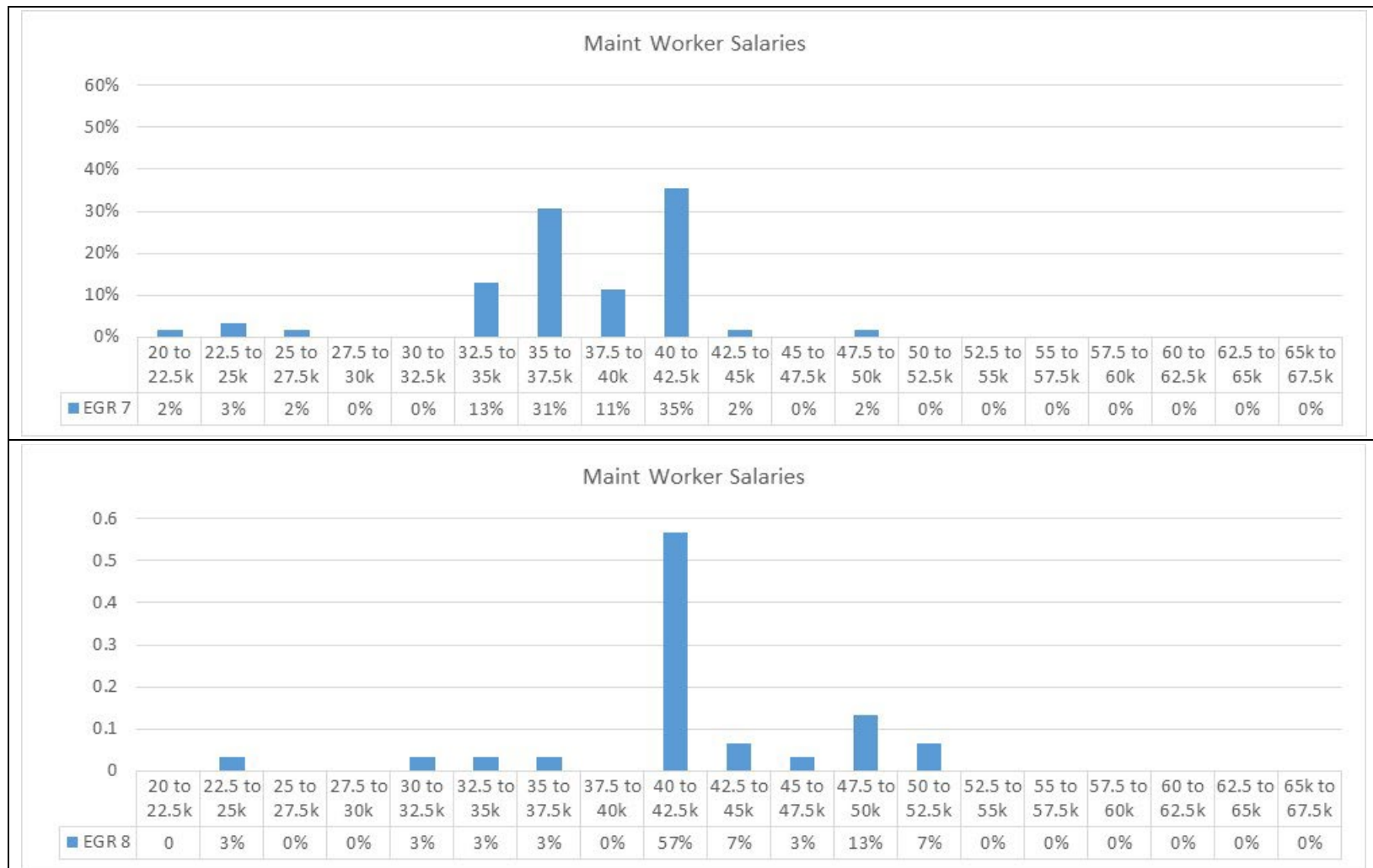


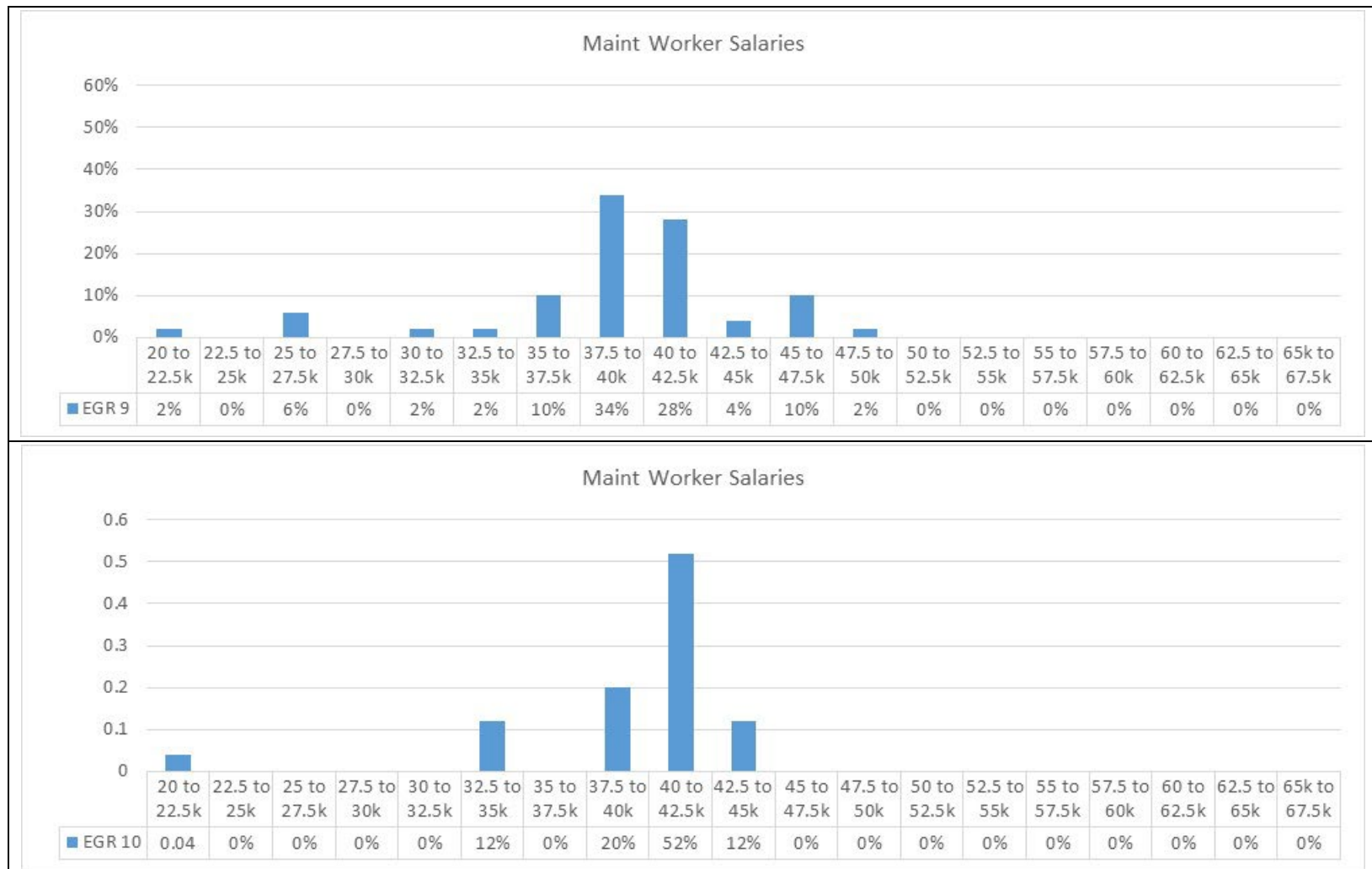
Maint Worker Salaries



Maint Worker Salaries







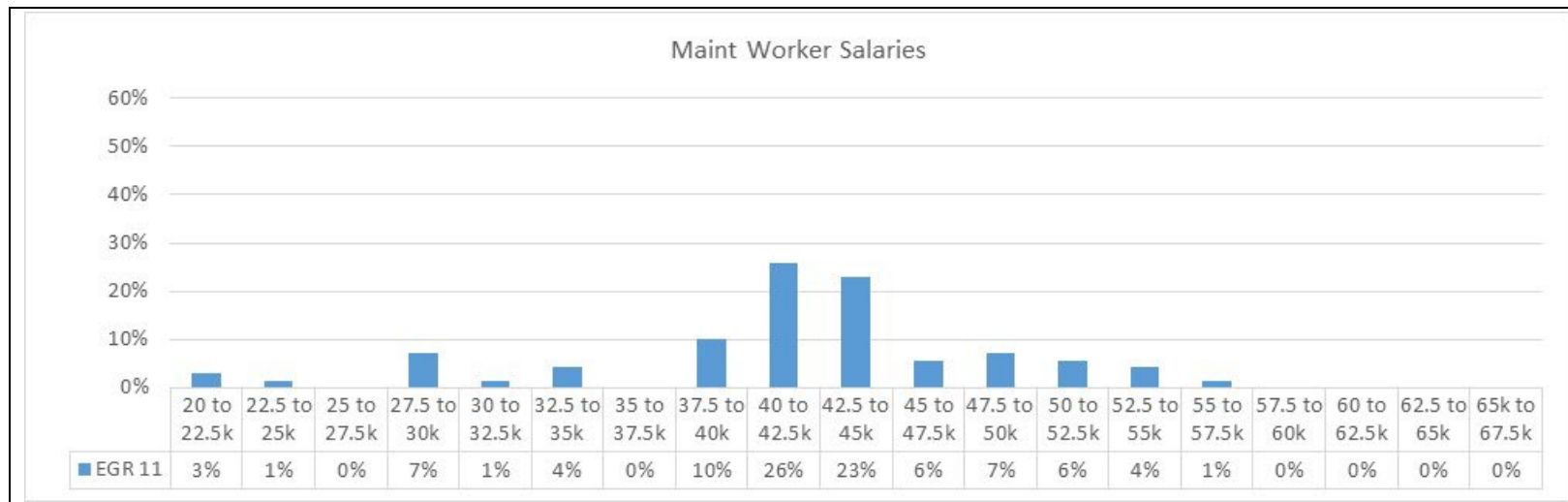


Figure 29. Histograms of Maintenance Worker Salaries for Each Region in Indiana (six pages long)

Foreman

Foremen provide supervision of workers and scheduling to ensure completion of work tasks, and provide oversight to confirm compliance with policy, including safety and quality standards. This category also includes working foreman and assistant foreman. A working foreman completes these oversight duties while also completing work tasks of their own. An assistant foreman supports the foreman. Responsibilities may be limited to a geographic region (e.g., north half of the county) or to some of the work tasks or workers. Some agencies have found it helpful to add working foreman or assistant foreman both to better distribute responsibilities and to provide additional rungs on the career ladder to support employee growth and ensure maintenance of institutional practices and knowledge. **This job category represents almost a tenth of the employees in the database (9%).** Job duties for a foreman vary by agency but may encompass the following (adapted from Workable Technology Limited, 2023).

This job category represents almost a tenth of the employees in the database (9%).

- Supervises workers, including attendance and task completion
- Schedules workers and assign tasks and responsibilities to individual workers
- Allocates and prioritizes tasks and responsibilities in general and on a daily basis
- Coordinates worker training
- Ensures safety standards are known and followed
- Supervises use of equipment and machinery
- Ensures quality of work
- Resolves problems as they occur
- Reports on progress and issues to manager, superintendent or another administrator
- May have responsibilities for monitoring expenditures and budget

Characteristics of foreman salaries for each region are shown in Table 24 and Table 25. Histograms of these salaries for Indiana are shown in Figure 30. The category represents foreman, assistant foreman and working foreman because there are not enough assistant foreman and working foreman to consider these categories separately. Additional information is provided in Appendix L, which illustrates that the salary characteristics of foreman are similar to the salary characteristics of assistant foreman and working foreman.

The statewide average for local agency foreman and working foreman is \$51,267; this is approximately 23% and \$12,837 less than the average salary for state government Foreman of \$63,869. The highest average salary is in Region 5 (counties in the Indianapolis region except Marion County). The second highest average salary is in Region 2 (northern central Indiana) followed by Region 1 (northwest Indiana). The lowest average salary is in Region 9 (southeastern Indiana) and Region 7 (western southcentral Indiana), followed by Regions 8 (mid southcentral Indiana) and 10 (southern central Indiana). The local agency salaries for Foreman range from 71% of the average state salary to 98%, depending on the region. Statewide, the most frequent salary range is \$45,00 to \$47,500. Due to the small number of foremen and working foremen in each region, it is better considered statewide values.

Table 24. Salaries for Foreman and Working Foreman by Region

EGR	Count ¹	Ave	Min	Max
1	16	\$52,421	\$24,673	\$62,291
2	29	\$55,470	\$22,769	\$81,439
3	22	\$49,496	\$26,400	\$63,603
4	31	\$49,716	\$24,987	\$65,122
5	26	\$62,584	\$38,111	\$83,065
6	6	\$48,918	\$30,744	\$69,973
7	14	\$46,162	\$29,451	\$57,918
8	15	\$47,888	\$20,299	\$62,996
9	24	\$45,533	\$25,169	\$54,893
10	11	\$47,448	\$36,780	\$63,346
11	24	\$49,951	\$41,587	\$58,188
Indiana	218	\$51,267	\$20,299	\$83,064

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

Table 25. Salaries for Foreman and Working Foreman by Region including AIC Data

EGR	Count ¹	Local Ave	AIC ²
1	16	\$52,421	\$48,372
2	29	\$55,470	\$50,410
3	22	\$49,496	\$49,994
4	31	\$49,716	\$47,411
5	26	\$62,584	\$58,888
6	6	\$48,918	\$46,939
7	14	\$46,162	\$42,287
8	15	\$47,888	\$47,714
9	24	\$45,533	\$45,884
10	11	\$47,448	\$42,577
11	24	\$49,951	\$47,120
Indiana	218	\$51,267	\$47,963

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data. ²AIC data for job category Road Foreman Crew Boss.

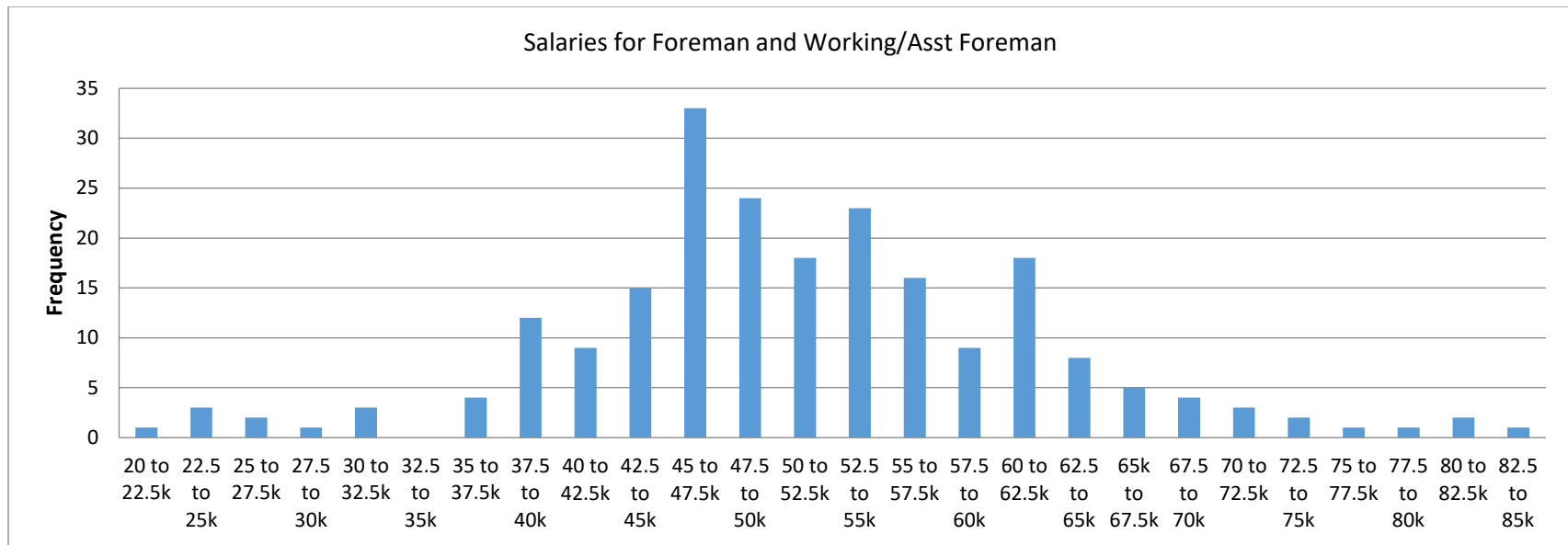


Figure 30. Histogram of Salaries for Foreman

Head Mechanic and Mechanic

The head mechanic (also called the shop foreman or chief mechanic) and the mechanics at a local road agency ensure the vehicles and equipment are operational. The head mechanic is typically responsible for the oversight of the work done in the shop (also called the vehicle maintenance department). Local road agencies rely on a variety of trucks and equipment to do their work and vehicle maintenance is critical to all agency activities and operations. Some tasks are consistent throughout the year (oil changes, other scheduled maintenance and repairs) and other tasks are seasonal. Seasonal tasks may include adding snowplows to trucks and calibrating salt dispensers and sprayers for winter; getting mowers and vegetation management equipment ready for spring, summer and fall; and servicing equipment for pothole patching and road repair during construction season. Head mechanics may also coordinate and oversee contract repairs.

Below are duties that may be the responsibility of the head mechanic (Betterteam, 2023a; Guadalupe County, 2012).

- Manages motor vehicle repair shop and service of a broad range of equipment
- Responsible for repairs to vehicles and equipment in shop and assignment of work to subordinate employees, including staff, maintenance, and work schedules
- Ensures safety of each vehicle or piece of equipment and oversees test drives of repaired vehicle to ensure proper operation
- Locates and orders parts or other necessary materials to maintain equipment in effective operational condition and maintains inventory of supplies on hand
- Supervises welding and machine work
- Arranges for and ensures the security of vehicles, equipment, and tools kept in the shop overnight
- Keeps attendance and payroll records for subordinate employees
- Reviews and evaluates the work of each subordinate employee daily and on each work order
- Oversees training and enforcement of policies, safety regulations and protocols

Mechanics execute repairs and maintenance on vehicles and equipment. Typical responsibilities may include the following (Betterteam, 2023b).

- Diagnose and repair the mechanical and electrical components of vehicles and equipment
- Perform test drives, inspections, and other diagnostic tests on vehicles to identify where problems exist and determine which parts need to be repaired or replaced
- Complete preventative maintenance on vehicles, such as performing oil changes, flushing, and replacing fluids, and replacing brakes
- Repair damage to the body of the vehicle and washing and painting the vehicle's exterior.
- Maintain accurate records for vehicles, parts, and service history
- Use shop equipment as instructed, performing regular maintenance and repairs as needed

Characteristics of head mechanic and mechanic salaries for each region are shown in Table 26, Table 27 and Table 28. Histograms of these salaries for Indiana are shown in Figure 31 and Figure 32 for head mechanics and mechanics.

The statewide average salary for head mechanic is \$49,790; this is approximately 95% of the average salary for state government head mechanic of \$52,490. The highest average salary is in Region 5 (counties in the Indianapolis region except Marion County). The second highest salary is in Region 3 (northeast Indiana), followed by Region 1 (northwest Indiana). The lowest average salary is in Region 9 (southeastern Indiana) and Region 10 (southern central Indiana). Statewide, the most frequent salary range is \$42,500 to \$45,000. Many of the regions in Table 26 have very low counts (with a low of one and a high of 6 observations and 33 total observations). Due to the small number of head mechanics in each region, it is better considered statewide values.

The statewide average salary for mechanic is \$45,808; this is approximately 90% of the average salary for state government head mechanic of \$50,980. The highest average salary is in Region 5 (counties in the Indianapolis region except Marion County) followed by Region 3 (northeast Indiana) and Region 1 (northwest Indiana). The lowest average salary is in Region 7 (western southcentral Indiana) followed by Region 10 (southern central Indiana). Statewide, the most frequent salary range is \$42,500 to \$45,000; this is the same salary range that is the most frequent for head mechanics. The salary range for mechanics is more normally distributed than the salary for head mechanics, which may partly be due to the larger sample size (176 observations). Due to the small number of mechanics in each region, it is better to consider statewide values.

Table 26. Salaries for Head Mechanics by Region

Region	Count ¹	Ave	Min	Max
1	3	\$57,126	\$42,008	\$67,583
2	2	\$58,374	\$50,282	\$66,466
3	5	\$57,130	\$44,689	\$69,670
4	3	\$46,880	\$43,878	\$46,771
5	5	\$64,755	\$55,748	\$75,884
6	1	\$53,337	\$53,337	\$53,337
7	2	\$55,560	\$53,245	\$57,874
8	1	\$46,911	\$46,911	\$46,911
9	3	\$31,642	\$26,124	\$36,745
10	6	\$35,320	\$21,406	\$44,681
11	2	\$44,423	\$42,668	\$46,177
Indiana	33	\$49,790	\$21,406	\$75,884

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

Table 27. Salaries for Mechanics by Region

EGR	Count ¹	Ave	Min	Max
1	26	\$49,043	\$25,353	\$60,545
2	10	\$44,764	\$32,590	\$55,070
3	24	\$50,745	\$20,816	\$66,361
4	20	\$45,530	\$27,432	\$66,507
5	13	\$52,798	\$40,174	\$68,298
6	18	\$46,075	\$32,483	\$54,493
7	11	\$37,706	\$22,277	\$46,491
8	12	\$45,161	\$40,061	\$54,641
9	11	\$42,500	\$38,823	\$50,127
10	8	\$38,136	\$33,056	\$46,520
11	23	\$42,001	\$21,881	\$54,414
Indiana	176	\$45,808	\$20,816	\$68,298

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

Table 28. Salaries for Mechanics by Region including AIC and DWD data

Region	Count ¹	Local Ave	AIC Garage Mechanic	AIC Assistant Mechanic	DWD
1	26	49,043	\$47,099	\$45,948	\$58,572
2	10	44,764	\$47,927	\$43,035	\$49,659
3	25	\$50,745	\$47,465	\$47,939	\$50,225
4	20	\$45,530	\$45,953	\$45,977	\$51,417
5	13	\$52,798	\$53,425	\$50,802	\$53,383
6	18	\$46,075	\$43,622	\$41,631	\$47,998
7	11	\$37,706	\$42,116	\$42,741	\$47,985
8	12	\$45,161	\$44,240	\$42,968	\$52,262
9	11	\$42,500	\$44,425	\$41,898	\$50,015
10	8	\$38,136	\$41,038	\$37,814	\$49,609
11	23	\$42,001	\$45,421	\$36,748	\$49,254
Indiana	176	\$45,808	\$45,703	\$43,409	\$50,943

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

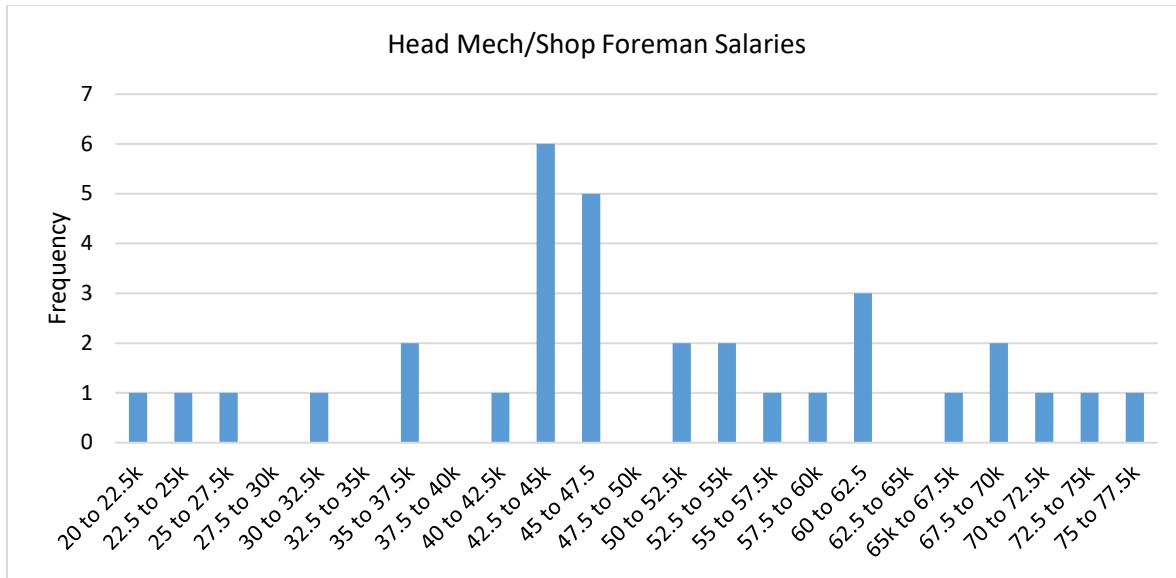


Figure 31. Histogram of Head Mechanic/Shop Foreman Salaries

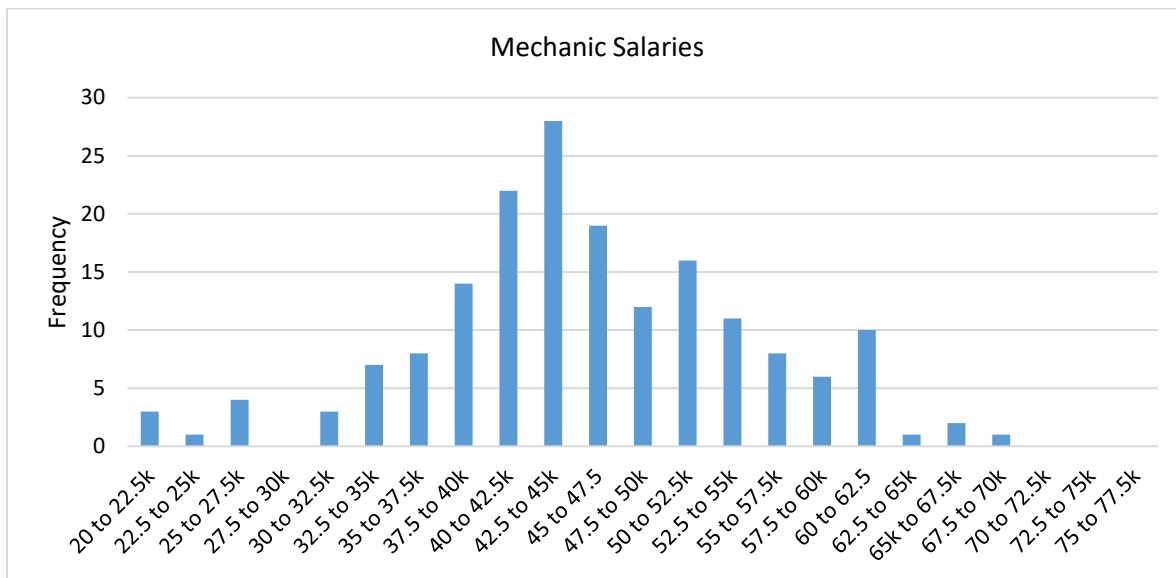


Figure 32. Histogram of Mechanic Salaries

Manager/Assistant Super/Other Administration

The category of Manager/Assistant Super/Other Administration is a broad one, due both to the wide range of possible duties as well as the wide range of sizes for local road agencies. This breadth of responsibility is reflected by a wide range of salaries. The duties vary significantly for different agencies but may include some of the following.

- Oversee day-to-day operations
- Oversee inventory of parts, equipment, tools or supplies to ensure that proper resources are available to complete assigned work; initiates requests for new or replacement materials
- Maintain budgets and optimize expenses
- Set policies and processes
- Ensure employees work productively and develop professionally
- Oversee recruitment and training of new employees
- Ensure staff follows health and safety regulations
- Evaluate and improve operations and financial performance
- Prepare regular reports for management

Characteristics of salaries for manager/asst super/other admin for each region are shown in Table 29 and Table 30. A histogram of these salaries for Indiana is shown in Figure 33.

The statewide average salary for manager/asst super/other admin is \$61,640; this is approximately 92% of the average salary for state government manager of \$66,679. The highest average salary is in Region 5 (counties in the Indianapolis region except Marion County) followed by Region 3 (northeast Indiana). The lowest average salary is in Region 11 (southwestern Indiana) followed by Region 7 (western southcentral Indiana). Statewide, the most frequent salary ranges are from \$45,000 to \$47,500; \$52,500 to \$55,000; and \$57,500 to \$60,000. This wide range for central tendency measures illustrates the breadth of employee duties in this category. Due to the small number of manager/asst super/other admin in each region, it is better to consider statewide values.

Table 29. Salaries by Region for Mgr/Asst Super/Other Admin

Region	Count ¹	Ave	Min	Max
1	10	\$60,843	\$23,000	\$121,253
2	7	\$63,941	\$49,877	\$83,345
3	25	\$67,765	\$49,000	\$87,548
4	15	\$61,747	\$36,908	\$86,946
5	11	\$85,804	\$56,476	\$138,806
6	5	\$45,594	\$24,038	\$55,608
7	3	\$44,931	\$42,998	\$47,175
8	12	\$58,366	\$47,201	\$72,646
9	2	\$55,001	\$53,995	\$56,007
10	9	\$45,029	\$41,775	\$51,237
11	5	\$42,400	\$23,249	\$53,785
Indiana	104	\$61,640	\$23,000	\$138,806

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

Table 30. Salaries by Region for Mgr/Asst Super/Other Admin including AIC and DWD Data

Region	Count ¹	Local Ave	AIC ²	DWD
1	10	\$60,843	\$54,165	\$113,141
2	7	\$63,941	\$55,983	\$112,877
3	25	\$67,765	\$66,294	\$107,875
4	15	\$61,747	\$60,874	\$101,019
5	11	\$85,804		\$119,975
6	5	\$45,594	\$53,975	\$96,206
7	3	\$44,931	\$45,996	\$94,662
8	12	\$58,366	\$53,462	\$102,623
9	2	\$55,001	\$51,655	\$112,859
10	9	\$45,029	\$53,393	\$100,676
11	5	\$42,400	\$50,240	\$104,649
Indiana	104	\$61,640	\$54,604	\$106,051

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data. ²AIC data for job category Highway Supervision

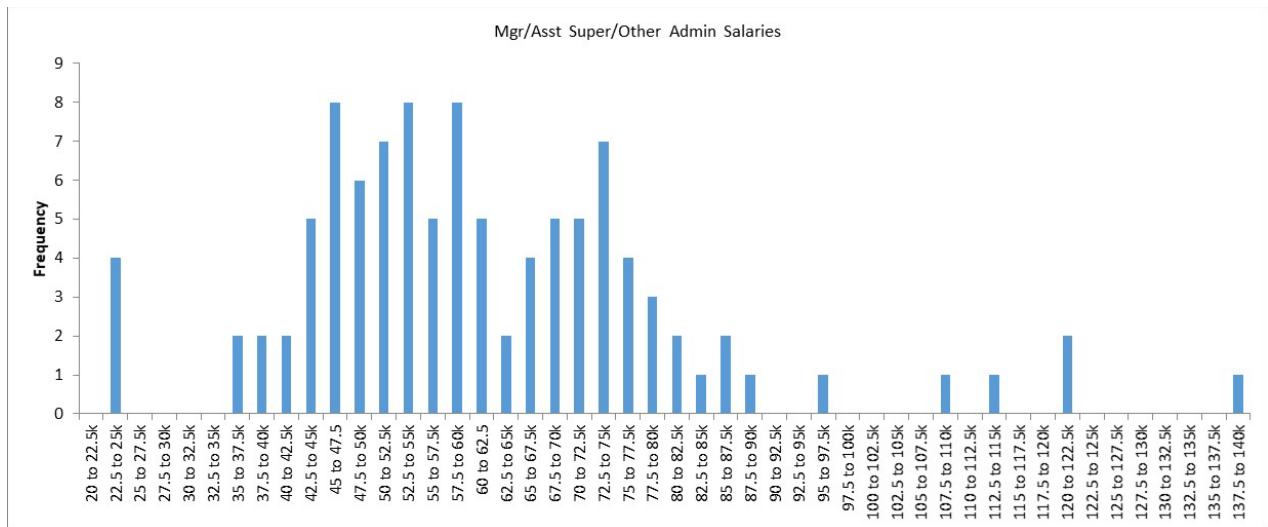


Figure 33. Histogram of Mgr/Asst Super/Other Admin Salaries (frequency count)

Clerical/Office/Admin Support

This category includes clerical/office/admin support and office managers. It represents a range of responsibilities, from clerk tasks through broader tasks associated with supervising the work of others. Small agencies may have a single person in this category. Larger agencies may have multiple people in this role, some of whom have supervisory responsibilities.

Example office manager tasks may include the following (Hendricks County, n.d.):

- Provides direction to the part-time clerk, including training, workflow and guidance when needed
- Maintains central fuel computer system and bills each county department for fuel used
- Maintains record of each county vehicle and driver cards for each county department
- Prepares bi-weekly payroll for the highway department personnel, maintains payroll records and submits pay vouchers to the Auditor's Office
- Prepares semi-monthly claims for highway department invoices, updates the budget line-item balances, and submits claims to the Auditor's Office
- Reviews and verifies all vendor invoices and maintains computer bookkeeping of such invoices.
- Maintains department purchase order procedures
- Documents complaints about county roadways from the public
- Prepares and submits fuel tax reports to Special Tax Board of the Indiana Department of Revenue

Example clerk tasks may include some the following:

- Prepares orders for a wide variety of equipment and highway construction items for the Highway Department
- Prepares purchase requisitions which state the vendor, quantity, type, and cost of item to be purchased
- Contacts local vendors, refers to catalogues, and uses a variety of sources when ordering unusual or specialized equipment and goods
- Receives incoming materials and contact vendors to arrange for stock return if it is not what was ordered
- Records invoices on computer
- Answers telephone, transfers calls, and takes messages. Answers questions or refer to the appropriate department

Characteristics of clerical/office/admin support salaries for each region are shown in Table 31 and Table 32. A histogram of these salaries for Indiana are shown in Figure 34. The category represents all clerical and office staff including office managers. Additional information is provided in Appendix L, which illustrates the limited number of observations and that the salary characteristics of the different administrative categories are relatively similar.

The statewide average for local agency clerical/office/admin support is \$39,599; this is approximately 14% and \$5,416 less than the average salary of \$44,252 for a similar state government position. The highest salary is in Region 2 (northern central Indiana), followed by Region 8 (mid southcentral Indiana). The lowest average salary is in Region 6 (eastern central Indiana) followed by Region 9 (southeastern

Indiana). Statewide, the most frequent salary range is \$37,500 to \$40,000. Due to the small number of Clerical/Office/Admin Support staff in each region, it is better considered statewide values.

Table 31. Clerical/Office/Admin Support Salary by Region

Region	Count ¹	Ave	Min	Max
1	14	\$41,400	\$21,463	\$50,819
2	10	\$42,239	\$35,581	\$53,903
3	19	\$40,686	\$23,891	\$55,901
4	14	\$39,009	\$26,132	\$53,543
5	10	\$40,548	\$27,796	\$52,938
6	13	\$33,652	\$20,256	\$46,980
7	9	\$41,000	\$35,292	\$46,829
8	9	\$41,661	\$30,666	\$58,559
9	13	\$36,827	\$27,101	\$45,409
10	5	\$37,577	\$35,351	\$41,659
11	14	\$40,943	\$27,718	\$59,464
Indiana	130	\$39,599	\$20,256	\$59,464

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data. Includes office managers.

Table 32. Clerical/Office/Admin Support Salary by Region including AIC and DWD Data

Region	Count ¹	Local Ave	AIC ²	DWD
1	14	\$41,400	\$42,555	\$38,099
2	10	\$42,239	\$39,256	\$38,435
3	19	\$40,686	\$41,071	\$36,995
4	14	\$39,009	\$37,912	\$36,263
5	10	\$40,548	\$54,731	\$40,111
6	13	\$33,652	\$36,529	\$34,173
7	9	\$41,000	\$39,507	\$35,704
8	9	\$41,661	\$37,849	\$36,582
9	13	\$36,827	\$37,082	\$37,932
10	5	\$37,577	\$37,812	\$36,280
11	14	\$40,943	\$39,003	\$35,077
Indiana	130	\$39,599	\$40,301	\$36,878

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data; includes office managers. ²AIC data for job category Hwy Admin & Supt Staff.

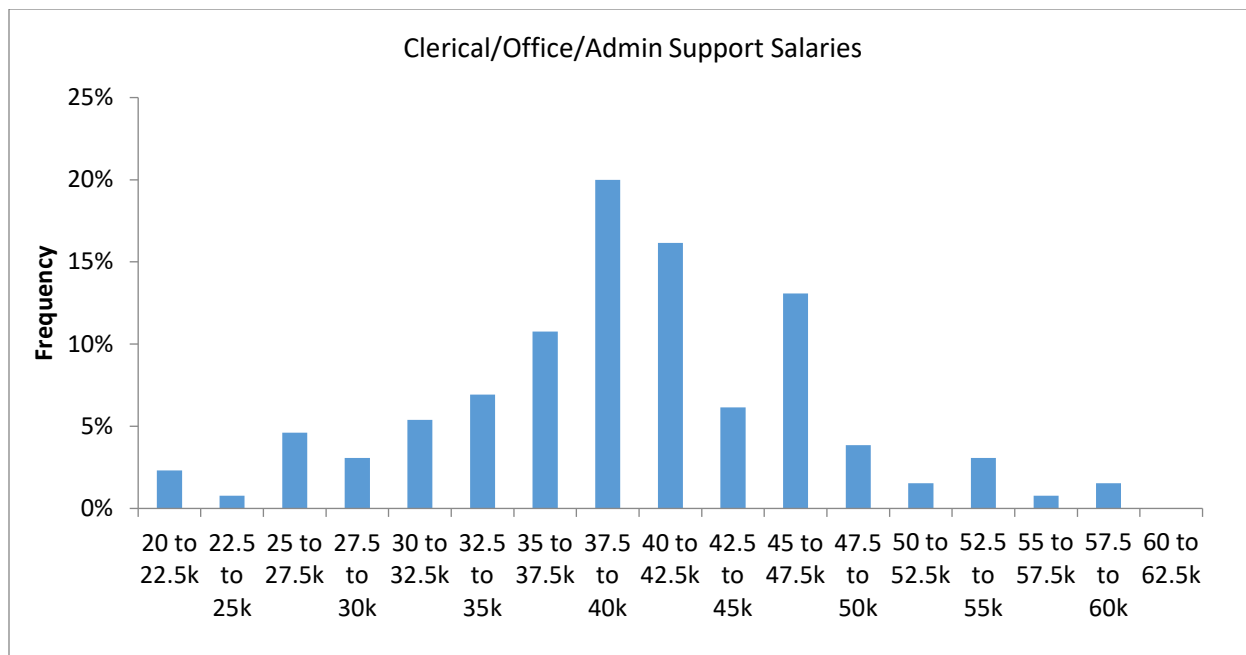


Figure 34. Histogram of Clerical/Office/Admin Supt Salaries (includes Office Managers)

Leadership: Director/Superintendent and Engineer Administrator

Local road agencies are generally led by a county engineer (aka engineer administrator to differentiate the position from engineers without administrative responsibilities), a superintendent (aka highway superintendent), a director, or some combination of these leadership positions. Sometimes the engineer administrator may oversee construction projects and funding through INDOT, while the superintendent manages the day-to-day operation of the agency and all activities performed in-house. Sometimes there is no engineer administrator or director, and the superintendent provides all leadership for the agency and oversees construction projects and INDOT funding, and also manages all day-to-day operations. This category represents the highest level of leadership at the agency so no more than one engineer administrator and one superintendent or director is included in this category for each agency. Responsibilities vary by agency; example duties may include the following:

- Plans, directs, and budgets the activities of the Highway Department including operating budgets
- Administers and approves all expenditures, including payroll, accounts payables, and contracts for outside service
- Keeps the elected officials informed concerning work progress
- Seeks appropriate state and federal grants and manages all road construction projects and contracts, working closely with contractors to ensure successful completion
- Establishes a timeframe for projects and ensures timely completion of tasks and projects.
- Represents the department at various meetings both in town and out of town
- Identifies and responds to all complaints, concerns, and questions from the public and other departments (or delegates appropriately)
- Supervises and oversees the overall administration and direction of highway operations, including the maintenance and repair of roads and related facilities; the maintenance of vehicles and equipment; preparation and cleanup for special town events, tree maintenance; snow and ice removal; and roadside brush removal
- Supervises and monitors the performance of staff
- Responds to after-hour calls for emergencies, as required

Two categories for leadership are provided, director/superintendent and engineer administrator. Salaries for director/superintendent are shown in Table 33 and comparisons with DWD data is shown in Table 34. Salaries for engineer administrator are shown in Table 35. The associated histograms of these salaries in Indiana are shown in Figure 35 and 36 for director/superintendent and engineer administrator. Additional information is provided in Appendix L, which illustrates the limited number of observations and that the salary characteristics of the different categories are relatively similar.

The statewide average for director/superintendent is \$68,763; this is approximately 11% and \$7,502 less than the average salary of \$76,265 for a similar position in state government. The highest average salary is in Region 5 (counties in the Indianapolis region except Marion County), followed by Region 2 (northern central Indiana). The lowest average salary is in Region 9 (southeastern Indiana) followed by Region 6 (eastern central Indiana). Statewide, the most frequent salary range is \$57,500 to \$60,000. Due to the small number of Director/Superintendents in each region, it is better to consider statewide values.

The statewide average salary for Engineer Administrator \$102,746; this is approximately 20% and \$20,978 less than the average salary of \$123,724 for similar state government employees. The highest salary is in Region 5 (counties in the Indianapolis region except Marion County) followed by Region 3 (northeast Indiana). The lowest average salary is in Region 10 (southern central Indiana) followed by Region 1 (northwest Indiana). Statewide, the most frequent salary range is \$97,500 to \$100,000. Due to the small number of Engineer Administrators in each region, it is better to consider statewide values.

Table 33. Director/Superintendent Salary by Region`

Region	Count ¹	Ave	Min	Max
1	6	\$73,150	\$44,852	\$132,632
2	4	\$83,381	\$58,927	\$115,299
3	11	\$72,276	\$58,784	\$107,212
4	11	\$66,409	\$49,755	\$118,247
5	8	\$88,777	\$60,120	\$123,016
6	6	\$57,551	\$43,445	\$72,314
7	4	\$62,203	\$53,261	\$72,746
8	9	\$64,729	\$42,634	\$97,296
9	8	\$57,215	\$41,624	\$67,930
10	5	\$59,266	\$45,291	\$89,693
11	9	\$70,103	\$44,962	\$119,646
Indiana	81	\$68,763	\$41,624	\$132,632

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

Table 34. Director/Superintendent Salary by Region including DWD data`

Region	Count ¹	Local Ave	DWD
1	6	\$73,150	\$116,647
2	4	\$83,381	\$120,046
3	11	\$72,276	\$110,571
4	11	\$66,409	\$121,472
5	8	\$88,777	\$112,068
6	6	\$57,551	\$104,048
7	4	\$62,203	\$95,230
8	9	\$64,729	\$107,808
9	8	\$57,215	\$106,405
10	5	\$59,266	\$105,507
11	9	\$70,103	\$102,156
Indiana	81	\$68,763	\$109,269

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

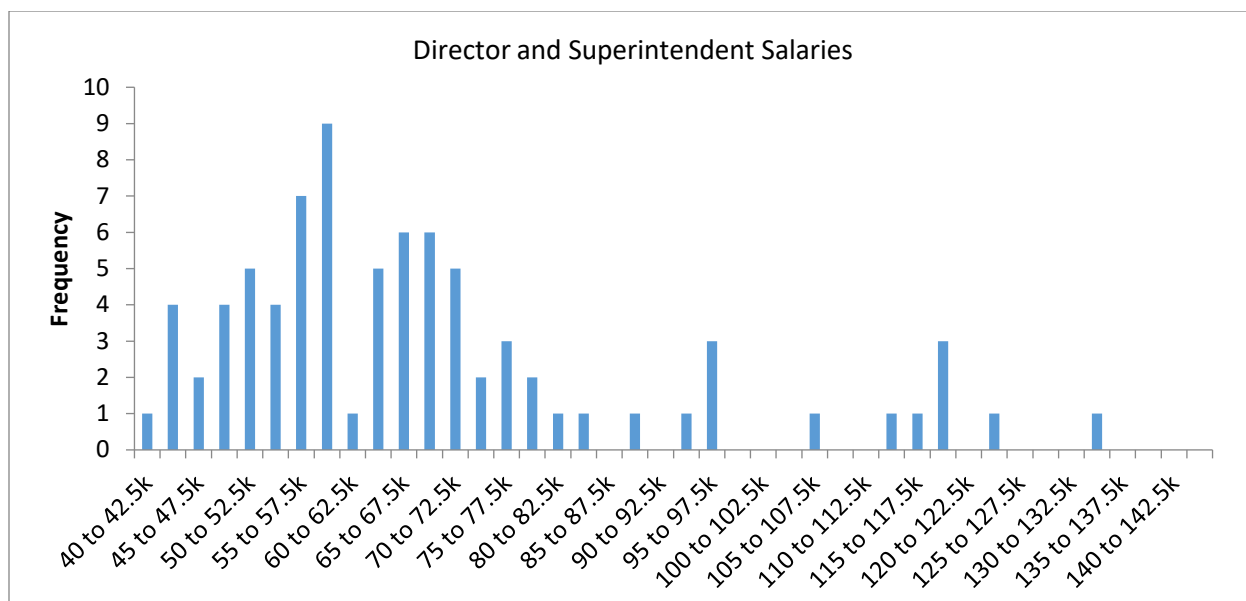


Figure 35. Histogram of Director and Superintendent Salaries

Table 35. Engineering Administrator Salaries by Region

EGR	Count ¹	Ave	Min	Max
1	2	\$82,386	\$78,378	\$86,393
2	2	\$108,758	\$98,848	\$118,668
3	3	\$112,759	\$97,850	\$140,800
4	1	\$99,134	\$99,134	\$99,134
5	6	\$119,571	\$100,849	\$142,376
6	2	\$109,152	\$88,303	\$130,000
7	3	\$89,088	\$70,673	\$99,257
8	0	-	-	-
9	3	\$95,363	\$91,755	\$99,339
10	3	\$82,985	\$51,000	\$101,556
11	3	\$106,387	\$90,986	\$120,826
Subtotal	28	\$102,746	\$51,000	\$142,376

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

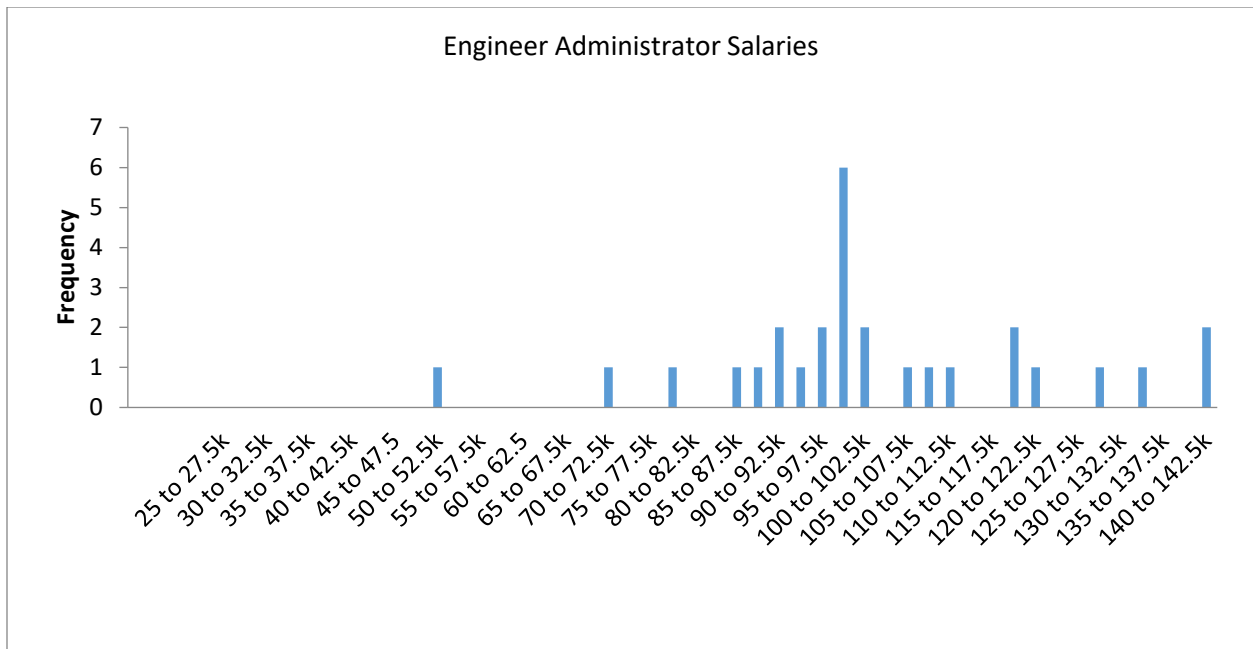


Figure 36. Histogram of Engineer Administrator Salaries

Engineer

Many smaller agencies may have one engineer who provides management and administration of the department and was included in the category Engineer Administrator. Larger agencies may have more than one engineer, in which case the salary is included in this category. Larger agencies may have a wide range of engineers on staff ranging from engineers in training and engineering assistants who do not have a professional engineering license to experienced engineers with specializations in traffic engineering or other areas. As a result of this diversity, the salary for engineers varies widely. Most engineers have a degree in civil engineering or construction management or a related field. Job duties vary but may include the following

(https://www.evansvillegov.org/egov/documents/1654619719_41819.pdf):

- Directs and performs design and plan production for highways, bridges, roadway approaches, culvert structures and any Civil Engineering related work assigned to the Engineering Division
- Provides on-site technical assistance for County maintenance crews and road and bridge inspection
- Supervises survey crews and both technical and nontechnical personnel when applicable
- Oversees collection of bridge, highway and culvert data including survey information, right-of-way descriptions and acquisitions, waterway and run-off information, environmental impacts, cost of material, resources and overall project cost
- Investigates complaints/requests concerning bridges and other major structures and roadways.
- Conducts on-site inspection and determines appropriate action and makes recommendations to County Engineer
- Assists in administering and supervising contracts with private contractors hired for design, construction, testing or inspection services
- Assists in monitoring and maintaining records and reports on project planning, development, design and construction
- Prepares design plans and specifications for official approval, public review and publication

The statewide average for engineer is \$79,413; this is approximately 3% and \$2,117 less than the average salary of \$81,530 for a similar position in state government. The highest salary is in Region 1 (northwest Indiana) followed by Region 5 (counties in the Indianapolis region except Marion County) and Region 2 (northern central Indiana). The lowest average salary is in Region 4 (western north central Indiana) followed by Region 6 (eastern central Indiana). Statewide, the most frequent salary ranges are \$65,000 to \$67,500 and \$100,000 to \$102,500. This illustrates the wide breadth of salaries for Engineers. The median salary is \$80,072. The 75th percentile salary is \$100,338 and the 90th percentile salary is \$109,256. Additional information about engineer salaries in Indiana is shown in Table 36 and 37 and a histogram of engineer salaries in Indiana is shown in Figure 37. In EGR 9 and 10 there are no engineers in this category. Both of these regions have engineer administrators (generally the highest paid person in the department). Due to the small number of engineers in each region, it is better to consider statewide values.

Table 36. Engineer Salaries by Region

EGR	Count ¹	Ave	Min	Max
1	2	\$92,080	\$67,053	\$117,107
2	8	\$87,024	\$64,390	\$115,504
3	2	\$88,753	\$75,376	\$102,130
4	3	\$44,928	\$27,471	\$71,998
5	7	\$87,463	\$31,477	\$125,113
6	1	\$59,000	\$59,000	\$59,000
7	1	\$78,033	\$78,033	\$78,033
8	3	\$68,498	\$60,329	\$81,772
9	0	-	-	-
10	0	-	-	-
11	2	\$77,787	\$58,886	\$96,688
Indiana	29	\$79,413	\$27,471	\$125,113

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

Table 37. Engineer Salaries by Region including AIC and DWD data

EGR	Count ¹	Local Ave	AIC ²	DWD
1	2	\$92,080	\$46,164	\$89,616
2	8	\$87,024	-	\$86,599
3	2	\$88,753	\$101,260	\$81,325
4	3	\$44,928	\$80,329	\$80,209
5	7	\$87,463	-	\$86,830
6	1	\$59,000	\$80,000	\$70,939
7	1	\$78,033	\$77,335	\$80,143
8	3	\$68,498	-	\$84,005
9	0	-	\$58,787	\$88,404
10	0	-	-	\$89,941
11	2	\$77,787	\$66,045	\$88,353
Indiana	29	\$79,413	\$72,846	\$84,215

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data. ²AIC data for job category Highway Engineer.

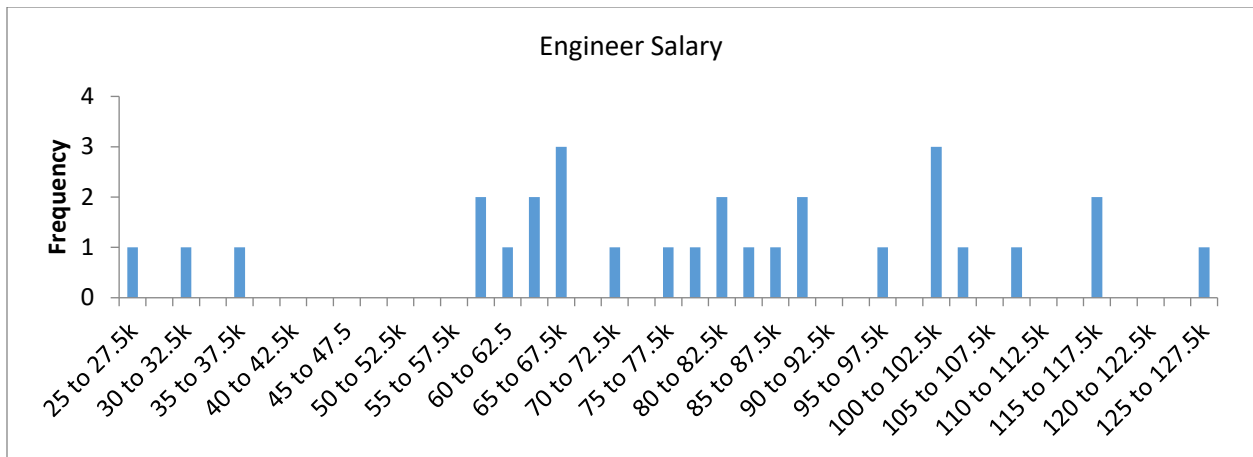


Figure 37. Histogram of Engineer Salaries

Technician

Technicians provide a wide range of duties as evidenced by the variety of job titles such as the Engineer Tech, Sign Tech, Hwy and Traffic Safety Tech, Maintenance Tech, Right-of-way Tech, Construction Technician, Sign man, GIS Technician, and Sign shop installer. Technicians usually have specialized knowledge or training and complete their duties under the supervision of a manager, foreman, or the superintendent. Given the broad range of job titles, there are many possible duties; below are example duties that may be included at some agencies.

A sign technician may have the following duties:

- Maintain, repair, and install traffic signs, route markers and pavement markings
- Receive, inspect, and record new materials, supplies, and equipment (e.g., signs and sign hardware, lighting poles, arms, and luminaries)
- Maintain inventory of supplies and dispense the required materials (e.g., signs and sign hardware)
- Operate and maintain inventory control system

In other cases, the technician may have the following duties:

- Preliminary planning for upcoming Highway Department projects
- Prepare contract documents for construction and maintenance projects
- Provide construction inspection, and documentation for ongoing projects
- Conduct inspections of local highways/roads and bridges

The statewide average for Technician is \$53,547, this is approximately 3% and \$1,549 less than the average salary of \$55,096 for a similar position in state government as shown in Table 38 and Table 39. The highest salary is in Region 2 (northern central Indiana) followed by Region 8 (mid southcentral Indiana). The lowest average salary is in Region 7 (western southcentral Indiana) followed by Region 6 (eastern central Indiana). Statewide, the most frequent salary range is \$47,500 to \$50,000. The median salary is \$52,565. The 75th percentile salary is \$61,013 and the 90th percentile salary is \$67,113. A histogram of technician salaries is shown in Figure 38. Due to the small number of technicians in each region, it is better to consider statewide values.

Table 38. Technician Salary by Region

EGR	Count ¹	Average	Min	Max
1	4	\$49,880	\$44,218	\$52,371
2	9	\$59,311	\$21,560	\$77,012
3	7	\$53,796	\$22,172	\$68,145
4	2	\$56,605	\$49,115	\$64,095
5	9	\$53,681	\$33,215	\$85,858
6	3	\$46,423	\$38,819	\$52,707
7	3	\$44,975	\$40,354	\$48,890
8	1	\$55,361	\$55,361	\$55,361
9	1	\$52,565	\$52,565	\$52,565
10	0	-	-	-
11	0	-	-	-
Indiana	39	\$53,547	\$21,560	\$85,858

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

Table 39. Technician Salary by Region including DWD Data

EGR	Count ¹	Local Ave	DWD
1	4	\$49,880	\$66,844
2	9	\$59,311	\$62,320
3	7	\$53,796	\$64,032
4	2	\$56,605	\$50,479
5	9	\$53,681	\$60,048
6	3	\$46,423	N/A
7	3	\$44,975	N/A
8	1	\$55,361	\$57,641
9	1	N/A	\$61,836
10	0	N/A	\$57,419
11	0	N/A	\$57,712
Indiana	39	\$53,547	\$59,815

¹ Due to the small number of observations (less than 30) for some regions, it may be better to consider the statewide data.

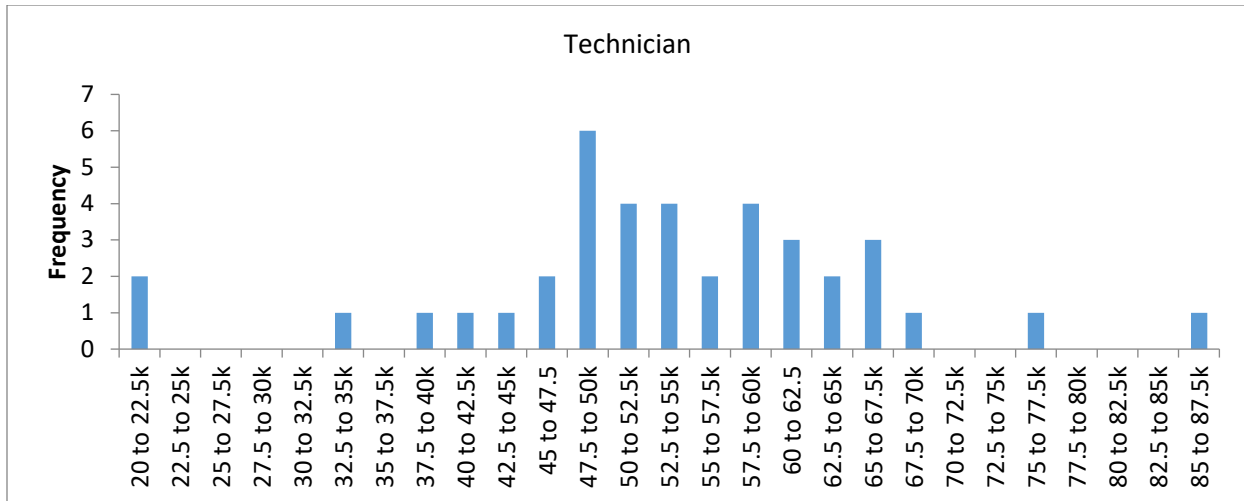


Figure 38. Histogram of Technician Salaries

Chapter 5. Recommendations and Conclusions

People are one of the most valuable resources for the local agencies that maintain our local roads in Indiana. Recruiting an able workforce, retaining the workforce, and providing a fair level of salary for the work done are important to assuring that our local agencies and local roads remain viable. This report has provided data that illustrates that local agency salaries have not kept up with salaries for similar occupations in state government and in private industry.

People are one of the most valuable resources for the local agencies that maintain our local roads in Indiana.

It is important that local elected officials provide adequate resources to compensate local agency personnel. Local agencies would never expect to pay less for asphalt or concrete for their roads because the budget is tight, similarly they should not expect to pay less for wages and salaries for their people because the budget is tight.

Benchmarking local agency salaries with comparable jobs in private industry and in state government provides valuable information and helps assure that agency salary remains competitive. This report provides local agencies and their elected officials the information they need to make sure wages and salaries are fair and competitive. Review of agency wages and salaries on a regular basis (perhaps bi-annually) will help ensure that they remain so.

The data from this report highlights the large proportion of local agency workers 50 years of age and older. Workforce planning to alleviate the effects of future retirements is key to ensure future sustainment of local road agency operations. Local road agencies can increase efforts to develop talent pipelines with local communities. Partnerships with local high schools and community colleges are essential to tap into local labor markets. A robust recruiting campaign can highlight the intrinsic pride from service to the community and explicit benefits of working for a local road agency such as inclusion in a defined benefit retirement plan. Further, local road agencies can increase recruitment efforts in non-traditional pools such as recruitment of women and minorities.

To bolster retention and increase employee engagement, engagement surveys and tools can be developed and administered in local road agencies. These surveys and tools provide a mechanism for managers and employees to continually participate in building a workplace culture that improves productivity and values employees.

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Indiana LTAP Workforce Report

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Appendix A. Workforce Definitions and Acronyms

Acronyms¹

ABC	Associated Builders and Contractors
ACEC	American Council of Engineering Companies
AGC	Associated General Contractors
AIC	Association of Indiana Counties
APWA	American Public Works Association
BLS	Bureau of Labor Statistics
CDL	Commercial Driver License
CES	Current Employment Statistics
DWD	Department of Workforce Development
ELDT	Entry Level Driver Training
HR	Human Resources
HS	High School
IACHES	Indiana Association of County Highway Engineers and Supervisors
ICI	Indiana Constructors, Inc.
ICE	Industrial Contractors & Engineers
ITE	Institute of Transportation Engineers
INDOT	Indiana Department of Transportation
IN LTAP	Indiana Local Technical Assistance Program
INPRS	Indiana Public Retirement System
LTAP	Local Technical Assistance Program
MN LTAP	Minnesota Local Technical Assistance Program
NAICS	North American Industry Classification System
NCCER	National Center for Construction Education Research

¹ These acronyms appear in the report. There may be additional acronyms in the appendix that are not included in this list.

OSHA	Occupational Safety and Health Administration
PERF	Public Employees' Retirement Fund
SIG	Special Interest Group
SPR	State Planning and Research (federal funding source)
T2	Technology Transfer
UNH	University of New Hampshire
U of MN	University of Minnesota
US	United States

Definitions

Average (mean): Provides a measure of central tendency; calculated as the sum of all values divided by the number of data points. The average can be distorted by very high or very low values characteristic of skewed data.

Maximum: The highest value in the data set.

Median: Provides a measure of central tendency; the median is the midpoint of the observed values. One-half the data points lie above the median. The median is less affected by extreme values than the average.

Minimum: The lowest value in the data set.

Mode: The most frequently observed value in a dataset.

90th percentile: The number that is greater than 90% of the observed values or numbers in the set. 10% of the numbers in the set are greater than the 90th percentile.

75th percentile: The number that is greater than 75% of the observed values or numbers in the set. 25% of the numbers in the set are greater than the 75th percentile.

25th percentile: The number that is greater than 25% of the observed values or numbers in the set. 75% of the numbers in the set are greater than the 25th percentile.

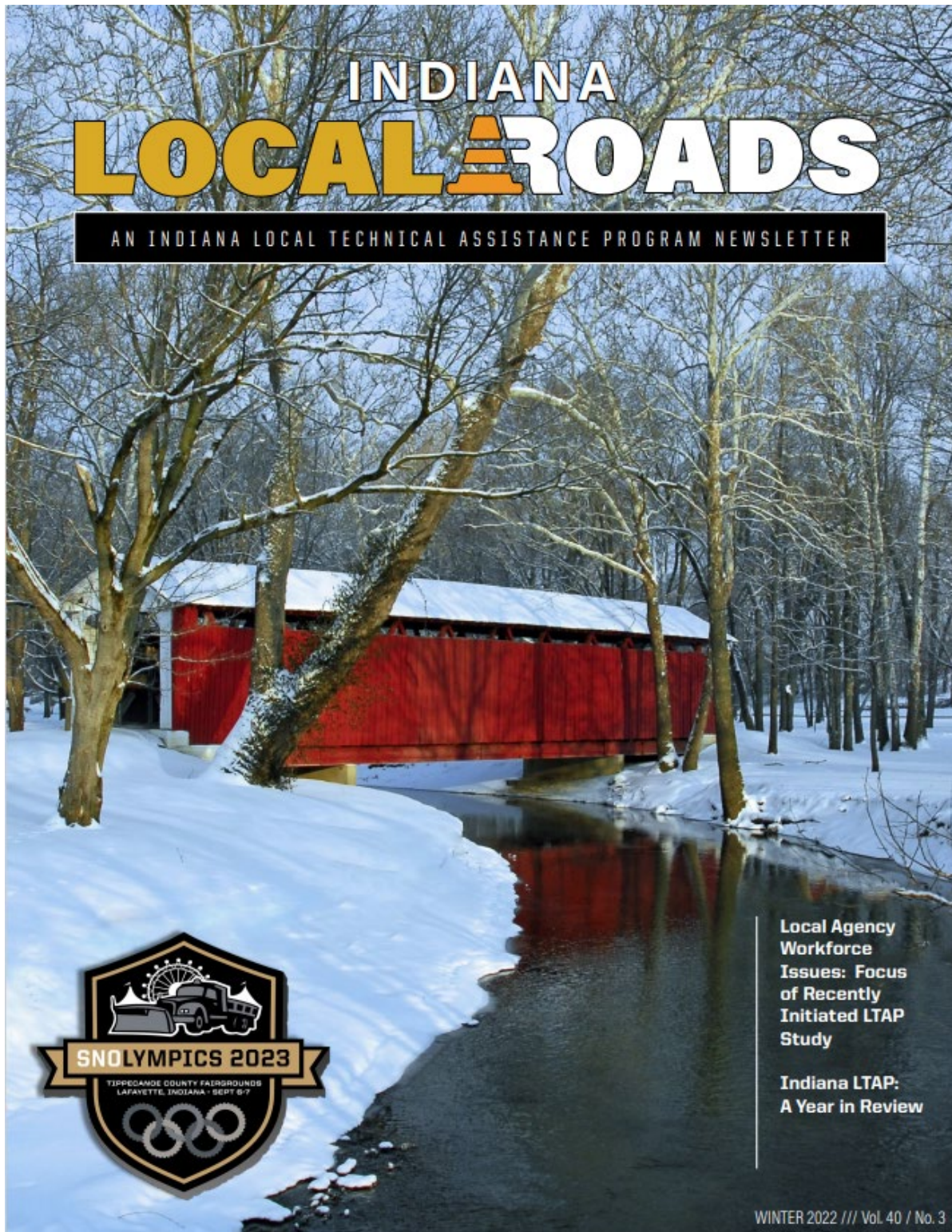
10th percentile: The number that is greater than 10% of the observed values or numbers in the set. 90% of the numbers in the set are greater than the 10th percentile.

Appendix B. Indiana LTAP Newsletter Article

The Article below was published in the Indiana LTAP Local Roads Winter 2022 Newsletter².

Local Agency Workforce Issues published in Indiana Local Roads, Winter 2022, Vol. 40, No. 3

² Article is available on line at https://purdue0-my.sharepoint.com/personal/watsonam_purdue_edu/Documents/LTAP%20Local%20Roads%20Newsletter/INLTAP%20Winter%20Newsletter%202022%20-%2040.3.pdf (retrieved April 24, 2023).



Local Agency Workforce Issues

Focus of Recently Initiated LTAP Study



BY SARAH HUBBARD, BRYAN HUBBARD AND JOSEPH SOBIERALSKI

Local roads and infrastructure are critical to the vibrancy of our communities. While there are many factors that keep our local roads and infrastructure in good shape, one of the most important factors is the local workforce, the people who maintain our roads and infrastructure.

Indiana LTAP recently commissioned a research study to investigate the local agency workforce issues. In some cases, local agencies have had challenges filling vacancies, as the labor market becomes increasingly competitive. In many cases, wages in the private sector have increased, and it may be hard for local agency salaries to keep up. The competitive market may be further challenged by regulations that came into effect this year that changed the training requirements for a CDL.

The goal of the LTAP research project is to document the situation and challenges and provide information that will be useful to local agencies and decision makers.

Recent Disruptions

The last two years have caused significant disruptions to the entire workforce in the US, and 2021 shattered employment records when 47.4 million people left their job during what has been called "the Great Resignation". While other sectors have been hit hard by these labor issues such as health care, hospitality and the food sectors, challenges have been particularly significant in the transportation sector (Ferguson, 2022). The Great Resignation has also been coined the Great Reshuffle as hiring rates continues to outpace the rate that employees have quit their jobs.

Across the US there are only 66 workers for each 100 jobs, making it difficult for organizations to fill essential positions. If you think it seems more challenging in Indiana, you are right. In Indiana, there were only about 51 workers for every 100 jobs (as of July), reflecting 220,000 open jobs (2.1% of the US total) with only 111,800 workers available. Indiana had 47% more job openings in July 2022 compared to February 2020. While this reflects a robust economy in Indiana, it also reflects very tight competition for workers.

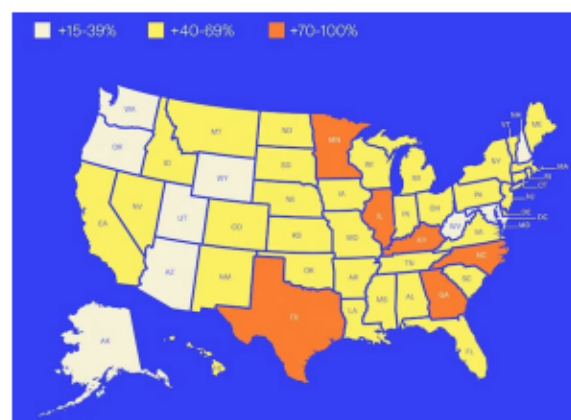
We'd like to know your thoughts!
Please take a few minutes to take our survey at:

<https://tinyurl.com/LTAPworkforce>

Workforce Numbers

Labor force participation is one metric for the national workforce that highlights the number of working age people either working or looking for work. Labor force participation has held fairly steady in recent months and is 62.4% in August 2022, which is significantly greater than the low of 60.2% in April 2020, but still has not recovered from the pre-pandemic level of 63.4%; this gap reflects 2.75 million workers that have left the workforce since February 2020. Workers have left the workforce for a variety of reasons, including early retirements, and a reduced need for household income due to increased unemployment benefits, stimulus payments and child tax credits (US Chamber of Commerce, 2022).

Percent Increase in Job Openings from February 2020 to July 2022



Source: US Chamber of Commerce using BLS data



Not all jobs have been equally affected by recent changes. Industries least affected by worker shortages, not surprisingly, are those that are compatible with remote work. Maintaining our local roads is definitely not a remote work kind of task! Local agencies have also experienced hiring challenges following a rule change for the Commercial Driver's License (CDL) in February of 2022. These changes made it a much more competitive marketplace when hiring drivers and operators with CDLs. In the construction industry, some firms report that concrete could not be delivered because there were no drivers available. Some firms even started hiring their own drivers and buying their own trucks.

It's also interesting to look at data for Highway Maintenance Workers from the Bureau of Labor Statistics (BLS occupation 47-4051). Workers in this group: "Maintain highways, municipal and rural roads, airport runways, and rights-of-way. Duties include patching broken or eroded pavement and repairing guard rails, highway markers and snow fences. May also mow or clear brush from along road, or plow snow from roadway." Employment in Indiana

Labor Force Participation
Last Two Years



Labor Force Participation
Last Ten Years



is spread throughout the state with concentration in the Indianapolis metro area as well as the non-metropolitan or rural areas in the state. For these workers the median hourly rate for the state is \$19.62 and \$24.75 for the 90th percentile (i.e., top earners), while the national median hourly wage is \$22.06 and \$29.31 for the 90th percentile.

LTAPworkforce to help ensure this work reflects your situation and so we can address the workforce topics that are most important to you. If you have a workforce case study, success story, lesson learned, or other workforce ideas you'd like to share, we would like to hear about it! Please email researchers Bryan Hubbard at bhubbard@purdue.edu, Sarah Hubbard at sarahh@purdue.edu or Joseph Sobieralski at SOBIERAJ@erau.edu.

What do you think?

We'd like to hear your thoughts on the situation!
Please take this LTAP survey at <https://tinyurl.com/>

Worker Data for Highway Maintenance Workers in Indiana

Location	Percentage of Total Highway Maintenance Workers in Indiana	Median Hourly Wage (50 th Percentile)	75 th Percentile Hourly Wage	90 th Percentile Hourly Wage
Bloomington	1.35%	17.83	18.36	21.08
Central Indiana non-metropolitan areas	10.24%	18.25	20.20	22.85
Columbus	0.81%	19.73	22.47	22.47
Elkhart-Goshen	1.62%	21.01	23.06	25.29
Evansville	4.31%	20.34	23.88	26.94
Fort Wayne	7.28%	20.40	22.81	27.91
Indianapolis-Carmel-Anderson	27.76%	20.95	23.14	26.99
Kokomo	0.81%	18.80	21.89	22.06
Lafayette-West Lafayette	4.31%	21.35	27.97	28.24
Michigan City-La Porte	4.31%	18.58	17.95	26.95
Muncie	1.62%	19.07	22.40	23.79
Northern Indiana non-metropolitan areas	11.86%	18.32	22.19	22.85
South Bend-Mishawaka	4.58%	21.38	23.48	27.97
Southern Indiana non-metropolitan areas	14.56%	18.82	20.85	22.62
Terre Haute	4.58%	19.54	23.06	23.26

Data reflects wages for May 2021 extracted in 2022 per BLS.

	Employment	Median Wage	75 th percentile Wage	90 th percentile Wage
US	141,150	\$45,880	\$48,500	\$60,970
Indiana	4,390	\$41,610	\$47,880	\$56,110
Michigan	2,960	\$46,630	\$50,500	\$59,280
Ohio	6,730	\$44,590	\$48,500	\$61,140
Illinois	6,080	\$55,430	\$71,580	\$77,320
Kentucky	2,570	\$32,900	\$36,990	\$45,090

Data reflects wages for May 2021 extracted in 2022

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07

Appendix C. CIB Conference Paper

The following paper was published and presented at the 2023 CIB Conference in Portugal.

Hubbard, S., Sobieralski, J., & Hubbard, B. (2023, June). Post-Pandemic Workforce Issues in the Construction and Transportation Workforce. *CIB W099 & W123 Annual International Conference, Porto, Portugal*.

POST-PANDEMIC WORKFORCE ISSUES IN THE CONSTRUCTION AND TRANSPORTATION WORKFORCE

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Abstract

This research explores employment issues and drug testing for the private construction and public road agencies. Construction companies and road agencies, like numerous other employers, have been faced with increasing difficulties in the hiring and retention of their skilled workforce after the pandemic. A very competitive market for workers in the U.S, changing labor force demographics, and the need for employees with diverse skill sets intensify the workforce challenges. One employment restriction that exists for construction companies is drug testing. The aim of this paper is to investigate potential workforce challenges related to drug testing in the private construction and public local road agency sectors. Drug testing is required to ensure safety, and may be required by law, depending on the job. With the legalization of recreational marijuana (aka cannabis) and medical marijuana in many states within the U.S., marijuana use has become more widespread. Depending on the type of testing, marijuana can be detected from 1 to 90 days after use. This research presents general trends in the construction workforce and presents the results of a survey to determine the most pressing workforce issues, including the impact of drug testing in the construction and public road agency workforce. Although the workforce issues in both the private and public sector have been challenging, there is no evidence based on these survey results to suggest that drug testing requirements have contributed to the workforce challenges.

Keywords: Work Force, Drug Testing, Construction Safety

1. INTRODUCTION

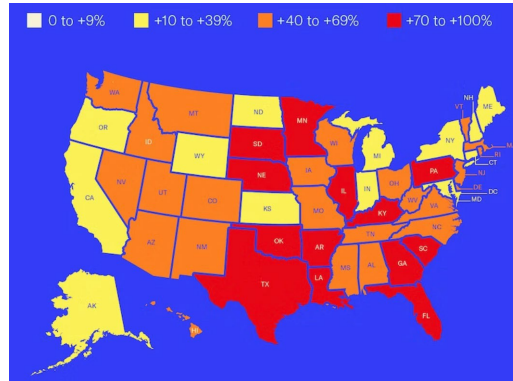
The post pandemic era has caused significant disruptions to the entire workforce in the US, and 2021 shattered employment records when 47.4 million people left their job during what has been called “the Great Resignation” [1]. All sectors of the economy have faced labor issues, including the construction and transportation sectors. A key theme of the post-pandemic workforce has been disruption, in fact, the Great Resignation has also been called the Great Reshuffle since hiring rates have outpaced the rate that employees have quit their jobs.

1.1. Workforce Statistics

Across the US, there are only 68 workers for each 100 jobs [2], making it difficult for organizations to fill essential positions. While this reflects a robust economy, it also reflects very tight competition for workers. Workforce challenges have been faced throughout the country, as shown in Figure 1.

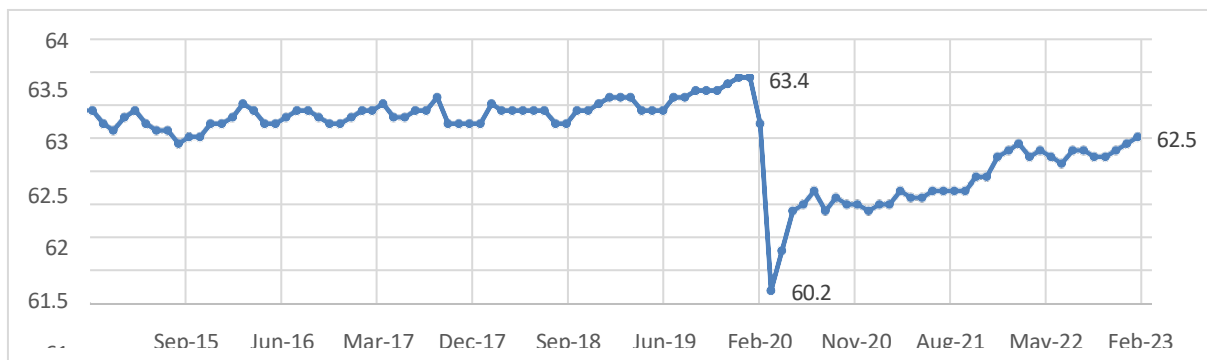
Figure 1. Percent Increase in Job Openings by State from February 2020 to Feb 2023

Source: [2,3].



Labor force participation is one metric for the national workforce that highlights the number of working age people either working or looking for work. Labor force participation has held fairly steady in recent months and is 62.5% in February 2023, this is significantly greater than the low of 60.2% in April 2020, but the US still has not recovered from the pre-pandemic level of 63.4%, a gap that reflects 2.46 million workers who have left the workforce since February 2020. Workers have left the workforce for a variety of reasons, including early retirements, and a reduced need for household income due to increased unemployment benefits, stimulus payments and child tax credits [2].

Figure 2. Labor Force Participation in Last Decade [3]



Not all jobs have been equally affected by recent changes. Industries least affected by worker shortages, not surprisingly, are those that are compatible with remote work. Construction and public roads work requires on site duties, and is definitely not a remote work kind of task. Additional challenges also exist for workers in the U.S. that require a Commercial Driver’s License (CDL) following a rule change for the CDL in February of 2022. These changes made it a much more competitive marketplace when hiring drivers and operators with CDLs. In the construction industry, some firms report that concrete could not be delivered because there were no drivers available. Some firms even started hiring their own drivers and buying their own trucks.

A tighter labor market has been met by increasing salary demands which are evidenced by a wide variety of data. In early 2023, the Association of General Contractors (AGC) reported that average hourly earnings in construction increased 3.2 in 2022, ending at \$30.73, which is 10.1% higher than the private-sector employment average of \$27.90 [4]. This increase is attributed to labor shortages as evidenced by

Department of Labor statistics that indicate that the number of job openings in construction totalled 360,000 in May 2022, which was the highest May total in the 19 years that this metric has been recorded [4].

In addition to an overall competitive market for workers across all sectors, construction also has additional restrictions due to the critical safety considerations. One restriction to hiring workers in the construction industry is the requirement that new employees pass a drug and alcohol test, which is often a condition of employment. Drug testing is common in the U.S. to ensure a safe work environment and may also reduce insurance rates and worker compensation rates. Drug testing is required by law for some positions in the construction industry, including positions that require a CDL.

1.2. Drug Use

A second issue that has occurred is rising drug use and substance abuse. During the first year of the pandemic, more than 99,000 people in the U.S. died due to drug overdose, an almost 30 percent increase from the previous year [5]. Marijuana use has increased 13.2% and hallucinogenic drug use has increased 4.7% from 2011 through 2021 among young adults aged 19 to 30 years old [6]; 43% of young adults reported using marijuana in the last month in 2021. Alcohol remains the most used substance among adults. Sixty-six percent of young adults report alcohol use in the last month; 32% report binge drinking (5+ drinks in a row) and 13% report high-intensity drinking (10+ drinks in a row) in the past two weeks [6].

Given these statistics, it is not surprising that positive tests increased 12% in the construction sector in 2021 compared to 2020 [7]. The rate for positive marijuana tests in construction grew 16% but was still significantly below other industries at 2.9% [7]. Trends for Construction and other sectors are shown in Table 1.

Table 1. Drug Use Trends by Industry Sector

Sector	2017	2018	2019	2020	2021
Accommodation and Food Services	4.6	4.9	5.1	6.2	6.5
Construction	4.1	4.1	4.2	4.1	4.6
Transportation and Warehousing	2.5	3.9	4.0	4.4	5.5
Utilities	2.8	2.9	3.4	3.5	3.7
Public Administration	3.3	3.5	3.3	3.3	3.5

Source: Quest Diagnostics as reported by [7].

Data from Quest Diagnostics based on more than 11 million test results suggests that there are concerns for employers in safety sensitive sectors such as construction. Increased positivity rates and higher rates after accidents raises questions about how employers can best manage issues related to employee health and safety, as well as workforce recruitment and retention [7].

This paper presents the results of a workforce survey of contractors and public road agencies. The objective of this paper is to assess employment challenges and determine how drug testing has affected private construction and public road organizations. Background information, including information about drug-free workforce policies and common practices for drug and alcohol testing in the U.S. construction industry provides a context for the survey results. The results of the survey are presented and discussed, both in the context of the historic challenges and future possible changes to testing procedures.

2. BACKGROUND

2.1. Drug-Free Workforce Policy

A drug-free workforce policy is common in the construction industry in the U.S. to ensure a safe work

environment. As part of these policies, construction companies perform drug and alcohol tests on employees to ensure compliance and protect the workforce from safety issues related to substance abuse. Other important components of a drug-free policy include a formal written policy, employee education, supervisor training, and employee assistance programs [8].

There is no general requirement for construction companies to have a drug-free workplace policy, however, U.S. contractors that work on a federal contract over \$100,000 are required to have a policy in place under the Drug-free Workplace Act of 1988 [8]. Each state also has their own drug testing laws [9]; these state laws may add requirements but cannot waive the federal mandates. In addition to federal and state laws, the United States Department of Transportation (DOT) and Federal Aviation Administration (FAA) have drug testing requirements to cover CDL operators and pilots, including remote pilots [10]. The CDL testing requirements affect many construction companies and road agencies since the CDL is required for large trucks (transporting materials and plowing snow) and other heavy equipment. Remote pilot requirements related to alcohol and drugs affect construction companies and their subcontractors that use small unmanned aerial systems (sUAS) [11] for job site tasks such as documentation, material management, and inspections.

There are incentives to have a drug-free workplace related to cost of insurance and worker's compensation. Thirteen states reduce worker's compensation rates if you implement a drug-free workplace [12]. Private insurance premiums may also be reduced with a drug-free workforce policy. Even without incentives, construction companies often perform testing as a part of their safety program to reduce risks of accidents related to substance abuse.

Under a drug-free workforce policy, drug and alcohol testing is done for the following circumstances [8]:

- 1) Pre-Employment,
- 2) Annual Physical Tests,
- 3) Reasonable Suspicion Tests,
- 4) Post-accident Tests,
- 5) Post-treatment Tests, and
- 6) Random Tests [8].

Testing a worker when an employer suspects impairment due to drugs or alcohol is called a "Reasonable Suspicion Test" and each state provides guidance on what is considered reasonable suspicion. General guidelines for reasonable suspicion include the following [13]:

- *"An employee was clearly using drugs and displayed physical symptoms such as odd behavior, slurred speech, or uncoordinated movement.*
- *A credible source or co-worker provided a report or proof of an employee using drugs at work.*
- *A worker displays significantly deteriorated work performance or erratic behavior.*
- *There is evidence that a worker possessed, sold, or solicited drugs at work.*
- *An employee contributed to a workplace accident with negligent behavior that could have been caused by drug use.*
- *There is evidence that an employee tampered with the results or specimens of a drug test."* [13]

2.2. Drug and Alcohol Testing

2.2.1. Legal Issues Related to Drug Use in the US

Medical marijuana was first legalized in California in 1996; as of early 2023, 37 states have legalized medical marijuana and 21 states have legalized the recreational use of marijuana [14]. The legalization of marijuana by states contradicts U.S. federal law which outlaws marijuana as a controlled substance. State legalization does not exempt any workers from the requirement for compliance with laws that pertain to workplace drug use and workplace drug testing laws.

The Supremacy Clause of the U.S. Constitution establishes that federal laws take precedence over state laws [15]. From a practical point of view, the discrepancy between federal and state laws currently means that people will not be prosecuted by the state for the recreational use of marijuana in states where it is legal, however, state law does not prevent federal prosecution for violations of federal laws related to controlled substances. Federal prosecutions of individuals possessing small amounts of marijuana are rare, and in 2013 the US Department of Justice (DOJ) announced it would rely on state and local authorities to address marijuana activities through enforcement of their own state regulations [16]. Regardless of state law, marijuana continues to be a Schedule I substance under the Controlled Substances Act of the United States [17]. This status reflects the fact that the US Food and Drug Administration (FDA) has not approved a marketing application for any marijuana product for any clinical medical purposes. Schedule I substances reflect a high potential for abuse, and no currently accepted medical use in treatment in the US, and a lack of accepted safety for use under medical supervision. There are three pharmaceutical products that have Tetrahydrocannabinol (THC), synthetic THC, and Cannabidiol (CBD) ingredients that have been approved by the FDA and are considered Schedule III, II and V drugs under the Controlled Substances Act [18,19].

According to Quest Diagnostics, one of the largest testing labs in the United States, drug positivity test results climbed in 2022 to the highest rate in 20 years [20]. The positivity rate for drug use was 4.6% in 2021, up from an all-time low 3.5% in 2010. The positivity rate for marijuana has also continued to rise in the general workforce. Increasing marijuana rates are attributed to the legalization of marijuana for both medical and recreational use in many states.

2.2.2. Types of Drug Tests

There are many different ways to test for drugs in the human body. The most common methods used for employment screening include urine, blood, and saliva [21]. Urine drug testing is the most common because it is non-invasive and less expensive, however, it cannot determine impairment. Blood testing is more invasive and is typically used for more legal investigations. Saliva testing is non-invasive and is done with a mouth swab. Saliva testing is becoming more popular because of the ease of collection, improvements in testing technology, and lower expense [21]. Hair testing is more expensive but can determine long-term use; it is not commonly used in employment testing.

A major change in drug testing policy is being proposed by the U.S. DOT, which will allow the use of saliva (oral specimen) for DOT drug testing [22]. If the U.S. DOT allows this type of testing, it is expected that private industry will follow and replace urine testing with saliva testing. There are a number of positive benefits for saliva testing as compared to urine testing, including reduced privacy issues when collecting a sample and elimination of the issue of a “shy bladder”, aka paruresis, which means it is difficult to urinate around other people (sometimes people may claim shy bladder if they do not wish to participate in drug testing). Saliva testing also provides information on more recent drug use. While drug detection times vary depending on the amount of drugs consumed, urine testing typically has a detection time of 7 days (or longer for chronic users) and saliva testing will detect drug use up to 48 hours [23, 24]. Hair testing has the longest detection time and drugs can be detectable with a hair sample for up to 90 days.

2.2.3. Drug Testing in Private Construction and in Public Road Organizations

Drug testing in construction has become the norm and virtually all large construction companies in the U.S. conduct pre-employment drug testing and have a testing program in place to ensure on-site safety. This has not always been the case. In 1983, less than 1 percent of all employees had drug testing [25]. Drug testing is important in construction not only due to the high-risk environment, but also because there is evidence that drug and alcohol use in the industry is prevalent. One landmark study on drug testing in construction found that companies with drug testing programs had a 51% reduction in incident rates within two years of program implementation [25]. However, as noted by the authors and others (e.g., Sherratt et

al [26]), the introduction of a new safety program which may or may not include a drug testing program may result in safety improvements and may be responsible for some of the improvements. Researchers have also raised the issue of a distinction between being impaired on the job versus using drugs on your own time and not being impaired while at work [26]; this may be an issue with current marijuana testing since current urine testing can result in a positive test when marijuana was used anytime within 7 days (or longer). The benefits to a company are reduced if they are losing workers due to a positive drug test when there is no impairment on the jobsite, especially if there is a shortage of skilled workers [26]. This is an area where the saliva testing proposed by the DOT may reduce some of these issues.

3. RESULTS

This section presents the results of a survey that was developed and deployed to better understand the workforce issues faced by construction companies and public sector local agencies, as well as the impact that drug testing has on the workforce. The private sector respondents were professionals in the construction industry participating in a meeting focused on higher education in the construction industry. The public sector respondents were professionals from local public agencies that maintain roads in Indiana, a Midwest state. The sections below highlight the perspective of both the private and public sector. The results reflect over 100 responses, with 36 responses from the private sector and 75 from the public sector. In some cases, respondents did not answer every question.

3.1. Recruitment and Retention of Employees

Survey results confirm that the majority of employers have had challenges recruiting employees, with almost three quarters (74% and 72% for private and public sectors) agreeing with this statement. In response to these challenges, the majority of employers (84% and 64%) have raised salaries or increased benefits to encourage more applicants. The private sector has a greater capability to raise salaries in the short term; many public agencies have a more difficult time raising salaries in the short term since they work on an annual budget and may require approval from elected officials to make salary changes.

Employers in the private sector have worked to support diversity to increase the number of applicants (74%), although fewer in the public sector have focused on this strategy to increase the workforce (33%). Although labor markets are tight, most employers have not lowered their requirements to increase the number of applicants; 14% of private sector employers have lowered employment requirements, and 32% of public sector employers have lowered employment standards. The majority of employers (68% and 55% for private and public sector) have worked to improve culture in an effort to retain employees. Public sector employers have been much harder hit by retention issues; while less than half of private sector employers (40%) report that employees have left for a better position elsewhere, almost three quarters of public sector employers have lost employees to a better position elsewhere (73%). Additional information is provided in Table 2.

There were a variety of strategies by employers that made changes to hiring requirements in an effort to fill job vacancies, as shown in Table 3. The most common strategy was to reduce the requirement for experience, followed by requiring less formal education and fewer skill certifications. In the public sector, a traditional requirement has been the requirement for a CDL, some agencies hired employees without the CDL and planned to work with them to get them this credential. It was much less common for agencies to make changes to the drug testing requirements or to the requirements related to criminal records.

Table 2. Employer Perspective of Workforce Recruitment and Retention Issues

	Private Sector			Public Sector		
	Disagree	Neutral	Agree	Disagree	Neutral	Agree

We have had challenges recruiting employees	11%	17%	71%	1%	27%	72%
Our employees have left for a better position elsewhere	17%	43%	40%	8%	19%	73%
We have lowered our requirements to get applicants and new hires	57%	29%	14%	32%	36%	32%
We have tried to support diversity in recruitment activities to get more applicants	0%	26%	74%	11%	56%	33%
We have raised salaries or increased benefits to stay competitive	0%	27%	73%	18%	18%	64%
We have worked to improve our culture to try and retain employees	6%	26%	68%	9%	36%	55%

Table 3. Changes to Hiring Requirements to Increase Applicant Pool (1 = change most commonly reported)

	Private Sector Rank	Public Sector Rank
Required less experience	1	1
Required less formal education	2 (tie)	3
Required fewer skill certifications	2 (tie)	2
Changed drug testing requirements (e.g., oral swab vs. urine sample)	4	5
Changed requirements related to criminal records	5	4

There are a variety of challenges that agencies face when it comes to their workforce. Table 4 provides the perspective for private sector and public sector agencies regarding current workforce challenges. For both private and public sector agencies, finding people who are willing to work is a significant challenge (71% of private and 68% of public agencies face this challenge). Finding qualified workers is also a significant challenge for both private and public agencies (81% for both private and public agencies). Meeting current wage expectations, retirements (sometimes accelerated by the pandemic) and the integration of younger workers are greater challenges for the public sector than the private sector. Workers going to other sectors and to competitors was an issue for both private and public agencies, although public agencies had greater challenges with these issues, which are likely exacerbated by the challenges public agencies have keeping up with current wage requirements. Government policies were a challenge for some agencies (more so for public agencies), but were not the most significant challenge.

Table 4. Employer Perspective on Current Workforce Challenges

	Private Sector			Public Sector		
	Disagree	Neutral	Agree	Disagree	Neutral	Agree
Finding people who are willing to work	6%	26%	68%	3%	11%	86%
Finding people who are qualified to work	0%	19%	81%	1%	17%	81%
Meeting current wage expectations	3%	58%	39%	1%	16%	83%
Challenges integrating younger workers	19%	42%	39%	7%	57%	50%
Retirements	35%	35%	29%	7%	31%	62%
Workers going to competitors	6%	42%	52%	13%	30%	57%
Workers going to other sectors	26%	52%	23%	6%	27%	67%
Government policies	65%	29%	6%	10%	57%	33%

Respondents were asked to rank the factors that are most important when employees leave an organization, as shown in Table 5. The results indicate that the number one reason employees leave is salary, followed by advancement opportunities, better work life balance, and better benefits.

Opportunities for remote work has received a lot of attention in the media, however it was ranked 5th out of the 6 choices, suggesting this may not be as critical for employees currently in the construction sector. This may reflect the fact that many jobs in the construction sector are “in person” jobs, and employees would have to change employment sectors in order to work remotely. Despite conventional wisdom that suggests that culture fit is an important aspect of employee retention [36], responses in this survey indicate it is much less important than the other factors considered.

Table 5. Reasons Employees Leave an Organization (1 = most commonly cited)

	Private Sector Rank	Public Sector Rank
Higher Salary	1	1
Advancement Opportunities	2	3
Better Work Life Balance	3	6
Better Benefits	4	2
Opportunity for Remote Work	5	5
Culture that is a Better Fit	6	4

Drug testing requirements are common in the construction industry and in local public agencies that maintain roadways; these requirements ensure worker safety and are required for workers that have a CDL. All of the public sector respondents are in Indiana, where recreational marijuana is not legal; however, recreational marijuana is legal in the border states of Michigan and Illinois (north and west of Indiana).

Drug testing is a de facto industry standard in both private and public sectors, as indicated reflected by the fact that almost all of the survey respondents use drug testing (93% for private agencies and 96% for public agencies) and conduct drug testing after an accident (93% for private agencies and

88% for public agencies) as shown in Table 6. This exceeds the prevalence of drug testing in the US, with the 2022 Employer Drug Testing Survey reporting that 87% of respondents conduct pre-employment testing and 70% of respondents conduct post-accident testing [37].

Table 6. Drug Testing Practices and Organizational Impacts

	Private Sector		Public Sector	
	Disagree	Agree	Disagree	Agree
Recreational marijuana is legal in our state or states where we work	55%	45%	100% ¹	0% ¹
We use drug testing	7%	93%	4%	96%
We test after an accident	7%	93%	12%	88%
We use impairment signals	31%	69%	23%	77%
In general, positive drug tests have increased in the last year or two	83%*	17%*	94%	6%
When hiring, our drug testing policy is a competitive disadvantage	96%	4%	84%	16%

¹Recreational marijuana is not legal in the State of Indiana, where the survey of public agencies took place, so this question was not included on the survey; the responses are included in the table to support comprehension of the surveyed population and a comparison.

Less common is the use of impairment signals on the job to assess drug and alcohol use (69% and 77% for private and public agencies, respectively). There may be less need for the use of impairment signals, given the standard practice for drug testing and testing after an accident; moreover, agencies may not report the use of impairment signals if they have not had this as a trigger for a required drug test. The majority (83% and 94% for private and public agencies) disagreed with the fact that positive drug tests have increased in the last year or two; this is contrary to national trends, such as reports from the 2022

National Employer Drug Testing Survey that reported that 30% of employers report they have experienced an overall increase in positive drug tests in 2022 compared to 2021 [37]. The majority of employers (96% and 84%) do not believe that drug testing puts them at a competitive disadvantage, which can be presumably be attributed to the fact that the majority of private sector construction companies and public sector transportation agencies conduct drug tests.

4. CONCLUSION

Overall, after the pandemic both private sector construction companies and public sector local road agencies have had a difficult time maintaining their workforce. Challenges have included both retention and recruitment of new workers. Public sector employers have had a more difficult time keeping up with the increasing salary demands.

Although the workforce issues in both the private and public sector have been challenging, there is no evidence based on these survey results to suggest that drug testing requirements have contributed to the workforce challenges. Use of drug testing will continue to be an important practice to ensure safety for workers and the public in the construction and roadway sectors. Although industry has used the same testing practices for many years (i.e., urine tests), saliva tests are expected to become increasingly common due to the ease of sample collection and the ability to capture recent drug activity. Advancing technologies for drug testing may allow more timely

assessment of the worker's fitness for duty during the work hours of interest.

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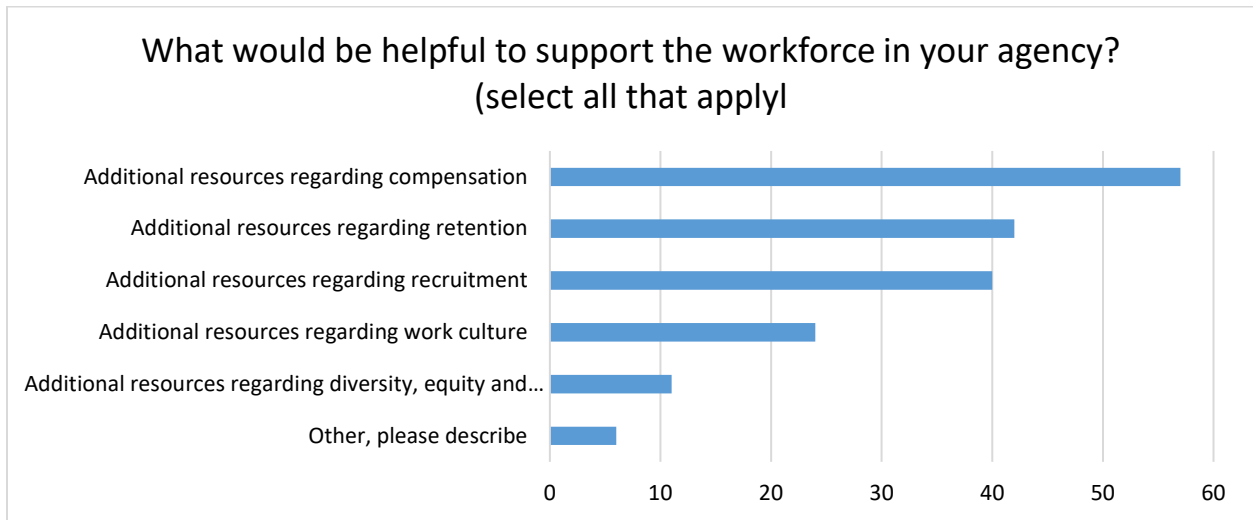
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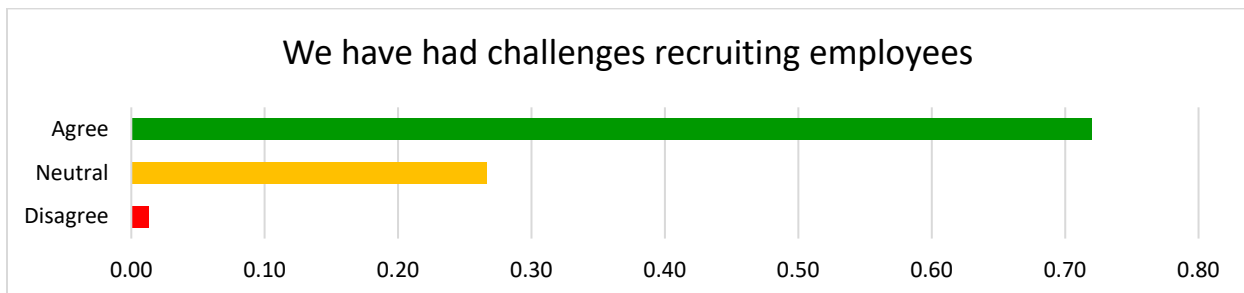
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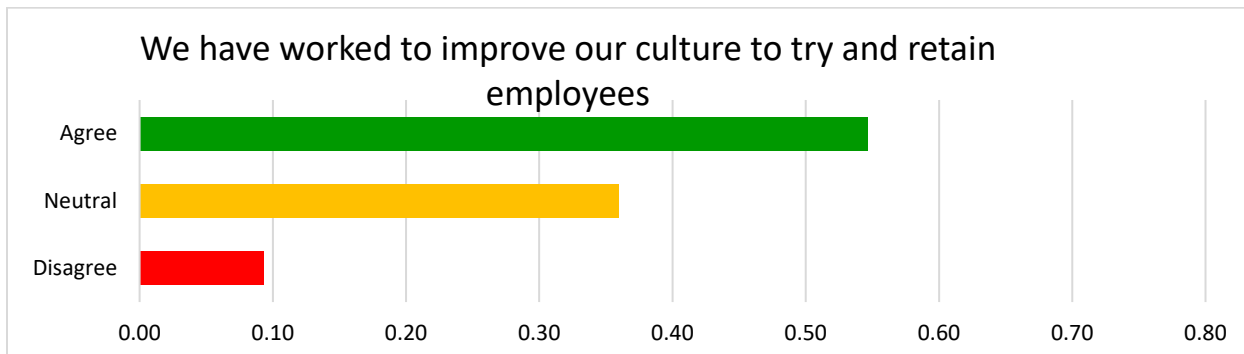
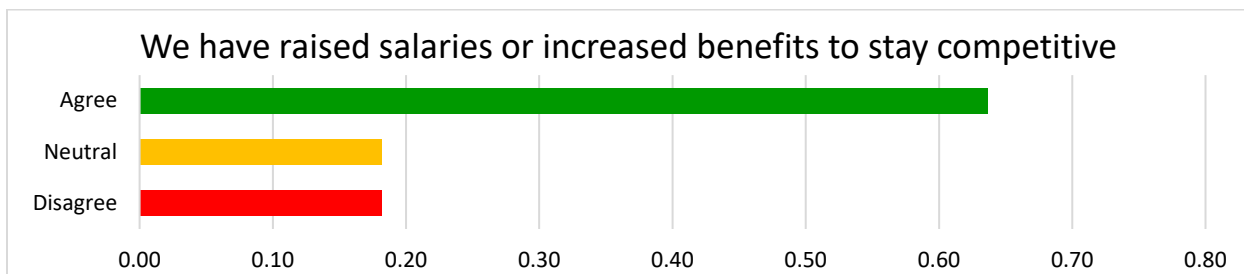
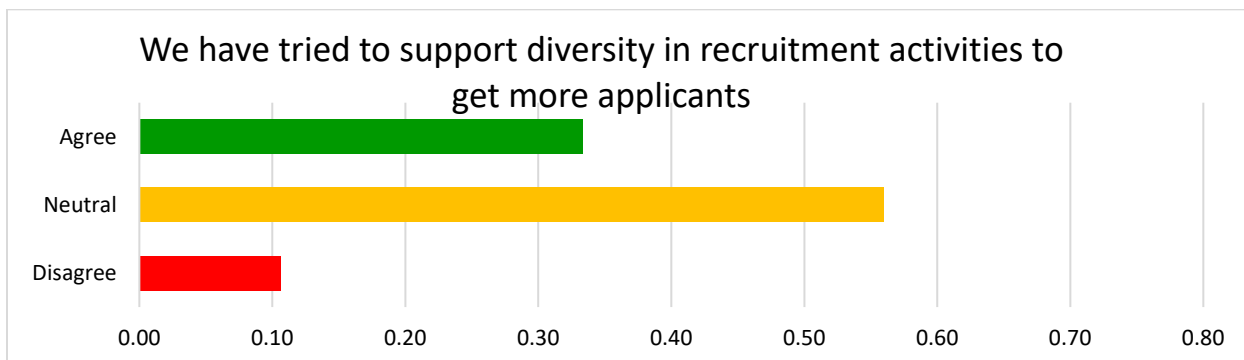
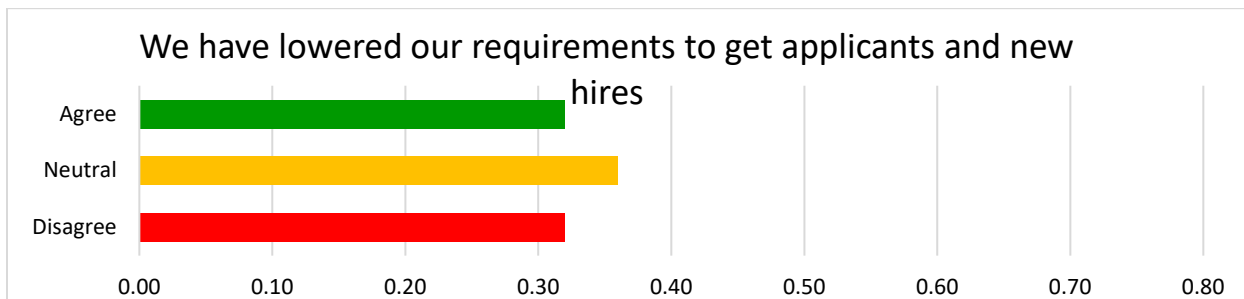
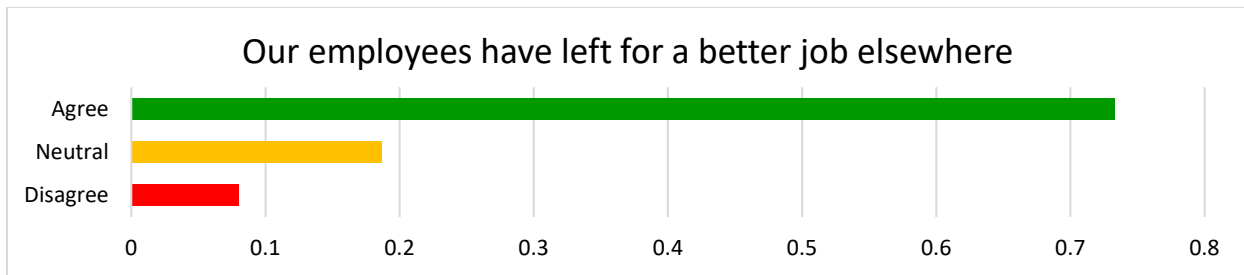
Appendix D. Survey Results



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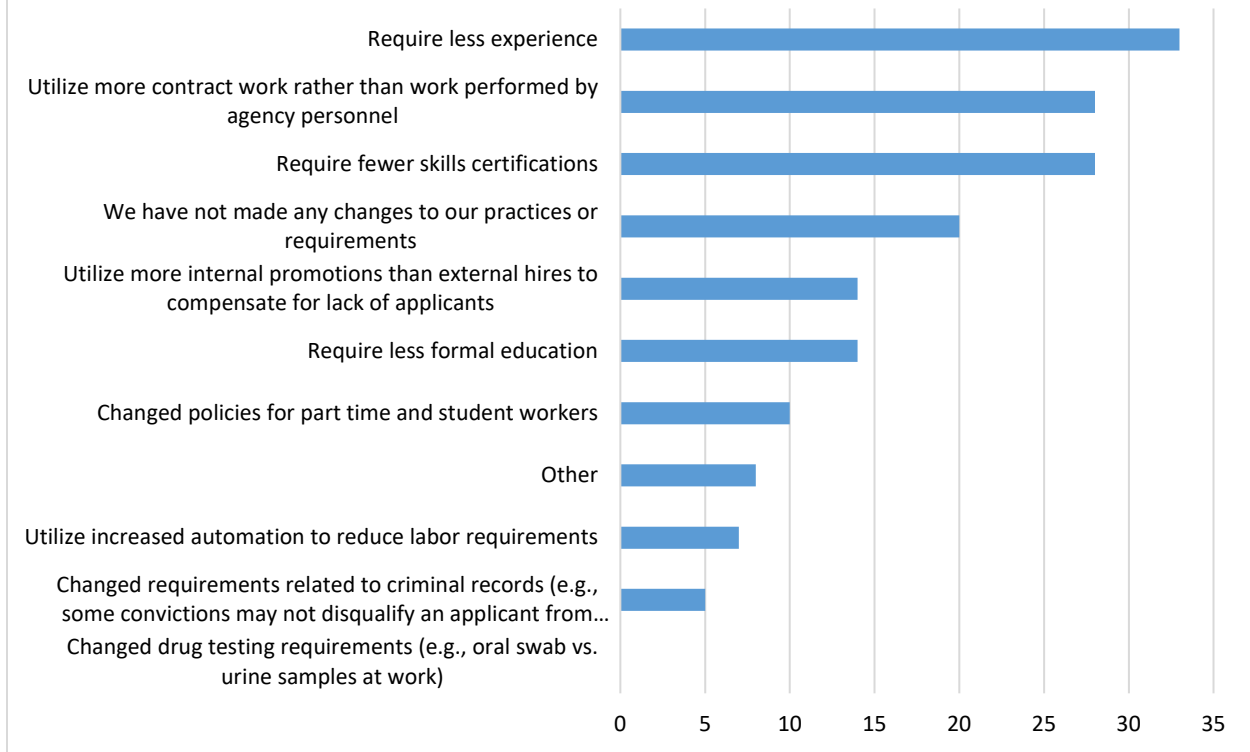
CDL Training
training new employees to get CDL
County Wide Broadband Access
resources for CDL training
Most places have poor management. Almost all issues at any job, begins with poor management. Just because someone has been with a company for many years, doesn't always make them the best candidate. Also, it seems that every boss has a boss, and the higher up you get, the worse it gets. Too much political and misappropriation of funds to have too many managers, and not enough work force who actually make the changes happen and do the work that is required. There doesn't need to be 7 bosses for a crew that can do the job with the approval of just 1 or 2 people. It'll never change, because it never has. The old saying, "That's just how it is" still rings true on so many levels of government.
Offer some type of incentive to those you have. Keeping them!





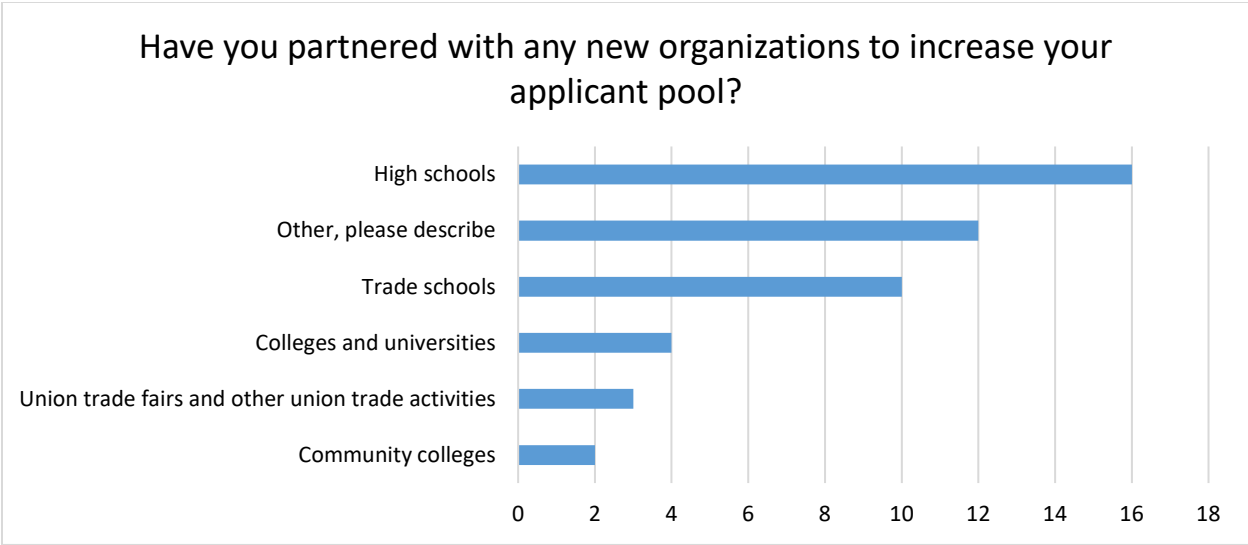


How have hiring requirements changed to increase applicant pool? (check all that apply)



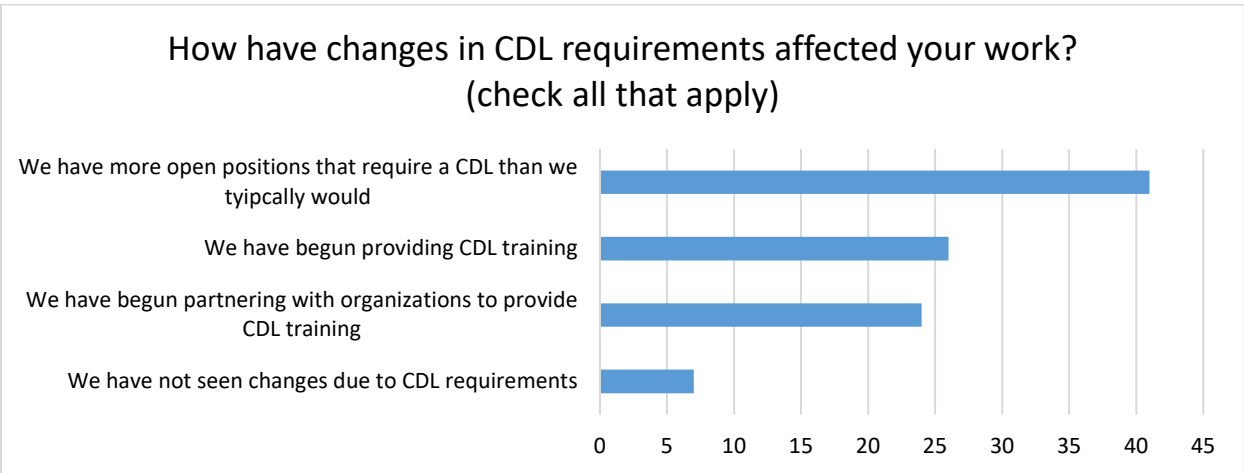
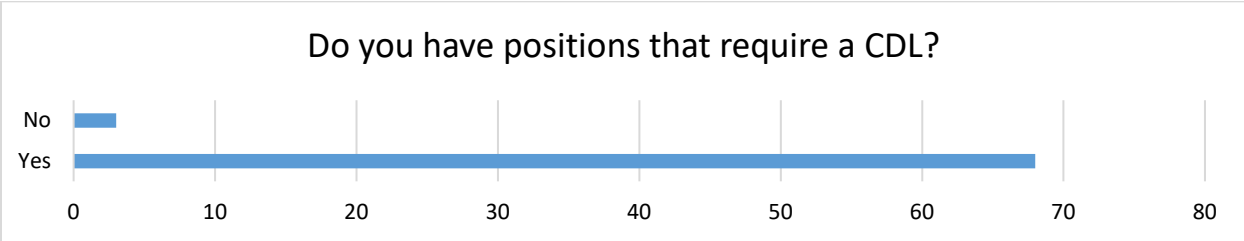
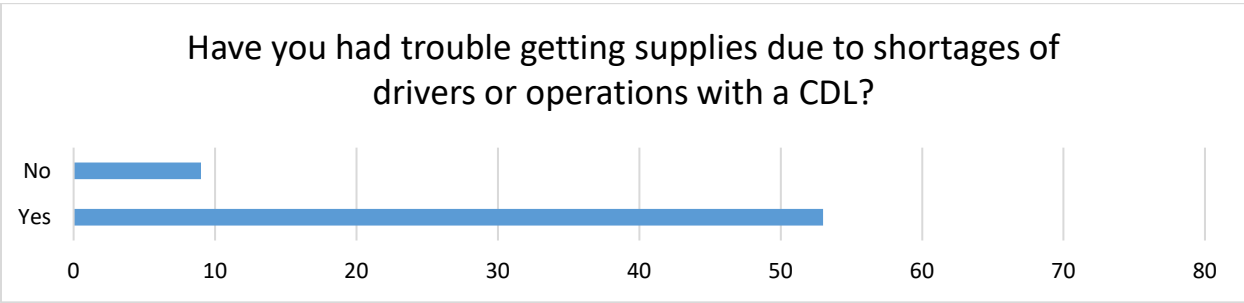
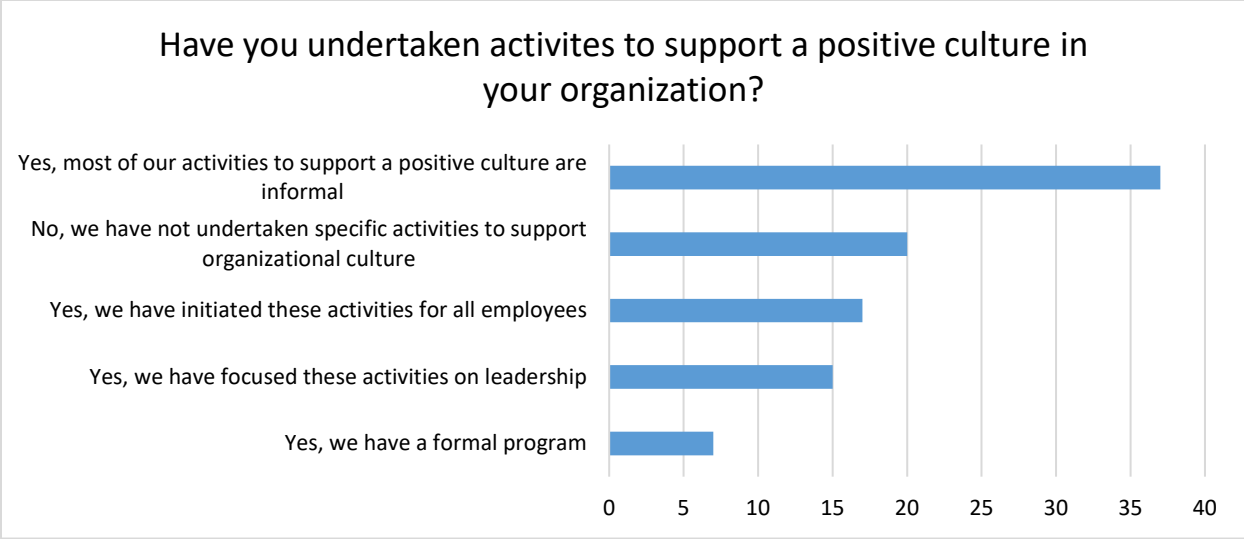
Other:

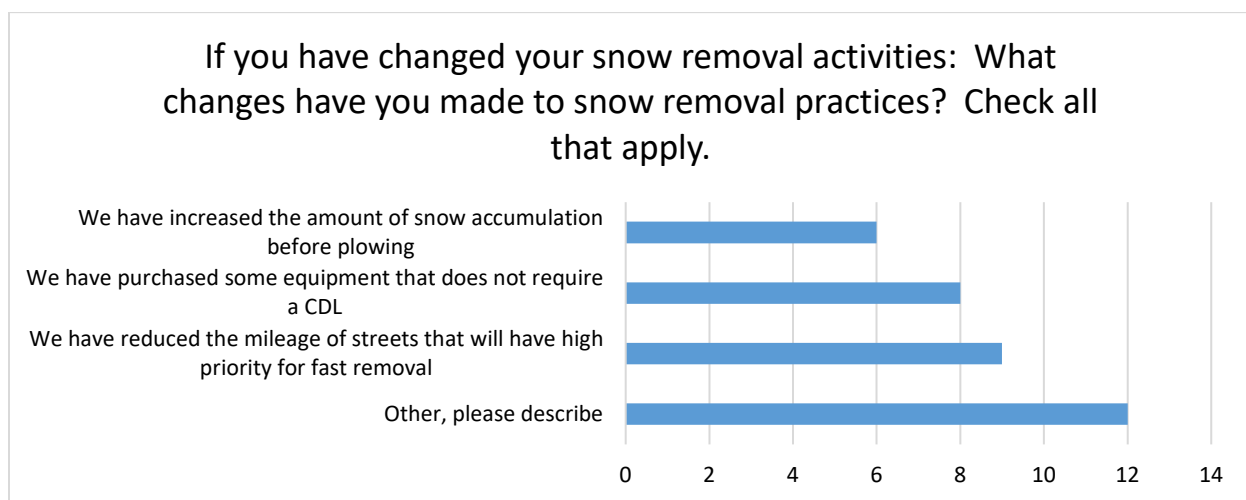
considering a couple non-CDL employees
CDL Policy/90% pay until license obtained
Pay for CDL training
started a CDL program
Training for CDL on site if applicants do not have a CDL
Hired non CDL employee to try something new working with him and a private trainer to get him CDL qualified
Increase PTO for new hires
We agreed to pay for CDL training for a mechanic position



Other

Indeed
Local penal institutions
Indeed
no
advertise online
Hiring websites for applicants
No
Temp agency's
other local agencies
reached out to other facilities
None

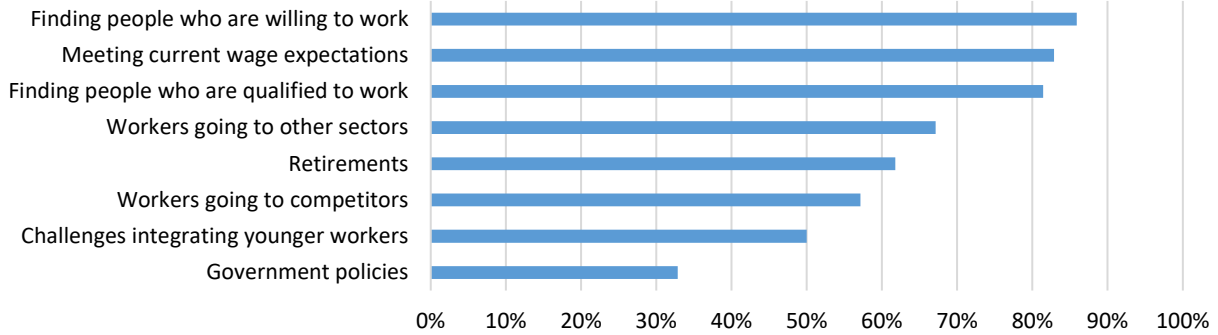




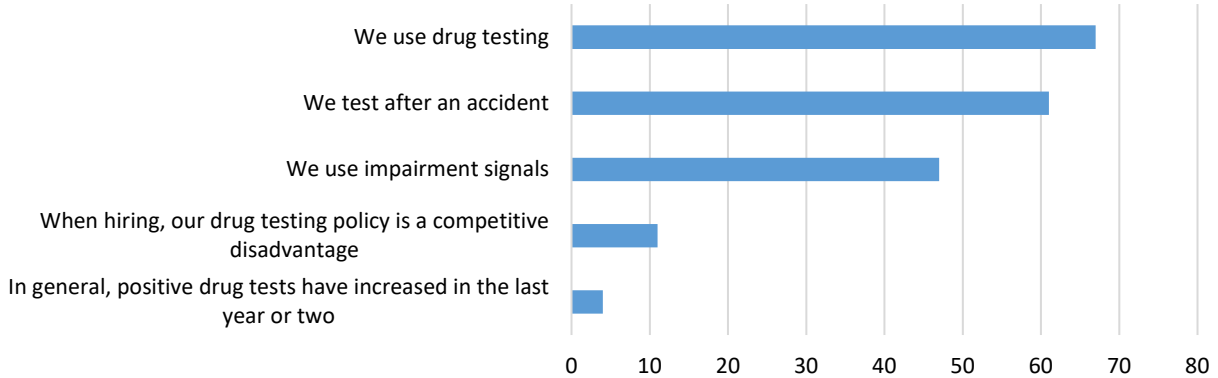
Other:

Sub contracted
Longer Routes with less drivers
More employees have more roads to plow
Teaming up to cover routes that are not filled
bigger routes
LONGER ROUTES
cut back on night shift snow removal
we have contracted areas out for snow removal
We can only run one 12 hour shift per day now rather than 2
LESS CREWS ON THE ROAD

What are current workforce challenges at your organization?



How has drug testing affected your organization?



Is there information or are there resources that would help you with your workforce challenges?

the LTAP CDL simulator will be a huge help
Great question.
Customer focused interactions and satisfaction training
Need changes in the CDL requirements Cost is too great.
More CDL training locations and reduced cost of training
not at this time
Cannot compete with private sector compensation.
CDL Training for prospective candidates for employment
Access to Vets would be good.
Salary Surveys
competing with the private sector(wages)
Higher pay for CDL operators. County Highway has a great work schedule and paid time off. But if a man is applying for work and raising a family we do not have the funds to pay and support them with our pay scale.
assistance with low-cost CDL training
None at this point.
GETTING PEOPLE TO WORK
LESS GOVERNMENT HANDOUTS SO PEOPLE NEED TO WORK!
No
CDL Training
N/A
Anything that can make public works positions more desirable to the workforce. Also, help educating administration and elected officials about the importance of public works positions (as compared to fire/police).
compensation studies by region

Please provide any other comments about workforce issues you would like to share.

We simply cannot compete with the private sector when it comes to wages. We hire at \$20 to \$21, half will leave to go make \$30 to \$34 an hour in the private sector. The CDL requirement is a must in this industry. Smaller equipment is not the answer to avoid paying people for their CDL's. We need to find another way to raise the wages so that we can get skilled workers that hold a CDL. Councils will do their study's and always choose the bottom dollar. We need skilled individuals and difference makers. At \$20 an hour we may find a diamond in the rough only to task he or she with more work than the rest. Burning them out.
Too many people not working or wanting to do less for more money
We have been fortunate to have a steady workforce, looking forward the challenges we for see are wages, finding people that want to work
For our compensation package to many other jobs available.

Please provide any other comments about workforce issues you would like to share. (continued)

Council has tried to keep up the hiring wage and raised it to stay competitive but has not raised the long term employees wages accordingly which has caused experienced employees to leave for higher wages and caused a morale issue.
We must do something about immigration. We get up to 10 applications a week that we cannot hire because they can't pass e-verify. Why are we allowing so many people in to the country that can't legally work? We are promoting a lawless society. We need the help and we need to come up with a work permitting system that works for everybody.
we have been lucky that we have been able to replace the bodies of retired employees with people that have CDL's, but not the experience. Workforce issues with construction contractors are driving up our prices.
I'm the new department director, been in the Public Works industry for close to 30 years. I want to tap into our local career center for high schoolers to promote the our type of work to them. Maybe attend a class at the center to promote this career, get a few, interested in this work, to come in a work part time for school credit, etc
HS internships have dried up as students are not interested in working during senior year for us.
Younger employees are leaving for higher paid jobs
Small counties such as _____ County Highway there is not enough money in our budget to support and retain younger recruits.
Getting and maintaining CLD drivers is challenging. Creating a governmental only license that would allow towns, cities, and county employees to operate vehicle which now require CLD licenses in the course of their employment after receiving training without possessing a CDL license.
Again, the biggest issue is people who are in charge or in management often don't seem to be the best leaders. Most want to just please whoever is in the political office and not make any suggestions or concerns about things that are way over looked.
LACK OF COMMITMENT TO JOB.
To much cell phone usage, as far as apps
N/A
No one wants to work, how do you address that?
county councils control the wages and benefits, the changes will have to start with them.
It is very hard to keep up with the wages that factories are paying. No one wants to have a skill anymore.

Comparisons between the Public Sector (e.g., local road agencies) and Private Sector (e.g., construction companies)

Employer Perspective of Workforce Recruitment and Retention Issues

	Private Sector			Public Sector		
	Disagree	Neutral	Agree	Disagree	Neutral	Agree
We have had challenges recruiting employees	11%	17%	71%	1%	27%	72%
Our employees have left for a better position elsewhere	17%	43%	40%	8%	19%	73%
We have lowered our requirements to get applicants and new hires	57%	29%	14%	32%	36%	32%
We have tried to support diversity in recruitment activities to get more applicants	0%	26%	74%	11%	56%	33%
We have raised salaries or increased benefits to stay competitive	0%	27%	73%	18%	18%	64%
We have worked to improve our culture to try and retain employees	6%	26%	68%	9%	36%	55%

Changes to Hiring Requirements to Increase Applicant Pool (1 = change most commonly reported)

	Private Sector Rank	Public Sector Rank
Required less experience	1	1
Required less formal education	2 (tie)	3
Required fewer skill certifications	2 (tie)	2
Changed drug testing requirements (e.g., oral swab vs. urine sample)	4	5
Changed requirements related to criminal records	5	4

Employer Perspective on Current Workforce Challenges

	Private Sector			Public Sector		
	Disagree	Neutral	Agree	Disagree	Neutral	Agree
Finding people who are willing to work	6%	26%	68%	3%	11%	86%
Finding people who are qualified to work	0%	19%	81%	1%	17%	81%
Meeting current wage expectations	3%	58%	39%	1%	16%	83%
Challenges integrating younger workers	19%	42%	39%	7%	57%	50%
Retirements	35%	35%	29%	7%	31%	62%
Workers going to competitors	6%	42%	52%	13%	30%	57%
Workers going to other sectors	26%	52%	23%	6%	27%	67%
Government policies	65%	29%	6%	10%	57%	33%

Reasons Employees Leave an Organization (1 = most commonly cited)

	Private Sector Rank	Public Sector Rank
Higher Salary	1	1
Advancement Opportunities	2	3
Better Work Life Balance	3	6
Better Benefits	4	2
Opportunity for Remote Work	5	5
Culture that is a Better Fit	6	4

Table 5. Drug Testing Practices and Organizational Impacts

	Private Sector		Public Sector	
	Disagree	Agree	Disagree	Agree
Recreational marijuana is legal in our state or states where we work	55%	45%	100% ¹	0% ¹
We use drug testing	7%	93%	4%	96%
We test after an accident	7%	93%	12%	88%
We use impairment signals	31%	69%	23%	77%
In general, positive drug tests have increased in the last year or two	83%*	17%*	94%	6%
When hiring, our drug testing policy is a competitive disadvantage	96%	4%	84%	16%

¹Recreational marijuana is not legal in the State of Indiana, where the survey of public agencies took place, so this question was not included on the survey; the responses are included in the table to support comprehension of the surveyed population and a comparison.

Appendix E. Overtime Strategies

Overtime can present challenges, especially during winter storms and other events that place demands on workers.

Agencies may have a variety of winter weather overtime policies, including differential pay, a snow plow bonus, or use of comp time. Union contracts may also affect overtime policies.

Below is one agency's policy related to overtime work.

Work Hours and Call-In Pay for Department of Public Works (DPW) and Parks and Recreation Employees.

DPW employees who are scheduled to work outside of normal department business hours will be paid a minimum of 4 hours at 1 ½ times their normal hourly rate of pay. DPW employees who are called in to respond to an emergency outside of normal department business hours will be paid a minimum of 2 hours at 1 ½ times their normal rate of pay.

In lieu of pay, non-exempt employees may be compensated for overtime worked as compensatory time off ('comp time'). The decision to pay overtime or comp time is at the discretion of the department manager.

Appendix F. Additional Information: BLS Wage Data

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BLS Data

Table F-1. Occupation: Heavy and Tractor-Trailer Truck Drivers

Occupation: Heavy and Tractor-Trailer Truck Drivers (SOC Code 533032)	
Period: May 2022	

Area Name	Employment ⁽¹⁾	Annual mean wage ⁽²⁾	Annual median wage ⁽²⁾	Annual 75th percentile wage ⁽²⁾	Annual 90th percentile wage ⁽²⁾
National	1984180	53090	49920	61200	75220
Indiana	56350	54340	51220	62710	75330
Bloomington, IN	550	49680	47240	57330	68850
Central Indiana nonmetropolitan area	3080	48300	46490	56870	71950
Columbus, IN	610	53430	49960	62830	71650
Elkhart-Goshen, IN	2270	54260	51630	60390	75170
Evansville, IN-KY	2110	49930	47330	59090	70840
Fort Wayne, IN	3870	52930	49350	61780	70630
Indianapolis-Carmel-Anderson, IN	19530	55990	53560	63220	77960
Michigan City-La Porte, IN	490	51280	48010	61390	70160
Muncie, IN	570	54620	51020	64150	70380
Northern Indiana nonmetropolitan area	3790	50920	47520	60580	73630
South Bend-Mishawaka, IN-MI	1740	54920	51980	64080	72830
Southern Indiana nonmetropolitan area	5110	52790	48920	63040	77720
Terre Haute, IN	1020	53770	48560	62140	77650

(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.

(2) Annual wages have been calculated by multiplying the corresponding hourly wage by 2,080 hours.

Table F-2. Occupation:Paving, Surfacing, and Tamping Equipment Operators

Occupation:Paving, Surfacing, and Tamping Equipment Operators(SOC Code472071)	Period:May 2022
---	-----------------

Area Name	Employment ⁽¹⁾	Annual mean wage ⁽²⁾	Annual median wage ⁽²⁾	Annual 75th percentile wage ⁽²⁾	Annual 90th percentile wage ⁽²⁾
National	41470	52730	47270	60790	82040
Indiana	710	52440	46770	61440	78090
Central Indiana nonmetropolitan area	40	47010	44060	50710	61680
Evansville, IN-KY	50	55900	59150	59150	85020
Fort Wayne, IN	50	55470	49730	79050	81770
Indianapolis-Carmel-Anderson, IN	160	57630	49660	66230	91640
Northern Indiana nonmetropolitan area	60	42120	41500	41500	44560
South Bend-Mishawaka, IN-MI	40	40990	39460	42730	42730

(1)Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. (2)Annual wages have been calculated by multiplying the corresponding hourly wage by 2,080 hours. SOC code: Standard Occupational Classification code -- see <http://www.bls.gov/soc/home.htm>. Date extracted on :May 13, 2023.

Table F-3. Occupation:Highway Maintenance Workers

Occupation:Highway Maintenance Workers(SOC Code474051)	
Period:May 2022	

Area Name	Employment ⁽¹⁾	Annual mean wage ⁽²⁾	Annual median wage ⁽²⁾	Annual 75th percentile wage ⁽²⁾	Annual 90th percentile wage ⁽²⁾
National	143330	45790	44930	52400	63440
Indiana	4080	44330	42700	48260	55450
Bloomington, IN	50	39980	41670	41670	45320
Central Indiana nonmetropolitan area	380	41630	41150	44410	47020
Columbus, IN	30	43070	43370	47760	50120
Elkhart-Goshen, IN	60	45200	47600	47600	54330
Evansville, IN-KY	100	41870	42700	46210	51960
Fort Wayne, IN	290	47040	46800	51550	60260
Indianapolis-Carmel-Anderson, IN	930	46420	46290	51540	56760
Michigan City-La Porte, IN	160	43680	42700	46800	49840
Muncie, IN	80	42660	40400	48470	55120
Northern Indiana nonmetropolitan area	390	42050	40800	46390	51070
South Bend-Mishawaka, IN-MI	170	44380	40960	49760	54100
Southern Indiana nonmetropolitan area	530	42390	42700	46800	49320
Terre Haute, IN	150	40710	39830	43700	49090

(1)Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers. (2)Annual wages have been calculated by multiplying the corresponding hourly wage by 2,080 hours.

SOC code: Standard Occupational Classification code -- see <http://www.bls.gov/soc/home.htm>. Date extracted on :May 13, 2023

Occupational Employment and Wages, May 2022

47-2071 Paving, Surfacing, and Tamping Equipment Operators

Operate equipment used for applying concrete, asphalt, or other materials to road beds, parking lots, or airport runways and taxiways or for tamping gravel, dirt, or other materials. Includes concrete and asphalt paving machine operators, form tampers, tamping machine operators, and stone spreader operators.

<https://www.bls.gov/oes/2022/may/oes472071.htm>

Table F-4. Industries with the highest levels of employment in Paving, Surfacing, and Tamping Equipment Operators

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Other Specialty Trade Contractors	14,590	1.93	\$ 24.30	\$ 50,550
Highway, Street, and Bridge	14,480	4.02	\$ 25.94	\$ 53,940
Local Government, excluding schools and hospitals (OEWS Designation)	4,200	0.08	\$ 26.40	\$ 54,920
Foundation, Structure, and Building	1,260	0.13	\$ 27.17	\$ 56,510
Employment Services	980	0.02	\$ 19.39	\$ 40,330

Table F-5. Industries with the highest concentration of employment in Paving, Surfacing, and Tamping Equipment Operators

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Highway, Street, and Bridge Construction	14,480	4.02	\$ 25.94	\$ 53,940
Other Specialty Trade Contractors	14,590	1.93	\$ 24.30	\$ 50,550
Petroleum and Coal Products Manufacturing	970	0.94	\$ 25.72	\$ 53,490
Other Heavy and Civil Engineering Construction	420	0.33	\$ 25.19	\$ 52,390
Nonmetallic Mineral Product Manufacturing	560	0.14	\$ 21.84	\$ 45,440

Table F-6. Top paying industries for Paving, Surfacing, and Tamping Equipment Operators:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Nonresidential Building Construction	710	0.09	\$ 36.74	\$ 76,420
Rail Transportation	60	0.03	\$ 35.00	\$ 72,810
Natural Gas Distribution	40	0.03	\$ 33.76	\$ 70,220
Services to Buildings and Dwellings	(8)	(8)	\$ 28.45	\$ 59,180
Other Miscellaneous Manufacturing	100	0.04	\$ 27.59	\$ 57,390

Occupational Employment and Wages, May 2022

53-3032 Heavy and Tractor-Trailer Truck Drivers

Drive a tractor-trailer combination or a truck with a capacity of at least 26,001 pounds Gross Vehicle Weight (GVW). May be required to unload truck. Requires commercial drivers' license. Includes tow truck drivers. Excludes "Refuse and Recyclable Material Collectors" (53-7081).

Table F-7. Industries with the highest levels of employment in Heavy and Tractor-Trailer Truck Drivers

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Truck Transportation	897,370	57.62	\$ 26.37	\$ 54,850
Merchant Wholesalers, Nondurable Goods (4244 and 4248 only)	99,680	10.18	\$ 27.66	\$ 57,520
Warehousing and Storage	84,650	4.45	\$ 23.90	\$ 49,710
Nonmetallic Mineral Product Manufacturing	77,550	18.84	\$ 24.28	\$ 50,500
Couriers and Express Delivery Services	68,640	7.17	\$ 31.21	\$ 64,920

Table F-8. Industries with the highest concentration of employment in Heavy and Tractor-Trailer Truck Drivers

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Truck Transportation	897,370	57.62	\$ 26.37	\$ 54,850
Support Activities for Road Transportation	51,810	46.09	\$ 22.11	\$ 45,980
Fuel Dealers	17,810	25.13	\$ 25.11	\$ 52,240
Waste Collection	44,830	22.23	\$ 23.77	\$ 49,450
Nonmetallic Mineral Product Manufacturing	77,550	18.84	\$ 24.28	\$ 50,500

Table F-9 Top paying industries for Heavy and Tractor-Trailer Truck Drivers

Industry	Employment (1)	Percent of industry	Hourly mean wage	Annual mean wage (2)
Electric Power Generation, Transmission and Distribution	290	0.08	\$ 36.14	\$ 75,170
Telecommunications	200	0.03	\$ 34.51	\$ 71,770
Support Activities for Water Transportation	2,670	2.84	\$ 32.90	\$ 68,440
Rail Transportation	1,680	0.91	\$ 31.97	\$ 66,490
Deep Sea, Coastal, and Great Lakes Water Transportation	1,630	4.54	\$ 31.67	\$ 65,880

53-7081 Refuse and Recyclable Material Collectors

Collect and dump refuse or recyclable materials from containers into truck. May drive truck.

Does not explicitly include drivers so wages would be lower.

Table F-10. Wage Information for Highway Maintenance Workers (BLS 47-4051)

	Employment		Median Wage		75 th percentile Wage		90 th percentile Wage	
	2021	2022	2021	2022	2021	2022	2021	2022
US	141,150	143,330	\$45,880	\$44,930	\$48,500	\$52,400	\$60,970	\$63,440
State								
Indiana	4,390	4,080	\$41,610	\$44,330	\$47,880	48260	\$56,110	\$55,450
Michigan	2,960	2,960	\$46,630	\$49,140	\$50,500	53460	\$59,280	\$59,760
Ohio	6,730	5,500	\$44,590	\$45,880	\$48,500	52750	\$61,140	\$63,240
Illinois	6,080	6,330	\$55,430	\$60,840	\$71,580	75590	\$77,320	\$79,980
Kentucky	2,570	2,630	\$32,900	\$31,440	\$36,990	38230	\$45,090	\$44,790
Government								
Local Government ¹		99,350		\$ 46,000 ²				
State Government ¹		35,830		\$ 46,500 ²				
Top Paying Industries								
Rental and Leasing Services ³				\$ 70,200 ²				
Facility Support Services				\$ 60,940 ²				
Federal Executive Branch				\$ 54,890 ²				
Services to Buildings and Dwellings				\$ 48,080 ²				
Real Estate				\$ 48,010 ²				

Data reflects wages for May 2021 extracted in 2022 and data for May 2022 extracted in May 2023 from BLS

(<https://www.bls.gov/oes/current/oes474051.htm>).

¹ Excluding schools and hospitals

² Mean Wage

³ 5322, 5323, 5324 only

Industry for Highway Maintenance Workers (<https://www.bls.gov/oes/2021/may/oes474051.htm>)

Table F-11. Industries with the highest levels of employment in Highway Maintenance Workers:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Local Government, excluding schools and hospitals (OEWS Designation)	97,770	1.82	\$ 21.30	\$ 44,300
State Government, excluding schools and hospitals (OEWS Designation)	34,650	1.58	\$ 21.77	\$ 45,280
Highway, Street, and Bridge Construction	5,020	1.41	\$ 20.35	\$ 42,330
Other Specialty Trade Contractors	500	0.07	\$ 17.81	\$ 37,050
Employment Services	410	0.01	\$ 16.28	\$ 33,850

Table F-12. Industries with the highest concentration of employment in Highway Maintenance Workers:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Local Government, excluding schools and hospitals (OEWS Designation)	97,770	1.82	\$ 21.30	\$ 44,300
State Government, excluding schools and hospitals (OEWS Designation)	34,650	1.58	\$ 21.77	\$ 45,280
Highway, Street, and Bridge Construction	5,020	1.41	\$ 20.35	\$ 42,330
Other Specialty Trade Contractors	500	0.07	\$ 17.81	\$ 37,050
Water, Sewage and Other Systems	30	0.06	\$ 13.02	\$ 27,080

Table F-13. Top paying industries for Highway Maintenance Workers:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Rental and leasing services (5322, 5323, and 5324 only)	180	0.06	\$ 33.66	\$ 70,010
Federal Executive Branch (OEWS Designation)	40	(7)	\$ 26.55	\$ 55,220
Foundation, Structure, and Building Exterior Contractors	(8)	(8)	\$ 22.07	\$ 45,900
Building Equipment Contractors	100	(7)	\$ 21.79	\$ 45,310
State Government, excluding schools and hospitals (OEWS Designation)	34,650	1.58	\$ 21.77	\$ 45,280

Appendix G. Sample Job Descriptions

Below are sample job descriptions that may be useful for local road agencies. Not all of these job descriptions follow the best practices described in Chapter 1 however they may may meet the needs of local agencies.

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**NOTICE OF JOB OPENING**

Department Name:	SAMPLE COUNTY HIGHWAY DEPARTMENT
Position Title:	TRUCK DRIVER / LABORER
Position Summary:	<p>Serves as truck driver for the County Highway Department. Responsible for a variety of road maintenance tasks including traffic control, pothole patching, trimming brush and trees, snow removal, etc. Ability to safely operate single and tandem axle dump trucks as well as other related equipment.</p> <p>Ability to pass pre-employment and random drug screening.</p> <p>Ability to lift moderate to heavy weight.</p> <p>Ability to work extended hours and/or to respond to emergencies on a 24 hour basis.</p>
Qualifications:	<p>High school diploma or GED.</p> <p>Valid Class A or B CDL license and clean driving record.</p> <p>Minimum of 2 years "dump truck" driving experience.</p>
Salary:	\$19.73 per hour plus benefits
Deadline for Application:	Until position is filled
Submit Resume and References to:	<p>Sample County Highway Department</p> <p>Attn: Name</p> <p>Street Address or</p> <p>CITY, IN ZIP</p>

Example Job Description 1: Road Maintenance Employee I

Sample County Road Department

City, Indiana ZIP Code

Salary: \$21.42 - \$23.95 an hour

Job Type: Full-time

Shift and Schedule: 8 hour shift

Perform the inspection and maintenance of a specified district in the Secondary Road System, including roadway surfaces, shoulders, structures, drainage facilities, signs, and right-of-way areas. Duties include, but are not limited to: Plowing snow, Spreading salt and sand on roadway surfaces for winter roadway maintenance, Maintaining roadside vegetation using various treatment methods including but not limited to mechanical, mowing, burning, and seeding, Maintaining roadway surfaces using various means including but not limited to hauling, spreading, and blading rock, surface patching seal coating (oiling), surface and full depth patching of pavements, crack sealing pavements, and edge rut repairs, Performing traffic control duties including sign setup and flagging, Monitoring drainage structures and repair or replace if necessary, Maintaining drainage in roadside ditches, and cleaning up debris within road right of ways.

Valid Class A Commercial Driver's License is required.

Position open until filled, first consideration given to applications received by April 11, 2023. **ROAD**

DEPARTMENT JOB APPLICATION, contact information, and job description available at

<https://xxxcounty.iowa.gov/jobs>

ROAD DEPARTMENT JOB APPLICATION is REQUIRED for consideration.

Pay: \$21.42 - \$23.95 per hour

Benefits:

- Dental insurance
- Flexible spending account
- Health insurance
- Health savings account
- Life insurance
- Paid time off
- Retirement plan
- Vision insurance

License/Certification:

- Class A CDL (Required)

Work Location: In person

Example Job Description 2: District Foreman

Sample County, IN

Salary: \$5,486 - \$5,864 a month

Job Type: Full-time

Description

Sample County benefits include: IPERS, Health Ins with \$250/Ded; Free Dental, Life & LTD Ins; Sick leave benefits, Vacation, 10 paid Holidays and 2 Personal Days!

ENTRY SALARY: \$2,742.94-\$2,932.05/bi-weekly Plus Benefits

Work Headquarters: Position open at the following Sample County Maintenance garage: **District #3, City, IN, Maintenance Garage**, or any other location that may be assigned from time to time within Sample County.

Responsible and accountable for the safe, efficient and effective maintenance/ repair of County Secondary Roads and drainage construction projects in assigned district; control of the district maintenance workforce under the direct authority of the County Engineer and/or Assistant to the County Engineer/Engineering and Operations.

Duties

Essential Functions and Responsibilities: The following duties are typical for this position. These are not to be construed as exclusive or all inclusive. Other duties may be required and assigned.

- Responsible for the direction, control, and organization of all County road work within an assigned district.
- Responsible for direct supervision of Secondary Roads equipment operators/employees.
- Responsible and accountable for direction of road construction, repair, and maintenance.
- Coordinates work flow and assigns all work in district within scope of responsibility.
- Coordinates with other District Foremen the utilization of personnel and equipment to complete projects within the County.
- Responsible for training of new employees and motivation of all employees.
- Inspects roads in assigned area to determine maintenance needs and reports any major deficiencies to the Assistant to the County Engineer/Engineering and Operations.
- Assists in the planning of maintenance projects.
- Must be able to plan, coordinate and carry out maintenance projects in an efficient, cost-effective, and safe manner to optimize utilization of County resources.
- Supervises district maintenance activities involving bridges and culverts, blading of roads, shoulder maintenance, seeding, snow removal, road clearing, ditch upkeep, entrances, buildings and grounds, graveling, traffic signs, and other related work.
- Assists in providing proper maintenance, repair, and operation of assigned equipment, tools, buildings, and grounds to assure optimum safety and efficiency.
- Responsible for keeping accurate records of repair of equipment, tools, and buildings to provide input for improving services, specifications, and purchasing of supplies.

- Responsible for training and supervision of safety activities involved with completion of assigned duties and operation of equipment.
- Responsible for direct supervision of equipment operators with follow through of assigned road maintenance
- Responsible for evaluations of equipment operators/employees for that district equipment operations
- Responsible for weekly safety training assignments and films with follow through into job assignments
- Responsible for employee disciplinary discussion and action if necessary and appropriate
- Assist and/or provides input or discussion of new employees interviewing, hiring, and assignments as needed
- Under the direction of the County Engineer or his designee, performs a variety of duties involving public relation and information duties with the public especially adjacent landowners affected by department operations, the traveling public, vendors, utilities and contractors
- Performs various other duties relating to scope of responsibility as assigned by County Engineer and/or Assistant to the County Engineer/Engineering and Operations
- Attendance is required

Required Qualifications: Minimum Education and Experience Required to Perform Essential Functions:

- Knowledge of State and County requirements for the maintenance, repair and upkeep of Secondary Roads,
- Knowledge of all types of heavy equipment and tools used in roads maintenance and their applications to specific problems
- Knowledge of all safety practices and regulations relative to scope of responsibility
- Knowledge of the principles of supervision and effective human relations
- Ability to effectively communicate with others
- Ability to compute and effectively prepare a variety of operating reports and forecasts
- Knowledge of computer applications for communication, inventory, and cost reporting
- Knowledge of good road grades, lines, structures, drainage, and general repair
- Ability and knowledge in interpretation of blueprints, cross-sections, and various road or road structure specifications.
- Candidate for hire must successfully pass a background check , a physical examination, vision, back screen and drug screen prior to employment.

ALL REQUIRED DOCUMENTS MUST BE SUBMITTED WITH THE APPLICATION OTHERWISE THE APPLICATION WILL NOT BE FORWARDED.

A completed County application form, a resume, a copy of a current Indiana Commercial Driver's License are required.

DEADLINE FOR RECEIPT OF APPLICATIONS SHALL BE: 4:30 p.m. on Wednesday May 24th, 202x.

Sample County is an Equal Opportunity Employer. In compliance with the Americans with Disabilities Act, the County will consider reasonable accommodations for qualified individuals with disabilities and encourages prospective employees and incumbents to discuss potential accommodations with the Employer.

Example Job Description 3: Seasonal Maintenance Worker (Roads – 6 months)

Job Type: Seasonal

Shift and Schedule: Overtime

JOB: Under immediate supervision, provides manual labor in a variety of maintenance and construction projects, performs related work as required. Temporary position, 40 hours per week.

EXAMPLE OF DUTIES:

- Basic mechanical principles.
- Safe operation of specialized equipment
- Basic safe work practices
- English language to include grammar, sentence structure, and punctuation
- Ability to:
- Perform manual labor (moderate to heavy) for extended periods of time
- Learn operation of technical equipment
- Operate assigned equipment skillfully, safely and in conformance with manufacturer's recommendations
- Drive vehicles in a safe and conscientious manner
- Represent County and perform duties in a professional, responsible and trustworthy manner
- Keep accurate records
- Recognize and follow safety rules
- Understand and follow oral and written instructions
- Establish and maintain effective working relationships with co-workers, supervisors, and the public
- Demonstrate a commitment to diversity, equity, and inclusion through continuous development, modeling inclusive behaviors, and proactively managing bias
- Work in unfavorable weather conditions and be exposed to dust, fumes and loud noises
- Handle low to moderate levels of stress, meet deadlines and solve problems appropriate to the position
- Have clarity of speech, hearing, and writing which permits effective communication
- Have sufficient vision which permits light production and review of a wide variety of materials both electronic and hardcopy forms
- Have sufficient manual dexterity to operate equipment and hand tools with moderate to heavy use and make handwritten notations
- Lift, move, carry, push and/or pull up to approximately 50 to 100 pounds
- Stand, sit, bend, climb, balance, stoop, kneel, twist, reach, crouch and crawl
- Have sufficient personal mobility necessary to complete field work
- Occasionally carry out duties with limited supervision
- Work overtime as needed

SUPPLEMENTAL INFORMATION: to be performed satisfactorily with or without reasonable accommodation

The following duties are normal for this position. These are not to be construed as exclusive or all inclusive. Other duties may be required and assigned.

- Operate a variety of equipment, including but not limited to medium to heavy trucks, trailers, tractor and attachments, oil paving machines, mowers, loaders, chain saw, or other equipment normally used in highway construction or maintenance.
- Use hand tools such as hammers, shovels, saws, axes, picks and power tools for a variety of road repairs, maintenance, and construction projects. Perform traffic control duties during road maintenance activities including sign installation and flagging.
- Operate farm-type tractors with attached rotary, gang, or sickle-type mowers to cut grass and weeds in right-of-way. Fabricate construction forms and place to grade using shovels and carpenter, hand and power tools.
- Assist in pouring, finishing, or testing concrete, and removal of construction forms.
- Cut, carry, and place reinforcing steel. Help in the repair and maintenance of bridges and culverts. Cut brush; assist in right-of-way planting and seed harvesting.
- Secure county property to prevent theft or damage.
- Assist in placement and/or repair of road signs and pavement markings.
- Perform preventive maintenance functions and minor repair of Secondary Roads equipment including, but not limited to, wash, grease, change oil and filters, and fuel equipment as necessary.
- Drive steel posts using such tools as sledgehammers and sleeves.
- Clean work areas using tools such as brooms, shovels, and scrapers. Perform road maintenance person duties on survey crew when necessary.
- Perform all work duties and activities in accordance with County policies, procedures and safety practices. Attend work regularly at the designated place and time.

Example Job Description 4: Seasonal Maintenance Worker (Roads - 6 months)

Sample County Indiana

City, IN ZIPCODE

\$16.50 an hour - Seasonal

Definition & Duties

Under immediate supervision, provides manual labor in a variety of maintenance and construction projects, performs related work as required. Temporary position, 40 hours per week.

Knowledge of & Ability to

- Basic mechanical principles
- Safe operation of specialized equipment
- Basic safe work practices
- English language to include grammar, sentence structure, and punctuation

Ability to:

- Perform manual labor (moderate to heavy) for extended periods of time
- Learn operation of technical equipment
- Operate assigned equipment skillfully, safely and in conformance with manufacturer's recommendations
- Drive vehicles in a safe and conscientious manner
- Represent County and perform duties in a professional, responsible and trustworthy manner
- Keep accurate records
- Recognize and follow safety rules
- Understand and follow oral and written instructions
- Establish and maintain effective working relationships with co-workers, supervisors, and the public
- Demonstrate a commitment to diversity, equity, and inclusion through continuous development, modeling inclusive behaviors, and proactively managing bias
- Work in unfavorable weather conditions and be exposed to dust, fumes and loud noises
- Handle low to moderate levels of stress, meet deadlines and solve problems appropriate to the position
- Have clarity of speech, hearing, and writing which permits effective communication
- Have sufficient vision which permits light production and review of a wide variety of materials both electronic and hardcopy forms
- Have sufficient manual dexterity to operate equipment and hand tools with moderate to heavy use and make handwritten notations
- Lift, move, carry, push and/or pull up to approximately 50 to 100 pounds
- Stand, sit, bend, climb, balance, stoop, kneel, twist, reach, crouch and crawl
- Have sufficient personal mobility necessary to complete field work
- Occasionally carry out duties with limited supervision
- Work overtime as needed

Minimum Education, Training & Experience & Special Requirements

Eighth grade or equivalent. Farm, construction or related experience preferred.

Special requirements: Possession of valid driver's license, insurable under county liability coverage and 18 years of age or older. May require possession of a valid Class A/B commercial driver's license.

Specific Duties

to be performed satisfactorily with or without reasonable accommodation

The following duties are normal for this position. These are not to be construed as exclusive or all inclusive. Other duties may be required and assigned.

- Operate a variety of equipment, including but not limited to medium to heavy trucks, trailers, tractor and attachments, oil paving machines, mowers, loaders, chain saw, or other equipment normally used in highway construction or maintenance.
- Use hand tools such as hammers, shovels, saws, axes, picks and power tools for a variety of road repairs, maintenance, and construction projects.
- Perform traffic control duties during road maintenance activities including sign installation and flagging.
- Operate farm-type tractors with attached rotary, gang, or sickle-type mowers to cut grass and weeds in right-of-way.
- Fabricate construction forms and place to grade using shovels and carpenter, hand and power tools.
- Assist in pouring, finishing, or testing concrete, and removal of construction forms.
- Cut, carry, and place reinforcing steel.
- Help in the repair and maintenance of bridges and culverts.
- Cut brush; assist in right-of-way planting and seed harvesting.
- Secure county property to prevent theft or damage.
- Assist in placement and/or repair of road signs and pavement markings.
- Perform preventive maintenance functions and minor repair of Secondary Roads equipment including, but not limited to, wash, grease, change oil and filters, and fuel equipment as necessary.
- Drive steel posts using such tools as sledgehammers and sleeves.
- Clean work areas using tools such as brooms, shovels, and scrapers.
- Perform road maintenance person duties on survey crew when necessary.
- Perform all work duties and activities in accordance with County policies, procedures and safety practices.
- Attend work regularly at the designated place and time.

Example Job Description 5: Road Maintenance Technician

Sample County

City, IN ZIPCODE

\$23 - \$27 an hour - Full-time

Sample County is now accepting applications for a Full-Time Road Maintenance Technician.

Applications will be accepted until the position is filled.

Pay range of \$23.00 - \$27.00 per hour with full benefit package paid by employer.

Perks and Benefits working for the county include:

- Paid Time of which includes
 - Holidays – 11.5 days annually
 - Personal – 24 hours annually after 1st year
 - Vacation – 2 weeks after 1st year
- Benefits – Health Insurance Premiums employer paid 100%
- Co-Insurance and Deductible reimbursed to employee up to an allotted amount
- Retirement – 14% of earnings employer contribution into the Ohio Public Retirement System
- Hours are 7:00 – 3:30 Monday – Friday.

Application and resume must be completed and required documentation must be received at the time it is returned to be considered a valid application. Applications are online at our website www.samplecounty.gov.

All applications submitted must include a copy of your driver's license.

Please find the job posting and application material on our website for complete details and eligibility. When completing your application, please complete all sections in full. Resume should be attached as supplemental information only and not in place of work history pages.

Applications should be submitted to Sample County, Address, City, IN, ZIPCODE.

Pay: \$23.00 - \$27.00 per hour

Benefits:

- Dental insurance
- Health insurance
- Life insurance
- Paid time off
- Retirement plan
- Vision insurance

Schedule:

- 8 hour shift
- Monday to Friday

Ability to commute/relocate:

City, IN ZIPCODE: Reliably commute or planning to relocate before starting work (Required)

Experience:

Driving: 1 year (Preferred)

License/Certification:

Driver's License (Preferred)

Work Location: In person

Example Job Description 6: Highway Department: Maintenance Worker [Driver with CDL]

Sample County

City, Indiana ZIP Code

Generally performs daily routine maintenance on the secondary road system in Cerro Gordo County. CDL and air brake endorsement minimum. Experience in heavy equipment operations preferred.

County Application is required and can be found on our website at www.cgcounty.org, or picked up in person at the Courthouse, 220 N Washington Ave, Mason City, IA 50401

Application deadline May 12, 2023.

Job Type: Full-time

Pay: \$23.11 per hour

Benefits:

- Health insurance
- Life insurance
- Paid time off
- Retirement plan

Schedule:

- Monday to Friday

Work Location: In person

Example Job Description 7: Highway Department: Maintenance Worker [Driver with CDL]

Salary

\$19.78 Hourly

Job Type

Full-time

Benefits

Sample County offers to full-time employees competitive benefit plans. These include Medical, Dental, Vision, Retirement, paid holidays, Flexible Spending Account Plans, 457 Plans, Life Insurance, and others.

Description

This position requires a CDL minimum Class B with air brakes.

Incumbent serves as Maintenance Worker for the Sample County Highway Department, responsible for operating various trucks and equipment in maintaining County roads, bridges, and rights-of-way.

Examples of Duties

- Operates various trucks and related equipment in clearing, maintaining, and repairing County roads, bridges, and right-of-way, such as dump truck, snow plow, salt spreader, front-end loader, backhoe, asphalt hot box, brine truck, rubber wheel loader, oil distributor, compaction roller, broom, tractors, and mowers.
- Hauls, dumps, and/or spreads blacktop, rock, sand, aggregate, and cinders as required for assigned projects, including road preparation for blacktopping. Maintains road safety in winter months, including plowing snow and applying salt/sand.
- Regularly checks trucks and equipment to ensure proper fluid levels and mechanical functions, including tire pressure, lights, and changing oil, washing trucks, and changing snow plow blades. Reports problems with equipment/vehicles immediately to mechanic or supervisor.
- Runs salt box on ice and snow, patches holes, chips and seals surfaces for winter, installs and replaces guardrails, grades gravel roads, installs driveway pipes and road drainage pipes, digs ditches, sweeps and clears excess rocks, and scrapes and maintains road berms and shoulders, including replacing ditch tiles and culvert pipes.
- Assists with various road maintenance duties, including cutting and removing fallen trees, clearing brush and weeds, removing dead animals and other debris, and other duties as needed.
- Performs manual labor as required to complete work assignments, including, but not limited to, shoveling materials, digging holes, mulching brush, and lifting/carrying materials and supplies. Performs flagging/traffic control duties at work sites as necessary.
- Operates various power and/or hand tools in performance of duties, such as hammers, screw drivers, wrenches, drills, ratchets, files, power saws, chain saw, jack hammer, air nozzle, air compressor, gages, grinder, cutting torch, welding equipment, pressure washer, steam cleaner, shovels, floats, weed eater, pole saw, rakes, brooms, and other hand or power tools as required for work assignments.
- Occasionally responds to emergencies from an off-duty status.

- Performs related duties as assigned.

Typical Qualifications

- High school diploma or GED.
- Must be at least 18 years of age.
- Ability to meet all County hiring requirements, including passage of a medical exam and a drug test.
- Working knowledge of and ability to make practical application of Department safety policies and procedures, including OSHA guidelines.
- Working knowledge of assigned Department trucks and equipment and ability to safely load and haul materials, clear winter roads, and complete related maintenance and safety measures.
- Ability to operate various hand and power tools, such as hammers, screw drivers, wrenches, drills, ratchets, files, power saws, chain saw, jack hammer, air nozzle, air compressor, gages, grinder, cutting torch, welding equipment, pressure washer, steam cleaner, shovels, floats, weed eater, pole saw, rakes, brooms, and other hand or power tools as required for work assignments.
- Ability to operate various trucks and heavy equipment in performance of duties, including, but not limited to, dump truck, brine truck, tractors, asphalt hot box, oil distributor, compaction roller, front-end loader, backhoe, snow plow, rubber wheel loader, tree chopper, and mowers.
- Ability to physically perform assigned duties, including driving for long periods, lifting/carrying objects weighing in excess of 50 pounds, shoveling, digging, raking, pushing/pulling objects, bending, crouching/kneeling, reaching, standing/walking for long periods, walking on rough terrain, close/far vision, color/depth perception, hearing sounds, and handling/grasping/fingering objects.
- Ability to effectively communicate orally and in writing with co-workers, other County departments and the public, including being sensitive to professional ethics, gender, cultural diversities and disabilities.
- Ability to comply with all employer and Department policies and work rules, including, but not limited to, attendance, safety, drug-free workplace, and personal conduct.
- Ability to provide public access to or maintain confidentiality of Department information and records according to state requirements.
- Ability to competently serve the public with diplomacy and respect, including occasional encounters with irate/disgruntled persons.
- Ability to understand, memorize, retain, and carry out oral and written instructions.
- Ability to apply knowledge of people and locations, make simple arithmetic additions and subtractions, and complete required paperwork, such as work reports.
- Ability to read/interpret maps, technical manuals, instruments, gages, and dials.
- Ability to work alone with minimum supervision and with others in a team environment, often amidst frequent distractions, interruptions and time constraints.
- Ability to work strenuously for extended periods and work on several tasks at the same time.
- Ability to occasionally work extended hours, evenings, and/or weekends.
- Ability to occasionally respond to emergencies from an off-duty status.
- Possession of a valid Indiana driver's license and a Commercial Driver's License (CDL), a demonstrated safe driving record, and ability to be insurable to drive assigned vehicles under the County's insurance policy.

Supplemental Information

Incumbent performs duties often involve continuous physical exertion, driving for long periods, lifting/carrying objects weighing in excess of 50 pounds, pushing/pulling objects, shoveling, digging, raking, bending, crouching/kneeling, reaching, standing/walking for long periods, walking on rough terrain, close/far vision, color/depth perception, handling/grasping/fingering objects, and hearing sounds.

Incumbent performs majority of duties in trucks/equipment and outdoors and is regularly exposed to normal hazards associated with road maintenance, including heavy machinery, traffic, excessive noise, moving parts, grease, dirt, dust, toxic chemicals, vehicle fumes, working in confined areas, extreme temperatures, wet/icy conditions, and inclement weather. In responding to emergency situations, incumbent may be exposed to such hazards as downed power lines and/or fallen trees. Safety precautions must be followed at all times to avoid injury to self or others and protective gear must be worn according to Department policy.

Incumbent occasionally works extended hours, evenings, and/or weekends and occasionally responds to emergencies from an off-duty status.

Sample County is an Equal Opportunity Employer.

Example Job Description 8: Maintenance Worker/Operator

Agency: Sample County

Location: City, Indiana

Salary: \$21.15 an hour, Full time

Job Title: Maintenance Worker/Operator

Department: Highway

Reports To: Assistant Highway Superintendent

FLSA Status: Nonexempt

Principal Function: The Maintenance Worker/Operator is responsible for operating equipment and Dump Trucks in the performance of a variety of tasks around the maintenance, upkeep, and services of the County roads.

Essential Duties and Responsibilities: Duties include, but are not limited to:

1. Operates equipment to create new roadways, resurface roadways, reshape embankments, operate the asphalt roller, operate the street sweeper, clear drainage ditches, install culverts, and other similar operations.
2. Locates and flags for utilities, as needed.
3. Locates pipes and maps for pipe replacement, as needed.
4. Mows and maintains open space areas in the County.
5. Performs general construction tasks and building maintenance of County-owned properties.
6. Removes trees and other debris from County roads after storms.
7. Operates snow control equipment in the removal of snow and application of salt to County roads and properties.
8. Performs routine maintenance on all tools, power equipment, and heavy machinery.
9. Repairs and replaces County road signs utilizing heavy equipment, if needed.
10. Performs general laborer work to complete assigned tasks as required.
11. Performs janitorial duties in order to keep work areas clean and safe, as needed.

12. Maintains an effective communication process with the Assistant Highway Superintendent and Highway Superintendent.

Supervisory Responsibilities: This job has no supervisory responsibilities.

Qualifications: To perform this job successfully, an individual must be able to perform each essential duty according to the requirements of the organization. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential duties and responsibilities.

County-related Competencies: To perform this job successfully, all employees working in the County should demonstrate the following competencies:

- **Attendance/Punctuality/Dependability** - Is consistently at work and on time; Ensures work responsibilities are covered when absent; Arrives at meetings and appointments on time; Follows instructions, responds to management direction; Takes responsibility for own actions; Keeps commitments; Commits to long hours of work when necessary to reach goals; Completes tasks on time or notifies appropriate person with an alternate plan.
- **Citizen Service** - Manages difficult or emotional Citizen situations; Responds promptly to Citizen needs; Solicits Citizen feedback to improve service; Responds to requests for service and assistance; Meets commitments.
- **Professionalism/Teamwork/Interpersonal Skills** -Approaches others in a tactful manner; Reacts well under pressure; Treats others with respect and consideration regardless of their status or position; Balances team and individual responsibilities; Exhibits objectivity and openness to others' views and tries new things; Gives and welcomes feedback; Contributes to building a positive team spirit; Puts success of team above own interests; Able to build morale and group commitments to goals and objectives; Supports everyone's efforts to succeed; Focuses on solving conflict, not blaming; Maintains confidentiality.
- **Oral and Written Communication** – Speaks clearly and persuasively in positive or negative situations; Listens to others without interrupting; Keeps emotions under control; Writes clearly and informatively; Edits work for spelling and grammar; Varies writing style to meet needs; Presents numerical data effectively; Able to read and interpret written information.
- **Organizational Support** - Follows policies and procedures; Completes administrative tasks correctly and on time; Supports organization's goals and values; Benefits organization through outside activities; Supports affirmative action and respects diversity.

Job-related Competencies – To perform this job successfully, employees in this job should demonstrate the following competencies:

· ***Problem Solving *** – Identifies and resolves problems in a timely manner; Gathers and analyzes information skillfully; Develops alternative solutions; Works well in group problem solving situations; Uses reason even when dealing with emotional topics.

· **Adaptability** - Adapts to changes in the work environment; Manages competing demands; changes approach or method to best fit the situation; Able to deal with frequent change, delays or unexpected events.

· **Judgment** - Displays willingness to make decisions; Exhibits sound and accurate judgment; supports and explains reasoning for decisions; Includes appropriate people in decision- making process; Makes timely decisions.

- **Safety and Security** - Observes safety and security procedures; Determines appropriate action beyond guidelines; Reports potentially unsafe conditions; Uses equipment and materials properly.

Education and/or Experience: High school diploma or general education degree (GED); and one-year related experience and/or training; or equivalent combination of education and experience. Class A or Class B Commercial Driver's License (CDL) with airbrake endorsement on manual transmission is required prior to the start of employment with the County. Previous experience operating heavy equipment is desired.

Other Skills and Abilities: The following skills and abilities are either required or desired.

- Provides on-call coverage to ensure 24/7/365 service availability, as required.
- The ability to operate heavy equipment to include, but not limited to: a backhoe, mower, road grader, chip spreader, roller trencher, front-end loader, distributor broom, tractor, and welding equipment is required.
- The ability to operate special tools to include: measuring tools, transit, laser level, grinder, hand tools, acetylene torch, paint sprayer, weed eater, weed sprayer, chainsaw, skid steer, street sweeper, leaf machine, gas welder, electric welder, and air compressor, is required.
- The ability to operate trucks for general purpose of hauling and snow removal is required.
- A working knowledge of the use of attachments to any equipment in a safe and efficient manner is required.
- A working knowledge of the mechanics of equipment used to perform periodic maintenance, repairs, and adjustments is required.
- The ability to adapt to work plans as they are affected by weather conditions in a timely manner in order to achieve quality results is required.
- The ability to work in emergency situations to include: snow events, tree damage from storms, and signs down due to different situations is required.
- The ability to maintain and cultivate positive relationship with citizens and other County departments is required.
- The ability to attend meetings and seminars as requested is required.
- The ability to speak, read and write in English is required. Spanish is desired.

Physical Demands: The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential duties and responsibilities.

While performing the duties of this job, the employee is regularly required to stand; walk; sit; use hands to finger, handle, or feel; reach with hands and arms; talk or hear; and lift and/or move up to 10 pounds. The employee is frequently required to stoop, kneel, crouch, or crawl; and lift and/or move up to 50 pounds. The employee is occasionally required to climb or balance; and taste or smell.

Specific vision abilities required by this job include close vision (clear vision at 20 inches or less), distance vision (clear vision at 20 feet or more), color vision (ability to identify and distinguish colors), peripheral vision (ability to observe an area that can be seen up and down or to the left and right while eyes are fixed on a given point), depth perception (three-dimensional vision, ability to judge distances and spatial relationships), and the ability to adjust focus (ability to adjust the eye to bring an object into sharp focus).

Work Environment: The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential duties and responsibilities.

While performing the duties of this job, the employee regularly is exposed to work near moving mechanical parts; and outdoor weather conditions. The employee is frequently exposed to wet or humid conditions (non-weather); fumes or airborne particles; extreme cold (non-weather); extreme heat (non-weather); and vibration. The employee is occasionally exposed to toxic or caustic chemicals. The noise level in the work environment is usually moderate to loud.

The appropriate personal protective equipment (PPE) must be worn on the job at all times in accordance with the department's standard operating procedures (SOPs) to include: work boots, hard hats, safety goggles, gloves, protective clothing, and high visibility vest.

While the offices of the Highway Department are usually open from 7:00 a.m. to 3:30 p.m., Monday through Friday, this position may require work beyond these hours and on the weekends. It also requires the ability to drive a County vehicle. Thus, a valid CDL driver's license is required.

Additional Notes: When the employee is engaged in the essential duties as listed above as an Operator, the employee will receive a higher rate of pay for performing those essential duties.

Job Type: Full-time

Pay: \$21.15 per hour

Benefits:

- 401(k)
- 401(k) matching
- Dental insurance
- Health insurance
- Life insurance
- Paid time off
- Retirement plan
- Vision insurance

Schedule:

- 8 hour shift
- Monday to Friday
- On call

License/Certification:

- CDL (Preferred)

Work Location: In person

Example Job Description 9: Highway Department Mechanic

Salary \$21.58 Hourly

Job Type

Full-time

Benefits

Sample County offers to full-time employees competitive benefit plans. These include Medical, Dental, Vision, Retirement, paid holidays, Flexible Spending Account Plans, 457 Plans, Life Insurance , and others.

Description

Incumbent serves as Mechanic for the Sample County Highway Department, responsible for maintenance and repair of Department vehicles and equipment.

Examples of Duties

- Performs adjustments, preventative maintenance, and repairs on Department trucks, heavy equipment, and other vehicles and equipment according to warranties, mileage, and usage, including oil changes, tire changes, air filter replacement, greasing, tune-ups, brake jobs, lights and mirrors.
- Operates equipment and vehicles to diagnose malfunctions, including observing, listening, and identifying problem source and solution. Removes, rebuilds, and reinstalls various parts as needed, including gasoline and diesel engines, transmissions, clutches, drive shafts, suspensions, rear ends, brakes, lights, and hydraulics.
- Performs various mechanical trades in repairing and fabricating parts, including welding, brazing, torch cutting, and wiring. Fabricates and installs added features on new vehicles and equipment, such as hitches, plow frames, and underbody mounting.
- Installs and/or removes salt boxes, plows, and berm boxes as needed. Makes service runs and emergency repairs on the road.
- Maintains clean and orderly work areas, including sweeping, washing, removing trash and debris, and returning tools, parts, and equipment to proper storage locations.
- Assists in maintaining inventory of parts, materials, fuels and tools, ordering parts and maintaining good working relationships with vendors.
- Maintains detailed records of maintenance and repair activity, including work descriptions, parts and cost.
- Operates a variety of machinery, equipment, and tools in performance of duties, such as hammers, screw drivers, wrenches, drills, drill press, power saws, air compressor, air nozzle, pressure washer, grinder, cutting torch, welding equipment, wrecker, overhead crane, forklift, delivery truck, jacks, gauges, files, micrometer, driver, ratchets, steam cleaner, calipers, deburring/deflashing tools, broom, mop, and other hand/power tools as needed.
- Occasionally serves on 24-hour call for emergencies.
- Performs related duties as assigned.

Typical Qualifications

- CDL with Air Brakes preferred but not required.
 - High school diploma or GED.
 - Must be at least 18 years of age.
 - Ability to meet all County hiring requirements, including passage of a medical exam and a drug test.
 - Thorough knowledge of and ability to perform various mechanical trades, including welding, torch cutting, brazing, wiring, fabrication, and machining.
 - Working knowledge of and ability to make practical application of Department safety policies and procedures, including OSHA guidelines.
 - Working knowledge of Department trucks, vehicles, and equipment, with ability to analyze and diagnose causes of mechanical and electrical malfunctions and complete related maintenance and safety measures.
 - Ability to effectively communicate orally and in writing co-workers, other County departments, and the public, including being sensitive to professional ethics, gender, cultural diversities and disabilities.
 - Ability to comply with all employer and Department policies and work rules, including, but not limited to, attendance, safety, drug-free workplace, and personal conduct.
 - Ability to provide public access to or maintain confidentiality of Department information and records according to state requirements.
 - Ability to competently serve the public with diplomacy and respect, including occasional encounters with irrational/hostile persons.
-
- Ability to understand, memorize, retain, and carry out oral and written instructions and present findings in oral or written form.
 - Ability to work alone with minimum supervision and with others in a team environment, often amidst frequent distractions, interruptions, and time constraints.
 - Ability to work strenuously for extended periods and work on several tasks at the same time.
 - Ability to apply knowledge of people and locations, plan/layout assigned work projects, and complete and maintain accurate records of maintenance/repair activity.
 - Ability to read and interpret detailed prints, sketches, specifications, technical manuals, instruments, gauges, and dials. Ability to use shop mathematics.
 - Ability to physically perform assigned duties, including standing/walking for long periods, driving, walking on rough terrain, working in cramped/awkward positions, climbing on equipment, lifting/carrying objects weighing in excess of 50 pounds, pushing/pulling objects, crouching/kneeling, bending, reaching, close and far vision, color and depth perception, hearing mechanical sounds, and handling/grasping/fingering objects.
 - Ability to operate a variety of machinery, equipment, and tools in performance of duties, such as hammers, screw drivers, wrenches, drills, drill press, power saws, air compressor, air nozzle, pressure washer, grinder, cutting torch, welding equipment, wrecker, overhead crane, forklift, delivery truck, jacks, gauges, files, micrometer, driver, ratchets, steam cleaner, calipers, deburring/deflashing tools, broom, mop, and other hand/power tools as needed.
 - Ability to occasionally work extended hours, evenings, and/or weekends and occasionally travel out of town to pick up parts, but not overnight.
 - Ability to occasionally serve on 24-hour call for emergencies.
 - Possession of a valid driver's license, a demonstrated safe driving record, and ability to be insurable to drive assigned vehicles under the County's insurance policy.

Supplemental Information

Incumbent's duties often involve continuous physical exertion, such as standing/walking for long periods, walking on rough terrain, working in cramped/awkward positions, climbing on equipment, lifting/carrying objects weighing in excess of 50 pounds, pushing/pulling objects, crouching/kneeling, bending, reaching, close and far vision, color and depth perception, handling/grasping/fingering objects, hearing mechanical sounds, and driving.

Incumbent performs majority of duties in a garage/shop, outdoors, and in trucks/heavy equipment, and is frequently exposed to hazards normally associated with vehicle maintenance/repair and the outdoors, including heavy equipment, moving parts, noise, dust, grease, fumes, fuels, confined spaces, heights, toxic chemicals, extreme temperatures, wet/icy conditions, inclement weather, and traffic. Safety precautions must be followed at all times to avoid injury to self or others and protective gear, such as steel toe boots, safety goggles, welding mask, and gloves must be worn according to Department policy.

Incumbent occasionally works extended hours, evenings, and/or weekends and travels out of town to pick up parts, but not overnight. Incumbent occasionally serves on 24-hour call for emergencies.

Appendix H. Sample Job Specification For Transportation Maintenance Worker

See and insert LTAP Workforce/Resources/TransportationMaintenanceWorker MI Job Specification.pdf

MICHIGAN CIVIL SERVICE COMMISSION JOB SPECIFICATION TRANSPORTATION MAINTENANCE WORKER

This job specification is from Michigan and was retrieved on May 22, 23023 from

<https://www.michigan.gov/-/media/Project/Websites/mdcs/JOBSPECS/T/TransportationMaintenanceWorker.pdf?rev=ed8df960b692458f8a49c16be1ff668a#:~:text=JOB%20DESCRIPTION%20Employees%20in%20this%20job%20perform%20road,maintenance.%20There%20are%20five%20classifications%20in%20this%20job.>

Pay range retrieved on May 22, 23023 from

<https://mcsc.state.mi.us/MCSCJobSpecifications/JobSpecMain.aspx>

	Pay Range
Transportation Maintenance Worker Recruit 6	\$18.33 - \$22.67
Transportation Maintenance Worker 6 – 9	\$19.39 - \$30.47

Related Positions

Transportation Maintenance Supervisor 11-13	\$26.81 - \$45.55
Transportation Maintenance Coordinator 12	\$28.23 - \$39.87

JOB DESCRIPTION

Employees in this job perform road and bridge work, winter, surface, structure, sign, signal, shoulder, and/or roadside maintenance activities. Maintenance activities also include equipment servicing and facility and grounds maintenance.

There are five classifications in this job.

Position Code Title - Transportation Maint Worker-R

Transportation Maintenance Worker (Recruit) 6

This is a recruit level Transportation Maintenance Worker (TMW) performing a range of maintenance activities and equipment operations. This includes classroom and on-the-road training required to operate a vehicle or vehicle/trailer combination weighing over 26,001 lbs. The work is performed in a training capacity until the employee successfully obtains a Group A Commercial Driver's License (CDL) with N or X endorsement and no air brake restrictions.

Position Code Title - Transportation Maint Worker-E

Transportation Maintenance Worker 6

This is the entry level. The employee, while participating in the Michigan Department of Transportation's (MDOT) TMW Work Element Program, performs a range of maintenance activities and equipment operations under close supervision in a learning capacity.

Transportation Maintenance Worker 7

This is the intermediate level. The employee, while participating in the MDOT's TMW Work Element Program, performs a range of maintenance activities and equipment operations under general supervision in a developing capacity.

Transportation Maintenance Worker E8

This is the experienced level. The employee, while participating in the MDOT's TMW Work Element Program, performs a full range of maintenance activities and equipment operations, and uses judgment in making decisions where alternatives are determined by established policies and procedures.

Position Code Title - Transportation Maint Worker-A

Transportation Maintenance Worker 9

This is the advanced level. The employee, while participating in the MDOT's TMW Work Element Program, performs either senior-level functions with complete responsibility and coordination for the most complex maintenance activities and/or equipment operations to include responsibility for performing inspection of bridges and culverts; or, as a lead worker overseeing the work activities of lower-level Transportation Maintenance Workers at a work site or facility.

NOTE: Employees generally progress through this series to the experienced level based on satisfactory performance and possession of the required experience.

JOB DUTIES

NOTE: The job duties listed are typical examples of the work performed by positions in this job classification. Not all duties assigned to every position are included, nor is it expected that all positions will be assigned every duty.

- Performs road and bridge work on state trunklines to include, winter, surface, structure, sign, signal, shoulder, and/or roadside maintenance activities.
- Performs maintenance activities including equipment servicing and facility and grounds maintenance.
- Operates heavy-duty dump trucks with snowplows, underbody blades, sand and salt spreaders, and liquid applications to remove ice and snow accumulation from highways and bridges.
- Operates equipment such as light-/heavy-duty trucks, tractors with attachments, backhoes, loaders, motor graders, rollers, air hammers, concrete saws and mixers, aerial towers, crack and pothole patching equipment, generators, and other light/heavy duty maintenance equipment to perform highway, bridge, and roadside maintenance.
- Operates heavy-duty, highly specialized equipment such as underbridge inspection vehicles (reachall) and cranes.
- Operates traffic control devices for establishing work zones on highways and bridges.

- Operates air compressors, hydraulic post pullers, post-driving air hammers, gas cutting torches, air drills, and similar equipment, plus mechanics' hand tools to install, repair, and replace pipes, posts, signs, delineators, guardrail cable rail, and fences.
- Operates equipment and tools to fabricate signs, treat roadside vegetation, and place pavement markings.
- Repairs, maintains and installs overhead sign structures and sign structure foundations and operation of the equipment and tools used.
- Installs temporary concrete barrier and attenuators as well as operation of the equipment and tools used.
- Operates and maintains equipment and tools to prepare bridge decks and applies protective coatings such as epoxy products and waterproofing sealants or structural repairs.
- Operates powered and hand tools to perform highway, bridge, and roadside maintenance.
- Performs pre-inspection of equipment for determining functional operation of the equipment. Changes tires, oils and lubricates equipment and vehicles used in highway and bridge maintenance.
- Purchases materials for maintenance activities. Trains other employees on operating equipment. Performs related work as assigned.

Additional Job Duties

Transportation Maintenance Worker 9 (Lead Worker)

- Inspects and approves/disapproves work done by contractors/consultants.
- Coordinates and oversees on-the-job work of lower-level Transportation Maintenance Workers and Laborers.
- Explains general work assignments to crew while participating in the work and adapts as necessary pertinent general methods and procedures in order to meet required needs.
- Trains new Transportation Maintenance Workers and Laborers on the job in all phases of highway maintenance operations.
- Provides information for records and reports related to the work.

Transportation Maintenance Worker 9 (Senior Worker)

- Inspects and approves/disapproves work done by contractors/consultants.
- Routinely investigates, evaluates, and reports on the safety condition of structures with the region in accordance with applicable state and federal regulations.
- Coordinates creation of new methods for maintenance activities. Coordinates the Transportation Asset Management System (TAMS).
- Manages the requisitioning, procurement, and maintenance of an inventory, materials, supplies, and equipment required in the work. Maintains records, prepares reports, and composes correspondence relative to the work.
- Creates material specifications for use in purchasing materials by the contract process.
- Performs maintenance condition assessments and updates inventories of road features. Investigates complaints and conducts road inspections on road or bridge conditions and right-of-way encroachments.

- Operates, maintains and trains others on the use of heavy-duty, highly specialized equipment such as underbridge inspection vehicles (reachall) and cranes.
- Prepares contract specifications for use in contracting maintenance work.
- Coordinates maintenance training including winter school, spring school, and truck driving school. Performs as Bureau, Region or Transportation Service Center (TSC) Coordinator for the TMW Work Element Program.
- Coordinates TSC maintenance safety practices/program. Performs other related work identified as complex by the MDOT.

JOB QUALIFICATIONS

Knowledge, Skills, and Abilities

NOTE: Some knowledge in the area listed is required at the entry level, developing knowledge is required at the intermediate level, considerable knowledge is required at the experienced level, and thorough knowledge is required at the advanced level.

- Knowledge of procedures and methods used in road and bridge work to include, winter, surface, structure, sign, signal, shoulder, and/or roadside maintenance activities as well as safety and maintaining traffic practices.
- Knowledge of the operation of motorized equipment such as heavy-duty dump trucks with snowplows, underbody blades, sand and salt spreaders, and liquid applicators.
- Knowledge of the operation of motorized equipment such as light-/heavy-duty trucks, tractors with attachments, backhoes, loaders, motor graders, rollers, air hammers, concrete saws and mixers, aerial towers, crack and pothole equipment, generators and other light-/heavy-duty maintenance equipment.
- Knowledge of the operation of heavy-duty, highly specialized equipment such as underbridge inspection vehicles (reachall) and cranes.
- Knowledge of the operation of air compressors, hydraulic post pullers, post-driving air hammers, gas cutting torches, air drills, and similar equipment.
- Knowledge of the operation of equipment and tools used to fabricate signs, treat roadside vegetation, and place pavement markings.
- Knowledge of the repair, maintenance and installation of overhead sign structures and sign structure foundations as well as the operation of equipment and tools used.
- Knowledge of the installation of temporary concrete barriers and attenuators as well as operation of equipment and tool used.
- Knowledge of the operation and maintenance of equipment and tools used to prepare bridge decks and apply protective coatings such as epoxy products and waterproofing sealants or structural repairs.
- Knowledge of the operation of powered and hand tools to perform highway, bridge, and roadside maintenance.
- Knowledge of the procedures for performing pre-inspection of equipment for determining functional operation of the equipment.
- Knowledge of how to change oil, lubricants, and tires on equipment; and perform minor repairs to equipment and vehicles used in highway, bridge, and roadside maintenance.

- Knowledge of material purchasing procedures. Knowledge of all bridge and culvert elements. Knowledge of potential dangers and safety precautions applicable to the work crew.
- Knowledge of street and highway traffic rules and regulations, and temporary signing and safety precautions to be observed while working on or near highways.
- Ability to operate motorized equipment, power tools, and hand tools with skill and in a safe manner.
- Ability to recognize various stages of structure deterioration and the relative causes and impacts of such deterioration.
- Ability to make minor repairs to equipment, tools, and vehicles used in maintenance work. Ability to understand and follow instructions.
- Ability to communicate effectively.

Additional Knowledge, Skills, and Abilities

Transportation Maintenance Worker 9 (Lead Worker), 9 (Senior Worker)

Knowledge of the Transportation Asset Management System (TAMS).

Ability to operate and maintain complex equipment under difficult conditions.

Knowledge of MiBridge and the Request for Action (RFA) and Work Recommendation process for bridges, large culverts and ancillary structures.

Transportation Maintenance Worker 9 (Lead Worker)

Ability to organize and coordinate the activities of Transportation Maintenance Workers in a specific work area.

Ability to allocate work to lower-level Transportation Maintenance Workers in a work area. Ability to determine priorities. Ability to conduct meetings.

Working Conditions

Work is performed by equipment operations and manual labor.

Some jobs require an employee to work in an environment that involves exposure to unpleasant and noxious fumes and odors.

Some jobs require an employee to be exposed to hazardous work environments. Some jobs require extensive statewide travel and extended overnight stays.

Physical Requirements

The job duties may require an employee to sit for long periods, up to eight (8) hours. The job duties may require an employee to sustain long periods in confined spaces. The job duties may require an employee to work from heights.

The job duties may require an employee to wear adequate personal protective equipment.

The job duties may require an employee to complete the physical qualifications required by the Federal Commercial Driver's License.

The job duties may require an employee to sustain extensive and repetitive twisting, bending, climbing, lifting, and squatting.

The job duties may require an employee to lift up to 100 pounds.

The job duties may require an employee to be exposed to outdoor weather elements. The job duties may require an employee to traverse rough terrain.

Education

Education typically acquired through completion of high school.

Experience***Transportation Maintenance Worker (Recruit) 6, Transportation Maintenance Worker 6***

No specific type or amount of experience is required

Transportation Maintenance Worker 7

One year of experience equivalent to a Transportation Maintenance Worker 6 or Laborer E6 with experience in roadway, roadside, or bridge maintenance/construction, or sign maintenance, or pavement marking.

Transportation Maintenance Worker E8

Two years of experience equivalent to a Transportation Maintenance Worker, including one year equivalent to a Transportation Maintenance Worker 7; or, one year of skilled trades experience at the E9 level.

Transportation Maintenance Worker 9

Three years of experience equivalent to a Transportation Maintenance Worker, including one year equivalent to a Transportation Maintenance Worker E8.

Special Requirements, Licenses, and Certifications

Transportation Maintenance Worker 6 (Recruit)

Possession of a Commercial Learner's Permit at the time of hire. Continuing employment requires possession of a CDL Group A with N or X endorsement and no air break restrictions which must be obtained within twelve months from the date of hire.

Transportation Maintenance Worker 6, 7, E8, 9

All levels except the TMW-R (Recruit) must possess a CDL at the time of hire.

Transportation Maintenance Worker E8,9

The MDOT Statewide Work Element Coordinator must approve satisfactory completion of the MDOT TMW Work Element training and certification program.

Some positions within this class series are assigned job duties that may require possession of a commercial Pesticide Applicators license in compliance with the Pesticide Control Act of 1976.

Some positions within this class series are assigned duties that require possession of a Crane Operator License issued from an accredited crane operator testing organization in compliance with the Occupational Safety and Health Administration (OSHA).

Some positions within this class series are assigned duties that require Bridge Inspection Qualified Team Leader status in compliance with the Michigan Structure Inspection Manual (MiSIM) and National Bridge Inspection Standards (NBIS).

NOTE: Equivalent combinations of education and experience that provide the required knowledge, skills, and abilities will be evaluated on an individual basis.

JOB CODE, POSITION TITLES AND CODES, AND COMPENSATION INFORMATION

Job Code Job Code Description

TRANMTWKR TRANSPORTATION MAINTENANCE WORKER

Position Title Position Code Pay Schedule

Transportation Maint Worker-E TRMTWKRE A31-005

Transportation Maint Worker-A TRMTWKRA A31-011

Transportation Maint Worker-R TRMTREC A31-024

CW 01/22/2023

Appendix I. Sample Job Analysis Template

The information below is from a publication by the US Office of Personnel Management to Support Hiring in Federal Agencies. For additional information see the referenced document.

US Office of Personnel Management (2019, June). Delegated Examining Operations Handbook: A Guide for Federal Agency Examining Offices. Retrieved May 22, 2023 from https://www.opm.gov/policy-data-oversight/hiring-information/competitive-hiring/deo_handbook.pdf#page=275.

A job analysis is the foundation of human resources management. A valid job analysis provides data that should be used to develop effective recruitment, qualification and assessment, selection, performance management, and career development methodologies. Full page job analysis templates are provided at the end of this appendix in Figures I-1 through I-3.

What is Job Analysis? A job analysis identifies the competencies /KSAs directly related to performance on the job. It is a systematic procedure for gathering, documenting, and analyzing information about the content, context, and requirements of the job. It demonstrates that there is a clear relationship between the tasks performed on the job and the competencies/KSAs required to perform the tasks.

A competency is a measurable pattern of knowledge, skills, abilities, behaviors and other characteristics that an individual needs in order to perform work roles or occupational functions successfully. Examples of competencies include:

- Oral communication,
- Flexibility,
- Customer service, and
- Leadership.

Note: To avoid confusion, we refer to both competencies and KSAs as "competencies/KSAs." While most agencies have moved to using competencies instead of KSAs, these terms are sometimes used interchangeably at agencies. Although they are not synonymous, competencies and KSAs serve the same function in the job analysis process.

How Competencies Should be Written. Define competencies simply and clearly and make sure that they embody a single, readily identifiable characteristic. Avoid stating a competency in way that would confuse it with a task - as frequently happens when competency statements begin with a statement such as "Ability to (perform a task)." It is also good practice to make the competency definitions behaviorally based to the extent that an individual possessing that competency can be assessed through measurable behaviors. One way to do this is to incorporate action verbs into the competency definitions (except for definitions of knowledge areas). Qualifiers such as "thorough" knowledge, "considerable" skill, or "basic" understanding, are unnecessary. These qualifiers should not be part of the competency definition - they do not provide meaningful information to distinguish examples of performance clearly.

Steps 1-3: List and Rate Tasks

Step 1. Collect information about the job. A good place to start is by reviewing existing materials that describe the work that is performed on the job. Such materials include:

- Position descriptions,
- Classification standards,
- Subject matter expert (SME) input,
- Performance standards, and
- Occupational studies.

Step 2. Use the [Job Analysis Worksheet for Tasks](#) to list the tasks that are required to perform successfully on the job based on the information and/or SME input (along with the source of that information) collected in Step 1.

NOTE: This worksheet includes tasks from the position description template.

Step 3. On the [Job Analysis Worksheet for Tasks](#):

- Have the SMEs individually rate the tasks on the importance and frequency scales provided on the worksheet. (Note the scales shown on the worksheets are examples of scales that have been used in past job analyses. Alternative scales are provided in the DEOH);
- Eliminate tasks that were rated as “Not Performed” on either the importance or frequency scale by at least half of the SMEs. Of the tasks that remain, compute an average rating (excluding any “0=Not Performed” ratings from the average) across SMEs for each task on each scale; and
- Then identify which tasks are critical for the job. This involves determining cutoffs for both the importance and frequency scales. A recommended cutoff is 3.0 or above for both scales. (This will vary by the scale used, depending on the anchors associated with each scale rating.) That is, tasks that, on average, were rated 3.0 or above.

Job Analysis Worksheet for Tasks

Importance Scale	Frequency
How important is this task to the job?	How often is the task performed?
0 = Not Performed	0 = Not Performed
1 = Not Important	1 = Every few months to yearly
2 = Somewhat Important	2 = Every few weeks to monthly
3 = Important	3 = Every few days to weekly
4 = Very Important	4 = Every few hours to daily
5 = Extremely Important	5 = Hourly to many times each hour

Task	Source	Importance	Frequency

Steps 4 - 5: List and Rate Competencies

Step 4. Use the [Job Analysis Worksheet for Competencies](#) to list competencies that are required to perform successfully in the job based on the job information collected and/or SME input, along with the source of that information.

NOTE: This worksheet includes competencies from the position description template.

Step 5. On the [Job Analysis Worksheet for Competencies](#):

- Have the SMEs individually rate the competencies on the importance, need at entry, and distinguishing value scales.;
- Then average the SME ratings to produce an overall rating for each competency for each scale; and
- Once you have determined the SME average ratings, identify which competencies are critical for the job, based on importance and need at entry. This involves determining cutoffs for each of these scales. Recommended cutoffs for the scales shown on the worksheet are 3.0 or above for importance and 2.0 or below on need at entry. Competencies with average ratings that meet these cutoffs are considered critical for the job. Then, the ratings on the distinguishing value scale may be used to guide your decision on which of the critical competencies to include in the assessment process. A recommended cutoff on the distinguishing value scale shown on the worksheet is 3.0 or above. (Again, this will vary by the scale used, depending on the anchors associated with each scale rating.)

Job Analysis Worksheet for Competencies

Importance Scale	Need At Entry Scale	Distinguishing Value Scale
How important is this competency for effective job performance?	When is this competency needed for effective job performance?	How valuable is this competency for distinguishing superior from barely acceptable employees?
1 = Not Important	1 = Needed the first day	1 = Not Valuable
2 = Somewhat Important	2 = Must be acquired within the first 3 months	2 = Somewhat Valuable
3 = Important	3 = Must be acquired within the first 4-6 months	3 = Valuable
4 = Very Important	4 = Must be acquired after the first 6 months	4 = Very Valuable
5 = Extremely Important		5 = Extremely Valuable

Competency	Source	Importance	Need at Entry	Distinguishing Value

Steps 6 – 8: Task and Competency Linkages

Step 6. Use the Job Analysis Worksheet for Task and Competency Linkages to make the linkage ratings by:

- In the Task Number column, write the numbers of the tasks that were identified as critical in Step 1;
- Write the competency numbers of the critical competencies, identified in Step 5, across the top row;
- Next, have each SME work independently to rate the extent to which each competency is important for effective task performance. Again, SME ratings should be averaged to come up with an overall rating for each task-competency linkage. It is recommended that a cutoff of 3.0 be used for this scale to determine which competencies are linked to each task. (Note: If any tasks/competencies are not linked, you should reconsider whether all critical tasks and competencies have been considered); and
- You and SMEs should then eliminate any tasks not linked to one or more competencies and only competencies that are not linked to at least one task.

NOTE: This worksheet includes tasks and competencies from the position description template.

Step 7. Of the competencies remaining at the end of Step 6, eliminate competencies that cannot be reasonably assessed via a rating schedule. The resulting competencies will later on be considered for assessment.

Step 8. Determine which competencies will be used as selective and quality ranking factors (if any).

Job Analysis Worksheet for Task and Competency Linkages

Linkage Scale

How important is this competency for effective task performance?

- 1 = Not Important
- 2 = Somewhat Important
- 3 = Important
- 4 = Very Important
- 5 = Extremely Important

Tasks	Competencies					

Job Analysis Worksheet for Tasks

Importance Scale	Frequency
How important is this task to the job?	How often is the task performed?
0 = Not Performed	0 = Not Performed
1 = Not Important	1 = Every few months to yearly
2 = Somewhat Important	2 = Every few weeks to monthly
3 = Important	3 = Every few days to weekly
4 = Very Important	4 = Every few hours to daily
5 = Extremely Important	5 = Hourly to many times each hour

Task	Source	Importance	Frequency

Signature: _____

Title: _____

Date: _____

Figure I-1. Job Analysis Worksheet for Tasks

(Source: US Office of Personnel Management (OPM), n.d.).

Job Analysis Worksheet for Competencies

Importance Scale	Need At Entry Scale	Distinguishing Value Scale
How important is this competency for effective job performance?	When is this competency needed for effective job performance?	How valuable is this competency for distinguishing superior from barely acceptable employees?
1 = Not Important	1 = Needed the first day	1 = Not Valuable
2 = Somewhat Important	2 = Must be acquired within the first 3 months	2 = Somewhat Valuable
3 = Important	3 = Must be acquired within the first 4-6 months	3 = Valuable
4 = Very Important	4 = Must be acquired after the first 6 months	4 = Very Valuable
5 = Extremely Important		5 = Extremely Valuable

Competency	Source	Importance	Need at Entry	Distinguishing Value

Signature: _____

Title: _____

Date: _____

Figure I-2. Job Analysis Worksheet for Competencies

(Source: US Office of Personnel Management (OPM), n.d.)

Job Analysis Worksheet for Task and Competency Linkages

Linkage Scale

How important is this competency for effective task performance?

- 1 = Not Important
- 2 = Somewhat Important
- 3 = Important
- 4 = Very Important
- 5 = Extremely Important

Tasks	Competencies					

Signature: _____

Title: _____

Date: _____

Figure I-3. Job Analysis Worksheet for Task and Competency Linkages
 (Source: US Office of Personnel Management (OPM), n.d.)

Appendix J. Sample Interview Questions and Scoring Matrix

Sample Interview Questions

These sample interview questions were published by University of New Hampshire Technology Transfer Center and downloaded May 22, 2023 from

<https://t2.unh.edu/sites/default/files/media/2022-06/sample-interview-questions-pw-positions.pdf>

General

- You were provided a copy of the job description for the position of _____. Can you tell us what the position entails, and why you're qualified?
- Describe some of the equipment or facilities you've worked with in the past.
- Are you willing and able to work overtime and odd hours?
- If you have multiple projects on your plate, how do you handle completing them on time?
- Tell us about a suggestion you have made that has benefited an organization you've worked for.
- What is it about this position as _____ that attracts you the most?
- What's the most rewarding work you have ever done and why?
- What's the least rewarding work you have ever done and why?
- We are looking for trade's professionals with a variety of skills. Name for me your top three skills.

Publics Works Based Questions

- What are your thoughts on work in the public works sector versus the private sector and why do you want to work in the public sector?
- In your opinion, what defines Public Works?
- Your background is not in Public Works. What qualifies you for this position?
- How well do you know the Public Works Service? What does work in Public Works mean to you?

Professional Attitude

- What do you do if the Supervisor or DPW Manager/Road Agent tells you to do something that you don't want to do, or maybe you dislike the co-worker your assigned with, how do you handle it?
- The Town of _____'s Department of Public Works employs a diverse range of trades and administration personnel. How do you feel about working in a highly diverse environment?
- Do you consider yourself a team player or more of an independent worker?
- What would you do if the assigned work was completed, and you find yourself back at the shop, one hour before the end of the workday?
 - If some or all the other crew members were sitting in the lunchroom, socializing or looking at their phones, would you join them or find something to do?
- You are working in a small work group of 2-4 crew members, and these workers have been working for the department for several years. You feel that there is a better, more efficient, safer, or easier way to perform the task. How do you work with the co-workers to influence them to try your way of doing it?

Light Equipment Operator

- What is a pre-trip check list?
 - o Describe what should be checked as a pre-trip inspection for a Truck before use?
 - o What should be checked as a pre-trip for any piece of equipment?
- When operating a truck with a front plow and front post wing plow, how you should put your plows down when approaching a road for plowing.
- What is the purpose for using pre-treated salt or pre-wetted salt?
- As an equipment operator, you are subject to doing manual labor. Is there anything that would prevent you is performing manual labor for extended periods of time?
 - o i.e., Dragging and chipping brush, shoveling gravel, raking leaves, pushing a lawn mower, running a chain saw or weed whacker.

Maintenance

- If several machines broken down at once, which would you repair first? Why?
- How would you troubleshoot problems with equipment? Use experiences to support your answer.
- Are there certain types of repairs you really enjoy doing? Are there some that you struggle with?
- If you were asked to check your air brake adjustment, would you be able to do an inspection and or adjustment. How would you go about doing this? If you don't know how to check the adjustment what would you do?
- Tell us what types of mechanical abilities you have, and how this would make you more qualified than another applicant. What is an important part of equipment maintenance that can be performed frequently? (grease)

Safety

- Safety is everything to us at the Town of _____. How do you embrace a culture of safety?
- Tell me about your safety related training, and your overall safety record in your current job.
- You notice that another maintenance staff member is not following procedures. How you would you handle this?
- What is the necessary safety equipment for chain saw operation? Helmet w/ear protection, & mesh shield or helmet, eye protection, ear protection, gloves, chaps, and tools for sharpening.

Sources:

<https://www.mockquestions.com>

<https://interviewquestionsanswers.org>

as referenced by University of New Hampshire T2 Center.

Sample Scoring Matrix

#	Scoring Matrix	Score 1-6	Notes:
	1 = Does not meet expectation; 6 = Exemplary mastery		
1	General Knowledge of the Position		
2	Ability to operate Equipment i.e., truck, loader, backhoe, excavator		
3	Ability to operate Equipment i.e., truck with plow, wing and spreader		
4	Ability to do equipment repairs i.e. brake adjustments, brake work, welding		
5	Teamwork-ability to work well with others		
6	Work ethics- self motivation		
7	General physical ability to do physical labor		
8	Safety Equipment- knowledge of PPE		
9	Scenerio - Plow Operation		
10	Scenerio - Chainsaw Operation		
11	Scenerio - Supervisor conflict - Teamwork		
	Total		

1 = Does not meet expectations; unable to provide any examples or support specific to topic, or exhibited lack of professionalism, expertise, or skill in regards to function/question. Response was unacceptable or inappropriate.

2 = Response did not closely meet expectations of the topic, was irrelevant or unrelated, and candidate does not meet expertise, qualifications, or skills for this area of role.

3 = Response supports that candidate's skills, experiences, or answer sometimes meets expectations but reflects significant gaps in the necessary skills and experience. May indicate inconsistent performance and achievement of work objectives, experience or skill that meets part of the objective but did not answer the question fully, or did not provide direct supporting evidence of achievement of the skill or topic at question. Answer may not have included specifics to support the individual's role in the task or function, or may have shown some gaps in performance that with additional coaching, training, or support might be resolved.

4 = Response indicated a solid performer that had the skills, experience, and capabilities to complete the task at hand with an acceptable level of supervision and input. Would not require skill-specific training.

5 – Responded indicated a great performer that often exceeded the work expectations and requirements of the function or task, showed accountability and awareness, attention to detail, and may have gone above and beyond outside scope to achieve the task. May have exhibited leadership in the specific task. Required minimal or no supervision or oversight.

6 = Response indicated exemplary performance, experience and skillset, measurable achievement that consistently exceeded expectations, goals, and requirements of the task or function. Acted successfully in the scope of a leader, innovator, or champion to the team for the task/function. Recognized by others for performance in function.

Source: UNH T2. (2023). Supervisors' Toolbox. Hiring Employees. Sample interview scoring matrix. Retrieved May 30, 2023 from <https://t2.unh.edu/resources/supervisors-toolbox>

Appendix K. AIC and DWD Salary Data and Job Category Comparisons

Table K-1. AIC Data by Econmic Growth Region

Truck Driver		Assistant Mechanic		Laborer	
EGR	Average \$	EGR	Average \$	EGR	Average \$
1	\$ 47,880	1	\$ 45,948	1	\$ 41,911
2	\$ 47,229	2	\$ 43,035	2	\$ 44,234
3	\$ 42,707	3	\$ 47,939	3	\$ 38,891
4	\$ 41,574	4	\$ 45,977	4	\$ 42,496
5*	\$ 45,676	5*	\$ 50,802	5*	\$ 39,458
6	\$ 40,257	6	\$ 41,631	6	\$ 35,901
7	\$ 38,659	7	\$ 42,741	7	\$ 35,249
8	\$ 39,536	8	\$ 42,968	8	\$ 37,138
9	\$ 38,976	9	\$ 41,898	9	\$ 40,166
10	\$ 37,814	10	\$ 37,814	10	\$ 40,206
11	\$ 40,798	11	\$ 36,748	11	\$ 40,631
Avg	\$ 41,919	Avg	\$ 43,409	Avg	\$ 39,662
Road Foreman Crew Boss		Heavy Equipment Operator		Garage Mechanic	
EGR	Average \$	EGR	Average \$	EGR	Average \$
1	\$ 48,372	1	\$ 51,160	1	\$ 47,099
2	\$ 50,410	2	\$ 40,709	2	\$ 47,927
3	\$ 49,994	3	\$ 43,797	3	\$ 47,465
4	\$ 47,411	4	\$ 43,111	4	\$ 45,953
5*	\$ 58,888	5*	\$ 48,786	5*	\$ 53,425
6	\$ 46,939	6	\$ 42,393	6	\$ 43,622
7	\$ 42,287	7	\$ 38,815	7	\$ 42,116
8	\$ 47,714	8	\$ 41,331	8	\$ 44,240
9	\$ 45,884	9	\$ 41,726	9	\$ 44,425
10	\$ 42,577	10	\$ 39,010	10	\$ 41,038
11	\$ 47,120	11	\$ 41,532	11	\$ 45,421
Avg	\$ 47,963	Avg	\$ 42,943	Avg	\$ 45,703
Highway Supervisor		Hwy Admin & Supt Staff		Highway Engineer	
EGR	Average \$	EGR	Average \$	EGR	Average \$
1	\$ 54,165	1	\$ 42,555	1	\$ 46,164
2	\$ 55,983	2	\$ 39,256	2	N/A
3	\$ 66,294	3	\$ 41,071	3	\$ 101,260
4	\$ 60,874	4	\$ 37,912	4	\$ 80,329
5*	N/A	5*	\$ 54,731	5*	N/A
6	\$ 53,975	6	\$ 36,529	6	\$ 80,000
7	\$ 45,996	7	\$ 39,507	7	\$ 77,335
8	\$ 53,462	8	\$ 37,849	8	N/A
9	\$ 51,655	9	\$ 37,082	9	\$ 58,787
10	\$ 53,393	10	\$ 37,812	10	N/A
11	\$ 50,240	11	\$ 39,003	11	\$ 66,045
Avg	\$ 54,604	Avg	\$ 40,301	Avg	\$ 72,846
* Marion County NOT included					

Table K-2. Job Category Comparisons for AIC Data

Local Job Category	AIC Job Category 1	AIC Job Category 2
Driver/Operator	Truck Driver	Heavy Equipment Operator
Maintenance Worker	Laborer	
Foreman/ Asst Foreman	Road Foreman Crew Boss	
Mechanic	Garage Mechanic	Assistant Mechanic
Mgr/Asst Super/Other Admin	Highway Supervisor	
Clerical/Office/Admin supt	Hwy Admin & Supt Staff	
Director/Superintendent		
Technician		
Head mechanic/Shop Foreman		
Engineer	Highway Engineer	
Engineer Administration		

Table K-3. DWD Data by Economic Growth Region

<table><tr><th colspan="2">Driver/Operator</th></tr><tr><th colspan="2">53-3032, 53-3033, 53-7051</th></tr><tr><th>EGR</th><th>Average \$</th></tr><tr><td>1</td><td>\$ 53,157</td></tr><tr><td>2</td><td>\$ 46,340</td></tr><tr><td>3</td><td>\$ 46,012</td></tr><tr><td>4</td><td>\$ 46,630</td></tr><tr><td>5*</td><td>\$ 48,826</td></tr><tr><td>6</td><td>\$ 45,215</td></tr><tr><td>7</td><td>\$ 46,812</td></tr><tr><td>8</td><td>\$ 42,442</td></tr><tr><td>9</td><td>\$ 45,297</td></tr><tr><td>10</td><td>\$ 50,468</td></tr><tr><td>11</td><td>\$ 45,969</td></tr><tr><td>Avg</td><td>\$ 47,015</td></tr></table>	Driver/Operator		53-3032, 53-3033, 53-7051		EGR	Average \$	1	\$ 53,157	2	\$ 46,340	3	\$ 46,012	4	\$ 46,630	5*	\$ 48,826	6	\$ 45,215	7	\$ 46,812	8	\$ 42,442	9	\$ 45,297	10	\$ 50,468	11	\$ 45,969	Avg	\$ 47,015	<table><tr><th colspan="2">Maintenance Worker</th></tr><tr><th colspan="2">37-3000, 47-4051, 49-9043, 49-9071</th></tr><tr><th>EGR</th><th>Average \$</th></tr><tr><td>1</td><td>\$ 49,777</td></tr><tr><td>2</td><td>\$ 43,527</td></tr><tr><td>3</td><td>\$ 43,542</td></tr><tr><td>4</td><td>\$ 50,085</td></tr><tr><td>5*</td><td>\$ 44,026</td></tr><tr><td>6</td><td>\$ 44,461</td></tr><tr><td>7</td><td>\$ 46,812</td></tr><tr><td>8</td><td>\$ 42,442</td></tr><tr><td>9</td><td>\$ 45,297</td></tr><tr><td>10</td><td>\$ 50,468</td></tr><tr><td>11</td><td>\$ 45,969</td></tr><tr><td>Avg</td><td>\$ 46,037</td></tr></table>	Maintenance Worker		37-3000, 47-4051, 49-9043, 49-9071		EGR	Average \$	1	\$ 49,777	2	\$ 43,527	3	\$ 43,542	4	\$ 50,085	5*	\$ 44,026	6	\$ 44,461	7	\$ 46,812	8	\$ 42,442	9	\$ 45,297	10	\$ 50,468	11	\$ 45,969	Avg	\$ 46,037	<table><tr><th colspan="2">Mechanic</th></tr><tr><th colspan="2">49-3031, 49-3041, 49-3042</th></tr><tr><th>EGR</th><th>Average \$</th></tr><tr><td>1</td><td>\$ 58,572</td></tr><tr><td>2</td><td>\$ 49,659</td></tr><tr><td>3</td><td>\$ 50,225</td></tr><tr><td>4</td><td>\$ 51,417</td></tr><tr><td>5*</td><td>\$ 53,383</td></tr><tr><td>6</td><td>\$ 47,998</td></tr><tr><td>7</td><td>\$ 47,985</td></tr><tr><td>8</td><td>\$ 52,262</td></tr><tr><td>9</td><td>\$ 50,015</td></tr><tr><td>10</td><td>\$ 49,609</td></tr><tr><td>11</td><td>\$ 49,254</td></tr><tr><td>Avg</td><td>\$ 50,943</td></tr></table>	Mechanic		49-3031, 49-3041, 49-3042		EGR	Average \$	1	\$ 58,572	2	\$ 49,659	3	\$ 50,225	4	\$ 51,417	5*	\$ 53,383	6	\$ 47,998	7	\$ 47,985	8	\$ 52,262	9	\$ 50,015	10	\$ 49,609	11	\$ 49,254	Avg	\$ 50,943
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<p>* Marion County Included</p> <p>** Construction Trades include 1) Construction Laborers, 2) Paving, Surfacing, and Tamping Equipment Operators, and 3) Operating Engineers and Other Construction Equipment Operators</p>																																																																																												

Table K-4. Job Category Comparisons for DWD Data

Local Job Category	DWD Job Category 1	DWD Job Category 2	DWD Job Category 3	DWD Job Category 4
Driver/Operator	Heavy and Tractor-Trailer Truck Drivers	Light Truck Drivers	Industrial Truck and Tractor Operators	
Maintenance Worker	Grounds Maintenance Workers	Highway Maintenance Workers	Maintenance Workers, Machinery	Maintenance and Repair Workers, General
Foreman/ Asst Foreman				
Mechanic	Bus and Truck Mechanics and Diesel Engine Specialists	Farm Equipment Mechanics and Service Technicians	Mobile Heavy Equipment Mechanics, Except Engines	
Mgr/Asst Super/Other Admin	General and Operations Managers			
Clerical/Office/Admin supt	Information and Record Clerks	Secretaries and Administrative Assistants		
Director/Superintendent	Construction Managers	Architectural and Engineering Managers		
Technician	Civil Engineering Technologists and Technicians			
Head mechanic/Shop Foreman				
Engineer	Civil Engineers			
Engineer Administration				

Appendix L. Additional Information: Impact of Job Category Designation on Compensation

The sections below provide additional information that was used to determine how job categories should be combined, for example, whether foreman should be included in the same category as working foreman. In some cases, the numbers shown may not exactly match the final numbers in the report since some additions and corrections may have occurred after the analysis below was conducted. Note that local agencies can designate an employee with any title and job duties may vary substantially for employees at different agencies with the same title.

Foreman and Working Foreman

A Working Foreman or Assistant Foreman may conduct some or all of these Foreman duties, in addition to personally executing work tasks to contribute to the agency.

The average and maximum salary of the Working Foreman are very similar to the Foreman in the Indiana local agency salary database. The Working Foreman category has only 23 observations, a wide range of salaries and an uneven distribution.

The most frequent salary range for Foreman is \$42,500 to \$45,000 (with 32 observations) and the most frequent salary range for Working/Asst Foreman is \$47,500 to \$50,000 (with 5 observations). The range of salaries for the category Working/Asst Foreman reflects the breadth of duties in different agencies and the fact that the Working/Asst Foreman categories are used by both the largest agencies, which may tend to have higher salaries, and smaller agencies, which may tend to have lower salaries.

Given the small size of the Working Foreman/Asst Foreman cohort (23 observations) and the general consistency with the Foreman category, the Working Foreman/Asst Foremen was included in the Foreman category. A histogram for Foreman and Working/Asst Foreman is shown in Figure L-1.

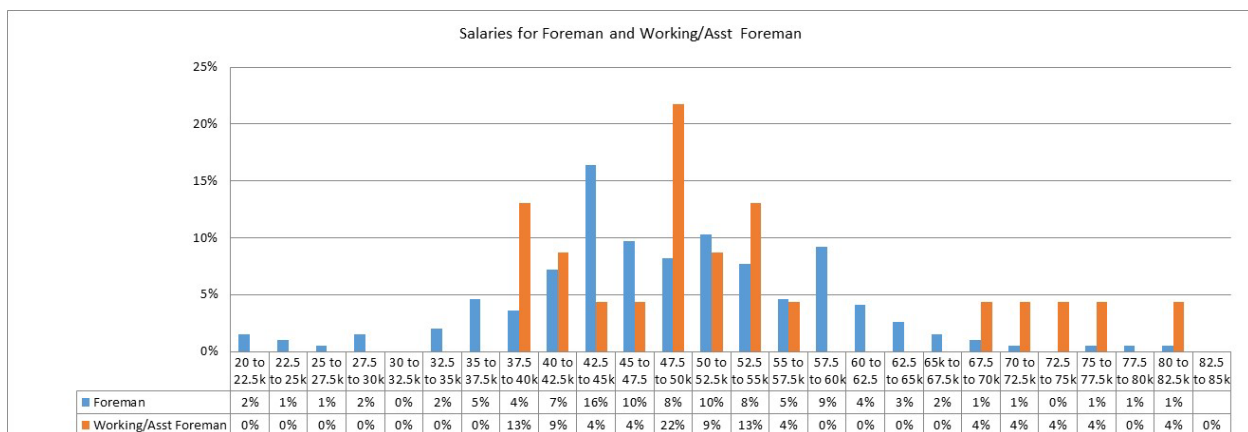


Figure L-1. Histogram of Foreman and Working/Asst Foreman

Clerical/Office/Admin Supt and Office Manager

Clerical, office and administrative support is provided by people with a variety of titles in a local road agency and different duties may be associated with these titles at different agencies. Given the small size of the Office Manager cohort (23 observations) and the general consistency with the data in the Clerical/Office/Admin Support category, these two categories were combined. Supporting data is shown in Table L-1 and in Figure L-2.

Table L-1. Clerical/Office/Admin Support Compensation by Region for Different Job Categories

	Count	Compensation		
		Average	Min	Max
Clerical/Office/ Admin Supt				
1	13	41,327	21,463	50,819
2	9	41,075	35,581	53,903
3	16	39,239	23,891	49,280
4	9	35,264	26,132	47,057
5	8	39,630	27,796	52,938
6	12	33,247	20,256	46,980
7	6	40,443	35,292	46,829
8	8	41,757	30,666	58,559
9	10	36,125	27,101	40,690
10	4	37,581	35,351	41,659
11	12	41,407	27,718	59,464
Subtotal	107	38,816	20,256	59,464
Office Mgr				
1	1	42,357	42,357	42,357
2	1	52,717	52,717	52,717
3	3	48,400	37,653	55,901
4	5	45,750	36,984	53,543
5	2	44,221	43,091	45,351
6	1	38,519	38,519	38,519
7	3	42,112	39,900	45,469
8	1	40,890	40,890	40,890
9	3	39,169	33,633	45,409
10	1	37,562	37,562	37,562
11	2	38,157	36,533	39,782
Subtotal	23	43,243	33,633	55,901
Grand Total	130	39,599	20,256	59,464

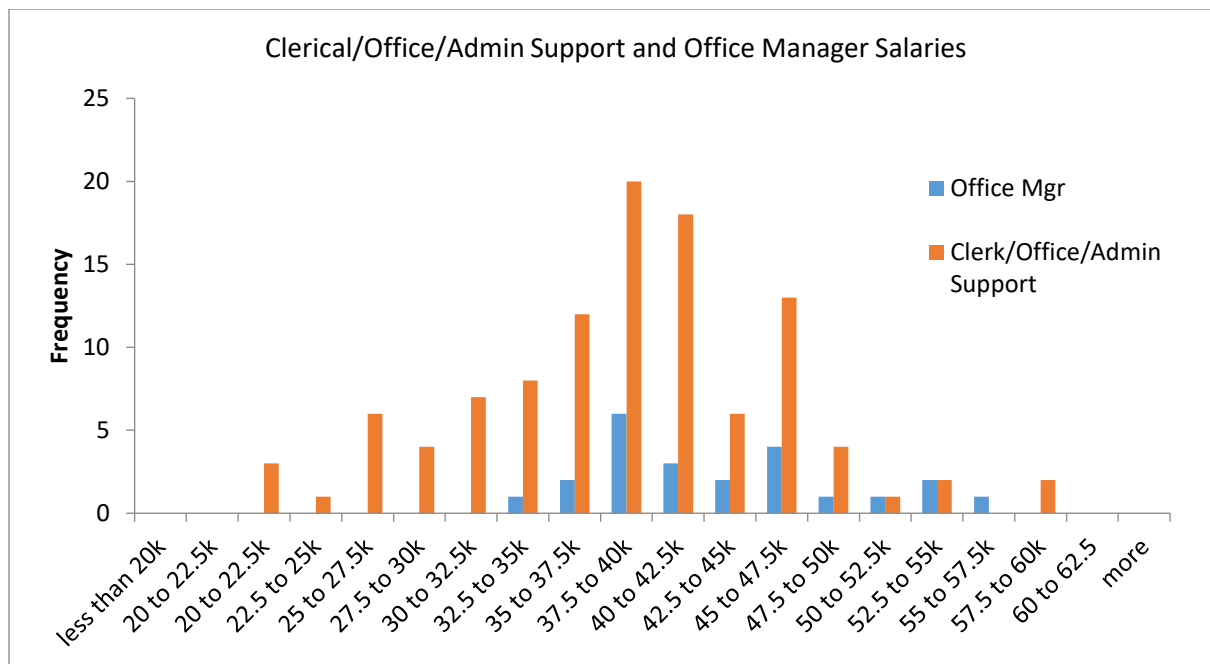


Figure L-2. Histogram of Clerical/Office/Admin Supt and Office Manager Salaries

Director/Superintendent and Engineer Administration

Highway Directors, Superintendents and Engineer Administrators all provide leadership at local road agencies. Although the duties may be similar in some cases, examination of the salary data shown in Figure L-3 suggests that the salary characteristics may not be similar, so Director/Superintendent and Engineer Administrators were maintained as separate categories.

The categories of Engineer Administrator and Engineer were also plotted and are shown in Figure L-4. The distribution of the data suggest that salaries for Engineer Administrators tend to be higher than for Engineers, and as a result separate categories were used.

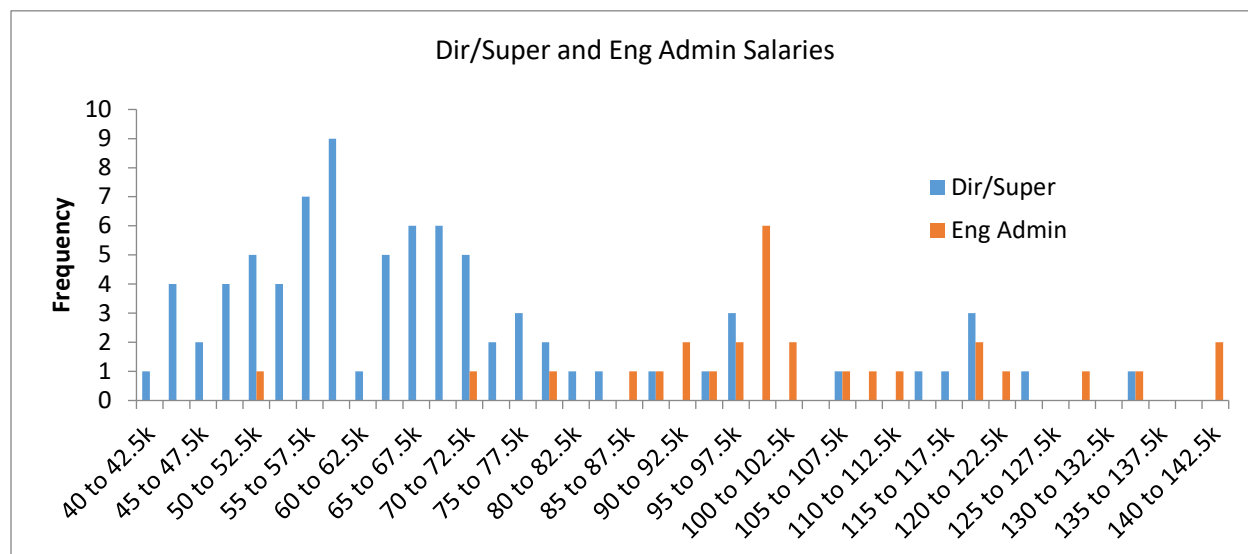


Figure L-3. Histogram of Engineer and Engineer Admin Salaries

Engineer and Engineer Administration

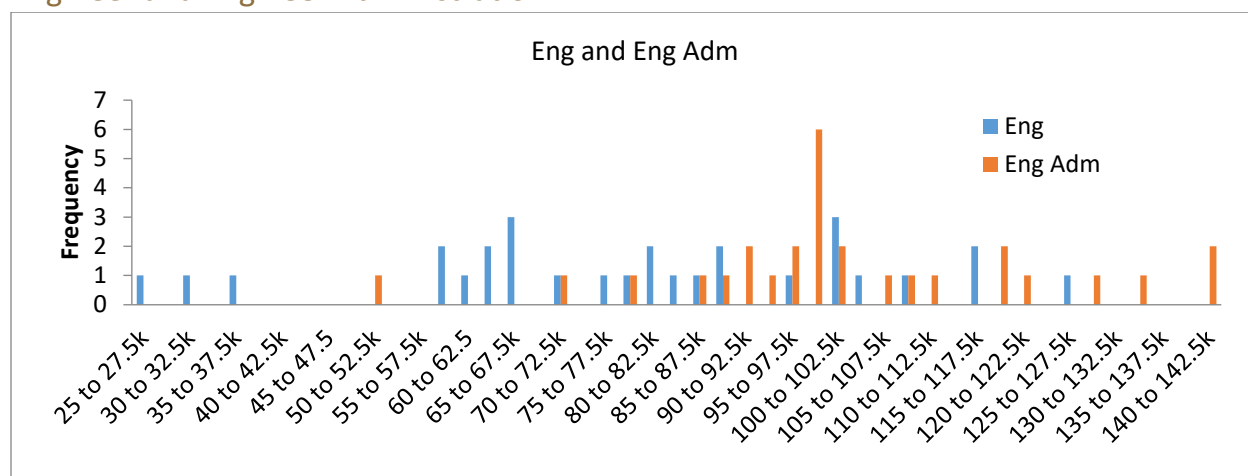


Figure L-4. Histogram of Engineer and Engineer Admin Salaries

Appendix M. Additional Resources

Additional Resources: Existing Workforce Development Programs Relevant to Local Agencies

American Job Centers. American Job Centers were reauthorized in the Workforce Innovation and Opportunities Act of 2014 and provide job related services such as training referrals, career counseling and job listings. Job seekers can work with the job centers either in person, online, or via remote kiosks. American Job Centers is under the Employment and Training Administration (ETA) of the US Department of Labor. There are 74 American Job Centers in Indiana, typically designated as WorkOne with the name of the city, county or region served. Additional information and search features for specific centers in Indiana can be found at this link: <https://www.dol.gov/general/topic/training/onestop>. Indiana WorkOne centers provide information for both job seekers (e.g., help with preparing resumes, information about job openings) and for businesses seeking new employees (e.g., resources for job postings, applicant screenings, and reimbursement for training costs for some candidates) and information about work rules (e.g., EEO and ADA requirements). WorkOne also supports worker unemployment claims and information about unemployment taxes for employers.

Additional Resources: Selected NCHRP Resources and Reference Materials

NCHRP Synthesis 20-05/Topic 49-10. Transportation Workforce Planning and Development Strategies. Available online at <https://www.trb.org/Main/Blurbs/179878.aspx>. This 2019 report written by the Eno Center for Transportation provides case examples from LTAP agencies in Ohio, Alaska, Montana, New York, in addition to the Michigan DOT. The document provides information about training evaluation and return on investment (ROI) analysis by Ohio LTAP, peer-to-peer training and leadership development through the Alaska Technology Transfer program, collaborative partnerships and a new Associate of Applied Science degree in Montana, partnerships with professional organizations and higher education by New York LTAP, and a focus on strengthening the transportation pipeline by Michigan DOT.

NCHRP 02-25. Workforce 2030--Attracting, Retaining, and Developing the Transportation Workforce: Design, Construction, and Maintenance. This project focused on strategies for state DOTs to support employee retention, development and recruitment. An executive summary of the project report can be found online at https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_1008Summary.pdf.

NCHRP 20-102(20). Preparing the Transportation Workforce for the Deployment of Emerging Technology. This project is currently underway and a report has not been published. When complete, the project will create a guide to support technology training of the local workforce through position descriptions and associated knowledge, skills and abilities (KSAs) descriptions, and a list of available training programs and resource needs to support local agencies.

NCHRP 20-68, Scan 19-02. Leading Practices in Strategic Workforce Management by Transportation Agencies. Available online at <https://domesticscan.org/scans/19-02-leading-practices-in-strategic-workforce-management-by-transportation-agencies/>. This report provides information about workforce management strategies employed by DOTs in Alaska, California, Georgia, Maryland, Texas, Arkansas,

Colorado and Minnesota. There are a wide variety of featured workforce strategies including metrics used by Georgia DOT, career pathways used by Minnesota DOT, and inclusion activities to support women used by Vermont DOT.

NCHRP Report 685. Strategies to Attract and Retain a Capable Transportation Workforce (2011). Available online at <https://www.trb.org/Publications/Blurbs/164747.aspx>. Although more than ten years old, this document provides an overview of relevant topics and basic information and each chapter has very brief case studies (e.g., internship programs and training programs) to support chapter topics such as increasing applicant skills, applicant screening, internal promotions and organizational branding.

Additional Resources: Stakeholders and Resources Agencies

There are a number of organizations that are active in areas relevant to the work done by the local transportation workforce. The agencies below were identified by the AHD15 Maintenance and Operations Personnel, a standing committee of the Transportation Research Board (<https://onlinepubs.trb.org/onlinepubs/centennial/papers/AHD15-Final.pdf>):

- American Association of State Highway and Transportation Officials (AASHTO),
- American Public Works Association (APWA),
- American Road and Transportation Builders Association (ARTBA),
- International Municipal Signal Association (IMSA),
- National Local Technical Assistance Program (LTAP),
- Intelligent Transportation System of America (ITSA),
- American Society of Civil Engineers Transportation and Development Institute (ASCE-TDI),
- Federal Highway Administration (FHWA),
- National Highway Institute (NHI),
- National Network for the Transportation Workforce (NNTW),
- National Transportation Training Directors (NTTD),
- University Transportation Centers (UTC) and universities with institutes or extension courses related to roadway maintenance.

FHWA also identifies the following organizations as important national partners (<https://highways.dot.gov/public-roads/autumn-2022/06>):

- National Association of County Engineers (NACE)
- American Public Works Institute (APWA)

Appendix N. Percentile Salary Information

Percentile salary information is provided below. This includes all field and shop positions including the four categories with the most employees (Driver/Operator, Maintenance Worker, Foreman and Working Foreman, Mechanic) and Head Mechanic.

Percentile Salary Information

Job Category	Count	Salary						
		Min	Ave	Median	60th	75th	90th	Max
Driver/Operator	1,158	20,002	42,251	42,408	44,000	47,438	53,906	72,845
Maintenance Worker	555	20,098	41,987	41,862	43,201	45,931	53,603	65,942
Foreman and Working Foreman	218	20,299	51,267	50,452	53,431	56,932	63,824	83,065
Mechanic	176	20,816	45,808	44,919	46,825	51,666	57,524	68,298
Head Mechanic	33	21,406	49,721	46,771	51,394	60,896	69,253	75,884

Appendix O. How to Use this Report and Updating Benchmark Data from this Report

How to Use This Report

This report can be used to understand and communicate the workforce issues facing local agencies.

- Use this report to get information about the three topics of key importance to local agencies: compensation, retention and recruitment (Chapter 1).
- Use this report to learn about successful strategies of other Indiana agencies (Chapter 2).
- Use this report to determine how your local agency salaries compare to salaries in other agencies (Chapter 1 includes national data, Chapter 3 includes summary data, Chapter 4 includes detailed comparisons by job category).
 - Consider job category when making comparisons.
 - Compare with other local agency salaries.
 - Consider salaries within your region for job categories with a lot of employees, such as driver/operator and maintenance worker. Make sure the dataset you are using has enough datapoints to allow a meaningful comparison (over thirty is a good rule of thumb).
 - Consider salaries statewide.
 - Realize that current local agency salaries may not be competitive in many cases, so you may want to consider other benchmarking data such as state agency, DWD, and job listing data.
 - Recognize duties may vary by agency even if the job category is the same.
 - Compare with Department of Workforce Development (DWD) data. This includes public and private sector data for your region.
 - Compare with salaries for state government workers in Indiana.
 - Compare with job listings.
 - Compare with national salaries.
 - Realize that salaries in your agency may be higher due to the specific skill sets, duties and responsibilities of your employees.
- Use the executive summary and salary comparison information to communicate issues with your elected officials. Issues may include the need for more resources, increased budgets, and commitments for salary adjustments to meet inflation.
 - It may be important to highlight the current workforce condition (i.e., Is my agency experiencing any worker shortages? Is my agency experiencing high turnover?) AND contrast it with the current pay strategy the local agency is using such as:
 - Lag market – Local agency salaries are below current market rates,
 - Competitive/match market – Local agency salaries are similar to market rates,
 - Lead market – Local agency salaries are above market rates.

Economic theory suggests that when shortages exist, market forces can be necessary to correct the imbalance in supply and demand. These corrections occur in the price/wage where the shortage exists. Therefore, a workforce shortage will ultimately put upward pressure on wages in that market.

- In other words, if your agency has a worker shortage or high turnover, then the agency may need to increase salaries and transition from a “lag market” pay rate strategy to a “competitive/match market” pay rate strategy.

Communicating with Elected Officials Regarding Wage Rates

A collaborative approach is always important when working with elected officials. Below are some activities to consider when building your case for better salaries.

- Determine Fair Market Value for Wages. Use the information in this report and other sources to determine the fair market value for wages and provide a comparison with the wages in your local agency. Fair market price is based on how much the market will pay based on experience and skill, compared to others with similar positions. Remember that there are many sources of data, and it is likely that there is not a single value but rather a range that is applicable.
 - Pull together a brief summary of information to support your case. You may wish to include information such as the information in the Executive Summary, and other facts that support the need for an increase such as the the turnover rate, and information about open positions. Include information about the valuable work your agency does throughout the year. Include any local considerations that are relevant, such as the local cost of living and the availability of competing job opportunities that have a significant impact on wages.
- Consider Timing. Local agency budgets drive the availability of resources for salaries. It is important to have an on-going relationship with elected officials, and share the agency “wins” throughout the year, including snow response, storm response, and the completion of construction projects, as well as the successful execution of regular activities. It is very helpful to know the timeline for budget activities so requests for increased funds to support raises are presented when budgets are being drafted and approved.
- Increase Visibility. Increasing the visibility of your agency in the community may help raise support for increased wages. Consider a presense (or increased presnse) on social media, outreach to local media and organizations, and other opportunities to share the the important role that local agencies play in the community. This may provide a secondary benefit of increasing goodwill toward your agency and employees and increase employee pride in their work.
- In the figure below is a brief handout that uses the information in the Executive Summary as a template.

Example Information for Elected Officials: Mayberry Highway Department Update

The Mayberry Highway Department provides significant contributions to the community, ensuring a roadway system that provide mobility and safety for residents as well as infrastructure to support local economic development.

Activities undertaken by the local road agency include both regular activities and emergency response:

- Snow plowing, de-icing and storm response
- Oversight of road construction projects
- Roadway patching and pothole repair
- Culvert maintenance and replacement
- Ensuring safe bridges through regular inspection program
- Vegetation management
- Clearing roads after storms

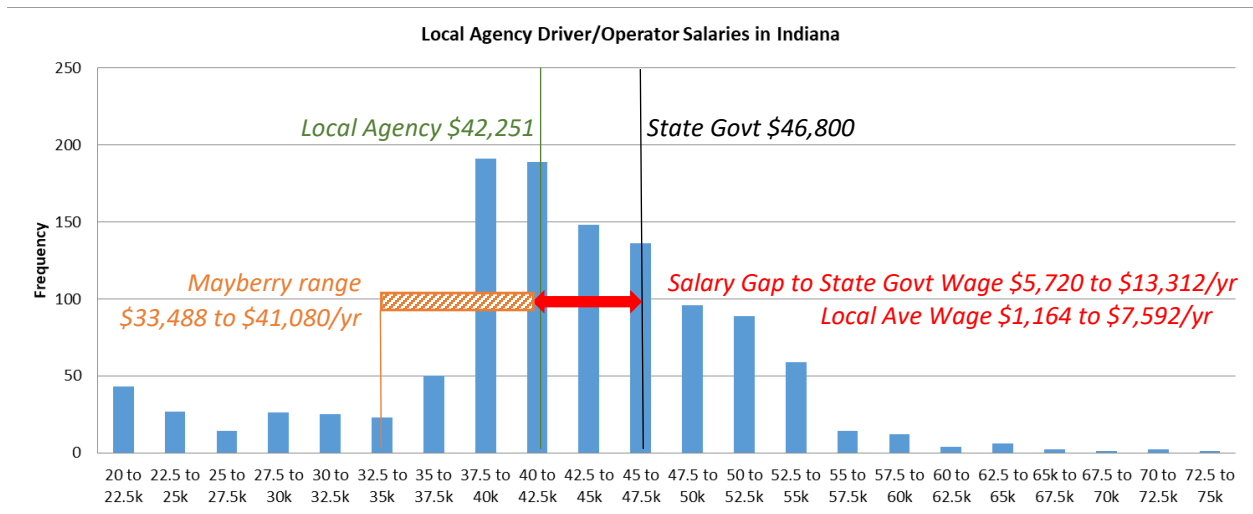
Personnel

The Mayberry Highway Department includes 1 superintendent and six employees. Our employees include 1 mechanic, and five drivers. All employees are certified with a CDL (commercial driver license) and have the capability to operate our heavy equipment.

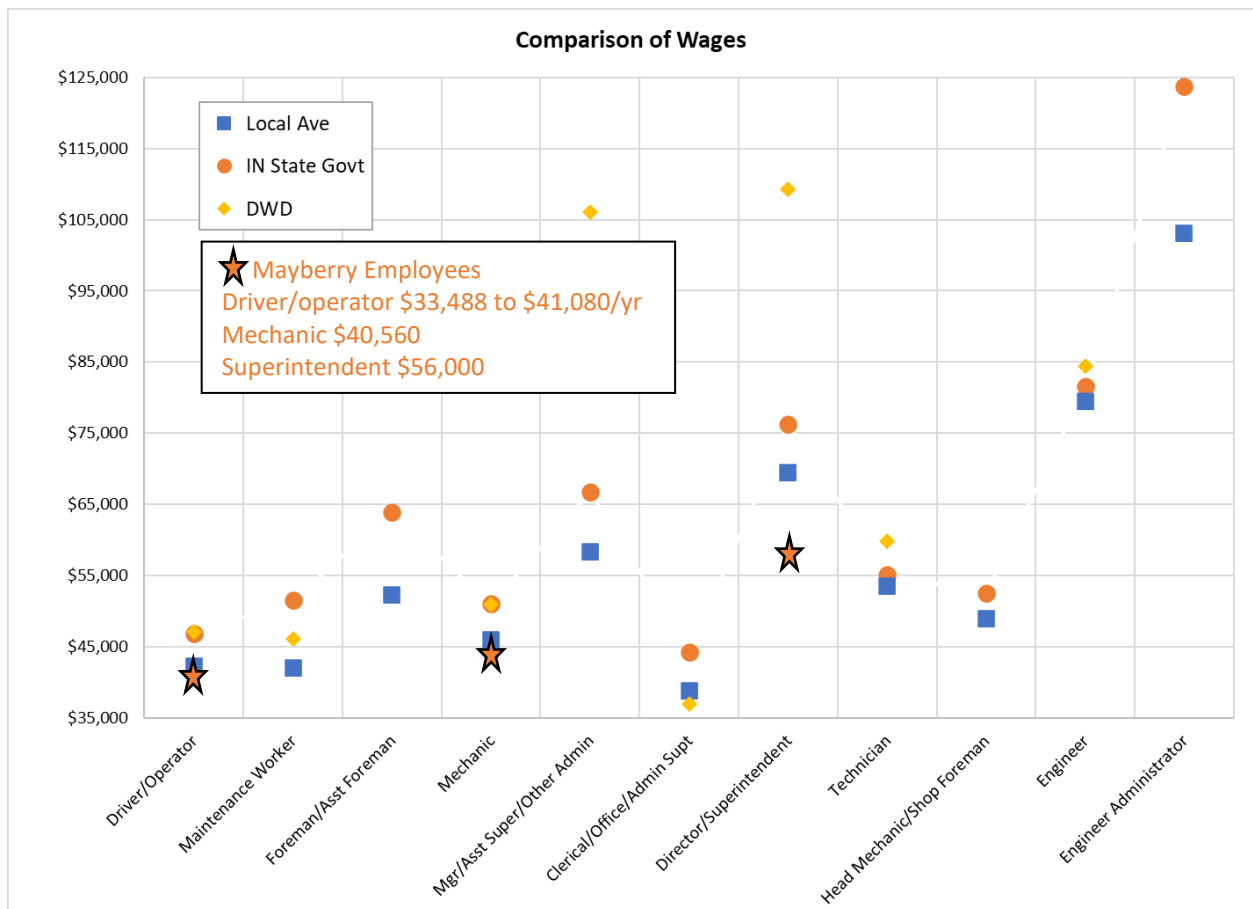
Unfortunately, employee wages have not kept up with inflation and the local market wages. As a result, our employees are no longer fairly compensated. This has created problems with retention and recruitment, and we have experienced turnover (3 employees have left in the last 18 months) and open positions (we currently have one open position).

Comparison of Mayberry Salaries with Indiana Local Agency Salaries and Indiana State Government Salaries (including INDOT)

Job Category	Mayberry	Indiana Local Agency Ave	Indiana State Govt Ave	Difference	
				Indiana Local Agency	Indiana State Govt Ave
Driver/Operator	\$33,488 to \$41,080/yr (\$16.10 to \$19.75/hr)	\$42,251/yr (\$20.31/hr)	\$46,800/yr (\$22.50/hr)	\$1,164 to \$7,592/year \$0.56 to \$3.65/hr	\$5,720 to \$13,312/yr \$2.75 to \$6.40/hr
Mechanic	\$40,560/yr (\$19.50/hr)	\$45,808 (\$22.02/hr)	\$50,980 (\$24.51/hr)	\$1,685/yr \$0.81/hr	\$6,240/yr (\$3/hr)
Superintendent	\$56,000	\$68,763	\$76,265	\$12,763	\$7,502



Salary Gap for Mayberry Compared to Indiana Local Agency Average and State Government



Comparison of Mayberry with Local Agency Average Wages, State Government Wages and Wages per the Indiana Department of Workforce Development (DWD, includes private sector wages)

Request for Additional Funds for Salary Increases

Just as the highway department has had to pay increased prices for asphalt, materials and contracts, it is necessary to increase budget allocation for salaries. The department requests for additional funds to bring department salaries up to the level of state government salaries (***note: consider if adjustment is needed for inflation, since the state government salaries reflect data from 2022; no adjustment for inflation is shown here***). Please note that the State Government Salaries are based on wage studies conducted in 2022; local government average salaries tend to be lagging the market rate since many local agencies are in the same situation Mayberry is in. The State Government Salaries reflect appropriate salaries for government, and are well below private sector wages as indicated by the DWD salaries shown in the chart above. (***Note: this estimation does not reflect increases in benefit costs or overtime costs, please work closely with your human resources department to ensure that these costs are adequately included***).

Requested Budget Increase to Support Market Rate Wages

Job Category	Average Salary	Adjustment to Reach Market Wage ¹	Number of Employees	Total Wage
Driver/Operator	\$37,284 (range \$33,488 to \$41,080/yr)	\$9,516	5	\$47,580
Mechanic	\$40,560/yr	\$6,240	1	\$6,240
Superintendent	\$56,000	\$20,265	1	\$20,265
Total Wage				\$74,085

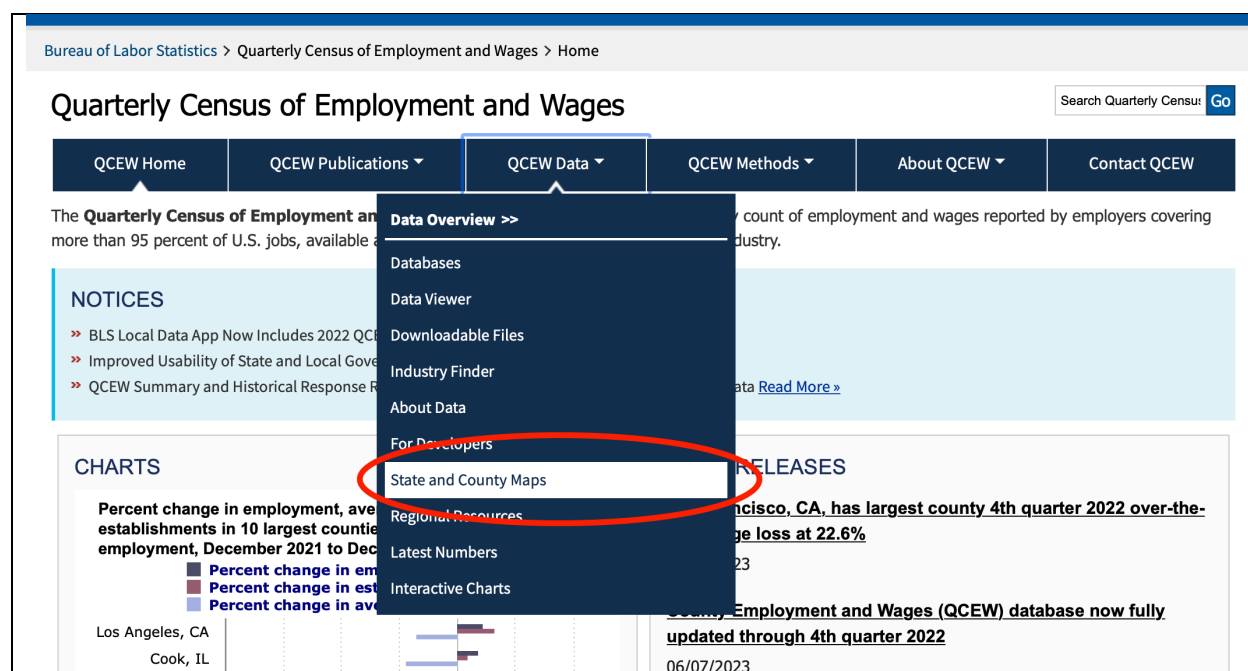
¹ per Indiana State Government

Updating Benchmark Data from This Report

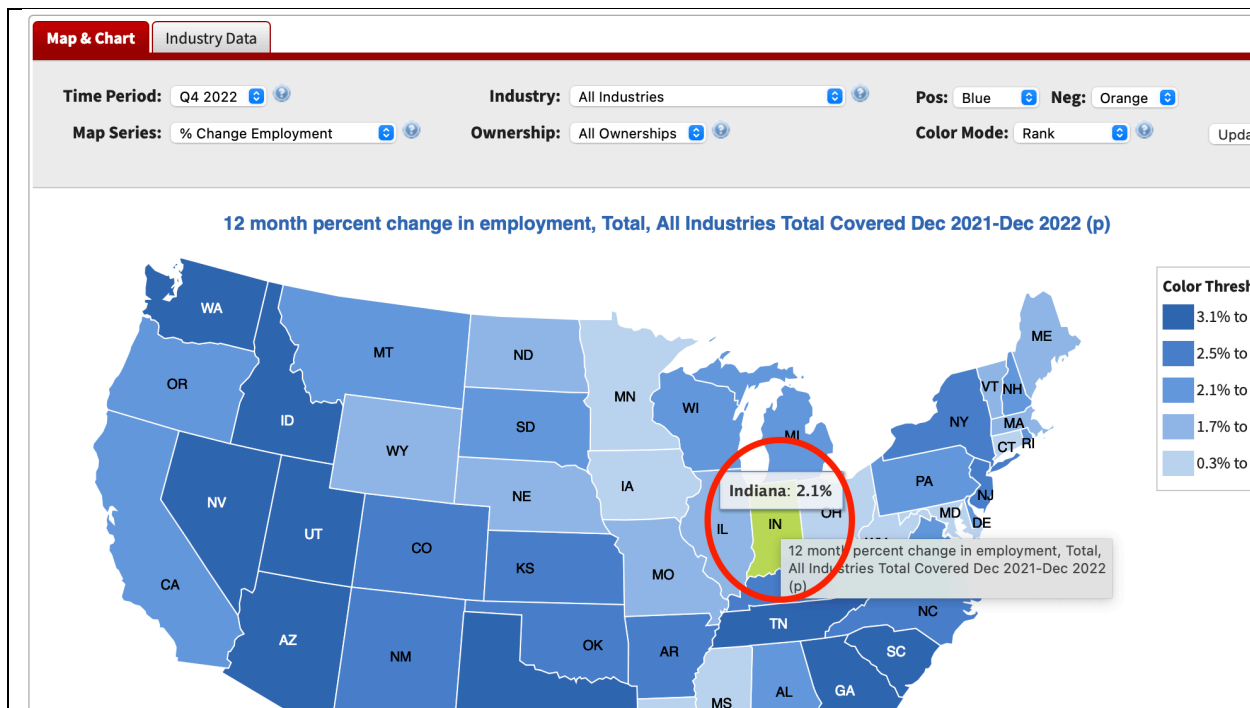
Proper benchmarking requires periodic updating of data as labor market and economic conditions evolve over time. As time passes, the salary data in this report will require updating to accurately reflect wage growth. The first best updating procedure is a micro approach such as this report that provides an accurate reflection of current data. It is highly recommended that this type of reporting be conducted every 5 to 10 years; however, the constraints of time and resources lead many organizations to the second-best solution for updating. This second-best solution is low cost and relatively easy to perform. The next paragraphs outline the process of updating the benchmarking data that can be used in future discussions with public officials.

To update the benchmarked salary data without expending numerous resources for refreshed compensation data, a local agency official can use the U.S. Bureau of Labor Statistics' Quarterly Census of Employment and Wages. These data provide a quarterly update on the movement in employment and wages across the U.S (<https://www.bls.gov/cew/>). This tool will provide the annual increase in average earnings that can be used to adjust the benchmark data from year to year (note that this process is meant to accomplish an annual/once-per-year updating of the data). To illustrate the process to update the salary data, suppose we would like to update a benchmarked occupation in Fulton County that has an average salary of \$40,000 in 2021.

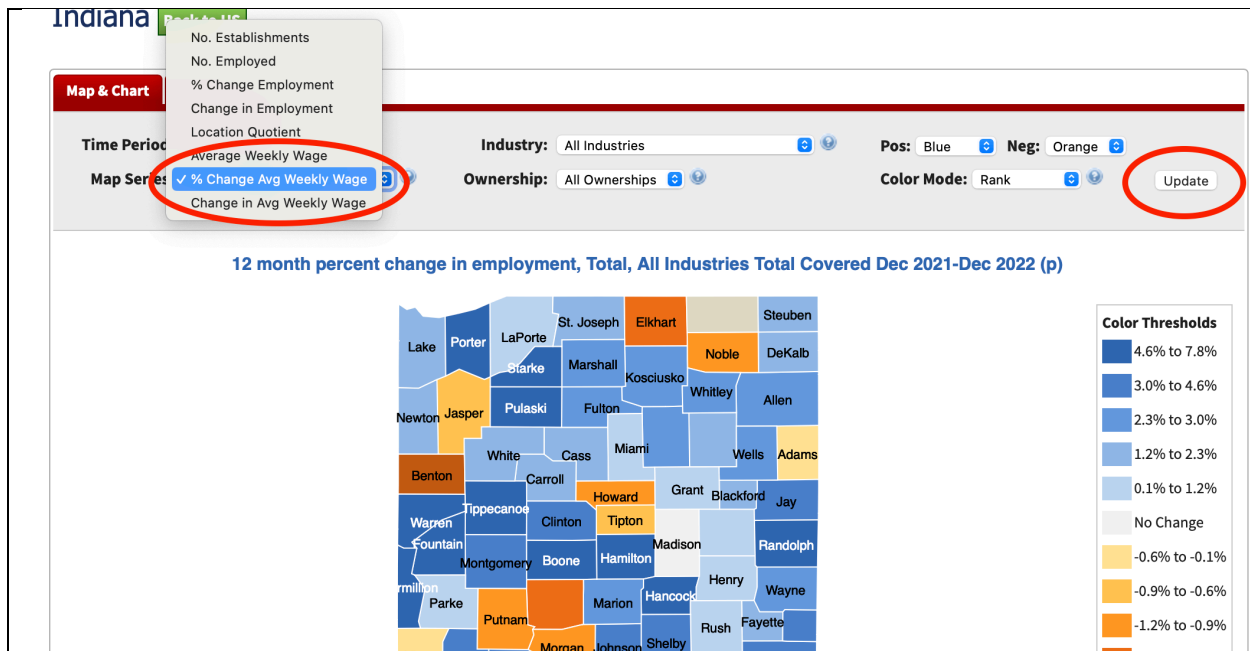
First, navigate to <https://www.bls.gov/cew/> and select the dropdown menu "QCEW Data" and "State and County Maps" as circled below.



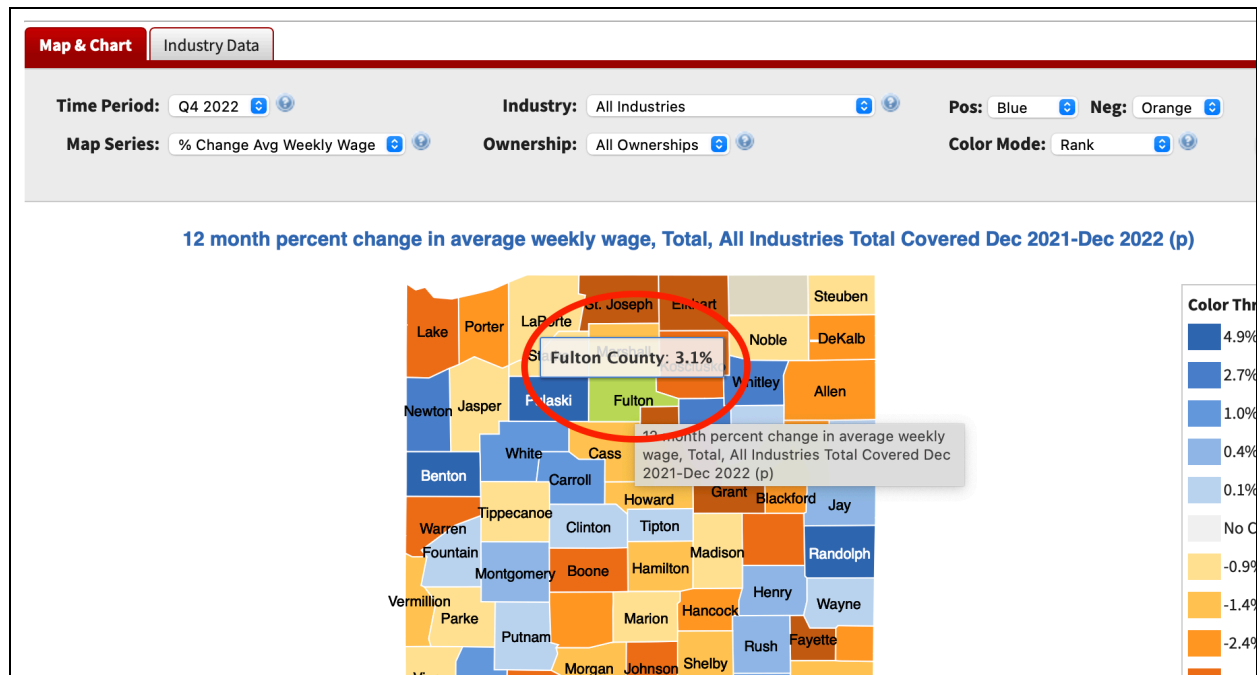
Once on the next screen you will click on the state (Indiana) on the map of the U.S. (as circled below) to proceed to the state/county level map view.



Once viewing the state/county level map of Indiana, use the drop-down menu from “Map Series” to select “% Change Avg Weekly Wage” (as shown in the figure below). Once “% Change in Avg Weekly Wage” is selected, click the “Update” button (circled below).



Now hover the mouse over the intended county (in this example Fulton County) to display the change in earnings as shown below.



Now, this county level data is applied to the example occupation earning \$40,000 in 2021 in Fulton County. To adjust the year-to-year benchmarking, \$40,000 must be increased by 3.1% to \$41,240 in 2022 ($40,000 \times 1.031 = 41,240$). This process can be employed on an annual basis to update the benchmarks used.

Indiana LTAP Workforce Report

Sarah Hubbard, Purdue University

Joseph Sobieralski, EmbryRiddle Aeronautical University

Bryan Hubbard, Purdue University



Today's Agenda

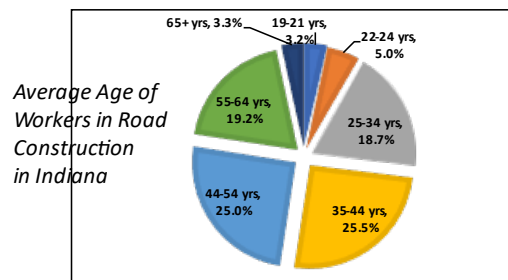
- Brief Overview of Report (Sarah)
- Brief Overview of Top Three Issues (Joe)
 - Compensation
 - Recruitment
 - Retention
- How to Use this Report (Bryan)

Report Overview

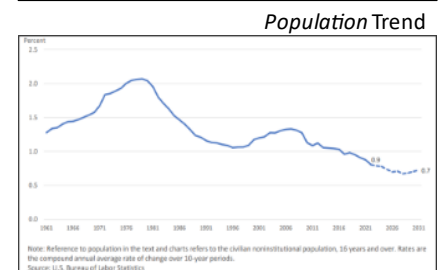
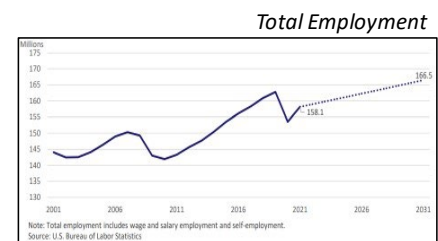
- Purpose: Support workforce needs of Indiana local agencies so they can retain and recruit the best talent
- Report
 - Brief Executive Summary (with key table and figures)
 - Chapter 1: Overview of Workforce Issues
 - National workforce issues and information about Indiana's workforce
 - Information about Compensation, Recruitment, and Retention
 - Chapter 2: Local Agency Success Stories and LTAP resources
 - Chapter 3: Methodology
 - Chapter 4: Compensation Data
 - Salary data by job and region
 - Chapter 5: Recommendations and Conclusions
 - Appendix

Chapter 1: Overview of Workforce Issues

- Labor Force Characteristics
- National Workforce Trends
 - The Great Resignation, Remote Work Challenges,
 - Wages Can't Keep Up with Inflation
- Information about Indiana's workforce



- Compensation, Recruitment, and Retention



Report Overview

- Purpose: Support workforce needs of Indiana local agencies so they can retain and recruit the best talent
- Report
 - Brief Executive Summary (with key table and figures)
 - Chapter 1: Overview of Workforce Issues
 - National workforce issues and information about Indiana's workforce
 - Information about Compensation, Recruitment, and Retention
 - Chapter 2: Local Agency Success Stories and LTAP resources
 - Chapter 3: Methodology
 - Chapter 4: Compensation Data
 - Salary data by job and region
 - Chapter 5: Recommendations and Conclusions
 - Appendix

Chapter 2: Local Agency Success Stories

- Local Agency Success Stories
 - Salary Incentives for LTAP Master Road Builder (Huntington Co)
 - Realizing the Benefits of Outsourced Mowing (Marshall Co)
 - Reduce Frequency of Brush Collection (Angola)
 - Activities to Support Employee Retention (South Bend)
 - Salary Matrix for Retention Incentives and to Support Culture (Wells Co)
 - Working with HS Students to Broaden the Road and Bridge Workforce

- LTAP Training and Resources

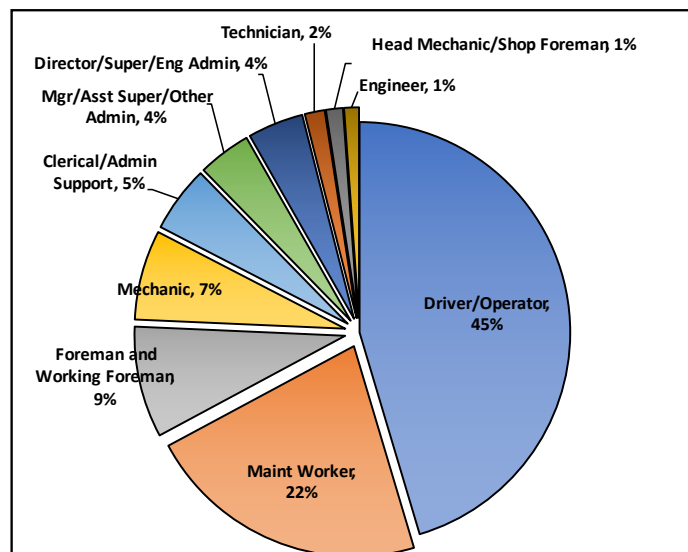
Year	Non-CDL	CDL-B		CDL-A							
	Laborer	Driver	%	Equip. Operator	%	Sign Manager	%	Mechanic	%	Foreman	Supervisor
0	\$23.50	\$23.50		\$23.97		\$24.45		\$24.68		\$24.92	
1		\$23.62	0.5%	\$24.09	0.5%	\$24.57	0.5%	\$24.80	0.5%	\$25.05	0.5%
2		\$23.74	0.5%	\$24.21	0.5%	\$24.69	0.5%	\$24.92	0.5%	\$25.17	0.5%
3		\$23.85	0.5%	\$24.33	0.5%	\$24.82	0.5%	\$25.05	0.5%	\$25.30	0.5%
4		\$23.97	0.5%	\$24.45	0.5%	\$24.94	0.5%	\$25.17	0.5%	\$25.42	0.5%
5		\$24.09	0.5%	\$24.58	0.5%	\$25.07	0.5%	\$25.30	0.5%	\$25.55	0.5%
6		\$24.21	0.5%	\$24.70	0.5%	\$25.19	0.5%	\$25.42	0.5%	\$25.68	0.5%
7		\$24.33	0.5%	\$24.82	0.5%	\$25.32	0.5%	\$25.55	0.5%	\$25.81	0.5%
8		\$24.46	0.5%	\$24.95	0.5%	\$25.44	0.5%	\$25.68	0.5%	\$25.94	0.5%
9		\$24.58	0.5%	\$25.07	0.5%	\$25.57	0.5%	\$25.81	0.5%	\$26.07	0.5%
10		\$24.70	0.5%	\$25.20	0.5%	\$25.70	0.5%	\$25.94	0.5%	\$26.20	0.5%

Chapter 3: Methodology

- Survey of Local Agencies– Identify Issues
 - Compensation
 - Recruitment
 - Retention
- Build Database of Local Agency Salaries
 - Indiana Gateway Data
- Identify Salary Characteristics for Each Local Agency Job Category
- Develop Comparisons to Support Salary Benchmarks

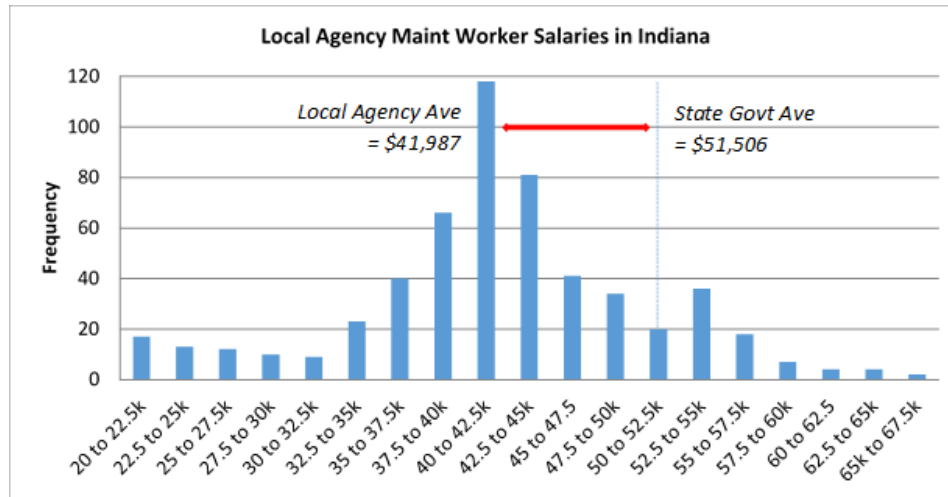
Job Categories for Local Agencies

- Driver/Operator
- Maintenance Worker
- Foreman / Asst Foreman
- Mechanic
- Mgr/Asst Super/Other Admin
- Clerical/Office/Admin Supt
- Director/Superintendent
- Technician
- Head Mechanic/Shop Foreman
- Engineer
- Engineer Administration



Chapter 4: Compensation Data

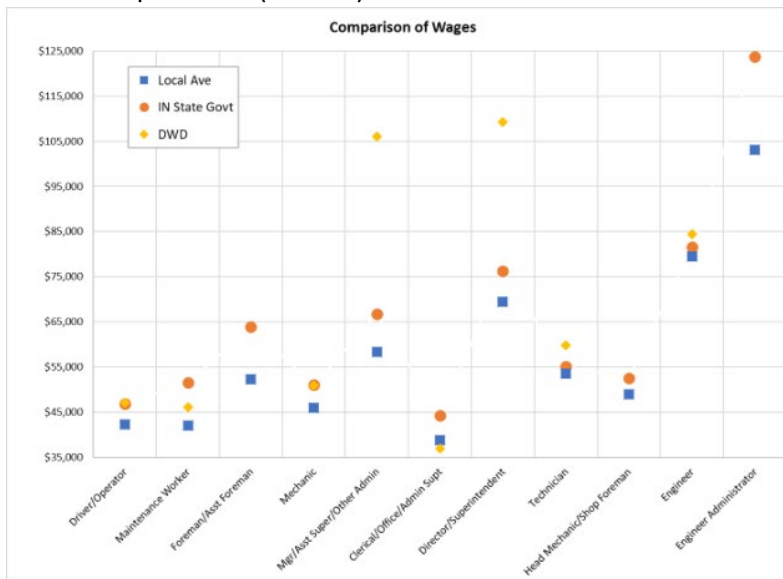
- Tables and histograms for each job category (including regional data)



Compare Local Agency Salaries with IN State Govt

Job Category	Percent of Workforce	Local Ave	IN State Govt Ave	Difference	
Driver/Operator	45%	\$42,251	\$46,800	\$4,549	11%
Maintenance Worker	22%	\$41,987	\$51,506	\$9,519	23%
Foreman and Working Foreman	9%	\$51,267	\$63,869	\$12,602	25%
Mechanic	7%	\$45,808	\$50,980	\$5,172	11%
Clerical/Office/Admin Support	5%	\$39,599	\$44,252	\$4,653	12%
Mgr/Asst Super/Other Admin	4%	\$61,640	\$66,679	\$5,039	8%
Director/Superintendent	3%	\$68,763	\$76,265	\$7,502	11%
Technician	2%	\$53,547	\$55,096	\$1,549	3%
Head mechanic/Shop Foreman	1%	\$49,790	\$52,490	\$2,700	5%
Engineer	1%	\$79,413	\$81,530	\$2,117	3%
Engineer Administrator	1%	\$102,746	\$123,724	\$20,978	20%

Compare Local Agency Salaries with Indiana Department of Workforce Development (DWD) Salaries



Salary Data to Determine Competitiveness

- Higher salaries cited as the number one reason Indiana local agency workers leave for different positions.
- The report provides a comprehensive review of salaries
 - A significant salary data set is important to be able to establish benchmarking used by county, city, and elected officials to highlight any salary discrepancies.
 - The report is organized so that salaries can be reviewed at a very high level (e.g looking at general salaries in a multcounty region to a very specific information based on job duties)

Improving Employee Retention

- Attention is needed to improve retention of current employees
 - Data indicate that one year retention was less than SHRM preferred level for organizations
 - Compensation (competitive) and employee engagement are important predictors of retention
 - Chapter 1 provides the outline of employee retention
 - Retention success stories have been illustrated by several local agencies
 - City of South Bend (onboarding, professional development, and upward mobility)
 - Wells County (salary matrices to increase competitiveness with the private sector)
 - Huntington County (salary incentives)

Recruiting New Employees

- Current and future labor market is characterized by significant competition for workers (demographic issues exacerbate this)
- Workers employment options have increased and counties will need to cast a wide net for prospective employees + be attractive option for future employees
- Developing a recruitment plan, job description, etc. are all key components to successful recruiting
 - Chapter 1 provides more detailed information
 - The appendix has information on job descriptions and job advertisements

How to use this report?

- Compare your local agency salary with:
 - Regional data
 - Local Agency Average Salary (may be of limited value since local agency salaries may not be competitive)
 - AIC (Association of Indiana Counties)
 - DWD (reflects all jobs)
 - State data
 - State Govt Average Salary (incl INDOT)
 - DWD (reflects all jobs)
 - State Average for Local Agencies (may be of limited value since local agency salaries may not be competitive)

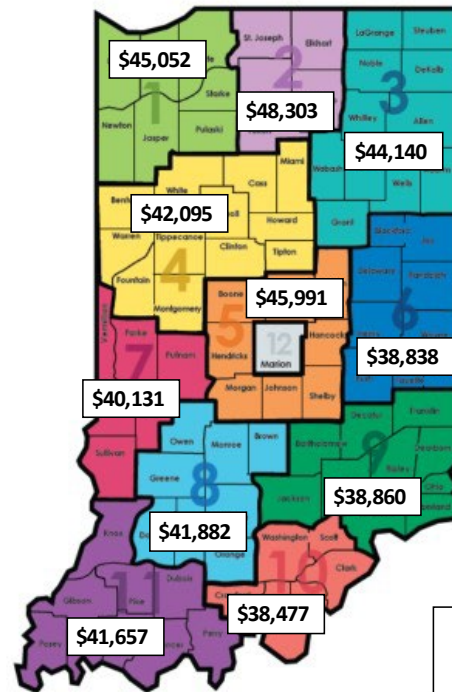
Benchmark salary for a Driver/Operator position in East Central Indiana

Consider Regional Salary Data for Region 6

- DWD Regional Map
- There are 12 regions of the state



- Consider local agency average Driver/Operator salaries for region



Compare to Salaries in your region

- Chapter 4 has a section for each job category
- Driver Operator by Economic Growth Regions (Table 19)
- Do not rely on regional data if there are fewer than 30 observations in the region

Region	Count	Most Frequent Salary Range	Ave	Min	Max
1	107	\$45,000 to \$47,500 \$52,500 to \$55,000	\$45,052	\$20,929	\$60,910
2	51	\$50,000 to \$52,500	\$48,303	\$20,156	\$62,990
3	134	\$40,000 to \$42,500 \$47,500 to \$50,000	\$44,140	\$20,889	\$57,713
4	171	\$42,500 to \$45,000	\$42,095	\$20,377	\$63,876
5	104	\$42,500 to \$45,000 \$45,000 to \$47,500	\$45,991	\$20,097	\$70,884
6	115	\$42,500 to \$45,000	\$38,838	\$20,002	\$72,845
7	61	\$40,000 to \$42,500	\$40,131	\$21,484	\$47,711

Compare with multiple regional salary data sources

- Driver/Operator Salary by EGR Region including AIC and DWD Data (Table 20)

Region	Local Average	AIC Truck Driver	AIC Heavy Equipment Operator	DWD
1	\$45,052	\$47,880	\$51,160	\$53,157
2	\$48,303	\$47,229	\$40,709	\$46,340
3	\$44,140	\$42,707	\$43,797	\$46,012
4	\$42,095	\$41,574	\$43,111	\$46,630
5	\$45,991	\$45,676	\$48,786	\$48,826
6	\$38,838	\$40,257	\$42,393	\$45,215
7	\$40,131	\$38,659	\$38,815	\$46,812



Compare with IN State Govt Salaries

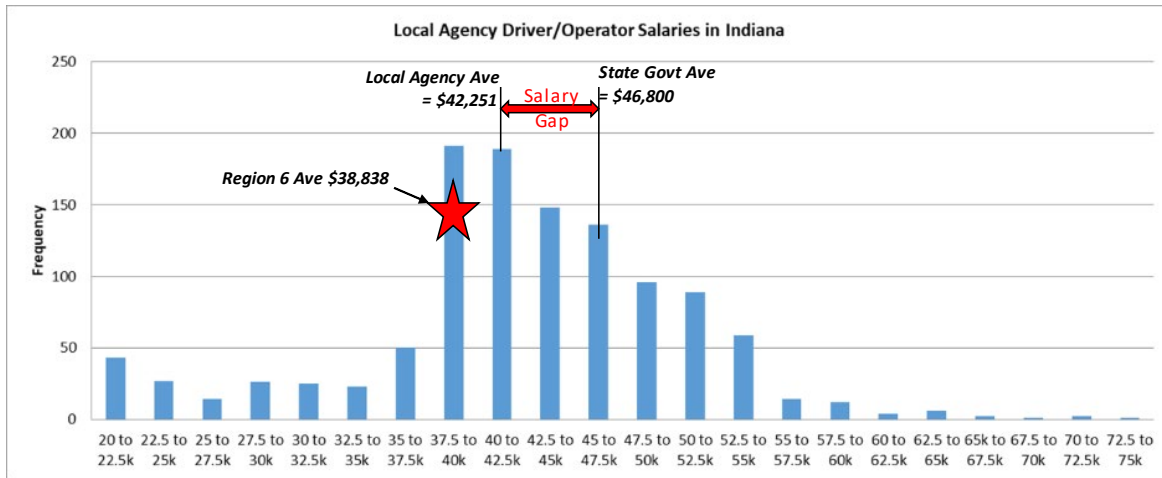
- Table 17 in Chapter 3 compares salaries for Indiana Local Agencies and the Indiana State Government (Including INDOT)
- For Driver/Operator, the difference is about \$4,500 or 11%

Job Category	Local Ave	IN State Govt Ave ¹	Difference	Percent Difference ²	Local as % of State
Driver/Operator	\$42,251	\$46,800	\$4,549	11%	90%
Maintenance Worker	\$41,987	\$51,506	\$9,519	23%	82%
Foreman and Working Foreman	\$51,267	\$63,869	\$12,602	25%	80%
Mechanic	\$45,808	\$50,980	\$5,172	11%	90%
Mgr/Asst Super/Other Admin	\$61,640	\$66,679	\$5,039	8%	92%
Clerical/Office/Admin Supt	\$39,599	\$44,252	\$4,653	12%	89%
Director/Superintendent	\$68,763	\$76,765	\$7,502	17%	90%



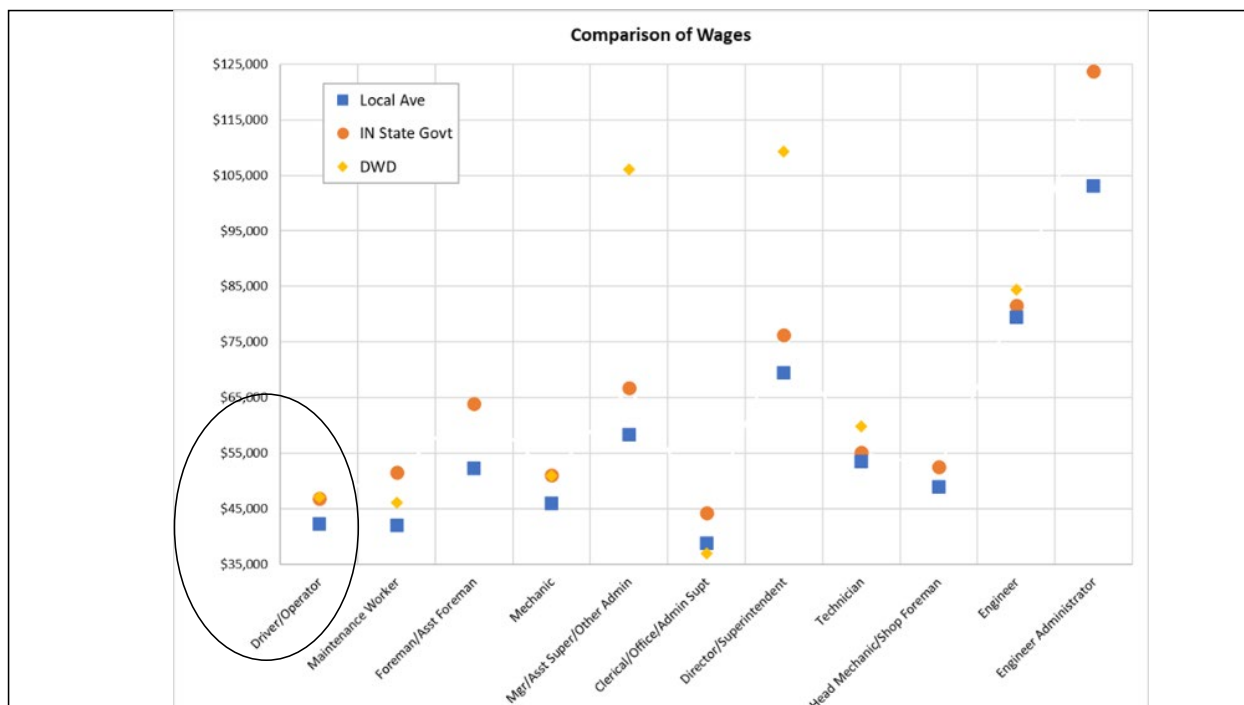
Salary Gap Between Local and State

- Histogram provides distribution of salaries (Part -time not shown, <\$20k)
- Salary of local agency is starred



Consider state averages for DWD and all job listings

Job Category	Local Ave	IN State Govt	Salary		
			AIC Data	DWD	Job Listings ¹
Driver/Operator	\$42,251	\$46,800	\$42,431	\$47,015	\$64,246
Maintenance Worker	\$41,987	\$51,506	\$39,662	\$46,037	\$45,883
Foreman/ Asst Foreman	\$51,267	\$63,869	\$47,963		\$54,054
Mechanic	\$45,808	\$50,980	\$44,556	\$50,943	\$52,979
Mgr/Asst Super/Other Admin	\$61,640	\$66,679	\$54,604	\$106,051	
Clerical/Office/Admin Support	\$39,599	\$44,252	\$40,301	\$36,878	
Director/Superintendent	\$68,763	\$76,265		\$109,269	
Technician	\$53,547	\$55,096		\$59,815	
Head mechanic/Shop Foreman	\$49,790	\$52,490			
Engineer	\$79,413	\$81,530	\$72,846	\$84,215	
Engineer Administrator	\$102,746	\$123,724		\$47,015	



Why are some of my local agency salaries “high”?

- Salaries reflect averages and do not capture the specific skills and qualifications of all employees in that category
- Your employee with a “high” salary may have better qualifications, a broader range of duties and/or more responsibilities

Conclusion and Acknowledgements

- Post-pandemic both private and public sectors have had a difficult time maintaining their workforce
- The report provides detailed information on compensation, recruitment, retention
- The research team would like to acknowledge the Indiana Local Technical Assistance Program for their support of this project as well as all of the local public agency and private construction personnel who took their time to share their perspective



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Thank You!

Questions?

Appendix P. Annual Salary and Hourly Wage Conversion Table

Annual	Hourly
20,000	9.62
21,000	10.10
22,000	10.58
23,000	11.06
24,000	11.54
25,000	12.02
26,000	12.50
27,000	12.98
28,000	13.46
29,000	13.94
30,000	14.42
31,000	14.90
32,000	15.38
33,000	15.87
34,000	16.35
35,000	16.83
36,000	17.31
37,000	17.79
38,000	18.27
39,000	18.75
40,000	19.23
41,000	19.71
42,000	20.19
43,000	20.67
44,000	21.15
45,000	21.63
46,000	22.12
47,000	22.60
48,000	23.08
49,000	23.56
50,000	24.04
51,000	24.52
52,000	25.00
53,000	25.48
54,000	25.96
55,000	26.44

Annual	Hourly
56,000	26.92
57,000	27.40
58,000	27.88
59,000	28.37
60,000	28.85
61,000	29.33
62,000	29.81
63,000	30.29
64,000	30.77
65,000	31.25
66,000	31.73
67,000	32.21
68,000	32.69
69,000	33.17
70,000	33.65
71,000	34.13
72,000	34.62
73,000	35.10
74,000	35.58
75,000	36.06
76,000	36.54
77,000	37.02
78,000	37.50
79,000	37.98
80,000	38.46
81,000	38.94
82,000	39.42
83,000	39.90
84,000	40.38
85,000	40.87
86,000	41.35
87,000	41.83
88,000	42.31
89,000	42.79
90,000	43.27
91,000	43.75

Annual	Hourly
92,000	44.23
93,000	44.71
94,000	45.19
95,000	45.67
96,000	46.15
97,000	46.63
98,000	47.12
99,000	47.60
100,000	48.08
101,000	48.56
102,000	49.04
103,000	49.52
104,000	50.00
105,000	50.48
106,000	50.96
107,000	51.44
108,000	51.92
109,000	52.40
110,000	52.88
111,000	53.37
112,000	53.85
113,000	54.33
114,000	54.81
115,000	55.29
116,000	55.77
117,000	56.25
118,000	56.73
119,000	57.21
120,000	57.69
121,000	58.17
122,000	58.65
123,000	59.13
124,000	59.62
125,000	60.10
126,000	60.58
127,000	61.06

The conversion from annual to hourly reflects 52 weeks per year and 40 hours per week; does not consider overtime wages.



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