Growing with youth - Croître avec les jeunes

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WORKFORCE RESILIENCY FOR CAREERS AT PUBLIC TRANSPORTATION AGENCIES

Metro, K.^{1,2}; Hernández, J.^{3,4}; Harper, C.^{5,6}; Bogus, S.^{1,7}

- ¹ University of New Mexico, United States
- ² KMetro@unm.edu
- ³ Peak Construction Corporation, United States
- ⁴ JHern67@lsu.edu
- ⁵ Colorado State University, United States
- ⁶ Chris.Harper@colostate.edu
- ⁷ SBogus@unm.edu

Abstract: Many employees in state transportation agencies are nearing or entering retirement eligibility, which means that public transportation agencies must focus on recruitment and retention to maintain workforce resiliency. This study addresses potential critical staffing shortages for state departments of transportation (DOTs) located within the United States Department of Transportation Region 6 States (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas) by determining effective methods to address recruitment and retention issues and ensure a resilient workforce. A comprehensive review of the current state of practice within Region 6 DOTs was undertaken with this study. Human resource documents, reports, and training materials were gathered from DOTs as well as interviews with Region 6 DOT human resources staff. These findings were used to assemble a comprehensive survey questionnaire to be distributed to current Region 6 DOT employees. A total of 1,109 employee surveys were collected and reviewed to develop a recommended list of best practices for recruiting and retaining public transportation agency employees. The list of best practices includes increased social media presence, quantification of overall benefit packages, implementation of flexible work schedules and telecommuting, clarification and restructuring of the promotions and incentives process, and increased communication and feedback between staff and management.

1 INTRODUCTION

Maintaining adequate staffing levels at state departments of transportation (DOTs) is a lingering issue, one which is anticipated to become further exacerbated as the baby boomer generation continues to exit the workforce. The loss of knowledge and experience costs DOTs in many ways. Hiring, training, and then losing employees to the private sector is a cycle that costs DOTs both time and money. New hires lack the skills and experience of their predecessors and gaps in knowledge management lead to lost institutional knowledge, causing problems in long-range planning and management of critical transportation infrastructure.

1.1 Generations of Workers

In 2015, millennials became the largest generational cohort in the United States workforce (1). Employees in the transportation industry are older than average; one-half of all workers are over the age of 45. The Transportation Research Board (TRB) Special Report 275 notes that more than 50% of the state DOT workforce is or will be eligible to retire in the next few years; this is twice the rate of the overall U.S. workforce (2). This will lead to a higher-than-average percentage of retirements at state DOTs within the next ten years, leaving DOTs in need of employees. New employees are likely to be members of the millennial

generation (born between 1980 and 2000), which have different needs and wants than their predecessors (3). There exist marked differences between the millennial and baby boomer generations. Millennials tend to have higher levels of education and the student debt to match. They expect their jobs to be meaningful, although they place higher value on extrinsic motivators (such as salary and benefits) than they do on intrinsic motivators (such as "making a difference"). Millennials look for flexibility in their jobs and place a high value on work-life balance, believing in "working to live" versus "living to work" (4). Millennials have the highest levels of job mobility of any generation, a trait that can be attributed to a desire for upward mobility and professional development, not a lack of interest in job security. To achieve their desires, they are willing to relocate, even in lateral moves, to increase their knowledge base (3).

1.2 Research Objectives

Major demographic changes will occur at state DOTs in the next decade, and these changes will impact how human resources (HR) departments approach recruitment, retention, and promotion of their employees. Civil engineers make up a large percentage of the DOT workforce. However, the expected growth within the transportation and construction industries will cause demand for civil engineers to increase by numbers well above the overall labor market, and enrollment in higher education civil engineering programs has not kept up with this demand (5). The lack of engineering graduates will make it difficult for DOTs to fill entry-level positions. It is also anticipated that there will be a high level of staff attrition through retirement. To complicate matters further, DOTs must compete with the private industry, which attracts employees typically with higher salary offers and more varied promotional opportunities. These issues are likely to cause critical staffing shortages at DOTs unless steps are taken to improve retention and recruitment levels. Therefore, this study focused on recruitment, retention, and promotion strategies within DOTs located within the USDOT Region 6, which is comprised of Louisiana, Arkansas, Texas, Oklahoma, and New Mexico.

2 BACKGROUND

The demand for civil engineers and civil engineering technicians is estimated to be significantly higher than projected demands for the overall civilian workforce. Demand for the overall workforce is expected to grow 7% between 2016 and 2026, while demand for civil engineers is expected to grow by 11% in the same timeframe (6). To effectively recruit civil engineers, it is important to understand the priorities of today's workers. Today's workers are interested in total rewards versus compensation. Total rewards include pay (e.g., base salary, variable pay, recognition, stock ownership), benefits (e.g., health care, retirement plan(s), paid leave), learning and development (e.g., training, career development, succession planning, performance management), and work environment (e.g., work-life balance, leadership, support in attaining goals) (7).

2.1 Challenges in Recruitment at DOTs

Previous research studies indicate that while millennials typically seek flexible, challenging, engaging, high-tech and secure employment, they do not see DOTs as innovative or a source of interesting work. DOTs do not utilize social media and other recruitment platforms as effectively as the private industry, and their procedures and methods have been slow to adapt (3). The outlook of "do more with less" takes precedence within current DOT workforce management procedures. Hiring processes can take between six weeks and six months, and DOTs do not have the ability in many cases to offer competitive salaries compared to private firms to both recruit and retain employees (8). The US Bureau of Labor Statistics reported in 2017 that civil engineers had an overall mean income of \$91,790. Conversely, civil engineers working for state government agencies had a mean income of \$85,480. When compared to salaries in closely-related fields such as architectural, engineering and related services (mean income of \$92,880) or other heavy and civil engineering construction (mean income of \$93,890), the salary differential for civil engineers working for state agencies becomes clear (9). Further, DOTs are often behind in invoking innovative workplace practices, such as telecommuting, child and elderly care, flexible work weeks, and transit incentives. Inflexibility in the staffing structure and limited training at DOTs can leave employees with fewer skills, especially in project management (8).

2.2 Challenges in Retention at DOTs

Employee outlook is changing; employees do not expect to stay in one place forever, and employers do not expect to retain employees forever. This increase in turnover rates results in increased costs (e.g., the cost of recruiting and hiring a new employee averages 25% of the employee annual salary plus another 24% of the cost of the benefits package), loss of institutional memory, and diversion of management and peers to train new hires. Nearly all DOTs express concerns about keeping adequate staff (11). Attracting and keeping millennial workers will require adjustment to the standard operation procedures of DOTs. The old method of "paying your dues" through repetitive work before becoming involved in interesting projects has been unsuccessful with the millennial generation. The mobility of the millennial generation can also cause conflict with the older generation, who have long tenures at DOTs and see mobility as a betrayal (3). The primary reasons most employees leave the DOT are due to current pay, future pay, and promotion opportunities. Private sector jobs are a serious concern for DOTs, and the factor that makes an employee most likely to be retained is future salary opportunities (11).

2.3 Human Resources Interviews

To prepare for this study, a short questionnaire was prepared for Region 6 HR staff. The surveys were conducted between August and November of 2017 and took approximately 30 to 45 minutes each to complete. The questions were divided into four main areas:

- 1. General information about the interviewee;
- Recruiting strategies and incentives;
- 3. Retention strategies and incentives; and
- Promotion programs and incentives.

All Region 6 DOT HR representatives identified engineers and engineer technicians as two of their most difficult positions to fill and positions that experience high turnover. As DOT employees are typically 80% engineers or associated technicians (11), and anticipated demand for these positions exceeds the anticipated demand of the overall workforce (6), this result is to be expected. Other difficult-to-fill and high turnover positions were identified as maintenance positions. Difficulties in recruiting and retaining these positions were attributed to the noticeable difference in wages when compared to private firms. During periods of low unemployment, private firms are willing to offer higher salaries to meet their current needs, while DOTs are often constrained by salary ranges that can be difficult to change. As an example, TxDOT and ODOT experience higher turnover of entry level maintenance and technicians when the oil and gas industry, which is a dominant industry in both Texas and Oklahoma, is booming and oil and gas companies can pay much more in hourly and salary wages than a state DOT.

3 METHODOLOGY

3.1 Current State of Practice

A comprehensive review of the current state of practice within Region 6 DOTs was undertaken with this study. Human resource documents, reports, and training materials were gathered from DOTs as well as the results from the interviews with DOT HR staff. These findings were used to assemble a comprehensive survey questionnaire to be distributed to current Region 6 DOT employees.

3.2 Employee Survey

The intent of the questionnaire was to quantify employee characteristics, outlooks, and understandings of recruitment and retention efforts within the DOT. The survey included 41 questions and was organized into the following sections:

- 1. General overview;
- 2. Hiring, retaining, and promoting; and
- 3. Perception of your DOT.

The survey was aimed at all current employees at Region 6 DOTs. Distribution was accomplished with varying degrees of success at each DOT within Region 6. The Arkansas DOT (ArDOT) and Oklahoma DOT (ODOT) received the survey and agreed to distribute it to all current employees via email after HR review. Due to their wide distribution, ArDOT and ODOT had the highest response rate. The Louisiana Department of Transportation and Development (LaDOTD) participated through completion of the HR interviews but did not participate in the employee survey. Texas DOT (TxDOT) participated in the HR surveys; however, after Hurricane Harvey, TxDOT was not available to fully distribute the employee survey and therefore an online state employee directory was utilized to send the survey to a portion of current TxDOT employees. Also, during this study, the state of New Mexico underwent a consolidation of all human resource activities for all state government agencies, including New Mexico DOT (NMDOT), into one central agency. Due to this consolidation, contacting HR staff was difficult and obtaining a full email distribution within the NMDOT was unavailable at the time. One-on-one outreach was the primary method of distribution to NMDOT employees through local contacts and advertisement at local conferences. Table 1 shows the participation numbers for each of the Region 6 DOTs.

State DOT	Number of Survey	Percent of Total	
	Participants		
Arkansas	481	43%	
Louisiana	0	0%	
New Mexico	30	3%	
Oklahoma	544	49%	
Texas	54	5%	

Table 1: Employee Survey Questionnaire Participation

3.3 Data Analysis

The DOT employee survey data were analyzed based on multiple objectives. First, the demographic data of participants were assembled. Then the survey data were organized into categories to determine the participants' hiring experience and opinion of their DOT (e.g., what drew the participant to the DOT, what factors keep them at the DOT). The results of the data analysis provide the basis for the discussion of results provided in this report.

4 EMPLOYEE SURVEY FINDINGS

4.1 Demographics

A total of 1,109 employee surveys were collected and reviewed (see Table 1 for further information). To understand the characteristics of the people that participated in the survey questionnaire, the following demographic data were collected:

- Gender and age;
- Years working for the DOT;
- Job classification;
- Level of education;
- Years working in their current position; and
- Years remaining until retirement.

From the survey data, the respondents were predominately male (67%). This skewed ratio is expected, as only approximately 20% of all currently employed civil engineers and 24% of currently-employed science and engineering technicians within the United States are female (12).

Respondents are predominantly new employees (33% have been at the DOT for 5 years or less) or employees nearing retirement (26% have been at the DOT for 20 or more years). This reflects the overall demographics of the current workforce, where most employees are at the beginning of their career (the millennial generation, currently the largest cohort in the workforce) or nearing retirement age (the baby boomer generation, currently the second largest cohort in the workforce). Employee age also reflects this

workforce demographic; 35% of respondents are 39 years of age or younger and 39% are 50 years of age or older. On average, 34% of all survey respondents are within five years of retirement eligibility (see Table 2), which corresponds with previous research and workforce reporting that indicates employees at DOTs are more than twice as likely as the overall construction workforce to be within ten years of retirement eligibility (2). Fifty percent of TxDOT respondents are within five years of retirement eligibility; however, it is unclear whether this is an accurate representation of the TxDOT employee population, or if this is due to the small sample size. ArDOT and ODOT respondents, who comprise 92% of all respondents, have a total of 28% and 30% of employees within 5 years of retirement eligibility, respectively.

Table 2: Years to Retirement Eligibility

State DOT	Currently	1-5	6-10	11-15	16-20	20+
	Eligible	years	years	years	years	years
Arkansas	14.1%	13.9%	13.3%	16.4%	12.7%	29.5%
New Mexico	3.3%	23.3%	6.7%	20.0%	16.7%	30.0%
Oklahoma	19.3%	10.8%	7.5%	11.9%	15.6%	34.7%
Texas	27.8%	22.2%	25.9%	14.8%	3.7%	5.6%
AVERAGE	16.1%	17.6%	13.4%	15.8%	12.2%	25.0%

The job classification of respondents varied greatly, which is likely due to the fact that ArDOT and ODOT distributed the survey department wide. Overall, the largest percentage of respondents were currently employed as maintenance (20%), administration (18%), engineer (16%), or engineering technician (10%). These four job classifications account for about two thirds of the total responses.

4.2 Participants' Hiring Experience

It is important to understand what first enticed current employees to consider employment at their DOT. Utilizing data from the literature review and the current state of practice, a list of typical recruiting factors include:

- Appealing job position;
- Competitive salary;
- Health benefits;
- Retirement benefits;
- Vacation/leave benefits;
- Promotion opportunities;
- Education benefits/tuition reimbursement;
- Professional development opportunities;
- Challenging work assignments;
- Many responsibilities;
- Stable employment;
- Diverse workforce;
- The desire to perform public service;
- Working as a state/government employee; and
- Relative or friend was already a DOT employee.

Employee survey respondents were asked to select the top three factors that initially attracted them to employment at their DOT. Table 3 illustrates the top five factors selected by DOT employees. The data show the percent of respondents that selected that factor for that ranking. Interestingly, competitive salary is not listed among the top five factors of any participating DOTs.

Table 3: Top Five Factors That Make Working for the DOT Attractive

No.	ArDOT	NMDOT	ODOT	TxDOT	ArDOT	NMDOT
1	Retirement	Retirement	Stable	Retirement	Retirement	Retirement
	benefits	benefits	Employment	benefits	benefits	benefits
	24.1%	18.9%	20.5%	19.1%	24.1%	18.9%
2	Stable	Stable	Health	Stable	Stable	Stable
	employment	employment	benefits	employment	employment	employment
	20.6%	16.7%	19.9%	17.3%	20.6%	16.7%
3	Health benefits 13.0%	Appealing job position 11.1%	Retirement benefits 15.7%	Health benefits 16.1%	Health benefits 13.0%	Appealing job position 11.1%
4	Vacation/leave	Health	Vacation/leave	Vacation/leave	Vacation/leave	Health
	benefits	benefits	benefits	benefits	benefits	benefits
	11.0%	10.0%	12.2%	10.5%	11.0%	10.0%
5	Public	Professional	Appealing job	Public	Public	Professional
	employee	development	position	employee	employee	development
	7.0%	8.9%	6.7%	8.6%	7.0%	8.9%

In addition to inquiring what originally attracted current employees to work for the DOT, respondents were asked how they heard about employment opportunities. Approximately 50% of all current DOT employees responding to the survey heard about the opportunity from a friend, relative, or colleague, 22% from a website or social media, and 9% from a college or university. For the most part, DOT employees find out about employment at a public transportation agency through friends, family, or colleagues that already work for the DOT.

4.3 Incentives

While each HR department stated that it provided some form of incentivization for its employees, the survey responses as to whether they had received any type of incentive varied greatly depending on the DOT. As Figure 1 indicates, 80% of TxDOT employees had received at least one incentive, but only 27% of NMDOT respondents and 23% of ODOT respondents reported receiving an incentive. As a follow up to this question, respondents were asked to quantify what type of incentive(s) they had received. The top incentives defined were recognition of work and salary increases.

80% Yes 70% ■ Not sure 60% ■ No 50% 40% 30% 20% 10% 0% **ArDOT ODOT TxDOT NMDOT**

Figure 1: Respondents Who Have Received Incentive(s)

4.4 Retirement from the DOT

Failure to retain staff costs DOTs time and money. Respondents were asked to determine their likelihood of leaving the DOT for the private sector within the next five years. Overall, 53% of respondents indicated they were unlikely to leave the DOT for the private sector within this time frame. For employees to receive the full benefit of DOT employment, it is necessary for them to stay at the DOT until retirement. With this goal in mind, respondents were asked to select the top three factors that would cause employees to leave the DOT for the private sector. Their options included:

- Better salary opportunities;
- Better health benefits:
- More flexible vacation/leave benefits;
- Better vacation/leave benefits;
- Better working conditions;
- More promotion opportunities;
- Better retirement benefits;
- Better education benefits/tuition reimbursement;
- More flexible work schedule;
- More challenging work;
- Improved work-life balance opportunities;
- More responsibilities;
- Less responsibilities for the same salary; and
- Diversity of the private firm's workforce.

From the respondents in each state, the top choice in all Region 6 DOTs was improved salary opportunities, while the second, third, fourth, and fifth choices included improved retirement benefits, improved health benefits, promotion opportunities, improved working conditions, and more vacation/leave benefits.

5 DISCUSSION OF RESULTS

Recommendations for best practices in recruitment, retention, and promotion of employees in DOTs were based on the results of the DOT employee survey. These recommended best practices are grouped into several categories, including social media, compensation, flexible work schedules, promotion and incentives, morale, agency perception, and employment terms. Each of these best practices are discussed in more detail in the following paragraphs.

5.1 Social Media and the Internet

The results of the employee survey show that 22% of respondents heard about their employment opportunity from a website or social media, making this the second-most likely source by which individuals discover a DOT job opportunity. Expanding a DOT's presence on the internet and social media is a relatively low-cost way to appeal to today's workforce. There are a number of easy methods to advertise a DOT job online, including:

- The DOT agency website;
- Government job sites (such as USAJobs.com);
- Organizational websites (such as the American Public Works Association, the American Society of Civil Engineers, and the Institute of Transportation Engineers);
- Job aggregator websites (such as Indeed.com, Glassdoor.com, and Jobs.com); and
- Social networking websites (such as Twitter, Facebook, and LinkedIn).

Reducing the standard restrictions on internet and social media access may make millennial employees more comfortable and increase their sense of well-being. DOTs need to increase their online presence and promote the ways they fulfill millennial desires, such as job security, development opportunities, and work-life balance (3).

5.2 Quantification of Total Employee Compensation

Retirement benefits, stable employment, and health benefits are factors that drew current employees to the DOT. Region 6 DOTs offer competitive benefits including sick and vacation leave, health-life insurance, and a retirement program that features matching funds by the state. These benefits, when added to the salaries offered, are often equal to or greater than the initial salaries offered by the private sector. With DOTs unable to match private salaries dollar for dollar, and their reputation as stolid and uninteresting places to work (3), it is vital that potential employees are made aware of the value of the benefits that come with DOT employment.

5.3 Flexible Work Schedules

To achieve a much-desired work-life balance, millennials prefer a flexible work schedule. They enjoy the freedom of setting their own schedule, which allows them to pursue other activities. Offering flexible working hours and allowing occasional telecommuting can provide motivation while working within the confines of a state agency. It is important to clearly define deadlines and work expectations to ensure the work is completed. Adjustments can be made to allow employees a non-traditional work week, but there are potential bureaucratic roadblocks. For example, previous New Mexico state officials allowed flexible work schedules for state employees, but the current state government requires state agency staff to work a standard five-day week. This has caused some employees to leave the NMDOT, illustrating the consequences of removing popular incentives.

5.4 Performance-Based Promotions and Incentives

Results of the employee survey indicate current employees do not feel that their work performance directly leads to incentives or promotions. A clear understanding of the promotion opportunities and when one can receive an incentive is lacking with the Region 6 DOTs. DOTs should consider structuring potential incentives and promotions for each employee on an annual basis so that they know exactly what they can achieve.

5.5 Employee Morale

A positive culture in the workforce is necessary for job satisfaction. Overall, employees indicated they are proud to be a state employee and are satisfied with their contribution to their agency and state. However, they also indicated morale is lower at their agencies than it was both one and five years ago (with the exception of TxDOT, whose overall responses indicated a more positive perception of their DOT than the other agencies participating). Improving morale contributes to employee longevity. Increasing communication between management and staff can have a positive impact on morale. The millennial generation was educated in a system that provides frequent feedback; they expect this level of feedback to follow in employment. Previous generations operated on the "no feedback is praise" system, which left employees to assume that their work was satisfactory unless they heard otherwise. However, for today's workforce, frequent feedback, both positive and negative, is needed to make an employee feel secure and happy in their work environment (4). The implementation of mentoring programs can assist in providing the frequent feedback millennial workers desire without overburdening management. In addition, coordination with educational programs to discuss preferred skills for students will help recent graduates more easily adjust to the workplace culture.

5.6 Public Agency Perception

The millennial generation sees employment at DOTs as rigid and stultifying rather than innovative and interesting. DOTs need to utilize their resources to highlight the various jobs available at DOTs and how their work will be seen and appreciated by future generations. Increasing their social media presence to promote their recent projects and successes would improve their image with younger generations. Furthermore, DOTs can utilize their position as public servants as an enticement for the millennial generation to be employed by DOTs in order to make a difference in society.

5.7 Licensure and Employment Terms

The pursuit of necessary licensure and training is important for employees, but steps must be taken to prevent employees from leaving once they achieve these goals. While DOTs cannot force someone to remain at their place of employment, DOTs need to consider using incentives or employment agreements to a set term of continuous employment in return for certain training and development opportunities. Adding these types of criteria, in addition to implementing promotions contingent upon receipt of a license, would increase retention while encouraging employees to improve their skill set.

6 CONCLUSION

Although state transportation agencies differ in many elements, they all face complex workforce challenges: the retirement of aging workers, lack of skilled professionals, an influx of younger workers with different work attitudes and perceptions, and the inability to compete salary wise with private sector firms. Innovative practices proposed to improve recruitment and retention of DOT employees include increased presence on social media and the internet, clearly explaining and quantifying employee benefits, implementing flexible work schedules, basing promotions and incentives on performance, improving morale, elevating agency perception, and implementing terms for employee certifications and licensure obtained while working at the DOT. By implementing some or all these recommendations, DOTs may be able to improve the recruitment and retention of valuable employees, thus establishing a consistent workforce for the future.

This research provided significant insights on recruitment and retention practices to address workforce needs in state DOTs. However, there are some limitations to this study. The data provided is limited to Region 6 DOTs. In addition, difficulties in distribution of the data collection tools led to data being provided predominately by two of the five Region 6 DOTs. Additional and variable findings may be seen from other DOTs across the U.S., and future research on this topic should expand to more DOTs in other regions. In the future, the valuable information provided in this study can be formulated into a decision-support tool for DOTs to use in terms of recruiting and retaining quality employees. By reviewing the findings from each Region 6 DOT, each state agency can compare and contrast its current workforce situation. Expanding this research to analyze the effectiveness of recommended HR practices could assist in further understanding the success of these strategies for state agencies.

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