

## Investing in Engineering Talent

### Objectives

- Examine challenges in hiring, retention and engagement of engineering employees
- Document the challenges in knowledge transfer and management processes
- Provide best practices and recommendations for implementation

### Benefits

- Lays groundwork for creating effective workforce management, and transfer and retention of knowledge strategies
- Addresses current workforce attraction and retention challenges WisDOT faces
- Positions WisDOT as an attractive employer for a multigenerational engineering and technically skilled workforce

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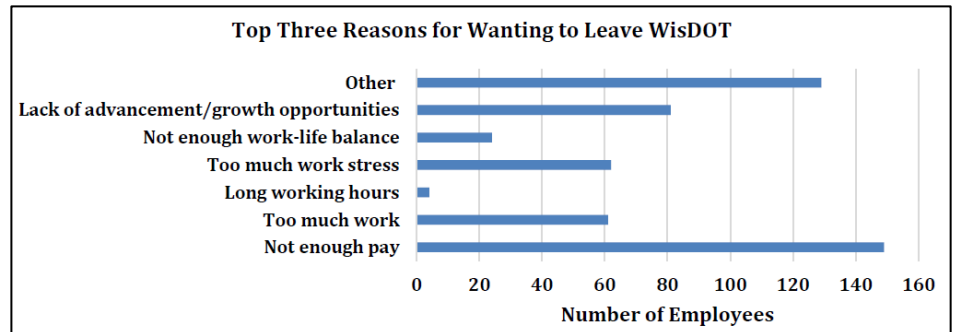
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### Background

State transportation departments have been facing heightened pressures to attract, engage, and retain multigenerational qualified engineers and technical staff due to a combination of factors including high demand for engineers, decreasing graduation rate of civil engineers, budget constraints, the retirement wave and varying needs and priorities of a multigenerational workforce.

The current project aimed to examine WisDOT's twin challenges related to workforce management strategies and the retention and transfer of specialized, technical knowledge for engineering and technical professionals within the Division of Transportation System Development (DTSD). Specifically, the research project examined WisDOT DTSD employees' perceptions of practices related to attraction (including hiring and onboarding), retention (including satisfaction with training, career development, pay, varied benefits, e.g., flex work and work-life balance), attrition (including retiring and retirement-eligible employees), and knowledge management and transfer strategies to recommend an implementation plan based on data analysis and peer DOT's best practices.



*Surveyed DTSD employees' reasons for wanting to leave WisDOT*

### Methodology

Researchers undertook a literature review of transportation engineering workforce, examined different types of institutional knowledge programs and practices related to highway and bridge improvement and maintenance programs, challenges in maintaining institutional knowledge, and the current knowledge transfer process and benchmarked these practices against peer DOTs. The team examined DTSD's attraction, retention, and engagement practices through the perspectives of their multigenerational technical staff at different career stages. Lastly, they examined the engineering faculty's assessment on student readiness as well as recent civil engineering students and graduates' expectations, preferences, and attitudes toward engineering

***“WisDOT’s investments in implementing the recommendations for knowledge retention and talent management are expected to significantly improve the agency’s success in its operations, financial health and workforce for years to come.” – Romila Singh, Ph.D., University of Wisconsin - Milwaukee***

careers. Internship and placement data from several civil engineering college programs were also analyzed.

## Results

Through their analysis, researchers found 49% of newly hired employees with less than five years of DTSD tenure envisioned finishing their careers at WisDOT. Reasons for choosing to work at WisDOT: a generous benefits package, work-life balance even with less competitive salaries, and reputation for learning the right way to do things. They want mentors and coaches for new hires. They also expressed a need for improvement in application materials, interview process, and onboarding.

Another finding is the relatively low WisDOT salaries compared to private sector and peer DOTs (e.g., MN, MI) which could effectively price out WisDOT from hiring their preferred civil engineering candidates. There is evidence that workforce and staffing challenges at DTSD are due to uncompetitive pay, high turnover of key staff with expertise that’s not been captured and inadequate succession planning.

Another concern is the decreasing graduation rates of civil engineers and technically skilled applicants at national and regional levels that serve as the applicant pool for WisDOT. This will pose a danger of leaving DTSD’s critical civil engineering and other technical roles unfilled.

Findings show that civil engineering and technical students’ expectations from their first jobs include competitive and fair salaries, career growth and advancement opportunities, opportunities to work with cutting edge technology, hands-on field experiences, opportunities to work on sustainable infrastructure, smart cities, and reducing the environmental impact of transportation systems, and work-life balance, job stability, and security. There was a significant overlap between the expectations and career goals of civil engineering students and those from technical colleges.

## Recommendations for Implementation

Researchers used the results to offer the following evidence-based recommendations:

- Invest in knowledge management by creating a comprehensive succession planning and knowledge management program.
- Increase investment in employee engagement, retention and development efforts.
- Increase financial and administrative support for marketing and storytelling to attract new talent.
- Strengthen operational support by investing in workforce development professionals.
- Engage leadership at all levels to invest in their employees’ professional development.

Interested in finding out more?  
Final report is available at:  
[WisDOT Research website](#)

This brief summarizes Project 0092-24-16  
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Policy Research Program