



Transportation Consortium of South Central States

Key Points

Project Number:
17PPLSU07

Start Date:
05/08/2017

End Date:
11/08/2018

Principal Investigator(s):
Dr. Christofer Harper
Louisiana State University
Email: charper@lsu.edu

Dr. Susan Bogus
University of New Mexico
Email: sbogus@unm.edu

Dr. Raghava Kommalapati
Prairie View A&M University
Email: rrkommalapati@pvamu.edu

Dr. Doeun Choe
Prairie View A&M University
Email: dochoe@pvamu.edu

Lead Institution:
Louisiana State University

Funds Requested to UTC:
\$114,500

Funding Source(s):
Tran-SET
Louisiana State University
Louisiana Transportation Research
Center (LTRC)
University of New Mexico
Prairie View A&M University

Total Project Cost:
\$204,501

Recruiting, Retaining, and Promoting for Construction Careers at Transportation Agencies

Brief Project Description

This research study intends to investigate the current trends in workforce shortages and changes, to explore ideals and expectations of newer and future generations, and to review company loyalty along with current hiring and retention practices, so that strategic guidance can be developed based on how to hire new and younger generations of employees as well as minority and underrepresented individuals that will want to work and continue to work at a transportation agency for many years. This project will provide solutions for workforce development strategies while acknowledging the limitations that are commonly seen at state DOTs, such as limited budgets and the inability to offer higher salaries than private entities. This project will also implement various workforce development, outreach, and education programs to disseminate the results and put the findings in action.

Problem Statement

Construction is a labor-intensive industry, meaning that employees are the most valuable resource to construction firms and organizations. Yet, challenges exist in today's workforce in terms of recruiting and retaining quality employees as well as attracting individuals from minority and underrepresented groups. Currently, the aging workforce of the United States along with the acknowledgement that newer generations of potential transportation workers have much different ideals, beliefs, and expectations than previous generations, reveals that recruitment and retention issues should be a primary concern for public transportation organizations such as state departments of transportation (DOTs). Gone are the days that a firm hires individuals and those people work their entire career at that firm.

Smart, ambitious, and highly motivated employees are difficult to find and even more difficult to keep, especially when considering individuals for technician positions such as DOT engineers, engineering technicians, maintenance personnel, and information technology professionals. These difficulties are not just a construction industry problem, but a more widespread issue for industries that require career technical education

fields. Qualified personnel have to be compensated well and require work that develops their skills and matches their personal interests. Since engineering and technical employees require challenging and rewarding work, strategic hiring and retention plans must be employed to successfully recruit and retain each of these types of workers.

In order to manage the dynamics of meeting today and the future needs of construction and maintenance demands that expects an ever shrinking and changing workforce, state DOTs need robust workforce management strategies and guidance that can attract, train, retain, and promote engineers, technicians, and managers needed to construct and maintain the U.S. highway infrastructure now and into the future. This study will develop a decision-support tool focused on strategic guidance to attract, retain, and promote the employment of individuals at public transportation agencies, which state DOTs can use to hire and keep valuable human resources from current as well as future generations of workers including minority and underrepresented individuals. Using the decision-support tool and guidebook, the results will be utilized to conduct outreach for workforce development to encourage individuals to consider employment in the transportation agency workforce.

Objective

To ensure that this research satisfies the need for transportation agency recruitment and retention guidance, the following research objectives have been established:

- Determine the best practices employed by transportation agencies, other public agencies and organizations, and private firms that lead to recruitment of qualified transportation agency employees;
- Assess current best practices that are used to retain qualified and experienced transportation agency employees;
- Identify potential institutional barriers that exist within transportation agencies that limit the recruitment and retention of high quality employees; and
- Develop outreach, educational, and workforce development hands-on activities to expose, and engage bright young minds from underrepresented groups to broader fields of transportation and the associated careers.

Intended Implementation of Research

Technology Transfer

With the research complete at the end of year one, the research team will move into the implementation phase by disseminating the research results through conferences, workshops, meetings, website, webinars and distance learning courses. Dissemination of the research results will be targeted to the main audience of decision makers within DOTs who have the responsibility to recruit, hire, and retain employees. The research team will present the results at the TRB Annual Meeting to reach as many DOT personnel as possible. In addition, the research team will also disseminate the research results more thoroughly in Region 6 by participating in local or regional transportation conferences and coordinating with the Local Technical Assistance Programs (LTAP) in each state in Region 6.

Education, Workforce Development, and Outreach

The focus of activities for workforce development is to inform and encourage new and limited experience professionals to inquire about and work towards a position with a state DOT. Additionally, the workforce development plan will work with current DOT employees to enhance their skills to achieve promotions and other incentives within the DOT so that



Transportation Consortium of South Central States

these employees continue their employment with the DOT long term. The workforce development activities will include guidance on recruiting new employees from local community colleges and universities as well as suggested training materials for employee training that could be developed by state LTAP programs.

The focus of the outreach activities will be to encourage students to consider a future in the transportation industry, especially with state DOTs. The research team will focus on outreach activities for high schools and incoming college freshman to promote transportation as a broad field that offers a wide variety of careers at local, state and federal transportation related agencies. The research team plans to offer a variety of outreach opportunities, including summer internships to underrepresented minority college students, and participation in summer transportation institutes. The United States Department of Transportation (USDOT) through the Federal Highway Administration (FHWA) has been supporting National Summer Transportation Institute (NSTI) programs specifically to improve the pipeline for minority students into transportation work force.

In addition, the research team will develop a K-12 pipeline program to expose and engage underrepresented groups of high school students and incoming college freshman to broader areas of transportation including engineering, management, and other transportation related careers. This will be accomplished through a careful selection of transportation related hands on activities and embedded lectures modules that will not only educate but also generate interest towards transportation related careers. Comprehensively, the research team proposes to develop specific transportation modules for use in educating students. It has been reported that the shortage of motivating hands-on projects in K-12 public education turns students away from careers in engineering. Hands-on activities are found to be five times as effective and motivating as learning by lecture or reading.

The research team will work to develop training materials that can be used for employee training workshops and for presentation in lectures in undergraduate construction and engineering classes. Three (3) to four (4) transportation modules will be developed that focus on hands-on activities that will be embedded with brief lectures highlighted by different transportation agency careers. Each module includes two-hour hands-on modules along with one or two short drop-in lectures. These activities will be offered through some of the existing summer outreach programs at Prairie view A&M University (PVAMU) such as Minority Introduction to Engineering and Science (MITES) which is offered through Pre-College Institute (PCI) for high school students, Summer Research Experiences for high school and college students and the College of Engineering Enhancement Institute (CE2I) offered exclusively for incoming engineering freshman students. A comprehensive review will be done to identify some of the most effective existing modules and activities based on the age group of participating students. Some of these activities may include bridge building, magnetic levitation, race cars, and solar and wave cars.

Anticipated Impacts/Benefits of Implementation

The research team believes that it will discover and fully describe several viable strategies for recruitment and retention of qualified DOT employees. The research team will work closely with all of the DOTs within Region 6, particularly the Louisiana Department of Transportation and Development (LaDOTD), the New Mexico Department of Transportation (NMDOT), and the Texas Department of Transportation (TxDOT) as these are the states represented by the PI and the Co-PIs. The outcomes of the project will be a set of recruiting and retention strategies that DOTs can use to hire and keep a variety of employee types. It is anticipated that these strategies will vary as what works for recruiting and



Transportation Consortium of South Central States

retaining a civil engineer fresh out of college may not work for recruiting and retaining an experienced information technology specialist.

Weblinks:

<http://transet.lsu.edu/research/research-in-progress/>

<https://rip.trb.org/view/1467192>