RECRUITING AND RETAINING QUALIFIED WORKERS AT STATE TRANSPORTATION AGENCIES

Christofer Harper, PhD

Transportation Consortium of South Central States
Regional University Transportation Center

Project No. 17PPLSU07
Agenda

- Research team
- Problem statement
- Workforce challenges
- Study objectives
- Findings
- Recommendations
- Next Steps
Research team

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Problem statement

State Departments of Transportation currently face various workforce challenges in recruiting and retaining a quality and highly-valued workforce necessary to function properly.
Workforce challenges

Demographic Changes

• 15% of the current DOT workforce eligible to retire now (60 years or older)

• Another 36% eligible to retire in the next 5 to 10 years

• (50-59 years)
Workforce challenges

Generational Differences

- Workforce generations have different beliefs and motivators
  - Work ethics and values
  - Organizational commitment
  - Career goals
  - Feedback and rewards
  - Work-life balance

- As of 2016, Millennials represent the largest generation cohort in the civil workforce
Use of Technologies

- The nature and skills of the DOT workforce are changing due to the use of emerging technologies
- More computer science and information technology knowledge and skills will be needed
Workforce challenges

**Demand on the Transportation Industry**

- Number of civil engineers employed in 2016: 303,500
- Number of civil engineers needed in 2026: 335,700
- Higher education enrollment forecasts an increase in civil engineers of less than 10%

**Anticipated Job Growth 2016-2026**

- US Civilian Labor Force ▼ 7.7%
- Maintenance ▼ 7.9%
- Civil Engineering Technicians ▼ 9%
- Civil Engineers 11%

U.S. Bureau Labor Statistics, 2018
Other workforce challenges

- Decreased employee longevity
- Private sector competitive pay
- Absence of adequate leadership
- Limited employee loyalty
- Lack of skilled talent
- Replacing retiring experience and knowledge
Study objectives

- Determine current practices employed by transportation agencies, other public agencies and organizations, and private firms that lead to recruitment of qualified transportation employees.

- Assess current practices used to retain qualified and experienced transportation agency employees.

- Develop outreach, educational, and workforce development hands-on activities to expose and engage bright young minds from underrepresented groups to transportation and associated careers.
Findings

- Data collection included:
  - Literature Review
  - Interviews with HR staff and management at five state DOTs
  - Survey questionnaire of current employees at four state DOTs
Interviews with DOT HR personnel

HR INTERVIEW PARTICIPANTS

ArDOT:
- 2
  - HR Personnel Officer
  - Talent Acquisition Coordinator

LADOTD:
- 1
  - HR Director

NMDOT:
- 2
  - HR Director
  - HR Manager

ODOT:
- 1
  - Talent Manager

TxDOT:
- 3
  - Talent Acquisition Coordinator
  - Recruitment Specialist
  - Recruitment Specialist
Survey responses

Collected 1,109 total survey responses from current employees at Arkansas, New Mexico, Oklahoma, and Texas DOTs.

Survey responses per state DOT:

- Oklahoma: 544
- Arkansas: 481
- Texas: 54
- New Mexico: 30
Survey responses per work experience at the DOT

- Less than 1 yr: 77
- 1-5 yrs: 283
- 6-10 yrs: 195
- 11-15 yrs: 147
- 16-20 yrs: 121
- 20+ yrs: 285

Survey responses per age group

- 18-29 yrs old: 126
- 30-39 yrs old: 261
- 40-49 yrs old: 273
- 50-59 yrs old: 340
- 60 yrs old and wiser: 92
- Prefer not to answer: 17
Survey responses per DOT position

- Research: 5
- Planning/ROW: 12
- Laborer/Aide/Helper: 14
- Accountant: 15
- Environmental: 30
- Inspector: 33
- Operations: 34
- Transportation: 39
- Surveyor: 69
- Upper Management: 92
- Project Management: 112
- Engineer Technician: 188
- Engineer: 227
- Administration: 230

Age groups:
- 18-29 yrs old
- 30-39 yrs old
- 40-49 yrs old
- 50-59 yrs old
- 60 yrs old and wiser
Methods of recruiting

Response frequency

- Less than 1 yr
- 1-5 yrs
- 6-10 yrs
- 11-15 yrs
- 16-20 yrs
- 20+ yrs

- Relative/friend/colleague
- Website/social media
- College/university
- Job Fair
- Other
Methods of recruiting

**Maintenance**

- **Less than 1 yr**
- **1-5 yrs**
- **6-10 yrs**
- **11-15 yrs**
- **16-20 yrs**
- **20+ yrs**

**Response Frequency**

- Relative/friend/colleague
- Website/social media
- College/university
- Newspaper/magazine
- Recruiter
- Job Fair
- Do Not Remember
- Other

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**Engineers**

- **Less than 1 yr**
- **1-5 yrs**
- **6-10 yrs**
- **11-15 yrs**
- **16-20 yrs**
- **20+ yrs**

**Response Frequency**

- Relative/friend/colleague
- Website/social media
- College/university
- Newspaper/magazine
- Recruiter
- Job Fair
- Do Not Remember
- Other
### Primary reasons current employees were attracted to working for a state DOT

<table>
<thead>
<tr>
<th>18-29 yrs old</th>
<th>30-39 yrs old</th>
<th>40-49 yrs old</th>
<th>50-59 yrs old</th>
<th>60 yrs old and wiser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health benefits</td>
<td>23%</td>
<td>Health benefits</td>
<td>21%</td>
<td>Health benefits</td>
</tr>
<tr>
<td>Appealing job position</td>
<td>15%</td>
<td>Vacation/leave benefits</td>
<td>16%</td>
<td>Retirement benefits</td>
</tr>
<tr>
<td>Retirement benefits</td>
<td>15%</td>
<td>Retirement benefits</td>
<td>16%</td>
<td>Stable employment</td>
</tr>
<tr>
<td>Stable employment</td>
<td>13%</td>
<td>Stable employment</td>
<td>14%</td>
<td>Vacation/leave benefits</td>
</tr>
<tr>
<td>Vacation/leave benefits</td>
<td>12%</td>
<td>Appealing job position</td>
<td>8%</td>
<td>Appealing job position</td>
</tr>
</tbody>
</table>
Main factors influencing employees to stay at DOT

<table>
<thead>
<tr>
<th>18-29 yrs old</th>
<th>30-39 yrs old</th>
<th>40-49 yrs old</th>
<th>50-59 yrs old</th>
<th>60 yrs old and wiser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary opportunities</td>
<td>37%</td>
<td>Salary opportunities</td>
<td>36%</td>
<td>Salary opportunities</td>
</tr>
<tr>
<td>Promotion opportunities</td>
<td>18%</td>
<td>Promotion opportunities</td>
<td>15%</td>
<td>Health benefits</td>
</tr>
<tr>
<td>Health benefits</td>
<td>11%</td>
<td>Health benefits</td>
<td>12%</td>
<td>Retirement benefits</td>
</tr>
<tr>
<td>Vacation/leave benefits</td>
<td>7%</td>
<td>Retirement benefits</td>
<td>9%</td>
<td>Promotion opportunities</td>
</tr>
<tr>
<td>Retirement benefits</td>
<td>6%</td>
<td>Vacation/leave benefits</td>
<td>7%</td>
<td>Vacation/leave benefits</td>
</tr>
</tbody>
</table>
Likelihood of staying at the DOT

**Stay at DOT for the next five years**

- **18-29 yrs old**: 50% Most likely, 26% Not sure, 24% Probably not
- **30-39 yrs old**: 49% Most likely, 30% Not sure, 21% Probably not
- **40-49 yrs old**: 56% Most likely, 23% Not sure, 21% Probably not
- **50-59 yrs old**: 55% Most likely, 18% Not sure, 26% Probably not
- **60 yrs old and wiser**: 59% Most likely, 15% Not sure, 26% Probably not

**Stay with DOT until retirement**

- **18-29 yrs old**: 81% Most likely, 9% Not sure, 10% Probably not
- **30-39 yrs old**: 72% Most likely, 13% Not sure, 14% Probably not
- **40-49 yrs old**: 87% Most likely, 6% Not sure, 7% Probably not
- **50-59 yrs old**: 93% Most likely, 4% Not sure, 3% Probably not
- **60 yrs old and wiser**: 95% Most likely, 2% Not sure, 3% Probably not
Factors influencing employees to leave the DOT for private firms

<table>
<thead>
<tr>
<th>18-29 yrs old</th>
<th>30-39 yrs old</th>
<th>40-49 yrs old</th>
<th>50-59 yrs old</th>
<th>60 yrs old and wiser</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Better salary opportunities</td>
<td>47%</td>
<td>Better salary opportunities</td>
<td>48%</td>
<td>Better salary opportunities</td>
</tr>
<tr>
<td>Promotion opportunities</td>
<td>17%</td>
<td>Promotion opportunities</td>
<td>17%</td>
<td>Promotion opportunities</td>
</tr>
<tr>
<td><strong>3</strong> Improved working conditions</td>
<td>7%</td>
<td>Improved working conditions</td>
<td>8%</td>
<td>Better health benefits</td>
</tr>
<tr>
<td>More challenging work</td>
<td>5%</td>
<td>Better health benefits</td>
<td>6%</td>
<td>Improved working conditions</td>
</tr>
<tr>
<td><strong>5</strong> Better health benefits</td>
<td>4%</td>
<td>More flexible work schedule</td>
<td>4%</td>
<td>More flexible work schedule</td>
</tr>
</tbody>
</table>
State of DOT employee morale

Morale at the DOT today compared to one year ago

- Morale is higher today than 1 year ago
- Not sure
- Morale is lower today than 1 year ago
- Did not work for DOT 1 year ago

Morale at the DOT today compared to five years ago

- Morale is higher today than 5 years ago
- Not sure
- Morale is lower today than 5 years ago
- Did not work for DOT 5 years ago
Working for a public agency

I am proud to be a state DOT employee

Response Frequency

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Yes</th>
<th>Not sure</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29 yrs old</td>
<td>90%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>30-39 yrs old</td>
<td>80%</td>
<td>16%</td>
<td>4%</td>
</tr>
<tr>
<td>40-49 yrs old</td>
<td>85%</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>50-59 yrs old</td>
<td>88%</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>60 yrs old and wiser</td>
<td>88%</td>
<td>4%</td>
<td>8%</td>
</tr>
</tbody>
</table>

I make a contribution as a public agency employee

Response Frequency

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Yes</th>
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<th>No</th>
</tr>
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<tbody>
<tr>
<td>18-29 yrs old</td>
<td>85%</td>
<td>9%</td>
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<td>11%</td>
<td>3%</td>
</tr>
<tr>
<td>40-49 yrs old</td>
<td>89%</td>
<td>8%</td>
<td>3%</td>
</tr>
<tr>
<td>50-59 yrs old</td>
<td>93%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>60 yrs old and wiser</td>
<td>91%</td>
<td>7%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Initial recommendations

- Quantify offered benefits along with salary
- Use of social media and the internet as a recruiting tool
- Offer flexible work schedules and work-life balance
- Promote the importance of working for a public agency
- Improve department morale
- Require commitment from employees that obtain license/certificate/degree with the DOTs support
Next steps

- Develop a recruiting and retention framework that provides DOTs with select strategies based on the position
  - Breaking data down by position, age, and years of DOT experience

- Investigate the use of emerging and innovative technologies to supplement the workforce during workforce shortages
  - Design modeling and visualizations, unmanned aerial systems, instrumentation devices, etc.

- NCHRP Project 02-25: Workforce 2030: Recruiting and Training the Next Generation Transportation Construction Workforce
  - Project is a result of collaboration between AASHTO Committee on Construction and TRB Committee AFH10 Construction Management
Thank you!

Any Questions?

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