Workforce Management in Transportation

October 5, 2021

@NASEMTRB
#TRBwebinar

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- 1.5 Professional Development Hour (PDH) – see follow-up email for instructions
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#TRBwebinar

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RCEP
REGISTERED CONTINUING EDUCATION PROGRAM

Learning Objective

Identify how to develop or refine an agency workforce plan

NCHRP 20-68D
"US Domestic Scan Program"

Domestic Scan 19-02

"Leading Practices in Strategic Workforce Management by Transportation Agencies"

Findings, Conclusions and Recommendations

NCHRP Panel's General Guidance to the Scan Team

"This scan will examine innovative strategic workforce management strategies DOTS are implementing, particularly those activities that can be quickly adopted and implemented to recruit, develop, and retain the workforce they need today and for the future…

…The scan team will consider common elements of strategic workforce management, such as skills metrics and forecasting, succession planning, employee development, employee wellness and engagement, employee recognition, recruitment, retention, diversity and inclusion, and change management. Outsourcing of functions historically performed within an agency may also be considered. The team must consider agency cultural differences and the context in which the strategic workforce management is applied."

NCHRP Panel's General Guidance to the Scan Team (Cont.)

" *This scan … is likely to be integrated with other NCHRP activities related to workforce development and knowledge management.   The scan results are likely to be of interest to all of AASHTO committees but particularly to the AASHTO Committees on Agency Administration, Human Resources, Civil Rights, and Knowledge Management, as well as FHWA's Center for Transportation Workforce Development.* "

Scan 19-02 Team Members Home States
And Invited Agency States

WA · OR · MT · ND · ID · SD · WY · NE · NV · UT · CO · KS · CA · AZ · NM · OK · TX · HI · AK · MN · WI · MI · IA · IL · IN · OH · MO · KY · WV · AR · TN · MS · AL · LA · VT · NH · ME · NY · MA · RI · CT · PA · NJ · DE · MD · DC(FHWA) · VA · NC · SC (SME) · GA · FL

Team Member Home State

Invited Agency State

Leading Practices in Strategic Workforce Management by Transportation Agencies
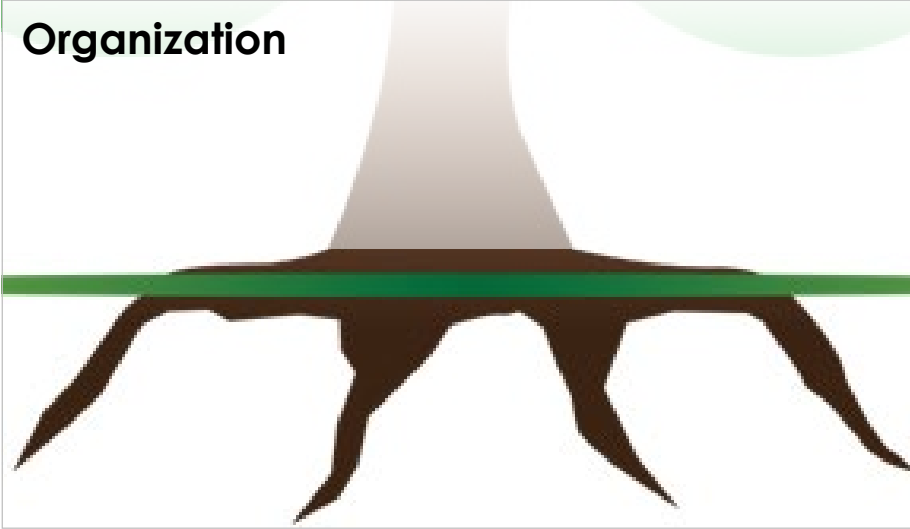
Strategic Workforce Plan Model

Findings

Conclusions

Recommendations
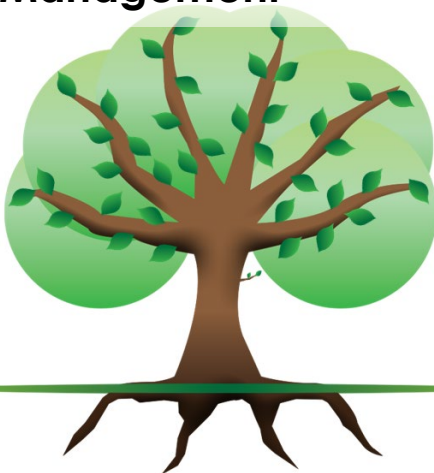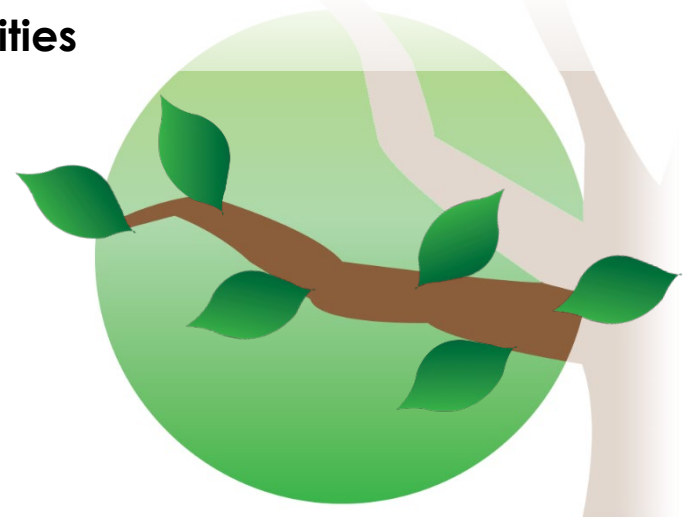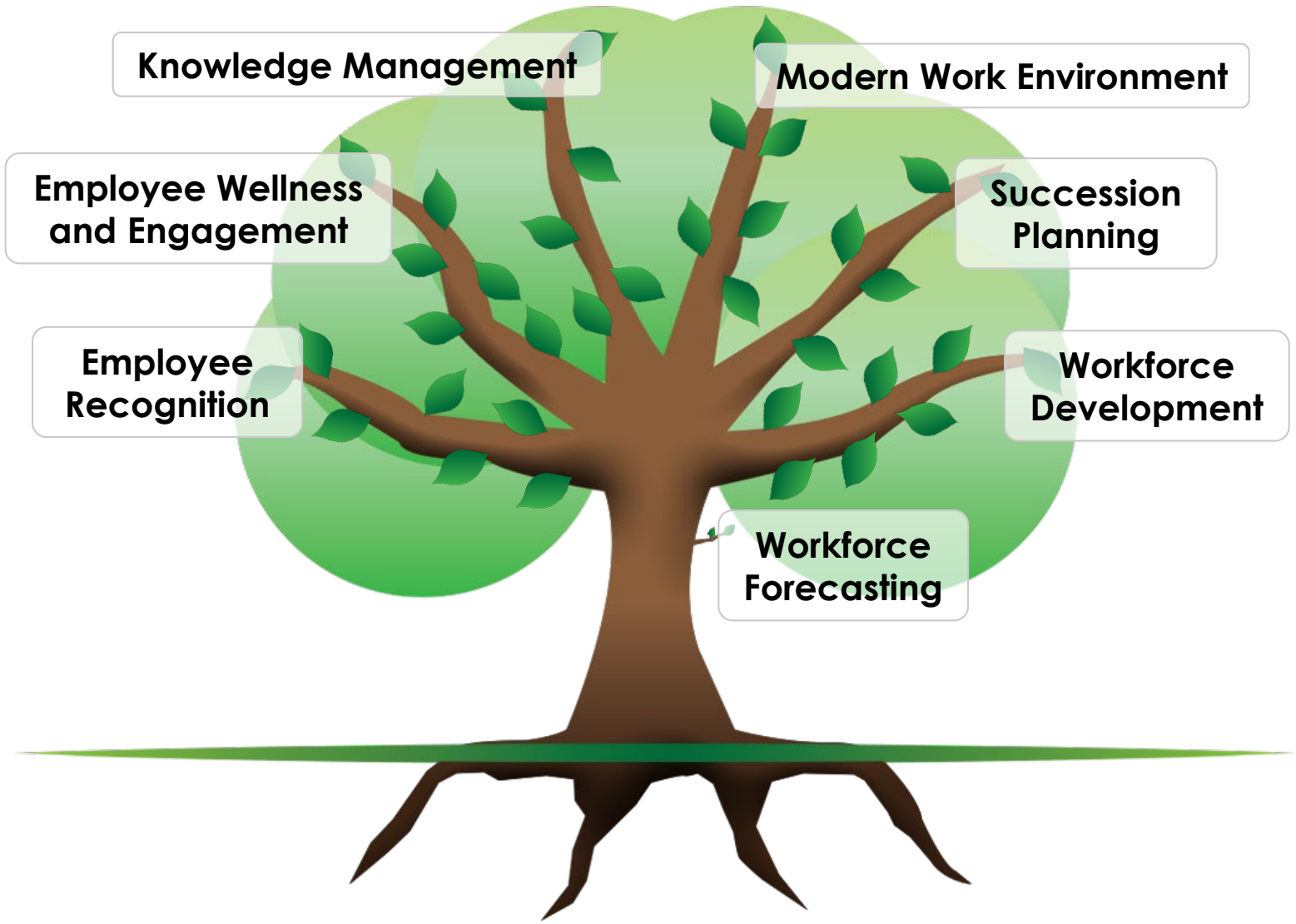
Workforce Management Vision

Organization

Workforce
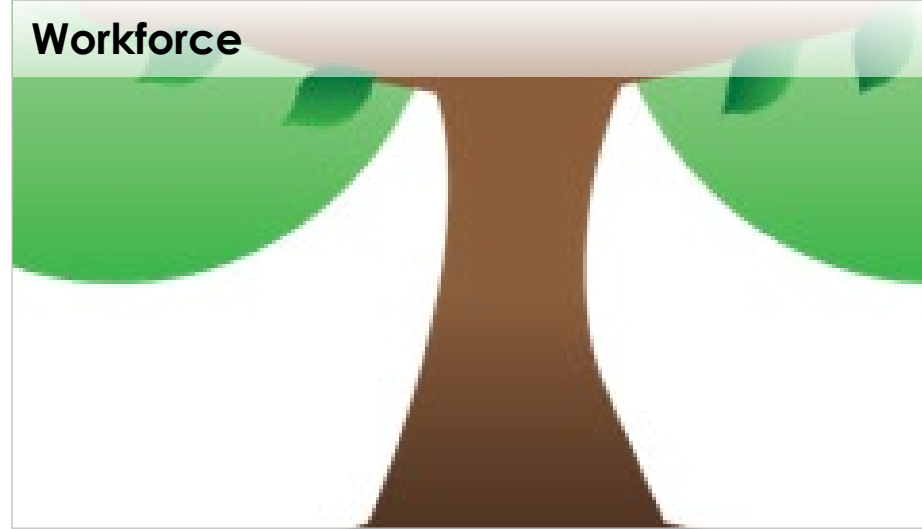
Workforce Management

Activities

Plan Elements

Knowledge Management

Modern Work Environment

Employee Wellness and Engagement

Succession Planning

Employee Recognition

Workforce Development

Workforce Forecasting

Modern Work Environment

Flexible Hours / workweeks

Infants in the workplace

Tele-commuting

Ergonomic work stations

Team rooms

Break rooms

Virtual workplace

BYOD (Bring Your Own Device) to work

Succession Planning

Strategic Recruitment

Employee Retention Program

Stretch Assignments

Mentoring / Coaching

Resources / References

Strategic Workforce Plan Model

AASHTO / NCHRP

U.S. Domestic Scan Program
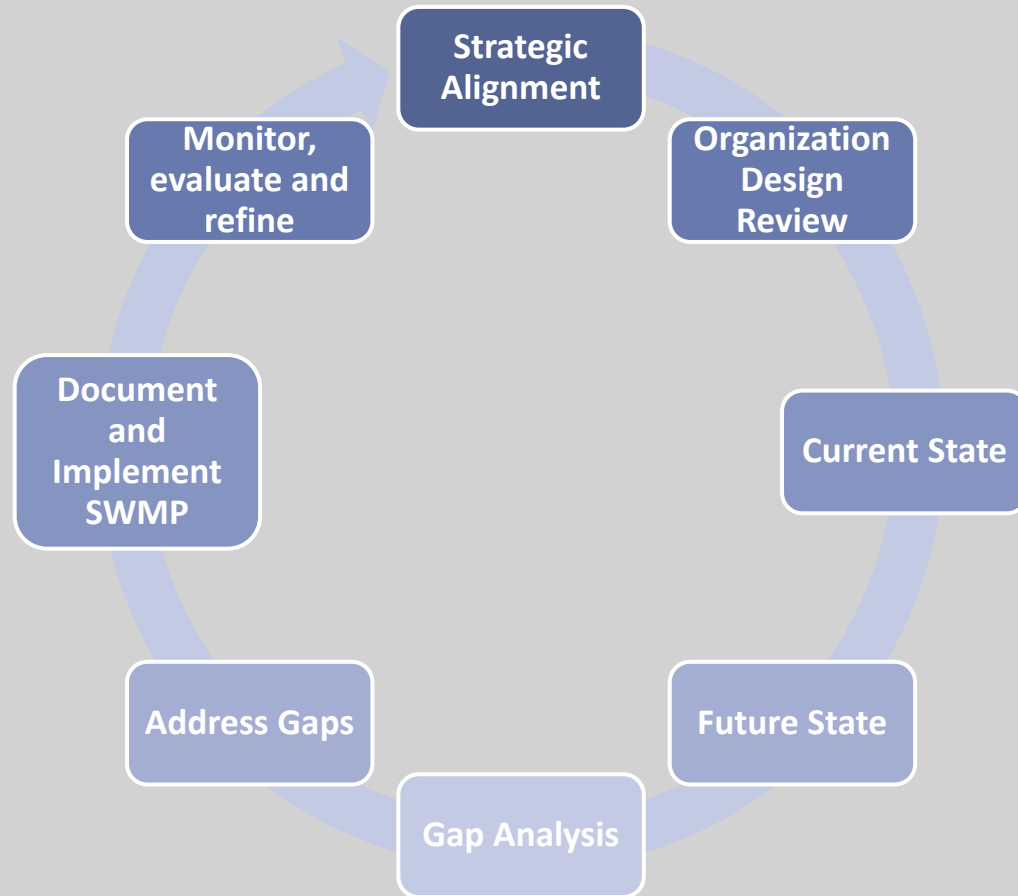
Select Findings

It is important to have key metrics to measure the plan's success.

Peer exchange is a good way to kick off a workforce management plan.

Workforce asset management – employees are most valuable asset, if not retained we lose that investment.

Leadership plays a key role in workforce management.

Conclusions

Data Driven

Data-driven decision-making helps drive strategic plan including strategic workforce initiatives.

Peer exchanges

Peer exchanges supporting strategic workforce planning should be promoted.

Asset Management

Approach like asset management to help leadership understand - e.g. business value analysis, quantify cost of investment in hiring/talent management.

Effective leadership

Needs to be promoted through training and feedback.

Recommendations

Develop Business Case

- ✓ Develop a long term, durable strategy supported by leadership even through turnover/changing circumstances.

Recommendations

People Resource

- ✓ Recognize people are the most important resource.

- ✓ Planning and managing that resource is key to organization's success.

- ✓ Prioritize workforce management with the same sense of urgency as traditional enterprise asset management.

Recommendations

Identify Strategic Workforce Management Champion

✓ Identify who is responsible for strategic workforce management (make sure it has a home – who is champion; based on context).

Recommendations

Establish an AASHTO Workforce Management Task Force

- ✓ Review role of workforce asset management and its function in organizations.

- ✓ Incorporate strategic workforce management into AASHTO formal leadership development.

- ✓ **Note: Transportation Workforce Management Sub-Committee established by AASHTO Committee on Agency Administration.**

Recommendations

Publish Strategic Workforce Management Guidebook

✓ AASHTO should develop and publish a strategic workforce management guidebook for DOTs.

NCHRP 20-68D
"US Domestic Scan Program"

Domestic Scan 19-02

"Leading Practices in Strategic Workforce Management by Transportation Agencies"

Findings, Conclusions and Recommendations

STRATEGIC PLAN

STRATEGIC PLAN

VISION
Washington travelers have a safe, sustainable and integrated multimodal transportation system.

MISSION
We provide safe, reliable and cost-effective transportation options to improve communities and economic vitality for people and businesses.

VALUES
- Safety
- Engagement
- Innovation
- Integrity
- Leadership
- Sustainability

GOAL AREAS
- Inclusion
- Practical Solutions
- Workforce Development

Safety

Innovation

Engagement

Integrity

Leadership

Sustainability

INCLUSION
- Inclusive Workforce
- Diverse Workforce
- Diverse Business Spending
- Create Opportunity
- Community Engagement

WORKFORCE DEVELOPMENT
- Employee Engagement
- Modern Work Environment
- Talent Development
- Talent Pipelines
- Workforce Analysis & Growth

PRACTICAL SOLUTIONS
- Asset Management
- Integrate Systems & Modes
- Practical Decision Making
- Aligning Investments
- Budget & Policy Alignment

- Be an employer of choice, creating a modern workforce while attracting and retaining quality workers to deliver our legislative, regulatory and service requirements.

WORKFORCE
DEVELOPMENT

THE WHOLE EXPERIENCE

Workforce Development

Be an employer of choice, creating a modern workforce while attracting and retaining quality workers to deliver our legislative, regulatory, and service requirements.

Employee Engagement	Modern Work Environment	Talent Development	Talent Pipelines	Workforce Analysis & Growth
Percent of surveyed employees satisfied with working at WSDOT	Percent of surveyed employees satisfied with work environment	Percent of surveyed employees satisfied with their opportunities at work to learn and grow	Increase diverse applicants for Maintenance Tech 2 positions	WSDOT employee turnover rate
77% ★	81.5% ★	65% ✔	27.4% ❗	9.4% BASE LINE
2020	2020	2020	2020	FY 2020
▶ Detail	▶ Detail	▶ Detail	▶ Detail	▶ Detail

WORKFORCE DEVELOPMENT

EMPLOYEE ENGAGEMENT

WORKFORCE ANALYSIS & GROWTH

MODERN WORK ENVIRONMENT

TALENT PIPELINES

TALENT DEVELOPMENT
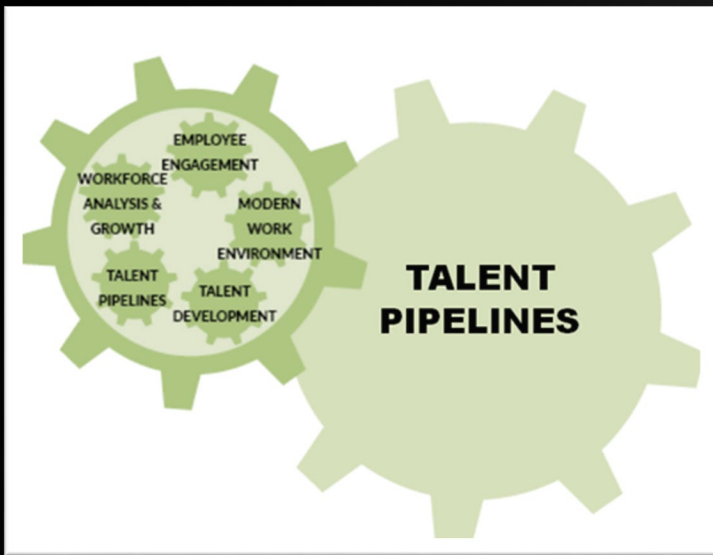
FIND THE BEST POSSIBLE TALENT FOR WSDOT

- We are working to find the best possible talent for WSDOT. We are using internships, strategic recruitment and community outreach to find the best possible talent for:
  - ❖ Highway Maintenance Worker
  - ❖ Transportation Engineering
  - ❖ Entry-Level Deckhands
- Training for hiring managers and hiring committees
- Provide resources – Workforce Development Toolkit

LOOK AT YOUR DATA

- Evaluate systems to achieve and maintain competitive compensation and career path development.

- What data is important to you?
  - Appointments, % of new employees, % of promotional appointments and retirement forecasts
  - Exit Interviews

LISTEN AND ACT ON EMPLOYEE FEEDBACK

EMPLOYEE ENGAGEMENT

EMPLOYEE ENGAGEMENT

WORKFORCE ANALYSIS & GROWTH

MODERN WORK ENVIRONMENT

TALENT PIPELINES

TALENT DEVELOPMENT

Job satisfaction index

How do we measure job satisfaction?

We survey employees annually. Survey results and targets for the two statements "In general, I'm satisfied with my job" and "I would recommend my agency as a great place to work" are equally weighted in the job satisfaction index. We aim to increase the percentage of surveyed WSDOT employees who respond positively to the statements by February 2021.

Progress		Target
2020		2021

Job satisfaction index

77%   →   70%

Exceeds goal

YOUR OPINION MATTERS!
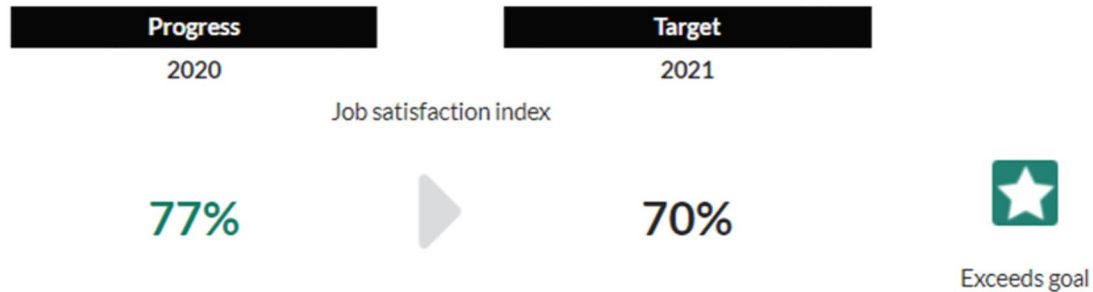
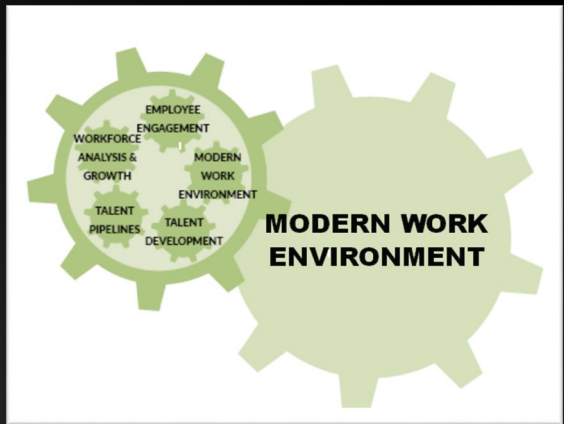# IMPLEMENT INITIATIVES TO ATTRACT AND RETAIN OUR WORKFORCE

Before

After

MODERN WORK ENVIRONMENT
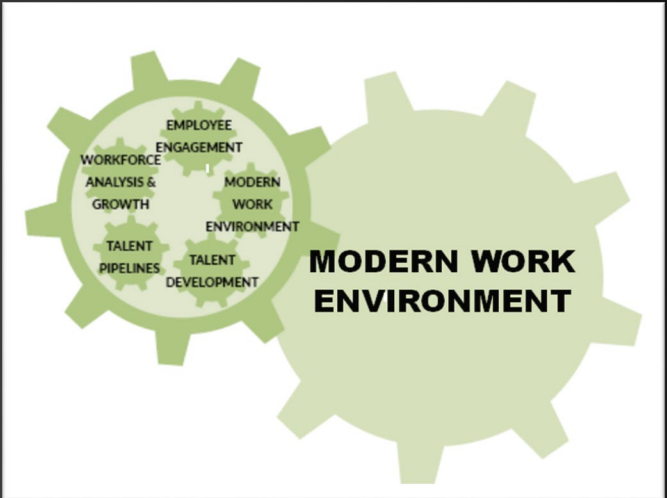
Modern Work Environment
Telework
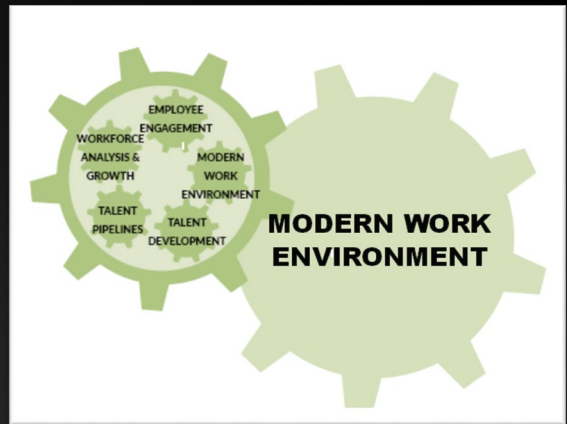
EMPLOYEES WANT TO CONTINUE!

After COVID-19, what is your best estimate for how often are you interested in teleworking?

October 2020 Survey

Full time	4 days	3 days	2 days	1 day	1 day or less per month	I don't want to telework	My job is not suited for telework
36	11	21	15	7	1	4	5

9%
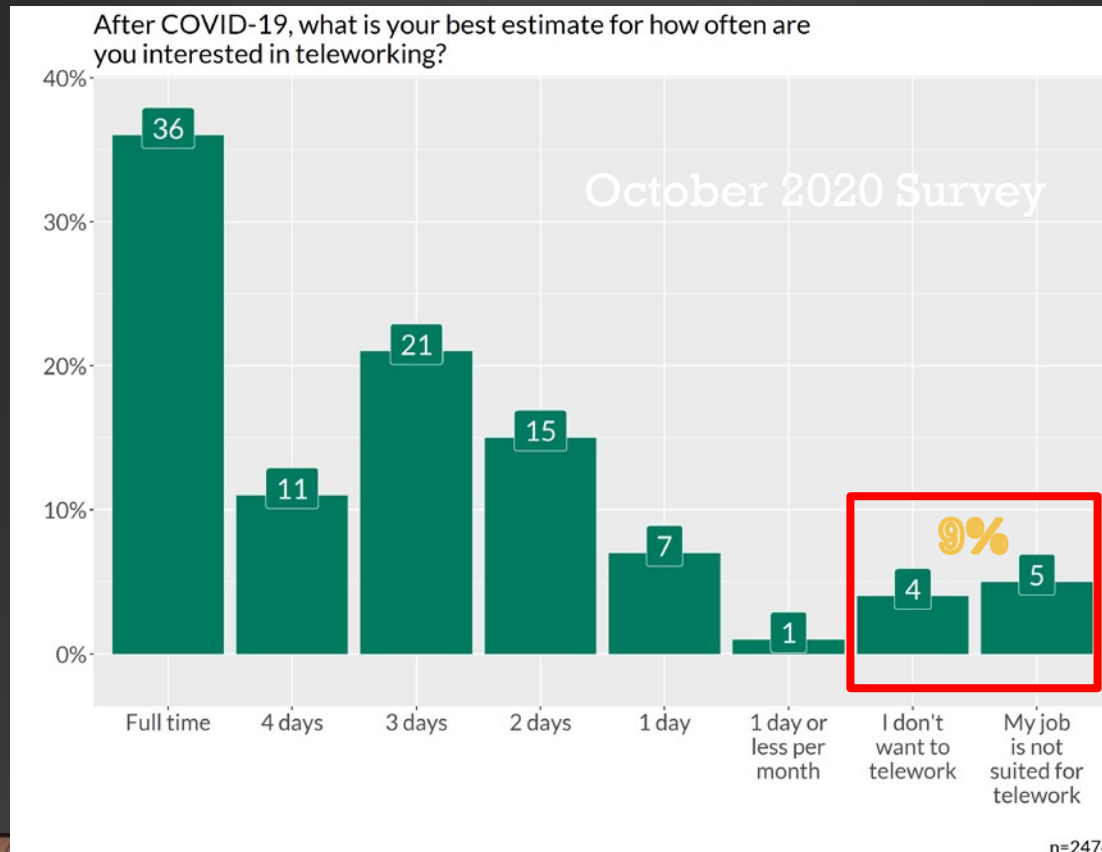
n=2474

INVEST IN OUR STAFF THROUGH TRAINING AND OTHER OPPORTUNITIES

- Jennifer Martin, Talent Development Manager

  Email: MartinJL@wsdot.wa.gov

- Rafeaah Sok, Diversity and Inclusion Manager

  Email: SokR@wsdot.wa.gov

- Alvina Mao, Workforce Development Manager

  Email: MaoA@wsdot.wa.gov

Designing a Road Map for Success

GDOT's Data Driven Approach to Workforce Planning in Today's Economy

▶ Brian Robinson - Deputy HR Director

Employment Trends

National Trends:

- Increased retirement eligibility
- Decrease in average tenure
- Highly competitive market
- Impact of COVID-19

GDOT Trends:

- These charts show 2 key trends over the past 10+ years:
  - Decreased overall headcount
  - Shift in the breakdown of our workforce in regards to tenure

GDOT Employment Trend (Headcount) by Year

Employee Breakdown by Tenure (2009 vs 2019)
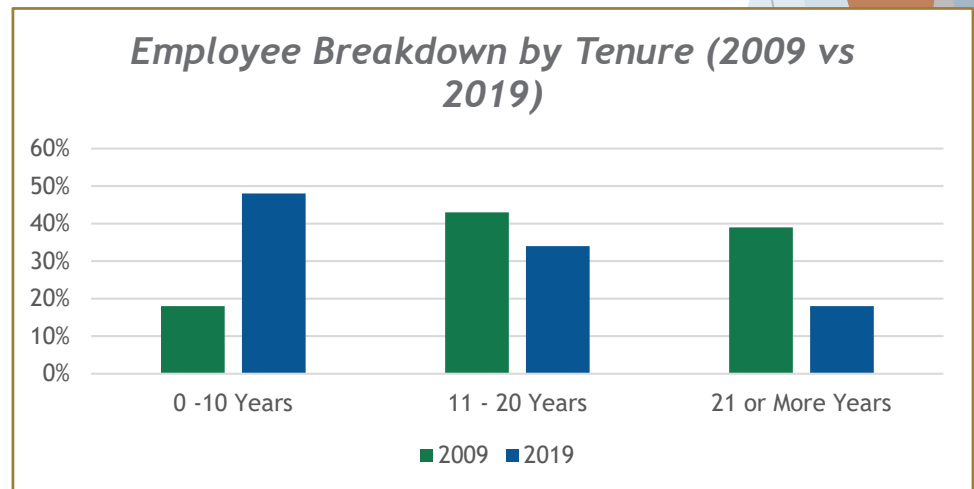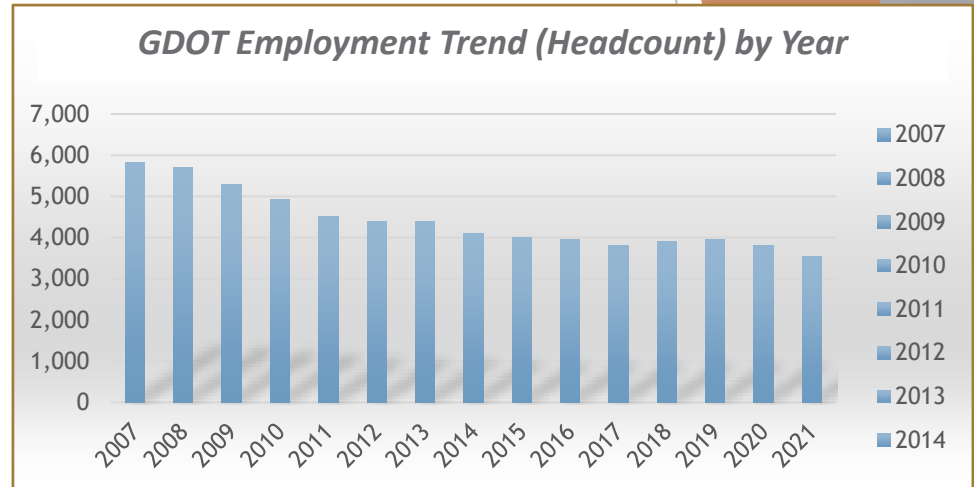
Because of these trends, GDOT engages in strategic workforce planning that recognizes that today's workforce is different than yesterday's – and will continue to evolve as we look to our workforce in the future – with a focus on the following:

▶ Position management

▶ Targeted recruitment and retention efforts

▶ Knowledge management and transfer

▶ Succession planning

▶ Training and development

    ▶ Employees

    ▶ Supervisors/Managers

    ▶ Leadership

Impact to GDOT?

Aligning Workforce Planning Efforts with GDOT's Strategic Plan
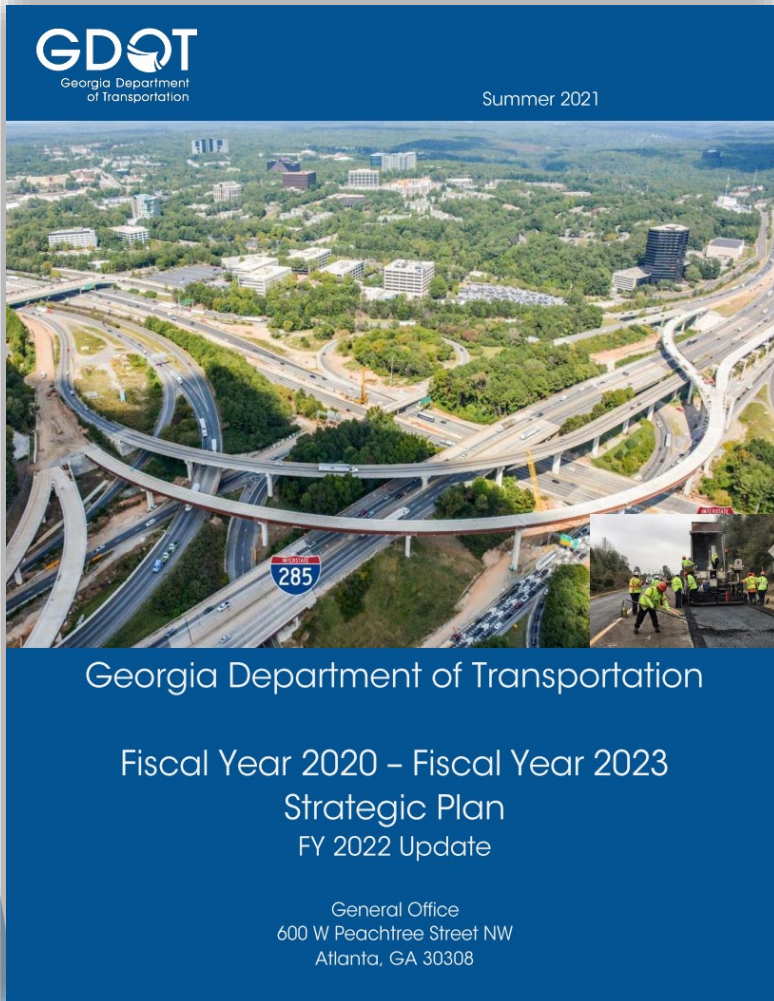
- In addition to outlining our strategic goals and strategies, GDOT's Strategic Plan also addresses the following:
  - State Demographic Data
  - Economic Indicators
  - Workforce Trends
    - Employment Statistics
    - Challenges
    - Strategies
    - Workforce Development
    - Employee Survey

Workforce Planning and Development

- GDOT involved in extensive workforce planning efforts since 2013
- Identify the number of employees required to meet strategic objectives and re-evaluate business operations in order to deliver a significantly larger program within authorized headcount
  - Align organizational structure with strategic goals
  - Perform gap analysis and develop workforce plans for each office/district
  - Capture and document staffing levels
  - Update job descriptions and qualifications
  - Link to performance management
  - Identify operational efficiencies

Workforce Planning

- Process Overview
    - Documents:
        - Organization chart
        - Employee status report
        - Workforce Planning Questionnaire
        - Staffing Analysis Summary
        - Job descriptions
    - Other documents available as needed:
        - ePerformance documents/metrics
        - Training records
        - *Output from HR Data Tool*
        - *Retirement projections*
        - *Detailed data on employment statistics by office*

HR's Innovative and Collaborative Approach to Data Analysis

- Partnered with GA Tech in the development of a workforce planning and data tool to leverage and analyze employee data

  ▶ Retirement Projections

  ▶ Knowledge Loss Risk Assessments

  ▶ Network Analyses

  ▶ Succession Planning

Strategic Workforce Data Analysis

Data analysis provides opportunities for HR to collaborate with GDOT management on strategic workforce planning decisions

- Forecast retirements and analyze positions with weak "bench strength"

- Engage in knowledge management activities

- Coordinate a variety of succession planning efforts

- Develop specialized recruitment plans

Screenshot of Retirement Projections

Screenshot of Mapping Feature Engineers with PE License

Name	District-Area	Working Title	Tenure at Position	Pay Grade	PE	EIT	Address	<0	0-1	1-3	3-5	5-10	>10
	6-0	Mgr 2, Civil Engineering	1-3	O	Yes		500 Joe Frank Harris Pkwy , Cartersville, GA 30120	0	0	0	0	1	0
	0-0	Civil Engineering 3	1-3	K	Yes		600 West Peachtree NW, Atlanta, GA 30308	0	0	0	0	0	1
	0-0	Program Mgr (Non-IT) 2	1-3	O	Yes		600 West Peachtree NW, Atlanta, GA 30308	1	0	0	0	0	0
	0-0	Sr Mgr 1, Transport Specialist	1-3	Q	Yes		600 West Peachtree NW, Atlanta, GA 30308	0	0	0	0	0	1
	0-0	Transportation Specialist 5	1-3	M	Yes		600 West Peachtree NW, Atlanta, GA 30308	0	0	0	0	1	0
	0-0	Mgr 1, Civil Engineering	1-3	N	Yes		600 West Peachtree NW, Atlanta, GA 30308	0	0	0	0	0	1

Screenshot of Network Analysis Module

Screenshot of Cross Training Module

GDOT Retirement Projections

- ▶ 6.7% of employees are currently eligible to retire

- ▶ 9.3% of employees are eligible to retire within 1 year

- ▶ 23.3% of employees are eligible to retire within 5 years

- ▶ Note: Approximately 50 employees have retired since July 1, 2021.

FY2021 Turnover Data Analysis

- In FY2021, GDOT had over 600 full-time employees to separate from service

- Highest reasons for turnover in FY2021:

  ▶ 60% of turnover was from resignations (voluntary)

  ▶ 25% of turnover was from retirements
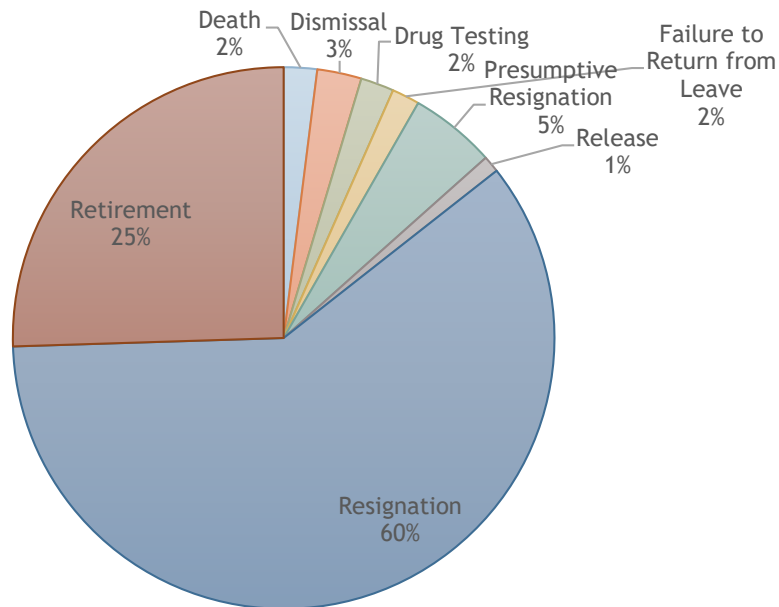
Previous Turnover Data Analysis

- Field Maintenance (EO1 – Superintendent)
  - ▶ 25% turnover rate
  - ▶ 64% of turnover from resignations
  - ▶ 63% of turnover from EO1 positions

- Civil Engineering
  - ▶ 8% turnover rate
  - ▶ 86% of turnover from resignations
  - ▶ 79% of turnover from CE2 positions

- NOTE: EO1 and CE2 are our entry-level titles in these areas – losing many employees early in career

Turnover Data Analysis

- Turnover in 2 major program areas
  - ▶ Field maintenance staff – high turnover early in career
  - ▶ Civil engineers – early to mid-level employees
- Impact of Turnover
  - ▶ Loss of institutional knowledge
  - ▶ Impact to operations (current and future)
  - ▶ Impact to future applicant pools

Data Driven Changes

- Lack of qualified applicants in field construction positions have led to partnerships with construction industry and technical schools

- Employees taking supervisory positions much earlier in career than has traditionally been the case has led to an enhanced focus on new supervisor training

- High turnover in key offices/positions has led to strategic salary reviews and adjustments (field maintenance) as well as job classification updates (civil engineering)

- Focus on "time to fill" and workforce planning has led to improved turnaround times on filling vacancies

- Currently hiring an "Onboarding and Engagement Coordinator" to take on various engagement programs, including stay interviews, mentor programs, etc.
- Centralized hiring process for entry-level maintenance positions
  - Led to increase in applications, hiring and onboarding activities
- Dramatic shift in remote/hybrid work for eligible positions has led to modified telework polices and resources
  - 2018: ~150 approved telework agreements on file
  - Current: ~ 1500 approved telework agreements on file
  - Rolled out "Telehub" in response – website with resources for managers and employees on how to be successful in a remote/hybrid environment

Recent Data Driven Changes

Innovative Succession Planning and Knowledge Transfer Strategies

- Field Maintenance Staff
  - Bootcamp for new employees
  - CDL program
- Civil Engineer Staff
  - Road Design's RAPID Program
  - PEDP
- Supervisor/Management Staff
  - Management Development Program
  - District Leadership Programs
  - Supervisor 101
- Mentoring/Networking
  - GDOTConnect
  - Informal mentoring / job shadowing

- Traffic Operations
  - Innovative projects/ software development
    - AUDI
- In-House Academies
  - Foreman
  - Area Manager
  - Project Engineer

Summary

- Workforce planning efforts tie to strategic goals

- Data driven approach allows us to focus efforts in areas with maximum benefit

- By using historical and projected data, can implement programs in the areas of:

  ▶ Recruitment

  ▶ Retention

  ▶ Training and development

  ▶ Knowledge management and transfer

Transportation Research Board

Pennsylvania Department of Transportation

Human Resources Data Analytics and

Employee/Supervisory Development

Agenda

- **Introduction**

- **A PennDOT Overview**

- **Data Analytics**

- **Building Pathways to Careers**

- **(Employee) Supervisory Development**

- **Accomplishments and Initiatives**

- **Questions/Answers**

PennDOT Facts

Fifth Largest State-Owned Roadway System

➢ 40,000 Miles of State-Owned Highway
➢ 25,000 State Owned Bridges

Oversees:
- 124 public-use airports
- 65 railroads
- 53 transit systems
- 3 ports
- 2,400 miles of bicycle routes
- 10 million licenses/IDs
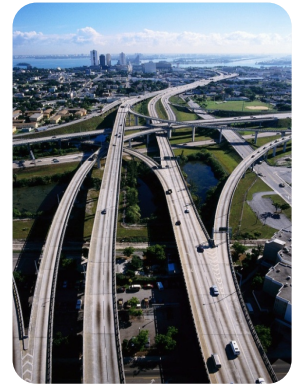
PennDOT Organization

- 11,500 Permanent Employees

- Nearly 10,000 of those work in Districts/Counties

- +/- 1,200 to 1,500 Seasonal Wage Employees

- 430 Job Classifications

Data Analytics

Collection, reporting, and analysis of people and position data to make insightful workforce management decisions

- **Descriptive – what exists now**
- **Predictive – what is expected to happen**
- **Prescriptive – what should occur as a result**
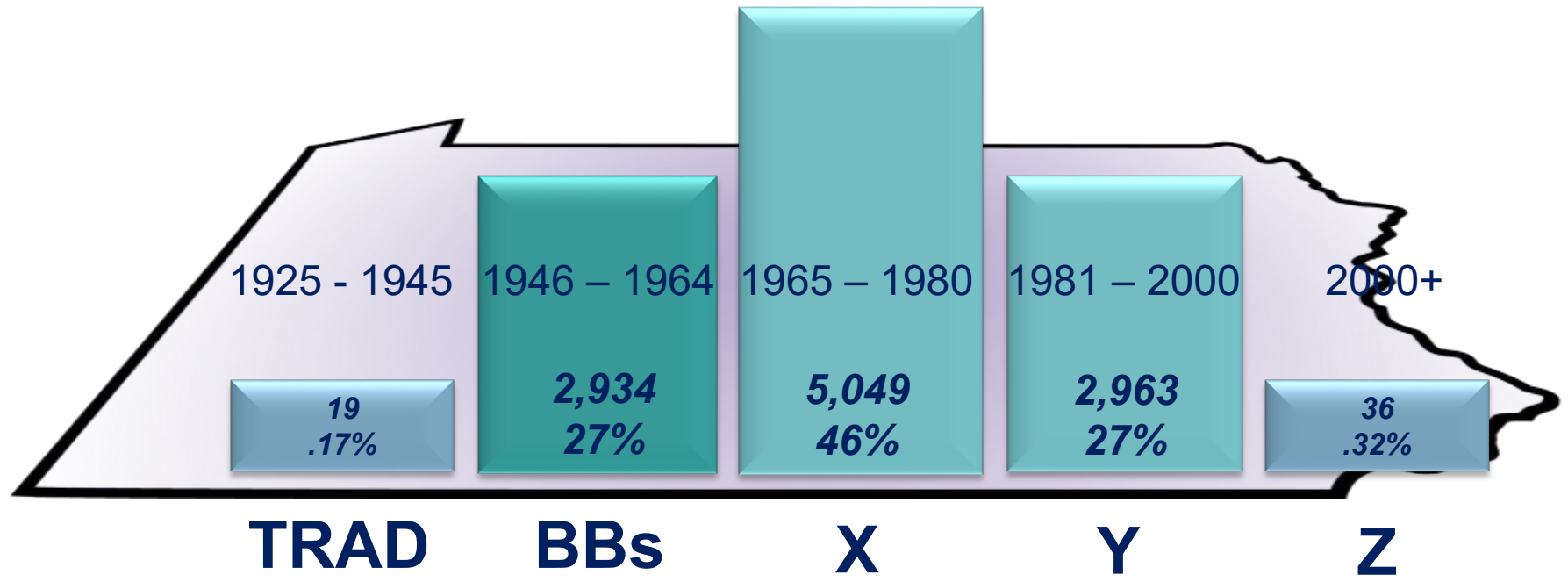
Workforce Management

Consider and Analyze:

- Systemic loss
- Potential Turnover
  - Attrition (voluntary and involuntary turnover)
  - Age and Length of Service Retirement Projection:
    - Individual Employee
    - Job Class
    - Race and Gender
    - Geographic Area
- Entrance, Transfer, Exit Surveys
- Climate Assessments

Retirement Projections (example)

Job Name	Total Employees Matching Criteria*	Current Eligible	Eligible within 1 Yr.	Eligible within 2 Yrs.	Eligible within 3 Yrs.	Eligible within 4 Yrs.	4-Year Total Eligible	% Eligible after 4 yrs
Transportation Construction Inspector Supervisor	215	23	16	9	11	5	64	29.77%
Transportation Construction Manager 1	75	10	0	4	3	1	18	24.00%
Transportation Construction Manager 2	42	7	0	6	2	4	19	45.24%
Transportation Construction Manager 3	35	6	6	2	1	0	15	42.86%
Transportation District Executive	9	4	0	0	0	1	5	55.56%
Transportation Equipment Operator A	296	8	6	14	25	5	58	19.59%
Transportation Equipment Operator B	3467	531	169	186	168	141	1195	34.47%
Transportation Equipment Operator Specialist	155	21	11	9	14	5	60	38.71%
Transportation Equipment Operator Trainee	9	0	0	0	0	1	1	11.11%
Transportation Planning Manager	10	2	0	1	0	0	3	30.00%
Transportation Planning Specialist 1	12	0	0	0	0	0	0	0.00%
Transportation Planning Specialist 2	1	0	0	0	0	0	0	0.00%
Transportation Planning Specialist Supervisor	5	0	0	0	1	0	1	20.00%

Workforce Management

Use data analytics to:

Consider options –

- prepare (plan) for succession (individual and organization)
- employee development into higher level positions
- recruitment needs (e.g., target by skills needed, geography, underutilization, lead sources for candidate pools)
- modification of duties
- reassignment of duties
- reorganization (structural and supervisory)
- elimination of positions

PennDOT Career Pathways

Pathways to Career Exploration

Student Outreach Job Shadow

Secondary School Intern (STEP)

Summer Internship Program

Summer Maintenance Program
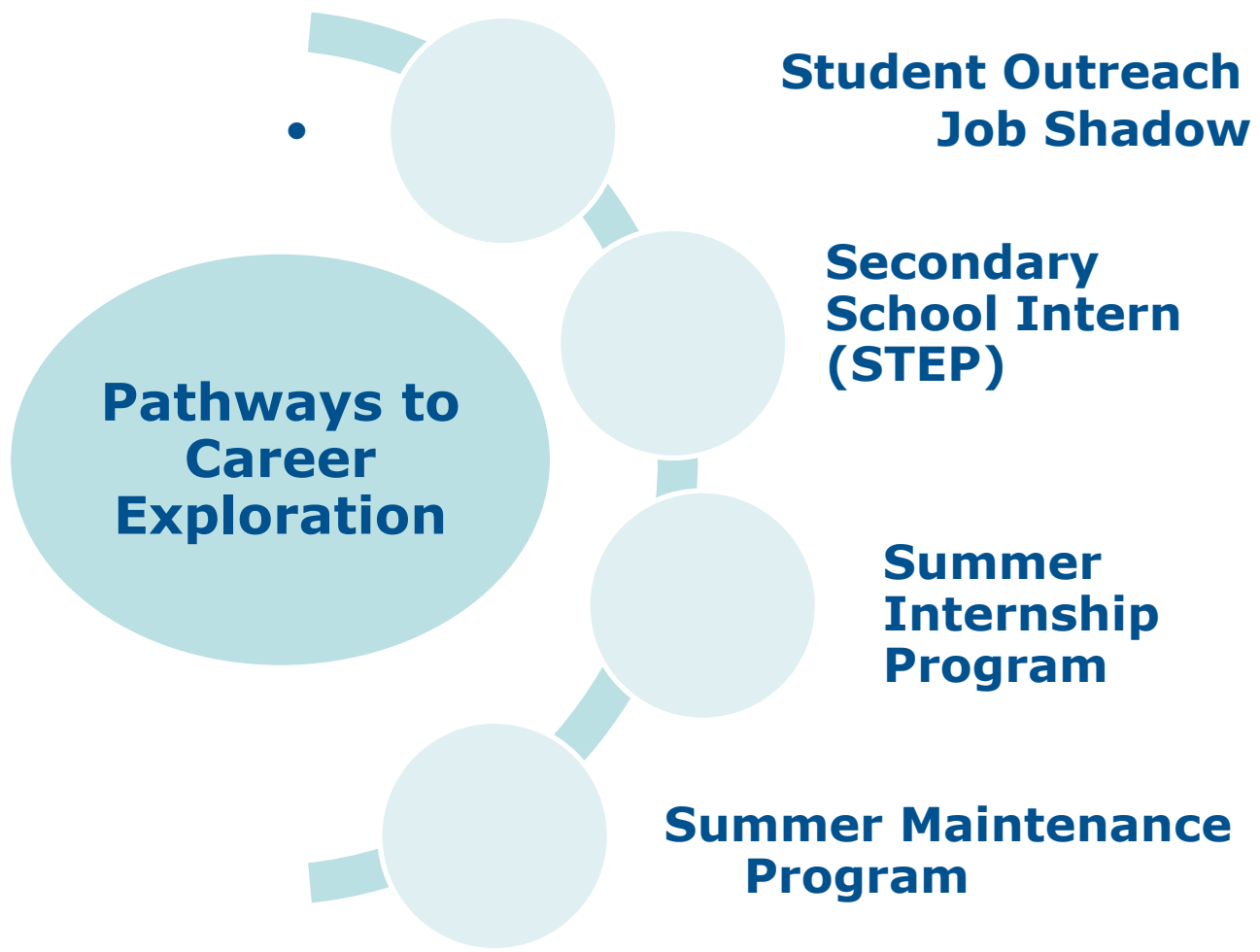
Entry level Job Classes Post HS

Clerical and Customer Service

• Clerk 1 and 2, Clerk Typist 1 and 2

• Driver License Examiner Assistant

Engineering/Highway Administration

• Technical Assistant

• Civil Engineer Trainee (college degree-required)

Highway Maintenance

• Transportation Equipment Operator Trainee

Trades

• Tradesman Helper

Career Development Planning

Career Development Planning

Individual – Career Development Plan
- Paper copy first distributed in 2012
- Later created as an online tool
- Enables and encourages dialogue between the employee and supervisor about the employee's career goals

Organizational – Supervisory and Managerial Insight
- Enables leaders to look at the bench strength of existing employees
- Enables their own discussion on their career plans

Supervisory Development

- Pre COVID, the PennDOT Leadership Academy for Supervisors (PLAS) was held as an in-person classroom setting requiring four consecutive days of attendance. This meant new supervisors had to leave their work units and travel to Harrisburg to attend the academy.

- During COVID, Talent Development team developed the "Supervisory Skills Series" consisting of nine course offerings, designed to be taught in two-hours or less in a virtual setting to meet the demands of teleworking and social distancing.

- The benefits allowed supervisors to schedule virtual sessions at their convenience, minimized the disruption to operations, and saved funding expenditures on travel and overnight accommodations.

Supervisory Development

- **Supervisory Skills Series** – **mandatory** foundational leadership courses designed for all new supervisors in a blended-learning format

- **Self-Aware Leader Program for Highway Maint**e**nance** – a three-part series program developed for growing highway maintenance leadership competence and confidence in dealing with employees, other managers, the public, and the press.
  - Focus on building one's reputation constructed on positivity and trust; professional presence; communication with the press, public, and legislators; and how to progress their career.

- **Supervisory Skills** – Multiple topics, such as career planning, communications, safety, and numerous HR disciplines

- **Leadership Development Programs** – several types, including mentoring, peer support/networking

Supervisory Development (technical groups)

- **Supervisory Skills for Foremen**

- **Highway Foremen Academy**

- **Roadway Programs Coordinators Academy**

- **Assistant Highway Maintenance Managers Academy**

- **Highway Maintenance Managers 101**

- **Snow Academy for Managers and Supervisors**

- **PennDOT Equipment Manager's Conference**

- **Advanced Construction Management (includes project team coaching and development)**

Accomplishments and Initiatives

- Use of Temporary Working Out of Class (TWOC) which allows employees to temporarily experience higher level duties (ongoing)

- Use of College Intern and Advanced Degree Programs

- Workforce and Succession Planning Training (900 managers) (2012)

- Creation of the School to Employment at PennDOT (STEP high school paid intern program (2014 first class)

Accomplishments and Initiatives

- Strategic Recruiting Planning (2017)

- Migration to position-based job postings for both CS and NCS positions (2018)

- Offering hiring managers more flexibility in negotiating starting salaries for newly hired managers (2018)

- Offering all employees new optional benefits (2018)

Accomplishments and Initiatives

- Restructure of the career paths for employees in Transportation Equipment Operator A and B job classes that impacts skills and pay (2019)

- Allowance of both salaried and wage complement for Civil Engineer Trainees (2019)

- Movement from less classroom to more virtual training (2020)

- Creation of the Diesel and Construction Mechanic Trainee job classification (2021)

Accomplishments and Initiatives

- Allowance of both salaried and wage complement for Transportation Equipment Operator Trainees (2021)

- Concept of an apprenticeship program (currently in discussions)

- Use of actual employees promoting their work (ongoing)

Employment References

This is PennDOT (PennDOT Careers) - YouTube Link:
https://www.youtube.com/watch?v=eIo-knc53qY&list=PL90uZRd80y1NBuIm31RVT1aYNeCGsws0s

PennDOT Winter Recruitment – YouTube Link:
https://www.youtube.com/watch?v=JtNr9tSTs5o

State Employment Website
www.employment.pa.gov

PennDOT website for links to job opportunities
www.penndot.gov

Benefits (not all inclusive)

- Ensure the organization is prepared for inevitable change
- Create internal bench strength using 'ready to roll' employees
- Identify and capitalize on the rock stars
- Identify leader employees who prefer to *not* move up
- Review and refresh plans as data analytic results change
- Promote the retention of talent
- Enable acceptance and more efficient and effective rollout of change

Thank You

Building Workforce Strategy

An NCHRP Domestic Scan presentation
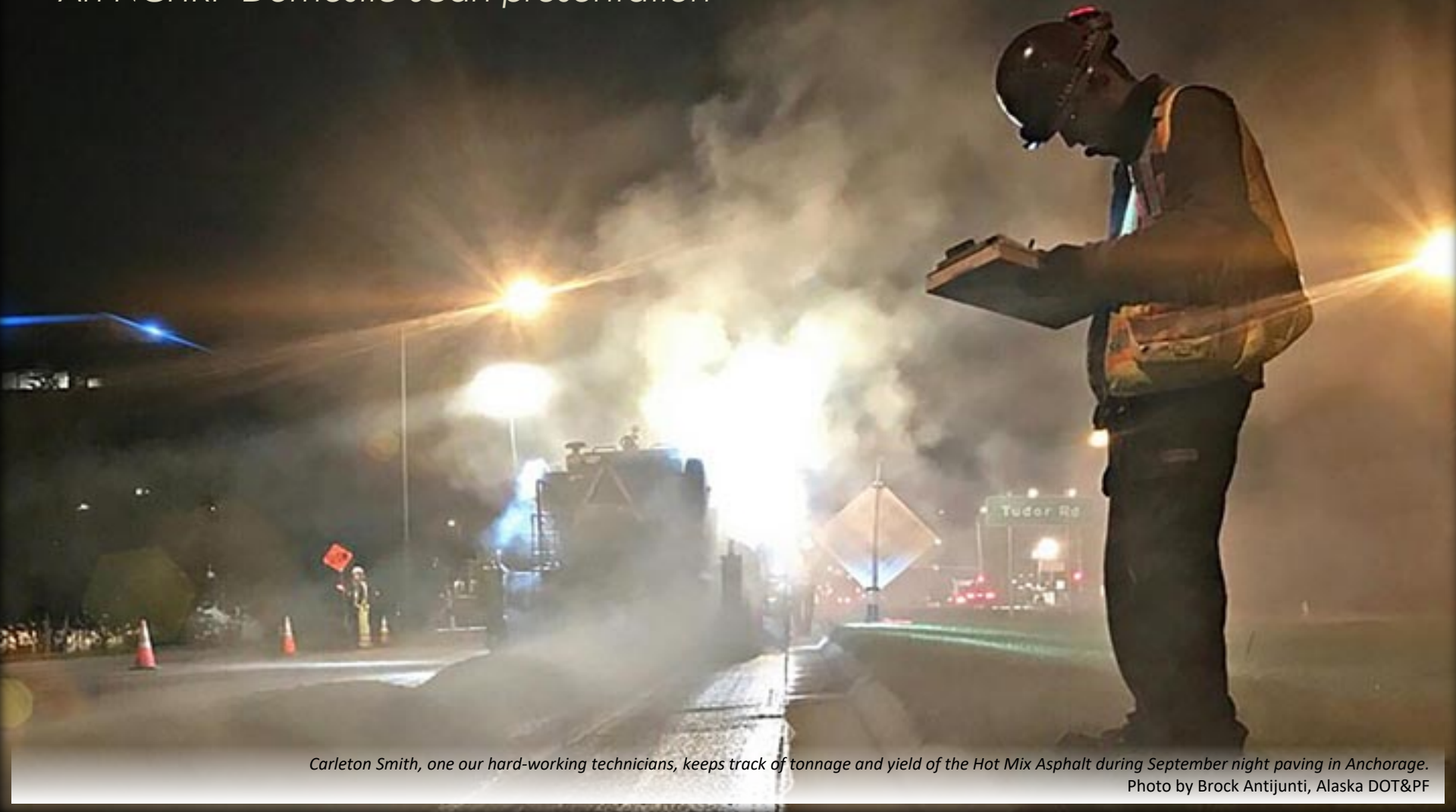
Carleton Smith, one our hard-working technicians, keeps track of tonnage and yield of the Hot Mix Asphalt during September night paving in Anchorage.
Photo by Brock Antijunti, Alaska DOT&PF

Workforce Readiness

Employers constantly face challenges of preparing for success in the future.

Employers frequently are compelled to consider how best to acquire, prepare, re-equip, replace, reconfigure, adapt, or otherwise alter the nature of their workforces for future success.

Source: Guzzo, R.A.. (2019) Workforce readiness in times of change. *Workforce readiness and the future of work.* Routledge, Taylor and Francis Group, New York.

Workforce Demographics

Workforce continues to age

Workforce is becoming more diverse

"If 70 is the new 50, we shouldn't be surprised to find more 70-year-olds working."

- P. Buckley, D. Bachman

Source: Buckley, P., Bachman, D. (2017) Meet the US workforce of the future. Issue 21, Deloitte review.
https://www2.deloitte.com/insights/us/en/deloitte-review/issue-21/meet-the-us-workforce-of-the-future.html

Figure 7. Retiree dependency ratios, selected countries

Source: Buckley, P., Bachman, D. (2017) Meet the US workforce of the future. Issue 21, Deloitte review.
https://www2.deloitte.com/insights/us/en/deloitte-review/issue-21/meet-the-us-workforce-of-the-future.html

Table 3. Change in educational attainment by level: History and forecast

	High school or less	Some college/ associate degree	Bachelor's	Advanced
2005	45%	26%	19%	10%
2015	42%	26%	21%	12%
2025	36%	28%	23%	13%

Source: US Census Bureau, *Current population survey: 2015 annual social and economic supplement;* Deloitte calculations.

Figure 3. Degrees conferred by major, 2014–2015, share of total

Major	Share
Other professional	37%
Business	23%
Engineering	13%
Humanities and social sciences	9%
Science and math	6%

Source: US Department of Education.

Americans are becoming more educated
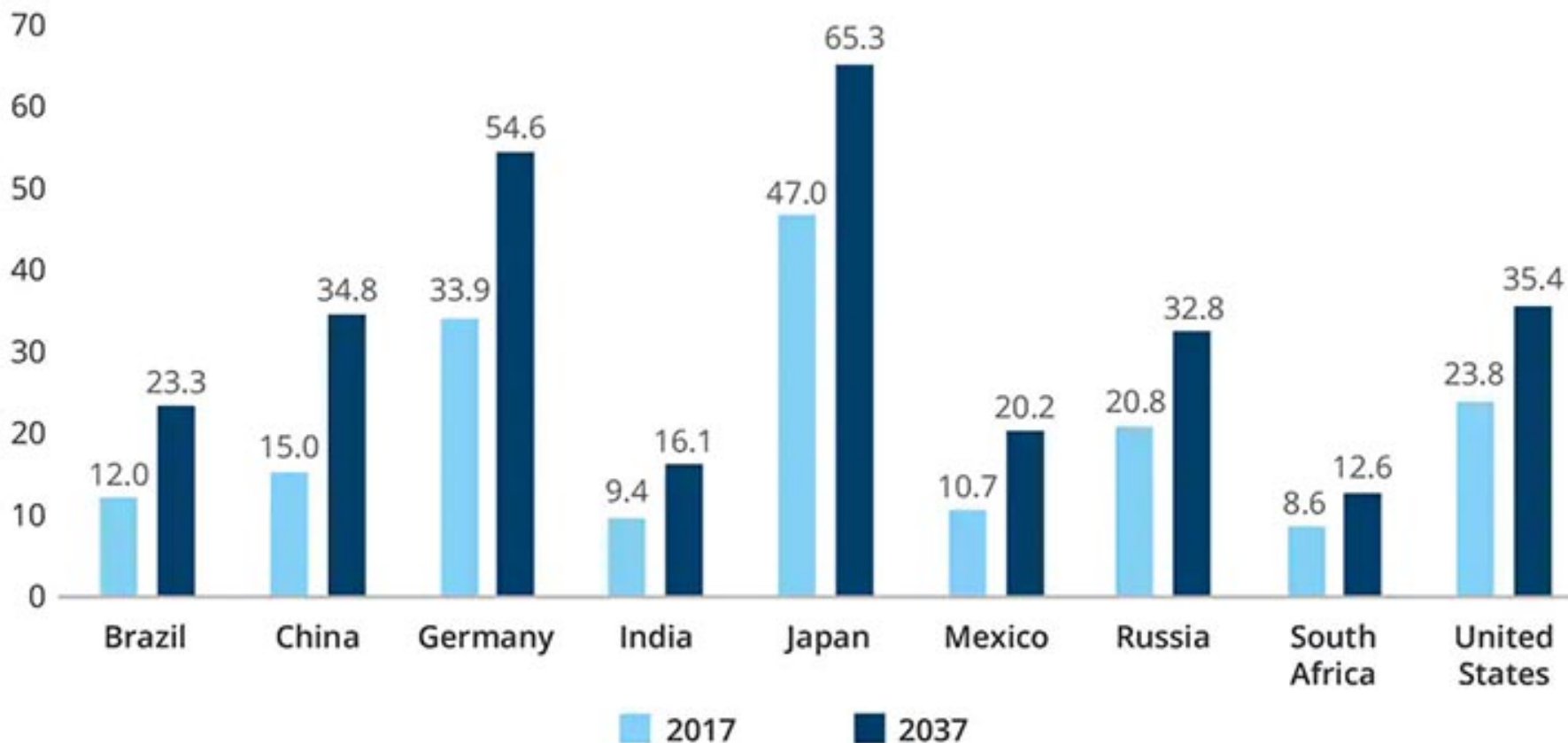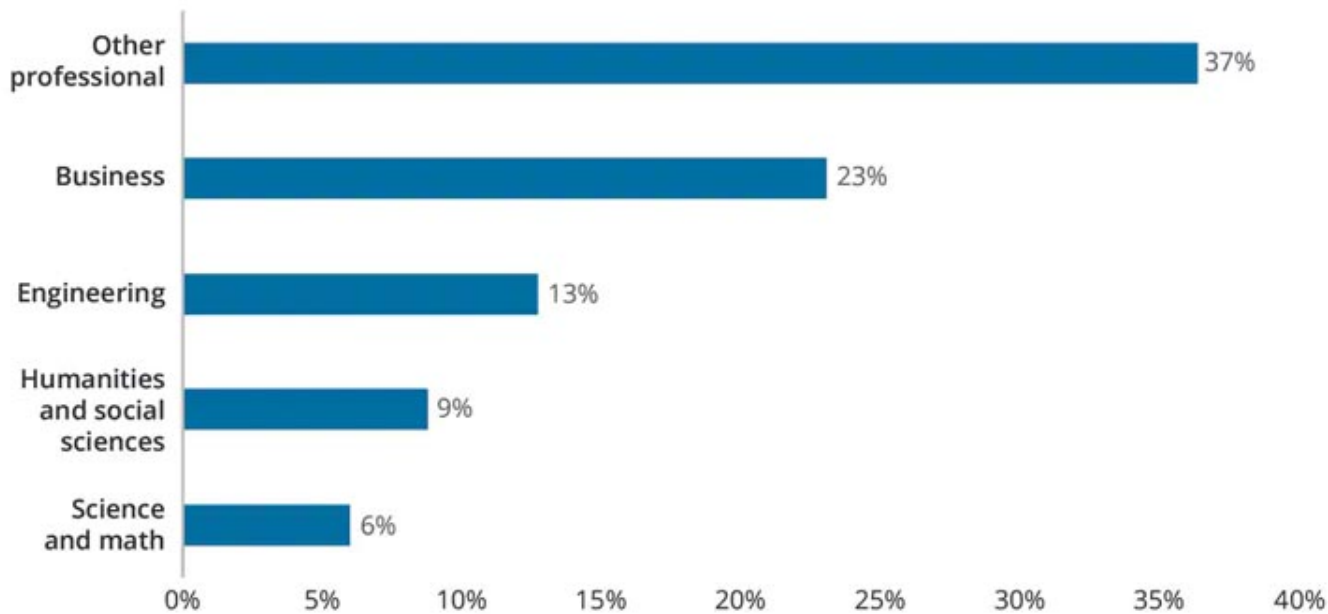
Source: Buckley, P., Bachman, D. (2017) Meet the US workforce of the future. Issue 21, Deloitte review.
https://www2.deloitte.com/insights/us/en/deloitte-review/issue-21/meet-the-us-workforce-of-the-future.html

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Projected Workforce Trends

New skill sets – technology and digitalization will impact workforce

Minnesota Department of Transportation
17 mins · 🌐

Ice breakers are one of MnDOT's newest advancements in winter maintenance.

The idea for the design came from the Alaska Department of Transportation & Public Facilities—folks who know a thing or two about ice. Carbide-tipped rollers slice through compacted snow and create holes. The broken up ice is then scraped away by an underbody blade. MnDOT currently has 11 ice breakers that are shared across the state as needed.

MnDOT | Ice Breaker
01:16

Source: Securing America's Future Energy (2018) America's workforce and the self-driving future. https://avworkforce.secureenergy.org/wp-content/uploads/2018/06/Americas-Workforce-and-the-Self-Driving-Future_Realizing-Productivity-Gains-and-Spurring-Economic-Growth.pdf

Gig Economy

Source: Campion, E. (2019) The gig economy: an overview and set of recommendations for practice. http://www.siop.org/Portals/84/docs/White%20Papers/Gig.pdf?ver=2019-06-04-161253-170

Computer, math and science jobs will grow at ½ the rate of health care

Continued split into highly skilled, well-paid professional and poorly paid, low-skilled jobs

Fewer middle-skilled, moderate-pay jobs

Source: Buckley, P., Bachman, D. (2017) Meet the US workforce of the future. Issue 21, Deloitte review. https://www2.deloitte.com/insights/us/en/deloitte-review/issue-21/meet-the-us-workforce-of-the-future.html

Stay Factors

Exciting, challenging, or meaningful work (62.9%)

Being recognized, valued, respected (39%)

Supportive management / good boss (40.6%)

Why Employees Stay

Career growth, learning, and development (32%)

Flexible work environment (22%)

Fair pay* (19%)
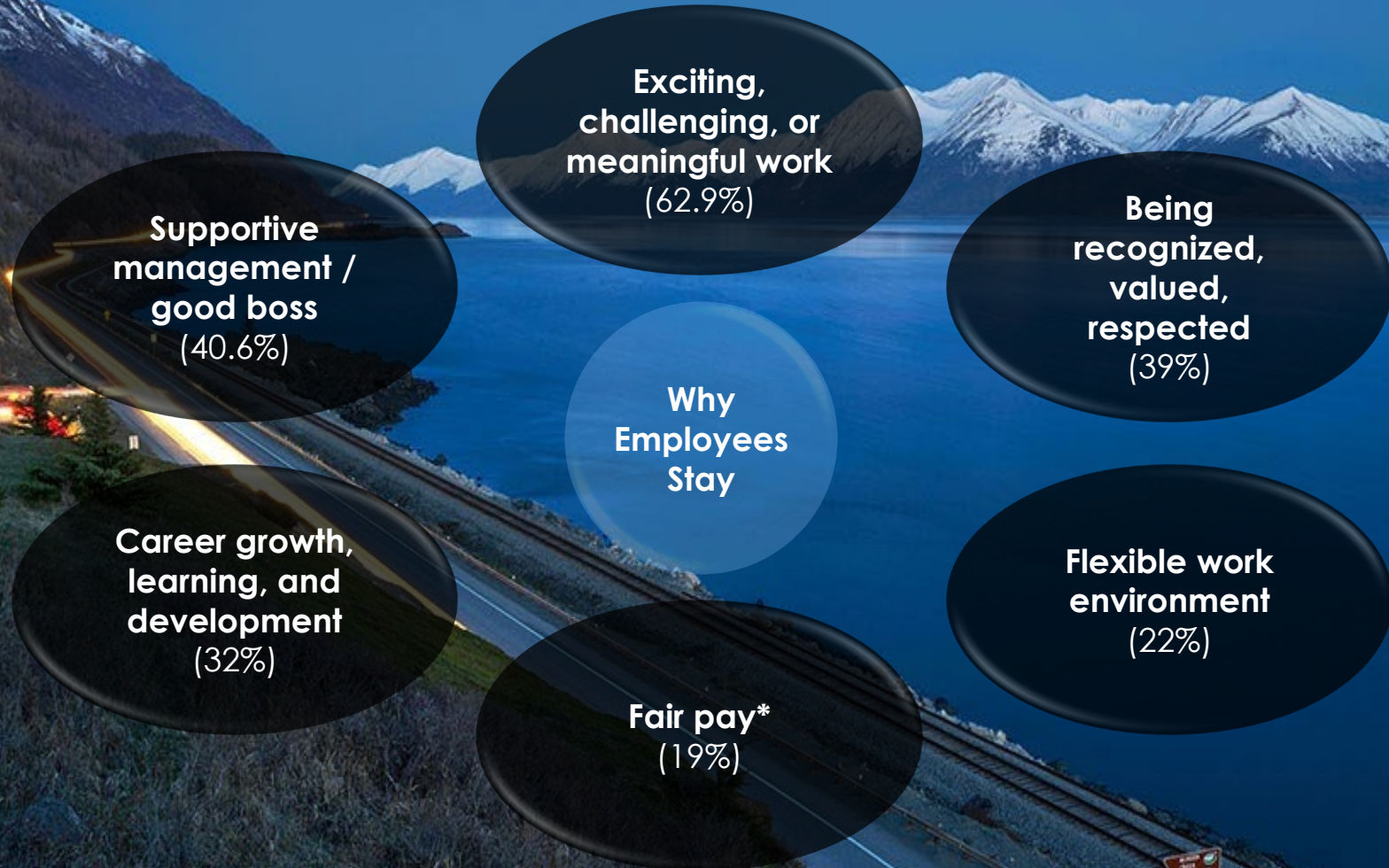
*pay may seem fairer when the other five factors are present

Source: Ann, K., Hidi, S. (2019) Supporting the development of interest in the workplace. *Workforce readiness and the future of work*. Routledge, Taylor and Francis Group, New York.

Workforce Best Practices

Use data for workforce planning and identifying shifting demographics

Develop cross-generational and diverse talent pipelines

Offer opportunities for lifelong learning and reskilling

Develop talent strategies for workforce segments at all ages and at different stages of their career

Source: Buckley, P., Bachman, D. (2017) Meet the US workforce of the future. Issue 21, Deloitte review.
https://www2.deloitte.com/insights/us/en/deloitte-review/issue-21/meet-the-us-workforce-of-the-future.html

Lessons Learned

START with an updated mindset

Modernize organizational culture

Mid-level Allies

Use national resources

Stay true to the vision

Workforce Analysis

FINISH with custom system for your DOT

With an intentional workforce strategy, we can increase engagement, improve collaboration, create sustainable improvements, and facilitate timely changes.

Resources

Ann, K., Hidi, S. (2019) Supporting the development of interest in the workplace. *Workforce readiness and the future of work.* Routledge, Taylor and Francis Group, New York.

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TCRP Research Report 194. Knowledge Management Resource to Support Strategic Workforce Development for Transit Agencies

Knowledge Management Guide. West Virginia Department of Transportation

Girl makes the grade! In front of Southcoast Region building.
Photo by Marie Heidermann, Alaska DOT&PF