

University of Vermont

ScholarWorks @ UVM

Transportation Research Center Research Reports

8-1-2016

Transportation Job Needs and Priorities Report, Phase 2: Action Plans Northeast Region

Glenn McRae

University of Vermont, glenn.mcrae@uvm.edu

Follow this and additional works at: <https://scholarworks.uvm.edu/trc>

Recommended Citation

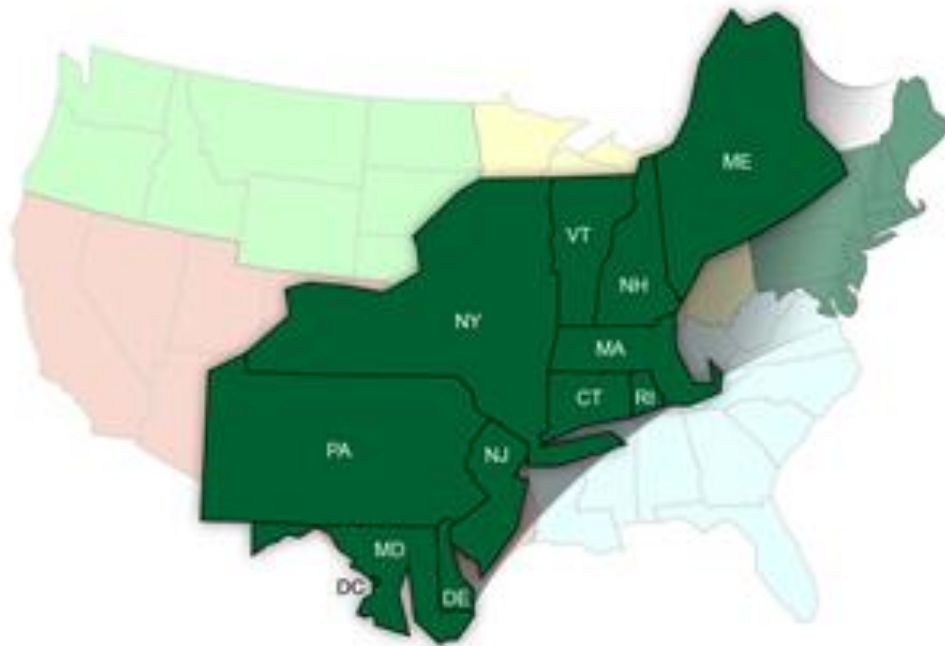
McRae, Glenn, "Transportation Job Needs and Priorities Report, Phase 2: Action Plans Northeast Region" (2016). *Transportation Research Center Research Reports*. 45.

<https://scholarworks.uvm.edu/trc/45>

This Report is brought to you for free and open access by ScholarWorks @ UVM. It has been accepted for inclusion in Transportation Research Center Research Reports by an authorized administrator of ScholarWorks @ UVM. For more information, please contact donna.omalley@uvm.edu.



Job Needs and Priorities Report, Phase 2: Action Plans Northeast Region



Northeast Transportation Workforce Center - August 2016
www.netwc.net
at the University of Vermont Transportation Research Center

Table of Contents

Job Needs and Priorities Report, Phase 2:	1
Northeast Region	1
Job Needs and Priorities Report, Phase 2 Northeast Region	3
I. Introduction.....	3
II. Report Overview	3
III. Phase 2 Methodology.....	5
IV. Overviewing of Region’s Programs, Related Action Plans and Supporting Research.....	7
V. Stakeholder Partnerships to Support the Action Plans.....	16
VI. Action Plans to Address Identified Skill Needs.....	17
VII. Conclusion	18
VIII. Appendix A: Interview Protocol.....	19
IX. Appendix B: Full Strategic Action Plans	21
Action Plan 1: Attracting Tomorrow’s Workforce Across the Northeast.....	28
Action Plan 2: Transportation Career Paths to the Future	34
Action Plan 3: Greener is Better: Promoting and Branding Transportation as a Green Career.....	38
Action Plan 4: Implementing Succession Planning/KM to Increase Organizational Resilience	42
Action Plan 5: Upskilling Transportation’s Current Workforce to Meet Emerging Challenges and Opportunities.....	46
References.....	49

This material is based upon work supported by the U.S. Department of Transportation under Cooperative Agreement No. DTFH6114H00022. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the Author(s) and do not necessarily reflect the view of the U.S. Department of Transportation.

Job Needs and Priorities Report, Phase 2 Northeast Region

I. Introduction

The Northeast Transportation Workforce Center (NETWC) is housed at the University of Vermont Transportation Research Center (UVM TRC). It has collaborated in this effort with the Center for Advanced Infrastructure and Transportation (CAIT). The NE region includes 11 states – Maine, New Hampshire, Massachusetts, Rhode Island, Vermont, Connecticut, New York, New Jersey, Delaware, Pennsylvania, and Maryland – and the District of Columbia. This covers 181,261 square miles of land, or 5% of the United States (which is approximately 3.8 million miles, in total). In contrast, it contains 15.96% of the U.S. population (Census, 2011). Within these 12 areas, the landscape of the transportation industry varies substantially. It has four of the top 25 U.S. cities in terms of population (New York, Philadelphia, Boston, and Washington, D.C.), while also including two states, and the District of Columbia, out of seven states within the U.S. that have populations that do not exceed 1,000,000 people (i.e., Delaware, Vermont, and the District of Columbia).

NETWC engages with partners and regional and national stakeholders to ensure the surface transportation system has a skilled workforce to design, operate, build, and maintain a 21st century transportation workforce to best support the region and country's social and economic vitality.

II. Report Overview

As the nation moves forward in the 21st century, many challenges face the transportation industry; changing skill sets for current employees, large numbers of workers heading towards retirement, and the technological innovations that are changing the face of transportation itself will invariably cause gaps in the workforce pipeline. In January 2015, NETWC started a two-phased Transportation Job Needs and Priorities Research effort, which was designed to assess these challenges and address the transportation workforce needs in the region.

'Phase 1' of the Job Needs and Priorities assessment allowed the Northeast Center to identify priority jobs in the region and set the stage for meaningful regional workforce discussions and initiatives. In the findings, a broad summary of the region's transportation workforce and industry is presented along with an analysis of Northeast labor market data. Combining stakeholder input with historic, current, and future occupational estimates for transportation occupations, Phase I also identified 14 regional priority occupations as target areas for future center workforce development efforts (see Exhibit 1).

Exhibit 1: Northeast Priority Occupations as Identified through Phase 1			
SOC Code	SOC Occupation Title	Northeast Percent Change 2012-2022	National Percent Change 2012-2022
11-3021	Computer and Information Systems Managers	15.1%	15.3%
17-2051	Civil Engineers	16.8%	19.7%
17-1022	Surveyors	6.0%	10.4%
19-3051	Urban and Regional Planners	6.1%	10.3%
17-3031	Surveying and Mapping Technicians	10.2%	13.5%
47-2073	Operating Engineers and Other Construction Equipment Operators	12.0%	18.9%
47-2152	Plumbers, Pipefitters, and Steamfitters	16.1%	21.3%
49-3031	Bus and Truck Mechanics, Diesel Engine Specialists	7.3%	8.7%
53-3032	Heavy and Tractor-trailer Drivers	11.1%	11.3%
47-2051	Cement Masons and Concrete Finishers	18.0%	29.1%
47-2061	Construction Laborers	15.4%	24.3%
51-4121	Welders, Cutters, Solderers, and Brazers	4.9%	5.8%
53-1031	First-line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	7.6%	8.6%
43-3061	Procurement Clerk	4.4%	1.9%

The purpose of this Phase 2 report is to describe the subsequent research and results, which involved assessing potential workforce programs and partnerships to address the workforce gaps identified in Phase 1, while also presenting strategic ‘action plans’ that will serve as the impetus to move related workforce development initiatives forward. NETWC’s five strategic action plans reflect the programs and impacts that the workforce center wishes to make on the transportation workforce and the various systems that support this community. These strategic plans include:

- Action Plan 1: Attracting Tomorrow’s Workforce Across the Northeast (Toolkit)
- Action Plan 2: Advancing Transportation Career Paths to the Future
- Action Plan 3: Greener is Better: Promoting and Branding Transportation as a Green Career
- Action Plan 4: Implementing Succession Planning/KM to Increase Organizational Resilience: Crafting strategies and a handbook
- Action Plan 5: Upskilling Transportation’s Current Workforce to Meet Emerging Challenges and Opportunities

As indicated, the actions align with NETWC’s mission, values, and focus areas. They were also informed by Phase I research findings regarding transportation workforce needs in the Northeast Region.

The research and full strategies supporting these action plans are described in the remainder of this report. Once implemented, the five strategies will serve as the foundation by which NETWC will assist stakeholders across the region in meeting their workforce development needs.

III. Phase 2 Methodology

The methodology for conducting this research includes several key steps, as described below.

Stakeholder Workshops and Literature Review. To kick off Phase 2, our team participated in a series of virtual-based workshops with NETWC Steering Committee to discuss the Phase 1 results, NETWC’s plans for 2016, and how this information should inform the Phase 2 action plans. Using workshops results, the research team conducted a review of transportation-related training, education, and outreach programs within the region and nationally, based on NETWC’s Workforce Program Compendiums. Specifically, the team documented those programs aligned with the priority occupations and other findings identified in Phase 1. The goal was to address gaps in skill development and define opportunities for program expansion to reach a wider group of participants in the region.

Development of Draft Action Plans. The workshop and literature review results informed the development of the five strategic action plans. The plans, designed to enhance regional workforce development efforts, defined priority program areas and offered guidance for program implementation. Further, the draft plans described detailed steps for implementation, identified relevant initiatives, and defined criteria for potential partners to support the program. NETWC leadership then provided input and feedback to further develop and refine the concepts, to ensure they effectively met industry needs and are appropriate to NETWC’s mission and capacity.

Engage NETWC Stakeholders. The research team then gathered input and feedback directly from regional transportation stakeholders regarding the relevance, applicability, and overall feasibility of the action plans. This involved developing an interview protocol with questions framed around the action plans (e.g., ‘Does the description of this action plan and its intended audiences make sense in the context of the transportation industry across the region?’ and ‘What do you see as barriers to effective implementation of a plan like this?’). Prior to the interview, participants received the interview protocol and action plan summary document for review. This preparation allowed the team to focus the discussion on action plans on which the participants felt they could provide the most input. Appendix A provides the full interview protocol. See Exhibit 2 below for a full list of stakeholders interviewed.

Exhibit 2: Northeast Region Stakeholders Interviewed			
Name	Agency/Organization	Position Title	State
Kim Arrington	Washington Metropolitan Area Transit Authority	Senior Diversity Officer	DC
Bill Davis	National Alternative Fuels Training Consortium	Director	WV
Jennifer Cleary	Rutgers, The State University of New Jersey	Associate Director, Professional Science Master’s Program	NJ
Barry Epley, P.E.	Johnson, Mirmiran, & Thompson, Inc.	Senior Vice President	PA

Exhibit 2: Northeast Region Stakeholders Interviewed			
Name	Agency/Organization	Position Title	State
Jennie Granger	Johnson, Mirmiran, & Thompson, Inc.	Vice President, Assistant Office Manager	PA
Becky Greene	Maine DOT, AASHTO Workforce Development Committee	Human Resources Director	ME
Andrea Johnson	Washington Metropolitan Area Transit Authority	Diversity Officer/Specialist	DC
Herman Lloyd	Johnson, Mirmiran, & Thompson, Inc.	Vice President and Branch Manager	PA
Jean Macdonald	Massachusetts Bay Transportation Authority	Director of Education and Development	MA
Alberto Marino	Washington Metropolitan Area Transit Authority	Senior Diversity Officer	DC
Robert McCleary	Delaware DOT	Chief Engineer, Director of Transportation Solutions	DE
Judy Moore	National Alternative Fuels Training Consortium	Assistant Director of Communications	WV
Paula Nash	New Hampshire DOT	Workforce Development Manager	NH
Ann O'Neill	Massachusetts DOT	Manager of External Civil Rights Programs	MA
Michael Powder	First Transit	Field Recruiter	DC
Michael Smyth	National Alternative Fuels Training Consortium	Training and Curriculum Development	WV

Stakeholder involvement will be an ongoing process and outreach strategy. Building on the interview protocol, an online survey instrument was created and is being fielded during the month of September to solicit a wider community to offer evaluation comments and recommendations on implementation strategies and partners. See Appendix B for the format of this survey.

Refine and Finalize Action Plans. Based on stakeholder input, the research team finalized the five Northeast action plans. The final action plans include specific details related to the target audiences, relevant priority occupations, implementation steps, communication plans, helpful resources, examples of effective programs, the potential positive impact of the action plans, as well as any cautionary considerations in implementing the plans. Ultimately, the plans will help the region's transportation industry close workforce gaps in priority occupations, while enabling NETWC to achieve related goals and objectives. NETWC sees the action plans as a guide to implementation for the center's strategic plan and will be incorporated as such. Implementation of the action plans requires continued partnership building among stakeholders and, as such, NETWC considers the plans to be "in development," and subject to modification.

IV. Overview of Region’s Programs, Related Action Plans and Supporting Research

A summary of the Northeast target workforce development programs and associated action plan components is provided in Exhibit 3.

Exhibit 3: Overview of Workforce Development Programs for Workforce Development	
Program	Education Level / Level of Training Focus
Action Plan 1: Attracting Tomorrow’s Workforce Across the Northeast (Toolkit)	<ul style="list-style-type: none"> • Middle and High school • Community Colleges • 4-Year Colleges
Action Plan 2: Advancing Transportation Career Paths to the Future	<ul style="list-style-type: none"> • Entry level • Mid-career • Senior leaders
Action Plan 3: Greener is Better: Promoting and Branding Transportation as a Green Career	<ul style="list-style-type: none"> • Community Colleges • 4-Year Colleges • Job seekers at all levels
Action Plan 4: Implementing Succession Planning/KM to Increase Organizational Resilience: Crafting Strategies and Handbook)	<ul style="list-style-type: none"> • Mid-career • Senior leaders
Action Plan 5: Upskilling Transportation’s Current Workforce to Meet Emerging Challenges and Opportunities	<ul style="list-style-type: none"> • Pre-employment tracked workers • Entry-level workers • Mid-career • Senior leaders

**Specific partners and programs in these areas can be identified in the NETWC compendium of programs on its website. Key specific programs have been and will continue to be highlighted in the NETWC webinar series.*

An overview of each action plan along the research supporting the plan’s importance to the region is provided below. Full action plans can be found in Appendix C.

Research Supporting Action Plan 1 (AP1): Toolkit for Attracting Tomorrow's Workforce Across the Northeast

AP1 Program Summary: This strategy will attract new candidates, specifically through the strengthening and promotion of career entry education and awareness programs (e.g., summer institutes, targeted engagement events, and realistic job previews (RJPs)). NETWC will advance efforts designed to effectively engage various audiences such as state and local education program directors, teachers, counselors, colleges and graduate schools, professional associations, and non-traditional applicants (e.g., women, minorities, and veterans).

AP1 Program Description: This action plan includes four separate but interrelated workforce development approaches.

- To increase transportation career awareness among students in grades 6-12, a NETWC study group will examine outcomes of existing engagement and awareness-raising activities to ground the approaches to be advanced with evidence of success. NETWC will engage with transportation stakeholders that partner with schools across the region to create after-school or summer programs that explore transportation occupations. These programs typically include classroom time where students have the opportunity to learn about the transportation industry from various sources, as well as field trips to local transportation agencies. NETWC's facilitation of this process can help to ensure a consistent and systemic means to communicate career opportunities in the industry to students through engagement events and programs.
- NETWC will work with representative industry stakeholders to reach out to Career Technical Education (CTE) schools and programs as well as Science, Technology, Engineering, and Mathematics (STEM) initiatives to implement the adoption of transportation curriculum, certifications, and career engagement activities (e.g., Transportation Career Days). These initiatives will be stimulated at the state Education and Labor Department levels, and will engage workforce investment boards and industry coordinated programs designed to promote transportation careers to high school students and non-traditional employees. The strategy seeks to captivate students at a time when their interests are expanding and they are beginning to plan for their careers. Efforts will also, through increased awareness, reduce or eliminate barriers non-traditional candidates may face in seeking careers in transportation. Specifically, NETWC will look to challenges, opportunities, and skill sets aligned with its *focus areas*, for example, in moving to a non-petroleum fueled fleet and effective responses to climate change and adaptation.
- NETWC will engage the National Career Pathways Network at the Center for Occupational Research and Development (CORD) to develop a Transportation Career Pathway Leadership Certificate (<http://www.ncpn.info/cpl-workshop.php>) based on the pilot program under TEDPP at the University of Vermont. This process will provide professional development and interaction between educators and workforce development specialists, and will be designed to solidify a state-by-state and regional network of actively participating actors. It will serve as a template for other initiatives to encourage recognizable and transferable credentials for transportation workforce professionals.



- To expose non-traditional employees and students in community colleges, four-year colleges, and graduate schools to transportation careers, NETWC and representative stakeholders will work with transportation organizations in the region to develop a virtual pre-employment realistic job preview (RJP) that interested candidates can complete before applying for a job. This will provide candidates with a candid preview of what the job entails by allowing them the opportunity to see what the job is like and participate in simulated job tasks and virtual career mentoring with transportation employees in different fields.

AP1 Importance in the Northeast Region: According to stakeholders across the Northeast Region, students lack interest and awareness of career opportunities in the transportation industry. The industry also lacks a solid pipeline or recruitment methodology for some priority occupations, such as Computer and Information Systems Managers. Additionally, key occupations such as Urban and Regional Planners have a small job market in the region. These challenges, along with the challenge of competing with private sector organizations, make it difficult for the transportation industry to attract employees in priority occupations. By introducing students to the industry and the opportunities available, agencies may be able to pique students' interests in transportation careers and develop a pipeline of talent. This is especially important given the large amount of employees that will retire in the next 5-10 years. These strategies can also be used in support of NETWC's objective to attract non-traditional employees, such as women and veterans, who may be unaware of opportunities in the industry or perceive barriers to entry. Furthermore, these strategies can allow potential employees to gain an understanding of skills that are needed to advance effectively in various transportation occupations, incentivizing them to seek opportunities to gain and develop those skills through employment in the industry.

AP1 Relevant Research: NETWC's *Job Needs and Priorities Report Phase 1: Northeast Region* identified jobs in the region that are critical to the transportation industry, increasing the number of jobs/demand, and in need of a greater workforce development focus. As displayed in Exhibit 4 below, the projected increase in priority occupations for the region range from 4.4% for procurement clerks to 29.0% for cement masons and concrete finishers. Increasing awareness of transportation occupations and building a talent pipeline will allow transportation organizations in the Northeast to meet the growing demand. These projections and the broader overview of occupations and state specific data from the [first phase report](#) will be essential tools for state-specific initiatives and partnerships between Departments of Labor and Education as well as employers and educational institutions. (<http://netwc.net/fhwa-job-needs-and-priorities-report/>)

Exhibit 4: Occupational Projections for Action Plan 1 Target Occupations					
SOC Code	Occupation Title	# of Employees, 2012	Projected # of Employees, 2022	Change in # of Employees	Percent Change
11-3021	Computer and Information Systems Managers	95,300	109,670	14,370	15.1%
17-2051	Civil Engineers	55,790	65,160	9,370	16.8%
17-1022	Surveyors	7,460	7,910	450	6.0%
19-3051	Urban and Regional Planners	7,590	8,050	460	6.1%
17-3031	Surveying and Mapping Technicians	5,960	6,570	610	10.2%
47-2073	Operating Engineers and Other Construction Equipment Operators	60,870	68,170	7,300	12.0%
47-2152	Plumbers, Pipefitters, and Steamfitters	83,160	96,590	13,430	16.1%
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	43,780	46,970	3,190	7.3%
53-3032	Heavy and Tractor-Trailer Drivers	258,630	287,450	28,820	11.1%
47-2061	Construction Laborers	1,071,100	1,331,000	259,800	25.0%
47-2051	Cement Masons and Concrete Finishers	140,800	181,800	41,000	29.0%
51-4121	Welders, Cutters, Solderers, and Brazers	39,660	41,620	1,960	4.9%
53-1031	First-line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	40,290	43,360	3,070	7.6%
43-3061	Procurement clerk	15,650	16,340	690	4.4%

Research Supporting Action Plan 2 (AP2):

Transportation Career Paths to the Future

AP2 Program Summary: This action plan will promote career advancement, skill development, and employee retention among industry employees through the development and promotion of career path guidance. NETWC will provide support for efforts to engage entry-level staff, mid-career staff, and senior leaders in transportation organizations.

AP2 Program Description: NETWC will engage with representative industry stakeholders and transportation organizations in the Northeast Region to develop structured employee development practices that will prepare employees for advancement. Career paths demonstrate the possible ways that a career can progress and the different jobs an employee might consider as their career develops. Career paths are typically represented as a diagram showing the relationships between various roles in an industry and the possible paths for moving between them, both linearly and laterally. Supervisors then work with their employees to identify and achieve goals that will help employees move up the career path. Such tools are used within companies/agencies for internal advancement as well as by educational institutions and workforce development organizations to articulate career advancement in a track that can demonstrate how key skills are applied in occupations that may bridge between different employers and even fields (e.g., public to private, transportation to public works). In addition to helping individuals understand how to navigate their career, such tools assist employers in creating entry portals for workers transitioning from other fields or institutions and building retention strategies for experienced workers.



By helping employees see the growth and development opportunities available, career paths can increase retention in transportation agencies. Furthermore, research indicates that career pathways improve job satisfaction, employee motivation, and employee commitment (Griffin, Kalnbach, Lantz, & Rodriguez, 2000). To accomplish this, NETWC will work with representative industry stakeholders and transportation organizations to identify specific occupations that would most benefit from developing career paths, and develop guidance for organizations to be able to undertake this process independently. NETWC and industry stakeholders will provide transportation organizations with a career path guide, including templates and example career paths. By using this guide to develop career paths, organizations can increase retention in key positions and attract new employees by marketing the career paths and advancement opportunities in the industry.

AP2 Importance in the Northeast Region: In interviews, stakeholders in the region expressed that it is difficult to retain employees in some key occupations, due to unusual career trajectories and/or employees' lack of awareness regarding career development. This is especially true for STEM occupations, such as Civil Engineers. By developing career paths, transportation organizations in the Northeast can increase retention of employees by making clear the career trajectories and growth opportunities available within the organization, as well as within the field in the region. This will also help organizations overcome difficulties in maintaining the pipeline for key skill trades occupations (e.g., Plumbers, Pipefitters, and Steamfitters), which stakeholders mentioned as a challenge in interviews.

Research Supporting Action Plan 3 (AP3):

**Greener is Better: Promoting and Branding
 Transportation as a Green Career**

AP3 Program Summary: As the transportation industry moves to transition to non-petroleum fuels, address key climate change concerns, advance multi-modal options, expand transit, and promote active transport there is a clear opportunity to promote career opportunities in the transportation industry that advance an environmental mission, attracting potential new employees who are interested in green careers. NETWC will advance efforts to rebrand transportation occupations, including marketing efforts (e.g., plans and products such as write-ups, flyers, digital/social media outreach) that can be used and distributed region-wide to ensure a consistent image of the field, presented in a positive light with respect to environmental quality. NETWC will work with stakeholders to create focused efforts in different modes or fields, and as possible, track how such efforts influence the sector’s ability to attract an increased number of high quality and diverse candidates.

AP3 Program Description: A focus on environmental sustainability and consciousness has been increasing in the U.S. in recent years. The millennial workforce, in particular, is attracted by organizations that focus on their environmental and social successes, and identify these as places where they would like to work (PwC, 2011). Studies have also shown that Millennials feel it is a priority to make the world a better place through their work and many feel this can be achieved through advancing social responsibility and an increased focus on being “green” in the workplace (Forbes, 2014). Transportation is transitioning in ways that can position it as a green industry,



focusing on strategies and technologies and the new skills and competencies that are needed to, for example, create a fleet based on non-petroleum fuels, provide transit options to reduce SOVs and congestion, or design and implement maintenance and construction processes using more sustainable materials and exerting less impact on environmentally sensitive areas.

Increasing the image of transportation as being green or environmentally conscious can attract a wider range of job candidates to the industry dedicated to addressing future challenges in the field. The first step in this process is to create a “brand” for the transportation industry in the Northeast that focuses on the desired understanding of the industry. As such, information included in this action plan will guide NETWC and Northeast transportation organizations through the process of rebranding and updating the image of transportation. Specifically, NETWC will partner with organizations to invent and deploy the process and work to provide consistency in the message and shared understanding across organizations. NETWC will work with transportation organizations to create branding and marketing materials that promote transportation as a green field and highlight career options that benefit the environment and the community. This process must include understanding the message that needs to be shared and the appropriate way to brand transportation in light of the environment. By supporting organizations through this process, NETWC can ensure the brand and message are also aligned

with NETWC’s focus areas of climate change adaptation and alternative fuels. This will involve cooperation among NETWC and its partners across the region to ensure a consistent message is shared, that it is reaching the right audiences, and that the desired impact of the new brand is achieved.

AP3 Importance in the Northeast Region: To best attract new talent into priority jobs in the Northeast, it is valuable to focus on promoting the industry as one that is green, environmentally friendly, and focuses on building up the local community. By implementing this plan, the public will gain a more positive view of the transportation industry. This can increase participation in the industry, improve the overall image, and increase the number and quality of applicants interested in the field. Furthermore, rebranding the industry and promoting priority jobs as “green jobs” will support NETWC’s focus areas in moving to a non-petroleum fueled fleet and effective responses to climate change and adaptation.

Research Supporting Action Plan 4 (AP4): Implementing Succession Planning/KM to Increase Organizational Resilience

AP4 Program Summary: This action plan will strive to retain employees and institutional knowledge through development and implementation of succession planning and knowledge management initiatives. These efforts should be designed to engage entry-level staff, mid-career staff, and senior leaders.

AP4 Program Description: NETWC will engage with transportation organizations in the Northeast Region to identify key positions and capacities that will be particularly hard hit in the near future due to retirements, transfers, and other means of attrition. NETWC will support organizations in developing training programs that focus on management and leadership issues. Organizations can then implement these training programs to provide developmental opportunities for entry-level and mid-career employees to fill vacated leadership positions. This type of training can help employees who are interested in becoming leaders of the agency acquire the skills necessary for advancement and continued success.



Additionally, NETWC will support organizations in developing knowledge management programs or initiatives, in order to capture the knowledge of senior employees who may retire within the next 10 years. This will allow a means to pass knowledge down to entry-level and mid-career employees. It will also ensure organizations retain vital institutional knowledge, and will prevent “reinventing the wheel.”

This action plan serves to guide NETWC, representative industry stakeholders, and organizations in the region to develop succession planning and knowledge management efforts. To assist organizations through this process, NETWC and industry stakeholders will provide organizations with succession planning and knowledge management guides and templates. Organizations can then use this guidance to develop and implement succession planning initiatives, and ensure both employees and knowledge are retained.

AP4 Importance in the Northeast Region: Stakeholders in interviews mentioned that employees in key occupations from skilled craft trades such as Cement Masons and Concrete Finishers to Civil Engineers are crucial to building and repairing infrastructure and new transportation systems. Addressing the region’s critical infrastructure needs is highly dependent on a workforce with the necessary knowledge and skills, as well as understanding and experience with the existing infrastructure. Due to upcoming retirements and departing employees, transportation agencies in the Northeast Region may be at risk of losing vital institutional knowledge. By implementing workforce planning initiatives and a knowledge management system, agencies can retain and pass on necessary knowledge and skills. Entry-level and mid-career employees can then use this information to further their own professional development and advance along their career pathways as increasingly valuable assets to their organization.

Research Supporting Action Plan 5 (AP5):**Upskilling Transportation's Current Workforce to Meet Emerging Challenges and Opportunities**

AP5 Program Summary: This strategy serves to develop a list of highly valuable emerging skills and competencies that extend across selected transportation occupations in the region, the current capacity of organizations to advance this professional development, and training materials/protocols that can be used to upskill current industry employees at all levels, increasing on-the-job effectiveness and career pathway opportunities.

AP5 Program Description: Given the constantly changing transportation industry and the environment it must respond to, there is often a need evaluate current employee skills and competencies to determine how best to maintain relevance to new industry or job requirements. These can include soft skills, technical skills, and awareness of the changing environment (e.g., climate change, alternative fuels). As such, NETWC will work with representative industry stakeholders and organizations to identify skills that will be needed for various transportation occupations and how these differ from current staff skills and job requirements.

AP5 Importance in the Northeast Region: Priority transportation occupations were identified in the Northeast region to determine beneficial areas in which to invest resources into workforce development. For these various occupations, there is change expected in the region regarding how work needs to be done or the processes to obtain needed results. For example, procurement clerks were identified as a priority occupation because of changing requirements for grants and funding programs; as such, these employees may need new skills to successfully perform their jobs. Similarly, with an increased focus on environmental considerations, changes are occurring in how various transportation work, such as the construction and maintenance of roads, occurs. By updating the understanding of skill needs for these occupations, and identifying best practices to support training current employees on newly needed skills, workers in the Northeast will be better prepared for their work. This benefits employees through their increased skills, organizations through having properly trained workers, and the transportation industry in the region by having a skilled workforce ready to address emerging challenges.



V. Stakeholder Partnerships to Support the Action Plans

For each action plan, NETWC will collaborate with relevant partners to promote and implement the initiatives and programs in organizations across the region. This will help gain buy-in and raise awareness of the needs and potential mutual benefits of the workforce programs. Specifically, NETWC will work with partners and form working groups to identify best practices, develop marketing materials, conduct outreach, and ensure the program is successful in achieving its outcome. NETWC will also leverage its partners’ networks to effectively identify the target audiences for outreach. Additionally, having partners serve as champions of the program will enable NETWC to better communicate with the target audience for each action plan. Partners include academic institutions and public and private sector organizations. Exhibit 9 provides an overview of selected current partnerships developed over the past two years, as well as several in formation, and their association with the action plans.

Exhibit 9: Selected Northeast Region Partners	
Partners	Action Plan(s) to be advanced
National Career Pathway Network (in process)	<ol style="list-style-type: none"> 1. Attracting Tomorrow’s Workforce 2. Advancing Transportation Career Paths
American Public Transit Association (APTA)	<ol style="list-style-type: none"> 1. Attracting Tomorrow’s Workforce 2. Advancing Transportation Career Paths 3. Greener is Better 4. Implementing Succession Planning/KM
MHI – the nation’s largest material handling, logistics and supply chain association	<ol style="list-style-type: none"> 1. Attracting Tomorrow’s Workforce
Clean Cities Coalitions of the Northeast	<ol style="list-style-type: none"> 1. Attracting Tomorrow’s Workforce 3. Greener is Better 5. Upskilling Transportation’s Current Workforce
Vermont Agency of Transportation	<ol style="list-style-type: none"> 4. Implementing Succession Planning/KM
NE State Departments of Labor (in development)	<ol style="list-style-type: none"> 1. Attracting Tomorrow’s Workforce 2. Advancing Transportation Career Paths
TRB Standing Committee on Education and Training (ABG20)	<ol style="list-style-type: none"> 1. Attracting Tomorrow’s Workforce 2. Advancing Transportation Career Paths 5. Upskilling Transportation’s Current Workforce

VI. Action Plans to Address Identified Skill Needs

Action Plans serve as a strategic, high-level roadmap for outlining an implementation strategy. While they do not describe in detail how the strategy will be implemented, the Action Plan will provide direction and critical considerations for implementation. To provide a complete picture on requirements for piloting and implementing the programs, the action plans consist of multiple sections, as described in Exhibit 10. Full action plans are provided in Appendix C.

Exhibit 10: Overview of Data Fields in Strategic Action Plans	
Data Field Name	Description
Section 1: Overview of Strategic Recommendation	
Summary	<ul style="list-style-type: none"> Provides a short description of strategic recommendation. Includes overview of key points of interest from the full Strategic Action Plan.
Description	<ul style="list-style-type: none"> Provides broad overview of proposed recommendation. Indicates the type of effort being described (e.g., recruitment, retention). Describes the level at which the recommendation should be implemented.
Importance to NE Region	<ul style="list-style-type: none"> Provides a rationale for the recommendation based on research findings, specific to the Northeast region.
Relevant Research	<ul style="list-style-type: none"> Provides specific data points and results of research that have been considered in the development of the program.
Section 2: Target Audiences	
Target Audience	<ul style="list-style-type: none"> Identifies the key person(s) within the agency who are accountable for developing and managing the appropriate action plan, including carrying out the specific implementation steps. Identifies the key person(s) who should be contacted in order to implement the practice and stakeholders with whom to coordinate.
	<ul style="list-style-type: none">
Section 3: Implementation Plan	
Steps to Implement	<ul style="list-style-type: none"> Presents the key steps that should be followed, in order to successfully implement the practice.
Section 4: Communication Plan	
Communication/Outreach Strategies	<ul style="list-style-type: none"> Describes communication and outreach strategies that will help ensure successful implementation.
Process for Obtaining Buy-In	<ul style="list-style-type: none"> Describes the critical steps and processes that will assist agency in getting senior leadership to champion the practice.

Exhibit 10: Overview of Data Fields in Strategic Action Plans	
Data Field Name	Description
Section 5: Useful Internal and External Resources	
Useful Internal and External Resources	<ul style="list-style-type: none"> ▪ Identifies the internal and external resources that will assist in implementing the practice including groups or stakeholders that will need to be involved in implementation. ▪ Identifies the internal and external resources that will assist in successfully sustaining the practice.
Section 6: Example of Effective Programs	
Example(s) of Existing Effective Program	<ul style="list-style-type: none"> ▪ Provides bulleted examples of effective programs that have been successfully implemented and practiced in a transportation organization.
Section 7: Expected Impact	
Positive Outcomes of the Practice	<ul style="list-style-type: none"> ▪ Describes anticipated results of the practice with full adherence to the implementation steps. The impact information may include findings from research studies and/or anecdotal evidence from implementing agencies.

VII. Conclusion

By defining the region’s priority occupations and developing action plans, the Job Needs and Priorities Research Effort provided for a coordinated, strategic, and structured approach to transportation workforce development at the region, state and local levels. The products will help to focus the work of NETWC going forward and guide its interactions with NETWC’s public and private sector stakeholders. Through partnerships, NETWC can work with the transportation, education, workforce investment, and labor/union communities throughout the region to address pressing workforce challenges related to these key occupations. This collaborative approach will be important to the success of transportation workforce development and to the efficiency and effectiveness of the region’s transportation system. This focus will also better align the region’s workforce development efforts to meet the needs of the industry as these career pathways continue to become more complex and technologically advanced in response to the increasing rapid rate of change in the environment in which they must work.

VIII. Appendix A: Interview Protocol

Introduction and Overview

Interview to be conducted by staff from ICF International, a member of the NETWC team.

Staff from NETWC will be listening and taking notes. They will also ask your permission to record the session. The recording will only be used to check against notes during and through the analysis for the report and then deleted.

As you may already know, the goal of the Northeast Transportation Workforce Center is to enhance transportation workforce development activities in the region. The Center is part of a network of five regional centers that cover the entire U.S and is funded by FHWA. At the Northeast Transportation Workforce Center, we are currently working to identify priority occupations and skill sets as well as other workforce issues that are important in the region and therefore would benefit from additional focus in our activities.

Previously, our team identified occupations within the transportation workforce in the Northeast that would benefit from additional workforce development focus. Based on the information learned through previous literature reviews, research, and interviews, we have also started to develop Action Plans to address workforce challenges facing transportation organizations in the Northeast. **The goal of today's interview is to gather your thoughts and input about these Action Plans so that we can further develop and refine them in support of employer initiatives across the region.**

Interview Questions

Background

1. Can you provide a brief overview of your organization and its mission in the transportation industry?
2. Could you tell us about your role within your organization as well as your work in or relationship to transportation workforce development?

Selection of Action Plans to Cover in Interview

3. Prior to this interview, you should have received a document that provides an overview of the five action plans that are being developed as focus areas for progress in the Northeast. What are your overall impression of the types of action plans that are being developed? How helpful will these be for addressing workforce issues within transportation across the region?
4. To best focus our discussion today, we would like you to identify the 2-3 action plans that are of particular interest to you and where you feel you have the most input or feedback. Of the following, where would you like to focus?
 - a. Action Plan 1: Toolkit for Attracting Tomorrow's Workforce Across the Northeast
 - b. Action Plan 2: Transportation Career Paths to the Future

- c. Action Plan 3: Greener is Better: Promoting and Branding Transportation as a Green Career
- d. Action Plan 4: Handbook for Implementing Succession Planning/KM to Increase Organizational Resilience
- e. Action Plan 5: Upskilling Transportation's Current Workforce to Meet Emerging Challenges and Opportunities

Action Plan Review and Discussion- for each Action Plan Selected for review

- 5. Does the description of this action plan and its intended audiences make sense in the context of the transportation industry across the region?
 - a. What is unclear or could use additional clarification in describing the action plan or its intended audiences?
 - b. If it is successfully implemented, will this action plan make a significant difference in addressing workforce issues in the industry?
- 6. What examples of an action plan or strategy like this have you seen implemented, either within your organization or at another?
 - a. What steps were particularly important for effective implementation?
 - b. What benefits have been experienced as an outcome of implementing a strategy like this?
 - c. If your organization has not done anything like this, are there any particular reasons why you have not?
- 7. In thinking about communications around the implementation of a strategy such as this, who would be most important to engage to ensure that there is buy-in to the process?
 - a. What types of outreach would be necessary within your organization and across the region to ensure widespread implementation? With whom?
- 8. What do you see as barriers to effective implementation of a plan like this?
 - a. What types of challenges are most likely to be experienced in implementing or maintaining a strategy like this?
- 9. What advice would you give for implementing an action plan such as this?
 - a. What would increase the probably of successful implementation of this action plan across the region?

Summary

Do you have recommendations for other stakeholders or organizations we should engage, who would have valuable input on any of the action plans described?

IX. Appendix B: Ongoing Stakeholder Outreach Survey on Action Plans

8/30/2016

Northeast Transportation Workforce Center: Stakeholder Action Plan Survey



Northeast Transportation Workforce Center: Stakeholder Action Plan Survey

1. Background

The Northeast Transportation Workforce Center (NETWC) supports efforts to ensure that the U.S. surface transportation system has a workforce that is resilient, skilled, efficient and effective in designing, operating, building and maintaining a 21st century transportation system that supports the region and country's social and economic vitality. NETWC builds strategic partnerships and engages regional and national stakeholders to develop a skilled and career-ready transportation workforce throughout the region. Formed by a FHWA grant to compliment and create extended opportunities in transportation workforce development, NETWC is building a network that connects resources, promising practices, and, most importantly, innovative thinkers already engaged in transportation workforce development.

Five strategic action efforts have been chosen to advance this mission and build partnerships.

- o Toolkit for attracting Tomorrow's Workforce across the Northeast
- o Transportation Career Paths to the Future
- o Greener is Better: Promoting and Branding Transportation as a Green Career
- o Handbook for Implementing Succession Planning/KM to Increase Organizational Resilience
- o Upskilling Transportation's Current workforce to meet emerging

If you have not received the draft Action Plan document, you can access it at:

<http://netwc.net/wp-content/uploads/2016/08/action-plan-summary-08252016.pdf>

* 1. Background

Name	<input type="text"/>
Organization	<input type="text"/>
Title	<input type="text"/>
State/Province	<input type="text" value="VT Vermont"/>
Email Address	<input type="text"/>
Your role in relation to transportation workforce development in your organization:	<input type="text"/>

8/30/2016

Northeast Transportation Workforce Center: Stakeholder Action Plan Survey

* 2. What are your overall impression of the types of action plans that are being developed? In general, are these areas of value from a NE regional perspective for addressing workforce issues within transportation? Please rate the level of value that the successful advancement of these plans would have for your organization:

	No Value	Some Value	Fair Value	More Value	High Value
Toolkit for attracting Tomorrow's Workforce across the Northeast	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transportation Career Paths to the Future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Greener is Better: Promoting and Branding Transportation as a Green Career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Handbook for Implementing Succession Planning/KM to Increase Organizational Resilience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upskilling Transportation's Current Workforce to Meet Emerging Challenges and Opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:



Next

Powered by



See how easy it is to [create a survey](#).

8/30/2016

Northeast Transportation Workforce Center: Stakeholder Action Plan Survey



Northeast Transportation Workforce Center: Stakeholder Action Plan Survey

2. Selection of Action Plans

* 3. With the invitation you received a document that provides an overview of the five action plans that are being developed as focus areas for progress in advancing the Transportation Workforce in the Northeast. Please choose one to discuss: (you will have a chance to discuss as many as you like)

- Toolkit for attracting Tomorrow's Workforce across the Northeast
- Transportation Career Paths to the Future
- Greener is Better: Promoting and Branding Transportation as a Green Career
- Handbook for Implementing Succession Planning/KM to Increase Organizational Resilience
- Upskilling Transportation's Current Workforce to Meet Emerging Challenges and Opportunities

25%

Prev

Next

Powered by



See how easy it is to [create a survey](#).

8/30/2016

Northeast Transportation Workforce Center: Stakeholder Action Plan Survey



Northeast Transportation Workforce Center: Stakeholder Action Plan Survey

3. Toolkit for attracting Tomorrow's Workforce across the Northeast

4. Does the description of this action plan and its intended audiences make sense in the context of the transportation industry across the region?

- YES
- NO
- UNSURE

5. What is unclear or could use additional clarification in describing the action plan or its intended audiences?

6. If it is successfully implemented, will this action plan make a significant difference in addressing workforce issues in the industry?

- YES
- NO
- UNSURE

7. What examples of an action plan or strategy like this have you seen implemented, either within your organization or at another?

8/30/2016

Northeast Transportation Workforce Center: Stakeholder Action Plan Survey

8. What benefits might be realized as an outcome of implementing a strategy like this? Are there specific job categories that are currently hard to fill that might benefit from implementation of this strategy?

9. Who do you think are the critical partners to reach out to for successful implementation?

10. What do you see as barriers to effective implementation of a plan like this?

11. What actions would increase the probability of successful implementation of this action plan across the region?

12. Please rate the level of value that the successful advancement of this plans would have for your organization:

No Value Some Value Fair Value More Value High Value

Toolkit for attracting Tomorrow's
Workforce across the Northeast

13. Would you like to comment on another action plan?

Yes

8/30/2016

Northeast Transportation Workforce Center: Stakeholder Action Plan Survey

No



Prev

Next

Powered by



See how easy it is to [create a survey](#).

8/30/2016

Northeast Transportation Workforce Center: Stakeholder Action Plan Survey



Northeast Transportation Workforce Center: Stakeholder Action Plan Survey

4. Summary

14. Do you have recommendations for other stakeholders or organizations we should engage, who would have valuable input on any of the action plans described?

15. Any additional comments or questions?

**If you have any questions or concerns
please contact the Center Director, Glenn McRae.
Glenn.McRae@uvm.edu (802) 656-1317**

Thank you for your assistance.

Results of our planning will be posted on the NETWC website

<http://netwc.net/>

100%

Prev

Done

X. Appendix C: Full Strategic Action Plans

Action Plan 1: Attracting Tomorrow's Workforce Across the Northeast (Toolkit)

Summary: This strategy will attract new candidates, specifically through the strengthening and promotion of career entry education and awareness programs (e.g., summer institutes, targeted engagement events, and realistic job previews (RJPs)). NETWC will advance efforts designed to effectively engage various audiences such as state and local education program directors, teachers, counselors, colleges and graduate schools, professional associations, and non-traditional applicants (e.g., women, minorities, and veterans).

Description: To increase transportation career awareness among students in grades 6-12, a NETWC study group will examine outcomes of existing engagement and awareness-raising activities to ground the approaches to be advanced with evidence of success. NETWC will engage with transportation stakeholders that partner with schools across the region to create after-school or summer programs that explore transportation occupations. These programs typically include classroom time where students have



the opportunity to learn about the transportation industry from various sources, as well as field trips to local transportation agencies. NETWC's facilitation of this process can help to ensure a consistent and systemic means to communicate career opportunities in the industry to students through engagement events and programs.

NETWC will work with representative industry stakeholders to reach out to Career Technical Education (CTE) schools and programs as well as Science, Technology, Engineering, and Mathematics (STEM) initiatives to implement the adoption of transportation curriculum, certifications, and career engagement activities (e.g., Transportation Career Days). These initiatives will be stimulated at the state Education and Labor Department levels, and will engage workforce investment boards and industry coordinated programs designed to promote transportation careers to high school students and non-traditional employees. The strategy seeks to captivate students at a time when their interests are expanding and they are beginning to plan for their careers. Efforts will also, through increased awareness, reduce or eliminate barriers non-traditional candidates may face in seeking careers in transportation. Specifically, NETWC will look to challenges, opportunities, and skill sets aligned with its *focus areas*, for example, in moving to a non-petroleum fueled fleet and effective responses to climate change and adaptation.

NETWC will engage the National Career Pathways Network at the Center for Occupational Research and Development (CORD) to develop a Transportation Career Pathway Leadership Certificate (<http://www.ncpn.info/cpl-workshop.php>) based on the pilot program under TEDPP at the University of Vermont. This process will provide professional development and interaction between educators and workforce development specialists, and will be designed to solidify a state-by-state and regional network of actively participating actors. It will serve as a template for other initiatives to encourage recognizable and transferable credentials for transportation workforce professionals.

To expose non-traditional employees and students in community colleges, four-year colleges, and graduate schools to transportation careers, NETWC and representative stakeholders will work with transportation organizations in the region to develop a virtual pre-employment realistic job preview (RJP) that interested candidates can complete before applying for a job. This will provide candidates with a candid preview of what the job entails by allowing them the opportunity to see what the job is like and participate in simulated job tasks and virtual career mentoring with transportation employees in different fields.

Importance in the Northeast Region: According to stakeholders across the Northeast Region, students lack interest and awareness of career opportunities in the transportation industry. The industry also lacks a solid pipeline or recruitment methodology for some priority occupations, such as Computer and Information Systems Managers. Additionally, key occupations such as Urban and Regional Planners have a small job market in the region. These challenges, along with the challenge of competing with private sector organizations, makes it difficult for the transportation industry to attract employees in priority occupations. By introducing students to the industry and the opportunities available, agencies may be able to pique students' interests in transportation careers and develop a pipeline of talent. This is especially important given the large amount of employees that will retire in the next 5-10 years. These strategies can also be used in support of NETWC's objective to attract non-traditional employees, such as women and veterans, who may be unaware of opportunities in the industry or perceive barriers to entry. Furthermore, these strategies can allow potential employees to gain an understanding of skills that are needed to advance effectively in various transportation occupations, incentivizing them to seek opportunities to gain and develop those skills through employment in the industry.

Relevant Research: NETWC's *Job Needs and Priorities Report Phase 1: Northeast Region* identified jobs in the region that are critical to the transportation industry, increasing the number of jobs/demand, and in need of a greater workforce development focus. As displayed in Exhibit 4 below, the projected increase in priority occupations for the region range from 4.4% for procurement clerks to 29.0% for cement masons and concrete finishers. Increasing awareness of transportation occupations and building a talent pipeline will allow transportation organizations in the Northeast to meet the growing demand. These projections and the broader overview of occupations and state specific data from the [first phase report](#) will be essential tools for state-specific initiatives and partnerships between Departments of Labor and Education as well as employers and educational institutions. (<http://netwc.net/fhwa-job-needs-and-priorities-report/>)



Target Audiences



Most importantly, the outreach effort for this action plan will seek to engage representatives from a wide range of transportation employers and organized labor to be active agents in programs directed toward (1) the grades 6-12 audience, targeting state and local program directors (Education and Labor), teachers, and counselors; (2) community colleges, 4-year colleges, and graduate schools, through University Career Centers, cross-school STEM programs, green jobs initiatives, key department faculty, and professional associations with active student focused outreach efforts; and (3) through Labor department and workforce boards as well as key interest groups. This action plan will also target potential employees of all ages from key targeted groups (e.g., disadvantaged youths, women, veterans).



Implementation Plan



Action Lead(s): Northeast Transportation Workforce Center in concert with dedicated Working Group of Employer (e.g., Conference of Minority Transportation Officials (COMTO)) and Education (e.g., Advance CTE) stakeholders.

Steps to Implement

- 1. Assemble Agency Project Team.** The project team should consist of agency leaders and subject matter experts.
- 2. Identify and Network with Partners and Vendors in the Region.** The agency project team should aim to build partnerships with local school teachers and guidance counselors; university and/or community college faculty in transportation-related programs; union representatives; and state and local leaders in education and labor.
- 3. Hold Planning Meetings with Partners and Vendors.**
- 4. Develop Marketing Materials and RJP Tool.** Marketing materials may include short lesson plans and instructions for schools that can be made available for free for teachers to access. It may also include success stories and examples to showcase career advancement and satisfaction in transportation.
- 5. Engage Students.** Identify best practices and innovative approaches for agencies to provide students the opportunity to interact with current employees in hands-on activities using real equipment and machinery. Information regarding transportation career opportunities can also be presented by current employees.
- 6. Collect data.** Establish metrics and collect data to evaluate return on investment (e.g., number of students entering apprenticeship programs post-high school).
- 7. Follow-Up with Partners and Review Quarterly Reports with Vendors.** Review data with partners and vendors to identify areas for improvement and/or additional areas to focus efforts.



Communication Plan



Communication/Outreach Strategies

- Identify key information resources used by the target audiences to encourage marketing transportation-related careers through existing effective media.
- Develop marketing materials to promote transportation-related careers and tools to the primary target audiences through the identified information channels. Although marketing materials should aim to attract target populations, they should be developed using broad and inclusive language.
- Identify top universities and community colleges offering transportation-related programs and provide them with information on the RJP and virtual mentoring tools.
- Document resources and programs with “promising practices” and make information easily accessible and usable through web based tools, including downloads of documents, tools, case studies, and webinars to highlight and assist in accessing, implementing and evaluating.
- Participate in community events to increase awareness and visibility of the agency, and use the opportunity to distribute marketing materials.

- Conduct outreach over social media, such as Facebook, Twitter, and LinkedIn, to better reach younger audiences and millennials.
- Gain visibility and recruit students on college campuses by conducting outreach during themed events (e.g., holidays, food festivals, on-campus events). Partner with career centers and student organizations to be able to directly interact with students.

Process for Obtaining Buy-In

- Provide data that highlight the impact of marketing transportation careers and using tools such as the RJP, and tie them to the specific strategic goals that employers and agencies have set regarding recruitment and retention targets.
- Identify media contacts who cover education news and who would be interested in writing stories on the industry’s/agency’s efforts to education students on reputable jobs and careers within the transportation industry in the Northeast Region. Produce readily usable material for use by media and professional organizations and promote access to them.
- Present information regarding benefits and impacts of transportation careers to parents, university and/or community college program faculty, middle/high school staff (e.g., guidance counselors), and career centers to increase awareness and understanding. Provide materials for them to disseminate the information to students and potential job candidates.
- Obtain case studies on the success of previously developed tools (e.g. RJP), demonstrated ROI, and other benefits of tools such as positive applicant perceptions.



Useful Internal and External Resources



- Ensure support from leaders at the industry level, as well as subject matter experts (SMEs).
- Develop materials that can be distributed directly to schools and colleges to showcase transportation career paths for students and the tools available to them to explore.
- Provide students and non-traditional employees the opportunity to touch and interact with equipment or “tools of the trade” and current local employees.
- Some trade schools have funding in place to allow students to work in agencies that otherwise would not have the resources to employ them. Research available scholarships and grants that provide support such as this.



Examples of Effective Programs



- **Transportation YOU – Advancing Women in Transportation (WTS), Washington, D.C., Philadelphia, Greater New York, Boston, and Maine Chapters.** This program is a hands-on, interactive, mentoring program that offers young girls ages 13-18 an introduction to a wide variety of transportation careers. In partnership with the U.S. Department of Transportation, WTS chapters work to make a difference in the lives of young girls by offering programs and activities that will spark their interest in all modes of transportation and encourage them to take courses in science, technology, engineering, and math (STEM), which are the stepping stones to exciting careers that can change the face of the transportation industry.
- **Massachusetts Construction Career Development (MCCD) Program – MassDOT.** This is a pre-apprenticeship program focused in the construction trades, concentrating on

underrepresented groups such as women and minorities. MassDOT partners with five organizations, including Construction Industries of Massachusetts and New England Labor Training Academy, to bring the program to vocational schools across the state. These schools host shop weeks, during which students are exposed to programs focusing on a variety of careers, including the MCCD Program. In this program, students have the opportunity to interact with various types of construction equipment, and obtain flagger, OSHA, first aid, and CPR certifications. If students are interested in applying to the New England Labor Training Academy's apprenticeship program upon graduation, they are able to gain thirty hours of credit toward their first year classroom requirements under the MCCD Program. This program aims to develop and sustain a pipeline of skilled, licensed workers who can contribute to transportation and construction projects after graduation.

- **Focus on K2, Construction Unit – Boston Public Schools.** The Focus on K2 program provides kindergarten students with hands-on learning experiences focused on a variety of disciplines. The Construction unit provides students the opportunity to learn about physical science, engineering, and technology through the building of structures, measurement and comparison, and experimentation with materials. Students participate activities such as construction design studios, STEM discovery stations, and interactions with local construction experts to gain an understanding of basic construction principles. Students are encouraged to ask questions, explore, and work in small groups to pursue areas of interest and curiosity.
- **New England Laborers' Apprenticeship Program – New England Laborers' Training Trust Fund.** The New England Laborers' Apprenticeship Program is available in six states throughout the Northeast Region, and offers a variety of construction-related courses. In partnership with Bunker Hill Community College, New England Laborer's Training Trust Fund allows students completing the Technical Business option at Bunker Hill to transfer college credits for courses successfully completed during an apprenticeship. This provides students the opportunity to build upon their apprenticeship training, with the option of also pursuing a college degree for greater career advancement and mobility.
- **Summer Internship Program – Delaware DOT.** This internship program is for civil engineering students. Students are typically recruited from local universities and colleges, such as the University of Delaware and Delaware Technical and Community College. All interns are assigned to a mentor, and have the opportunity to explore a variety of projects while gaining exposure to new technologies in the industry. At the end of the internship, students must present on what they have learned from the experience.
- **TRAC (Transportation and Civil Engineering) – New Hampshire DOT.** TRAC is a hands-on education program designed for use in high school science, math, and social science classes. By engaging students in solving real-world problems such as bridge building, TRAC connects students to the work world of transportation and inspires them to consider careers in transportation and civil engineering.
- **Construction Career Days (CCD) – New Hampshire DOT.** This program is for high school students, to increase career awareness in the construction and transportation industry. Students gain hands-on experience with heavy equipment, welding, small tools, plumbing, wiring, and other construction-related jobs. It is a two-day program with approximately fifteen hundred participants.



Expected Impact



Expected Positive Outcomes of the Practice

- Increase awareness of transportation careers among workforce development practitioners in the region.
- Facilitate greater understanding in the community of career entry education and awareness programs' services and missions, and awareness of the value the transportation organizations bring to the region.
- New partnerships are established and solidified. NETWC is identified as the “go to” source for transportation workforce resources by employers, educators, and job seekers.
- More students choose transportation related course work/education.
- Develop a talent pipeline and increase ease of recruitment by employers.

Cautionary Considerations - Challenges to Consider

- Requires substantial time and labor commitment from employees who will need to develop and prepare materials to promote the programs, and spend time away from their regular job. For example, those volunteering to teach in schools typically need to go through a background check which, simply due to time constraints, might discourage volunteers from being willing to teach or visit schools.
- Obtaining funding to develop and implement a virtual tools such as pre-employment RJP and assessment or virtual mentoring can be a challenge.
- High school students may be looking for job opportunities as a result of the campaign. While many agencies will not be able to directly make job offers as a result of these programs, it will be important to fully inform interested job-seekers on transportation occupations and benefits of a career in transportation (e.g. new skills, training, career paths, etc.)
- It may be difficult to engage with older teens from under-represented groups without an innovative way to encourage them to put the time and energy into being trained for these jobs instead of competing hobbies like sports and music.
- Requires approval from Unions for occupations represented. Partner with Employee/Labor Relations personnel to help mitigate potential dissention from Unions.
- May require different types of outreach and recruitment efforts to connect with both rural and urban populations.
- Middle and high school students are typically pressured to attend accredited four-year degree programs. Greater outreach may be needed to increase awareness of skilled trades occupations among teachers, guidance counselors, parents, and students.
- Communication with the local community will be necessary to overcome the general public's perceptions of the usefulness of transportation employees' participation in community events and K-12 outreach activities.

Action Plan 2: Advancing Transportation Career Paths to the Future

Summary: This action plan will promote career advancement, skill development, and employee retention among industry employees through the development and promotion of career path guidance. NETWC will provide support for efforts to engage entry-level staff, mid-career staff, and senior leaders in transportation organizations.

Description: NETWC will engage with representative industry stakeholders and transportation organizations in the Northeast Region to develop structured employee development practices that will prepare employees for advancement. Career paths demonstrate the possible ways that a career can progress and the different jobs an employee might consider as their career develops. Career paths are typically represented as a diagram showing the relationships between various roles in an industry and the possible paths for moving between them, both linearly and laterally. Supervisors then work with their employees to identify and achieve goals that will help employees move up the career path. Such tools are used within companies/agencies for internal advancement as well as by educational institutions and workforce development organizations to articulate career advancement in a track that can demonstrate how key skills are applied in occupations that may bridge between different employers and even fields (e.g., public to private, transportation to public works). In addition to helping individuals understand how to navigate their career, such tools assist employers in creating entry portals for workers transitioning from other fields or institutions and building retention strategies for experienced workers.



By helping employees see the growth and development opportunities available, career paths can increase retention in transportation agencies. Furthermore, research indicates that career pathways improve job satisfaction, employee motivation, and employee commitment (Griffin, Kalnbach, Lantz, & Rodriguez, 2000). To accomplish this, NETWC will work with representative industry stakeholders and transportation organizations to identify specific occupations that would most benefit from developing career paths, and develop guidance for organizations to be able to undertake this process independently. NETWC and industry stakeholders will provide transportation organizations with a career path guide, including templates and example career paths. By using this guide to develop career paths, organizations can increase retention in key positions and attract new employees by marketing the career paths and advancement opportunities in the industry.

Importance in the Northeast Region: In interviews, stakeholders in the region expressed that it is difficult to retain employees in some key occupations, due to unusual career trajectories and/or employees' lack of awareness regarding career development. This is especially true for STEM occupations, such as Civil Engineers. By developing career paths, transportation organizations in the Northeast can increase retention of employees by making clear the career trajectories and growth opportunities available within the organization, as well as within the field in the region. This will also help organizations overcome difficulties in maintaining the pipeline for key skill trades occupations (e.g., Plumbers, Pipefitters, and Steamfitters), which stakeholders mentioned as a challenge in interviews.



Target Audiences



This action plan is targeted toward staff who are seeking career guidance, to assist them in making training and skill development decisions. Target career stages include entry-level staff, mid-career staff, and Senior leaders.



Implementation Plan



Action Lead(s): Northeast Transportation Workforce Center in concert with a dedicated Committee of Industry Stakeholders.

Steps to Implement

1. **Assemble Project Team.** Team members should include those who are best able to identify and outline career ladders and associated job titles. The project team should also include Employee/Labor Relations personnel to help present the career path program including the jobs involved, those being impacted, and the fairness/consistency of the program. Further, the team should include budget staff to ensure funding is in place to support career path development.
2. **Define Job Group.** It is important to understand the actual need for the career paths. Because transportation jobs have much variety and intricacies within each job title, it is necessary to clarify the requirements of the job titles and job group in advance.
3. **Divide Competencies into Tiers from Entry to Management Level.**
4. **Create and Refine Specific Job Titles and Descriptions for Each Level.**
5. **Communicate with Users.**
6. **Validate and Refine.**
7. **Develop infrastructure.** To have successful career paths, the systems and policies that support the use of career paths should be in place, such as a Learning Management System that can support the training and development requirements that have been outlined as part of the career pathways.
8. **Assess and evaluate return on investment.**



Communication Plan



Communication/Outreach Strategies

- Develop examples of orientation training to provide employees with overview of career pathways and benefits.
- Demonstrate how to utilize all internal communication channels to inform employees about employer's efforts in defining career paths.
- Engage professional organizations in conducting member outreach and education on career pathways and opportunities in the region.
- Develop career pathway tool for employees in different career pathways to assist in documenting and tracking skills and competencies in their field and aligning it with pathway opportunities. Tools should be able to align easily with Learning Management Systems (LMS).

- Assemble case studies of organizations where employees and employers cooperatively track progress in skill and competency acquisition and mastery, and incorporate career pathway charting as part of performance reviews.
- Use local newspapers, job boards, LinkedIn, and CareerBuilder to make open positions easy to find.
- To fill positions with diverse candidates, consider outreach to organizations working with providing training and skills to minority populations to source qualified and diverse candidates.

Process for Obtaining Buy-In

- Provide data that highlight the impact of career pathways and tie them to specific goals the region has regarding development targets. Also provide data to communicate the costs of not implementing this type of initiative.
- Obtain case studies indicating success of other industries and/or transportation fields in similar career pathway efforts. Present the return on investment these organizations have experienced as a result of implementing this type of initiative.
- Present the program to applicable labor unions where necessary. Introduce the career path idea and plan as well as those jobs included and how the career paths promote fairness and consistency across occupations.



Useful Internal and External Resources



- Develop support from agency leadership and unions.
- Create job descriptions to identify job tasks and knowledge, skills, and abilities needed to perform the job.
- Involve HR managers and personnel managers who are engaged and invested in the development of the new career pathways.



Examples of Effective Programs



- **Construction Career Pathway, University of the District of Columbia Community College.** This Associate’s Degree program includes The National Center for Construction Education and Research (NCCER) Core Curriculum as a prerequisite to all other Level 1 craft curriculum, such as carpentry, electrical, plumbing, and HVAC. Modules cover topics such as Basic Safety, Communication Skills and Introduction to Construction Drawings. Completing this curriculum gives the trainee the basic skills needed to continue education in any craft area he or she chooses.
-



Expected Impact



Expected Positive Outcomes of the Practice

- Decreased turnover across the region.
- Better prepared staff for leadership positions.

-
- Increased job satisfaction and organizational commitment among mid-career staff.
 - Increased organizational ability to properly target training and developmental experience.
 - More new entrants into transportation career pathways programs.
 - Increase in skilled workforce, leading to greater responsiveness to organization's mission.

Cautionary Considerations - Challenges to Consider

- Requires approval from Unions for occupations represented. Partner with Employee/Labor Relations personnel to help mitigate potential dissension from Unions.
 - Requires in depth understanding of the variety of needs within and across transportation occupations which should be considered in the career path.
 - May require compliance with local civil service rules and regulations. Partner with HR representatives from local government entities to ensure requirements are met.
 - Significant dedication of resources.
 - Long-term commitment. The process of developing career pathways can take up to two years, depending on the parties and associated requirements involved. After establishing career pathways, managers and supervisors must be willing to invest in and support ongoing training and development opportunities, to help employees move up career paths.
-

Importance in the Northeast Region: To best attract new talent into priority jobs in the Northeast, it is valuable to focus on promoting the industry as one that is green, environmentally friendly, and focuses on building up the local community. By implementing this plan, the public will gain a more positive view of the transportation industry. This can increase participation in the industry, improve the overall image, and increase the number and quality of applicants interested in the field. Furthermore, rebranding the industry and promoting priority jobs as “green jobs” will support NETWC’s focus areas in moving to a non-petroleum fueled fleet and effective responses to climate change and adaptation.

 **Target Audiences** 

This action plan focuses on activities that transportation agencies/organizations, industry stakeholders, and other transportation leaders across the region can do to rebrand the transportation industry. These groups will be responsible for creating a branding message that will benefit the industry’s image across the region. Ultimately, transportation organizations and stakeholders will be able to share this information with the general public, job seekers at all levels, and students in fields related to NETWC’s priority jobs.

 **Implementation Plan** 

Action Lead(s): NETWC can serve as the leader of this action plan to ensure effective implementation across the region by working with various organizations and agencies. Each participating organization will also need to identify someone in marketing or communications to be responsible for sharing the new branding message.

Steps to Implement

1. **Ask questions of multiple audiences** to understand current branding and marketing efforts.
2. **Work to understand the target audience** and the types of messages that will appeal to them; this can be achieved by gathering market data.
3. **Develop an image management/rebranding campaign** that will appeal to wide audience and be applicable across the region.
4. **Identify partners** to assist in sharing the branding message, to help multiply its reach and impact.
5. **Include key branding and image messages in all public materials**, and request that the region’s transportation organizations do the same.

 **Communication Plan** 

Communication/Outreach Strategies

- Focus on promoting the industry and unique aspects that can make the program stand out.
- Ensure that the message to be shared about the industry is coherent and consistent; having collateral and materials that can be provided to various transportation organizations and provide talking points can be especially valuable for this strategy.

Process for Obtaining Buy-In

- Show value of promoting transportation as green or environmentally friendly.

- Provide evidence of the impact of strong marketing campaigns to establish their success and value.



Useful Internal and External Resources



- Buy-in from organizations and agencies across the region to help promote the brand.
- Design specialists who can create and customize a brand.
- High quality, multi-use communications about the project that can be shared through various media (e.g., websites, flyers, corporate campaigns) will be valuable. These communications need to be relevant to stakeholders and tell the story of transportation as green.



Examples of Effective Programs



- **Rivers and Roads Program, Vermont Department of Environmental Conservation.** This training program is provided by the Watershed Management Division to members of the Vermont Agency of Transportation (VTrans). Following Tropical Storm Irene, it was realized that organizations functioning around rivers need to understand how to do so effectively and without harming the environment. The first level of the *Rivers and Roads* training is online and provides a general awareness of river processes and infrastructure effects. Next, transportation employees participate in classroom and field-based training that focuses on minimizing impacts to aquatic habitats in the design and maintenance of infrastructure. Through this program, transportation employees and organizations can learn about the value of natural resources, such as rivers, and understand how to build and maintain roads around rivers without a negative impact on the environment.
- **FHWA Videos on Livability, developed by the Partnership for Sustainable Communities.** These videos highlight how livability has been implemented in communities across the country. Specific videos to consider include the Provide More Transportation Choices which discuss how transportation can impact improved air quality, reduced greenhouse gas emission and reduce the nation's dependence on foreign oil. The videos are available for download at <http://www.fhwa.dot.gov/livability/videos/>.
-



Expected Impact



Expected Positive Outcomes of the Practice

- More positive view of transportation and transportation jobs by the general public.
- Increased applicants and interest in the field.
- Opportunity to earn grants or funding for green energy or technology.
- Stimulated growth in the industry and expansion of the labor market.
- NETWC identified nationally as a leader in transportation workforce development, especially in priority areas of alternative fuels and climate adaptation.

Cautionary Considerations - Challenges to Consider

-
- Not all types of individuals or areas of the region will be receptive to the same types of information. For example, in areas where pollution or elimination of green spaces (e.g., parks) are not hot topic issues, potential employees and the public may have less of an interest in learning about transportation as being environmentally friendly.
-

Action Plan 4: Implementing Succession Planning/KM to Increase Organizational Resilience: Crafting Strategies and a Handbook

Summary: This action plan will strive to retain employees and institutional knowledge through development and implementation of succession planning and knowledge management initiatives. These efforts should be designed to engage entry-level staff, mid-career staff, and senior leaders.

Description: NETWC will engage with transportation organizations in the Northeast Region to identify key positions and capacities that will be particularly hard hit in the near future due to retirements, transfers, and other means of attrition. NETWC will support organizations in developing training programs that focus on management and leadership issues. Organizations can then implement these training programs to provide developmental opportunities for entry-level and mid-career employees to fill vacated leadership positions. This type of training can help employees who are interested in becoming leaders of the agency acquire the skills necessary for advancement and continued success.



Additionally, NETWC will support organizations in developing knowledge management programs or initiatives, in order to capture the knowledge of senior employees who may retire within the next 10 years. This will allow a means to pass knowledge down to entry-level and mid-career employees. It will also ensure organizations retain vital institutional knowledge, and will prevent “reinventing the wheel.”

This action plan serves to guide NETWC, representative industry stakeholders, and organizations in the region to develop succession planning and knowledge management efforts. To assist organizations through this process, NETWC and industry stakeholders will provide organizations with succession planning and knowledge management guides and templates. Organizations can then use this guidance to develop and implement succession planning initiatives, and ensure both employees and knowledge are retained.

Importance in the Northeast Region: Stakeholders in interviews mentioned that employees in key occupations from skilled craft trades such as Cement Masons and Concrete Finishers to Civil Engineers are crucial to building and repairing infrastructure and new transportation systems. Addressing the region’s critical infrastructure needs is highly dependent on a workforce with the necessary knowledge and skills, as well as understanding and experience with the existing infrastructure. Due to upcoming retirements and departing employees, transportation agencies in the Northeast Region may be at risk of losing vital institutional knowledge. By implementing workforce planning initiatives and a knowledge management system, agencies can retain and pass on necessary knowledge and skills. Entry-level and mid-career employees can then use this information to further their own professional development and advance along their career pathways as increasingly valuable assets to their organization.



Target Audiences



This action plan is targeted toward agency leaders and talented entry-level and mid-career staff who have been identified as future senior leaders in the agency.



Implementation Plan



Action Lead(s): Northeast Transportation Workforce Center in concert with a dedicated Committee of Industry Stakeholders

Steps to Implement

1. **Assemble a Project Team.** The project team should consist of agency leaders, as well as Union and HR representatives.
2. **Develop a Communication Plan.**
3. **Identify Critical Leadership Positions.** Review leadership positions and prioritize critical job categories and positions based on turnover, pending retirements, and factors relevant to the agency.
4. **Review the Job.** An important component for effective succession planning is having updated and clear job descriptions, including the education, technical expertise, supervisory experience, and other elements required for the job.
5. **Assess Bench Strength.** Identify highly motivated and high performing employees who may be candidates for leadership positions in the future.
6. **Conduct Gap Analysis.**
7. **Offer Training Opportunities.** Provide employees with cross-functional and leadership training opportunities, to increase bench strength and prepare employees for leadership roles in the agency.
8. **Establish Knowledge Management System.** Identify, capture and share knowledge through mentoring programs, interviews, electronic repositories, communities of practice, or similar activities.
9. **Evaluate Program Effectiveness.**



Communication Plan



Communication/Outreach Strategies

- Write an article for an agency newsletter or website and/or send a mass email to agency employees about the program and its benefits to the employees and the agency.
- Administer a survey to gauge interest from employees.
- Identify activities that will ease the transfer of knowledge and necessary skills for a specific job.
- As part of succession planning, clearly communicate the fairness, consistency and criteria for selection and non-selection in the program.

Process for Obtaining Buy-In

- Conduct a forum with top leaders who are responsible for managing talent in various functions across the agency. Provide an opportunity for leaders to share their concerns and

discuss needs for succession planning and KM. Communicate the desired outcomes and potential benefits of implementing succession planning and KM, and encourage them to share this information with their employees, to gain agency-wide buy-in.

- Emphasize the opportunity to retain institutional knowledge by identifying future leaders and having them mentored by current senior leaders.
- Meet with Unions and HR to present a plan and justification for identifying top performers and offering professional development. An important aspect of getting Unions and HR to buy-in is to engage with them early and be transparent about the process.
- Communicate financial impacts of increased retention and return on investment.



Useful Internal and External Resources



- Compile job descriptions and thorough job analyses of existing senior leader positions and future position requirements, as well as the positions that feed into these leadership positions.
- Develop a database of internal and external training available to the agency/government.
- Create a newsletter and/or website to communicate information about the succession planning program.
- Develop a web-based repository to store documents regarding policies, procedures, and regulations.



Examples of Effective Programs



- **Webinars, American Council of Engineering Companies of Metropolitan Washington (ACEC).** Every two months the ACEC conducts a webinar, fully available online, discussing succession planning in transportation agencies and ways to increase the workforce pool given the large number of pending retirees. It has an extensive online library with webinars for purchase by agencies dealing with these issues.
- **Early Career Program, American Public Transportation Association (APTA).** The Early Career Program selects 25 individuals who represent the rich diversity of the transportation industry and are from among APTA member organizations to participate in a 12-month long program which includes a variety of skill building workshops, round table sessions, online collaboration, and unique access to the industry's leaders through a national mentoring program.
- **Knowledge Management, Pennsylvania Department of Transportation (PDOT).** This program was developed based on worker needs, workforce demographics, and existing KM assets, in order to capture employees' explicit and tacit knowledge.
- **Knowledge Management, Delaware Department of Transportation (DelDOT).** DelDOT performs a variety of knowledge management activities, including knowledge mapping, interviews, and cross-training. Knowledge mapping sessions at DelDOT are facilitated by employees external to the function or chain of command of focus. Employees are provided the opportunity to discuss the processes behind their daily tasks and activities, to ensure processes are accurately documented. Interviews are conducted with employees at the managerial level, to discuss how they complete tasks and activities, as well as any forms or documents they use to do so. This information is then uploaded to an internal

webpage. Finally, cross-training is offered to expose employees to a variety of functions and provide them with a well-rounded skillset.

- **Transportation Solution’s Engineer Trainee Program, Delaware Department of Transportation (DelDOT).** Newly hired entry-level Civil Engineers at DelDOT participate in a rotational training program, in which they have the opportunity to gain exposure to several different divisions within the agency. The extent of exposure is specifically tailored to each trainee’s personal interests and hiring division’s needs. During the first 6-12 months, trainees are provided with opportunities to explore many Engineering facets of the agency, and participate in continuing education courses while concentrating on their rotational assignments.

-



Expected Impact



Expected Positive Outcomes of the Practice

- Fewer unexpected leadership position openings in the future and a shorter amount of time needed to fill these positions with strong, qualified candidates.
- Greater continuity in leadership and management, and seeing-through of the long-term vision of the agency.
- Methodology for establishing retention and KM strategies at state DOT is established.
- Increased retention, engagement, and organizational commitment.

Cautionary Considerations - Challenges to Consider:

- Resources (funds and labor) will need to be expended to create the succession plan and to develop those identified as future leaders in the agency.
 - The agency runs the risk of developing leaders who can leave for other opportunities before senior leadership positions open up within the agency.
 - Requires approval from Unions and HR for occupations represented and employees included. Partner with Employee/Labor Relations and HR personnel to help mitigate potential dissension from Unions.
-

Action Plan 5: Upskilling Transportation's Current Workforce to Meet Emerging Challenges and Opportunities

Summary: This strategy serves to develop a list of highly valuable emerging skills and competencies that extend across selected transportation occupations in the region, the current capacity of organizations to advance this professional development, and training materials/protocols that can be used to upskill current industry employees at all levels, increasing on-the-job effectiveness and career pathway opportunities.

Description: Given the constantly changing transportation industry and the environment it must respond to, there is often a need evaluate current employee skills and competencies to determine how best to maintain relevance to new industry or job requirements. These can include soft skills, technical skills, and awareness of the changing environment (e.g., climate change, alternative fuels). As such, NETWC will work with representative industry stakeholders and organizations to identify skills that will be needed for various transportation occupations and how these differ from current staff skills and job requirements.



Importance in the Northeast Region: Priority transportation occupations were identified in the Northeast region to determine beneficial areas in which to invest resources into workforce development. For these various occupations, there is change expected in the region regarding how work needs to be done or the processes to obtain needed results. For example, procurement clerks were identified as a priority occupation because of changing requirements for grants and funding programs; as such, these employees may need new skills to successfully perform their jobs. Similarly, with an increased focus on environmental considerations, changes are occurring in how various transportation work, such as the construction and maintenance of roads, occurs. By updating the understanding of skill needs for these occupations, and identifying best practices to support training current employees on newly needed skills, workers in the Northeast will be better prepared for their work. This benefits employees through their increased skills, organizations through having properly trained workers, and the transportation industry in the region by having a skilled workforce ready to address emerging challenges.



Target Audiences



This action plan is designed to benefit transportation organizations across the region by ensuring a qualified workforce. Further, it will benefit early-, mid-, and late-career employees within the identified occupations by providing opportunities for skill development and training to enhance their careers and performance.



Implementation Plan



Action Lead(s): NETWC will lead the identification of skills that current employees need to master to be successful in their jobs as well as the initial development of ways to train these skills.

Transportation organizations across the region will then be responsible for ensuring that employees gain the needed skills and are proficient in their use.

Steps to Implement

1. **Identify priority occupations.** These occupations should be the focus of skill development initiatives.
2. **Conduct job/task analysis of the occupation(s).** Identify skills needed for successful performance.
3. **Identify skills gaps.** Assess the discrepancy between previous skill requirements and new or expected skill requirements for priority occupations.
4. **Conduct an individual training needs analysis.** Identify the skills present in the workforce to determine need for training.
5. **Develop training objectives and skills training program.** Align training objectives and develop the program to close current skill gaps.
6. **Administer training program to employees.** Conduct outreach to raise awareness of the training program and its benefits for eligible employees.
7. **Assess employee skill gains and evaluate training program.** Conduct ongoing assessments and review the outcomes to continuously refine the program to meet emerging skill needs.



Communication Plan



Communication/Outreach Strategies

-

Process for Obtaining Buy-In

- Share with transportation organizations across the region the priority jobs that are being targeted, along with why. This will help to gain buy-in by showing the need for development of skills in the current workforce.
- Show partners the support that will be provided by NETWC so that they can understand they will not be on their own in executing this strategy.



Useful Internal and External Resources



- To gain success at the regional level, individual organizations who employ workers within the identified priority occupations will need to make various information available, such as job descriptions, employees in these positions, and other data relevant to skills required for successful job performance.
- Internally, organizations will need to identify a contact person within HR or a training department to ensure that training is implemented consistently and employees are gaining the necessary.
-



Examples of Effective Programs



During stakeholder survey, examples of ways that transportation organizations have identified skills and/or trained employees on those skills will be identified and provided as examples here.



Expected Impact



Expected Positive Outcomes of the Practice

- By conducting a needs analysis, organizations can have a true understanding of the types of skills that are necessary to perform on the job. With this information, they will be able to train employees in ways to be effective and improve performance in a changing transportation environment.
- A clear picture of employee skill needs will be identified, which will serve to train the current workforce as well as to identify qualified job candidates in the future.
- Training specific to transportation needs and objectives can be developed and provided to employees; this will prepare them for success within the industry.
- Staff satisfaction can increase when employees feel like their organization is investing in them and preparing them to be successful on the job.

Cautionary Considerations - Challenges to Consider

- While occupations are likely to be similar across transportation organizations, some agencies may have differing requirements specific to their work. As such, a region-level approach to determining skills and administering training may not be sufficient. However, the information developed by NETWC and partners can still be used as a starting point on which organizations can draw.
-

References

- Agrawal, A., & Dill, J. (2008). To Be a Transportation Engineer or Not?: How Civil Engineering Students Choose a Specialization. *Transportation Research Record: Journal of the Transportation Research Board*, (2046), 76-84.
- American Public Transportation Association (2012). See: American Public Transportation Association (2014).
- American Public Transportation Association (2014). *2014 Public Transportation Fact Book*. Washington, DC: Author.
- Amtrak (2014). *National Face Sheet: FY 2013*. Washington DC: Author.
- Bureau of Labor Statistics (2014). Quarterly Census of Employment and Wages. Retrieved from http://www.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables.
- Bureau of Labor Statistics (2014). May 2014 National Occupational Employment and Wage Estimates. Retrieved from http://www.bls.gov/oes/current/oes_nat.htm.
- Council of University Transportation Centers (2012). *National Transportation Workforce Summit Summary of Results*. Washington DC: Author.
- Dainty, A. R., Bagilhole, B. M., Ansari, K. H., & Jackson, J. (2004). Creating equality in the construction industry: An agenda for change for women and ethnic minorities. *Journal of Construction Research*, 5, 75-86.
- Davis, B., Dutzik, T., & Baxandall, P. (2012). Transportation and the new generation. *Why Young People Are Driving Less and What It Means for Transportation Policy*. Frontier Group.
- FedEx (2014). *2014 Annual Report*. Retrieved from <http://annualreport.van.fedex.com/2014/>.
- Forbes (2014). *What Millennials Want In The Workplace (And Why You Should Start Giving It To Them)*. Retrieved August 9, 2016 from <http://www.forbes.com/sites/robashghar/2014/01/13/what-millennials-want-in-the-workplace-and-why-you-should-start-giving-it-to-them/#587129292fdf>.
- Griffin, G., Kalnbach, L., Lantz, B., and Rodriguez, J. (2000). *Driver Retention Strategy: The Role of a Career Path*. Fargo, ND: Upper Great Plains Transportation Institute.
- Greenwood, A. T., & Grossman, A. (2015). Developing Bicycle Sign Content Alternatives Through Text Mining of Questionnaire Responses. In *Transportation Research Board 94th Annual Meeting* (No. 15-5857).
- Kamargianni, M. (2015). Designing Sustainable Cities Based on Next Generation's Cycling Ridership Demand. In *Transportation Research Board 94th Annual Meeting* (No. 15-5320).
- Logistics Management (2012). *Top 50 Trucking Companies*. Framingham, MA: Author.
- Projections Central (n.d.) Long Term Occupational Projections. Retrieved from <https://www.projectionscentral.com/Projections/LongTerm>.
- Ma, T., Liu, C., & Erdoğan, S. (2015). Bicycle Sharing and Transit: Does Capital Bikeshare Affect Metrorail Ridership in Washington, DC? In *Transportation Research Board 94th Annual Meeting* (No. 15-5660).
- Martin, E., & Shaheen, S. (2011). The impact of carsharing on public transit and non-motorized travel: An exploration of North American carsharing survey data. *Energies*, 4, 2094-2114.

- New Jersey Transit (n.d.). *New Jersey Long Range Transportation Plan*.
http://www.state.nj.us/transportation/works/njchoices/pdf/Fact_Sheet_11-05.pdf.
- New Jersey Transit (2012). *New Jersey State Rail Plan*. Trenton, NJ: Author.
- PwC (2011). *Millennials at work: Reshaping the Workplace*. Retrieved August 9, 2016 from
<https://www.pwc.com/gx/en/managing-tomorrows-people/future-of-work/assets/reshaping-the-workplace.pdf>.
- Rivera, L. M., Chen, E. C., Flores, L. Y., Blumberg, F., & Ponterotto, J. G. (2007). The effects of perceived barriers, role models, and acculturation on the career self-efficacy and career consideration of Hispanic women. *The Career Development Quarterly*, 56, 47.
- Shaheen, S., Cohen, A., & Martin, E. (2013). Public bikesharing in North America: early operator understanding and emerging trends. *Transportation Research Record: Journal of the Transportation Research Board*, (2387), 83-92.
- TCRP Synthesis 98 (2012). Ridesharing as a compliment to transit. Transportation Research Board of the National Academies, Washington, DC.
- Uber (2012). *Mapping a City's Flow Using #UberData*. Retrieved from
<https://newsroom.uber.com/2012/11/uberdatab-mapping-a-citys-flow-using-ubers-ridership-data/>.
- U.S. Census Bureau. (2014). *State and County Quick facts: 2014*. Retrieved March 23, 2015, from
<http://quickfacts.census.gov/qfd/states/00000.html>.
- U.S. Census Bureau. (2012). *Statistical Abstract of the United States: 2012*. Retrieved March 23, 2015, from
<http://www.census.gov/compendia/statab/2012/tables/12s1089.pdf>.
- U.S. Census Bureau (2011). See U.S. Department of Transportation Bureau of Transportation Statistics (2014). *State Transportation Statistics 2014*.
- U.S. Department of Commerce (2012). See U.S. Department of Transportation Bureau of Transportation Statistics (2014). *State Transportation Statistics 2014*.
- U.S. Department of Transportation Bureau of Transportation Statistics (2012). *State Transportation Statistics 2012*. Washington, DC: Author.
- U.S. Department of Transportation Bureau of Transportation Statistics (2014). *State Transportation Statistics 2014*. Washington, DC: Author.
- U.S. Department of Transportation Bureau of Transportation Statistics (2014). *United States Transportation Facts and Figures*. Retrieved March 26, 2015, from
<http://gis.rita.dot.gov/StateFacts/>.
- Vermont Agency of Transportation (VTrans) (2014). *2014 Fact Book and Annual Reports*. Retrieved from
http://www.leg.state.vt.us/jfo/appropriations/fy_2015/Department%20Budgets/Trans%20-%202014%20Fact%20Book%20and%20Reports.pdf
- Zemke, R., Raines, C., & Filipczak, B. (2000). *Generations at work: Managing the clash of Veterans, Boomers, Xers, and Nexters in your workplace* (p. 280). New York, NY: Amacom.