



Job Needs and Priorities Report Phase 2: West Region

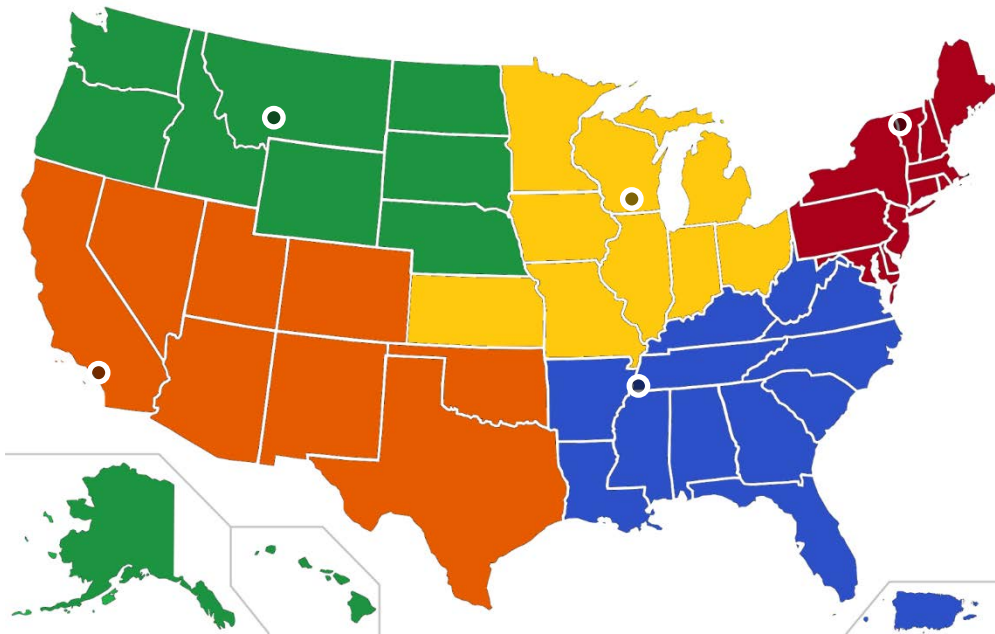




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I. Introduction

The West Region Transportation Workforce Center (Center) completed its **Phase 1 Job Needs and Priorities Report** in November, 2015. The purpose of the Phase 1 report was to identify key priority occupations and skillsets for the transportation industry in the West Region of the United States, as well as to characterize the unique workforce challenges faced by employers in the West. As such, the report provides an overview of current and emerging workforce trends in the ten-state region covered by the Center: Alaska, Hawaii, Idaho, Montana, Nebraska, North Dakota, Oregon, South Dakota, Washington, and Wyoming. The Phase 1 report provides a broad overview of the transportation industry and workforce in the West Region based on analysis of federal, state, and private sector research, reports, and strategic plans. It additionally includes an analysis of labor market data on transportation industries and occupations in the region based on Bureau of Labor Statistics (BLS) data analysis. Finally, the report synthesizes stakeholder feedback on priority occupations of concern for the region as a whole.

The purpose of the Phase 2 report is to identify specific programs or partnerships the Center will pursue to address the regional workforce priorities identified in Phase 1. Workforce priorities are of two main types:

- 1) Workforce priorities based on specific regional or demographic characteristics that create unique workforce challenges.
- 2) Workforce priorities based on the need to train adequate numbers of qualified staff to fill high demand/high growth occupations in the region.

Regional Characteristics

For workforce priorities in the first category, the Center identified regional characteristics in the West that create unique workforce challenges. Many of these challenges relate to regional demographics and geography. In the transportation sector, seven out of the ten states spend over 86% of their total transportation budgets on highways, which are mainly rural (84%). The vast majority of public transportation in the region relies on busses, and many small transit agencies serve geographically large areas with low population densities. The region is characterized by geographically large states with relatively low population densities (it makes up 36% of the total landmass of the United States, while only containing approximately 6% of the U.S. population). Rural and small urban population patterns predominate.

Rural communities tend to grow slower than urban areas and many face challenges in terms of aging populations, slow population growth or outmigration of young people. Finding skilled workers for geographically remote locations is a challenge for many transportation organizations, and the issue is exacerbated by low unemployment rates and tight labor markets. Seven of the region's ten states' unemployment rates fall below the national average, and workforce shortages threaten to constrict economic growth in some states. Outreach conducted during Phase 1 to public and private sector employers highlighted significant recruitment, training, and retention challenges for transportation organizations in the region. These challenges are further exacerbated by demographic trends found in the national transportation workforce as a whole. With more than half of their workers over 45 years old, and a correspondingly high expected loss of staff to retirement over the next decade, transportation agencies are struggling to adapt to rapid demographic changes at the same time that new technologies are changing demanded



workforce skillsets. Access to affordable training for rural staff who must meet myriad demands with limited personnel was an area of common concern.

Input from regional stakeholders frequently pointed to difficulties in competing for in-demand, high skilled workers. In particular, states with booming energy sectors noted that recruitment difficulties tended to match the boom-bust cycles experienced in the oil patch. Ability to offer competitive wages and geographical isolation were listed as two additional issues compounding recruitment and retention issues. For the skilled trades, the need to increase the size of the pool of available workers was repeatedly emphasized in stakeholder interviews.

High Demand/High Growth Priority Occupations

To identify regional workforce priorities based on specific high need occupations, the Center analyzed Bureau of Labor Statistics (BLS) data for occupations that comprise the West Region’s transportation workforce to identify high demand/high growth occupations that are important across the region as a whole and would therefore benefit from additional focus and attention in Center activities. The team identified twenty transportation occupations with a projected demand increase of at least 10% or more by 2022 and with more than 200 projected annual openings in the region. Industry perspectives on priority occupations were gathered to validate the preliminary BLS data analysis. The stakeholder engagement process resulted in a list of 10 priority occupations for the region (as shown in Table 1 below).

Table 1: Educational and Salary Data for Priority Occupations in the West Region			
SOC Code	Occupation Title	Regional Average Annual Wage^a	Typical Education Needed For Entry^a
11-9021	Construction Managers	\$92,707	Bachelor’s Degree
17-2051	Civil Engineers	\$81,948	Bachelor’s Degree
53-1031	First-line supervisors of transportation and material-moving machine and vehicle operators	\$60,380	High School Diploma or Equivalent
53-3021	Bus drivers, transit and intercity	\$43,509	High School Diploma or Equivalent
53-3032	Heavy and tractor-trailer drivers	\$43,451	Postsecondary non-degree award
49-3031	Bus and truck mechanics and diesel engine specialists	\$48,116	High School Diploma or Equivalent
49-9071	Maintenance and Repair Workers, General	\$40,279	High School Diploma or Equivalent
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	\$69,537	High School Diploma or Equivalent



47-2073	Operating engineers and other construction equipment operators	\$52,794	High School diploma or Equivalent
53-7062	Laborers and freight, stock, and material movers, hand	\$29,375	Less than High School

For the purposes of the Phase 2 action plans, the Center will focus on the first nine high skill/high wage transportation occupations. These include two cross-industry occupations that require Bachelor’s or advanced degrees, Civil Engineers and Construction Managers. The vast majority of priority occupations in the West are in the vocational or skilled trades, and require two-year technical education or extensive on-the-job training. The needs assessment identified a common demand in the West for increased pools of skilled vehicle and equipment operators, diesel mechanics, and both supervisors and workers in the skilled trades more broadly. Of the initial list of high growth/high demand occupations presented to stakeholders for feedback, many had overlapping skillsets and exchanged workers. For these related occupations, the Center prioritized the higher wage position. In the construction fields, stakeholders had difficulty pinpointing specific priority occupations as there is high demand across the skilled trades generally. For simplification, occupations that required skillsets representative of occupations across the trades were prioritized.

Based on the Phase 1 analysis outlined above, this report will outline the development process and final recommendations for Strategic Action Plans the Center will pursue in order to provide needed resources and tools to address the region’s transportation workforce needs. The Phase 2 Strategic Action Plans will showcase the programs or partnerships needed to address regional workforce priorities. The action plans address concerns along the entire career continuum (from pre-career to professional development) and focus on priority occupations identified in the Phase 1 regional needs assessment as well as industry-wide issues raised by stakeholders. Additionally, the Center seeks to address issues specific to its established national focus areas, which include: rural transportation and safety, mobility and livability, tribal transportation, and federal lands.

II. Phase 2 Methodology

The Strategic Action Plans outlined in this report are aimed at guiding West Region Transportation Workforce Center activities to best assist our stakeholders as they address their workforce challenges of priority concern. The research team utilized a variety of stakeholder engagement and data collection techniques to conduct the Phase 2 research as outlined below by task:

- 1) Engaged Steering Committee Members to draft potential action plans.
- 2) Conducted literature review and resource gathering effort on action plan topics.
- 3) Matched action plan concepts to Phase 1 priority jobs to assess expected impact
- 4) Conducted additional stakeholder outreach to assess focus
- 5) Developed final Strategic Action Plans

A description of each task is provided in this section followed by a more detailed exploration of workforce development efforts needed in the region in Section III.



Task 1: Stakeholder Steering Committee Engagement

The West Region Center established a regional Stakeholder Engagement Group early after its inception to work in an advisory capacity. The committee reviews Center deliverables and provides guidance to the Center on topics such as:

- Industry workforce development needs, skills gaps, and training and education priorities;
- Emerging workforce needs;
- Marketing and communication mechanisms to ensure the appropriate audiences are reached;
- Partnership, funding, and resource-sharing opportunities.

The Stakeholder Engagement Group was designed to provide geographic coverage and to be broadly representative of the different types of stakeholder groups (e.g. labor, education, industry) and transportation sectors and modes. Committee membership is listed in Table 2 below.

Table 2: West Region Transportation Workforce Center Stakeholder Engagement Group Membership			
Member	Affiliation	State	Sector
Bob Anderson	Montana State University-Northern	MT	Education (community college)
Connie Ashbrook	Oregon Tradeswomen, Inc.	OR	Labor (apprenticeship); non-profit
Byron Bluehorse	Alaska Tribal Technical Assistance Program Center	AK	Education (professional development/training)
Julie Cain	Oregon Department of Transportation, Human Resources	OR	Industry
Tony Glenn	Nebraska Department of Education	NE	Education (CTE/K-12)
Amanda Holland	Alaska Department of Transportation & Public Facilities, Administrative Services Division	AK	Industry
Jana Jarvis	Oregon Trucking Association	OR	Industry
Joel Jundt	South Dakota Department of Transportation, Deputy Secretary	SD	Industry
Justin Leighton	Washington State Transit Association	WA	Industry
Jason Sutheimer	North Dakota Department of Transportation, Recruiter	ND	Industry



Larry Williams	Bureau of Labor and Industries, Apprenticeship and Training Division	OR	Labor
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The advisory group met in February 2016 to review the results of the Phase 1 Job Needs and Priorities research effort, to validate the regional workforce priorities identified, and to discuss the role of the Stakeholder Engagement Group in assisting the Center to develop action plans to meet identified needs. The advisory group discussed potential action plan concepts, provided feedback on draft plans developed by the Center, and provided input on additional action plans needed. The meeting resulted in several draft action plans. The draft action plans directed the Center to assist stakeholders with information, tools, and resources to facilitate:

- Enhanced involvement of industry in promoting and actively engaging young people early on to pursue careers in transportation, particularly in the skilled trades;
- Improved access to training resources and best practices for rural transportation staff and agencies; and
- Development of tools for transportation agencies to best manage rapid demographic changes in the workforce.

Task 2: Literature Review and Resource Gathering

Additional research and resource gathering was conducted for each of the action plan topics listed above. A primary source of information on existing regional resources to address workforce needs was the compendium of workforce programs developed by the Center. The compendium is featured on the WRTWC.org website, which hosts an online search filter to provide access to information on transportation training and education programs of two main types. The first search filter for *Degree and Certificate* programs allows Center stakeholders to locate transportation programs offered at community colleges and universities throughout the West, including apprenticeship, endorsement, and certificate programs, as well as degree programs from the Associate degree to the PhD. The second *Experiential Learning and Career Exposure* search filter allows on-line visitors to locate scholarships, professional development courses, internships or other on-the-job training programs offered in the region. This filter additionally focuses on pre-college summer camps or other career awareness events and programs that allow youth to experience transportation careers and to build industry relevant skills. The development of a compendium of regional programs allowed Center staff to identify existing programs and opportunities in the region all along the career pathway, from secondary school to professional development. It also assisted staff to identify gaps in needed programs or information.

A thorough literature review and resource search was conducted on the draft action plan topic areas to further contextualize the issues and identify promising practices.

Enhanced Industry Involvement

On the topic of enhanced involvement of industry in partnering with education providers to increase awareness and interest in transportation sector career opportunities, the U.S. Chamber of Commerce Foundation has developed several useful toolkits and guidance papers, including an



implementation guide on *Building the Talent Pipeline*¹. The Chamber documents provide step-by-step guidance on building employer-education partnerships that lead to career pathways that provide the greatest returns to both new workforce entrants and hiring employers.

Federal, regional, and state policymakers and organizations are increasingly looking to sector strategy development as an effective means to address workforce shortfalls. Sector strategies are “partnerships of employers within one industry that bring government, education, training, economic development, labor, and community organizations together to focus on the workforce needs of an industry within a regional labor market.”² Because of the heightened interest in this approach, there is also a rich trove of resources on developing sector strategies. The U.S. Department of Labor’s Employment and Training Administration has developed a wide array of online resources and documents including a *Sector Strategies Organizational Self-Assessment*.³ Additional resources include Jobs for the Future’s *A Resource Guide to Engaging Employers*⁴, which focuses on the employer engagement process. Regionally, the Department of Commerce in the state of Washington has embarked on several large-scale sector strategies designed to grow and diversify employment opportunities in strategic industry sectors and to grow the workforce talent needed to fill skilled positions. Two of these strategies focus on transportation, specifically the maritime and aviation industries.

The WRTWC strategic action plan on this topic will focus on sharing resources and tools with Center stakeholders to enhance industry involvement in building the talent pool. The Center will collect and showcase regional success stories, and provide guidance on scaling and adjusting efforts for success in rural environments. Additionally, the Center will seek to provide opportunities for collaboration and partnership-building between education and industry.

Enhanced Access to Training Resources

A survey of transit managers and directors in rural areas conducted by the Small Urban and Rural Transit Center (SURTC) at the Upper Great Plains Transportation Institute at North Dakota State University found that 54% of respondents had attended no trainings during the past 5 years, although 93% reported that training was beneficial to their job.⁵ The reasons for not attending trainings varied from not enough time (47%), not enough funding (47%), training sites too far away (35%), training schedule incompatible with work schedule (35%), and training too time consuming (12%). During the stakeholder outreach process, the Center received repeated feedback on the challenges of small rural transportation agencies to access training as well as the need for improved training delivery modes that were more compatible to the needs of time-strapped and geographically remote staff.

¹ For more information on the Chamber of Commerce Initiative, visit: <https://www.uschamberfoundation.org/talent-pipeline-management>

² National Governors Association. State Sector Strategies Coming of Age: Implications for State Workforce Policymakers. To download full report, visit: <http://www.nga.org/cms/home/nga-center-for-best-practices/center-divisions/center-issues/page-ehsw-issues/col2-content/main-content-list/state-sector-strategies.html>

³ For more information on US Department of Labor ETA resources on sector strategies, visit: <https://businessengagement.workforcegps.org/>

⁴ For full document, visit: <http://www.jff.org/publications/resource-guide-engaging-employers>

⁵ Visit <http://www.ugpti.org/resources/proceedings/view.php?id=32> for webinar presentation on survey results.



The WRTWC strategic action plan on this topic will focus on enhancing access to information on training resources and curricula for staff of small transit systems, including identifying innovative delivery modes or other successful practices that facilitate small transit system employees' participation in professional development activities. The goal is to increase the capacity of service providers to meet the specialized needs of mobility-challenged populations in geographically dispersed areas.

Workforce Demographics

The transportation workforce is older than the national average, with more than half its workers over 45 years old, and a correspondingly high expected loss of staff to retirement over the next decade.⁶ Baby Boomers (born between 1946 and 1964) are retiring and leaving vacancies, particularly those at senior and management levels, that need to be filled. Millennials, those born between 1983 and 2000, became the largest generational cohort in 2010⁷, and are rapidly becoming the largest generational cohort within the workforce.⁸ Due to the demographics of the current transportation workforce, a rapid demographic shift is expected to occur over the next decade, as Baby Boomers retire and vacancies are filled with younger workers. State Departments of Transportation (DOTs) and other transportation organizations are struggling to better understand what attracts and motivates young job seekers, and many are beginning to review current recruitment and employee engagement practices to compete more effectively for young workers.

In response to frequent stakeholder feedback on the challenge of adapting to changing workforce demographics, the Center conducted an extensive literature review on the impact of generational differences on recruitment and retention strategies. The literature review helped to contextualize challenges faced by transportation organizations in attracting and retaining young staff. A focus group discussion with human resource representatives of five state departments of transportation was conducted in conjunction with the literature review to identify mutual concerns, successful strategies employed, as well as opportunities for collaboration between state DOTs to improve recruitment and retention strategies. (The resulting paper can be found in the Transportation Research Record: Journal of the Transportation Research Board, No. 2552, 2016.) A number of National Cooperative Highway Research Program reports also explore recruitment and retention challenges and solutions for transportation agencies. These include NCHRP 636 – *Tools to Aid State DOTs in Responding to Workforce Challenges*, NCHRP 685 – *Strategies to Attract and Retain a Capable Transportation Workforce*, NCHRP 693 – *Attracting, Recruiting, and Retaining Skilled Staff for Transportation System Operations and Management*, and NCHRP 813 – *A Guide to Agency-Wide Knowledge Management for State Departments of Transportation*.

The literature review and focus group discussion indicated that there was much common ground among the different DOTs and therefore significant opportunity for collaboration on developing tools to enhance recruitment and retention efforts. The WRTWC strategic action plan in this

⁶ U.S. Department of Education, Office of Career, Technical, and Adult Education. (2015, August). *Strengthening Skills Training and Career Pathways across the Transportation Industry*. Washington, D.C.: Author.

⁷ Lachman, M.L. and D.L. Brett. *Generation Y: America's New Housing Wave*. Washington, D.C.: Urban Land Institute, 2011.

⁸ Meister, J.C., and K. Willyerd (2010, May). *Mentoring Millennials*. Harvard Business Review. Retrieved from <http://hbr.org/2010/05/mentoring-millennials/ar/1>



topic area will focus on gathering and sharing guidance and success stories on meeting recruitment, retention, and succession planning needs at public transportation agencies, as well as on assisting agencies to develop and test new tools for attracting and engaging young new career entrants.

Task 3: Correlation between Proposed Action Plans and Priority Jobs

The vast majority (7 out of 10) priority occupations identified in the Phase 1 Job Needs and Priorities assessment for the West region are in the vocational or skilled trades. Of those seven, regional transit agencies underscored four occupations (first-line supervisors of transportation and material-moving machine and vehicle operators; bus drivers (transit and intercity); bus and truck mechanics and diesel engine specialists; and maintenance and repair workers) as high priority for their recruitment, training, and retention needs. Stakeholder input across multiple transportation sectors and modes indicated that the available applicant pool for new employees in the skilled trades was too small to meet demand. Representatives from industry, education, and labor agreed there was a need to improve the image of the trades as well as an urgency for cross-sector collaboration to more actively attract young people to careers in the trades.

Priority STEM occupations for the West include Civil Engineering and Construction Managers, two cross-industry occupations. Input from stakeholders repeatedly pointed to difficulties in competing for in-demand, high skilled workers. Organizations in more geographically remote areas faced particular challenges in recruiting young people.

The proposed strategic action plans address the regional priority occupations by focusing on: 1) increasing applicant pools through enhanced industry involvement in building the pipeline; 2) increasing access to training for small rural transit organizations; and 3) improving the hiring competitiveness of transportation agencies through improved recruitment and retention strategies.

Task 4: Stakeholder Outreach

The Center conducted additional stakeholder outreach to further define the draft strategic action plans. On the topic of adapting to a new workforce climate, the WRTWC conducted a round table video conference with the four state DOTs of North Dakota, South Dakota, Montana, and Wyoming to share information and best practices in this area. The round table discussion was held on April 29, 2016, and the discussion kicked off with a presentation by Robin Thorstenson, HR professional and trainer, who talked about the policy implications of having five generations now in the workforce, the major changes facing the workforce in the next five years, and the policy implications for state DOTs. Each state DOT then discussed their respective workforce development efforts and needs along with an open exchange of approaches. The Center additionally attended the AASHTO-HR Subcommittee annual meeting held in Denver, Colorado May 1-3, 2016. During the meeting, the Center presented its research on recruiting and retaining millennials at state Departments of Transportation and discussed “next steps” with meeting participants. These discussions with regional state DOT representatives helped to further define the future strategic actions the Center plans to undertake to assist state DOTs as they adapt to the changing workforce.



To better understand the challenges of small urban and rural transit agencies, the Center partnered with the Small Urban Rural Transit Center (SURTC) at the Upper Great Plains Transportation Institute to present research results on a survey conducted to determine the extent to which small urban and rural transit agencies are engaged in pursuing professional development opportunities and formal succession planning. Like other governmental agencies, small urban and rural transit agencies are facing a particular challenge with changing workforce demographics, and the future of transit agencies depends on their ability to identify, retain and prepare future leaders. Despite the fact that 30% of survey respondents had less than 5 years remaining until retirement, SURTC's research found that only 15% of the agencies responding to the survey had succession plans in place. The research results were presented during a WRTWC-sponsored webinar on June 9, 2016 titled, "The Coming Retirement Tsunami: Why Transit Agencies and the Public Sector Can no Longer Ignore Succession Planning." The webinar was jointly conducted by Del Peterson of SURTC and Patrick Ibarra, former city manager, HR director and principal with the Mejorando Group, who provided practical guidance on why succession planning is vital to ensuring operational integrity and how to develop a succession plan. The webinar had more than 75 participants and very strong feedback indicating that the information was valuable and pertinent to their agency's needs. In fact, 72% of webinar participants who completed an evaluation indicated that they would like additional information or training on this topic.

Center staff also participated on a panel discussion focused on sharing best practices for fostering a talented workforce, including enhanced industry involvement, during the Montana Economic Development Association (MEDA) spring conference, held April 20-22, 2016. The event showcased workforce development efforts statewide and provided opportunities for discussing cross-sector collaborations to build the talent pool. In the area of education-industry partnerships, the Center partnered with the Montana Girls STEM Collaborative to co-host and co-organize a Girls STEM forum on May 19, 2016. The goal of the forum was to facilitate new avenues for collaboration between education and industry and to find partners for future collaborations. The forum brought together formal and informal educators and transportation industry representatives to provide networking and collaboration action planning opportunities.

Finally, stakeholder outreach conducted during Phase 1 highlighted the need for the Center to expand beyond the high demand occupations identified in the labor market analysis in order to address the changing nature of transportation occupations and required skillsets. When asked about key workforce challenges and priority occupations, there were a number of stakeholder-identified priorities that were difficult to analyze using BLS data. Many organizations mentioned computer and information support, which fall under broader SOC occupation categories; with transportation-specific demand and growth an unknown. We have also heard repeatedly from our stakeholders that today's organizations and occupations are changing. Transportation agencies are becoming flatter and moving to "blended" occupations that require cross-training; and new technologies are changing the way transportation organizations design and operate systems. Transportation organizations expressed a shared concern that, with baby boomer retirements, they need to move beyond replacement hires, and take a good look at what new skills will be needed by newcomers to the workforce. Identifying needed skills is not an easy task, however, especially given rapidly evolving technologies in the transportation sector.



As part of its Phase 1 regional needs assessment effort, the Center hosted a stakeholder engagement webinar to elicit stakeholder feedback on its initial regional labor market data findings. In response to the priority occupations list, one stakeholder commented: “ITS is glaringly missing. We are supposedly moving to a connected vehicle and vehicle to infrastructure environment, and I would argue that we are not gearing up to be able to deal with it. We aren’t really thinking yet about what it is going to take to engineer and implement the technology associated with the next jump in transportation capability... We need to think about constructing a workforce that can keep this technology properly working and engineered so that we can deliver accurate, timely, and reliable services.” This was particularly important, he noted, as many of these systems are safety related and can’t just be “slapped together.”

Stakeholder interviews further revealed a tendency on the part of DOTs operating in large rural areas to adopt a “wait and see” attitude toward new technologies. The Center pursued several avenues to encourage discussion on what new technologies mean for rural transportation organizations and how education and industry can better work together to proactively ensure that incoming workers have the skillsets that will be required to design and operate them effectively. Center efforts included hosting a round table discussion on workforce development during the 2015 National Rural ITS (NRITS) Conference. In April, 2016, the Center additionally hosted a university workshop on emerging transportation technologies in rural areas. The April workshop brought together faculty and research staff from multiple colleges, research centers, and departments at Montana State University to identify research, education, and workforce development needs and opportunities in rural areas related to connected vehicles and other emerging technologies, and to lay the groundwork for developing a university-wide strategic plan.

Task 5: Strategic Action Plan Development

Based on the results of the resources gathering effort, existing program data analysis, and stakeholder outreach process described above, the Center proposes to pursue four strategic action plans moving forward. The strategic action plans address concerns along the entire career continuum (from pre-career to professional development) and focus on priority occupations identified in the Phase 1 regional needs assessment, as well as industry-wide issues raised by stakeholders. Additionally, the Center seeks to address issues specific to its established national focus areas, especially the areas of rural transportation, safety, mobility, and livability.

The proposed strategic action plans are described in more detail in Section III.

III. Identification of Potential Workforce Development Efforts to Address Needs

The Phase 2 Strategic Action Plans showcase the programs and partnerships needed to address regional workforce priorities and challenges. The Center recognizes that a major issue with workforce development programs is the fact that a lack of communication and coordination results in duplication of programs in neighboring areas or produces a silo effect where some programs are simply missing in some areas. Particularly in rural regions, transportation professionals often carry multiple responsibilities and wear many hats. However, while rural



professionals are responsible for the largest geographic percentage of the nation's surface transportation network, time and budget constraints play a role in limiting access to workforce development. Due to these resource constraints, transportation organizations require easy access to existing programs, resources, and successful practices as well as a facilitator to foster innovative collaborations that are effective for geographically dispersed audiences. Therefore, the Center sees one of its primary roles as coordinating existing programs and resources within the region and creating synergies to address common workforce development priorities to positively grow the transportation workforce. Project funding availability and sustainability were also considered in the development stage.

For example, Action Plan 1 addresses a need for improved access to training resources for small transit systems. Additional funding from the Eurasia Foundation will allow the Center to conduct a comparative international study of available transit training programs and service provision to special needs population in rural areas. The Center will partner with Moscow State University for Transport Engineering (MIIT) in Russia to collect and share existing training resources and curricula, identify training gaps, and showcase success stories for providing accessible transportation services in rural and small urban areas. The joint project seeks to enhance access to information, quality training, and other resources and tools to improve the capacity of small transit providers to ensure a barrier free environment to mobility for persons with disabilities. The collaboration will result in a better understanding of the unique challenges in providing accessible transit services in small urban and rural areas, and will showcase innovations that can be implemented to address them. The comparative differences in national regulatory and funding environments between the two countries are expected to highlight creative solutions. The project will result in a joint research paper, a series of webinars, and collection and dissemination of resources to transportation providers and educators via online resource centers at each partner institution. By focusing on staff training needs, resources, and best practices for providing specialized service to mobility-challenged populations in rural areas, the Center will identify training mechanisms and models that can be applied to rural transportation agencies more broadly while increasing the number of training resources and materials available on the Center website.

A summary of each strategic action plan's goals and target audience is provided below as well as examples of existing programs that will be leveraged in the implementation of each plan.



Phase 2 Strategic Action Plan Descriptions

Action Plan 1: Support Access to Information and Training Resources for Small Urban and Rural Transit Providers

Summary: The WRTWC will focus efforts on enhancing access to staff training resources and technical support as well as on identifying and sharing information on best practices for providing mobility services, especially to special needs populations, in small urban and rural environments. The Center will assess, compile, and disseminate information on accessible training resources and identify and showcase best practices in providing rural transit services to special needs populations. Products will include a series of webinars, enhanced online resource center content, and documentation and showcasing of best practices.

Target Audience: The West region is characterized by geographically large states with relatively low population densities, and the Phase 1 Job Needs and Priorities assessment identified transit occupations as a regional priority for workforce development efforts. Small urban and rural transit providers are the intended beneficiary of the Action Plan. The Center will engage with regional and national transit associations, small urban, rural and tribal transit providers, training and education providers (to include professional development/staff training providers, community colleges, and universities) as well as other key advocacy groups (e.g. disabled veterans).

Existing Programs: The Center expects to showcase existing resources and transit training providers in the execution of its action plan to include: APTA, the National Rural Transit Assistance Program (RTAP), Small Urban and Rural Transit Center (SURTC) at North Dakota State University, the Southern California Regional Transit Training Consortium (SCR TTC), the Small Urban and Rural Livability University Transportation Center (SURLC), the Community Transportation Association of America (CTAA), and Easter Seals Project Action.

Action Plan 2: Enhance Employer Engagement in Building the Talent Pipeline

Summary: The majority of priority transportation occupations identified for the West Region in the Phase 1 Job Needs and Priorities report are in the skilled trades. Across the board, we heard from our stakeholders that parents, teachers, guidance counselors, and students are expressing less interest in careers in the trades. As a result, employers and education providers alike are facing increasing challenges in attracting young people into programs and career pathways in these fields. More than ever, employers will need to become more directly involved in the education and training pipeline if they are to meet their future workforce needs. West Region stakeholders reported a need to increase awareness of career opportunities within transportation-related trades, particularly at the K-12 level, by fostering industry engagement with formal and informal educators. The WRTWC will support regional efforts to enhance employer engagement in building future talent in priority areas. The Center will identify and communicate successful strategies to facilitate improved collaboration between education providers and employers; to



include increased career exposure, improved career messaging, and expanded work-based learning opportunities.

Target Audience: The goal of this action plan is to provide productive avenues for employers (public transportation agencies and private transportation industry representatives) to collaborate effectively with education providers (K-12 educators, guidance counselors, CTE and dual enrollment programs, after school and informal educators, parents, community colleges, trade schools) in order to reach their target audience of K-14 pre-career youth. There is special need to improve outreach to girls and women and to improve the image of the trades, especially among underrepresented populations.

Existing Programs: A number of states offer some type of imaging program for the trades (examples include the BuildDakota public-private partnership in South Dakota; and online career exploration sites such as www.careerbridge.wa.gov in Washington). Professional associations host a variety of “career awareness” activities (e.g. Construction Career Days, professional visits to schools, after school programs, job shadowing programs) as well as career exploration websites such as the Montana Contractor’s Association www.letsbuildmontana.com. Existing programs aimed at increasing diversity in highway construction trades by providing support to underrepresented individuals in the apprenticeship and training pipeline, include Oregon and Washington’s collaborative programs between the state departments of labor and state transportation departments, as well as pre-apprenticeship programs that are offered to underrepresented groups by advocacy groups such as Oregon Tradeswomen, Inc. and the Alaska Works Partnership, Inc.

Action Plan 3: Improve Strategies to Adapt to Changing Workforce Demographics at Transportation Agencies

Summary: State Departments of Transportation and other public agencies are struggling to adapt to a workforce that spans the largest number of generations in history, and they are finding that new entrants have different expectations regarding workplace cultures and policies. The Center will identify, share, and develop resources aimed at assisting transportation agencies best manage rapidly shifting workforce demographics. The Center will help provide guidance on recruitment strategies and career messaging that resonates with potential new recruits; disseminate resources on succession planning and knowledge management strategies; and pursue actionable research to build the capacity of agency leadership to effectively implement organizational changes needed to engage and retain the existing and incoming workforce.

Target Audience: This action plan targets both potential and existing staff at public transportation agencies. Additional partners include education providers (community colleges, trade schools, and universities).

Existing Programs: Existing training and research centers on this or related topics include the Mejorando Group, the Center for State & Local Government Excellence, the Local Government Research Collaborative, and the Center for Health and Safety Culture.



Action Plan 4: Develop Career Pathways in Key Transforming Occupation Clusters

Summary: The Center will address career pathway development and promote career pathway demonstration projects for key cluster areas undergoing rapid change in job expectations and skillsets due to new trends and technologies. The Center will identify new skills demanded within key career lattices, and develop pathway guidance to include the promotion of new curricula or work-based learning enhancements to existing programs.

Target Audience: The target audience is for those considering, entering, or currently on a transportation career pathway (pre-career, entry level, incumbent, and supervisory staff) to provide improved guidance on new skillsets that will be required to advance in the industry in future. Additional partners will include transportation industry employers and education providers.

Existing Programs: Organizations currently involved in related work on this topic include the National Operations Center of Excellence (NOCOe), the National Rural Safety Center, ITS America, Integrated Global Dimensions.

Full strategic action plan descriptions are provided in Section IV, which details intended outcomes, strategies, partners, and implementation steps.

IV. Role of the Regional Center in Assisting Stakeholders across the Workforce Continuum

The five regional workforce centers that make up the National Network for the Transportation Workforce were established by the Federal Highway Administration to provide for a more strategic and efficient approach to transportation workforce development. The development of the NNTW is set within the context of a new governance model being promoted across agencies at the state and federal levels, which is characterized by a common jobs-driven goal. Federal agencies are seeking new alignment of their workforce programs to facilitate leveraged funding and resources between agencies for programs that: 1) are driven by local and regional economic and workforce data; 2) establish specific jobs-driven outcomes; and 3) provide enhanced communication and collaboration between training/education providers and industry/employers. The goal is to break down silos between government agencies to focus on measurable outcomes linked to regional economic priorities and high-growth jobs outcomes. Likewise at the state level, the National Governors Association has called for designating a “structure for coordinating state efforts across education, training, and economic development to increase alignment of the entire education and training pipeline.”⁹

⁹ National Governors Association, 2013-2014 Chair’s Initiative. [America Works: Education and Training for Tomorrow’s Jobs. Achieving Better Results for Individuals, Employers and the Economy. An Action Guide for Governors.](#)



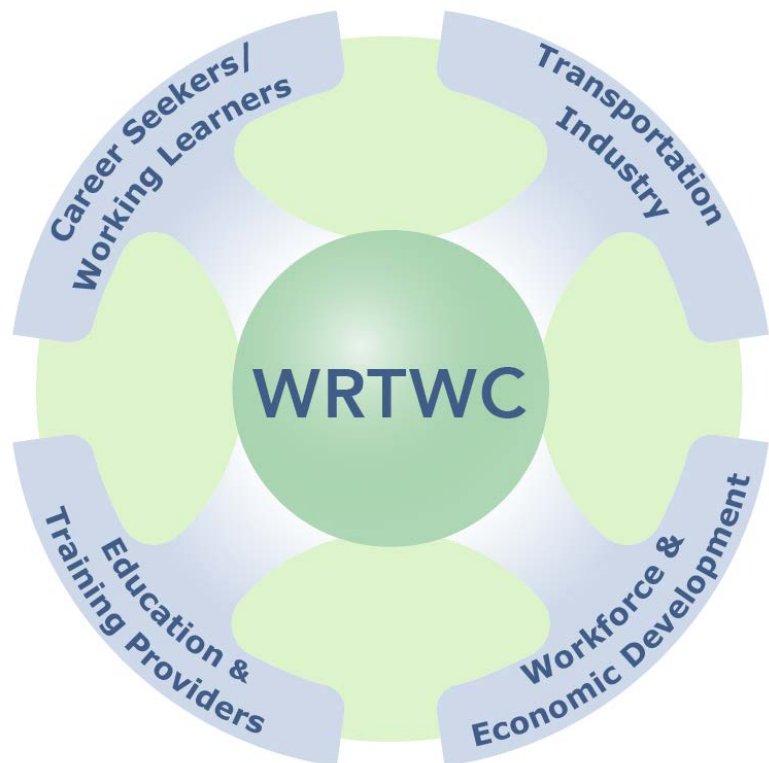
In response to the policy trends outlined above, the regional centers are tasked with assisting states, tribes and communities to: 1) assess transportation industry jobs and workforce needs in the region; 2) identify training and education opportunities to meet industry demand; and 3) advocate successful education programs that address industry and job-based skills demands. The Centers are further tasked with working across agencies and communities to facilitate the implementation of proven transportation workforce practices and programs.¹⁰ Within this context, the West Region Center engages stakeholders across sectors and modes, and promotes collaborations with public and private transportation industry representatives, as well as with education, labor, and workforce communities.

Strategic Action Plans established by the Center will meet its mandate to:

- Provide information on transportation-related training and education providers in the region;
- Provide information on “best practices” for transportation workforce development within the region;
- Provide mechanisms for cross-sector communication and coordination;
- Provide information resources.

Center efforts will address workforce development activities at the 6-12 grade levels, technical schools and community colleges, universities, and professional development for incumbent transportation workers. Project partners and beneficiaries of Center products are expected to encompass four main groups: 1) job seekers/working learners; 2) education and training providers; 3) transportation industry representatives; and 4) workforce and economic development organizations.

Table 3 outlines the expected outcomes for each strategic action plan and how Center efforts will assist the target stakeholder group to address its respective workforce challenges.



¹⁰ FHWA Cooperative Agreement DTFH6114H00028



Table 3: Expected Outcomes for Stakeholders

Program	Priority Occupations	Continuum Stage	Pipeline Focus and Outputs/Outcomes
Action Plan 1: Support Access to Training Resources for Small Urban and Rural Transit Providers	Maintenance and Repair Workers, General First-line supervisors of transportation and material-moving machine and vehicle operators Bus drivers, transit and intercity	Technical/Community Colleges Universities Working Professionals	Focus: Professional Development for Transit Staff <ul style="list-style-type: none"> - Improved staff training programs - Improved understanding of challenges & potential solutions, best practices - Increased capacity of service providers to provide accessible service in small urban and rural settings
Action Plan 2: Enhance Employer Engagement in Building the Talent Pipeline	All	K-12 Technical/Community Colleges Universities	Focus: Attraction & Recruitment <ul style="list-style-type: none"> - Increased number of industry-education partnerships - Improved career messaging and image to attract youth to trades - Improved inclusiveness of employee recruitment & engagement efforts to foster diversity
Action Plan 3: Improve Staff Recruitment & Engagement Strategies at Public Transportation Agencies	All	Working Professionals New career entrants	Focus: Attraction, Recruitment, Retention <ul style="list-style-type: none"> - Improved career messaging, use of media & public image to attract youth to public sector transportation careers - Tools developed will assist public agencies to implement effective strategies for employee engagement & retention
Action Plan 4: Develop Career Pathways in Key	Civil Engineers Transportation Safety &	Technical/Community Colleges	Focus: Recruitment, Professional Development <ul style="list-style-type: none"> - Improved industry/education



Transforming Occupation Clusters	Operations occupations	Universities Working Professionals	collaboration to meet industry skillset needs - Improved understanding of changing skillset requirements in transportation workforce - Development of career pathways for critical changing occupations - Enhanced curriculum development and experiential learning opportunities
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V. Recommended Strategic Action Plans to Address Identified Regional Workforce Needs

The Center proposes four strategic action plans to address key workforce challenges identified in both the Phase 1 needs assessment and follow-up stakeholder outreach. The action plans are designed to provide adequate guidance to facilitate implementation, but also flexible enough to meet stakeholder demands as they arise. **Table 4** defines the categories used for each action plan and the type of information captured. All of the action plans are designed to address regional concerns, but all are broad enough to be relevant to stakeholders at other levels (e.g. local, state, or national).

Table 4: Overview of Data Fields

Overview of Data Fields Included in Strategic Action Plans (Adapted from NCHRP Report 693)	
Data Field Name	Description
Section 1: Overview of Strategic Recommendation	
Recommendation Title	<ul style="list-style-type: none"> ▪ Short descriptive label for strategic recommendation.
Recommendation Highlights	<ul style="list-style-type: none"> ▪ Bulleted overview of key points of interest from full Strategic Action plan.
Description	<ul style="list-style-type: none"> ▪ Provides broad overview of proposed recommendation.
Rationale for Recommendation	<ul style="list-style-type: none"> ▪ Provides a rationale for the recommendation based on stakeholder input.
Section 2: Target Audiences	
Relevant Priority Jobs	<ul style="list-style-type: none"> • List of priority occupation types identified in the Phase 1 Job Needs & Priorities report.
Primary Pipeline Focus	<ul style="list-style-type: none"> • Indicates the type of effort being described (e.g., recruitment, retention).



Overview of Data Fields Included in Strategic Action Plans (Adapted from NCHRP Report 693)	
Data Field Name	Description
Target Audience	<ul style="list-style-type: none"> • Lists targeted beneficiaries of action plan implementation.
Section 3: Implementation Plan	
Action Lead(s) and Partnerships	<ul style="list-style-type: none"> • Identifies the key person(s) within the Center and Center partners who are accountable for developing and managing the appropriate action plan, including carrying out the specific implementation steps and stakeholders with whom to coordinate.
Steps to Implement	<ul style="list-style-type: none"> • Presents the key steps that should be followed, in order to successfully implement the plan.
Estimated Time to Implement	<ul style="list-style-type: none"> • Provides an estimate of how long it will take to develop and implement.
Funding Needed	<ul style="list-style-type: none"> • Identifies funding needs and sources
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 key partners to champion the plan.
Section 5: Useful Resources	
Useful resources to successfully implement and sustain practice	<ul style="list-style-type: none"> • Identifies the internal and external resources that will assist in implementing or sustaining the plan including groups or stakeholders that will need to be involved.
Section 6: Example of Effective Programs	
Example(s) of Existing Effective Program	<ul style="list-style-type: none"> • Provides bulleted examples of related programs that have been successfully implemented and practiced in a transportation organization.
Section 7: 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.
Section 8: Challenges to Implementation	
Potential Challenges	<ul style="list-style-type: none"> • Provides bulleted list of potential challenges that should be considered and possible ways to overcome challenges.



Strategic Action Plan #1: Support Access to Training Resources for Small Urban and Rural Transit Providers

Description: The plan implements an international university partnership project to share training resources and best practices for ensuring accessible transit in small urban and rural areas. The project will be implemented over the course of a year and the primary goal is to improve transportation services in small urban and rural areas by enhancing access to information, quality training, and other resources and tools to improve the capacity of small transit providers to ensure a barrier free environment to mobility for

persons with disabilities. The project has three objectives: 1) to improve access to information on training resources and curricula for staff of small urban and rural transit systems; 2) to improve understanding of current practices to implement accessibility standards in use by small urban and rural transit agencies; and 3) to increase capacity of service providers and educators by identifying innovations and best practices on accessibility training and service provision in rural and small urban areas.

Recommendation Highlights

- Target career stage: working professionals
 - Estimated time to implement: 1 year
 - Enhances content of online compendium of training and education resources
 - Showcases successful practices for rural providers
 - Will help small urban and rural providers access quality training sources
 - Provides international context and comparisons to identify innovative practices
-

Project implementation features a unique international partnership with the Moscow State University for Transport Engineering (MIIT) in Russia. MIIT has been charged by the Russian Ministry of Transport with developing a resource center and curricula for training transit staff in the area of accessible transportation. As such, the project has wide-scale potential impact. The Moscow State University for Transport Engineering (MIIT) is the Russian Federation's leading state institution of higher education in transportation. The university encompasses 24 branches in 22 regions of the Russian Federation, and is the primary continuing education and training center for professionals in the transportation industry in Russia. The experience of both institutions in addressing needs in geographically expansive, low population density regions provides an attractive partnership opportunity to pursue solutions to mutual challenges in supporting an accessible transportation environment in small urban and rural communities from a cross-cultural, global perspective. Project methods include a joint research project on current accessibility practices by small urban and rural transit providers in both countries, an analysis of innovative practices, a compendium of training programs and providers hosted on the WRTWC and MIIT online resource centers, and a series of webinars to disseminate project results.

Rationale for Plan: Evidence from our data gathering and stakeholder outreach process indicated that transit agencies are facing significant workforce challenges and require qualified and trained staff to meet their service mandates, but are not able to fully utilize existing training resources. This is especially an issue for small urban and rural providers. The project aims to



collect resources in one easy-to-search database, to identify innovative delivery or other training methods that encourage greater participation, and to identify and showcase staff training successes and practices that can be shared, scaled, and replicated with small urban and rural transit providers in the region as appropriate.

Target Audiences

The primary beneficiary of action plan implementation is staff at small urban and rural transit agencies. The data collection and dissemination effort will also benefit training and education providers seeking to develop new curricula. Special needs populations in small urban and rural areas with restricted mobility are the expected ultimate long-term beneficiaries of improved transit staff access and utilization of training resources.

Relevant Priority Occupations:

- Maintenance and Repair Workers, General
- First-line supervisors of transportation and material-moving machine and vehicle operators
- Bus drivers, transit and intercity

Target Career Stage: Entry-level, mid-career staff and senior leaders/supervisors

Primary Pipeline Focus: Professional Development

Implementation Plan

Steps to implement.

1. **Assemble project team.** The team will be made up of research staff at the MSU Western Transportation Institute, the Moscow State University of Railway Engineering in Russia, the Small Urban and Rural Livability Center, the Small Urban and Rural Transit Center, and Easter Seals Project Action.
2. **Identify partners and coordinate data collection effort.** Project leads will research existing transportation accessibility training programs and coordinate with training providers to compile the data into a useful format for uploading into the web portal.
3. **Identify and showcase training and education resources specific to small urban and rural challenges.** The project leads will assess training programs compiled to identify those programs with content, delivery modes, or other features that make them pertinent to rural providers. These programs will be further researched and several selected to showcase during a webinar.
4. **Conduct outreach to rural and small urban transit providers and professional transit associations to collect data on implementation of transit accessibility standards in small urban and rural areas.** Project leads at MSU and MIIT will conduct outreach to transit providers to better understand the quality and challenges of accessible transportation provision in rural and small urban areas.
5. **Analyze and disseminate data.** Project leads will analyze data collected from service and training providers to identify innovations and successful practices in both countries. A joint analytical report will be produced as well as a series of webinars to disseminate project results.



6. **Follow-up evaluation.** Feedback on enhanced website resources, as well as paper and webinar results will help identify additional areas for collaboration.

Communication Plan

The primary mechanisms for communicating project outcomes will be the WRTWC and MIIT's respective websites, online searchable resource clearinghouses, and a series of free webinars marketed broadly to transit professionals, training providers, and advocacy groups in the U.S. and Russia. The WRTWC will utilize the following process:

- Program information on training resources, providers, and courses in the area of accessible transit service will be catalogued and added to the WRTWC "one-stop-shop" online clearinghouse.
- A joint synthesis paper will be added to the website resources and submitted for dissemination through conference presentations and other appropriate venues.
- The WRTWC will identify relevant professional associations, education providers, advocacy groups, etc. to market project webinars and products.
- Two webinars will be hosted on project outcomes, and the recordings and materials made available for long-term access on the WRTWC website.
- The Center will utilize its regular e-newsletter to apprise the WRTWC network of project milestones and outcomes and to encourage stakeholder involvement.

Process for Obtaining Buy-In

- Work closely with training providers to ensure that programs are adequately represented.
- Provide data to training providers on marketing value of clearinghouse (e.g. number of visitors to site, etc.)
- Gather data on training challenges and demonstrate to transit agencies how successful programs have overcome barriers.

Useful Resources for Implementation and Sustainability

- Maintain new contacts to ensure that future transit workforce development initiatives continue to meet changing industry needs.
- Follow up with both training provider and transit agency project participants after project completion to evaluate impacts and pursue future opportunities.
- Develop easy-to-use online mechanism for training providers to update information on course offerings.

Example Effective Programs

- The Center expects to showcase existing resources and transit training providers in the execution of its action plan to include: APTA, the National Rural Transit Assistance Program (RTAP), Small Urban and Rural Transit Center (SURTC) at North Dakota State University, the Southern California Regional Transit Training Consortium (SCRTTC), the Small Urban and Rural Livability University Transportation Center (SURLC), the Community Transportation Association of America (CTAA), and Easter Seals Project Action.



Impact

The anticipated positive outcomes of the project include:

- Information gathered on training and education resources will be accessed by transit providers to implement or improve staff training programs
- Improved understanding of challenges to achieve quality accessible transit services in small urban and rural areas will lead to new curricula or other service improvements.
- Capacity of service providers and educators will increase by receiving information through paper and webinars on best practices for effective accessibility training, education, and service provision.

Potential Challenges

- Transit professionals will find it difficult to utilize training resources due to time and budget constraints
- Some transit managers may not actively promote and support professional development of staff



Strategic Action Plan #2: Enhance Employer Engagement in Building the Talent Pipeline

Description: The plan implements a number of resource sharing and collaboration-building initiatives to get employers directly involved in the education/training pipeline in order to attract new career entrants, especially in the skilled trades. First, the Center will pursue opportunities to gather resources, toolkits, and implementation guides on proven strategies for effective industry/education collaborations and share them via webinars and the WRTWC website. The Center will also work to identify and showcase regional success stories, especially for effective practices implemented in rural environments. Second, the Center will implement networking events and other coalition-building opportunities, utilizing technology to bring together geographically dispersed stakeholders. Third, the Center will disseminate successful practices for improving the efficacy of both in-school and out-of-school career messaging and career awareness programs and enhance coordinated efforts by bringing together subject matter experts/industry representatives and education providers. Finally, successful strategies for improving diversity participation in the transportation workforce will be collected and shared.

Recommendation Highlights

- Target career stage: pre-career K-16
 - Estimated time to implement: 2.5 years
 - Identifies and shares successful collaboration strategies
 - Provides coalition-building opportunities between industry and education providers
 - Develops technological innovations for effective coordination between geographically dispersed partners
 - Develops adaptations for successful implementation in rural environments
 - Assists employers with positive career imaging for diverse populations
-

Rationale for Plan: The majority of priority transportation occupations identified for the West Region are in the skilled trades. Across the board, we heard from our stakeholders that parents, teachers, guidance counselors, and students emphasize 4-year college degrees and do not hold skilled trades in high esteem. There is a need to change “hearts and minds” about the types of attractive job opportunities and salaries available in the trades to attract a greater share of new entrants. The trades additionally suffer from lack of workforce participation on the part of specific demographic groups, particularly women. To meet current and future workforce needs in transportation trades, there is a need to attract new entrants to the profession. Better communication and coordination among educators, industry, and prospective entry-level workers will improve the collective impact of career preparation and exposure programs. Successful industry and education sector partnerships can also open up direct paths for students from school to career through enhanced experiential learning opportunities and targeted skills development while in school, and preferential hiring practices when entering the job market. A focus on career imaging and creating welcoming workplace climates is needed to address lack of diversity.



Target Audiences

- Public and private transportation industry employers;
- Formal K-16 education providers (to include K-12 teachers and guidance counselors, CTE and dual enrollment programs, community colleges and trade schools, universities);
- Informal educators (to include after school programs, science centers, museums, 4-H and other clubs, parents, community colleges, trade schools);
- Cross-sector agencies involved in sector strategy and workforce development, such as Departments of Labor, Chambers of Commerce, and state Departments of Commerce; and
- Advocacy groups and organizations offering training and other supportive services such as pre-apprenticeships or other on the job training programs.

Relevant Priority Occupations:

- Construction Managers
- Civil Engineers
- First-line supervisors of transportation and material-moving machine and vehicle operators
- Bus drivers, transit and intercity
- Heavy and tractor-trailer drivers
- Bus and truck mechanics and diesel engine specialists
- Maintenance and Repair Workers, General
- First-Line Supervisors of Construction Trades and Extraction Workers
- Operating engineers and other construction equipment operators

Target Career Stage: Entry-level

Primary Pipeline Focus: Attraction and Recruitment

Implementation Plan

Steps to implement.

1. **Conduct resource collection and stakeholder outreach.** The WRTWC will identify successful models/practices for effective industry-education collaborations and diversity improvement programs from across the region.
2. **Showcase promising practices and practical implementation toolkits on website.** The WRTWC will compile details on effective regional programs to showcase on its Success Stories webpage. Toolkits and implementation guides for fostering industry engagement and diversity will be highlighted on the Resources page.
3. **Disseminate best practices via webinars and website.** The WRTWC will work with cross-sector partners to disseminate case studies, implementation guidance, evaluation data, and other program data via webinars and the Center clearinghouse.
4. **Identify conference events and other professional forums and coordinate with organizers to host sessions focused on industry-education partnership development.** The Center will identify 1-3 professional conferences and work with conference



organizers to host special sessions that bring transportation industry and education representatives together face-to-face for networking and collaboration-building activities.

5. **Identify and test technologies that best replicate face-to-face networking events through an online experience.** The team will evaluate available online networking and meeting platforms to host virtual collaboration-building sessions. The sessions will be evaluated to identify the most effective technologies for facilitating partnership-building activities between geographically dispersed collaborators.
6. **Work with stakeholders to craft effective career messaging for the trades.** The Center will engage stakeholders to identify effective career messaging for the trades, especially for attracting diverse populations.

Communication Plan

The primary mechanisms for communicating project outcomes will be the WRTWC website, which includes a Success Stories page and Resources page, and a series of free webinars marketed broadly to transportation employers, professional associations, and education providers and associations.

The WRTWC will utilize the following process:

- Implementation guides, toolkits and other resources will be added to the WRTWC.org Resources page.
- The WRTWC will identify relevant professional associations, education providers, cross-sector agencies, advocacy groups, etc. to market project webinars and products.
- Webinars will showcase implementation guidance and showcase success stories for enhanced employer engagement in building the skilled trades talent pool.
- The Center will utilize its regular e-newsletter to apprise the WRTWC network of webinars, events, and other program outcomes.
- Online technologies will be utilized to host virtual networking and collaboration-building events.

Process for Obtaining Buy-In

- Work closely with cross-sector agencies to identify success stories.
- Provide evaluation data from successful collaborations to highlight the potential benefits conferred to both educators and employers.
- Ensure that partnership-building activities enhance rather than replace existing programs.

Useful Resources for Implementation and Sustainability

- Work with well-established programs such as the Chamber of Commerce, Department of Commerce EDA, and CTE programs to identify best practices.
- Follow up with face-to-face and virtual forum participants to identify new partnerships and programs and to evaluate impacts.
- Identify, evaluate, and select a cost-effective online platform for collaboration-building activities.

Example Effective Programs

- BuildDakota Program (South Dakota Department of Education)



- Washington State Department of Commerce sector strategies in maritime and aerospace
- U.S. Chamber of Commerce Foundation Talent Pipeline Management implementation guide
- Career exposure events like Construction Career Days
- Career exploration websites such as www.letsbuildmontana.com (Montana Contractors Association); and www.careerbridge.wa.gov (Washington state)
- Programs aimed at increasing diversity in highway construction trades, such as pre-apprenticeship programs offered by Oregon Tradeswomen, Inc., and the Alaska Works Partnership, Inc.
- Collaborative programs in Oregon and Washington between state transportation departments and state departments of labor to provide support to underrepresented individuals in the highway construction apprenticeship and training pipeline
- State Departments of Transportation OJT programs

Impact

The anticipated positive outcomes of the strategic action plan include:

- Information gathered and disseminated on successful industry-education collaborations will be accessed by Center stakeholders and used to implement new partnerships or improve existing programs.
- Industry-education collaborations will improve career imaging for the trades and provide more direct links to employment for prospective career entrants.
- Transportation employers will utilize diversity-focused resources and information to adjust career messaging, recruitment materials, and workplace policies to foster inclusive and welcoming environments.

Potential Challenges

- Geographically dispersed employers and education institutions in rural states will find it challenging to implement effective joint programs.
- Small businesses will find it difficult to achieve economies of scale to implement practices.



Strategic Action Plan #3: Improve Strategies to Adapt to Changing Workforce Demographics at Transportation Agencies

Description: State Departments of transportation and other public agencies are struggling to adapt to a workforce that now spans five generations. The Center will identify, share, and develop resources aimed at assisting transportation agencies to best manage rapidly shifting workforce demographics. Action plan strategies include providing guidance on recruitment strategies and career messaging that resonate with potential new recruits; disseminating resources on succession planning and knowledge management strategies; and pursuing actionable research to build the capacity of agency leadership to effectively implement

organizational changes needed to engage and retain the existing and incoming workforce. The proposed research will seek to develop evidence-based recruitment and retention strategies for transportation agencies. The Center will additionally identify opportunities for collaboration among state departments of transportation and other public agencies to share information and leverage resources to meet collective challenges. The project will focus on shared issues of concern identified through a state DOT focus group. These issues included technology and social media usage, mentorship capacity, attrition, and public image.

Rationale for Plan: Demographic challenges at transportation agencies are exacerbated by the fact that the transportation workforce is older than the national average and organizations expect to lose a significant number of seasoned employees to retirement over the next five years. Human resource managers are therefore struggling to replace retiring workers. Many are finding that traditional recruitment techniques are inadequate to attract younger generations. Generational differences regarding work values and expectations are perceived to create retention issues. Center stakeholders have repeatedly voiced a request for practical guidance and effective tools to assist agencies with the implementation of effective recruitment strategies and to promote positive cultures of engagement for staff across multiple generations. Stakeholders seek strategies that take into consideration the policy and budgeting constraints placed on public sector employers, which make them less nimble in adapting to changing labor market dynamics.

Recommendation Highlights

- Target career stage: pre-career; entry-level; mid-career; pre-retirement; agency leadership
 - Estimated time to implement: 2.5 years
 - Conducts actionable research to share evidence-based recruitment and retention strategies
 - Provides information-sharing opportunities for HR staff and agency leadership to develop strategies to address collective challenges
 - Disseminates resources and effective strategies
 - Assists employers develop career messaging and organizational policies that engage younger generations
-



Target Audiences

- Public transportation agencies (agency leaders, supervisors, and Human Resource specialists)
- Pre-career community college/technical school and university students
- Entry-level; mid-career; pre-retirement transportation professionals

Relevant Priority Occupations:

- Construction Managers
- Civil Engineers
- First-line supervisors of transportation and material-moving machine and vehicle operators
- Bus drivers, transit and intercity
- Heavy and tractor-trailer drivers
- Bus and truck mechanics and diesel engine specialists
- Maintenance and Repair Workers, General
- First-Line Supervisors of Construction Trades and Extraction Workers
- Operating engineers and other construction equipment operators

Target Career Stage: Pre-career, entry-level, mid-career, pre-retirement

Primary Pipeline Focus: Attraction, Recruitment, Retention

Implementation Plan

Steps to implement.

1. **Assemble core team made up of state DOT and other public sector transportation managers.** The leadership team will conduct strategic planning activities to collectively refine the desired actionable research project outcomes and products. Project champions will facilitate internal assessments and surveys conducted at participating agencies.
2. **Identify mechanisms and secure funding.** Explore pooled fund research or other opportunities to leverage resources for project implementation.
3. **Collect data.** An accurate understanding of existing and recommended practices will be developed through an extensive literature review and stakeholder engagement. An interview protocol, agency self-assessment tool, and other data collection instruments will be developed to fill gaps in available data.
4. **Prioritize opportunities for interventions.** Based on results of the data analysis, the Center will identify opportunities for change and develop a practice ready toolkit of strategies that state DOTs and other agencies can implement to effect this change.
5. **Identify opportunities to pilot and evaluate recommended strategies.** The project leadership team collectively identifies one or two priority outcomes and recommends one or more pilot locations to evaluate recommended strategies to attain those outcomes.
6. **Showcase best practices and share resources on strategies for effective recruitment, retention, succession planning, and knowledge management.** Center website will host resources related to the multigenerational transportation workforce as well as success



stories on effective recruitment or employee engagement programs. Webinars will disseminate practical guidance on succession planning and knowledge management.

Communication Plan

The primary mechanisms for communicating project outcomes will be the WRTWC website, which includes a Success Stories page and Resources page, and a series of free webinars marketed broadly to transportation employers, professional associations, and education providers and associations.

The WRTWC will utilize the following process:

- Implementation guides, toolkits and other resources will be added to the WRTWC.org Resources page.
- The WRTWC will identify relevant professional associations, education providers, cross-sector agencies, advocacy groups, etc. to market project webinars and products.
- Webinars will showcase implementation guidance and showcase success stories for enhanced employer engagement in building the skilled trades talent pool.
- The Center will utilize its regular e-newsletter to apprise the WRTWC network of webinars, events, and other program outcomes.
- Online technologies will be utilized to host virtual networking and collaboration-building events.

Process for Obtaining Buy-In

- Work closely with public sector agencies to identify their priorities.
- Engage agency leadership and clearly communicate expected outcomes.
- Obtain evaluation data from pilot interventions to showcase impacts.
- Highlight return-on-investment to secure funding.

Useful Resources for Implementation and Sustainability

- Identify proactive project champions within public sector agencies.
- Work with agencies that do not face significant barriers to change.
- Ensure that communication channels with agency leadership are open at all times and that project tasks and expected outcomes are clearly communicated.
- Identify a pooled fund lead state with the capacity to manage the project and coordinate project partners.

Example Training and Research Programs

- Mejorando Group
- Center for State & Local Government Excellence
- Local Government Research Collaborative
- Center for Health and Safety Culture

Impact

The anticipated positive outcomes of the strategic action plan include:

- Public sector employers will implement new strategies to enhance employee engagement and retention.



- Public sector employers will implement strategies that help make them a more attractive employer of choice for younger generations entering the workforce.

Potential Challenges

- Budget shortfalls will prevent public agencies from participating in pooled fund research
- Funding shortfalls will prevent implementation of pilot demonstration projects to evaluate recommended strategies
- Differences in organizational leadership and structure will prevent state DOTs from effectively collaborating on designing collective solutions.



Strategic Action Plan #4: Develop Career Pathways in Key Transforming Occupation Clusters

Description: The project will identify critical skillsets needed to design, operate, and maintain emerging transportation technologies, especially as they relate to transportation system safety. The Center will engage a working group of subject matter experts and education providers to develop recommendations for curricula enhancements and/or experiential learning activities that best prepare students to meet industry needs in a rapidly changing environment. The group will establish recommendations for career pathway development in critical occupations. Industry and education collaborations to implement recommended career pathway projects is expected to lead to new curriculum development and experiential learning opportunities. Clearly defined career pathways will help students and working professionals to pursue career-driven training and education activities that best meet industry needs.

Recommendation Highlights

- Target career stage: pre-career; entry-level; professional development
 - Estimated time to implement: 2.5 years
 - Identifies and documents needed workforce skillsets related to enhanced integration of transformational technologies in the transportation sector
 - Provides concrete recommendations for implementing career pathway projects based on input from subject matter experts
 - Provides opportunities for industry/education collaborations to develop new curricula and implement experiential learning opportunities to address skill gaps
-

Rationale for Plan: Traditional transportation occupations now demand a growing set of new skills to meet the requirements of evolving roles and responsibilities. The project will develop strategic responses to the skills gaps created by transformational technologies and the integration of advanced technologies in the transportation sector. Examples of transformational technologies and trends include, mobile technology, big data, autonomous vehicles, remote sensors, and vehicle-to-vehicle and vehicle-to-infrastructure technologies. To address the challenges associated with developing a transportation workforce with multidisciplinary skillsets, industry will need to work proactively to identify and communicate changing workforce skillset needs to education providers, and to support the development of new curricula and experiential learning opportunities for its emerging workforce.

Target Audiences

- Public and private sector transportation organizations
- Community college and technical schools; universities
- Pre-career community college/technical school and university students
- Entry-level and working professionals

Relevant Priority Occupations:

- All (with a focus on safety-related occupations and/or cross-occupational duties)



Target Career Stage: Pre-career, entry-level, working professionals

Primary Pipeline Focus: Recruitment, Professional Development

Implementation Plan

Steps to implement.

1. **Assemble subject matter expert working group made up of representatives from academia, employers, and professional associations.** The working group will help to define changing skillset requirements in relation to emerging technologies, and craft recommendations for career pathway development.
2. **Collect data.** Identify ways that transformational technology will change existing job functions and identify training and education gaps.
3. **Develop recommendations for addressing skills gaps.** Explore new curriculum development, enhanced experiential learning or other strategies for addressing identified gaps.
4. **Identify experiential learning and other support activities that can be implemented by industry/education partners.** Working group will develop specific recommendations regarding needed partnership activities to enhance workforce preparedness as it relates to emerging technologies in transportation.
5. **Devise recommendations for career pathway development that can be implemented by industry/education partners.** The working group will document specific recommendations on implementing career pathways for critical job functions.

Communication Plan

The primary mechanisms for communicating project outcomes will be online collaboration tools such as WebEx (for virtual meetings), BaseCamp (to share project documents and to facilitate working group discussions); as well as the WRTWC website (for dissemination of project products).

Process for Obtaining Buy-In

- Work closely with subject matter experts from industry and professional associations and other groups to identify needs and priorities.
- Engage education institutions and highlight expected benefits to student outcomes.

Useful Resources for Implementation and Sustainability

- Identify proactive project champions from industry and education.
- Ensure that communication mechanisms are efficient and easy-to-use and project tasks and expected outcomes are clearly defined for the working group.
- Identify project partners to implement and evaluate career pathway recommendations.

Example Effective Programs

- NOCoE workforce development summit and resulting white papers on TS&MO workforce development



- National Rural Safety Center, Rural Transportation Working Summit (September, 2016 in Denver, CO)
- LTAP/TTAP safety circuit riders programs
- National research, education and advocacy organizations (e.g., the AAA Foundation for Traffic Safety, the Roadway Safety Foundation; Transportation Safety Advancement Group (TSAG); National Association of State EMS Officials)
- Center for Health and Safety Culture

Impact

The anticipated positive outcomes of the strategic action plan include:

- Employers will document emerging skillsets needs and communicate those needs to education providers.
- Education and industry will collaborate to develop new curricula and experiential learning opportunities to address skills gaps.
- Clearly defined career pathways will assist students to pursue coursework and other opportunities that enhance their workforce competitiveness.

Potential Challenges

- Differing requirements and funding practices for new program development at education institutions may restrict flexibility for implementing recommended changes.
- Funding shortfalls at public transportation agencies may make it difficult for some organizations to fully commit as partners on demonstration projects or as reliable future employers or providers of experiential learning opportunities.
- Costs for new education program development can be significant, and identifying funding that can be used to support these initiatives will be a challenge.



VI. Conclusion

The Phase 2 Job Needs and Priorities Report builds upon the stakeholder engagement and labor market analysis undertaken in Phase 1, which identified common workforce challenges across the region as well as high growth/high demand priority occupations. The Phase 2 report outlines detailed strategic action plans that the Center will undertake to assist its network of stakeholders to meet their needs for a right-sized and skilled transportation workforce and to address the attraction, recruitment, and retention challenges of greatest concern to them. The initiatives outlined in this document provide guidance to the Center for implementing concrete actions to achieve positive outcomes for our stakeholders. The Center is network driven, and stakeholders are viewed as the target audience for information dissemination efforts as well as active partners in project implementation. The WRTWC team welcomes stakeholder feedback on the proposed strategic action plans and seeks project partners to implement these initiatives and future efforts aimed at enhancing regional transportation workforce development.