



Job Needs and Priorities Report Phase 1: West Region

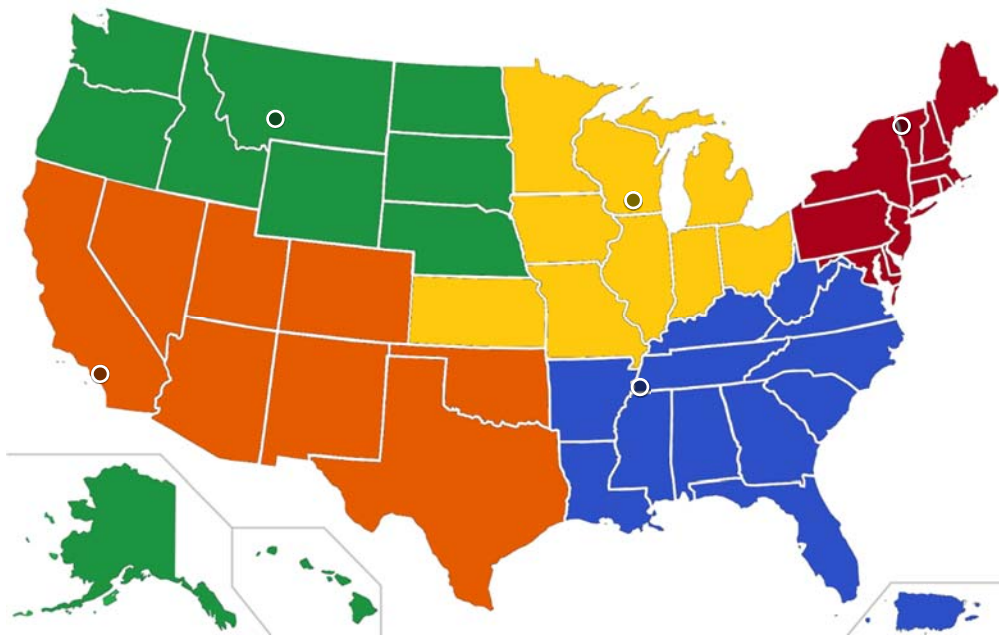


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Introduction and Overview of the Report

The purpose of this report is 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 with any industry, the transportation industry in the United States faces challenges in recruiting and retaining a skilled and right-sized workforce. The National Transportation Workforce Summit, conducted in 2012 by the Council of University Transportation Centers (CUTC), identified four major challenges to the transportation workforce (CUTC, 2012). These challenges include:

- Demographic changes, particularly retiring baby boomers
- Career awareness and recruitment
- New technologies and the need for operators and managers who can use them
- Rising demand on transportation organizations, requiring a workforce with a wider range of experience.

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 (U.S. Department of Education, 2015). Baby Boomers (born between 1946 and 1964) are retiring and leaving vacancies, particularly those at senior and management levels, that need to be filled. At the same time, technology is changing workforce dynamics. The traditional mandate of transportation agencies to design, build and maintain road infrastructure has shifted to a focus on extending the capacity and efficiency of existing infrastructure, primarily through technological means. These changes require different skill sets and new ways of doing business from transportation organizations and staff (Martin and Glenn, 2002). New and emerging technologies, new safety requirements, and changing legislation place additional responsibilities on transportation staff and organizations. The industry faces further challenges in attracting a diverse workforce that reflects demographic changes in the national workforce as a whole.

Similar trends exist in the transportation workforce nationwide, but regional characteristics matter in determining which occupations and skills are in most demand. This report focuses on issues related specifically to the West Region in terms of the workforce. It provides an overview of the transportation industry in the region as a whole and outlines distinctive workforce challenges confronting many of the region's states. The report also details key occupations in high demand and expected to grow over the next 10 years. The second phase of this report will focus on the programs needed to meet critical skills requirements for advancing a 21st century transportation system.

METHODOLOGY

The methodology for developing this report includes several key phases as described below.

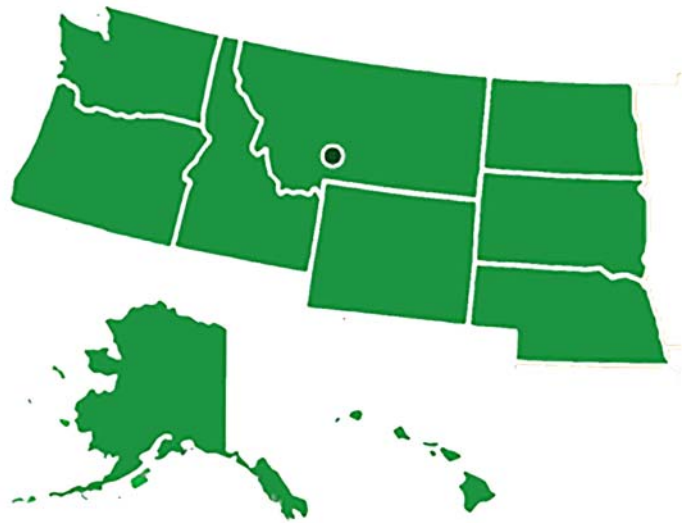
Background Review. The research team identified and analyzed information from Federal, State, and private sector research, reports, and strategic plans to contextualize the transportation industry and employment trends in the West.

Estimate regional workforce demand for occupations. Using Bureau of Labor Statistics (BLS) data, the team generated data on transportation industries by mode as well as historic, current, and future occupational estimates for all transportation occupations (as identified by Center partners and stakeholders). These data were generated and analyzed at the state and regional level.

Engage Stakeholders. Industry stakeholders throughout the region were engaged to provide input on expected industry changes over the next 10-20 years, resulting critical job functions, and anticipated workforce trends. Public and private sector employers were additionally asked to detail the specific recruitment, training, and retention challenges they face within their respective organizations. The research team reached out to state workforce development organizations, educational institutions, and professional associations throughout the region. Qualitative data collected from the stakeholder engagement process was used to validate and “ground truth” the preliminary BLS data analysis in order to develop a preliminary list of critical workforce occupations and functions for the region.

Description of Industry in West Region and Major Drivers of Transportation Needs

The West Region Transportation Workforce Center covers ten states: Alaska, Hawaii, Idaho, Montana, Nebraska, North Dakota, Oregon, South Dakota, Washington, and Wyoming. Nine of the ten regional states are in the top 20 in the United States in terms of area. The region covers 1,286,423 square miles, approximately 36% of the total landmass of the United States, while only containing approximately 6% of the U.S. population. The region is characterized by geographically large states with relatively low population densities. Only two states (Hawaii and Washington) are above the U.S. average of 87.4 persons per square mile. Most of the state population densities fall well below the national average (Census, 2014). While rural and small urban population patterns predominate (the fact that four of the western states’ largest urban centers are below 200,000 residents is a good indicator), many rural counties in the region are nevertheless experiencing significant growing pains. Thirteen counties in the West region are in the top 100 fastest growing counties nationwide with growth rates ranging from 8.5% to 43.5% between 2010 and 2014 (Census, 2015c). Twelve of these high growth counties had 2010 populations below 150,000. Much of this explosive growth is centered in the Dakotas and relates to Bakken oil field development, bringing unique infrastructure challenges to predominantly rural communities.



Although the states in the region have fairly low population densities overall, Oregon, Washington, and Hawaii contain denser urban areas (Census, 2014). Seattle, Washington, is the largest urban center in the region, and is in the top 12 in the nation for growth (Census, 2015b). The Portland, Oregon metropolitan area also exceeds two million residents (Census, 2014). This variance in state characteristics will impact transportation infrastructure and workforce composition and needs within the region. Table 1 provides an overview of the states included in the West Region, with an overview of population, land area, population density, and largest urban centers.

State	Population	Land Area (sq. miles)	Persons per sq. mile	Largest City (Population)
Alaska	736,732	570,640	1.2	Anchorage (301,210)
Hawaii	1,419,561	6,422.6	211.8	Honolulu (350,399)
Idaho	1,634,464	82,643	19	Boise (216,282)
Montana	1,023,579	145,545	6.8	Billings (108,869)
Nebraska	1,881,503	76,824	23.8	Omaha (446,599)
North Dakota	739,482	69,001	9.7	Fargo (115,863)
Oregon	3,970,239	95,988	39.9	Portland (619,360)
South Dakota	858,175	75,811	10.7	Sioux Falls (168,586)
Washington	7,061,530	66,456	101.2	Seattle (668,340)
Wyoming	584,153	97,093	5.8	Cheyenne (62,845)

The total transportation expenditures by state and local governments in the West Region (Table 2) exceed 19 billion dollars per year (Census, 2011; Department of Commerce, 2011). This makes up approximately 8% of the 241 billion dollars spent by state and local governments within the United States. The West Region accounts for 9% of total U.S. expenditures for highways, 5% of total funds for transit, 7% of funds for air, and approximately 16% of total funds for water transportation. Highway expenditures account for 72% of the transportation budget in the region. While Hawaii, Oregon, and Washington exhibit greater multimodal spending, seven out of the ten states in the region spend over 86% of their total transportation budgets on highways.

	Total	Highway	Transit	Air	Water
Alaska	\$1,987	\$1,701	\$61	\$113	\$113
Hawaii	\$1,283	\$568	\$390	\$276	\$49
Idaho	\$1,077	\$1,002	\$19	\$53	\$2
Montana	\$999	\$897	\$34	\$61	\$7
Nebraska	\$1,289	\$1,158	\$36	\$95	--
North Dakota	\$998	\$948	\$12	\$38	--
Oregon	\$3,083	\$2,029	\$643	\$258	\$154
South Dakota	\$964	\$909	\$13	\$42	--
Washington	\$7,032	\$4,061	\$1,995	\$487	\$489
Wyoming	\$780	\$698	\$4	\$78	--
Region Totals:	\$19,492	\$13,971	\$3,207	\$1,501	\$814

Nevertheless, transportation systems across the West Region are multi-modal, with a variety of occupations available to individuals in highway construction and maintenance, roadway design and engineering, transportation planning, aviation, freight, marine, and transit operations. The requirements for various jobs will differ; however, key skills that require training and development will likely overlap across these various occupations.

Highways

The national highway system is a network of highways within the United States, including the Interstate Highway System, other freeways and expressways, arterial highways, collector highways, and local highways. The United States contains the largest highway system in the world, covering over 4.05 million miles (Census, 2012). The West Region encompasses 575,465 miles of highway, approximately 14% of the total highway miles in the United States. This includes 7,078 miles of interstate highway, which is 15.1% of the interstate highway mileage in the country (Census, 2012). The majority (84%) of highway mileage in the region is rural (Table 3), comprising 17% of all rural roads in the United States. Sixteen percent of the roads in the West Region are urban, comprising only 6% of all urban roads in the country (Census, 2012).

Table 3: Highway Mileage in Region by State - Functional Systems and Urban/Rural: 2009 (Census, 2012)									
State	Total	<i>Functional Systems</i>					Urban	Rural	Percent Rural
		Interstate	Other freeways and expressways	Arterial	Collector	Local			
Alaska	15,719	1,082	--	1,555	2,791	10,291	2,419	13,300	85%
Hawaii	4,371	55	34	754	832	2,696	2,319	2,052	47%
Idaho	48,180	612	--	4,150	10,380	33,038	5,743	42,437	88%
Montana	73,627	1,192	--	6,036	16,214	50,185	3,075	70,552	96%
Nebraska	93,631	481	32	8,097	20,760	64,261	6,414	87,217	93%
North Dakota	86,843	571	--	5,919	11,814	68,539	1,898	84,945	98%
Oregon	59,128	729	58	7,041	17,671	33,629	12,894	46,234	78%
South Dakota	82,354	679	11	6,422	19,021	56,221	2,986	79,368	96%
Washington	83,507	764	379	7,786	17,224	57,354	23,191	60,316	72%
Wyoming	28,105	913	3	3,610	11,173	12,406	2,713	25,392	90%
Region	575,465								84%

The extensive regional highway system poses unique challenges to transportation agencies in terms of maintenance and construction. Maintenance needs are exacerbated by the cold climates found in most of

the region’s states. Of the 57,337 bridges in the West, on average 24% of them have been rated either structurally deficient or functionally obsolete (ARTBA, 2015). Of the 137,634 miles of roadway eligible for federal aid in the region, on average 15.5% of these road miles have been rated “not acceptable,” indicating that they need major repairs or replacement (ARTBA, 2015). The regional averages mask stark differences between states (Table 4). For example, 41% of Hawaii’s road miles eligible for federal aid are deficient, whereas only 2.5% of Nebraska’s are. Nevertheless, the state of repair for highway infrastructure in the West indicates that investments will be needed region-wide to meet highway and bridge construction and maintenance needs, including investments in recruiting and training a capable workforce to meet these demands. In the state of Washington alone, \$25.4 million of structural bridge maintenance repairs are planned during the 2015-2017 biennium (Washington DOT, 2015).

Table 4: State of Repair of Infrastructure in the West Region (ARTBA, 2015)

	All Bridges	Structurally Deficient	Functionally Obsolete	Road Miles Eligible for Federal Aid	% road miles in need of major repair/replacement
Alaska	1,544	9.9%	12.8%	4,708	13.4%
Hawaii	1,137	5.4%	37.1%	1,555	41.8%
Idaho	4,431	9.2%	10.3%	11,418	24.1%
Montana	5,251	7.6%	10.3%	14,686	6.4%
Nebraska	15,374	17.3%	6.4%	20,613	2.5%
North Dakota	4,429	15.8%	5.5%	18,441	9.2%
Oregon	8,052	5.5%	17.6%	18,298	14.4%
South Dakota	5,872	20.0%	4.1%	19,838	7.6%
Washington	8,120	4.7%	21.1%	20,218	28.7%
Wyoming	3,127	13.5%	9.1%	7,859	7.2%

Air

Air transportation is crucial in terms of moving both passengers and cargo. In geographically large states with low population densities, small airports are an important component in the transportation infrastructure (Table 5). The Alaska Department of Transportation and Public Facilities, for example, is responsible for maintaining more than 300 aviation facilities, including 249 airports. These facilities, in addition to privately managed airports in the state, are crucial to the mobility of Alaskan residents and visitors.

Table 5: Number of Airports in Each State (ARTBA, 2015)

Alaska	559
Hawaii	32
Idaho	227
Montana	233
Nebraska	196
North Dakota	257
Oregon	323
South Dakota	137
Washington	364
Wyoming	96

The aerospace industry has additionally been identified by several state governments as a key sector for economic development. Idaho has singled out Advanced Manufacturing with an emphasis on aerospace as a state workforce development focal point (State of Idaho, 2012). Washington State’s Department of Commerce has established targeted economic development initiatives around a broadly-defined aerospace sector, to include a wide array of jobs in: air travel and cargo; maintenance, repair, and overhaul; unmanned aerial vehicles; space exploration; and commercial and military airplanes and rotorcraft.

This initiative reflects Washington’s competitive advantage as the home to Boeing and an additional 1,350 aerospace-related businesses, generating \$76 billion in economic activity in the state (Washington Department of Commerce).

Transit

Public transit encompasses city busses, trolleys, trams or light rail, rapid transit, passenger trains, and ferries. Because bus systems operate on normal roads, they require less infrastructure. Busses and bus systems are often used in smaller cities and towns, and are also used to supplement other means of transit in large cities. Given the predominantly rural and small urban character of the West, the vast majority of public transportation in the region relies on busses (Table 6, Table 7). Only the larger metropolitan areas in Oregon and Washington have light or commuter rail. Heavy rail for commuter transit is completely absent in the region.

	Annual unlinked passenger trips (thousands)	Bus	Light Rail	Commuter Rail	Other
Alaska	4,983	90.9%	0%	0%	9.1%
Hawaii	74,782	97.8%	0%	0%	2.2%
Idaho	2,142	88.8%	0%	0%	11.2%
Montana	2,271	95.3%	0%	0%	4.7%
Nebraska	6,095	97.6%	0%	0%	2.4%
North Dakota	2,275	87%	0%	0%	13.0%
Oregon	123,244	63.6%	34.4%	0.2%	1.7%
South Dakota	1,411	85.2%	0%	0%	14.8%
Washington	230,381	70.4%	3.6%	1.1%	24.9%
Wyoming	458	82.9%	0%	0%	17.1%

Note. Other includes automated guideway, cable car, demand response, ferry boat, inclined plane, monorail, trolley bus, and van pool. Transit agencies with nine or fewer vehicles are not included in database.

Although only a few of the region’s states have larger urban areas that can support more robust urban transit systems, those that do top the nation in transit ridership and transit savings, as calculated by APTA based on monthly public transit pass purchases and local gas and parking prices. Seattle, Honolulu, and Portland ranked fifth, seventh, and eleventh respectively for transit savings nationwide (APTA, 2011). In terms of annual passenger trips per capita, Portland ranked twelfth and Seattle fifteenth in the nation (BTS, 2010).

	Bus Route Miles	Number of Transit Agencies
Alaska	1,447	4
Hawaii	1,739	2
Idaho	35,837	6
Montana	463	4
Nebraska	4,479	3
North Dakota	14,951	4
Oregon	2,696	12
South Dakota	191	2
Washington	8,036	22
Wyoming	0	2



Figure 1: Amtrak Cascades Construction Projects to 2017 (Source: Amtrak)

Rail

While heavy rail as a commuter transit operation is absent in the West, Amtrak provides long distance or corridor service in six out of the ten states within the West Region. The busiest passenger rail stations in the region are located in Seattle, Washington and Portland, Oregon (Amtrak, 2014). The only state-supported shorter distance Amtrak corridor in the region—the Amtrak Cascades service (serving Eugene-Portland-Seattle-Vancouver, B.C.)—had a ridership in 2014 reaching 782,519 passengers. Washington state has a number of ongoing large high-speed rail projects aimed at reducing passenger and freight rail congestion and removing delays on the Amtrak Cascade (Figure 1). The Washington Department of Transportation received over \$767 million of federal funding from the American Recovery and Reinvestment Act of 2009 to implement 20 rail projects, scheduled to be completed by 2017 (WSDOT, 2015). Amtrak additionally owns maintenance facilities in Seattle, Washington. Increased workforce demands related to the expansion, maintenance, and operation of passenger rail in the Northwest corridor are anticipated.

Beyond passenger travel, rail transportation plays an important role in efficiently moving large quantities of cargo. Freight rail relies on an extensive network, primarily owned and operated by private companies. As with other transportation industries, freight rail faces similar demographic trends in terms of an aging workforce and the related challenges of attracting younger workers to the industry who express different work preferences in terms of work-life balance requirements

(NCRRP, 2015). These issues will likely be exacerbated by the projected 55% increase in freight tonnage moved by rail by 2020 (NCRRP, 2015). New technology deployments required by recent federal safety regulations will likely also increase demand for specific electrical, computer, and technology-related competencies.

The West Region contains over 22,000 miles of freight railroad track (Table 8). The workforce outlook for freight rail in the West Region is mixed. While rail transportation is expected to lose jobs in Idaho through 2020 (State of Idaho, 2012), Nebraska and North Dakota expect higher rates of growth for rail-related occupations, with Nebraska projecting over a thousand new rail openings over the next 10 years (BLS, 2014).

Table 8: Freight Rail in the West Region (ARTBA, 2015)		
	Freight Railroad Miles	Number of Railroads
Alaska	506	1
Hawaii	0	0
Idaho	1,622	12
Montana	3,172	8
Nebraska	3,247	11
North Dakota	3,328	8
Oregon	2,396	17
South Dakota	1,754	9
Washington	3,157	23
Wyoming	1,860	4

Trucking

Trucking transports large quantities of raw materials and finished goods overland, typically from manufacturing plants to distribution centers and businesses, and is therefore extremely important to the economic interests of each state. The percentage of freight shipments originating from a business that is carried to its destination via truck varies by state within the West Region from 5% (Alaska) to 80% (Nebraska), with the majority of states falling between 50% and 80% (ARTBA, 2015). Large trucks require a commercial driver's license (CDL) to operate. Obtaining a CDL requires training and experience to safely handle large vehicles, and federal regulatory requirements for interstate travel adds restrictions on the minimum age of licensed drivers.

Marine

The West contains approximately 7,750 miles of inland waterways (Table 9), the majority of which are confined to three coastal states: Alaska, Oregon, and Washington (ARTBA, 2015). The maritime sector is diverse, providing an array of job opportunities in ship and boat building, repair and maintenance, passenger operations, tourism and recreation, logistics and cargo. Alaska's Department of Transportation and Public Facilities is responsible for a ferry system covering 3,500 nautical miles and serving 35 coastal communities (AK DOT & PF). Washington ferry service additionally provides important passenger commuter transit service to residents. In the fourth quarter of fiscal year 2015, ferry ridership was 6.25 million, bringing in fare revenues of \$47.7 million (Washington DOT, 2015).

Table 9: Inland Waterways: West Region (ARTBA, 2015)

	Inland Waterway Miles	Number of Waterway Facilities	Total Shipments (1,000 tons)
Alaska	5,500	1,171	41,041
Hawaii	0	206	24,932
Idaho	110	66	868
Montana	0	1	0
Nebraska	320	32	22
North Dakota	0	0	0
Oregon	680	1,014	30,758
South Dakota	80	0	0
Washington	1,060	1,778	115,598
Wyoming	0	0	0

The state of Washington alone contains 75 port districts (Washington Department of Commerce). Growth in the maritime sector in Washington and its impact on economic development in the state has warranted its selection for enhanced investment and focused attention. The Washington maritime industry provides higher than average pay, directly employs 57,700 people and contributes \$15 billion in gross business income (Washington Department of Commerce).

Non-Motorized Transportation and Livable Communities

Non-motorized transportation includes both pedestrian and bicycles. While the majority of short trips are still conducted using motorized vehicles (APTA, 2009), trends illustrate that non-motorized transportation is increasing, and is likely to continue increasing over time (Davis, Dutzik & Baxandall, 2012). 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, and stagnant economies. Many

rural states are taking advantage of opportunities brought by technology and telecommuting to attract knowledge workers to smaller communities. The livability qualities offered by small communities in terms of safety, lack of congestion and commuting time, and easy access to scenic areas or recreational opportunities is a selling point that many policymakers want to capitalize on. Policies and planning that focus on smart growth and creating vibrant bikeable and walkable communities can enhance the ability of rural communities to compete for skilled workers (EPA, 2015).

Pipeline

Pipeline transportation moves liquids or gas, including crude and refined petroleum, fuels, slurry, and water. Transportation pipelines are mainly long pipes with large diameters between cities, countries, and continents. All states include some sort of pipeline transportation, moving natural gas, crude oil, and refined oil. These include interstate, intrastate, and international pipelines. The energy sector is a key economic development driver for a number of regional states. Because many of the occupations and skillsets overlap between the transportation and energy sectors, the boom and bust cycles the energy sector has been experiencing in recent years has a direct impact on the ability of transportation organizations in these states to hire and retain a skilled workforce.

Federal Lands

The West Region is unique in having a greater concentration of federal lands (on average, 47% of state acreage) than what is found in the Eastern portion of the country (Figure 2) (with only an average 4% concentration) (Gorte et al., 2012).

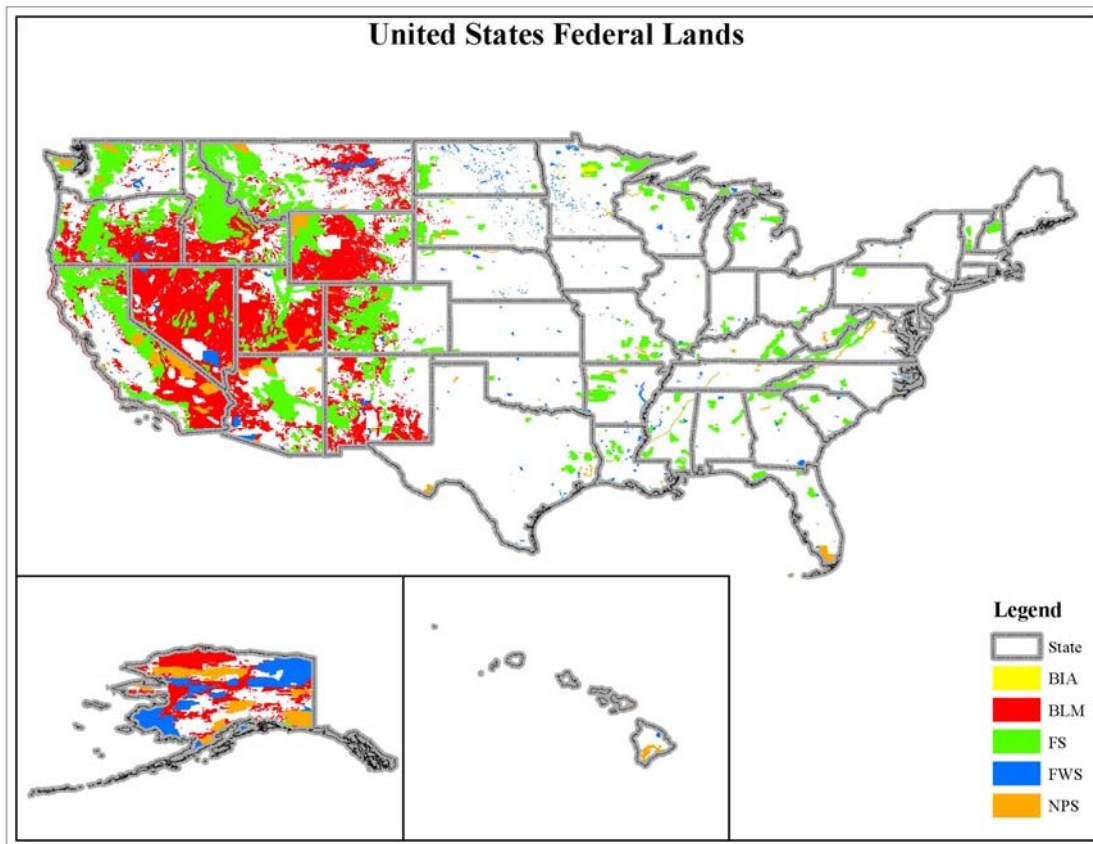


Figure 2: Concentration of Federal Lands in the U.S. by agency (Source: USGS)

This is due to the historical processes of land allocation during western expansion. Federal lands are public lands managed by multiple federal agencies, the majority of which fall under the Department of Interior, including the Bureau of Land Management (BLM), the U.S. Fish and Wildlife Service (FWS), the National Parks Service (NPS), and the U.S. Forest Service (USFS). Most federal land agencies must walk a delicate balance to manage federal lands and facilities that accommodate multiple, and often conflicting purposes, which include: recreation, grazing, energy and mineral development, ecological conservation, and preservation of historical and cultural resources. As the U.S. population grows, many national parks and other recreational areas struggle with increasing visitation and the congestion, pollution, and other challenges it brings. These issues are compounded by funding shortfalls that have led to a maintenance backlog for the majority of agencies (Gorte et al., 2012). Federal land managers may wear many hats, including responsibility for road management and transit development. Technical assistance and training to provide agencies with the skills and resources needed to effectively address transportation-specific problems will be an increasing need. Table 10 shows federal land totals as well as the total road miles under federal agency management for states in the West region. Totals include acreage and roads managed by the Bureau of Indian Affairs.

Table 10: Federal Lands and Roads in West Region¹			
State	Acreage of Federal Lands	Percent of total state land	Total federal agency road miles in state
Alaska	270,004,145	73.9%	2,311
Hawaii	369,125*	9.0%	130
Idaho	33,287,634	62.9%	7,483
Montana	30,447,899	32.7%	12,320
Nebraska	3,462,714	7.8%	232
North Dakota	2,821,780	5.7%	1,546
Oregon	33,218,139	54.1%	19,019
South Dakota	6,589,089	13.6%	2,431
Washington	13,747,654	32.3%	8,747
Wyoming	32,948,513	53.0%	4,185

*Includes off-shore acreage

¹Sources: Combined from USFS, FWS, BLM, and U.S. Census data

American Indian and Alaskan Native Lands and Tribal Transportation

With the exception of Hawaii, nine of the West Region states are in the top twenty nationwide for containing the greatest acreages of American Indian land. This total acreage includes both tribal trust and individually owned land within federally recognized reservations, as well as land distributed to Alaska Natives under the Alaska Native Claims Settlement Act (BIA, 1990). In some cases, American Indian land makes up a significant percentage of total state land. In Nebraska, Washington, South Dakota, Montana, and Alaska, Indian trust lands make up over 4% of the total acreage in the state.

Of the 57,400 miles of roads that exist on tribal lands in the U.S., approximately 55% are operated and maintained by the Bureau of Indian Affairs, while the remaining 45% are maintained by the tribes themselves (Smith, 2015). The National Tribal Transportation Facility Inventory (NTTFI) includes public roads under multiple jurisdictions, including tribes, the BIA, state, counties, and other federal agencies. Patchwork jurisdictions, regulations, and funding mechanisms to operate and maintain tribal roads further complicate critical maintenance and safety challenges. According to the Department of Interior, 70% of BIA roads are unpaved and therefore considered to provide an “inadequate” level of service (DOI, 2015), while only 7% of tribally-owned roads are paved (Smith, 2015). Motor vehicle and pedestrian fatality rates for Native American people are higher than for any other demographic group in the United States (Smith, 2015).

Inadequate transportation, cultural differences, and the often remote rural locations of American Indian and Alaskan Native (AIAN) lands exacerbate barriers to services, including training and education, and compound workforce challenges. High unemployment in AIAN populations stands in sharp contrast to low statewide unemployment rates across much of the region. For example, the unemployment rate for American Indians in South Dakota was 27.9% according to 2009-2011 Census data, whereas unemployment was only 3.8% in the state overall in 2013 (Accenture, 2014). Likewise, the unemployment rate on the majority of Montana’s reservations exceeded 12%, as compared to 4% in the state overall (Montana Department of Labor, 2014). These discrepancies indicate that successful tribal workforce programs could help alleviate the tight labor markets found in many Western states while providing significant benefit to high-need Native populations underrepresented in the regional workforce.

Unique Regional Demographics and Training Challenges

Low unemployment rates and tight labor markets prevail in the majority of the Western states (Table 11). Seven of the ten states’ unemployment rates fall below the national average. Workforce shortages threaten to constrict economic growth in some states (State of North Dakota, 2012; Montana Department of Labor and Industry, 2015). Full employment in many of the region’s states compounds issues for transportation organizations seeking to hire high demand cross-industry positions. Having a right-sized labor pool with the right skillsets for locally in-demand jobs is a common theme in the West Region states’ labor market reports. High labor force participation rates are also evident in many of the region’s states, requiring creative programs to identify and incorporate underserved groups (South Dakota Department of Labor and Regulation, 2012).

Aging rural populations add further complexity to the future workforce outlook in many Western states. For example, of the state of Wyoming’s population aged 18 years or older, approximately 33% were aged 55 or older (State of Wyoming, 2012). Nearly 6% of Montana’s labor force is already over 65 years of age. Of the 130,000 expected retirements in the next ten years, there is a 7,000 person deficit of younger Montana residents to replace these workers (Montana Department of Labor and Industry, 2015).

Table 11: West Region Unemployment Rates*, October 2015

National Rank	State	Unemployment Rate
1	North Dakota	2.8
2	Nebraska	2.9
3	South Dakota	3.2
4	Hawaii	3.3
11	Idaho	4.0
11	Wyoming	4.0
13	Montana	4.1
33	Washington	5.2
44	Oregon	6.0
47	Alaska	6.4
N/A	United States	5.0

*Seasonally adjusted. (Source: Bureau of Labor Statistics)

Most of the West Region’s states face challenges in providing adequate access to training and education services due to their geographical expansiveness and sparse populations. In Alaska, many parts of the state are only accessible by air or water (Alaska, 2012). The mountain ranges and rivers that separate many population centers in Idaho also present barriers to easy access to services in rural parts of the state (State of Idaho, 2012). Wyoming has fewer approved training providers within the state, and many individuals must either travel to pursue educational goals, or find adequate on-line education options (State of Wyoming, 2012).

Transportation Workforce in the West Region

To begin exploring the transportation workforce in the West, occupations that are important within the industry were identified using occupational and industry codes and pulling employment data from existing Department of Labor (DOL) and Bureau of Labor Statistics (BLS) databases. This information is used to provide a broad overview of the transportation workforce in the West.

Occupational Employment Statistics data produced by the BLS utilize NAICS (or North American Industry Classification) codes to classify industries. For analysis, we gathered data on transportation jobs within related industries, to include: trucking (NAICS 48400, 488400, 48850), rail (NAICS 482100, 488200), pipeline (486000), transit and ground (NAICS 48500), maritime (NAICS 488300), highway (NAICS 237300), and scenic (NAICS 487000). Industry data analysis shows areas of high growth for the region. The data shows healthy growth rates for the transportation industry broadly and for each industry subsector within the region as a whole Figure 3.

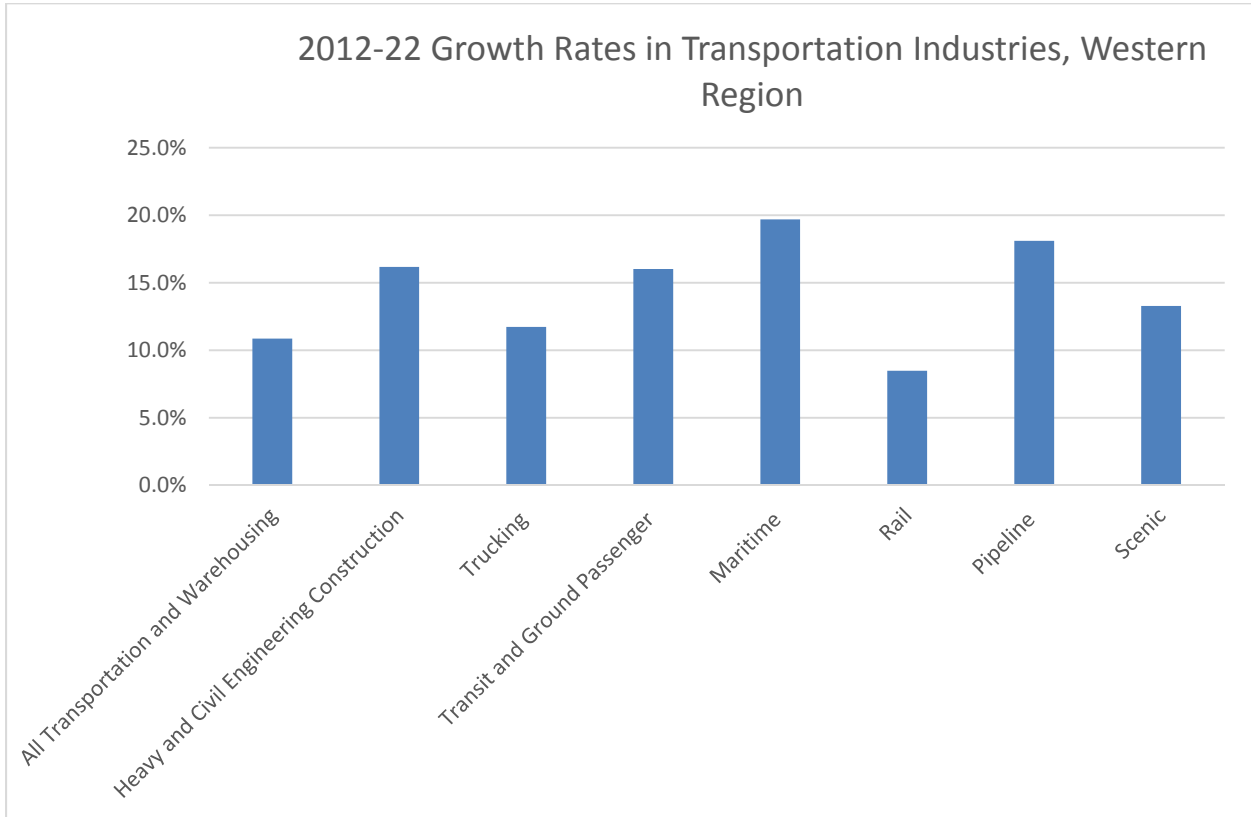


Figure 3: Growth rates in transportation industries

However, this type of broad regional industry data masks many stark differences between states. For example, maritime, pipeline, transit, and heavy and civil engineering construction stand out in terms of high growth areas. However, in our landlocked region, maritime growth is limited mainly to Alaska and Washington; and pipeline growth primarily to North Dakota. While growth rates in trucking are about average, in terms of employee numbers, trucking dominates as shown in Figure 4 below.

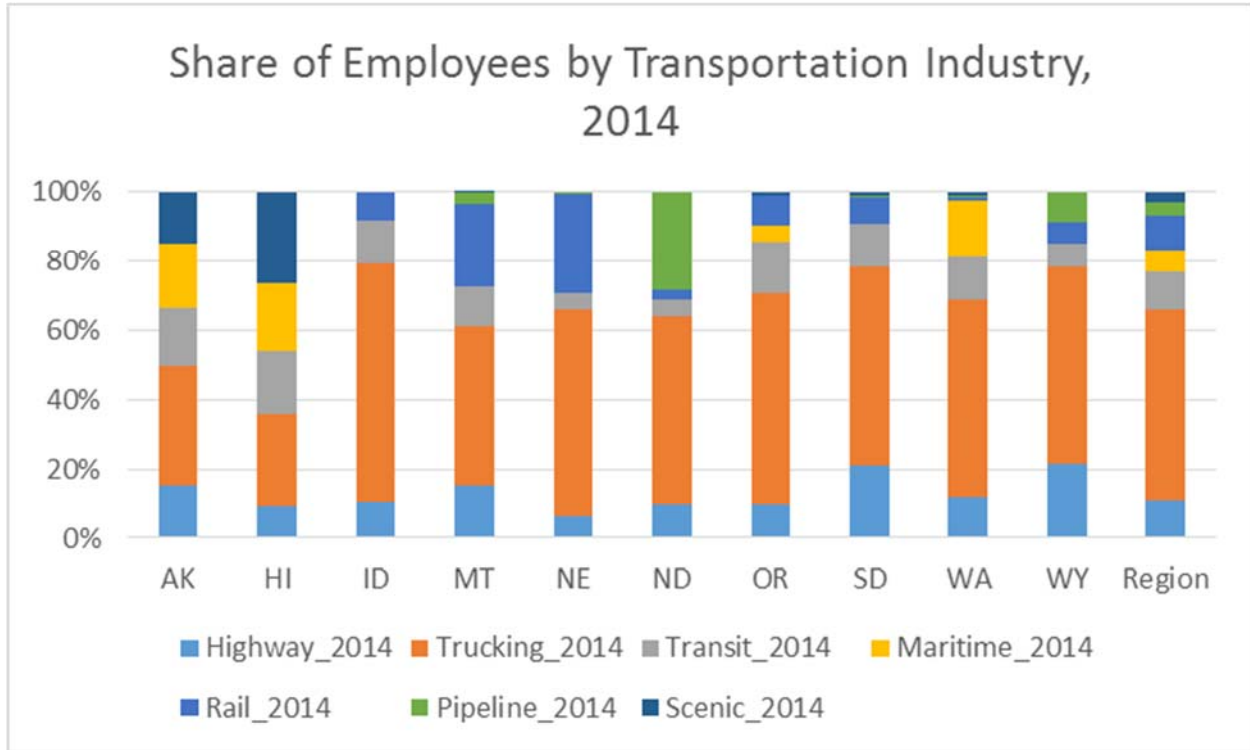


Figure 4: Share of employees by transportation industry sector

The transportation industry employs a great number of people across the West Region of the United States. In total, there are more than a quarter million transportation and warehousing employees in the region, as reported by the BLS (see Table 12). Over four fifths (83%) of these employees work in private organizations, with the remaining one fifth (17%) employed by Federal, State, or local government.

	Employees in Private Organizations	Employees in Federal, State, and Local Government	Total Number of Employees
U.S. TOTAL	4,391,274	934,197	5,325,471
Alaska	19,319	1,647	20,966
Hawaii	26,320	2,402	28,722
Idaho	17,772	3,021	20,793
Montana	12,034	2,466	14,500
Nebraska	39,768	5,097	44,865
North Dakota	22,224	1,796	24,020
Oregon	49,950	12,641	62,591
South Dakota	10,261	2,020	12,281
Washington	87,250	26,585	113,835
Wyoming	10,531	1,302	11,833
West Total	295,429	58,977	354,406

Source. BLS Quarterly Census of Employment and Wages.

http://www.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables

While these individuals work in different modes of transportation and different types of organizations, this overview of the total number of positions serves to show the importance of focusing on transportation positions and careers in the region, especially taking into consideration that over 34,000 positions are expected to be added over the next seven years.

To gather further insight on high growth areas within transportation, the research team moved from an industry-level to an occupation-level analysis. Federal agencies and other organizations that collect, analyze, and share information about occupations organize the data using a Standard Occupational Classification (SOC) system. This allows for consistent reporting and analysis of occupations. Within the SOC system, there are 23 major groups of occupations. One major SOC classification group is Transportation and Material Moving Occupations, which are designated by SOC codes that begin with “53”. Table 13 provides data for occupations within this major group that were identified as relevant for the West Region.

When considering the landscape of the transportation workforce across the region, it is also important to examine changes that might impact the number and type of employees required for transportation organizations in the near future. For example, some occupations may be expected to grow in the near future, while other occupations will be expected to maintain or even decrease the number of positions. The BLS and individual state departments of labor (DOLs) develop 10-year predictions to help with long term planning, specifically with regard to career choice. As such, typical required education is provided for each occupation. The projections are based on how fast employment is expected to grow or decline for each occupation. The projections are updated every two years. As such, the data in this report include both the number of employees in the West in each occupation, as well as a 10-year projection. This information is provided based on the most recent projections (i.e., 2012 and 2022) and provides a glimpse at projected changes in employment within each occupation from 2012 to 2022. For each occupation, the table includes the SOC code (used to identify occupations by the BLS), occupation title, number of employees in the West in 2015, average annual wages in the region, and the typical education required for entry into the occupation. An expanded version of this table, which includes the same data for all of the states in the West Region, is provided in Appendix A.

Table 13: Occupational Data and Projections for Relevant Occupations in the West Region within the SOC Major Group of “Transportation and Material Moving Occupations”

SOC Code	Occupation Title	# of employees in the West, 2015 ^a	Regional Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Projected annual # of new positions ^b	Projected Growth Rate 2012-2022 ^b
53-1021	First-line supervisors of helpers, laborers, and material movers, hand	10,270	\$49,287	High school diploma or equivalent	8,880	10,000	112	12.6%
53-1031	First-line supervisors of transportation and material-moving machine and vehicle operators	14,290	\$60,380	High school diploma or equivalent	14,580	16,520	194	13.3%
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	1,620	\$29,319	High school diploma or equivalent	1,460	1,780	32	21.9%
53-3021	Bus drivers, transit and intercity	14,010	\$43,509	High school diploma or equivalent	14,610	15,940	133	9.1%
53-3022	Bus drivers, school or special client	29,740	\$32,206	High school diploma or equivalent	29,420	32,440	302	10.3%
53-3031	Driver/sales workers	29,800	\$28,543	High school diploma or equivalent	30,420	34,400	398	13.1%
53-3032	Heavy and tractor-trailer truck drivers	133,480	\$43,451	Postsecondary non-degree award	140,600	159,950	1,935	13.8%
53-3033	Light truck or delivery services drivers	48,970	\$34,644	High school diploma or equivalent	52,460	57,670	521	9.9%
53-3041	Taxi drivers and chauffeurs	12,560	\$25,585	Less than high school	14,980	17,610	263	17.6%
53-4011	Locomotive engineers	1,910	\$56,012	High school diploma or equivalent	4,200	4,580	38	9.0%
53-4021	Railroad brake, signal, and switch operators	1,080	\$52,347	High school diploma or equivalent	1,160	1,240	8	6.9%
53-4031	Railroad conductors and yardmasters	1,750	\$54,473	High school diploma or equivalent	5,200	5,750	55	10.6%
53-4041	Subway and streetcar operators	-	-	High school diploma or equivalent	250	270	2	8.0%
53-5011	Sailors and marine oilers	3,080	\$48,154	Less than high school	3,080	3,500	42	13.6%

Table 13: Occupational Data and Projections for Relevant Occupations in the West Region within the SOC Major Group of “Transportation and Material Moving Occupations”

SOC Code	Occupation Title	# of employees in the West, 2015 ^a	Regional Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Projected annual # of new positions ^b	Projected Growth Rate 2012-2022 ^b
53-5021	Captains, mates, and pilots of water vessels	3,240	\$69,453	Bachelor's degree	3,170	3,660	49	15.5%
53-5022	Motorboat operators	160	\$59,181	High school diploma or equivalent	130	140	1	7.7%
53-5031	Ship engineers	1,290	\$75,066	Bachelor's degree	1,090	1,240	15	13.8%
53-6011	Bridge and lock tenders	60	\$50,810	High school diploma or equivalent	60	60	-	0.0%
53-6041	Traffic technicians	250	\$49,904	High school diploma or equivalent	290	300	1	3.4%
53-6051	Transportation inspectors	2,200	\$71,481	High school diploma or equivalent	2,370	2,570	20	8.4%
53-6061	Transportation attendants, except flight attendants	1,440	\$15,707	High school diploma or equivalent	2,710	2,930	22	8.1%
53-7011	Conveyor operators and tenders	4,430	\$32,938	Less than high school	4,330	4,760	43	9.9%
53-7021	Crane and tower operators	3,170	\$63,857	High school diploma or equivalent	3,250	3,840	59	18.2%
53-7032	Excavating and loading machine and dragline operators	5,210	\$50,593	High school diploma or equivalent	5,460	6,380	92	16.8%
53-7041	Hoist and winch operators	140	\$43,970	Less than high school	300	340	4	13.3%
53-7051	Industrial truck and tractor operators	33,360	\$37,201	Less than high school	34,250	36,150	190	5.5%
53-7061	Cleaners of vehicles and equipment	22,590	\$25,222	Less than high school	23,230	26,000	277	11.9%
53-7062	Laborers and freight, stock, and material movers, hand	130,700	\$29,375	Less than high school	124,130	140,390	1,626	13.1%
53-7121	Tank car, truck, and ship loaders	1,010	\$46,975	Less than high school	1,280	1,410	13	10.2%
53-7199	Material moving workers, all other	2,400	\$40,665	Less than high school	3,620	4,110	49	13.5%

Sources. ^a BLS Employment Data (http://www.bls.gov/oes/current/oes_nat.htm) and ^b BLS Long Term Projections (<http://www.projectionscentral.com/Projections/LongTerm>).

In terms of numerical increase in employees within specific occupations, the greatest increases in the West region in the long term (i.e., 2012 to 2022) are expected in *Laborers and Freight, Stock, and Material Movers, Hand; Heavy and Tractor Trailer Truck Drivers; and Light Truck or Delivery Services Drivers*, meaning that there will likely be many new jobs created within these occupations. This makes sense as they are some of the largest occupations in terms of number of employees in the West region. It is also important to look at the employment changes in terms of percent change, as this can show occupations that are expected to grow quickly, without the focus on large occupations. When looking at the expected percent increase from 2012 to 2022, the greatest percentage increases are expected for *Ambulance Drivers and Attendants, Except Emergency Medical Technicians* (21.9% increase); *Crane and Tower Operators* (18.2% increase); *Taxi drivers and chauffeurs* (17.6% increase) and *Excavating and loading machine and dragline operators* (16.8%).

When considering the transportation workforce, it is important to note that many employees are not in transportation-specific SOC Major Groups. For example, many transportation agencies employ engineers, which are not included in the list of occupations in Table 13. This is due to the fact that while engineers are often employed by transportation organizations, they also work in other industries. Because of this cross-industry employment, transportation occupations are found in other SOC major groupings. To identify transportation occupations outside of the Transportation and Materials Moving Occupations SOC grouping, the research team adopted a broad definition of “transportation occupation” to encompass:

Occupations related to the planning, design, construction, operation, management and maintenance of transportation infrastructure; conveyances; systems; and modes that support the movement of people, materials, and goods.

In order to eliminate auxiliary occupations that might be found within transportation organizations but that do not require any transportation specific skills or knowledge, the team utilized the O*NET database to identify occupations that require “Transportation Knowledge.” O*NET is the “occupational information network,” sponsored by the US Department of Labor, which provides online job analysis tools. Our expanded list of transportation occupations was then validated through stakeholder feedback.

The research team developed an expanded list of occupations that includes engineers and other scientists responsible for designing and building infrastructure, individuals who work in construction and maintenance/repair of roads, tracks, or other structures used in transportation, as well as inspection/compliance, management, and other support occupations. To provide information on these types of transportation organization staff, Table 14 includes data for relevant occupations from the following SOC Major Groups:

- Management Occupations (11-000)
- Business and Financial Operations Occupations (13-000)
- Architecture and Engineering Occupations (17-0000)
- Life, Physical, and Social Science Occupations (19-0000)
- Protective Service Occupations (33-000)
- Office and Administrative Support Occupations (43-000)
- Construction and Extraction Occupations (47-0000)
- Installation, Maintenance, and Repair Occupations (49-0000)

When considering the outlook for these occupations in terms of number of employees, it is important to note that some of these industry-spanning occupations will likely incur more competition for employees due to the diverse employers for which they can work. This is especially true for occupations that are expected to grow in the next 10 years. The occupations shown in Table 14 require a wide range of education requirements, from a Master’s degree to less than high school, providing a broad array of career opportunities for individuals along the entire education continuum. Many of the occupations require specific training and experience within the trades, which highlights the importance of ensuring that young people have access to the technical training programs needed to qualify for those positions.

Table 14: Occupational Data and Projections for Relevant Occupations in the West Region within Engineering, Science, Construction, Administrative/Management, Protective Services, and Maintenance/Repair SOC Codes

SOC Code	Occupation Title	# of employees in the West, 2015 ^a	Regional Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Projected annual # of new positions ^b	Projected Growth Rate 2012-2022 ^b
11-3071	Transportation, Storage, and Distribution Managers	8,140	\$89,319	High school diploma or equivalent	4,050	5,230	1,180	29.1%
11-9021	Construction Managers	17,420	\$92,707	Bachelor's degree	13,200	15,060	1,860	14.1%
13-1041	Compliance Officers	12,040	\$61,050	Bachelor's degree	30,670	35,640	4,970	16.2%
13-1081	Logisticians	8,520	\$23,494	Bachelor's degree	83,630	103,600	19,970	23.9%
17-1022	Surveyors	3,730	\$64,510	Bachelor's degree	50,660	56,700	6,040	11.9%
17-2051	Civil Engineers	25,730	\$81,948	Bachelor's degree	14,510	18,020	3,510	24.2%
17-2121	Marine Engineers and Naval Architects	750	\$90,416	Bachelor's degree	3,340	3,360	20	0.6%
17-2141	Mechanical Engineers	13,820	\$86,340	Bachelor's degree	22,050	23,000	950	4.3%
17-3011	Architectural and Civil Drafters	6,460	\$50,159	Associate's degree	47,060	51,120	4,060	8.6%
17-3022	Civil Engineering Technicians	5,770	\$53,883	Associate's degree	4,640	5,800	1,160	25.0%
17-3029	Engineering Technicians, Except Drafters, All Other	4,780	\$65,317	Associate's degree	23,110	25,990	2,880	12.5%
17-3031	Surveying and Mapping Technicians	3,970	\$46,871	High school diploma or equivalent	16,750	20,270	3,520	21.0%
19-3051	Urban and Regional Planners	4,790	\$71,926	Master's degree	6,490	7,060	570	8.8%
19-4061	Social Science Research Assistants	810	\$43,804	Associate's degree	11,590	13,540	1,950	16.8%
33-3052	Transit and Railroad Police	60	\$45,870	High school diploma or equivalent	15,890	18,230	2,340	14.7%
33-9093	Transportation Security Screeners	-	\$37,325	High school diploma or equivalent	91,940	112,720	20,780	22.6%
43-5011	Cargo and Freight Agents	6,050	\$44,959	High school diploma or equivalent	144,800	181,230	36,430	25.2%
43-5032	Dispatchers, Except Police, Fire, and Ambulance	13,350	\$42,360	High school diploma or equivalent	19,970	22,430	2,460	12.3%
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	38,950	\$69,537	High school diploma or equivalent	41,960	52,370	1,041	24.8%
47-2031	Carpenters	62,620	\$46,146	High school diploma or equivalent	88,800	113,640	2,484	28.0%

Table 14: Occupational Data and Projections for Relevant Occupations in the West Region within Engineering, Science, Construction, Administrative/Management, Protective Services, and Maintenance/Repair SOC Codes

SOC Code	Occupation Title	# of employees in the West, 2015 ^a	Regional Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Projected annual # of new positions ^b	Projected Growth Rate 2012-2022 ^b
47-2051	Cement Masons and Concrete Finishers	13,190	\$40,804	Less than high school	12,400	15,940	354	28.5%
47-2061	Construction Laborers	60,450	\$38,597	Less than high school	64,960	82,300	1,734	26.7%
47-2071	Paving, Surfacing, and Tamping Equipment Operators	3,210	\$44,325	High school diploma or equivalent	3,480	4,130	65	18.7%
47-2072	Pile-Driver Operators	460	\$65,160	High school diploma or equivalent	350	470	12	34.3%
47-2073	Operating Engineers and Other Construction Equipment Operators	36,070	\$52,794	High school diploma or equivalent	33,080	38,750	567	17.1%
47-2141	Painters, Construction and Maintenance	18,140	\$39,680	Less than high school	28,420	36,250	783	27.6%
47-2151	Pipelayers	3,020	\$47,719	Less than high school	3,280	3,860	58	17.7%
47-2152	Plumbers, Pipefitters, and Steamfitters	27,270	\$60,190	High school diploma or equivalent	29,200	35,440	624	21.4%
47-2171	Reinforcing Iron and Rebar Workers	810	\$53,422	High school diploma or equivalent	1,540	2,040	50	32.5%
47-2221	Structural Iron and Steel Workers	4,640	\$54,110	High school diploma or equivalent	4,100	5,130	103	25.1%
47-3015	Helpers--Pipefitters, Plumbers, Pipefitters, and Steamfitters	2,310	\$32,753	High school diploma or equivalent	2,240	2,840	60	26.8%
47-4051	Highway Maintenance Workers	12,320	\$38,805	High school diploma or equivalent	12,400	13,130	73	5.9%
47-4061	Rail-Track Laying and Maintenance Equipment Operators	780	\$47,876	High school diploma or equivalent	730	790	6	8.2%
47-4091	Segmental Pavers	-	-	High school diploma or equivalent	180	250	7	38.9%
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	870	\$61,407	High school diploma or equivalent	1,020	1,110	9	8.8%
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	29,360	\$66,936	High school diploma or equivalent	30,050	33,470	342	11.4%
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	1,300	\$57,409	Postsecondary non-degree award	1,160	1,240	8	6.9%

Table 14: Occupational Data and Projections for Relevant Occupations in the West Region within Engineering, Science, Construction, Administrative/Management, Protective Services, and Maintenance/Repair SOC Codes

SOC Code	Occupation Title	# of employees in the West, 2015 ^a	Regional Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Projected annual # of new positions ^b	Projected Growth Rate 2012-2022 ^b
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	380	\$41,748	Postsecondary non-degree award	1,280	1,300	2	1.6%
49-3021	Automotive Body and Related Repairers	8,360	\$43,749	High school diploma or equivalent	9,300	10,190	89	9.6%
49-3022	Automotive Glass Installers and Repairers	1,410	\$36,373	High school diploma or equivalent	2,090	2,320	23	11.0%
49-3023	Automotive Service Technicians and Mechanics	39,320	\$41,497	High school diploma or equivalent	41,990	46,100	411	9.8%
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	20,440	\$48,116	High school diploma or equivalent	21,690	23,890	220	10.1%
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	11,930	\$52,794	High school diploma or equivalent	11,820	13,420	160	13.5%
49-3043	Rail Car Repairers	1,740	\$53,050	High school diploma or equivalent	2,820	3,180	36	12.8%
49-9071	Maintenance and Repair Workers, General	80,510	\$40,279	High school diploma or equivalent	79,990	90,560	1,057	13.2%
49-9097	Signal and Track Switch Repairers	670	\$25,384	High school diploma or equivalent	2,590	2,830	24	9.3%

Sources. ^a BLS Employment Data (http://www.bls.gov/oes/current/oes_nat.htm) and ^b BLS Long Term Projections (<http://www.projectionscentral.com/Projections/LongTerm>).

Compiling all of the identified transportation occupations within the various SOC major groupings, we can obtain a regional perspective on the high demand occupations over the next 7 years, as shown in Figure 5 below.

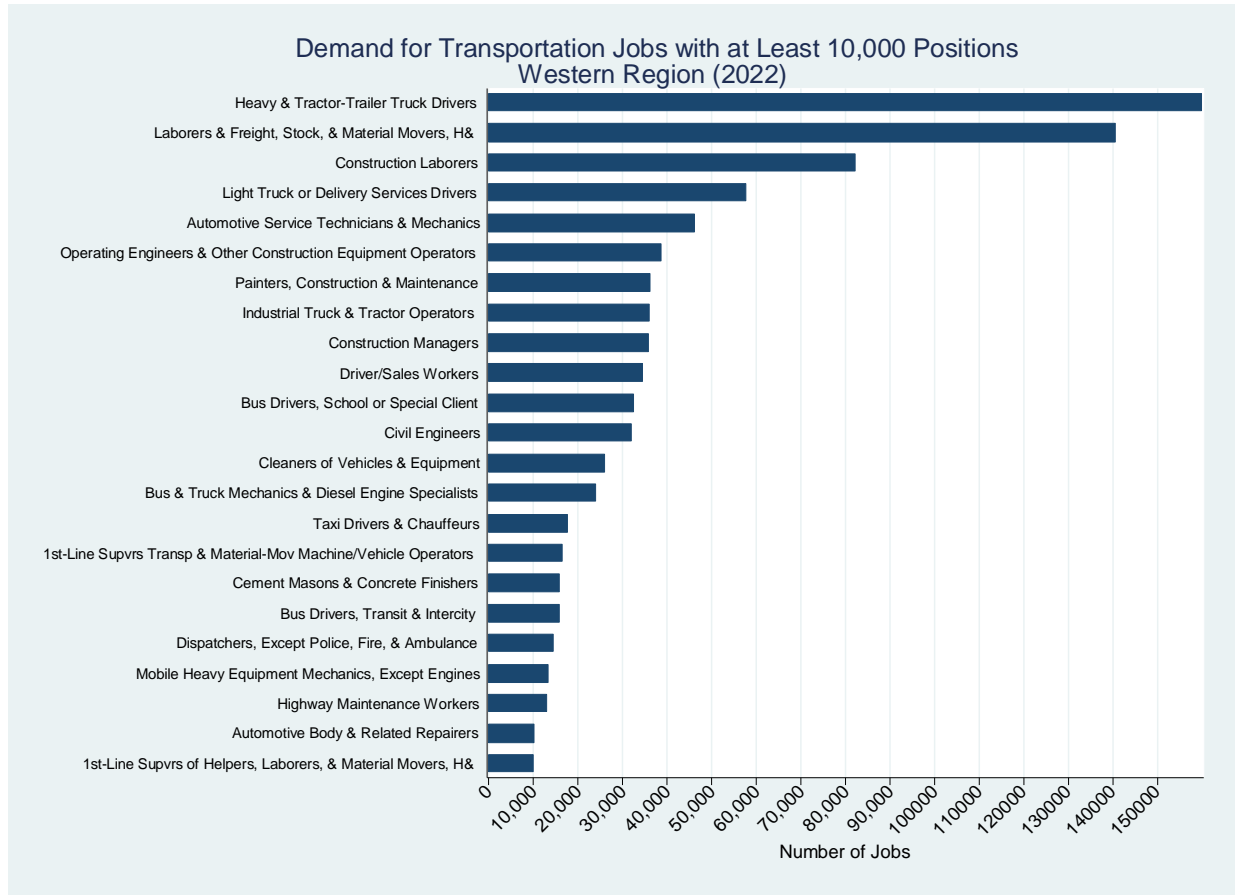


Figure 5: Demand for transportation jobs over next seven years

Finally, occupational data and projections were analyzed at the state level to begin identifying differences in the workforce, and potential workforce needs, across the West Region. Table 15 provides a first look at this state-level information. Specifically, for each state the occupations with the largest expected increases and decreases in terms of number of employees from 2012 to 2022 are identified. Complete data for all identified occupations by state is provided in Appendix A.

Table 15: Transportation Occupations with Greatest Expected Increases and Decreases in Employment, by State in the West Region						
State	SOC Code	Occupation Title	# of Employees, 2012	Projected # of Employees, 2022	Change	Percent Change
Alaska	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	5180	5650	470	9.1%
	47-2061	Construction Laborers	4250	4680	430	10.1%
	47-2073	Operating Engineers and Other Construction Equipment Operators	3230	3630	400	12.6%
	47-4061	Rail-Track Laying and Maintenance Equipment Operators	110	100	-10	-14.3%
	53-4021	Railroad Brake, Signal, and Switch Operators	70	60	-10	-17.6%
	53-4011	Locomotive Engineers	90	70	-20	-16.1%
Hawaii	47-2031	Carpenters	7,030	8,670	1,640	23.3%
	47-2061	Construction Laborers	4,110	5,270	1,160	28.2%
	49-9071	Maintenance and Repair Workers, General	7,310	8,140	830	11.2%
	17-3011	Architectural and Civil Drafters	540	520	-20	-5.0%
	17-3029	Engineering Technicians, Except Drafters, All Other	560	510	-50	-8.4%
Idaho	53-3032	Heavy and Tractor-Trailer Truck Drivers	12,220	13,880	1,660	13.6%
	47-2061	Construction Laborers	5,610	7,250	1,640	29.3%
	47-2031	Carpenters	5,450	7,010	1,560	28.6%
	17-3011	Architectural and Civil Drafters	520	510	-10	-1.3%
	17-3022	Civil Engineering Technicians	420	400	-20	-3.8%
Montana	53-3032	Heavy and Tractor-Trailer Truck Drivers	7070	8320	1250	17.7%
	47-2061	Construction Laborers	3990	4990	1000	24.9%
	47-2031	Carpenters	3670	4640	970	26.3%
	47-2073	Operating Engineers and Other Construction Equipment Operators	3300	4010	710	21.5%
	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	30	30	0	0%
	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	170	170	0	0%
Nebraska	53-3032	Heavy and Tractor-Trailer Truck Drivers	28,000	32,710	4,710	16.8%
	47-2031	Carpenters	9,780	12,060	2,280	23.2%
	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	18,110	19,820	1,710	9.4%
	17-3022	Civil Engineering Technicians	690	680	-10	-1%
	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	40	30	-10	-5.6%
	53-7051	Industrial Truck and Tractor Operators	3,460	3,300	-160	-4.9%
North Dakota	47-2061	Construction Laborers	5,290	6,210	920	17.4%
	47-2031	Carpenters	4,160	4,990	830	19.9%
	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	5,920	6,730	810	13.6%
	53-3033	Light Truck or Delivery Services Drivers	3,550	4,080	530	14.9%
	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	4,050	4,520	470	11.6%

Table 15: Transportation Occupations with Greatest Expected Increases and Decreases in Employment, by State in the West Region						
State	SOC Code	Occupation Title	# of Employees, 2012	Projected # of Employees, 2022	Change	Percent Change
	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	80	80	0	0%
Oregon	53-3032	Heavy and Tractor-Trailer Truck Drivers	21,630	25,050	3,420	15.8%
	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	22,300	25,510	3,210	14.4%
	47-2031	Carpenters	9,120	12,090	2,970	32.6%
	33-3052	Transit and Railroad Police	60	60	0	0%
	53-5022	Motorboat Operators	40	40	0	0%
	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	250	240	-10	-6%
South Dakota	47-2031	Carpenters	6,070	6,920	850	13.9%
	53-3032	Heavy and Tractor-Trailer Truck Drivers	8,790	9,300	510	5.8%
	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	7,260	7,770	510	7.1%
	17-3011	Architectural and Civil Drafters	290	280	-10	-0.7%
	53-7051	Industrial Truck and Tractor Operators	1,170	1,140	-30	-2.6%
	53-3022	Bus Drivers, School or Special Client	1,330	1,270	-60	-4.1%
Washington	47-2031	Carpenters	36,640	49,230	12,590	34.4%
	47-2061	Construction Laborers	22,740	30,730	7,990	35.1%
	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	43,440	49,750	6,310	14.5%
	53-6041	Traffic Technicians	130	130	0	0%
	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	120	110	-10	-8.2%
	13-1081	Logisticians	6,220	5,980	-240	-3.9%
Wyoming	53-3032	Heavy and Tractor-Trailer Truck Drivers	7,080	7,900	820	11.6%
	47-2031	Carpenters	3,910	4,710	800	20.4%
	47-2061	Construction Laborers	3,910	4,570	660	16.9%
	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	280	270	-10	-2.5%
	53-7011	Conveyor Operators and Tenders	70	60	-10	-3%

Examining projected changes in the transportation workforce in the West in this way, one can identify similarities and differences across the region. For example, Heavy Tractor-Trailer Truck drivers and Construction Laborers and Carpenters rise to the top in the majority of states as high growth or high demand occupations. This could indicate that efforts to train and recruit these employees would be beneficial across the region. Understanding the workforce across states can help identify areas where coordination of effort or sharing of ideas would be most useful for transportation organizations and stakeholders.

Key Occupations across the Region as Identified through Stakeholders and Archival Information

The previous sections provide a regional overview of the surface transportation industry in the West region as a whole, as well as the quantitative labor market data on identified transportation occupations. The research team conducted a review of state workforce strategic plans and cross-checked it with the initial occupations list. Each state sets workforce development priorities based on an analysis of the state’s demographics, labor market data, and economic conditions. State workforce development strategic plans allow workforce entities to target key industries in order to leverage resources that foster training and workforce preparation for high growth sectors. State strategic plans provide excellent overviews of economic and workforce conditions. Targeted investment priorities for each state as well as high growth industries that relate to transportation occupations are listed in Table 16. The Table demonstrates the importance of transportation sectors and occupations as key economic drivers in all of the region’s states.

Table 16: State Identified Transportation Sector High Growth/High Demand Areas		
State	Targeted State Sector Investments or Initiatives	High Growth Industries or Occupations in Transportation
Alaska	Focused state sector initiatives in: Transportation & Infrastructure; Resource Development; Energy; Public Safety	Transportation & Warehousing (expected to grow 8% by 2022)
Hawaii	Workforce Development Council initiatives focused on agriculture, healthcare, energy and software development.	A combined industry group of Trade, Transportation, and Utilities (TTU) makes up 19% percent of the job total with high expected short and long-term job gains through 2018.
Idaho	Energy; Technology and Advanced Manufacturing (with an emphasis on aerospace)	Transportation & Warehousing (in top 20 fastest growing industries in ID); Transportation equipment manufacturing
Montana	Governor appointed “Key Industry Networks” established to direct economic & workforce development efforts, including one in Transportation.	Transportation, Distribution & Logistics ranked 6 th in state for worker demand to 2022. High demand occupations: Civil Engineers (BA+); Truck Drivers (Certification/OJT)
Nebraska	Industry Councils formed in 6 emerging areas, including Transportation & Distribution	Heavy & Tractor-Trailer Truck Drivers; Light Truck Drivers; Civil Engineering Technicians listed in top Most Annual Openings survey
North Dakota	Transportation industry added to state’s five targeted growth industries as an essential sector to supporting quality of life	Transportation and Material Moving Occupational Group expected to add largest number of jobs in state by 2020

Oregon	Key industry priorities targeted for priority investment, include: *Advanced Manufacturing (Transportation Equipment); Clean Technology (Electric Vehicles, Sustainable Transportation); Distribution and Logistics	Trade, Transportation and Utilities identified as high-growth/high-employment sectors with projected double-digit growth
South Dakota	South Dakota Workforce Initiative focus areas, include: engineers, STEM teachers, Advanced Manufacturing and IT.	Couriers and Messengers (high growth); Laborers and Freight, Stock, and Material Movers, Hand and Heavy and Tractor-Trailer Truck Drivers (high demand)
Washington	Sector-based economic development strategies, include: Aerospace, Maritime, Clean Technology, Information and Communication Technology.	Transportation and warehousing jobs projected to make up 5.69% of total average annual job openings through 2017.
Wyoming	Wyoming's economic foundation is rooted in three sectors: energy, tourism and agriculture, and is aggressively pursuing technology as a fourth target industry. P-16 Education Council has major initiative in STEM Education.	Transportation & Warehousing second largest industry for projected growth rate (by 2021). Projected high demand for operating engineers and other construction equipment operators; and heavy and tractor-trailer truck drivers.

*Indicates sectors in which Oregon holds global competitive advantage

The next step in the regional needs assessment process involved establishing criteria for evaluating and prioritizing key occupations for the West Region using a phased approach that utilized both quantitative and qualitative data analysis. Criteria for the prioritization of occupations in the West are presented in Table 17.

Table 17: Criteria for the Prioritization of Transportation Occupations in the West Region	
Criteria	Potential Qualification(s) for Inclusion
<i>Phase 1 Screening Criteria: Based on BLS Data</i>	
Increasing demand for employees/ High growth of occupation	<ul style="list-style-type: none"> ▪ Examine gross “percentage” of increasing demand change to identify those occupations with the greatest percentage of expected growth ▪ Eliminate occupations that are expected to decrease in terms of number of employees in the near future because fewer employees will be needed to fill these occupations
Established high demand for employees	<ul style="list-style-type: none"> ▪ Examine historic, current, and future “number” of employees in the occupation ▪ Select occupations with the greatest number of employees or job openings, as there will be many positions that will need to be filled in these occupations
<i>Phase 2 Screening Criteria: Based on Stakeholder Interviews and Alignment with West Focus Areas</i>	
Experienced challenges in recruiting or retaining employees	<ul style="list-style-type: none"> ▪ Common feedback from stakeholders that they face significant challenges in filling openings in occupation or keeping positions filled.
Occupation has requirements for or relies upon new or up-and-coming technology	<ul style="list-style-type: none"> ▪ Based on job requirements or stakeholder input, occupation requires updated knowledge or skills on new or emerging technologies.
Uniqueness of critical job functions	<ul style="list-style-type: none"> ▪ Based on job requirements, occupation does not share job functions with other occupations and therefore requires specialized training or skills.
Aligned with focus areas of the West Region Transportation Workforce Center	<ul style="list-style-type: none"> ▪ Occupation aligns with one or more of the WRTWC’s areas of focus: <ul style="list-style-type: none"> ○ Rural Transportation & Safety ○ Tribal Transportation ○ Mobility/Livability ○ Federal Lands
Ability of Center to positively impact occupation	<ul style="list-style-type: none"> ▪ Center can feasibly take actions and have a positive impact on the challenges experienced in hiring/retaining employees in the occupation

The research team initially identified more than 75 occupations that comprise the West Region’s transportation workforce. Phase 1 screening criteria were then applied to the list in order to identify high demand/high growth occupations that are important across the West as a whole and would therefore benefit from additional focus and attention in Center activities. Quantitative criteria were applied to the initial list to identify occupations with a projected demand increase of at least 10% or more by 2022 and with more than 200 projected annual openings in the West Region. The initial occupation screening produced a smaller list of twenty high growth/high demand jobs using BLS labor market data and projections.

The second phase screening involved obtaining qualitative data from regional industry and trade association representatives on priority job needs, workforce challenges, and key skills development needs. The research team engaged a significant number of regional stakeholders to gather industry perspectives on priority occupations and workforce challenges (Table 18). Stakeholder input was obtained in several ways. First, needs assessment surveys were distributed at regional conferences and via the Center website. Second, phone or in-person interviews were conducted with one or more representatives from transportation organizations and trade associations. Last, phone interviews were conducted with agencies and organizations that oversee workforce development more broadly, including representatives from state Departments of Labor (including workforce boards, job services, and apprenticeship offices), state education departments, university and community college education and training providers, and workforce advocacy groups. The overwhelming majority of qualitative data collected for this report was derived from phone and in-person interviews. The interviews present multimodal perspectives and represent both private and public sector organizations.

Table 18: Needs Assessment Input from Public & Private Transportation Industry and Association Representatives	
Trade Associations	AGC (ND, SD, MT); Transit Associations (WA, MT); Trucking Associations (WA, OR); ACEC (ND, AK); ITE (MT); Association of Counties (MT)
State Departments of Transportation	Representatives from multiple internal departments from all 10 state DOTs in region
Transit agencies (5)	WA
Private engineering consulting firms (6)	Multi-state
City government	ID
Rail	BNSF (MT)

While the majority of survey and phone interviews gathered data on priority occupations and workforce needs broadly, a select group of interviews was conducted to obtain direct feedback on the initial list of 20 priority occupations as identified through the labor market data analysis. Participants in this round of interviews are listed in Table 19.

Table 19: Priority Occupations' Input from Key Transportation Industry Representatives		
Name	Organization	Title
Bob Anderson	Montana State University- Northern	Director, Industry Initiatives
Geri Beardsley	Washington State Transit Association	Executive Director
Darin Bergquist	South Dakota Department of Transportation	Secretary
Lynn Bourton	Link Transit	Administrative Services Manager
Veralee Estes	Community Transit	Recruiter
Craig Genzlinger	KLJ, Engineering	Engineer
Lacey S. Guttentag	Clallam Transit System	Administrative Services Assistant
Tammy Hoveland	Community Transit	Recruiter
Jana Jarvis	Oregon Trucking Associations, Inc.	President
Micheal O'Neal	Association of General Contractors, South Dakota	Director of Workforce Development
Andy Rowson	Whatcom Transportation Authority	Director of Human Resources
Andrew Shelton	BNSF Railroad	Director Human Resources

Jason Sutheimer	North Dakota Department of Transportation	Human Resource Officer, Recruiter
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Through the review of “In-Demand” occupations and the input received from stakeholders, ten priority occupations were identified in the transportation industry across the region. To facilitate review of the occupations, occupations were sorted into three categories:

- STEM
- Vocational or Technical Skilled Trades
- Supply Chain and Logistics

Priority occupations are further described in the sections that follow. Sample titles and job tasks are taken from O*NET.

STEM Occupations

Priority STEM occupations for the West are confined to Civil Engineering and Construction Managers (Table 20). Both Civil Engineers and Construction Managers are cross-industry occupations. Input from stakeholders repeatedly pointed to difficulties in competing for in-demand, high skilled workers. States with booming energy sectors noted that recruitment difficulties tended to match the boom-bust cycles experienced in the oil patch. When energy sector jobs were booming, transportation agencies had more difficulty in recruiting and retaining engineers and other cross-over positions. Ability to offer competitive wages and geographical isolation were listed as two additional issues compounding recruitment and retention issues. Many state DOT jobs were located in geographically isolated and rural locations where it was difficult to attract non-local applicants. However, the local pool of workers with required skillsets was too low to meet demand.

Table 20: West Region STEM Priority Occupations		
Occupation	SOC Code	Rationale
Civil Engineers	17-2051	<ul style="list-style-type: none"> • Difficulties in recruiting qualified entry and mid-level engineers • State agencies have recruitment & retention difficulties due to pay and location
Construction Managers	11-9021	<ul style="list-style-type: none"> • High demand for qualified managers in region

The majority of Civil Engineers hold either a Bachelor’s or Master’s degree, and require additional on-the-job training and experience to acquire professional licensure. Job titles for Civil Engineers might also include: Transportation Engineer, Traffic Engineer, Structural Engineer, Bridge Engineer, Construction Engineer, Geotechnical Engineer, Highway Engineer, Hydraulics Engineer, and Environmental Engineer.

Job tasks for Civil Engineers in the transportation field may include:

- Design or prepare plans for new transportation systems or parts of systems, such as airports, commuter trains, highways, streets, bridges, drainage structures, or roadway lighting.
- Investigate traffic problems and recommend methods to improve traffic flow or safety.
- Check construction plans, design calculations, or cost estimations to ensure completeness, accuracy, or conformity to engineering standards or practices.
- Evaluate transportation systems or traffic control devices or lighting systems to determine need for modification or expansion.
- Model transportation scenarios to evaluate the impacts of activities such as new development or to identify possible solutions to transportation problems.
- Plan alteration or modification of existing transportation structures to improve safety or function.

The majority of Construction Managers hold Bachelor's degrees and the job typically requires several years of work-related experience. O*NET lists job responsibilities to include supervising personnel on "activities concerned with the construction and maintenance of structures, facilities, and systems. Participate in the conceptual development of a construction project and oversee its organization, scheduling, budgeting, and implementation." Other job titles may include: construction foreman, project manager, or general contractor.

Sample job tasks for Construction Managers include:

- Confer with supervisory personnel, owners, contractors, or design professionals to discuss and resolve matters, such as work procedures, complaints, or construction problems.
- Plan, schedule, or coordinate construction project activities to meet deadlines.
- Prepare and submit budget estimates, progress reports, or cost tracking reports.
- Inspect or review projects to monitor compliance with building and safety codes, or other regulations.
- Inspect or review projects to monitor compliance with environmental regulations.

Vocational and Technical Skilled Trades Occupations

The vast majority of priority occupations in the West are in the vocational or skilled trades. Of the initial list of high growth/high demand occupations presented to stakeholders for feedback, many had overlapping skillsets or were separated into two separate categories where in practice, the employer merged those occupations into one job. For example, School or Special Client Bus Drivers (SOC 53-3022) includes paratransit operators, but several transit managers indicated that they do not distinguish between paratransit and standard transit service drivers. While both School or Special Client Bus Drivers and Transit and Intercity Bus Drivers (53-3021) were identified as high demand/high growth jobs in the West, the research team elected to include only Transit and Intercity Bus Drivers on the priority list. This reflects stakeholder perspectives on transit jobs offering higher wage, long-term career positions. School bus driver is one career pathway entry point for transit occupations. The same approach was taken with truck drivers. While heavy and tractor-trailer truck drivers as well as light truck or delivery service drivers were both identified as high demand/high growth areas, in practice many of these jobs are blended or exchange workers. The list represents the higher wage and higher demand of the two occupations--Heavy and Tractor-Trailer Truck Drivers. This is reflective of expressed stakeholder priority as well. Likewise, while BLS data analysis identified both Automotive Service Technicians and Mechanics (SOC 49-3023) and Bus and Truck Mechanics and Diesel Engine Specialists (49-3031) as high growth/high demand occupations, stakeholders uniformly indicated Diesel Engine specialists as a competitively sought after skill. Some transit agencies cross-train automotive mechanics in bus and diesel specialties to meet needs.

In the construction fields, stakeholders had difficulty pinpointing specific priority occupations. In general, there is high demand across the skilled trades. High growth/high demand occupations identified in the West in construction and trades included carpenters, cement masons and concrete finishers; construction laborers; construction and maintenance painters; and plumbers, pipefitters, and steamfitters. For simplification, the priority list below includes Maintenance and Repair Workers and First-Line Supervisors of Construction Trades and Extraction Workers as representative of the skillsets required across the trades, to include: carpentry, welding, pipe fitting, equipment maintenance, and general mechanical and construction skills. Supervisory positions usually require on-the-job experience as well as additional management and people skills, and may require additional computer or other skills training. In focusing on these positions, however, the Center does not intend to diminish the high priority need for entry level workers into the skilled trades. The need to increase the size of the pool of available workers in the skilled trades overall was repeatedly emphasized in stakeholder interviews.

In general, the high priority occupations most frequently mentioned by regional stakeholders were: drivers/operators, diesel mechanics, and heavy equipment operators (Table 21). Several additional occupations were repeatedly mentioned by stakeholders as a recruitment/retention challenge, although the labor market data shows slower growth and smaller demand. These occupations include: drafting and design technicians, surveyors, and civil engineering technicians. While the overall demand for these positions region-wide is smaller than for the priority occupations identified below, they may warrant focused attention to meet the needs of specific transportation organizations.

Table 21: West Region Vocational & Technical Priority Occupations		
Occupation	SOC Code	Rationale
First-line supervisors of transportation and material-moving machine and vehicle operators	53-1031	<ul style="list-style-type: none"> • Need for skilled operators and trades people with people and computer skills needed to move up into supervisory positions for vehicle fleet management and supervision of drivers/operators
Bus drivers, transit and intercity	53-3021	<ul style="list-style-type: none"> • Older workforce now experiencing high retirement rates • Difficulties in recruiting younger workers due to shift work and work-life balance issues for entry level drivers
Heavy and tractor-trailer drivers	53-3032	<ul style="list-style-type: none"> • Individuals ages 18-21, and sometimes up to age 25, cannot be truck drivers due to interstate travel restrictions and insurance barriers, so they follow other career paths and do not return to pursue truck driving • Background checks and drug checks present a barrier • Occupation has unique work demands, including need to be on the road for extended periods of time, which presents work-life balance for many potential applicants
Bus and truck mechanics and diesel engine specialists	49-3031	<ul style="list-style-type: none"> • Evolving technologies in terms of hybrids and alternative fuels • High demand across multiple industries and modes for diesel engine specialists
Maintenance and Repair Workers, General	49-9071	<ul style="list-style-type: none"> • Needed for facilities management
First-Line Supervisors of Construction Trades and Extraction Workers	47-1011	<ul style="list-style-type: none"> • Pool of skilled trades workers inadequate to meet regional demand
Operating engineers and other construction equipment operators	47-2073	<ul style="list-style-type: none"> • Heavy equipment operators in high demand for heavy highway construction work

First-line supervisors of transportation and material-moving machine and vehicle operators “directly supervise and coordinate activities of transportation and material-moving machine and vehicle operators and helpers.” Sample job titles include:

- Dock Supervisor
- Driver Manager
- Fleet Manager

- Transportation Supervisor
- Warehouse Supervisor

Sample job tasks include:

- Enforce safety rules and regulations.
- Plan work assignments and equipment allocations to meet transportation, operations or production goals.
- Direct workers in transportation or related services, such as pumping, moving, storing, or loading or unloading of materials or people.
- Review orders, production schedules, blueprints, or shipping or receiving notices to determine work sequences and material shipping dates, types, volumes, or destinations.
- Inspect or test materials, stock, vehicles, equipment, or facilities to ensure that they are safe, free of defects, and consistent with specifications.

Transit and Intercity Bus Drivers “drive a bus or motor coach, including regular route operations, charters or private carriage. They may assist passengers with baggage or collect fares and tickets.”

Types of Transit and Intercity Bus Drivers are:

- Charter Coach Driver
- Motor Coach Bus Driver
- Motor Coach Tour Operator
- Public Transit Bus Driver
- Public Transit Trolley Driver

Typical job tasks may include:

- Drive vehicles over specified routes or to specified destinations according to time schedules, complying with traffic regulations to ensure that passengers have a smooth and safe ride.
- Park vehicles at loading areas so that passengers can board.
- Advise passengers to be seated and orderly while on vehicles.
- Inspect vehicles and check gas, oil, and water levels prior to departure.
- Assist passengers, such as elderly or disabled individuals, on and off bus, ensure they are seated properly, help carry baggage, and answer questions about bus schedules or routes.
- Handle passenger emergencies or disruptions.
- Record information, such as cash receipts and ticket fares, and maintain log book.
- Collect tickets or cash fares from passengers.
- Regulate heating, lighting, and ventilating systems for passenger comfort.
- Report delays or accidents.
- Maintain cleanliness of bus or motor coach.
- Load and unload baggage in baggage compartments.

Heavy and Tractor-Trailer Truck Drivers “drive a tractor-trailer combination or a truck with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW). They may be required to unload truck. Job requires a commercial drivers’ license.”

Heavy and Tractor-Trailer Truck Drivers might include:

- Auto Carrier Driver
- Cement Truck Driver
- Concrete Mixer Driver
- Concrete Mixer Truck Driver
- Fuel Truck Driver
- Garbage Truck Driver
- Line Haul Driver
- Logging Truck Driver

- Moving Van Driver
- Over-the-Road Driver
- Semi-Truck Driver
- Tanker Driver
- Tow Truck

Job tasks may include:

- Check vehicles to ensure that mechanical, safety, and emergency equipment is in good working order.
- Follow appropriate safety procedures for transporting dangerous goods.
- Inspect loads to ensure that cargo is secure.
- Maintain logs of working hours or of vehicle service or repair status, following applicable state and federal regulations.
- Secure cargo for transport.
- Maneuver trucks into loading or unloading positions, following signals from loading crew and checking that vehicle and loading equipment are properly positioned.
- Report vehicle defects, accidents, traffic violations, or damage to the vehicles.
- Obtain receipts or signatures for delivered goods and collect payment for services when required.
- Check all load-related documentation for completeness and accuracy.
- Collect delivery instructions from appropriate sources, verifying instructions and routes.
- Check conditions of trailers after contents have been unloaded to ensure that there has been no damage.
- Perform basic vehicle maintenance tasks, such as adding oil, fuel, or radiator fluid or performing minor repairs.
- Operate equipment, such as truck cab computers, CB radios, phones, or global positioning systems (GPS) equipment to exchange necessary information with bases, supervisors, or other drivers.
- Load or unload trucks or help others with loading or unloading, using special loading-related equipment or other equipment as necessary.
- Follow special cargo-related procedures.
- Inventory and inspect goods to be moved to determine quantities and conditions.
- Perform emergency roadside repairs, such as changing tires or installing light bulbs, tire chains, or spark plugs.
- Give directions to laborers who are packing goods and moving them onto trailers.

Bus and Truck Mechanics and Diesel Engine Specialists “diagnose, adjust, repair, or overhaul buses and trucks, or maintain and repair any type of diesel engines. Includes mechanics working primarily with automobile or marine diesel engines.”

Examples of job titles for Bus and Truck Mechanics and Diesel Engine Specialists are as follows:

- Biodiesel Engine Specialist
- Diesel Engine Fitter
- Diesel Service Technician
- Marine Diesel Technician
- School Bus Mechanic
- Tractor Trailer Mechanic
- Truck Engine Technician

Job tasks may include:

- Inspect brake systems, steering mechanisms, wheel bearings, and other important parts to ensure that they are in proper operating condition.
- Adjust and reline brakes, align wheels, tighten bolts and screws, and reassemble equipment.
- Examine and adjust protective guards, loose bolts, and specified safety devices.
- Test drive trucks and buses to diagnose malfunctions or to ensure that they are working properly.
- Attach test instruments to equipment, and read dials and gauges to diagnose malfunctions.

- Rebuild gas or diesel engines.
- Inspect and verify dimensions and clearances of parts to ensure conformance to factory specifications.
- Inspect, test, and listen to defective equipment to diagnose malfunctions, using test instruments
- Recondition and replace parts, pistons, bearings, gears, and valves.
- Specialize in repairing and maintaining parts of the engine.
- Inspect, repair, and maintain automotive and mechanical equipment and machinery.
- Disassemble and overhaul internal combustion engines, pumps, generators, transmissions, clutches, and differential units.

General Maintenance and Repair Workers “perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs.”

Job titles may include:

- Building Maintenance Mechanic
- Equipment Engineering Technician
- Facilities Manager
- Maintenance Technician
- Maintenance Worker
- Maintenance Supervisor

Job tasks may include:

- Inspect, operate, or test machinery or equipment to diagnose machine malfunctions.
- Dismantle machines, equipment, or devices to access and remove defective parts, using hoists, cranes, hand tools, or power tools.
- Perform routine maintenance, such as inspecting drives, motors, or belts, checking fluid levels, replacing filters, or doing other preventive maintenance actions.
- Diagnose mechanical problems and determine how to correct them, checking blueprints, repair manuals, or parts catalogs, as necessary.
- Repair machines, equipment, or structures, using tools such as hammers, hoists, saws, drills, wrenches, or equipment such as precision measuring instruments or electrical or electronic testing devices.
- Assemble, install, or repair wiring, electrical or electronic components, pipe systems, plumbing, machinery, or equipment.
- Clean or lubricate shafts, bearings, gears, or other parts of machinery.
- Adjust functional parts of devices or control instruments, using hand tools, levels, plumb bobs, or straightedges.
- Order parts, supplies, or equipment from catalogs or suppliers.
- Plan and lay out repair work, using diagrams, drawings, blueprints, maintenance manuals, or schematic diagrams.
- Paint or repair roofs, windows, doors, floors, woodwork, plaster, drywall, or other parts of building structures.
- Operate cutting torches or welding equipment to cut or join metal parts. Record type and cost of maintenance or repair work.
- Assemble boilers at installation sites, using tools such as levels, plumb bobs, hammers, torches, or other hand tools.
- Perform routine maintenance on boilers, such as replacing burners or hoses, installing replacement parts, or reinforcing structural weaknesses to ensure optimal boiler efficiency.
- Set up and operate machine tools to repair or fabricate machine parts, jigs, fixtures, or tools.

- Train or manage maintenance personnel or subcontractors.

First-Line Supervisors of Construction Trades and Extraction Workers “directly supervise and coordinate activities of construction or extraction workers.” Sample job titles include:

- Construction Foreman
- Construction Superintendent
- Construction Supervisor
- Field Supervisor

Typical job tasks may include:

- Supervise, coordinate, or schedule the activities of construction or extractive workers.
- Read specifications, such as blueprints, to determine construction requirements or to plan procedures.
- Inspect work progress, equipment, or construction sites to verify safety or to ensure that specifications are met.
- Locate, measure, and mark site locations or placement of structures or equipment, using measuring and marking equipment.
- Coordinate work activities with other construction project activities.
- Confer with managerial or technical personnel, other departments, or contractors to resolve problems or to coordinate activities.
- Analyze worker or production problems and recommend solutions, such as improving production methods or implementing motivational plans.
- Train workers in construction methods, operation of equipment, safety procedures, or company policies.
- Provide assistance to workers engaged in construction or extraction activities, using hand tools or other equipment.
- Arrange for repairs of equipment or machinery.
- Suggest or initiate personnel actions, such as promotions, transfers, or hires.

Operating engineers and other construction equipment operators “operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. May repair and maintain equipment in addition to other duties.”

Job titles may include:

- Angle Dozer Operator
- Blade Grader Operator
- Bulldozer Operator
- Ditching Machine Operating Engineer
- Grader Operator
- Motor Grader Operator
- Scraper Operator
- Steam Shovel Operating Engineer
- Steam Shovel Operator

Typical job tasks may include:

- Learn and follow safety regulations.
- Take actions to avoid potential hazards or obstructions, such as utility lines, other equipment, other workers, or falling objects.
- Locate underground services, such as pipes or wires, prior to beginning work.
- Monitor operations to ensure that health and safety standards are met.
- Adjust handwheels and depress pedals to control attachments, such as blades, buckets, scrapers, or swing booms.
- Start engines, move throttles, switches, or levers, or depress pedals to operate machines, such as bulldozers, trench excavators, road graders, or backhoes.

- Coordinate machine actions with other activities, positioning or moving loads in response to hand or audio signals from crew members.
- Load and move dirt, rocks, equipment, or other materials, using trucks, crawler tractors, power cranes, shovels, graders, or related equipment.
- Check fuel supplies at sites to ensure adequate availability.
- Drive and maneuver equipment equipped with blades in successive passes over working areas to remove topsoil, vegetation, or rocks or to distribute and level earth or terrain.
- Signal operators to guide movement of tractor-drawn machines.
- Keep records of material or equipment usage or problems encountered.

Supply Chain and Logistics Occupations

As freight and cargo shipments increase, the need for cargo handlers and stock movers to handle warehouse operations is also increasing. Laborers and freight, stock, and material movers were identified as a high growth/high demand occupation in the Supply Chain and Logistics category (Table 22).

Table 22: West Region Supply Chain Priority Occupations		
Occupation	SOC Code	Rationale
Laborers and freight, stock, and material movers, hand	53-7062	<ul style="list-style-type: none"> • Growing need for employees for warehouse operations

Laborers and Freight, Stock, and Material Movers, Hand “manually move freight, stock, or other materials or perform other general labor.” Job titles may include:

- | | |
|-------------------------|---|
| ▪ Cargo Handler | ▪ Package Handler |
| ▪ Cart Pusher | ▪ Shipping and Receiving Material Handler |
| ▪ Freight Handler | ▪ Stock Mover |
| ▪ Grave Digger | ▪ Van Loader |
| ▪ Manufacturing Laborer | ▪ Wharf Laborer |
| ▪ Material Handler | |

Typical job duties may include:

- Move freight, stock, or other materials to and from storage or production areas, loading docks, delivery vehicles, ships, or containers, by hand or using trucks, tractors, or other equipment.
- Sort cargo before loading and unloading.
- Attach identifying tags to containers or mark them with identifying information.
- Read work orders or receive oral instructions to determine work assignments or material or equipment needs.
- Stack cargo in locations such as transit sheds or in holds of ships as directed, using pallets or cargo boards.
- Record numbers of units handled or moved, using daily production sheets or work tickets.
- Install protective devices, such as bracing, padding, or strapping, to prevent shifting or damage to items being transported.
- Direct spouts and position receptacles, such as bins, carts, or containers so they can be loaded.
- Attach slings, hooks, or other devices to lift cargo and guide loads.
- Maintain equipment storage areas to ensure that inventory is protected.
- Adjust controls to guide, position, or move equipment, such as cranes, booms, or cameras.
- Guide loads being lifted to prevent swinging.
- Wash out cargo containers or storage areas.
- Pack containers and re-pack damaged containers.
- Carry needed tools or supplies from storage or trucks and return them after use.

- Shovel material, such as gravel, ice, or spilled concrete, into containers or bins or onto conveyors.
- Connect electrical equipment to power sources so that it can be tested before use.
- Carry out general yard duties, such as performing shunting on railway lines.
- Rig or dismantle props or equipment, such as frames, scaffolding, platforms, or backdrops, using hand tools.

Analysis of Key Occupations using Labor Market Databases

BLS data for each of the 10 identified priority occupations are provided below (Table 23). Projected growth rates range from 9% to 22%. Demand for employees ranges from 1,120 to 19,350 total new positions created by 2022 due to occupational growth. As has been noted, the transportation industry workforce is older than most, and many transportation organizations are experiencing waves of baby boomer retirements. Other occupations experience higher turnover rates due to work-life balance challenges (e.g. frequent travel from home, nontraditional shifts) or due to the physical demands of the job. As a result, the BLS data include data on projected new openings as well as projected openings due to growth and replacement (which is not captured in the growth percentage rate). For many occupations, the need to replace workers dramatically increases the number of expected annual openings in the occupation. In many cases, the number of projected openings more than doubles when the need for replacement workers is included in the numbers.

Table 23: Occupational Projections for Priority Occupations in West Region						
SOC Code	Occupation Title	# of Employees, 2012^b	Projected # of Employees, 2022^b	Projected New Openings	Growth Rate, 2012-22^b	Projected Openings due to Growth & Replacement Projected
11-9021	Construction Managers	29,440	35,990	6,550	22%	11,170
17-2051	Civil Engineers	26,380	31,960	5,580	21%	12,400
53-1031	First-line supervisors of transportation and material-moving machine and vehicle operators	14,580	16,520	1,940	13%	6,000
53-3021	Bus drivers, transit and intercity	14,610	15,940	1,330	9%	4,100
53-3032	Heavy and tractor-trailer drivers	140,600	159,950	19,350	13%	42,400
49-3031	Bus and truck mechanics and diesel engine specialists	21,690	23,890	1,120	10%	6,900
49-9071	Maintenance and Repair Workers, General	79,990	90,560	10,410	13%	26,300
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	14,580	16,520	1,940	13%	6,000
47-2073	Operating engineers and other construction equipment operators	33,080	38,750	5,670	17%	13,400
53-7062	Laborers and freight, stock, and material movers, hand	124,130	140,390	16,260	13%	56,700

Demand for Priority Occupations across the West Region

The 10 priority occupations identified for the West demonstrate high growth and high demand fairly uniformly across all ten regional states, relative to state population, as demonstrated in the Appendix tables that list all occupation data by state. Many of the occupations on the priority list are not exclusive to the transportation industry and employers may face competition for workers from other construction or private consulting firms as well as mining and other extractive industries. Relative share of jobs by broad industry categories are given in Table 24 below.

Table 24: Industries Employing Priority Occupations (O*NET)		
	Approximate Percentage of Positions in Transportation & Warehousing Industry	Other Major Industries Employing this Occupation
Construction Managers	<44%	<ul style="list-style-type: none"> ▪ Manufacturing 25% ▪ Government 24% ▪ Professional, Scientific, and Technical Services (17%)
Civil Engineers	<20%	<ul style="list-style-type: none"> ▪ Professional, Scientific, and Technical Services ▪ Government ▪ Construction
First-line supervisors of transportation and material-moving machine and vehicle operators	35%	<ul style="list-style-type: none"> ▪ Wholesale Trade ▪ Government
Bus drivers, transit and intercity	44%	<ul style="list-style-type: none"> ▪ Government
Heavy and tractor-trailer drivers	54%	<ul style="list-style-type: none"> ▪ Wholesale Trade ▪ Manufacturing ▪ Self-Employed
Bus and truck mechanics and diesel engine specialists	29%	<ul style="list-style-type: none"> ▪ Wholesale Trade ▪ Government
Maintenance and Repair Workers, General	<11%	<ul style="list-style-type: none"> ▪ Real estate and rental ▪ Manufacturing ▪ Government
First-Line Supervisors of Construction Trades and Extraction Workers	<22%	<ul style="list-style-type: none"> ▪ Construction ▪ Self-Employed ▪ Government ▪ Mining, Quarrying, and Oil and Gas Extraction
Operating engineers and other construction equipment operators	<19%	<ul style="list-style-type: none"> ▪ Construction ▪ Government ▪ Oil and gas Extraction, mining, quarrying
Laborers and Freight, Stock, and Material Movers, Hand	22%	<ul style="list-style-type: none"> ▪ Administrative and Support Services ▪ Wholesale Trade ▪ Retail Trade ▪ Manufacturing

Another way to look at occupational demand across the region is to compare the Location Quotient (LQ) for each of the 10 priority occupations by state. The Location Quotient compares the concentration of an occupation or industry relative to a larger reference region. In this case, we compiled the LQ for each occupation by state as compared to the national concentration. For example, a LQ of 2.0 indicates that a

state has approximately double the concentration of employment in that occupation, relative to the nation (Colorado Workforce Development Council, 2015). This analysis helps to identify occupations that may be critical to a state’s economic well-being and highlights a state or region’s uniqueness in terms of competitive advantage.

For occupations in the Vocational and Skilled Trades, job concentrations are substantially higher in states with significant energy sector development, demonstrating that transportation organizations will have to compete with the energy sector to fill these high-demand positions. Figure 6 illustrates comparative Location Quotients in the region for this occupational group.

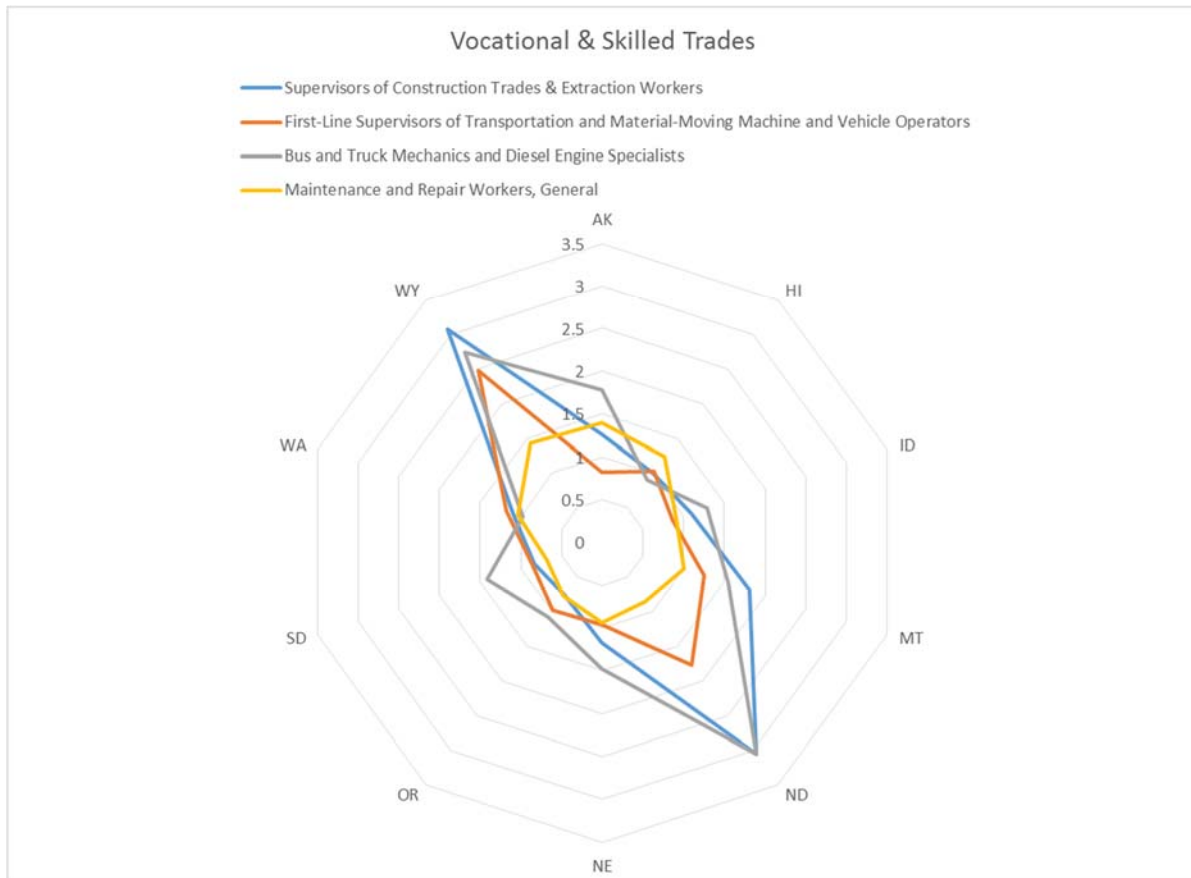


Figure 6: Location Quotients for Vocational and Skilled Trades

Location Quotients were also determined for occupations in the Operator group (Figure 7). Heavy and tractor-trailer drivers, and especially Operating Engineers and Construction Equipment Operators, follow the trend observed for the Vocational trades, with higher concentrations in Wyoming and North Dakota, where the energy sector is a key economic driver. Not surprisingly, transit bus drivers have higher concentrations in more urbanized states like Washington and Hawaii.

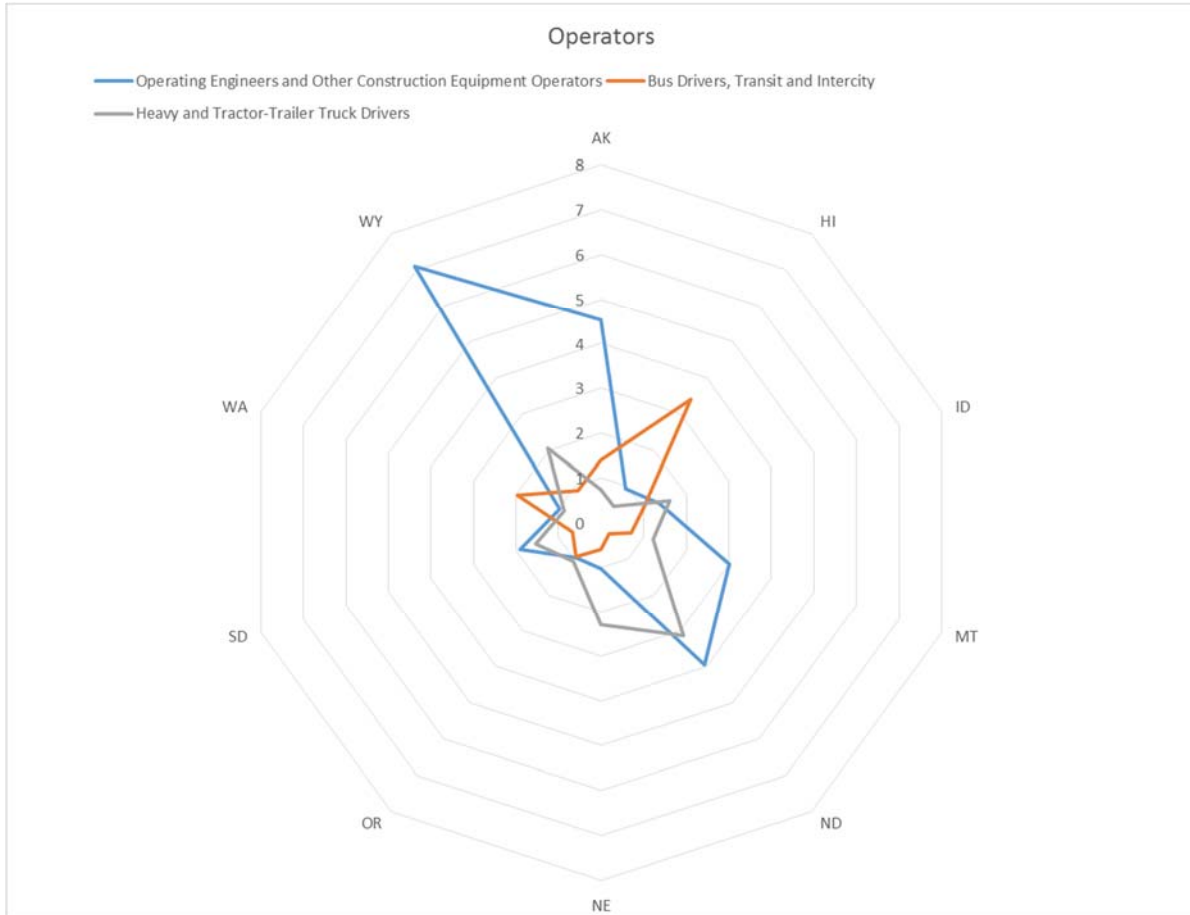


Figure 7: Location Quotients for Operator occupations

Educational Requirements for Priority Occupations in the West Region

Except for the STEM occupations, the priority occupations in the West require only a high school diploma or equivalent (Table 25). However, this does not take into account that many of these jobs require technical education. Many of the region’s technical and community colleges offer programs that provide the training and licensure required for the occupations in the vocational and skilled trades. In addition to obtaining training, most of the trade occupations require additional apprenticeship or other types of on-the-job training or job experience.

Table 25: Educational and Salary Data for Priority Occupations in 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

Core knowledge and skill sets for each of the regional priority occupations were obtained from the O*NET on-line job analysis tool (Table 26). Taking this high level approach demonstrates the multiple overlapping areas between the occupations in terms of foundational skills and knowledge. This will assist the team to identify common training and education approaches that can be undertaken to develop these needed skill sets.

Table 26: Skill Requirements for Regional Key Occupations (O*NET)		
Occupation	Core Knowledge	Additional Skills
<i>STEM Occupations</i>		
Civil Engineer (17-2051)	<p><u>Engineering and Technology</u> — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.</p> <p><u>Building and Construction</u> — Knowledge of materials, methods, and the tools involved in the construction of structures such as highways and roads.</p> <p><u>Mathematics</u> — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.</p> <p><u>Design</u> — Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.</p> <p><u>Administration and Management</u> — Knowledge of business and management principles.</p> <p><u>Physics</u> — Knowledge and prediction of physical principles, laws, their interrelationships, and applications.</p>	<p>Complex Problem Solving— Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.</p> <p>Critical Thinking— Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.</p> <p>Judgment and Decision Making— Considering the relative costs and benefits of potential actions to choose the most appropriate one.</p> <p>Systems Analysis— Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.</p> <p>Mathematics— Using mathematics to solve problems.</p> <p>Active Learning— Understanding the implications of new information for both current and future problem-solving and decision-making.</p> <p>Systems Evaluation— Identifying measures or indicators of system performance and the actions needed</p>

	<p><u>Law and Government</u> — Knowledge of legal codes.</p>	<p>to improve or correct performance, relative to the goals of the system. Operations Analysis— Analyzing needs and product requirements to create a design</p>
<p>Construction Manager (11-9021)</p>	<p><u>Engineering and Technology</u> — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.</p> <p><u>Building and Construction</u> — Knowledge of materials, methods, and the tools involved in the construction of structures such as highways and roads.</p> <p><u>Mathematics</u> — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.</p> <p><u>Design</u> — Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.</p> <p><u>Administration and Management</u> — Knowledge of business and management principles.</p> <p><u>Mechanical</u> — Knowledge of machines and tools, including their designs, uses, repair, and maintenance</p>	<p>Complex Problem Solving— Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. Critical Thinking— Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. Active Listening— Giving full attention to what other people are saying, asking questions as appropriate. Management of Personnel Resources— Motivating, developing, and directing people as they work. Coordination— Adjusting actions in relation to others’ actions. Time Management— Managing one’s own time and the time of others. Active Learning— Understanding the implications of new information for both current and future problem-solving and decision-making.</p>
<p><i>Vocational and Skilled Trades Occupations</i></p>		
<p>First-line supervisors of transportation and material-moving machine and vehicle operators (53-1031)</p>	<p><u>Transportation</u> — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.</p> <p><u>Customer and Personal Service</u> — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.</p> <p><u>Administration and Management</u> — Knowledge of business and management principles.</p>	<p>Active Listening— Giving full attention to what other people are saying, asking questions as appropriate. Management of Personnel Resources— Motivating, developing, and directing people as they work. Coordination— Adjusting actions in relation to others’ actions. Time Management— Managing one’s own time and the time of others. Critical Thinking— Using logic and reasoning to identify the strengths and weaknesses of</p>

	<p><u>Personnel and Human Resources</u> — Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labor relations and negotiation, and personnel information systems.</p> <p><u>Clerical</u> — Knowledge of administrative and clerical procedures and systems such as word processing, managing files and records, stenography and transcription, designing forms, and other office procedures and terminology.</p> <p><u>Computers and Electronics</u> — Knowledge of electronic equipment, and computer hardware and software, including applications and programming.</p> <p><u>Public Safety and Security</u> — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective security operations for the protection of people, data, property, and institutions.</p>	<p>alternative solutions, conclusions or approaches to problems.</p>
<p>Bus drivers, transit and intercity (53-3021)</p>	<p><u>Transportation</u> — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.</p> <p><u>Customer and Personal Service</u> — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.</p> <p><u>Psychology</u> — Knowledge of human behavior and performance; individual differences in ability.</p> <p><u>Public Safety and Security</u> — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective security operations for the protection of people, data, property, and institutions.</p>	<p>Operation and Control — Controlling operations of equipment or systems.</p> <p>Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.</p> <p>Active Listening — Giving full attention to what other people are saying, asking questions as appropriate.</p> <p>Time Management — Managing one’s own time and the time of others.</p> <p>Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.</p>
<p>Heavy and tractor-trailer drivers (53-3032)</p>	<p><u>Transportation</u> — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.</p>	<p>Operation and Control — Controlling operations of equipment or systems.</p> <p>Operation Monitoring — Watching gauges, dials, or other indicators to</p>

	<p><u>Customer and Personal Service</u> — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.</p> <p><u>Public Safety and Security</u> — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective security operations for the protection of people, data, property, and institutions.</p> <p><u>Mechanical</u> — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.</p>	<p>make sure a machine is working properly.</p> <p>Time Management— Managing one’s own time and the time of others.</p> <p>Critical Thinking— Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.</p> <p>Monitoring – Monitoring/assessing performance to make improvements or take corrective action.</p>
<p>Bus and truck mechanics and diesel engine specialists (49-3031)</p>	<p><u>Mechanical</u> — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.</p> <p><u>Transportation</u>— Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.</p> <p><u>Customer and Personal Service</u> — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.</p> <p><u>Public Safety and Security</u> — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective security operations for the protection of people, data, property, and institutions.</p>	<p>Repairing — Repairing machines or systems using the needed tools. See more occupations related to this skill.</p> <p>Troubleshooting — Determining causes of operating errors and deciding what to do about it.</p> <p>Operation and Control — Controlling operations of equipment or systems.</p> <p>Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.</p> <p>Critical Thinking— Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.</p>
<p>Maintenance and Repair Workers, General (49-9071)</p>	<p><u>Mechanical</u> — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.</p> <p><u>Building and Construction</u> — Knowledge of materials, methods, and the tools involved in the construction of structures or buildings.</p> <p><u>Customer and Personal Service</u> — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.</p>	<p>Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.</p> <p>Repairing — Repairing machines or systems using the needed tools.</p> <p>Troubleshooting — Determining causes of operating errors and deciding what to do about it.</p> <p>Critical Thinking— Using logic and reasoning to identify the strengths and weaknesses of</p>

	<p><u>Public Safety and Security</u> — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective security operations for the protection of people, data, property, and institutions.</p>	<p>alternative solutions, conclusions or approaches to problems. Equipment Selection — Determining the kind of tools and equipment needed to do a job.</p>
<p>First-Line Supervisors of Construction Trades and Extraction Workers (47-1011)</p>	<p><u>Production and Processing</u> — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods. <u>Building and Construction</u> — Knowledge of materials, methods, and the tools involved in the construction of structures or buildings. <u>Customer and Personal Service</u> — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction. <u>Administration and Management</u> — Knowledge of business and management principles. <u>Mechanical</u> — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.</p>	<p>Active Listening— Giving full attention to what other people are saying, asking questions as appropriate. Coordination— Adjusting actions in relation to others’ actions. Critical Thinking— Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. Management of Personnel Resources— Motivating, developing, and directing people as they work.</p>
<p>Operating engineers and other construction equipment operators (47-2073)</p>	<p><u>Building and Construction</u> — Knowledge of materials, methods, and the tools involved in the construction of structures or buildings. <u>Mechanical</u> — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.</p>	<p>Operation and Control — Controlling operations of equipment or systems. Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly. Monitoring – Monitoring/assessing performance to make improvements or take corrective action. Coordination— Adjusting actions in relation to others’ actions. Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.</p>

<i>Supply Chain and Logistics Occupations</i>		
<p>Laborers and freight, stock, and material movers, hand (53-7062)</p>	<p>No core knowledge required.</p>	<p>Static Strength— The ability to exert maximum muscle force to lift, push, pull, or carry objects.</p> <p>Multilimb Coordination— The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.</p> <p>Trunk Strength— The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.</p> <p>Control Precision— The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.</p> <p>Manual Dexterity— The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble</p>

With regard to salary, a number of stakeholders indicated their perception that the wages they were able to offer were lower than what workers could get in other states and therefore were not competitive enough to recruit staff from out-of-state. However, at least for the ten priority occupations identified, the average regional wages exceed the national average for that occupation. The data show differences between the states, with Alaska, Washington, North Dakota and Hawaii often exceeding the wages offered in the other region’s states, which tended to fall nearer to the national average. Overall, however, the region’s states offer competitive salaries for the ten priority occupations listed.

Conclusion

The purpose of this report was to: 1) present a broad overview of the transportation industry and workforce in the West Region, 2) collect and analyze labor market data on transportation industries and occupations in the region, and 3) engage stakeholders to help identify priority occupations of concern for the region as a whole. The resulting list of 10 priority occupations provides some guidance as to where common needs region-wide dictate focused attention from the Center. For the West, the needs assessment identified a need for greater pools of potential vehicle and equipment operators, diesel mechanics, and both supervisors and workers in the skilled trades more broadly.

This list is by no means considered definitive. Many states have their own unique priorities, growth industries, and workforce challenges. The stakeholders the research team interviewed provided excellent insights from their niche focus areas and respective states or cities. The research team recognizes that the more feedback obtained from a broad spectrum of stakeholders in every state, the more robust and thorough the resulting assessment of regional needs will be. As with any needs assessment, the report is a work in progress. To further this analysis, the Center invites reader feedback. A Phase 2 Report will focus on the potential education, outreach, or experiential learning programs or other initiatives that can be implemented to address the identified workforce needs in the region.

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Appendix A: Occupational Data and Projections for Relevant Occupations in the West Region, by State

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	19,350	\$24,080	High School Diploma or Equivalent	18,900	24,800	5,900	31.2%
AK	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians			High School Diploma or Equivalent				NA
HI	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians			High School Diploma or Equivalent				NA
ID	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	60	\$25,560	High School Diploma or Equivalent	40	50	10	25.0%
MT	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	80	\$19,520	High School Diploma or Equivalent	60	70	10	16.7%
ND	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	340	\$18,650	High School Diploma or Equivalent	250	300	50	20.0%
NE	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	110	\$33,540	High School Diploma or Equivalent	80	90	10	12.5%
OR	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	60	\$23,150	High School Diploma or Equivalent	70	90	20	28.6%
SD	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	40	\$20,510	High School Diploma or Equivalent	50	50	0	0.0%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
WA	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	930	\$33,370	High School Diploma or Equivalent	910	1,130	220	24.2%
WY	53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>53-3011</i>	<i>Ambulance Drivers and Attendants, Except Emergency Medical Technicians</i>	<i>1,620</i>	<i>\$29,319</i>	<i>High School Diploma or Equivalent</i>	<i>1,460</i>	<i>1,780</i>	<i>320</i>	<i>21.9%</i>
United States	17-3011	Architectural and Civil Drafters	91,520	\$49,970	Associate's Degree	87,900	88,500	600	0.7%
AK	17-3011	Architectural and Civil Drafters	250	\$52,720	Associate's Degree	230	260	30	13.0%
HI	17-3011	Architectural and Civil Drafters	450	\$45,130	Associate's Degree	540	520	-20	-3.7%
ID	17-3011	Architectural and Civil Drafters	520	\$46,330	Associate's Degree	520	510	-10	-1.9%
MT	17-3011	Architectural and Civil Drafters	450	\$45,940	Associate's Degree	600	710	110	18.3%
ND	17-3011	Architectural and Civil Drafters	300	\$47,510	Associate's Degree	260	300	40	15.4%
NE	17-3011	Architectural and Civil Drafters	480	\$45,350	Associate's Degree	600	600	0	0.0%
OR	17-3011	Architectural and Civil Drafters	1,590	\$50,190	Associate's Degree	1,270	1,300	30	2.4%
SD	17-3011	Architectural and Civil Drafters	230	\$38,970	Associate's Degree	290	280	-10	-3.4%
WA	17-3011	Architectural and Civil Drafters	1,820	\$54,690	Associate's Degree	1,780	2,030	250	14.0%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
WY	17-3011	Architectural and Civil Drafters	370	\$42,730	Associate's Degree	260	270	10	3.8%
<i>West Region</i>	<i>17-3011</i>	<i>Architectural and Civil Drafters</i>	<i>6,460</i>	<i>\$50,159</i>	<i>Associate's Degree</i>	<i>6,350</i>	<i>6,780</i>	<i>430</i>	<i>6.8%</i>
United States	49-3021	Automotive Body and Related Repairers	137,140	\$40,320	High School Diploma or Equivalent	154,200	174,700	20,500	13.3%
AK	49-3021	Automotive Body and Related Repairers	190	\$55,060	High School Diploma or Equivalent	250	270	20	8.0%
HI	49-3021	Automotive Body and Related Repairers	610	\$43,150	High School Diploma or Equivalent	690	820	130	18.8%
ID	49-3021	Automotive Body and Related Repairers	600	\$38,110	High School Diploma or Equivalent	570	640	70	12.3%
MT	49-3021	Automotive Body and Related Repairers	600	\$39,320	High School Diploma or Equivalent	590	640	50	8.5%
ND	49-3021	Automotive Body and Related Repairers	550	\$40,580	High School Diploma or Equivalent	800	910	110	13.8%
NE	49-3021	Automotive Body and Related Repairers	1,260	\$36,970	High School Diploma or Equivalent	1,330	1,390	60	4.5%
OR	49-3021	Automotive Body and Related Repairers	1,590	\$37,870	High School Diploma or Equivalent	1,370	1,540	170	12.4%
SD	49-3021	Automotive Body and Related Repairers	700	\$36,370	High School Diploma or Equivalent	640	650	10	1.6%
WA	49-3021	Automotive Body and Related Repairers	2,020	\$43,250	High School Diploma or Equivalent	2,720	2,940	220	8.1%
WY	49-3021	Automotive Body and Related Repairers	240	\$45,370	High School Diploma or Equivalent	340	390	50	14.7%
<i>West Region</i>	<i>49-3021</i>	<i>Automotive Body and Related Repairers</i>	<i>8,360</i>	<i>\$43,749</i>	<i>High School Diploma or Equivalent</i>	<i>9,300</i>	<i>10,190</i>	<i>890</i>	<i>9.6%</i>

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	49-3022	Automotive Glass Installers and Repairers	15,670	\$32,590	High School Diploma or Equivalent	18,000	20,500	2,500	13.9%
AK	49-3022	Automotive Glass Installers and Repairers		\$34,890	High School Diploma or Equivalent	40	50	10	25.0%
HI	49-3022	Automotive Glass Installers and Repairers			High School Diploma or Equivalent				NA
ID	49-3022	Automotive Glass Installers and Repairers	70	\$27,920	High School Diploma or Equivalent	110	130	20	18.2%
MT	49-3022	Automotive Glass Installers and Repairers		\$31,340	High School Diploma or Equivalent	110	120	10	9.1%
ND	49-3022	Automotive Glass Installers and Repairers		\$33,880	High School Diploma or Equivalent	60	70	10	16.7%
NE	49-3022	Automotive Glass Installers and Repairers			High School Diploma or Equivalent	20	20	0	0.0%
OR	49-3022	Automotive Glass Installers and Repairers	140	\$35,830	High School Diploma or Equivalent	210	240	30	14.3%
SD	49-3022	Automotive Glass Installers and Repairers		\$36,260	High School Diploma or Equivalent	40	40	0	0.0%
WA	49-3022	Automotive Glass Installers and Repairers	1,070	\$33,810	High School Diploma or Equivalent	1,390	1,520	130	9.4%
WY	49-3022	Automotive Glass Installers and Repairers	130	\$33,870	High School Diploma or Equivalent	110	130	20	18.2%
<i>West Region</i>	<i>49-3022</i>	<i>Automotive Glass Installers and Repairers</i>	<i>1,410</i>	<i>\$36,373</i>	<i>High School Diploma or Equivalent</i>	<i>2,090</i>	<i>2,320</i>	<i>230</i>	<i>11.0%</i>
United States	49-3023	Automotive Service Technicians and Mechanics	633,390	\$37,120	High School Diploma or Equivalent	701,100	761,500	60,400	8.6%
AK	49-3023	Automotive Service Technicians and Mechanics	1,710	\$51,510	High School Diploma or Equivalent	1,710	1,880	170	9.9%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
HI	49-3023	Automotive Service Technicians and Mechanics	2,720	\$40,340	High School Diploma or Equivalent	2,630	2,890	260	9.9%
ID	49-3023	Automotive Service Technicians and Mechanics	3,260	\$37,170	High School Diploma or Equivalent	3,080	3,540	460	14.9%
MT	49-3023	Automotive Service Technicians and Mechanics	2,720	\$36,690	High School Diploma or Equivalent	3,050	3,290	240	7.9%
ND	49-3023	Automotive Service Technicians and Mechanics	2,340	\$37,810	High School Diploma or Equivalent	2,840	3,060	220	7.7%
NE	49-3023	Automotive Service Technicians and Mechanics	4,300	\$34,590	High School Diploma or Equivalent	5,030	5,190	160	3.2%
OR	49-3023	Automotive Service Technicians and Mechanics	6,840	\$39,290	High School Diploma or Equivalent	5,730	6,360	630	11.0%
SD	49-3023	Automotive Service Technicians and Mechanics	1,870	\$36,030	High School Diploma or Equivalent	2,180	2,240	60	2.8%
WA	49-3023	Automotive Service Technicians and Mechanics	11,880	\$41,580	High School Diploma or Equivalent	14,070	15,810	1,740	12.4%
WY	49-3023	Automotive Service Technicians and Mechanics	1,680	\$38,770	High School Diploma or Equivalent	1,670	1,840	170	10.2%
<i>West Region</i>	<i>49-3023</i>	<i>Automotive Service Technicians and Mechanics</i>	<i>39,320</i>	<i>\$41,497</i>	<i>High School Diploma or Equivalent</i>	<i>41,990</i>	<i>46,100</i>	<i>4,110</i>	<i>9.8%</i>
United States	53-6011	Bridge and Lock Tenders	3,280	\$48,120	High School Diploma or Equivalent	3,600	3,600	0	0.0%
AK	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA
HI	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA
ID	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
MT	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA
ND	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA
NE	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA
OR	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA
SD	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA
WA	53-6011	Bridge and Lock Tenders	60	\$53,320	High School Diploma or Equivalent	60	60	0	0.0%
WY	53-6011	Bridge and Lock Tenders			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>53-6011</i>	<i>Bridge and Lock Tenders</i>	<i>60</i>	<i>\$ 50,810</i>	<i>High School Diploma or Equivalent</i>	<i>60</i>	<i>60</i>	<i>0</i>	<i>0.0%</i>
United States	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	243,080	\$43,630	High School Diploma or Equivalent	250,800	272,500	21,700	8.7%
AK	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,040	\$58,030	High School Diploma or Equivalent	700	790	90	12.9%
HI	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	990	\$55,260	High School Diploma or Equivalent	810	910	100	12.3%
ID	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,460	\$40,550	High School Diploma or Equivalent	1,520	1,700	180	11.8%
MT	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,230	\$36,470	High School Diploma or Equivalent	1,230	1,380	150	12.2%
ND	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	2,430	\$48,800	High School Diploma or Equivalent	2,090	2,200	110	5.3%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
NE	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	2,500	\$38,780	High School Diploma or Equivalent	2,870	3,040	170	5.9%
OR	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	3,270	\$45,960	High School Diploma or Equivalent	3,790	4,310	520	13.7%
SD	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,040	\$38,770	High School Diploma or Equivalent	1,150	1,220	70	6.1%
WA	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	5,090	\$52,520	High School Diploma or Equivalent	5,960	6,680	720	12.1%
WY	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,390	\$51,980	High School Diploma or Equivalent	1,570	1,660	90	5.7%
<i>West Region</i>	<i>49-3031</i>	<i>Bus and Truck Mechanics and Diesel Engine Specialists</i>	<i>20,440</i>	<i>\$48,116</i>	<i>High School Diploma or Equivalent</i>	<i>21,690</i>	<i>23,890</i>	<i>2,200</i>	<i>10.1%</i>
United States	53-3022	Bus Drivers, School or Special Client	499,440	\$28,850	High School Diploma or Equivalent	483,600	524,800	41,200	8.5%
AK	53-3022	Bus Drivers, School or Special Client	1,110	\$35,350	High School Diploma or Equivalent	1,040	1,180	140	13.5%
HI	53-3022	Bus Drivers, School or Special Client	1,090	\$41,380	High School Diploma or Equivalent	1,010	1,220	210	20.8%
ID	53-3022	Bus Drivers, School or Special Client	2,160	\$22,950	High School Diploma or Equivalent	2,080	2,220	140	6.7%
MT	53-3022	Bus Drivers, School or Special Client	1,910	\$28,700	High School Diploma or Equivalent	1,820	2,110	290	15.9%
ND	53-3022	Bus Drivers, School or Special Client	1,380	\$37,540	High School Diploma or Equivalent	1,570	1,790	220	14.0%
NE	53-3022	Bus Drivers, School or Special Client	3,360	\$29,040	High School Diploma or Equivalent	3,360	3,750	390	11.6%
OR	53-3022	Bus Drivers, School or Special Client	6,720	\$30,810	High School Diploma or Equivalent	5,860	6,670	810	13.8%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
SD	53-3022	Bus Drivers, School or Special Client	1,500	\$27,150	High School Diploma or Equivalent	1,330	1,270	-60	-4.5%
WA	53-3022	Bus Drivers, School or Special Client	8,990	\$35,520	High School Diploma or Equivalent	9,760	10,580	820	8.4%
WY	53-3022	Bus Drivers, School or Special Client	1,520	\$32,890	High School Diploma or Equivalent	1,590	1,650	60	3.8%
<i>West Region</i>	<i>53-3022</i>	<i>Bus Drivers, School or Special Client</i>	<i>29,740</i>	<i>\$32,206</i>	<i>High School Diploma or Equivalent</i>	<i>29,420</i>	<i>32,440</i>	<i>3,020</i>	<i>10.3%</i>
United States	53-3021	Bus Drivers, Transit and Intercity	158,050	\$37,470	High School Diploma or Equivalent	170,600	187,400	16,800	9.8%
AK	53-3021	Bus Drivers, Transit and Intercity	530	\$41,770	High School Diploma or Equivalent	820	930	110	13.4%
HI	53-3021	Bus Drivers, Transit and Intercity	2,440	\$47,840	High School Diploma or Equivalent	2,660	3,010	350	13.2%
ID	53-3021	Bus Drivers, Transit and Intercity	720	\$30,130	High School Diploma or Equivalent	670	700	30	4.5%
MT	53-3021	Bus Drivers, Transit and Intercity	360	\$33,100	High School Diploma or Equivalent	300	350	50	16.7%
ND	53-3021	Bus Drivers, Transit and Intercity	150	\$31,550	High School Diploma or Equivalent	210	270	60	28.6%
NE	53-3021	Bus Drivers, Transit and Intercity	670	\$28,360	High School Diploma or Equivalent	570	610	40	7.0%
OR	53-3021	Bus Drivers, Transit and Intercity	1,850	\$43,430	High School Diploma or Equivalent	2,570	2,880	310	12.1%
SD	53-3021	Bus Drivers, Transit and Intercity	320	\$25,370	High School Diploma or Equivalent	340	360	20	5.9%
WA	53-3021	Bus Drivers, Transit and Intercity	6,670	\$49,150	High School Diploma or Equivalent	6,470	6,830	360	5.6%

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
WY	53-3021	Bus Drivers, Transit and Intercity	300	\$32,490	High School Diploma or Equivalent				
<i>West Region</i>	<i>53-3021</i>	<i>Bus Drivers, Transit and Intercity</i>	<i>14,010</i>	<i>\$ 43,509</i>	<i>High School Diploma or Equivalent</i>	<i>14,610</i>	<i>15,940</i>	<i>1,330</i>	<i>9.1%</i>
United States	53-5021	Captains, Mates, and Pilots of Water Vessels	30,690	\$72,340	Bachelor's Degree	35,400	40,200	4,800	13.6%
AK	53-5021	Captains, Mates, and Pilots of Water Vessels	640	\$70,550	Bachelor's Degree	610	700	90	14.8%
HI	53-5021	Captains, Mates, and Pilots of Water Vessels	960	\$44,880	Bachelor's Degree	730	810	80	11.0%
ID	53-5021	Captains, Mates, and Pilots of Water Vessels			Bachelor's Degree				NA
MT	53-5021	Captains, Mates, and Pilots of Water Vessels			Bachelor's Degree				NA
ND	53-5021	Captains, Mates, and Pilots of Water Vessels			Bachelor's Degree				NA
NE	53-5021	Captains, Mates, and Pilots of Water Vessels			Bachelor's Degree	10	10	0	0.0%
OR	53-5021	Captains, Mates, and Pilots of Water Vessels	210	\$73,660	Bachelor's Degree	250	270	20	8.0%
SD	53-5021	Captains, Mates, and Pilots of Water Vessels			Bachelor's Degree				NA
WA	53-5021	Captains, Mates, and Pilots of Water Vessels	1,430	\$79,280	Bachelor's Degree	1,570	1,870	300	19.1%
WY	53-5021	Captains, Mates, and Pilots of Water Vessels			Bachelor's Degree				NA
<i>West Region</i>	<i>53-5021</i>	<i>Captains, Mates, and Pilots of Water Vessels</i>	<i>3,240</i>	<i>\$ 69,453</i>	<i>Bachelor's Degree</i>	<i>3,170</i>	<i>3,660</i>	<i>490</i>	<i>15.5%</i>

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	43-5011	Cargo and Freight Agents	77,480	\$41,380	High School Diploma or Equivalent	79,500	91,000	11,500	14.5%
AK	43-5011	Cargo and Freight Agents	1,240	\$34,360	High School Diploma or Equivalent	1,110	1,180	70	6.3%
HI	43-5011	Cargo and Freight Agents	480	\$25,320	High School Diploma or Equivalent	550	640	90	16.4%
ID	43-5011	Cargo and Freight Agents	130	\$40,280	High School Diploma or Equivalent	160	190	30	18.8%
MT	43-5011	Cargo and Freight Agents	310	\$33,680	High School Diploma or Equivalent				NA
ND	43-5011	Cargo and Freight Agents	140	\$38,020	High School Diploma or Equivalent	210	320	110	52.4%
NE	43-5011	Cargo and Freight Agents	570	\$45,210	High School Diploma or Equivalent	410	470	60	14.6%
OR	43-5011	Cargo and Freight Agents	1,040	\$43,640	High School Diploma or Equivalent	860	1,030	170	19.8%
SD	43-5011	Cargo and Freight Agents	280	\$44,330	High School Diploma or Equivalent	250	290	40	16.0%
WA	43-5011	Cargo and Freight Agents	1,820	\$47,880	High School Diploma or Equivalent	1,880	2,270	390	20.7%
WY	43-5011	Cargo and Freight Agents	40	\$35,950	High School Diploma or Equivalent	50	60	10	20.0%
<i>West Region</i>	<i>43-5011</i>	<i>Cargo and Freight Agents</i>	<i>6,050</i>	<i>\$44,959</i>	<i>High School Diploma or Equivalent</i>	<i>5,480</i>	<i>6,450</i>	<i>970</i>	<i>17.7%</i>
United States	47-2031	Carpenters	617,060	\$40,820	High School Diploma or Equivalent	901,200	1,119,400	218,200	24.2%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
AK	47-2031	Carpenters	2,780	\$65,650	High School Diploma or Equivalent	2,970	3,320	350	11.8%
HI	47-2031	Carpenters	4,480	\$68,730	High School Diploma or Equivalent	7,030	8,670	1,640	23.3%
ID	47-2031	Carpenters	4,120	\$35,260	High School Diploma or Equivalent	5,450	7,010	1,560	28.6%
MT	47-2031	Carpenters	3,480	\$37,610	High School Diploma or Equivalent	3,670	4,640	970	26.4%
ND	47-2031	Carpenters	2,850	\$36,830	High School Diploma or Equivalent	4,160	4,990	830	20.0%
NE	47-2031	Carpenters	6,770	\$33,360	High School Diploma or Equivalent	9,780	12,060	2,280	23.3%
OR	47-2031	Carpenters	10,700	\$40,910	High School Diploma or Equivalent	9,120	12,090	2,970	32.6%
SD	47-2031	Carpenters	4,020	\$32,040	High School Diploma or Equivalent	6,070	6,920	850	14.0%
WA	47-2031	Carpenters	20,360	\$48,580	High School Diploma or Equivalent	36,640	49,230	12,590	34.4%
WY	47-2031	Carpenters	3,060	\$41,900	High School Diploma or Equivalent	3,910	4,710	800	20.5%
<i>West Region</i>	<i>47-2031</i>	<i>Carpenters</i>	<i>62,620</i>	<i>\$46,146</i>	<i>High School Diploma or Equivalent</i>	<i>88,800</i>	<i>113,640</i>	<i>24,840</i>	<i>28.0%</i>
United States	47-2051	Cement Masons and Concrete Finishers	152,570	\$36,760	Less Than High School	140,800	181,800	41,000	29.1%
AK	47-2051	Cement Masons and Concrete Finishers	200	\$61,090	Less Than High School	240	250	10	4.2%
HI	47-2051	Cement Masons and Concrete Finishers	690	\$67,230	Less Than High School	530	690	160	30.2%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
ID	47-2051	Cement Masons and Concrete Finishers	1,370	\$32,130	Less Than High School	1,340	1,790	450	33.6%
MT	47-2051	Cement Masons and Concrete Finishers	380	\$35,400	Less Than High School	620	800	180	29.0%
ND	47-2051	Cement Masons and Concrete Finishers	1,400	\$36,950	Less Than High School	1,380	1,700	320	23.2%
NE	47-2051	Cement Masons and Concrete Finishers	2,300	\$34,250	Less Than High School	2,240	2,810	570	25.4%
OR	47-2051	Cement Masons and Concrete Finishers	1,770	\$43,050	Less Than High School	1,620	2,150	530	32.7%
SD	47-2051	Cement Masons and Concrete Finishers	1,460	\$29,950	Less Than High School	1,250	1,380	130	10.4%
WA	47-2051	Cement Masons and Concrete Finishers	2,900	\$42,120	Less Than High School	2,460	3,450	990	40.2%
WY	47-2051	Cement Masons and Concrete Finishers	720	\$38,150	Less Than High School	720	920	200	27.8%
<i>West Region</i>	<i>47-2051</i>	<i>Cement Masons and Concrete Finishers</i>	<i>13,190</i>	<i>\$40,804</i>	<i>Less Than High School</i>	<i>12,400</i>	<i>15,940</i>	<i>3,540</i>	<i>28.5%</i>
United States	17-3022	Civil Engineering Technicians	71,300	\$48,340	Associate's Degree	73,100	73,600	500	0.7%
AK	17-3022	Civil Engineering Technicians	560	\$67,220	Associate's Degree	520	570	50	9.6%
HI	17-3022	Civil Engineering Technicians	130	\$45,550	Associate's Degree	170	170	0	0.0%
ID	17-3022	Civil Engineering Technicians	350	\$47,080	Associate's Degree	420	400	-20	-4.8%
MT	17-3022	Civil Engineering Technicians	320	\$44,440	Associate's Degree	380	400	20	5.3%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
ND	17-3022	Civil Engineering Technicians	560	\$46,500	Associate's Degree	420	470	50	11.9%
NE	17-3022	Civil Engineering Technicians	430	\$46,650	Associate's Degree	690	680	-10	-1.4%
OR	17-3022	Civil Engineering Technicians	920	\$59,630	Associate's Degree	940	1,000	60	6.4%
SD	17-3022	Civil Engineering Technicians	400	\$38,080	Associate's Degree	370	380	10	2.7%
WA	17-3022	Civil Engineering Technicians	1,700	\$57,810	Associate's Degree	2,060	2,200	140	6.8%
WY	17-3022	Civil Engineering Technicians	400	\$42,070	Associate's Degree	350	350	0	0.0%
<i>West Region</i>	<i>17-3022</i>	<i>Civil Engineering Technicians</i>	<i>5,770</i>	<i>\$53,883</i>	<i>Associate's Degree</i>	<i>6,320</i>	<i>6,620</i>	<i>300</i>	<i>4.7%</i>
United States	17-2051	Civil Engineers	263,460	\$82,050	Bachelor's Degree	272,900	326,600	53,700	19.7%
AK	17-2051	Civil Engineers	1,170	\$101,160	Bachelor's Degree	850	910	60	7.1%
HI	17-2051	Civil Engineers	1,860	\$77,190	Bachelor's Degree	2,300	2,590	290	12.6%
ID	17-2051	Civil Engineers	1,310	\$73,130	Bachelor's Degree	1,300	1,480	180	13.8%
MT	17-2051	Civil Engineers	1,340	\$66,910	Bachelor's Degree	1,310	1,640	330	25.2%
ND	17-2051	Civil Engineers	1,050	\$72,150	Bachelor's Degree	930	1,240	310	33.3%
NE	17-2051	Civil Engineers	1,310	\$76,450	Bachelor's Degree	1,570	1,870	300	19.1%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
OR	17-2051	Civil Engineers	4,340	\$75,960	Bachelor's Degree	3,380	4,050	670	19.8%
SD	17-2051	Civil Engineers	1,060	\$65,620	Bachelor's Degree	900	1,060	160	17.8%
WA	17-2051	Civil Engineers	11,390	\$83,130	Bachelor's Degree	12,980	16,080	3,100	23.9%
WY	17-2051	Civil Engineers	900	\$70,380	Bachelor's Degree	860	1,040	180	20.9%
<i>West Region</i>	<i>17-2051</i>	<i>Civil Engineers</i>	<i>25,730</i>	<i>\$ 81,948</i>	<i>Bachelor's Degree</i>	<i>26,380</i>	<i>31,960</i>	<i>5,580</i>	<i>21.2%</i>
United States	53-7061	Cleaners of Vehicles and Equipment	321,740	\$20,670	Less Than High School	325,200	361,200	36,000	11.1%
AK	53-7061	Cleaners of Vehicles and Equipment	570	\$26,030	Less Than High School	640	740	100	15.6%
HI	53-7061	Cleaners of Vehicles and Equipment	1,900	\$23,800	Less Than High School	1,800	2,030	230	12.8%
ID	53-7061	Cleaners of Vehicles and Equipment	1,720	\$21,950	Less Than High School	1,750	2,010	260	14.9%
MT	53-7061	Cleaners of Vehicles and Equipment	1,200	\$20,000	Less Than High School	1,150	1,270	120	10.4%
ND	53-7061	Cleaners of Vehicles and Equipment	1,460	\$23,600	Less Than High School	1,510	1,710	200	13.2%
NE	53-7061	Cleaners of Vehicles and Equipment	3,000	\$21,950	Less Than High School	3,430	3,600	170	5.0%
OR	53-7061	Cleaners of Vehicles and Equipment	4,100	\$23,080	Less Than High School	3,840	4,310	470	12.2%
SD	53-7061	Cleaners of Vehicles and Equipment	1,070	\$20,410	Less Than High School	1,050	1,100	50	4.8%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
WA	53-7061	Cleaners of Vehicles and Equipment	7,030	\$24,680	Less Than High School	7,480	8,560	1,080	14.4%
WY	53-7061	Cleaners of Vehicles and Equipment	540	\$22,360	Less Than High School	580	670	90	15.5%
<i>West Region</i>	<i>53-7061</i>	<i>Cleaners of Vehicles and Equipment</i>	<i>22,590</i>	<i>\$ 25,222</i>	<i>Less Than High School</i>	<i>23,230</i>	<i>26,000</i>	<i>2,770</i>	<i>11.9%</i>
United States	13-1041	Compliance Officers	246,970	\$64,950	Bachelor's Degree	239,800	250,800	11,000	4.6%
AK	13-1041	Compliance Officers	680	\$70,510	Bachelor's Degree	770	800	30	3.9%
HI	13-1041	Compliance Officers	1,030	\$65,220	Bachelor's Degree	1,460	1,480	20	1.4%
ID	13-1041	Compliance Officers	1,120	\$54,690	Bachelor's Degree	1,080	1,210	130	12.0%
MT	13-1041	Compliance Officers	950	\$53,680	Bachelor's Degree	830	900	70	8.4%
ND	13-1041	Compliance Officers	1,200	\$56,710	Bachelor's Degree	1,120	1,240	120	10.7%
NE	13-1041	Compliance Officers	2,830	\$57,550	Bachelor's Degree	3,190	3,450	260	8.2%
OR	13-1041	Compliance Officers	2,620	\$62,150	Bachelor's Degree	2,380	2,640	260	10.9%
SD	13-1041	Compliance Officers	1,160	\$46,000	Bachelor's Degree	900	960	60	6.7%
WA	13-1041	Compliance Officers		\$64,190	Bachelor's Degree	6,520	7,080	560	8.6%
WY	13-1041	Compliance Officers	450	\$59,750	Bachelor's Degree	400	440	40	10.0%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
<i>West Region</i>	<i>13-1041</i>	<i>Compliance Officers</i>	<i>12,040</i>		<i>Bachelor's Degree</i>	<i>18,650</i>	<i>20,200</i>	<i>1,550</i>	<i>8.3%</i>
United States	47-2061	Construction Laborers	852,870	\$31,090	Less Than High School	1,071,100	1,331,000	259,900	24.3%
AK	47-2061	Construction Laborers	3,420	\$42,440	Less Than High School	4,250	4,680	430	10.1%
HI	47-2061	Construction Laborers	4,220	\$47,490	Less Than High School	4,110	5,270	1,160	28.2%
ID	47-2061	Construction Laborers	4,500	\$27,600	Less Than High School	5,610	7,250	1,640	29.2%
MT	47-2061	Construction Laborers	3,860	\$32,410	Less Than High School	3,990	4,990	1,000	25.1%
ND	47-2061	Construction Laborers	6,220	\$35,580	Less Than High School	5,290	6,210	920	17.4%
NE	47-2061	Construction Laborers	3,550	\$27,500	Less Than High School	4,350	5,310	960	22.1%
OR	47-2061	Construction Laborers	10,290	\$33,910	Less Than High School	8,070	10,390	2,320	28.7%
SD	47-2061	Construction Laborers	1,850	\$26,350	Less Than High School	2,640	2,900	260	9.8%
WA	47-2061	Construction Laborers	19,310	\$38,170	Less Than High School	22,740	30,730	7,990	35.1%
WY	47-2061	Construction Laborers	3,230	\$31,820	Less Than High School	3,910	4,570	660	16.9%
<i>West Region</i>	<i>47-2061</i>	<i>Construction Laborers</i>	<i>60,450</i>	<i>\$38,597</i>	<i>Less Than High School</i>	<i>64,960</i>	<i>82,300</i>	<i>17,340</i>	<i>26.7%</i>
United States	11-9021	Construction Managers	227,710	\$85,630	Bachelor's Degree	485,000	563,200	78,200	16.1%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
AK	11-9021	Construction Managers	1,150	\$119,520	Bachelor's Degree	1,040	1,180	140	13.5%
HI	11-9021	Construction Managers	1,630	\$90,820	Bachelor's Degree	2,760	3,220	460	16.7%
ID	11-9021	Construction Managers	1,210	\$65,270	Bachelor's Degree	2,470	2,820	350	14.2%
MT	11-9021	Construction Managers	550	\$78,040	Bachelor's Degree	940	1,030	90	9.6%
ND	11-9021	Construction Managers	750	\$72,120	Bachelor's Degree	1,090	1,210	120	11.0%
NE	11-9021	Construction Managers	2,070	\$72,900	Bachelor's Degree	3,550	4,070	520	14.6%
OR	11-9021	Construction Managers	4,300	\$84,900	Bachelor's Degree	2,930	3,670	740	25.3%
SD	11-9021	Construction Managers	210	\$85,080	Bachelor's Degree	510	560	50	9.8%
WA	11-9021	Construction Managers	5,090	\$92,710	Bachelor's Degree	13,220	17,210	3,990	30.2%
WY	11-9021	Construction Managers	460	\$83,200	Bachelor's Degree	930	1,020	90	9.7%
<i>West Region</i>	<i>11-9021</i>	<i>Construction Managers</i>	<i>17,420</i>	<i>\$92,707</i>	<i>Bachelor's Degree</i>	<i>29,440</i>	<i>35,990</i>	<i>6,550</i>	<i>22.2%</i>
United States	53-7011	Conveyor Operators and Tenders	38,830	\$31,220	Less Than High School	39,100	40,500	1,400	3.6%
AK	53-7011	Conveyor Operators and Tenders			Less Than High School	30	40	10	33.3%
HI	53-7011	Conveyor Operators and Tenders	170	\$32,400	Less Than High School	130	130	0	0.0%

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
ID	53-7011	Conveyor Operators and Tenders	270	\$32,690	Less Than High School	260	310	50	19.2%
MT	53-7011	Conveyor Operators and Tenders	200	\$30,790	Less Than High School	230	270	40	17.4%
ND	53-7011	Conveyor Operators and Tenders	520	\$32,680	Less Than High School	530	630	100	18.9%
NE	53-7011	Conveyor Operators and Tenders	1,490	\$28,740	Less Than High School	1,340	1,430	90	6.7%
OR	53-7011	Conveyor Operators and Tenders	440	\$33,100	Less Than High School	320	380	60	18.8%
SD	53-7011	Conveyor Operators and Tenders	560	\$28,480	Less Than High School	530	560	30	5.7%
WA	53-7011	Conveyor Operators and Tenders	730	\$37,620	Less Than High School	890	950	60	6.7%
WY	53-7011	Conveyor Operators and Tenders	50	\$57,410	Less Than High School	70	60	-10	-14.3%
<i>West Region</i>	<i>53-7011</i>	<i>Conveyor Operators and Tenders</i>	<i>4,430</i>	<i>\$32,938</i>	<i>Less Than High School</i>	<i>4,330</i>	<i>4,760</i>	<i>430</i>	<i>9.9%</i>
United States	53-7021	Crane and Tower Operators	44,540	\$50,720	High School Diploma or Equivalent	43,800	51,200	7,400	16.9%
AK	53-7021	Crane and Tower Operators	140	\$67,930	High School Diploma or Equivalent	120	130	10	8.3%
HI	53-7021	Crane and Tower Operators	130	\$74,020	High School Diploma or Equivalent	120	120	0	0.0%
ID	53-7021	Crane and Tower Operators	120	\$53,850	High School Diploma or Equivalent	130	160	30	23.1%
MT	53-7021	Crane and Tower Operators	130	\$68,710	High School Diploma or Equivalent	90	120	30	33.3%

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
ND	53-7021	Crane and Tower Operators	420	\$56,080	High School Diploma or Equivalent	330	430	100	30.3%
NE	53-7021	Crane and Tower Operators	330	\$45,190	High School Diploma or Equivalent	220	260	40	18.2%
OR	53-7021	Crane and Tower Operators	390	\$54,940	High School Diploma or Equivalent	530	660	130	24.5%
SD	53-7021	Crane and Tower Operators	100	\$45,450	High School Diploma or Equivalent	60	70	10	16.7%
WA	53-7021	Crane and Tower Operators	1,310	\$74,180	High School Diploma or Equivalent	1,530	1,750	220	14.4%
WY	53-7021	Crane and Tower Operators	100	\$65,830	High School Diploma or Equivalent	120	140	20	16.7%
<i>West Region</i>	<i>53-7021</i>	<i>Crane and Tower Operators</i>	<i>3,170</i>	<i>\$63,857</i>	<i>High School Diploma or Equivalent</i>	<i>3,250</i>	<i>3,840</i>	<i>590</i>	<i>18.2%</i>
United States	43-5032	Dispatchers, Except Police, Fire, and Ambulance	190,330	\$36,690	High School Diploma or Equivalent	190,900	212,300	21,400	11.2%
AK	43-5032	Dispatchers, Except Police, Fire, and Ambulance	880	\$44,830	High School Diploma or Equivalent	500	540	40	8.0%
HI	43-5032	Dispatchers, Except Police, Fire, and Ambulance	900	\$40,360	High School Diploma or Equivalent	800	910	110	13.8%
ID	43-5032	Dispatchers, Except Police, Fire, and Ambulance	810	\$35,620	High School Diploma or Equivalent	900	1,040	140	15.6%
MT	43-5032	Dispatchers, Except Police, Fire, and Ambulance	600	\$35,090	High School Diploma or Equivalent	650	770	120	18.5%
ND	43-5032	Dispatchers, Except Police, Fire, and Ambulance	950	\$46,230	High School Diploma or Equivalent	820	950	130	15.9%
NE	43-5032	Dispatchers, Except Police, Fire, and Ambulance	1,690	\$40,220	High School Diploma or Equivalent	1,520	1,690	170	11.2%

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
OR	43-5032	Dispatchers, Except Police, Fire, and Ambulance	2,870	\$34,710	High School Diploma or Equivalent	2,560	2,920	360	14.1%
SD	43-5032	Dispatchers, Except Police, Fire, and Ambulance	400	\$28,960	High School Diploma or Equivalent	470	500	30	6.4%
WA	43-5032	Dispatchers, Except Police, Fire, and Ambulance	3,920	\$42,200	High School Diploma or Equivalent	4,000	4,740	740	18.5%
WY	43-5032	Dispatchers, Except Police, Fire, and Ambulance	330	\$41,810	High School Diploma or Equivalent	330	370	40	12.1%
<i>West Region</i>	43-5032	<i>Dispatchers, Except Police, Fire, and Ambulance</i>	<i>13,350</i>	<i>\$ 42,360</i>	<i>High School Diploma or Equivalent</i>	<i>12,550</i>	<i>14,430</i>	<i>1,880</i>	<i>15.0%</i>
United States	53-3031	Driver/Sales Workers	405,810	\$22,250	High School Diploma or Equivalent	432,000	468,800	36,800	8.5%
AK	53-3031	Driver/Sales Workers	1,230	\$29,500	High School Diploma or Equivalent	1,030	1,160	130	12.6%
HI	53-3031	Driver/Sales Workers	1,550	\$29,540	High School Diploma or Equivalent	1,490	1,660	170	11.4%
ID	53-3031	Driver/Sales Workers	2,590	\$25,930	High School Diploma or Equivalent	2,760	3,340	580	21.0%
MT	53-3031	Driver/Sales Workers	2,070	\$22,070	High School Diploma or Equivalent	2,660	2,960	300	11.3%
ND	53-3031	Driver/Sales Workers	1,300	\$23,780	High School Diploma or Equivalent	1,760	2,000	240	13.6%
NE	53-3031	Driver/Sales Workers	3,630	\$20,620	High School Diploma or Equivalent	3,410	3,670	260	7.6%
OR	53-3031	Driver/Sales Workers	6,460	\$27,600	High School Diploma or Equivalent	6,150	7,000	850	13.8%
SD	53-3031	Driver/Sales Workers	1,640	\$24,170	High School Diploma or Equivalent	1,740	1,880	140	8.0%

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
WA	53-3031	Driver/Sales Workers	7,870	\$24,190	High School Diploma or Equivalent	8,250	9,450	1,200	14.5%
WY	53-3031	Driver/Sales Workers	1,460	\$21,780	High School Diploma or Equivalent	1,170	1,280	110	9.4%
<i>West Region</i>	<i>53-3031</i>	<i>Driver/Sales Workers</i>	<i>29,800</i>	<i>\$28,543</i>	<i>High School Diploma or Equivalent</i>	<i>30,420</i>	<i>34,400</i>	<i>3,980</i>	<i>13.1%</i>
United States	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	14,160	\$56,000	Postsecondary Non-Degree Award	15,900	16,200	300	1.9%
AK	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment			Postsecondary Non-Degree Award	80	80	0	0.0%
HI	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment			Postsecondary Non-Degree Award	60	60	0	0.0%
ID	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment			Postsecondary Non-Degree Award	40	50	10	25.0%
MT	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment		\$81,590	Postsecondary Non-Degree Award	30	30	0	0.0%
ND	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	70	\$52,250	Postsecondary Non-Degree Award	80	90	10	12.5%
NE	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	450	\$58,510	Postsecondary Non-Degree Award	40	50	10	25.0%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
OR	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	300	\$51,270	Postsecondary Non-Degree Award	230	260	30	13.0%
SD	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment		\$29,250	Postsecondary Non-Degree Award	50	50	0	0.0%
WA	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	420	\$64,190	Postsecondary Non-Degree Award	550	570	20	3.6%
WY	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	60	\$57,970	Postsecondary Non-Degree Award				NA
<i>West Region</i>	<i>49-2093</i>	<i>Electrical and Electronics Installers and Repairers, Transportation Equipment</i>	<i>1,300</i>	<i>\$57,409</i>	<i>Postsecondary Non-Degree Award</i>	<i>1,160</i>	<i>1,240</i>	<i>80</i>	<i>6.9%</i>
United States	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	11,460	\$31,020	Postsecondary Non-Degree Award	14,600	13,700	-900	-6.2%
AK	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles			Postsecondary Non-Degree Award	30	40	10	33.3%
HI	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles		\$23,780	Postsecondary Non-Degree Award	290	290	0	0.0%
ID	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles			Postsecondary Non-Degree Award	40	40	0	0.0%
MT	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles		\$34,900	Postsecondary Non-Degree Award	170	170	0	0.0%
ND	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	80	\$31,850	Postsecondary Non-Degree Award	80	80	0	0.0%
NE	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles			Postsecondary Non-Degree Award	40	30	-10	-25.0%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
OR	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	120	\$35,300	Postsecondary Non-Degree Award	250	240	-10	-4.0%
SD	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles		\$22,670	Postsecondary Non-Degree Award				NA
WA	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	180	\$51,930	Postsecondary Non-Degree Award	380	410	30	7.9%
WY	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles			Postsecondary Non-Degree Award				NA
<i>West Region</i>	<i>49-2096</i>	<i>Electronic Equipment Installers and Repairers, Motor Vehicles</i>	<i>380</i>	<i>\$41,748</i>	<i>Postsecondary Non-Degree Award</i>	<i>1,280</i>	<i>1,300</i>	<i>20</i>	<i>1.6%</i>
United States	17-3029	Engineering Technicians, Except Drafters, All Other	67,640	\$61,580	Associate's Degree	67,700	68,300	600	0.9%
AK	17-3029	Engineering Technicians, Except Drafters, All Other	290	\$70,400	Associate's Degree	600	630	30	5.0%
HI	17-3029	Engineering Technicians, Except Drafters, All Other	370	\$72,980	Associate's Degree	560	510	-50	-8.9%
ID	17-3029	Engineering Technicians, Except Drafters, All Other	330	\$51,530	Associate's Degree	350	380	30	8.6%
MT	17-3029	Engineering Technicians, Except Drafters, All Other	210	\$62,310	Associate's Degree	310	340	30	9.7%
ND	17-3029	Engineering Technicians, Except Drafters, All Other	170	\$44,630	Associate's Degree	230	280	50	21.7%
NE	17-3029	Engineering Technicians, Except Drafters, All Other	160	\$62,310	Associate's Degree	200	210	10	5.0%
OR	17-3029	Engineering Technicians, Except Drafters, All Other	990	\$53,420	Associate's Degree	1,670	1,790	120	7.2%
SD	17-3029	Engineering Technicians, Except Drafters, All Other	80	\$57,960	Associate's Degree				NA

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
WA	17-3029	Engineering Technicians, Except Drafters, All Other	1,870	\$75,770	Associate's Degree	1,990	2,050	60	3.0%
WY	17-3029	Engineering Technicians, Except Drafters, All Other	310	\$67,160	Associate's Degree	240	250	10	4.2%
<i>West Region</i>	<i>17-3029</i>	<i>Engineering Technicians, Except Drafters, All Other</i>	<i>4,780</i>	<i>\$65,317</i>	<i>Associate's Degree</i>	<i>6,150</i>	<i>6,440</i>	<i>290</i>	<i>4.7%</i>
United States	53-7032	Excavating and Loading Machine and Dragline Operators	47,470	\$39,830	High School Diploma or Equivalent	50,700	58,900	8,200	16.2%
AK	53-7032	Excavating and Loading Machine and Dragline Operators	120	\$47,300	High School Diploma or Equivalent	310	340	30	9.7%
HI	53-7032	Excavating and Loading Machine and Dragline Operators	50	\$47,550	High School Diploma or Equivalent				NA
ID	53-7032	Excavating and Loading Machine and Dragline Operators	320	\$36,570	High School Diploma or Equivalent	410	520	110	26.8%
MT	53-7032	Excavating and Loading Machine and Dragline Operators	210	\$39,470	High School Diploma or Equivalent	230	280	50	21.7%
ND	53-7032	Excavating and Loading Machine and Dragline Operators	850	\$48,110	High School Diploma or Equivalent	680	810	130	19.1%
NE	53-7032	Excavating and Loading Machine and Dragline Operators	490	\$35,510	High School Diploma or Equivalent	570	680	110	19.3%
OR	53-7032	Excavating and Loading Machine and Dragline Operators	950	\$41,160	High School Diploma or Equivalent	930	1,150	220	23.7%
SD	53-7032	Excavating and Loading Machine and Dragline Operators	440	\$34,240	High School Diploma or Equivalent	280	310	30	10.7%
WA	53-7032	Excavating and Loading Machine and Dragline Operators	880	\$60,490	High School Diploma or Equivalent	850	1,040	190	22.4%
WY	53-7032	Excavating and Loading Machine and Dragline Operators	900	\$63,760	High School Diploma or Equivalent	1,200	1,250	50	4.2%

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
<i>West Region</i>	<i>53-7032</i>	<i>Excavating and Loading Machine and Dragline Operators</i>	<i>5,210</i>	<i>\$ 50,593</i>	<i>High School Diploma or Equivalent</i>	<i>5,460</i>	<i>6,380</i>	<i>920</i>	<i>16.8%</i>
United States	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	7,970	\$52,140	High School Diploma or Equivalent	6,500	6,900	400	6.2%
AK	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	90	\$68,060	High School Diploma or Equivalent	60	70	10	16.7%
HI	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters		\$64,450	High School Diploma or Equivalent				NA
ID	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters		\$54,330	High School Diploma or Equivalent				NA
MT	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	440	\$56,000	High School Diploma or Equivalent	540	640	100	18.5%
ND	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters			High School Diploma or Equivalent				NA
NE	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters			High School Diploma or Equivalent				NA
OR	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters			High School Diploma or Equivalent				NA
SD	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters			High School Diploma or Equivalent	20	20	0	0.0%
WA	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters		\$68,580	High School Diploma or Equivalent	120	110	-10	-8.3%
WY	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	340	\$68,200	High School Diploma or Equivalent	280	270	-10	-3.6%
<i>West Region</i>	<i>47-5031</i>	<i>Explosives Workers, Ordnance Handling Experts, and Blasters</i>	<i>870</i>	<i>\$ 61,407</i>	<i>High School Diploma or Equivalent</i>	<i>1,020</i>	<i>1,110</i>	<i>90</i>	<i>8.8%</i>

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	496,370	\$60,990	High School Diploma or Equivalent	545,500	673,800	128,300	23.5%
AK	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	1,510	\$84,220	High School Diploma or Equivalent	970	1,120	150	15.5%
HI	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	2,240	\$76,880	High School Diploma or Equivalent	2,600	3,240	640	24.6%
ID	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	2,530	\$51,830	High School Diploma or Equivalent	2,920	3,710	790	27.1%
MT	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	2,950	\$58,030	High School Diploma or Equivalent	2,290	2,930	640	27.9%
ND	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	4,950	\$70,940	High School Diploma or Equivalent	4,050	4,520	470	11.6%
NE	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	4,070	\$55,250	High School Diploma or Equivalent	4,470	5,400	930	20.8%
OR	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	4,630	\$58,390	High School Diploma or Equivalent	4,320	5,470	1,150	26.6%
SD	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	1,250	\$56,180	High School Diploma or Equivalent	1,570	1,750	180	11.5%
WA	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	11,630	\$74,760	High School Diploma or Equivalent	15,030	19,910	4,880	32.5%
WY	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	3,190	\$65,660	High School Diploma or Equivalent	3,740	4,320	580	15.5%
<i>West Region</i>	<i>47-1011</i>	<i>First-Line Supervisors of Construction Trades and Extraction Workers</i>	<i>38,950</i>	<i>\$66,936</i>	<i>High School Diploma or Equivalent</i>	<i>41,960</i>	<i>52,370</i>	<i>10,410</i>	<i>24.8%</i>
United States	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	171,720	\$46,690	High School Diploma or Equivalent	171,600	186,300	14,700	8.6%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
AK	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	310	\$39,780	High School Diploma or Equivalent	290	320	30	10.3%
HI	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	680	\$44,540	High School Diploma or Equivalent	650	710	60	9.2%
ID	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	760	\$40,690	High School Diploma or Equivalent	770	860	90	11.7%
MT	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	510	\$44,370	High School Diploma or Equivalent				NA
ND	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	1,050	\$44,800	High School Diploma or Equivalent	660	770	110	16.7%
NE	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	1,620	\$47,390	High School Diploma or Equivalent	1,720	1,870	150	8.7%
OR	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	1,670	\$38,710	High School Diploma or Equivalent	1,760	1,990	230	13.1%
SD	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	260	\$42,230	High School Diploma or Equivalent				NA
WA	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	3,150	\$51,470	High School Diploma or Equivalent	3,030	3,480	450	14.9%
WY	53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	260	\$46,870	High School Diploma or Equivalent				NA
<i>West Region</i>	<i>53-1021</i>	<i>First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand</i>	<i>10,270</i>	<i>\$49,287</i>	<i>High School Diploma or Equivalent</i>	<i>8,880</i>	<i>10,000</i>	<i>1,120</i>	<i>12.6%</i>
United States	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	434,810	\$62,150	High School Diploma or Equivalent	436,400	470,300	33,900	7.8%
AK	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	1,140	\$80,360	High School Diploma or Equivalent	720	790	70	9.7%
HI	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	2,370	\$70,340	High School Diploma or Equivalent	2,770	2,990	220	7.9%

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ID	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	2,300	\$55,570	High School Diploma or Equivalent	2,310	2,650	340	14.7%
MT	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	1,780	\$60,030	High School Diploma or Equivalent	1,630	1,850	220	13.5%
ND	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	2,020	\$65,090	High School Diploma or Equivalent	1,750	2,000	250	14.3%
NE	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	3,270	\$61,520	High School Diploma or Equivalent	4,270	4,560	290	6.8%
OR	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	4,370	\$64,540	High School Diploma or Equivalent	4,470	4,950	480	10.7%
SD	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	970	\$65,730	High School Diploma or Equivalent	950	1,010	60	6.3%
WA	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	9,320	\$68,730	High School Diploma or Equivalent	9,460	10,790	1,330	14.1%
WY	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	1,820	\$72,440	High School Diploma or Equivalent	1,720	1,880	160	9.3%
<i>West Region</i>	<i>49-1011</i>	<i>First-Line Supervisors of Mechanics, Installers, and Repairers</i>	<i>29,360</i>	<i>\$66,936</i>	<i>High School Diploma or Equivalent</i>	<i>30,050</i>	<i>33,470</i>	<i>3,420</i>	<i>11.4%</i>
United States	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	197,000	\$54,930	High School Diploma or Equivalent	201,000	218,300	17,300	8.6%
AK	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	390	\$61,830	High School Diploma or Equivalent	350	380	30	8.6%
HI	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	920	\$49,180	High School Diploma or Equivalent	850	940	90	10.6%

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ID	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	790	\$47,090	High School Diploma or Equivalent	970	1,120	150	15.5%
MT	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	800	\$54,950	High School Diploma or Equivalent	960	1,110	150	15.6%
ND	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	1,140	\$58,650	High School Diploma or Equivalent	1,260	1,530	270	21.4%
NE	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	1,320	\$51,760	High School Diploma or Equivalent	1,200	1,340	140	11.7%
OR	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	2,400	\$53,380	High School Diploma or Equivalent	2,850	3,210	360	12.6%
SD	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	510	\$56,610	High School Diploma or Equivalent	480	510	30	6.3%
WA	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	5,000	\$62,440	High School Diploma or Equivalent	4,740	5,350	610	12.9%
WY	53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	1,020	\$60,320	High School Diploma or Equivalent	920	1,030	110	12.0%
<i>West Region</i>	<i>53-1031</i>	<i>First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators</i>	<i>14,290</i>	<i>\$60,380</i>	<i>High School Diploma or Equivalent</i>	<i>14,580</i>	<i>16,520</i>	<i>1,940</i>	<i>13.3%</i>
United States	53-3032	Heavy and Tractor-Trailer Truck Drivers	1,625,290	\$39,520	Postsecondary Non-Degree Award	1,701,500	1,894,100	192,600	11.3%

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AK	53-3032	Heavy and Tractor-Trailer Truck Drivers	2,890	\$52,290	Postsecondary Non-Degree Award	2,730	3,110	380	13.9%
HI	53-3032	Heavy and Tractor-Trailer Truck Drivers	3,450	\$43,040	Postsecondary Non-Degree Award	3,860	4,450	590	15.3%
ID	53-3032	Heavy and Tractor-Trailer Truck Drivers	12,080	\$35,920	Postsecondary Non-Degree Award	12,220	13,880	1,660	13.6%
MT	53-3032	Heavy and Tractor-Trailer Truck Drivers	6,430	\$41,440	Postsecondary Non-Degree Award	7,070	8,320	1,250	17.7%
ND	53-3032	Heavy and Tractor-Trailer Truck Drivers	16,630	\$47,010	Postsecondary Non-Degree Award	15,950	16,340	390	2.4%
NE	53-3032	Heavy and Tractor-Trailer Truck Drivers	26,080	\$41,720	Postsecondary Non-Degree Award	28,000	32,710	4,710	16.8%
OR	53-3032	Heavy and Tractor-Trailer Truck Drivers	21,330	\$38,650	Postsecondary Non-Degree Award	21,630	25,050	3,420	15.8%
SD	53-3032	Heavy and Tractor-Trailer Truck Drivers	7,550	\$36,570	Postsecondary Non-Degree Award	8,790	9,300	510	5.8%
WA	53-3032	Heavy and Tractor-Trailer Truck Drivers	30,060	\$42,260	Postsecondary Non-Degree Award	33,270	38,890	5,620	16.9%
WY	53-3032	Heavy and Tractor-Trailer Truck Drivers	6,980	\$46,300	Postsecondary Non-Degree Award	7,080	7,900	820	11.6%
<i>West Region</i>	<i>53-3032</i>	<i>Heavy and Tractor-Trailer Truck Drivers</i>	<i>133,480</i>	<i>\$43,451</i>	<i>Postsecondary Non-Degree Award</i>	<i>140,600</i>	<i>159,950</i>	<i>19,350</i>	<i>13.8%</i>
United States	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	51,350	\$27,710	High School Diploma or Equivalent	47,400	60,600	13,200	27.8%
AK	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters			High School Diploma or Equivalent	130	140	10	7.7%
HI	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	90		High School Diploma or Equivalent	140	180	40	28.6%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
ID	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	210	\$25,140	High School Diploma or Equivalent	170	230	60	35.3%
MT	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	90	\$26,110	High School Diploma or Equivalent	70	90	20	28.6%
ND	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	330	\$32,630	High School Diploma or Equivalent	130	160	30	23.1%
NE	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	390	\$24,290	High School Diploma or Equivalent	420	510	90	21.4%
OR	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	100	\$31,550	High School Diploma or Equivalent	100	130	30	30.0%
SD	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	170	\$26,490	High School Diploma or Equivalent	190	220	30	15.8%
WA	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	720	\$50,680	High School Diploma or Equivalent	670	910	240	35.8%
WY	47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	210	\$31,810	High School Diploma or Equivalent	220	270	50	22.7%
<i>West Region</i>	<i>47-3015</i>	<i>Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters</i>	<i>2,310</i>	<i>\$32,753</i>	<i>High School Diploma or Equivalent</i>	<i>2,240</i>	<i>2,840</i>	<i>600</i>	<i>26.8%</i>
United States	47-4051	Highway Maintenance Workers	140,650	\$36,580	High School Diploma or Equivalent	147,600	155,900	8,300	5.6%
AK	47-4051	Highway Maintenance Workers	90	\$57,190	High School Diploma or Equivalent	220	230	10	4.5%
HI	47-4051	Highway Maintenance Workers			High School Diploma or Equivalent				NA
ID	47-4051	Highway Maintenance Workers	1,370	\$35,640	High School Diploma or Equivalent	1,360	1,420	60	4.4%
MT	47-4051	Highway Maintenance Workers	990	\$40,360	High School Diploma or Equivalent	950	1,040	90	9.5%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
ND	47-4051	Highway Maintenance Workers	1,220	\$42,540	High School Diploma or Equivalent	1,270	1,380	110	8.7%
NE	47-4051	Highway Maintenance Workers	2,570	\$32,890	High School Diploma or Equivalent	2,560	2,740	180	7.0%
OR	47-4051	Highway Maintenance Workers	1,530	\$44,230	High School Diploma or Equivalent	1,640	1,760	120	7.3%
SD	47-4051	Highway Maintenance Workers	1,570	\$29,480	High School Diploma or Equivalent	1,330	1,380	50	3.8%
WA	47-4051	Highway Maintenance Workers	2,250	\$45,120	High School Diploma or Equivalent	2,450	2,550	100	4.1%
WY	47-4051	Highway Maintenance Workers	730	\$38,280	High School Diploma or Equivalent	620	630	10	1.6%
<i>West Region</i>	<i>47-4051</i>	<i>Highway Maintenance Workers</i>	<i>12,320</i>	<i>\$38,805</i>	<i>High School Diploma or Equivalent</i>	<i>12,400</i>	<i>13,130</i>	<i>730</i>	<i>5.9%</i>
United States	53-7041	Hoist and Winch Operators	2,840	\$39,580	Less Than High School	3,100	3,200	100	3.2%
AK	53-7041	Hoist and Winch Operators			Less Than High School				NA
HI	53-7041	Hoist and Winch Operators			Less Than High School				NA
ID	53-7041	Hoist and Winch Operators			Less Than High School				NA
MT	53-7041	Hoist and Winch Operators			Less Than High School				NA
ND	53-7041	Hoist and Winch Operators			Less Than High School				NA
NE	53-7041	Hoist and Winch Operators	40	\$27,740	Less Than High School	70	70	0	0.0%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
OR	53-7041	Hoist and Winch Operators	60	\$37,800	Less Than High School	160	190	30	18.8%
SD	53-7041	Hoist and Winch Operators			Less Than High School				NA
WA	53-7041	Hoist and Winch Operators	40	\$39,250	Less Than High School	70	80	10	14.3%
WY	53-7041	Hoist and Winch Operators			Less Than High School				NA
<i>West Region</i>	<i>53-7041</i>	<i>Hoist and Winch Operators</i>	<i>140</i>	<i>\$ 43,970</i>	<i>Less Than High School</i>	<i>300</i>	<i>340</i>	<i>40</i>	<i>13.3%</i>
United States	53-7051	Industrial Truck and Tractor Operators	521,840	\$31,340	Less Than High School	508,600	495,000	-13,600	-2.7%
AK	53-7051	Industrial Truck and Tractor Operators	770	\$46,060	Less Than High School	540	610	70	13.0%
HI	53-7051	Industrial Truck and Tractor Operators	790	\$39,100	Less Than High School	960	970	10	1.0%
ID	53-7051	Industrial Truck and Tractor Operators	2,630	\$30,800	Less Than High School	2,690	2,810	120	4.5%
MT	53-7051	Industrial Truck and Tractor Operators	940	\$31,930	Less Than High School	1,340	1,450	110	8.2%
ND	53-7051	Industrial Truck and Tractor Operators	1,110	\$36,970	Less Than High School	1,250	1,340	90	7.2%
NE	53-7051	Industrial Truck and Tractor Operators	3,070	\$30,480	Less Than High School	3,460	3,300	-160	-4.6%
OR	53-7051	Industrial Truck and Tractor Operators	9,140	\$34,270	Less Than High School	9,390	9,610	220	2.3%
SD	53-7051	Industrial Truck and Tractor Operators	1,130	\$30,820	Less Than High School	1,170	1,140	-30	-2.6%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
WA	53-7051	Industrial Truck and Tractor Operators	12,660	\$37,070	Less Than High School	12,490	13,940	1,450	11.6%
WY	53-7051	Industrial Truck and Tractor Operators	1,120	\$36,160	Less Than High School	960	980	20	2.1%
<i>West Region</i>	<i>53-7051</i>	<i>Industrial Truck and Tractor Operators</i>	<i>33,360</i>	<i>\$37,201</i>	<i>Less Than High School</i>	<i>34,250</i>	<i>36,150</i>	<i>1,900</i>	<i>5.5%</i>
United States	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	2,400,490	\$24,430	Less Than High School	2,197,300	2,439,200	241,900	11.0%
AK	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	4,860	\$31,780	Less Than High School	5,180	5,650	470	9.1%
HI	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	7,450	\$27,890	Less Than High School	6,980	7,800	820	11.7%
ID	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	8,560	\$25,140	Less Than High School	8,570	9,950	1,380	16.1%
MT	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	5,140	\$26,080	Less Than High School	4,100	4,780	680	16.6%
ND	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	7,860	\$29,060	Less Than High School	5,920	6,730	810	13.7%
NE	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	17,720	\$25,910	Less Than High School	18,110	19,820	1,710	9.4%
OR	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	22,940	\$26,300	Less Than High School	22,300	25,510	3,210	14.4%
SD	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	6,960	\$23,480	Less Than High School	7,260	7,770	510	7.0%
WA	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	45,860	\$27,900	Less Than High School	43,440	49,750	6,310	14.5%
WY	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	3,350	\$30,380	Less Than High School	2,270	2,630	360	15.9%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
<i>West Region</i>	53-7062	<i>Laborers and Freight, Stock, and Material Movers, Hand</i>	130,700	\$ 29,375	<i>Less Than High School</i>	124,130	140,390	16,260	13.1%
United States	53-3033	Light Truck or Delivery Services Drivers	797,010	\$29,570	High School Diploma or Equivalent	841,600	873,600	32,000	3.8%
AK	53-3033	Light Truck or Delivery Services Drivers	1,630	\$36,940	High School Diploma or Equivalent	1,500	1,670	170	11.3%
HI	53-3033	Light Truck or Delivery Services Drivers	4,510	\$29,000	High School Diploma or Equivalent	4,370	4,690	320	7.3%
ID	53-3033	Light Truck or Delivery Services Drivers	3,650	\$27,550	High School Diploma or Equivalent	3,820	4,220	400	10.5%
MT	53-3033	Light Truck or Delivery Services Drivers	2,720	\$28,300	High School Diploma or Equivalent	3,030	3,460	430	14.2%
ND	53-3033	Light Truck or Delivery Services Drivers	3,040	\$32,070	High School Diploma or Equivalent	3,550	4,080	530	14.9%
NE	53-3033	Light Truck or Delivery Services Drivers	5,010	\$26,980	High School Diploma or Equivalent	5,070	5,300	230	4.5%
OR	53-3033	Light Truck or Delivery Services Drivers	7,770	\$30,060	High School Diploma or Equivalent	8,210	9,110	900	11.0%
SD	53-3033	Light Truck or Delivery Services Drivers	2,310	\$28,170	High School Diploma or Equivalent	2,440	2,480	40	1.6%
WA	53-3033	Light Truck or Delivery Services Drivers	17,030	\$33,020	High School Diploma or Equivalent	18,990	20,970	1,980	10.4%
WY	53-3033	Light Truck or Delivery Services Drivers	1,300	\$31,470	High School Diploma or Equivalent	1,480	1,690	210	14.2%
<i>West Region</i>	53-3033	<i>Light Truck or Delivery Services Drivers</i>	48,970	\$ 34,644	<i>High School Diploma or Equivalent</i>	52,460	57,670	5,210	9.9%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	53-4011	Locomotive Engineers	38,470	\$54,500	High School Diploma or Equivalent	38,000	36,500	-1,500	-3.9%
AK	53-4011	Locomotive Engineers			High School Diploma or Equivalent	90	70	-20	-22.2%
HI	53-4011	Locomotive Engineers			High School Diploma or Equivalent				NA
ID	53-4011	Locomotive Engineers	300	\$52,730	High School Diploma or Equivalent	330	360	30	9.1%
MT	53-4011	Locomotive Engineers		\$52,820	High School Diploma or Equivalent				NA
ND	53-4011	Locomotive engineers			High School Diploma or Equivalent				NA
NE	53-4011	Locomotive Engineers	980	\$54,030	High School Diploma or Equivalent	2,470	2,670	200	8.1%
OR	53-4011	Locomotive Engineers	510	\$55,660	High School Diploma or Equivalent	430	450	20	4.7%
SD	53-4011	Locomotive Engineers	120	\$51,730	High School Diploma or Equivalent				NA
WA	53-4011	Locomotive Engineers		\$80,520	High School Diploma or Equivalent	880	1,030	150	17.0%
WY	53-4011	Locomotive Engineers			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>53-4011</i>	<i>Locomotive Engineers</i>	<i>1,910</i>	<i>\$ 56,012</i>	<i>High School Diploma or Equivalent</i>	<i>4,200</i>	<i>4,580</i>	<i>380</i>	<i>9.0%</i>
United States	13-1081	Logisticians	125,670	\$73,870	Bachelor's Degree	125,900	153,600	27,700	22.0%
AK	13-1081	Logisticians	280	\$82,330	Bachelor's Degree	260	260	0	0.0%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
HI	13-1081	Logisticians	390	\$80,870	Bachelor's Degree	510	570	60	11.8%
ID	13-1081	Logisticians	280	\$63,600	Bachelor's Degree	390	510	120	30.8%
MT	13-1081	Logisticians	100	\$59,690	Bachelor's Degree				NA
ND	13-1081	Logisticians	240	\$56,520	Bachelor's Degree	210	280	70	33.3%
NE	13-1081	Logisticians	330	\$64,640	Bachelor's Degree	480	580	100	20.8%
OR	13-1081	Logisticians	970	\$65,820	Bachelor's Degree	830	1,050	220	26.5%
SD	13-1081	Logisticians	80	\$59,920	Bachelor's Degree	170	230	60	35.3%
WA	13-1081	Logisticians	5,750		Bachelor's Degree	6,220	5,980	-240	-3.9%
WY	13-1081	Logisticians	100	\$71,670	Bachelor's Degree	50	60	10	20.0%
<i>West Region</i>	<i>13-1081</i>	<i>Logisticians</i>	<i>8,520</i>	<i>\$68,670</i>	<i>Bachelor's Degree</i>	<i>9,120</i>	<i>9,520</i>	<i>400</i>	<i>4.4%</i>
United States	49-9071	Maintenance and Repair Workers, General	1,282,920	\$36,170	High School Diploma or Equivalent	1,325,100	1,450,300	125,200	9.4%
AK	49-9071	Maintenance and Repair Workers, General	4,310	\$47,110	High School Diploma or Equivalent	3,260	3,510	250	7.7%
HI	49-9071	Maintenance and Repair Workers, General	7,160	\$42,070	High School Diploma or Equivalent	7,310	8,140	830	11.4%
ID	49-9071	Maintenance and Repair Workers, General	5,440	\$32,730	High School Diploma or Equivalent	5,650	6,570	920	16.3%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
MT	49-9071	Maintenance and Repair Workers, General	4,200	\$30,720	High School Diploma or Equivalent	4,200	4,920	720	17.1%
ND	49-9071	Maintenance and Repair Workers, General	3,610	\$37,190	High School Diploma or Equivalent	2,980	3,390	410	13.8%
NE	49-9071	Maintenance and Repair Workers, General	8,410	\$35,130	High School Diploma or Equivalent	8,380	9,030	650	7.8%
OR	49-9071	Maintenance and Repair Workers, General	12,370	\$37,560	High School Diploma or Equivalent	12,620	14,410	1,790	14.2%
SD	49-9071	Maintenance and Repair Workers, General	2,660	\$33,230	High School Diploma or Equivalent	2,700	2,890	190	7.0%
WA	49-9071	Maintenance and Repair Workers, General	28,520	\$39,700	High School Diploma or Equivalent	28,920	33,260	4,340	15.0%
WY	49-9071	Maintenance and Repair Workers, General	3,830	\$36,910	High School Diploma or Equivalent	3,970	4,440	470	11.8%
<i>West Region</i>	<i>49-9071</i>	<i>Maintenance and Repair Workers, General</i>	<i>80,510</i>	<i>\$40,279</i>	<i>High School Diploma or Equivalent</i>	<i>79,990</i>	<i>90,560</i>	<i>10,570</i>	<i>13.2%</i>
United States	17-2121	Marine Engineers and Naval Architects	7,570	\$92,930	Bachelor's Degree	7,300	8,100	800	11.0%
AK	17-2121	Marine Engineers and Naval Architects			Bachelor's Degree				NA
HI	17-2121	Marine Engineers and Naval Architects	130	\$80,060	Bachelor's Degree	110	110	0	0.0%
ID	17-2121	Marine Engineers and Naval Architects			Bachelor's Degree				NA
MT	17-2121	Marine Engineers and Naval Architects			Bachelor's Degree				NA
ND	17-2121	Marine Engineers and Naval Architects			Bachelor's Degree				NA

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
NE	17-2121	Marine Engineers and Naval Architects			Bachelor's Degree				NA
OR	17-2121	Marine Engineers and Naval Architects			Bachelor's Degree				NA
SD	17-2121	Marine Engineers and Naval Architects			Bachelor's Degree				NA
WA	17-2121	Marine Engineers and Naval Architects	620	\$88,390	Bachelor's Degree	590	690	100	16.9%
WY	17-2121	Marine Engineers and Naval Architects			Bachelor's Degree				NA
<i>West Region</i>	<i>17-2121</i>	<i>Marine Engineers and Naval Architects</i>	<i>750</i>	<i>\$ 81,224</i>	<i>Bachelor's Degree</i>	<i>700</i>	<i>800</i>	<i>100</i>	<i>14.3%</i>
United States	53-7199	Material Moving Workers, All Other	22,910	\$30,830	Less Than High School	28,700	30,200	1,500	5.2%
AK	53-7199	Material Moving Workers, All Other	390	\$48,040	Less Than High School	810	890	80	9.9%
HI	53-7199	Material Moving Workers, All Other	130	\$44,720	Less Than High School	150	170	20	13.3%
ID	53-7199	Material Moving Workers, All Other	30	\$30,220	Less Than High School	40	50	10	25.0%
MT	53-7199	Material Moving Workers, All Other			Less Than High School	200	240	40	20.0%
ND	53-7199	Material Moving Workers, All Other	290	\$23,220	Less Than High School	290	330	40	13.8%
NE	53-7199	Material Moving Workers, All Other		\$28,370	Less Than High School	60	60	0	0.0%
OR	53-7199	Material Moving Workers, All Other	750	\$36,500	Less Than High School	1,060	1,160	100	9.4%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
SD	53-7199	Material Moving Workers, All Other			Less Than High School				NA
WA	53-7199	Material Moving Workers, All Other	810	\$32,620	Less Than High School	1,000	1,200	200	20.0%
WY	53-7199	Material Moving Workers, All Other			Less Than High School	10	10	0	0.0%
<i>West Region</i>	<i>53-7199</i>	<i>Material Moving Workers, All Other</i>	<i>2,400</i>	<i>\$ 37,150</i>	<i>Less Than High School</i>	<i>3,620</i>	<i>4,110</i>	<i>490</i>	<i>13.5%</i>
United States	17-2141	Mechanical Engineers	270,700	\$83,060	Bachelor's Degree	258,100	269,700	11,600	4.5%
AK	17-2141	Mechanical Engineers	480	\$107,840	Bachelor's Degree	350	380	30	8.6%
HI	17-2141	Mechanical Engineers	580	\$77,690	Bachelor's Degree	530	560	30	5.7%
ID	17-2141	Mechanical Engineers	1,090	\$78,990	Bachelor's Degree	1,140	1,260	120	10.5%
MT	17-2141	Mechanical Engineers	350	\$74,400	Bachelor's Degree	430	530	100	23.3%
ND	17-2141	Mechanical Engineers	500	\$71,720	Bachelor's Degree	550	660	110	20.0%
NE	17-2141	Mechanical Engineers	980	\$72,520	Bachelor's Degree	1,020	1,140	120	11.8%
OR	17-2141	Mechanical Engineers	2,680	\$79,170	Bachelor's Degree	2,610	3,010	400	15.3%
SD	17-2141	Mechanical Engineers	480	\$67,010	Bachelor's Degree	480	540	60	12.5%
WA	17-2141	Mechanical Engineers	6,420	\$87,920	Bachelor's Degree	6,150	6,990	840	13.7%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
WY	17-2141	Mechanical Engineers	260	\$74,900	Bachelor's Degree	270	310	40	14.8%
<i>West Region</i>	<i>17-2141</i>	<i>Mechanical Engineers</i>	<i>13,820</i>	<i>\$80,783</i>	<i>Bachelor's Degree</i>	<i>13,530</i>	<i>15,380</i>	<i>1,850</i>	<i>13.7%</i>
United States	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	119,280	\$47,580	High School Diploma or Equivalent	119,300	131,600	12,300	10.3%
AK	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	1,080	\$65,070	High School Diploma or Equivalent	980	1,110	130	13.3%
HI	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	370	\$62,920	High School Diploma or Equivalent	450	480	30	6.7%
ID	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	630	\$45,550	High School Diploma or Equivalent	680	760	80	11.8%
MT	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	1,000	\$51,200	High School Diploma or Equivalent	990	1,150	160	16.2%
ND	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	1,170	\$52,620	High School Diploma or Equivalent	1,340	1,500	160	11.9%
NE	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	980	\$41,370	High School Diploma or Equivalent	890	960	70	7.9%
OR	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	1,680	\$49,360	High School Diploma or Equivalent	1,820	2,100	280	15.4%
SD	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	610	\$45,700	High School Diploma or Equivalent	490	520	30	6.1%
WA	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	2,830	\$51,120	High School Diploma or Equivalent	2,860	3,340	480	16.8%
WY	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	1,580	\$58,190	High School Diploma or Equivalent	1,320	1,500	180	13.6%
<i>West Region</i>	<i>49-3042</i>	<i>Mobile Heavy Equipment Mechanics, Except Engines</i>	<i>11,930</i>	<i>\$52,794</i>	<i>High School Diploma or Equivalent</i>	<i>11,820</i>	<i>13,420</i>	<i>1,600</i>	<i>13.5%</i>

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	47-2073	Operating Engineers and Other Construction Equipment Operators	344,510	\$43,510	High School Diploma or Equivalent	351,200	417,600	66,400	18.9%
AK	47-2073	Operating Engineers and Other Construction Equipment Operators	3,750	\$62,800	High School Diploma or Equivalent	3,230	3,630	400	12.4%
HI	47-2073	Operating Engineers and Other Construction Equipment Operators	1,460	\$71,400	High School Diploma or Equivalent	1,770	2,200	430	24.3%
ID	47-2073	Operating Engineers and Other Construction Equipment Operators	2,190	\$42,530	High School Diploma or Equivalent	1,990	2,300	310	15.6%
MT	47-2073	Operating Engineers and Other Construction Equipment Operators	3,390	\$45,350	High School Diploma or Equivalent	3,300	4,010	710	21.5%
ND	47-2073	Operating Engineers and Other Construction Equipment Operators	4,420	\$50,850	High School Diploma or Equivalent	3,080	3,300	220	7.1%
NE	47-2073	Operating Engineers and Other Construction Equipment Operators	2,460	\$36,800	High School Diploma or Equivalent	2,200	2,630	430	19.5%
OR	47-2073	Operating Engineers and Other Construction Equipment Operators	4,070	\$49,870	High School Diploma or Equivalent	3,260	3,860	600	18.4%
SD	47-2073	Operating Engineers and Other Construction Equipment Operators	2,000	\$37,380	High School Diploma or Equivalent	1,660	1,820	160	9.6%
WA	47-2073	Operating Engineers and Other Construction Equipment Operators	7,210	\$58,320	High School Diploma or Equivalent	7,050	9,080	2,030	28.8%
WY	47-2073	Operating Engineers and Other Construction Equipment Operators	5,120	\$52,930	High School Diploma or Equivalent	5,540	5,920	380	6.9%
<i>West Region</i>	<i>47-2073</i>	<i>Operating Engineers and Other Construction Equipment Operators</i>	<i>36,070</i>	<i>\$52,794</i>	<i>High School Diploma or Equivalent</i>	<i>33,080</i>	<i>38,750</i>	<i>5,670</i>	<i>17.1%</i>
United States	47-2141	Painters, Construction and Maintenance	204,600	\$35,950	Less Than High School	316,200	378,800	62,600	19.8%
AK	47-2141	Painters, Construction and Maintenance	440	\$47,480	Less Than High School	480	510	30	6.3%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
HI	47-2141	Painters, Construction and Maintenance	1,720	\$47,980	Less Than High School	2,720	3,040	320	11.8%
ID	47-2141	Painters, Construction and Maintenance	1,270	\$28,270	Less Than High School	1,580	2,150	570	36.1%
MT	47-2141	Painters, Construction and Maintenance	740	\$33,820	Less Than High School	980	1,130	150	15.3%
ND	47-2141	Painters, Construction and Maintenance	570	\$37,400	Less Than High School	930	1,080	150	16.1%
NE	47-2141	Painters, Construction and Maintenance	1,250	\$31,950	Less Than High School	2,100	2,370	270	12.9%
OR	47-2141	Painters, Construction and Maintenance	3,020	\$34,560	Less Than High School	3,310	4,530	1,220	36.9%
SD	47-2141	Painters, Construction and Maintenance	530	\$27,770	Less Than High School	750	850	100	13.3%
WA	47-2141	Painters, Construction and Maintenance	8,120	\$38,480	Less Than High School	14,480	19,290	4,810	33.2%
WY	47-2141	Painters, Construction and Maintenance	480	\$36,010	Less Than High School	1,090	1,300	210	19.3%
<i>West Region</i>	<i>47-2141</i>	<i>Painters, Construction and Maintenance</i>	<i>18,140</i>	<i>\$39,680</i>	<i>Less Than High School</i>	<i>28,420</i>	<i>36,250</i>	<i>7,830</i>	<i>27.6%</i>
United States	47-2071	Paving, Surfacing, and Tamping Equipment Operators	54,940	\$38,660	High School Diploma or Equivalent	54,700	65,500	10,800	19.7%
AK	47-2071	Paving, Surfacing, and Tamping Equipment Operators	90		High School Diploma or Equivalent	120	120	0	0.0%
HI	47-2071	Paving, Surfacing, and Tamping Equipment Operators	350	\$56,790	High School Diploma or Equivalent	200	270	70	35.0%
ID	47-2071	Paving, Surfacing, and Tamping Equipment Operators	310	\$40,110	High School Diploma or Equivalent	380	430	50	13.2%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
MT	47-2071	Paving, Surfacing, and Tamping Equipment Operators	370	\$43,100	High School Diploma or Equivalent	330	380	50	15.2%
ND	47-2071	Paving, Surfacing, and Tamping Equipment Operators	330	\$50,470	High School Diploma or Equivalent	420	450	30	7.1%
NE	47-2071	Paving, Surfacing, and Tamping Equipment Operators	570	\$30,220	High School Diploma or Equivalent	420	500	80	19.0%
OR	47-2071	Paving, Surfacing, and Tamping Equipment Operators	180	\$46,550	High School Diploma or Equivalent	650	770	120	18.5%
SD	47-2071	Paving, Surfacing, and Tamping Equipment Operators	160	\$39,450	High School Diploma or Equivalent	160	190	30	18.8%
WA	47-2071	Paving, Surfacing, and Tamping Equipment Operators	580	\$52,060	High School Diploma or Equivalent	630	830	200	31.7%
WY	47-2071	Paving, Surfacing, and Tamping Equipment Operators	270	\$40,720	High School Diploma or Equivalent	170	190	20	11.8%
<i>West Region</i>	<i>47-2071</i>	<i>Paving, Surfacing, and Tamping Equipment Operators</i>	<i>3,210</i>	<i>\$44,325</i>	<i>High School Diploma or Equivalent</i>	<i>3,480</i>	<i>4,130</i>	<i>650</i>	<i>18.7%</i>
United States	47-2072	Pile-Driver Operators	3,470	\$51,510	High School Diploma or Equivalent	3,800	4,800	1,000	26.3%
AK	47-2072	Pile-Driver Operators	240	\$63,650	High School Diploma or Equivalent	50	60	10	20.0%
HI	47-2072	Pile-Driver Operators			High School Diploma or Equivalent				NA
ID	47-2072	Pile-Driver Operators			High School Diploma or Equivalent				NA
MT	47-2072	Pile-Driver Operators			High School Diploma or Equivalent				NA
ND	47-2072	Pile-Driver Operators			High School Diploma or Equivalent				NA

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
NE	47-2072	Pile-Driver Operators			High School Diploma or Equivalent	10	10	0	0.0%
OR	47-2072	Pile-Driver Operators	40	\$69,750	High School Diploma or Equivalent	80	110	30	37.5%
SD	47-2072	Pile-Driver Operators			High School Diploma or Equivalent				NA
WA	47-2072	Pile-Driver Operators	180	\$79,660	High School Diploma or Equivalent	210	290	80	38.1%
WY	47-2072	Pile-Driver Operators			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>47-2072</i>	<i>Pile-Driver Operators</i>	<i>460</i>	<i>\$65,160</i>	<i>High School Diploma or Equivalent</i>	<i>350</i>	<i>470</i>	<i>120</i>	<i>34.3%</i>
United States	47-2151	Pipelayers	41,080	\$37,000	Less Than High School	48,500	58,600	10,100	20.8%
AK	47-2151	Pipelayers	90	\$64,790	Less Than High School	30	30	0	0.0%
HI	47-2151	Pipelayers	120	\$45,620	Less Than High School	120	130	10	8.3%
ID	47-2151	Pipelayers	210	\$35,580	Less Than High School	260	320	60	23.1%
MT	47-2151	Pipelayers	150	\$46,780	Less Than High School	40	50	10	25.0%
ND	47-2151	Pipelayers	470	\$36,430	Less Than High School	330	360	30	9.1%
NE	47-2151	Pipelayers	160	\$34,790	Less Than High School	130	170	40	30.8%
OR	47-2151	Pipelayers	360	\$51,040	Less Than High School	380	440	60	15.8%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
SD	47-2151	Pipelayers	110	\$34,330	Less Than High School	140	150	10	7.1%
WA	47-2151	Pipelayers	1,350	\$53,760	Less Than High School	1,750	2,090	340	19.4%
WY	47-2151	Pipelayers		\$44,340	Less Than High School	100	120	20	20.0%
<i>West Region</i>	<i>47-2151</i>	<i>Pipelayers</i>	<i>3,020</i>	<i>\$47,719</i>	<i>Less Than High School</i>	<i>3,280</i>	<i>3,860</i>	<i>580</i>	<i>17.7%</i>
United States	47-2152	Plumbers, Pipefitters, and Steamfitters	372,570	\$50,660	High School Diploma or Equivalent	386,900	469,200	82,300	21.3%
AK	47-2152	Plumbers, Pipefitters, and Steamfitters	1,810	\$71,210	High School Diploma or Equivalent	1,670	1,830	160	9.6%
HI	47-2152	Plumbers, Pipefitters, and Steamfitters	2,130	\$63,050	High School Diploma or Equivalent	2,170	2,560	390	18.0%
ID	47-2152	Plumbers, Pipefitters, and Steamfitters	1,460	\$44,390	High School Diploma or Equivalent	1,520	2,010	490	32.2%
MT	47-2152	Plumbers, Pipefitters, and Steamfitters	2,060	\$51,260	High School Diploma or Equivalent	1,920	2,350	430	22.4%
ND	47-2152	Plumbers, Pipefitters, and Steamfitters	1,930	\$49,550	High School Diploma or Equivalent	1,370	1,640	270	19.7%
NE	47-2152	Plumbers, Pipefitters, and Steamfitters	2,780	\$48,780	High School Diploma or Equivalent	5,460	6,100	640	11.7%
OR	47-2152	Plumbers, Pipefitters, and Steamfitters	4,870	\$71,690	High School Diploma or Equivalent	3,630	4,250	620	17.1%
SD	47-2152	Plumbers, Pipefitters, and Steamfitters	900	\$42,340	High School Diploma or Equivalent	1,170	1,350	180	15.4%
WA	47-2152	Plumbers, Pipefitters, and Steamfitters	8,080	\$60,570	High School Diploma or Equivalent	9,200	12,060	2,860	31.1%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
WY	47-2152	Plumbers, Pipefitters, and Steamfitters	1,250	\$40,470	High School Diploma or Equivalent	1,090	1,290	200	18.3%
<i>West Region</i>	<i>47-2152</i>	<i>Plumbers, Pipefitters, and Steamfitters</i>	<i>27,270</i>	<i>\$60,190</i>	<i>High School Diploma or Equivalent</i>	<i>29,200</i>	<i>35,440</i>	<i>6,240</i>	<i>21.4%</i>
United States	49-3043	Rail Car Repairers	20,080	\$54,020	High School Diploma or Equivalent	21,200	21,700	500	2.4%
AK	49-3043	Rail Car Repairers			High School Diploma or Equivalent	50	50	0	0.0%
HI	49-3043	Rail Car Repairers			High School Diploma or Equivalent				NA
ID	49-3043	Rail Car Repairers	40	\$56,930	High School Diploma or Equivalent	40	50	10	25.0%
MT	49-3043	Rail Car Repairers		\$51,980	High School Diploma or Equivalent				NA
ND	49-3043	Rail Car Repairers			High School Diploma or Equivalent				NA
NE	49-3043	Rail Car Repairers	690	\$56,290	High School Diploma or Equivalent	1,550	1,670	120	7.7%
OR	49-3043	Rail Car Repairers	290	\$54,950	High School Diploma or Equivalent	350	400	50	14.3%
SD	49-3043	Rail Car Repairers			High School Diploma or Equivalent				NA
WA	49-3043	Rail Car Repairers	310	\$54,260	High School Diploma or Equivalent	470	570	100	21.3%
WY	49-3043	Rail Car Repairers	410	\$47,740	High School Diploma or Equivalent	360	440	80	22.2%
<i>West Region</i>	<i>49-3043</i>	<i>Rail Car Repairers</i>	<i>1,740</i>	<i>\$53,050</i>	<i>High School Diploma or Equivalent</i>	<i>2,820</i>	<i>3,180</i>	<i>360</i>	<i>12.8%</i>

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	3,900	\$43,880	High School Diploma or Equivalent	5,300	5,400	100	1.9%
AK	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers			High School Diploma or Equivalent				
HI	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers			High School Diploma or Equivalent				
ID	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers			High School Diploma or Equivalent				
MT	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers			High School Diploma or Equivalent				
ND	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers			High School Diploma or Equivalent				
NE	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	100		High School Diploma or Equivalent	10	10	0	0.0%
OR	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	40	\$47,950	High School Diploma or Equivalent	90	110	20	22.2%
SD	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers			High School Diploma or Equivalent				
WA	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers			High School Diploma or Equivalent	10	10	0	0.0%
WY	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers			High School Diploma or Equivalent				
<i>West Region</i>	<i>53-4013</i>	<i>Rail Yard Engineers, Dinkey Operators, and Hostlers</i>	<i>140</i>		<i>High School Diploma or Equivalent</i>	<i>110</i>	<i>130</i>	<i>20</i>	<i>18.2%</i>
United States	53-4021	Railroad Brake, Signal, and Switch Operators	21,060	\$52,360	High School Diploma or Equivalent	25,000	24,400	-600	-2.4%
AK	53-4021	Railroad Brake, Signal, and Switch Operators			High School Diploma or Equivalent	70	60	-10	-14.3%

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State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
HI	53-4021	Railroad Brake, Signal, and Switch Operators			High School Diploma or Equivalent				NA
ID	53-4021	Railroad Brake, Signal, and Switch Operators			High School Diploma or Equivalent				NA
MT	53-4021	Railroad Brake, Signal, and Switch Operators			High School Diploma or Equivalent				NA
ND	53-4021	Railroad Brake, Signal, and Switch Operators			High School Diploma or Equivalent				NA
NE	53-4021	Railroad Brake, Signal, and Switch Operators	490	\$52,850	High School Diploma or Equivalent	370	400	30	8.1%
OR	53-4021	Railroad Brake, Signal, and Switch Operators	250	\$55,320	High School Diploma or Equivalent	420	440	20	4.8%
SD	53-4021	Railroad Brake, Signal, and Switch Operators	30	\$41,960	High School Diploma or Equivalent	80	90	10	12.5%
WA	53-4021	Railroad Brake, Signal, and Switch Operators		\$54,310	High School Diploma or Equivalent	220	250	30	13.6%
WY	53-4021	Railroad Brake, Signal, and Switch Operators	310	\$52,780	High School Diploma or Equivalent				NA
<i>West Region</i>	<i>53-4021</i>	<i>Railroad Brake, Signal, and Switch Operators</i>	<i>1,080</i>	<i>\$ 52,347</i>	<i>High School Diploma or Equivalent</i>	<i>1,160</i>	<i>1,240</i>	<i>80</i>	<i>6.9%</i>
United States	53-4031	Railroad Conductors and Yardmasters	42,900	\$54,770	High School Diploma or Equivalent	43,800	42,500	-1,300	-3.0%
AK	53-4031	Railroad Conductors and Yardmasters			High School Diploma or Equivalent				NA
HI	53-4031	Railroad Conductors and Yardmasters			High School Diploma or Equivalent				NA
ID	53-4031	Railroad Conductors and Yardmasters	230	\$53,330	High School Diploma or Equivalent	270	290	20	7.4%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
MT	53-4031	Railroad Conductors and Yardmasters		\$50,490	High School Diploma or Equivalent				NA
ND	53-4031	Railroad Conductors and Yardmasters			High School Diploma or Equivalent				NA
NE	53-4031	Railroad Conductors and Yardmasters	900	\$51,560	High School Diploma or Equivalent	3,150	3,400	250	7.9%
OR	53-4031	Railroad Conductors and Yardmasters	480	\$53,030	High School Diploma or Equivalent	470	500	30	6.4%
SD	53-4031	Railroad Conductors and Yardmasters	140	\$55,210	High School Diploma or Equivalent				NA
WA	53-4031	Railroad Conductors and Yardmasters		\$53,580	High School Diploma or Equivalent	1,310	1,560	250	19.1%
WY	53-4031	Railroad Conductors and Yardmasters			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>53-4031</i>	<i>Railroad Conductors and Yardmasters</i>	<i>1,750</i>	<i>\$ 54,473</i>	<i>High School Diploma or Equivalent</i>	<i>5,200</i>	<i>5,750</i>	<i>550</i>	<i>10.6%</i>
United States	47-4061	Rail-Track Laying and Maintenance Equipment Operators	14,820	\$51,840	High School Diploma or Equivalent	17,300	18,200	900	5.2%
AK	47-4061	Rail-Track Laying and Maintenance Equipment Operators			High School Diploma or Equivalent	110	100	-10	-9.1%
HI	47-4061	Rail-Track Laying and Maintenance Equipment Operators			High School Diploma or Equivalent				NA
ID	47-4061	Rail-Track Laying and Maintenance Equipment Operators			High School Diploma or Equivalent	140	150	10	7.1%
MT	47-4061	Rail-Track Laying and Maintenance Equipment Operators	90	\$51,670	High School Diploma or Equivalent				NA
ND	47-4061	Rail-Track Laying and Maintenance Equipment Operators			High School Diploma or Equivalent				NA

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
NE	47-4061	Rail-Track Laying and Maintenance Equipment Operators	140	\$53,110	High School Diploma or Equivalent	10	10	0	0.0%
OR	47-4061	Rail-Track Laying and Maintenance Equipment Operators	240	\$42,650	High School Diploma or Equivalent	170	180	10	5.9%
SD	47-4061	Rail-Track Laying and Maintenance Equipment Operators	70	\$44,990	High School Diploma or Equivalent	50	60	10	20.0%
WA	47-4061	Rail-Track Laying and Maintenance Equipment Operators	120	\$45,040	High School Diploma or Equivalent	210	250	40	19.0%
WY	47-4061	Rail-Track Laying and Maintenance Equipment Operators	120	\$52,840	High School Diploma or Equivalent	40	40	0	0.0%
<i>West Region</i>	<i>47-4061</i>	<i>Rail-Track Laying and Maintenance Equipment Operators</i>	<i>780</i>	<i>\$47,876</i>	<i>High School Diploma or Equivalent</i>	<i>730</i>	<i>790</i>	<i>60</i>	<i>8.2%</i>
United States	47-2171	Reinforcing Iron and Rebar Workers	18,530	\$50,020	High School Diploma or Equivalent	15,500	19,000	3,500	22.6%
AK	47-2171	Reinforcing Iron and Rebar Workers			High School Diploma or Equivalent				NA
HI	47-2171	Reinforcing Iron and Rebar Workers	500	\$66,270	High School Diploma or Equivalent	370	450	80	21.6%
ID	47-2171	Reinforcing Iron and Rebar Workers	60	\$42,800	High School Diploma or Equivalent	70	90	20	28.6%
MT	47-2171	Reinforcing Iron and Rebar Workers			High School Diploma or Equivalent				NA
ND	47-2171	Reinforcing Iron and Rebar Workers		\$53,500	High School Diploma or Equivalent				NA
NE	47-2171	Reinforcing Iron and Rebar Workers	200	\$38,830	High School Diploma or Equivalent	130	150	20	15.4%
OR	47-2171	Reinforcing Iron and Rebar Workers			High School Diploma or Equivalent				NA

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
SD	47-2171	Reinforcing Iron and Rebar Workers	50	\$39,300	High School Diploma or Equivalent	30	30	0	0.0%
WA	47-2171	Reinforcing Iron and Rebar Workers		\$62,330	High School Diploma or Equivalent	940	1,320	380	40.4%
WY	47-2171	Reinforcing Iron and Rebar Workers			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>47-2171</i>	<i>Reinforcing Iron and Rebar Workers</i>	<i>810</i>	<i>\$53,422</i>	<i>High School Diploma or Equivalent</i>	<i>1,540</i>	<i>2,040</i>	<i>500</i>	<i>32.5%</i>
United States	53-5011	Sailors and Marine Oilers	27,640	\$39,100	Less Than High School	31,900	36,900	5,000	15.7%
AK	53-5011	Sailors and Marine Oilers	940	\$48,010	Less Than High School	590	660	70	11.9%
HI	53-5011	Sailors and Marine Oilers			Less Than High School				NA
ID	53-5011	Sailors and Marine Oilers			Less Than High School				NA
MT	53-5011	Sailors and Marine Oilers			Less Than High School				NA
ND	53-5011	Sailors and Marine Oilers			Less Than High School				NA
NE	53-5011	Sailors and Marine Oilers			Less Than High School				NA
OR	53-5011	Sailors and Marine Oilers	160	\$53,410	Less Than High School	290	330	40	13.8%
SD	53-5011	Sailors and Marine Oilers			Less Than High School				NA
WA	53-5011	Sailors and Marine Oilers	1,980	\$49,780	Less Than High School	2,200	2,510	310	14.1%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
WY	53-5011	Sailors and Marine Oilers			Less Than High School				NA
<i>West Region</i>	<i>53-5011</i>	<i>Sailors and Marine Oilers</i>	<i>3,080</i>	<i>\$ 48,154</i>	<i>Less Than High School</i>	<i>3,080</i>	<i>3,500</i>	<i>420</i>	<i>13.6%</i>
United States	53-5031	Ship Engineers	10,060	\$68,100	Bachelor's Degree	10,800	11,700	900	8.3%
AK	53-5031	Ship Engineers	340	\$63,300	Bachelor's Degree	270	300	30	11.1%
HI	53-5031	Ship Engineers			Bachelor's Degree				NA
ID	53-5031	Ship Engineers			Bachelor's Degree				NA
MT	53-5031	Ship Engineers			Bachelor's Degree				NA
ND	53-5031	Ship Engineers			Bachelor's Degree				NA
NE	53-5031	Ship Engineers			Bachelor's Degree				NA
OR	53-5031	Ship Engineers			Bachelor's Degree	80	90	10	12.5%
SD	53-5031	Ship Engineers			Bachelor's Degree				NA
WA	53-5031	Ship Engineers	950	\$74,530	Bachelor's Degree	740	850	110	14.9%
WY	53-5031	Ship Engineers			Bachelor's Degree				NA
<i>West Region</i>	<i>53-5031</i>	<i>Ship Engineers</i>	<i>1,290</i>	<i>\$ 66,029</i>	<i>Bachelor's Degree</i>	<i>1,090</i>	<i>1,240</i>	<i>150</i>	<i>13.8%</i>

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	49-9097	Signal and Track Switch Repairers	7,880	\$60,640	High School Diploma or Equivalent	8,800	8,700	-100	-1.1%
AK	49-9097	Signal and Track Switch Repairers			High School Diploma or Equivalent				NA
HI	49-9097	Signal and Track Switch Repairers			High School Diploma or Equivalent				NA
ID	49-9097	Signal and Track Switch Repairers	90	\$51,020	High School Diploma or Equivalent	80	100	20	25.0%
MT	49-9097	Signal and Track Switch Repairers			High School Diploma or Equivalent				NA
ND	49-9097	Signal and Track Switch Repairers	100	\$57,580	High School Diploma or Equivalent	100	110	10	10.0%
NE	49-9097	Signal and Track Switch Repairers	240		High School Diploma or Equivalent	2,100	2,270	170	8.1%
OR	49-9097	Signal and Track Switch Repairers	140		High School Diploma or Equivalent	110	120	10	9.1%
SD	49-9097	Signal and Track Switch Repairers			High School Diploma or Equivalent				NA
WA	49-9097	Signal and Track Switch Repairers	100	\$67,060	High School Diploma or Equivalent	200	230	30	15.0%
WY	49-9097	Signal and Track Switch Repairers			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>49-9097</i>	<i>Signal and Track Switch Repairers</i>	<i>670</i>	<i>\$ 58,553</i>	<i>High School Diploma or Equivalent</i>	<i>2,590</i>	<i>2,830</i>	<i>240</i>	<i>9.3%</i>
United States	47-2221	Structural Iron and Steel Workers	60,010	\$48,200	High School Diploma or Equivalent	58,100	70,800	12,700	21.9%
AK	47-2221	Structural Iron and Steel Workers	250	\$60,570	High School Diploma or Equivalent	310	360	50	16.1%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
HI	47-2221	Structural Iron and Steel Workers	140	\$64,470	High School Diploma or Equivalent	150	180	30	20.0%
ID	47-2221	Structural Iron and Steel Workers	300	\$37,810	High School Diploma or Equivalent	280	350	70	25.0%
MT	47-2221	Structural Iron and Steel Workers	210	\$54,630	High School Diploma or Equivalent				NA
ND	47-2221	Structural Iron and Steel Workers		\$44,980	High School Diploma or Equivalent	370	430	60	16.2%
NE	47-2221	Structural Iron and Steel Workers	810	\$37,820	High School Diploma or Equivalent	670	800	130	19.4%
OR	47-2221	Structural Iron and Steel Workers	560	\$57,100	High School Diploma or Equivalent	390	510	120	30.8%
SD	47-2221	Structural Iron and Steel Workers	560	\$37,120	High School Diploma or Equivalent	350	360	10	2.9%
WA	47-2221	Structural Iron and Steel Workers	1,590	\$72,370	High School Diploma or Equivalent	1,410	1,940	530	37.6%
WY	47-2221	Structural Iron and Steel Workers	220	\$37,200	High School Diploma or Equivalent	170	200	30	17.6%
<i>West Region</i>	<i>47-2221</i>	<i>Structural Iron and Steel Workers</i>	<i>4,640</i>	<i>\$54,110</i>	<i>High School Diploma or Equivalent</i>	<i>4,100</i>	<i>5,130</i>	<i>1,030</i>	<i>25.1%</i>
United States	17-3031	Surveying and Mapping Technicians	50,750	\$40,770	High School Diploma or Equivalent	54,000	61,300	7,300	13.5%
AK	17-3031	Surveying and Mapping Technicians	180	\$60,680	High School Diploma or Equivalent	220	240	20	9.1%
HI	17-3031	Surveying and Mapping Technicians	130	\$45,540	High School Diploma or Equivalent	160	180	20	12.5%
ID	17-3031	Surveying and Mapping Technicians	280	\$40,710	High School Diploma or Equivalent	300	320	20	6.7%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
MT	17-3031	Surveying and Mapping Technicians	270	\$42,870	High School Diploma or Equivalent	320	370	50	15.6%
ND	17-3031	Surveying and Mapping Technicians	160	\$42,170	High School Diploma or Equivalent	190	240	50	26.3%
NE	17-3031	Surveying and Mapping Technicians	670	\$37,010	High School Diploma or Equivalent	320	350	30	9.4%
OR	17-3031	Surveying and Mapping Technicians	830	\$46,600	High School Diploma or Equivalent	890	1,030	140	15.7%
SD	17-3031	Surveying and Mapping Technicians	120	\$35,710	High School Diploma or Equivalent	160	190	30	18.8%
WA	17-3031	Surveying and Mapping Technicians	1,140	\$51,910	High School Diploma or Equivalent	1,370	1,680	310	22.6%
WY	17-3031	Surveying and Mapping Technicians	190	\$43,440	High School Diploma or Equivalent	190	220	30	15.8%
<i>West Region</i>	<i>17-3031</i>	<i>Surveying and Mapping Technicians</i>	<i>3,970</i>	<i>\$46,871</i>	<i>High School Diploma or Equivalent</i>	<i>4,120</i>	<i>4,820</i>	<i>700</i>	<i>17.0%</i>
United States	17-1022	Surveyors	41,970	\$57,050	Bachelor's Degree	42,400	46,800	4,400	10.4%
AK	17-1022	Surveyors	380	\$81,030	Bachelor's Degree	490	560	70	14.3%
HI	17-1022	Surveyors	240	\$54,220	Bachelor's Degree	260	270	10	3.8%
ID	17-1022	Surveyors	290	\$67,870	Bachelor's Degree	290	300	10	3.4%
MT	17-1022	Surveyors	360	\$58,230	Bachelor's Degree	390	450	60	15.4%
ND	17-1022	Surveyors	400	\$53,020	Bachelor's Degree	300	380	80	26.7%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
NE	17-1022	Surveyors	310	\$46,230	Bachelor's Degree	400	430	30	7.5%
OR	17-1022	Surveyors	520	\$68,000	Bachelor's Degree	650	710	60	9.2%
SD	17-1022	Surveyors	110	\$52,720	Bachelor's Degree	120	130	10	8.3%
WA	17-1022	Surveyors	850	\$72,220	Bachelor's Degree	850	980	130	15.3%
WY	17-1022	Surveyors	270	\$62,200	Bachelor's Degree	250	270	20	8.0%
<i>West Region</i>	<i>17-1022</i>	<i>Surveyors</i>	<i>3,730</i>	<i>\$64,510</i>	<i>Bachelor's Degree</i>	<i>4,000</i>	<i>4,480</i>	<i>480</i>	<i>12.0%</i>
United States	53-7121	Tank Car, Truck, and Ship Loaders	12,490	\$41,180	Less Than High School	12,500	12,800	300	2.4%
AK	53-7121	Tank Car, Truck, and Ship Loaders	60	\$45,490	Less Than High School	450	470	20	4.4%
HI	53-7121	Tank Car, Truck, and Ship Loaders			Less Than High School				NA
ID	53-7121	Tank Car, Truck, and Ship Loaders			Less Than High School				NA
MT	53-7121	Tank Car, Truck, and Ship Loaders	50	\$49,650	Less Than High School				NA
ND	53-7121	Tank Car, Truck, and Ship Loaders	180	\$33,340	Less Than High School	100	110	10	10.0%
NE	53-7121	Tank Car, Truck, and Ship Loaders	30	\$35,380	Less Than High School	50	50	0	0.0%
OR	53-7121	Tank Car, Truck, and Ship Loaders	320	\$42,760	Less Than High School	250	290	40	16.0%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
SD	53-7121	Tank Car, Truck, and Ship Loaders			Less Than High School				NA
WA	53-7121	Tank Car, Truck, and Ship Loaders	370	\$52,130	Less Than High School	380	440	60	15.8%
WY	53-7121	Tank Car, Truck, and Ship Loaders			Less Than High School	50	50	0	0.0%
<i>West Region</i>	<i>53-7121</i>	<i>Tank Car, Truck, and Ship Loaders</i>	<i>1,010</i>	<i>\$ 46,975</i>	<i>Less Than High School</i>	<i>1,280</i>	<i>1,410</i>	<i>130</i>	<i>10.2%</i>
United States	53-3041	Taxi Drivers and Chauffeurs	178,260	\$23,210	Less Than High School	233,000	269,100	36,100	15.5%
AK	53-3041	Taxi Drivers and Chauffeurs	410	\$29,180	Less Than High School	220	250	30	13.6%
HI	53-3041	Taxi Drivers and Chauffeurs	1,400	\$24,320	Less Than High School	1,760	2,050	290	16.5%
ID	53-3041	Taxi Drivers and Chauffeurs	800	\$19,870	Less Than High School	1,100	1,260	160	14.5%
MT	53-3041	Taxi Drivers and Chauffeurs	850	\$19,740	Less Than High School	750	890	140	18.7%
ND	53-3041	Taxi Drivers and Chauffeurs	1,040	\$22,890	Less Than High School	1,000	1,290	290	29.0%
NE	53-3041	Taxi Drivers and Chauffeurs	1,140	\$22,130	Less Than High School	1,770	2,060	290	16.4%
OR	53-3041	Taxi Drivers and Chauffeurs	1,770	\$21,870	Less Than High School	1,280	1,600	320	25.0%
SD	53-3041	Taxi Drivers and Chauffeurs	620	\$22,410	Less Than High School	810	920	110	13.6%
WA	53-3041	Taxi Drivers and Chauffeurs	4,200	\$27,250	Less Than High School	5,750	6,690	940	16.3%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
WY	53-3041	Taxi Drivers and Chauffeurs	330	\$21,010	Less Than High School	540	600	60	11.1%
<i>West Region</i>	<i>53-3041</i>	<i>Taxi Drivers and Chauffeurs</i>	<i>12,560</i>	<i>\$ 25,585</i>	<i>Less Than High School</i>	<i>14,980</i>	<i>17,610</i>	<i>2,630</i>	<i>17.6%</i>
United States	53-6041	Traffic Technicians	6,490	\$43,430	High School Diploma or Equivalent	6,600	7,300	700	10.6%
AK	53-6041	Traffic Technicians			High School Diploma or Equivalent				NA
HI	53-6041	Traffic Technicians	50	\$46,310	High School Diploma or Equivalent	40	40	0	0.0%
ID	53-6041	Traffic Technicians			High School Diploma or Equivalent				NA
MT	53-6041	Traffic Technicians			High School Diploma or Equivalent				NA
ND	53-6041	Traffic Technicians			High School Diploma or Equivalent				NA
NE	53-6041	Traffic Technicians			High School Diploma or Equivalent	10	10	0	0.0%
OR	53-6041	Traffic Technicians	60	\$53,810	High School Diploma or Equivalent	60	70	10	16.7%
SD	53-6041	Traffic Technicians			High School Diploma or Equivalent				NA
WA	53-6041	Traffic Technicians	90	\$54,190	High School Diploma or Equivalent	130	130	0	0.0%
WY	53-6041	Traffic Technicians	50	\$40,170	High School Diploma or Equivalent	50	50	0	0.0%
<i>West Region</i>	<i>53-6041</i>	<i>Traffic Technicians</i>	<i>250</i>	<i>\$ 49,904</i>	<i>High School Diploma or Equivalent</i>	<i>290</i>	<i>300</i>	<i>10</i>	<i>3.4%</i>

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
United States	53-6061	Transportation Attendants, Except Flight Attendants	16,380	\$23,380	High School Diploma or Equivalent	23,300	25,900	2,600	11.2%
AK	53-6061	Transportation Attendants, Except Flight Attendants	620	\$29,700	High School Diploma or Equivalent	640	710	70	10.9%
HI	53-6061	Transportation Attendants, Except Flight Attendants	780		High School Diploma or Equivalent	730	780	50	6.8%
ID	53-6061	Transportation Attendants, Except Flight Attendants	40	\$28,110	High School Diploma or Equivalent	160	170	10	6.3%
MT	53-6061	Transportation Attendants, Except Flight Attendants			High School Diploma or Equivalent				NA
ND	53-6061	Transportation Attendants, Except Flight Attendants			High School Diploma or Equivalent				NA
NE	53-6061	Transportation Attendants, Except Flight Attendants			High School Diploma or Equivalent	50	60	10	20.0%
OR	53-6061	Transportation Attendants, Except Flight Attendants			High School Diploma or Equivalent	190	210	20	10.5%
SD	53-6061	Transportation Attendants, Except Flight Attendants			High School Diploma or Equivalent				NA
WA	53-6061	Transportation Attendants, Except Flight Attendants		\$27,630	High School Diploma or Equivalent	940	1,000	60	6.4%
WY	53-6061	Transportation Attendants, Except Flight Attendants			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>53-6061</i>	<i>Transportation Attendants, Except Flight Attendants</i>	<i>1,440</i>	<i>\$28,480</i>	<i>High School Diploma or Equivalent</i>	<i>2,710</i>	<i>2,930</i>	<i>220</i>	<i>8.1%</i>
United States	53-6051	Transportation Inspectors	24,350	\$69,170	High School Diploma or Equivalent	26,200	29,100	2,900	11.1%
AK	53-6051	Transportation Inspectors	160	\$96,280	High School Diploma or Equivalent	210	200	-10	-4.8%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
HI	53-6051	Transportation Inspectors	160	\$63,050	High School Diploma or Equivalent	140	160	20	14.3%
ID	53-6051	Transportation Inspectors	70	\$59,950	High School Diploma or Equivalent	90	110	20	22.2%
MT	53-6051	Transportation Inspectors	290	\$72,330	High School Diploma or Equivalent	300	340	40	13.3%
ND	53-6051	Transportation Inspectors		\$68,530	High School Diploma or Equivalent				NA
NE	53-6051	Transportation Inspectors	200	\$63,790	High School Diploma or Equivalent	50	50	0	0.0%
OR	53-6051	Transportation Inspectors	330	\$59,410	High School Diploma or Equivalent	330	380	50	15.2%
SD	53-6051	Transportation Inspectors	100	\$41,300	High School Diploma or Equivalent	130	150	20	15.4%
WA	53-6051	Transportation Inspectors	690	\$75,110	High School Diploma or Equivalent	1,000	1,050	50	5.0%
WY	53-6051	Transportation Inspectors	200	\$45,580	High School Diploma or Equivalent	120	130	10	8.3%
<i>West Region</i>	<i>53-6051</i>	<i>Transportation Inspectors</i>	<i>2,200</i>	<i>\$71,481</i>	<i>High School Diploma or Equivalent</i>	<i>2,370</i>	<i>2,570</i>	<i>200</i>	<i>8.4%</i>
United States	33-9093	Transportation Security Screeners	43,220	\$38,090	High School Diploma or Equivalent	50,800	53,800	3,000	5.9%
AK	33-9093	Transportation Security Screeners	350	\$42,860	High School Diploma or Equivalent	450	450	0	0.0%
HI	33-9093	Transportation Security Screeners	1,330	\$36,060	High School Diploma or Equivalent	1,740	1,860	120	6.9%
ID	33-9093	Transportation Security Screeners	180	\$37,730	High School Diploma or Equivalent	150	190	40	26.7%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
MT	33-9093	Transportation Security Screeners			High School Diploma or Equivalent	250	290	40	16.0%
ND	33-9093	Transportation Security Screeners	160	\$35,470	High School Diploma or Equivalent	170	190	20	11.8%
NE	33-9093	Transportation Security Screeners	210	\$36,130	High School Diploma or Equivalent	250	310	60	24.0%
OR	33-9093	Transportation Security Screeners	560	\$37,520	High School Diploma or Equivalent	540	560	20	3.7%
SD	33-9093	Transportation Security Screeners	60	\$35,470	High School Diploma or Equivalent	80	90	10	12.5%
WA	33-9093	Transportation Security Screeners	1,090	\$37,700	High School Diploma or Equivalent	1,140	1,140	0	0.0%
WY	33-9093	Transportation Security Screeners			High School Diploma or Equivalent				NA
<i>West Region</i>	<i>33-9093</i>	<i>Transportation Security Screeners</i>	<i>3,940</i>	<i>\$ 37,325</i>	<i>High School Diploma or Equivalent</i>	<i>4,770</i>	<i>5,080</i>	<i>310</i>	<i>6.5%</i>
United States	11-3071	Transportation, Storage, and Distribution Managers	106,000	\$85,400	High School Diploma or Equivalent	105,200	110,300	5,100	4.8%
AK	11-3071	Transportation, Storage, and Distribution Managers	580	\$80,550	High School Diploma or Equivalent	270	290	20	7.4%
HI	11-3071	Transportation, Storage, and Distribution Managers	490	\$74,360	High School Diploma or Equivalent	500	510	10	2.0%
ID	11-3071	Transportation, Storage, and Distribution Managers	530	\$66,300	High School Diploma or Equivalent	540	600	60	11.1%
MT	11-3071	Transportation, Storage, and Distribution Managers	190	\$78,490	High School Diploma or Equivalent	140	160	20	14.3%
ND	11-3071	Transportation, Storage, and Distribution Managers	320	\$78,060	High School Diploma or Equivalent	470	510	40	8.5%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015^a	National Average Annual Wage^a	Typical Education Needed For Entry^a	# of Employees, 2012^b	Projected # of Employees, 2022^b	Change in # of Employees^b	Percent Change^b
NE	11-3071	Transportation, Storage, and Distribution Managers	1,430	\$88,190	High School Diploma or Equivalent	590	640	50	8.5%
OR	11-3071	Transportation, Storage, and Distribution Managers	1,840	\$78,970	High School Diploma or Equivalent	1,560	1,750	190	12.2%
SD	11-3071	Transportation, Storage, and Distribution Managers	110	\$89,860	High School Diploma or Equivalent	130	140	10	7.7%
WA	11-3071	Transportation, Storage, and Distribution Managers	2,490	\$94,460	High School Diploma or Equivalent	3,060	3,460	400	13.1%
WY	11-3071	Transportation, Storage, and Distribution Managers	160	\$85,620	High School Diploma or Equivalent	100	120	20	20.0%
<i>West Region</i>	<i>11-3071</i>	<i>Transportation, Storage, and Distribution Managers</i>	<i>8,140</i>	<i>\$89,319</i>	<i>High School Diploma or Equivalent</i>	<i>7,360</i>	<i>8,180</i>	<i>820</i>	<i>11.1%</i>
United States	19-3051	Urban and Regional Planners	35,820	\$66,940	Master's Degree	38,700	42,700	4,000	10.3%
AK	19-3051	Urban and Regional Planners	180	\$77,400	Master's Degree	230	240	10	4.3%
HI	19-3051	Urban and Regional Planners	410	\$63,530	Master's Degree	430	470	40	9.3%
ID	19-3051	Urban and Regional Planners	260	\$54,210	Master's Degree	260	270	10	3.8%
MT	19-3051	Urban and Regional Planners	250	\$56,410	Master's Degree	270	310	40	14.8%
ND	19-3051	Urban and Regional Planners	90	\$51,370	Master's Degree	60	70	10	16.7%
NE	19-3051	Urban and Regional Planners	220	\$59,960	Master's Degree	140	150	10	7.1%
OR	19-3051	Urban and Regional Planners	930	\$74,170	Master's Degree	1,020	1,160	140	13.7%

Table A-1: Occupational Data and Projections for Relevant Occupations in the West Region, by State									
State or Area	SOC Code	Occupation Title	# of employees in the West, 2015 ^a	National Average Annual Wage ^a	Typical Education Needed For Entry ^a	# of Employees, 2012 ^b	Projected # of Employees, 2022 ^b	Change in # of Employees ^b	Percent Change ^b
SD	19-3051	Urban and Regional Planners	180	\$49,970	Master's Degree	160	160	0	0.0%
WA	19-3051	Urban and Regional Planners	2,180	\$74,790	Master's Degree	2,560	2,780	220	8.6%
WY	19-3051	Urban and Regional Planners	90	\$58,560	Master's Degree	80	90	10	12.5%
<i>West Region</i>	<i>19-3051</i>	<i>Urban and Regional Planners</i>	<i>4,790</i>	<i>\$71,926</i>	<i>Master's Degree</i>	<i>5,210</i>	<i>5,700</i>	<i>490</i>	<i>9.4%</i>

Sources. ^a BLS Employment Data (http://www.bls.gov/oes/current/oes_nat.htm) and ^b BLS Long Term Projections (<http://www.projectionscentral.com/Projections/LongTerm>).

Note. NA indicates that data were not available from the identified source. * indicates that a wage estimate is not available. ** indicates that an employment estimate is not available.