



Program Endorsement Brief:

Butte College: Diesel Technology

North/Far North Center of Excellence, February 2019

INTRODUCTION

Butte College is considering a Diesel Technology Certificate program that would prepare completers for entry-level positions in the industry. The exploration of this program opportunity is in response to demand from industry partners in Butte and Glenn counties. Industry partners in these counties employ diesel engine mechanics and farm equipment technicians. This report provides a brief overview of labor market demand and supply for two related occupations in the North/Far North regions and the sub-region comprising Butte and Glenn counties.

Key findings include:

- Projected occupational growth is 6% for both the Butte and Glenn county sub-region and the Far North region. Projected growth is slightly higher at 8% for the North/Far North.
- Entry-level and median hourly wages for both occupations are below the Butte county average living wage for one adult, one child, though experienced wages exceed the living wage average in each region.
- In the Far North region, only one college confers awards specific to TOP code 0947.00- Diesel Technology. Two colleges confer awards for TOP code 0116.00- Agricultural Power Equipment Technology.

Findings in this report were determined using labor market data from EMSI and Burning Glass. Education supply data is sourced from the Community College Chancellor's Office MIS via Datamart and Launchboard.

This report contains the following sections:

- Occupational demand
- Wages and job postings
- Educational attainment and supply, and
- Findings and recommendations

OCCUPATIONAL DEMAND

The following Standard Occupational Classification (SOC) codes were analyzed in relation to the proposed program¹:

49-3031.00 - 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.

Sample of reported job titles: Bus Mechanic, Diesel Mechanic, Diesel Technician, Fleet Mechanic, General Repair Mechanic, Mechanic, Service Technician, Trailer Mechanic, Transit Mechanic, Truck Mechanic

49-3041.00 - Farm Equipment Mechanics and Service Technicians

Diagnose, adjust, repair, or overhaul farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems.

Sample of reported job titles: Agricultural Mechanic, Agricultural Technician, Agriculture Mechanic, Farm Equipment Mechanic, Farm Equipment Service Technician, Field Technician, Mechanic, Service Technician, Tractor Mechanic, Tractor Technician

Exhibit 1 summarizes job trends per the SOC codes in Butte and Glenn counties, the 15-county Far North region, and the 22-county North/Far North region.

Exhibit 1: Employment and projected occupational demand²

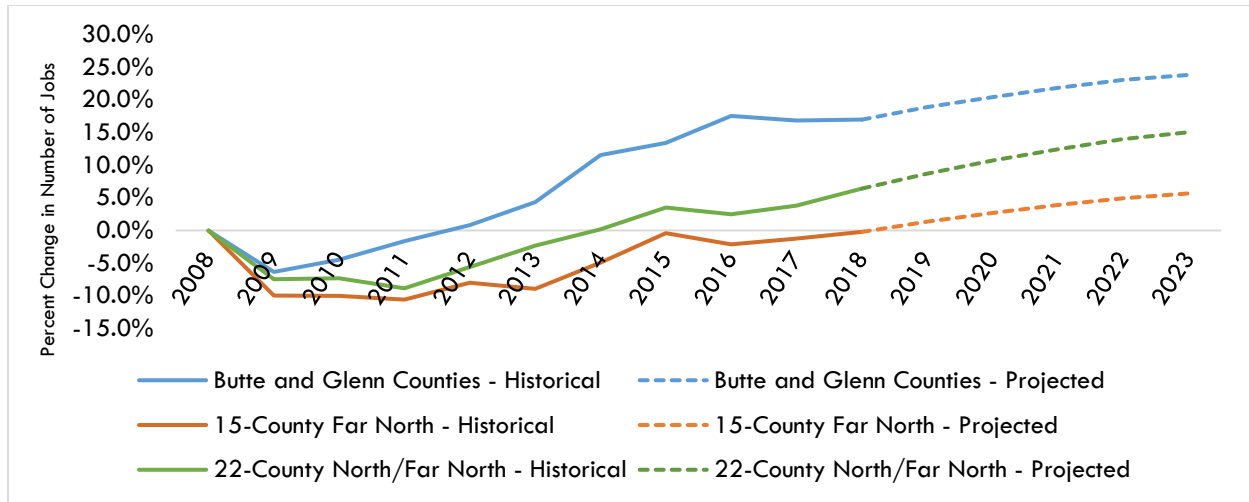
Occupation	SOC	2008 Jobs	2018 Jobs	2023 Jobs	2018-23 Jobs % Change	Annual Openings
Bus and Truck Mechanics and Diesel Engine Specialists	49-3031	185	196	206	5%	20
Farm Equipment Mechanics and Service Technicians	49-3041	44	71	77	8%	8
Butte and Glenn Counties	TOTAL	229	267	283	6%	28
Bus and Truck Mechanics and Diesel Engine Specialists	49-3031	771	737	775	5%	74
Farm Equipment Mechanics and Service Technicians	49-3041	102	134	148	10%	16
15-County Far North Region	TOTAL	873	871	923	6%	90
Bus and Truck Mechanics and Diesel Engine Specialists	49-3031	2,101	2,191	2,356	8%	233
Farm Equipment Mechanics and Service Technicians	49-3041	216	275	309	12%	34
22-County North/Far North Region	TOTAL	2,317	2,466	2,665	8%	267

Exhibit 2 shows the percentage change in number of jobs between 2008 through 2018 and occupational projections from 2018 through 2023. The rate of change is indexed to the total number of jobs in 2008 as the base year and compares Butte and Glenn counties, the 15-county North region, and the 22-county North/Far North region.

¹ <https://www.onetonline.org>

² Emsi 2019.1; QCEW Employees, Non-QCEW Employees and Self-Employed. The fifteen-county Far North region includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama and Trinity. The 22-county North/Far North region includes the aforementioned counties as well as El Dorado, Placer, Nevada, Sacramento, Sutter, Yolo and Yuba.

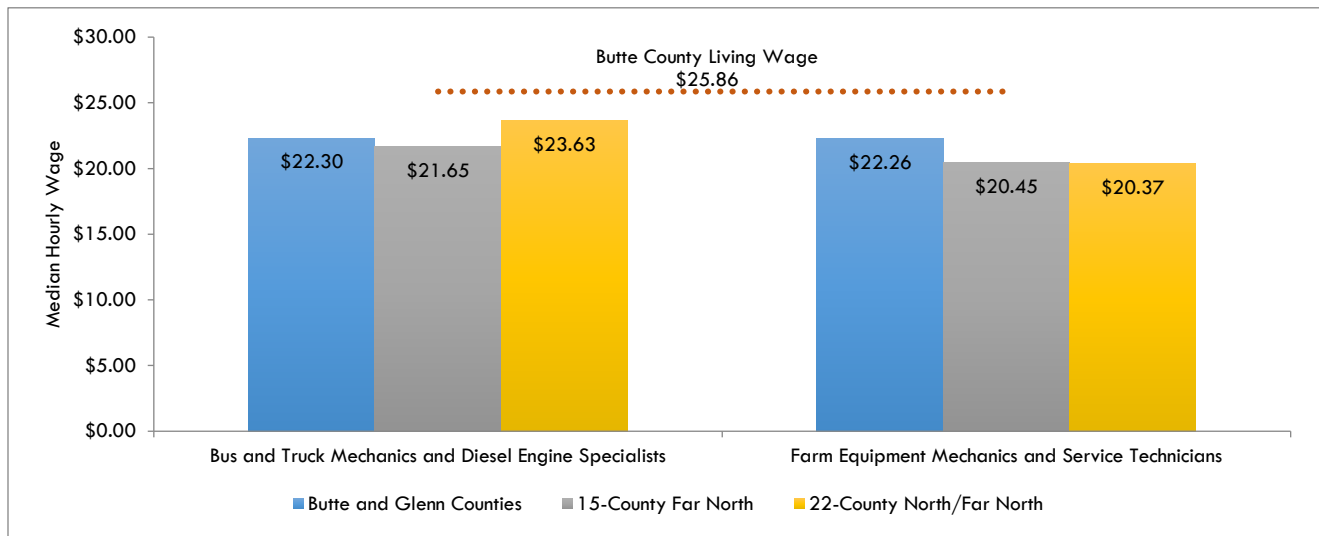
Exhibit 2: Rate of change for selected occupations³



WAGES AND JOB POSTINGS

Exhibit 3 displays hourly wages for the selected occupations in the North/Far North and Far North regions compared to the Butte and Glenn county sub-region. The average living wage for the sub-region for a one-adult, one-child household is \$25.86. The chart highlights the difference between the median hourly wages of the representative occupations. Entry-level and median wages for both occupations fall below the average living wage for a one-adult, one-child household, though experienced wages for both occupations exceed the average.

Exhibit 3: Wages for selected occupations⁴



³ Ibid.

⁴ Emsi 2019.1, Living Wage Calculator: Counties and Metropolitan Statistical Areas in CA, <http://livingwage.mit.edu/states/06/locations>.

Burning Glass data for job postings for representative SOC codes identified a pool of 417 listings in the North/Far North region during the past year. The majority of job postings are located in the Greater Sacramento area. Exhibit 4 shows job posting trends since 2011 for each region.

Exhibit 4. Job posting trends for selected occupations⁵

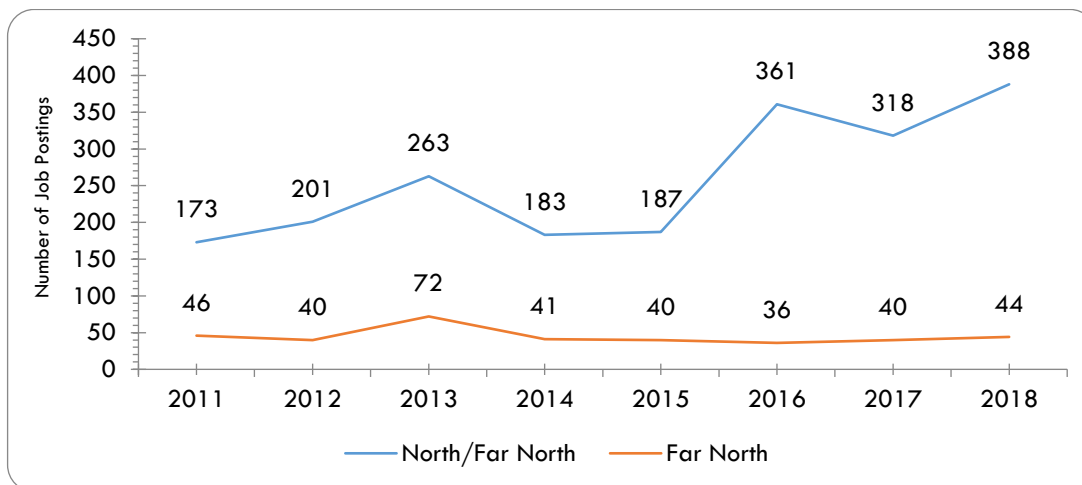


Exhibit 5 displays the skills most requested by employers in the 22-county North/Far North region bus and truck mechanics and diesel engine specialists and farm equipment mechanics and service technicians during the 12 month period of March, 2018 through February, 2019.

Exhibit 5. Top 10 skills desired in the selected occupations⁶

Bus and Truck Mechanics and Diesel Engine Specialists (386 postings, 370 indicate skill)		Farm Equipment Mechanics and Service Technicians (31 postings, 31 indicate skill)	
Most requested skills	% of postings	Most requested skills	% of postings
Repair	100%	Repair	100%
Predictive/Preventative Maintenance	29%	Machinery	41%
Welding	25%	Schematic Diagrams	38%
Hand Tools	22%	Predictive/Preventative Maintenance	35%
Fleet Preventive Maintenance	19%	Welding	35%
Machinery	17%	Farm Equipment	28%
Vehicle Maintenance	16%	Equipment Cleaning	24%
Electrical Systems	14%	Forklift Operation	21%
Auto Repair	13%	Basic Mathematics	14%
Occupational Health and Safety	13%	Equipment Maintenance	10%

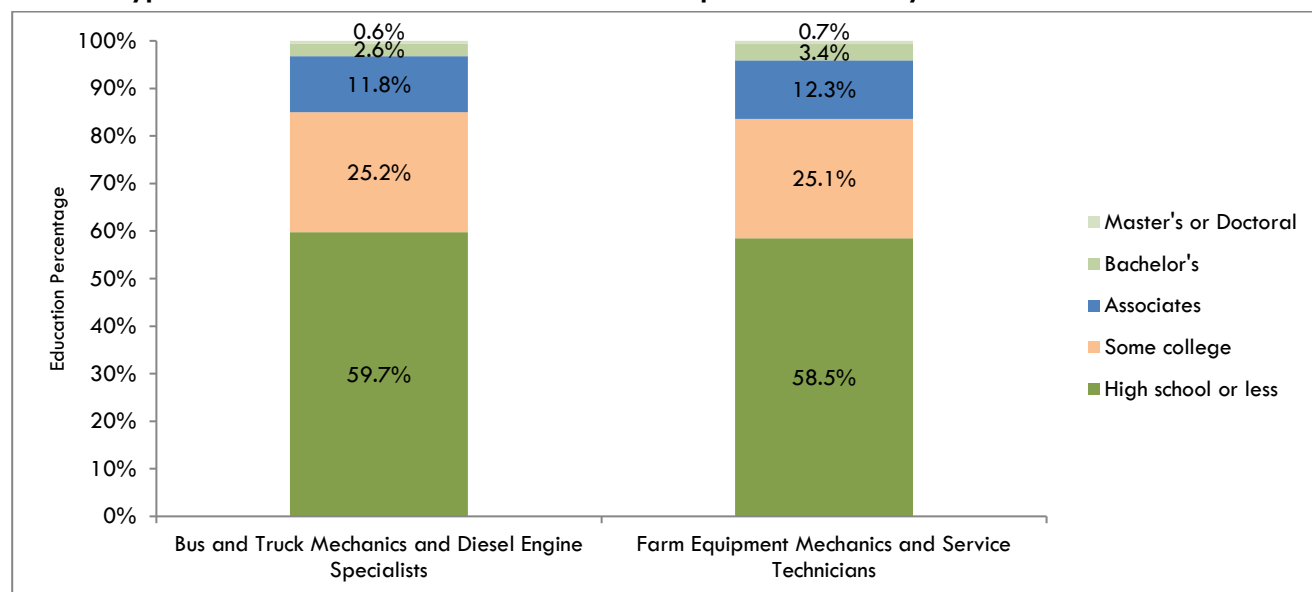
⁵ Burning Glass.

⁶ Ibid.

EDUCATIONAL ATTAINMENT AND SUPPLY

At the national level, the typical entry-level education is a high school diploma or equivalent. Typical on-the-job training for this profession is long-term on-the-job training. Exhibit 6 shows educational attainment percentages by occupation.

Exhibit 6. Typical educational attainment for selected occupations nationally⁷



To estimate supply, this study used the Taxonomy of Programs (TOP) codes Diesel Technology- 0947.00 and Agriculture Power Equipment Technology- 0116.00. There are two community colleges in the Far North region that awarded certificates or Associate degrees related to these TOP codes during the previous three years.

Exhibits 7 shows the number of awards conferred by Far North community colleges during the past three academic years.

Exhibit 7: Annual awards conferred by Far North community colleges, 2015-2018⁸

	Certificate				Associate Degree			
	2015-16	2016-17	2017-18	3-Yr Avg	2015-16	2016-17	2017-18	3-Yr Avg
Diesel Technology (0947.00)								
Shasta	5	2	5	4	4	5	11	7
Agriculture Power Equipment Technology (0116.00)								
Butte	0	8	6	7	4	5	6	5
Shasta	17	22	48	29	0	0	0	0
TOTAL	22	32	59	38	8	10	17	12

⁷ Current Population Survey, Educational Attainment for Workers 25 Years and Older by Detailed Occupation, 2016-17, https://www.bls.gov/emp/ep_table_111.htm.

⁸ California Community Colleges Chancellor's Office Data Mart, 3/1/19.

FINDINGS AND RECOMMENDATION

- Between 2018 and 2023, demand for both occupations is projected to be steady.
- Two community colleges in the Far North currently confer awards related to diesel technology occupations. Only Shasta College confers degrees or certificates for TOP code 0947.00- Diesel Technology.
- Butte College and Shasta College awarded an average of 34 certificates and 5 degrees annually for TOP Code 0116.00- Agriculture Power Equipment Technology.
- There are projected to be 28 annual openings for these occupations in the Butte and Glenn county sub-region and 90 annual openings in the Far North region through 2023.
- The simple gap analysis between supply (average of 38 certificates and 12 degrees annually) and demand of 90 annual openings suggests an undersupply of trained workers, especially considering a majority of these awards are related to Agriculture Power Equipment Technology and not Diesel Technology, specifically.
- Butte College could coordinate with the Far North region's Agriculture, Water, and Environmental Technologies Deputy Sector Navigator in the planning of this program.

COE Recommendation	
<input checked="" type="checkbox"/>	Move forward with program
<input type="checkbox"/>	Program is not recommended
<input type="checkbox"/>	Additional information needed

APPENDIX A: SOURCES

Sources used for data analysis purposes in this report include:

- U.S. Department of Labor/Employment and Training Administration (DOLETA) O*NET Online
- Burning Glass, Labor Insight/Jobs
- Economic Modeling Specialists, International (EMSI)
- California Employment Development Department, Labor Market Information Division (EDD, LMID)
- California Community Colleges Chancellor's Office Management Information Systems (MIS Datamart)
- California Community Colleges Chancellor's Office, Cal-PASS Plus LaunchBoard

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