



Prewitt Industrial Cluster: Workforce Skills and Economic Development Assessment & Final “Best Fit” Targets

Prepared for the
**Northwest New Mexico
Council of Governments**

Revised August 2018

Prepared by



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&
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INTRODUCTION

The Northwest New Mexico Council of Governments, representing McKinley and Cibola Counties, has contracted with Foote Consulting Group, LLC (FCG), a global site selection and economic development firm, to complete this analysis for the Prewitt Region. This is the second of a multi-report project.

The ultimate objective of this analysis is to determine the “best fit” target industries for the region based on the supply chain and preliminary target industry analysis, already completed, and this economic development assessment.

The analysis was carried out in a multi-phased approach, including:

- Workforce Skills Assessment
- Economic Development Assessment
- Prewitt Region’s Strengths & Weaknesses for Each Preliminary Target Sector
- “Best Fit” Targets

The Prewitt Region is ready to attract new companies that will bring new jobs and capital investment. This analysis will help to lead the way! You need a good “back-to-basics” approach designed to identify and approach the right targets, to sell to them the many positive aspects of the region, and to land deals.

ECONOMIC DEVELOPMENT ASSESSMENT

Introduction

In corporate site selection, we analyze communities in order to determine if they possess the attributes most important for our clients. Our objective in this phase of work is to:

- Understand the workforce skills and other general location needs of potential targets (“growth clusters”)
- Understand the strengths and weaknesses of the Prewitt Region
- Match these strengths/weaknesses with the needs of the potential target sectors
- Determine the “Best Fit” targets based on our assessment.

The Location Needs of the Preliminary Targets

Based on our site selection experience, we have listed some new trends and the top site selection criteria for select projects of each of the eight (8) preliminary targets clusters (not by priority). Preliminary target clusters include:

- | | |
|-------------------------------------|---------------------------------|
| • Warehouse/Distribution | • Oil/Gas Related |
| • Financial/Software Service | • Food/Beverage |
| • Chemicals/Pharma/Plastics | • Industrial Machinery |
| • Paper/Wood/Furniture | • Electronics/ Computers |

Warehouse/Distribution (DC; fulfillment centers)

Warehouse/distribution projects are rapidly changing since online retailer warehouse projects are heating up the markets. Retailers and logistics companies have been opening warehouses at a quick rate in order to ensure online orders reach customers as quickly as possible. Now they're struggling to find workers to staff them. Changes include:

- Smaller centers in metro markets, including 10,000-20,000-square-foot projects (fulfillment centers)
- Big wage gains as competition for fewer workers in larger metro areas (up 6% nationally)
- E-commerce fulfillment centers require 2 to 3 times as many workers as traditional warehouses
- E-commerce officials are trying to find new locations and find new ways to attract talent, such as gift cards, employee barbecues and holiday breakfasts, and flexible shifts
- Attracting more part-timers
- More automated systems to avoid more hiring.

Distribution Center (DC) Project

Key Site Selection Needs (by priority)

- Access to market/transportation/freight costs
 - Access to intermodal freight terminals and ports growing in importance
- Adequate labor costs/availability (mostly unskilled)
 - Key positions: pickers/packers; material handlers; forklift drivers; and truck drivers
- Good electric power (costs/reliability)
- Access to Interstate highways (five minutes to 55 miles per hour ("5 to 55"))
- Large and smaller sites (5-to-100 acres) and/or buildings (10,000-40,000-square-foot plus)
- Rail service for select operations
- Incentives
 - Infrastructure
 - Training
 - Flexible hours
 - Employee gifts
- Good labor/management relations.

Top DC Locations/Expansions 2017-18 in the Four-State Region

<u>City</u>	<u>State</u>	<u>Company</u>	<u>NAICS</u>	<u>Jobs</u>	<u>Size (SqFt)</u>
Santa Teresa	NM	FedEx	484121	200	215,000
Salt Lake City	UT	UPS	492110	195	1,200,000
Aurora	CO	Amazon	454113	250	452,000
Clearfield	UT	Amazon	454113	1500	855,000
Thornton	CO	Amazon	454113	1500	855,000
Aurora	CO	UPS	492210	700	360,000
Phoenix	AZ	B. Braun	339112	338	250,000
Goodyear	AZ	Chewy, Inc	453910	1200	802,000

Financial/Software Services

Call Center Project

Key Site Selection Needs (by priority)

- Labor availability
 - Key positions: customer service representatives (CSR); help desk reps; telemarketers; programmers; and industry experts
- Labor quality (low turnover, absenteeism, etc.)
- Labor costs
- Telecommunications
- Education/Training (and incentives)
- Existing leased Class A/B buildings with ample parking and/or improved commercial sites
- IT tech support
- Commercial air service
 - Good access to corporate headquarters/related
- Lower corporate income tax
- Electric power (reliability & cost).

Data Centers

The cost of data centers is rising rapidly with capital investment of roughly \$500 billion industry wide in 2016. The top three cloud-computing firms (Amazon, Microsoft, and Alphabet's Google) have spent \$31.5 billion in 2016 on capital expenses and leases—up 22% from 2015.

- Amazon – Plans several large data centers (“region”) in Stockholm and they could run several hundred million dollars. Also announced center in Paris and Ningxia, China.
- Microsoft has planned/added France; San Antonio, Texas; and Phoenix, Arizona.
- Google recently announced centers in Nevada (1,210 acres recently purchased east of Reno; could be for plants and for R&D also); California; Canada; and the Netherlands.

- “Clouds” are being developed by just a few large companies, including these three; but Oracle is also becoming an important player.

Another important data center player is Facebook, who just announced a project in Albuquerque, NM and is building its ninth data center, a 146-acre campus in Papillion, Nebraska, south of Omaha. The 520,000-square-foot center is expected to be online in 2020 and will use 100% wind-generated electricity. Facebook has a company goal of using 50% clean and renewable energy in its electricity supply mix for all data centers.

CryptoWatt Mining is building a Bitcoin mining center in Butte, Montana for \$140 million. Electric power costs in the \$.035 per kwh range was the critical location factor. The cool weather (limited days above 70 degrees) was another important factor.

Data Center Project

Key Site Selection Needs (by priority)

- Geographic diversity & disaster avoidance
 - Spreading risk from a multiple location standpoint and voiding natural disasters
- Lower electric power cost (often seeking clean and renewable resources)
- Lower state corporate income tax rates
- Lower state and local sales taxes
 - Could be levied on millions of dollars’ worth of servers purchased that are replaced every three to five years
 - Low rates and/or abatement or rebate on sales taxes are important
- Lower personal property taxes on equipment
- Utility infrastructure
 - Electric power grid
 - Transmission fed power
 - Onsite substation
 - Fiber availability & bandwidth
 - Water for cooling
- “Ready to go” sites
 - Acreage for secure and stable sites varies widely but 25 acre minimum could allow proper security buffer
 - Very large sites (100 acre plus) could accommodate mega centers
- Speed to occupancy and state/community readiness
- Some technical skills, including programmers, data technicians, and IT specialists.

Top Call/Data Center Locations/Expansions 2017-18 in the Four-State Region

<u>City</u>	<u>State</u>	<u>Company</u>	<u>NAICS</u>	<u>Jobs</u>	<u>Size (SqFt)</u>
Rio Rancho	NM	PCM, Inc.	443142	224	29,000
Tempe	AZ	Amazon	484121	1500	60,000
Tempe	AZ	Automatic Data	561499	300	225,000
Fort Collins	CO	Comcast	515210	600	80,000
Grand Junction	CO	Startek	518210	200	
Los Lunas	NM	Facebook	519190	300	2,800,000

Chemicals/Pharmaceuticals/Biotechnology/Plastics

Plastics Manufacturing Project

Key Site Selection Needs (by priority)

- Lower labor costs and unskilled/semiskilled availability
 - Key positions: machine operators, maintenance mechanics, and warehouse workers
- Good electric power (reliability and costs)
- Natural gas service
- Fully improved sites and/or existing buildings (30,000-square-foot minimum)
- Access to market/transportation costs
 - Customers often require JIT delivery
- Rail service
 - Pellets are often brought in via hopper car
- Incentives (training and offsets for large capital equipment costs)
- Good labor/management relations.

Top Chemical/Pharmaceutical/Plastics Locations/Expansions 2017-18 in the Four-State Region

<u>City</u>	<u>State</u>	<u>Company</u>	<u>NAICS</u>	<u>Jobs</u>	<u>Size (SqFt)</u>
Goodyear	AZ	KPS Global	326199	85	82,000
Belen	NM	Keter Plastics	326199	175	60,000
Lindon	UT	Aquatherm GmbH	326122		82,000
South Salt Lake	UT	Biomerics	326199	380	
Mesa	AZ	Niagara Bottling	325211	45	
Tempe	AZ	Capco	325620	50	
Yuma	AZ	Martech Medical	326299	129	

Paper/Wood Products

Paper Manufacturer

- Adequate unskilled/semiskilled workers
- Need some skilled workers
 - Key positions: electrical engineers; engineers; welders; mechanics; and maintenance mechanics
- Reasonable labor costs
- Access to good supplier and customer network, including raw timber
- Transportation costs and access to Western markets
- Competitive electric power costs & good reliability
- Natural gas service
- 50 +-acre fully-improved sites
- Rail service
- Excess water/sewer capacities/raw water source
- Good technical college with flexibility in training (incentives)
- Good labor/management relations.

Top Paper Locations/Expansions 2017-18 in the Four-State Region

<u>City</u>	<u>State</u>	<u>Company</u>	<u>NAICS</u>	<u>Jobs</u>	<u>Size (SqFt)</u>
Phoenix	AZ	Inteplast Group	322220	20	
Phoenix	AZ	Runbeck Election	322230	20	

Oil/Gas Supplier Operations

Oil project outlooks are rapidly improving as oil prices keep rising. The Permian Basin in west Texas and eastern NM remains the hot spot for the fracking industry, but prices for development and workforce shortages are causing companies to look elsewhere. The Four Corners Region, including the Prewitt Area, may be a location for future development.

Oil/Gas Pipe Supplier Project

Key Site Selection Needs (by priority)

- Available labor – machining skills & quality
 - Key positions: machinists; maintenance mechanics; machine operators (CNC); welders; and warehouse workers
- Labor costs
- Access to Western markets/transportation costs
- Interstate highway access
- Lower electric power costs (good reliability)

- Natural gas service
- Improved sites and/or existing buildings
- Rail access
- Available training (and incentives)
- Good access to suppliers
- Good labor/management relations.

Top Oil/Gas Locations/Expansions 2017-18 in the Four-State Region

<u>City</u>	<u>State</u>	<u>Company</u>	<u>NAICS</u>	<u>Jobs</u>	<u>Size (SqFt)</u>
Denver	CO	Synergy Resources	213111		40,000
Denver	CO	Liberty Oilfield	213112		40,000
Phoenix	AZ	NPL Construction	237120	60	

Food/Beverage Processing

The food industry is rapidly changing based on “what people now want to eat”, including the desire for more organics, non-GMO, and gluten and dairy free options. Location decisions are more based on:

- Access to markets (Interstate highways and good rail service) and being closer to expanding grocery chains (i.e. Costco and Whole Foods)
- Access to non-GMO “home grown” raw commodities (i.e. tomatoes, peppers, corn, etc.)
- Electric power costs and availability (many need dual power feeds)
- Excess water and sanitary sewer capacities
- Large sites (100-acre plus), often with rail, for larger plants and distribution options.

Food Processing Plant

Key Site Selection Needs (by priority)

- Available unskilled/skilled labor
 - Key positions: machine operators (cutting, blending, & PLC); food technicians; maintenance mechanics; and warehouse workers
- Adequate labor costs
- Access to Western markets & raw materials/transportation costs
- Excess water and sanitary sewer capacities
- Attractive electric power costs/good reliability
- Fully improved industrial sites/specialized buildings
- Incentives
 - Equipment tax exemptions (large capital investment) and/or lower taxes
 - Infrastructure

- Training
- Good highway access
- Rail service for many
- Good labor/management relations.

Top Food Locations/Expansions 2017-18 in the Four-State Region

<u>City</u>	<u>State</u>	<u>Company</u>	<u>NAICS</u>	<u>Jobs</u>	<u>Size (SqFt)</u>
Tolleson	AZ	SK Food Group	311412	550	212,000
Casa Grande	AZ	Abbott Labs	311999	100	
Greeley	CO	Leprino Foods	311513	150	210,000
Longmont	CO	JM Smucker	311999	250	
Hurricane	UT	Litehouse, Inc	311941	165	
Santa Fe	NM	Second St. Brewery	312120	35	
Yuma	AZ	ST Partners	311999	100	

Industrial Machinery

Industrial Machinery Project

Key Site Selection Needs (by priority)

- Available labor – machining skills & good quality
 - Key positions: machinists; maintenance mechanics; machine operators (CNC); welders; and warehouse workers
- Lower labor costs
- Access to Western and Midwest markets/transportation costs
- Interstate highway access
- Competitive electric power (reliability & costs)
- Natural gas service
- Improved sites and/or existing buildings
 - May require heavy industrial zoning
 - Existing buildings – minimum of 20,000 square feet
- Rail access
- Good water and sewer capacities
- Available training (and incentives)
- Good access to suppliers
- Good labor/management relations.

Top Industrial Machinery Locations/Expansions 2017-18 in the Four-State Region

<u>City</u>	<u>State</u>	<u>Company</u>	<u>NAICS</u>	<u>Jobs</u>	<u>Size (SqFt)</u>
Salt Lake City	UT	Packsize International	333993	354	
Gilbert	AZ	Silent Aire Manufacturing	333415	250	146,000
Gilbert	AZ	Sunstream Technology	333414	747	46,000
Westminster	CO	Swisslog Healthcare	333414		30,000

Electronics Equipment

Electronics Assembly Operation

Key Site Selection Needs (by priority)

- Labor availability and quality
 - Key positions: assemblers (mostly unskilled/semiskilled); electronic technicians; winders; testers; and maintenance mechanics
 - High level security clearances are a plus
- Lower labor costs
- Education/training with incentives
- Competitive electric power costs & good reliability
- Supplier network
- Overnight carriers (FedEx; UPS)
- Proximity to markets/good highway access
- Fully improved industrial parks
- Competitive building costs
- Lower corporate taxes.

Top New Electronics Locations/Expansions 2017-18 in the Four-State Region

<u>City</u>	<u>State</u>	<u>Company</u>	<u>NAICS</u>	<u>Jobs</u>	<u>Size (SqFt)</u>
Farmington	NM	Raytheon	334418	70	30,000
Tucson	AZ	Accelerate Diagnostics	334516	43	4,000
Chandler	AZ	Rogers Corp	334419	125	17,450
Westminster	CO	Zimmer Holdings	334510	40	104,000
Loveland	CO	Hach Co	334519		86,000
Chandler	AZ	Intel	334413	3,000	
Albuquerque	NM	Solaero Tech	334419	100	
Logan	UT	Electric over	335911	128	
Ogden	UT	Enve Composites	335991		80,000
Phoenix	AZ	Mercury Systems	334418		115,000
Albuquerque	NM	Raytheon	334511	60	72,000
Denver	CO	York Space Systems	334220		142,000
Westminster	CO	Trimble Navigation	334511	660	120,000
Westminster	CO	Ball Aerospace	334511		145,000
Phoenix	AZ	RJR Technologies	335999	94	30,000

Workforce Skills Assessment**Introduction**

FCG examined key workforce issues prevalent in all the preliminary targets as they relate to the Prewitt Region. Each is rated a Strength, a Weakness, or Average. These will help us to determine how the Prewitt Region will match up with the preliminary target workforce needs. Criteria include:

- Labor Costs
- Labor Availability & Quality
- Education/Training

With the help of the Northwest New Mexico Council of Governments staff setting them up, FCG interviewed 24 companies/educators (see Appendix) in our effort to learn as much as possible about the Prewitt Region's economy.

We also benchmarked the Prewitt Region against four (4) competitor cities for select workforce and other criteria:

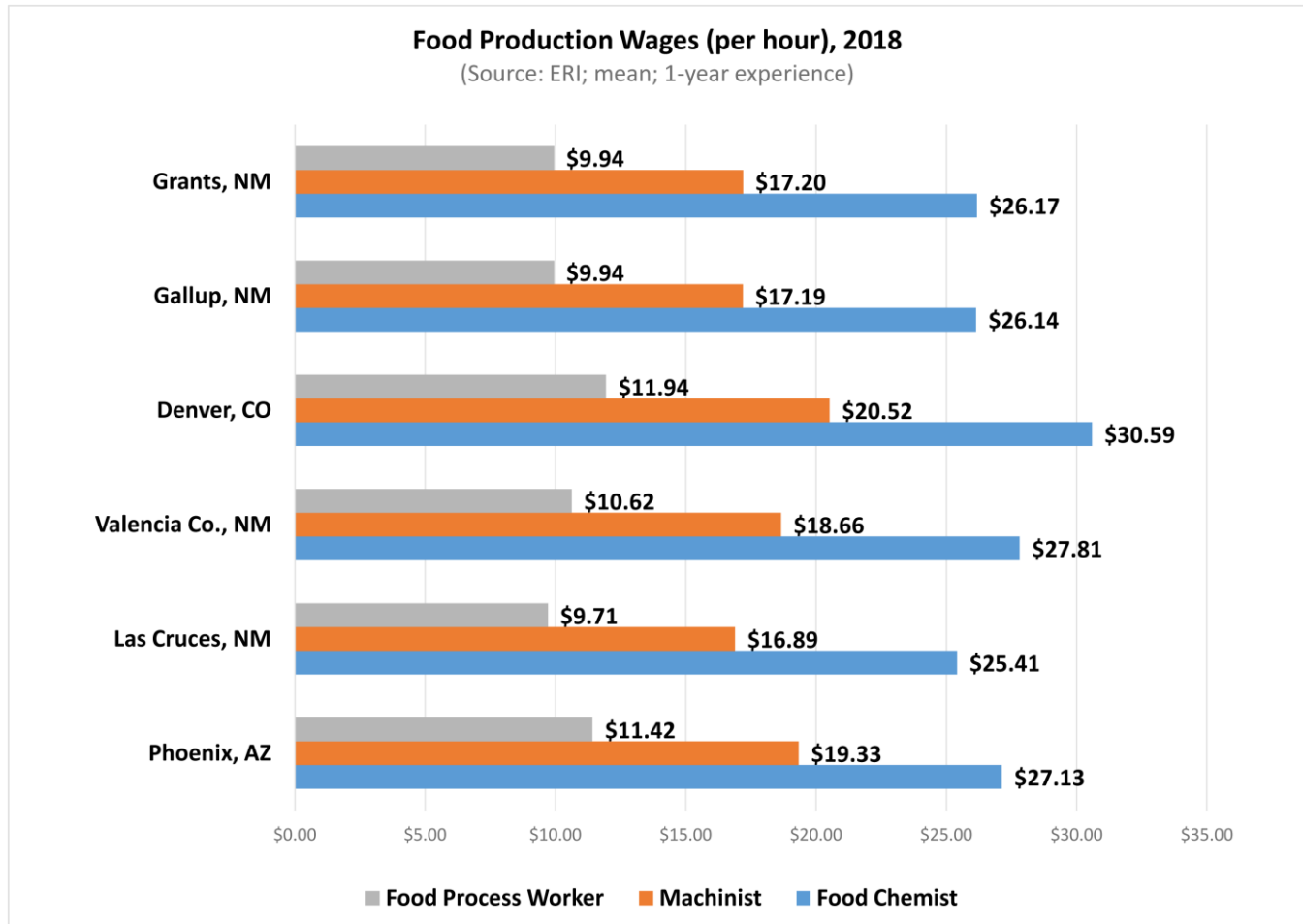
- Las Cruces, NM (Santa Teresa; BorderPlex Region)
- Valencia County, NM (Los Lunas)
- Denver, CO
- Phoenix, AZ.

FCG considers McKinley and Cibola Counties as one labor shed (the draw area for employees traveling to work) since workers are able to travel over an hour to work in some cases.

Labor Costs**Strength**

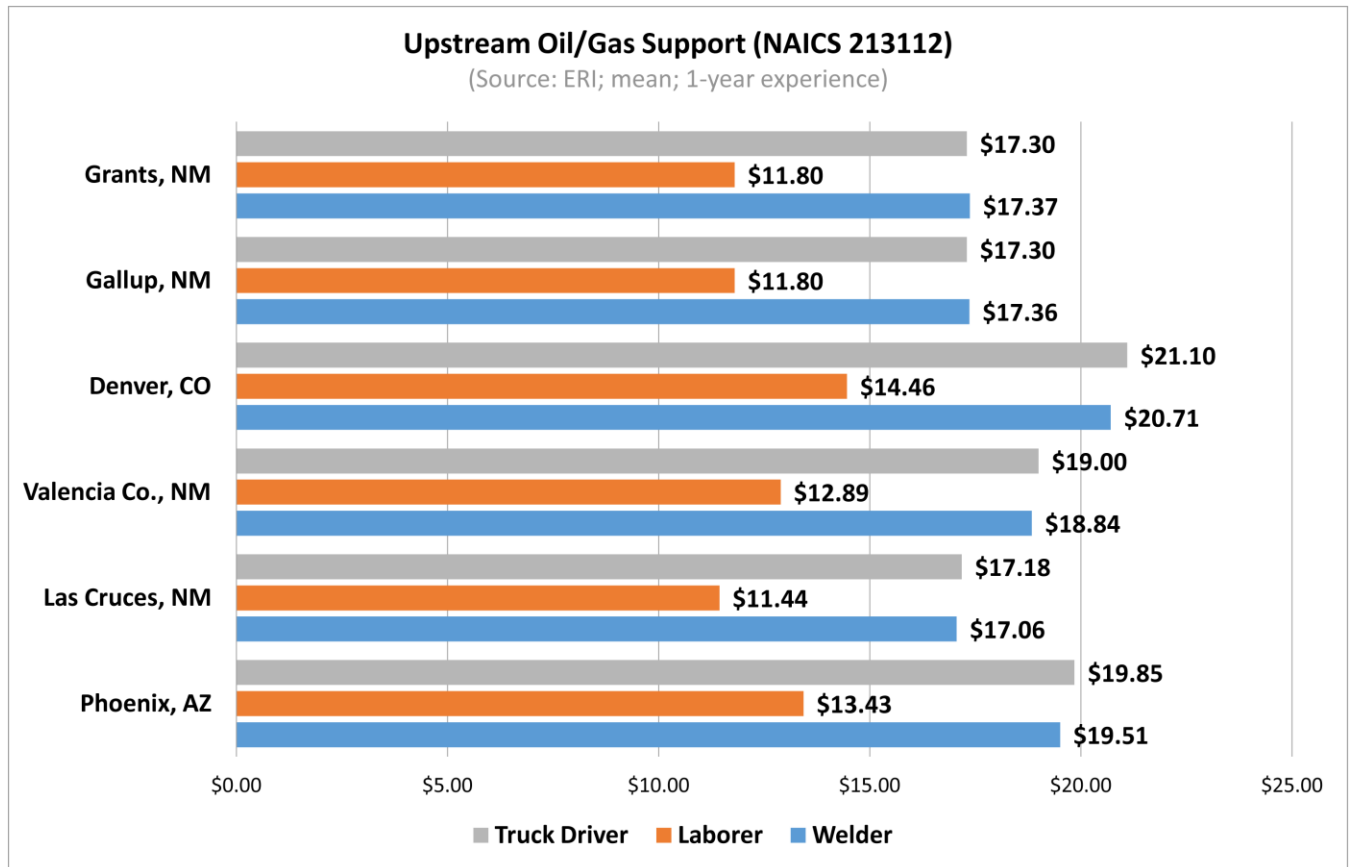
Wage rates and salaries are the single most important labor factor both affecting the availability of good quality workers in a marketplace and affecting a company's competitive position. Up to 80% of the annual operating costs of a project can be labor. Select salary comparisons follow, recognizing that employers will be seeking the lowest wages in order to save costs.

We utilized salary/wage data from our Economics Research Institute (ERI) database, 1st Quarter 2018 to compare wages in the Prewitt Region versus the competitive communities. Wages are for workers with one-year experience, median without benefits.

Food Production Wages

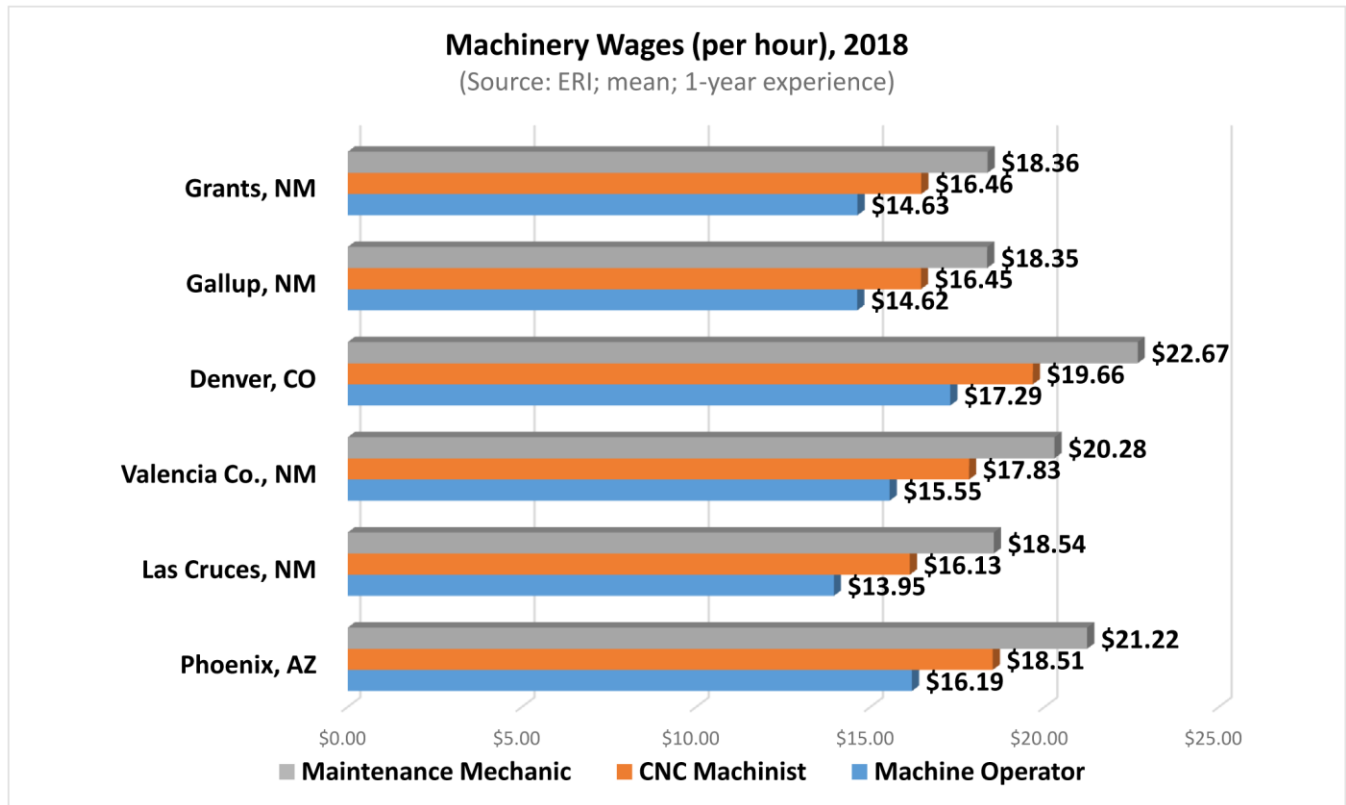
- The Prewitt Region (Grants and Gallup) have the second lowest wages overall, behind Las Cruces.

Oil/Gas Wages



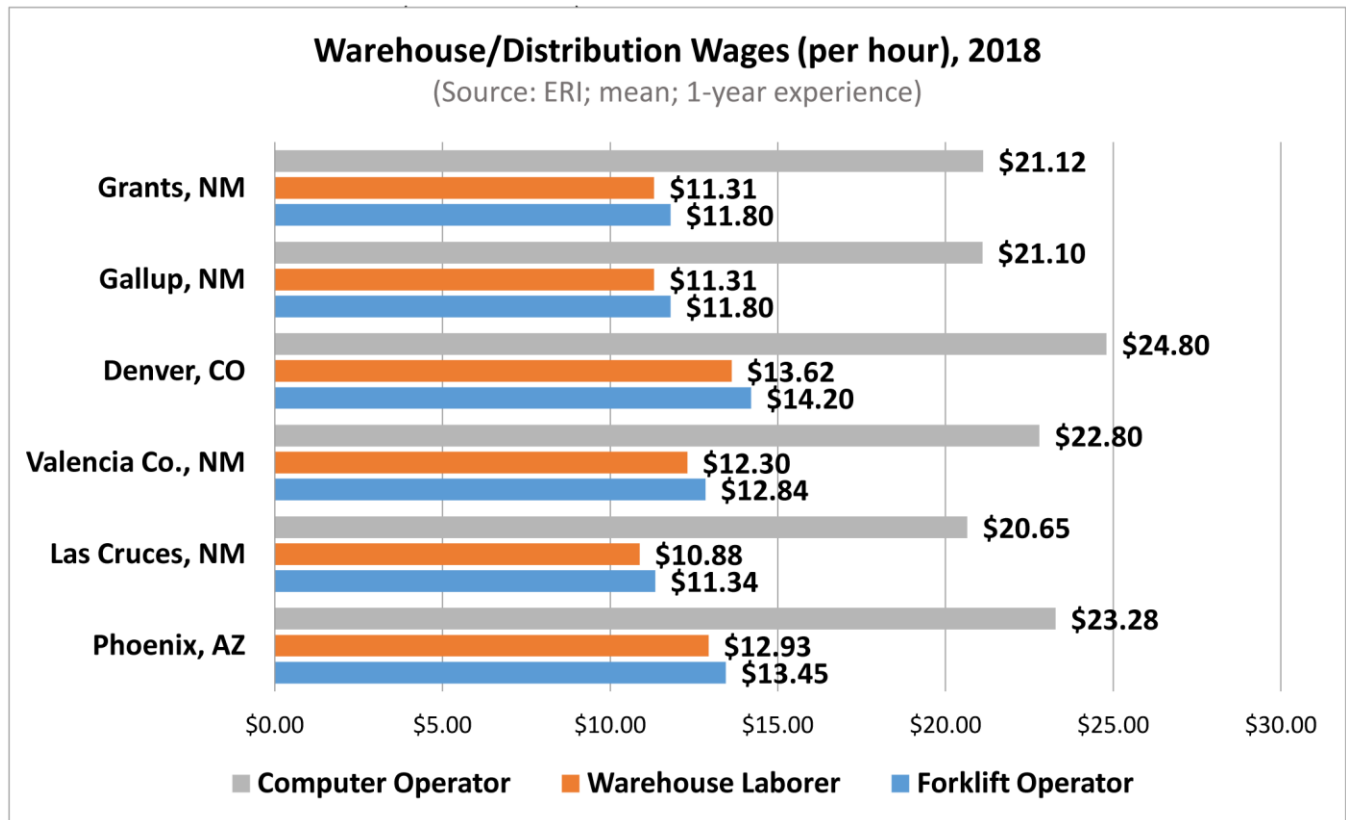
- The Prewitt Region (Grants and Gallup) have the second lowest wages overall, behind Las Cruces.

Machinery Wages



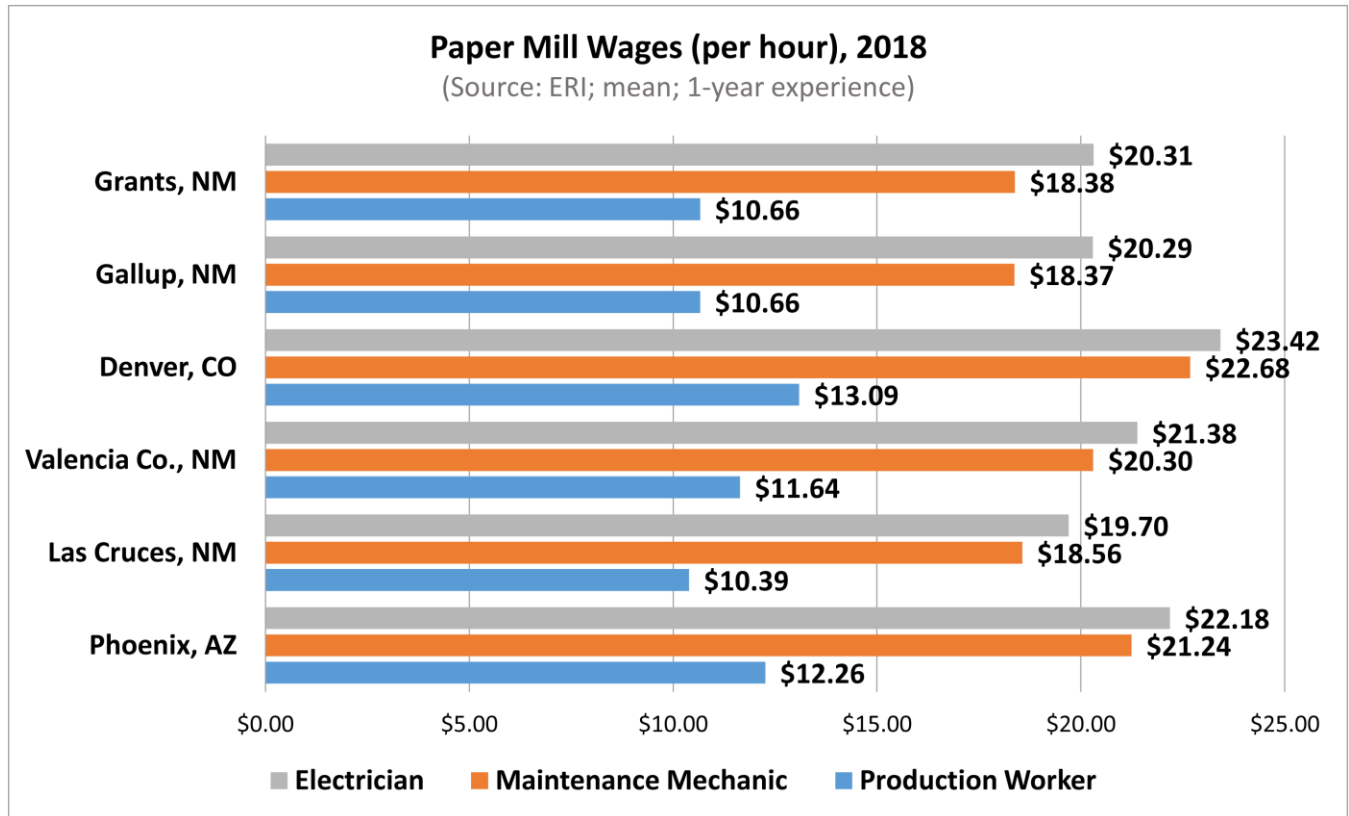
- The Prewitt Region (Grants and Gallup) have the second lowest wages overall, behind Las Cruces, except for Maintenance Mechanic, where the Prewitt Region wage is the lowest.

Warehouse/Distribution (DC) Wages



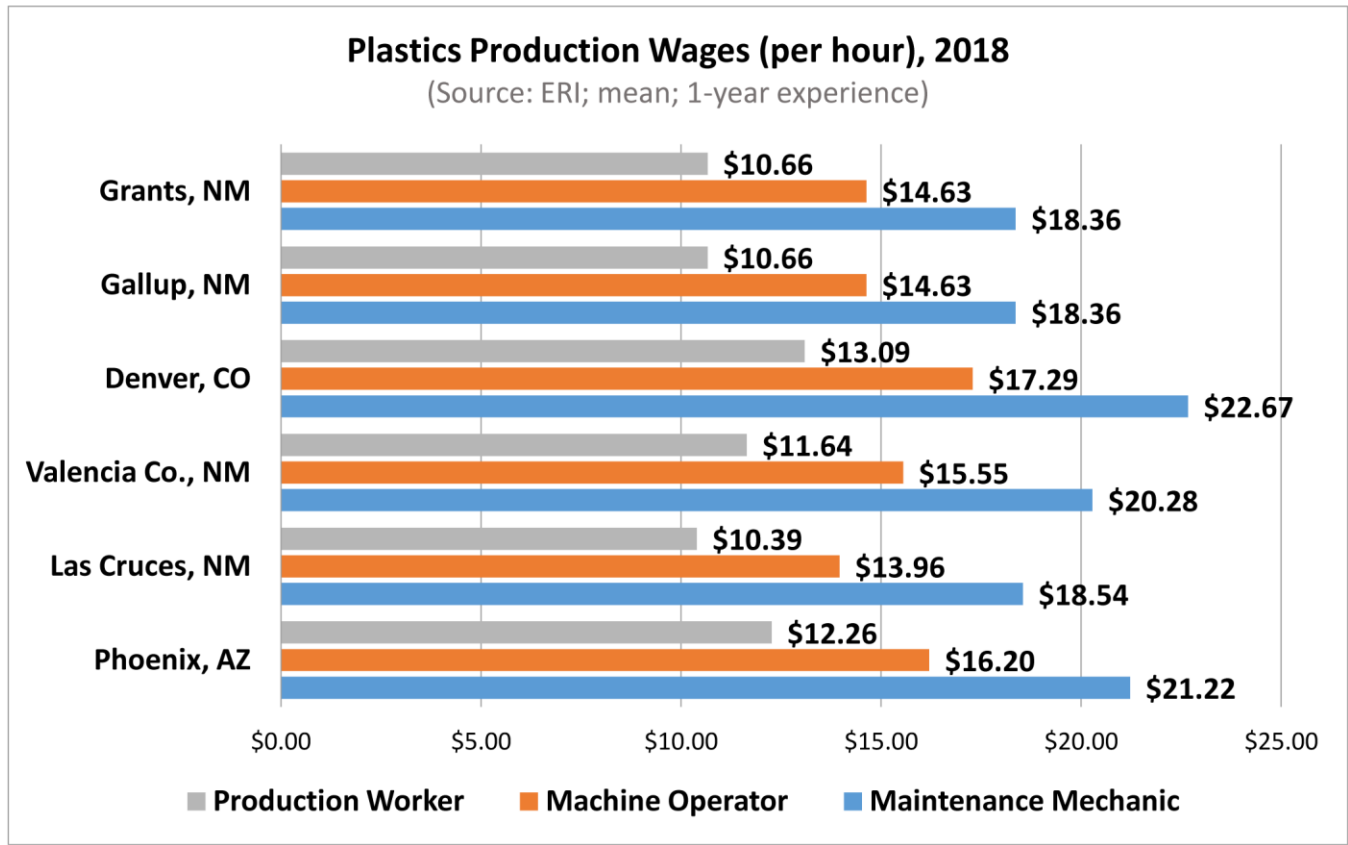
- The Prewitt Region (Grants and Gallup) have the second lowest wages overall, behind Las Cruces.

Paper Mill Wages



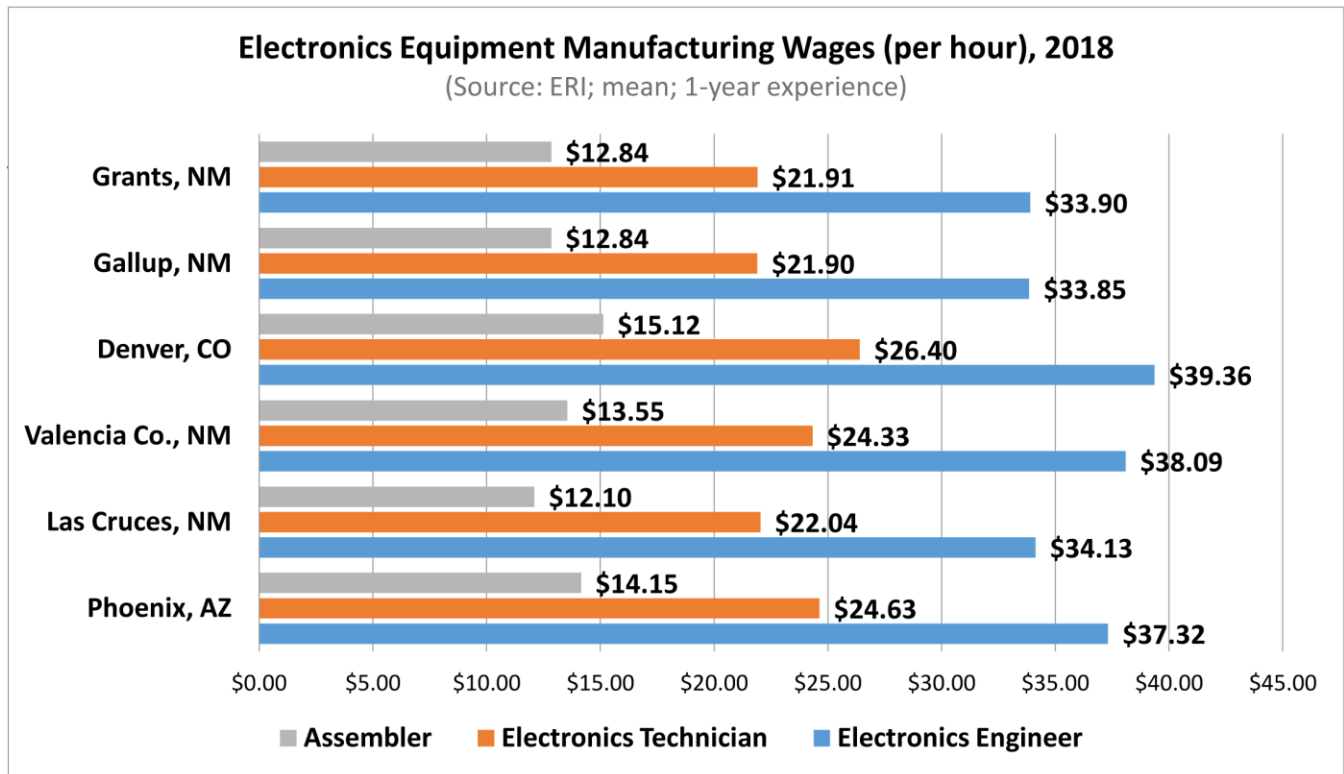
- The Prewitt Region (Grants and Gallup) have the second lowest wages overall, behind Las Cruces, except for Maintenance Mechanic, where the Prewitt Region wage is the lowest.

Plastics Production



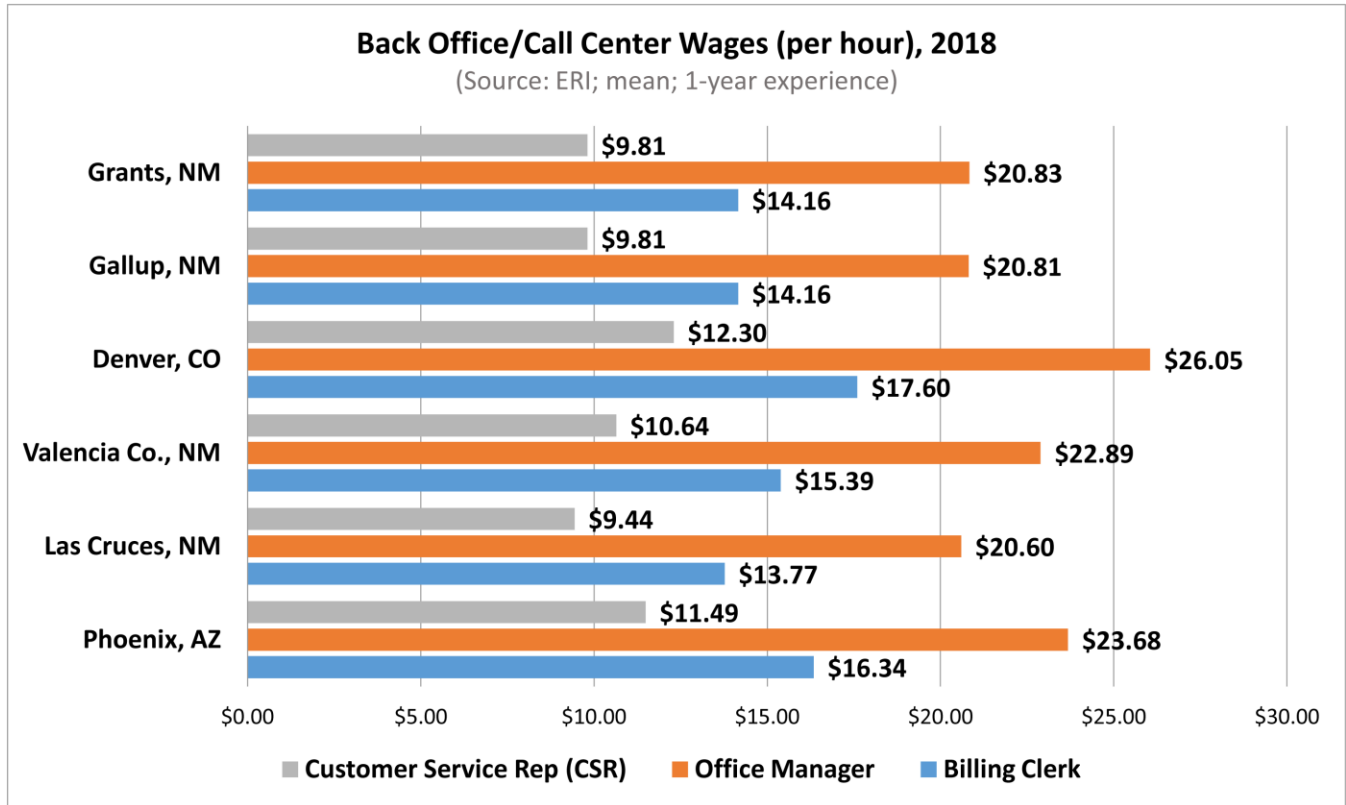
- The Prewitt Region (Grants and Gallup) have the second lowest wages overall, behind Las Cruces, except for Maintenance Mechanic, where the Prewitt Region wage is the lowest.

Electronics Equipment Manufacturing



- The Prewitt Region (Grants and Gallup) has the lowest wages for Electronics Technician and Electronics Engineer.

Back Office/Call Center



- The Prewitt Region (Grants and Gallup) have the second lowest wages overall, behind Las Cruces.

Key Conclusions: Employers will seek the lowest and/or the most competitive wages when seeking a location.

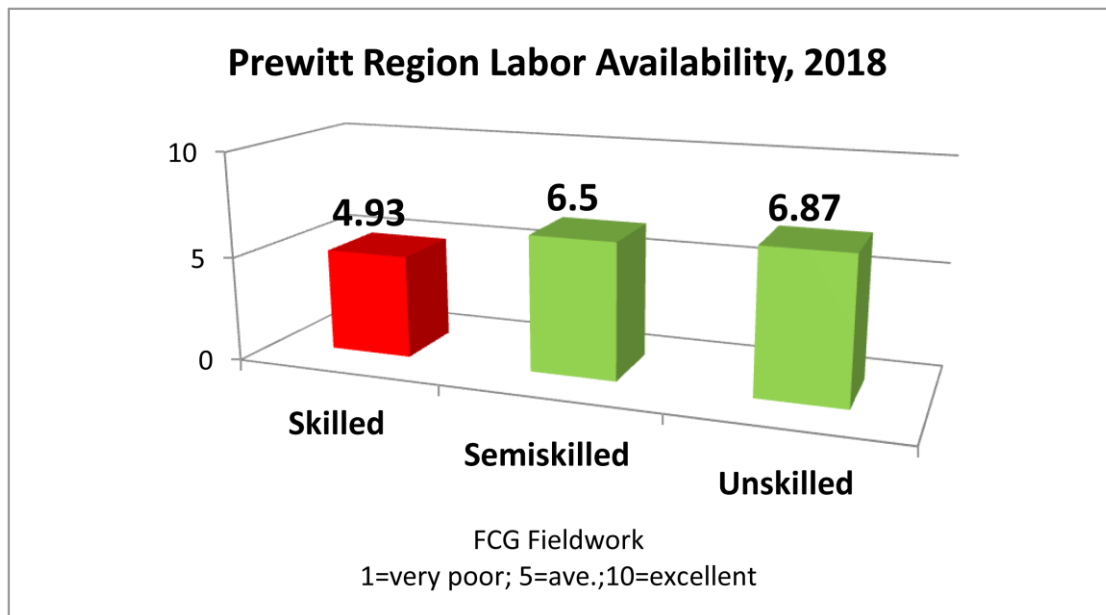
- ✓ **Prewitt Region wages are generally lower than all competitive communities, except Las Cruces.**
- ✓ **Maintenance Mechanic wages, in many cases, are lowest in the Prewitt Region** (but a “Wage Threshold” adjustment [see later] may make it closer).
- ✓ **Prewitt Region wages for Electronics Technician and Engineer are the lowest.**

Labor Availability

Some Weaknesses – Some Strengths

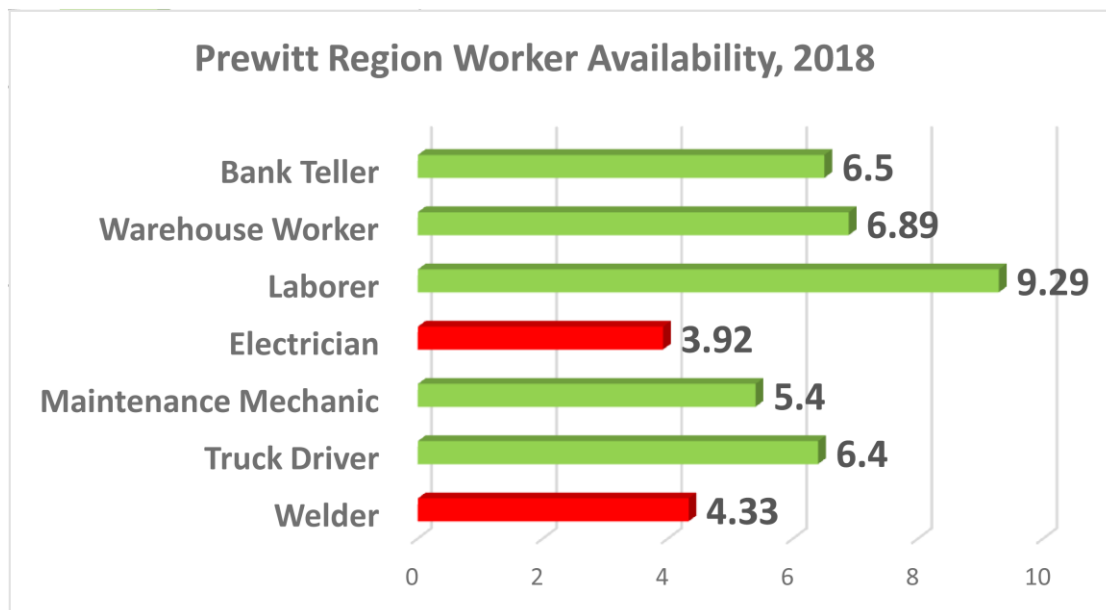
The ability to attract the right skills is critical to the success of a project. The major hurdle standing in the way of U.S. manufacturing is the shortage of workers with the skills to fill the advanced manufacturing jobs. This shortage for the skilled workforce pool is a national problem.

We use the *FCG Availability Index*, which measures labor availability, right now, on a one to ten point scale (1=poor; 5=average; and 10=excellent). We use the same index in all of our labor market studies nation-wide and this gives a true “apples-to-apples” comparison of different communities. Generally, scores of 1 to 2 are “poor;” 3 to 4 are “below average;” 5 is “average;” 6 to 7 are “above average;” 7 to 8 are “good;” and 8 to 9 are “very good;” and 9 to 10 are “excellent.”



Based on company interviews, the following chart depicts current labor availability:

- Skilled is “below average” (colored **RED**)
- Semi-skilled and unskilled are rated “above average” (colored **GREEN**).



Skilled Availability

- **Welders are “below average”**
- **Electricians are “below average”**
- **Truck Drivers are “above average”**

Unskilled Availability

- **Laborers are “excellent”**
- **Warehouse workers are “above average”**
- **Bank Tellers (and other clerical) are “above average”**

Employer Quotes

We asked companies their opinions on availability. Here are the responses (alphabetically):

- *“10 jobs? We would get 40 to 50 applications.”*
- *“...50% unemployment rate for natives helps.”*
- *“All the home building skills are here for us (carpenter; plumbers; electricians; and welders.”*
- *“Applicants need cash and customer service experience.”*
- *“Colleges will train your truck drivers.”*
- *“Commuters? 95% from Grants; some from ABQ and from Silver City.”*
- *“...could find 5 or 6 mechanics right now; electricians are harder.”*
- *“...excellent with hand skills.”*
- *“...good luck with homebuilder skills (carpenters, electricians, and carpenters).”*
- *“...had good luck with Navajo welders.”*
- *“High skills are impossible to find; get many from Farmington, but they won’t stay”*
- *“Hire 50 unskilled? Depends on the jobs, but little trouble here”*
- *“...labor pool is difficult here.”*
- *“...lack of skilled labor; many miners have left for other jobs.”*
- *“Load-out folks are tough to find.”*
- *“Machinists just are not available.”*
- *“Many can’t pass our welder test.”*
- *“Many skilled workers have left the region, but want to return home!”*
- *“Most mines have slowed way down or closed, but there has been quite a bit of cross over to other jobs; so many skills are still here.”*
- *“Navajos will provide us with all the welders (Navajo Welders Union) that we need.”*
- *“Night shifts...harder to fill these jobs.”*
- *“...no trouble finding select reclamation skills.”*
- *“...not too bad finding truck drivers...they are home every night.”*
- *“...not too hard finding unskilled.”*
- *“...old greenhouse now closed had no problem hiring 70-85 unskilled workers.”*
- *“...potentially skilled; come in unskilled and learn quickly.”*
- *“...pretty tough to find entry level workers.”*

- *“Skills will move if good jobs open up.”*
- *“Truck maintenance is tough to fill.”*
- *“...very hard to relocate professional and engineers here.”*
- *“...very tough to find Maintenance Mechanics.”*
- *“We are in good shape.”*
- *“We have a good hiring model.”*
- *“We have had some employees for 30 years.”*
- *“We hire at the bottom and teach our way.”*
- *“We screen using a temp agency...works well.”*
- *“We try to find engineers right out of college...close to home.”*
- *“We use the community college for some skills, like welders, but they can’t cover our operators.”*
- *“We will need up to 20 soon, one-third skilled...not too worried.”*
- *“Welders are available due to large turn-over in the oil/gas industry.”*
- *“Workers will come find the jobs; most leave their families at home and live temporarily.”*
- *“...young workforce; mostly seasonal, hire more in Nov/Dec.”*

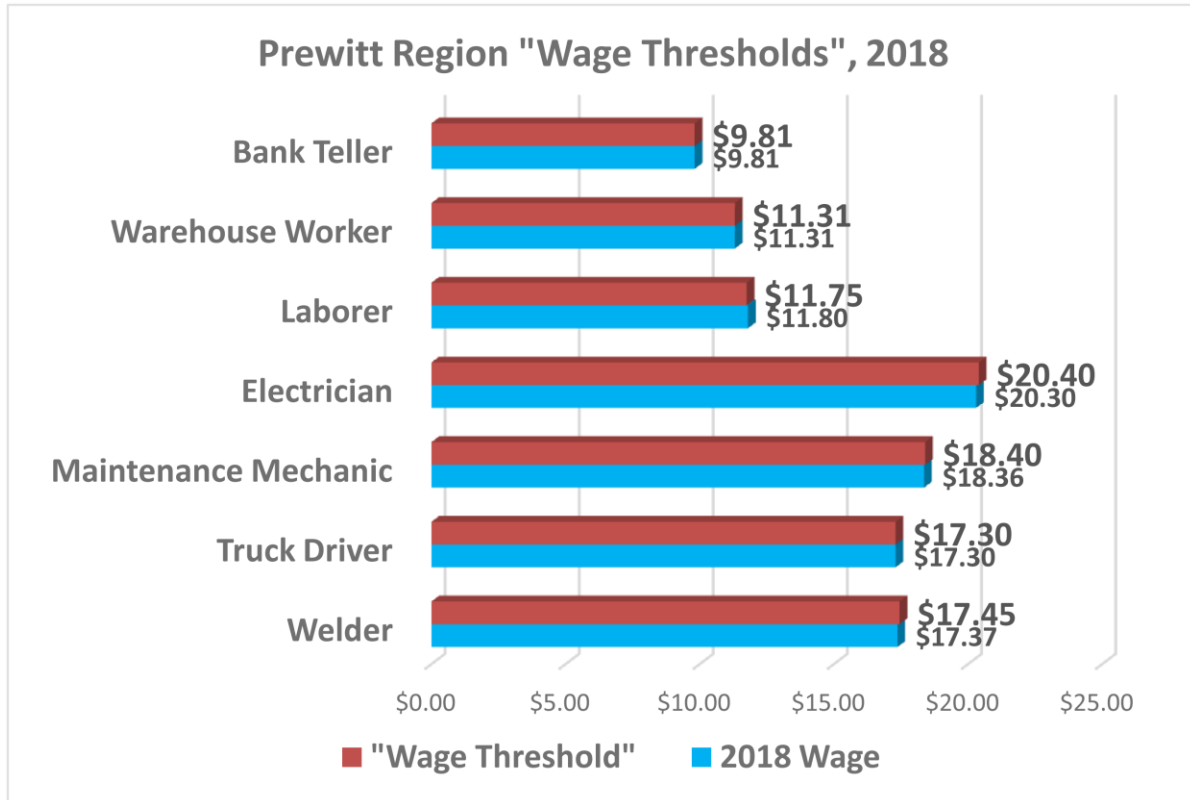
Key Conclusions: Based on the recent fieldwork, the Prewitt Region is “below average to excellent” for recruiting.

- ✓ **Some skilled workers are hard to find**, particularly electricians and some mechanics.
- ✓ **Welders are rated “below average”, but many companies are finding what they need.** Some employers are having good luck hiring welders through the Navajo Welders Union. Others are coming from Farmington after losing oil related jobs.
- ✓ **Laborer availability is “excellent”.**
- ✓ **The availability of semi-skilled and unskilled workers is rated “above average to very good”.**
- ✓ **There is “above average” availability of office workers.**

“Wage Threshold” – The Ideal Wage

FCG calculated the “Wage Threshold” or ideal wage for which a company should seek to enter the Prewitt Region market based on current wages and availability:

“Wage Threshold” – The ideal wage. Offering below this wage will result in poorer recruiting (and loss of employment to better paying local companies); and offering above this wage will result in improved recruiting (including “pirating” from other local companies) and retention, but it will cost the company too much money.



- The above “Wage Thresholds” were calculated:
 - Welder, Maintenance Mechanic, and Electrician wages should rise in order to improve availability.
 - Bank Teller, Warehouse Worker, and Truck Driver wages should remain the same.
 - Laborer wages may come down slightly since availability is excellent.

Labor Quality**Strength**

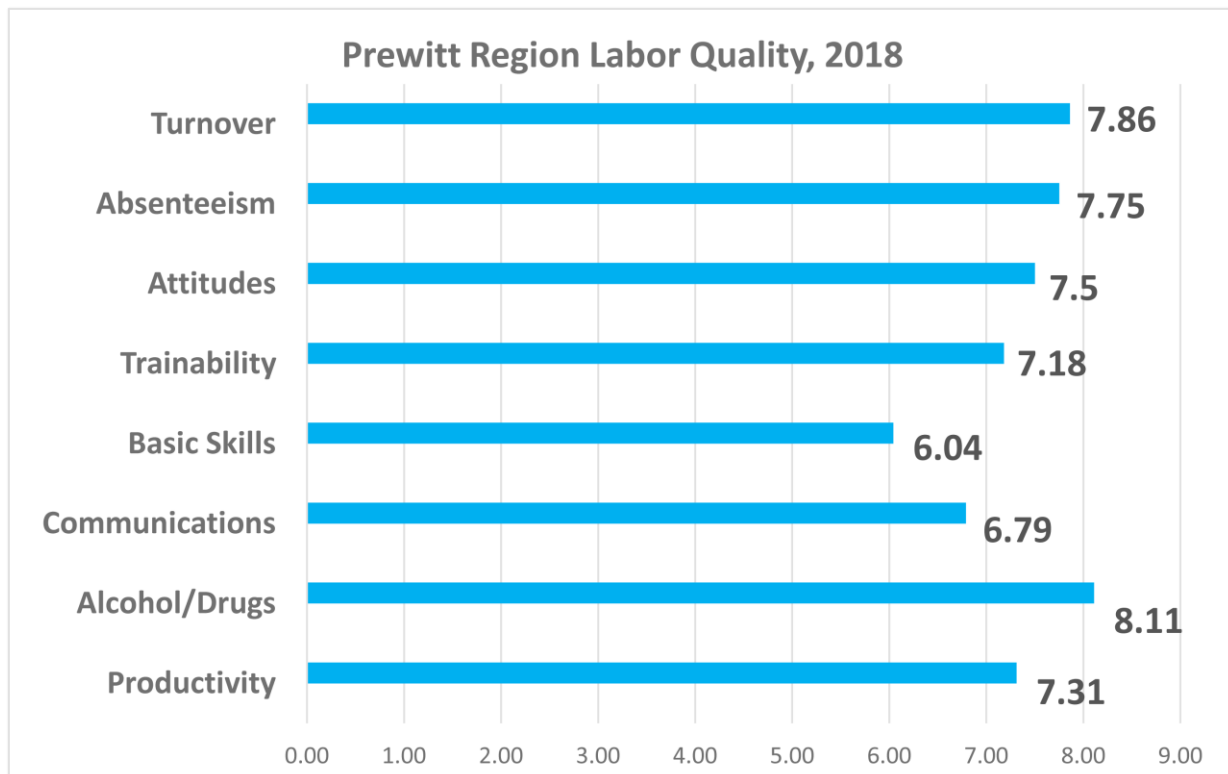
The ability to find quality workers will be critical to the success of any target company project. Through interviews with the local employers we were able to determine current labor quality in the Prewitt Region market.

We use the *FCG Quality Index*, which measures labor availability on a one to ten point scale (1=poor; 5=average; and 10=excellent). We use the same index in all of our labor market analysis nation-wide and this gives a true “apples-to-apples” comparison of different communities. Generally, scores of 1 to 2 are “poor;” 3 to 4 are “below average;” 5 is “average;” 6 to 7 are “above average;” 7 to 8 are “good;” and 8 to 9 are “very good;” and 9 to 10 are “excellent.”

Labor quality characteristics include:

- Turnover
- Absenteeism
- Attitudes – on-the-job
- Trainability – employees response to training
- Basic skills – math; English; grammar; blue print reading; etc. of applicants
- Communications – Employer/employee and employee/employee on-the-job
- Alcohol/drugs – Perceived situation
- Productivity – Employer’s measure.

The following are the current labor quality ratings:



- Overall labor quality is rated “Good” (7.31).
- All sectors, including basic skills, are rated “Above Average to Very Good”.

We asked companies their opinions on quality. Here are the responses (alphabetically):

- *“Absenteeism? Not here!”*
- *“Alcohol/drug problems? In 17 years, I can count problems on one hand.”*
- *“Apprentice programs have been set up for our key skills, including welders.”*
- *“Basic skills are better.”*
- *“Colleges will train your truck drivers.”*
- *“Employees kept the union out.”*
- *“Good communications...want a voice to do a better job.”*
- *“Good productivity!”*
- *“...low turnover in Gallup and in Grants.”*
- *“Morale here is good.”*
- *“No agreement with CC now, but need to get with tech schools to train welders and mechanics.”*
- *“...no attitude issues, if you treat them well.”*
- *“...not satisfied with the basic skills of applicants.”*
- *“Our turnover is terrible.”*
- *“Our turnover rate is scary, not used to this.”*
- *“Our workers are mostly Hispanic and Native based...good attitudes; very trainable, all in-house.”*
- *“Productivity is consistent; ethics are important.”*
- *“Productivity is lower than 5 years ago due to increased safety issues.”*
- *“Productivity is very good...good quality.”*
- *“Some will commute 20 to 40 miles...and they are usually here early.”*
- *“The layoff has caused those that we hired back a have a better attitude.”*
- *“They work well together.”*
- *“...very good productivity...we find our strengths and push it.”*
- *“Walk-ins are not well educated, but may have a good work ethic.”*
- *“We are at the higher end of productivity.”*
- *“We encourage them to move up.”*
- *“We have had some employees for 30 years.”*
- *“We hire at the bottom and teach our way.”*
- *“We must challenge our workers and they work very hard.”*
- *“We require computer skills for applicants...they all have it.”*
- *“We use the community college for some skills, like welders, but they can’t cover our operators.”*
- *“We work together...good communications.”*

Key Conclusions: Target prospects will be very satisfied with labor quality issues in the Prewitt Region, particularly good productivity, the low turnover rates; very low absenteeism; good work attitude; good trainability; no alcohol/drug issues; and above average basic skills and communications.

- ✓ **People are generally hard working with good attitudes and very productive.**
- ✓ **Basic skills of applicants were rated “Above Average,”** which is much better than many areas across the country today. This may reflect better high school and community college training.
- ✓ **Alcohol and drugs are not a problem.**

Economic Development Assessment

Introduction

Besides workforce skills, FCG also examined key site selection criteria prevalent in all of the potential targets as they relate to the Prewitt Region. As before, each is rated a Strength, a Weakness, or Average. These will help us to determine how the Prewitt Region will match up with the preliminary target needs. Criteria include:

- **Transportation/Logistics**
- **Utilities & Infrastructure**
- **Sites & Buildings**
- **Taxes**
- **Incentives**
- **Quality of Life/Cost of Living**

Transportation/Logistics

Strength

The ability of a company to receive and deliver goods economically is often a determining site selection factor. The Prewitt Region has strong transportation/logistics features, including:

- **Excellent for serving Western markets; particularly Albuquerque, Denver, and Phoenix**
- **Direct access to Interstate I-40 with service from Los Angeles to Dallas**
- **Outstanding Burlington Northern and Santa Fe (BNSF) rail connections**
- **Improved access from Farmington to Gallup via US 491.**

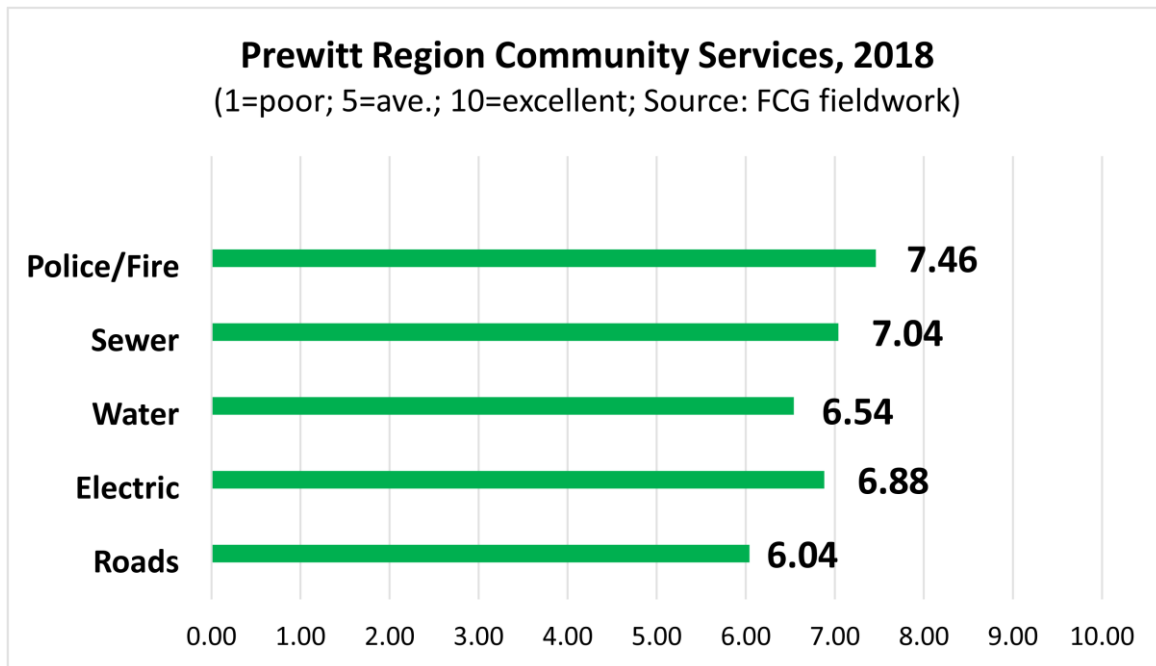
Key Conclusions: The Prewitt Region is a good location from a transportation/logistics viewpoint with excellent access via I-40 and good railroad services. Logistics cost modeling could help document these advantages.

Utilities & Infrastructure

Above Average

Utilities and community services are critical site selection factors in all projects. We asked employers their opinions regarding select services during our interviews.

- **Local community service ratings are “Above Average – Good” (6.79 overall).**



Key Conclusions:

- ✓ **Local employers are generally satisfied with the cost; supply; delivery; and reliability of the services.**
- ✓ **There are reliable, competitive industrial utilities**
- ✓ **Very low electric power costs (\$.03-.04 per kwh) are unlikely.**

Sites/Buildings

Mostly Strengths, Some Weaknesses

Introduction

Communities must have fully-improved industrial sites and buildings in order to attract economic development. Two out of three site searches begin with a building search. However, the majority of lookers still end up constructing a building since it turns out that the existing spaces don't work.

As a professional site selection company, we annually tour and assess dozens of industrial sites and buildings nationally for our clients. We are always looking for *ready-to-go* sites and buildings.

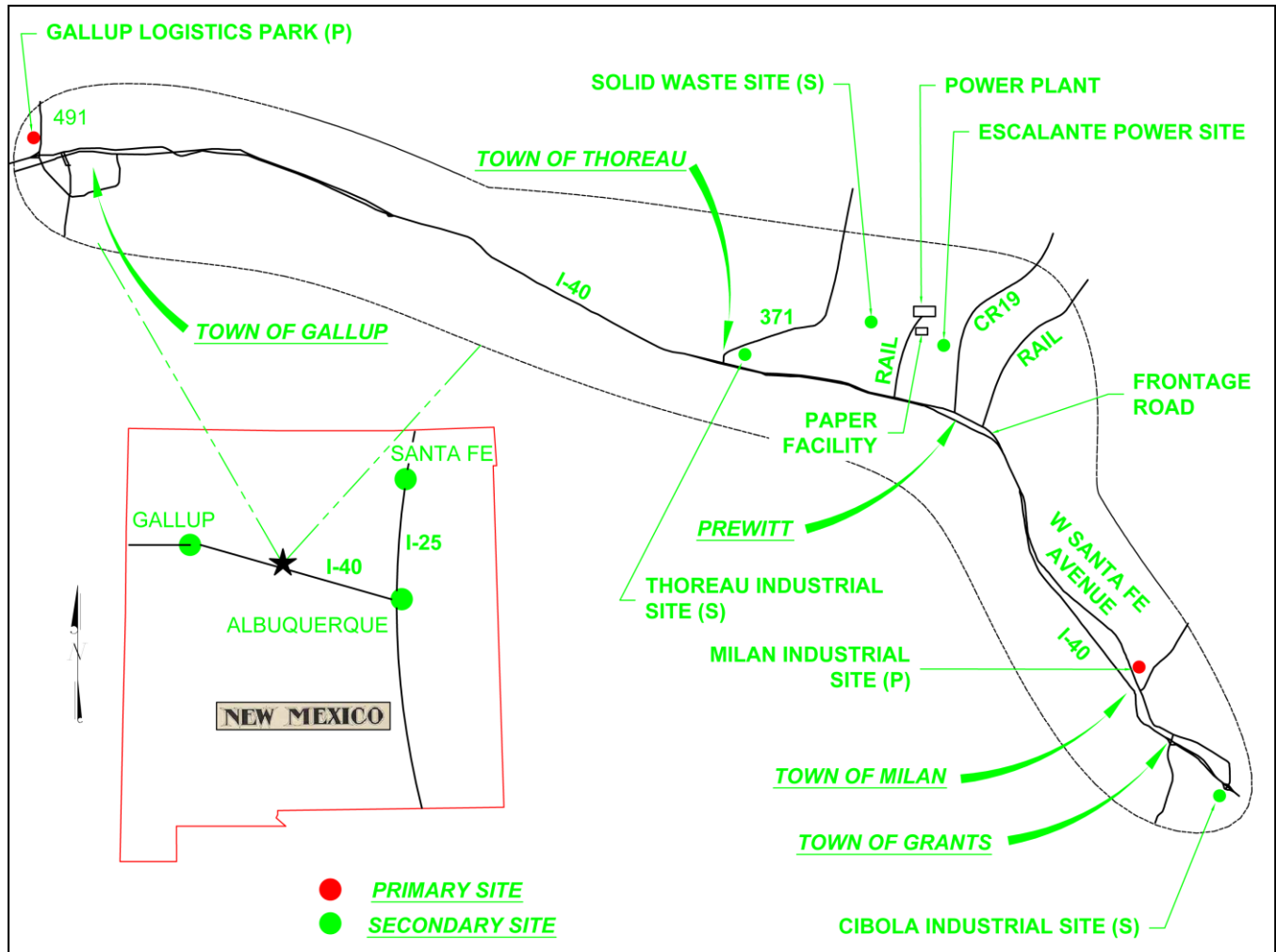
Industrial sites that incorporate a rail option for non-intermodal carload rail service remain attractive. Many companies require a carload rail option to move bulk raw materials, intermediate goods, and finished products.

We typically review the following criteria:

- **Access to markets**
- **Transportation access**
 - Highways (access to Interstates and 4-lane highways is essential)
 - Rail (a bonus for manufacturing and warehouse/distribution)
- **Size** (100 +-acre sites are important and often hard to find)
- **Utilities**
 - Electric power (dual feed could be important)
 - Water
 - Sanitary sewer
 - Fiber optics

We assessed a number of sites in the Prewitt Region (see attached Regional map). **There are two primary *ready-to-go* sites.**

Prewitt Region Industrial Site Map



Primary Ready-To-Go Sites (P)

Milan Industrial Park

Milan Industrial Park is one of the the best industrial sites in the region and *ready-to-go*. Key strengths and weaknesses include:

Strengths

- Good, direct access to I-40
- 800 acres available of fully-improved property; the potential of numerous 100 acre site options
- All utilities (water—plus three wells; sanitary sewer; natural gas; some fiber optics; electric) at the park site
- BNSF rail spurs can be extended to most any section of the park
- Flat topography

- Can handle any of the industrial and warehouse/distribution targets (NGL has purchased 400 acres for an oil-related operation, but the energy slowdown has put this on hold)
- Zoned Industrial
- Price: \$2,500/acre.

Weaknesses

- Truck access must cross the BNSF mainline. This could cause truck back-ups which may cause freight delays.

Gallup Logistics Park (“GLP”)

The Gallup Energy Logistics Park (“GLP”) is situated near Interstate-40, which runs through Gallup. Since the 1970s, GLP has functioned as a coal transload facility for shipment of coal in railcars. Due to its location, size and, heavy rail potential, this is a *ready-to-go* site and one of the best in the region.

Strengths

- Good access to I-40 and the BNSF mainline
 - The Carbon Coal Road improvement, currently underway, will greatly improve access off US 491/I-40
- 2,500 + acres; the potential of numerous 100 acre site options
- 11,000 linear feet of new rail (looped) connecting to the BNSF’s transcontinental rail line. BNSF rail spurs could be extended to other sections of the park
- A 365-acre land parcel has received certification as part of BNSF’s site certification program, which ensures the site is “rail-served and shovel ready” for development
- Extensive electric power runs through the site, including a transmission line; dual feed electric power is possible
- Generally flat topography
- Can handle any of the industrial and warehouse/distribution targets, except those needing public water and sanitary sewer services (i.e. food processing)
- Expansion strategy is focused on energy-related activities in the San Juan Basin and sectors that include material storage, transloading, manufacturing, and logistics
- Zoned Industrial
- Price: 15% below other industrial sites in the region

Weaknesses

- No public water (wells only) or sanitary sewer service (a package plant may be required).

Secondary Sites (S)

A number of sites may work in the future after select improvements or expansions are made. **We classify these as secondary sites.**

Cibola Industrial Park

Cibola Industrial Park is a fully-improved park, but due to its size, will only be able to handle very small industrial, warehouse, or office users. Key strengths and weaknesses include:

Strengths

- Good access to I-40 and the BNSF mainline
- All utilities in place (but no dual feed electric power)
- Flat topography

Weaknesses

- Can handle very small industrial and warehouse/distribution targets since the largest lots are only 2 to 5 acres
- No rail

Solid Waste Site (SWA)

The Solid Waste Association (SWA) property is located near the Escalante Power Station and McKinley Paper. However, due to its utility and access deficiencies, it should be rated as a secondary site. Key strengths and weaknesses include:

Strengths

- Electric power in place (but no dual feed electric power)
- Wells
- 640 acres with flat topography
- Could service some warehouse/distribution targets

Weaknesses

- Marginal access to I-40 (5.5 miles away from the exit)
- No public water or sanitary sewer service
- Rail is one-half mile away
- No direct access to Escalante Power Station and McKinley Paper
- Lease only.

Thoreau Site

The Navajo property off of I-40 does have access to the BNSF, but is not ready due to housing on the site, infrastructure and other political issues. It is therefore a secondary site.

Escalante Generating Station Site

There has been discussion regarding the Escalante Generating Station Site (near the station and McKinley Paper). However, the air quality permit will currently not allow new industrial users.

Assuming that the air quality issue can be resolved, the final report: Master Site Plan, will focus on this area as a future industrial site. There are potentially three sites in the area that could work and possibly provide steam from the Escalante Power Plant:

- Adjacent to McKinley Paper
- Outside the front gate along Highway 19
- The Solid Waste Association (SWA) property – A plan for this site entitled: Northwest New Mexico Regional Solid Waste Authority (NWNMRSWA) Industrial Site, June 2014, was done by Parkhill, Smith & Cooper. It shows potential layouts and general costs for future industrial sites.

Industrial Buildings

Since the building on the GLP site has been leased, we are not aware of any modern, fully improved industrial buildings in the region. A “spec” building may be needed.

Key Conclusions: The Prewitt Region has two excellent industrial site options, both with rail. The best locations for industrial development are:

- **Milan Industrial Park**
- **Gallup Energy Logistics Park (“GLP”)**

Navajo Industrial Sites

There are number of potential sites within the Navajo Nation in the region that could be explored. Please contact:

Sharlene Begay-Platero
Navajo Nation – Project Development
505-905-6414 VOICE
505-905-6401 FAX
srbp@navajoadvantage.com

Competitor Sites

FCG reviewed potential 100-acre with rail competitor sites. Brochures are available, if needed.

Las Cruces (Santa Teresa Industrial Park)

A primary rail-served industrial park in the BorderPlex area is the Santa Teresa Industrial Park. It is right on the US/Mexican border and offers 1,300 acres; all utilities; UP rail/intermodal; the Santa Teresa Jet Port; and access to I-10. Current companies include: TPI Composite; Foxconn; Expeditors International; ComScore; Georgia Pacific; FedEx; and Stanco Metal Products.

Denver

One primary site, The Great Western Industrial Park located in Windsor, CO north of Denver, offers 3,000 acres with rail from BNSF and UP. Established tenants include Vestas; Halliburton; Owens Illinois; Hexcel; Carestream; and Schlumberger. Price: \$128,500 per acre.

Phoenix

Five of six fully-improved 100 acre sites with rail in Buckeye; Goodyear; Coolidge; El Mirage; Glendale; and Surprise. Price: \$98,000-\$174,000 per acre.

Valencia County (Albuquerque)

Four rail-served, 100-plus acre, sites are available in the Albuquerque area: Central New Mexico Rail Park (\$2.75 per square foot (psf); Rancho Cielo; Rio Grande Industrial Park (\$1 psf); and Sunport South Business Park (\$5.95 psf).

Taxes

Mostly Strengths

Even though taxes are generally a minor portion of the annual operating costs for a project (generally 10% to 15%), they are typically compared in a site selection project.

Our comparison source is the Tax Foundation and KPMG, *Location Matters*, released in 2015. The report's study accounts for all business taxes: corporate income taxes; property taxes; sales taxes; unemployment insurance taxes; capital stock taxes; inventory taxes; and gross receipts taxes by state. It compares overall taxes for select new and mature project types: Headquarters; Research & Development (R&D); Call Center; Distribution Center; Capital-Intensive Manufacturing (such as a steel plant); and Labor-Intensive Manufacturing (such as a truck plant).

The results allow site selection experts to screen states more accurately and quickly for consideration by their clients. We used this for making tax comparison rankings for three target model projects:

- **Labor-Intensive Manufacturing Plant** – 300 jobs, 250,000 square feet, and \$65 million capital investment
- **Call Center** – 600 jobs, 100,000 square feet of Class A office, and \$10 million capital investment
- **Distribution Center** – 95 jobs, 350,000 square feet, and \$11 million capital investment

Labor-Intensive Manufacturing Plant Tax Comparison State Rankings (out of 50 states)

Arizona: 32

Colorado: 47

New Mexico: 21

Utah: 23

Call Center Tax Comparison State Rankings

Arizona: 17

Colorado: 33

New Mexico: 22

Utah: 10

Distribution Center Tax Comparison State Rankings

Arizona: 26

Colorado: 43

New Mexico: 19

Utah: 3

Corporate income tax and sales taxes are important for some preliminary targets. Here the results:

	<u>Corporate Income Taxes</u>	<u>State & Average Local Sales Taxes</u>
Arizona:	6.5%	\$8.16
Colorado:	4.63%	\$7.31
New Mexico:	7.3%	\$7.41
Utah:	5.0%	\$6.68

Key Conclusions: New Mexico rates well versus the three state competitors for the three models:

- ✓ Labor-Intensive Manufacturing Plant – Best
- ✓ Call Center – 3rd
- ✓ Distribution Center – 2nd Best

Higher corporate income and sales taxes in New Mexico may hinder some target projects.

Incentives

Slight Strength

Incentives are the “icing on the cake” after all other factors are considered. They can make the difference when the search gets down to a small number of equal finalists.

The competitor states and communities do offer some attractive incentives that can assist industrial projects. But the four states offer very modest incentives versus other states. Primary incentives include:

New Mexico

Closing Fund – Local Economic Development Act (LEDA) – Discretionary state incentive that can be used towards land, building, or infrastructure. Amount is determined on a project by project basis.

High Wage Jobs Tax Credit – This credit gives companies who hire employees at salaries of \$40K or higher in rural areas and \$60K or higher in urban communities, tax credits equal to ten percent of salary for the year in which the job is created, and for the three following qualifying periods.

Manufacturers Investment Tax Credit – Manufacturers may take a credit against gross receipts, compensating, or withholding taxes equal to 5.125% of the value of qualified equipment when the select conditions are met.

Job Training Incentive Program (JTIP) – The state’s highly flexible JTIP program offers a cash reimbursement to a business for on-the-job training for qualified employees of qualified employers. Customized training may be provided by post-secondary educational institutions, company trainers, or outside trainer.

New Mexico also offers industry-specific incentives in the following areas:

- Energy & Natural Resources
- Aerospace & Defense
- Value-Added Agriculture
- Digital Media & IT.

Gross Receipts Investment Policy (GRIP) – In Gallup, through the refund of gross receipts taxes, the development and construction of city infrastructure necessary to secure the location of new, large-scale retail and targeted commercial businesses.

Contact: <http://www.nmpartnership.com/taxes-incentives/>

Arizona

Qualified Facility Tax Credits – State may authorize up to \$70 million per calendar year in tax credits to qualified companies beginning January 2013 through December 2022. The tax credits will be authorized on a first-come, first-served basis.

Quality Jobs Tax Credit – Offers up to \$9,000 of Arizona income or premium tax credits spread over a three-year period for each net new quality job (\$3,000 per year).

Arizona Job Training – In respect to the June 1, 2018 round, the maximum grant award available will be \$1.3 million per employer, up to \$8,000 in eligible training costs per employee-trainee in the case of rural employers and employers with fewer than 100 employees and in the case of all other employers, up to \$5,000 per employee-trainee.

Computer Data Center (CDC) Program – Provides Transaction Privilege Tax (TPT) and Use Tax exemptions at the state, county, and local levels, on qualifying purchases of CDC Equipment.

Colorado

Only a small hand full of incentive programs in only Denver (29 deals), Colorado Springs (1 deal), and Pueblo (3 deals) have been used from 2015-2017.

Job Growth Incentive Tax Credit: A performance-based program for businesses pursuing job creation projects that would not occur in Colorado without this support: 22 deals; \$141.3 million; 7,192 jobs

Strategic Fund: A performance-based program designed to encourage recruitment, retention, and economic growth through Colorado by supporting Colorado Economic Development Commission (EDC) approved businesses that have created and maintained permanent net new jobs for one year: 2 deals; \$3.5 million; 847 jobs

Pueblo Sales and Use Tax Capital: 2 deals; \$0.10 million; 97 jobs

Revolving Loan Fund (Denver) – 45 jobs

Others:

Colorado FIRST: A customized job training program that focuses on companies relocating to or expanding in Colorado and provides funds only to net new hires.

Enterprise Zone Tax Credits: These tax incentives encourage businesses to locate and expand in designated economically distressed areas of the state.

Contact: <https://choosecolorado.com/doing-business/incentives-financing/>

Utah

Economic Development Tax Increment Financing (EDTIF) – A post-performance tax credit rebate for up to 30% of new state tax revenues over the life of the project, typically 5 to 10 years.

Industrial Assistance Fund (IAF) – A post-performance grant for the creation of high-paying jobs.

Contact: http://edcutah.org/sites/default/files/images/utah_corporate_incentives_overview.pdf

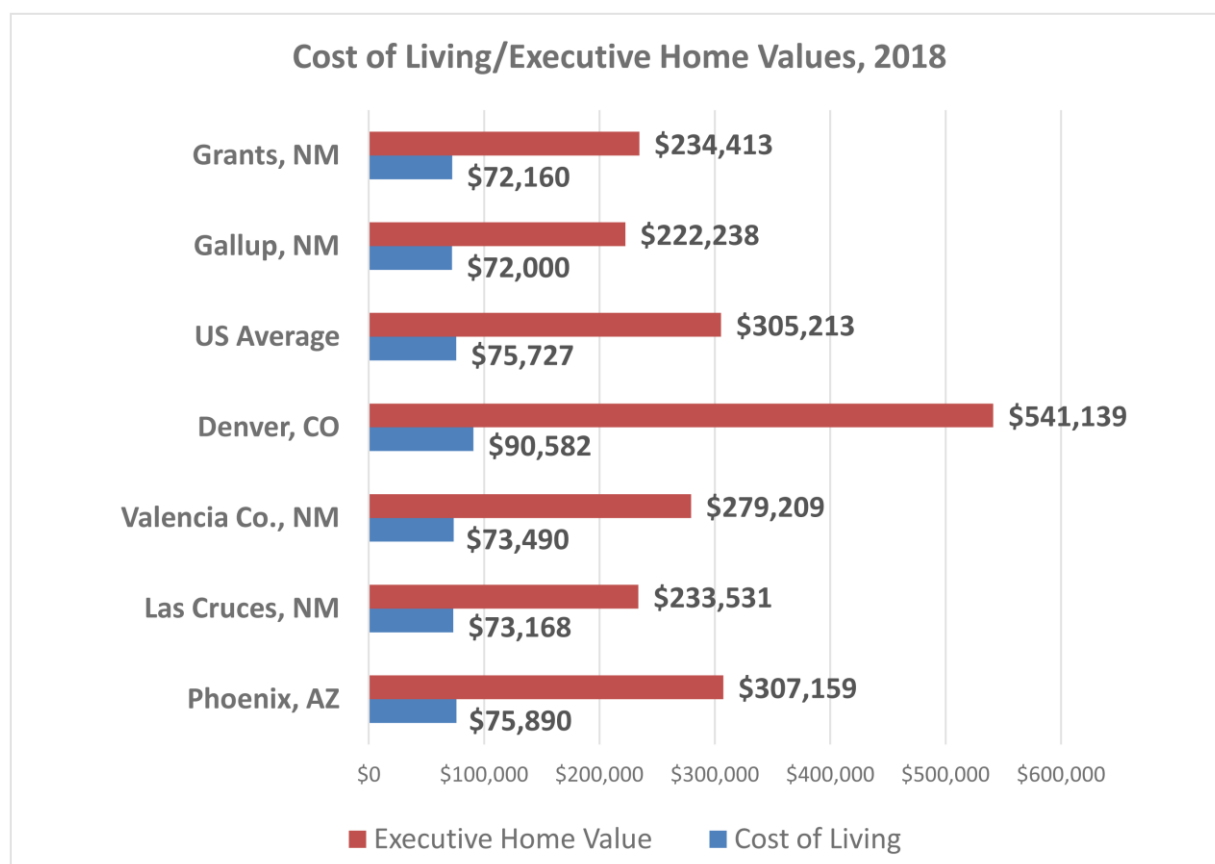
Key Conclusions: The four states have very modest incentives available, partially due to their mid-to-low tax situation. But the Prewitt Region has some good incentive programs available, especially the closing fund, LEDA.

Quality of Life**Mostly Strengths**

Quality of life aspects of a community (cost of living; schools; medical services; recreation; shopping; & culture) are all important in hiring, relocating, and retaining employees. If managers (or their spouses, looking for professional employment) refuse to take the move, the new project could be in jeopardy.

Cost of Living

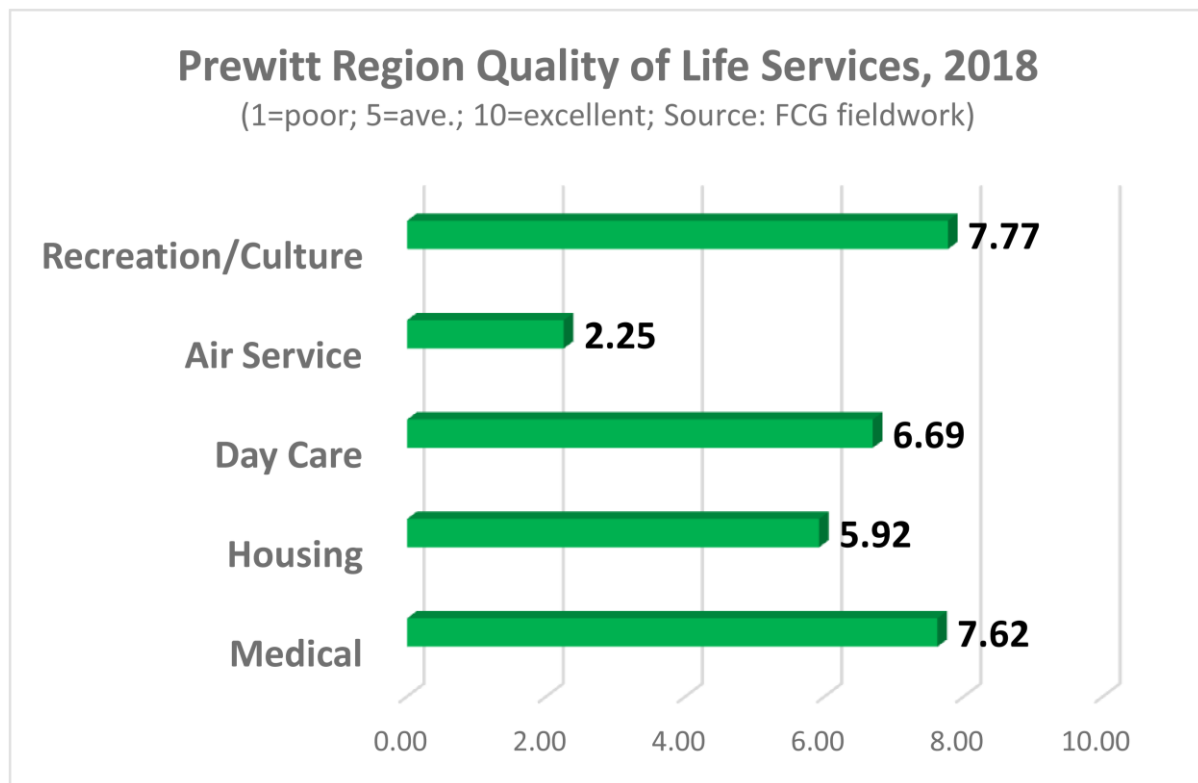
- **The Prewitt Region cost of living is the lowest versus all competitors¹.**
- **An executive home in Denver is 143% higher than one in Gallup.**



FCG asked employers during our interviews about select quality of life factors.

- **Quality of life ratings are “Above Average” (6.21 overall).**
- **Schools, medical, and recreation/culture are rated “Good”.**
- **Air service has a poor rating, as most folks drive to Albuquerque.**

¹ Family of 4; own home of 2,207 sq ft.; 2 cars; make \$72,000: Source-ERI



Key Conclusions: Quality of life in the Prewitt Region is generally good (except for air service) due to lower housing costs; lower cost of living; good medical care; and good schools. Relocation, particularly for families moving from a larger metro area, should not be a big problem.

Education/Training

Mostly Strengths

Today's students are tomorrow's workforce. Prospects are therefore most concerned about higher education and the flow of skills into the work place. Longer term, they are concerned with the quality of the secondary schools since these students represent the future workforce.

We know from the availability analysis that there are some problems with select manufacturing skills. But how does the future look? We looked at programs, at the colleges, and secondary schools to help to better determine the region's workforce future.

EDUCATION AND TRAINING DEVELOPMENT

Secondary Schools

The New Mexico State Public Education Department (PED) has a School Grading system which can be used as a barometer with high school progress. However, the ratings are somewhat arbitrary and are the product of the Cabinet Secretary and the current administration. It is assumed that the next administration will have their own grading systems.

A common problem between the school district and the Native American population is the continual movement of young children in and out of the school districts, or changing from public schools to Native American schools. This causes a dysfunctionality in the progress of the students and basic instruction and leads to an abundance of remedial education.

Therefore, FCG will mention the NMPED School Grading Report Card and not emphasize the importance of the scores, but only to highlight how outside brokers, site selectors, and decision makers see the scores. All the schools have final grades of “C”.

Gallup High

Even though the state indicates that the current standing is an “F” for the students performing at grade level, the opportunities to learn are rated an “A”, and the college and career readiness/students participating in career readiness opportunities is a “B”. The state also gives an “F” to Gallup High on increasing the performance of the lowest performing students, but the state gives to the same grade to all the schools in McKinley and Cibola Counties. The graduation rates for Gallup in 2016 were 65% for 4-year cohort and 74% for 5-year cohort.

Grants High

Grants High has only a “D” for students performing at grade level and a “B” for school improvement. Grants gets an “A” for college and career readiness. This may be because more Grants High students are participating career technical education programs and dual credit programs. The graduation rates for 2016 for 4-year cohort were 67% and 72% for 5-year cohort.

Crownpoint High

Crownpoint High also gets an “F” for students performing below grade level and gets an “A” for college and career readiness with 60% in dual credit. This is probably because of the presence of Navajo Tech in Crownpoint. Crownpoint also has a higher graduation rate at 80% for the 2016 for the 4-year cohort and 82% for the 5-year cohort.

Laguna Acoma High

Even though Laguna Acoma also gets an “F” for students performing at grade level, their graduation is at 78% for 2016, 4-year cohort, and 87% for 5-year cohort. In addition, 74% of the students are participating in dual credit, with 89% participating in some type of career readiness program.

Key Considerations for High Schools:

Gallup-McKinley Schools

- Gallup schools have a hard time tracking graduates but is assumed that a low percentage go 4-year higher education programs. It is also hard to determine the percentages that stay in area. A tracking system, even if it is prior to graduation, should be required.
- Graduation rates have improved substantially in all high schools at 67%, up from 50% in 2012.
- Even though there is some alternative education, administration admits that they are not meeting the needs of that population (overwhelming at-risk population). This is a difficult area and it is needs more state support. The whole district gets free or reduced fee lunch and breakfast, which indicates the level of low-income and economically disadvantaged.
- Over 130 are currently enrolled in dual credit with UNM Gallup in technical education programs. This is a good sign and it is hoped it will increase.
- Work Keys is not being used on a regular basis in the schools, but they will strongly consider it, especially in career and technical education. Counselors should be trained/educated on the importance of Work Keys and how it builds cognitive skills.

- The school district is currently seeking partnerships with industry in field trips, job shadowing, mentoring, and soft skill development. An organized effort needs to take place with the Gallup Area Chamber of Commerce and Gallup Economic Development Corporation.
- They are looking for mechanisms to track student internships. This could be built into the Chamber EDC effort.
- There are early age enrichment programs and they should be enhanced at all levels. Officials should seek more federal funds and more exposure with the private sector.
 - Project Venture is an outdoor, experiential, youth development program for middle school youths, which is guided by American Indian values and aimed at preventing substance abuse and promoting resilience and mental wellness. The program includes activities such as mountain biking, hiking, rappelling, or learning basic outdoor survival skills and is designed to help youths develop positive self-concepts, effective social skills, a community service ethic, resiliency, and increased decision-making and problem-solving skills.
- A new strategic plan is being written for Gallup-McKinley Schools which will focus heavily on career pathways for all students.
- There are some very favorable signs with computer literacy starting at middle school with Excel and Word, and there are CAD (Computer Aided Design) at the high school level.

Grants High (Laguna-Acoma have same administration)

- There are special career academies for at-risk kids. There are 60 in the program. It is named GEAR UP:
 - This discretionary grant program is designed to increase the number of low-income students who are prepared to enter and succeed in postsecondary education. GEAR UP provides six-year grants to states and partnerships to provide services at high-poverty middle and high schools.
- There are now early age enrichment programs in robotics and engineering concepts with participation in science fairs with full scholarships. This is a good sign and funding may be needed to enhance this programming.
- There are informational programs for parents in encouraging students to pursue postsecondary education.
- The school district has enhanced IT and infrastructure over last few years. The tech plan needs updating as technology changes. Computer literacy takes place at middle school and CAD is inside the high schools.
- There is no emphasis in Grants on job shadowing, field trips, or mentoring. However, the lack of strong industry that economic development officials can tap into in the area is limited. There need to be creative methods used to expose students to the private sector, possibly using distance learning.
- There is universal free and reduced fee lunch, indicating the high degree of poverty in the area.
- There is no Work Keys assessment program inside the schools in Grants.

Higher Education

New Mexico State University at Grants

- They are currently working with Escalante Power on training operators for certificates. The classes include industrial technology, math, chemistry, and information technology leading an Energy Technology Certificate that will be 16-17 credits.
- 40% of the head count at NMSU Grants is dual credit. NMSU has a great relationship with Grants High which is a very short distance.
- They will be having an Early College High School in Allied Health, Education, and Computer Technology. There will be 20-25 as freshman, so after four years the head count could be 100.
- There are 16 welding booths (close to the high school; some also done at the college), there is a new plasma cutter, and there are 4 digital printers in the tech rooms. There is consideration for additional equipment. There could be enough equipment for Maker Space (Fab Lab) so that the community can join in to better utilize the space and equipment.
- Adult Education at NMSU Grants tests all students on Work Keys and the remainder of the school is looking at it. NMSU is looking for advice regarding administration and best-case examples on utilization.
- NMSU can find full-time faculty, including computer technology. They have strengths in Computer Technology but focus on hardware and networking (not on coding and computer language).

University of New Mexico at Gallup (UNMG)

- There are 2,000 students, mostly all in academic studies (75% Navajo and 6% white, some in Applied Technology 1-year certificates and 2-year Associates in welding; auto technology; construction technology; cosmetology; and the flagship in allied health). There are 230 associates and certificates per semester awarded, therefore UNMG graduates over 450 skills into the street every year.
- A big concern is that there is a “Bottleneck” in allied health. UNMG can only handle 5 out of 32 applicants into the program, so entrance requirements for the programs are high.
- Work Keys is not present because there are too many students and not too enough requests. This is regrettable and places more pressure on the school district to utilize Work Keys, credentials, licenses and certificates, and “stacking” credentials.
- UNMG will be getting out of Photoshop and Illustrator (no demand) and will still have computer technology, but want to trend toward national skills. This means that the high school will need to emphasize graphic arts skills development and media technology.
- UNMG is positioned for global education and wants to stay involved with workforce development.
- UNMG has successfully set up a training program for the refinery and they are using the existing faculty. This means that UNMG will not do speculative training (hoping an industry arrives), but emphasize more global and academic skills. Therefore, the burden is on the school district in Gallup to enhance career and technical education, test all students on Work Keys, and move toward McKinley becoming Work Ready through ACT.

Prewitt Region's Strengths & Weaknesses Versus Preliminary Target Needs

We next assessed Milan and GLP Industrial Site's strengths and weaknesses against the preliminary target location needs.

<i>Prewitt Region Strengths</i>	<i>Prewitt Region Weaknesses</i>
Warehouse/Distribution (DC; Fulfillment) <ul style="list-style-type: none"> • Access to Western markets/ freight costs • Intermodal access • Unskilled labor availability/quality • Labor costs • Electric power reliability • I-40 access • Improved sites • Rail service (looped option) • Labor/management relations • Regional operations/location activity • Incentives (LEDA) 	<ul style="list-style-type: none"> • Available, modern buildings
Call Centers <ul style="list-style-type: none"> • Clerical & CSR availability • Labor quality & costs • Telecommunications • Training • Electric power cost & reliability • Overall state & local taxes • Regional operations/location activity • Incentives (LEDA) 	<ul style="list-style-type: none"> • Class A/B buildings available • Commercial air service • IT tech support
Data Centers <ul style="list-style-type: none"> • Geographic diversity & disaster avoidance • Electric power reliability • Transmission fed power • Onsite substation • Water for cooling • Secure "ready to go" sites • Speed to occupancy • Regional operations/location activity • Incentives (LEDA) 	<ul style="list-style-type: none"> • Very low electric power costs • Corporate income tax • Sales taxes • Some fiber availability • Technical talent availability

<i>Prewitt Region Strengths</i>	<i>Prewitt Region Weaknesses</i>
Plastics Manufacturing <ul style="list-style-type: none"> • Unskilled/semiskilled availability • Labor costs • Electric power reliability • Natural gas • Improved sites • Rail service • I-40 access to Western markets • Tax climate • Labor/management relations • Regional operations/location activity • Incentives (LEDA) 	<ul style="list-style-type: none"> • Available, modern buildings
Paper Manufacturer <ul style="list-style-type: none"> • Unskilled/semiskilled workers • Labor costs • Access to suppliers/customers/timber • Access to Western markets/I-40 • Electric power reliability • Natural gas • 50+ acre improved sites • Rail service • Excess water/sewer capabilities (Milan) • Technical college/training incentives • Labor/management relations Oil/Gas Pipe Supplier <ul style="list-style-type: none"> • Rising price of oil • Unskilled/semiskilled availability/quality • Labor costs • I-40 access to Western markets • Electric power reliability • Improved sites (loop option) • Rail access • Training/incentives • Good access to suppliers • Labor/management relations 	<ul style="list-style-type: none"> • Some skilled workers • Regional location activity • Excess water/sewer capabilities (GLP) <ul style="list-style-type: none"> • Some skilled labor availability • Available, modern buildings • Regional operations/location activity

<i>Prewitt Region Strengths</i>	<i>Prewitt Region Weaknesses</i>
Food/Beverage Processing <ul style="list-style-type: none"> • Unskilled labor availability • Labor costs • Raw materials/transportation costs • Excess water/sewer capacities (Milan) • Electric power reliability • Natural gas • Improved sites • I-40 access to Western markets • Rail service • Labor/management relations • Regional operations/location activity • Incentives (LEDA) 	<ul style="list-style-type: none"> • Some skilled labor availability • Available, modern buildings • Very low electric power costs • Excess water/sewer capacities (GLP)
Industrial Machinery <ul style="list-style-type: none"> • Available unskilled/semiskilled labor • Labor costs • Access to markets/transportation costs • I-40 Interstate highway access • Electric power reliability • Natural gas • Improved sites • Rail access • Water and sewer capacities (Milan) • Available training (and some incentives/taxes) • Access to suppliers • Labor/management relations • Presence of other regional operations • Incentives (LEDA) 	<ul style="list-style-type: none"> • Skilled machine related labor availability • Available, modern buildings • Water and sewer capacities (GLP)
Electronics Assembly Operation <ul style="list-style-type: none"> • Unskilled labor availability and quality • Labor costs • Education/training with incentives • Electric power reliability • Overnight carriers (FedEx; UPS) • Proximity to markets/good highway access • Fully improved industrial parks • R&D taxes • Building costs • Presence of other regional operations • Incentives (LEDA) 	<ul style="list-style-type: none"> • Some skilled labor availability • High level security clearances • Available, modern buildings • Corporate income taxes • Supplier network

“BEST FIT” TARGETS

Here are the best fit target sectors (by priority) which best match the Prewitt Region’s strengths. The following also lists the best NAICS sectors to pursue and important points regarding the “best fit” targets.

Milan Industrial Park

- 1) Warehouse/Distribution
- 2) Food/Beverage
- 3) Plastics
- 4) Industrial Machinery
- 5) Oil/Gas Related
- 6) Paper
- 7) Call Centers

GLP Site

- 1) Warehouse/Distribution/Intermodal
- 2) Oil/Gas Related
- 3) Plastics

Electronics assembly is eliminated due to skills, tax, and supplier issues. Data centers have been eliminated due to electric power costs.

Warehouse/Distribution (DC; Fulfillment)

- **Best Sectors:** NAICS – 423610, 444190 (lumber); 454210, 484121, 484220, 492110 (carrier); 493110, 424810 (beer); 454113 (mail-order); 454111 (electronic shopping); 493120 (refrigerated); 424990, 492210, 423620 (electronics); 424490 (groceries); 453910 (pet food); 454110
- **The second most active sector regarding expansions/locations in 2017-18**
- **Good availability of unskilled warehouse workers at competitive wages**
- **Outstanding intermodal potential with I-40 and the BNSF**
- **Very low electric power costs are unlikely**
- **Good potential sites with rail and Interstate access**
 - DCs often need “5 to 55” (55 miles per hour in 5 minutes) access
 - Excellent 100+ acre site potential
- **There is a need for modern, existing buildings**
- **There is presence of other regional operations and recent locations/expansions.**

Food/Beverage Processing

- **Best Sectors:** NAICS – 311412, 311422 (canning); 311514, 311999, 312112 (water); 312112, 312120 (brewery); 311511 (milk); 311513 (cheese); 311941(dressing); 311991, 311812 (bakery); 312130 (winery)
- **Some skilled labor availability concerns; good unskilled**
- **Excess water & sewer capacity at the Milan Site**
- **Lack of municipal water and sanitary sewer service could eliminate the GLP site**
- **Good potential sites with rail and Interstate access**

- **There is a need for modern, existing buildings**
- **Good electric power reliability**
- **There is presence of other regional operations and recent locations/expansions.**

Oil/Gas Supplier Operations

- **Best Sectors:** NAICS – 213111, 213112 (oil support activities), 237120 (oil/gas pipeline)
- **There is increased business in the sector.** Major oil companies are showing increased profit as the price of oil remains over \$60 a barrel. And oil companies have returned in droves to the shale fields in western Texas and eastern New Mexico, but are facing workforce shortages and high costs.
- **Some machining skills are harder to find**
- **Good rail sites close to I-40, GLP has a rail loop**
- **There is a need for modern, existing buildings**
- **There is presence of other regional operations, but low location/expansion activity.**

Plastics Manufacturing

- **Best Sectors:** NAICS – 325412, 325211 (plastics); 325620, 326299, 326199, 326122 (pipe); 326111 (bags); others – plastic rack protectors, castors and wheels, plastic conveyor belts, Industrial carts/workbenches/storage bins
- **Good unskilled availability**
- **Excellent rail sites with I-40 access**
- **There is a need for modern, existing buildings**
- **Good tax climate**
- **There is presence of other regional operations and recent locations/expansions.**

Industrial Machinery

- **Best Sectors:** NAICS – 333993 (packaging); 333415, 333414 (heating equipment); 333922 (conveyors); 339112 (medical instruments); others² – steel racks, mechanical bailers, crane and chain lift equipment
- **Some skilled labor availability concerns**
- **Good potential sites with rail and Interstate access**
- **There is a need for modern, existing buildings**
- **Good electric power reliability**
- **Lack of municipal water and sanitary sewer service may eliminate the GLP site**
- **There is presence of other regional operations and recent locations/expansions.**

² Other possible targets, however, no locations in the 4-state region have occurred.

Paper

- **Best Sectors:** NAICS – 322220 (bags), 322230 (stationary)
- **Good unskilled availability, but some issues with skilled workers**
- **Fully-improved 50 acre sites with rail and Interstate access at Milan**
- **Good training incentives**
- **There is presence of other regional operations and recent locations/expansions.**

Call Centers

- **Best Sectors:** NAICS – 454111 (electronic shopping); 511210 (software publishing); 518210 (data processing); 522319 (mortgages); 523930 (investments); 522110 (banking); 522310, 522320, 522390, 523120 (securities); 525990; 541512 (computer coding/design); 541611, 541211, 541330 (engineering), 541380 (testing), 541110, 541611, 541620 (environmental), 541820 (PR), 541612, 541618, 541511 (computer), 541612 (HR), 541618, 541810 (advertising), 541211
- **“Above Average” availability of office workers**
- **Availability of tech talent and air service could be an issue**
- **Clerical wages are low and attractive**
- **There is a need for modern A & B Class office (or converted) buildings**
- **Good tax climate**
- **There is presence of other regional operations and recent locations/expansions.**

RECOMMENDATIONS

ECONOMIC DEVELOPMENT MARKETING RELATED

Introduction

It is important to take the results of this analysis and develop a marketing plan with recommendations that will attract and help expand businesses that will produce jobs and tax base for the region. Please consider:

- **Work as a two-county Prewitt Region in all marketing**
- **Approach key target companies regarding their interest in the Prewitt Region.**

Important recommendations include:

Target Industries

- **Pursue the top five targets** first and as many of the others, as possible:
 - Warehouse/Distribution
 - Food/Beverage
 - Oil/Gas Related
 - Plastics
 - Call Centers

- **Focus on marketing to your top targets to select prospects and site selection consultants.** Include, with the help of a consultant:
 - **Cost comparison reports for each target sector** comparing the Prewitt Region against its competitors (includes wages; freight costs; sites; electric power; incentives; quality of life/cost of living; etc.)
 - **A Freight Model** designed to track freight costs for select industries versus your competition
- **Market to site selectors** (up to 30% of all deals are handled by them)
 - Meet with Site Selectors Guild (SSG) members (www.siteselectorsguild.com)
 - Attend the 2018 Spring conference in Salt Lake City, March 25-27, 2019
 - Plan an Advisory Forum which would bring SSG members to your region
 - Meet with site selectors on your marketing trips
- **Develop a marketing piece featuring both sites for email distribution**
- **Improve your websites and include target industry tabs and the new marketing piece**
- **Conduct two marketing missions to target companies and two trade shows in the first year**
 - Phoenix – Take the lists of leads from this project and begin an email/call campaign
 - Denver – Develop a future list
 - Work cooperatively (with the State, other communities, railroad/utility, and/or business partners) when appropriate.

Trade shows you could attend:

Warehouse/Distribution

- SCOPE Supply Chain Conference in Atlanta, March 10-12, 2019
<https://quartzevents.com/events/supply-chain/scope-supply-chain-conference-spring/>

Food

- IFT Food Expo in New Orleans, June 2-5, 2019 <http://www.showsbee.com/fairs/40754-IFT-Food-Expo-2019.html>

Oil/Gas

- Global Petroleum Show in Calgary, Canada, June 11-13, 2019
<https://globalpetroleumshow.com/register/>

Sites/Buildings

- **Conduct a feasibility study for a future “spec” building.** May include:
 - Market needs in the area
 - Financing plan; could be public/private
 - Size: 40,000-75,000 square feet (hypothetical); expandable
 - 10% office
 - No floor
 - Docks and overhead doors

- Target prospect companies
- A marketing plan
- **Update your websites to identify new information on the available two sites.**

EDUCATION AND TRAINING DEVELOPMENT

RECOMMENDATIONS

Foote Consulting Group (FCG) is recommending the creation of a Business Education Workforce Roundtable to help to bridge the gap between industry, government, education, and training.

Objectives of Business-Education Workforce Roundtable

- Participation from local companies, educators, training providers, and government
- Key leadership comes from industry leaders and college/university officials, school superintendents
- Understand local skills & filling skill voids
- Design cooperative recruiting/relocation, training efforts, and preparing very young people for a “world of work”
- Prepare good labor environment for the future
- Identify and assess local capabilities vs. tech needs
- Understand and implement **The Work Ready Program.**

The Work Ready Program

Across the nation, the ACT Work Ready Communities (ACT WRC) initiative, powered by the ACT work readiness system, is helping counties, states, and regions build a more productive workforce and encourage economic growth. The ACT work readiness system provides the following comprehensive, evidence-based solutions:

- **WorkKeys Job Profiling** helps employers define their workforce and pinpoint the skills they need.
- **WorkKeys® Assessments** provide workforce professionals with trusted measures of work readiness skills.
- **WorkKeys® National Career Readiness Certificate®** gives economic developers evidence of a skilled workforce to help attract business and industry. WorkKeys Curriculum, which includes the ACT® Career Ready 101® and ACT KeyTrain® training programs, helps educators ensure students have the essential work skills that employers need.
- ACT research into college and career readiness helps leadership better understand their workforce. By implementing the components of the ACT WorkKeys system, ACT Work Ready Communities across the nation are improving workforce productivity for everyone—from students coming into the workforce, to prospective and current employees, to transitioning workers—giving them opportunities to build essential skills and continue learning. As a result, businesses thrive and communities have a competitive edge in economic development.

Getting Communities Work Ready

The ACT Work Ready Communities framework starts at the grassroots level, with communities linking workforce development to education, aligning economic development needs and matching individuals to jobs based on skill levels.

ACT uses its assessment and certification expertise to help community leaders develop a sustainable mechanism to close skills gaps and collect workforce skills data. The goal is to certify a county, state, or region as “work ready” when specific criteria for building a skilled workforce are met.

The collective outcome of ACT Work Ready Communities, powered by the ACT WorkKeys system, is a collaborative workforce development initiative that gives individuals the verifiable proof they need to show employers that they are ready to succeed. The result is a robust talent pipeline that benefits individuals and employers.

Understanding Specific Skills Needed For Jobs

To understand their workforce needs, employers first need to define the skills required for success on the job. ACT WorkKeys job profiling analyzes the tasks and skill levels for specific jobs and links them to the skills measured by ACT WorkKeys assessments. Used together, they give employers confidence in their hiring, training, and advancement decisions. This process of job analysis also takes advantage of the expertise of current employees, increasing their opportunity for engagement in hiring and placement decisions. The data-driven approach of the ACT WRC framework enables a community to clearly demonstrate it has a skilled workforce valued by local employers.

ACT workforce research is supported by a database of more than 21,000 job profiles with skills information for more than 90 percent of the US jobs based on 2010 data, making ACT a leader in workforce data collection.

Close to 4.4 million NCRCs have been awarded, with approximately 400 counties participating in the WorkReady program. San Juan County achieved Work Ready status in 2016 and is only 15 improved certificates away from achieving Maintenance status (as of 7/1/18).

SAN JUAN COUNTY ACT WORKKEYS NATIONAL CAREER READINESS CERTIFICATE [NCRC]							
WORKFORCE		TOTAL NCRC	BRONZE NCRC	SILVER NCRC	GOLD NCRC	PLATINUM NCRC	NCRC PLUS
Emerging	High School	1211	331	735	+	+	0
	College	145	+	74	45	+	0
Current	Private	322	+	199	64	+	+
	Public	133	29	82	+	+	+
Transitioning	Adult Education	165	67	82	+	+	0
	Unemployed	1233	341	729	156	7	0
	Recent Veteran	8	+	4	+	+	0
	Workforce category not identified	0	0	0	0	0	0
	Totals	3217	851	1905	447	14	+

The table above is a detailed breakdown of the same ACT WorkKeys NCRC data presented in the upper right box on this page and represents ACT WorkKeys NCRCs earned or improved throughout the community. All ACT WorkKeys NCRC data is updated monthly.

+ Value less than 4

How to Participate in Act® Work Ready Communities

To participate in the ACT® Work Ready Communities initiative, counties complete an application to engage in Work Ready Communities through the **ACT® Work Ready Communities Boot Camp** (formerly Work Ready Communities Academy). Email completed applications or questions to wrc@act.org.

ACT Work Ready Communities Boot Camps include two sessions within a three-month window. The Boot Camps are two-day sessions. ACT accepts applications year-round.

A local WRC leadership team should have representatives from local government, economic development, community/technical colleges, K-12 system, and business/industry. Best practice models have shown a local team comprised of these leaders is most successful in the county becoming a certified ACT® Work Ready Community. A minimum of two team members participate in the ACT® Work Ready Communities Boot Camp; however, more members may attend if helpful.

Next Steps for the Business-Education Workforce Roundtable

An organization, such as the EDC in Cibola and McKinley Counties, will develop the formation of a Business Education Workforce Roundtable to develop a long-term workforce development strategic plan and actions for the Northwest New Mexico Region. This will involve *industry leaders, human resource managers, and the University of New Mexico at Gallup, New Mexico State University at Grants, and Navajo Technical University officials, school district representatives, job training officials, economic developers, and local and state elected officials.*

- Hold three (3) workshop/focus group sessions
 - Session 1: discuss FCG findings, recommendations and applicability and add new issues
 - Session 2: begin development of goals, objectives, and timelines
 - Session 3: review draft strategic plan and make final modifications
- Prepare the Roundtable Final Plan
- Develop up to four Roundtable task forces and follow up.

Potential Outcomes: (Consensus on all programs)

- Certified Work Ready Community Program: across the board Work Keys implementation
- Enhance and improve funding for all vocational training
- Establish long term relationships between university/college and industry clusters
- Continued more long-term development of at risk program for early childhood
- Development of long-term partnerships between schools and industry with job shadowing, mentorships, internships, summer teacher internships/externships, etc.
- Adopt a school programs, starting with fourth grade whereby industry leaders visit fourth grade classes and fourth graders visit businesses
- And, many more programs and projects

In order to begin the relationships, FCG is immediately recommending the following that can begin either before, during or after the formation of the Roundtable and can be included in the Roundtable plan:

- 1.) A strong ACT Work Ready program which will continuously enhance employability skills and close the skills gap.
- 2.) A well-coordinated career pathways/skill development program in which clusters can be highlighted.
- 3.) A Maker Space/Fab Lab (see Appendix) program to be developed, probably first in conjunction with NMSU Grants.

ACT / National Career Readiness Certificate Program

Goal: Bring McKinley and Cibola Counties through the ACT/National Career Readiness Certificate Program and engage business, government, economic development, and education in the entire process to enhance the current workforce by ensuring that the civilian labor force is workforce ready and employable.

Objective A: The promotion and the development of the ACT WorkReady System, which offers a common language to identify skills gaps and provide training to improve scores and **enhance employability by leveraging the National Career Readiness Certificate (NCRC)**, issued by ACT. The certificate is a portable, evidence-based credential that certifies essential skills needed for workplace success. Funding for the assessments should continue to come through the New Mexico Department of Workforce Solutions.

- **Strategy 1: Test substantial numbers of high school juniors on ACT Work Keys** so students can earn the NCRC by taking three Work Keys assessments: Applied Mathematics, Graphic Literacy, and Workplace Documents at each high school one time per year.
- **Strategy 2:** Ensure that all students who earn NCRC are registered with ACT.
- **Strategy 3:** Continue to strive towards enhancing scores of all students with options in the new Work Keys Curriculum, which is self-paced to help individuals fill their skills gap.
- **Strategy 4: Work with educators on the Work Keys Curriculum and its applied workplace skills application defined by the Work Keys system.** The Curriculum helps people master the applied workplace skills measured by assessment systems such as Work Keys, including Applied Mathematics, Graphic Literacy, and Workplace Documents.
 - Applied Mathematics
 - Applied Technology – Electricity
 - Applied Technology – Mechanics
 - Applied technology – Thermodynamics
 - Applied Technology – Fluids
 - Business Writing
 - Listening for Understanding
 - Locating Information*
 - Reading for Information*
 - Teamwork
 - Workplace Observation.

Both counties should immediately apply to ACT Work Ready Boot Camps and gather support from each county commission. The initial effort for each county should be budgeted at \$10,000 for attendance at the two academies. New Mexico counties should be able to fund their efforts through the state or workforce alliance groups or through state assistance. It may be possible for San Juan County to host a certified boot camp with ACT's approval.

Hundreds of employers must be engaged in the process and sign up as either recognizing or recommending the National Career Ready Certificate by having each applicant score a bronze, silver, or gold in the three Work Keys assessments.

Career Pathways and Awareness

Goal: Enhance career cluster awareness, implement career pathways in both counties, and develop targeted clusters which coincide with the concentration of industry in this region.

Objective A: Involve key stakeholders in industry to be active with the schools in educating our youth about career opportunities.

- **Strategy 1: Develop programs where businesses visit classrooms** and discuss their businesses.
- **Strategy 2: Encourage job shadowing** and develop a mechanism to encourage job shadowing through the EDC and the Chambers of Commerce, yet understand laws about how much shadowing can be done legally.
- **Strategy 3: Keep the communication between Business Education Workforce and human resource managers** at a high level by sharing information monthly on career fairs, classroom visits, industry tours, as well as Work Keys achievements.
- **Strategy 4:** Ensure human resource managers are gainfully engaged with school districts.
- **Strategy 5:** Have STEM students visit firms in the region on a regular basis.

Objective B: Continue promotion of dual credit throughout the McKinley-Cibola County area with state and technical colleges to improve the educational outcome of students.

- **Strategy 1: Promote dual credit and offer added weight for dual enrollment coursework in GPA calculations.**
- **Strategy 2: Encourage dual credit coursework in the information technology; health care; graphic arts; machinery; equipment manufacturing; construction industries; etc; and** several others at NMSU Grants and other institutions.
- **Strategy 3: Ensure adequate bandwidth is available so that students can take dual credit classes online or through distance learning/two-way video conferencing** so that students and postsecondary instructors can interact in real time, especially important with reservation schools.
- **Strategy 4:** Deliver hybrid approaches, whereby a postsecondary faculty member is the online instructor of record while a high school instructor ensures that the student is making progress and provides additional instruction as needed.
- **Strategy 5: Strive to have all schools in the region work with the ACT Soft Skills Suite.** The Soft Skills Suite is a set of five self-paced training courses focusing on behaviors and attitudes that affect job performance. Offered online for both desktop and mobile devices, courses help individuals gain knowledge and close the skills gaps hiring managers most frequently report.
 - Interpersonal and business communication
 - Problem solving and critical thinking
 - Working productively in a team
 - Assisting customers effectively
 - Developing good work habits and workplace discipline

Objective C: Build a Maker Space/Fab Lab where people with shared interests, especially in computing or technology, can gather to work on projects while sharing ideas, equipment, and knowledge.

- **Strategy 1: Near or at NMSU Grants seek to build a Fab Lab program connected with the university with the following types of equipment:**
 - A rapid prototyper: typically a 3D printer of plastic or plaster parts
 - 3-axis CNC machines: 3 or more axes, computer-controlled subtractive milling or turning machines
 - Printed circuit board milling or etching: two-dimensional, high precision milling to create circuit traces in pre-clad copper boards
 - Microprocessor and digital electronics design, assembly, and test stations
 - Cutters, for sheet material: laser cutter, plasma cutter, water jet cutter, knife cutter
- **Strategy 2: Secure funding through the Economic Development Administration, US Department of Agriculture, and the New Mexico Board of Regents** for a separate building on the campus of NMSU Grants.
- **Strategy 3: Open the Fab Lab to the community**, run summer boot camps for high school and middle school students on campus. Work with Maker Girls to run a program on campus designed to help 4th grade girls.
- **Strategy 4: Bring the Fab Lab to the community**, have businesses utilize the Lab for engraving, sign making, printing and assist individuals who want to start businesses by offering entrepreneurship classes.
- **Strategy 5: Seek to build a Fab Lab program in Gallup with the library or Navajo Technical University.**
- **Strategy 6: Ensure that in both communities that the Fab Lab serves as a mini-STEM Academy, and dual credit is offered.**

FCG is available to assist with these recommendations.

Appendix

Companies & Educators Interviewed (alphabetically)

- Andeavor
- BNSF
- Continental Divide Electric Cooperative
- El Segundo Mine
- Escalante Generating Station
- Gallup-McKinley County Schools
- Grants-Cibola County Schools
- High Country Trucking
- Homestake Mining
- IBSU IT
- McKinley County Attorney
- McKinley Paper
- Mt. Taylor Millworks
- Newberry & Associates
- NM Tech
- NM Transload
- NMSU
- Peabody Mine
- Pinnacle Bank
- Rio Grande Resources Mine
- Salt River Materials
- Southwest Indian Foundation
- UNM-Gallup
- US Bank

WHAT IS A FAB LAB?

A Maker Space is a place in which people with shared interests, especially in computing or technology, can gather to work on projects while sharing ideas, equipment, and knowledge. A makerspace can be equipped with 3D printers, laser cutters, various milling devices, and more. Also, a library **makerspace** or maker program, patrons of varying ages can work together, alone, or with library staff on creative projects. These spaces often give community members access to tools, technology, and social connections that may not be easily accessible otherwise.

Fab Lab is the educational outreach component of MIT's Center for Bits and Atoms (CBA), an extension of its research into digital fabrication and computation. A Fab Lab is a technical prototyping platform for innovation and invention, providing stimulus for local entrepreneurship. A Fab Lab is also a platform for learning and innovation: a place to play, to create, to learn, to mentor, to invent. To be a Fab Lab means connecting to a global community of learners, educators, technologists, researchers, makers and innovators—a knowledge sharing network that spans 30 countries and 24 time zones. Because all Fab Labs share common tools and processes, the program is building a global network, a distributed laboratory for research and invention.

A fab lab is typically equipped with an array of flexible computer-controlled tools that cover several different length scales and various materials, with the aim to make "almost anything". This includes technology-enabled products generally perceived as limited to mass production.

While fab labs have yet to compete with mass production and its associated economies of scale in fabricating widely distributed products, they have already shown the potential to empower individuals to create smart devices for themselves. These devices can be tailored to local or personal needs in ways that are not practical or economical using mass production.

Flexible manufacturing equipment within a fab lab can include:

- Mainly, a rapid prototyper: typically a 3D printer of plastic or plaster parts
- 3-axis CNC machines: 3 or more axes, computer-controlled subtractive milling or turning machines
- Printed circuit board milling or etching: two-dimensional, high precision milling to create circuit traces in pre-clad copper boards
- Microprocessor and digital electronics design, assembly, and test stations
- Cutters, for sheet material: laser cutter, plasma cutter, water jet cutter, knife cutter.

A Fab Lab is often open to public use, pending a safety and operating certification, and programs can offer college credit to college or high school students seeking dual credit who come into the lab a few times a week, turn in a portfolio, and take an exam.

In 2009, Neil Gershenfeld of MIT helped set up the Fab Foundation in part to help people make products they needed that the mass market wasn't providing. It took off. Indian farmers used fab labs to create instruments to verify the quality of milk; a Kenyan engineering student made "vein finder" tools for doctors. By 2016 there were more than 1,000 fab labs worldwide.

Sherry Lassiter, who leads the Fab Foundation and is known as “Lass,” noticed that the global total was doubling every year. Now there’s Lass’ law—the prediction that the number of fab labs, or such tools, will double roughly every year and a half. Why would this be happening? It’s part inspiration (people hear about the labs and want their own) and, technical progress: The machinery has gotten cheaper and more digitized.

One of the leading Fab Lab Maker Space’s is in Independence KS, at Independence Community College at the former Cessna Learning Center.

Equipment

Epilog Laser Cutter Engraver (most used by far)
3-D Scanner/Digitizer
Maker Gear 3-D Printers
Vinyl Cutting Systems
CNC Table Router (4x8 bed)
CNC 3-axis table top machine mill
CNC table top lathe
Safety table Saw System
Multi-Function Copier
Large Media printer/plotter full color to 42” width
CNC Plasma Cutter
Ceramic Kiln
Electronics Research and Test Bench
Video Camera

More Information Regarding This Report, Please Contact:

**Mr. Deane C. Foote
President/CEO**



**(480) 399-4854
deane@footeconsulting.com**