Economic Development Strategy

CREDC
ECONOMIC DEVELOPMENT

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Prepared By

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Introduction

Today's global economy consists of rapidly changing market trends and innovations. However, the one economic certainty that pertains to any industry is the increasing need for skilled human capital. And companies understand that highly mobile talent wants a great place with jobs.

Clark County economic development stakeholders realize that a heightened awareness for creating great and diverse places that embrace all residents is a critical step in attracting talent, fostering a sense of identity, and growing a resilient economic base.

The county leaders also understand that complex issues driving income stratification and workforce skills gaps are making it more difficult for every resident to realize positive personal economic growth in keeping with business growth. Therefore, the stakeholders within Clark County are committed to consciously fostering a diverse economic base and skilled workforce to allow ALL community members to benefit from the growing economy. In doing so, they will reach their vision:

> *Clark County is one of the most inclusive, healthy, and amenity-rich communities in the country. With a continued focus to grow a diverse base of community-minded employers, talent (inside and outside the region) sees greater opportunity here than anywhere else in the country.*

What is Economic Development?

Economic development can be defined as efforts that seek to improve the economic well-being and quality of life for a community by creating and/or retaining middle and high income jobs and supporting or growing incomes and the tax base through diversification of the local economy. These jobs are generally defined as two different categories with distinct needs in terms of workforce and business location. In addition, these sectors require different types of support and investments from various stakeholders. These sectors are distinguished for clarification regarding strategy objectives and actions.

Traded Sector vs. Local Sector Jobs

Traded sector (also referred to as an export sector) businesses include industries and employers which produce goods and services that are consumed outside the region where they are produced and therefore bring in new income to the area (e.g., metals and machinery, software). Workers in the traded sector tend to have higher educational attainment, work more hours, and earn higher average wages than local sector business.

As the traded sector increases employment and wages, it also enables entrepreneurs to develop skills and resources to foster innovation and start new businesses and increase employment opportunities. Furthermore, certain traded sector companies foster a supply chain effect that creates the need for additional companies to supply components of a product that is manufactured.

Local sector business consists of industries and firms that are in every region. They produce goods and services that are consumed locally in the region where they were made, and therefore circulate existing income in the area (e.g., breweries, physician offices, banks). These businesses are important as they make a community distinct and provide amenities to attract young professionals and families that drive the new economy. A sampling of traded vs. local sector businesses in the Clark County region is indicated in Figure 1.

Figure 1. Representative Traded Sector and Local Sector Clark County Businesses

Traded Sector	Local Sector
DiscoverOrg, tsmc, Columbia	Columbia Credit Union, Doomsday Brewing Co., The Vancouver Clinic

Table 1 highlights the average wage difference between traded sector jobs and local sector jobs in the U.S. As the job base expands, a region is more attractive to employees because they have more options for career growth. In turn, once the employment base grows, competition will occur and ultimately increase wages.

Table 1. 2015 Annual Average Wages by Industry Sector

NAICS	Industry Sector	United States Average Wage 2015
Traded Sector		
55	Management of Companies & Enterprises	$116,737
51	Information	$95,098
54	Professional, Scientific, & Technical Services	$89,785
42	Wholesale Trade	$73,363
31-33	Manufacturing	$64,305
Local Sector		
23	Construction	$57,009
61	Education Services	$47,968
62	Health Care & Social Assistance	$47,296
71	Arts, Entertainment, Recreation	$36,128
44-45	Retail Trade	$29,742
72	Accommodation & Food Services	$19,415

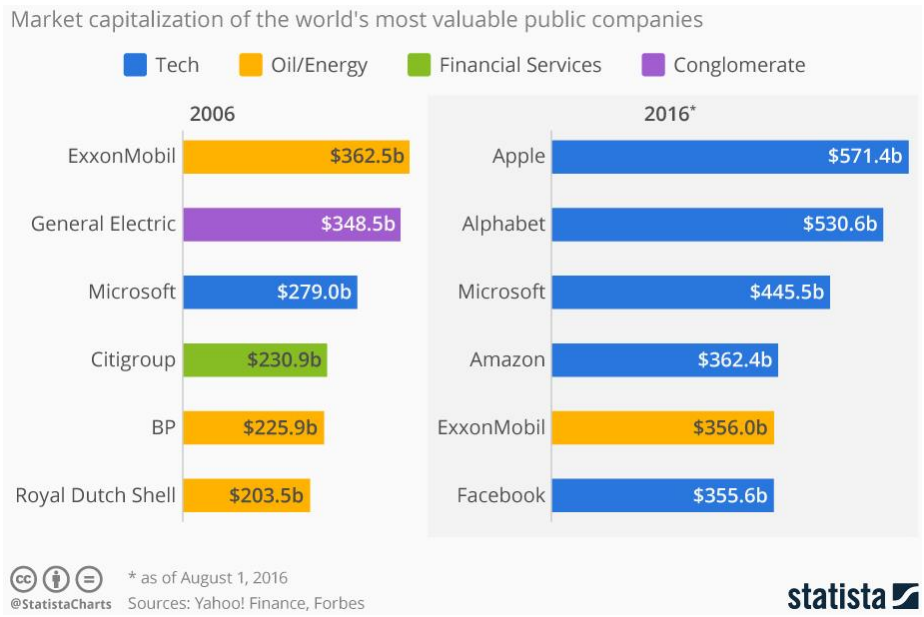
Source: Quarterly Census of Employment and Wages - Bureau of Labor Statistics, June 2016.

Importance of Talent

The national economy is becoming increasingly more talent/knowledge-based than resource-based, meaning that people, rather than raw materials, are the most important asset to a company's value and prospects for growth. This applies to all industries, including manufacturing, professional services, and technology. Articulating this further is the following chart defining the shift in market assessment for the world's most valuable companies. As illustrated in Figure 2, the most valuable companies as of 10 years ago consisted largely of natural resource extraction, while now they are largely technology companies with values based upon people generating innovative ideas and processes. This is not to suggest that Clark County needs to focus their industrial base entirely on technology companies, but

to understand that the modern economy depends upon highly skilled people to thrive. For this reason, a company's number one priority today is attracting talent. And talent wants to go to a great place with jobs.

Figure 2. The Age of Tech



A significant cohort of the talent in demand consists of the "millennial" generation (generally ages 19 to 35 in 2016), made up of approximately 76 million people – the largest demographic group our country has seen. As this generation grows and shapes our talent-based economy, it is important to understand what motivates them and the communities they choose in such a highly mobile environment. This group has been slower to marry and move out on their own, and have shown different attitudes to ownership that have helped spawn what's being called a "sharing economy" which suggests these trends are likely to continue.[1] Furthermore, it is likely that today's high school generation will adopt many of the same values that are driven by affinity for technology.

Such an environment includes the following elements:

- Job Base. Talent moving to a new community wants to know that there are other opportunities if the job that brought them there does not fulfill expectations.
- Simple Commute. Many millennials are not defined by the automobile, and do not want to drive if they don't have to. As reported in Urban Land Institute (ULI) Emerging Trends 2016, miles traveled by car for those people 34 years old or younger are down 23 percent nationally. The American Automobile Association reports that the percentage of high school seniors with driver's licenses declined from 85 percent to 73 percent between 1996 and 2010, with federal data suggesting that the decline has continued since 2010. Locally, the average miles travelled by any mode – walking, driving, biking, or taking transit – is the lowest for millennials.

[1] Millennials Coming of Age, Goldman Sachs, 2017.

- Urban Lifestyle. Millennials tend to prefer density with alternative transportation modes and retail nearby, which provides alternatives to owning a car. This urban lifestyle does not mean that an entire community must conform to urban densities. What is important is that some element of an urban lifestyle through either a healthy Main Street in a traditional downtown or denser town centers in suburbs is provided.
- Amenities. Millennials are looking for ample amenities, especially restaurants and access to outdoor recreation.
- Open Culture. Millennials embrace social or ethical causes[2] and communities that are more diverse, accepting, and open to change.

Skilled Workforce

When planning for a future economy, it is important to understand that all industries are dependent on a talented workforce that has technical skills and/or degree attainment. Clark County's future economy requires a skilled workforce with training in career technical education (CTE) and access to higher education science, technology, engineering, and mathematics (STEM) degrees.

Career Technical Education (CTE) Training

CTE training is targeted toward middle-skill jobs, which require education and training beyond high school but less than a bachelor's degree, and are a significant part of the economy. Of the 55 million job openings created by 2020, 30 percent will require some college or a two-year associate degree[3]. It is important to foster partnerships with Clark College and local primary and secondary schools to encourage youth to consider this career path. By engaging youth early, they may be more likely to attend Clark College or obtain other skills training and either start their own enterprise or apply their critical skills with local companies in Clark County.

Higher Education

Globally, positions requiring substantial independent judgment and decision-making are now in high demand[4]. Increasingly, employers are demanding a workforce that has technical skills, including manufacturing jobs that involve the operation of sophisticated machinery requiring some advanced training beyond high school. Science, technology, engineering, and mathematics (STEM) workers are increasingly in demand and in short supply, especially in the private sector which needs software developers, data scientists, and those in skilled trades. Clark County is fortunate in that it is home to Washington State University Vancouver (WSU Vancouver), which provides several degrees to equip students with these technical, interpersonal, and entrepreneurial skills that are in high demand.

[2] Brookings Institution, 11 Facts about the Millennial Generation, June 2014.

[3] Association for Career and Technical Education, 2016.

[4] STEM crisis or STEM surplus? Yes and yes, Bureau of Labor Statistics, May 2015.

Background

In developing the economic development strategy, it is important to obtain information from local businesses and employees. We have achieved this through personal interviews of stakeholders identified in Appendix A and survey responses from the business community. Consistent themes from the interviews and surveys are summarized below and are reflected in the strategy.

Stakeholder Interview Themes

In December 2016 Leland Consulting Group (LCG) held several meetings with industry representatives, small business organizations, the Steering Committee, and Columbia River Economic Development Council (CREDC) staff to determine opportunities and challenges to fostering economic development in the Clark County region. Specifically, LCG conducted interviews to discuss the following as it related to Clark County: startups and entrepreneurship, higher education, talent attraction, exports, community divides, and quality of place. Consistent themes and comments are noted below:

- No Income Tax. Overwhelmingly, the community views no income tax in Clark County as a leading strength for the community. However, the weight of this asset needs to be taken into context. If a company outside the Portland region was looking to expand, it needs to be determined through other factors why the company would choose Clark County over Spokane, WA or Williamson County, TX, which also do not have an income tax.
- Overreliance on Portland. Many in the business community rely heavily on obtaining specialized talent from Portland with a lure of a nine percent raise while still having access to Portland's assets.
- Limited Sense of Place. All stakeholder groups mentioned the need for building a greater sense of place in Clark County, especially in the downtown urban core of Vancouver. The downtown area offers an opportunity-developing environment that is appealing to startups and knowledge workers.
- Talent Connection. Among the knowledge workers and millennials that participated in roundtable discussions, there is a strong desire for creating an initiative or mechanism for helping to connect talented workers to one another in Clark County.
- Pride in Family. There is a strong sense of pride in the public K-12 system and the ability to raise a family in the community. Many noted this to be one of the community's greatest assets.
- Limited Startup Support. Clark County has seen limited support and enthusiasm for the startup community. The startup community has a significant need and desire for promotions and events to build awareness of existing companies to foster collaboration. A refined understanding of what defines a startup and in what sectors is needed to elevate this business formation opportunity.

- Interstate 5 (I-5) Bridge. Congestion throughout the I-5 corridor, and bridge traffic specifically, is viewed as a significant challenge for the community, however some commented that it seems will not be remedied for many years. While community leaders need to continue to support plans to address it, CREDC's efforts need to center on how to mitigate this challenge.
- Strong Ports. The Ports of Camas-Washougal, Ridgefield and Vancouver are significant community assets. The Port of Vancouver is a deep-water port, which is a significant community asset with strong growth opportunity for the future. Given the changes in national policies and emphasis, the Port's new Foreign Trade Zone (FTZ) designation may be beneficial if tariffs increase.
- CREDC Support. There is strong support and trust in CREDC leadership and staff throughout the community. Given the input from the roundtable discussions, CREDC has the necessary community backing to implement a new bold direction for the economic development strategy in Clark County.

WSU Vancouver Survey Themes

The Initiative for Public Deliberation at Washington State University Vancouver (WSU Vancouver) completed a report in November 2016 that collected feedback from 25 major stakeholders in Southwest Washington to gather information to assist CREDC in updating its strategic plan. Consistent themes and comments are noted below:

- Business Climate Advantages. Key advantages of locating one's business in Clark County centered on the business climate. While all of Washington State enjoys tax advantages, including the lack of an income or corporate tax, Clark County enjoys the additional benefit of having available and affordable developable land. The combination of these factors gives the community an advantage over locations in Oregon. Overall quality of life, reflected in access to recreation, the natural environment, a competitive cost of living, and excellent educational institutions, make the region attractive to employees and companies alike.
- Business Climate Challenges. Key challenges of locating one's business in Clark County centered on transportation congestion, which negatively affects the mobility of employees, clients and goods, and contributes to the loss of time, productivity, quality of life and convenience. Whether it was specific concern about the I-5 Bridge, the I-5 corridor, access roads, or inadequate public transportation, most respondents mentioned the challenges associated with transportation at some point in their conversation.
- Local Skills Development. Respondents were complimentary of K-12 schools and local colleges and universities, while at the same time identifying the need to redouble efforts to provide technical training at the community colleges and graduates in specific fields, primarily engineering.
- Talent Recruitment Challenges. A number of respondents also identified challenges recruiting employees to specific industries, especially software and civil engineers, high level leaders and executives, and employees with specific technical skills, particularly if they also play a management role. A combination of demographic shifts, an evolving workforce, and problems specific to the region, such as traffic congestion, an inadequate multimodal

transportation system, and limited availability and affordability of housing, were offered as reasons for emerging retention problems. Challenges attracting a talented workforce were attributed by some respondents to the lack of a community identity relative to other areas in the greater Portland-Vancouver region.

- CREDC's Role. CREDC has an opportunity to help to guide and enhance the relationship between business, nonprofits and government to enhance the business climate. A few mentioned that CREDC can foster an innovative environment, by sponsoring programs such as incubation centers or hack-a-thons.

Strengths, Weaknesses, Opportunities, and Challenges

The following strengths, weaknesses, opportunities, and threats (SWOT) are derived from stakeholder input, survey responses, and general research.

Strength (internal)

- Company engagement
- Utilities – low cost, reliability, and sustainable source
- Land availability and understanding of shovel-ready capability
- Strong and diverse manufacturing base
- Strong technology export industries
- Growing software base
- WSU Vancouver Tier 1 status
- Clark College engagement
- Outdoor recreation opportunities
- Mild climate
- Multiple communities (rural and urban)
- Emerging downtown core
- Strong K-12 system
- Infrastructure access: Deepwater port, rail, I-5

Weakness (internal)

- Lack of brand/identity makes it hard to attract talent
- Big box/suburban reputation
- Lack of multimodal options
- Rural and urban differences and conflicting values
- Aging population
- Lack of housing options/diversity
- Lack of cultural diversity and amenities
- Lower educational attainment compared to region
- Limited exposure to venture capital
- Limited business formation/startup ecosystem
- Clark County depends on greater Portland for professional services and educated talent

Opportunity (external)

- Access to PNW mountains, beaches, forests
- Asia proximity and foreign investment
- West Coast population growth
- City of Portland proximity
- PDX International Airport
- No Washington income tax

Threat (external)

- Limited STEM education workforce
- I-5 congestion and quality of overall regional infrastructure
- Lack of state incentives
- Protectionist trade policies

Foreign Direct Investment (FDI)

In the 2011 Plan, international investment was identified as a distinct goal in the plan with specific strategies and tactics. This is appropriate as metropolitan regions are increasingly focused on building global awareness and investment to further expand their economic base. However, FDI is not a standalone strategy like business retention or recruitment. It is a mindset in how economic development stakeholders work with industry clusters and foreign companies existing within the community. In addition, the overall community must demonstrate an international mindset that is open to diverse groups and respect for the global marketplace. As relationships are consistently strengthened, foreign investment will continue and will likely expand to include peer foreign companies based on associations and networks.

The Brookings Institution (Brookings) evaluated 28 regions to determine best practices in approaching FDI, which are documented in *The 10 Lessons from Global Trade and Investment Planning in U.S. Metro Areas*. Key points include:

- The primary benefit of global trade and investment is increased competitiveness, not quick jobs. Global trade and investment are critical to the long-term economic viability of firms, but the payoff in terms of employment takes time. The lack of "quick jobs" presents challenges to the structure of the existing economic development system.
- The most important firms are the ones you already have. The foundation of a strong global effort is, paradoxically, an even more intense focus on local business retention and expansion (BRE).
- Mergers and acquisitions (M&As) are the dominant form of FDI. For foreign firms, M&As are the preferred way to secure new product lines, technologies, and markets.

As identified in the above points by Brookings, the intended outcome of FDI should not be recruiting new companies that invest in greenfield development and generate jobs. The intended outcome is increased investment in existing U.S. companies and a strengthening of the regional industry cluster. The recent disinvestment in Clark County by Japanese-owned Sharp Labs is a significant example of why significant BRE with existing foreign companies is the most important way to approach FDI. The resultant disinvestment by the company is displacing 200 highly skilled employees. However due to the strong relationship with the company and positive business ecosystem, many employees are staying within Clark County and creating new startups.

Economic Profile

The following information provides a current snapshot of economic conditions in Clark County that provide direction regarding strategic actions. While these data points can serve as a point of reference in gauging if CREDC is achieving overall goals, the data should be updated annually to reflect the ongoing changes and progress in the county.

Benchmark Communities

For the benchmark communities, LCG worked with CREDC staff and the Steering Committee members to select six comparable counties to Clark County. Selection was made utilizing the following factors:

- Connection to a Knowledge Center. Like Clark County, selected geographies must be connected to a growing economy driven by professional services, technology and knowledge-based industries.
- Population Size. It is imperative that benchmark counties have a similar population as Clark County.
- University Presence. Given the presence of WSU Vancouver in Clark County, a few of the selected benchmark counties should also have a university present in the community.
- Port Community. Clark County is a port community with the Ports of Camas-Washougal, Ridgefield, and Vancouver present in the county; therefore, a few of the selected benchmarks should also be port communities.
- Multinodal Region. Clark County is an anchor for the greater Portland-Vancouver region, a multinodal community. The benchmark selection also looked for communities that were part of similar regions.

The following is a list of selected benchmarks:

- Canyon County, ID
  - Primary City: Nampa
  - Metro: Boise City-Nampa MSA
  - Population: 189,000
  - University: No
  - Port: No
  - Multinodal Metro: Yes
- Douglas County, CO
  - Primary City: Castle Rock
  - Metro: Denver MSA
  - Population: 323,000
  - University: No
  - Port: No
  - Multinodal Metro: No, but between Denver and Colorado Springs

- Johnson County, KS
  - Primary City: Overland Park
  - Metro: Kansas City MSA
  - Population: 544,000
  - University: University of Kansas-Edwards Campus
  - Port: No
  - Multinodal Metro: Yes
- Ramsey County, MN
  - Primary City: St. Paul
  - Metro: Minneapolis-St. Paul MSA
  - Population: 527,000
  - University: No
  - Port: Yes
  - Multinodal Metro: Yes
- Spokane County, WA
  - Primary City: Spokane
  - Metro: Spokane MSA
  - Population: 479,000
  - University: Gonzaga University
  - Port: No
  - Multinodal Metro: No
- Williamson County, TX
  - Primary City: Round Rock
  - Metro: Austin MSA
  - Population: 471,000
  - University: Southwestern University; Texas University at Round Rock
  - Port: No
  - Multinodal Metro: Yes

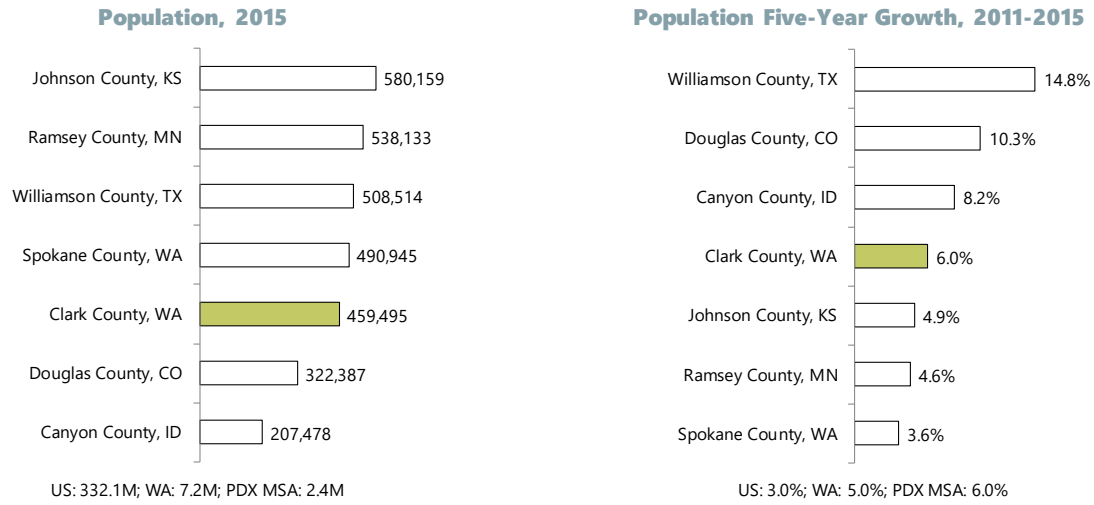
Overview

Clark County is a dynamic, growing community. Home to a workforce that is becoming more skilled and educated every day, Clark County's foundation for future economic growth is strong. However, to better understand the competitive assets of the county, as well as its challenges, LCG developed a competitive assessment that compared Clark County to the aforementioned counties on an array of metrics measuring: demographic and socio-economic trends, diversity, equity, business climate, and workforce skills and education. This analysis examined more than 65 different metrics and has been provided to CREDC staff and stakeholders in a summary appendix. The following highlights the key findings from a select number of data metrics.

Population Trends

As of 2016 over 467,00 residents call Clark County home – 20 percent of the population of the greater Portland-Vancouver region. From 2011 to 2015, Clark County added 26,000 new residents – a six percent growth that is faster than Johnson County, KS, Ramsey County, MN and Spokane County, WA but less than half of Williamson County, TX.

Figure 3. Clark County Population Growth

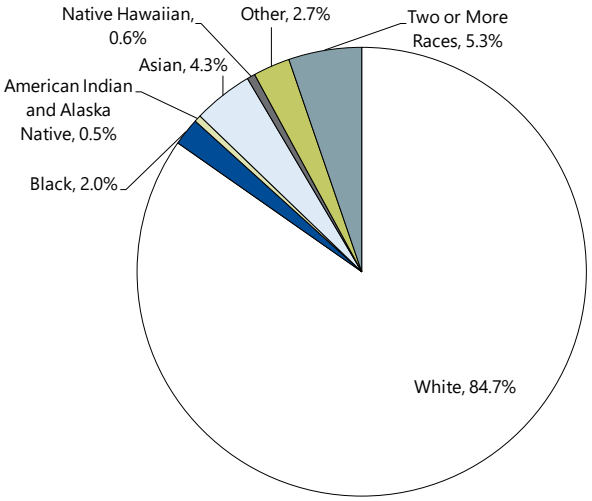


Source: U.S. Census American Community Survey 2011-2015.

Ethnic Overview

Nearly nine out of every 10 residents in Clark County are Caucasian. Minority residents in Clark County make up 15.3 percent of the population. Asian Americans comprise 4.3 percent, twice that of African Americans (2.0 percent).

Figure 4. Clark County Racial Breakdown, 2015

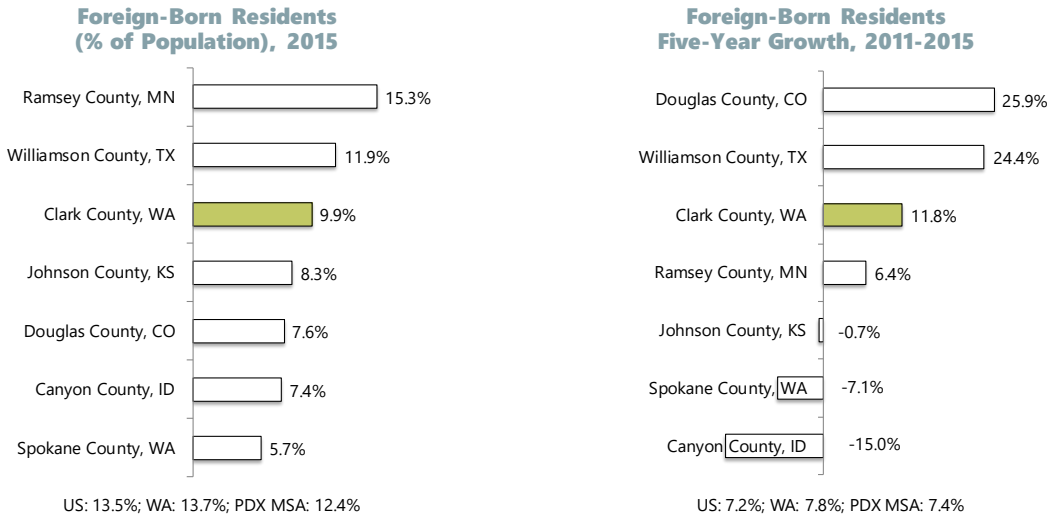


Source: U.S. Census American Community Survey 2011-2015.

Foreign-Born Residents

Economic vibrancy and growth thrives in diverse communities. More than 45,000 Clark County residents – 9.9 percent of the population – are foreign-born residents. However, this share is still less than the U.S. average of 13.5 percent. From 2011 to 2015, Clark County added 4,800 new foreign-born residents – 19 percent of all new population growth in the county.

Figure 5. Clark County Foreign-Born Residents

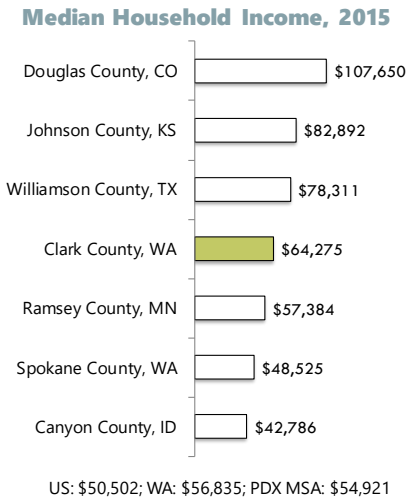


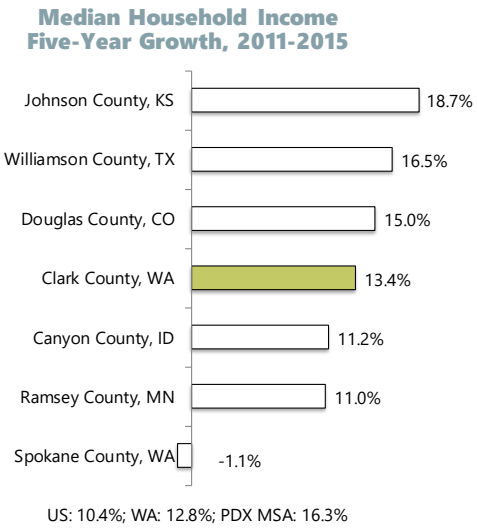
Source: U.S. Census American Community Survey 2011-2015.

Median Household Income

At $64,275, median household income in Clark County is 14 percent larger than the U.S. average. From 2011 to 2015, median household income in the County grew 13.4 percent, ranking it fourth among the selected benchmark communities; however, this growth rate was slower than that of the greater Portland-Vancouver region (16.3 percent).

Figure 6. Clark County Median Household Income



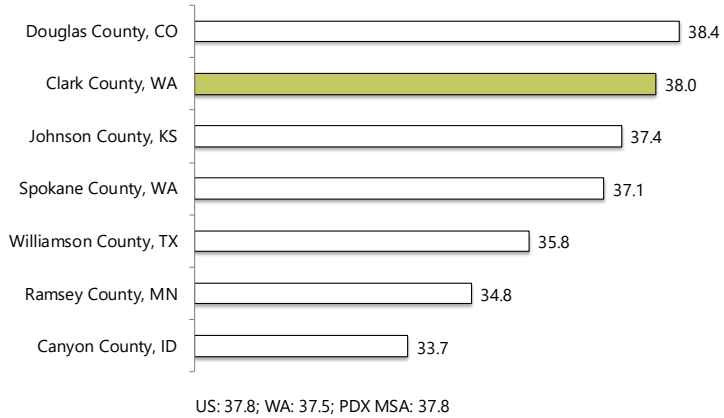


Source: U.S. Census American Community Survey 2011-2015.

Median Age

Compared to the national average of 37.8 years and benchmark comparisons, Clark County is an older community with a median age of 38.0 years. Five years ago the median age was 36 years old, so the community is aging.

Figure 7. Clark County Median Age



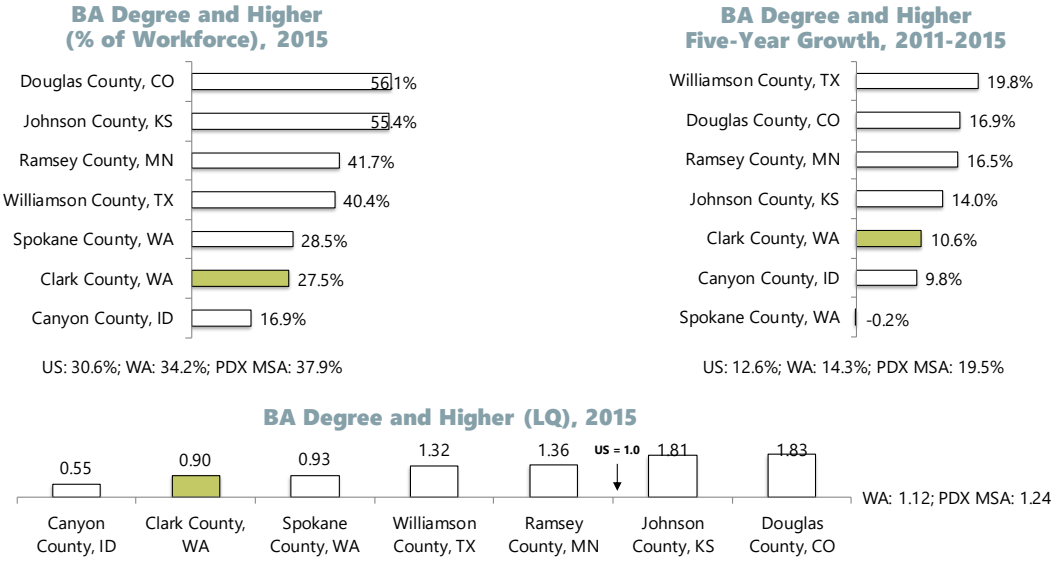
Source: U.S. Census American Community Survey 2011-2015.

Educational Attainment

Approximately 84,500 Clark County residents hold a bachelor's degree or higher – 27.5 percent of the workforce. This ranks sixth among the benchmark communities and below the U.S. average (30.6 percent) and the share for the greater Portland-Vancouver region (37.9 percent). From 2011 to 2015, the share of residents with a bachelor's degree or higher grew 10.6 percent – less than half of the growth rate of the greater Portland-Vancouver region.

In addition to the number of residents with a bachelor's degree or higher, Clark County has an additional 118,500 residents with an associate degree or some college – 38.7 percent of the workforce. Utilizing a location quotient as a metric, this share is 33 percent larger than the U.S. average for a community the size of Clark County. It is also worth noting that 28,000 Clark County residents do not have a high school diploma – 9.2 percent of the working population.

Figure 8. Clark County Educational Attainment: Bachelor's Degree and Higher

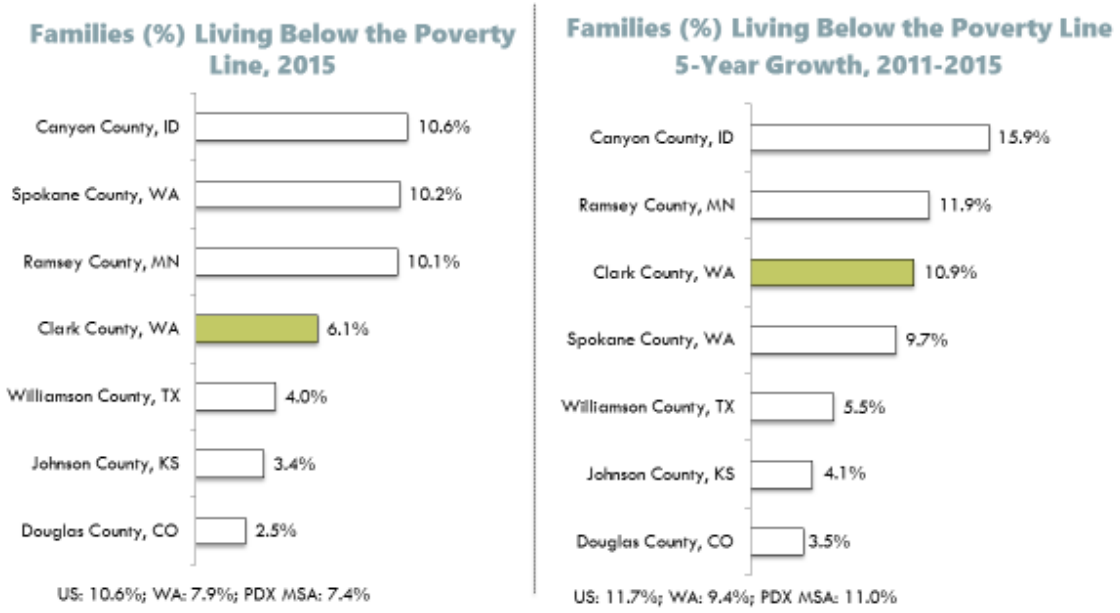


Source: U.S. Census American Community Survey 2011-2015.

Equity

Six percent of families in Clark County live below the poverty line, well below the U.S. average of 10.6 percent and ranking it fourth among the selected benchmark communities. The number of families living below the poverty line grew 10.9 percent from 2011 to 2015, consistent with the growth in the greater Portland-Vancouver region (11 percent).

Figure 9. Percent of Families Living Below Poverty Line



Source: U.S. Census American Community Survey 2011-2015.

Employment Trends

More than 46,000 Clark County employees are knowledge-based workers, those who work in technology and science, arts and culture, professional services, and education. Urbanist Richard Florida refers to these workers as the Creative Class. They make up one-third of the workforce in Clark County, and on average, they earn $77,600 annually, 50 percent more than those working in the service and production occupations. Looking to the future, Clark County's creative workforce is expected to grow 13.3 percent by 2026.

Those working in service occupations – often low-paid, routine roles in food service, personal care, health services and sales – make up 43.3 percent of Clark County's workforce (nearly 71,000 workers). On average these workers earn $38,000 annually. Production-based occupations account for an additional 39,500 workers in Clark County – 25.2 percent of the workforce. These occupations are expected to grow approximately 16 percent in the next 10 years. On average, Clark County production-based workers earn $43,400 annually – 14 percent more than service workers in the county.

Table 2. Clark County Workforce Distribution

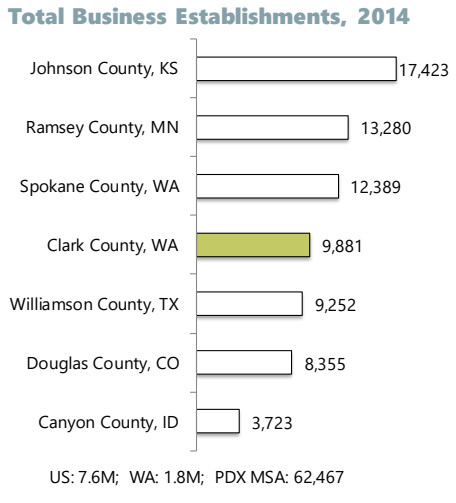
	LQ (2017)	Employment (2017)	Workforce Share (2017)	10-Year Projection (2017-2026)	Average Annual Salary (2017)
Working/Production	1.09	39,500	25.2%	15.9%	$43,442
Knowledge	1.04	46,064	29.4%	13.3%	$77,622
Service	0.99	70,984	45.3%	11.6%	$37,663
Working/Production. Nearly 40,000 workers with production-oriented skills. This is nine percent higher than the U.S. average					
Knowledge. Knowledge sector is on par with the U.S. average. On average, they earn 50 percent more than service and production workers					
Service Sector. Approximately 71,000 workers, earning an average $38,000 annually					

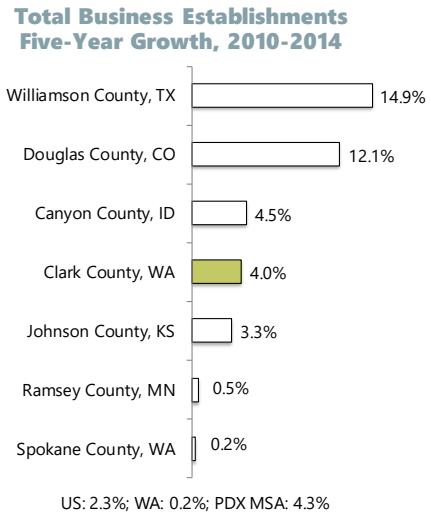
Source: U.S. Census American Community Survey 2011-2015.

Business Formation

Business formation in Clark County has mirrored that of the greater Portland-Vancouver region: approximately four percent growth between 2010 to 2014. While consistent with the region, this is well below the firm growth of other fast-growing benchmark counties: Williamson County, TX (14.9 percent) and Douglas County, CO (12.1 percent). Information businesses (those closely related to software and technology) grew 11.0 percent in Clark County – nearly five times faster than the growth of the greater Portland-Vancouver region overall (2.3 percent). The number of professional service businesses increased 4.2 percent and the growth of the number of arts and recreation businesses tripled the overall business formation growth at 15.5 percent.

Figure 10. Clark County New Business Formation





Source: U.S. Census American Community Survey 2011-2014.

Commute Patterns

Clark County residents are just as likely to work outside of Clark County as inside the county. A review of Census data indicates that slightly more residents (50.4 percent) work outside the county than inside (49.6 percent), however, the split is fairly even. Additionally, approximately 30 percent of jobs within Clark County (39,500 of 129,000 jobs) are filled by employees living outside the county. These patterns indicate an existing reliance for residents and employers to be able to travel daily within, out of, and into Clark County.

Figure 11. Clark County Commune Patterns

Source: U.S. Census Bureau, LEHD 2016.

Approximately two-thirds of Clark County residents that work outside the county (60,000 of 91,000) are employed in Oregon. Many of these residents that are employed in Oregon work in Multnomah County (40,000), with the remaining working in Washington County, Clackamas County, or other Oregon counties. Additionally, approximately 42 percent of the imported workforce (16,700 of 39,500), or 13 percent of the total workforce (16,700 of 129,000), are residents of Oregon. These bistate ties – both Clark County residents working in Oregon and Oregon residents working in Clark County – indicate the importance for retaining regional bistate infrastructure that support these commute patterns.

Industry Clusters and Skills Base

Industry clusters are groups of similar and related traded sector businesses in a defined geographic area that share common markets, technologies, worker skill needs, and which are often linked by buyer-seller relationships. Industry clusters represent distinct qualities of a community and help define what makes one community different from another. As they convey distinct qualities, it is important to be specific in the definition of a cluster. For example, rather than promoting "high-tech," a community should focus on "software or computer and electronics" to convey the type of product being manufactured and its unique workforce and supply chain needs. Promotion of clusters helps reinforce to existing businesses and interested outside talent the unique community assets and why it is a good place to stay and grow. The following key industry clusters drive the Clark County economy:

- Computer and Electronics
- Clean Tech
- Software
- Metals and Machinery
- Life Sciences

Each cluster benefits from partnership with the higher education assets of WSU Vancouver and Clark College. Furthermore, the infrastructure, unique assets, and existing company base within Clark County serve to support these industries. In defining specific clusters and fostering collaboration, new business opportunities arise, workforce training needs can be met, and physical site expansion needs can be addressed.

As outlined in the following table, the 2017 proposed clusters are largely more specific definitions of the prior clusters identified in 2011. Furthermore, the proposed clusters align with many of the greater Portland-Vancouver region and State of Washington clusters, which is appropriate due to the regional workforce, legacy industries and inherent assets. However, as described in the following summaries, these updated CREDC 2017 clusters are more refined to align with Clark County assets. For example, Clark County's cluster is only "software" and not "software and media" as with the greater Portland region, as there is minimal media company presence or talent in Clark County.

Table 3. Industry Cluster Comparison

CREDC 2011 Clusters	Greater Portland 2020 Regional Clusters	State of Washington Clusters	CREDC 2017 Proposed Clusters
Technology Services	Software and Media	Information and Communication Tech	Software
Technology Products	Computer/Electronics		Computer and Electronics
	Clean Tech	Clean Tech	Clean Tech
	Metals and Machinery	Aerospace	Metals and Machinery
Healthcare administration	Health Sciences/Technology	Life Sciences/Global Health	Life Sciences (manufacturing)
Agricultural Processing		Agriculture and Food Processing	(local sector opportunity)
Wealth Management			(driven by local demand)
Logistics & Distribution			(workforce focus)
	Athletic and Outdoor		
		Maritime	
		Military and Defense	
		Forest Products	

The following cluster summaries provide an overview of the data that was evaluated to determine why these clusters were identified as having the most opportunity for Clark County. The key indicators are location quotient (LQ) for companies and skills existing within Clark County. According to the U.S. Bureau of Economic Analysis, "A location quotient is an analytical statistic that measures a region's industrial specialization relative to a larger geographic unit (usually the nation). An LQ is computed as an industry's share of a regional total for some economic statistic (earnings, GDP by metropolitan area, employment, etc.) divided by the industry's share of the national total for the same statistic." For example, an LQ of 1.0 in software means that the region and the nation are equally specialized in software, while an LQ of 1.8 means that the region has a higher concentration in software than the nation.

It is important to build a cluster strategy driven by data to ensure ongoing efforts will enhance an existing economic foundation and attract new business that will want to see quantifiable data that there is a strong workforce and industry base in the region under consideration. A detailed analysis of the cluster competitive advantages and associated workforce skills has been provided as separate appendix documents. It is LCG's belief that CREDC staff will be able to utilize the research and data to help drive ongoing business retention and recruitment efforts.

Computer and Electronics

Overview

Clark County is a driving force behind the greater Portland-Vancouver region's reputation as "Silicon Forest." With companies like Logitech, TSMC, Silicon Forest Electronics, SEH America and others calling Clark County home, computer and electronics is a strong legacy cluster for the county but also a growth opportunity as the world sees growing demand in clean technology, automation, especially in autonomous cars, and computer hardware needs.

Defining the Cluster

Collaborating closely with CREDC, as well as analyzing the cluster make-up and definition of other competitive communities throughout the country, LCG utilized the following NAIC codes to define the cluster:

- Semiconductor and Related Device Manufacturing (334413)
- Electronic Connector Manufacturing (334417)
- Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing (334511)
- Data Processing, Hosting, and Related Services (518210)
- Electronic Computer Manufacturing (334111)
- Pottery, Ceramics, and Plumbing Fixture Manufacturing (327110)
- Computer Terminal and Other Computer Peripheral Equipment Manufacturing (334118)
- Other Electronic Component Manufacturing (334419)
- Printed Circuity Assembly (Electronic Assembly) Manufacturing (334418)
- Semiconductor Machinery Manufacturing (333242)
- Optical Instrument and Lens Manufacturing (333314)
- Computer and Storage Device Manufacturing (334112)
- Bare Printed Circuit Board Manufacturing (334412)
- Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing (334416)
- Industrial Design Services (541420)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's computer and electronics cluster include the following:

- A strong regional traded cluster, laying a foundation for CREDC business recruitment and retention efforts.

- Approximately 50 firms, with an LQ of 1.11, or 11 percent greater than the national average. Firm formation for this cluster in Clark County has increased 25 percent from 2012 to 2016.
- Employment tops 3,000 workers, with an LQ of 2.89, which is nearly three times the national average. Employment grew 10.7 percent from 2012 to 2016.
- Clark County has a significant capability in semiconductor production (LQ of 2.88); however, there is very little activity in the production of semiconductor manufacturing equipment.
- The county has a competitive advantage in navigation system and instrument manufacturing with an LQ of 1.39 – 39 percent greater than the national average.
- Hardware development for data hosting capability is present within the county (LQ of 1.24).
- 3D printing is not a strength, as measured by industrial design services.

Skilled Workforce

Clark County has a deep talent pool for the computer and electronics cluster. A detailed skills analysis examined occupational data – a data set that provides a specific look at the workforce skills of a community – LCG's analysis found the following takeaways (a detailed workforce analysis is provided in Appendix C):

- Nearly 4,600 Clark County workers have skills associated with the computer and electronics cluster.
- The electronics skill base is more than nine times that of the U.S. average.
- The cluster's talent base is expected to grow by an additional 15 percent in the next decade.
- On average, workers with electronic skills earn $49,000 annually.
- Education levels required for this cluster include: high school diploma, some college and technical training.

Software

Overview

The greater Portland region has earned a reputation as a growing startup and software hub for those firms that want an alternative to areas like Silicon Valley, San Francisco, and Seattle. Research suggests that emerging software and startup businesses are now looking for communities that offer a high quality of living and access to a strong talent pool. Given the county's location and growing software community anchored by companies such as DiscoverOrg, Safetech and Ontario Systems/Columbia Ultimate and many others, Clark County has a strong opportunity to grow its own computer software cluster with unique specializations in network and systems design, web development, and the emerging fintech sector.

Defining the Cluster

LCG utilized the following NAIC codes to define the cluster:

- Internet Publishing and Broadcasting and Web Search Portals (519130)
- Software Publishers (511210)
- Data Processing, Hosting, and Related Services (518210)
- Computer Systems Design Services (541512)
- Other Computer Related Services (541519)
- Custom Computer Programming Services (541511)
- Computer Facilities Management Services (541513)
- Teleproduction and Other Postproduction Services (512191)
- Business to Business Electronic Markets (425110)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's software cluster include the following:

- A strong regional traded cluster, laying a foundation for CREDC business recruitment and retention efforts; this cluster is also at the center of any startup activity in Clark County.
- An estimated 490 firms, with an LQ of 1.11, or 11 percent greater than the national average. Firm formation for this cluster in Clark County has increased significantly – up 44 percent from 2012 to 2016.
- Approximately 2,400 workers, with an LQ of 0.75, which is 25 percent smaller than the U.S. average. Employment grew 32 percent from 2012 to 2016.
- There are a large number of firms in this cluster with small employment bases, presenting the opportunity for business expansion efforts.
- Specializations for this cluster in Clark County include internet publishing (LQ of 2.12) and software publishing (LQ of 1.56), and computer systems design services (LQ of 1.22). Examining the occupational data for this cluster suggests a focus on networking and system development.
- Given the presence of a growing software cluster and a heavy financial services firm and talent base, Clark County may explore establishing capabilities in the fintech sector. In the focus group conversation conducted with startup businesses, this was identified as a potential emerging sector in Clark County.

Skilled Workforce

Clark County's computer software talent pool is one of its strongest. Utilizing the occupational data, LCG's analysis found the following takeaways (a detailed workforce analysis is provided in Appendix C):

- Nearly 3,200 Clark County workers have skills associated with the computer software cluster.
- The skill base is more than 18 percent larger than the U.S. average.
- The cluster's talent base is expected to grow by an additional 16 percent in the next decade with nearly 105 new openings annually.
- On average, computer software workers earn $102,000 annually – some of the county's highest earners.
- Significant talent specializations are present for computer hardware engineers (LQ of 2.07), software developers and system software (LQ of 1.66), web developers (LQ of 1.36), computer and information research scientists (LQ of 1.24) and computer systems analysts (LQ of 1.10).
- High levels of education levels are required for this cluster: associate degrees, bachelor's degrees, and doctoral or professional degrees.

Clean Tech

Overview

The U.S. solar energy sector had a record year in 2016. The sales for electric vehicles in the United States jumped more than 37 percent in 2016. These trends in clean technology are very good news for Clark County. With a strong legacy in computers and electronics, available employment/industrial lands, and a skilled workforce, Clark County has a competitive foundation for supporting growth in clean technology with a specific focus on the technologies associated with solar energy and battery production.

Defining the Cluster

LCG utilized the following NAIC codes to define the cluster:

- Storage Battery Manufacturing (3359111)
- Pump and Pumping Equipment Manufacturing (333911)
- Semiconductor and Related Device Manufacturing (334413)
- Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing (333612)
- Mechanical Power Transmission Equipment Manufacturing (333613)
- Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables (334513)
- Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals (334515)

- Electromedical and Electrotherapeutic Apparatus Manufacturing (334510)
- All Other Miscellaneous Electrical Equipment and Component Manufacturing (335999)
- Heating Equipment (except Warm Air Furnaces) Manufacturing (333414)
- Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing (334511)
- Septic Tank and Related Services (562991)
- All Other Plastics Product Manufacturing (326199)
- Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology) (541712)
- Power and Communication Line and Related Structures Construction (237130)
- Plastics Material and Resin Manufacturing (325211)
- Remediation Services (562910)
- Commercial, Industrial and Institutional Electric Lighting Fixture Manufacturing (335122)
- Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing (333413)
- Switchgear and Switchboard Apparatus Manufacturing (335313)
- Analytical Laboratory Instrument Manufacturing (334516)
- Other Electronic Component Manufacturing (334419)
- Solid Waste Collection (562111)
- Relay and Industrial Control Manufacturing (335314)
- Hazardous Waste Treatment and Disposal (562211)
- Environmental Consulting Services (541620)
- All Other Miscellaneous Waste Management Services (562998)
- Materials Recovery Facilities (562920)
- Other Engine Equipment Manufacturing (333618)
- Other Waste Collection (562119)
- All Other Basic Organic Chemical Manufacturing (325199)
- Solar Electric Power Generation (221114)
- Wind Electric Power Generation (221115)
- Electric Bulk Power Transmission and Control (221121)
- Electric Power Distribution (221122)
- Turbine and Turbine Generator Set Units Manufacturing (333611)

- Totalizing Fluid Meter and Counting Device Manufacturing (334514)
- Other Measuring and Controlling Device Manufacturing (334519)
- Electric Lamp Bulb and Part Manufacturing (335110)
- Residential Electric Lighting Fixture Manufacturing (335121)
- Hazardous Waste Collection (562112)
- Other Nonhazardous Waste Treatment and Disposal (562219)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's clean tech cluster include the following:

- An emerging traded cluster, built upon the foundation of the county's computer and electronics cluster and consistent with the community' brand of sustainability and environmental stewardship.
- Approximately 142 firms, with an LQ of 1.02, or two percent greater than the national average. Firm formation associated with this cluster in Clark County has increased 19 percent from 2012 to 2016.
- Nearly 4,000 workers, with an LQ of 2.12, which is more than two times the U.S. average. Employment grew five percent from 2012 to 2016 and is expected to grow 14.7 percent by 2026.
- Firms in this cluster have large employment bases.
- Specializations for this cluster in Clark County include storage battery manufacturing (LQ of 2.12), semiconductor and related device manufacturing (2.88), and mechanical power transmission equipment manufacturing (LQ of 2.12).
- Clark County's specialization in semiconductor manufacturing is a strong foundation for supporting manufacturing of solar-related materials.
- Given the aforementioned capabilities, Clark County has a significant capability in battery manufacturing, as well as various other power generation devices.
- Clark County does not have capabilities in actual solar or wind energy production, turbine production and manufacturing and waste remediation.

Skilled Workforce

Clark County's clean tech sector will draw upon the same talent pool as the county's computer and electronics cluster:

- Nearly 4,600 Clark County workers have skills associated with the computer and electronics cluster.
- The electronics skill base is more than nine times that of the U.S. average.
- The cluster's talent base is expected to grow by an additional 15 percent in the next decade.

- On average, workers with electronic skills earn $49,000 annually.
- Education levels required for this cluster: high school diploma, some college and technical training.

The clean tech cluster will also need to draw upon engineering talent as well:

- Approximately 2,600 Clark County workers have engineering skills – this skills cluster is 87 percent larger than the U.S. average.
- Engineering talent in the county is expected to increase 15 percent by 2026 with 119 annual openings.
- Engineers in Clark County earn $85,000 annually on average.
- High levels of education levels are required for this cluster: associate degrees and bachelor's degrees.

Metals and Machinery

Overview

With companies such as Northwest Steel, Farwest Steel, Thompson Metal Fab, Columbia Machine and others, Clark County has a storied history of metals and machinery manufacturing. While production employment across the U.S. is declining, Clark County has withstood this trend. This is in large part because of its specialization in this sector has centered on the advanced skills such as motor manufacturing, pump manufacturing, and sophisticated steel fabrication. Not to mention, as the analysis below outlines, Clark County has a skilled talent base from which to draw expertise in this sector.

Defining the Cluster

LCG utilized the following NAIC codes to define the cluster:

- Rolled Steel Shape Manufacturing (331221)
- Air and Gas Compressor Manufacturing (333912)
- Fluid Power Pump and Motor Manufacturing (333996)
- Fabricated Pipe and Pipe Fitting Manufacturing (332996)
- Other Aluminum Rolling, Drawing, and Extruding (331318)
- Metal Tank (Heavy Gauge) Manufacturing (332420)
- Nonferrous Metal Die-Casting Foundries (331523)
- Other Fabricated Wire Product Manufacturing (332618)
- Fluid Power Cylinder and Actuator Manufacturing (333995)
- Fabricated Structural Metal Manufacturing (332312)
- Plate Work Manufacturing (332313)

- Machine Shops (332710)
- Iron and Steel Mills and Ferroalloy Manufacturing (331110)
- Metal Window and Door Manufacturing (332321)
- Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers (332812)
- All Other Miscellaneous Fabricated Metal Product Manufacturing (332999)
- Ornamental and Architectural Metal Work Manufacturing (332323)
- Other Motor Vehicle Parts Manufacturing (336390)
- All Other Miscellaneous General Purpose Machinery Manufacturing (333999)
- Sheet Metal Work Manufacturing (332322)
- Prefabricated Metal Building and Component Manufacturing (332311)
- Other Metal Container Manufacturing (332439)
- Cutting Tool and Machine Tool Accessory Manufacturing (333515)
- Industrial Mold Manufacturing (333511)
- Electroplating, Plating, Polishing, Anodizing, and Coloring (332813)
- Special Die and Tool, Die Set, Jig, and Fixture Manufacturing (333514)
- Abrasive Product Manufacturing (327910)
- Iron and Steel Pipe and Tube Manufacturing from Purchased Steel (331210)
- Steel Wire Drawing (331222)
- Alumina Refining and Primary Aluminum Production (331313)
- Secondary Smelting and Alloying of Aluminum (331314)
- Aluminum Sheet, Plate, and Foil Manufacturing (331315)
- Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding (331491)
- Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum) (331492)
- Iron Foundries (331511)
- Steel Investment Foundries (331512)
- Steel Foundries (except Investment) 331513
- Other Nonferrous Metal Foundries (except Die-Casting) (331529)
- Custom Roll Forming (332114)
- Powder Metallurgy Part Manufacturing (332117)
- Precision Turned Product Manufacturing (332721)

- Bolt, Nut, Screw, Rivet, and Washer Manufacturing (332722)
- Industrial Valve Manufacturing (332911)
- Fluid Power Valve and Hose Fitting Manufacturing (332912)
- Ball and Roller Bearing Manufacturing (332991)
- Mining Machinery and Equipment Manufacturing (333131)
- Measuring and Dispensing Pump Manufacturing (333913)
- Elevator and Moving Stairway Manufacturing (333921)
- Power-Driven Handtool Manufacturing (333991)
- Welding and Soldering Equipment Manufacturing (333992)
- Packaging Machinery Manufacturing (333993)
- Industrial Process Furnace and Oven Manufacturing (333994)
- Scale and Balance Manufacturing (333997)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's metals and machinery cluster include the following:

- A legacy traded cluster, both a regional strength in greater Portland and Clark County; offers a continued opportunity and pathway for family-supporting jobs.
- An estimated 106 firms, with an LQ of 1.02, or two percent greater than the national average.
- Firm formation associated with metals and machinery in Clark County has declined four percent since 2012, presenting an opportunity for a business retention effort in the county.
- Approximately 1,925 workers, with an LQ of 0.96, which is just four percent smaller than the U.S. average. While firm growth has declined, employment grew a significant 33 percent from 2012 to 2016.
- Interestingly, there are more people employed in Clark County's computer software cluster than metals and machinery.
- Specializations for this cluster in Clark County include various metals manufacturing such as: rolled steel shaped manufacturing (LQ of 3.98), fabricated pipe manufacturing (LQ of 2.51) and aluminum shaping (2.36), machine shops and (1.39), compressor manufacturing (3.98) and pump and motor manufacturing (2.75).
- The aforementioned strengths present Clark County with an opportunity to consider other cross sectors such as aerospace and transportation manufacturing.
- Composites also should be considered an element of the metals and machinery cluster, offering an opportunity to work with companies and employers to "reimagine" the future of Clark County's metals cluster.

Skilled Workforce

Clark County's metals and machinery sector will draw upon the skilled manufacturing talent:

- Nearly 7,000 Clark County workers have skills associated with the manufacturing talent cluster.
- Clark County's manufacturing skill base is 28 percent greater than the U.S.
- The cluster's talent base is expected to grow by an additional 14.9 percent in the next decade.
- On average, workers with manufacturing skills earn $42,000 annually.
- Education levels required for this cluster include: high school diploma and technical training.

The metals and machinery cluster will also need to draw upon mechanical talent as well:

- Approximately 2,200 Clark County workers have mechanical skills – this skills cluster is 87 percent larger than the U.S. average.
- Mechanical talent in the county is expected to increase 8.4 percent by 2026 with 74 annual openings.
- Engineers in Clark County earn $49,700 annually on average.
- Education levels required for this cluster include: high school diploma and technical training.

Life Sciences

Overview

With Northwest Natural, Pacific Nutritionals, Bayer Corporation, McKesson, Northwest Life Science Specialties and other companies, Clark County's life sciences cluster is an emerging cluster for the county that offers a strong opportunity for job creation and firm formation. While life sciences can be a broad cluster analysis, LCG's quantitative cluster analysis suggests that Clark County's life sciences strengths and competitive advantages are centered around manufacturing for this sector.

Defining the Cluster

LCG utilized the following NAIC codes to define the cluster:

- Medicinal and Botanical Manufacturing (325411)
- In-Vitro Diagnostic Substance Manufacturing (325413)
- Other Basic Inorganic Chemical Manufacturing (325180)
- Testing Laboratories (541380)
- Pharmaceutical Preparation Manufacturing (325412)
- Drugs and Druggists' Sundries Merchant Wholesalers (424210)
- Blood and Organ Banks (621991)
- Medical Laboratories (621511)

- Diagnostic Imaging Centers (621512)
- Research and Development in Biotechnology (541711)
- All Other Basic Organic Chemical Manufacturing (325199)
- Biological Product (except Diagnostic) Manufacturing (325414)

Competitive Advantages and Key Takeaways

Key takeaways from the analysis of Clark County's life sciences cluster include the following:

- Considered a regional traded cluster for the greater Portland-Vancouver region, presenting the opportunity for business development efforts.
- Clark County's strength in the life sciences cluster is associated with manufacturing: 12 firms specializing in biomedical, pharmaceutical, and chemical manufacturing, with LQs ranging from 4.79 to 1.13.
- An estimated 73 firms, with an overall cluster LQ of 0.87, or 13 percent smaller than the national average.
- It is worth noting that the size of the cluster (by firms) is driven by a large presence of testing laboratories (16), drug wholesalers (21) and medical laboratories (12).
- An estimated 20,250 workers, with an LQ of 1.54, which is just 54 percent larger than the U.S. average. From 2012 to 2016, employment grew 8.8 percent and is forecasted to increase an additional 12.5 percent by 2026.
- Pharmaceutical and biological manufacturing, as defined by NAIC codes, are broad categories; interviews should be conducted to understand key specializations within Clark County.
- In regards the future of this cluster, CREDC should complete an inventory of space and real estate ability for potential life sciences firms.

Skilled Workforce

Clark County's life sciences sector will draw upon the research and science talent cluster:

- Approximately 690 Clark County workers have specialized skills associated with research and science.
- This talent cluster specialization is nine percent larger than the U.S.
- The cluster's talent base is expected to grow by an additional 3.2 percent in the next decade with 17 openings annually.
- On average, workers with research and science skills earn $77,000 annually.
- Education levels required for this cluster are very high: bachelor's degree, master's degree or doctoral/professional degree.

The life sciences cluster will also potentially draw upon the healthcare professional talent cluster in Clark County:

- An estimated 6,400 Clark County workers have healthcare professional skills – seven percent higher than the U.S. average.
- Specialized healthcare talent in the county is expected to increase 11.9 percent by 2026 with 238 annual openings.
- Healthcare professionals in Clark County earn $103,000 annually on average.
- Education levels required for this cluster are also very high: bachelor's degree, master's degree or doctoral/professional degree.

Finally, the life sciences cluster will also potentially draw upon the medical services talent cluster in Clark County:

- 7,985 Clark County workers have medical services skills – 41 percent higher than the U.S. average.
- Medical services talent in the county is expected to increase significantly by 37.9 percent by 2026 with 322 annual openings.
- Medical services talent in Clark County earn $42,000 annually on average.
- Education levels required for this cluster include: associate degree, high school diploma and some technical training.

Land Use and Transportation

Regional land use designations were reviewed to summarize existing and planned areas of employment. The Southwest Washington Regional Transportation Council (RTC) land use database is based on existing and comprehensive plan land use designations for regional planning efforts and is spatially assigned to transportation analysis zones (TAZ). The land use databases contain various employment designations for the base year (2010) and future year (2035), including:

- Manufacturing
- Wholesale Trade
- Retail
- Agriculture, Farming, Mining
- Construction
- Fire
- Government
- Transportation, Communication, and Public Utilities
- Service

Since the existing employment designations must be aggregated for privacy purposes, the manufacturing and wholesale trade categories were combined as a representative of "industrial" uses. While the service category also contains software and tech uses that drive the local economy, it also contains a variety of other broad uses that dilute these employment types. The location of existing and planned industrial employment in the county was mapped, as shown in the following figures.

Figure 12. Year 2010 Industrial Employees

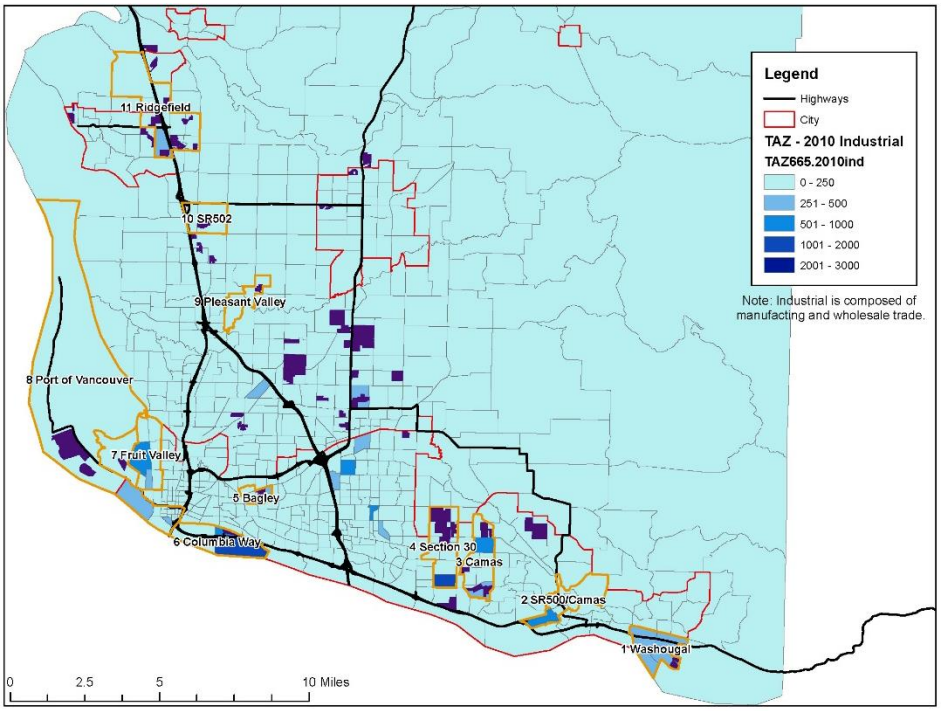
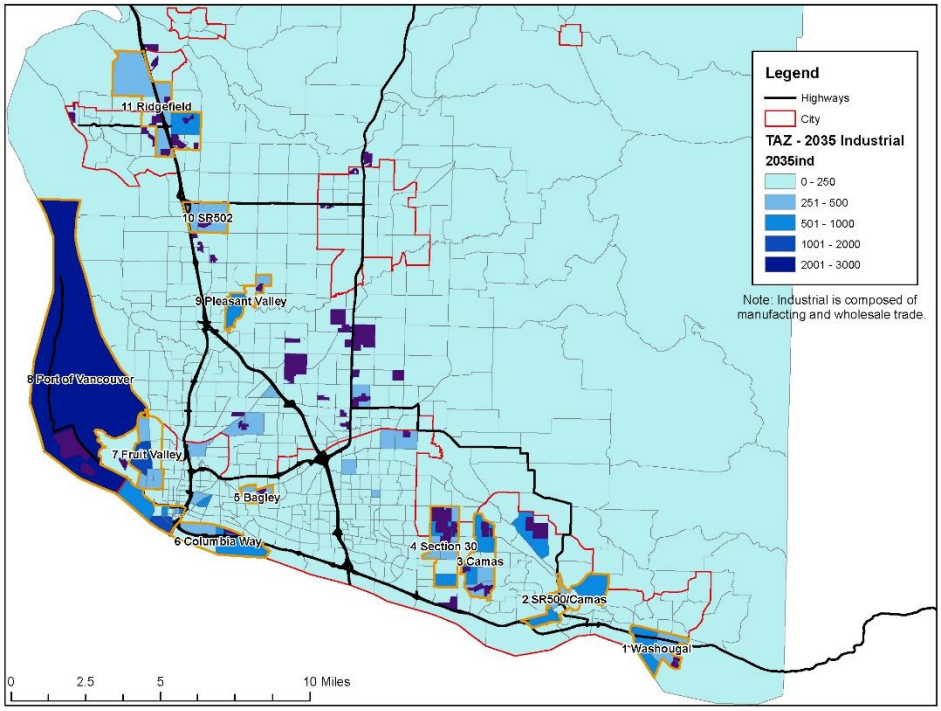


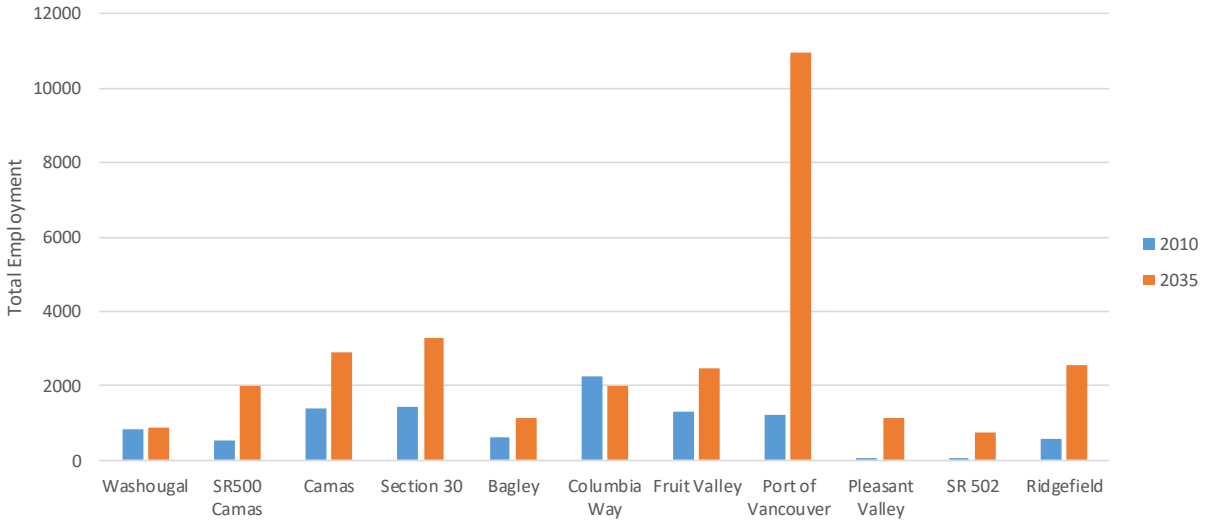
Figure 13. Year 2035 Projected Industrial Employees



Source: Regional Transportation Council (RTC), DKS Associates.

The existing and planned industrial employment estimates were generally centered around 1 locations. The existing and future industrial employment estimates are shown in the following figure for each of the 11 identified locations.

Figure 14. Anticipated Industrial Employment Growth: Selected Clark County Regions



The Port of Vancouver is forecasted to have the most future industrial growth, while all areas except for two (Washougal and Columbia Way) are forecasted to double in industrial employment between year 2010 and year 2035.

The transportation system serving each location was qualitatively analyzed to provide a relative comparison of opportunities and constraints. The analysis was conducted using RTC's regional travel demand model to estimate existing and future traffic patterns and conditions. The results are summarized in the following table with a qualitative, relative score to indicate the high-level nature of the analysis tool (regional travel demand model). The analysis is intended to provide a relative comparison and is not calibrated to the level to make findings about addressing a specific standard or ability of a given location to support future growth. Each location was analyzed based on the following criteria:

- Congestion Impact: The portion of traffic that would use congested roadways in 2035 PM peak hour.
- Interchange Accessibility: The amount of interchanges located within a 10-minute drive during the 2035 midday and PM peak hours.
- Travel Time: The travel time to key external gateways (like I-5 to north) and internal places (like Port of Vancouver) during the 2035 midday and PM peak hours.

Table 4. Anticipated 2035 Transportation Performance Measures

Site	Congestion Impact	Interchange Accessibility	Travel Time	Overall
Washougal	+	✓	-	✓
SR500 Camas	✓	✓	-	✓
Camas	✓	-	-	-
Section 30	✓	✓	-	✓
Bagley	✓	+	+	+
Columbia Way	-	+	+	✓
Fruit Valley	✓	+	+	+
Port of Vancouver	-	+	+	✓
Pleasant Valley	+	✓	-	✓
SR 502	✓	✓	✓	✓
Ridgefield	✓	-	-	-

Constrained -
Fair ✓
Good +

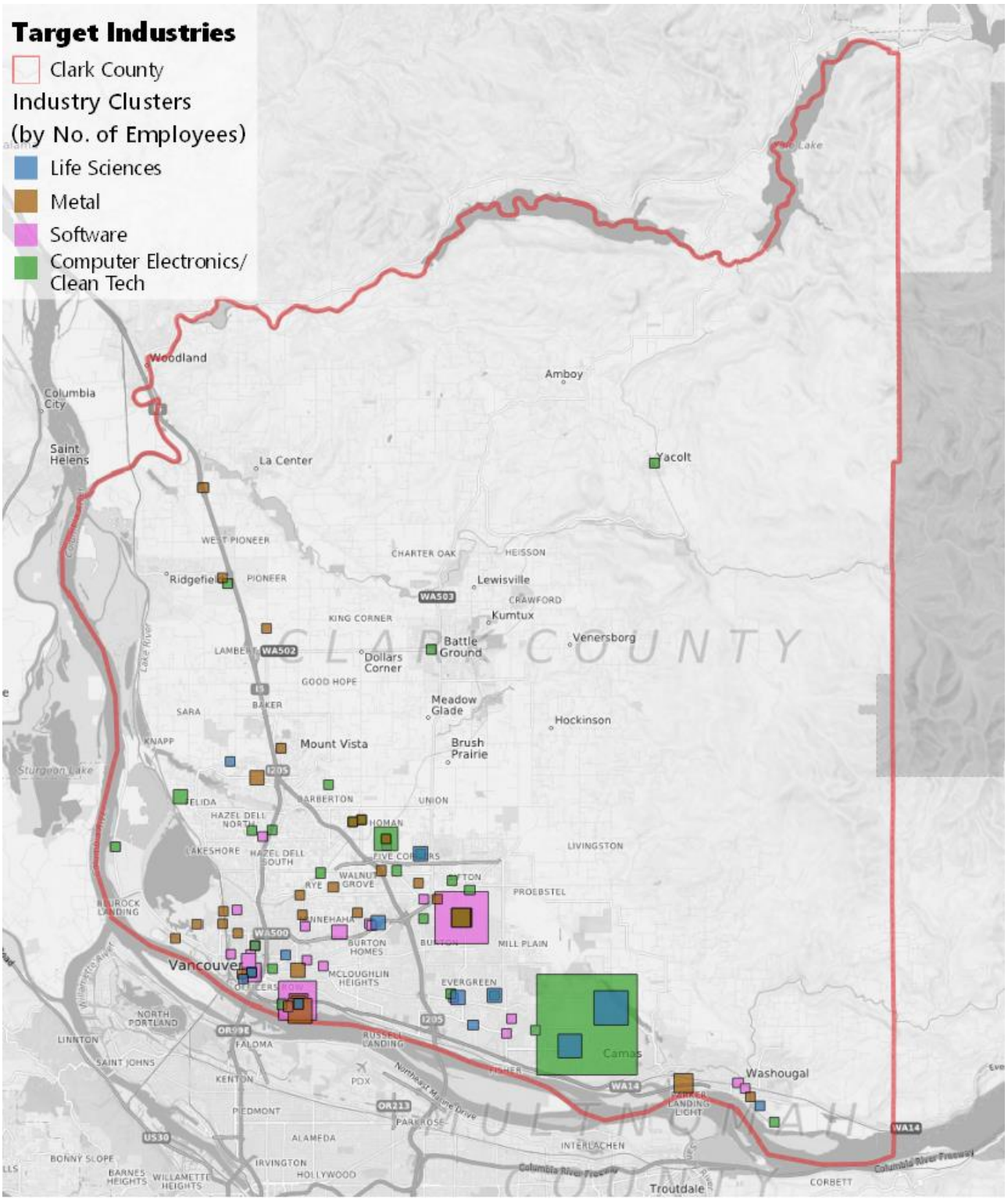
Existing Cluster Locations

Industrial clusters often aggregate in certain geographic locations within a region. The following figure shows where the top five clusters for Clark County, as defined by the above NAICS codes, are generally located. (Because the clean tech and computer and electronics clusters have similar NAICS, they are visually represented together as to not duplicate the data.)

As shown in the following figure, there are key drivers to these locations:

- Transportation Corridors. Traded sector industries export goods and therefore need to be able to quickly and efficiently move products. There is a competitive advantage for them to locate near major transportation corridors. Software is one industry cluster that does not have this specific need, but instead clusters near broadband, which is this industry's form of infrastructure to transport goods.
- Supply Chains. Industries dependent on supply chains consisting of a network of smaller businesses providing unique components or services to a larger company will often cluster together. This is reflected in the strong metals cluster near the Port of Vancouver and Columbia Business Center where Kaiser Shipyards once thrived during WWII and fostered this industry.
- Space Needs. Different types of industry clusters have different space needs. A manufacturing facility needs a large site that can accommodate a substantial single-story building. In contrast, software companies can be in multistory buildings with various size of square footage space. The significant land needs for manufacturing needs for the computer and electronics industry that emerged in the last 20 to 30 years is reflected in the strong clustering in Camas, which was once a more rural location with amble vacant land.
- Startups. Industry clusters tend to grow around significant companies that generate technical talent and innovation. Talent that is incubated in large innovative companies may leave to start a new company. Often these startups stay close to the original company as there may be availability of lab space, collaborations, or the startup owner does not want to leave the current business environment and network. This talent and innovation concept is reflected in the strong computer and electronics/clean tech industrial focus in Camas.
- Collaboration. Certain industries are more cooperative than others and like to gather with like-minded companies. Software is a highly collaborative industry that thrives on sharing ideas and trends. This approach to business translates into a desire to be physically close to other companies encouraging spontaneous meetings in public spaces or within the same buildings. This is reflected in the emerging layering of software industries in downtown Vancouver.
- Workforce Attraction. Industries respond to workforce demands regarding desired locations. Good school districts are often a driver, which have generally been in more suburban locations. This traditional workforce demand brought office parks out of the downtown core to suburban areas. In contrast, today the workforce, largely fueled by millennial tastes, is now desiring access to alternative modes of transportation such as transit or bike lanes. The most prevalent locations for these later amenities are within denser urban cores, or along major transit facilities. Industries such as software are especially faced with this demand and are often locating in downtown cores to attract talent.

Figure 15. Representative Locations of Clark County Industry Clusters



Source: ESRI, Leland Consulting Group.

The Strategy

Strategies must continuously evolve as economic situations change, actions are accomplished, and new opportunities arise. However, there are certain values and principles that remain constant and guide future decisions for the region. These foundational elements are outlined below and serve as the basis for the goals, objectives, and actions that will shape the efforts of CREDC staff and their economic development partners over the next five years.

What is the Benefit of an Economic Development Vision and Strategy?

In order to prepare a community to proactively engage with rapidly changing trends, it must have a strategy in place. Without a strategy, efforts are often reactive, non-collaborative, and not connected for meaningful impact. An economic development strategy will:

#1: Document a Playbook

For an economic development plan to succeed, numerous partners and organizations must be engaged and collaborate toward common goals. At the same time, it is essential for public and private entities to recognize that they are partners in economic development efforts, as one cannot be sustained without the other. To efficiently and effectively align goals, a community must understand, document, and achieve consensus on its vision, values, opportunities, and objectives.

The world's economy is changing rapidly. An established "playbook" provides enough broad goals to recognize opportunities when they arise. Clear direction regarding CREDC's roles will help determine projects that should be pursued and those that should be opposed**. To effectively implement a strategy, it is as important to say "no" to certain opportunities as it is to say "yes" to others.**

#2: Identify Specific Actions and Metrics

Once goals and objectives are defined, action must be taken. Often these actions will appear minor without the overall context of the plan. The intent of the strategy is to provide several action items by several partners, all working toward the same overall goal. This is a flexible document that will be shaped as opportunities arise following deliberation from the CREDC Board of Directors. Finally, it is important to annually revisit the document to determine where progress is being made and where other areas are deficient. It will be necessary to update the document every three to five years in keeping with the rapid pace of change in the economy. In addition, it will be important for CREDC to allocate its budget to the specific actions to clearly determine whether adequate resources have been allocated to efforts to realize outcomes.

The Vision

Clark County is one of the most inclusive, healthy, and amenity-rich communities in the country. With a continued focus to grow a diverse base of community-minded employers, talent (inside and outside the region) sees greater opportunity here than anywhere else in the country.

Values

The following values of CREDC Board of Directors and staff summarize the important ideals that shape the direction of the strategy as well complex decisions and actions that must be taken in the future to guide the economy.

Untapped Potential. We believe that Clark County is rich with opportunities. This community has the desire to challenge and improve ourselves, ideas, and actions to realize the full potential of our strengths.

Future Generations. We believe that our actions will have a direct impact on the health, vibrancy, and opportunities for future generations. Maintaining this long-term perspective supports a culture of learning and innovation.

Quality of Place. We value economic outcomes that complement the quality of place that makes Clark County distinct, desirable, and accepting of all diverse residents and guests.

Continuous Improvement. We believe in the power of creativity, sustainability, and innovation to lead the way in an environment of exponential change. Clark County is always open to new ideas and approaches to solutions that lead to pioneering actionable solutions.

Embrace Partnerships. We believe that we are better together. We strive to bring all partners to the table to solve complex problems facing our community. We will welcome new businesses and provide access to networks to help them thrive.

Guiding Principles

The strategy Steering Committee and CREDC Board of Directors approved[5] five guiding principles to shape the direction of the strategy. They also serve as a guide to future decisions for the region that will appear over the timeframe of this strategy implementation.

Industry Driven. A data-driven, traded sector industry cluster development focus will guide the goals, objectives, and actions for the strategy.

- Advance sectors that provide opportunities for a variety of specializations, a range of skill levels, as well as projected firm and job growth.
- Clusters of focus include clean tech, computer and electronics, software, life sciences, metals and machinery (see Appendix B for detailed analysis).

Existing Businesses First. Retention and expansion of existing businesses is the most efficient way to grow the economic base and attract similar industries.

- Industry cluster strategy focuses staff time and resources on strengthening existing competitive advantage and growing existing base.

[5] Final approval of this document including values, principles, and strategy will be on April 27, 2017.

- Prioritize in-bound recruitment efforts to support existing industry cluster growth such as the further development of the supply chain.
- Out-bound recruitment focuses on building existing cluster supply chain and talent attraction.
- Focus on fostering a startup ecosystem especially within the software sector.

People and Business. All economic development activity is intended to benefit Clark County residents and community-minded employers.

- Focus on workforce pipeline development in conjunction with local workforce development and education partners such as Washington State University Vancouver (WSU Vancouver), Clark College, the K-12 system with a special emphasis on the STEM Learning Network.
- Facilitate mutually beneficial partnerships between education partners and private enterprises.
- Public sector partners lead site and amenity development. Utilize the employment lands study to focus site development efforts.
- Clark County's community partners should focus on business and people who then support land development. CREDC will provide inputs and feedback to help inform a land development strategy.

Inclusive Community. Clark County's competitive advantage is a diversity of people, communities, and ideas.

- Diverse populations and families must feel as though they are engaged and embraced in their community.
- A range of urban and rural assets provides choices and options for employers and employees alike in Clark County.
- Rural and urban communities have distinct competitive advantages, which should be leveraged for greater economic opportunity.
- The sum is greater than the parts.

Value of Place. Clark County will preserve, embrace and promote the distinct qualities that make it a unique and desirable place for talent.

- Promote easy access to Pacific Northwest beaches, mountains, lakes, rivers, and mild climate that draw and keep talent.
- Clark County has progressive and sustainable environmental policies compared to much of the country. Clark County will continue to promote these values that are attractive to emerging talent.
- Emerging talent is increasingly driving less and desiring multimodal options. More than 60 percent of millennials want to live in areas where they can use their cars less[6]. It is critical for Clark County to respond to the economic impact of transportation systems. Infrastructure

[6] Stockton Williams, Urban Land Institute (ULI) Terwilliger Center for Housing, May 2015.

must facilitate traveling to work and moving goods and services throughout the region. Clark County needs to be prepared for transformative shifts that will continue to disrupt commuting behavior and technologies.

- Within urban centers, people of all ages desire access to a dynamic lifestyle with housing, restaurants, entertainment, and retail nearby. This urban lifestyle does not mean that an entire community must conform to urban densities. What is important is that some element of an urban lifestyle through a healthy Main Street, traditional downtown or town centers in suburbs, is provided.
- Downtown Vancouver is a distinct place in Clark County and serves as the gateway from a major metropolitan area and southern entrance into Clark County. The strength of a downtown reflects the strength of a broader community. It is important for the entire region that the downtown is vibrant, dynamic and growing.

Think Global. Clark County will focus economic development efforts to become the national county of choice for businesses expanding and growing.

- Focus on marketing assets and strengths in context with other U.S. regions such as Austin and Boise to compete for global investments.
- Recognize that a thriving and compelling place is what draws millennial talent and distinguishes Clark County from other regions.
- Leverage Portland as an asset rather than an aspiration or an adversary.

Strategy Goals

The Strategy is focused first and foremost on growing the traded sector industry base of Clark County, specifically within five industry clusters that align with existing competitive strengths. To ensure all county residents have access to these opportunities the strategy focuses on people and skills development tied to growing industries. For businesses to attract and retain talent, the key driving factor is creating a distinct place. Finally, to ensure desired outcomes are achieved it will be important for CREDC to measure actions of all engaged partners.

Goal 1: Expand the Existing Base

Why this Goal?

The Clark County area is fortunate to host traditional and advanced manufacturing industries coupled with a growing base of knowledge-based industries that are poised for more growth. Manufacturing will remain an important industry cluster with the continued integration of technology. Increasingly, manufacturing will be more automated requiring a highly skilled workforce. Clark County will remain competitive in this area with a continued focus on education and skills development to prepare a workforce that can serve this dynamic trend in manufacturing.

The most efficient way to grow the economic base is to support the existing companies by understanding their barriers to growth and supply chain needs. Staff and partners can then work to remove barriers and tactically recruit companies that support the existing industry base that is

grounded in the following industry clusters that drive the focus of work for CREDC staff. Specific capabilities within each of these clusters is outlined in the prior industry cluster section of this report and a detailed assessment is provided in Appendix B.

- Computer and Electronics
- Clean Tech
- Software
- Metals and Machinery
- Life Sciences

Objective 1.1 Become Industry Experts

CREDC staff, along with key partners across the county, must be informed by surrounding ourselves with experts and ambassadors on behalf of the region for these five industry sectors. Meeting with businesses and documenting opportunities and challenges is an important first step to gain industry insights, resolve challenges, and foster collaboration. In addition, CREDC needs to understand what is happening more broadly within these sectors across the U.S. and around the world. In addition, staff will gain an understanding of the unique geographic locations where the industries prefer to locate and why ensuring adequate land and buildings are in place for expansion and recruitment opportunities. With this in-depth knowledge, CREDC can more effectively work with companies looking to locate in Clark County. This will require CREDC to align efforts around clusters rather than activities. This focus on clusters recognizes that shifts in cluster strengths will occur and opportunities will arise due to emerging markets and innovations. Therefore, flexibility to consider other clusters with deliberation with the CREDC Board of Directors is important to seize the maximum amount of opportunity for economic growth.

Actions

- Future Phase 2 list here

Objective 1.2 Strategically Market Industry Clusters

Promotion of the clearly defined industry clusters helps define Clark County and what makes it unique and supportive of recruitment activities. This message of strength and growth also helps existing businesses understand why they should stay and continue to invest in Clark County, as well as convey to future hires why there is ample opportunity to work in Clark County. An understanding of where certain clusters tend to geographically locate within the county helps clarify marketing messages. CREDC should align promotional materials, website, policy/advocacy, etc. all centered on cluster development.

Actions

- Future Phase 2 list here

Objective 1.3 Build a Startup Ecosystem

New businesses account for nearly all net new job creation and almost 20 percent of gross job creation. Furthermore, companies less than one-year-old have created an average of 1.5 million jobs per year over the past three decades.[7] People generally start businesses in the places they are already located, and many of the resources they access are at the local or regional level.

New traded sector startups generally stem from university research or an existing industry cluster. These new businesses have limited space needs and may just be starting out of the home or garage. These businesses need exposure to capital and industry networks for collaboration and support. It is important to support an ecosystem where startups are supported and celebrated to create new jobs.

Actions

- Future Phase 2 list here

Goal 2: Support People

Why this Goal?

Complex issues driving income stratification and workforce skills gaps are making it more difficult for all residents to realize positive personal economic growth in keeping with business growth. To plan for this modern economy, communities must consciously foster a resilient economy that is derived from a diverse industry base and skilled workforce to weather inevitable negative portions of economic cycles.

Objective 2.1 Foster Skills Development

To succeed in the modern global economy people must develop skills. To ensure economic opportunities for Clark County residents, it is important to make career technical education (CTE) training programs readily available. CREDC and partners need to define how the training is most efficiently delivered and work on any identified gaps in delivery that need to be addressed.

In addition, alignment with Clark College's and WSU Vancouver's current and planned degree programs to develop the necessary talent pipeline to grow industry clusters, and increasing strategic partnerships between the education providers and business partners, will grow industry clusters.

Actions

- Future Phase 2 list here

Objective 2.2 Prepare Youth for Economic Opportunity

Educational attainment is one of the significant determining factors in determining income growth and access to career pathways. Engaging youth early regarding career opportunities is a critical component in high school graduation success rates and preparation for higher education. Expanding our region's highly successful "Career Connected Learning" (CCL) programs that are tied to the high

[7] The Importance of Young Firms for Economic Growth, Kaufman Foundation, September 13, 2015.

demand industry clusters should be considered. Research has demonstrated that access to quality Career Connected Learning programs increases graduation rates and enrollment in postsecondary certification, credential, and degree programs. Equitable access to quality CCL programming will ensure students in the region will have the necessary knowledge, skills, and experiences to unlock futures, build a globally engaged community, ensure a prosperous economy, and inspire innovation. For this objective to succeed, both business and education leaders must be committed to its success.

Actions

- Future Phase 2 list here

Objective 2.3 Launch a Brain Gain Initiative

Talent is the number one asset and driver for business in deciding where to expand and grow. A community that easily attracts talent has a significant competitive advantage for business. As identified by community stakeholders and the Steering Committee, the current Clark County brand is not conducive to easily attract emerging talent. Intentional efforts to counter this perception and build networks to lower barriers to entry into community, business, and social networks is important.

Actions

- Future Phase 2 list here

Objective 2.4 Promote an Ethical and Socially Just Society through an Intentional Commitment to Inclusion, Equity, and Diversity

Talent is the number one driver for business to succeed. As talent attraction becomes more competitive, business must locate in communities that embrace diversity and all types of people. For communities to thrive, they must build and maintain a safe and welcoming environment for all residents. It should be an inherent philosophy to work toward equity in all aspects of economic development endeavors by focusing on access and eliminating barriers to opportunities.

Actions

- Future Phase 2 list here

Goal 3: Create Place

Why this Goal?

Within urban centers, people of all ages desire access to a dynamic lifestyle with housing, restaurants, entertainment, and retail nearby. This urban lifestyle does not mean that an entire community must conform to urban densities. What is important is that some element of an urban lifestyle and livable community through a healthy Main Street, traditional downtown or town centers in suburbs is provided. Such areas are important for employers to be able to attract and keep talent. It is important for each community in Clark County to define and actively grow distinct places unique to their values.

Objective 3.1 Each Community Creates a Placemaking Strategy

New local sector businesses are important as they make a community distinct and provide amenities to attract emerging professionals and families that drive the new economy. Each local jurisdiction needs to inventory their assets then define a specific area to plan to attract amenities such as recreation services, retail, and restaurants. These specific local strategies will celebrate the strengths of our smaller cities. Chambers of Commerce or local brokers can serve as partners to recruit companies once a place and vision are defined.

Many of these businesses need "brick-and-mortar" locations often requiring tenant improvements and building permits, which is a process they may have never encountered as opposed to more experienced developers. These businesses often benefit greatly from business planning and consulting as well. For these business owners, having one point of contact at the jurisdiction to navigate the process of starting a new business is extremely valuable.

Actions

- Future Phase 2 list here

Objective 3.2 Embrace Economic Opportunity in our Urban Center

Urban centers are important to the economic vitality of a region: they provide scale and capacity that serves the needs of the larger region. The strength of a downtown urban center reflects the strength of a broader community, often it is a key element of the identity. It is important for the entire region that downtown Vancouver is vibrant, dynamic, and growing. Downtown Vancouver is a distinct place in Clark County and serves as the gateway from a major metropolitan area and southern boundary to Clark County. It is already a defined place and is a true urban center beyond retail services. The area is poised to host software jobs, housing, and entertainment to make it a unique destination where continued significant employment growth is expected to cultivate even more activity.

Actions

- Future Phase 2 list here

Objective 3.3 CREDC Tells the Story of Place

In retaining/recruiting talent and companies, it is important to convey how Clark County is a unique place defined by distinct assets. Our cities present different strengths for our five target clusters and they should be promoted as such. The county has urban and rural options that can accommodate different types of business and people. Each community must be able to define its unique assets including elements such as outdoor access, art, community, and retail amenities. CREDC should then compile these community profiles to tell the quantitative economic and qualitative community story of Clark County.

Actions

- Future Phase 2 list here

Objective 3.4 Make Employment Areas Desired by Industry Clusters Shovel Ready

It is important to understand where different industries can locate. With this understanding of site needs, the appropriate infrastructure improvements can be made in the right locations to foster growth. This includes broadband, storm water, and transit in addition to roads, sewer, and water. City partners have the unique role in executing the development of public infrastructure investments, land use policy, and the permitting process. CREDC's role is to advise on land use policy recommendations and infrastructure investments that will best serve industrial site needs based on an understanding of industry cluster needs. Removing barriers to site development and proactively fostering site readiness tied to business needs is a critical role in economic development for all partners to undertake.

Actions

- Future Phase 2 list here

Objective 3.5 Determine all Transportation Needs on a Regional Level Specifically to Support Economic Development

Consideration is needed for transportation improvements (infrastructure and amenities) within the county that attract and support talent and address the mobility needs of industry. Providing options that meet the needs of target cluster employers and talent are of paramount importance.

Local municipalities and their partners planning active transportation (bike, pedestrian, and transit commute options) provide improvements across the county. With conscious investment in active transportation, the county can provide crucial infrastructure to foster affordable options. Furthermore, employers see a rise in employees (particularly millennials) desiring active transportation options. Companies located adjacent to these transportation systems have a competitive advantage in recruiting talent[8].

Regional (both bistate and within the county) mobility is crucial for supporting employment, both through employee commutes and goods movement. Congestion on the Interstate 5 bistate corridor is regarded as a significant barrier to future growth for Clark County. A clear understanding and definition of impacts on economic development is necessary to intentionally develop community support. CREDC should assess, actively participate, and communicate impacts and action to the community.

Actions

- Future Phase 2 list here

End of document.

[8] Suburban Office Obsolescence, Quantifying Challenges and Opportunities, Newmark Grubb Knight Frank, September 2015.

Appendix A: Stakeholder List

Group	Name	Company/Jurisdiction
Staff	Mike Bomar	CREDC
	Max Ault	CREDC
	Brittany Bagent	CREDC
	Elizabeth Scott	CREDC
	Kimberly Pincheira	CREDC
	Samantha Codi Walker	CREDC
	Kim Cheatley	CREDC
Private Sector Interviews	Dr. Carolyn Long (interviewer & report author)	Washington State University Vancouver
	Dr. Ellen Rogers (interviewer & report author)	Washington State University Vancouver
	25 Business Leaders (names anonymous)	Various
Steering Committee	Jeanne Bennett	Workforce Southwest Washington
	Eric Holmes	City of Vancouver
	Julie Olson	Clark County Councilor
	David Ripp	Port of Camas-Washougal
	Jeff Swanson	City of Battle Ground
	Casey Wyckoff	LSW Architects
	Darryl May	Umpqua Bank
	Wayne Yeh	WaferTech
	Dr. Mel Netzhammer	Washington State University Vancouver
Startups and Innovation Focus Group	Dave Barcos	The Bridge Incubator
	Kathy Sego	Sego Herb Farm
	Scott Judkins	PayTrace
	Daniel Rubano	Groundswell
	George Castillo	Electric Lightwave
	George DeCarlo	Woobox
Grow Your Own Focus Group	Keith Richards	Corwin Beverage
	Bruce Cazenave	Nautilus
Higher Education and Workforce Focus Group	Dene Grigar	Creative Media and Digital Culture, WSU Vancouver
	Tim Cook	Clark College
	Miriam Martin	Workforce Southwest Washington
	Christine Portfors	Biology, WSU Vancouver
	Michael Penrose	PeaceHealth
	Ted Feller	STEM Network

Group	Name	Company/Jurisdiction
Community Values Focus Group	Ron Arp	Identity Clark County
	Rebecca Kennedy	City of Vancouver
	Justin Keeler	Fort Vancouver Regional Library
	Amy Lee	Fort Vancouver Regional Library
	Kim Bennett	Visit Vancouver USA
	Darcy Altizer	Southwest Washington Contractors Association
	Lee Rafferty	Vancouver Downtown Association
Global Competitiveness and Exports	Rick Goode	Columbia Machine
	Jennifer Woods	US Exports
	Alastair Smith	Port of Vancouver
	Jim Newton	SBA International Trade Finance
	Matt Miller	Greater Portland Inc.
	David Konz	Tidewater
Site Readiness and Congestion	Matt Ransom	RTC
	Tom Teesdale	Ilani Casino
	Brian Knight	WRK Engineers
Board of Directors	Jeff Ahner	Frito-Lay, Inc.
	Ben Bagherpour	SEH America, Inc.
	Lance Barrett	Barrett & Company
	Jeanne Bennett	Workforce Southwest Washington
	Mike Bomar	CREDC
	Darrion Bowers	CenturyLink
	LeAnne Bremer	Miller Nash Graham & Dunn
	Rick Campfield	SunModo
	Sandra Day	City of Ridgefield
	John Deeder	Evergreen School District
	Helen Devery	BergerABAM Eng., Inc.
	David Diekmann	Banfield Pet Hospital
	Lisa Dow	Columbia Bank
	Bill Dudley	Landerholm, P.S.
	Norm Eder	CFM Strategic Communications
	Leonard Felix	CID Bio-Science
	Brian Fleetwood	Heritage Bank
	Keith Forrester	Kaiser Permanente
	Eric Fuller	Eric Fuller & Associates
	Lisa Goecke	Perkins & Co
	Brent Grening	Port of Ridgefield
	Sean Guard	City of Washougal
	Jeffrey Hamm	C-TRAN
	Bryce Helgerson	Legacy Salmon Creek Medical Center
	Scott Higgins	City of Camas
	Steve Horenstein	Horenstein Law Group

Group	Name	Company/Jurisdiction
Board of Directors (continued)	Philip Johnson	City of Battle Ground
	Andrew Jones	PacTrust
	Robert Knight	Clark College
	Kimberly Leathley	PeaceHealth
	Lisa Lowe	Schwabe, Williamson & Wyatt
	Mark Mantei	The Vancouver Clinic
	Darryl May	Umpqua Bank
	John McDonagh	Vancouver Business Journal
	Dr. Mel Netzhammer	Washington State University Vancouver
	Frank Nichols	Silicon Forest Electronics
	Julie Olson	Clark County
	Jeff Parker	Linear Technology
	Tim Schauer	MacKay Sposito
	Greg Seifert	Biggs Insurance Services
	Kevin Tapani	Tapani, Inc.
	Bill Turlay	City of Vancouver
	Jane Van Dyke	Clark Public Utilities District
	Bill Ward	Port of Camas-Washougal
	Tracy Wilson	DeWils Industries
	Brian Wolfe	Port of Vancouver
	Mei Wu	SmartRG
	Casey Wyckoff	LSW Architects
	Craig Yabui	JH Kelly
Business Growth Committee	John McDonagh	Vancouver Business Journal
	Jeanne Bennett	Workforce Southwest Washington
	Ron Frederiksen	RSV Building Solutions
	Ember Shanahan	Stewart Title
	Adam Roselli	Eric Fuller & Associates
	Mark Mantei	The Vancouver Clinic
Business Recruitment and International Investment Committee	Bill Dudley	Landerholm
	Larry Blaufus	Clark Public Utilities District
	Paul Dennis	CWEDA
	Brent Grening	Port of Ridgefield
	Mike Schiller	Port of Vancouver
	Chrissy Lyons	Port of Vancouver
	David Ripp	Port of Camas-Washougal
	Casey Wyckoff	LSW Architects
	Craig Yabui	JH Kelly

Group	Name	Company/Jurisdiction
Education Committee	Miriam Martin	Workforce Southwest Washington
	Sandra Day	City of Ridgefield
	Ted Feller	STEM Network
	Carolyn Long	Washington State University Vancouver
Economic Development Partners Group (public sector partners)	Teresa Brum	City of Vancouver
	Brent Grening	Port of Ridgefield
	Paul Dennis	CWEDA
	Mitch Kneipp	City of Washougal
	Robert Maul	City of Camas
	David Ripp	Port of Camas-Washougal
	Steve Stuart	City of Ridgefield
	Chad Eiken	City of Vancouver
	Erin Erdman	City of Battle Ground
	Phil Bourquin	City of Camas
	Jim Hagar	Port of Vancouver
	Nina Carlson	NW Natural
	Shawn Moore	Clark Regional Wastewater District
	Larry Blaufus	Clark Public Utilities District
	Marty Snell	Clark County
	Rebecca Kennedy	City of Vancouver

Appendix B:
Industry Cluster Analysis

http://www.credc.org/strategy

Appendix C: Skills Analysis

http://www.credc.org/strategy