

**FURTHER DELINATION OF ECONOMIC CLUSTERS
FOR THE WESTERN NEVADA DEVELOPMENT
DISTRICT WITH
WASHOE COUNTY**



**Further Delineation of Economic Clusters for the Western Nevada Development District
With Washoe County**

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Introduction

This paper is an update of a previous paper by Harris et al. (2012). This paper analyzes WNDD cluster with Washoe County included. This publication presents more detailed cluster analysis for the Southern Rural Development Center (SRDC) analysis. Hopefully, this publication will provide more directed information for targeted economic development strategies.

Why Target Cluster?

An industrial sector cluster is a geographically bound collection of similar and/or related firms that together create competitive advantages for member firms and the local economy. Clusters generally include firms with significant horizontal and/or vertical linkages, or firms with similar resource and/or labor needs. Firms in a cluster may interact through purchase-sale relationships; inter-firm collaboration in product development, marketing or research; or a shared reliance on specialized services and labor markets.

The targeting of industrial development programs at specific clusters provides four principal advantages:

1. The presence of an industrial sector cluster in the area is evidence that the location is attractive to these types of sectors.
2. The multiplier effect associated with attracting new firms to a cluster generally is greater than those resulting from non-cluster firms.
3. Member of cluster have stronger employment growth over time than firms that are not in clusters.
4. Clusters have greater potential for new firm spin-offs than groupings of unrelated firms.

Clusters can exist in two forms, first is a value chain cluster. Value chains or vertical clusters, are multiple businesses that are working together to generate a common product. The automobile industry is a good example as cars are composed of many parts made by many firms. The second cluster form is competing clusters, or horizontal clusters that form when similar, yet possibly competing firms all choose to locate in the same region to take advantage of a common set of raw materials, workforce, and infrastructure. The software industry is a good example of a competing cluster. However before detailing the cluster analysis a quick review of commuter flow is required. This would provide information as to the labor flow in the new WNDD Area.

COMMUTING LINKAGES IN WNDD

In developing a regional economic territory it is of interest to determine where workers live and work. The below two tables discuss commuting patterns in WNDD with Washoe County included. These tables also show the interconnectedness of counties economies so when one change in a county’s economy can affect another. Also it may yield information as to trade possibilities with commuters.

Table 1 shows the proportional shares of workers who work in a given county reside. By looking down the columns, one can derive the proportional share. For example, Carson City, the capitol of Nevada, approximately 43% of Carson City’s employment resides in Carson City while 12.83%, 12.76%, and 18.79% of Carson City’s employment reside in Douglas County, Lyon County, and Washoe County respectively. So, changes in economic activity in Carson City such as layoffs of government workers will impact the economies of Douglas, Lyon and Washoe counties.

Table 1. Where Workers in a County Reside									
	Carson City	Churchill	Douglas	Humboldt	Lyon	Mineral	Pershing	Storey	Washoe
Carson City	43.42%	2.22%	10.68%	1.03%	8.40%	2.81%	1.86%	5.99%	2.80%
Churchill	1.64%	71.72%	0.67%	1.34%	5.74%	3.89%	3.79%	1.65%	0.84%
Douglas	12.83%	1.66%	49.78%	0.75%	3.28%	3.83%	1.80%	0.90%	1.70%
Humboldt	0.52%	0.80%	0.23%	67.03%	0.28%	1.08%	8.26%	0.07%	0.33%
Lyon	12.76%	5.82%	3.95%	0.59%	60.00%	5.68%	4.79%	16.67%	3.17%
Mineral	0.21%	0.57%	0.19%	0.11%	0.44%	67.58%	0.13%	0.14%	0.10%
Pershing	0.41%	0.43%	0.08%	4.20%	0.22%	0.36%	61.05%	0.07%	0.13%
Storey	0.82%	0.19%	0.29%	0.05%	0.73%	0.18%	0.27%	19.63%	0.54%
Washoe	18.79%	9.26%	9.62%	5.39%	15.63%	5.80%	8.46%	50.14%	80.98%
Rest of Nevada	4.33%	4.445	3.77%	15.16%	1.71%	2.81%	6.19%	0.07%	4.99%
RUS or ROW	4.25%	2.89%	20.73%	4.34%	3.56%	5.98%	3.40%	4.41%	4.42%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 2 shows where a county’s workforce is employed. For example for Lyon County, 33.78% of the county’s workforce is employed in Lyon County while 19.34%, 4.03%, and 33.03% are employed in Carson City, Douglas, and Washoe Counties respectively. So, changes in the economies of Carson City, Douglas and Washoe Counties will impact the economy of Lyon County.

Table 2 Where Workers in a Given County Work

	Carson City	Churchill	Douglas	Humboldt	Lyon	Mineral	Pershing	Storey	Washoe
Carson City	54.17%	4.73%	18.84%	1.96%	19.34%	3.215	5.89%	12.75%	2.90%
Churchill	0.78%	58.11%	0.69%	0.84%	2.485	2.43%	1.70%	0.84%	0.40%
Douglas	8.96%	1.30%	49.15%	0.59%	4.03%	1.99%	0.72%	3.03%	1.00%
Humboldt	0.34%	1.02%	0.29%	66.67%	0.24%	0.44%	15.86%	0.22%	0.22%
Lyon	3.89%	6.14%	1.79%	0.39%	33.78%	2.49%	1.19%	4.21%	0.90%
Mineral	0.21%	0.68%	0.34%	0.25%	0.52%	62.47%	0.31%	0.17%	0.05%
Pershing	0.13%	0.60%	0.14%	1.69%	0.40%	0.11%	47.37%	0.22%	0.07%
Storey	0.39%	0.25%	0.007%	0.01%	1.33%	0.11%	0.05%	16.01%	0.41%
Washoe	24.03%	16.59%	17.13%	8.52%	33.03%	9.95%	12.76%	57.36%	85.91%
Rest of Nevada	3.11%	5.94%	2.77%	16.22%	2.46%	4.42%	9.50%	2.64%	4.53%
RUS or ROW	3.98%	4.65%	8.87%	2.86%	2.39%	12.38%	4.65%	2.53%	3.61%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Tables 1 and 2 show the interconnectedness of the county economies in the WNDD Area. Changes in economic activity in a county will impact other counties within WNDD. This shows that a regional approach to WNDD may be an appropriate economic strategy.

Defining Cluster Sectors

Using data and procedures outlined by the SRDC, and Economic Modeling Specialists International (EMSI), twenty two cluster categories were chosen for analysis for WNDD. Table 3 lists the twenty two designated clusters.

Using the twenty two cluster and employment data for these clusters in the WNDD Study Area, specific analysis for these clusters can be derived using 2006 and 2011 employment data.

Table 3. Cluster Choices as Defined by SRDC and EMSI	
Cluster Categories	Cluster Categories
Advanced Materials	Energy, fossil and Renewable
Agribusiness, Food Processing and Technology	Fabricated Metal Products Manufacturing
Apparel and Textiles	Forest and Wood Products
Arts, Entertainment. Recreation and Visitors Industries	Glass and Ceramics
Biomedical/Biotechnical (Life Science)	Information Technology and Telecommunications
Business and Financial Services	Machinery Manufacturing
Chemicals and Chemical Based Products, Manufacturing	Mining
Computers and Electrical Product Manufacturers	Primary Metal Manufacturing
Defense and Security	Printing and Publishing
Education and Knowledge Creation	Transportation and Logistics
Electrical Equipment, Appliance and component Manufacturing	Transportation Equipment Manufacturing
Source: Southern Rural Development Center, <i>Stronger Economics Together: Strategies for Building New Economic Opportunities Model Five: Exploring Opportunities for a Stronger Regional Economy</i> . Starksville, MS: Mississippi State University, 2012.	

For industrial targeting, sectorial location quotient for 2011 will be derived as well as percentage change in employment from 2006 to 2011. Location quotients are often used to measure the concentration of a particular sector relative to some base location which is usually the nation. The location quotient formula stated here as:

$$LQ_{ir} = \frac{E_{ir}/E_r}{E_{in}/E_n}$$

When:

- LQ_{ir} is the location quotient for sector i in region r
- E_{ir} is the employment in a sector in region r
- E_r is the total employment in region r
- E_{in} is the employment in sector i for the nation
- E_n is the total employment in the Nation

A location quotient greater than one suggests that the region exhibits concentration in that economic sector. It is also assuming that the sector is exporting goods and/or services to areas outside the region. A location quotient less than one, however implies that the area is below average in terms of its concentration in a given sector.

For this analysis, clusters will be identified as: STARS, MATURE, EMERGING, and TRANSFORMING.

STAR clusters are those whose ratio in WNDD Study Area is larger than in the nation and whose percentage change in employment from 2006 to 2011 is positive. STAR clusters are specialized compared to the nation and from 2006 to 2011 their employment has been increasing.

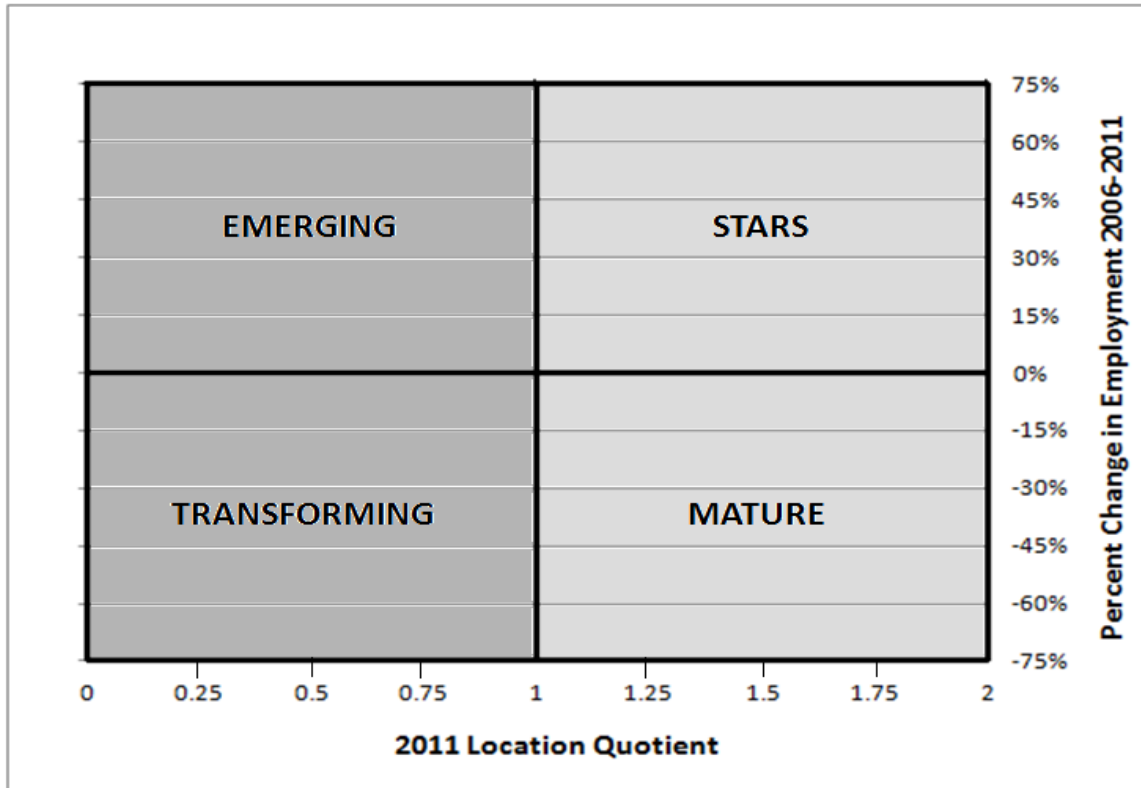
MATURE clusters are those whose ratio of employment in the WNDD Study Area is larger than that of nation and whose percentage change in employment from 2006 to 2011 is negative or decreasing. MATURE clusters are still specialized compared to the nation but during the past five years their employment has been decreasing.

EMERGING clusters are those whose ratio in the WNDD Study Area is less than that in the nation and whose percentage change in employment from 2006 to 2011 is positive or increasing. EMERGING clusters are less specialized compared to the nation and during the past five years their employment has been increasing. Some of the EMERGING clusters may become specialized in the future.

TRANSFORMING clusters are those whose ratio of employment in the region is less than that in the nation and where employment growth from 2006 to 2011 was negative. These clusters are less specialized in the WNDD Study Area and this employment has decreased over the past five years. The TRANSFORMING clusters are unlikely to become specialized in the future.

These categories are depicted in Figure 1. On the X-axis is the 2011 location quotient dividing the STARS/MATURE clusters from EMERGING/TRANSFORMING clusters where the line has a value of 1.0. On the Y-axis, the dividing line between EMERGING/STARS and TRANSFORMING/MATURE is the 0.00% line.

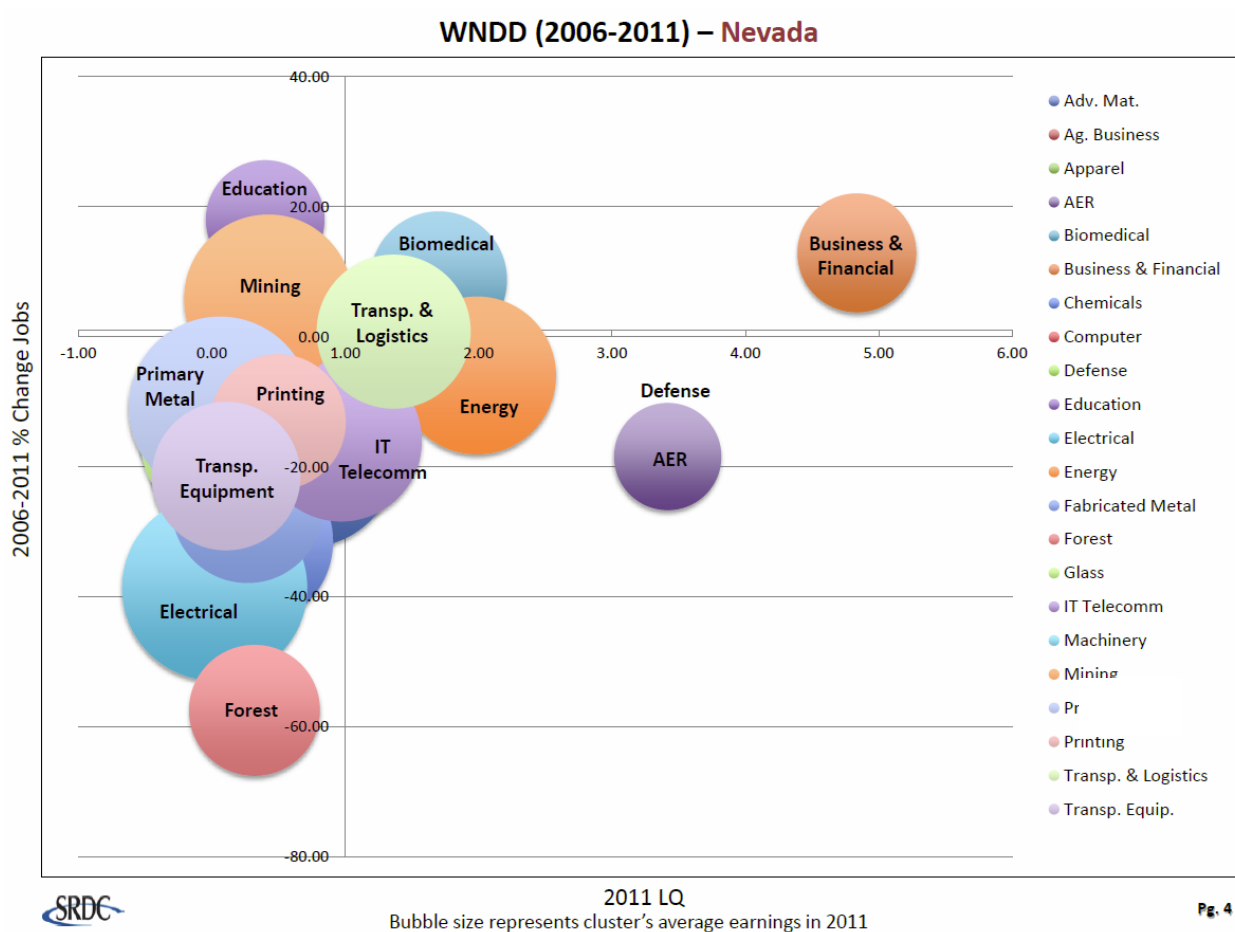
Figure 1. Catagory Chart Areas



Using Figure 2, the bubble chart of the twenty two clusters for the WNDD plus Washoe County Study Area is shown. Figure 2 shows the Business and Financial Cluster to be a STAR cluster along with the Biomedical and the Transportation and Logistics Cluster. Because of the national recession and developments of the Native American gaming sector, the Arts, Entertainment and Recreation sectors are MATURE clusters. Other clusters are mapped among each other and may be difficult to analyze. Table 4 splits the clusters for the WNDD with Washoe County Area between STARS, MATURE, TRANSFORMING, and EMERGING clusters.

As for Star clusters, the Business and Financial, Biomedical, and Transportation and Logistics Cluster, are STAR clusters. These clusters may be investigated further for targeting.

Figure 2. Bubble Chart for WNDD with Washoe County.



For the MATURE category, their clusters are specialized in 2011 but have realized loss in employment from 2006 to 2011. The Arts, Entertainment, Recreation and Visitor Industries cluster has specialization because of legalized gaming in the state of Nevada. However, given the growth in Native American casinos and further legalization of gaming in other states of the nation, it has caused this cluster to be less favorable.

There are twelve TRANSFORMING clusters which might be of interest to state economic development practitioners. These clusters may need assistance to be more specialized and competitive. By gathering data on these clusters, state and local economic development officials may develop programs and outreach programs to assist the cluster.

As for EMERGING clusters, the Mining, Education and Knowledge Creation, and the Machinery Manufacturing clusters were identified. These clusters show promise in the future and assistance could expand their operations.

When comparing WNDD Area cluster designations with and without Washoe County interesting impacts of the inclusion of Washoe County occur. It might be useful to see if any cluster designation differences occur with the inclusion of Washoe County.

Most of the cluster designations did not change but a few did. These changes are listed below:

- 1) With Washoe County the Energy Cluster is a MATURE Cluster, while without Washoe Count it is a STAR Cluster.
- 2) With Washoe County the Agricultural Business Cluster is an EMERGING Cluster, while without Washoe County it is a MATURE Cluster.
- 3) With Washoe County the Defense Cluster is a TRANSFORMING Cluster, while without Washoe County it is a STAR Cluster.
- 4) With Washoe County the Machinery Cluster is a TRANSFORMING Cluster, while without Washoe County it is an EMERGING Cluster.

Table 4. Rating of the Twenty Two Clusters for WNDD Study Area With Washoe County

Cluster	Category
Business and Financial	STAR
Energy	MATURE
Biomedical/Biotechnical (Life Science)	STAR
Transportation and Logistics	STAR
Defense	TRANSFORMING
Machinery	TRANSFORMING
Education	EMERGING
Mining	EMERGING
Arts, Entertainment, Recreation and Visitor Industries	MATURE
Agribusiness, Food Processing, and Technology	EMERGING
Advanced Materials	TRANSFORMING
Information Technology and Telecommunications	TRANSFORMING
Printing	TRANSFORMING
Fabricated Metal Products Manufacturing	TRANSFORMING
Chemicals and Chemical Based Products Manufacturing	TRANSFORMING
Forest and Wood Products	TRANSFORMING
Computer and Electronic Products Manufacturing	TRANSFORMING
Transportation Equipment Manufacturing	TRANSFORMING
Primary Metal Manufacturing	TRANSFORMING
Apparel and Textiles	TRANSFORMING
Glass and Ceramics	TRANSFORMING
Electrical Equipment , Appliances and Component Manufacturing	TRANSFORMING

Detailed Sector Targeting by Cluster Designation

Tables 5 through 24 show four digit NAICS sectors by designated clusters as STAR, MATURE, EMERGING, and TRANSFORMING sectors. These results show that even within a STAR cluster there are sectors that are TRANSFORMING and that within TRANSFORMING clusters there are STAR sectors. Tables 5 through 24 provide a more detailed sectorial targeting for the SET Program.

Advanced Materials Cluster

From Table 4, the Advanced Material cluster was designated as a TRANSFORMING cluster. There are 42 four digit NAICS sectors within this cluster shown in Table 5 of which seven sectors were designated as STAR sectors (the Converted Paper Product Manufacturing Sector, the Paint, Coating, and Adhesive Product Manufacturing Sector, the Rubber Product Manufacturing Sector, the Nonferrous Metal (except Aluminum) Production and Processing Sector, the Machine Shops; Turned Product; and Screw Nut, and Bolt Manufacturing Sector, the Other Fabricated Metal Product Manufacturing Sector and the Communications Equipment Manufacturing Sector). While 11 sectors were designated as MATURE, 13 sectors as EMERGING, and 11 sectors as TRANSFORMING.

Agribusiness, Food Processing, and Technology Cluster

From Table 4, the Agribusiness, Food Processing, and Technology cluster was designated as an EMERGING cluster. There are 18 four digit NAICS sectors within the cluster shown in Table 6 of which six sectors were designated as STAR sectors (the Sheep and Goat Farming, the Animal Food Manufacturing Sector, the Sugar and Confectionary Product Manufacturing Sector, the Fruit and Vegetable Preserving and Specialty Food Manufacturing Sector, the Other Food Manufacturing Sector, and the Farm Product Raw Material Merchant Wholesalers Sector) while five sectors were designated as MATURE, six as EMERGING, and eight sectors as TRANSFORMING.

Table 5. Rating Four Digit NAICS Sectors for the Advanced Materials Cluster					
NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3222	Converted Paper Product Manufacturing	1.69	344	7.84%	STAR
3255	Paint, Coating, and Adhesive Manufacturing	1.32	151	41.12%	STAR
3262	Rubber Product Manufacturing	2.31	265	31.19%	STAR
3314	Nonferrous Metal (except Aluminum) Production and Processing	5.05	336	5.00%	STAR
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	1.24	837	13.41%	STAR
3329	Other Fabricated Metal Product Manufacturing	2.13	732	18.64%	STAR
3342	Communications Equipment Manufacturing	1.34	174	75.76%	STAR
2123	Nonmetallic Mineral Mining and Quarrying	3.14	424	-24.42%	MATURE
3261	Plastics Product Manufacturing	1.32	1,009	-39.40%	MATURE
3279	Other Nonmetallic Mineral Product Manufacturing	1.54	175	-29.15%	MATURE
3315	Foundries	6.59	368	-0.27%	MATURE
3323	Architectural and Structural Metals Manufacturing	1.42	796	-47.42%	MATURE
3339	Other General Purpose Machinery Manufacturing	1.29	350	-7.41%	MATURE
3344	Semiconductor and Other Electronic Component Manufacturing	1.71	600	-14.04%	MATURE
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2.83	1,532	-4.55%	MATURE
3364	Aerospace Product and Parts Manufacturing	1.56	544	-5.06%	MATURE
3399	Other Miscellaneous Manufacturing	5.89	2,664	-24.08%	MATURE
5413	Architectural, Engineering, and Related Services	1.02	2,761	-19.50%	MATURE
3251	Basic Chemical Manufacturing	0.59	108	22.73%	EMERGING
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	0.03	3	50.00%	EMERGING

Table 5. Rating Four Digit NAICS Sectors for the Advanced Materials Cluster, continued

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3253	Pesticide, Fertilizer, and Other	0.96	16	45.45%	EMERGING
3254	Pharmaceutical and Medicine	0.39	158	167.80%	EMERGING
3259	Other Chemical Product and	0.53	64	18.52%	EMERGING
3271	Clay Product and Refractory Manufacturing	0.53	17	0.00%	EMERGING
3326	Spring and Wire Product	0.22	18	20.00%	EMERGING
3332	Industrial Machinery Manufacturing	0.52	31	19.23%	EMERGING
3335	Metalworking Machinery Manufacturing	0.59	152	29.91%	EMERGING
3341	Computer and Peripheral Equipment Manufacturing	0.66	117	39.29%	EMERGING
3351	Electric Lighting Equipment	0.14	8	300.00%	EMERGING
3353	Electrical Equipment	0.51	115	10.58%	EMERGING
5417	Scientific Research and Development Services	0.59	763	3.39%	EMERGING
3241	Petroleum and Coal Products Manufacturing	0.53	112	-10.40%	TRANSFORMING
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	0.17	24	-57.89%	TRANSFORMING
3274	Lime and Gypsum Product Manufacturing	0.38	7	-94.93%	TRANSFORMING
3312	Steel Product Manufacturing from Purchased Steel	0.12	5	-28.57%	TRANSFORMING
3313	Alumina and Aluminum Production and Processing	0.10	5	-64.29%	TRANSFORMING
3321	Forging and Stamping	0.91	136	-28.04%	TRANSFORMING
3328	Coating, Engraving, Heat	0.38	97	-30.71%	TRANSFORMING
3333	Commercial and Service Industry Machinery Manufacturing	0.27	49	-82.12%	TRANSFORMING
3359	Other Electrical Equipment and Component Manufacturing	0.19	28	-86.47%	TRANSFORMING
3363	Motor Vehicle Parts Manufacturing	0.53	357	-43.06%	TRANSFORMING
3391	Medical Equipment and Supplies Manufacturing	0.47	285	-23.18%	TRANSFORMING

Table 6. Rating Four digit NAICS Sectors for the Agribusiness, Food Processing, and Technology Cluster.					
NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
1124	Sheep and Goat Farming	9.81	27	28.57%	STAR
3111	Animal Food Manufacturing	1.06	110	4.76%	STAR
3113	Sugar and Confectionery Product Manufacturing	3.15	291	14.57%	STAR
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	2.11	408	110.31%	STAR
3119	Other Food Manufacturing	15.30	458	33.14%	STAR
4245	Farm Product Raw Material Merchant Wholesalers	1.11	41	10.81%	STAR
1119	Other Crop Farming	5.59	412	-14.88%	MATURE
1121	Cattle Ranching and Farming	1.88	515	-0.39%	MATURE
1125	Aquaculture	3.95	33	-10.81%	MATURE
1129	Other Animal Production	1.84	64	-8.57%	MATURE
3115	Dairy Product Manufacturing	2.82	120	-32.20%	MATURE
1114	Greenhouse, Nursery, and Floriculture Production	0.45	91	5.81%	EMERGING
1151	Support Activities for Crop Production	0.19	108	800.00%	EMERGING
3112	Grain and Oilseed Milling	0.26	12	71.43%	EMERGING
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	0.96	16	45.45%	EMERGING
3331	Agriculture, Construction, and Mining Machinery Manufacturing	0.04	7	250.00%	EMERGING
3332	Industrial Machinery Manufacturing	0.52	31	19.23%	EMERGING
1111	Oilseed and Grain Farming	0.00	0	-100.00%	TRANSFORMING
1112	Vegetable and Melon Farming	0.94	180	-43.04%	TRANSFORMING
1142	Hunting and Trapping	0.00	0	-100.00%	TRANSFORMING
3116	Animal Slaughtering and Processing	0.29	63	-31.52%	TRANSFORMING
3118	Bakeries and Tortilla Manufacturing	0.44	202	-7.76%	TRANSFORMING
3121	Beverage Manufacturing	0.48	108	-33.33%	TRANSFORMING
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	0.86	1,063	-35.46%	TRANSFORMING
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	0.81	535	-44.56%	TRANSFORMING

Given the new dry milk processing plant to be built and operated in Fallon, Nevada, sectors within this cluster may find expanded economic development opportunities. The Food and Animal Production Sector will expand given a potential doubling of dairy herds. All EMERGING sectors in the Agribusiness Cluster may find expansion opportunities to the STAR sectors.

Apparel and Textiles Cluster

From Table 4, the Apparel and Textiles cluster was designated as a TRANSFORMING cluster. There are 16 four digit NAICS sectors in this cluster shown in Table 7, of the 16 sectors, two sectors were designated as STAR sectors (the Other Textile Product Mills Sector and the Apparel, Piece Goods, and Notions Merchant Wholesalers Sector), while four sectors were designated as MATURE, five as EMERGING, and five sectors as transforming.

Arts, Entertainment, Recreation, and Visitors Cluster

From Table 4, the Arts Entertainment, Recreation and Visitors cluster was designated as a MATURE cluster. There are 20 four digit NAICS sectors in the cluster shown in Table 8, of the 20 sectors, four sectors were designated as STAR sectors (the Scenic and Sightseeing Transportation by Land Sector, the Spectator Sports Sector, the Independent Artist, Writers, and Performers Sector, and the Recreational Vehicle (RV) Parks and Residential Camp Sector) while seven sectors were designated as MATURE, six as EMERGING, and three sectors as TRANSFORMING.

Of interest as a MATURE sector is the Gambling Industry Sector. This sector has one of the largest location quotient values at 8.55, which means this sector is specialized in the region. This is due to legalized gaming in the state of Nevada. However from 2006 to 2011, employment has declined in this sector by 27.48%. This employment decline is due to expanded legalized gaming especially by Native American casinos in California. This sector must become more competitive if it is to regain its status as a STAR sector.

Table 7. Rating Four Digit NAICS Sectors for the Apparel and Textile Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3149	Other Textile Product Mills	1.59	179	11.18%	STAR
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	1.79	323	18.32%	STAR
3231	Printing and Related Support Activities	1.09	985	-34.33%	MATURE
3279	Other Nonmetallic Mineral Product Manufacturing	1.54	175	-29.15%	MATURE
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	1.04	278	-43.50%	MATURE
3399	Other Miscellaneous Manufacturing	5.89	2,664	-24.08%	MATURE
3132	Fabric Mills	0.06	1	0.00%	EMERGING
3133	Textile and Fabric Finishing and Fabric Coating Mills	0.17	12	1100.00%	EMERGING
3141	Textile Furnishings Mills	0.14	6	0.00%	EMERGING
3251	Basic Chemical Manufacturing	0.59	108	22.73%	EMERGING
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	0.03	3	50.00%	EMERGING
3152	Cut and Sew Apparel Manufacturing	0.02	2	-97.06%	TRANSFORMING
3159	Apparel Accessories and Other Apparel Manufacturing	0.16	4	-33.33%	TRANSFORMING
3379	Other Furniture Related Product Manufacturing	0.89	40	-62.26%	TRANSFORMING
5414	Specialized Design Services	0.82	167	-37.45%	TRANSFORMING
5418	Advertising, Public Relations, and Related Services	0.67	548	-0.18%	TRANSFORMING

Table 8. Rating Four Digit NAICS Sectors for the Arts, Entertainment, Recreation, and Visitor Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
4871	Scenic and Sightseeing Transportation, Land	1.15	29	81.25%	STAR
7112	Spectator Sports	2.36	293	365.08%	STAR
7115	Independent Artists, Writers, and Performers	1.27	118	100.00%	STAR
7212	RV (Recreational Vehicle) Parks and Recreational Camps	1.69	98	2.08%	STAR
3399	Other Miscellaneous Manufacturing	5.89	2,664	-24.08%	MATURE
4239	Miscellaneous Durable Goods Merchant Wholesalers	1.10	634	-5.79%	MATURE
5151	Radio and Television Broadcasting	2.82	524	-25.14%	MATURE
7111	Performing Arts Companies	1.16	81	-48.73%	MATURE
7132	Gambling Industries	8.55	4,566	-27.48%	MATURE
7139	Other Amusement and Recreation Industries	1.22	3,150	-8.22%	MATURE
7211	Traveler Accommodation	5.82	20,741	-25.54%	MATURE
4872	Scenic and Sightseeing Transportation, Water	0.57	17	41.67%	EMERGING
5121	Motion Picture and Video Industries	0.59	398	15.36%	EMERGING
5122	Sound Recording Industries	0.76	14	133.33%	EMERGING
7113	Promoters of Performing Arts, Sports, and Similar Events	0.78	157	63.54%	EMERGING
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	0.24	9	0.00%	EMERGING
7121	Museums, Historical Sites, and Similar Institutions	0.44	163	0.00%	EMERGING
5152	Cable and Other Subscription Programming	0.00	0	-100.00%	TRANSFORMING
5615	Travel Arrangement and Reservation Services	0.28	108	-54.24%	TRANSFORMING
7131	Amusement Parks and Arcades	0.46	163	-44.37%	TRANSFORMING

Biomedical/Biotechnical (Life Science) Cluster

From Table 4, the Biomedical/Biotechnical (Life Science) cluster was designated as a STAR cluster. There are 18 four digit NAICS sectors in this cluster shown in Table 9, of the 18 sectors, two sectors were designated as a STAR sector (Other Ambulatory Health Care Services Sector and the Specialty [*except Psychiatric and Substance Abuse*] Hospitals Sector) while four sectors were designated as MATURE, nine sectors as EMERGING and three sectors as TRANSFORMING. With an aging population, the WNDD area may want to determine what assistance is necessary for the EMERGING sectors to become STARS.

Business and Financial Cluster

From Table 4, the Business and Financial cluster was designated as a STAR cluster. There are 21 four digit NAICS sectors in this cluster shown in Table 10, of the 21 sectors, one sector was designated as a STAR sector (the Other Professional, Scientific and Technical Services Sector) while seven sectors were designated as MATURE, six as EMERGING, and seven sectors as TRANSFORMING. Given the changes in the financial industry and potential new federal regulations, the finance sector may face changes that are beyond the scope of the WNDD region.

Table 9. Rating Four Digit NAICS Sectors for the Biomedical/Biotechnology (Life Sciences) Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
6219	Other Ambulatory Health Care Services	1.15	623	7.41%	STAR
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	1.12	542	55.30%	STAR
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2.83	1,532	-4.55%	MATURE
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	1.20	1,390	-9.27%	MATURE
5622	Waste Treatment and Disposal	1.22	287	-15.34%	MATURE
6215	Medical and Diagnostic Laboratories	1.04	481	-36.46%	MATURE
3254	Pharmaceutical and Medicine Manufacturing	0.39	158	167.80%	EMERGING
5417	Scientific Research and Development Services	0.59	763	3.39%	EMERGING
6214	Outpatient Care Centers	0.85	1,108	17.12%	EMERGING
6216	Home Health Care Services	0.36	829	14.34%	EMERGING
6221	General Medical and Surgical Hospitals	0.78	8,557	5.12%	EMERGING
6222	Psychiatric and Substance Abuse Hospitals	0.73	350	15.51%	EMERGING
6231	Nursing Care Facilities (Skilled Nursing Facilities)	0.46	1,615	19.72%	EMERGING
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	0.78	1,062	59.22%	EMERGING
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	0.60	923	25.92%	EMERGING
3333	Commercial and Service Industry Machinery Manufacturing	0.27	49	-82.12%	TRANSFORMING
3391	Medical Equipment and Supplies Manufacturing	0.47	285	-23.18%	TRANSFORMING
4461	Health and Personal Care Stores	0.56	1,091	-10.65%	TRANSFORMING

Table 10. Rating Four Digit NAICS Sectors for the Business and Financial Cluster.					
NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
5419	Other Professional, Scientific, and Technical Services	1.11	1,309	19.11%	STAR
3231	Printing and Related Support Activities	1.09	985	-34.33%	MATURE
5222	Nondepository Credit Intermediation	1.09	961	-40.01%	MATURE
5251	Insurance and Employee Benefit Funds	3.51	235	-3.29%	MATURE
5259	Other Investment Pools and Funds	4.70	84	-57.79%	MATURE
5311	Lessors of Real Estate	1.32	1,580	-12.37%	MATURE
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1.12	1,987	-6.01%	MATURE
5413	Architectural, Engineering, and Related Services	1.02	2,761	-19.50%	MATURE
5182	Data Processing, Hosting, and Related Services	0.36	178	28.99%	EMERGING
5231	Securities and Commodity Contracts Intermediation and Brokerage	0.51	439	10.03%	EMERGING
5241	Insurance Carriers	0.51	872	11.37%	EMERGING
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	0.40	19	5.56%	EMERGING
5415	Computer Systems Design and Related Services	0.32	969	13.20%	EMERGING
5416	Management, Scientific, and Technical Consulting Services	0.49	1,041	9.81%	EMERGING
5223	Activities Related to Credit Intermediation	0.35	180	-37.28%	TRANSFORMING
5239	Other Financial Investment Activities	0.47	304	-19.79%	TRANSFORMING
5242	Agencies, Brokerages, and Other Insurance Related Activities	0.75	1,317	-23.52%	TRANSFORMING
5313	Activities Related to Real Estate	0.84	937	-9.03%	TRANSFORMING
5411	Legal Services	0.93	2,062	-17.29%	TRANSFORMING
5414	Specialized Design Services	0.82	167	-37.45%	TRANSFORMING
5418	Advertising, Public Relations, and Related Services	0.67	548	-0.18%	TRANSFORMING

Chemicals and Chemical Based Products Manufacturing Cluster

From Table 4, the Chemicals and Chemical Based Products Manufacturing cluster was designated as a TRANSFORMING cluster. There are 16 four digit NAICS sectors in this cluster shown in Table 11, of the 16 sectors, two sectors were designated as STAR sectors (the Paint, Coating, and Adhesive Manufacturing Sector and the Rubber Product Manufacturing Sector) while three sectors were designated as MATURE, six as EMERGING, and five sectors as TRANSFORMING. WNDD might want to investigate how it could assist EMERGING sectors such as the Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing Sector which is very close to being a STAR sector.

Computer and Electronic Products Manufacturing Cluster

From Table 4, the Computer and Electronic Products Manufacturing cluster was designated as a TRANSFORMING cluster. There are six four digit NAICS sectors in this cluster shown in Table 12, of the six sectors, two sectors were designated as STAR sectors (Communications Equipment Manufacturing Sector, and the Manufacturing and Reproducing Magnetic and Optical Media Sector) while two sectors were designated as MATURE, and two sectors as EMERGING.

Table 11. Rating Four Digit NAICS Sectors for the Chemicals and Chemical Based Products Manufacturing Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3255	Paint, Coating, and Adhesive Manufacturing	1.32	151	41.12%	STAR
3262	Rubber Product Manufacturing	2.31	265	31.19%	STAR
3261	Plastics Product Manufacturing	1.32	1,009	-39.40%	MATURE
3273	Cement and Concrete Product Manufacturing	1.42	454	-44.84%	MATURE
3279	Other Nonmetallic Mineral Product Manufacturing	1.54	175	-29.15%	MATURE
3251	Basic Chemical Manufacturing	0.59	108	22.73%	EMERGING
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	0.03	3	50.00%	EMERGING
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	0.96	16	45.45%	EMERGING
3254	Pharmaceutical and Medicine Manufacturing	0.39	158	167.80%	EMERGING
3259	Other Chemical Product and Preparation Manufacturing	0.53	64	18.52%	EMERGING
3271	Clay Product and Refractory Manufacturing	0.53	17	0.00%	EMERGING
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	0.17	24	-57.89%	TRANSFORMING
3272	Glass and Glass Product Manufacturing	0.52	40	-31.03%	TRANSFORMING
3274	Lime and Gypsum Product Manufacturing	0.38	7	-94.93%	TRANSFORMING
4246	Chemical and Allied Products Merchant Wholesalers	0.72	176	-21.78%	TRANSFORMING
4247	Petroleum and Petroleum Products Merchant Wholesalers	0.80	147	-17.88%	TRANSFORMING

Table 12. Rating Four Digit NAICS Sectors for the Computer and Electronic Products Manufacturing Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3342	Communications Equipment Manufacturing	1.34	174	75.76%	STAR
3346	Manufacturing and Reproducing Magnetic and Optical Media	1.54	12	-	STAR
3344	Semiconductor and Other Electronic Component Manufacturing	1.71	600	-14.04%	MATURE
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2.83	1,532	-4.55%	MATURE
3341	Computer and Peripheral Equipment Manufacturing	0.66	117	39.29%	EMERGING
3343	Audio and Video Equipment Manufacturing	0.53	21	50.00%	EMERGING

Defense Cluster

From Table 4, the Defense cluster was designated as a TRANSFORMING cluster. There are 16 four digit NAICS sectors in this cluster shown in Table 13, of the 16 sectors, two sectors were designated as STAR sectors (the Other Fabricated Metal Product Manufacturing Sector, and the Communications Equipment Manufacturing Sector) while six sectors were designated as MATURE, three sectors as EMERGING, and five sectors as TRANSFORMING. The Other Fabricated Metal Product Manufacturing Sector is a STAR sector that WNDD could investigate and strengthen.

Electrical Equipment, Appliance, and Component Manufacturing Cluster

From Table 4, the Electrical Equipment, Appliance, and Component Manufacturing cluster was designated as a TRANSFORMING cluster. There are three four digit NAICS sectors in this cluster shown in Table 14, two were designated as EMERGING and one as TRANSFORMING.

Table 13. Rating Four Digit NAICS Sectors for the Defense Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3329	Other Fabricated Metal Product Manufacturing	2.13	732	18.64%	STAR
3342	Communications Equipment Manufacturing	1.34	174	75.76%	STAR
2122	Metal Ore Mining	27.91	2,045	-5.67%	MATURE
2371	Utility System Construction	1.47	1,166	-18.92%	MATURE
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2.83	1,532	-4.55%	MATURE
3364	Aerospace Product and Parts Manufacturing	1.56	544	-5.06%	MATURE
3369	Other Transportation Equipment Manufacturing	1.83	87	-8.42%	MATURE
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	2.07	739	-7.74%	MATURE
3259	Other Chemical Product and Preparation Manufacturing	0.53	64	18.52%	EMERGING
5415	Computer Systems Design and Related Services	0.32	969	13.20%	EMERGING
5417	Scientific Research and Development Services	0.59	763	3.39%	EMERGING
3366	Ship and Boat Building	0.36	20	-42.86%	TRANSFORMING
3391	Medical Equipment and Supplies Manufacturing	0.47	285	-23.18%	TRANSFORMING
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	0.86	1,063	-35.46%	TRANSFORMING
5616	Investigation and Security Services	0.70	1,061	-11.06%	TRANSFORMING
8114	Personal and Household Goods Repair and Maintenance	0.88	108	-10.00%	TRANSFORMING

Table 14. Rating Four Digit NAICS Sectors for the Electrical Equipment, Appliance, and Component Manufacturing Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3351	Electric Lighting Equipment Manufacturing	0.14	8	300.00%	EMERGING
3353	Electrical Equipment Manufacturing	0.51	115	10.58%	EMERGING
3359	Other Electrical Equipment and Component Manufacturing	0.19	28	-86.47%	TRANSFORMING

Energy Cluster

From Table 4, the Energy cluster was designated as a MATURE cluster. There are 32 four digit NAICS sectors in this cluster shown in Table 15, of the 32 sectors, three sectors were designated as STAR sectors (the Natural Gas Distribution Sector, the Boiler, Tank, and Shipping Container Manufacturing Sector, and the Engine, Turbine, and Power Transmission Equipment Manufacturing Sector) while 10 sectors were designated as MATURE, 10 as EMERGING, and nine sectors as TRANSFORMING. The activity of the Support Activities for Mining Sector have been increasing in the WNDD area. The activities of this sector are a precursor of future activities by the Gold Mining Sector. Therefore WNDD may realize expanded gold mining activities in the area currently and in the future.

Fabricated Metals Products Cluster

From Table 4, the Fabricated Metals Products cluster was designated as a TRANSFORMING cluster. There are nine four digit NAICS sectors in this cluster shown in Table 16, of the nine sectors, three sectors were designated as STAR sectors (Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing Sector, Boiler, Tank, and Shipping Container Manufacturing Sector, and the Other Fabricated Metal Product Manufacturing Sector) while one sector was designated as MATURE, one as EMERGING, and four sectors as TRANSFORMING.

Table 15. Rating Four Digit NAICS Sectors for the Energy Cluster, continued on next page.					
NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
2212	Natural Gas Distribution	1.32	299	70.86%	STAR
3324	Boiler, Tank, and Shipping Container Manufacturing	1.78	238	17.82%	STAR
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	1.48	123	355.56%	STAR
2122	Metal Ore Mining	27.91	2,045	-5.67%	MATURE
2213	Water, Sewage and Other Systems	1.17	478	-1.65%	MATURE
2371	Utility System Construction	1.47	1,166	-18.92%	MATURE
3344	Semiconductor and Other Electronic Component Manufacturing	1.71	600	-14.04%	MATURE
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2.83	1,532	-4.55%	MATURE
4236	Household Appliances and Electrical	2.34	1,449	-4.86%	MATURE
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	1.09	358	-33.58%	MATURE
4471	Gasoline Stations	1.08	1,776	-10.98%	MATURE
4543	Direct Selling Establishments	1.18	306	-8.66%	MATURE
5413	Architectural, Engineering, and Related ServicesT	1.02	2,761	-19.50%	MATURE
2111	Oil and Gas Extraction	0.03	9	125.00%	EMERGING
2131	Support Activities for Mining	0.64	410	159.49%	EMERGING
3251	Basic Chemical Manufacturing	0.59	108	22.73%	EMERGING
3331	Agriculture, Construction, and Mining Machinery Manufacturing	0.04	7	250.00%	EMERGING
3334	Ventilation, Heating, Air-	0.86	225	80.00%	EMERGING
3353	Electrical Equipment Manufacturing	0.51	115	10.58%	EMERGING
4862	Pipeline Transportation of Natural Gas	0.29	16	128.57%	EMERGING
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	0.40	19	5.56%	EMERGING
5416	Management, Scientific, and Technical Consulting Services	0.49	1,041	9.81%	EMERGING
5417	Scientific Research and Development Services	0.59	763	3.39%	EMERGING

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
2211	Electric Power Generation, Transmission and Distribution	0.99	746	-40.79%	TRANSFORMING
2379	Other Heavy and Civil Engineering Construction	0.20	39	-59.38%	TRANSFORMING
2382	Building Equipment Contractors	0.80	2,608	-51.88%	TRANSFORMING
3241	Petroleum and Coal Products Manufacturing	0.53	112	-10.40%	TRANSFORMING
3359	Other Electrical Equipment and Component Manufacturing	0.19	28	-86.47%	TRANSFORMING
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	0.54	122	-37.76%	TRANSFORMING
4247	Petroleum and Petroleum Products Merchant Wholesalers	0.80	147	-17.88%	TRANSFORMING
5239	Other Financial Investment Activities	0.47	304	-19.79%	TRANSFORMING
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	0.71	167	-51.87%	TRANSFORMING

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3324	Boiler, Tank, and Shipping Container Manufacturing	1.78	238	17.82%	STAR
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	1.24	837	13.41%	STAR
3329	Other Fabricated Metal Product Manufacturing	2.13	732	18.64%	STAR
3323	Architectural and Structural Metals Manufacturing	1.42	796	-47.42%	MATURE
3326	Spring and Wire Product Manufacturing	0.22	18	20.00%	EMERGING
3321	Forging and Stamping	0.91	136	-28.04%	TRANSFORMING
3322	Cutlery and Handtool Manufacturing	0.16	10	-9.09%	TRANSFORMING
3325	Hardware Manufacturing	0.00	0	-100.00%	TRANSFORMING
3328	Coating, Engraving, Heat Treating, and Allied Activities	0.38	97	-30.71%	TRANSFORMING

Forest and Wood Products Cluster

From Table 4, the Forest and Wood Products cluster was designated as a TRANSFORMING cluster. There are 20 four digit NAICS sectors in this cluster shown in Table 17, of the 20 sectors, two sectors were designated as STAR sectors (the Converted Paper Product Manufacturing Sector and, the Paint, Coating, and Adhesive Manufacturing Sector) while 10 sectors were designated as MATURE, two as EMERGING, and six sectors as TRANSFORMING.

Glass and Ceramics Cluster

From Table 4, the Glass and Ceramics cluster was designated as a TRANSFORMING cluster. There are five four digit NAICS sectors in this cluster shown in Table 18, of the five sectors, two were designated as MATURE, one as EMERGING and, two as TRANSFORMING.

Table 17. Rating Four Digit NAICS Sectors for the Forest and Wood Products Cluster.					
NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3222	Converted Paper Product Manufacturing	1.69	344	7.84%	STAR
3255	Paint, Coating, and Adhesive Manufacturing	1.32	151	41.12%	STAR
2381	Foundation, Structure, and Building Exterior Contractors	1.21	1,589	-74.51%	MATURE
2383	Building Finishing Contractors	1.30	1,619	-72.38%	MATURE
3211	Sawmills and Wood Preservation	4.98	84	-46.84%	MATURE
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	2.63	152	-53.94%	MATURE
3231	Printing and Related Support Activities	1.09	985	-34.33%	MATURE
3279	Other Nonmetallic Mineral Product Manufacturing	1.54	175	-29.15%	MATURE
3339	Other General Purpose Machinery Manufacturing	1.29	350	-7.41%	MATURE
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	1.04	278	-43.50%	MATURE
3372	Office Furniture (including Fixtures) Manufacturing	1.05	128	-48.39%	MATURE
3399	Other Miscellaneous Manufacturing	5.89	2,664	-24.08%	MATURE
3251	Basic Chemical Manufacturing	0.59	108	22.73%	EMERGING
3332	Industrial Machinery Manufacturing	0.52	31	19.23%	EMERGING
1153	Support Activities for Forestry	0.37	10	-47.37%	TRANSFORMING
3219	Other Wood Product Manufacturing	0.72	232	-36.26%	TRANSFORMING
3322	Cutlery and Handtool Manufacturing	0.16	10	-9.09%	TRANSFORMING
3379	Other Furniture Related Product Manufacturing	0.89	40	-62.26%	TRANSFORMING
4232	Furniture and Home Furnishing Merchant Wholesalers	0.33	61	-53.79%	TRANSFORMING
4233	Lumber and Other Construction Materials Merchant Wholesalers	0.70	229	-64.16%	TRANSFORMING

Table 18. Rating Four Digit NAICS Sectors for the Glass and Ceramics Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3273	Cement and Concrete Product Manufacturing	1.42	454	-44.84%	MATURE
3279	Other Nonmetallic Mineral Product Manufacturing	1.54	175	-29.15%	MATURE
3271	Clay Product and Refractory Manufacturing	0.53	17	0.00%	EMERGING
3272	Glass and Glass Product Manufacturing	0.52	40	-31.03%	TRANSFORMING
3328	Coating, Engraving, Heat Treating, and Allied Activities	0.38	97	-30.71%	TRANSFORMING

Information Technology and Telecommunications Cluster

From Table 4, the Information Technology and Telecommunications cluster was designated as a TRANSFORMING cluster. There are 22 four digit NAICS sectors in this cluster shown in Table 19, of the 22 sectors, three sectors were designated as STAR sectors (the Engine, Turbine, and Power Transmission Equipment Manufacturing Sector, the Communications Equipment Manufacturing Sector, and the Manufacturing and Reproducing Magnetic and Optical Media Sector) while four sectors were designated as MATURE, 10 as EMERGING, and five sectors as TRANSFORMING.

This cluster has many of the sectors in the new communication cluster. Given the just announced Apple Computer move to Reno, the sectors in this cluster may realize new and larger economic linkages. WNDD may want to monitor this cluster for future endeavors as they occur.

Machinery Manufacturing Cluster

From Table 4, the Machinery Manufacturing cluster was designated as a TRANSFORMING cluster. There are seven four digit NAICS sectors in this cluster shown in Table 20, of the seven sectors, one sector was designated as STAR sectors (Engine, Turbine, and Power Transmission Equipment Manufacturing Sector) while one sector was designated as MATURE, four as EMERGING, and one sector as TRANSFORMING.

When the state and national economies turnaround from the impacts of the “Great Depression”, this cluster may expand. Also this cluster will expand with increased economic linkages from an economic turnaround.

Table 19. Rating Four Digit NAICS Sectors for the Information Technology and Telecommunications Cluster, continued on next page.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	1.48	123	355.56%	STAR
3342	Communications Equipment Manufacturing	1.34	174	75.76%	STAR
3346	Manufacturing and Reproducing Magnetic and Optical Media	1.54	12	-	STAR
3344	Semiconductor and Other Electronic Component Manufacturing	1.71	600	-14.04%	MATURE
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2.83	1,532	-4.55%	MATURE
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	1.20	1,390	-9.27%	MATURE
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	2.34	1,449	-4.86%	MATURE
3332	Industrial Machinery Manufacturing	0.52	31	19.23%	EMERGING
3341	Computer and Peripheral Equipment Manufacturing	0.66	117	39.29%	EMERGING
3343	Audio and Video Equipment Manufacturing	0.53	21	50.00%	EMERGING
3353	Electrical Equipment Manufacturing	0.51	115	10.58%	EMERGING
5112	Software Publishers	0.28	147	30.09%	EMERGING
5182	Data Processing, Hosting, and Related Services	0.36	178	28.99%	EMERGING
5191	Other Information Services	0.62	183	60.53%	EMERGING
5415	Computer Systems Design and Related Services	0.32	969	13.20%	EMERGING
5416	Management, Scientific, and Technical Consulting Services	0.49	1,041	9.81%	EMERGING

Table 19. Rating Four Digit NAICS Sectors for the Information Technology and Telecommunications Cluster, continued.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
5417	Scientific Research and Development Services	0.59	763	3.39%	EMERGING
2382	Building Equipment Contractors	0.80	2,608	-51.88%	TRANSFORMING
3359	Other Electrical Equipment and Component Manufacturing	0.19	28	-86.47%	TRANSFORMING
5171	Wired Telecommunications Carriers	0.77	906	-15.88%	TRANSFORMING
5172	Wireless Telecommunications Carriers (except Satellite)	0.08	27	-81.12%	TRANSFORMING
5179	Other Telecommunications	0.10	23	-82.44%	TRANSFORMING

Table 20. Rating Four Digit NAICS Sectors for the Machinery Manufacturing Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	1.48	123	355.56%	STAR
3339	Other General Purpose Machinery Manufacturing	1.29	350	-7.41%	MATURE
3331	Agriculture, Construction, and Mining Machinery Manufacturing	0.04	7	250.00%	EMERGING
3332	Industrial Machinery Manufacturing	0.52	31	19.23%	EMERGING
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	0.86	225	80.00%	EMERGING
3335	Metalworking Machinery Manufacturing	0.59	152	29.91%	EMERGING
3333	Commercial and Service Industry Machinery Manufacturing	0.27	49	-82.12%	TRANSFORMING

Mining Cluster

From Table 4, the Mining cluster was designated as an EMERGING cluster. There are four four digit NAICS sectors in this cluster shown in Table 21, of the four sectors, two sectors were designated as MATURE, one as EMERGING, and one as TRANSFORMING.

Given the increase in gold prices, the mines of northern Nevada have seen expansion. For the WNDD Region, this gold mine expansion has occurred in Humboldt and Pershing counties. The support activities for the Mining Sector, and those activities are primarily investigating new potential mine sites and resources. WNDD Area may want to initiate activities that enhanced gold production in Humboldt and Pershing counties, and linkages to other economic sectors in the WNDD Region.

Primary Metal Manufacturing Cluster

From Table 4, the Primary Metal Manufacturing cluster was designated as a TRANSFORMING cluster. There are four four digit NAICS sectors in this cluster shown in Table 22, of the four sectors, one sector was designated as a STAR sector(Nonferrous Metal (except Aluminum) Production and Processing Sector) while one sector was designated as MATURE, and two sectors were designated as TRANSFORMING.

The Metal Manufacturing Cluster is impacted by regional and national economic activity. WNDD may want to find the businesses in the one STAR industry to determine activities to enhance the economic activity and linkages of these sectors.

Table 21. Rating Four Digit NAICS Sectors for the Mining Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
2122	Metal Ore Mining	27.91	2,045	-5.67%	MATURE
2123	Nonmetallic Mineral Mining and Quarrying	3.14	424	-24.42%	MATURE
2131	Support Activities for Mining	0.64	410	159.49%	EMERGING
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	0.71	167	-51.87%	TRANSFORMING

Table 22. Rating Four Digit NAICS Sectors for the Primary Metal Manufacturing Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3314	Nonferrous Metal (except Aluminum) Production and Processing	5.05	336	5.00%	STAR
3315	Foundries	6.59	368	-0.27%	MATURE
3312	Steel Product Manufacturing from Purchased Steel	0.12	5	-28.57%	TRANSFORMING
3313	Alumina and Aluminum Production and Processing	0.10	5	-64.29%	TRANSFORMING

Printing and Publishing Cluster

From Table 4, the Printing and Publishing cluster was designated as a TRANSFORMING cluster. There are 11 four digit NAICS sectors in this cluster shown in Table 23, of the 11 sectors, one sector was designated as a STAR sector (Other Professional, Scientific, and Technical Services) while three sectors were designated as MATURE, three as EMERGING, and four sectors as TRANSFORMING.

Transportation and Logistics Cluster

From Table 4, the Transportation and Logistics cluster was designated as a STAR cluster. There are 19 four digit NAICS sectors in this cluster shown in Table 24, of the 19 sectors, six sectors were designated as STAR sectors (the General Freight Trucking Sector, the Other Transit and Ground Passenger Transportation Sector, the Support Activities for Air Transportation Sector, the Local Messengers and Local Delivery Sector, the Warehousing and Storage Sector, and the Other Professional, Scientific, and Technical Services Sector) while six sectors were designated as MATURE, three as EMERGING, and four sectors as TRANSFORMING.

Sectors in the Transportation and Logistics Cluster may be of interest to the WNDD Area. Nonscheduled Air Transportation had become an expanded sector given the difficulty of obtaining commercial flights to gold mining areas. Also the Tahoe-Reno Industrial Center in Storey County greatly impacts this cluster and WNDD Area.

Table 23. Rating Four Digit NAICS Sectors for the Printing and Publishing Cluster.					
NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
5419	Other Professional, Scientific, and Technical Services	1.11	1,309	19.11%	STAR
3231	Printing and Related Support Activities	1.09	985	-34.33%	MATURE
3399	Other Miscellaneous Manufacturing	5.89	2,664	-24.08%	MATURE
5151	Radio and Television Broadcasting	2.82	524	-25.14%	MATURE
3259	Other Chemical Product and Preparation Manufacturing	0.53	64	18.52%	EMERGING
5191	Other Information Services	0.62	183	60.53%	EMERGING
5416	Management, Scientific, and Technical Consulting Services	0.49	1,041	9.81%	EMERGING
5111	Newspaper, Periodical, Book, and Directory Publishers	0.65	547	-44.75%	TRANSFORMING
5152	Cable and Other Subscription Programming	0.00	0	-100.00%	TRANSFORMING
5414	Specialized Design Services	0.82	167	-37.45%	TRANSFORMING
5418	Advertising, Public Relations, and Related Services	0.67	548	-0.18%	TRANSFORMING

Table 24. Rating Four Digit NAICS Sectors for the Transportation and Logistics Cluster.

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
4841	General Freight Trucking	1.18	2,126	3.71%	STAR
4859	Other Transit and Ground Passenger Transportation	2.48	130	11.11%	STAR
4881	Support Activities for Air Transportation	3.10	1,137	22.92%	STAR
4922	Local Messengers and Local Delivery	1.71	156	7.59%	STAR
4931	Warehousing and Storage	4.09	5,210	26.58%	STAR
5419	Other Professional, Scientific, and Technical Services	1.11	1,309	19.11%	STAR
4812	Nonscheduled Air Transportation	1.08	82	-30.51%	MATURE
4842	Specialized Freight Trucking	1.31	1,035	-19.14%	MATURE
4851	Urban Transit Systems	1.23	217	-11.79%	MATURE
4855	Charter Bus Industry	1.25	79	-22.55%	MATURE
4884	Support Activities for Road Transportation	1.65	271	-12.86%	MATURE
4921	Couriers and Express Delivery Services	1.68	1,551	-2.08%	MATURE
4862	Pipeline Transportation of Natural Gas	0.29	16	128.57%	EMERGING
4885	Freight Transportation Arrangement	0.47	165	19.57%	EMERGING
5416	Management, Scientific, and Technical Consulting Services	0.49	1,041	9.81%	EMERGING
4811	Scheduled Air Transportation	0.43	353	-40.07%	TRANSFORMING
4882	Support Activities for Rail Transportation	0.11	5	-50.00%	TRANSFORMING
4889	Other Support Activities for Transportation	0.61	21	-27.59%	TRANSFORMING
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	0.71	167	-51.87%	TRANSFORMING

Transportation Equipment Manufacturing Cluster

From Table 4, the Transportation Equipment Manufacturing cluster was designated as a TRANSFORMING cluster. There are six four digit NAICS sectors in this cluster shown in Table 25, of the six sectors, three were designated as MATURE, two as EMERGING, and two as TRANSFORMING.

Table 25. Rating Four Digit NAICS Sectors for the Transportation Equipment Manufacturing Cluster

NAICS Code	Name	2011 Location Quotient	2011 Employment	Percentage Change in Employment	Star, Mature, Emerging, or Transforming
3369	Other Transportation Equipment Manufacturing	1.83	87	-8.42%	MATURE
3361	Motor Vehicle Manufacturing	0.01	2	-	EMERGING
3362	Motor Vehicle Body and Trailer Manufacturing	0.84	124	195.24%	EMERGING
3363	Motor Vehicle Parts Manufacturing	0.53	357	-43.06%	TRANSFORMING
3366	Ship and Boat Building	0.36	20	-42.86%	TRANSFORMING
3369	Other Transportation Equipment Manufacturing	6.01	87	-5.43%	MATURE

Conclusions

This publication is an update of an older WNDD Cluster publication (Harris et al., 2012). For this publication WNDD is defined as the original eight WNDD counties plus Washoe County. The clusters were derived by the Southern Rural Development Center (SRDC) and results presented to the “Stronger Economics Together” (SET) workshop in Hawthorne, Nevada. Twenty two aggregated clusters were derived from WNDD and these clusters were designated as STARS, EMERGING, MATURE, and TRANSFORMING clusters.

Definitions of these designated clusters are listed below:

- STAR clusters are those whose WNDD employment ratio is larger than the nation and whose percentage change in employment from 2006 to 2011 was increasing or positive.
- MATURE clusters are those whose ratio of employment in the WNDD Study Area is larger than the nation and whose percentage change in employment from 2006 to 2011 was negative.
- EMERGING clusters are those whose ratio of employment with WNDD Study Area is lower than the nation but whose percentage change in employment from 2006 to 2011 was positive. Some of the EMERGING clusters may become specialized in the future.
- TRANSFORMING clusters are those whose ratio of employment in the WNDD Study Area is less than the nation and whose percentage change in employment from 2006 to 2011 was negative.

As often shown in regional economics, aggregated data may hide sectors that are STARS, but in an aggregated form shown as TRANSFORMING. This paper shows a disaggregated analysis of sectors by the twenty two major clusters.

