

# Industry Clusters

for the State of Colorado

Workforce Research & Analysis  
Labor Market Information  
Colorado Department of Labor & Employment



Construction



Public Utilities



General Manufacturing



Aerospace



Electric Components and Devices



Non-Metallic Mineral Products



Agricultural and Resource Production

Top 7 Clusters by Employment

0 %

5 %

10 %

15 %

20 %

25 %





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for the State of Colorado

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## **State Of Colorado**

Bill Owens, *Governor*

## **Colorado Department of Labor and Employment**

Jeff M. Wells, *Executive Director*

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Booker Graves, *Executive Director*

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## ***Executive Summary***

In September 2001, the Workforce Research and Analysis unit of Colorado's Labor Market Information (LMI) was sub-contracted by the Community Colleges of Colorado, under the Community Audit Grants awarded to The Colorado Workforce Development Council, to perform an analysis that will lead to identifying industry clusters for the state of Colorado and two sub-state regions. The sub-state regions are the Denver Metro Statistical Area (DMSA) and the Northwest & Rural Resort Job Vacancy Survey region. Over the course of the study, the study scope was narrowed to identifying industry clusters for the state of Colorado. Once the clusters were identified data from the LMI shop were used to analyse employment and wages by clusters, identify occupations in each cluster, and compare cluster employment for the state, Denver Metro and the Northwest and Rural Resort regions.

The aim of this analysis is to provide local Workforce Investment Boards with data and information to aid in their strategic planning for the delivery of employment and training services and principles provided for in the Workforce Investment Act. The results of the study in combination with other resources and data already provided by LMI will enable Workforce Center personnel to analyze industry clusters dynamics and occupations in different clusters in terms of their similarities and skill requirements and be able to advise customers on career paths and choices.

The study identified 21 industry clusters for the state of Colorado. Of these the following seven clusters stood out for their employment levels:

- Construction
- Public Utilities
- General Manufacturing
- Aerospace
- Electronic Components and Devices
- Non-Metallic Minerals Products, and
- Agricultural and Resource Production

Construction was the cluster with the most employment - approximately 181,000. This employment level is over 2 ½ times that of the next largest cluster. The smallest cluster identified was Logging and Wood Products, with employment of just under 1000.

Average annual wages for individual clusters ranged from \$28,102 for Meat Production to \$91,127 for Gas and Oil Refining and Related Products. The overall average annual wage for all clusters was \$47,299.

A total of 1,482 different occupations were found in this study - covering a variety of major occupational groups including: Management; Business and Financial Operations; Office and Administrative Support; Sales and Related; as well as in Production. Others are found in Installation, Maintenance and Repair; Transportation and Material Moving; Building and Ground Cleaning and Maintenance; and in Architecture and Engineering occupations.

Cluster employment is highly concentrated in the Denver Metro region. In 11 out of the 21 clusters identified, the Denver Metro region account for 60% or more of the total state cluster employment.

## ***Introduction***

Economic competition between states and between cities has become more pronounced in recent years. Booms and busts, the emergence of new industries and the euphoria surrounding the pre-adjustment growth, and a trend toward greater government involvement in the education of workers and facilitation of the labor market have all led to a renewed emphasis on understanding fundamentals of labor markets.

Many states have designed or implemented industry cluster related planning strategies as industry clusters have become a popular concept in local and regional planning. Even states that are not using defined industry cluster methodologies have adopted the so called "smart growth" policies that incorporate similar concepts within their development plans.

An industry cluster is a group of interrelated industries that drive wealth creation within a region, primarily through the export of goods and services. An industry cluster may consist of industries that share the same or similar workforce, factors of production or infrastructure. It may also be defined by the production of similar outputs, complementary output or other interdependent relations. Unlike the traditional Standard Industrial Classification (SIC) System or the North American Industry Classification System (NAICS), industry clusters represent the entire value chain of a broadly defined industry from shared suppliers to end products, including supporting services and specialized infrastructure. Analyses of industry clusters therefore, help in defining economic drivers (key industries) within a geographic region, and facilitate a better understanding of regional economies and how they evolve over time. Equipped with such analyses, economic planning agencies can formulate policies targeted to key industries that will promote competitiveness and further interrelationships among cluster industries and institutions with the potentials to contribute to the industry cluster development. Such development may entail job creation within the existing cluster, or through attraction of other industries from outside the region as well as improvement in incomes and therefore increasing the general standard of living in the region.

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## ***Methodology Overview***

The initial study was targeted at manufacturing industries rather than the economy as a whole. The main reason for this is that under the SIC system (now being replaced by the NAICS), manufacturing was emphasized and data was both more available and reliable. Other basic industries important to the Colorado economy though they are not precisely manufacturing oriented were later included in the analysis to improve results. These industries include agriculture, resource extraction and processing, and infrastructure.

The study utilized the input-output model and a combination of other statistical analyses to identify industry clusters for the state of Colorado. IMPLAN (Impact Analysis for PLANning) software, created by the Minnesota IMPLAN Group, Inc., was used to develop the State transactions matrix. This matrix was then imported into Statistical Software for Social Scientist (SPSS) where clusters were identified through factor analysis procedure.

Once industry clusters were identified, ES-202 employment data was used to analyze employment and wages. Occupational Employment Statistics staffing patterns were used to identify cluster occupations.

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## ***Data***

Major resources of data employed for this study include: Economic profile and transactions data provided through IMPLAN software, Industry employment and wage data through IMPLAN software, ES 202 data, as well as the Occupational Employment Statistics (OES) data - available through LMI. The Bureau of Economic Analysis serves as the major source for said

data to MIG, Inc., the developer of IMPLAN software.

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## ***Study Results***

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The results of this study are presented in several sections. The first three sections presents clusters identified, employment and wages highlighting the top 7 industry clusters by employment. The remainder of the report covers other clusters, cluster occupations, and regional comparisons - covering the State, Denver Metro and Northwest and Rural Resort regions. A short description of RDATA software - that can be used by workforce centers to analyze industry clusters is presented in Appendix 1.

### **Identified Industry Clusters**

The economic interpretation of the clusters identified by the factor analysis process began with the overall clusters themselves and proceeded with the individual industries included. Correlations between industries that were identified by the factor analysis could either represent true interrelated economic activity or mere coincidence - a simple artifact of the data. At this stage, some eliminations or combinations of clusters were deemed necessary based on criteria of economic logic, relevance, and consistency.

The most favorable result occurred with a model of 24 clusters. With subsequent analysis, there was the elimination of two clusters due to their inappropriateness in relation to the study and a combination of four other clusters, one of which (Heavy Vehicles & Trailers) contained only two industries and was deemed enough like the other to warrant the combination. Another cluster (Basic Chemicals & Compounds), had very low employment and it was decided that it would be better combined.

After analysis and editing the Colorado industry clusters identified in this report number 21 (Table 1). As would be expected, there is significant variation in characteristics from cluster-to-cluster and those will be addressed in the appropriate sections of the report.

One immediate observation about the list of clusters is their general nature. Though there has been a shift in the industry balance of the economy in Colorado, old-economy industries are prominent in the clusters identified by this study. As stated previously, this study focused on manufacturing , infrastructure, and resources. Thus, by design, there could be no retail, wholesale, or business services, etc. in the identified clusters. A future study,

with somewhat different methods and methodology, would be necessary for an adequate appraisal of the Services side of the economy. Nevertheless, the degree to which the resource-related industry groups are manifested in these clusters is notable.

*Table 1: Industry Clusters for the State Of Colorado*

Cluster Title
Construction
Public Utilities
General Manufacturing
Aerospace
Electric Components and Devices
Non-Metallic Mineral Products
Agricultural and Resource Production
Consumer Products
Fabricated Materials
Gas and Oil Refining and Related Products
Gas and Oil Well Maintenance and Repair
Plastics and Allied Chemicals
Ferrous Metal and Mineral Mining
Motor Vehicles and Parts Manufacturing and Repair
Meat Production
Pharmaceuticals
Food Processing and Packaging
Dairy Products
Non-Ferrous Metal Mining
Leather and Animal Products
Logging and Wood Products

Tables 2 shows cluster employment, percentage of total cluster employment and the 2001 average wages. A quick glance at this table will confirm that which most readers would suspect: Employment rank does not dictate average annual wage rank for clusters. While Construction ranked number one in employment, Gas and Oil Refining and Related Products ranked number one in average annual wage in 2001. Of the most significant clusters by employment, Electronic Components and Devices has the highest average annual wage.

Table 2: Cluster Employment and Wages

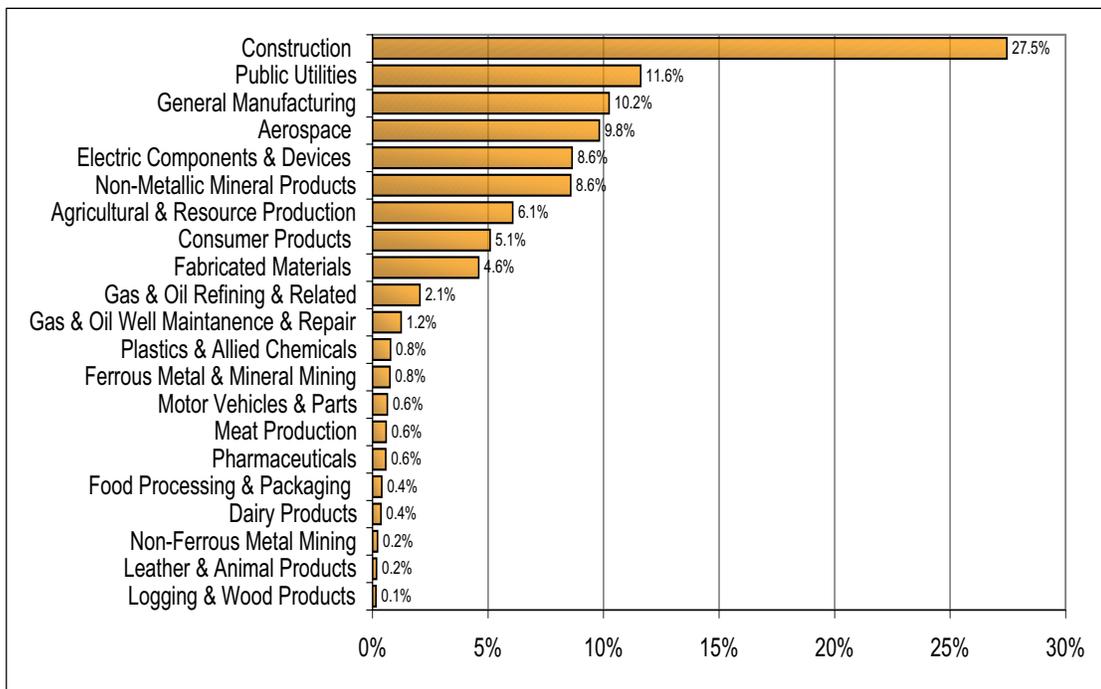
Cluster Title	Employment	% Cluster Employment	2001 Average Wages
Construction	181,276	27	\$40,161
Public Utilities	76,646	12	\$62,479
General Manufacturing	67,575	10	\$38,404
Aerospace	64,828	10	\$46,897
Electronic Components and Devices	57,018	9	\$66,486
Non-Metallic Mineral Products	56,625	9	\$38,652
Agricultural and Resource Production	42,659	6	\$40,992
Consumer Products	33,601	5	\$37,796
Fabricated Materials	30,370	5	\$30,945
Gas and Oil Refining and Related Products	13,544	2	\$91,127
Meat Production	9,543	1	\$25,105
Gas and Oil Well Maintenance and Repair	8,183	1	\$44,317
Plastics and Allied Chemicals	5,128	1	\$39,455
Ferrous Metal and Mineral Mining	4,961	1	\$52,683
Motor Vehicles and Parts Manufacturing and Repair	4,219	1	\$42,168
Pharmaceuticals	3,798	1	\$54,302
Food Processing and Packaging	2,647	0	\$41,314
Dairy Products	2,399	0	\$42,753
Non-Ferrous Metal Mining	1,403	0	\$90,096
Leather and Animal Products	1,120	0	\$33,976
Logging and Wood Products	946	0	\$33,169

## Employment

One way of evaluating the importance of clusters to the economy is to consider employment impacts. In 2001, the most recent year of data available in the Standard Industrial Classification (SIC) system, the Colorado economy had employment of almost 2.2 million (ES-202 data). Of that total, approximately 666,000 ended up being categorized in the basic industry/manufacturing cluster. As in the case of almost any population, there is significant variation in the levels of employment impact among the first few clusters. The decrease in employment concentration is quite steep across these clusters. Indeed, employment penetration into the Colorado economy is small after the first nine clusters. It should be remembered that this study represents a point in time and therefore gives no indication about the health of an individual cluster or whether the cluster is growing, receding, or static. This is one of the areas that require further analysis.

Figure 1 shows the percentage employment distribution by clusters. In this presentation, Construction, Public Utilities, General Manufacturing, Aerospace, Electronic Components and Devices, Non-Metallic Mineral Products and Agricultural and Resource Production are the dominant players, in terms of cluster employment.<sup>1</sup> All seven are of a different makeup, but represent fundamental aspects of the Colorado economy. Together, they account for approximately 547,000 employees, which is 82% of total cluster employment and 23% of the total State employment. Consumer Products and also Fabricated Materials are clusters that have significant employment. With these two clusters included, about 610,000 of the total cluster employment is accounted for, which is approximately 91% of the total.

Figure 1: Employment Distribution by Clusters



Source ES202

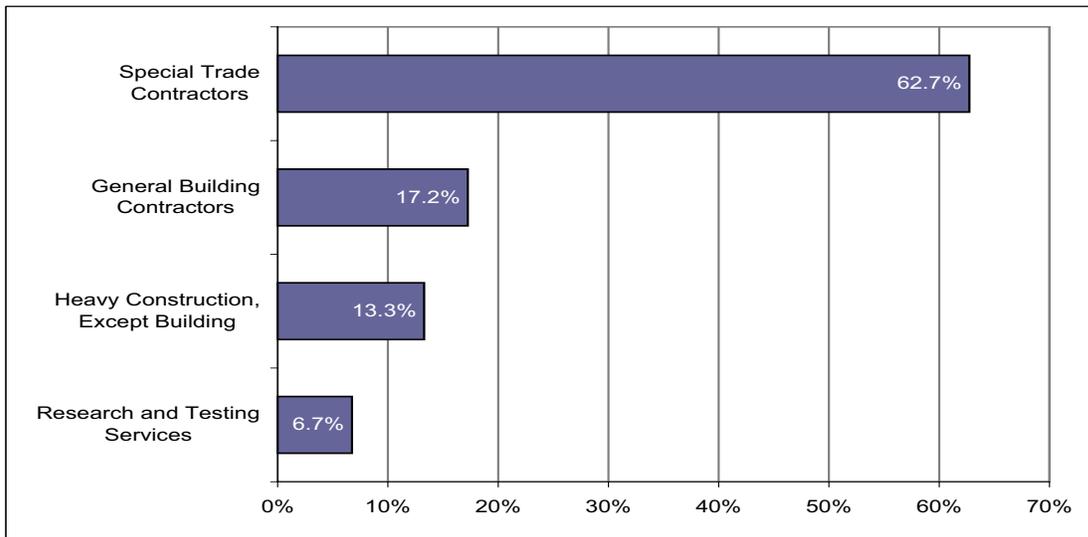
### Construction

The Construction cluster encompasses all areas of construction - residential, commercial, industrial, and governmental. In terms of employment impact, Construction is the largest cluster. In 2001, over 181,000 jobs were accounted for in this cluster. This is nearly 9% of the State total at that time and around 28% of the total employment identified in clusters. The industry group employment breakdown is simple, having only a small number of groups in this cluster. Indeed, the Construction cluster, with all its employment, is much more tightly focused on industry groups than any other major cluster.

<sup>1</sup>Total industry employment is accorded to every cluster for which the industry loaded.

As Figure 2 shows, Special Trade Contractors dominate this cluster accounting for 63% (approximately 114,000) of total cluster employment. Special Trade Contractors include Plumbing, Heating, and Air Conditioning; Painting and Paper Hanging; Electrical Work; Roofing, Siding, and Sheet Metal Work, etc. This would be expected, given that both new and existing structures require the work of these industries.

Figure 2: Employment Distribution by Industry - Construction Cluster



Source ES202

General Building Contractors (over 30,000 employment), Heavy Construction - except Building (about 24,000), Research and Testing Services (over 12,000) are the other industries included in this cluster.

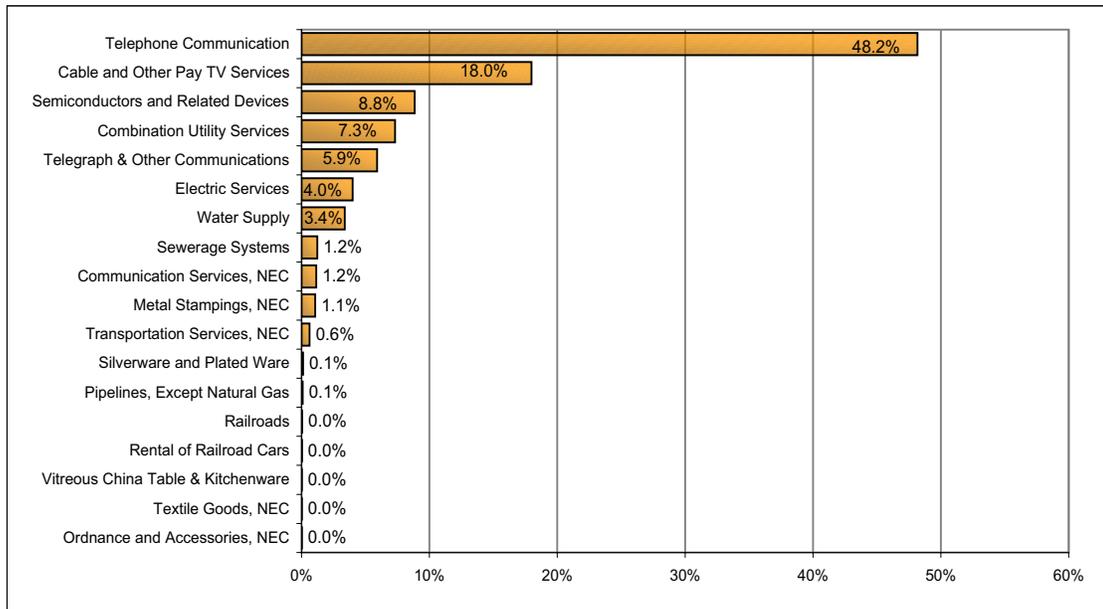
The housing market has gone through an extended period in which it was very strong - growing at an above-long term rate. Commercial space also experienced its own boom in the last few years. Demands for labor in the construction industries pushed the limits of the available labor. Other factors have contributed to the standing of the Construction cluster for the period studied. New stadiums have been built and also there has been a continued renaissance of the lower downtown area, a new Light Rail spur was built, and there was the beginning of the T-REX highway expansion and renovation project. All of these exceptional projects have contributed to the strength of the Construction cluster in this study.

That the Construction cluster is the largest in terms of employment most heavily impacts blue collar workers, of course. There is a large source of demand for both unskilled and skilled workers, unskilled workers often needing opportunity the most. While the market is robust, workers with little or no experience benefit greatly by the increased labor demand.

## Public Utilities

The Public Utilities cluster includes basic infrastructure such as telecommunications, cable and satellite, water and sewage, electricity, and railroads. All, except for railroads, are manifest in the first eight industry groups by employment in this cluster. In total, the cluster has 18 industry groups. Telephone Communications is, by far, the leading industry in this cluster with Cable and Other Pay TV Services a distant second. Telephone Communication encompasses over 36,000 employees, which is almost 48% of the cluster's total. Cable and Other Pay TV Services has over 13,000 employees, almost 18% of the total.

Figure 3 Employment Distribution by Industry - Public Utilities Cluster



Source ES202

That there is a large presence in Telephone Communication and also Cable and Other Pay TV Services is not news. It may, however, have been an expectation that there would be a Telecommunications/Cable/Satellite cluster. As it turned out in the analysis of Colorado transactions data, those industry groups didn't separate out. A contributing factor for this may be that these industries tend to have large interstate expenditure levels.

In terms of percentage of employment, most of the industry groups in this cluster are insignificant. Yet, these industries may be critical for certain of their outputs. Other ways to evaluate the industries, not addressed in this study, include evaluation based on sales or value-added. Still another method - particularly important for policy and budget purposes - would be to use business taxes paid. Any of these alternative methods may produce a different ordering of magnitude in the industry groups.

## **General Manufacturing**

This cluster is the most encompassing of the 21 clusters in terms of number of industry groups. In its final form, a full 191 industry groups were identified as having significant loading (roughly, correlation) by the factor analysis and established criteria. Those industry groups account for cluster employment of over 67,000. This figure is just over 10% of the employment in all clusters and 3% of total State employment in 2001 (ES202). A cluster with this kind of inclusiveness may seem to strain the purpose of industry cluster analysis in the first place.

Because of its comprehensive nature, the interpretation of General Manufacturing as a cluster has been specifically challenging. An examination of the industries within General Manufacturing indicates that the cluster is indeed, a wide ranging one, inclusive of many types of industries. It is not, as in the case with some other clusters such as Electronic Components & Devices or Construction, easy to see the economic connection between the industries other than the kind connecting all industries. It is also a characteristic of factor analysis to start with all study individuals in one group and then separate them according to mathematical criteria. Thus, the first cluster is frequently highly inclusive and inclusive in a way that is a mathematical idiosyncrasy rather than based on a true relationship.

That factor analysis does have a tendency to over-group at times does not mean that the cluster is always without merit. In this case, the cluster component industries do represent a cross section of industries requiring general manufacturing. The U.S. Industry & Trade Outlook, produced by the Department of Commerce recognizes such broadly distributed manufacturing in their industry classification. In their classification it is referred to as General Component. It is based on the examination of the component industries and this standing classification that the cluster is included in the report rather than being excised from the model.

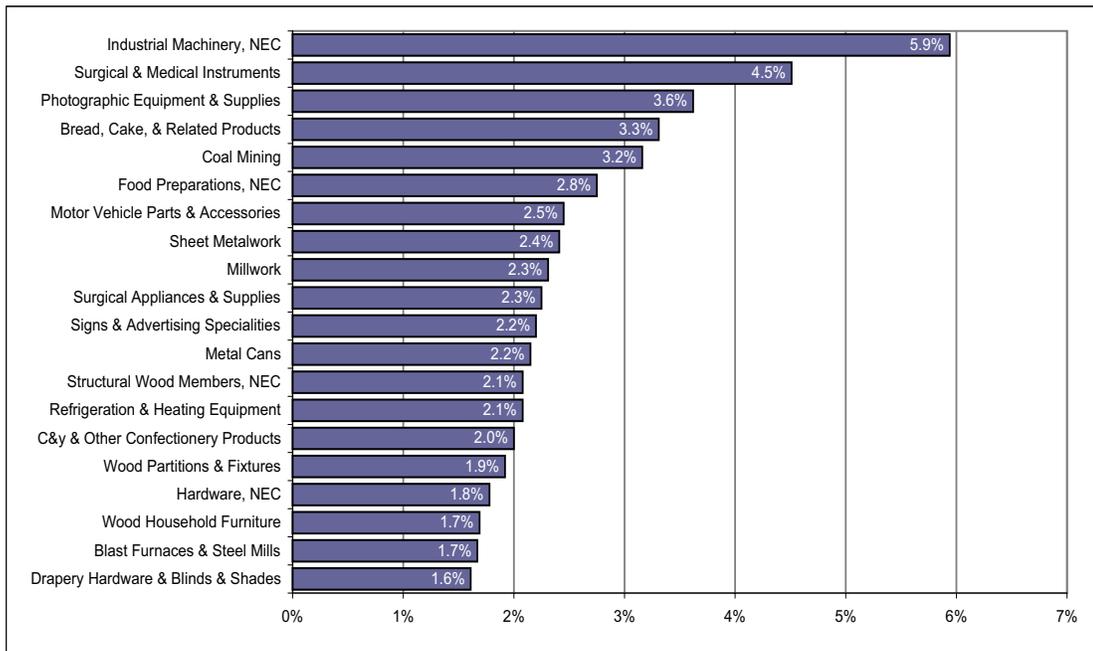
Of the industries that are included in this cluster, almost 90% had their highest loading, or correlation, with General Manufacturing rather than other clusters with which they might also have association. However, as an attempt to provide some delineation between legitimate, clustered, industry groups and those grouped as a simple characteristic of factor analysis, an additional step has been taken for this report. Those industry groups with significant loadings in other clusters were eliminated from this cluster. Further, industry groups clearly of a non-manufacturing nature, such as construction or landscaping, were also excised from the original cluster.

The rationale was that, since other clusters are more specific in nature than is the General Manufacturing cluster, significant loading in those clusters offers more useful information and plausibility than association with a general cluster such as General Manufacturing. This is not a perfect solution, of course. Significant loadings with more than one cluster are consistent with factor analysis and industry cluster theory. Such editing was enacted as a compromise in order to maximize information from the factor analysis process.

Figure 4 presents the industry group percentages of the total employment in the cluster. Industrial Machinery NEC, Surgical and Medical Instruments, Photographic Equipment and Supplies, Bread Cake and Related Products, and Coal Mining round out the top five of industry groups by employment. It is notable that employment is spread across a broad range of industry groups, making it a diverse cluster without the strong center of gravity that some clusters have.

The 20 industry groups in Figure 4 represent approximately 52% of the total cluster employment. Still, the industry groups are relatively small in terms of employment. Industry Machinery, NEC, the largest, has employment only around 4,000. This seems consistent with a cluster of General Manufacturing wherein there are many small, and many times independent, firms that engage in miscellaneous niche manufacturing.

Figure 4: Employment Distribution for Top 20 Industries - General Manufacturing Cluster

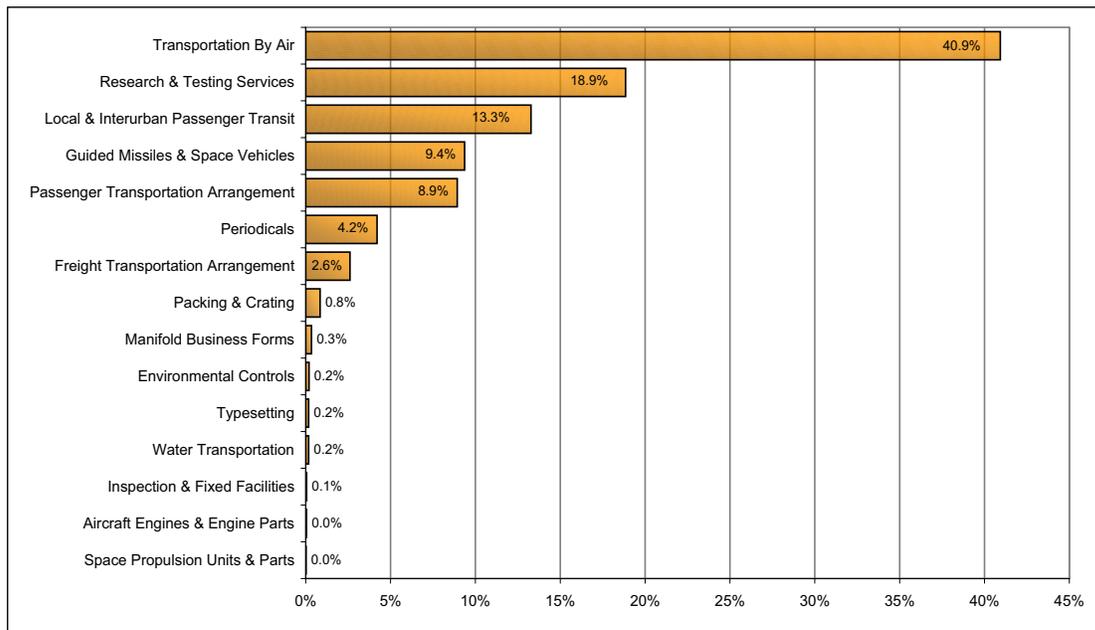


Source ES202

## Aerospace

The Aerospace cluster has two diverse characteristics. It includes typical aerospace manufacturing, research and development. It also includes air transportation. In terms of industry groups, the Aerospace cluster has a nature almost opposite that of the General Manufacturing. It is more like the Construction cluster in that the Aerospace cluster has one clearly dominant industry group and a few others with significant employment. This cluster is also marked by large employers - airlines, space vehicles manufacturing, defense contracting, air freight, etc. Of the seven industry groups with any significant employment, four are related to air transportation - either air transportation itself or ground transportation related to air transportation services. In fact, the most prominent industry cluster is Transportation by Air, accounting for 41% of the cluster employment (over 26,000).

Figure 5: Employment Distribution by Industry - Aerospace Cluster



Source ES202

Aerospace manufacturing makes a strong showing too, with Research and Testing Services having employment of over 12,000; which is about 19% of the cluster employment. Guided Missiles and Space Vehicles is also significant with over 6,000 employment (over 9%). The other industry groups have no significant employment, by comparison, but once again, could provide highly important inputs for firms in this cluster. A value-added analysis would probably reveal a different order too, given the presence of defense and space vehicle manufacturing. The space and defense industries tend to have employment marked by spikes of hiring and layoffs, according to the status of government contracts. Likewise, air transportation is in a period

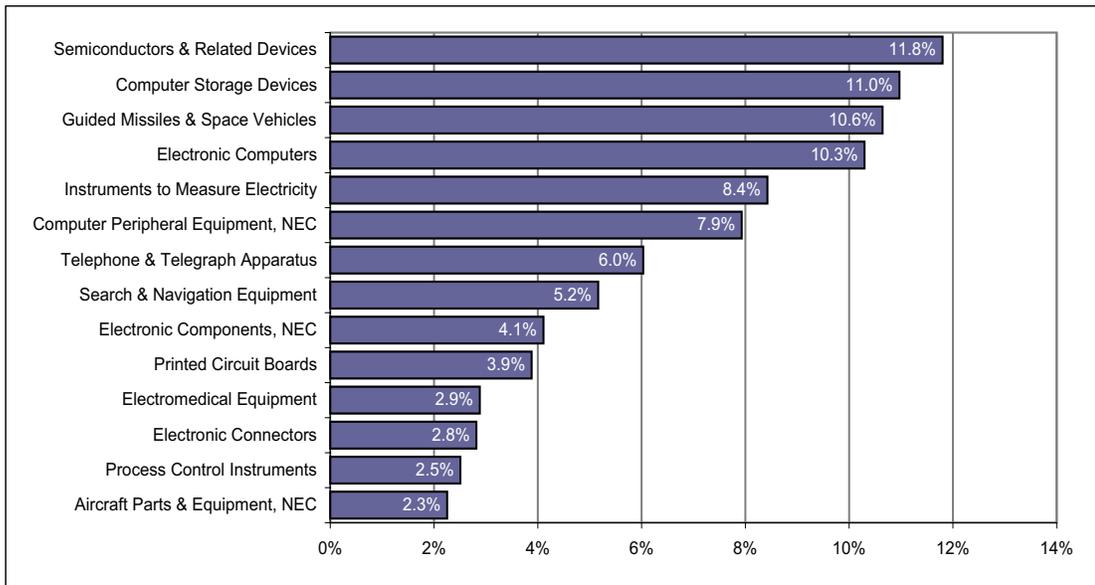
of volatility with great financial uncertainty. As a result, this cluster could change its makeup considerably over a few years.

### Electronic Component & Devices

The Electronic Components & Devices cluster is one of the easier clusters to identify. There is a clear relationship between electronic components and each of the top 14 industries. In this cluster, there is no overwhelmingly dominant industry group. Rather, there are several prominent industry groups - all of them related to computers in one way or another. The cluster has total employment of just over 57,000, which is almost 9% of the total cluster employment in the study and 2.6% of total state employment. It has the fifth highest employment of the 21 clusters. The most prominent industries, the top eight, account for over 40,000 of employment, 71% of the cluster total. The top 14 account for 90% of cluster employment.

This is a cluster that would be expected to be emerging, given the evolution of the U.S. economy and the creation and growth of various chip, storage, communications, and infrastructure manufacturing companies. Though this cluster has a strong presence of large firms, it is also a cluster dotted with smaller firms as well. Having a strong and growing Electronic Components & Devices cluster is a source of diversity, fundamental manufacturing support, and innovation in this increasingly high tech economy.

Figure 6: Employment Distribution for Top 14 Industries - Electronic Component & Devices Cluster



Source ES202

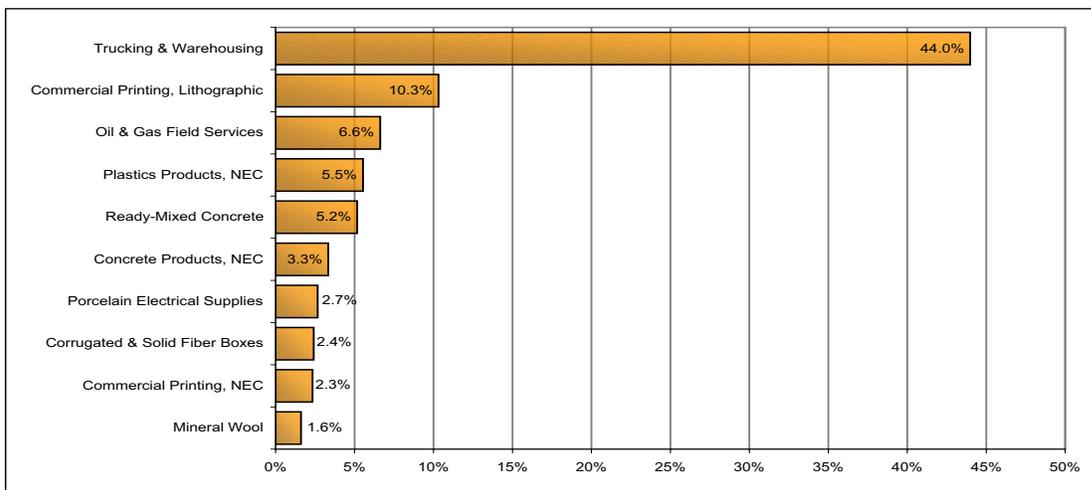
## Non-metallic Mineral Products

This cluster represents both the processing of non-metallic minerals and products resultant from them. There are 70 industry groups included in the Non-metallic Mineral Products cluster, accounting for employment of over 56,000 which is just under 9% of the cluster employment total for the study and just under 3% of the state total. The cluster is only slightly smaller than Aerospace.

With the exception of Trucking and Warehousing, all of the top 15 industries involve, or are related to, non-metallic minerals products. Trucking and Warehousing is the most dominant industry group - accounting for 44% of cluster employment - presumably because Non-metallic mineral products, including gravel mining, depend on heavy vehicle transportation and also storage. Beyond that industry group, there is more of a mixture, an eclectic group of users and producers of non-metallic mineral products. These include diverse industries as printing, oil and gas, plastics, box production and concrete production. Other than Trucking and Warehousing, only Commercial Printing, Lithographic is in double digits in employment percentage

Given the fundamental nature of this cluster, one would expect a generally stable employment picture, not that economic conditions wouldn't create peaks and valleys.

*Figure 7: Employment Distribution for the 10 Top Industries - Non-Metallic Mineral Products Cluster*



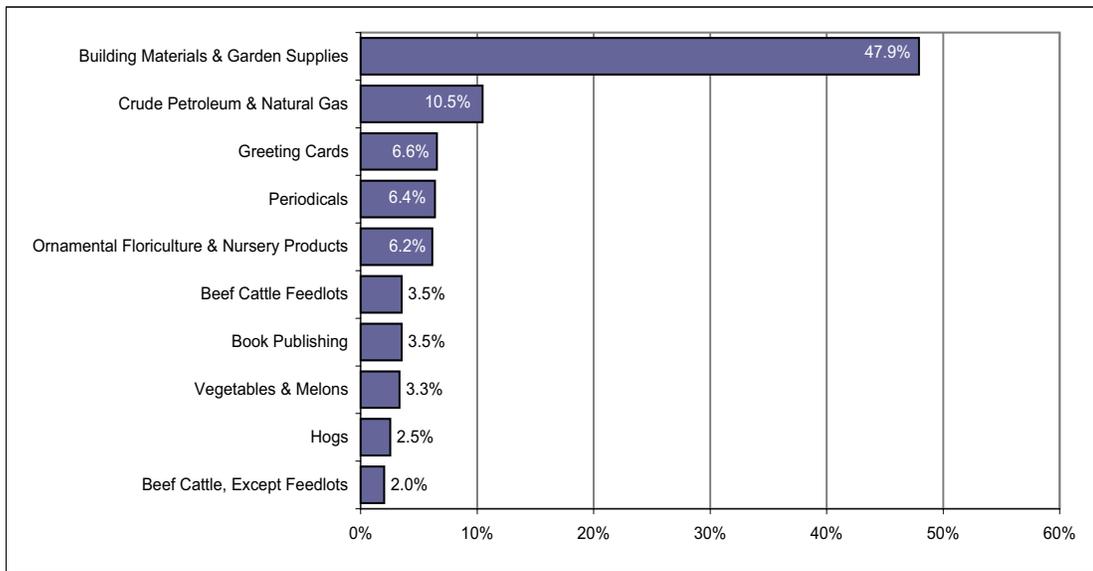
Source ES202

Non-metallic Mineral Products is a cluster which undergirds other industries, providing as it does, clay, ceramic, pottery, concrete products, etc. Construction, maintenance, and certain manufacturing industries rely on products from this cluster. The cluster, Ferrous Mineral Mining & Processing, is the one with which Non-metallic Mineral Products is associated, having eight industries that load significantly on both. These shared industries are: Brick and Structural Clay Tile, Mineral Wool; Carbon and Graphite Products; Hydraulic Cement; Potash, Soda, and Borate Minerals; Phosphate Rock; and Chemical Fertilizer Mineral Manufacturing.

### Agricultural and Resource Production

Agricultural and Resource Production is another cluster with an array of industry groups. The cluster encompasses 40,000 in employment, which are 1.8% of the state total and 6.1% of the total employment by clusters.

Figure 8: Employment Distribution for the Top 10 Industries - Agricultural and Resource Production Cluster



Source ES202

Building Materials & Gardening Supplies is by far the most dominant industry group accounting for more than 51% of the total employment in this cluster. The dominance of this industry group is in line with the building boom in various parts of the state (Denver, in particular) over the last few years. Each of the remaining industry groups account for less than 10% employment.

The presence of Crude Petroleum and Natural Gas, Beef and Cattle Feedlots, Vegetables and Melons, or Hogs is not surprising as they are a part of Resource production as well. They, as in case of the remaining industry

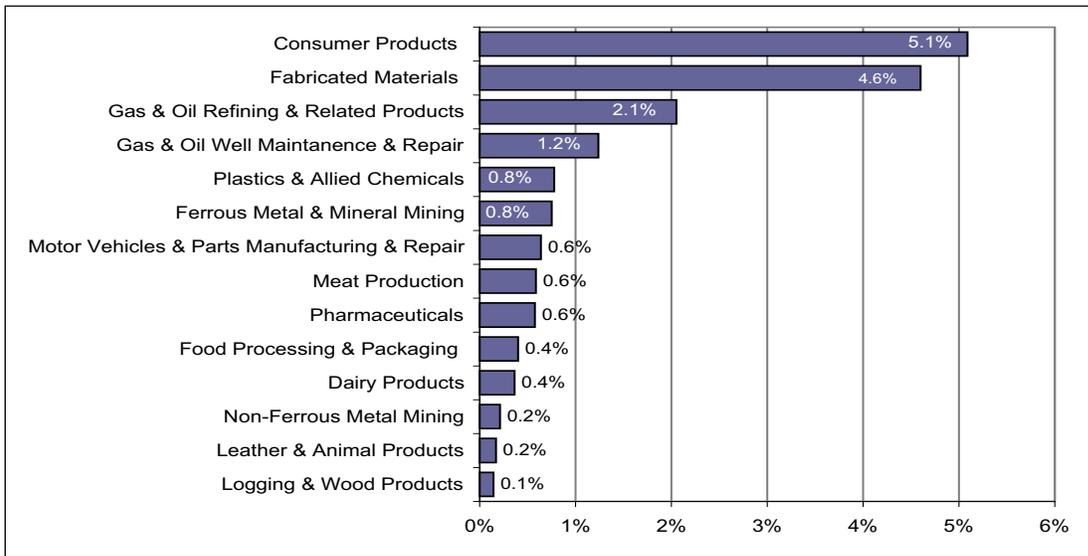
groups, are small by comparison to Building Materials & Gardening Supplies.

The curious aspect of this cluster is the presence of the printing/publishing sector. Greeting Cards and Periodicals each account for almost 7% in employment. Book Publishing accounts for almost 4% of the cluster employment. What is difficult is to ascertain their connection with the rest of the cluster.

### Other Clusters

The remaining 14 clusters account for 18% of the total employment in all clusters. While employment vary from a low of 945 in the logging and Wood Products cluster to over 33,000 in the consumer Products cluster, more than two-thirds is concentrated in the top three clusters. Consumer Products which includes Building Materials and Garden Supplies, Malt Beverages, Miscellaneous Publishing, Periodicals and Canned Soft Drinks, accounts for 5.1% of the total cluster employment. Fabricated Materials cluster follows with 4.6%.

Figure 9: Employment Distribution - Other Clusters



Source ES202

Beyond the above-mentioned clusters, the gas and oil industries account for not one, but two clusters identified by the factor analysis. Gas and Oil Refining and Related Products had an employment level of over 13,000, while Gas and Oil Well Maintenance and Repair accounted for another 8,000. Being two clusters marked by industries with volatile employment characteristics, these clusters could rise and fall dramatically, in terms of employment importance, over time. A greater awareness, and evidently focus, on the Rocky Mountain region regarding gas reserves means there could well continue to be greater exploration and production activity for a

number of years to come. The health of industry groups are dependent on public policy more than most industry groups and particularly in the case of oil, the market is more international than national.

Other clusters of interest include Pharmaceuticals (approximately 3800), Meat Production (over 9500), and Motor Vehicles and Parts Manufacturing and Repair (over 4200).

*Pharmaceutical* is of note because of its inclusion of biotechnology activity. This is a cluster that should be emerging in the economy. At this stage of their development, the success or failure of firms is quite volatile and dependent on the fortunes of each line of research and each product. There is also interaction with firms that produce animals feeds, some of which require medicated supplements. The firms contained within this cluster tend to be relatively small and rely on the availability of a highly educated workforce.

*Meat Production* is a cluster which makes its largest impact away from the larger urban areas. Instead, it is on the eastern plains of Colorado that the benefits of these industries are accrued. Meat Packing is a major employment impact in Greeley, though its level has decreased in recent years. Although beef production is a long-term staple of the Weld County economy, other producers in this cluster are newer. Hog producers have moved into Colorado in recent years, and have offered areas on the plains a needed employment boosts.

*Motor Vehicle and Parts Manufacturing and Repair* includes a good range of motorized vehicles and parts manufacturing, as well as repair. Motor homes, buses, boats, motorcycles and bicycles, and farm machinery are all part of the mix. Further, accessories and parts, such as trailers and engines, are also manufactured and included in this cluster.

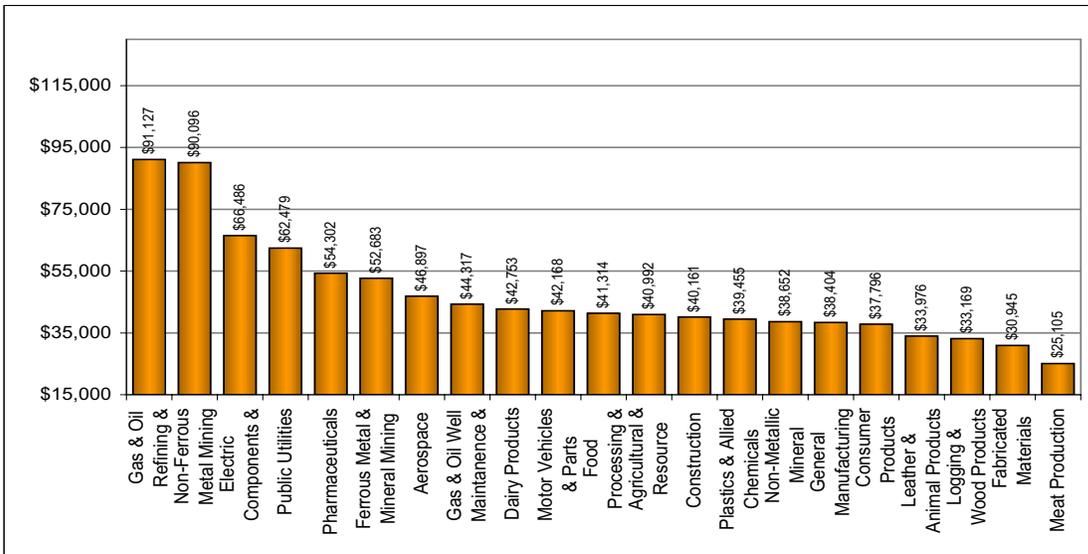
## **Wages**

Another important aspect of cluster activity to consider is that of wages. In this study, Wage data was obtained from ES202 data. A look at the ranking of average annual wages reveals that such a ranking does not duplicate the order of the employment ranking.

Gas and Oil Refining is the industry group that has the highest average annual wage, at \$91,127. Non-Ferrous Metal Mining has a wage that is close behind at \$90,096. There is a significant drop to the next level of average annual wage, which includes Electronic Components and Devices and also Public Utilities. Thereafter, there is a very gradual decline in wages for each

subsequent cluster until the last 4 industry groups where the drop is more significant again. The overall average wage range is from a low of \$28,102 to the aforementioned high of \$91,127. The overall average wage for all clusters (average of the averages) is \$47,299. The majority of clusters have average annual wages that are within a fairly narrow range. The average wages for the 11 clusters from Aerospace through Consumer Products varies from \$37,796 to just under \$46,897.

Figure 10: Average Wage Distribution By Cluster



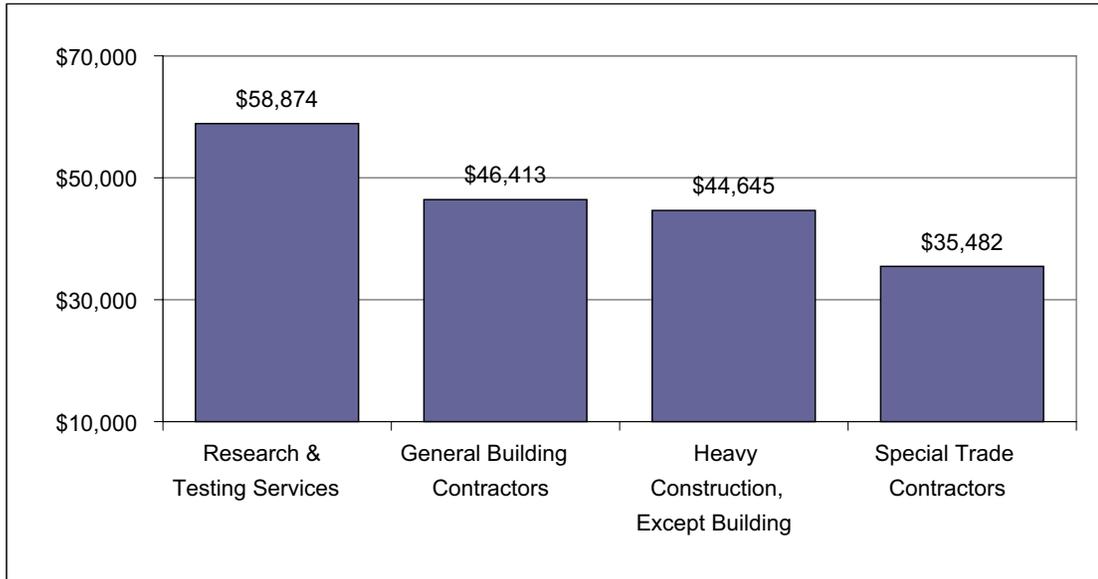
Source ES202

As with the case of employment, economic conditions exert pressures which can cause fluctuations in the values reported here. Changes in labor demand can force employers to raise wages and the value of benefit packages, as happened in the late 1990s, or allow them to be more particular and offer less for more. Despite this, there is enough diversity in most clusters to cushion major fluctuations. Exceptions might be those industries that are involved with energy and resource extraction or government contracts.

### Construction

The Construction cluster's 181,000-plus employment is split into four Standard Industrial Classification (SIC) industry groups. Each of these four SICs has its average annual wage. The average annual wage for its component industry groups is \$40,161. Three of those four SICs were above the average wage for all clusters with a high wage of \$58,874 and a low of \$35,482. Research and Testing Services has the high average, reflecting the high education and more technical nature of that SIC. General Building Contractors, in their managerial positions, has an annual average wage of \$46,413. Heavy Construction has nearly the same average annual wage with \$44,645.

Figure 11: Average Wage Distribution by Industry - Construction Cluster



Source ES202

Special Trade Contractors has the lowest of the wage averages and reflects a different mix of characteristics. Special Trade Contractors have a greater mix of maintenance and repair work and have a greater degree of work in residential market. Special Trade Contractors tend to be smaller and more entrepreneurial as well and thus not able to engage in some of the more highly paid projects.

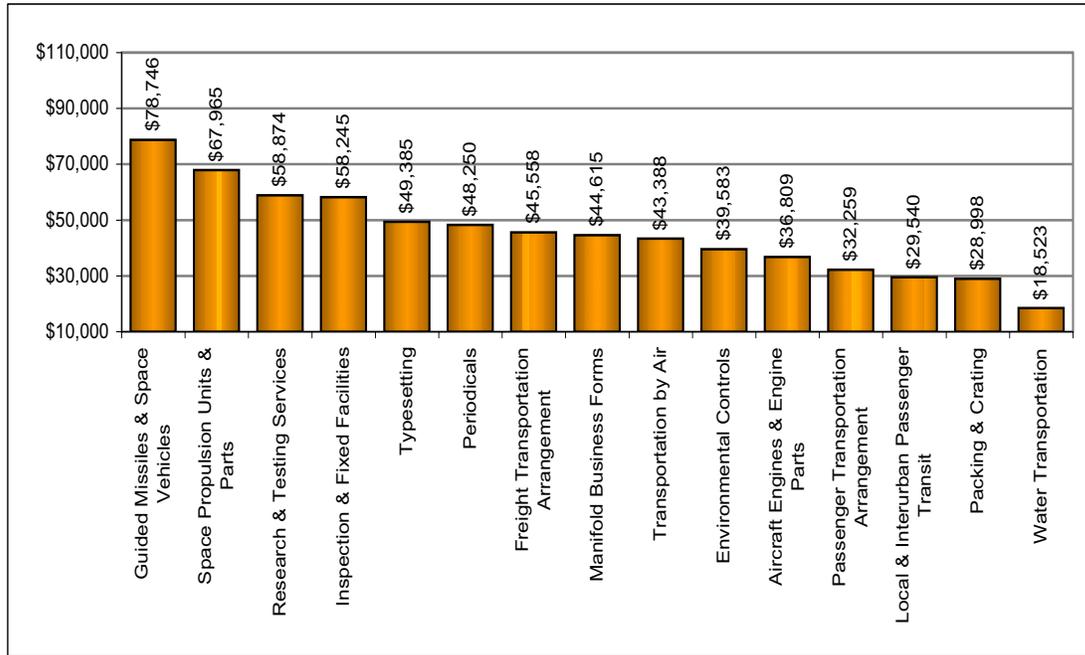
### Public Utilities

Public Utilities, with its second-ranked employment of over 76,000, is much more diverse in its industry group distribution than was Construction. The cluster has a total of 18 industry groups included with a weighted average annual wage of just over \$62,000. This is well above average for all clusters. The industry group with the most employment, by far, is Telephone Communication. The average annual wage for this industry group is approximately \$65,000, heavily influencing the final weighted average. Also having significant influence above the average were Telegraph & Other Communications (\$96,723) and Semiconductors and Related Devices (\$64,187). On the down side of the cluster average were significant employment from Electric Services (\$57,115), Cable and Other TV Services (\$54,201), and Water Supply (\$40,041).

Within the Public Utilities cluster, wages are also generally tiered by the type of industry. Communications and electronic parts manufacturing hold the highest tier of wages, down to around \$60,000. Energy production and transportation and also cable TV hold the next tier, from about \$59,000 to \$54,000. Then there is water supply and sewage activities, which at around

\$40,000 - \$41,000. Last, there are the transportation activities - mainly the railroads, which have a range of \$33,000 down to about \$25,000.

Figure 12: Average Wage Distribution by Industry - Public Utilities Cluster



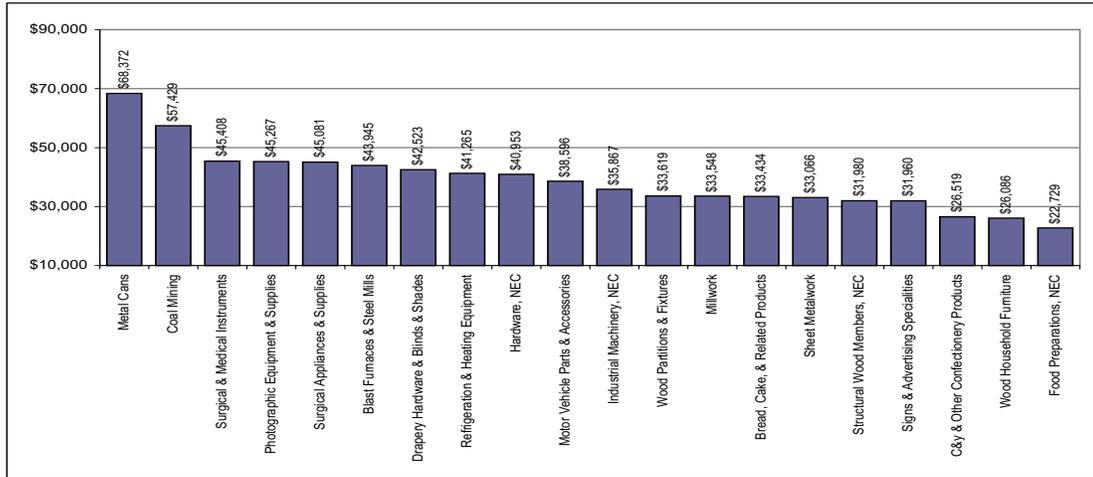
Source ES202

Generally speaking, the distribution of wages in this cluster, as would be expected in most clusters, seems to have a direct relationship to the level of education and skill required as well as the technical nature of the industry groups.

### General Manufacturing

As stated in the employment section of this report, General Manufacturing has, by far, the most component industry group (191). The weighted average annual wage for these industry groups is \$38,404 with a range from \$3,318 to \$68,372. Approximately two-thirds of the industries have average wages below the overall cluster average. The average of General Manufacturing is well below the overall average for all clusters, indicating that most of the manufacturing represented is not highly technical. Indeed, taking a look at the top 20 industry groups, it is apparent that the industries having the higher wages do seem to be those that are either represented by unions or are more technical in their natures. The wages for industries in the low end of the wage scale seem to be of the kind that are often smaller operations and could be influenced by part-time work.

Figure 13: Average Wage Distribution for the Top 20 Industries - General Manufacturing Cluster

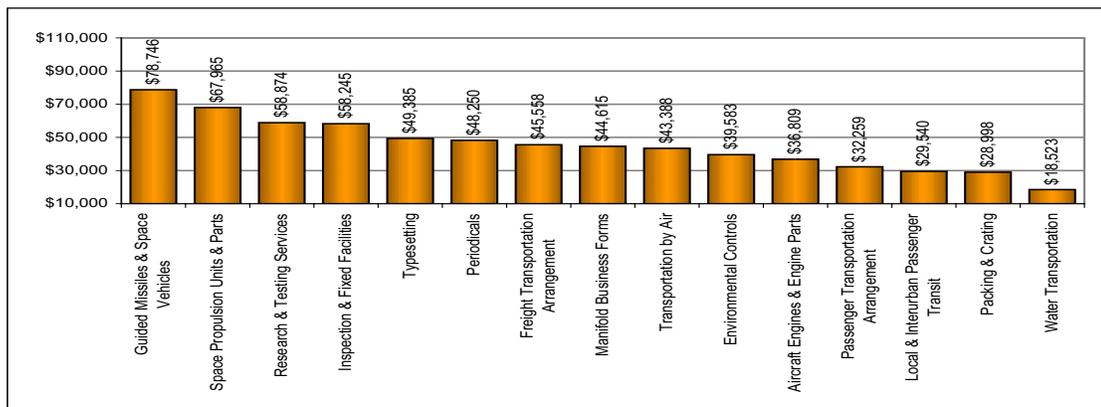


Source ES2001

### Aerospace

Aerospace is a modest sized cluster, having 15 industry groups. The weighted average annual wage is \$46,897, only slightly above the overall average for all clusters. The cluster's employment is dominated by air transportation and accompanying industries, but it is the space industries portion of aerospace that is at the top of the wages list. Space industries include technical jobs that require high levels of education and the wages reflect this. Guided Missiles and Space Vehicles has the highest average wage at \$78,746. Space Propulsion Units and Parts was second with an average wage was \$67,965. Research and Testing Services and Inspection and Fixed Facilities followed. All are well above the average wage.

Figure 14: Average Wage Distribution by Industry - Aerospace Clusters



Source ES202

On the other hand, all of the industries directly related to air transportation were below the average wage. The highest wage for air transportation was

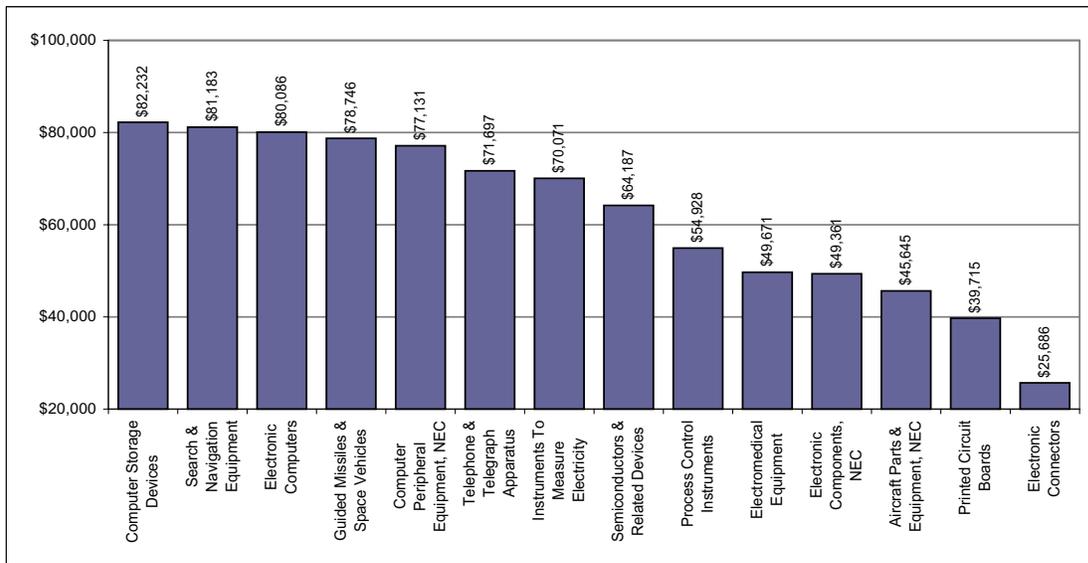
in Freight Transportation Arrangement at \$45,558. Only Typesetting and also Periodicals, which are indirectly related to aerospace, had average wages above the cluster average with wages at \$49,385 and \$48,250, respectively.

The low end of the wage scale in this cluster are with what amount to support industries, with the exception of water transportation. Since there is no water transportation in Colorado in the usual sense, the water transportation identified here is most probably related to whitewater rafting. This industry is heavily dependent on out-of-state tourists, which in turn, frequently use air transportation to arrive here.

### Electronic Components and Devices

The cluster name conveys the technical nature of those industries included in this cluster. There is a variety of manufacturing in this area. Computer, storage, aerospace, semiconductor, and telecommunications are some of the manufacturing areas this cluster encompasses. The jobs often require high education and high skill and wages reflect these factors. The weighted average annual wage is the third highest of all the clusters and the highest of all of the top seven (by employment).

Figure 15: Average Wage Distribution for the Top 14 Industries - Electronic Component & Devices Cluster



Source ES202

The fourteen industry groups shown in figure 15 account for 90% of cluster employment and thus provide wage data for the bulk of job opportunities in the cluster. There are 36 industry groups in this cluster, having a weighted average annual wage of \$66,486. This is approximately \$20,000 above the average annual wage for all clusters. Wages range from \$25,686 to \$82,232. At the high end of the spectrum are more esoteric industry groups such as

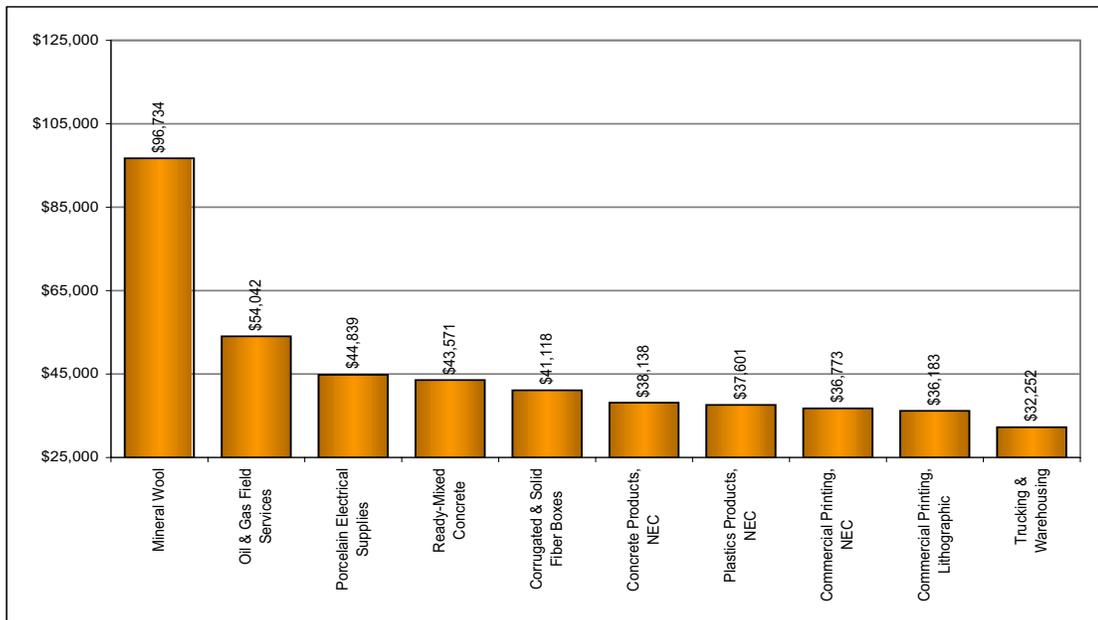
Computer Storage Devices, Search and Navigation Equipment, Electronic Computers, and Guided Missiles and Space Vehicles. At the low end are the more basic manufacturing processes in industry groups such as Electronic Coils and Transformers, Engine Electrical Equipment, Electronic Connectors, and Electronic Capacitors.

The Electronic Components and Devices cluster is one of those that, as with the rest of the nation, has been, and should continue to be, an emerging cluster. Thus, it is an obvious choice for job-seekers, individuals choosing careers, and policymakers, alike to have as an area to focus on.

### Non-Metallic Mineral Products

There are 70 industry groups that make-up this cluster and its employment makes Non-Metallic Mineral Products the 6th largest of the study. The weighted average annual wage was \$38,259, well below the overall average for all clusters. Wages range from a high of \$131,336 to a low of \$8,751. There are many peculiarities in the wages reported for this cluster. The industry group with the highest wage is one with only one reported position. This is obviously an executive position, probably president. The wage is therefore certainly not representative of the industry as a whole. Meanwhile, Phosphatic Fertilizers, Tires and Inner Tubes, and Chemical and Fertilizer Mining, NEC - other leading wage industry groups - report 3, 10, and 1 jobs, respectively. This means four of the top five wage industry groups reported little employment.

Figure 16: Average Wage Distribution for the Top 10 Industries - Non-Metallic Mineral Products Cluster



Source ES202

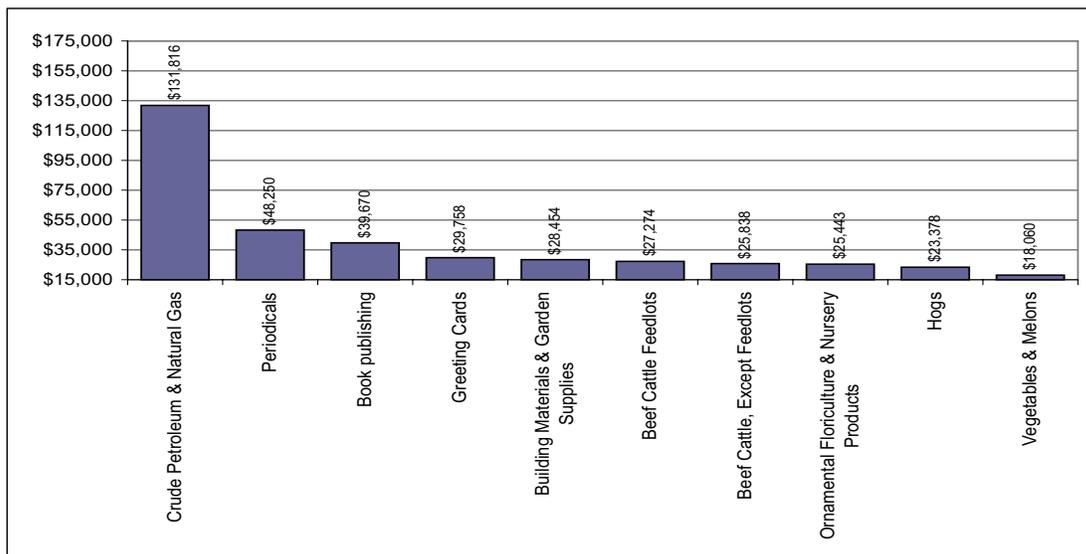
On the other hand, Mineral Wool had the second highest average wage and was reported to have over 900 in employment. As the average annual wage dropped into the \$60,000 range, employment became more consistent reasonable for wage profile purposes. At the low end of the wage scale, the employment levels again became inconsistent and frequently too low for any kind of decent profile.

The largest employer of the cluster - and the one that heavily influenced the average annual wage - is Trucking and Warehousing. This industry cluster had a full 44% of the cluster employment. While it is difficult to conclude that Trucking and Warehousing is the driving industry group of the cluster, it certainly provides more employment opportunities than any other industry group. The average wage is below the average for the cluster (\$32,252 vs. \$38,259) and far below the average annual wage for all the clusters (\$47,299). This lower wage than average is not atypical for transportation oriented employment, however.

### Agricultural and Resource Production

There are 26 industry groups included in this cluster, with a weighted average annual wage of \$40,992, which is below the overall average. The range is wide, from \$15,338 to \$131,816, but only four industry groups have average annual wages above the overall average. It is the Crude Petroleum and Natural Gas industry group, with its cluster high wage, that mainly pulls up the average. On the other hand, Building Materials and Gardening Supplies, with its 20,000-plus employment and average annual wage of \$28,454, drew down the cluster average dramatically.

Figure 17: Average Wage Distribution for the Top 10 Industries - Agricultural and Resource Production Cluster



Source ES202

Figure 17 presents average wage distribution for the top 10 industry by employment in this sector. Crude Petroleum and Natural Gas had over 4,400 in employment in 2001, which was the highest figure aside from Building Materials and Gardening Supplies. It's high average wage is indicative of the skill levels frequently required, the specialization, and also the resurgence of the industry group in Colorado over the last few years.

After Crude Petroleum and Natural Gas Production, the next two highest average wage industry groups are connected to printing and publishing. Previously discussed in the employment section is the possibility that the presence of these industry groups (as well as Greeting Cards and also Bookbinding and Related groups) is because of the localization of the basic transactions data used. Despite this possibility, these groups were grouped in this cluster by factor analysis so there is a similarity of transactions behavior. Book Publishing and also Greeting Cards, have average annual wages of \$39,670 and \$29,758, respectively. The Book Publishing wage is only slightly below the cluster average, while Greeting Cards is well below.

The rest of the cluster is primarily populated by farming and ranching industries, with a average annual wage range of \$28,761 to the cluster low of \$15,338. The groups with the highest wages include Wheat (\$28,761), Cash Grains, NEC (\$27,832), Poultry and Eggs, NEC (\$27,583), and Beef Cattle Feedlots (\$27,274). Only the last had substantial employment in 2001.

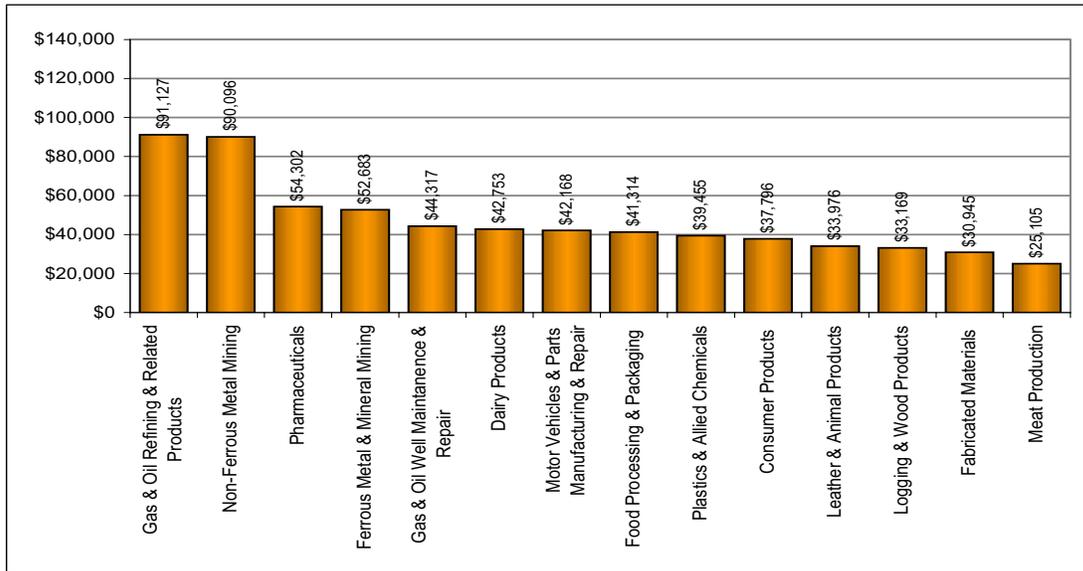
On the low end, were Sheep and Goats, General Farms (Primarily Crop), Vegetables and Melons, and Sugarcane and Sugar Beets.

#### **Other Clusters**

Aside from those cluster highlighted above, there are other cluster that, while their employment is much smaller than that of the highlighted clusters, offer notable average annual wages. Non-Ferrous Metal Mining, Pharmaceutical, Ferrous Metal and Mineral Mining, Gas and Oil Well Maintenance and Repair, Dairy Products, Motor Vehicles and Parts Manufacturing and Repair, and Food Processing and Packaging all have average annual wages above that of Agricultural and Resource Production.

Non-Ferrous Metal Mining (which includes mining of precious metals), with its small employment, had the second highest average wage of all clusters (\$90,096). This is nearly twice that of the overall average annual wage for all clusters. The selective employment and high-tech mining methods probably account for at least some of this wage premium. The wage could also reflect market factors regarding precious metals too.

Figure 18: Average Wage Distribution - Other Clusters



Source ES202

Ferrous Metal and Mineral Mining also had a wage above the overall average at \$52,683. It has almost four times the employment of Non-Ferrous Metal Mining, but a substantially lower average wage. Market forces, selectivity, and level of technology and skill requirements could all be part of the reasons for this difference. Despite the overall decline of mining employment in Colorado, these industries continue to offer opportunities with challenge and high wage.

Pharmaceutical is another industry group which offers an average annual wage well above the overall average. The \$54,302 wage is the fifth highest of all the clusters. The small size of the Pharmaceutical cluster (around 3,800) means that it hasn't the economic impact in Colorado of many other industry clusters. Still, since this cluster includes biotechnology, it does have an emerging quality to it and also provides Colorado with another high technology, and entrepreneurial presence that should only enhance the economic resource set of Colorado for future years. The presence of high wage, high technology, high education firms tend to be magnets to other firms and biotechnology should be no different.

Gas and Oil Well Maintenance and Repair, Dairy Products, and Motor Vehicles and Parts Manufacturing and Repair all have wages in the \$42,000 to \$44,000 range. These are somewhat lower than the overall average, but still solid average wages for an industry group. Between them, they point out that skilled blue collar positions are still a source of significant pay levels and that there are many industries in which these kinds of positions can be found.

The average wage for the remaining 14 clusters vary from a minimum of \$25,105 in the Meat Production cluster to a maximum of \$91, 127 in the Gas and Oil Refining and Related Products cluster. While Consumer Products and Fabricated Materials clusters were top in terms of employment in this group, they are the fifth and second respectively from the bottom in terms of wages. The Pharmaceutical Cluster which stands sixth from the bottom in terms of employment is among the top three clusters by average wages.

## **Occupations**

A total of 1,482 different occupations were found in the 21 identified industry clusters in the state of Colorado. Table 3 presents occupations that were found in 10 or more industry clusters, their 2000 level employment and projected employment for 2010. The occupations found fall into a variety of major occupational groups including: Management; Business and Financial Operations; Office and Administrative Support; Sales and Related; as well as in Production. Others are found in Installation, Maintenance and Repair; Transportation and Material Moving; Building and Ground Cleaning and Maintenance; and in Architecture and Engineering occupations.

A majority of these occupations are projected to grow by more than 20% from 2000 to 2010. For occupations occurring in more than 15 clusters, Truck Drivers - both heavy and light top the list with growth rates of 34.7% and 36.8% respectively. Other occupations projected to grow 30% or more include Welders, Cutters, Solderers, and Brazers, Sales Managers, Marketing Managers, Receptionists and Information Clerks and Customer Service Representatives. Others include General Office Clerks, Financial Managers, and General and Operations Managers.

A complete list of the most frequent occurring occupations with overall average wages, average entry and experience wages are in Appendix 2. Occupation by clusters, their employment levels for 2000 and projected growth to 2010 are in Appendix 3. Skills requirements for occupations, abilities, knowledge, work activities and interests associated with these occupations can be found at the following website: <http://online.onetcenter.org>. Together, this information can be used to facilitate career exploration, vocation counselling, and a variety of human resources functions, such as developing job orders and position descriptions as well as aligning training with current workplace needs.

Table 3: The Most Frequent Occurring Occupations by Clusters

SOC	Occupational Title	Number of Clusters	Statewide Employment		
			2000	2010	% Growth
11-1021	General and Operations Managers	20	37,070	48,390	30.5
13-2011	Accountants and Auditors	20	19,560	25,200	28.8
43-3031	Bookkeeping, Accounting, and Auditing Clerks	20	37,860	46,100	21.8
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific	19	*	*	*
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	19	*	*	*
49-9042	Maintenance and Repair Workers, General	19	16,580	19,340	16.6
43-9061	Office Clerks, General	18	58,830	77,560	31.8
43-5071	Shipping, Receiving, and Traffic Clerks	18	11,280	13,820	22.5
11-3051	Industrial Production Managers	18	3,010	3,420	13.6
53-3033	Truck Drivers, Light or Delivery Services	17	19,950	27,290	36.8
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	17	*	*	*
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	16	*	*	*
53-7062	Laborers and Freight Stock and Material Movers Hand	16	*	*	*
43-6014	Secretaries, Except Legal, Medical, and Executive	16	24,850	27,060	8.9
53-3032	Truck Drivers, Heavy and Tractor-Trailer	15	24,260	32,690	34.7
11-3031	Financial Managers	15	11,180	14,840	32.7
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	14	*	*	*
43-5061	Production, Planning, and Expediting Clerks	14	4,790	6,100	27.3
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	13	*	*	*
43-4051	Customer Service Representatives	13	34,950	54,890	57.1
43-5081	Stock Clerks and Order Fillers	13	22,500	27,990	24.4
43-6011	Executive Secretaries and Administrative Assistants	13	23,060	28,680	24.4
11-9199	Managers, All Other	13	16,830	19,430	15.4
43-4151	Order Clerks	13	4,650	4,140	(11.0)
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	12	*	*	*
13-1199	Business Operations Specialists, All Other	12	19,490	24,620	26.3
43-4171	Receptionists and Information Clerks	11	20,460	27,500	34.4
53-7051	Industrial Truck and Tractor Operators	11	6,500	8,150	25.4
17-2141	Mechanical Engineers	11	3,160	3,760	19.0
11-9041	Engineering Managers	11	5,910	6,920	17.1
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	11	6,770	7,140	5.5
51-9198	Helpers-Production Workers	10	*	*	*
11-1011	Chief Executives	10	*	*	*
11-2022	Sales Managers	10	5,300	7,960	50.2
11-2021	Marketing Managers	10	4,480	6,720	50.0
51-4121	Welders, Cutters, Solderers, and Brazers	10	4,400	6,080	38.2
51-4041	Machinists	10	4,240	4,910	15.8

\* Data Not Available

## Regional Comparison

This section compares cluster employment for the state, Denver Metro and the Northwest and Rural Resort Regions. Comparison is done by looking at both the absolute cluster employment distribution by regions and assessing cluster importance in terms of regional total cluster employment.

Table 4 presents employment comparison by clusters for the state, Denver Metro and the Northwest and Rural Resort Regions. The total cluster employment for the state is 668,489. Of these 404,042 (60%) are in the Denver Metro region and 30,180 (4.5%) are in the Northwest and Rural Resort Region. The remaining 35.5% is accounted for by other regions of the state.

Cluster employment is highly concentrated in the Denver Metro Region. In 11 out of the 21 industry clusters identified in this study, the share of cluster employment in this region is 60% or more. The lowest cluster employment in the Denver Metro region is found in the Meat Production Cluster - accounting for 3.5% of the total state cluster employment.

*Table 4: Regional Employment Comparison By Clusters*

Cluster Name	Employment		
	State	Denver Metro	Northwest & Rural Resort
Construction	181,276	109,314	15,695
Public Utilities	76,646	53,320	1,629
General Manufacturing	67,575	39,307	1,711
Aerospace	64,828	51,861	1,925
Electric Components and Devices	57,018	29,590	18
Non-Metallic Mineral Products	56,625	37,802	1,666
Agricultural and Resource Production	42,659	19,368	1,918
Consumer Products	33,601	20,098	1,462
Fabricated Materials	30,370	16,434	1,825
Gas and Oil Refining and Related Products	13,544	8,355	482
Gas and Oil Well Maintenance and Repair	8,183	2,930	318
Plastics and Allied Chemicals	5,128	3,519	13
Ferrous Metal and Mineral Mining	4,961	2,400	759
Motor Vehicles and Parts Manufacturing and Repair	4,219	1,539	17
Meat Production	9,543	303	214
Pharmaceuticals	3,798	2,989	
Food Processing and Packaging	2,647	1,620	26
Dairy Products	2,399	1,617	17
Non-Ferrous Metal Mining	1,403	481	407
Leather and Animal Products	1,120	1,033	19
Logging and Wood Products	946	162	59
<b>Total</b>	<b>668,489</b>	<b>404,042</b>	<b>30,180</b>

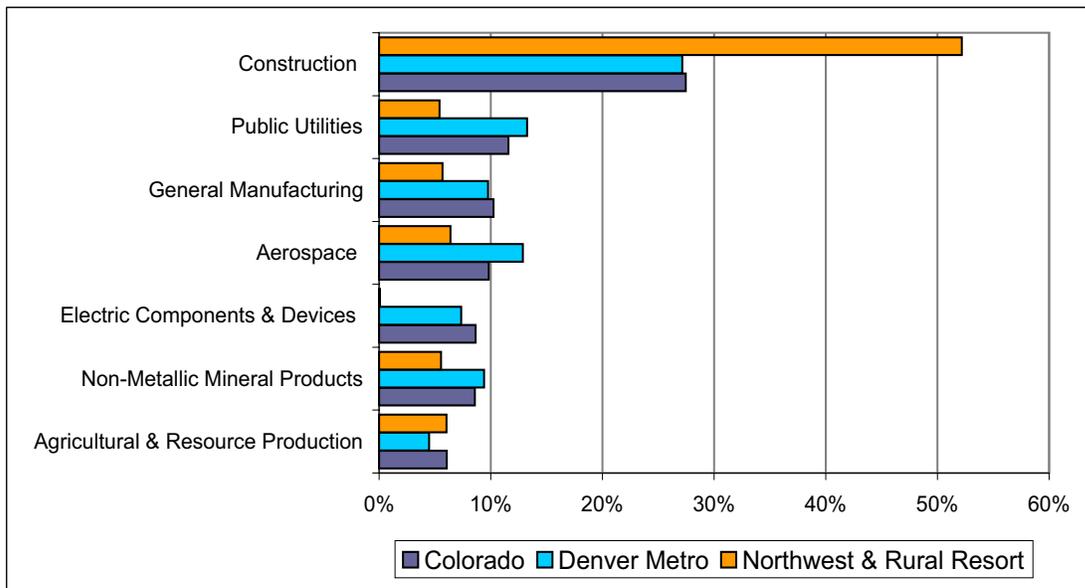
In the Northwest and Rural Resort Region, the highest cluster employment concentration is found in the Non-Ferrous Metal Mining (29%), followed by Ferrous Metal and Mineral Mining cluster (15.3%); and the construction cluster accounting for about 9% of the total state cluster employment.

Cluster regional employment concentration for the top 7 clusters highlighted in this report is presented in Figure 19. Construction - the top industry cluster by employment in the state accounts for 52% of the total cluster employment in the Northwest and Rural Resort region, compared to about 27% for both the Denver Metro region and the state. In the Northwest

and Rural Resort region, industry groups in the construction cluster are dominated by Construction - Special Trade Contractors - accounting for 63% of total construction employment followed by Building Construction - General Contractors at 22%. Between 1992 and 2001, employment in Construction - Special Trade Contractors grew more than 200%. In the same time period employment growth of more than 100% was realized for both Building Construction - General Contractors & Operative Builders and Heavy Construction Other than Building Construction - Contractors. Significant growth in the region's resident population and second home owners has also supported a strong and growing construction industry.

Public Utilities, Aerospace and Non-Metallic Mineral Products clusters account for higher percentage of the Denver Metro region cluster employment than in the Northwest and Rural Resort region and the state as a whole.

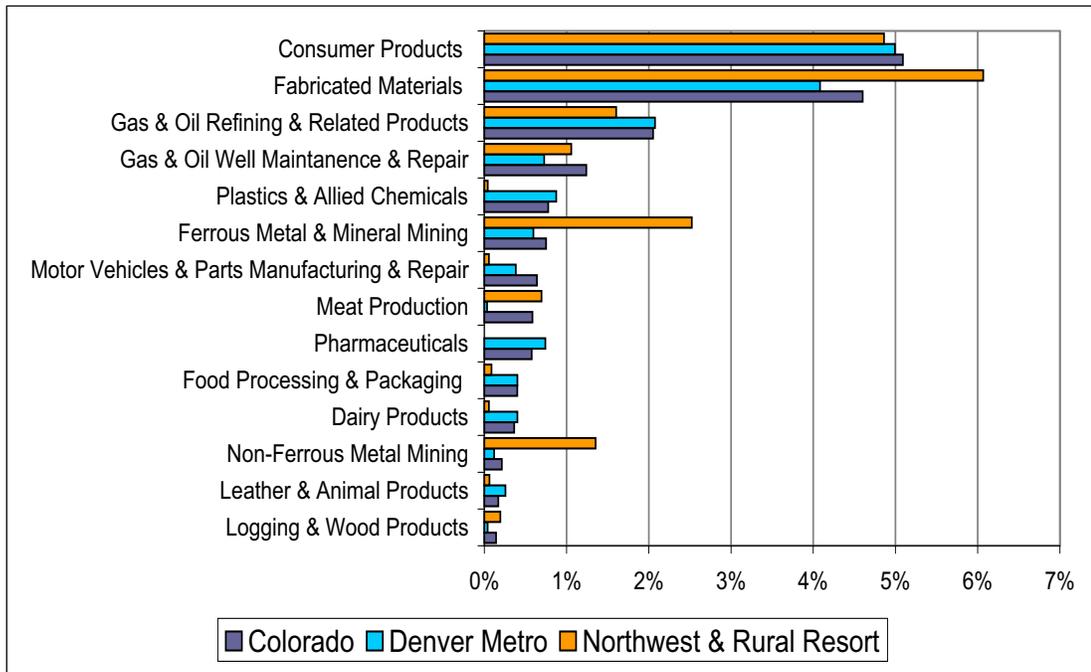
Figure 19: Regional Employment Comparison - Top 7 Industry Clusters



Source ES202

For the remaining clusters, Fabricated Materials, Ferrous Metal and Mineral Mining, and Non-Ferrous Metal Mining clusters account for the majority of cluster employment in the Northwest and Rural Resort Region as compared to both the state and the Denver Metro region (Figure 20). For the Fabricated Materials cluster, Building Materials, Hardware, Garden Supply & Mobile Home Dealers major industry group within the Retail Trade division, is the primary employment driver in the region. In 2001, this industry major group accounted for 71% of the cluster employment. Growth in this industry group has been steady with 70% growth in the number of firms and 86% growth in employment from 1992 to 2001.

Figure 20: Regional Employment Comparison - Other Industry Clusters



Source ES202

Though Ferrous Metal and Mineral Mining represents less than 3% of the Northwest & Rural Resort region's employment, it is significant for this region as compared to Denver Metro and the state. Forty-five percent of this cluster employment is associated with Ferroalloy Ores, Except Vanadium - Metal Mining, followed by 25% employed in Sand & Gravel - Mining & Quarrying of Nonmetallic Minerals, Except Fuels and 17% in Potash, Soda, & Borate Minerals - Chemical & Fertilizer Mineral Mining. From 1992-2001 employment in Ferroalloy Ores, Except Vanadium - Metal Mining, has dropped almost 50%, while that in Sand & Gravel - Mining & Quarrying of Nonmetallic Minerals, Except Fuels has more than doubled.

### Concluding Remarks

Industry clusters for the state of Colorado were identified using data based on the Standard Industrial Classification (SIC) System - the only data that could be used at the time. This system has been replaced by the North American Industry Classification System (NAICS). Since the two classification systems are not directly comparable, a study using the new system is highly recommended. The NAICS classification system better reflects today's service based economy.

The study identified occupations by cluster. These occupations along with other data already available at the LMI - particularly on education and skills requirements by occupation can be used by workforce centers to advise job seekers and by career counselors as well.

## References

Aldenderfer, Mark S. and Roger K. Blashfield. Cluster Analysis. Series: Quantitative Applications in the Social Sciences, Sage Publications, Inc. Newbury Park, CA, 1984.

Feser, Edward J., Stuart H. Sweeney, and Henry C. Renski. "A Descriptive Analysis of Discrete U.S. Industrial Complexes." Journal of Regional Science. April, 2001.

Kim, Jae-On and Charles W. Mueller. Introduction to Factor Analysis. What It Is and How To Do It. Series: Quantative Applications in the Social Sciences, Sage Publications, Inc. Newbury Park, CA, 1978.

Kim, Jae-On and Charles W. Mueller. Factor Analysis. Statistical Methods and Practical Issues. Editor: Eric M. Uslaner. Series: Quantitative Applications in the Social Sciences, Sage Publications, Inc. Newbury Park, CA, 1978.

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## **Appendix 1: Regional Data Analysis Tool (RDAT) Description**

- Regional Data Analysis Tool (RDAT) is software that was developed by the Department of Labor and Industry Pennsylvania.
- This tool can be used by Workforce Centers and regions to analyze industry clusters
- Cost: \$300
- The tool allows regions to group industries together say by county or a group of counties and analyzes data from a base year to some comparison year.
- The tool has two tables:
  - Table 1** labeled *Areas* has two columns—one for the county codes, and the other for county names.
  - Table 2** will be populated by State ES-202 data. It has six columns for the following: Year, Area, SIC (to include all 2-digit, 3-digit and 4-digit SICs), Units, Employment and Total Wages.

Once the tables have been populated, the tool is ready for use.

### **Example**

In this study, The Construction Cluster is made up of the following four industry groups - General Building Contractors (SIC 1500), Heavy Construction except Building (SIC 1600), Special Trade Contractors (SIC 1700), and Research, Development and Testing Services (SIC 8730).

The first step in using the RDAT is to define an industry cluster to be analyzed. In this example this will entail typing the SIC codes of the four industry groups in the construction cluster by clicking the "Define Cluster" button on the software main menu.

The second step is to name the cluster. To do so click the "Name Cluster" button and type in the name e.g. Construction Cluster.

The third step is to define the area of interest. Click the "Define Area" button. This button will allow you to define an area by counties. Suppose you want to analyze the Construction cluster in the Northwest and Rural Resort Region. To define the area you will type in the county codes for the 12 counties in the region. Once this is done, the tool will give you an option to name the area. Name the area Northwest and Rural Resort Region.

The fourth step is to define the report criteria. The report Criteria menu provides a choice of base year and a comparison year. It also gives you a choice of the area

table you want to use, in this case Northwest and Rural Resort. On the select industry table - select the cluster you defined in step one, i.e. Construction Cluster.

The final step is to click on the Cluster Report. The tool will generate a summary report that will show:

- the number of businesses, employment and average annual wages for each individual industry in the cluster at the local area level, Statewide and at national level, and
- the number of businesses, employment and average annual wages for the cluster at the local area level, Statewide and at national level.

All this will be done by clicking of buttons as directed by the tool itself.

**Appendix 2.1:  
The Most Frequently Occurring Occupations**

SOC	Occupational Title	Number of Clusters
11-1021	General and Operations Managers	20
13-2011	Accountants and Auditors	20
43-3031	Bookkeeping, Accounting, and Auditing Clerks	20
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	19
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	19
49-9042	Maintenance and Repair Workers, General	19
43-9061	Office Clerks, General	18
43-5071	Shipping, Receiving, and Traffic Clerks	18
11-3051	Industrial Production Managers	18
53-3033	Truck Drivers, Light or Delivery Services	17
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	17
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	16
43-6014	Secretaries, Except Legal, Medical, and Executive	16
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	16
11-3031	Financial Managers	15
53-3032	Truck Drivers, Heavy and Tractor-Trailer	15
43-5061	Production, Planning, and Expediting Clerks	14
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	14
43-5081	Stock Clerks and Order Fillers	13
43-4051	Customer Service Representatives	13
43-6011	Executive Secretaries and Administrative Assistants	13
11-9199	Managers, All Other	13
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	13
43-4151	Order Clerks	13
13-1199	Business Operations Specialists, All Other	12
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	12
17-2141	Mechanical Engineers	11
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	11
43-4171	Receptionists and Information Clerks	11
11-9041	Engineering Managers	11
53-7051	Industrial Truck and Tractor Operators	11
11-2022	Sales Managers	10
51-4121	Welders, Cutters, Solderers, and Brazers	10
15-1041	Computer Support Specialists	10
51-4041	Machinists	10
11-2021	Marketing Managers	10
51-9198	Helpers-Production Workers	10
11-1011	Chief Executives	10

**Appendix 2.2:**

**Overall Average Wages For The Most Frequent Occurring Occupations By Regions**

SOC	Occupational Title	Number of Clusters	Average Hourly Wage		
			State	Denver Metro	Northwest & Rural Resort
11-1021	General and Operations Managers	20	\$39.50	\$42.66	\$35.56
13-2011	Accountants and Auditors	20	\$26.41	\$27.67	\$26.24
43-3031	Bookkeeping, Accounting, and Auditing Clerks	20	\$14.42	\$15.24	\$15.07
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	19	\$24.19	\$25.43	\$21.37
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	19	\$22.14	\$22.44	\$22.22
49-9042	Maintenance and Repair Workers, General	19	\$14.62	\$15.35	\$15.71
43-9061	Office Clerks, General	18	\$12.37	\$12.96	\$11.92
43-5071	Shipping, Receiving, and Traffic Clerks	18	\$12.20	\$12.54	\$13.53
11-3051	Industrial Production Managers	18	\$34.21	\$34.94	\$33.36
53-3033	Truck Drivers, Light or Delivery Services	17	\$13.45	\$13.47	\$14.64
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	17	\$20.96	\$22.17	\$20.18
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	16	\$10.80	\$11.27	\$11.72
43-6014	Secretaries, Except Legal, Medical, and Executive	16	\$13.32	\$14.47	\$12.72
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	16	\$9.53	\$9.74	\$10.77
11-3031	Financial Managers	15	\$38.17	\$40.26	\$34.36
53-3032	Truck Drivers, Heavy and Tractor-Trailer	15	\$16.03	\$16.89	\$17.44
43-5061	Production, Planning, and Expediting Clerks	14	\$17.42	\$18.17	\$20.17
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	14	\$24.64	\$26.16	\$25.96
43-5081	Stock Clerks and Order Fillers	13	\$11.97	\$12.41	\$12.58
43-4051	Customer Service Representatives	13	\$13.51	\$14.26	\$14.05
43-6011	Executive Secretaries and Administrative Assistants	13	\$17.69	\$18.22	\$17.72
11-9199	Managers, All Other	13	\$34.99	\$36.71	\$26.60
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	13	\$23.47	\$24.11	\$21.24
43-4151	Order Clerks	13	\$12.88	\$13.59	\$11.79
13-1199	Business Operations Specialists, All Other	12	\$26.06	\$27.58	\$22.79
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	12	\$28.60	\$29.80	\$24.05
17-2141	Mechanical Engineers	11	\$33.57	\$34.91	\$31.28
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	11	\$14.05	\$15.12	\$16.66
43-4171	Receptionists and Information Clerks	11	\$11.29	\$11.82	\$11.76
11-9041	Engineering Managers	11	\$45.54	\$46.39	\$35.27
53-7051	Industrial Truck and Tractor Operators	11	\$12.93	\$13.61	\$12.94
11-2022	Sales Managers	10	\$40.65	\$41.68	\$23.03
51-4121	Welders, Cutters, Solderers, and Brazers	10	\$14.85	\$15.69	\$18.30
15-1041	Computer Support Specialists	10	\$21.40	\$23.19	\$17.68
51-4041	Machinists	10	\$16.38	\$17.06	\$17.32
11-2021	Marketing Managers	10	\$38.71	\$39.89	\$28.82
51-9198	Helpers--Production Workers	10	\$9.50	\$9.24	\$16.22
11-1011	Chief Executives	10	\$57.92	\$61.63	\$48.16

**Appendix 2.3:**

**Average Entry Wages For The Most Frequently Occurring Occupations By Region**

SOC	Occupational Title	Number of Clusters	Average Hourly Wage		
			State	Denver Metro	Northwest & Rural Resort
11-1021	General and Operations Managers	20	\$20.00	\$22.15	\$18.58
13-2011	Accountants and Auditors	20	\$16.99	\$17.87	\$16.21
43-3031	Bookkeeping, Accounting, and Auditing Clerks	20	\$10.01	\$10.99	\$9.96
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	19	\$13.61	\$15.08	\$11.64
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	19	\$14.58	\$14.98	\$15.55
49-9042	Maintenance and Repair Workers, General	19	\$9.70	\$10.54	\$11.27
43-9061	Office Clerks, General	18	\$8.47	\$9.06	\$7.31
43-5071	Shipping, Receiving, and Traffic Clerks	18	\$8.75	\$9.02	\$9.71
11-3051	Industrial Production Managers	18	\$21.21	\$21.99	\$20.17
53-3033	Truck Drivers, Light or Delivery Services	17	\$8.77	\$8.89	\$9.58
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	17	\$13.90	\$15.53	\$13.33
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	16	\$7.82	\$8.55	\$8.60
43-6014	Secretaries, Except Legal, Medical, and Executive	16	\$9.18	\$10.54	\$9.26
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	16	\$7.17	\$7.37	\$7.47
11-3031	Financial Managers	15	\$22.98	\$25.08	\$21.18
53-3032	Truck Drivers, Heavy and Tractor-Trailer	15	\$11.73	\$12.70	\$13.35
43-5061	Production, Planning, and Expediting Clerks	14	\$12.07	\$13.13	\$12.96
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	14	\$16.87	\$18.33	\$18.07
43-5081	Stock Clerks and Order Fillers	13	\$7.84	\$8.20	\$9.05
43-4051	Customer Service Representatives	13	\$9.32	\$10.48	\$9.46
43-6011	Executive Secretaries and Administrative Assistants	13	\$13.19	\$13.90	\$13.16
11-9199	Managers, All Other	13	\$21.96	\$23.44	\$16.46
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	13	\$16.20	\$16.75	\$15.31
43-4151	Order Clerks	13	\$9.06	\$9.74	\$8.72
13-1199	Business Operations Specialists, All Other	12	\$16.68	\$18.08	\$14.37
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	12	\$16.23	\$17.74	\$15.79
17-2141	Mechanical Engineers	11	\$23.16	\$23.91	\$23.38
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	11	\$9.25	\$9.74	\$10.98
43-4171	Receptionists and Information Clerks	11	\$8.26	\$8.69	\$8.85
11-9041	Engineering Managers	11	\$31.91	\$33.19	\$26.55
53-7051	Industrial Truck and Tractor Operators	11	\$9.61	\$10.21	\$9.01
11-2022	Sales Managers	10	\$22.02	\$23.39	\$14.91
51-4121	Welders, Cutters, Solderers, and Brazers	10	\$10.41	\$11.77	\$12.13
15-1041	Computer Support Specialists	10	\$13.77	\$14.97	\$12.62
51-4041	Machinists	10	\$10.76	\$11.25	\$11.03
11-2021	Marketing Managers	10	\$23.07	\$25.09	\$16.69
51-9198	Helpers--Production Workers	10	\$6.46	\$6.32	\$9.95
11-1011	Chief Executives	10	\$36.44	\$42.53	\$27.28

**Appendix 2.4:**  
**Average Wages For Experienced Workers**  
**By Region For The Most Frequently Occurring Occupations**

SOC	Occupational Title	Number of Clusters	Average Hourly Wage		
			State	Denver Metro	Northwest & Rural Resort
11-1021	General and Operations Managers	20	\$49.25	\$52.92	\$44.06
13-2011	Accountants and Auditors	20	\$31.12	\$32.57	\$31.25
43-3031	Bookkeeping, Accounting, and Auditing Clerks	20	\$16.63	\$17.37	\$17.63
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	19	\$29.49	\$30.60	\$26.23
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	19	\$25.91	\$26.17	\$25.55
49-9042	Maintenance and Repair Workers, General	19	\$17.07	\$17.77	\$17.94
43-9061	Office Clerks, General	18	\$14.33	\$14.90	\$14.24
43-5071	Shipping, Receiving, and Traffic Clerks	18	\$13.92	\$14.30	\$15.44
11-3051	Industrial Production Managers	18	\$40.71	\$41.42	\$39.95
53-3033	Truck Drivers, Light or Delivery Services	17	\$15.80	\$15.77	\$17.17
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	17	\$24.49	\$25.48	\$23.61
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	16	\$12.28	\$12.63	\$13.28
43-6014	Secretaries, Except Legal, Medical, and Executive	16	\$15.38	\$16.44	\$14.46
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	16	\$10.71	\$10.92	\$12.42
11-3031	Financial Managers	15	\$45.78	\$47.84	\$40.94
53-3032	Truck Drivers, Heavy and Tractor-Trailer	15	\$18.19	\$18.99	\$19.48
43-5061	Production, Planning, and Expediting Clerks	14	\$20.10	\$20.69	\$23.77
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	14	\$28.54	\$30.06	\$29.91
43-5081	Stock Clerks and Order Fillers	13	\$14.04	\$14.51	\$14.34
43-4051	Customer Service Representatives	13	\$15.60	\$16.14	\$16.35
43-6011	Executive Secretaries and Administrative Assistants	13	\$19.94	\$20.38	\$20.00
11-9199	Managers, All Other	13	\$41.52	\$43.35	\$31.68
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	13	\$27.11	\$27.78	\$24.20
43-4151	Order Clerks	13	\$14.78	\$15.52	\$13.33
13-1199	Business Operations Specialists, All Other	12	\$30.77	\$32.32	\$27.01
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	12	\$34.79	\$35.82	\$28.17
17-2141	Mechanical Engineers	11	\$38.78	\$40.41	\$35.24
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	11	\$16.47	\$17.81	\$19.51
43-4171	Receptionists and Information Clerks	11	\$12.80	\$13.38	\$13.21
11-9041	Engineering Managers	11	\$52.36	\$52.99	\$39.64
53-7051	Industrial Truck and Tractor Operators	11	\$14.59	\$15.30	\$14.91
11-2022	Sales Managers	10	\$49.96	\$50.81	\$27.08
51-4121	Welders, Cutters, Solderers, and Brazers	10	\$17.07	\$17.66	\$21.38
15-1041	Computer Support Specialists	10	\$25.21	\$27.30	\$20.20
51-4041	Machinists	10	\$19.18	\$19.97	\$20.47
11-2021	Marketing Managers	10	\$46.53	\$47.29	\$34.89
51-9198	Helpers--Production Workers	10	\$11.02	\$10.71	\$19.36
11-1011	Chief Executives	10	\$68.66	\$71.17	\$58.60

**Appendix 3.1:**  
**Top Occupations in the Aerospace Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1032	Computer Software Engineers, Systems Software	9,570	21,570	125.4
43-9031	Desktop Publishers	480	1,020	112.5
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
15-1081	Network Systems and Data Communications Analysts	4,220	8,540	102.4
15-1061	Database Administrators	2,690	4,920	82.9
15-1051	Computer Systems Analysts	16,170	28,990	79.3
11-2021	Computer and Information Systems Managers	7,620	12,740	67.2
43-4051	Customer Service Representatives	34,950	54,890	57.1
11-2011	Advertising and Promotions Managers	1,850	2,860	54.6
15-1011	Computer and Information Scientists, Research	280	430	53.6
41-3099	Sales Representatives, Services, All Other	6,100	9,250	51.6
11-2022	Sales Managers	5,300	7,960	50.2
11-2021	Marketing Managers	4,480	6,720	50.0
11-2031	Public Relations Managers	1,800	2,700	50.0
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
39-6022	Travel Guides	330	490	48.5
27-3031	Public Relations Specialists	2,930	4,350	48.5
29-2041	Emergency Medical Technicians and Paramedics	2,200	3,200	45.5
41-3011	Advertising Sales Agents	2,610	3,720	42.5
27-3042	Technical Writers	1,600	2,280	42.5
53-3021	Bus Drivers, Transit and Intercity	2,680	3,810	42.2
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle	3,820	5,420	41.9
27-3041	Editors	2,680	3,790	41.4
15-1021	Computer Programmers	14,570	20,370	39.8
53-6099	Transportation Workers, All Other	380	530	39.5
17-3012	Electrical and Electronics Drafters	640	890	39.1
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,080	38.2
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2,230	3,060	37.2
27-1024	Graphic Designers	3,770	5,160	36.9
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	2,340	3,200	36.8
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	410	560	36.6
13-1073	Training and Development Specialists	3,610	4,920	36.3
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	4,410	5,950	34.9
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
11-3011	Administrative Services Managers	4,920	6,620	34.6
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
49-3023	Automotive Service Technicians and Mechanics	13,310	17,840	34.0
11-3031	Financial Managers	11,180	14,840	32.7

**Appendix 3.2:**  
**Top Occupations in the Construction Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
15-1081	Network Systems and Data Communications Analysts	4,220	8,540	102.4
47-2043	Floor Sanders and Finishers	560	1,050	87.5
47-2072	Pile-Driver Operators	120	220	83.3
15-1061	Database Administrators	2,690	4,920	82.9
15-1051	Computer Systems Analysts	16,170	28,990	79.3
47-2061	Construction Laborers	18,020	30,850	71.2
47-3012	Helpers--Carpenters	2,370	4,020	69.6
11-3021	Computer and Information Systems Managers	7,620	12,740	67.2
53-7021	Crane and Tower Operators	1,100	1,820	65.5
49-9052	Telecommunications Line Installers and Repairers	2,790	4,500	61.3
47-2031	Carpenters	22,230	35,730	60.7
47-2211	Sheet Metal Workers	3,010	4,760	58.1
47-2161	Plasterers and Stucco Masons	1,330	2,100	57.9
11-9021	Construction Managers	6,600	10,370	57.1
43-4051	Customer Service Representatives	34,950	54,890	57.1
47-2041	Carpet Installers	740	1,160	56.8
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	1,290	2,010	55.8
47-2221	Structural Iron and Steel Workers	810	1,260	55.6
47-2051	Cement Masons and Concrete Finishers	4,420	6,860	55.2
47-2171	Reinforcing Iron and Rebar Workers	290	450	55.2
47-2151	Pipelayers	1,270	1,970	55.1
33-9091	Crossing Guards	1,370	2,110	54.0
15-1011	Computer and Information Scientists, Research	280	430	53.6
47-2022	Stonemasons	1,000	1,530	53.0
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	1,820	2,770	52.2
53-7032	Excavating and Loading Machine and Dragline Operators	2,590	3,930	51.7
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	600	910	51.7
41-3099	Sales Representatives, Services, All Other	6,100	9,250	51.6
11-2022	Sales Managers	5,300	7,960	50.2
13-1051	Cost Estimators	3,970	5,960	50.1
11-2021	Marketing Managers	4,480	6,720	50.0
11-2031	Public Relations Managers	1,800	2,700	50.0
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	5,800	8,650	49.1
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
27-3031	Public Relations Specialists	2,930	4,350	48.5
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	1,490	2,190	47.0
47-3016	Helpers--Roofers	320	470	46.9
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9

**Appendix 3.3:**  
**Top Occupations in the Consumer Products Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1031	Computer Software Engineers, Applications	14,700	32,930	124.0
43-9031	Desktop Publishers	480	1,020	112.5
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
33-9032	Security Guards	14,740	24,100	63.5
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	2,180	3,430	57.3
43-4051	Customer Service Representatives	34,950	54,890	57.1
11-2011	Advertising and Promotions Managers	1,850	2,860	54.6
11-2022	Sales Managers	5,300	7,960	50.2
13-1051	Cost Estimators	3,970	5,960	50.1
11-2021	Marketing Managers	4,480	6,720	50.0
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9
41-3011	Advertising Sales Agents	2,610	3,720	42.5
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle	3,820	5,420	41.9
27-3041	Editors	2,680	3,790	41.4
15-1021	Computer Programmers	14,570	20,370	39.8
53-7199	Material Moving Workers, All Other	950	1,310	37.9
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2,230	3,060	37.2
27-1024	Graphic Designers	3,770	5,160	36.9
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	2,340	3,200	36.8
37-3011	Landscaping and Groundskeeping Workers	16,810	22,920	36.3
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
11-3031	Financial Managers	11,180	14,840	32.7
41-2021	Counter and Rental Clerks	7,200	9,550	32.6
47-2121	Glaziers	1,210	1,600	32.2
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	590	780	32.2
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,710	11,510	32.1
43-9061	Office Clerks, General	58,830	77,560	31.8
49-9099	Installation, Maintenance, and Repair Workers, All Other	3,850	5,050	31.2
11-1021	General and Operations Managers	37,070	48,390	30.5
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	400	520	30.0
43-3011	Bill and Account Collectors	5,690	7,390	29.9
41-2011	Cashiers	52,190	67,660	29.6
41-2031	Retail Salespersons	85,410	110,180	29.0
13-2011	Accountants and Auditors	19,560	25,200	28.8
27-1023	Floral Designers	2,430	3,110	28.0
35-2021	Food Preparation Workers	13,860	17,730	27.9

**Appendix 3.4:**  
**Top Occupations in the Dairy Products Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
43-4051	Customer Service Representatives	34,806	54,260	55.9
11-2022	Sales Managers	5,293	7,940	50.0
53-3033	Truck Drivers, Light or Delivery Services	19,945	27,291	36.8
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,264	32,666	34.6
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,709	11,505	32.1
11-1021	General and Operations Managers	37,033	48,254	30.3
11-3071	Transportation, Storage, and Distribution Managers	2,039	2,650	30.0
13-2011	Accountants and Auditors	19,538	25,166	28.8
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,905	36,897	27.6
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	8,133	10,105	24.2
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	723	895	23.8
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,805	45,953	21.6
51-9111	Packaging and Filling Machine Operators and Tenders	3,402	4,119	21.1
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,936	29,952	20.1
49-9042	Maintenance and Repair Workers, General	16,573	19,356	16.8
43-3051	Payroll and Timekeeping Clerks	3,632	4,209	15.9
11-9199	Managers, All Other	16,821	19,386	15.2
11-3051	Industrial Production Managers	3,009	3,428	13.9
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	10,229	11,459	12.0
51-9193	Cooling and Freezing Equipment Operators and Tenders	115	106	(-7.8)
43-4151	Order Clerks	4,659	4,137	(-11.2)

### Appendix 3.5:

#### Top Occupations in the Electronic Components and Devices Cluster

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1032	Computer Software Engineers, Systems Software	9,570	21,570	125.4
15-1031	Computer Software Engineers, Applications	14,700	32,930	124.0
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
15-1081	Network Systems and Data Communications Analysts	4,220	8,540	102.4
15-1061	Database Administrators	2,690	4,920	82.9
15-1051	Computer Systems Analysts	16,170	28,990	79.3
11-3021	Computer and Information Systems Managers	7,620	12,740	67.2
43-4051	Customer Service Representatives	34,950	54,890	57.1
11-2022	Sales Managers	5,300	7,960	50.2
13-1051	Cost Estimators	3,970	5,960	50.1
11-2021	Marketing Managers	4,480	6,720	50.0
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
27-3031	Public Relations Specialists	2,930	4,350	48.5
13-2051	Financial Analysts	3,180	4,560	43.4
27-3042	Technical Writers	1,600	2,280	42.5
17-2061	Computer Hardware Engineers	1,820	2,560	40.7
15-1021	Computer Programmers	14,570	20,370	39.8
17-3012	Electrical and Electronics Drafters	640	890	39.1
51-9022	Grinding and Polishing Workers, Hand	470	650	38.3
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,080	38.2
19-3021	Market Research Analysts	2,080	2,850	37.0
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	410	560	36.6
13-1073	Training and Development Specialists	3,610	4,920	36.3
11-3011	Administrative Services Managers	4,920	6,620	34.6
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
11-3031	Financial Managers	11,180	14,840	32.7
13-1071	Employment, Recruitment, and Placement Specialists	3,010	3,990	32.6
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,710	11,510	32.1
43-9061	Office Clerks, General	58,830	77,560	31.8
17-2072	Electronics Engineers, Except Computer	3,700	4,850	31.1
11-1021	General and Operations Managers	37,070	48,390	30.5
11-3071	Transportation, Storage, and Distribution Managers	2,040	2,650	29.9
13-1111	Management Analysts	7,340	9,530	29.8
13-1072	Compensation, Benefits, and Job Analysis Specialists	1,440	1,860	29.2
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	930	1,200	29.0
13-2011	Accountants and Auditors	19,560	25,200	28.8
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,970	36,970	27.6
43-5061	Production, Planning, and Expediting Clerks	4,790	6,100	27.3

**Appendix 3.6:**  
**Top Occupations in the Fabricated Materials Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
43-9031	Desktop Publishers	480	1,020	112.5
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
11-3021	Computer and Information Systems Managers	7,620	12,740	67.2
33-9032	Security Guards	14,740	24,100	63.5
47-2211	Sheet Metal Workers	3,010	4,760	58.1
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	2,180	3,430	57.3
11-9021	Construction Managers	6,600	10,370	57.1
43-4051	Customer Service Representatives	34,950	54,890	57.1
11-2011	Advertising and Promotions Managers	1,850	2,860	54.6
11-2022	Sales Managers	5,300	7,960	50.2
13-1051	Cost Estimators	3,970	5,960	50.1
11-2021	Marketing Managers	4,480	6,720	50.0
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9
41-3011	Advertising Sales Agents	2,610	3,720	42.5
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle	3,820	5,420	41.9
27-3041	Editors	2,680	3,790	41.4
15-1021	Computer Programmers	14,570	20,370	39.8
51-9022	Grinding and Polishing Workers, Hand	470	650	38.3
51-2041	Structural Metal Fabricators and Fitters	810	1,120	38.3
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,080	38.2
53-7199	Material Moving Workers, All Other	950	1,310	37.9
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2,230	3,060	37.2
27-1024	Graphic Designers	3,770	5,160	36.9
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	2,340	3,200	36.8
47-2141	Painters, Construction and Maintenance	10,360	14,150	36.6
37-3011	Landscaping and Groundskeeping Workers	16,810	22,920	36.3
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
17-3011	Architectural and Civil Drafters	1,950	2,600	33.3
11-3031	Financial Managers	11,180	14,840	32.7
41-2021	Counter and Rental Clerks	7,200	9,550	32.6
47-2121	Glaziers	1,210	1,600	32.2
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	590	780	32.2
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,710	11,510	32.1
27-1011	Art Directors	690	910	31.9
43-9061	Office Clerks, General	58,830	77,560	31.8
49-9099	Installation, Maintenance, and Repair Workers, All Other	3,850	5,050	31.2

### Appendix 3.7:

#### Top Occupations in the Ferrous Metal & Mineral Mining Cluster

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
53-7032	Excavating and Loading Machine and Dragline Operators	2,590	3,930	51.7
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle	3,820	5,420	41.9
47-2073	Operating Engineers and Other Construction Equipment Operators	8,320	11,530	38.6
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,080	38.2
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	2,310	3,070	32.9
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	530	700	32.1
43-9061	Office Clerks, General	58,830	77,560	31.8
19-4031	Chemical Technicians	1,070	1,400	30.8
11-1021	General and Operations Managers	37,070	48,390	30.5
51-4012	Numerical Tool and Process Control Programmers	240	310	29.2
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	930	1,200	29.0
13-2011	Accountants and Auditors	19,560	25,200	28.8
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,970	36,970	27.6
43-5061	Production, Planning, and Expediting Clerks	4,790	6,100	27.3
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	4,040	5,120	26.7
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	1,710	2,150	25.7
53-7051	Industrial Truck and Tractor Operators	6,500	8,150	25.4
17-3013	Mechanical Drafters	650	810	24.6
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	26,010	32,360	24.4
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	1,130	1,400	23.9
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	310	380	22.6
43-5071	Shipping, Receiving, and Traffic Clerks	11,280	13,820	22.5
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	650	790	21.5
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,970	29,990	20.1
51-9198	Helpers--Production Workers	4,190	4,990	19.1
17-2141	Mechanical Engineers	3,160	3,760	19.0
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	270	320	18.5
11-9041	Engineering Managers	5,910	6,920	17.1
49-9042	Maintenance and Repair Workers, General	16,580	19,340	16.6
51-4041	Machinists	4,240	4,910	15.8
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	5,650	6,460	14.3
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1,090	1,240	13.8
53-7011	Conveyor Operators and Tenders	510	580	13.7
11-3051	Industrial Production Managers	3,010	3,420	13.6
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	10,230	11,410	11.5
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	1,440	1,580	9.7

### Appendix 3.8:

#### Top Occupations in the Food Processing and Packaging Cluster

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1032	Computer Software Engineers, Systems Software	9,570	21,570	125.4
43-9031	Desktop Publishers	480	1,020	112.5
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
15-1081	Network Systems and Data Communications Analysts	4,220	8,540	102.4
15-1061	Database Administrators	2,690	4,920	82.9
15-1051	Computer Systems Analysts	16,170	28,990	79.3
11-3021	Computer and Information Systems Managers	7,620	12,740	67.2
43-4051	Customer Service Representatives	34,950	54,890	57.1
11-2011	Advertising and Promotions Managers	1,850	2,860	54.6
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	790	1,030	30.4
11-3071	Transportation, Storage, and Distribution Managers	2,040	2,650	29.9
41-2011	Cashiers	52,190	67,660	29.6
13-2011	Accountants and Auditors	19,560	25,200	28.8
35-2021	Food Preparation Workers	13,860	17,730	27.9
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,970	36,970	27.6
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	720	900	25.0
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	8,150	10,170	24.8
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	35,120	43,780	24.7
53-7064	Packers and Packagers, Hand	11,110	13,700	23.3
43-5071	Shipping, Receiving, and Traffic Clerks	11,280	13,820	22.5
51-3011	Bakers	2,470	3,020	22.3
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8
51-9111	Packaging and Filling Machine Operators and Tenders	3,410	4,100	20.2
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,970	29,990	20.1
49-9041	Industrial Machinery Mechanics	2,060	2,430	18.0
51-6031	Sewing Machine Operators	2,030	2,390	17.7
49-9042	Maintenance and Repair Workers, General	16,580	19,340	16.6
51-2092	Team Assemblers	11,110	12,940	16.5
43-3051	Payroll and Timekeeping Clerks	3,640	4,230	16.2
11-9199	Managers, All Other	16,830	19,430	15.4
53-3031	Driver/Sales Workers	6,830	7,820	14.5
11-3051	Industrial Production Managers	3,010	3,420	13.6
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	10,230	11,410	11.5
43-6014	Secretaries, Except Legal, Medical, and Executive	24,850	27,060	8.9
53-7063	Machine Feeders and Offbearers	1,490	1,620	8.7
51-3092	Food Batchmakers	760	800	5.3
35-9021	Dishwashers	10,990	10,940	(0.5)

### Appendix 3.9:

#### Top Occupations in the Gas and Oil Well Maintenance and Repair Cluster

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1032	Computer Software Engineers, Systems Software	9,570	21,570	125.4
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
43-4051	Customer Service Representatives	34,950	54,890	57.1
11-2021	Marketing Managers	4,480	6,720	50.0
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9
27-3042	Technical Writers	1,600	2,280	42.5
51-9123	Painting, Coating, and Decorating Workers	740	1,040	40.5
17-3012	Electrical and Electronics Drafters	640	890	39.1
47-2073	Operating Engineers and Other Construction Equipment Operators	8,320	11,530	38.6
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,080	38.2
27-1024	Graphic Designers	3,770	5,160	36.9
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
27-1021	Commercial and Industrial Designers	1,050	1,410	34.3
11-3031	Financial Managers	11,180	14,840	32.7
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,710	11,510	32.1
43-9061	Office Clerks, General	58,830	77,560	31.8
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	1,150	1,510	31.3
49-9099	Installation, Maintenance, and Repair Workers, All Other	3,850	5,050	31.2
11-1021	General and Operations Managers	37,070	48,390	30.5
13-2011	Accountants and Auditors	19,560	25,200	28.8
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,970	36,970	27.6
43-5061	Production, Planning, and Expediting Clerks	4,790	6,100	27.3
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	2,510	3,190	27.1
41-9031	Sales Engineers	1,820	2,310	26.9
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4,780	6,060	26.8
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	4,040	5,120	26.7
13-1199	Business Operations Specialists, All Other	19,490	24,620	26.3
51-2099	Assemblers and Fabricators, All Other	6,580	8,300	26.1
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	8,150	10,170	24.8
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	35,120	43,780	24.7
17-3013	Mechanical Drafters	650	810	24.6
17-2071	Electrical Engineers	5,130	6,390	24.6
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	26,010	32,360	24.4
43-5081	Stock Clerks and Order Fillers	22,500	27,990	24.4
43-6011	Executive Secretaries and Administrative Assistants	23,060	28,680	24.4
17-3023	Electrical and Electronic Engineering Technicians	4,850	6,000	23.7
43-5071	Shipping, Receiving, and Traffic Clerks	11,280	13,820	22.5
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8

**Appendix 3.10:****Top Occupations in the Gas and Oil Refining and Related Products Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
43-4051	Customer Service Representatives	34,950	54,890	57.1
11-2021	Marketing Managers	4,480	6,720	50.0
11-2031	Public Relations Managers	1,800	2,700	50.0
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
51-8091	Chemical Plant and System Operators	170	250	47.1
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle	3,820	5,420	41.9
15-1021	Computer Programmers	14,570	20,370	39.8
49-9098	Helpers--Installation, Maintenance, and Repair Workers	1,820	2,520	38.5
47-2152	Plumbers, Pipefitters, and Steamfitters	11,730	16,160	37.8
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	2,340	3,200	36.8
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
11-3031	Financial Managers	11,180	14,840	32.7
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,710	11,510	32.1
43-9061	Office Clerks, General	58,830	77,560	31.8
19-4031	Chemical Technicians	1,070	1,400	30.8
11-1021	General and Operations Managers	37,070	48,390	30.5
13-1072	Compensation, Benefits, and Job Analysis Specialists	1,440	1,860	29.2
13-2011	Accountants and Auditors	19,560	25,200	28.8
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,970	36,970	27.6
43-5061	Production, Planning, and Expediting Clerks	4,790	6,100	27.3
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4,780	6,060	26.8
13-1199	Business Operations Specialists, All Other	19,490	24,620	26.3
53-7051	Industrial Truck and Tractor Operators	6,500	8,150	25.4
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	720	900	25.0
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	26,010	32,360	24.4
43-6011	Executive Secretaries and Administrative Assistants	23,060	28,680	24.4
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	723	895	23.8
13-2031	Budget Analysts	1,180	1,460	23.7
11-9141	Property, Real Estate, and Community Association Managers	7,790	9,630	23.6
43-5071	Shipping, Receiving, and Traffic Clerks	11,280	13,820	22.5
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8
19-2031	Chemists	1,630	1,980	21.5
51-9111	Packaging and Filling Machine Operators and Tenders	3,410	4,100	20.2
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,970	29,990	20.1
17-2041	Chemical Engineers	330	390	18.2
11-9041	Engineering Managers	5,910	6,920	17.1
49-9042	Maintenance and Repair Workers, General	16,580	19,340	16.6

**Appendix 3.11:**  
**Top Occupations in the General Manufacturing Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2001	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
15-1081	Network Systems and Data Communications Analysts	4,220	8,540	102.4
15-1051	Computer Systems Analysts	16,170	28,990	79.3
11-3021	Computer and Information Systems Managers	7,620	12,740	67.2
47-2031	Carpenters	22,230	35,730	60.7
47-2211	Sheet Metal Workers	3,010	4,760	58.1
11-9021	Construction Managers	6,600	10,370	57.1
43-4051	Customer Service Representatives	34,950	54,890	57.1
53-7032	Excavating and Loading Machine and Dragline Operators	2,590	3,930	51.7
11-2022	Sales Managers	5,300	7,960	50.2
13-1051	Cost Estimators	3,970	5,960	50.1
11-2021	Marketing Managers	4,480	6,720	50.0
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
47-2044	Tile and Marble Setters	2,030	2,930	44.3
47-2111	Electricians	12,010	17,250	43.6
13-2051	Financial Analysts	3,180	4,560	43.4
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle	3,820	5,420	41.9
51-9123	Painting, Coating, and Decorating Workers	740	1,040	40.5
15-1021	Computer Programmers	14,570	20,370	39.8
17-3012	Electrical and Electronics Drafters	640	890	39.1
51-7021	Furniture Finishers	590	820	39.0
51-7011	Cabinetmakers and Bench Carpenters	2,430	3,370	38.7
47-2073	Operating Engineers and Other Construction Equipment Operators	8,320	11,530	38.6
47-5041	Continuous Mining Machine Operators	130	180	38.5
51-9022	Grinding and Polishing Workers, Hand	470	650	38.3
51-2041	Structural Metal Fabricators and Fitters	810	1,120	38.3
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,080	38.2
19-3021	Market Research Analysts	2,080	2,850	37.0
27-1024	Graphic Designers	3,770	5,160	36.9
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	2,340	3,200	36.8
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	410	560	36.6
47-2141	Painters, Construction and Maintenance	10,360	14,150	36.6
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1,000	1,360	36.0
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
11-3011	Administrative Services Managers	4,920	6,620	34.6
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
27-1021	Commercial and Industrial Designers	1,050	1,410	34.3
49-3023	Automotive Service Technicians and Mechanics	13,310	17,840	34.0

**Appendix 3.12:**  
**Top Occupations in the Leather and Animal Products Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
11-3031	Financial Managers	11,180	14,840	32.7
53-7061	Cleaners of Vehicles and Equipment	5,600	7,410	32.3
43-9061	Office Clerks, General	58,830	77,560	31.8
11-1021	General and Operations Managers	37,070	48,390	30.5
13-2011	Accountants and Auditors	19,560	25,200	28.8
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	2,510	3,190	27.1
13-1199	Business Operations Specialists, All Other	19,490	24,620	26.3
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	35,120	43,780	24.7
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	26,010	32,360	24.4
43-5081	Stock Clerks and Order Fillers	22,500	27,990	24.4
53-7064	Packers and Packagers, Hand	11,110	13,700	23.3
43-5071	Shipping, Receiving, and Traffic Clerks	11,280	13,820	22.5
51-9199	Production Workers, All Other	4,640	5,660	22.0
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,970	29,990	20.1
51-9198	Helpers--Production Workers	4,190	4,990	19.1
13-1021	Purchasing Agents and Buyers, Farm Products	220	260	18.2
51-6031	Sewing Machine Operators	2,030	2,390	17.7
49-9042	Maintenance and Repair Workers, General	16,580	19,340	16.6
11-3051	Industrial Production Managers	3,010	3,420	13.6
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	10,230	11,410	11.5
43-6014	Secretaries, Except Legal, Medical, and Executive	24,850	27,060	8.9
51-3092	Food Batchmakers	760	800	5.3
51-3021	Butchers and Meat Cutters	1,620	1,550	(4.3)

**Appendix 3.13:**  
**Top Occupations in the Logging and Wood Products Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
47-2031	Carpenters	22,230	35,730	60.7
13-1051	Cost Estimators	3,970	5,960	50.1
51-7021	Furniture Finishers	590	820	39.0
51-7011	Cabinetmakers and Bench Carpenters	2,430	3,370	38.7
51-9022	Grinding and Polishing Workers, Hand	470	650	38.3
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
17-3011	Architectural and Civil Drafters	1,950	2,600	33.3
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	590	780	32.2
43-9061	Office Clerks, General	58,830	77,560	31.8
11-1021	General and Operations Managers	37,070	48,390	30.5
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	790	1,030	30.4
51-7099	Woodworkers, All Other	330	430	30.3
13-2011	Accountants and Auditors	19,560	25,200	28.8
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,970	36,970	27.6
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4,780	6,060	26.8
53-7051	Industrial Truck and Tractor Operators	6,500	8,150	25.4
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	35,120	43,780	24.7
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	26,010	32,360	24.4
43-6011	Executive Secretaries and Administrative Assistants	23,060	28,680	24.4
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	1,130	1,400	23.9
43-5071	Shipping, Receiving, and Traffic Clerks	11,280	13,820	22.5
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,970	29,990	20.1
51-9198	Helpers--Production Workers	4,190	4,990	19.1
45-4022	Logging Equipment Operators	60	70	16.7
49-9042	Maintenance and Repair Workers, General	16,580	19,340	16.6
51-2092	Team Assemblers	11,110	12,940	16.5
43-3021	Billing and Posting Clerks and Machine Operators	7,450	8,590	15.3
11-3051	Industrial Production Managers	3,010	3,420	13.6
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	10,230	11,410	11.5
43-6014	Secretaries, Except Legal, Medical, and Executive	24,850	27,060	8.9
53-7063	Machine Feeders and Offbearers	1,490	1,620	8.7
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	2,430	2,390	(-1.6)

**Appendix 3.14:**  
**Top Occupations in the Meat Production Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
11-3031	Financial Managers	11,180	14,840	32.7
53-7061	Cleaners of Vehicles and Equipment	5,600	7,410	32.3
43-9061	Office Clerks, General	58,830	77,560	31.8
11-1021	General and Operations Managers	37,070	48,390	30.5
13-2011	Accountants and Auditors	19,560	25,200	28.8
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	2,510	3,190	27.1
13-1199	Business Operations Specialists, All Other	19,490	24,620	26.3
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	35,120	43,780	24.7
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	26,010	32,360	24.4
43-5081	Stock Clerks and Order Fillers	22,500	27,990	24.4
53-7064	Packers and Packagers, Hand	11,110	13,700	23.3
43-5071	Shipping, Receiving, and Traffic Clerks	11,280	13,820	22.5
51-9199	Production Workers, All Other	4,640	5,660	22.0
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,970	29,990	20.1
51-9198	Helpers--Production Workers	4,190	4,990	19.1
13-1021	Purchasing Agents and Buyers, Farm Products	220	260	18.2
49-9042	Maintenance and Repair Workers, General	16,580	19,340	16.6
11-3051	Industrial Production Managers	3,010	3,420	13.6
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	10,230	11,410	11.5
43-6014	Secretaries, Except Legal, Medical, and Executive	24,850	27,060	8.9
51-3092	Food Batchmakers	760	800	5.3
51-3021	Butchers and Meat Cutters	1,620	1,550	(-4.3)

**Appendix 3.15:**

**Top Occupations in the Motor Vehicles and Parts Manufacturing and Repair Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
51-2041	Structural Metal Fabricators and Fitters	809	1,122	38.7
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,085	38.3
53-3033	Truck Drivers, Light or Delivery Services	19,945	27,291	36.8
43-4171	Receptionists and Information Clerks	20,433	27,448	34.3
49-3023	Automotive Service Technicians and Mechanics	13,291	17,817	34.1
51-9122	Painters, Transportation Equipment	668	890	33.2
11-3031	Financial Managers	11,174	14,735	31.9
43-9061	Office Clerks, General	58,761	77,388	31.7
11-1021	General and Operations Managers	37,033	48,254	30.3
13-2011	Accountants and Auditors	19,538	25,166	28.8
43-5061	Production, Planning, and Expediting Clerks	4,790	6,087	27.1
51-2099	Assemblers and Fabricators, All Other	6,548	8,282	26.5
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4,785	6,048	26.4
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	1,124	1,400	24.6
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	35,113	43,720	24.5
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	25,973	32,098	23.6
17-3013	Mechanical Drafters	657	808	23.0
43-5081	Stock Clerks and Order Fillers	22,500	27,629	22.8
43-5071	Shipping, Receiving, and Traffic Clerks	11,267	13,816	22.6
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,805	45,953	21.6
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,936	29,952	20.1
17-2141	Mechanical Engineers	3,168	3,759	18.7
11-9041	Engineering Managers	5,913	6,918	17.0
49-9042	Maintenance and Repair Workers, General	16,573	19,356	16.8
51-2092	Team Assemblers	11,108	12,945	16.5
51-4041	Machinists	4,225	4,912	16.3
11-3051	Industrial Production Managers	3,009	3,428	13.9
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	10,229	11,459	12.0
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	6,762	7,148	5.7
43-4151	Order Clerks	4,659	4,137	(-11.2)

**Appendix 3.16:**  
**Top Occupations in the Non-Ferrous Metal Mining Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9
11-3031	Financial Managers	11,180	14,840	32.7
11-1021	General and Operations Managers	37,070	48,390	30.5
13-2011	Accountants and Auditors	19,560	25,200	28.8
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8
11-9199	Managers, All Other	16,830	19,430	15.4
47-5021	Earth Drillers, Except Oil and Gas	420	460	9.5
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	330	350	6.1
19-2042	Geoscientists, Except Hydrologists and Geographers	1,200	1,240	3.3

**Appendix 3.17:**  
**Top Occupations in the Non-Metallic Mineral Products Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2001	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
43-9031	Desktop Publishers	480	1,020	112.5
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
47-2043	Floor Sanders and Finishers	560	1,050	87.5
47-2072	Pile-Driver Operators	120	220	83.3
47-2061	Construction Laborers	18,020	30,850	71.2
47-3012	Helpers--Carpenters	2,370	4,020	69.6
53-7021	Crane and Tower Operators	1,100	1,820	65.5
49-9052	Telecommunications Line Installers and Repairers	2,790	4,500	61.3
47-2031	Carpenters	22,230	35,730	60.7
47-2211	Sheet Metal Workers	3,010	4,760	58.1
47-2161	Plasterers and Stucco Masons	1,330	2,100	57.9
11-9021	Construction Managers	6,600	10,370	57.1
43-4051	Customer Service Representatives	34,950	54,890	57.1
47-2041	Carpet Installers	740	1,160	56.8
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	1,290	2,010	55.8
47-2221	Structural Iron and Steel Workers	810	1,260	55.6
47-2051	Cement Masons and Concrete Finishers	4,420	6,860	55.2
47-2171	Reinforcing Iron and Rebar Workers	290	450	55.2
47-2151	Pipelayers	1,270	1,970	55.1
33-9091	Crossing Guards	1,370	2,110	54.0
47-2022	Stonemasons	1,000	1,530	53.0
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	1,820	2,770	52.2
53-7032	Excavating and Loading Machine and Dragline Operators	2,590	3,930	51.7
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	600	910	51.7
41-3099	Sales Representatives, Services, All Other	6,100	9,250	51.6
11-2022	Sales Managers	5,300	7,960	50.2
13-1051	Cost Estimators	3,970	5,960	50.1
11-2021	Marketing Managers	4,480	6,720	50.0
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	5,800	8,650	49.1
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	1,490	2,190	47.0
47-3016	Helpers--Roofers	320	470	46.9
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9
47-2081	Drywall and Ceiling Tile Installers	6,100	8,890	45.7
47-2044	Tile and Marble Setters	2,030	2,930	44.3
47-2111	Electricians	12,010	17,250	43.6
47-2082	Tapers	1,010	1,440	42.6
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle	3,820	5,420	41.9
47-3013	Helpers--Electricians	3,020	4,280	41.7

**Appendix 3.18:**  
**Top Occupations in the Pharmaceuticals Cluster**

SOC	Occupational Title	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1032	Computer Software Engineers, Systems Software	9,570	21,570	125.4
15-1031	Computer Software Engineers, Applications	14,700	32,930	124.0
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
15-1081	Network Systems and Data Communications Analysts	4,220	8,540	102.4
15-1061	Database Administrators	2,690	4,920	82.9
15-1051	Computer Systems Analysts	16,170	28,990	79.3
11-3021	Computer and Information Systems Managers	7,620	12,740	67.2
43-4051	Customer Service Representatives	34,950	54,890	57.1
11-2022	Sales Managers	5,300	7,960	50.2
13-1051	Cost Estimators	3,970	5,960	50.1
11-2021	Marketing Managers	4,480	6,720	50.0
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
27-3031	Public Relations Specialists	2,930	4,350	48.5
13-2051	Financial Analysts	3,180	4,560	43.4
27-3042	Technical Writers	1,600	2,280	42.5
17-2061	Computer Hardware Engineers	1,820	2,560	40.7
15-1021	Computer Programmers	14,570	20,370	39.8
17-3012	Electrical and Electronics Drafters	640	890	39.1
51-9022	Grinding and Polishing Workers, Hand	470	650	38.3
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,080	38.2
19-3021	Market Research Analysts	2,080	2,850	37.0
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	410	560	36.6
13-1073	Training and Development Specialists	3,610	4,920	36.3
11-3011	Administrative Services Managers	4,920	6,620	34.6
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
11-3031	Financial Managers	11,180	14,840	32.7
13-1071	Employment, Recruitment, and Placement Specialists	3,010	3,990	32.6
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,710	11,510	32.1
43-9061	Office Clerks, General	58,830	77,560	31.8
17-2072	Electronics Engineers, Except Computer	3,700	4,850	31.1
11-1021	General and Operations Managers	37,070	48,390	30.5
11-3071	Transportation, Storage, and Distribution Managers	2,040	2,650	29.9
13-1111	Management Analysts	7,340	9,530	29.8
13-1072	Compensation, Benefits, and Job Analysis Specialists	1,440	1,860	29.2
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	930	1,200	29.0
13-2011	Accountants and Auditors	19,560	25,200	28.8
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,970	36,970	27.6
43-5061	Production, Planning, and Expediting Clerks	4,790	6,100	27.3

**Appendix 3.19:**  
**Top Occupations in the Plastics and Allied Chemicals Cluster**

SOC	Occupational Titles	Statewide Employment		
		2000	2010	% Growth
47-2031	Carpenters	22,230	35,730	60.7
43-4051	Customer Service Representatives	34,950	54,890	57.1
51-7021	Furniture Finishers	590	820	39.0
51-7011	Cabinetmakers and Bench Carpenters	2,430	3,370	38.7
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
13-1073	Training and Development Specialists	3,610	4,920	36.3
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1,000	1,360	36.0
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
11-3031	Financial Managers	11,180	14,840	32.7
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8,710	11,510	32.1
43-9061	Office Clerks, General	58,830	77,560	31.8
11-1021	General and Operations Managers	37,070	48,390	30.5
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	790	1,030	30.4
13-2011	Accountants and Auditors	19,560	25,200	28.8
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	28,970	36,970	27.6
43-5061	Production, Planning, and Expediting Clerks	4,790	6,100	27.3
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4,780	6,060	26.8
51-2099	Assemblers and Fabricators, All Other	6,580	8,300	26.1
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	1,710	2,150	25.7
53-7051	Industrial Truck and Tractor Operators	6,500	8,150	25.4
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	8,150	10,170	24.8
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	35,120	43,780	24.7
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	26,010	32,360	24.4
43-5081	Stock Clerks and Order Fillers	22,500	27,990	24.4
43-6011	Executive Secretaries and Administrative Assistants	23,060	28,680	24.4
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	1,130	1,400	23.9
53-7064	Packers and Packagers, Hand	11,110	13,700	23.3
41-9041	Telemarketers	12,440	15,250	22.6
43-5071	Shipping, Receiving, and Traffic Clerks	11,280	13,820	22.5
43-3031	Bookkeeping, Accounting, and Auditing Clerks	37,860	46,100	21.8
51-9111	Packaging and Filling Machine Operators and Tenders	3,410	4,100	20.2
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	24,970	29,990	20.1
51-9196	Paper Goods Machine Setters, Operators, and Tenders	860	1,030	19.8
51-4199	Metal Workers and Plastic Workers, All Other	880	1,050	19.3
51-9198	Helpers--Production Workers	4,190	4,990	19.1
51-5023	Printing Machine Operators	3,250	3,870	19.1
17-2141	Mechanical Engineers	3,160	3,760	19.0
51-6031	Sewing Machine Operators	2,030	2,390	17.7
11-9041	Engineering Managers	5,910	6,920	17.1

**Appendix 3.20:**  
**Top Occupations in the Public Utilities Cluster**

SOC	Occupational Titles	Statewide Employment		
		2000	2010	% Growth
15-1041	Computer Support Specialists	14,850	35,140	136.6
15-1031	Computer Software Engineers, Applications	14,700	32,930	124.0
15-1071	Network and Computer Systems Administrators	7,230	14,730	103.7
15-1081	Network Systems and Data Communications Analysts	4,220	8,540	102.4
15-1061	Database Administrators	2,690	4,920	82.9
15-1051	Computer Systems Analysts	16,170	28,990	79.3
11-3021	Computer and Information Systems Managers	7,620	12,740	67.2
33-9032	Security Guards	14,740	24,100	63.5
49-9052	Telecommunications Line Installers and Repairers	2,790	4,500	61.3
43-4051	Customer Service Representatives	34,950	54,890	57.1
41-3099	Sales Representatives, Services, All Other	6,100	9,250	51.6
11-2022	Sales Managers	5,300	7,960	50.2
13-1051	Cost Estimators	3,970	5,960	50.1
11-2021	Marketing Managers	4,480	6,720	50.0
11-2031	Public Relations Managers	1,800	2,700	50.0
41-9099	Sales and Related Workers, All Other	21,920	32,590	48.7
27-3031	Public Relations Specialists	2,930	4,350	48.5
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	20,900	30,490	45.9
13-2051	Financial Analysts	3,180	4,560	43.4
53-1031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle	3,820	5,420	41.9
17-2061	Computer Hardware Engineers	1,820	2,560	40.7
15-1021	Computer Programmers	14,570	20,370	39.8
17-3012	Electrical and Electronics Drafters	640	890	39.1
47-2073	Operating Engineers and Other Construction Equipment Operators	8,320	11,530	38.6
49-9098	Helpers--Installation, Maintenance, and Repair Workers	1,820	2,520	38.5
51-4121	Welders, Cutters, Solderers, and Brazers	4,400	6,080	38.2
53-7199	Material Moving Workers, All Other	950	1,310	37.9
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2,230	3,060	37.2
19-3021	Market Research Analysts	2,080	2,850	37.0
53-3033	Truck Drivers, Light or Delivery Services	19,950	27,290	36.8
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	2,340	3,200	36.8
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	410	560	36.6
13-1073	Training and Development Specialists	3,610	4,920	36.3
53-3032	Truck Drivers, Heavy and Tractor-Trailer	24,260	32,690	34.7
11-3011	Administrative Services Managers	4,920	6,620	34.6
43-4171	Receptionists and Information Clerks	20,460	27,500	34.4
49-3023	Automotive Service Technicians and Mechanics	13,310	17,840	34.0
11-3031	Financial Managers	11,180	14,840	32.7
17-3025	Environmental Engineering Technicians	430	570	32.6
13-1071	Employment, Recruitment, and Placement Specialists	3,010	3,990	32.6



# ***Workforce Research and Analysis***

a division of Colorado Department of Labor and Employment

Labor Market Information

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