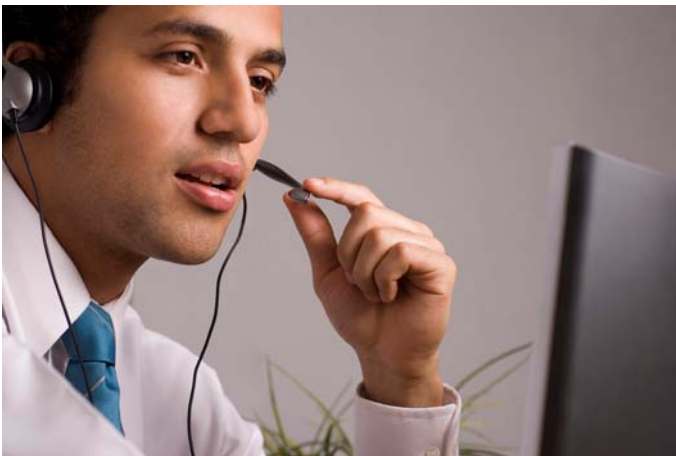


# Regional Industry Analysis for Colorado

## Identifying Key Industries



**November 2008**

Produced for the Workforce and Economic Coalition ("WEIC") of the Colorado Workforce Development Council by Corporation for a Skilled Workforce, using data provided by the Office of Labor Market Information of the Colorado Department of Labor and Employment.

## Introduction

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This document is intended to illustrate the top industries within the state of Colorado and its 7 MSAs. CSW used industry data and analyses provided by the Office of Labor Market Information, Colorado Department of Labor and Employment to do a basic model of top industries and to draw conclusions about the health and vitality of those industries. Through this approach the state will be able to determine future workforce demands by employers and the industry training workers will need to fill those jobs. Such information aids in resource allocation decision making at the policy level.

The model looks at historical and projected growth factors, location quotient (a measure of regional competitiveness in an industry) and current employment and wages. The goal is to find the “top” industries across a balanced set of factors, not just which industries are growing fastest or employ the most people. For the most part, industries on the list pay decent wages and employ above median numbers of workers. In some cases, one or two industries dominate the economy of a region, whereas other regions have a more diversified economic mix. (Please see Appendix for a full description of the industry model and advice on interpreting the tables.)

### *Document Organization and Notes*

The document is broken into 8 sections – the state level data, and then each MSA’s data. Each section contains two charts describing the region’s Top 10 industries. The first chart shows the relative ranking of the industries on a variety of factors (see Appendix). The second contains actual numbers used to develop the rankings, subject to disclosure requirements. Finally, each section contains highlights and key points about that county’s economic mix.

Cells with pink highlights indicate that the ranking for that factor is above the median, and is used to call attention to strengths and weaknesses of specific industries, such as a small number of employees, a high location quotient, or a low average wage.

## Colorado

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change	Avg Rank
211	Oil and Gas Extraction	63	3	2	1	2	1	15
541	Professional and Technical Services	3	8	15	13	12	32	16
213	Support Activities for Mining	43	1	18	2	1	16	17
551	Management of Companies and Enterprises	25	4	4	51	10	4	19
425	Electronic Markets and Agents/Brokers	45	2	9	57	3	2	24
236	Construction of Buildings	22	14	28	30	66	5	27
212	Mining (except Oil and Gas)	69	15	19	10	26	7	27
237	Heavy and Civil Engineering Construction	32	20	30	16	62	9	28
238	Specialty Trade Contractors	5	33	49	14	59	8	28
561	Administrative and Support Services	4	10	70	37	25	6	28

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change
211	Oil and Gas Extraction	6,907	67.5%	\$2,428	3.0	29.6%	63.7%
541	Professional and Technical Services	170,573	22.4%	\$1,449	1.3	7.8%	17.5%
213	Support Activities for Mining	12,432	206.6%	\$1,421	2.8	35.5%	27.4%
551	Management of Companies and Enterprises	28,418	40.6%	\$2,117	0.9	7.8%	54.1%
425	Electronic Markets and Agents/Brokers	11,209	69.0%	\$1,612	0.8	18.5%	62.4%
236	Construction of Buildings	33,425	16.0%	\$1,063	1.1	-1.3%	41.4%
212	Mining (except Oil and Gas)	5,693	15.5%	\$1,336	1.5	5.2%	35.5%
237	Heavy and Civil Engineering Construction	22,078	13.6%	\$1,044	1.3	-0.3%	34.1%
238	Specialty Trade Contractors	112,193	10.3%	\$784	1.3	0.0%	34.3%
561	Administrative and Support Services	142,171	19.3%	\$595	1.0	5.3%	37.5%

- Unsurprisingly, energy extraction industries dominate the state's top 10 industries, including 211 Oil and Gas Extraction, 213 Support Activities for Mining, and 212 Mining (except oil and gas).
  - ◆ 211 and 213 have particularly high location quotients and have had tremendous growth since 2007. Strong growth is projected to continue, particularly through 2010.
- Construction in the state is booming, with all three construction related industries placing in the top 10.
  - ◆ The short term growth outlook is poor in these industries, but long term projections are very strong.
- 541 Professional and Technical Services is second on the list with a very competitive average rank, driven particularly by strong employment and historical growth. Workers in this industry include engineers and other professionals whose services would be used by energy extraction and construction, among other industries.
- A variety of business related services round out the top ten, such as 551 Management of Companies and Enterprises, and 561 Administrative and Support Services and 425 Electronic Markets and Agents/Brokers.
  - ◆ 551 and 425 share strong growth and wages. Average weekly wages in 561 are below median, but the industry has significant employment in the state.

## Boulder-Longmont MSA

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change	Avg Rank
541	Professional and Technical Services	1	18	11	3	13	16	12
425	Electronic Markets and Agents/Brokers	33	6	4	14	9	4	14
551	Management of Companies and Enterprises	25	4	2	37	60	2	20
622	Hospitals	9	15	38	33	17	9	23
325	Chemical Manufacturing	21	23	9	6	35	37	23
621	Ambulatory Health Care Services	6	26	25	19	29	23	23
424	Merchant Wholesalers, Nondurable Goods	16	7	6	26	11	68	26
511	Publishing Industries	5	63	8	1	52	28	27
523	Financial Investment & Related Activity	32	11	1	15	7	70	27
454	Nonstore Retailers	43	5	39	9	44	22	28

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change
541	Professional and Technical Services	22,841	27.3%	\$1,654	2.6	7.3%	29.3%
425	Electronic Markets and Agents/Brokers	1,082	75.7%	\$1,984	1.2	13.6%	67.9%
551	Management of Companies and Enterprises	1,642	128.2%	\$2,081	0.8	1.3%	87.4%
622	Hospitals	5,498	32.9%	\$856	0.8	6.4%	39.8%
325	Chemical Manufacturing	1,932	23.9%	\$1,724	1.9	3.8%	6.9%
621	Ambulatory Health Care Services	6,721	18.6%	\$1,042	1.1	4.1%	16.4%
424	Merchant Wholesalers, Nondurable Goods	2,331	71.2%	\$1,918	1.0	8.8%	-12.8%
511	Publishing Industries	7,436	-6.7%	\$1,730	6.9	2.2%	11.3%
523	Financial Investment & Related Activity	1,122	39.6%	\$2,153	1.1	14.6%	-15.1%
454	Nonstore Retailers	650	81.9%	\$852	1.2	2.9%	17.2%

- 541 Profession and Technical Services is the highest employing industry in the region, and also ranks high in the top 20 of all factors.
- The Wholesale Trade industry is important in the region, with both 425 Electronic Markets and Agents/Brokers and 424 Merchant Wholesalers, Nondurable Goods placing in the top 10. 425 is particularly highly ranked, with an average of 12.
- Two health care industries are in the top 10, 622 Hospitals and 623 Ambulatory Health Care Services. Over 12,000 workers are employed between the two of them, and past and future growth is strong, particularly for 622.
- 325 Chemical manufacturing is notable for its high location quotient, indicating regional competitiveness.
- 511 Publishing Industries employs a significant number of people and has a very high location quotient, however, the industry has faced recent declines and short term growth projections are low.
- Other key industries include two finance and business related industries: 551 Management of Companies and Enterprises and 523 Financial Investment & Related Activity. 454 Nonstore Retailers also make the top 10 list, primarily on the strength of recent growth.

## Colorado Springs

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change	Avg Rank
541	Professional and Technical Services	2	23	15	8	12	35	18
524	Insurance Carriers & Related Activities	13	31	24	10	52	16	24
561	Administrative and Support Services	4	18	66	13	29	9	25
523	Financial Investment & Related Activity	38	13	21	39	6	26	28
236	Construction of Buildings	22	20	31	27	73	5	29
425	Electronic Markets and Agents/Brokers	53	11	7	63	2	8	29
621	Ambulatory Health Care Services	6	33	29	25	8	48	29
813	Membership Organizations & Associations	7	44	50	4	30	28	30
9991	Federal Government	8	43	9	2	53	61	30
611	Educational Services	1	34	52	38	17	32	34

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change
541	Professional and Technical Services	21,025	24.1%	\$1,143	1.5	8.2%	24.1%
524	Insurance Carriers & Related Activities	6,029	14.4%	\$866	1.4	-0.4%	43.2%
561	Administrative and Support Services	ND	26.2%	\$532	1.2	4.0%	55.1%
523	Financial Investment & Related Activity	1,446	46.6%	\$924	0.9	10.6%	30.7%
236	Construction of Buildings	3,652	25.4%	\$789	1.1	-5.9%	59.5%
425	Electronic Markets and Agents/Brokers	660	70.1%	\$1,391	0.4	19.9%	55.3%
621	Ambulatory Health Care Services	10,835	13.7%	\$812	1.1	9.6%	16.4%
813	Membership Organizations & Associations	10,016	8.7%	\$640	1.8	3.8%	30.6%
9991	Federal Government	9,622	9.7%	\$1,342	2.6	-0.5%	7.0%
611	Educational Services	23,319	13.3%	\$622	0.9	6.6%	26.5%

- In general, industries in Colorado Springs are showing low to moderate growth from 2008-2010, but much more significant growth through to 2016.
- 541 Professional and Technical Services tops the list, with good employment and consistent growth.
- Several business and finance industries are key, including 524 Insurance Carriers & Related Activities, 561 Administrative and Support Services, and 523 Financial Investment & Related Activity.
- There is strong recent growth and long term projected growth in 236 Construction of Buildings.
- 425 Electronic Markets and Agents/Brokers employs a small number of people but has high wages and significant growth.
- 813 Membership Organizations and Associations has particularly high employment and location quotient for the region.
- 621 Ambulatory Health Care Services, 9991 Federal Government and 611 Educational Services round out the top 10.

## Denver-Aurora MSA

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change	Avg Rank
551	Management of Companies and Enterprises	13	7	5	16	3	4	10
211	Oil and Gas Extraction	54	4	4	2	9	17	18
425	Electronic Markets and Agents/Brokers	38	3	11	29	6	3	18
541	Professional and Technical Services	1	18	21	12	8	51	22
561	Administrative and Support Services	3	13	69	26	46	13	30
523	Financial Investment & Related Activity	30	36	6	9	7	63	30
621	Ambulatory Health Care Services	7	29	38	42	26	30	32
711	Performing Arts and Spectator Sports	55	21	9	21	31	38	32
238	Specialty Trade Contractors	5	49	47	20	48	19	33
424	Merchant Wholesalers, Nondurable Goods	17	38	27	30	53	27	34

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change
551	Management of Companies and Enterprises	23,110	42.9%	\$1,995	1.4	15.6%	50.3%
211	Oil and Gas Extraction	4,897	63.6%	\$2,060	3.9	11.0%	27.7%
425	Electronic Markets and Agents/Brokers	8,176	78.3%	\$1,641	1.1	12.7%	51.6%
541	Professional and Technical Services	100,689	20.0%	\$1,292	1.5	11.3%	12.8%
561	Administrative and Support Services	87,788	22.2%	\$581	1.2	2.6%	33.3%
523	Financial Investment & Related Activity	12,050	8.9%	\$1,792	1.6	12.1%	4.7%
621	Ambulatory Health Care Services	ND	10.8%	\$907	1.0	5.2%	20.5%
711	Performing Arts and Spectator Sports	4,628	16.3%	\$1,724	1.3	4.6%	18.4%
238	Specialty Trade Contractors	59,267	4.7%	\$819	1.3	2.3%	26.0%
424	Merchant Wholesalers, Nondurable Goods	21,164	7.9%	\$1,038	1.1	1.8%	21.8%

- Like many large metropolitan areas with large industry headquarters, 551 Management of Companies and Enterprises is a key driver in the region.
- 211 Oil and gas extraction is an important growth industry, with strong recent growth and good short and long term projections.
- 541 Professional and Technical Services employs the most workers in the region, and recent and short term growth projections are strong. Other business related industries include 561 Administrative and Support Services and 523 Financial Investment and Related Activity.
- The Wholesale Trade industry is important in the region, with both 425 Electronic Markets and Agents/Brokers and 424 Merchant Wholesalers, Nondurable Goods placing in the top 10. Strong growth is expected in 425.
- 621 Ambulatory Health Care Services employs the 7<sup>th</sup> most people in the region, although the actual number is non-discloseable.
- 711 Performing Arts and Spectator Sports employs relatively few workers, but makes the list based on strong wages and good growth. High average wages may be driven by the presence of professional sports teams in the region, as performing arts is not typically a highly paid position. This industry could be seen as a placeholder of sorts for “Hospitality and Tourism,” given the importance of ancillary and support industries, such as hospitality and eating and drinking places.
- 238 Specialty Trade Contractors employs the fifth most workers in the region, although historical, short-term growth and wages are below median.

## Ft Collins-Loveland MSA

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change	Avg Rank
541	Professional and Technical Services	3	13	8	11	27	34	17
333	Machinery Manufacturing	16	22	12	5	8	24	17
238	Specialty Trade Contractors	4	52	40	7	41	7	27
622	Hospitals	8	17	28	38	9	38	27
425	Electronic Markets and Agents/Brokers	50	4	5	57	16	10	27
562	Waste Management and Remediation Service	49	42	24	13	13	6	29
621	Ambulatory Health Care Services	7	29	21	31	26	41	29
236	Construction of Buildings	19	32	27	30	53	8	29
312	Beverage & Tobacco Product Manufacturing	34	41	10	1	47	36	30
237	Heavy and Civil Engineering Construction	32	39	21	24	48	9	30

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change
541	Professional and Technical Services	10,075	61.3%	\$1,320	1.4	5.9%	21.2%
333	Machinery Manufacturing	2,083	31.5%	\$1,244	1.8	16.2%	27.5%
238	Specialty Trade Contractors	7,406	8.1%	\$760	1.5	3.0%	62.5%
622	Hospitals	5,010	40.4%	\$875	0.9	14.5%	20.2%
425	Electronic Markets and Agents/Brokers	420	113.0%	\$1,473	0.5	9.1%	60.6%
562	Waste Management and Remediation Service	459	11.7%	\$953	1.3	12.1%	69.1%
621	Ambulatory Health Care Services	5,387	19.0%	\$995	1.0	6.0%	18.1%
236	Construction of Buildings	1,856	16.5%	\$879	1.1	1.0%	61.5%
312	Beverage & Tobacco Product Manufacturing	984	11.7%	\$1,271	5.2	1.5%	20.3%
237	Heavy and Civil Engineering Construction	1,096	12.4%	\$995	1.1	1.4%	60.9%

- Two industries had very low average rankings at 17. 541 Professional and Technical Services is a key industry for the region, performing above median in all factors.
- Equally ranked is 333 Machinery Manufacturing, with top 20 employment and a high location quotient indicating a regional emphasis on this industry. Another very different manufacturing industry – 312 Beverage and Tobacco Product Manufacturing – also make the top 10 list, propelled by a very high location quotient and good wages.
- Construction-related industries are strong, with 238 Specialty Trade Contractors, 236 Construction of Buildings, and 237 Heavy and Civil Engineering Construction all in the top 10.
- Two health care industries are in the top 10, 622 Hospitals and 621 Ambulatory Health Care Services. They are significant regional employers.
- 425 Electronic Markets and Agents/Brokers employs relatively few people, but has experienced significant growth historically and has a high average wage. 547 Management of Companies and Enterprises has a similar profile, with even more dramatic growth in the 2003-2007 time period.
- Significant growth is forecast through 2016 in 562 Waste Management and Remediation Services.

## Grand Junction MSA

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change	Avg Rank
213	Support Activities for Mining	5	1	8	1	3	53	14
238	Specialty Trade Contractors	4	18	38	10	20	16	20
622	Hospitals	3	12	19	14	28	37	20
484	Truck Transportation	17	15	30	8	23	29	23
237	Heavy and Civil Engineering Construction	22	50	21	4	15	12	24
562	Waste Management and Remediation Service	44	54	23	5	13	5	28
236	Construction of Buildings	19	43	36	25	29	13	31
332	Fabricated Metal Product Manufacturing	29	14	37	42	54	11	32
425	Electronic Markets and Agents/Brokers	64	4	14	72	6	17	35
541	Professional and Technical Services	9	27	31	56	66	28	37

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change
213	Support Activities for Mining	2,917	690.6%	\$1,368	23.7	42.5%	8.2%
238	Specialty Trade Contractors	3,731	48.4%	\$746	1.6	9.8%	44.1%
622	Hospitals	3,752	72.1%	\$973	1.5	9.0%	25.4%
484	Truck Transportation	1,128	64.4%	\$863	1.7	9.3%	29.7%
237	Heavy and Civil Engineering Construction	977	9.3%	\$940	2.1	12.0%	51.9%
562	Waste Management and Remediation Service	330	6.1%	\$921	2.0	13.3%	84.5%
236	Construction of Buildings	1,043	15.2%	\$826	1.2	8.9%	50.6%
332	Fabricated Metal Product Manufacturing	680	69.2%	\$782	0.9	4.2%	56.6%
425	Electronic Markets and Agents/Brokers	105	114.4%	\$1,022	0.3	21.8%	43.8%
541	Professional and Technical Services	2,347	28.8%	\$857	0.7	2.6%	29.7%
211	Oil and Gas Extraction	69	317.7%	\$2,243	1.1	55.8%	-14.3%

- 213 Support Activities for Mining tops the list for this region. Strong growth is expected to continue in the sector at least through 2010, although long term growth prospects are smaller, characteristic of the boom and bust cycle of the industry.
- All construction-related industries are strong, with 238 Specialty Trade Contractors, 236 Construction of Buildings, and 237 Heavy and Civil Engineering Construction all in the top 10.
- 622 Hospitals is a significant local employer, with strong recent growth and competitive wages.
- 484 Truck Transportation is also a critical industry for the region.
- 332 Fabricated Metal Product Manufacturing has grown significantly since 2003, and long term projections are also good.
- 541 Professional and Technical services is a strong employer in the region although short term growth projections are nearly flat.

## Greeley MSA

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change	Avg Rank
213	Support Activities for Mining	12	4	13	1	2	39	14
237	Heavy and Civil Engineering Construction	15	17	16	8	4	40	20
211	Oil and Gas Extraction	40	20	14	3	3	23	21
424	Merchant Wholesalers, Nondurable Goods	11	44	15	13	17	36	26
551	Management of Companies and Enterprises	26	18	4	32	82	15	28
238	Specialty Trade Contractors	3	33	46	15	46	25	29
327	Nonmetallic Mineral Product Mfg	32	15	25	9	74	28	30
321	Wood Product Manufacturing	30	30	45	10	67	2	31
332	Fabricated Metal Product Manufacturing	25	53	17	20	22	27	31
325	Chemical Manufacturing	14	77	18	5	80	4	32
236	Construction of Buildings	23	50	19	22	31	29	32

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change
213	Support Activities for Mining	2,170	182.9%	\$1,225	13.3	45.7%	30.3%
237	Heavy and Civil Engineering Construction	1,790	55.7%	\$1,040	2.9	17.9%	30.1%
211	Oil and Gas Extraction	508	50.3%	\$1,185	6.0	18.4%	52.9%
424	Merchant Wholesalers, Nondurable Goods	2,241	12.8%	\$1,146	1.8	7.6%	31.2%
551	Management of Companies and Enterprises	1,092	53.2%	\$1,759	1.0	-5.1%	84.3%
238	Specialty Trade Contractors	4,917	22.6%	\$705	1.6	1.0%	52.4%
327	Nonmetallic Mineral Product Mfg	777	66.1%	\$968	2.5	-2.9%	50.3%
321	Wood Product Manufacturing	829	29.4%	\$723	2.4	-1.4%	136.1%
332	Fabricated Metal Product Manufacturing	1,261	4.2%	\$1,026	1.3	6.4%	51.8%
325	Chemical Manufacturing	1,956	-12.3%	\$1,013	3.6	-4.9%	105.6%
236	Construction of Buildings	1,324	7.2%	\$999	1.2	5.1%	46.3%

- 211 Oil and Gas Extraction and 213 Support Activities for Mining are at the top of the list for this region, with high location quotients, historical and projected growth.
- All construction-related industries are strong, with 238 Specialty Trade Contractors, 236 Construction of Buildings, and 237 Heavy and Civil Engineering Construction all in the top 10.
- 424 Merchant Wholesalers is another industry with above median rankings in all factors.
- A variety of manufacturing industries are strong in the region, such as 327 Nonmetallic Mineral Products, 321 Wood Products, 332 Fabricated Metal Products and 325 Chemical Manufacturing. Of these, 327 and 321 have seen recent job growth, but short term declines are projected. 332 and 325 both employ significant number of workers in the region but have seen recent employment declines. 325 has a particularly high location quotient, indicating the region has a competitive advantage in this industry.

## Pueblo MSA

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change	Avg Rank
327	Nonmetallic Mineral Product Mfg	24	20	30	3	10	28	22
236	Construction of Buildings	11	16	19	14	37	41	24
221	Utilities	36	30	10	7	12	38	26
331	Primary Metal Manufacturing	12	33	15	1	13	72	28
621	Ambulatory Health Care Services	5	45	29	12	21	39	29
561	Administrative and Support Services	3	17	79	17	39	16	31
9992	State Government	10	37	31	9	19	68	33
238	Specialty Trade Contractors	7	38	45	21	74	18	34
9991	Federal Government	21	25	11	34	47	52	34
611	Educational Services	1	34	49	29	42	37	35

NAICS	Industry	2007 Jobs	03-07 % Change	Avg Wkly Wage	LQ	08-10 % Change	08-16 % Change
327	Nonmetallic Mineral Product Mfg	603	29.9%	\$836	2.8	11.3%	25.9%
236	Construction of Buildings	1,133	41.8%	\$959	1.5	2.7%	14.2%
221	Utilities	416	12.9%	\$1,198	1.8	9.9%	19.1%
331	Primary Metal Manufacturing	ND	10.0%	\$1,060 <sup>1</sup>	5.5	9.5%	-7.5%
621	Ambulatory Health Care Services	3,442	4.5%	\$840	1.5	5.2%	18.1%
561	Administrative and Support Services	4,453	40.4%	\$378	1.3	2.3%	55.3%
9992	State Government	1,764	7.4%	\$821	1.7	5.4%	-4.6%
238	Specialty Trade Contractors	2,495	7.1%	\$676	1.2	-3.9%	52.6%
9991	Federal Government	727	17.5%	\$1,156	0.9	1.3%	9.1%
611	Educational Services	5,418	9.0%	\$618	1.0	2.0%	20.3%

- Two manufacturing industries are important to the region, including 327 Nonmetallic Mineral Product Mfg, and 331 Primary Metal. Both have high location quotients demonstrating their emphasis in the region.
- Construction-related industries are strong, with 236 Construction of Buildings and 238 Specialty Trade Contractors both in the top 10.
- Utilities also ranks highly, primarily due to a particularly high location quotient.
- Industries that support the local population make up the rest of the list, with 621 Ambulatory Health Care Services, 611 Educational Services, and 9991 and 9992 Federal and State Government all appearing in the top 10, primarily due to high employment.

<sup>1</sup> Regional wage not available for this industry, this is the statewide average

## Appendix: About Industry Modeling

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Industry modeling attempts to alleviate problems with looking at data through one-dimensional criteria such as employment (which distorts “top” lists towards entry-level industries) or wages (distorts towards high-wage industries), or historical or projected growth rates (which do not factor in employment base or wage), or location quotients (which similarly do not factor in employment base or wages or even growth rates.)

Through Industry Modeling, we can look at all five of these factors simultaneously, comparing each industry against each other industry in a Colorado region in any one of the criteria, and assigning a ranking of 1 to the best industry, 2 to the next industry, and so on. We then repeat this process for all six criteria, and create a total cumulative ranking (lower is better). This creates a list of industries that have some combination of strong employment base, large known or projected growth, high wages, or competitive advantages in employment relative to the national average (location quotient.)

For those not familiar with location quotients, these represent the rate of employment for the state relative to the rate of employment in the same industry for the nation. A rate of 1.0 means that Colorado has the same rate of employment for that given industry as does the nation. Anything less than 1 means Colorado has a lower rate of employment in that industry compared to the nation. Economists believe location quotients of 1.2 or higher point to significant employment advantage for a given area relative to the nation.

**Reading the table:** The first column of data represents the employment count in 2007; the second column has the rate of change from 2003-2007; the third column shows the average weekly wage, the fourth column is the location quotient for the region, and the last two columns have short-term (2008-2010) and long term (2008-2016) projected rates of growth. Each of these variables is then ranked against all other industries in the region; a score of 1 represents the best ranking. The final column represents the average ranking for the preceding six columns, with each the first four factors (2007 jobs through location quotient) weighted equally, and short and long term projections being weighted each at half value.

**For example:** Looking at the Boulder-Longmont MSA, Professional and Technical Services has 22,841 jobs, and is ranked 1st of all the industries in Boulder. In the second factor – 2003-2007 % change – the industry grew by 27.3%, ranking 18<sup>th</sup> in the region in terms of growth. The weighted average rank across the six factors was 12, indicating that this industry is very strong indeed in the region.

As important as looking at the average rank is the difference in the ranking. In Boulder the average ranking between Professional and Technical Services (12) and Electronic Markets and Agents/Brokers (14) is only 2. However, from there, the next ranked industry Management of Companies and Enterprises has an average ranking of 20, 6 points separate from the one above it. These types of differences can point to just how strong one industry is compared to others in a region.