

# THE ECONOMIC BENEFITS OF HOUSING IN WASHINGTON

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*Prepared for*

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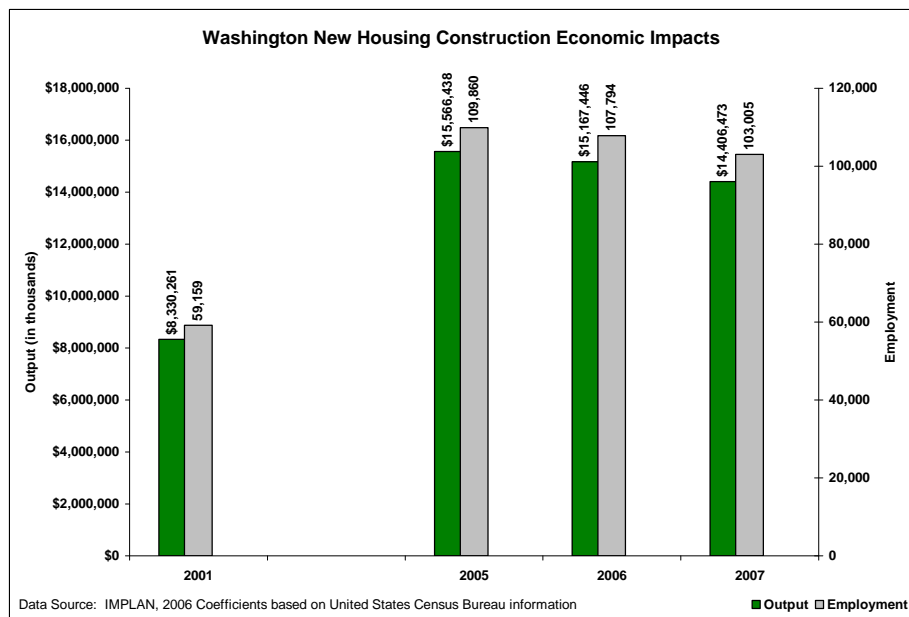
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## Executive Summary

Housing is one of the most visible and prominent industries in Washington. New housing construction creates a wide range of economic impacts in the state’s economy inclusive of the economic activity and job creation directly associated with building new housing units plus the linked suppliers of goods and services and employee spending. An even broader economic perspective of the entire housing industry captures not only new housing construction, but also residential real estate brokerage and management, maintenance and repair, additions and alterations, construction, home appraisal services, homeowner expenditures, and a number of other important aspects of the entire stock of owner- and renter-occupied housing. This study provides a deeper understanding of the housing industry’s contribution to Washington’s economy and reveals that the industry plays a critical role in the state.

Building new single- and multi-family housing units creates a ripple effect that spreads throughout the state’s economy. Accounting for the full range of economic impacts, new housing construction activity in 2007 generated over \$14 billion in output (total revenues from all sources of income), more than 103,000 jobs, and about \$428 million in state and local taxes. A little more than half of the total economic impact is a direct result of residential building activity. The other benefits are derived through construction’s demand on suppliers of goods and services (indirect effects) in addition to employee consumption activities (induced effects). New housing construction’s 2007 total impacts were lower than other recent years due to the economic downturn and housing market slump; however, building activities still made a tremendous contribution to the economy.

Monthly building permit estimates suggest that 2008 annual levels could be around those seen in 2001 and if 2009 continues at the same pace, the economic impacts associated with new housing construction could fall at or below levels seen in the most recent low year (2001).



## EXECUTIVE SUMMARY

The Puget Sound, Spokane, and Vancouver areas all experienced notable economic impacts resulting from new housing construction.<sup>1</sup> The largest of the three areas, Puget Sound, accounted for about 63 percent of the state’s permitting activity in 2007 and realized a benefit of over \$8.9 billion in output and nearly 63,000 jobs from building the new housing units. The smaller Vancouver and Spokane areas also experienced considerable economic impacts from new housing construction with benefits totaling around \$595 million and \$662 million in output and 4,400 jobs and 5,200 jobs, respectively.

The broader economic perspective on the entire housing industry incorporates the wide array of activities related to both the new and existing housing stock. The larger picture shows that, in 2006, housing was a nearly \$55 billion industry, supporting more than 194,000 jobs and contributing about 11 percent of Washington’s total output. With this level of economic activity, housing ranks near the top of list of leading industries in the state, placing just behind the large and dominant Wholesale & Retail Trade industry (the state’s largest sector) and ahead of the important Information industry as well as other influential industries such as Aerospace; Entertainment & Tourism; and Professional, Scientific, & Technical Services. As the ongoing economic slowdown becomes more evident in the data, it can be expected that the contributions of the housing industry will decrease as related real estate activities taper off.

<b>Economic Contributions of Washington's Housing Industry</b>			
Industry	Output (\$B)	Employment	% WA Output
Wholesale & Retail Trade	\$57.9	544,574	11.4%
<b>Housing</b>	<b>\$54.5</b>	<b>194,285</b>	<b>10.7%</b>
Information	\$46.3	108,182	9.1%
Aerospace	\$37.1	72,784	7.3%
State & Local Government	\$34.7	440,412	6.8%
Finance & Insurance	\$33.1	145,027	6.5%
Prof., Sci., & Tech. Services	\$31.6	255,843	6.2%
Health Care & Soc. Assistance	\$30.8	355,055	6.1%
Non-Res. Const. & Real Estate	\$25.8	204,975	5.1%

Data Source: IMPLAN

The entire housing industry is also a major contributor to the Puget Sound, Spokane, and Vancouver area economies. Housing provided more than 9 percent of the total regional output in each of these three areas. The six-county Puget Sound area’s housing industry provided nearly \$39 billion of output and more than 138,000 jobs in 2006. The housing industry was around the same size in both the Spokane and Vancouver areas, generating about \$3 billion in output and supporting more than 10,000 jobs in each local economy.

<sup>1</sup> The Puget Sound area includes Snohomish, King, Pierce, Thurston, Mason, and Kitsap Counties; the Spokane area is limited to Spokane County; and the Vancouver area captures Skamania and Clark Counties.

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## Introduction

The recent economic downturn and housing market slump have raised awareness of the major role the housing industry plays in the State of Washington's economy. The general public now has a strong sense that housing provides much more than basic shelter, real estate ownership, investment options, and residential construction jobs. Many, however, may not understand the full reach of the housing industry into the state's economy—the industry touches a number of different elements of the economy such as related suppliers of goods and services to the construction industry; remodeling, maintenance, and repair activities; and property management, appraisal, and brokerage services. All in all, the housing industry is one of the most visible and prominent industries in Washington and, despite the ongoing recession, is still an important contributor to the state's economy.

From an economic perspective there are two ways to look at the housing industry's role in the local economy: 1) the economic activity and job creation associated with building new housing units (referred to as "new housing construction" throughout this report) and 2) the wide array of activities related to both the new and existing housing stock (described as the "entire housing industry" in this report). In the first view, the economic impacts of new housing construction do not end with the activities associated with building new single- and multi-family units. These building activities generate a multiplier, or ripple, effect in the economy as a result of linkages that exist between the residential construction sector, suppliers of goods and services (indirect effect), and employee spending (induced effect). This ripple effect spreads throughout the local economy and beyond.

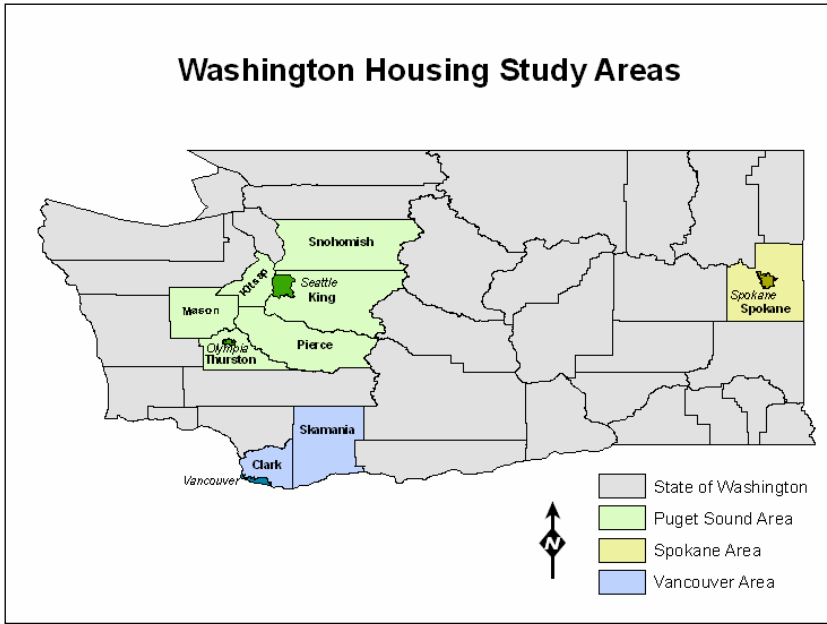
While residential construction is a critical piece of the housing industry's contribution to the economy, there are a number of other factors to consider in distinguishing the greater importance of the entire housing industry, which also incorporates the existing housing stock. In the second view, a broader economic perspective can be gained by defining the entire housing industry to include residential real estate brokerage and management, maintenance and repair, additions and alterations, construction, home appraisal services, homeowner expenditures, and all other aspects of the entire stock of owner- and renter-occupied housing.

In order to gain a deeper understanding of the housing industry's contribution to Washington's economy, the Building Industry Association of Washington (BIAW) commissioned the Sacramento Regional Research Institute (SRRI)<sup>1</sup> to conduct a study that examines the full range of economic impacts of new housing construction as well as the greater importance of the entire housing industry.

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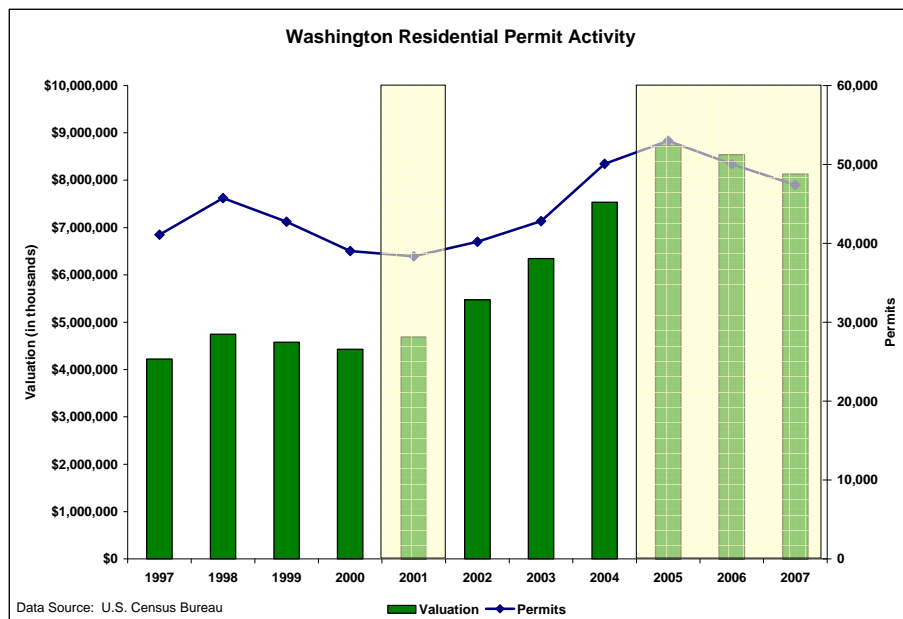
<sup>1</sup> SRRI is an economic research and consulting group affiliated with the Sacramento Area Commerce and Trade Organization (SACTO). The Institute has worked with the California Building Industry Association (CBIA) since 2003 to produce a bi-annual report, entitled *The Economic Benefits of Housing in California*, which tracks the economic contributions of the housing industry in California, its major economic regions, and its 58 counties.

## INTRODUCTION



The analysis focuses on the State of Washington as well as three distinct regions, including the Puget Sound, Spokane, and Vancouver areas.<sup>2</sup>

To provide a perspective of the change in the housing industry's economic contributions over time, four specific years were selected for new housing construction—the two most current years where annual permit levels were available, 2006 and 2007,



along with the most recent low and peak years of permit activity, 2001 and 2005. For the evaluation of the entire housing industry, the most recent year of data with enough detail available to dissect and aggregate all elements of the industry, 2006, was compared to the 2001 benchmark.

This report is presented in two main sections. The first section focuses on the economic benefits of the housing industry at the statewide level, including new housing

<sup>2</sup> The three study areas were defined in collaboration with the BIAW. The Puget Sound area includes Snohomish, King, Pierce, Thurston, Mason, and Kitsap Counties; the Spokane area is limited to Spokane County; and the Vancouver area captures Skamania and Clark Counties.

## INTRODUCTION

construction and the broader housing industry. The second section analyzes the economic contributions of new housing construction and the entire housing industry within the Puget Sound, Spokane, and Vancouver areas. In addition to the two main sections, five appendices are provided—Appendix A describes the research methodology employed in the study; Appendix B provides summary sector breakdowns of new housing construction impacts for all years; Appendix C presents detailed sector impacts of new housing construction for the most recent year; Appendix D shows sub-sector detail for Washington’s leading industries; and Appendix E highlights the components of the entire housing industry for the three focus regions.

## Economic Benefits of Housing in Washington

Washington's housing industry is one of the most prominent industries in the state and is comprised of activities related to new home construction; remodeling, maintenance, and repair activities; and property management, appraisal, and brokerage services. This section focuses on the statewide impacts of new housing construction and an assessment of the economic contributions of Washington's entire housing industry.

### New Housing Construction

About 47,000 permits for new privately-owned housing units were granted in the State of Washington in 2007, according to United States Census Bureau residential building permit data shown in Figure 1. This is a decrease of 5 percent from the previous year and a nearly 11 percent drop from the 10-year peak of close to 53,000 permits in 2005. While the number of permits authorized in 2007 was well above the 2001 level, monthly building permit estimates suggest that the 2008 annual activity will likely be close to 2001. Various forecasts also anticipate 2009 permits to drop below this recent low as a result of the ongoing recession and difficulties in the housing market.

There has been a notable shift in the proportion of permits issued for single-family units versus multi-family units in the represented period. In 2007, 64 percent of total permits issued were for single-family units and 36 percent for multi-family in comparison to the peak year, 2005, when about 78 percent of total permits were for single-family and 22 percent for multi-family. In the state's most recent low year of permit activity, 2001, single-family units comprised nearly 70 percent of total permits with the remaining 30 percent issued for multi-family units.

Washington residential construction valuation (estimated cost of construction work permitted) peaked in 2005 at around \$8.7 billion, but dropped almost 7 percent to approximately \$8.1 billion in 2007 as building activity declined with the housing slowdown. Average construction valuation per unit in 2007 was close to \$172,000, compared to around \$165,000 in the 2005 peak year and just over \$122,000 in the most recent low activity year in 2001. Valuation is closely tied not only to trends in the construction sector, but also to the types and locations of units built.

**FIGURE 1**  
**RESIDENTIAL BUILDING**  
**PERMITS IN WASHINGTON**  
**(VALUATION IN THOUSANDS)**

<i>Indicator</i>	<i>2001</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
Permits	38,345	52,988	50,033	47,397
Valuation	\$4,688,932	\$8,741,714	\$8,539,795	\$8,129,631

SRRI, March 2009

Data Source: United States Census Bureau

## WASHINGTON'S HOUSING INDUSTRY

Although residential construction activity has declined in the economic downturn, new housing construction still contributes greatly to the state's economy. In addition to the activities directly related to building housing units, residential construction provides additional benefits due to the ripple effect that occurs in Washington's economy as a result of the linkages between construction activities, suppliers of goods and services, and consumer spending. Figure 2 shows that, based on 2007 values, new housing construction generated approximately 103,000 jobs, more than \$14.4 billion in output (total revenues from all sources of income), and over \$428 million in state and local taxes. These total impacts are a result of the following: 1) new housing construction *directly* provided about 53,000 jobs and over \$8.1 billion in output to the state's economy; 2) new housing construction *indirectly* supported around 25,000 jobs and \$3.3 billion in output through the demand on linked suppliers of goods and services; and 3) consumption activities of those employed directly and indirectly through new housing construction created an *induced* impact of about 25,000 jobs and \$3.0 billion in output.

**FIGURE 2**  
**TOTAL ECONOMIC IMPACTS OF NEW HOUSING**  
**CONSTRUCTION IN WASHINGTON**  
**(OUTPUT AND TAX GENERATION IN THOUSANDS)**

<i>Year / Impact</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
2007 Employment	52,674	25,188	25,143	103,005
2007 Output	\$8,129,631	\$3,258,998	\$3,017,844	\$14,406,473
2007 State & Local Tax Generation	-	-	-	\$428,356
2006 Employment	54,633	26,873	26,288	107,794
2006 Output	\$8,539,795	\$3,472,360	\$3,155,291	\$15,167,446
2006 State & Local Tax Generation	-	-	-	\$453,250
2005 Employment	55,099	27,998	26,764	109,860
2005 Output	\$8,741,714	\$3,612,350	\$3,212,374	\$15,566,438
2005 State & Local Tax Generation	-	-	-	\$467,850
2001 Employment	29,950	14,783	14,426	59,159
2001 Output	\$4,688,932	\$1,909,855	\$1,731,474	\$8,330,261
2001 State & Local Tax Generation	-	-	-	\$249,086

SRRI, March 2009

Data Source: IMPLAN, 2006 Coefficients based on United States Census Bureau information

Note: Differences due to rounding.

As to be expected, new housing construction's 2007 total impacts were lower than recent years due to the housing slowdown. In the 2005 peak year, total impacts equated to nearly 110,000 jobs (6 percent higher than 2007), close to \$15.6 billion in output (8 percent greater than 2007), and almost \$468 million in state and local taxes (9 percent above 2007). Recent impacts track considerably above the low level benchmark, 2001, when the total benefits equated to about 59,000 jobs, \$8.3 billion in output, and \$249 million in state and local taxes, all around three-quarters lower than more recent values. If, as monthly permit estimates and various forecasts suggest, 2008 and 2009 permit

## WASHINGTON'S HOUSING INDUSTRY

levels fall at or below 38,000 units, one could expect the impacts to be similar to 2001 levels, assuming no major shifts occur in valuation behavior and construction's economic linkages in the state's economy remain fairly constant.

The economic multiplier effect shows that for each additional dollar of construction valuation, Washington sees, on average, another 80 cents in industry output and for every employee created as a direct result of building new housing units, the state gains another 1.0 job through indirect and induced activity. Although total economic impacts vary, the multiplier effect is similar for all years represented in Figure 2.

Based on the 2007 economic impact values, Washington's Construction; Manufacturing; and Retail Trade sectors benefit the most from total output impacts created through new housing construction, together accounting for about 72 percent of the total impacts. The greatest indirect output gains are seen in Manufacturing; Retail Trade; and Professional, Scientific & Technical Services due to their role as linked and service-providing sectors. The Government; Health & Social Services; and Retail Trade sectors experience the largest induced impacts due to direct and indirect employees' spending within these sectors. The sectors that see the greatest output impacts are similar over the measured years—specific impact levels are provided in Appendix B. A more detailed breakdown of the output impacts is presented in Appendix C.

**FIGURE 3**  
**DETAILED OUTPUT IMPACTS OF NEW HOUSING**  
**CONSTRUCTION IN WASHINGTON (2007)**  
**(IN THOUSANDS)**

<i>Industry</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>% Total</i>
Construction	\$8,129,631	\$18,921	\$18,019	\$8,166,570	56.7%
Manufacturing	-	\$890,563	\$304,982	\$1,195,545	8.3%
Retail Trade	-	\$632,170	\$377,578	\$1,009,748	7.0%
Professional, Scientific & Technical Services	-	\$477,823	\$109,482	\$587,304	4.1%
Government	-	\$54,074	\$489,367	\$543,440	3.8%
Wholesale Trade	-	\$309,025	\$171,550	\$480,575	3.3%
Health & Social Services	-	\$106	\$450,260	\$450,366	3.1%
Finance & Insurance	-	\$163,404	\$261,283	\$424,687	2.9%
Real Estate & Rental	-	\$135,032	\$164,477	\$299,509	2.1%
Transportation & Warehousing	-	\$195,659	\$78,837	\$274,496	1.9%
Accommodation & Food Services	-	\$33,363	\$174,865	\$208,228	1.4%
Other Services	-	\$49,178	\$125,920	\$175,098	1.2%
Information	-	\$71,437	\$81,413	\$152,850	1.1%
Administrative & Waste Services	-	\$103,362	\$47,770	\$151,132	1.0%
Agriculture, Forestry, Fishing & Hunting	-	\$56,367	\$27,062	\$83,428	0.6%
Management of Companies	-	\$41,201	\$24,755	\$65,956	0.5%
Arts, Entertainment & Recreation	-	\$6,501	\$44,378	\$50,879	0.4%
Educational Services	-	\$1,459	\$38,208	\$39,667	0.3%
Utilities	-	\$11,889	\$24,363	\$36,253	0.3%
Mining	-	\$7,465	\$3,275	\$10,741	0.1%
<b>Total</b>	<b>\$8,129,631</b>	<b>\$3,258,998</b>	<b>\$3,017,844</b>	<b>\$14,406,473</b>	<b>-</b>

SRRI, March 2009

Data Source: IMPLAN, 2006 Coefficients based on 2007 United States Census Bureau information

Note: Differences due to rounding.

## WASHINGTON'S HOUSING INDUSTRY

Figure 4 demonstrates that, based on 2007 economic values, the Construction; Retail Trade; and Health & Social Services sectors see the largest employment gains in Washington resulting from new housing construction. Due to their linkages to new housing construction activities, the Retail Trade; Professional, Scientific & Technical Services; and Manufacturing sectors capture the greatest indirect impacts while the Health & Social Services; Retail Trade; and Accommodation & Food Services sectors experience the greatest induced benefits as a result from direct and indirect employees' consumption activities from these sectors. The sectors benefitting the most from new housing construction employment impacts are comparable for all analyzed years—Appendix B shows the specific job level estimates for the other years. Appendix C presents a more detailed breakdown of employment impacts for 2007.

**FIGURE 4**  
**DETAILED EMPLOYMENT IMPACTS OF NEW HOUSING**  
**CONSTRUCTION IN WASHINGTON (2007)**

<i>Industry</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>% Total</i>
Construction	52,674	150	149	52,973	51.4%
Retail Trade	-	7,956	4,782	12,738	12.4%
Health & Social Services	-	1	5,311	5,312	5.2%
Professional, Scientific & Technical Services	-	3,973	999	4,972	4.8%
Manufacturing	-	3,882	642	4,524	4.4%
Accommodation & Food Services	-	515	3,100	3,616	3.5%
Other Services	-	732	2,516	3,248	3.2%
Wholesale Trade	-	1,715	952	2,668	2.6%
Administrative & Waste Services	-	1,807	758	2,565	2.5%
Transportation & Warehousing	-	1,588	684	2,271	2.2%
Finance & Insurance	-	791	1,190	1,981	1.9%
Real Estate & Rental	-	750	1,014	1,764	1.7%
Arts, Entertainment & Recreation	-	148	881	1,029	1.0%
Government	-	335	601	936	0.9%
Educational Services	-	28	818	845	0.8%
Agriculture, Forestry, Fishing & Hunting	-	339	312	651	0.6%
Information	-	229	265	494	0.5%
Management of Companies	-	196	118	314	0.3%
Utilities	-	20	43	63	0.1%
Mining	-	33	10	42	0.0%
<b>Total</b>	<b>52,674</b>	<b>25,188</b>	<b>25,143</b>	<b>103,005</b>	<b>-</b>

SRRI, March 2009

Data Source: IMPLAN, 2006 Coefficients based on 2007 United States Census Bureau information

Note: Differences due to rounding.

## WASHINGTON'S HOUSING INDUSTRY

New housing construction also creates an impact on Washington's state and local tax generation. As shown in Figure 5, new housing construction levels in 2007 created over \$428 million in state and local taxes including sales, personal, and business taxes from all economic activity (direct, indirect, and induced). The greatest tax impacts are from sales taxes with nearly 52 percent of the total tax generation, followed by business property taxes accounting for 22 percent of the total. The proportion of impacts captured by the various listed tax areas is alike in the other analyzed years—the total tax generation for each year is displayed in Figure 2.

**FIGURE 5**  
**TOTAL STATE & LOCAL TAX IMPACTS OF**  
**NEW HOUSING CONSTRUCTION IN**  
**WASHINGTON (2007)**  
**(IN THOUSANDS)**

<i>Tax Area</i>	<i>Total Impacts</i>	<i>% Total</i>
Sales Taxes	\$221,696	51.8%
Business Property	\$96,038	22.4%
Business Other Taxes	\$31,330	7.3%
Dividend Payments from Investment	\$28,270	6.6%
Personal Assessments, Fees & Other Non-Taxes	\$24,934	5.8%
Business Assessments, Fees & Other Non-Taxes	\$12,119	2.8%
Personal Motor Vehicle	\$5,301	1.2%
Social Insurance-Employer	\$2,681	0.6%
Personal Property	\$2,238	0.5%
Business Motor Vehicle	\$2,174	0.5%
Severance Taxes	\$906	0.2%
Social Insurance-Employee	\$670	0.2%
<b>Total</b>	<b>\$428,356</b>	<b>-</b>

SRRI, March 2009

Data Source: IMPLAN, 2006 Coefficients based on 2007 United States  
 Census Bureau information

Note: Differences due to rounding.

## WASHINGTON'S HOUSING INDUSTRY

### Entire Housing Industry

The housing industry's influence in Washington reaches well beyond those impacts generated solely by new housing construction. While residential construction is certainly an important component of the housing industry, other activities including brokerage, management, and appraisal services; maintenance, repairs, additions, and alterations; and homeowner expenditures all add to the broader industry's contribution to the economy.

Figure 6 demonstrates that, in 2006, housing was a nearly \$55 billion industry, supporting more than 194,000 jobs and contributing about 11 percent of Washington's total output. This is a considerable increase over what the housing industry generated in 2001—more than \$36 billion of output (just under 10 percent of the state's total) and close to 166,000 jobs. Similar to new housing construction, as the ongoing economic slowdown becomes more evident in the data, it can be expected that the contributions of the housing industry will decrease as related real estate activities taper off. However, general escalations in output values and costs over time (across the activities encompassed in the housing industry and other sectors) and increases in the housing stock and associated ownership (leading to a greater aggregate of homeownership costs and linked expenditures) will likely moderate some of the decreases in the entire housing industry numbers.

**FIGURE 6**  
**STATEWIDE HOUSING INDUSTRY ECONOMIC CONTRIBUTIONS**  
**AND COMPARISON TO WASHINGTON'S LEADING INDUSTRIES**  
**(OUTPUT IN THOUSANDS)**

Industry	2001		2006		% of Total Output
	Output	Employment	Output	Employment	
Wholesale and Retail Trade	\$39,614,742	523,087	\$57,867,667	544,574	11.4%
<b>Housing*</b>	<b>\$36,054,692</b>	<b>165,896</b>	<b>\$54,534,955</b>	<b>194,285</b>	<b>10.7%</b>
Information	\$33,905,248	102,659	\$46,313,087	108,182	9.1%
Aerospace	\$23,879,443	84,315	\$37,139,986	72,784	7.3%
State and Local Government	\$25,578,735	432,800	\$34,701,379	440,412	6.8%
Finance and Insurance	\$20,869,997	142,444	\$33,080,548	145,027	6.5%
Professional, Scientific, and Technical Services	\$19,498,653	244,471	\$31,559,655	255,843	6.2%
Health Care and Social Assistance	\$23,322,766	309,633	\$30,760,606	355,055	6.1%
Non-Residential Construction and Real Estate*	\$17,806,838	187,332	\$25,834,535	204,975	5.1%
Entertainment and Tourism	\$16,173,733	342,025	\$21,645,305	352,787	4.3%
Agriculture and Food Processing	\$15,947,186	121,378	\$21,387,349	114,536	4.2%
Management and Business Support Services	\$11,376,919	180,830	\$19,497,249	223,153	3.8%
Forestry and Wood Product Manufacturing	\$11,581,176	73,843	\$16,479,924	84,526	3.2%
Petroleum and Coal Products Manufacturing	\$5,157,481	2,448	\$15,642,859	2,357	3.1%
Computer and Electronic Product Manufacturing	\$6,683,639	28,445	\$12,744,127	18,798	2.5%
Transportation and Warehousing	\$10,249,818	97,378	\$12,047,616	103,319	2.4%
Federal Government	\$9,770,275	130,255	\$12,333,802	126,595	2.4%
Other Services	\$14,656,723	203,146	\$11,850,500	202,027	2.3%
Medical Manufacturing	\$2,748,523	9,999	\$4,672,966	10,639	0.9%
Marine Services	\$3,724,958	17,255	\$4,330,342	20,712	0.9%
Utilities	\$2,498,538	4,984	\$3,092,443	5,297	0.6%
Washington Total	\$379,174,977	3,588,079	\$544,425,827	3,811,440	-

SRRI, March 2009

Data Source: IMPLAN

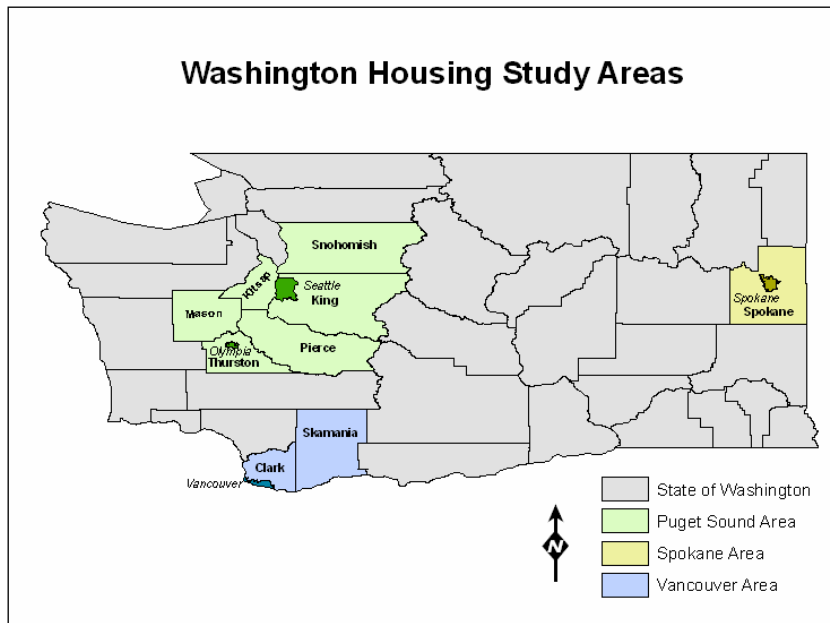
\* Housing industry includes an allocation of 67 percent of Real Estate sector and Non-Residential Construction includes 33 percent of Real Estate sector.

## WASHINGTON'S HOUSING INDUSTRY

Comparing the housing industry to some of Washington's leading industries more clearly reveals the major role it plays in the state's economy. In both 2001 and 2006, the housing industry ranked just below the large and dominant Wholesale & Retail Trade industry and notably above the important Information industry, which includes establishments engaged in activities such as telecommunications, Internet services, data processing, software publishing, and broadcasting. Housing also topped other influential industries in the state, including Aerospace; Forestry & Wood Product Manufacturing; Entertainment & Tourism; Professional, Scientific, & Technical Services; Medical Manufacturing; Marine Services; and Agriculture & Food Processing, all of which each contributed less than 8 percent of the state's total output in 2001 and 2006. Additional sector-level details for Washington's leading industries are provided in Appendix D.

## Regional-Level Economic Benefits of Housing

The three major Washington areas of Puget Sound, Spokane, and Vancouver, although distinct in their particular development size and patterns, also benefit greatly from new housing construction's activities within their regional economies. This section covers the economic impacts of new housing construction within these three areas plus each region's entire housing industry output and employment.



### New Housing Construction

Figure 7 (on the following page) shows the varying levels of permits and valuation within the Puget Sound, Spokane, and Vancouver areas. The Puget Sound area, the largest geographic area of the three regions (accounting for about 63 percent of the state's residential construction, on average), issued nearly 30,000 permits with construction valuation topping over \$5.2 billion in 2007. This reflects a decline in permits of 3 percent from 2006 (Puget Sound area's peak year) and nearly 2 percent from 2005, much lower declines than the state and the two other regions. The Puget Sound area issued more permits in 2007 than the approximate 24,000 permits issued in the previous low year of permit activity in 2001. The Spokane area, similar to the Puget Sound area, also issued more permits in 2007 than 2001, but with about 2,800 permits (and \$387 million construction valuation) in 2007, it saw the greatest declines in issued permits of all three regions in the past couple years, decreasing around 26 percent since 2006 and 17 percent since 2005. The Vancouver area varies from the two other regions in that it had much greater permit activity in 2001 (its peak year in the years represented in Figure 7) with over 3,900 permits (and \$485 million in construction valuation), than in 2007 when the region had just around 2,400 permits issued (and almost \$371 million construction valuation), a permit decline of nearly 38 percent.

**FIGURE 7**  
**RESIDENTIAL BUILDING PERMITS IN**  
**WASHINGTON'S REGIONS**  
**(VALUATION IN THOUSANDS)**

<i>Area / Indicator</i>	<i>2001</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
<b>Puget Sound</b>				
Permits	24,107	30,333	30,733	29,811
Valuation	\$3,009,594	\$5,327,769	\$5,399,566	\$5,205,591
<b>Spokane</b>				
Permits	2,223	4,396	3,764	2,777
Valuation	\$240,762	\$541,426	\$467,584	\$387,222
<b>Vancouver</b>				
Permits	3,909	3,891	3,102	2,432
Valuation	\$485,454	\$615,637	\$516,885	\$370,707

SRRI, March 2009

Data Source: United States Census Bureau

Note: Differences due to rounding.

Similar to the state overall, the multiplier effect extends the regional economic impacts of new housing construction beyond those activities directly related to building single- and multi-family housing units. Throughout each of the three areas, additional jobs and output are created within linked suppliers of goods and services and sectors that support direct and indirect employees' spending activities within each region's boundaries.

Figure 8 (on the next page) shows that the six-county Puget Sound area, with its significantly higher levels of residential permits and construction valuation, had the largest total economic impacts (including direct, indirect, and induced effects) of the three regions. Total 2007 impacts for this area equate to about 63,000 jobs and around \$8.9 billion in output, still much higher than the nearly 36,000 jobs and \$5.2 billion in output in 2001. New housing construction, based on 2007 values, generated total impacts of about 5,200 jobs and \$62 million in output in the Spokane area's economy, also much higher than 2001 total impacts. The Vancouver area's 2007 total impacts fell below the previous years with almost 4,400 jobs and \$595 million in output. The same sectors that saw the greatest output and employment impacts statewide also saw the greatest benefits in all three regions—these include Construction; Retail Trade; Manufacturing; and Health & Social Services.

REGIONAL-LEVEL HOUSING INDUSTRY

**FIGURE 8**  
**TOTAL ECONOMIC IMPACTS OF NEW**  
**HOUSING CONSTRUCTION IN**  
**WASHINGTON'S REGIONS**  
**(OUTPUT IN THOUSANDS)**

<i>Year / Impact Type</i>	<i>Puget Sound Area</i>	<i>Spokane Area</i>	<i>Vancouver Area</i>
2007 Employment	62,575	5,217	4,375
2007 Output	\$8,909,190	\$662,273	\$594,555
2006 Employment	64,595	6,322	6,090
2006 Output	\$9,272,750	\$798,550	\$829,555
2005 Employment	63,318	7,305	7,214
2005 Output	\$9,192,025	\$925,456	\$990,020
2001 Employment	35,950	3,257	5,709
2001 Output	\$5,173,952	\$411,068	\$779,671

SRRI, March 2009

Data Source: IMPLAN, 2006 Coefficients based on United States Census Bureau information

Note: Differences due to rounding.

Like the state, the multiplier effects in each of the three regions only varied minimally across the measured years. New housing construction benefits the Spokane area the most with over 70 cents created for every dollar of residential construction activity and 1.0 job resulting from every job supported by building new housing. The ripple effects for the Puget Sound area show for each additional dollar of construction valuation, the region sees, on average, another 70 cents in industry output and for every employee created as a direct result of building new housing units, it gains another 0.9 job through indirect and induced activity. The Vancouver area has slightly lower multiplier effects—60 cents is created for every dollar of residential construction activity in the region and it gains an additional 0.8 job for every job supported by building new housing.

## Entire Housing Industry

The entire housing industry is a major contributor to the Puget Sound, Spokane, and Vancouver area economies. In each of these areas, housing provided more than 9 percent of the total regional output in both 2001 and 2006 and ranks near the top of the list of major industries. As shown in Figure 9, the large Puget Sound area’s housing industry provided nearly \$39 billion of output (over 10 percent of the total) and more than 138,000 jobs in 2006. Like the state overall, this area saw a notable increase in the housing industry’s contribution between 2001 and 2006. The housing industry is around the same size in both the Spokane and Vancouver areas—generating about \$3 billion of output and supporting more than 10,000 jobs. Housing plays a considerably greater role in the Vancouver area compared to the Spokane area, however, providing over 12 percent of the total output in the former and just below 10 percent in the latter. Both areas experienced an interesting pattern between 2001 and 2006—the housing industry output increased while employment decreased. This is primarily due to continued gains in those components which are mainly value-based (values of the housing stock and homeownership) and drops in job-heavy activities (maintenance, repairs, additions, and alterations). In fact, this behavior is evident to some extent statewide and will likely become more pronounced as the current recession works its way through the economy. Additional details on the components of the housing industry at the regional level are provided in Appendix E.

**FIGURE 9**  
**REGIONAL HOUSING INDUSTRY ECONOMIC**  
**CONTRIBUTIONS**  
**(OUTPUT IN THOUSANDS)**

Area	2001		2006		% of Total Output
	Output	Employment	Output	Employment	
Puget Sound	\$25,698,064	107,642	\$38,698,637	138,182	10.2%
Spokane	\$1,980,765	10,807	\$2,950,394	10,735	9.5%
Vancouver	\$1,954,522	11,180	\$3,033,440	10,451	12.4%

SRRI, March 2009

Data Source: IMPLAN

Note: Housing industry includes an allocation of 67 percent of the Real Estate sector for Puget Sound, 61 percent for Spokane, and 73 percent for Vancouver.

## Appendix A—Research Methodology

SRRI utilized the IMPLAN input-output model to measure the full range of economic impacts associated with new housing construction. The model was developed at the University of Minnesota specifically for use in regional analysis and currently distributed and supported by the Minnesota IMPLAN Group, Inc. This model is widely used throughout the country for economic and fiscal analysis to quantify the full range of economic impacts associated with a specific activity or group of activities. Input-output models, including IMPLAN, evaluate the effects of industries on each other based on the premise that industries use the outputs of other industries as inputs. The model was calibrated and run using the most current coefficients and new privately-owned housing units authorized data from the United States Census Bureau for the State of Washington and three focus regions.

Most typical measures of economic activity examine only the total output or employment of an industry, or the amount of final consumption demand provided by a given industry. The input-output model provides a much more comprehensive view of the inter-related economic impacts. For example, new housing construction creates *direct benefits* in the economy through its expenditures on payroll and goods and services to support its operations. Its impact on the economy is greater than these direct impacts, however—linked suppliers of the construction firms' operations create *indirect benefits* through their own purchases of goods and services as well as through hiring employees. Employees supported by both the construction firms (direct employees) and the supplier businesses (indirect employees) make purchases from other establishments, such as retail outlets, medical facilities, and banks, which create *induced benefits* in the economy.

The full range of economic impacts that result from new housing construction includes direct, indirect, and induced benefits:

- *Direct Benefits* consist of economic activity related exclusively to new housing construction. This includes all expenditures made by residential construction establishments and all employees who work directly for those homebuilders. These are often the most visible and recognizable activities of new housing construction.
- *Indirect Benefits* define the creation of additional economic activity that results from linked firms, suppliers of goods and services, and provision of operating inputs. Examples of indirect activity include wholesale trade where builders purchase lumber, roofing, electrical, and plumbing materials; motor freight services that deliver materials to the wholesaler and construction sites; and engineering and architectural services which participate in the design and planning of housing units and subdivisions.
- *Induced Benefits* measure the consumption expenditures of direct and indirect sector employees. Examples of induced benefits include employees' expenditures on items such as retail purchases, housing, medical services, banking, and insurance.

These benefits also illustrate the multiplier, or ripple, effect that quantifies the incremental indirect and induced impact of each additional direct job or dollar of output related to new housing construction.

In this analysis, the total direct, indirect, and induced benefits are presented in two ways:

- *Employment* demonstrates the number of jobs generated on an annual basis.
- *Output* accounts for total revenues including all sources of income or the value of production generated by an industry for a given time period. This is the best overall measure of business and economic activity because it is the measure most firms use to determine current activity levels.

At the statewide level, an IMPLAN model-based analysis of the overall generation of state and local tax revenues is also presented. The tax impact captures various business and personal tax revenues (e.g. sales, property, and social insurance) specific to Washington resulting from the direct, indirect, and induced benefits of new housing construction.

In order to create an accounting of the entire housing industry, SRRI allocated employment and output data for specific sub-sectors into broad categories based on the detailed economic activities and reviews of construction, brokerage, and labor market data at the statewide level. One particular area of interest in this analysis was the Real Estate sector, which captures both residential and non-residential activity. In order to disaggregate this sector and allocate the residential portion to the housing industry, SRRI reviewed detailed employment data, major real estate brokerage activities, and residential and commercial valuation measures. This review showed that, on average, 67 percent of the Real Estate sector is focused on residential property transactions, management, and leasing at the statewide level with 67 percent residential in the Puget Sound area, 61 percent in the Spokane area, and 73 percent in the Vancouver area. SRRI allocated these proportions of Real Estate sector's employment and output to the entire housing industry and the remainder to the non-residential category. Employment and output data for all sub-sectors were pulled from the IMPLAN models, which utilizes economic data from sources such as the United States Bureau of Economic Analysis, Bureau of Labor Statistics, and Census Bureau to provide a comprehensive data set for the national, statewide, and local economies.

By taking into account the multiplier effect, direct, indirect, and induced benefits, and other housing-related activities, this study provides a measurement of the full range of economic impacts and offers insight into how the housing sector, beginning with new housing construction, produces a wide range of economic benefits to the Washington economy.

Appendix B—Washington Sector Summary Impacts

FIGURE B-1  
 DETAILED OUTPUT IMPACTS OF NEW HOUSING  
 CONSTRUCTION IN WASHINGTON (IN THOUSANDS)

Industry	2001	2005	2006	2007
Construction	\$4,710,317	\$8,781,721	\$8,578,728	\$8,166,570
Manufacturing	\$698,283	\$1,316,806	\$1,270,025	\$1,195,545
Retail Trade	\$590,935	\$1,116,356	\$1,074,553	\$1,009,748
Professional, Scientific & Technical Services	\$336,335	\$622,911	\$613,033	\$587,304
Government	\$312,583	\$581,287	\$569,467	\$543,440
Wholesale Trade	\$280,759	\$529,565	\$510,626	\$480,575
Health & Social Services	\$258,396	\$479,397	\$470,878	\$450,366
Finance & Insurance	\$245,580	\$458,929	\$447,141	\$424,687
Real Estate & Rental	\$172,910	\$322,639	\$314,883	\$299,509
Transportation & Warehousing	\$161,068	\$304,997	\$292,802	\$274,496
Accommodation & Food Services	\$120,029	\$223,651	\$218,618	\$208,228
Other Services	\$101,051	\$188,495	\$184,029	\$175,098
Information	\$88,412	\$165,262	\$160,971	\$152,850
Administrative & Waste Services	\$86,888	\$161,508	\$158,303	\$151,132
Agriculture, Forestry, Fishing & Hunting	\$48,950	\$92,683	\$88,985	\$83,428
Management of Companies	\$38,502	\$72,572	\$70,032	\$65,956
Arts, Entertainment & Recreation	\$29,304	\$54,561	\$53,379	\$50,879
Educational Services	\$22,784	\$42,313	\$41,514	\$39,667
Utilities	\$20,914	\$38,998	\$38,089	\$36,253
Mining	\$6,261	\$11,787	\$11,390	\$10,741
Total	\$8,330,261	\$15,566,438	\$15,167,446	\$14,406,473

SRRI, March 2009

Data Source: IMPLAN, 2006 Coefficients based on United States Census Bureau information

Note: Differences due to rounding.

FIGURE B-2  
 DETAILED EMPLOYMENT IMPACTS OF NEW HOUSING  
 CONSTRUCTION IN WASHINGTON

Industry	2001	2005	2006	2007
Construction	30,123	55,422	54,948	52,973
Retail Trade	7,454	14,082	13,555	12,738
Health & Social Services	3,048	5,655	5,554	5,312
Professional, Scientific & Technical Services	2,850	5,282	5,193	4,972
Manufacturing	2,669	5,078	4,849	4,524
Accommodation & Food Services	2,083	3,880	3,795	3,616
Other Services	1,874	3,493	3,412	3,248
Wholesale Trade	1,559	2,940	2,835	2,668
Administrative & Waste Services	1,470	2,725	2,679	2,565
Transportation & Warehousing	1,332	2,520	2,421	2,271
Finance & Insurance	1,147	2,147	2,088	1,981
Real Estate & Rental	1,019	1,900	1,855	1,764
Arts, Entertainment & Recreation	593	1,105	1,080	1,029
Government	543	1,016	988	936
Educational Services	486	902	885	845
Agriculture, Forestry, Fishing & Hunting	380	717	691	651
Information	286	536	521	494
Management of Companies	183	345	333	314
Utilities	37	68	67	63
Mining	25	48	45	42
Total	59,159	109,860	107,794	103,005

SRRI, March 2009

Data Source: IMPLAN, 2006 Coefficients based on United States Census Bureau information

Note: Differences due to rounding.

APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS

**Appendix C—2007 Impacts of New Housing Construction in Washington**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
Washington Total	\$8,129,631	\$3,258,998	\$3,017,844	\$14,406,473	52,674	25,188	25,143	103,005
New residential 1-unit structures, nonfarm	\$6,223,226	-	-	\$6,223,226	37,916	-	-	37,916
New multifamily housing structures, nonfarm	\$1,906,405	-	-	\$1,906,405	14,758	-	-	14,758
Wholesale trade	-	\$309,025	\$171,550	\$480,575	-	1,715	952	2,668
Owner-occupied dwellings	-	-	\$384,545	\$384,545	-	-	-	-
Architectural and engineering services	-	\$291,518	\$10,209	\$301,727	-	2,447	86	2,533
Real estate	-	\$104,339	\$144,780	\$249,119	-	627	870	1,496
Petroleum refineries	-	\$132,863	\$87,705	\$220,568	-	16	10	26
Motor vehicle and parts dealers	-	\$107,564	\$69,116	\$176,680	-	958	615	1,573
Offices of physicians, dentists, and other health practitioners	-	-	\$165,574	\$165,574	-	-	1,628	1,628
Food services and drinking places	-	\$15,513	\$146,499	\$162,012	-	291	2,750	3,041
Truck transportation	-	\$118,456	\$27,651	\$146,107	-	889	208	1,097
Wood kitchen cabinet and countertop manufacturing	-	\$142,682	\$1,527	\$144,209	-	1,053	11	1,064
Food and beverage stores	-	\$83,660	\$53,317	\$136,977	-	1,206	769	1,974
Hospitals	-	-	\$129,329	\$129,329	-	-	1,044	1,044
General merchandise stores	-	\$78,898	\$50,333	\$129,231	-	1,214	775	1,989
Monetary authorities and depository credit intermediation	-	\$49,835	\$72,791	\$122,625	-	151	221	373
Insurance carriers	-	\$34,553	\$80,296	\$114,848	-	132	308	440
Building material and garden supply stores	-	\$68,370	\$36,959	\$105,329	-	721	390	1,110
Nonstore retailers	-	\$67,949	\$37,324	\$105,274	-	565	310	875
Sawmills	-	\$88,458	\$1,341	\$89,798	-	299	5	303
Telecommunications	-	\$47,377	\$38,052	\$85,429	-	105	85	190
Legal services	-	\$49,123	\$33,101	\$82,224	-	436	294	730
Clothing and clothing accessories stores	-	\$48,516	\$33,301	\$81,817	-	566	388	954
Securities, commodity contracts, investments	-	\$34,740	\$39,250	\$73,990	-	284	320	604
State and local government electric utilities	-	\$24,076	\$43,724	\$67,800	-	62	112	173
Management of companies and enterprises	-	\$41,201	\$24,755	\$65,956	-	196	118	314
Nondepository credit intermediation and related activities	-	\$35,780	\$29,238	\$65,019	-	164	134	298
Plastics plumbing fixtures and all other plastics	-	\$59,419	\$5,228	\$64,647	-	300	26	326
Other State and local government enterprises	-	\$20,714	\$43,679	\$64,393	-	90	190	280
Gasoline stations	-	\$40,965	\$22,493	\$63,458	-	414	227	641
Health and personal care stores	-	\$37,038	\$19,436	\$56,475	-	539	283	822
Engineered wood member and truss manufacturing	-	\$55,175	\$447	\$55,622	-	311	3	314
Accounting and bookkeeping services	-	\$38,866	\$14,853	\$53,718	-	423	162	585
Other ambulatory health care services	-	\$104	\$53,042	\$53,146	-	1	326	326
Furniture and home furnishings stores	-	\$34,655	\$18,354	\$53,009	-	320	170	490
Wood windows and door manufacturing	-	\$51,967	\$994	\$52,961	-	280	5	285
Nursing and residential care facilities	-	-	\$44,728	\$44,728	-	-	863	863
Hotels and motels, including casino hotels	-	\$17,792	\$24,807	\$42,599	-	223	311	535
Logging	-	\$41,883	\$625	\$42,508	-	158	2	160
Miscellaneous store retailers	-	\$25,811	\$16,472	\$42,282	-	705	450	1,155
Employment services	-	\$32,033	\$9,976	\$42,009	-	866	270	1,136
Other millwork, including flooring	-	\$40,756	\$532	\$41,288	-	247	3	251
Plastics pipe, fittings, and profile shapes	-	\$37,985	\$1,744	\$39,728	-	105	5	110
Civic, social, professional and similar organizations	-	\$19,689	\$18,107	\$37,797	-	490	451	941

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
Management consulting services	-	\$25,636	\$10,565	\$36,201	-	183	76	259
Automotive repair and maintenance, except car wash	-	\$9,064	\$26,157	\$35,220	-	101	291	391
Asphalt paving mixture and block manufacturing	-	\$33,922	\$196	\$34,118	-	53	-	54
Services to buildings and dwellings	-	\$22,005	\$11,100	\$33,104	-	412	208	619
Cut stone and stone product manufacturing	-	\$31,727	\$196	\$31,923	-	287	2	289
Sporting goods, hobby, book and music stores	-	\$18,569	\$11,144	\$29,714	-	428	257	684
Electronics and appliance stores	-	\$20,175	\$9,328	\$29,503	-	322	149	471
Social assistance, except child day care services	-	\$3	\$29,214	\$29,217	-	-	832	832
Maintenance and repair of nonresidential buildings	-	\$16,669	\$12,032	\$28,701	-	124	90	214
Pharmaceutical and medicine manufacturing	-	\$28	\$27,978	\$28,007	-	-	29	29
Insurance agencies, brokerages, and related	-	\$8,278	\$19,451	\$27,730	-	59	138	197
Veneer and plywood manufacturing	-	\$26,173	\$315	\$26,488	-	137	2	138
Electronic computer manufacturing	-	\$1,149	\$24,437	\$25,586	-	1	10	10
Other amusement, gambling, and recreation industries	-	\$787	\$23,067	\$23,854	-	11	314	325
Advertising and related services	-	\$13,351	\$8,892	\$22,243	-	109	73	182
Machinery and equipment rental and leasing	-	\$19,269	\$2,437	\$21,706	-	64	8	72
Couriers and messengers	-	\$15,907	\$5,722	\$21,629	-	211	76	287
Rail transportation	-	\$17,225	\$4,252	\$21,478	-	61	15	76
All other miscellaneous professional and technical services	-	\$14,887	\$6,224	\$21,111	-	34	14	48
Office administrative services	-	\$16,035	\$4,952	\$20,987	-	94	29	123
Funds, trusts, and other financial vehicles	-	\$218	\$20,257	\$20,474	-	1	69	70
Other personal services	-	\$1,065	\$19,152	\$20,217	-	6	104	110
Postal service	-	\$10,411	\$9,299	\$19,710	-	166	148	314
Colleges, universities, and junior colleges	-	\$1,042	\$18,612	\$19,654	-	19	339	358
Environmental and other technical consulting services	-	\$16,868	\$2,216	\$19,084	-	106	14	120
Scenic and sightseeing transportation and support activities for transportation	-	\$12,371	\$6,551	\$18,922	-	108	57	166
Custom architectural woodwork and millwork	-	\$17,859	\$16	\$17,874	-	147	-	147
Natural gas distribution	-	\$5,401	\$11,883	\$17,284	-	7	15	22
Power generation and supply	-	\$5,881	\$11,022	\$16,903	-	9	17	27
Child day care services	-	-	\$16,680	\$16,680	-	-	415	415
Wood preservation	-	\$16,421	\$145	\$16,566	-	54	1	55
Air transportation	-	\$6,457	\$9,848	\$16,305	-	27	42	69
Personal care services	-	-	\$16,100	\$16,100	-	-	299	299
Business support services	-	\$9,595	\$6,237	\$15,833	-	165	108	273
Specialized design services	-	\$11,978	\$1,787	\$13,765	-	91	14	105
Animal, except poultry, slaughtering	-	\$240	\$13,304	\$13,544	-	1	34	34
Water transportation	-	\$6,298	\$7,173	\$13,471	-	12	13	25
Foam product manufacturing	-	\$10,581	\$2,576	\$13,157	-	37	9	46
Reconstituted wood product manufacturing	-	\$12,974	\$67	\$13,041	-	32	-	32
Commercial machinery repair and maintenance	-	\$10,886	\$1,791	\$12,677	-	72	12	84
Automotive equipment rental and leasing	-	\$4,051	\$8,066	\$12,117	-	27	54	81
Federal electric utilities	-	\$4,236	\$7,692	\$11,928	-	7	12	19
Religious organizations	-	-	\$11,831	\$11,831	-	-	76	76
Waste management and remediation services	-	\$8,271	\$3,428	\$11,698	-	37	15	52
Home health care services	-	-	\$11,691	\$11,691	-	-	203	203
Other communications equipment manufacturing	-	\$11,387	\$177	\$11,564	-	36	1	37
Cattle ranching and farming	-	\$288	\$11,233	\$11,522	-	3	113	116

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
All other crop farming	-	\$9,497	\$1,938	\$11,434	-	65	13	79
Motion picture and video industries	-	\$2,827	\$8,528	\$11,355	-	19	56	75
Warehousing and storage	-	\$6,984	\$4,332	\$11,316	-	95	59	154
Other support services	-	\$6,502	\$4,333	\$10,835	-	52	34	86
Lessors of nonfinancial intangible assets	-	\$5,708	\$5,074	\$10,782	-	2	2	5
Radio and television broadcasting	-	\$5,399	\$5,160	\$10,558	-	27	26	53
Other educational services	-	\$418	\$9,757	\$10,175	-	9	199	208
Veterinary services	-	\$230	\$9,612	\$9,842	-	4	150	154
Elementary and secondary schools	-	-	\$9,838	\$9,838	-	-	280	280
Newspaper publishers	-	\$4,972	\$4,699	\$9,671	-	42	39	81
Asphalt shingle and coating materials manufacturing	-	\$9,072	\$564	\$9,636	-	15	1	16
Scientific research and development services	-	\$4,339	\$5,274	\$9,613	-	35	42	77
Grantmaking and giving and social advocacy organizations	-	-	\$9,351	\$9,351	-	-	184	184
Software publishers	-	\$381	\$8,945	\$9,327	-	1	17	17
Investigation and security services	-	\$6,683	\$2,521	\$9,204	-	165	62	227
Other Federal Government enterprises	-	\$3,817	\$5,282	\$9,099	-	158	218	376
Household goods repair and maintenance	-	\$4,583	\$4,397	\$8,980	-	22	21	43
Other commercial and service industry machinery manufacturing	-	\$8,808	\$44	\$8,853	-	34	-	35
Computer systems design services	-	\$5,843	\$2,971	\$8,813	-	74	38	112
Glass and glass products, except glass containers	-	\$6,822	\$1,845	\$8,667	-	31	8	39
Spectator sports	-	\$2,753	\$5,903	\$8,656	-	39	83	121
Semiconductors and related device manufacturing	-	\$4,702	\$3,881	\$8,583	-	6	5	11
Switchgear and switchboard apparatus manufacturing	-	\$8,423	\$51	\$8,475	-	30	-	30
Bread and bakery product, except frozen, manufacturing	-	\$266	\$8,048	\$8,314	-	2	55	57
Private households	-	-	\$7,966	\$7,966	-	-	888	888
Cut and sew apparel manufacturing	-	\$50	\$7,834	\$7,884	-	-	59	59
Doll, toy, and game manufacturing	-	\$15	\$7,501	\$7,515	-	-	23	23
Cut stock, resawing lumber, and planing	-	\$7,356	\$141	\$7,497	-	51	1	52
Travel arrangement and reservation services	-	\$1,854	\$5,049	\$6,904	-	11	29	40
Ceramic wall and floor tile manufacturing	-	\$6,427	\$68	\$6,495	-	39	-	39
Electric housewares and household fan manufacturing	-	\$3,563	\$2,883	\$6,446	-	9	7	16
Meat processed from carcasses	-	\$167	\$6,253	\$6,420	-	-	14	14
Plastics packaging materials, film and sheet	-	\$3,935	\$2,426	\$6,361	-	12	7	19
Other computer related services, including facilities management	-	\$4,470	\$1,819	\$6,289	-	23	10	33
Fitness and recreational sports centers	-	\$979	\$5,079	\$6,057	-	31	162	193
Fluid milk manufacturing	-	\$117	\$5,921	\$6,038	-	-	10	10
Audio and video equipment manufacturing	-	\$85	\$5,781	\$5,866	-	-	8	8
Oil and gas extraction	-	\$3,347	\$2,498	\$5,845	-	10	7	17
State and local government passenger transit	-	\$1,232	\$4,444	\$5,676	-	19	69	88
Drycleaning and laundry services	-	\$737	\$4,759	\$5,497	-	15	98	113
Information services	-	\$3,449	\$1,988	\$5,437	-	10	6	16
Cable networks and program distribution	-	\$308	\$4,963	\$5,271	-	-	4	5
Other snack food manufacturing	-	\$151	\$4,968	\$5,119	-	-	8	8
Other maintenance and repair construction	-	\$1,813	\$3,126	\$4,939	-	23	40	63
Data processing services	-	\$3,216	\$1,675	\$4,891	-	14	7	21
Poultry processing	-	\$88	\$4,567	\$4,655	-	-	20	21
Commercial printing	-	\$2,507	\$2,135	\$4,643	-	29	25	54

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
Agriculture and forestry support activities	-	\$3,088	\$1,275	\$4,363	-	96	40	135
Heavy duty truck manufacturing	-	-	\$4,237	\$4,237	-	-	4	4
Transit and ground passenger transportation	-	\$911	\$3,286	\$4,196	-	18	65	83
Database, directory, and other publishers	-	\$1,836	\$2,219	\$4,055	-	5	6	11
Electronic equipment repair and maintenance	-	\$2,718	\$1,053	\$3,771	-	18	7	24
Periodical publishers	-	\$1,406	\$2,269	\$3,674	-	6	10	16
Other accommodations	-	\$57	\$3,559	\$3,617	-	1	40	40
Performing arts companies	-	\$469	\$3,115	\$3,584	-	21	142	164
Miscellaneous wood product manufacturing	-	\$3,181	\$251	\$3,432	-	21	2	22
Maintenance and repair of farm and nonfarm residential structures	-	\$438	\$2,861	\$3,299	-	3	19	22
Vegetable and melon farming	-	\$22	\$3,209	\$3,232	-	-	25	25
All other electronic component manufacturing	-	\$1,979	\$1,139	\$3,118	-	9	5	15
All other food manufacturing	-	\$17	\$3,001	\$3,018	-	-	12	12
General and consumer goods rental except video tapes and discs	-	\$1,644	\$1,344	\$2,988	-	30	24	54
Seafood product preparation and packaging	-	\$185	\$2,791	\$2,977	-	1	9	10
Machine shops	-	\$2,546	\$412	\$2,959	-	20	3	23
Promoters of performing arts and sports and agents for public figures	-	\$712	\$2,201	\$2,913	-	33	101	134
Death care services	-	-	\$2,896	\$2,896	-	-	42	42
Video tape and disc rental	-	\$21	\$2,775	\$2,796	-	-	56	57
Car washes	-	\$435	\$2,361	\$2,796	-	8	45	54
Soft drink and ice manufacturing	-	\$61	\$2,723	\$2,784	-	-	4	4
Motor vehicle parts manufacturing	-	\$1,831	\$891	\$2,722	-	5	3	8
Museums, historical sites, zoos, and parks	-	-	\$2,618	\$2,618	-	-	39	39
Greenhouse and nursery production	-	\$985	\$1,623	\$2,608	-	11	19	30
Other basic inorganic chemical manufacturing	-	\$1,331	\$994	\$2,324	-	2	2	4
Wood container and pallet manufacturing	-	\$1,506	\$730	\$2,237	-	13	6	19
Mattress manufacturing	-	\$1	\$2,211	\$2,212	-	-	9	9
Mixes and dough made from purchased flour	-	\$21	\$2,164	\$2,185	-	-	4	4
Sheet metal work manufacturing	-	\$2,123	\$44	\$2,168	-	11	-	11
Water, sewage and other systems	-	\$607	\$1,458	\$2,065	-	4	10	14
Photographic services	-	\$277	\$1,766	\$2,043	-	4	26	31
Fishing	-	\$112	\$1,895	\$2,006	-	2	25	26
Surgical appliance and supplies manufacturing	-	\$20	\$1,982	\$2,002	-	-	10	11
Metal valve manufacturing	-	\$1,959	\$29	\$1,988	-	8	-	8
Other basic organic chemical manufacturing	-	\$1,144	\$829	\$1,972	-	1	1	2
Sand, gravel, clay, and refractory mining	-	\$1,934	\$12	\$1,946	-	11	-	12
Fruit farming	-	\$77	\$1,795	\$1,872	-	1	26	27
Coffee and tea manufacturing	-	\$4	\$1,867	\$1,871	-	-	4	4
Electromedical apparatus manufacturing	-	\$21	\$1,801	\$1,822	-	-	4	4
Sound recording industries	-	\$152	\$1,666	\$1,818	-	-	5	5
Independent artists, writers, and performers	-	\$802	\$967	\$1,769	-	13	16	29
Metal window and door manufacturing	-	\$1,730	\$35	\$1,765	-	9	-	9
Cookie and cracker manufacturing	-	\$16	\$1,726	\$1,741	-	-	5	5
Curtain and linen mills	-	\$22	\$1,711	\$1,733	-	-	7	7
Polish and other sanitation good manufacturing	-	\$419	\$1,313	\$1,732	-	1	2	2
Stone mining and quarrying	-	\$1,684	\$11	\$1,695	-	10	-	10
Dental laboratories	-	-	\$1,687	\$1,687	-	-	24	24

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
Spice and extract manufacturing	-	\$25	\$1,593	\$1,618	-	-	4	4
Poultry and egg production	-	\$23	\$1,587	\$1,610	-	-	4	4
Construction machinery manufacturing	-	\$1,567	\$28	\$1,595	-	2	-	2
Dry, condensed, and evaporated dairy products	-	\$31	\$1,504	\$1,535	-	-	2	2
Relay and industrial control manufacturing	-	\$1,470	\$55	\$1,525	-	6	-	6
Fertilizer, mixing only, manufacturing	-	\$1,458	\$59	\$1,517	-	3	-	3
Ice cream and frozen dessert manufacturing	-	\$90	\$1,389	\$1,478	-	-	3	3
Adhesive manufacturing	-	\$1,386	\$79	\$1,465	-	3	-	3
Petroleum lubricating oil and grease manufacturing	-	\$869	\$573	\$1,442	-	1	1	2
Bowling centers	-	\$0	\$1,428	\$1,428	-	-	24	24
Animal production, except cattle and poultry and eggs	-	\$50	\$1,354	\$1,404	-	2	39	41
Toilet preparation manufacturing	-	\$13	\$1,381	\$1,393	-	-	2	2
Book publishers	-	\$114	\$1,251	\$1,365	-	-	4	5
Pipeline transportation	-	\$638	\$724	\$1,362	-	1	1	2
Fruit and vegetable canning and drying	-	\$26	\$1,328	\$1,354	-	-	3	3
Automatic environmental control manufacturing	-	\$1,228	\$48	\$1,276	-	5	-	5
Electroplating, anodizing, and coloring metal	-	\$1,137	\$85	\$1,222	-	7	1	7
Fabricated pipe and pipe fitting manufacturing	-	\$1,173	\$13	\$1,186	-	5	-	5
Industrial gas manufacturing	-	\$298	\$868	\$1,166	-	-	1	1
Other miscellaneous chemical product manufacturing	-	\$804	\$346	\$1,149	-	2	1	2
Other concrete product manufacturing	-	\$1,116	\$9	\$1,125	-	7	-	7
Coal mining	-	\$415	\$703	\$1,119	-	1	2	3
Frozen food manufacturing	-	\$13	\$1,085	\$1,097	-	-	4	4
Other computer peripheral equipment manufacturing	-	\$179	\$890	\$1,069	-	-	2	2
Nonupholstered wood household furniture manufacturing	-	\$180	\$886	\$1,066	-	1	7	8
Ornamental and architectural metal work manufacturing	-	\$1,035	\$29	\$1,063	-	5	-	5
Plastics bottle manufacturing	-	\$326	\$702	\$1,028	-	1	2	3
Breweries	-	\$21	\$991	\$1,012	-	-	2	2
Aircraft manufacturing	-	\$329	\$681	\$1,010	-	1	1	2
Surgical and medical instrument manufacturing	-	\$3	\$1,002	\$1,005	-	-	4	4
Metal coating and nonprecious engraving	-	\$927	\$70	\$997	-	6	-	6
Fabricated structural metal manufacturing	-	\$913	\$14	\$927	-	3	-	4
Steel wire drawing	-	\$849	\$63	\$912	-	2	-	2
Ophthalmic goods manufacturing	-	\$29	\$852	\$881	-	-	6	6
Confectionery manufacturing from purchased chocola	-	\$5	\$867	\$872	-	-	3	3
Elevator and moving stairway manufacturing	-	\$853	\$9	\$862	-	2	-	2
Showcases, partitions, shelving, and lockers	-	\$788	\$50	\$838	-	5	-	5
Nitrogenous fertilizer manufacturing	-	\$730	\$104	\$835	-	1	-	1
Soap and other detergent manufacturing	-	\$122	\$711	\$832	-	-	1	1
Cheese manufacturing	-	\$28	\$759	\$787	-	-	1	1
Dry pasta manufacturing	-	\$5	\$736	\$741	-	-	2	2
Ready-mix concrete manufacturing	-	\$723	\$4	\$726	-	3	-	3
Sign manufacturing	-	\$427	\$297	\$724	-	4	3	7
Power-driven handtool manufacturing	-	\$434	\$287	\$721	-	1	1	2
Computer storage device manufacturing	-	\$174	\$457	\$632	-	-	1	1
Custom computer programming services	-	\$438	\$193	\$631	-	5	2	7
Motor home manufacturing	-	-	\$595	\$595	-	-	2	2

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
Hand and edge tool manufacturing	-	\$499	\$93	\$592	-	3	1	3
Paperboard container manufacturing	-	\$492	\$78	\$571	-	2	-	2
Metal can, box, and other container manufacturing	-	\$335	\$233	\$568	-	1	1	1
Wineries	-	\$12	\$551	\$563	-	-	2	2
Facilities support services	-	\$384	\$175	\$559	-	7	3	9
Creamery butter manufacturing	-	\$6	\$494	\$501	-	-	1	1
Footwear manufacturing	-	-	\$498	\$498	-	-	4	4
Automobile and light truck manufacturing	-	\$1	\$495	\$496	-	-	-	-
Travel trailer and camper manufacturing	-	-	\$494	\$495	-	-	3	3
Mayonnaise, dressing, and sauce manufacturing	-	\$15	\$469	\$484	-	-	1	1
Broadcast and wireless communications equipment	-	\$182	\$282	\$463	-	-	1	1
Aluminum sheet, plate, and foil manufacturing	-	\$421	\$41	\$462	-	1	-	1
Wood office furniture manufacturing	-	\$396	\$54	\$450	-	2	-	2
Analytical laboratory instrument manufacturing	-	\$300	\$149	\$448	-	1	-	1
Other communication and energy wire manufacturing	-	\$438	\$9	\$447	-	1	-	1
Prefabricated wood building manufacturing	-	\$433	\$3	\$437	-	3	-	3
Telephone apparatus manufacturing	-	\$108	\$325	\$434	-	-	-	-
Laminated plastics plate, sheet, and shapes	-	\$356	\$72	\$428	-	2	-	2
Saw blade and handsaw manufacturing	-	\$413	\$12	\$425	-	2	-	2
Plastics material and resin manufacturing	-	\$269	\$147	\$416	-	-	-	-
Pesticide and other agricultural chemical manufacturing	-	\$176	\$238	\$414	-	-	-	-
Paint and coating manufacturing	-	\$400	\$8	\$408	-	1	-	1
Manifold business forms printing	-	\$285	\$120	\$406	-	2	1	2
Sporting and athletic goods manufacturing	-	\$5	\$399	\$404	-	-	2	2
Spring and wire product manufacturing	-	\$341	\$61	\$402	-	2	-	2
Farm machinery and equipment manufacturing	-	\$158	\$239	\$398	-	-	1	1
Iron and steel mills	-	\$383	\$14	\$397	-	1	-	1
Glass container manufacturing	-	\$41	\$352	\$393	-	-	1	1
Blind and shade manufacturing	-	-	\$379	\$379	-	-	3	3
Overhead cranes, hoists, and monorail systems	-	\$315	\$62	\$377	-	1	-	1
Blankbook and looseleaf binder manufacturing	-	\$105	\$262	\$367	-	1	1	2
Prefabricated metal buildings and components	-	\$356	\$6	\$362	-	1	-	1
Breakfast cereal manufacturing	-	\$2	\$356	\$358	-	-	-	-
Metal heat treating	-	\$331	\$24	\$356	-	2	-	2
Upholstered household furniture manufacturing	-	\$1	\$334	\$335	-	-	3	3
Welding and soldering equipment manufacturing	-	\$269	\$48	\$317	-	1	-	1
Forest nurseries, forest products, and timber tracts	-	\$305	\$5	\$311	-	-	-	-
Motor and generator manufacturing	-	\$289	\$19	\$309	-	1	-	1
Jewelry and silverware manufacturing	-	\$5	\$303	\$307	-	-	1	1
Accessories and other apparel manufacturing	-	\$5	\$301	\$306	-	-	3	3
Musical instrument manufacturing	-	\$7	\$287	\$294	-	-	3	3
Buttons, pins, and all other miscellaneous manufacturing	-	\$214	\$79	\$293	-	2	1	2
Sanitary paper product manufacturing	-	\$4	\$289	\$293	-	-	-	-
Dental equipment and supplies manufacturing	-	-	\$290	\$290	-	-	2	2
Frozen cakes and other pastries manufacturing	-	\$6	\$278	\$284	-	-	2	2
Hunting and trapping	-	-	\$283	\$283	-	-	2	2
Sawmill and woodworking machinery	-	\$164	\$116	\$280	-	1	1	2

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
Grain farming	-	\$35	\$236	\$271	-	1	5	6
Custom compounding of purchased resins	-	\$238	\$32	\$270	-	1	-	1
Nonferrous metal, except copper and aluminum, shaping	-	\$224	\$42	\$266	-	1	-	1
Plastics and rubber industry machinery	-	\$237	\$22	\$259	-	1	-	1
Other leather product manufacturing	-	\$30	\$215	\$245	-	-	1	2
Lawn and garden equipment manufacturing	-	\$42	\$198	\$240	-	-	1	1
Motorcycle, bicycle, and parts manufacturing	-	\$20	\$217	\$237	-	-	1	1
Dog and cat food manufacturing	-	\$3	\$229	\$233	-	-	-	-
Prepress services	-	\$161	\$71	\$232	-	1	-	1
Watch, clock, and other measuring and controlling device manufacturing	-	\$41	\$185	\$226	-	-	1	1
Rendering and meat byproduct processing	-	\$43	\$182	\$225	-	-	-	-
Software reproducing	-	\$125	\$100	\$225	-	-	-	1
Industrial process variable instruments	-	\$127	\$94	\$221	-	1	-	1
Tortilla manufacturing	-	\$6	\$214	\$220	-	-	1	1
Printing ink manufacturing	-	\$124	\$84	\$208	-	-	-	-
Food product machinery manufacturing	-	\$163	\$39	\$202	-	1	-	1
Broadwoven fabric mills	-	\$22	\$176	\$198	-	-	1	1
Photographic and photocopying equipment manufacturing	-	\$29	\$168	\$196	-	-	-	1
Miscellaneous electrical equipment manufacturing	-	\$139	\$57	\$196	-	1	-	1
Boat building	-	\$1	\$180	\$182	-	-	1	1
Abrasive product manufacturing	-	\$150	\$28	\$178	-	1	-	1
Hardware manufacturing	-	\$170	\$5	\$175	-	1	-	1
Special tool, die, jig, and fixture manufacturing	-	\$143	\$29	\$172	-	1	-	1
Primary nonferrous metal, except copper and aluminum	-	\$116	\$54	\$170	-	-	-	-
Household vacuum cleaner manufacturing	-	\$78	\$84	\$162	-	-	-	-
Scales, balances, and miscellaneous general purpose machinery	-	\$126	\$35	\$161	-	1	-	1
Totalizing fluid meters and counting devices	-	\$112	\$47	\$159	-	-	-	-
Miscellaneous fabricated metal product manufacturing	-	\$149	\$5	\$155	-	1	-	1
All other industrial machinery manufacturing	-	\$41	\$111	\$153	-	-	1	1
Fluid power cylinder and actuator manufacturing	-	\$148	\$2	\$150	-	1	-	1
Plate work manufacturing	-	\$135	\$15	\$149	-	1	-	1
Flavoring syrup and concentrate manufacturing	-	\$8	\$140	\$148	-	-	-	-
Nonchocolate confectionery manufacturing	-	\$1	\$139	\$140	-	-	1	1
Other animal food manufacturing	-	\$6	\$132	\$139	-	-	-	-
Photographic film and chemical manufacturing	-	\$54	\$84	\$138	-	-	-	-
Storage battery manufacturing	-	\$59	\$74	\$134	-	-	-	1
Flour milling	-	\$3	\$130	\$133	-	-	-	-
Turned product and screw, nut, and bolt manufacturing	-	\$113	\$16	\$129	-	1	-	1
Motor vehicle body manufacturing	-	\$13	\$114	\$126	-	-	-	-
Electricity and signal testing instruments	-	\$66	\$60	\$125	-	-	-	-
Institutional furniture manufacturing	-	\$86	\$39	\$125	-	1	-	1
Textile bag and canvas mills	-	\$70	\$53	\$123	-	1	-	1
Metal tank, heavy gauge, manufacturing	-	\$120	\$1	\$121	-	1	-	1
Coated and uncoated paper bag manufacturing	-	\$72	\$49	\$121	-	-	-	-
Gypsum product manufacturing	-	\$114	\$1	\$115	-	-	-	-
Metal household furniture manufacturing	-	\$7	\$101	\$108	-	-	1	1
Industrial truck, trailer, and stacker manufacturing	-	\$59	\$46	\$105	-	-	-	-
Plastics packaging materials, film and sheet	-	\$94	\$6	\$100	-	-	-	-

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
Pulp mills	-	\$94	\$6	\$100	-	-	-	-
Wet corn milling	-	\$40	\$59	\$99	-	-	-	-
Nonwoven fabric mills	-	\$73	\$26	\$99	-	-	-	-
Cutting tool and machine tool accessory manufacturing	-	\$74	\$20	\$94	-	1	-	1
Office machinery manufacturing	-	\$40	\$52	\$91	-	-	-	-
Coated and laminated paper and packaging materials	-	\$58	\$33	\$91	-	-	-	-
Books printing	-	\$21	\$69	\$90	-	-	-	-
Textile and fabric finishing mills	-	\$16	\$66	\$82	-	-	-	-
Synthetic rubber manufacturing	-	\$57	\$25	\$82	-	-	-	-
Other miscellaneous textile product mills	-	\$19	\$62	\$81	-	-	-	-
Wiring device manufacturing	-	\$78	\$2	\$80	-	-	-	-
Small arms manufacturing	-	\$3	\$77	\$80	-	-	1	1
Electric power and specialty transformer manufacturing	-	\$56	\$23	\$79	-	-	-	-
Surface-coated paperboard manufacturing	-	\$35	\$43	\$78	-	-	-	-
Automatic vending, commercial laundry and drycleaning machinery	-	\$36	\$42	\$78	-	-	-	-
Audio and video media reproduction	-	\$34	\$38	\$72	-	-	-	-
Custom roll forming	-	\$68	\$4	\$71	-	-	-	-
Office supplies, except paper, manufacturing	-	\$22	\$47	\$69	-	-	-	-
Gold, silver, and other metal ore mining	-	\$44	\$25	\$69	-	-	-	-
Roasted nuts and peanut butter manufacturing	-	-	\$67	\$67	-	-	-	-
Printing machinery and equipment manufacturing	-	\$48	\$18	\$66	-	-	-	-
Other rubber product manufacturing	-	\$57	\$9	\$66	-	-	-	-
Kitchen utensil, pot, and pan manufacturing	-	\$7	\$55	\$61	-	-	-	-
Other engine equipment manufacturing	-	\$19	\$39	\$59	-	-	-	-
Air and gas compressor manufacturing	-	\$52	\$6	\$58	-	-	-	-
Gasket, packing, and sealing device manufacturing	-	\$48	\$9	\$57	-	-	-	-
Conveyor and conveying equipment manufacturing	-	\$42	\$11	\$52	-	-	-	-
Power boiler and heat exchanger manufacturing	-	\$51	\$1	\$52	-	-	-	-
Confectionery manufacturing from cacao beans	-	\$1	\$51	\$51	-	-	-	-
Other oilseed processing	-	\$2	\$49	\$51	-	-	-	-
Fats and oils refining and blending	-	\$1	\$50	\$51	-	-	-	-
Cutlery and flatware, except precious, manufacturing	-	\$11	\$39	\$50	-	-	-	-
Laboratory apparatus and furniture manufacturing	-	\$4	\$44	\$48	-	-	-	-
Speed changers and mechanical power transmission equipment	-	\$31	\$15	\$46	-	-	-	-
Search, detection, and navigation instruments	-	\$13	\$32	\$45	-	-	-	-
Office furniture, except wood, manufacturing	-	\$21	\$23	\$44	-	-	-	-
Petrochemical manufacturing	-	\$23	\$20	\$44	-	-	-	-
Tradebinding and related work	-	\$16	\$27	\$42	-	-	-	-
Magnetic and optical recording media manufacturing	-	\$21	\$21	\$42	-	-	-	-
Industrial mold manufacturing	-	\$37	\$4	\$41	-	-	-	-
Concrete block and brick manufacturing	-	\$37	-	\$37	-	-	-	-
Irradiation apparatus manufacturing	-	\$2	\$36	\$37	-	-	-	-
Railroad rolling stock manufacturing	-	\$29	\$8	\$37	-	-	-	-
All other forging and stamping	-	\$26	\$10	\$36	-	-	-	-
Vitreous china and earthenware articles manufacturing	-	\$1	\$33	\$35	-	-	1	1
Other aircraft parts and equipment	-	\$14	\$20	\$34	-	-	-	-
Other household and institutional furniture	-	\$5	\$29	\$33	-	-	-	-

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

Sector Name	Output Impact (in thousands)				Employment Impacts			
	Direct Impact	Indirect Impact	Induced Impact	Total	Direct Impact	Indirect Impact	Induced Impact	Total
Copper, nickel, lead, and zinc mining	-	\$21	\$11	\$32	-	-	-	-
All other transportation equipment manufacturing	-	\$8	\$23	\$32	-	-	-	-
Turbine and turbine generator set units manufacturing	-	\$11	\$20	\$31	-	-	-	-
Metal cutting machine tool manufacturing	-	\$22	\$9	\$31	-	-	-	-
Other nonmetallic mineral mining	-	\$16	\$13	\$29	-	-	-	-
Other aluminum rolling and drawing	-	\$23	\$4	\$27	-	-	-	-
Other major household appliance manufacturing	-	\$27	-	\$27	-	-	-	-
Paper industry machinery manufacturing	-	\$17	\$8	\$25	-	-	-	-
All other converted paper product manufacturing	-	\$21	\$3	\$24	-	-	-	-
Packaging machinery manufacturing	-	\$9	\$13	\$22	-	-	-	-
Ship building and repairing	-	\$10	\$12	\$22	-	-	-	-
Miscellaneous nonmetallic mineral products	-	\$16	\$5	\$21	-	-	-	-
Soybean processing	-	\$1	\$18	\$19	-	-	-	-
Optical instrument and lens manufacturing	-	\$5	\$13	\$18	-	-	-	-
Fabric coating mills	-	\$12	\$5	\$17	-	-	-	-
Mining machinery and equipment manufacturing	-	\$15	\$2	\$17	-	-	-	-
Paper and paperboard mills	-	\$8	\$9	\$17	-	-	-	-
Concrete pipe manufacturing	-	\$14	-	\$14	-	-	-	-
Rolling mill and other metalworking machinery	-	\$10	\$3	\$13	-	-	-	-
Lighting fixture manufacturing	-	\$12	\$1	\$13	-	-	-	-
Broom, brush, and mop manufacturing	-	\$11	\$1	\$12	-	-	-	-
Leather and hide tanning and finishing	-	\$3	\$9	\$12	-	-	-	-
Rolled steel shape manufacturing	-	\$10	-	\$10	-	-	-	-
Ferrous metal foundries	-	\$9	-	\$9	-	-	-	-
Lime manufacturing	-	\$9	-	\$9	-	-	-	-
Metal forming machine tool manufacturing	-	\$8	\$1	\$9	-	-	-	-
Other apparel knitting mills	-	-	\$9	\$9	-	-	-	-
Iron, steel pipe and tube from purchased steel	-	\$8	-	\$8	-	-	-	-
Die-cut paper office supplies manufacturing	-	\$4	\$5	\$8	-	-	-	-
Rubber and plastics hose and belting manufacturing	-	\$7	\$1	\$8	-	-	-	-
Aircraft engine and engine parts manufacturing	-	\$3	\$5	\$8	-	-	-	-
Fluid power pump and motor manufacturing	-	\$7	-	\$7	-	-	-	-
Measuring and dispensing pump manufacturing	-	\$6	-	\$6	-	-	-	-
Industrial and commercial fan and blower manufacturing	-	\$5	-	\$5	-	-	-	-
Primary aluminum production	-	\$5	\$1	\$6	-	-	-	-
Fiber, yarn, and thread mills	-	-	\$4	\$5	-	-	-	-
Nonferrous foundries, except aluminum	-	\$3	\$1	\$5	-	-	-	-
Carpet and rug mills	-	\$4	\$1	\$5	-	-	-	-
Aluminum foundries	-	\$3	\$1	\$4	-	-	-	-
Enameled iron and metal sanitary ware manufacturing	-	\$4	-	\$4	-	-	-	-
Mineral wool manufacturing	-	\$3	\$1	\$4	-	-	-	-
Support activities for other mining	-	\$3	\$1	\$4	-	-	-	-
Cement manufacturing	-	\$3	-	\$3	-	-	-	-
Malt manufacturing	-	-	\$3	\$3	-	-	-	-
Aluminum extruded product manufacturing	-	\$3	-	\$3	-	-	-	-
Iron and steel forging	-	\$2	\$1	\$3	-	-	-	-
Propulsion units and parts for space vehicles and guided missiles	-	\$2	\$1	\$3	-	-	-	-

**APPENDIX C—DETAILED WASHINGTON SECTOR IMPACTS**

<i>Sector Name</i>	<i>Output Impact (in thousands)</i>				<i>Employment Impacts</i>			
	<i>Direct Impact</i>	<i>Indirect Impact</i>	<i>Induced Impact</i>	<i>Total</i>	<i>Direct Impact</i>	<i>Indirect Impact</i>	<i>Induced Impact</i>	<i>Total</i>
Tree nut farming	-	-	\$3	\$3	-	-	-	-
Pump and pumping equipment manufacturing	-	\$1	\$1	\$3	-	-	-	-
Drilling oil and gas wells	-	\$1	\$1	\$2	-	-	-	-
Household refrigerator and home freezer manufacturing	-	-	\$1	\$2	-	-	-	-
Brick and structural clay tile manufacturing	-	\$2	-	\$2	-	-	-	-
Envelope manufacturing	-	\$1	\$1	\$1	-	-	-	-
Industrial process furnace and oven manufacturing	-	\$1	\$1	\$1	-	-	-	-
Support activities for oil and gas operations	-	\$1	\$1	\$1	-	-	-	-
Ammunition manufacturing	-	-	\$1	\$1	-	-	-	-
Truck trailer manufacturing	-	-	\$1	\$1	-	-	-	-
Nonferrous forging	-	\$1	-	\$1	-	-	-	-
Industrial pattern manufacturing	-	\$1	-	\$1	-	-	-	-
Air purification equipment manufacturing	-	\$1	-	\$1	-	-	-	-

SRRI, March 2009

Data Source: IMPLAN, 2006 Coefficients based on 2007 United States Census Bureau information

Note: Differences due to rounding.

APPENDIX D—INDUSTRY GROUPINGS

**Appendix D—Washington Industry Groupings**

Industry Grouping	2001		2006	
	Output (in thousands)	Employment	Output (in thousands)	Employment
Washington Total	\$379,174,977	3,588,079	\$544,425,827	3,811,440
Wholesale and Retail Trade	\$39,614,742	523,087	\$57,867,667	544,574
Retail trade subtotal	\$21,364,750	392,870	\$32,571,237	404,152
Nonstore retailers	\$2,027,492	51,893	\$5,875,881	48,813
Motor vehicle and parts dealers	\$3,658,325	45,018	\$5,124,381	45,621
Food and beverage stores	\$4,024,030	68,148	\$4,353,421	62,746
General merchandise stores	\$2,302,773	50,522	\$3,977,034	61,213
Building material and garden supply stores	\$1,829,009	27,154	\$2,907,854	30,647
Clothing and clothing accessories stores	\$1,334,340	27,785	\$2,702,923	31,518
Gasoline stations	\$925,522	16,521	\$1,570,374	15,868
Furniture and home furnishings stores	\$875,931	13,072	\$1,498,267	13,845
Miscellaneous store retailers	\$1,671,791	36,898	\$1,403,925	38,359
Health and personal care stores	\$917,225	18,996	\$1,353,734	19,691
Sporting goods, hobby, book and music stores	\$1,024,047	24,067	\$996,797	22,955
Electronics and appliance stores	\$774,265	12,796	\$806,646	12,876
Wholesale trade	\$18,249,992	130,217	\$25,296,430	140,422
Housing	\$36,054,692	165,896	\$54,534,955	194,285
Owner-occupied dwellings	\$14,240,179	-	\$22,304,320	-
67% of Real Estate	\$10,629,309	74,775	\$15,909,498	95,558
New residential 1-unit structures	\$5,938,837	45,191	\$10,550,873	64,283
New residential additions and alterations	\$3,352,835	27,572	\$3,420,279	17,069
New multifamily housing structures	\$1,051,906	11,359	\$1,625,286	12,582
Maintenance and repair of farm and nonfarm residential structures	\$841,626	6,999	\$724,699	4,793
Information	\$33,905,248	102,659	\$46,313,087	108,182
Software publishers	\$20,828,299	36,780	\$27,720,863	51,083
Telecommunications	\$8,864,058	33,945	\$12,497,763	27,745
Newspaper publishers	\$861,593	10,033	\$989,048	8,262
Data processing services	\$325,214	3,042	\$946,713	3,990
Radio and television broadcasting	\$769,988	4,921	\$918,888	4,610
Motion picture and video industries	\$458,643	5,259	\$826,184	5,465
Information services	\$519,444	3,484	\$756,474	2,263
Database, directory, and other publishers	\$469,694	1,810	\$574,241	1,596
Periodical publishers	\$207,722	1,596	\$409,092	1,775
Cable networks and program distribution	\$369,867	659	\$324,783	272
Book publishers	\$177,243	838	\$224,221	784
Sound recording industries	\$53,483	292	\$124,817	337
Aerospace	\$23,879,443	84,315	\$37,139,986	72,784
Aircraft manufacturing	\$21,692,994	74,274	\$34,831,781	63,048
Other aircraft parts and equipment	\$1,878,971	8,356	\$2,103,896	9,009
Propulsion units and parts for space vehicles	\$164,777	1,198	\$156,431	610
Aircraft engine and engine parts manufacturing	\$142,701	487	\$47,878	117
State and Local Government	\$25,578,735	432,800	\$34,701,379	440,412
State & Local Non-Education	\$9,036,697	166,528	\$11,944,621	183,254
State & Local Education	\$9,989,620	234,686	\$9,556,698	206,516
State and local government electric utilities	\$3,360,903	6,771	\$7,814,535	19,974
Other State and local government enterprises	\$2,923,533	18,611	\$4,732,053	20,584
State and local government passenger transit	\$267,982	6,204	\$653,472	10,084
Finance and Insurance	\$20,869,997	142,444	\$33,080,548	145,027
Monetary authorities and depository credit intermediation	\$7,526,172	34,793	\$13,626,779	41,401
Insurance carriers	\$5,357,466	30,770	\$7,495,107	28,717
Securities, commodity contracts, investments	\$3,021,499	41,600	\$4,035,502	32,928
Nondepository credit intermediation and related activities	\$1,854,692	11,325	\$3,833,748	17,549
Insurance agencies, brokerages, and related	\$1,867,048	19,074	\$2,845,985	20,173
Funds, trusts, and other financial vehicles	\$1,243,120	4,882	\$1,243,427	4,259
Professional, Scientific, and Technical Services	\$19,498,653	244,471	\$31,559,655	255,843
Architectural and engineering services	\$4,270,269	48,998	\$6,851,453	57,507
Scientific research and development services	\$1,594,649	25,274	\$4,190,150	33,386
Legal services	\$2,659,507	31,285	\$3,875,891	34,392
Other computer related services, including facilities management	\$1,346,969	13,157	\$2,766,237	14,467

**APPENDIX D—INDUSTRY GROUPINGS**

Industry Grouping	2001		2006	
	Output (in thousands)	Employment	Output (in thousands)	Employment
Professional, Scientific, and Technical Services (continued)	\$19,498,653	244,471	\$31,559,655	255,843
All other miscellaneous professional and technical services	\$417,201	4,288	\$2,707,362	6,090
Accounting and bookkeeping services	\$1,385,375	25,653	\$2,482,160	27,031
Management consulting services	\$932,175	10,002	\$1,863,696	13,310
Advertising and related services	\$1,232,022	14,751	\$1,823,521	14,920
Custom computer programming services	\$3,566,555	46,518	\$1,590,540	16,965
Computer systems design services	\$757,155	6,822	\$1,063,026	13,460
Environmental and other technical consulting	\$471,958	4,112	\$893,221	5,598
Veterinary services	\$334,940	7,019	\$762,033	11,899
Specialized design services	\$355,190	3,230	\$477,683	3,642
Photographic services	\$174,688	3,362	\$212,682	3,176
Health Care and Social Assistance	\$23,322,766	309,633	\$30,760,606	355,055
Offices of physicians, dentists, and other health practitioners	\$6,950,326	89,480	\$10,214,969	100,459
Hospitals	\$7,036,658	61,327	\$8,003,560	64,600
Other ambulatory health care services	\$4,686,245	29,496	\$5,759,791	35,354
Nursing and residential care facilities	\$2,330,424	54,378	\$2,937,448	56,699
Social assistance, except child day care services	\$1,082,047	41,755	\$2,135,634	60,804
Child day care services	\$735,449	21,757	\$988,768	24,605
Home health care services	\$501,617	11,440	\$720,436	12,534
Non-Residential Construction and Real Estate	\$17,806,838	187,332	\$25,834,535	204,975
33% of Real Estate	\$5,235,332	36,830	\$7,836,022	47,066
Commercial and institutional buildings	\$5,112,644	58,547	\$7,832,245	69,834
Other new construction	\$2,743,821	40,664	\$2,865,509	26,613
Highway, street, bridge, and tunnel construction	\$1,331,398	13,538	\$2,266,694	18,144
Maintenance and repair of nonresidential buildings	\$1,150,525	12,699	\$2,118,012	15,765
Water, sewer, and pipeline construction	\$602,780	5,824	\$1,136,940	8,356
Manufacturing and industrial buildings	\$701,633	8,837	\$740,862	7,232
Maintenance and repair of highways, streets, bridges, and tunnels	\$382,803	3,364	\$519,931	5,333
Other maintenance and repair construction	\$545,902	7,029	\$518,320	6,632
Agriculture and Food Processing	15,947,186	121,378	\$21,387,349	114,536
Frozen food manufacturing	\$1,592,983	7,365	\$2,153,598	7,042
Seafood product preparation and packaging	\$1,465,108	7,128	\$2,114,797	6,739
Fruit farming	\$1,178,010	15,181	\$1,775,459	25,388
Cattle ranching and farming	\$1,476,112	27,768	\$1,527,011	15,351
Fruit and vegetable canning and drying	\$1,431,731	5,155	\$1,501,328	3,368
Soft drink and ice manufacturing	\$630,083	2,017	\$1,337,747	2,014
All other crop farming	\$423,700	8,188	\$1,209,405	8,320
Animal, except poultry, slaughtering	\$1,158,534	3,007	\$1,122,216	2,822
Vegetable and melon farming	\$863,115	5,344	\$827,824	6,450
Bread and bakery product, except frozen, manufacturing	\$623,927	5,205	\$561,706	3,847
Wineries	\$257,864	958	\$549,453	1,717
Grain farming	\$553,818	14,831	\$532,869	10,994
Meat processed from carcasses	\$243,277	948	\$477,080	1,055
Other animal food manufacturing	\$290,877	587	\$462,185	653
Fluid milk manufacturing	\$372,997	865	\$459,756	768
Other oilseed processing	\$12,624	25	\$442,121	207
Other snack food manufacturing	\$280,702	852	\$387,832	636
Coffee and tea manufacturing	\$184,031	464	\$385,834	730
Greenhouse and nursery production	\$342,780	3,926	\$383,204	4,410
Breweries	\$232,702	811	\$346,739	569
Poultry processing	\$202,454	1,454	\$325,923	1,443
Confectionery manufacturing from purchased chocolate	\$98,615	612	\$289,178	879
All other food manufacturing	\$190,184	930	\$272,773	1,079
Mixes and dough made from purchased flour	\$248,777	725	\$212,403	414
Poultry and egg production	\$161,538	633	\$159,681	413
Animal production, except cattle and poultry	\$78,463	1,672	\$150,862	4,375
Spice and extract manufacturing	\$57,428	239	\$137,286	317
Breakfast cereal manufacturing	\$20,471	28	\$132,897	151
Dry, condensed, and evaporated dairy products	\$113,876	175	\$127,293	142
Cookie and cracker manufacturing	\$64,575	286	\$118,040	345
Ice cream and frozen dessert manufacturing	\$82,197	280	\$106,136	217
Wet corn milling	\$71,891	94	\$83,260	67
Rendering and meat byproduct processing	\$69,827	291	\$79,013	147
Creamery butter manufacturing	\$212,458	213	\$71,118	140
Dry pasta manufacturing	\$13,030	129	\$62,604	168
Cheese manufacturing	\$12,414	22	\$62,425	84
Dog and cat food manufacturing	\$47,038	103	\$59,508	57
Malt manufacturing	\$63,401	149	\$59,190	60

**APPENDIX D—INDUSTRY GROUPINGS**

<i>Industry Grouping</i>	<i>2001</i>		<i>2006</i>	
	<i>Output (in thousands)</i>	<i>Employment</i>	<i>Output (in thousands)</i>	<i>Employment</i>
<b>Agriculture and Food Processing (continued)</b>	15,947,186	121,378	\$21,387,349	114,536
Flour milling	\$151,604	364	\$58,626	78
Nonchocolate confectionery manufacturing	\$27,325	160	\$43,930	159
Mayonnaise, dressing, and sauce manufacturing	\$34,080	85	\$36,125	96
Flavoring syrup and concentrate manufacturing	\$17,869	43	\$35,962	63
Soybean processing	\$4,586	4	\$35,648	13
Fats and oils refining and blending	\$136,279	136	\$24,600	19
Hunting and trapping	\$15,626	193	\$20,460	136
Frozen cakes and other pastries manufacturing	\$23,872	79	\$19,679	107
Tortilla manufacturing	\$8,352	91	\$14,826	94
Confectionery manufacturing from cacao beans	\$47,669	101	\$12,014	26
Roasted nuts and peanut butter manufacturing	\$7,266	19	\$11,397	22
Sugarcane and sugar beet farming	\$10,237	194	\$3,061	105
Oilseed farming	\$34,659	1,241	\$2,358	31
Tree nut farming	\$2,641	4	\$909	9
Sugar manufacturing	\$1,509	4	-	-
<b>Entertainment and Tourism</b>	\$16,173,733	342,025	\$21,645,305	352,787
Food services and drinking places	\$8,899,393	217,098	\$11,083,715	208,022
Hotels and motels, including casino hotels	\$1,214,854	19,688	\$2,488,641	31,236
Scenic and sightseeing transportation and support activities for transportation	\$1,960,072	17,117	\$2,235,925	19,580
Other amusement, gambling, and recreation industries	\$1,488,684	23,769	\$1,837,595	25,001
Travel arrangement and reservation services	\$735,411	8,730	\$1,401,300	8,057
Spectator sports	\$494,138	11,609	\$961,029	13,477
Fitness and recreational sports centers	\$171,819	10,366	\$448,116	14,260
Performing arts companies	\$213,817	16,046	\$324,444	14,820
Other accommodations	\$489,998	3,547	\$220,502	2,448
Promoters of performing arts and sports and agents for public figures	\$119,706	6,890	\$183,739	8,463
Bowling centers	\$69,296	2,490	\$175,952	2,955
Museums, historical sites, zoos, and parks	\$146,965	1,984	\$155,639	2,342
Independent artists, writers, and performers	\$169,580	2,691	\$128,708	2,126
<b>Management and Business Support Services</b>	\$11,376,919	180,830	\$19,497,249	223,153
Management of companies and enterprises	\$3,445,687	30,069	\$7,297,515	34,736
Waste management and remediation services	\$2,278,673	13,246	\$3,095,752	13,745
Employment services	\$2,058,668	58,895	\$2,835,393	76,659
Services to buildings and dwellings	\$1,204,565	37,190	\$2,349,992	43,958
Business support services	\$683,713	14,782	\$1,279,528	22,062
Office administrative services	\$709,981	6,119	\$956,057	5,598
Other support services	\$415,287	5,151	\$798,498	6,341
Investigation and security services	\$424,508	13,545	\$662,622	16,329
Facilities support services	\$155,837	1,833	\$221,892	3,725
<b>Forestry and Wood Product Manufacturing</b>	\$11,581,176	73,843	\$16,479,924	84,526
Paper and paperboard mills	\$3,452,412	8,369	\$4,051,242	6,374
Sawmills	\$1,653,277	8,371	\$2,919,664	9,865
Logging	\$1,684,233	8,893	\$2,164,632	8,160
Agriculture and forestry support activities	\$652,788	22,266	\$1,083,415	33,567
Paperboard container manufacturing	\$598,896	2,671	\$822,468	2,507
Sanitary paper product manufacturing	\$256,814	1,192	\$754,377	1,075
Wood kitchen cabinet and countertop manufacturing	\$320,990	4,455	\$732,770	5,406
Forest nurseries, forest products, and timber	\$467,581	804	\$518,195	694
Wood windows and door manufacturing	\$350,906	2,328	\$478,685	2,578
Veneer and plywood manufacturing	\$294,107	1,876	\$408,186	2,129
Engineered wood member and truss manufacturing	\$140,423	1,129	\$353,325	1,994
Pulp mills	\$75,783	177	\$308,542	427
Other millwork, including flooring	\$162,687	2,161	\$252,146	1,530
Wood preservation	\$190,545	565	\$215,892	716
Wood office furniture manufacturing	\$147,543	1,481	\$215,215	924
Cut stock, resawing lumber, and planing	\$346,395	1,288	\$171,046	1,177
Coated and uncoated paper bag manufacturing	\$57,185	461	\$170,613	537
Wood container and pallet manufacturing	\$85,121	1,198	\$134,052	1,148
Coated and laminated paper and packaging mate	\$48,500	196	\$99,782	235
Miscellaneous wood product manufacturing	\$60,724	488	\$87,507	572
Envelope manufacturing	\$63,974	399	\$85,366	290
Prefabricated wood building manufacturing	\$62,656	478	\$81,785	511
Manufactured home, mobile home, manufacturing	\$41,684	349	\$75,239	518
Nonupholstered wood household furniture manufacturing	\$79,271	889	\$62,632	480
Custom architectural woodwork and millwork	\$71,664	418	\$54,065	445
All other converted paper product manufacturing	\$22,411	100	\$50,916	164
Reconstituted wood product manufacturing	\$89,318	358	\$48,599	120

**APPENDIX D—INDUSTRY GROUPINGS**

Industry Grouping	2001		2006	
	Output (in thousands)	Employment	Output (in thousands)	Employment
<b>Forestry and Wood Product Manufacturing (continued)</b>	<b>\$11,581,176</b>	<b>73,843</b>	<b>\$16,479,924</b>	<b>84,526</b>
Die-cut paper office supplies manufacturing	\$12,185	61	\$42,325	165
Upholstered household furniture manufacturing	\$16,678	189	\$20,393	162
Surface-coated paperboard manufacturing	\$63,912	196	\$16,472	55
Stationery and related product manufacturing	\$10,513	37	\$378	1
<b>Petroleum and Coal Manufacturing</b>	<b>\$5,157,481</b>	<b>2,448</b>	<b>\$15,642,859</b>	<b>2,357</b>
Petroleum refineries	\$4,991,556	1,974	\$15,278,642	1,808
Asphalt shingle and coating materials manufacturing	\$80,331	266	\$151,884	250
Asphalt paving mixture and block manufacturing	\$48,769	124	\$144,638	227
Petroleum lubricating oil and grease manufacturing	\$36,825	84	\$67,695	72
<b>Transportation and Warehousing</b>	<b>\$10,249,818</b>	<b>97,378</b>	<b>\$12,047,616</b>	<b>103,319</b>
Truck transportation	\$3,451,769	27,303	\$4,517,368	33,913
Air transportation	\$2,795,960	15,175	\$2,662,495	11,275
Postal service	\$1,160,420	15,887	\$1,219,921	19,431
Rail transportation	\$610,603	3,656	\$1,212,253	4,267
Couriers and messengers	\$1,182,303	14,374	\$1,028,830	13,632
Warehousing and storage	\$540,521	8,600	\$816,781	11,134
Transit and ground passenger transportation	\$430,576	12,225	\$483,160	9,515
Pipeline transportation	\$77,666	158	\$106,808	152
<b>Computer and Electronic Product Manufacturing</b>	<b>\$6,683,639</b>	<b>28,445</b>	<b>\$12,744,127</b>	<b>18,798</b>
Electronic computer manufacturing	\$767,844	2,257	\$5,631,173	2,284
Semiconductors and related device manufacturing	\$652,514	3,706	\$2,051,715	2,588
All other electronic component manufacturing	\$981,985	5,912	\$802,532	3,784
Search, detection, and navigation instruments	\$566,957	2,477	\$615,339	1,902
Electricity and signal testing instruments	\$546,142	2,988	\$587,192	1,931
Telephone apparatus manufacturing	\$702,604	1,557	\$582,428	693
Broadcast and wireless communications equipment	\$718,284	1,537	\$557,757	980
Other computer peripheral equipment manufacturing	\$918,423	3,235	\$491,207	1,087
Audio and video equipment manufacturing	\$284,303	1,657	\$490,957	648
Watch, clock, and other measuring and controlling device manufacturing	\$197,583	986	\$219,175	790
Analytical laboratory instrument manufacturing	\$83,390	353	\$177,518	473
Industrial process variable instruments	\$87,323	804	\$156,186	674
Computer storage device manufacturing	\$44,338	122	\$144,722	193
Other communications equipment manufacturing	\$38,143	235	\$124,083	392
Automatic environmental control manufacturing	\$19,032	159	\$42,780	180
Software reproducing	\$11,946	203	\$26,629	79
Totalizing fluid meters and counting devices	\$35,000	127	\$18,280	52
Irradiation apparatus manufacturing	\$3,380	9	\$10,914	22
Magnetic and optical recording media manufacturing	\$11,714	35	\$7,518	19
Audio and video media reproduction	\$9,247	53	\$6,022	27
Computer terminal manufacturing	\$3,487	33	-	-
<b>Federal Government</b>	<b>\$9,770,275</b>	<b>130,255</b>	<b>\$12,333,802</b>	<b>126,595</b>
Federal Military	\$4,473,212	81,048	\$6,960,590	77,417
Federal Non-Military	\$3,035,481	32,014	\$3,385,266	21,639
Federal electric utilities	\$1,065,372	1,441	\$1,374,784	2,180
Other Federal Government enterprises	\$1,196,210	15,752	\$613,162	25,359
<b>Other Services</b>	<b>\$14,656,723</b>	<b>203,146</b>	<b>\$11,850,500</b>	<b>202,027</b>
Automotive repair and maintenance, except car washes	\$7,430,822	53,301	\$2,393,801	26,604
Civic, social, professional and similar organizations	\$1,175,458	39,957	\$1,774,387	44,189
Other personal services	\$1,093,442	9,813	\$1,672,332	9,056
Personal care services	\$724,689	18,221	\$1,209,662	22,435
Household goods repair and maintenance	\$863,148	6,127	\$979,380	4,674
Commercial machinery repair and maintenance	\$799,225	7,924	\$807,832	5,330
Religious organizations	\$608,970	3,987	\$701,170	4,472
Grantmaking and giving and social advocacy organizations	\$317,400	11,126	\$672,664	13,211
Private households	\$254,935	31,867	\$499,569	55,683
Electronic equipment repair and maintenance	\$699,817	6,628	\$400,828	2,590
Drycleaning and laundry services	\$346,151	7,778	\$371,029	7,647
Death care services	\$208,793	2,852	\$200,595	2,916
Car washes	\$133,873	3,565	\$167,251	3,220
<b>Medical Manufacturing</b>	<b>\$2,748,523</b>	<b>9,999</b>	<b>\$4,672,966</b>	<b>10,639</b>
Pharmaceutical and medicine manufacturing	\$1,253,797	2,267	\$2,425,175	2,514
Electromedical apparatus manufacturing	\$1,078,909	3,985	\$1,596,960	3,726
Surgical appliance and supplies manufacturing	\$161,052	946	\$231,445	1,215
Surgical and medical instrument manufacturing	\$68,653	337	\$124,038	466

**APPENDIX D—INDUSTRY GROUPINGS**

<i>Industry Grouping</i>	<i>2001</i>		<i>2006</i>	
	<i>Output (in thousands)</i>	<i>Employment</i>	<i>Output (in thousands)</i>	<i>Employment</i>
Medical Manufacturing (continued)	\$2,748,523	9,999	\$4,672,966	10,639
Dental laboratories	\$87,564	1,664	\$117,393	1,666
Laboratory apparatus and furniture manufacturing	\$32,670	224	\$87,472	469
Ophthalmic goods manufacturing	\$43,911	423	\$65,056	446
Dental equipment and supplies manufacturing	\$21,967	153	\$25,427	137
Marine Services	\$3,724,958	17,255	\$4,330,342	20,712
Water transportation	\$1,981,524	3,302	\$1,975,581	3,649
Boat building	\$429,517	3,325	\$1,072,824	4,684
Fishing	\$1,020,866	8,383	\$735,201	9,560
Ship building and repairing	\$293,051	2,245	\$546,736	2,819
Utilities	\$2,498,538	4,984	\$3,092,443	5,297
Power generation and supply	\$1,273,479	2,580	\$1,817,908	2,854
Natural gas distribution	\$1,141,477	1,694	\$1,133,603	1,468
Water, sewage and other systems	\$83,582	710	\$140,932	975

SRRI, March 2009

Data Source: IMPLAN

Note: Differences due to rounding.

Appendix E—Regional Housing Industry Grouping

Area / Sector Name	2001		2006	
	Output (in thousands)	Employment	Output (in thousands)	Employment
<b>Puget Sound</b>				
Housing	\$25,698,064	107,642	\$38,698,637	138,182
Owner-occupied dwellings	\$9,662,711	0	\$15,045,262	0
67% of Real Estate	\$8,662,433	49,735	\$12,774,544	73,999
New residential 1-unit structures	\$3,918,169	28,719	\$7,019,132	41,791
New residential additions and alterations	\$2,204,755	17,522	\$2,286,246	11,097
New multifamily housing structures	\$697,329	7,218	\$1,091,831	8,179
Maintenance and repair of farm and nonfarm residential structures	\$552,667	4,448	\$481,622	3,116
<b>Spokane</b>				
Housing	\$1,980,765	10,807	\$2,950,394	10,735
Owner-occupied dwellings	\$844,910	0	\$1,321,540	0
61% of Real Estate	\$410,426	4,415	\$639,315	4,372
New residential 1-unit structures	\$384,392	3,170	\$642,836	4,143
New residential additions and alterations	\$218,642	1,934	\$205,941	1,100
New multifamily housing structures	\$67,340	797	\$96,475	811
Maintenance and repair of farm and nonfarm residential structures	\$55,055	491	\$44,287	309
<b>Vancouver</b>				
Housing	\$1,954,522	11,180	\$3,033,440	10,451
Owner-occupied dwellings	\$786,333	0	\$1,271,365	0
73% of Real Estate	\$452,435	5,244	\$704,414	3,835
New residential 1-unit structures	\$379,864	2,944	\$685,559	4,308
New residential additions and alterations	\$214,810	1,796	\$220,747	1,144
New multifamily housing structures	\$67,121	740	\$104,206	843
Maintenance and repair of farm and nonfarm residential structures	\$53,959	456	\$47,149	321

SRRI, March 2009

Data Source: IMPLAN

Note: Differences due to rounding.

## ABOUT SRRI

The Sacramento Regional Research Institute (SRRI), a joint venture of the Sacramento Area Commerce and Trade Organization (SACTO) and California State University, Sacramento (Sacramento State), provides a full range of objective economic and demographic research services to businesses, government entities, educational institutions and non-profit organizations.

The experienced staff at SRRI possesses extensive knowledge of economic and demographic research and urban planning. Every project is completed on time, within budget and in accordance with the highest quality standards.

## INFORMATION



## TESTIMONIALS

The County's Economic Development Department has benefited immensely from the various studies SRRI has completed for us. Not only have their work products provided valuable information that we use to market the County, but we have seen tangible results by acting on specific recommendations from their reports.

*- David Snyder, Director  
Placer County Office of Economic Development*

SRRI helped us gain an understanding of our region's economic potential and how to capitalize on it. They helped us develop a vision and a plan to enhance our prosperity and move our economic development efforts forward.

*- Robert Miller, Senior Vice President  
Folsom Economic Development Corporation*

After working with SRRI, we now have a clearer understanding of our future economy, the demands for community college programs, and how to provide the most benefit to our students and the business community.

*- Walter DiMantova, Director  
Contract Education and Economic Development  
Los Rios Community College District*

## SERVICES

### Economic and Demographic Profiles:

A comprehensive collection of the latest and most reliable data enhances local business attraction and marketing efforts.

**SRRI produces** economic and demographic profiles containing data and analysis in areas such as population, housing, income, employment, labor force, wages, taxable sales, transportation, quality of life and utilities.

### Site Selection Information and Research:

Companies and site selection consultants rely on accurate and comparable information in evaluating areas for expansion or relocation.

**SRRI gathers** and analyzes economic and demographic data to help economic development professionals provide companies and consultants with an accurate and comprehensive view of an area.

# EVALUATION

**Economic and Tax Impact Studies:** The creation of jobs typically has a ripple effect throughout a region where additional jobs are generated through relationships with linked firms and purchases of goods and services.

*SRRRI provides* a complete picture of employment, income and consumption expenditures throughout the region's economy and determines their economic effects. Using IMPLAN modeling, SRRRI also creates an estimate of the generation of federal, state and local taxes.

**Industry Studies:** An understanding of the economic trends and qualities necessary to foster growth and development is critical for business attraction, expansion and retention efforts aimed at a specific industry.

*SRRRI analyzes* employment and wage data for the industry, economic impacts, locational advantages, contributions of major employers and responses from an employer survey.

**Workforce Studies:** An important part of understanding a local economy is evaluating the characteristics of the workforce.

*SRRRI provides* information on the mix of jobs, training, education and skills and analyzes the ability of the workforce to fill the existing and potential future employment needs. SRRRI also evaluates industry staffing patterns and workforce competitiveness.

# CONSULTATION

**Economic Development Strategies:** Long-term economic development planning must consider both the current local environment as well as a vision for future growth and development.

*SRRRI provides* analysis on which to base long-term business decisions by identifying the economic potential of a local area, assessing the existing attributes and advantages, evaluating economic and demographic trends and generating economic development strategies.

**Market and Feasibility Analyses:** Determining the market acceptance or feasibility of a specific project is essential to make informed business decisions and ensure success.

*SRRRI produces* market and feasibility studies to determine if the market conditions are suitable for development, short-and long-term project sustainability and the best use of a location or site.

## **Policy Analysis and Program Evaluation**

**Support:** In some cases, policy analysis and program evaluation activities require an added level of economic or technical support.

*SRRRI offers* support services in assessing the economic components of specific policy alternatives, developing research processes and measurement techniques and gathering and analyzing data to evaluate program effectiveness.

## **CLIENTS**

Public and private clients from inside and outside the Sacramento Region look to SRRRI's unique economic and demographic research expertise to help them work smarter and more competitively in realizing their objectives.

### **Representative Clients:**

California Building Industry Association  
California Chamber of Commerce  
City of Sacramento  
Folsom Economic Development Corporation  
KT Communities  
Los Rios Community College District

Partnership for Prosperity  
Placer County  
Sacramento Employment and Training Agency  
Teichert Aggregates  
The Diepenbrock Law Firm  
Westfield Corporation