



**WSDOT Airport System Plan Update
Aviation System Plan Forecast and Economic Analysis Study**

**Measuring the Economic Contribution of General Aviation and
Commercial Service Airports in Washington**

Airports, aviation and industries related to aviation in Washington have an impact on the economic well-being of communities throughout the state. Airports and aviation-related industries create thousands of jobs and provide millions of dollars in income and sales each year. Airport operations, aviation-related businesses, air travel visitor spending, and special aviation events in Washington generate an estimated \$19.6 billion annually in total economic activity, support over 176,900 full- and part-time employees statewide; and produce \$14 billion each year in employee wages and benefits for state residents. Capital spending by local airports also contributes to the economic well-being of local and regional economies. While not generally an annual expenditure, spending on capital improvements in the year 2000 generated an additional \$137.9 million in output, supported over 1,400 jobs and produced \$42 million in employee wages and benefits for state residents. A brief explanation of these benefits is described below and in more detail in the accompanying report.

**Table 1.
Summary of Economic Impacts of Washington’s Airports (Millions \$98)**

Washington State	Direct Impacts			Total Impacts		
	Jobs	Employee Compensation	Output	Jobs	Employee Compensation	Output
Airport Operations ¹	22,717	\$858.8	\$7,911.7	50,702	\$2,041.7	\$11,373.9
Aviation Businesses	1,422	\$24.7	\$93.2	1,968	\$40.1	\$136.3
Visitor Spending	91,804	\$1,411.3	\$6,000.2	124,205	\$2,223.3	\$8,093.2
Air Shows	54	\$0.8	\$2.5	69	\$1.2	\$3.6
Total Annual Impact	115,997	\$2,295.5	\$14,007.7	176,944	\$4,306.1	\$19,606.9
Capital Spending	724	\$23.8	\$93.6	1,426	\$42.0	\$137.9
Total All Impacts	116,721	\$2,319.4	\$14,101.3	178,370	\$4,348.2	\$19,744.8

¹ Estimated airport operations impacts for both Sea-Tac International Airport and King County International Airport (Boeing Field) include impacts associated with FBO’s, aviation-related businesses and capital improvements, and are summarized from separate reports (see Martin Associates, and Beyers and McMullin). Consequently, total airport operations impacts are likely overstated and aviation business and capital spending impacts are likely understated. For all other commercial service and general aviation airports these impacts are reported separately.

Economic benefits of the State’s aviation system derive from several sources and can be considered ongoing (occurring annually) or one-time (occurring at irregular intervals). These include:

- operation of airports and aviation-related businesses (ongoing);
- capital expenditures by airport owners (one-time);
- air travel destination spending (ongoing); and
- air shows, fly-ins and other special aviation events (ongoing).





Airport Operations

In 2000, Washington general aviation and commercial service airports, including Sea-Tac International Airport, had total direct spending of \$7.9 billion, supported over 22,700 jobs, and provided nearly \$859 million in wages, salaries and benefits. Direct airport spending generated nearly \$11.4 billion in total economic activity, supported over 50,700 total jobs, and provided nearly \$8 billion in total employee compensation (measured in 1998 dollars).

It should be noted that total estimated airport operations impacts are likely overstated due to the inclusion of impact estimates for Sea-Tac International Airport and King County International Airport (Boeing Field) from separate studies (see Martin Associates, and Beyers and McMullin). Estimated airport operations impacts for both Sea-Tac and Boeing Field include impacts for airport operations, FBO's, aviation-related businesses and capital improvements, that have been calculated separately in this study. Consequently, total airport operations impacts for the State are likely overstated.

Sea-Tac International Airport plays a significant role in the air transportation system in the State. In 2000, Sea-Tac had nearly \$6.9 billion in airport spending, supported 17,970 jobs, and provided \$655 million in wages, salaries and benefits. Direct airport activity generated approximately \$10.1 billion in total economic activity, supported 42,093 total jobs, and provided over \$1.7 billion in total employee compensation (Martin Associates, September 2000).

Washington's 115 general aviation and commercial service airports, excluding Sea-Tac International Airport, also contribute to economic activity within the State. In 2000, general aviation and commercial service airports had total direct spending of \$1 billion, supported over 4,700 full- and part-time jobs, and provided nearly \$204 million in wages, salaries and benefits. Direct airport spending generated over \$1.2 billion in total economic activity, supported 8,600 total employees, and provided over \$300 million in total employee compensation (1998 dollars).

Capital Spending

Capital expenditures by airport owners totaled \$93.6 million in 2000 and represent one-time economic benefits. Direct spending on capital projects supported approximately 724 jobs and nearly \$24 million in wages, salaries and benefits. Spending on capital projects generated additional economic benefits, including \$137.9 million in total economic activity, supported 1,426 total employees, and provided \$42 million in total employee compensation (1998 dollars).

Fixed-Base Operators (FBO's) and Aviation-Related Businesses

The State's 210 fixed-based operators and aviation-related businesses had estimated direct spending of \$93.2 million, supported 1,422 full- and part-time positions, and paid \$24.7 million in wages, salaries and benefits. This direct spending generated over \$136.3 million in total economic activity, supported 1,968 employees, and provided \$40.1 million in total employee compensation for the same period (1998 dollars). As noted above, the economic contribution of aviation-related businesses at Sea-Tac International Airport are included in the total for airport operations presented above and are not reflected in the estimated impacts for FBO's and aviation-related businesses.





Travel Spending

Business and recreational travelers using the State's general aviation and commercial service airports contribute to the local and state economies by spending on area lodging, restaurants, retail shops, entertainment and local transportation services. Numerous service industries also benefit from the multiplier effects stemming from visitor spending. Additional benefits arise from visitor spending at air shows, fly-ins and other special aviation events.

In 2000, an estimated 7.5 million business and recreational travelers used the State's general aviation and commercial service airports, including Sea-Tac. Direct visitor spending totaled just over \$6 billion, supported 91,800 jobs and provided \$1.4 billion in employee compensation. Direct visitor spending generated approximately \$8.1 billion in total economic activity, supported 124,200 total jobs, and provided \$2.2 billion in total employee compensation to state residents.

Similar to airport operations, Sea-Tac International Airport plays a significant role in visitor impacts within the State. In 2000, an estimated 5.8 million business and recreational travelers visited the State via Sea-Tac International Airport. These visitors generated an estimated \$5 billion in direct spending, that directly supported nearly 77,000 jobs, and provided \$1.2 billion in employee compensation. Direct air travel visitor spending generated approximately \$6.8 billion in total economic activity, supported over 104,000 total jobs, and provided \$1.9 billion in total employee compensation.

In 2000, approximately 1.7 million business and recreational travelers visited the State's general aviation and commercial service airports (excluding Sea-Tac). Direct spending totaled nearly \$1 billion, that supported 14,800 jobs, and provided \$228 million in employee compensation. Direct air travel visitor spending generated \$1.3 billion in total economic activity, supported 20,000 total jobs, and provided \$359 million in total employee compensation (in 1998 dollars)

Air Shows, Fly-Ins and Special Aviation Events

Another source of ongoing economic benefits is derived from spending by patrons at regularly scheduled air shows, fly-ins and special aviation events. In 2000, these activities attracted over 38,000 attendees who spent an estimated \$2.5 million on lodging, food and beverages, merchandise, entertainment, and car rental. Direct spending by event patrons generated \$3.6 million in total economic activity, supported nearly 70 jobs, and provided \$1.2 million in total employee compensation to state residents (1998 dollars).

Pilot Travel Spending

Pilot spending at his/her primary destination airport in Washington generates additional economic benefits within the state. In 2000, pilots and their passengers had total direct destination spending estimated at \$557,903. This direct spending generated \$768,422 in total economic activity, supported 13 total employees, and provided nearly \$256,000 in total employee compensation (1998 dollars). It should be noted that pilot travel spending is included in visitor spending impacts.

The following report presents the results of input-output modeling of Washington's 115 general aviation and commercial service airports (excluding Sea-Tac Airport) using the IMPLAN model.





I. Study Purpose and Methodology

The purpose of this analysis is to estimate the economic impact of general aviation and commercial service airports in Washington. The economic impact is measured by the regional economic activity, jobs and income that can be attributed directly and indirectly to the operation of local airports. For this study, the geographic location of the initial economic activity is assumed to be the county level. Data at the county level are also aggregated into one of seven transportation regions defined by WSDOT and a state total.

Economic impacts measure the importance of aviation as an industry in terms of the jobs it provides and the goods and services it consumes. Economic impacts include direct, indirect and induced impacts. Direct impacts are the immediate consequences of economic activities carried out at the airport by airlines, airport management, fixed-base operators (FBOs), and other tenants with a direct involvement in aviation. Examples of airport activities that generate direct impacts include employing labor, purchasing locally-produced goods and services, and contracting for airport construction and capital improvements. The principal measures of on-site direct impacts are employment, airport payroll and airport expenditures for materials, equipment fuel and utilities and capital construction.

Indirect impacts are related primarily to off-site economic activities that are attributable to the airport. Examples of indirect impacts include services provided by travel agencies, hotels, restaurants, and retail businesses. These businesses, like airport businesses, employ labor, purchase locally produced goods and services, and invest in capital improvements. For the most part, visitor expenditures represent almost all of the region's indirect impacts.

Induced impacts are the multiplier effects of the direct and indirect impacts. Induced impacts reflect the increase in employment and income over and above the direct and indirect impacts created by successive rounds of spending. The procedure used for measuring induced impacts is input-output (I/O) analysis. This approach takes into account the dependency of each economic sector on other economic sectors within a region.

A. Estimating Economic Impacts using the IMPLAN Model

IMPLAN, Impact Analysis for Planning, is an input-output model developed by the Minnesota IMPLAN Group (MIG). The IMPLAN Pro software package includes two components, the software and the database. The software performs the necessary calculations using the study area data to create models. The database includes national-level technology matrices and estimates of regional data for institutional demand and transfers, value-added, industry output and employment for each county in the US as well as state and national totals.

IMPLAN Professional 2.0 for Windows is a software package that allows construction of regional models (i.e. county-level for this analysis). The models are based on the national production functions and tailored to each county based on specific data (survey data and the state/county data). Models were constructed to identify secondary (indirect and induced) and total impacts associated with direct employment, wages and spending.





The Washington data package includes US totals, state totals, and all related county files. Data files include information for 528 different industries and 21 different economic variables. Along with the data files are national input-output structural matrices. This analysis focuses on the Air Transportation Industry (Industry 437 in IMPLAN). IMPLAN industry 437 corresponds to Standard Industrial Classification (SIC) 4500, which includes:

- Air Transportation, Scheduled, and Air Courier Services
- Air Transportation, Non-Scheduled
- Airports, Flying Fields, and Airport Terminal Services

Several counties in Washington (Adams, Ferry, Pacific, and Pend Oreille) do not have an Air Transportation Industry. For those counties, IMPLAN industry 512, Other State and Local Government Enterprises, was used as a proxy.

All model results are in 1998 dollars. Expenditure data (payroll, capital spending) obtained from the airport managers, businesses and pilot surveys (discussed below) are in year 2000 dollars. Therefore, a deflator was used. A deflator accounts for the changes in value of a dollar from one time period to another. IMPLAN databases come with deflators derived from the most recent Bureau of Labor Statistics Growth Model.

To avoid overestimating economic impacts, only local expenditures were included in the analysis. IMPLAN was used to determine the proportion of expenditures occurring locally. This was achieved through the use of regional purchase coefficients (RPC) contained in the model. The RPC is the proportion of local demand purchased from local producers. For example, an RPC of 0.25 for a given commodity means that for each \$1 of local need, 25% is purchased from local producers. This method is based on the characteristics of the region and describes actual trade flows for the region mathematically.

B. Study Area Definitions

All analysis results are presented for Washington State and seven (7) regions defined by WSDOT. The regions are comprised of specific counties that have similar economic and geographic characteristics. They are: Central Puget Sound Region (King, Kitsap, Pierce and Snohomish counties); Eastern Region (Adams, Lincoln, Pend Oreille, Spokane, Stevens and Whitman counties); North Central Region (Chelan, Douglas, Ferry, Grant and Okanogan counties); Northwest Region (Island, San Juan, Skagit and Whatcom counties); Olympic Region (Clallam, Grays Harbor, Jefferson, Mason and Thurston counties); South Central Region (Benton, Franklin, Kittitas, Walla Walla, and Yakima counties); and Southwest Region (Clark, Cowlitz, Klickitat, Lewis, and Pacific counties). Additional county-level results by airport are presented in the Appendix.

Typically, the larger the study area, the more economic activity is internalized (i.e. considered “local” rather than “imported”) and the larger the multipliers will be. To isolate the effects of an impact or industry, the study area should be as small as possible to avoid extraneous economic activity but large enough to capture all the important effects. For this analysis, economic activity was identified at the state, region and county level.

The state-level results reflect economic activity at all the general aviation and commercial service airports included in the study. The model results represent the total economic contribution of each component of the air transportation industry within the state (e.g. airport operations, fixed-base operators, air shows, etc.). As stated earlier, this level of analysis will result in the greatest level of economic activity





generated by an industry because it captures the most forward and backward linkages. [Linkages refer to the connections between industries and consumers. Backward linkages are between an industry and its suppliers, while forward linkages are between an industry and the consumers of its good or service].

The region-level results reflect economic activity at all the general aviation and commercial service airports located within the region (e.g. all airports within the Central Puget Sound Region). Typically, economic impacts associated with these smaller areas will be less than those identified for the state as a whole because some economic activity will take place outside the region (a “leakage”) and will not be “captured” by the model. In effect, the weighting (local vs. regional purchase coefficients) and trade flows for an industry will vary as study areas vary.

The county level results include impacts for individual airports (e.g. Anderson Field). Similar to the region-level results, results for individual airports within a county will be less than the regional totals and the state totals. This is because many economic activities take place outside the county and will not be reflected in the model results. That is, the work force, location of supporting industries and services, location of consumers, and many other linkages take place outside the county.

C. Study Data

1. Survey Data

Data on direct employment, payroll and spending were obtained through a series of informational surveys sent to airport managers, airport businesses, and pilots. The purpose of the surveys was to acquire accurate information to serve as input in the economic analysis. The Airport Survey sent to airport sponsors/managers provided specific data on direct airport employment, airport income, major on-airport capital improvements, and on regularly scheduled special aviation events. The Aircraft Owner and Pilot Survey provided information on direct visitor travel and spending information. The Airport Business Survey provided information on direct employment, income and spending by on-airport businesses.

Secondary sources of information were used to identify airport operations and aviation-related business impacts for Sea-Tac International Airport and King County International Airport/Boeing Field. [See Martin Associates, 2000, and Beyers and McMullin, 2000].

2. Visitor Spending Data

Visitor spending data were obtained from several sources. The Pilot Survey provided data on trip characteristics and travel spending patterns. These data were used to estimate visitor spending impacts for Washington’s general aviation airports. Spending data for commercial service airports were developed from previous studies and experience. The Washington State Office of Trade & Economic Development (CTED) also compiles data on visitor spending characteristics based on visitor profile data collected for Washington State Tourism (Washington State Office of Trade & Economic Development, 2000). These data are presented for 1999, the most recent year for which final year-end data are available.





II. Regional Characteristics

A. Socio-Economic Characteristics

The IMPLAN model contains study area socio-economic data for each county and the state for the year 1998. The information includes population, employment (all industries), number of households, number of industries present in each county, and average household and personal income. The data for the state, and each county and WSDOT transportation region are presented in Table 2.

In 1998, the State of Washington had a total population of nearly 5.8 million and total employment of 3.4 million. Of the 528 industries tracked by the IMPLAN model, the State had 460 or 87% of all industries. Household income averaged \$71,598 and personal income totaled \$163 billion or an average of \$28,378 per person.

**Table 2A.
1998 Study Area Socio-Economic Characteristics**

Washington State						
State	Population	Employment	Households	# of Industries	Household Income	Personal Income (\$Millions)
Washington	5,756,066	3,439,204	2,281,461	460	\$71,598	\$163,348

Source: MIG, IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition, June 2000.

The Central Puget Sound Region accounted for just over 55% of the State’s total population and 61% of the State’s total employment. The Southwest, Eastern and South Central regions each accounted for about 9% of the State’s population, and from 7% - 9% of the State’s total employment. The Olympic Region accounted for 7% of the State’s population and 6% of total employment, while the Northwest Region accounted for 6% of population and 5% of total employment. The North Central Region accounted for about 4% each of the State’s population and total employment.

**Table 2A.
1998 Study Area Socio-Economic Characteristics**

Central Puget Sound Region						
County	Population	Employment	Households	# of Industries	Household Income	Personal Income (\$Millions)
King	1,674,308	1,380,833	666,378	391	\$101,550	\$67,671
Kitsap	235,354	116,302	95,159	167	\$56,195	\$5,347
Pierce	684,448	323,797	270,310	278	\$61,267	\$16,561
Snohomish	594,685	282,749	231,212	291	\$68,408	\$15,817
Total	3,188,795	2,103,681	1,263,059	417	\$83,445	\$105,396
% of State	55.4%	61.2%	55.4%	90.7%	116.5%	64.5%

Source: MIG, IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition, June 2000.





**Table 2A.
1998 Study Area Socio-Economic Characteristics**

Eastern Region						
County	Population	Employment	Households	# of Industries	Household Income	Personal Income (\$Millions)
Adams	15,504	9,163	6,220	100	\$50,817	\$316
Lincoln	9,848	5,423	3,934	84	\$52,804	\$208
Pend Oreille	11,661	4,290	4,577	89	\$44,850	\$205
Spokane	413,468	242,005	164,730	280	\$58,112	\$9,573
Stevens	39,927	15,939	15,965	126	\$42,226	\$674
Whitman	39,951	20,260	16,130	130	\$44,864	\$724
Total	530,359	297,080	211,556	305	\$55,303	\$11,700
% of State	9.2%	8.6%	9.3%	66.3%	77.2%	7.2%

Source: MIG, IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition, June 2000.

**Table 2A.
1998 Study Area Socio-Economic Characteristics**

North Central Region						
County	Population	Employment	Households	# of Industries	Household Income	Personal Income (\$Millions)
Chelan	60,757	45,577	24,156	158	\$61,410	\$1,483
Douglas	34,026	11,351	13,382	112	\$47,887	\$641
Ferry	7,254	2,977	3,949	97	\$38,944	\$115
Grant	71,373	37,709	28,017	155	\$51,204	\$1,435
Okanogan	38,686	23,510	15,514	131	\$48,432	\$751
Total	212,096	121,124	84,018	221	\$52,668	\$4,425
% of State	3.7%	3.5%	3.7%	48.0%	73.6%	2.7%

Source: MIG, IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition, June 2000.

**Table 2A.
1998 Study Area Socio-Economic Characteristics**

Northwest Region						
County	Population	Employment	Households	# of Industries	Household Income	Personal Income (\$Millions)
Island	71,145	31,129	28,638	135	\$59,484	\$1,704
San Juan	12,640	8,789	4,936	129	\$90,406	\$446
Skagit	100,524	54,592	39,498	194	\$60,589	\$2,393
Whatcom	158,671	90,545	62,721	235	\$56,991	\$3,575
Total	342,980	185,055	135,793	286	\$59,778	\$8,117
% of State	6.0%	5.4%	6.0%	62.2%	83.5%	5.0%

Source: MIG, IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition, June 2000.





**Table 2A.
1998 Study Area Socio-Economic Characteristics**

Olympic Region						
County	Population	Employment	Households	# of Industries	Household Income	Personal Income (\$Millions)
Clallam	64,922	30,825	25,849	154	\$56,657	\$1,465
Grays Harbor	68,534	31,202	27,662	146	\$49,229	\$1,362
Jefferson	26,540	12,346	10,451	132	\$59,480	\$622
Mason	50,453	17,705	20,075	125	\$47,705	\$958
Thurston	204,630	115,142	81,233	189	\$61,988	\$5,035
Total	415,079	207,220	165,270	244	\$57,125	\$9,441
% of State	7.2%	6.0%	7.2%	53.0%	79.8%	5.8%

Source: MIG, IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition, June 2000.

**Table 2A.
1998 Study Area Socio-Economic Characteristics**

South Central Region						
County	Population	Employment	Households	# of Industries	Household Income	Personal Income (\$Millions)
Benton	13,850	72,617	54,936	181	\$60,252	\$3,310
Franklin	47,005	25,422	18,609	153	\$46,187	\$859
Kittitas	32,086	16,224	12,847	133	\$49,475	\$636
Walla Walla	54,333	30,363	21,671	164	\$51,625	\$1,119
Yakima	220,622	115,107	87,684	219	\$51,699	\$4,533
Total	491,896	259,733	195,747	278	\$53,421	\$10,457
% of State	8.5%	7.6%	8.6%	60.4%	74.6%	6.4%

Source: MIG, IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition, June 2000.

**Table 2A.
1998 Study Area Socio-Economic Characteristics**

Southwest Region						
County	Population	Employment	Households	# of Industries	Household Income	Personal Income (\$Millions)
Clark	330,782	149,562	128,817	259	\$68,326	\$8,802
Cowlitz	92,649	47,496	36,842	177	\$54,215	\$1,997
Klickitat	19,522	8,818	7,696	130	\$49,144	\$378
Lewis	68,963	33,637	27,466	166	\$49,506	\$1,360
Pacific	21,046	9,532	8,526	103	\$49,263	\$420
Total	532,962	249,045	209,347	306	\$61,892	\$12,957
% of State	9.3%	7.2%	9.2%	66.5%	86.4%	7.9%

Source: MIG, IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software, 2nd Edition, June 2000.





TABLE 2B			
IMPACTS PER MILLION DOLLARS IN VISITOR SPENDING*			
EMPLOYEE COMPENSATION			
Direct	Indirect	Induced	Total
\$235,209	\$64,177	\$71,150	\$370,536
EMPLOYMENT			
Direct	Indirect	Induced	Total
15.3	2.4	2.9	20.7
OUTPUT			
Direct	Indirect	Induced	Total
\$936,550	\$194,845	\$217,411	\$1,348,806

*Estimates of impacts per \$1 million of visitor spending are derived from the Pilot Survey and IMPLAN Model for Washington State.

TABLE 2C					
SPENDING BY COMMERCIAL SERVICE VISITORS					
Associated City	Airport	Visitors	Spending per Trip	Total Spending	Impact Per \$Million
Anacortes	Anacortes	2,862	\$675	\$1,931,850	\$1.93
Bellingham	Bellingham International	34,796	\$675	\$23,487,300	\$23.49
Friday Harbor	Friday Harbor	4,602	\$675	\$3,106,350	\$3.11
Friday Harbor	Friday Harbor SPB	2,476	\$675	\$1,671,300	\$1.67
Kenmore	Kenmore Air Harbor	5,623	\$675	\$3,795,390	\$3.80
Moses Lake	Grant County	4,292	\$675	\$2,897,100	\$2.90
East Sound	Orcas Island	3,809	\$675	\$2,571,210	\$2.57
Pasco	Tri-Cities	76,920	\$675	\$51,921,270	\$51.92
Port Angeles	William Fairchild	9,951	\$675	\$6,717,060	\$6.72
Pullman-Moscow, ID	Pullman-Moscow	10,788	\$675	\$7,281,630	\$7.28
Roche Harbor	Roche Harbor SPB	600	\$675	\$405,000	\$0.41
Rosario	Rosario SPB	600	\$675	\$405,000	\$0.41
Seattle	Boeing Field	1,127	\$675	\$760,860	\$0.76
Seattle - Lake Union	Kenmore Air Harbor	1,400	\$675	\$945,000	\$0.95
Seattle	Seattle-Tacoma International	5,669,501	\$880	\$4,989,160,704	\$4,989.16
Sequim	Sequim Valley	300	\$675	\$202,500	\$0.20
Spokane	Spokane International	589,160	\$750	\$441,870,300	\$441.87
Walla Walla	Walla Walla	9,678	\$675	\$6,532,380	\$6.53
Wenatchee	Pangborn Memorial	21,260	\$675	\$14,350,230	\$14.35
Yakima	Yakima	34,909	\$675	\$23,563,440	\$23.56
	Total	6,484,654		\$5,583,575,874	\$5,583.58
	Total Without Sea-Tac	815,153		\$594,415,170	\$594.42





**Washington State
Department of Transportation
Aviation Division**

TABLE 2D WAGE IMPACTS FROM COMMERCIAL SERVICE VISITORS					
Associated City	Airport	EMPLOYEE COMPENSATION			
		Direct	Indirect	Induced	Total
Anacortes	Anacortes	\$454,389	\$123,980	\$137,451	\$715,820
Bellingham	Bellingham International	\$5,524,424	\$1,507,344	\$1,671,121	\$8,702,890
Friday Harbor	Friday Harbor	\$730,641	\$199,356	\$221,017	\$1,151,015
Friday Harbor	Friday Harbor SPB	\$393,105	\$107,259	\$118,913	\$619,277
Kenmore	Kenmore Air Harbor	\$892,710	\$243,577	\$270,042	\$1,406,329
Moses Lake	Grant County	\$681,424	\$185,927	\$206,129	\$1,073,480
East Sound	Orcas Island	\$604,772	\$165,013	\$182,942	\$952,726
Pasco	Tri-Cities	\$12,212,350	\$3,332,151	\$3,694,198	\$19,238,700
Port Angeles	William Fairchild	\$1,579,913	\$431,081	\$477,919	\$2,488,913
Pullman-Moscow, ID	Pullman-Moscow	\$1,712,705	\$467,313	\$518,088	\$2,698,106
Roche Harbor	Roche Harbor SPB	\$95,260	\$25,992	\$28,816	\$150,067
Rosario	Rosario SPB	\$95,260	\$25,992	\$28,816	\$150,067
Seattle	Boeing Field	\$178,961	\$48,830	\$54,135	\$281,926
Seattle - Lake Union	Kenmore Air Harbor	\$222,273	\$60,647	\$67,237	\$350,157
Seattle	Seattle-Tacoma International	\$1,173,495,500	\$320,189,367	\$354,978,784	\$1,848,663,651
Sequim	Sequim Valley	\$47,630	\$12,996	\$14,408	\$75,034
Spokane	Spokane International	\$103,931,871	\$28,357,910	\$31,439,072	\$163,728,853
Walla Walla	Walla Walla	\$1,536,475	\$419,229	\$464,779	\$2,420,482
Wenatchee	Pangborn Memorial	\$3,375,303	\$920,955	\$1,021,019	\$5,317,277
Yakima	Yakima	\$5,542,333	\$1,512,231	\$1,676,539	\$8,731,103
	Total	\$1,313,307,298	\$358,337,149	\$397,271,423	\$2,068,915,870
	Total Without Sea-Tac	\$139,811,798	\$38,147,782	\$42,292,639	\$220,252,219

TABLE 2E EMPLOYMENT IMPACTS FROM COMMERCIAL SERVICE VISITORS					
Associated City	Airport	EMPLOYMENT			
		Direct	Indirect	Induced	Total
Anacortes	Anacortes	29.6	4.6	5.6	40.0
Bellingham	Bellingham International	359.4	56.4	68.1	486.2
Friday Harbor	Friday Harbor	47.5	7.5	9.0	64.3
Friday Harbor	Friday Harbor SPB	25.6	4.0	4.8	34.6
Kenmore	Kenmore Air Harbor	58.1	9.1	11.0	78.6
Moses Lake	Grant County	44.3	7.0	8.4	60.0
East Sound	Orcas Island	39.3	6.2	7.5	53.2
Pasco	Tri-Cities	794.4	124.6	150.6	1,074.8
Port Angeles	William Fairchild	102.8	16.1	19.5	139.0
Pullman-Moscow, ID	Pullman-Moscow	111.4	17.5	21.1	150.7
Roche Harbor	Roche Harbor SPB	6.2	1.0	1.2	8.4
Rosario	Rosario SPB	6.2	1.0	1.2	8.4
Seattle	Boeing Field	11.6	1.8	2.2	15.7
Seattle - Lake Union	Kenmore Air Harbor	14.5	2.3	2.7	19.6
Seattle	Seattle-Tacoma International	76,334.2	11,974.0	14,468.6	103,275.6
Sequim	Sequim Valley	3.1	0.5	0.6	4.2
Spokane	Spokane International	6,760.6	1,060.5	1,281.4	9,146.7
Walla Walla	Walla Walla	99.9	15.7	18.9	135.2
Wenatchee	Pangborn Memorial	219.6	34.4	41.6	297.0
Yakima	Yakima	360.5	56.6	68.3	487.8
	Total	85,429	13,401	16,192	115,580
	Total Without Sea-Tac	9,094.6	1,426.6	1,723.8	12,304.4





**Washington State
Department of Transportation
Aviation Division**

TABLE 2F					
OUTPUT IMPACTS FROM COMMERCIAL SERVICE VISITORS					
Associated City	Airport	OUTPUT			
		Direct	Indirect	Induced	Total
Anacortes	Anacortes	\$1,809,274	\$376,411	\$420,005	\$2,605,691
Bellingham	Bellingham International	\$21,997,031	\$4,576,383	\$5,106,397	\$31,679,811
Friday Harbor	Friday Harbor	\$2,909,252	\$605,257	\$675,355	\$4,189,864
Friday Harbor	Friday Harbor SPB	\$1,565,256	\$325,644	\$363,359	\$2,254,259
Kenmore	Kenmore Air Harbor	\$3,554,573	\$739,513	\$825,160	\$5,119,245
Moses Lake	Grant County	\$2,713,279	\$564,485	\$629,861	\$3,907,626
East Sound	Orcas Island	\$2,408,067	\$500,987	\$559,009	\$3,468,063
Pasco	Tri-Cities	\$48,626,865	\$10,116,600	\$11,288,255	\$70,031,721
Port Angeles	William Fairchild	\$6,290,863	\$1,308,786	\$1,460,363	\$9,060,011
Pullman-Moscow, ID	Pullman-Moscow	\$6,819,611	\$1,418,789	\$1,583,106	\$9,821,506
Roche Harbor	Roche Harbor SPB	\$379,303	\$78,912	\$88,051	\$546,266
Rosario	Rosario SPB	\$379,303	\$78,912	\$88,051	\$546,266
Seattle	Boeing Field	\$712,583	\$148,250	\$165,419	\$1,026,253
Seattle - Lake Union	Kenmore Air Harbor	\$885,040	\$184,129	\$205,453	\$1,274,622
Seattle	Seattle-Tacoma International	\$4,672,598,457	\$972,113,017	\$1,084,698,418	\$6,729,409,893
Sequim	Sequim Valley	\$189,651	\$39,456	\$44,026	\$273,133
Spokane	Spokane International	\$413,833,629	\$86,096,219	\$96,067,464	\$595,997,312
Walla Walla	Walla Walla	\$6,117,900	\$1,272,802	\$1,420,211	\$8,810,913
Wenatchee	Pangborn Memorial	\$13,439,708	\$2,796,071	\$3,119,898	\$19,355,676
Yakima	Yakima	\$22,068,340	\$4,591,218	\$5,122,951	\$31,782,509
	Total	\$5,229,297,985	\$1,087,931,841	\$1,213,930,814	\$7,531,160,640
	Total Without Sea-Tac	\$556,699,527	\$115,818,824	\$129,232,397	\$801,750,748

TABLE 2G						
TOTAL ECONOMIC ACTIVITY IMPACTS						
Airport Role	Total Economic Impacts					
	Employment		Wages		Output	
	Jobs	Percent	Dollars	Percent	Dollars	Percent
Not Including Sea-Tac						
General Aviation	7,615.7	30.4%	\$140,774,869	29.5%	\$490,351,863	29.2%
Commercial Service - Other	1,939.8	7.7%	\$42,185,530	8.8%	\$140,637,659	8.4%
Primary Commercial Service without Sea-Tac	15,511.3	61.9%	\$293,738,015	61.6%	\$1,050,653,555	62.5%
Total Without Sea-Tac	25,066.8	100.0%	\$476,698,413	100%	\$1,681,643,078	100%
Including Sea-Tac						
General Aviation	7,615.7	4.4%	140,774,868.9	3.4%	490,351,863.0	2.6%
Commercial Service - Other	1,939.8	1.1%	42,185,529.6	1.0%	140,637,659.4	0.8%
Primary Commercial Service Including Sea-Tac	161,756.2	94.4%	\$3,898,988,749	95.5%	\$17,977,288,161	96.6%
Total Including Sea-Tac	171,311.8	100.0%	4,081,949,147.2	100.0%	\$18,608,277,683	100.0%





**TABLE 2H
REGIONAL EMPLOYMENT IMPACTS ***

Region	Jobs			
	Direct	Indirect	Induced	Total
Central Puget Sound	4,305.2	829.6	917.9	6,069.0
Eastern	8,013.5	1,363.0	1,650.3	11,075.1
North Central	968.3	186.0	196.9	1,356.2
Northwest	1,480.5	260.2	296.5	2,045.9
Olympic	687.4	110.7	128.7	930.0
South Central	2,141.3	384.6	442.6	2,980.5
Southwest	665.9	104.6	122.9	897.1
Total of Individual Regions	18,262.2	3,238.7	3,755.7	25,353.8
Washington Employment Impacts	18,893.0	3,351.8	3,962.2	26,308.5

* Not including Sea-Tac

**TABLE 2I
REGIONAL WAGE IMPACTS***

Region	Wages			
	Direct	Indirect	Induced	Total
Central Puget Sound	\$80,612,007	\$23,658,847	\$23,164,549	\$127,435,408
Eastern	\$131,594,451	\$35,710,959	\$39,481,632	\$206,787,040
North Central	\$17,178,060	\$4,502,628	\$4,492,980	\$26,173,666
Northwest	\$24,095,625	\$6,662,273	\$6,959,451	\$37,717,346
Olympic	\$10,752,655	\$2,824,156	\$3,051,676	\$16,628,487
South Central	\$35,985,020	\$10,014,197	\$10,355,467	\$56,354,682
Southwest	\$10,188,494	\$2,748,499	\$2,970,199	\$15,907,192
Total of Individual Regions	\$310,406,312	\$86,121,559	\$90,475,955	\$487,003,822
Washington Wage Impacts	\$321,295,770	\$91,774,217	\$96,668,659	\$509,738,642

* Not including Sea-Tac

**TABLE 2J
REGIONAL OUTPUT IMPACTS***

Region	Output			
	Direct	Indirect	Induced	Total
Central Puget Sound	\$288,738,200	\$65,112,551	\$69,588,492	\$423,439,242
Eastern	\$515,028,372	\$108,790,528	\$120,599,641	\$744,418,540
North Central	\$64,842,516	\$13,502,511	\$13,899,967	\$92,244,991
Northwest	\$94,459,188	\$20,431,043	\$21,584,536	\$136,474,766
Olympic	\$42,948,882	\$8,485,103	\$9,363,018	\$60,797,004
South Central	\$138,262,737	\$29,923,511	\$31,837,143	\$200,023,031
Southwest	\$40,810,449	\$8,264,630	\$9,100,470	\$58,175,550
Total of Individual Regions	\$1,185,090,344	\$254,509,877	\$275,973,266	\$1,715,573,124
Washington Output Impacts	\$1,223,488,447	\$271,200,577	\$295,457,799	\$1,790,146,469

* Not including Sea-Tac

