

Tampa International Airport
Economic Impact Study



*Hillsborough County
Aviation Authority*

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Hillsborough County Aviation Authority

This research was conducted pursuant to a subconsulting agreement between Ricondo & Associates and the Center for Urban Transportation Research

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Executive Summary

In 2004 the Hillsborough County Aviation Authority retained Ricondo & Associates to prepare a Master Plan Update for the Tampa International Airport (TPA).

One desired outcome of the planning process was an assessment of the economic impact of TPA on the regional economy. The Center for Urban Transportation Research (CUTR) at the University of South Florida was retained by Ricondo & Associates to design and execute a research project that would produce the desired outcome.

CUTR researchers utilized results from an airport tenant survey, airport passenger surveys, airport air cargo studies, and operating and capital expenditure data as inputs to an economic Input/Output model. CUTR identified five fundamental impacts resulting from economic activities directly dependent upon TPA presence and operation in the area. These are:

- Airport and airline operations;
- On-airport activities;
- Visitors expenditures;
- Import/export activities; and
- Capital improvement program expenditures.

The CUTR analysis estimated that direct impacts of these activities generated an annual total economic impact of \$2.54 billion¹ to the three-county area of Hillsborough, Pinellas and Pasco, in Fiscal Year (FY) 2003 (July 1, 2002 - June

¹ All monetary amounts are in FY 2004 dollars unless otherwise indicated.



30, 2003). The total economic impact is comprised of direct, indirect, and induced impacts. The impact of TPA is equivalent to 1.8 percent of the production of goods and services for the three-county area.

TPA contributes 24,157 jobs², or 1.6 percent of the jobs in the three-county impact area, inclusive of 4,995 workers directly employed at the airport facilities, with a ratio of 1,579 jobs per million passengers served. The impact on labor income is estimated at about \$853 million, or 1.1 percent of the area's total labor income.

The impact on output brought about by the Capital Improvement Program (CIP) is about \$287 million, inclusive of indirect and induced effects. CIP average annual outlays generate a ratio of 19.8 jobs per \$1 million of CIP expenditures.

TPA's economic significance in promoting growth is represented by its contribution to the inbound and outbound movement of freight goods. In FY 2003, each 1,000 tons of goods imported by way of TPA contributed to \$4.1 million in total output, \$1.3 million in labor income and to an additional 33 jobs. Each 1,000 tons of exports of locally produced goods contributed to \$6.1 million in total output, a total of \$ 2.2 million in labor income, and 39 additional jobs.

The economic impact of TPA has changed significantly since FY 1996. The airport's economic impact in FY 1996 was \$1.2 billion, compared with \$2.54 billion in FY 2003.

The change in impacts between FY 1996 and FY 2003 represents a compounded annual growth rate of 10.8 percent, which reflects the strong growth in activity and capital development at TPA during this period.

² A job here refers to one person-year employment.



Project Background

The Hillsborough County Aviation Authority (Authority) is dedicated to creating one of the most efficient, safe, secure, convenient, and cost competitive air transportation centers in the world.

Created in 1945, the Authority has exclusive jurisdiction, control, and management over all publicly owned airports in Hillsborough County including Tampa International Airport, Peter O. Knight Airport, Plant City Airport, and Vandenberg Airport. This study, however, focuses exclusively on Tampa International Airport (TPA).

TPA remains one of the world's premier aviation facilities. In 2003 readers of Condé Nest Traveler magazine rated TPA the best airport in North America, and the International Air Transport Association's 2003 survey rated TPA as the best in the United States³.

In 2004, 8.5 million passengers enplaned from TPA, and this continuing growth in passenger traffic at TPA has many positive economic implications for the airport, its tenants, and the greater Tampa Bay region.

The Center for Urban Transportation Research (CUTR) at the University of South Florida developed an estimate of the direct, indirect, and induced economic impacts associated with the activities and operations of TPA. These estimates do the following:

³ Hillsborough County Aviation Authority, *2003 Financial Report*, p. 7, 2003.



- demonstrate the contribution of TPA to the level of economic activity in the Tampa Bay region, and
- facilitate a comparison of the airport's economic impact prior and subsequent to September 11, 2001.

This study complements and expands previous work conducted in 1997 on behalf of the Authority by Dr. Joseph DeSalvo of the University of South Florida⁴. In his analysis, Dr. DeSalvo estimated the total economic impacts on the local economy produced by TPA for the FY 1996.

The following analysis is based on a similar theoretical apparatus, and includes an estimation of those economic impacts defined in the previous study, but not estimated due to lack of data availability. In particular, this study estimates the impacts of TPA export and import activities.

The approach, as in the previous study, is based on input/output (I/O) modeling techniques. This methodology allows estimating changes in total local economic activity caused by some economic change or activity in the area of interest. In this context, the activities associated with TPA represent a direct impact in the aggregate demand of the local economy. The activities of TPA require the local purchase of goods and services. These purchases cause changes in the overall economic activity of the area. This buying continues until leakages from the region (imports and value added) stop the cycle. I/O models provide estimates of this level of overall economic activity.

⁴ Joseph S. DeSalvo, "*Hillsborough County Aviation Authority: Economic Impact*," Center for Economic Management and Research, University of South Florida, 1997.



CUTR utilized the IMPLAN⁵ I/O model and the most current data inputs available to estimate the economic impacts of TPA (See Appendix B for more details on IMPLAN and I/O modeling).

While economic impacts encompass a wide range of effects across many sectors of a region's economy, there are other factors that do not directly affect the flow of dollars in the economy, such as personal time savings and other social and environmental factors which could have a relevant contribution in fostering economic growth. As with the previous study, such impacts of a non-tangible nature are not included in this study.

Defining Economic Impacts

The term "economic impact" is used extensively by public and non-profit sector organizations to describe and quantify the economic activities attributable to an organization. To fully appreciate the term economic impact, it is important to differentiate between economic value and economic impact. In simple terms, economic value is created when a product or service is consumed within a specific region's geographic boundary; however, an economic impact occurs when products or services are purchased by individuals or institutional consumers who reside outside this geographic boundary.

The approach followed in this study sought to estimate the net economic impact of TPA on the local area as defined in the following section. In this context, economic impacts relate to the level of economic activity attributable to the change in economic activity in the local economy resulting from changes in spending brought about by the airport. Thus, the direct impact of TPA is defined

⁵ Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082 www.implan.com



as the initial change in output, measured by gross sales or expenditures that would have occurred in the impact area if the airport had not operated during a particular year. To be considered as impact the change must occur within boundaries of the impact area, and solely because of the existence of the airport.

The Input/Output Model

This study makes extensive use of the IMPLAN I/O model. IMPLAN and the associated datasets are supported by the IMPLAN Group, based in Minnesota. IMPLAN is a widely used, nationally recognized input-output economic impact model. A more detailed explanation of the IMPLAN model and input-output analysis is provided in Appendix B.

The I/O model estimates changes in total local economic activity caused by some economic change in the area. In this analysis, the economic activities associated with TPA require inputs of goods and services from the local economy. The purchases of goods and services cause changes in the overall economic activity of the region. The I/O model provides estimates of this new level of overall economic activity. As an example, when a business operating at TPA purchases goods from a second business, the first business is helping support the second. The I/O model can estimate all levels of activity supported by the first business.

The concepts of direct and indirect impacts are widely used in this study. Direct impacts are those related to the initial spending in the economy. Following the previous example, indirect impacts measure the economic activity of the second business involved in the production of goods and services due to the first business' initial expenditure. A third type of impact, the induced impact, measures changes in economic activity due to household income increases or decreases related to the changes in industry production.



Four measures of economic impacts are employed in this study:

1. Employment Impacts
2. Total Output Impacts
3. Labor Income Impacts
4. Fiscal Impacts

Employment Impacts

This type of impact represents the creation of jobs in the impact area. Total employment is comprised of annual average full-time and part-time employees working in a given sector of the local economy.

Total Output Impacts

Total industry output measures the value of production of goods and services by businesses in the local economy. Generally, total industry output is equivalent to total business sales plus what businesses place into (or remove from) inventory. Total output is analogous to the definition of Gross Domestic Product as identified by the Bureau of Economic Analysis, and measures only the value of final goods and services. Total output measures how the region's economy would be affected by the direct impacts generated by TPA.

Labor Income Impacts

Total income includes employee compensation and other income. Total employee compensation represents the total payroll costs including wages and salaries paid to workers by employers, as well as benefits such as health and life insurance, retirement payments, and non-cash compensation. Total other income includes that generated by self-employed individuals, corporate profits, payments for rents, royalties and dividends, as well as profit generated by



corporations. Labor income represents an important share of a region's total income.

Fiscal Impacts

These estimates are based strictly on the impact area data as provided by the IMPLAN model. These values are based on the average for all of the industries within the model, the average taxes associated with households, and the average taxes and transfers associated with each of the government institutions as defined by the model.

As discussed in the previous section, the magnitude of these four types of impacts is strictly dependent upon the geographical delimitation where economic activity generated by TPA occurs. It is, therefore, relevant to identify the geographical area or impact area in which impacts take place.

Definition of Impact Area

Economic impact study regions vary in size from single counties to multiple states, depending on the nature of the study and the industries being assessed.

Although TPA is owned and operated by the Hillsborough County Aviation Authority, it serves a geographic area much larger and produces economic impacts to a much broader geographical area.

This study utilized place of employment as a determinant of the airport's economic impact area. In this context, the impact area is defined as the supply area of inputs by the firms most directly impacted by the presence of the airport.



An analysis of TPA's July 2004 employee survey⁶ revealed that 68.1 percent of employees reside in Hillsborough County, 18.1 percent in Pinellas County, 7.7 percent in Pasco County, 2.3 percent in Hernando County, and 1 percent reside in Polk County; no other county was identified as the primary place of residence for more than 0.5 percent of TPA employees. Since 95 percent of the airport's employees reside in either Hillsborough, Pinellas, or Pasco this 3-county area was selected as the study area for the analysis.

⁶ 2004 Tampa International Airport Employee Survey, Quest Corporation of America, December 2004.



Impacts of TPA

CUTR identified five fundamental types of direct impacts resulting from economic activities directly dependent upon TPA's presence and operation in the area.

These are:

- Airport and airline operations;
- On-airport activities;
- Visitors expenditures;
- Capital Improvement Program expenditures; and
- Import/Export activities.

Airport and airline operations consist of revenues generated by airlines, the Authority (non-rental income), fixed based operators, and governmental agencies.

The remaining activities occurring on TPA premises are discussed and analyzed in the on-airport activities section, which estimates the impact of the non-airline businesses operating at the airport. In this study, the economic impact of off-site businesses was not considered as a separate type of impact. The impact of off-site businesses is included in the visitors' expenditures total impacts, as it is assumed that visitors' spending supports most off-site business activities in the three-county area. It is in the belief of CUTR researchers that any attempt to directly estimate the economic impact of TPA on businesses located elsewhere in the impact area, which are indirectly affected by the airport presence, would inexorably result in a gross overestimation of the economic impacts. Furthermore, by estimating the impacts of on-airport activities the impact of those businesses selling inputs and services but located away from the airport is already accounted for.



The impact of visitor's expenditures represents a relevant component of the overall economic impact of TPA. Visitors come to visit local attractions and theme parks, as well as spend their time in leisure activities related to the area beaches. In the analysis, differences in expenditure patterns between those coming to visit friends and family and those coming just for vacation were taken into consideration.

CUTR also proceeded to estimate the economic impact of construction expenditures related to the Capital Improvement Program (CIP). CIP impacts are considered as a relevant component of the overall impact of TPA. Expansions and improvements are needed in order to address the projected growth in air passenger traffic, accommodate growth of incumbent airlines, satisfy space requirements of new airline entrants to the market, allow for installation of new airport security equipment, respond to increased use of technology, and satisfy the Authority's long-term objectives. These expenditures would not have been made in the absence of TPA.

Finally, CUTR estimated the impact of the movement of goods flowing in and out of the impact area through TPA. In particular the impact of the production, sale and distribution of goods imported and exported through TPA was estimated in terms of total output, labor income and employment.



Airport and Airline Operations

This category of impacts is comprised of those activities associated with TPA airport and airline operations. These impacts occur within the boundaries of the impact area, specifically on airport premises.

To collect information about on-airport activities, CUTR developed a survey to obtain employment and expenditure data from all businesses and tenants at the airport, including scheduled passenger and cargo airlines, fixed-based operators, the Federal Aviation Administration, the Transportation Security Administration, and other businesses and tenants of TPA. The list of airport tenants to whom surveys were distributed was developed by TPA. Quest Corporation of America, Inc. mailed survey instruments to all airport tenants and conducted three rounds of follow-up phone calls.

A total of 150 tenant surveys were distributed by Quest Corporation. Forty-five tenants responded to the survey, either by returning a completed survey instrument or by responding to follow-up telephone calls. In total, these 45 firms represented approximately 3,000 employees. For a detailed list of tenants and respondents, please see Appendix D.

In the case of private sector firms, CUTR considered as direct impacts their gross revenue estimates on final goods and services (or goods and services that are not used in further production stages). In the case of governmental agencies, such as the Federal Aviation Administration (FAA), the Transportation Security Administration (TSA), and US Customs, their expenditures in providing services were considered constituting final demand. Expenditures on airport facilities, such as the Authority's construction of a new terminal, are not included in this



category, but are considered in a separate section of this report as part of the CIP impacts.

In order to avoid double-counting of the direct impacts, the Authority's original gross revenue figures of \$134 million were reduced to account only for revenues generated by parking and other non-rental income, which are considered as final demand for goods and services. Rental income received by the Authority is already accounted for when estimating airline, vendor and fixed based operator gross revenues as part of their intermediate demand for goods. Since gross revenues from airlines, airport vendors and fixed-based operators form part of the direct impacts, the inclusion of rental income received by the Authority would result in a double-counting or overestimation of economic impacts.

Furthermore, parking revenues were adjusted to account for those expenditures that occur in the area due to the presence of the airport. Accordingly, parking revenues were adjusted to reflect expenditures by non-residents of the impact area. This is because it is assumed that residents of the impact area would spend the same amount of money in the area in the absence of the airport. As shown in the following section, the percentage of non-residents, or visitors, flying through the area represents 52.2 percent of the total enplanements for fiscal year 2003.

Table 1 summarizes the direct impacts of airline and airport facilities and operations⁷.

⁷ When entered into the I/O model, all expenditures and revenue estimates were expressed in 2002 dollars using the appropriate deflators from the Bureau of Labor Statistics. The most recent IMPLAN base data for this economic impact study come from the 2002 dataset.



Table 1

Airport and Airline Operations Direct Impacts, FY 2003

<i>Activity</i>	<i>Direct Impact*</i>
Airlines	\$324,947,500
Federal Aviation Administration	12,000,000
Transportation Security Administration	22,550,000
Fixed Based Operators	20,528,917
HCAA Revenues	39,060,053
Total	\$419,086,470

* In FY 2003 dollars.

In the case of airline operations, gross revenue estimates of airlines representing about 95% of the total airline market share at TPA were obtained as described below. The impacts of fixed based operators (FBO) reflect gross revenue figures of one licensed FBO providing essential general aviation needs (one additional FBO started operating in late 2004 and was therefore not included in this study).

The revenue estimates in Table 1 were obtained through the survey of tenants (see Appendix E for the original survey questions). While gross revenue figures were reported by some respondents, the majority provided the number of employees based at TPA. This included full-time and part-time employees (a rule of thumb of two part-time employees equal to one full-time employee was used). The gross revenue figures reported in the survey were compared to those provided by the Authority.

For those firms not reporting revenues but reporting employment, estimates were obtained by means of the IMPLAN input-output model. The model provides estimates of revenue per employee by input-output sector. By allocating the



employment figures of firms and agencies in the model, the corresponding revenue per employee estimates were obtained. Finally, the number of employees for each firm in a given sector was multiplied by the revenue per employee to obtain the gross revenue estimates.

Summary of Impacts

Table 2 summarizes the total impact of airport and airline operation generated by the airport. The estimates of indirect and induced impacts are the result of the direct impacts for Fiscal Year 2003.

The direct impacts of airline operations are less than what was previously estimated in the 1997 study, due to a reduction in airline revenues. In the 1997 study, airline revenues were estimated using the same approach (i.e., estimated by means of IMPLAN per employee revenue estimates by input/output sector) and amounted to about \$450 million in 1996 dollars. The smaller figure might be the result of changes in the composition of the airlines' market share through the years, as well as results of improvements in technology that led to a substantial reduction in the airlines' TPA based personnel.

Nonetheless, the indirect and induced effects in the area appear substantial, highlighting the impacts of the changes in security measures adopted in the aftermath of the 9/11 events, as reflected by direct impacts of the Transportation Security Administration in Table 1.



Table 2

Total Impacts by Type: Airport and Airline Operations

<i>Impact Type</i>	<i>Impact</i>		
	<i>Output</i>	<i>Income</i>	<i>Employment</i>
Direct	\$429,590,262	\$138,488,430	2,522
Indirect	183,833,102	69,661,676	1,955
Induced	174,416,880	61,807,606	1,881
Total	\$787,840,244	\$269,957,712	6,358



On-Airport Activities Impacts

This category of direct impacts is related to those activities occurring on TPA premises which directly depend upon the presence of the airport. Tenants at TPA depend either directly or indirectly on the expenditures carried out by those passengers that have chosen to travel through the airport. Passengers spend dollars to purchase various services spanning from food and drinking, to lodging, transportation, general merchandise and other services.

Other airport tenants provide specific functions that permit TPA to operate smoothly and efficiently. Among these, the most relevant are ground handling, in-flight kitchen, shuttle and elevators maintenance, freight forwarding and janitorial services.

Table 3 reports the direct impacts of on-airport activities. The original gross revenue estimates were adjusted to take into account only activities related to non-residents flying through TPA. A 100 percent dependency on the airport for these activities was assumed. Revenues earned by freight forwarders were adjusted to reflect the proportion of industry-wide revenues generated by air transportation.



Table 3
On-Airport Activities Direct Impacts, FY 2003

<i>Activity</i>	<i>Direct Impact*</i>
Ground Handling Services	\$9,636,316
In Flight Kitchen	10,288,294
Janitorial	5,177,722
Transportation Services	2,624,381
Security Services	2,413,482
Shuttle/Elevator Maintenance	2,548,400
Miscellaneous Retail	10,886,686
Food and Drinking	17,332,241
Personal Care	620,401
Freight Forwarding	39,075,970
Car Rental	217,695,797
Lodging	18,785,434
Luggage Services	650,000
Other**	3,485,996
TOTAL	\$341,221,120

* In FY 2003 dollars.

** Banking, Currency Exchange, Duty Free Specific Flight Software.

Summary of Impacts

Table 4 summarizes the economic impact of on-airport activities. Airline and terminal services create an estimated \$173 million in annual wages. The indirect and induced impacts on employment estimates for the impact area reflect the linkages between on-airport and off-airport businesses. All other activities at TPA, where non-residents' travel expenditures concentrate, amount to an impact on total output of approximately \$622 million.



Table 4

Total Impacts by Type: On-Airport Activities

<i>Impact Type</i>	<i>Impact</i>		
	<i>Output</i>	<i>Income</i>	<i>Employment</i>
Direct	\$342,364,719	\$71,437,737	2,474
Indirect	168,920,767	61,757,797	1,703
Induced	111,408,306	39,479,351	1,202
Total	\$622,693,792	\$172,674,885	5,379

There were a few activities for which direct impacts could not be estimated. For example, some ancillary manufacturing and service business activities which strictly depend upon the presence of TPA did not respond to the survey. For example, the impact of transportation services, such as taxi, could not be estimated, as well as revenue or employment estimates of maintenance industries. Consequently, the total direct impact of Table 4 underestimates the true direct impact of on-airport activities.



Visitors Impacts

Visitor-related economic impacts occur when air visitors to the study area spend money on hotel and lodging, restaurants, entertainment, shopping, and transportation while there. Based on the impact area discussed previously, only those expenditures incurred in Hillsborough, Pinellas, and Pasco counties were considered. Those individuals flying through TPA, but staying in counties outside the impact area were not included (although the impact of any expenditure they carried out at TPA premises is reflected in the airport tenants' impact).

Furthermore, the visitors' impact is discounted by taking into account the reduction in the overall impact due to those residents of the area who would reduce their amount of traveling in the absence of the airport. This is represented by the proportion of residents who would remain in the area and spend their income there, rather than travel elsewhere. Indeed, the presence of the airport reduces the time and cost of traveling to and from the impact area. In its absence, there would be fewer trips made, including those made by area residents.

The direct impact of visitors was estimated by applying the same theoretical approach developed in the 1997 study, and is given by the following equation:

$$DI_v = p_v E_v \Delta Q_a - p_r E_r \Delta Q_d$$

Where:

- DI_v represents the direct impact of visitors;
- p_v is the proportion of enplanements at TPA who are visitors to the area;



- E_v is the expenditures made in the area by visitors during an average period of stay;
- ΔQ_a represents the reduction in the number of visitors if the airport were not available;
- p_r is the percentage of enplanements who are residents of the area;
- E_r represents the expenditures made by residents during the average period of stay of non-residents; and
- ΔQ_d is the reduction in the number of resident departures from TPA in the airport's absence.

The first term on the right-hand side of the equation represents the direct impact of visitors, while the second term represents the reduction in the impact due to those residents who would not leave the area in the absence of the airport.

The proportion of visitor and resident enplanements were estimated based on two surveys of passengers conducted in May-July and October 2004⁸. To obtain the proportions, the two surveys were combined in one cross-sectional dataset and cross-sectional tables of frequencies obtained. The proportions were then applied to the total annual enplanements of FY 2003. It is assumed that passenger behavior reflected in the 2004 surveys can be applied to the FY 2003 enplanement count as no major changes took place in travel patterns in what can be considered a short time frame.

Table 5 shows the split of FY 2003 enplanements by visitors and residents of the area and surrounding counties.

⁸ 2004 Tampa International Airport Departing Passenger Survey, Quest Corporation of America (QCA), Ricondo & Associates, December, 2004.



Table 5

Enplanements by Passenger Type, FY 2003

	<i>Enplanements</i>	<i>Percent</i>
Visitors	3,996,530	52.2%
Residents	3,664,255	47.8%
Total	7,660,785	100%

For the purpose of this analysis, these proportions account solely for those visitors reporting a length of stay less than 180 days (6 months). For example, in the original tabulates, those respondents reporting a length of stay in the area greater than 225 days traveled for purposes other than leisure, such as for military or medical reasons.

Table 6 replicates the original split between residents and visitors, as presented in the tabulations and datasets of the passenger survey report by Quest Corporation of America (QCA).

Table 6

Passenger Split by County

<i>County</i>	<i>Visitors</i>	<i>Residents & Visitors</i>
Hillsborough	42.0%	37.6%
Pinellas	34.8%	32.9%
Pasco	4.3%	5.5%
Other Counties	18.9%	24.0%
Total	100%	100%



These proportions were refined to account for the definition of visitors as intended for the purpose of this analysis (those staying 180 days or less). Table 7 reports the revised proportions that were applied to FY 2003 enplanements.

Table 7

**Adjusted County of Origin Breakdown
Based on I/O Modeling Data**

<i>County</i>	<i>Percent Enplanements</i>	
	<i>Visitors</i>	<i>Residents</i>
Hillsborough	37.4%	40.3%
Pinellas	32.2%	28.6%
Pasco	6.2%	6.6%
Other Counties	24.2%	24.5%
Total	100%	100%

The table categorizes visitors and residents by the respective county of stay. For example, 37.4 percent of 4.0 million visitor enplanements were visitors to Hillsborough, 32.2 percent to Pinellas, and 6.2 percent to Pasco County, totaling 75.8 percent for the three-county impact area.

Of the 3.7 million residents' enplanements, 40.3 percent were residents of Hillsborough, 28.6 percent residents of Pinellas, and 6.5 percent residents of Pasco County, for a total of 75.5 percent.

Table 8 reports the expenditures made by visitors and residents. Visitors were further differentiated by their trip purposes.



Visitors' expenditures estimates were based on the 2003 Annual Visitor's Study for Tampa/Hillsborough County⁹. The survey reports estimates of visitors' expenditures by lodging type. The figures represent expenditures per party/per day, based on an average length of stay of 6.0 days for friends/family, 6.3 days for leisure, and 4.9 days for business travelers; an average party size of 3.0 for leisure, 2.5 for business, 2.8 for friends/family visitors; and an average household size of 2.5 persons for residents. Residents' expenditures data were acquired from the U.S. 2003 Consumer Expenditures Survey¹⁰. Using this information, a per-person average stay expenditure estimate was obtained.

Visitors' expenditures were divided by purpose of trip. Those visiting friends and family tend to have a distinct spending pattern from those visiting solely for leisure. The resulting impact in the area avoids overestimation, in that it takes into account the different spending habits of those visiting while staying with friends and relatives. For example, those non-residents coming to visit family and friends are more likely to incur lower (in this case none) lodging expenditures, while tending to spend more on entertainment. No distinction in expenditure patterns between visitors traveling for leisure and those traveling for business purposes was made, as data were not available.

⁹ Tampa Bay Convention and Visitors Bureau, *2003 Annual Visitor's Study for Tampa Hillsborough/County*, 2003.

¹⁰ *2003 Consumer Expenditure Survey*, Table 23. The table reports personal consumption expenditures for selected southern metropolitan statistical areas.



Table 8

Visitor and Resident Expenditures by Trip Purpose

<i>Expenditure Type</i>	<i>Visitors*</i>		<i>Residents*</i>
	<i>Leisure/Business</i>	<i>Friends/Family</i>	
Lodging	\$146.9	\$0.0	\$82.9
Dining	78.7	107.5	13.6
Visiting Attractions	77.9	130.0	2.5
Shopping	43.8	85.0	19.8
Transportation	29.3	40.7	25.7
Entertainment	16.6	15.9	12.5
Grocery Shopping	16.5	29.0	20.7
Attending Special/Sports Events	22.8	19.6	2.5
Other	11.1	27.3	3.8
Total	\$443.5	\$454.9	\$184.1

* In FY 2003 dollars.

The next step was to estimate the reduction of the number of visitor and resident departures in the absence of TPA. It is assumed that visitors have access to alternative airports; both the St. Petersburg-Clearwater Airport and Orlando Airport are within a 90 mile one-way drive from the impact area. Following the approach of the 1997 study, the change in visitor and resident enplanements was estimated. In the absence of TPA, the number of visitors would reduce by 1,141,866 (represented by ΔQ_a in the equation), while the number of residents who would not travel outside the impact area would be equal to 1,046,930 (represented by ΔQ_d in the equation). The formula used to estimate the changes in passenger travel assumes a value of -1 for the elasticity of travel time, which measures the responsiveness of travelers to travel time and equal airfares between TPA and nearby alternatives.



Table 9 reports the direct impacts. The net direct impact is positive for all expenditure categories because the reduction in visitors traveling to the impact area would be greater than the change in residents staying in the county. The table also shows no impact on lodging expenses by residents. After looking at the residents expenditures, it was decided not to include the cost of lodging. It is assumed that residents would have to incur lodging expenses independent of the presence or absence of the airport in the area.

Table 9
Visitor Expenditures Direct Impacts, FY 2003

<i>Expenditure Type</i>	<i>Direct Impact*</i>			<i>Net</i>
	<i>Visitors (positive)</i>		<i>Residents (negative)</i>	
	<i>Leisure/Business</i>	<i>Friends/Family</i>		
Lodging	\$95,570,832	\$0	\$0	\$95,570,832
Dining	51,201,584	23,053,773	10,715,788	63,539,569
Visiting Attractions	50,658,000	27,871,904	1,991,478	76,538,425
Shopping	28,509,766	18,219,241	15,653,561	31,075,446
Transportation	19,043,660	8,723,295	20,340,354	7,426,601
Entertainment	10,787,541	3,402,213	9,886,460	4,303,294
Grocery Shopping	10,760,248	6,221,293	16,346,486	635,054
Attending Special/Sports Events	14,806,428	4,207,664	1,991,478	17,022,615
Other	7,203,066	5,844,079	3,033,594	10,013,552
Total	\$288,541,124	\$97,543,462	\$79,959,199	\$306,125,387

* In FY 2003 dollars.

The next step was to estimate the overall economic impact of visitors' expenditures. The input-output model calculates estimates of indirect and induced effects which are added to the direct impacts to obtain estimates of total impacts.



Summary of Impacts

Table 10 provides a summary of these impacts in terms of output, income, and employment. The bulk of the impacts depend on visitor's expenditures on lodging, shopping, dining and visiting attractions. The total impact on output for the three-county area of air transportation travelers utilizing TPA is significant, representing 17.0 percent of total tourist expenditures for the Tampa-Hillsborough County area in FY 2003¹¹.

Table 10

Total Impacts by Type: Visitor Expenditures, FY 2003

<i>Impact Type</i>	<i>Impact</i>		
	<i>Output</i>	<i>Income</i>	<i>Employment</i>
Direct	\$313,471,055	\$109,802,784	4,835
Indirect	84,836,625	29,829,134	800
Induced	117,793,954	41,790,915	1,272
Total	\$516,101,634	\$181,422,833	6,907

¹¹ Based on \$1.8 billion expenditures according to type, inclusive of leisure, business, and friends/family (Tampa Bay Convention and Visitors Bureau, *2003 Annual Visitor's Study for Tampa Hillsborough/County*, 2003., Table A, pp. 17-18)



Capital Improvement Program

This section considers the impacts of the Authority spending to improve and upgrade TPA facilities. Expansions and improvements are needed in order to address the projected growth in air passenger traffic, accommodate growth of incumbent airlines, satisfy space requirements of new airline entrants to the market, allow for installation of new airport security equipment, respond to increased use of technology, and satisfy the Authority's long-run objectives.

Although it may appear that the Capital Improvement Program (CIP) investment expenditures can generate substantial indirect and induced impacts, it is important to stress that most of these impacts are short lived. Indeed these investments primarily generate construction related jobs which are assumed to last for the entire length of the construction phase. Only a small portion of these impacts will linger after the initial expenditure. On the other hand, long-run positions might be created in order to maintain and operate the new facilities, which are more relevant in determining the impact on the impact study area.

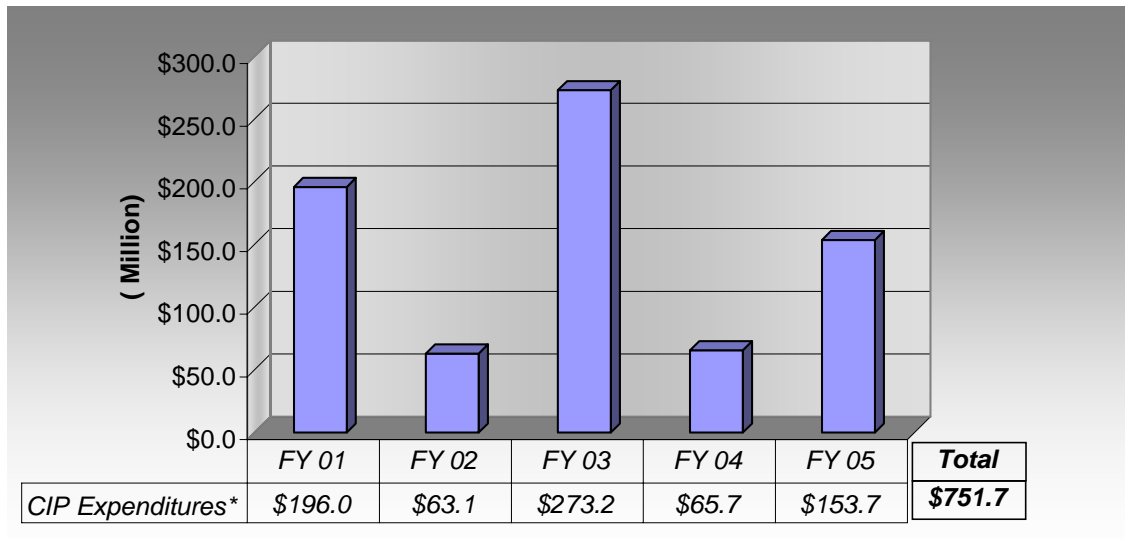
Figure 1 displays the CIP outlays for FY 01 through FY 05 (projected) on behalf of the Authority, totaling to \$751.7 million. CIP investments include all money spent by the Authority, inclusive of federal and state funds received to support the ongoing capital investments. A multi-year approach was followed in estimating the economic impact of the CIP due to the inherent differences both in yearly amounts and the temporal distribution of expenditures. For example, while the new Airside E was officially completed in 2002, the expenditures and actual construction were distributed across different years. Therefore, an average of the CIP expenditures was taken, amounting to \$150.4 million annually.



The average annual expenditures were further differentiated by type, as reported in Figure 2, which shows that construction costs (including design and site preparation, such as demolition of existing structures) constitute 64 percent of the average annual CIP expenditures (this breakdown was used to appropriately allocate the direct impacts in the I/O model in order to avoid overestimation of the resulting indirect and induced impacts).

Figure 1

Capital Improvement Program: Annual Expenditures

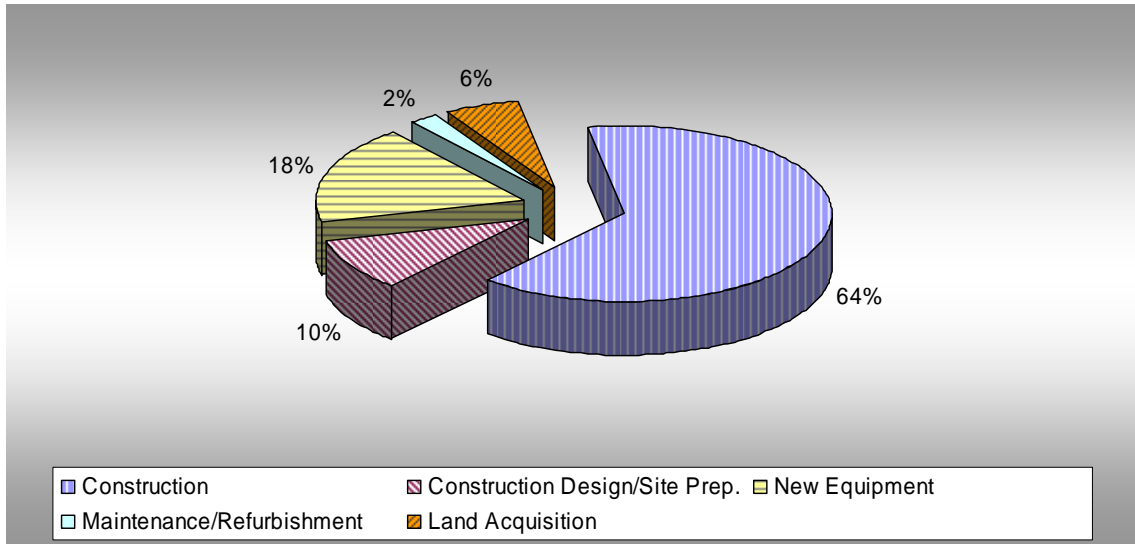


* In current dollars.



Figure 2

CIP Expenditures Breakdown by Type



Summary of Impacts

Table 11 summarizes the impacts on the area. The impact on total output brought about by the CIP is about \$287 million, inclusive of indirect and induced effects. CIP average annual outlays generate 3,141 jobs, with a ratio of 20.0 jobs per \$1 million of CIP expenditures.



Table 11

Total Impacts by Type: Capital Improvement Program

<i>Impact Type</i>	<i>Impact</i>		
	<i>Output</i>	<i>Income</i>	<i>Employment</i>
Direct	\$156,855,373	\$64,521,376	1,704
Indirect	53,103,907	25,130,664	609
Induced	76,752,480	27,198,429	828
Total	\$286,711,760	\$116,850,469	3,141

This ratio, though, does not differentiate the short-term nature of construction related impacts, which represent 69 percent of the CIP direct impacts, from longer lasting impacts related to the operation and maintenance of new facilities. By accounting solely for the impacts generated by recurring operating and maintenance of newly constructed facilities, a ratio of 9.5 jobs per \$1 million of CIP expenditures was estimated¹².

In addition to estimating the annualized impact of the CIP, the Authority was interested in considering the cumulative impact of CIP expenditures for the past five years. Appendix C reports the results of this analysis.

¹² This figure is based on an estimated average of 3 percent of CIP annual operating and maintenance expenditures for the past six years. The estimate is not cumulative over the life of newly built facilities.



Imports and Exports Impacts

This section estimates the impact of the movement of goods flowing in and out of the impact area through the airport. In particular the impact of the production, sale and distribution of goods imported and exported through TPA is estimated in terms of total output, labor income and employment.

In this context, the export sector is comprised of those firms engaged in the manufacture of goods in the three-county impact area, such as computer and other electronic components. The import sector includes those firms engaged in the distribution and sale of goods imported through TPA and those firms that used the imported goods as intermediate inputs in the production of locally produced goods.

The approach followed in this section seeks to measure the impact of the flow of imports and exports by way of TPA. This method deviates from the one applied throughout the study, which deals with the estimation of net impacts. In estimating the economic impact of imports and exports, it is in fact assumed that all import and export activities would fall to zero in the absence of the airport. This results in the estimation of gross impacts. The estimation of the net impact of imports and exports would depend on the price elasticities of demand for each of the commodities imported and exported through TPA¹³. The choice of using the gross impact approach was dictated by data availability constraints on price elasticities of demand for exports and imports. Given the current volume of freight tonnage moved by the airport, the costs of performing the additional

¹³ A methodology that accounts for the elasticity of demand of imports and exports in the estimation of the economic impact of exports and imports was developed by J. DeSalvo and D. Fuller. DeSalvo, Joseph S., and Debra L. Fuller. "The Role of Price Elasticities of Demand in the Economic Impact of a Port." *The Review of Regional Studies*, **25**, no.1 (1995): 13-35.



analysis (in terms of accuracy of the price elasticity estimates) more than outweighed the benefits (in terms of reduced over-estimation of impacts).

To assess the economic contribution of cargo, CUTR first estimated the tonnage and value of inbound and outbound goods for FY 2003¹⁴, as displayed in Table 12.

Table 12

Estimated Cargo Tonnage and Value, TPA FY 2003

	<i>Tons</i>	<i>Value (\$)*</i>
Enplaned	31,681	\$685,562,603
% of Total	45.4%	72.0%
Deplaned	38,156	\$266,462,600
% of Total	54.6%	28.0%
Total	69,836	\$952,025,203

* In FY 2003 dollars.

Source: CUTR and Reebie Estimates

Inbound cargo flowing through TPA accounts for 54.6 percent of the airport's total tonnage and 28.0 percent of the total value. Although lower in terms of tonnage, outbound cargo represents 72.0 percent of the total value, indicating an

¹⁴ Data on the inbound and outbound flow of commodity were obtained by Reebie Associates. Reebie Associates databases provide market data for truckload, LTL, rail, intermodal, water, and air freight transportation for utilization by private firms and public agencies. CUTR obtained air freight movement data for FY 2003 in terms of value and tonnage of inbound and outbound of cargo. The values of the commodities are reported at producer prices, and exclude distribution costs, such as transportation costs and wholesale and retail trade margins.



underlying difference in the composition of imported and exported goods (as shown in subsequent tables).

Economic Impact of Exports

The economic impact of the export of locally produced goods through TPA is measured by level of production, sale, and transportation to the airport. Table 13 summarizes the outbound flow of commodities following the North American Industry Classification System (NAICS) at the three-digit level. Accounting for 15.5 percent of total outbound tonnage, computer and other electronic components constitute the bulk of exports in terms of value, with \$384.1 million in exported goods. Three other commodities, chemicals, machinery, and transportation equipment, account for 46.8% of total tonnage, and 39.3% of the total value of exports.

Table 13
Outbound Tonnage and Value by Commodity, FY 2003

NAICS	Commodity	Tonnage	Value (\$)*	% of Total Tons	% of Total Value
111	Crop Farming	3,327	\$1,269,684	10.5%	0.2%
315	Apparels	10	222,882	0.0%	0.0%
323	Printing and Related	49	634,464	0.2%	0.1%
325	Chemicals	4,472	8,368,220	14.5%	1.3%
332	Fabricated Metal Products	576	2,421,526	1.8%	0.4%
333	Machinery	6,793	138,687,179	21.4%	20.2%
334	Computer and Other Electronics	4,910	384,062,465	15.5%	56.0%
335	Electrical Equip. App.	690	4,252,144	2.2%	0.6%
336	Transportation Equip.	3,438	121,818,032	10.9%	17.8%
339	Miscellaneous Manufactures	449	7,496,538	1.4%	1.1%
491	Postal Services	6,583	13,375,248	20.8%	2.0%
511	Publishing Industries	383	2,954,222	1.2%	0.4%
Total		31,681	\$685,562,603	100%	100%

* In FY 2003 dollars.

Source: CUTR and Reebie Estimates



Impact of Locally Produced Exports

The next step in estimating the economic contribution of exports was to determine how much of each exported commodity was produced locally. This was obtained by identifying the levels of local production and local demand within the three-county impact area. These levels were given by the I/O regional make matrix¹⁵. Using the make matrix, locally produced exports were defined by applying the following two criteria:

1. Local production exceeded local demand and the reported value of exports;
2. Local production exceeded local demand, but the reported value of exports exceeded the value of local production; in this case:
 - the difference between local production and local demand was considered as locally produced exports; and
 - the remainder was considered as not locally produced.

Table 14 identifies the locally produced exports following this approach. Next, the economic contribution of the locally produced commodities was estimated as the total value of the exported commodities.

Table 15 reports the tonnage and value of exports defined as locally produced and the resulting economic impact in terms of labor income and employment generated by these exports (results are reported in FY 2004 to keep consistency with the other impacts estimated in the previous sections).

¹⁵ In the IMPLAN I/O model, the make matrix represents the make, or production, of commodities by industry. In the model there are 509 sectors, and the make matrix provides estimates (measured in dollars) of the value of each commodity or service produced by each industry within the impact area.



The economic impact of locally produced exports is mostly determined by the manufacture of machinery, computer and other electronics. The machinery industry is comprised of the production of optical instruments and lenses, turbine generator units and other engine equipment. The computer and other electronics industry primarily consists of semiconductor and related devices and general computer parts. In FY 2003, these sectors generated a combined \$29.8 million in labor income, or 59.8 percent of total labor income impacts, and employed 514 workers, or 59.4% of the total employment of locally produced exports.



Table 14
Exports and Local Production, FY 2003

Commodity	Total Demand***	Total Output***	Exports	
			Tons	Value***
Fruit farming	\$85,007,000	\$345,344,000	3,327	\$1,269,684
Cut and sew apparel manufacturing*	782,196,000	326,157,000	10	222,882
Manifold business forms printing	14,008,000	96,543,000	38	500,256
Blankbook and loose-leaf binders*	9,608,000	0	9	123,175
Prepress services	1,842,000	31,411,000	1	11,032
Other basic inorganic chemicals	16,128,000	18,665,000	22	5,810
Pharmaceuticals and medicines*	930,085,000	561,592,000	4,450	8,362,410
All other forging and stamping	4,081,000	33,769,000	127	796,674
Saw blades and handsaws	10,709,000	36,484,000	28	154,770
Fabricated structural metals	808,000	94,723,000	42	100,508
Metal windows and doors	791,000	99,744,000	11	22,871
Sheet metal work	3,142,000	102,122,000	59	104,495
Metal cans, boxes and other containers	7,271,000	117,201,000	44	95,895
Hardware	6,715,000	40,874,000	2	13,353
Spring and wire products	1,205,000	35,839,000	26	63,025
Turned product, screws, nuts and bolts	2,467,000	31,233,000	17	45,634
Metal valves	16,040,000	140,808,000	20	88,027
Miscellaneous fabricated metal products*	21,979,000	16,686,000	199	936,271
Construction machinery*	16,012,000	8,484,000	2	19,181
Optical instruments and lens **	18,273,000	23,697,000	442	30,131,873
Heating equipment, except warm air furnaces	8,853,000	20,230,000	3	24,291
AC refrigeration and forced air heating	26,513,000	68,723,000	3	38,943
Turbine and turbine generator set units**	14,431,000	19,088,000	1,343	28,713,088
Other engine equipment**	10,143,000	12,914,000	5,000	79,758,973
Scales, balances, and miscellaneous equipment	9,586,000	19,225,000	121	2,436,544
Electronic computers	214,930,000	250,122,000	132	31,257,862
Computer storage devices*	33,679,000	11,142,000	3,016	217,239,819
Audio and video equipment*	213,618,000	21,781,000	0	3,686
Semiconductors and related devices**	3,086,000	23,562,000	237	56,180,824
All other electronic components	53,185,000	762,206,000	1,507	78,121,540
Irradiation apparatuses	4,390,000	5,250,000	18	1,258,733
Other major household appliances*	6,347,000	438,000	2	35,013
Storage batteries	37,001,000	56,331,000	541	2,215,206
Miscellaneous electrical equipment	33,760,000	60,666,000	147	2,001,925
Motor vehicle parts	116,086,000	221,355,000	118	1,657,108
Other aircraft parts and equipment*	127,209,000	69,138,000	0	71,553
Propulsion units and parts for space vehicles*	4,159,000	0	675	102,293,998
Ship building and repairing	31,770,000	113,431,000	1	19,960
Motorcycle, bicycle, and parts*	55,772,000	1,209,000	2,130	16,444,768
All other transportation equipment*	36,826,000	1,399,000	513	1,330,644
Surgical and medical instrument	71,213,000	246,208,000	3	7,726
Office supplies, except paper	23,026,000	79,795,000	323	5,045,781
Signs	50,784,000	110,885,000	3	7,316
Postal service	104,033,000	658,732,000	6,583	13,375,248
Newspaper publishers	96,376,000	464,658,000	4	4,438
Periodical publishers	104,569,000	497,986,000	44	147,922
Book publishers*	137,451,000	37,748,000	101	1,218,901
Database, directory and other publishers	70,759,000	177,898,000	234	1,582,960
Total	\$3,647,922,000	\$6,173,496,000	31,681	\$685,562,603

* Commodity is either not locally produced or local demand exceeds local production

** Commodity export exceeds local production

*** In FY 2003 dollars



Table 15
Economic Impact of Locally Produced Exports, FY 2003

<i>Commodity</i>	<i>Exports Value (\$)**</i>	<i>Labor Income (\$)**</i>	<i>Employment</i>
Fruit farming	\$1,285,091	\$332,316	21
Manifold business forms	512,164	164,088	3
Prepress services	11,295	8,103	0
Other basic inorganic chemicals	6,001	1,135	0
All other forging and stamping	816,823	227,744	6
Saw blades and handsaws	159,347	41,519	1
Fabricated structural metals	102,624	24,821	1
Metal windows and doors	23,353	6,857	0
Sheet metal work	106,695	28,999	1
Metal cans, boxes, and other containers	98,168	20,163	0
Hardware	13,621	2,260	0
Spring and wire products	64,460	23,230	0
Turned products, screws, nuts and bolts	46,583	11,590	0
Metal valves	90,260	24,908	0
Optical instruments and lenses*	5,520,940	2,128,444	29
Heating equipment, except warm air furnaces	24,810	6,342	0
AC refrigeration and forced air heating	39,774	7,594	0
Turbine and turbine generator set units*	4,790,085	863,197	6
Other engine equipment*	2,850,188	1,387,852	8
Scales, balances, miscellaneous equipment	2,492,488	691,892	12
Electronic computer manufacturing	30,446,555	5,535,732	73
Semiconductors and related devices*	19,768,516	5,221,913	109
All other electronic components*	75,422,296	24,598,605	405
Irradiation apparatuses	1,289,829	181,117	4
Storage batteries	2,268,290	715,983	11
Miscellaneous electrical equipment	2,049,898	389,682	8
Motor vehicle parts	1,704,301	440,391	20
Ship building and repairing	20,427	9,057	0
Surgical and medical instruments	7,917	972	0
Office supplies, except paper	5,164,329	62,824	19
Signs	7,488	3,082	0
Postal service	13,782,598	5,921,307	107
Newspaper publishers	4,562	1,713	0
Periodical publishers	152,067	128,960	2
Database, directory, and other publishers	1,616,179	617,204	17
Total	\$172,760,025	\$49,831,599	864

* Exports exceed local production

** In FY 2004 dollars



Impact of Exports Not Locally Produced

The economic impact of the remaining exports not locally produced was measured as the economic impact on the wholesale and transportation sectors. The impact of these commodities is relatively smaller as it entails only the impact on the wholesale and transportation sectors engaged in the distribution and movement of these goods, respectively. To estimate the impacts, the export values were multiplied by the wholesale and transportation margins to estimate the levels of labor income and employment¹⁶. Employment and labor income estimates were obtained by using the appropriate multipliers. Table 16 shows the economic impact of exported commodities produced outside the impact area.

Table 16 indicates that exports of goods produced outside the impact area represent 74.7 percent of the total exports value. The total impact on labor income is \$12.4 million, with an additional 236 jobs in the wholesale and transportation sectors. Finally the total direct economic impact of exports of goods moved through TPA was obtained by summing the economic impact of locally produced exports to the not locally produced ones. The total labor income impact is about \$62.3 million, with 1,100 export related jobs.

¹⁶ The wholesale margin is equal to the difference between the price the wholesaler charges the retailer and the cost to the wholesaler; while the transportation margin consists of the costs of transporting the output from the manufacturer to the wholesaler and from the wholesaler to the retailer. These margins are provided by the IMPLAN I/O model.



Table 16
Economic Impact of Exports Not Locally Produced, FY 2003

Commodity	Exports	Wholesale Trade		Transportation		Total Impacts	
	Value (\$) ^{***}	Labor Income ^{***}	Employment	Labor Income ^{***}	Employment	Labor Income ^{***}	Employment
Cut and sew apparels*	\$227,082	\$7,788	0	\$375	0	\$8,163	0
Blankbooks and loose-leaf binders*	\$126,107	1,636	0	472	0	2,108	0
Pharmaceuticals and medicines*	\$8,582,892	441,012	8	9,760	0	450,773	8
Miscellaneous fabricated metal products*	\$960,016	28,223	1	24,772	1	52,995	1
Construction machinery*	\$19,679	598	0	52	0	650	0
Optical instruments and lens**	\$25,149,461	1,249,199	22	12,989	0	1,262,188	23
Turbine and turbine generator set units**	\$24,743,551	258,277	5	1,061	0	259,337	5
Other engine equipment**	\$79,188,095	826,577	15	3,394	0	829,971	15
Semiconductors and related devices**	\$34,471,156	1,142,504	20	545	0	1,143,048	20
Computer Storage Devices*	\$211,591,584	5,727,361	102	333,067	11	6,060,428	113
Audio and Video Equipment*	\$3,591	152	0	8	0	160	0
Other major household appliances*	\$35,776	1,194	0	242	0	1,436	0
Other aircraft parts and equipment*	\$73,463	970	0	298	0	1,268	0
Propulsion units and parts for space vehicles*	\$105,023,797	1,387,151	25	426,168	14	1,813,319	39
Motorcycle and bicycle parts*	\$16,779,652	454,836	8	18,052	1	472,887	9
All other transportation equipment*	\$1,357,742	20,409	0	10,156	0	30,564	1
Book publishers*	\$1,253,053	48,198	1	5,951	0	54,149	1
Total	\$509,586,695	\$11,596,084	207	\$847,361	29	\$12,443,445	236

* Commodity is either not locally produced or local demand exceeds local production

** Commodity export exceeds local production

*** In FY 2004 dollars

Economic Impact of Imports

The economic impact of imports was obtained by estimating the contribution of inbound cargo to the production of local goods and services and on the wholesale trade and transportation sectors.

Table 17 reports the estimated tonnage and value of inbound cargo for FY 2003, aggregated at the three digit NAICS. The bulk of imports consisted of miscellaneous chemicals (drugs and other inorganic chemicals), which represent about 36% of the total tonnage, followed by postal service and computer and other electronic equipment. In terms of value, the bulk of imports is comprised of miscellaneous electronic and computer components, representing about 42% of the total value of inbound cargo, or \$112.3 million.



Table 17
Inbound Tonnage and Value by Commodity, FY 2003

<i>Commodity</i>	<i>Tonnage</i>	<i>Value (\$)*</i>	<i>% of Total Tons</i>	<i>% of Total Value</i>
Crop Farming	42	\$22,939	0.1%	0.0%
Livestock	18	43,400	0.0%	0.0%
Fishing, Hunting and Trapping	24	81,340	0.1%	0.0%
Food Products	90	125,363	0.2%	0.0%
Textile Mills	26	219,342	0.1%	0.1%
Textile Products	2	2,799,027	0.0%	1.1%
Apparel Manufacturing	108	15,934	0.3%	0.0%
Leather and Allied	28	9,662	0.1%	0.0%
Wood Products	2	3,783	0.0%	0.0%
Paper Manufacturing	111	193,900	0.3%	0.1%
Printing and Related	59	170,509	0.2%	0.1%
Chemical Manufacturing	13,647	4,196,029	35.8%	1.6%
Plastics and Rubber Products	508	2,677,777	1.3%	1.0%
Nonmetal Mineral Production	33	51,783,385	0.1%	19.6%
Fabricated Metal Products	144	198,132	0.4%	0.1%
Machinery Manufacturing	557	2,856,027	1.5%	1.1%
Computer and Other Electronic Eq.	2,045	112,314,011	5.4%	41.5%
Electrical Equipment and Appliances	467	3,865,599	1.2%	1.5%
Transportation Equipment	2,136	13,624,482	5.6%	5.2%
Furniture and Related Products	5	27,134,301	0.0%	10.3%
Miscellaneous Manufacturing	619	5,065,470	1.6%	1.9%
Postal Service	13,005	6,941	34.1%	0.0%
Publishing Industries	948	26,468,149	2.5%	10.1%
Government and non NAICS	3,533	12,587,098	9.3%	4.7%
Total	38,156	\$266,462,600	100%	100%

* In FY 2003 dollars.

Source: CUTR and Reebie Estimates

Next, the economic impact of the flow of inbound cargo was estimated. The first step was to estimate the inputs requirements of each of the industries operating in the impact area. This was done using the I/O use matrix¹⁷. Table 18 reports the input requirements of each industry to produce \$137.8 billion in total output for the three-county impact area. For example, the computer and other electronic industry sector (NAICS 334) produced goods for a value of about \$2.9

¹⁷ The use matrix details the dollar value of goods and services purchased by each industry as intermediate inputs in their production process. To estimate the economic impact of inbound cargo in the level of local production, the original 509 sectors of the I/O model were aggregated into 83 industry sectors at the NAICS three-digit level.



billion and required \$2.0 billion in inputs from all the other industries. The total input requirements of all industries for the three-county impact area amount to \$54.1 billion.



Table 18
Input Requirements for All Sectors in the Impact Area, FY 2003

Industry (NAICS 3 Digit)	Total Input Demand*	Implicit Use Coefficient	Total Output*	Value Added*
111 Crop Farming	\$305	0.00221	\$711	\$406
112 Livestock	117	0.00085	142	25
113 Forestry & Logging	7	0.00005	10	3
114 Fishing- Hunting & Trapping	18	0.00013	41	24
115 Ag & Forestry Svcs	55	0.00040	160	105
211 Oil & gas extraction	35	0.00025	78	42
212 Mining	9	0.00007	25	16
213 Mining services	1	0.00001	2	1
221 Utilities	889	0.00645	2,840	1,951
230 Construction	6,121	0.04443	10,046	3,926
311 Food products	1,049	0.00761	1,497	448
312 Beverage & Tobacco	524	0.00380	919	396
313 Textile Mills	29	0.00021	36	7
314 Textile Products	40	0.00029	56	16
315 Apparel Mfg	176	0.00128	340	164
316 Leather & Allied	2	0.00002	9	7
321 Wood Products	234	0.00170	396	163
322 Paper Manufacturing	256	0.00186	344	88
323 Printing & Related	345	0.00251	660	315
324 Petroleum & coal prod	364	0.00264	424	60
325 Chemical Manufacturing	1,249	0.00907	1,722	473
326 Plastics & rubber prod	369	0.00268	569	199
327 Nonmetal mineral prod	328	0.00238	568	240
331 Primary metal mfg	169	0.00123	229	60
332 Fabricated metal prod	668	0.00485	1,122	454
333 Machinery Mfg	638	0.00463	992	354
334 Computer & oth electron	1,994	0.01447	2,886	892
335 Electrical eqpt & appliances	250	0.00181	446	196
336 Transportation eqpmt	480	0.00349	631	151
337 Furniture & related prod	214	0.00155	351	137
339 Miscellaneous mfg	596	0.00432	1,237	642
42 Wholesale Trade	2,092	0.01519	7,580	5,488
481 Air transportation	791	0.00574	1,182	391
482 Rail Transportation	19	0.00014	71	52
483 Water transportation	643	0.00466	898	256
484 Truck transportation	504	0.00366	840	336
485 Transit & ground passengers	158	0.00115	250	92
486 Pipeline transportation	4	0.00003	5	1
487 Sightseeing transportation	228	0.00166	395	167
491 Postal service	134	0.00097	699	566
492 Couriers & messengers	130	0.00094	316	187
493 Warehousing & storage	72	0.00052	207	135
441 Motor veh & parts dealers	498	0.00361	2,019	1,522
442 Furniture & home furnishings	103	0.00075	389	286
443 Electronics & appliances stores	136	0.00089	596	460
444 Bldg materials & garden dealers	161	0.00117	742	581
445 food & beverage stores	324	0.00235	1,318	994
446 Health & personal care stores	207	0.00150	768	561
447 Gasoline stations	90	0.00066	328	238
448 Clothing & accessories stores	125	0.00091	546	422
451 Sports- hobby- book & music stores	43	0.00032	195	151
452 General merch stores	238	0.00172	1,097	860
453 Misc retailers	164	0.00119	599	435
454 Non-store retailers	429	0.00311	1,243	814
511 Publishing industries	791	0.00574	1,363	572
512 Motion picture & sound recording	209	0.00152	318	109
515 Broadcasting	1,570	0.01139	4,357	2,787
518 Internet & data process svcs	550	0.00399	1,177	627
522 Credit intermediation & related	918	0.00667	3,096	2,177
523 Securities & other financial	1,295	0.00940	2,052	757
524 Insurance carriers & related	2,743	0.01991	5,460	2,717
525 Funds- trusts & other finan	791	0.00574	975	183
521 Monetary authorities	969	0.00704	2,713	1,743
531 Real estate	1,483	0.01076	5,036	3,554
532 Rental & leasing svcs	695	0.00505	1,140	445
533 Lessor of nonfinance intang assets	75	0.00054	1,721	1,646
541 Professional- scientific & tech svcs	2,141	0.01554	8,526	6,386
551 Management of companies	711	0.00516	2,329	1,619
561 Admin support svcs	2,390	0.01735	8,926	6,536
562 Waste mgmt & remediation svcs	146	0.00106	306	160
611 Educational svcs	353	0.00256	849	495
621 Ambulatory health care	1,719	0.01247	5,531	3,812
622 Hospitals	1,831	0.01329	3,433	1,601
623 Nursing & residential care	406	0.00295	1,157	751
624 Social assistance	316	0.00230	765	449
711 Performing arts & spectator sports	194	0.00141	717	524
712 Museums & similar	35	0.00026	49	13
713 Amusement- gambling & recreation	387	0.00281	829	442
721 Accommodations	141	0.00103	838	697
722 Food svcs & drinking places	1,890	0.01372	3,456	1,566
811 Repair & maintenance	1,544	0.01121	2,498	954
812 Personal & laundry svcs	558	0.00405	1,014	456
813 Religious- grantmaking- & similar orgs	474	0.00344	1,175	700
814 Private households	0	0.00000	0	93
92 Government & non NAICs	1,937	0.01406	14,183	12,247

		Share
Total intermediate inputs	\$54,090	39.26%
Value added	\$83,773	60.81%
Total Industry Output	\$137,770	

*Millions of FY 2004 dollars



Table 19 reports the value of inbound cargo and the associated input requirements as estimated by the use matrix. Since the value of inbound cargo for each of the commodities was less than the input requirements, all cargo was assumed to be used in the production process. Next, using the use matrix input requirements for each commodity for each industry, the economic impact of inbound cargo, or its contribution to local production, was estimated. Following this approach, the value of each inbound commodity utilized as intermediate input by a given industry was multiplied by its share of implicit use, to estimate the industry's levels of output, labor income, and employment.

Table 19
Inbound Cargo and Input Requirements, FY 2003

Industry (NAICS 3 Digit)	Input	Implicit Use Coefficient	Inbound Cargo	
	Requirements (\$)		Tons	Value (\$)
Crop Farming	\$305,136,441	0.00221	42	23,218
Livestock	\$117,054,261	0.00085	18	43,926
Fishing, Hunting and Trapping	\$17,755,550	0.00013	24	83,185
Food Products	\$1,049,076,237	0.00761	90	127,878
Textile Mills	\$29,125,857	0.00021	26	222,873
Textile Products	\$40,469,834	0.00029	2	2,843,838
Apparel Manufacturing	\$176,291,448	0.00128	108	16,234
Leather and Allied	\$2,494,908	0.00002	28	9,883
Wood Products	\$233,693,691	0.00170	2	3,865
Paper Manufacturing	\$255,896,284	0.00186	111	198,812
Printing and Related	\$345,192,441	0.00251	59	174,568
Chemical Manufacturing	\$1,249,129,689	0.00907	13,647	4,313,738
Plastics and Rubber Products	\$369,424,118	0.00268	508	2,741,702
Nonmetal Mineral Production	\$327,695,364	0.00238	33	52,672,235
Fabricated Metal Products	\$668,340,008	0.00485	144	202,677
Machinery Manufacturing	\$637,760,697	0.00463	557	2,922,778
Computer and Other Electronic Eq.	\$1,994,004,996	0.01447	2,045	111,463,932
Electrical Equipment and Appliances	\$249,953,290	0.00181	467	3,962,804
Transportation Equipment	\$480,444,371	0.00349	2,136	13,977,057
Furniture and Related Products	\$214,011,680	0.00155	5	27,708,250
Miscellaneous Manufacturing	\$595,633,785	0.00432	619	5,188,076
Postal Service	\$133,604,084	0.00097	13,005	7,153
Publishing Industries	\$790,897,134	0.00574	948	27,108,443
Government and non NAICs	\$1,936,596,013	0.01406	3,533	12,671,812
Total	\$12,219,682,181	0.08870	38,156	268,688,939

All other industries	\$41,870,703,674
Total intermediate input	\$54,090,385,855
Value added	\$83,772,703,891
Total Industry output	\$137,769,882,475

*In FY 2004 dollars



Table 20 reports the economic impact of inbound cargo on the production of goods and services for the impact area for each industry that used imported intermediate inputs. For example, in FY 2003, the use of imported goods as intermediate inputs in the computer and other electronic industries contributed to generating \$28.8 million in total output, \$7.9 million in labor income, and 124 jobs.

The total impact of inbound cargo on the local production of goods and services is obtained by summing the impacts across the industry sectors. The total economic impact of imports on the production of goods and services for FY 2003 is equivalent to \$139.6 million in total output, \$42.4 million in labor income and 1,126 jobs. To avoid double counting of impacts, the table reports no impacts on the wholesale trade and transportation sectors, as their impacts are estimated separately.



Table 20
Economic Impact of Inbound Cargo on Local Production, FY 2003

Industry (NAICS 3 Digit)	Total Output Impact*	Per Worker Income*	Labor Income*	Employment
Crop Farming	\$143,816	\$20,623	\$42,265	2
Livestock	230,735	6,430	19,270	3
Forestry & Logging	117,606	28,524	14,807	1
Fishing- Hunting & Trapping	86,748	18,858	39,365	2
Ag & Forestry services	454,395	19,687	371,333	19
Oil & gas extraction	245,732	10,146	56,935	6
Mining	381,250	59,743	132,117	2
Mining services	1,714,869	12,412	347,419	28
Utilities	216,479	90,197	45,785	1
Construction	3,881,598	36,843	1,357,650	37
Food products	362,419	39,332	58,355	1
Beverage & Tobacco	1,913,652	64,909	391,217	6
Textile Mills	2,666,920	23,323	468,647	20
Textile Products	2,148,999	24,531	523,144	21
Apparel Mfg	1,205,426	33,769	328,370	10
Leather & Allied	510,603	23,250	195,983	8
Wood Products	1,427,297	37,186	389,404	10
Paper Manufacturing	1,938,275	42,535	416,421	10
Printing & Related	1,841,059	41,429	646,222	16
Petroleum & coal products	457,586	58,090	55,533	1
Chemical Manufacturing	2,563,253	66,273	401,839	6
Plastics & rubber products	3,143,869	43,709	691,866	16
Nonmetal mineral products	6,788,152	46,650	1,791,007	38
Primary metal mfg	2,741,241	42,551	588,413	14
Fabricated metal products	1,783,939	43,961	471,114	11
Machinery Mfg	3,808,054	58,206	1,080,607	19
Computer & other electronics	28,877,121	64,113	7,952,272	124
Electrical equipment appliances	5,374,635	44,572	1,507,180	34
Transportation equipment	9,684,022	21,040	1,721,831	82
Furniture & related products	2,306,965	32,853	658,531	20
Miscellaneous manufacturing	3,015,561	57,389	1,163,569	20
Wholesale Trade	-	-	-	-
Air transportation	-	-	-	-
Rail Transportation	-	-	-	-
Water transportation	-	-	-	-
Truck transportation	-	-	-	-
Transit & ground passengers	1,123,759	36,687	341,189	9
Pipeline transportation	305,031	96,667	57,156	1
Sightseeing transportation	779,092	30,663	281,232	9
Postal service	498,508	67,936	422,761	6
Couriers & messengers	478,242	24,592	194,703	8
Warehousing & storage	221,380	35,991	119,793	3
Motor vehicle & parts dealers	270,494	46,038	128,276	3
Furniture & home furnishings	291,489	31,399	124,815	4
Electronics & appliances stores	250,120	44,248	131,776	3
Bldg materials & garden dealers	238,551	29,114	103,680	4
Food & beverage stores	269,895	19,785	125,601	6
Health & personal care stores	296,039	30,645	135,316	4
Gasoline stations	301,840	23,941	129,886	5
Clothing & accessories stores	251,221	18,004	102,747	6
Sports- hobby- book & music stores	244,991	19,209	117,631	6
General merchandise stores	237,659	21,087	111,844	5
Misc retailers	300,354	22,071	154,656	7
Non-store retailers	378,846	14,387	127,349	9
Publishing industries	5,188,358	41,787	1,516,680	36
Motion picture & sound recording	4,799,645	31,575	1,305,682	41
Broadcasting	1,570,394	61,996	433,232	7
Internet & data process services	7,253,696	77,627	3,341,757	43
Credit intermediation & related	869,255	54,395	321,978	6
Securities & other financial	602,572	34,420	218,112	6
Insurance carriers & related	63,050	46,652	19,149	0
Funds- trusts & other finance	107,457	63,458	22,900	0
Monetary authorities	307,639	46,040	75,991	2
Real estate	142,178	16,441	22,548	1
Rental & leasing services	1,147,051	35,363	334,244	9
Lessor of nonfinance intangible assets	216,273	191,051	10,293	0
Professional- scientific & tech services	993,928	50,845	608,848	12
Management of companies	374,574	71,020	178,159	3
Admin support services	446,268	25,390	306,011	12
Waste mgmt & remediation services	585,839	41,635	180,911	4
Educational services	937,483	25,122	471,942	19
Ambulatory health care	972,198	50,457	571,537	11
Hospitals	1,611,889	43,300	735,245	17
Nursing & residential care	459,036	26,307	262,509	10
Social assistance	721,476	18,849	360,749	19
Performing arts & spectator sports	203,084	29,993	128,249	4
Museums & similar	626,957	26,168	264,695	10
Amusement- gambling & recreation	510,146	17,955	174,196	10
Accommodations	260,515	25,014	101,374	4
Food services & drinking places	367,688	16,006	144,793	9
Repair & maintenance	7,237,609	24,345	2,449,191	101
Personal & laundry services	1,698,751	19,760	638,690	32
Religious- grant making- & similar orgs	318,322	27,540	189,643	7
Government & non NAICs	283,630	46,615	124,007	3
Total	\$139,646,751		\$42,352,197	1,126

* In 2004 dollars



The approach used to estimate the economic impact of inbound cargo on the wholesale trade and transportation sectors follows the method previously employed in the estimating the impact of not-locally produced exports. The inbound cargo values were multiplied by the wholesale and transportation margins associated with each industry to estimate the total output. Finally, using the labor income and employment multipliers, the relative estimates were obtained. Table 21 shows the results of these calculations. The impact of imports on total output is \$18.5 million and \$4.5 million for the wholesale trade and transportation sectors respectively. Inbound cargo flows also contributed to the employment of an additional 127 wholesale workers, and to 21 transportation related jobs.

The computer and other electronic industry accounted for 49.6 percent of the total output wholesale trade impact and 12.5 percent of the total output of the transportation sector. Conversely, non-metal mineral production contributed to 52.2 percent of the transportation output and 13.2 percent of the wholesale trade output.



Table 21
Economic Impact of Inbound Cargo on Wholesale and Transportation Sectors, FY 2003

Industry (NAICS 3 Digit)	Imports			Implied Output			
	Tonnage	Value (\$)*	Value Per Ton*	Wholesale Trade*	Transportation		Total*
				Truck*	Other*		
Crop Farming	42	\$23,218	551.1	\$2,140	\$1,034	\$514	\$1,548
Livestock	18	43,926	2,349.0	\$392	\$136	\$884	\$1,019
Fishing, Hunting and Trapping	24	83,185	3,386.6	\$6,762	\$69	\$1,401	\$1,470
Food Products	90	127,878	1,398.3	\$10,835	\$1,962	\$650	\$2,612
Textile Mills	26	222,873	8,382.1	\$12,501	\$2,702	\$1,230	\$3,932
Textile Products	2	2,843,838	1,591,296.9	\$180,655	\$33,290	\$3,924	\$37,214
Apparel Manufacturing	108	16,234	147.1	\$848	\$44	\$19	\$63
Leather and Allied	28	9,883	349.0	\$696	\$48	\$18	\$65
Wood Products	2	3,865	1,985.1	\$303	\$47	\$41	\$87
Paper Manufacturing	111	198,812	1,744.0	\$9,238	\$7,919	\$1,455	\$9,374
Printing and Related	59	174,568	2,871.9	\$5,006	\$551	\$859	\$1,410
Chemical Manufacturing	13,647	4,313,738	307.5	\$401,605	\$122,592	\$34,928	\$157,520
Plastics and Rubber Products	508	2,741,702	5,274.4	\$148,381	\$135,380	\$7,002	\$142,382
Nonmetal Mineral Production	33	52,672,235	1,553,354.9	\$2,439,304	\$1,838,419	\$540,364	\$2,378,783
Fabricated Metal Products	144	202,677	1,380.2	\$15,764	\$3,031	\$763	\$3,794
Machinery Manufacturing	557	2,922,778	5,129.3	\$219,729	\$14,436	\$10,525	\$24,961
Computer and Other Electronic Eq.	2,045	111,463,932	54,930.3	\$9,144,390	\$111,575	\$459,900	\$571,476
Electrical Equipment and Appliances	467	3,962,804	8,276.1	\$327,447	\$85,922	\$6,356	\$92,278
Transportation Equipment	2,136	13,977,057	6,378.5	\$456,952	\$89,565	\$94,373	\$183,938
Furniture and Related Products	5	27,708,250	5,569,392.0	\$1,574,909	\$175,615	\$30,618	\$206,233
Miscellaneous Manufacturing	619	5,188,076	8,185.4	\$498,621	\$57,748	\$13,795	\$71,544
Postal Service	13,005	7,153	0.5	\$0	\$0	\$0	\$0
Publishing Industries	948	27,108,443	27,919.3	\$2,487,417	\$435,850	\$227,874	\$663,723
Government and non NAICs	3,533	\$12,671,812	3,563.0	\$506,543	\$0	\$0	\$0
Total	38,156	\$268,688,939		\$18,450,435	\$3,117,932	\$1,437,493	\$4,555,425

Total Output	\$18,450,435	\$3,117,932	\$1,437,493	\$4,555,425
Labor Income Share	38.6%	14.7%	25.7%	18.2%
Labor Income	\$7,119,192	\$458,311	\$369,274	\$827,585
Per Worker Income	\$56,052	\$29,625	\$66,971	\$48,298
Employment	127	15	6	21

* In FY 2004 dollars

Finally, the total economic impact of the inbound and outbound movement of goods flowing through TPA is displayed in Table 22. Although the total volume of inbound and outbound cargo tonnage moved by TPA is relatively small compared to other modes of transportation that move large volumes of bulk goods, it is important to look at the composition and value of goods moved on a tonnage basis. A relative measure of relevance of the value of commodities transported by TPA is provided in Table 22, which reports the three major economic impact measures per each 1,000 tons of cargo tonnage.



Table 22
Total Impacts: Import and Exports, FY 2003

	<i>Imports</i>		<i>Exports</i>	
	<i>Tons</i>	<i>Value (\$)*</i>	<i>Tons</i>	<i>Value (\$)*</i>
	38,156	\$268,688,939	28,353	\$685,562,603
		<i>Impact per 1,000 Tons</i>		<i>Impact per 1,000 Tons</i>
<i>Total Output</i>	\$158,097,186	\$4,143,488	\$172,760,025	\$6,093,183
<i>Total Labor Income</i>	\$50,298,975	\$1,318,260	\$62,275,044	\$2,196,418
<i>Total Employment</i>	1,274	33	1,100	39

* In FY 2004 dollars.

For example, each 1,000 tons of goods imported by way of TPA contributes to \$4.1 million in total output, \$1.3 million in labor income and an additional 33 jobs. Locally produced goods contribute to \$6.1 million in total output, \$ 2.2 million in labor income, and an additional 39 jobs for each 1,000 tons of exports.



Total Impacts

In this section, the previously estimated impacts are summed to obtain the total economic impact of TPA for FY 2003 on Hillsborough, Pinellas, and Pasco counties. Table 23 summarizes direct, indirect, induced, and total impacts in terms of output, income and employment.

Table 23

Total Impacts by Type, Tampa International Airport, FY 2003

<i>Impact Type</i>	<i>Impact</i>		
	<i>Output</i>	<i>Income</i>	<i>Employment</i>
Direct	\$1,573,138,620	\$496,824,346	13,908
Indirect	490,694,401	\$186,379,271	5,068
Induced	480,371,620	\$170,276,301	5,182
Total	\$2,544,204,641	\$853,479,918	24,157

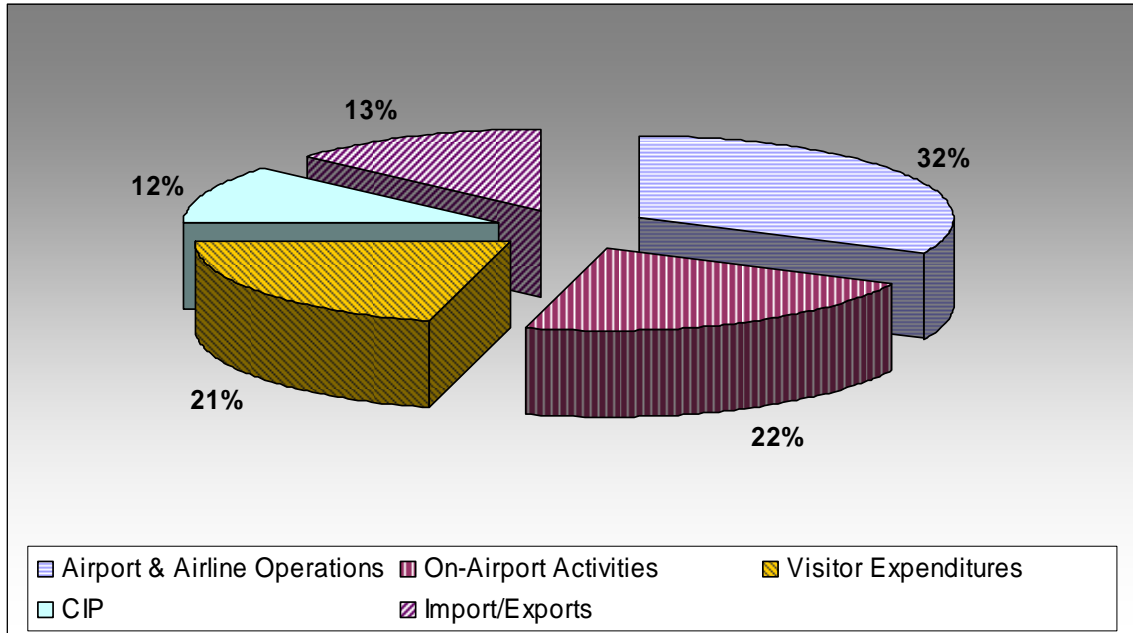
Total impacts on output approximate \$2.54 billion and represent the total production of goods and services in the impact area in FY 2003 due to the presence of TPA. Total industry output measures the value of production of goods and services by businesses in the local economy. Generally, total industry output is equivalent to total business sales plus what businesses place into (or remove from) inventory. Total industry output measures how the region's economy would be affected by the direct impacts generated by TPA.

Figure 3 shows the contribution of each type of direct impacts. Airport and airline operations alone account for 32 percent of the \$2.54 billion impact.



Figure 3

Total Output Impact: Breakdown by Type



The I/O model provides an estimate of the total value of final goods and services produced in the three-county area as summarized by Table 24, which also displays TPA's share of total output, income, and employment for each affected county. The impact of TPA is equivalent to 1.8 percent of the production of goods and services for the three-county area.



Table 24

Total Impacts on Three-County Economic Impact Area, FY 2003

<i>County</i>	<i>Output (\$ million)</i>	<i>% of County Output</i>	<i>Income (\$ million)</i>	<i>% of County Income</i>	<i>Employment (#)</i>	<i>% of County Employment</i>
Hillsborough	\$77,587	3.3%	\$43,634	2.0%	804,738	3.0%
Pinellas	52,146	4.9%	29,292	2.9%	573,014	4.2%
Pasco	8,037	31.7%	4,372	19.5%	103,326	23.4%
Total	\$137,770	1.8%	\$77,298	1.1%	1,481,078	1.6%

The indirect impacts, which measure the economic activity of the secondary businesses involved in the production of goods and services, amount to \$491 million. The induced impacts, which measure changes in economic activity due to household income increases (those households dependent upon TPA's existence), approximate \$480 million.

The impact on labor income is estimated at about \$853 million, or about 1.1 percent of the area's total income. This figure includes wages as well as other income. Other income includes income generated by self-employed individuals, corporate profits, payments for rents, royalties and dividends, as well as profit generated by corporations. Labor income represents an important share of a region's total income.

The analysis suggests that TPA contributes 24,157 jobs, or 1.6 percent of the three-county impact area, inclusive of 4,995 workers directly employed at the airport facilities, with a ratio of 1,579 jobs per million passengers served¹⁸.

¹⁸ Based on 15.3 million passengers using TPA in FY 2003. Hillsborough County Aviation Authority, *2003 Financial Report*, 2003.

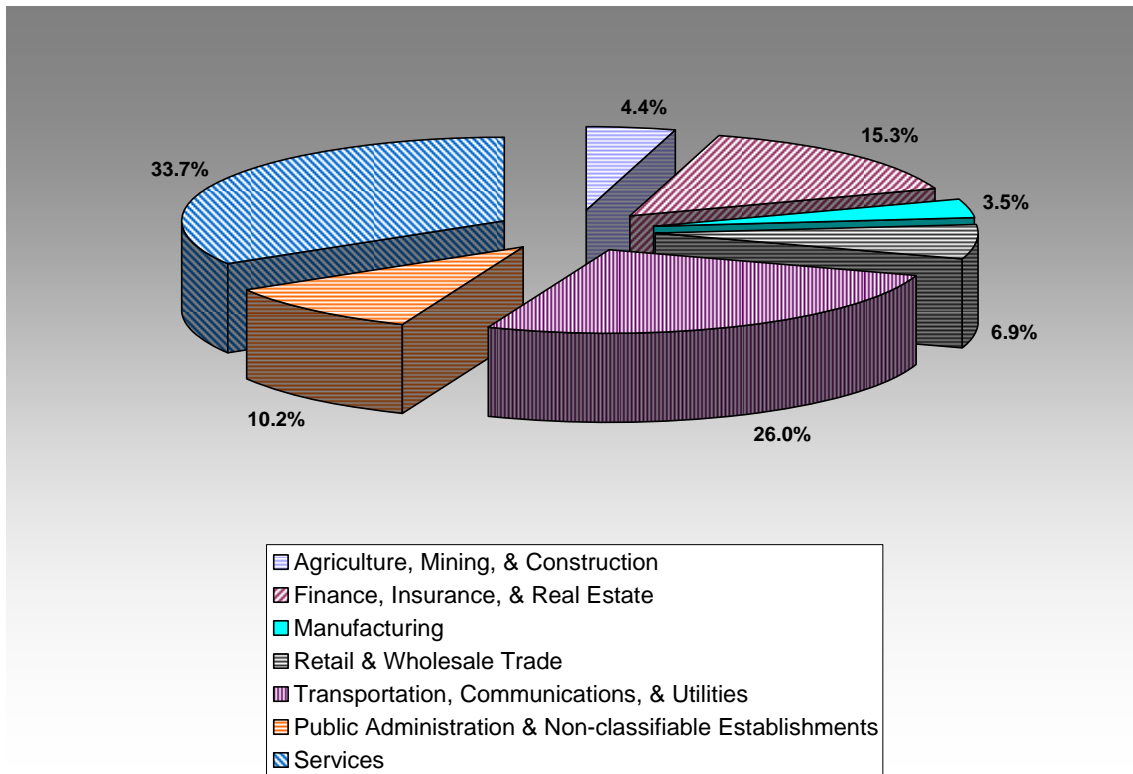


Impacts on Selected Industries

The IMPLAN I/O model estimates impacts for 508 sectors of the impact area. In order to understand the magnitude of TPA's impact on fostering economic activities throughout the impact area, these sectors were aggregated to summarize the economic impact of TPA on the most relevant industry sectors of the local economy. Figure 4 displays these grouping and relative impacts.

Figure 4

Distribution of Total Output Impact by Industry Sector, FY 2003



The impact of TPA is mostly concentrated in the Transportation, Communications, Utilities and Service sectors, which constitute about 60 percent



of the impact on total output for the three-county area. This is the result of the direct impact of air transportation and of the economic prosperity associated with on-airport businesses and the expenditures of visitors in the area. The impact of visitors' expenditures is also reflected in retail and wholesale activities.

Fiscal Impacts

The impact of TPA activities on tax revenues is summarized in Table 25. The largest impact of \$47 million comes from sales tax revenues collected in the three-county area. These revenues are generated by the airport's presence and operation there. The collection of \$36 million in property taxes constitutes about 40% of the total government revenue impacts. An additional \$7 million of taxes, in the form of business licenses, documentary and stamp taxes, are collected due to the presence of TPA.

Table 25

Government Revenue Impacts, FY 2003

<i>Revenue Source</i>	<i>Total Impact</i>
Sales Tax	\$46,858,378
Property Tax	36,153,292
Motor Vehicle Tax	1,919,061
Other Taxes**	6,722,429
Total	\$91,653,161

** *Business licenses, fishing licenses, rents and royalties, documentary and stamp taxes*



Comparison with 1997 Study

The most recent study that analyzed the economic impact of TPA was conducted in 1997; it estimated the contribution to economic growth of all the airports administered by the Authority, including TPA. The study concluded that the total impact of TPA was about \$1 billion in 1996 dollars, “*accounting for over 99 percent of all [the Authority] impacts.*”¹⁹

This study follows a similar theoretical approach to the 1997 study, specifically in the estimation of visitors’ expenditure impacts. CUTR researchers believe that the method developed in the above mentioned study provides conservative assessment of this type of impact. By taking into account the change in passenger flow in the absence of TPA, and assuming that individuals can choose competing modes of transportation as well as nearby competing airports, the approach estimates changes in visitors’ expenditures in a more conservative fashion.

The main structural difference between the 2005 and 1997 study is the identification of the impact area. The impact area for the 1997 was Hillsborough County. This study considered the three-county area, which comprises Hillsborough, Pinellas, and Pasco counties. While the two studies use the same approach to define the impact area (employee based approach), changes in workers’ composition and county of origin between 1996 and 2003 led to an identification of a broader area impacted by TPA’s presence and operation. This only partly explains the bigger impacts of this study compared to FY 1996.

¹⁹ Joseph S. DeSalvo, “*Hillsborough County Aviation Authority: Economic Impact,*” Center for Economic Management and Research, University of South Florida, 1997.



The two studies also differ in the underlying structures of the respective I/O models employed. Although the same I/O model was used, namely the IMPLAN I/O model, changes in the underlying data structure make the comparison of the two studies somewhat challenging. First, the economy changed from 1996, not only in nominal terms, but also in real terms. For example, the 1997 analysis was based on the IMPLAN 1996 base data set, which had estimates of per-worker average labor productivity, which are different from the 2002 base dataset used in this study. Second, the 1996 base dataset was obtained using the Standard Industrial Classification code (SIC) which has been now replaced by the North American Industry Classification System (NAICS), as defined by the Bureau of Economic Analysis. The conversion to the NAICS system makes the current data set not comparable to any earlier data. There is no direct correspondence between the SIC and NAICS systems. For example, sectors with similar sounding names, such as Electronic Computers, are not comparable. Furthermore, the change in classification produces a completely different set of multipliers between the two models.

The 2005 study includes a section dedicated to the estimation of the economic impact of the Capital Improvement Program, and a section relative to the impact estimation of imports and exports which provide a more inclusive assessment of TPA contribution in fostering economic growth in the impact area.

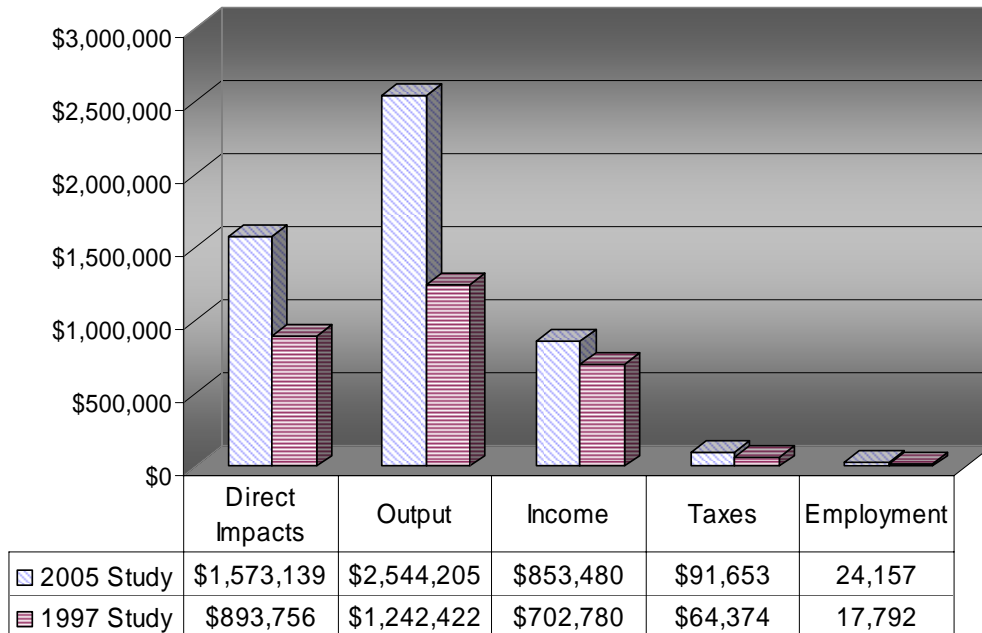
A somewhat heuristic approach to comparing the impacts of the two studies is to convert the total impacts of FY 1996, measured in 1996 dollars, into FY 2004 dollars. Figure 5 displays the result of this comparison.

The estimated total impact of TPA of FY 2003 is \$2.54 billion while the FY 1996 impact was \$1.24 billion (in 2004 dollars), as measured in terms of total output. The comparison, though, is between two different impact areas.



Figure 5

Comparison between 1997 and 2004 Studies

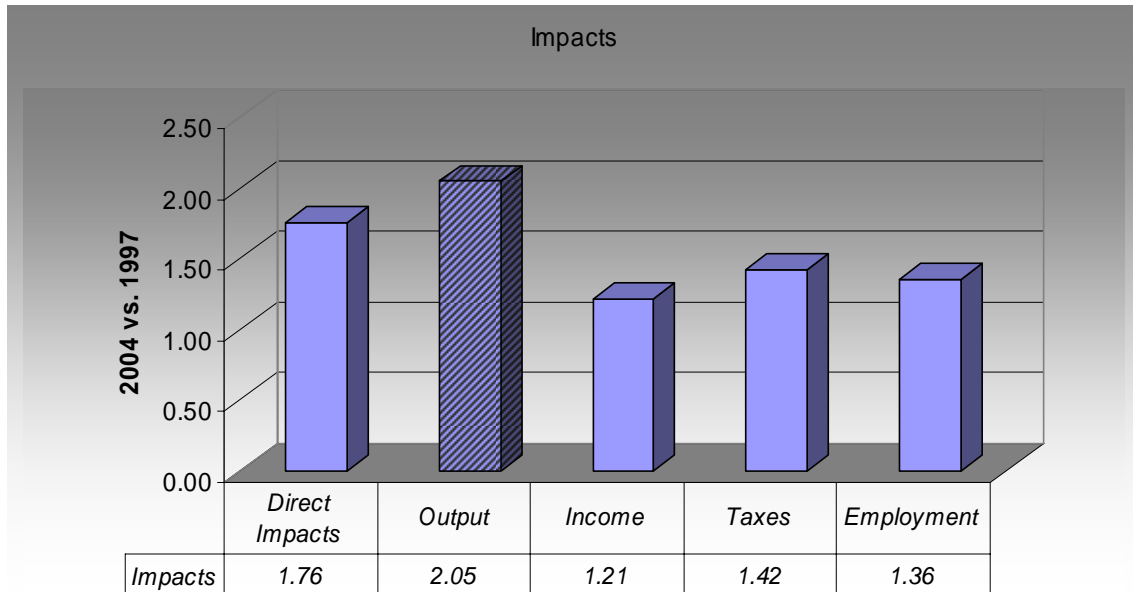


In order to more appropriately compare the results of the two studies, the three-county area was rescaled to account solely for Hillsborough County. Figure 6 shows the results of this comparison.

The economic impact of FY 2003 is almost two times that of 1996 (expressed in 2004 dollars), as measured in total output. The impact on income increased slightly with respect to FY 1996. This can be partially explained by the difference in direct impacts of airline operations between the two studies, as described in the previous sections.



Figure 6
Comparison between 1997 and 2004 Studies



Although, as mentioned above, a comparison between the two studies is rendered difficult by structural differences in the base year datasets. Nonetheless, the results are indicative of the growth experienced by the area in the last seven years, and of TPA's strong contribution.

The increase in impacts on total output between FY 1996 and FY 2003 represents a compounded annual growth rate of 10.8 percent, which reflects the strong growth in activity and capital development at TPA during this period.



Impacts Aggregation with Hillsborough County GA Airport Studies

CUTR reviewed economic impact studies for Peter O. Knight Airport, Plant City Airport, and Vandenberg Airports that were completed in 2004 by HNTB, a multi-disciplinary consulting firm. The review was conducted in order to produce, if warranted, a single metric of the economic impact of ALL airports operated by the Authority.

Table 15 summarizes the impacts by airport, with all the dollar figures stated in FY 2004.

Table 15

Impacts by Other Airports

<i>Airport</i>	<i>Impact</i>			<i>Study Base</i>
	<i>Output*</i>	<i>Income*</i>	<i>Employment</i>	<i>Year</i>
Plant City	\$3,175,922	\$1,277,169	71	2001
Peter O. Knight	\$7,974,762	\$2,744,532	132	2001
Vanderberg	\$11,289,876	\$4,685,574	212	2001
Total	\$22,440,559	\$8,707,274	415	

* All figures inflated to FY 2004 dollars

Source: Airport Master Plan Update, 2001

Because the research methodology employed by HNTB differs so significantly from the CUTR approach applied at TPA, it is neither professionally appropriate nor methodologically reasonable to simply sum the totals to produce a total economic impact for the Authority for FY 2003.



However, an approximation of the total economic impact of the Authority can be estimated by utilizing the product of this research and a conclusion reached in the 1997 study.

The 1997 study concluded that the economic impacts of the Tampa International Airport represented approximately 99 percent of the total economic impacts of the Hillsborough County Aviation Authority.

Therefore, given TPA's economic impact of \$2.54 billion, the total economic impact of the Authority is estimated at \$2.56 billion.



Appendix A – Input Output Tables



Input Output Tables

Industry	Sector Name	Total Impacts			
		Direct*			
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
1	Oilseed farming	0	0	0	0
2	Grain farming	0	115	20	0
3	Vegetable and melon farming	0	772,028	176,174	7.5
4	Tree nut farming	0	0	0	0
5	Fruit farming	0	519,545	134,351	8.2
6	Greenhouse and nursery production	0	467,252	203,629	6.7
7	Tobacco farming	0	0	0	0
8	Cotton farming	0	0	0	0
9	Sugarcane and sugar beet farming	0	0	0	0
10	All other crop farming	0	5,157	956	0.1
11	Cattle ranching and farming	0	311,953	11,446	3.1
12	Poultry and egg production	0	86,219	12,850	0.2
13	Animal production- except cattle and poultry and e	0	355,464	35,469	9.7
14	Logging	0	25,168	4,194	0.1
15	Forest nurseries- forest products- and timber trac	0	97	9	0
16	Fishing	0	0	0	0
17	Hunting and trapping	0	68,958	11,637	0.7
18	Agriculture and forestry support activities	0	187,188	152,971	7.4
19	Oil and gas extraction	0	1,092,597	253,148	22.8
20	Coal mining	0	0	0	0
21	Iron ore mining	0	0	0	0
22	Copper- nickel- lead- and zinc mining	0	0	0	0
23	Gold- silver- and other metal ore mining	0	0	0	0
24	Stone mining and quarrying	0	695	231	0
25	Sand- gravel- clay- and refractory mining	0	443	176	0
26	Other nonmetallic mineral mining	0	15,137	5,087	0.1
27	Drilling oil and gas wells	0	132	41	0
28	Support activities for oil and gas operations	0	409	215	0
29	Support activities for other mining	0	2	0	0
30	Power generation and supply	0	26,660,212	5,607,973	54.3
31	Natural gas distribution	0	888,467	113,226	1.8
32	Water- sewage and other systems	0	594,815	277,567	7.6
33	New residential 1-unit structures- nonfarm	0	0	0	0
34	New multifamily housing structures- nonfarm	0	0	0	0
35	New residential additions and alterations- nonfarm	0	0	0	0
36	New farm housing units and additions and alteratio	0	0	0	0
37	Manufacturing and industrial buildings	0	0	0	0
38	Commercial and institutional buildings	91,086,184	91,086,184	43,063,200	1138.7
39	Highway- street- bridge- and tunnel construction	10,120,687	10,120,687	4,439,144	115.3
40	Water- sewer- and pipeline construction	0	0	0	0
41	Other new construction	7,690,373	7,690,373	3,393,082	87.1
42	Maintenance and repair of farm and nonfarm residen	0	1,177,778	299,166	8
43	Maintenance and repair of nonresidential buildings	1,120,459	9,568,385	4,575,315	121.4
44	Maintenance and repair of highways- streets- bridg	0	0	0	0
45	Other maintenance and repair construction	0	2,782,017	1,328,110	33.6
46	Dog and cat food manufacturing	0	0	0	0
47	Other animal food manufacturing	0	2,263	161	0
48	Flour milling	0	31,411	5,227	0.1
49	Rice milling	0	0	0	0
50	Malt manufacturing	0	0	0	0
51	Wet corn milling	0	0	0	0
52	Soybean processing	0	0	0	0
53	Other oilseed processing	0	0	0	0
54	Fats and oils refining and blending	0	0	0	0
55	Breakfast cereal manufacturing	0	0	0	0



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Industry	Sector Name	Direct*	Total Impacts		
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
56	Sugar manufacturing	0	0	0	0
57	Confectionery manufacturing from cacao beans	0	0	0	0
58	Confectionery manufacturing from purchased cocoa	0	3,023	570	0
59	Nonchocolate confectionery manufacturing	0	40,980	6,496	0.2
60	Frozen food manufacturing	0	69,451	13,846	0.3
61	Fruit and vegetable canning and drying	0	118,893	17,161	0.3
62	Fluid milk manufacturing	0	564,174	66,305	1.3
63	Creamery butter manufacturing	0	0	0	0
64	Cheese manufacturing	0	337,654	25,598	0.6
65	Dry- condensed- and evaporated dairy products	0	184,532	13,624	0.4
66	Ice cream and frozen dessert manufacturing	0	1,164,681	165,723	3.3
67	Animal- except poultry- slaughtering	0	624,637	65,616	1.7
68	Meat processed from carcasses	0	1,787,611	303,853	7.7
69	Rendering and meat byproduct processing	0	28,065	6,063	0.1
70	Poultry processing	0	8,952	1,761	0.1
71	Seafood product preparation and packaging	0	1,535,431	278,302	7.4
72	Frozen cakes and other pastries manufacturing	0	0	0	0
73	Bread and bakery product- except frozen- manufactu	0	1,329,732	393,288	12.7
74	Cookie and cracker manufacturing	0	1,047,346	141,456	4.2
75	Mixes and dough made from purchased flour	0	0	0	0
76	Dry pasta manufacturing	0	2,383	522	0
77	Tortilla manufacturing	0	0	0	0
78	Roasted nuts and peanut butter manufacturing	0	7,539	433	0
79	Other snack food manufacturing	0	480,542	63,404	1.4
80	Coffee and tea manufacturing	0	379,226	13,199	0.7
81	Flavoring syrup and concentrate manufacturing	0	4,663	716	0
82	Mayonnaise- dressing- and sauce manufacturing	0	0	0	0
83	Spice and extract manufacturing	0	313,908	54,111	0.9
84	All other food manufacturing	0	87,258	9,244	0.3
85	Soft drink and ice manufacturing	0	289,605	65,734	0.9
86	Breweries	0	44,214	6,561	0.1
87	Wineries	0	0	0	0
88	Distilleries	0	0	0	0
89	Tobacco stemming and redrying	0	0	0	0
90	Cigarette manufacturing	0	0	0	0
91	Other tobacco product manufacturing	0	226,746	32,842	0.8
92	Fiber- yarn- and thread mills	0	133	13	0
93	Broadwoven fabric mills	0	1,443	335	0
94	Narrow fabric mills and schiffli embroidery	0	364	133	0
95	Nonwoven fabric mills	0	2,380	193	0
96	Knit fabric mills	0	0	0	0
97	Textile and fabric finishing mills	0	14,482	2,435	0.1
98	Fabric coating mills	0	3,927	829	0
99	Carpet and rug mills	0	270	52	0
100	Curtain and linen mills	0	5,785	1,169	0
101	Textile bag and canvas mills	0	8,451	2,618	0.1
102	Tire cord and tire fabric mills	0	0	0	0
103	Other miscellaneous textile product mills	0	12,020	2,555	0.1
104	Sheer hosiery mills	0	0	0	0
105	Other hosiery and sock mills	0	0	0	0
106	Other apparel knitting mills	0	0	0	0
107	Cut and sew apparel manufacturing	0	1,158,877	315,379	9
108	Accessories and other apparel manufacturing	0	9,455	3,095	0.1
109	Leather and hide tanning and finishing	0	6,093	496	0
110	Footwear manufacturing	0	512	117	0



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Industry	Sector Name	Direct*	Total Impacts		
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
111	Other leather product manufacturing	0	42,001	17,654	0.7
112	Sawmills	0	98,958	18,495	0.5
113	Wood preservation	0	320,105	40,472	0.9
114	Reconstituted wood product manufacturing	0	8,452	1,539	0
115	Veneer and plywood manufacturing	0	0	0	0
116	Engineered wood member and truss manufacturing	0	378,178	105,300	3.2
117	Wood windows and door manufacturing	0	772,367	207,545	5.3
118	Cut stock- resawing lumber- and planing	0	0	0	0
119	Other millwork- including flooring	0	197,019	79,050	2.2
120	Wood container and pallet manufacturing	0	87,299	32,950	1.1
121	Manufactured home- mobile home- manufacturing	0	0	0	0
122	Prefabricated wood building manufacturing	0	41	10	0
123	Miscellaneous wood product manufacturing	0	63,300	10,860	0.5
124	Pulp mills	0	0	0	0
125	Paper and paperboard mills	0	142	24	0
126	Paperboard container manufacturing	0	59,594	14,141	0.3
127	Flexible packaging foil manufacturing	0	0	0	0
128	Surface-coated paperboard manufacturing	0	0	0	0
129	Coated and laminated paper and packaging materials	0	18,565	3,648	0.1
130	Coated and uncoated paper bag manufacturing	0	3,324	855	0
131	Die-cut paper office supplies manufacturing	0	1,856	512	0
132	Envelope manufacturing	0	81	-442	0
133	Stationery and related product manufacturing	0	1,770	254	0
134	Sanitary paper product manufacturing	0	0	0	0
135	All other converted paper product manufacturing	0	880	227	0
136	Manifold business forms printing	0	403,450	129,258	2.6
137	Books printing	0	6,190	2,397	0
138	Blankbook and looseleaf binder manufacturing	0	0	0	0
139	Commercial printing	0	4,570,042	1,520,754	36.9
140	Tradebinding and related work	0	4,256	1,745	0.1
141	Prepress services	0	68,025	48,801	0.9
142	Petroleum refineries	0	1,525,320	35,721	0.6
143	Asphalt paving mixture and block manufacturing	0	408,421	58,579	0.9
144	Asphalt shingle and coating materials manufacturin	0	676,082	117,903	1.8
145	Petroleum lubricating oil and grease manufacturing	0	879,274	64,869	1.6
146	All other petroleum and coal products manufacturin	0	0	0	0
147	Petrochemical manufacturing	0	570,627	58,371	1.1
148	Industrial gas manufacturing	0	456	204	0
149	Synthetic dye and pigment manufacturing	0	4,398	945	0
150	Other basic inorganic chemical manufacturing	0	47,307	8,949	0.1
151	Other basic organic chemical manufacturing	0	56,963	2,063	0
152	Plastics material and resin manufacturing	0	28,410	1,509	0
153	Synthetic rubber manufacturing	0	31,004	3,768	0.1
154	Cellulosic organic fiber manufacturing	0	17	6	0
155	Noncellulosic organic fiber manufacturing	0	425	55	0
156	Nitrogenous fertilizer manufacturing	0	33,018	7,554	0.1
157	Phosphatic fertilizer manufacturing	0	164,347	30,108	0.3
158	Fertilizer- mixing only- manufacturing	0	11,115	1,465	0
159	Pesticide and other agricultural chemical manufact	0	15,691	3,329	0
160	Pharmaceutical and medicine manufacturing	0	3,596,482	458,871	7.9
161	Paint and coating manufacturing	0	9,097	1,378	0
162	Adhesive manufacturing	0	74,402	18,499	0.2
163	Soap and other detergent manufacturing	0	135,192	11,534	0.3
164	Polish and other sanitation good manufacturing	0	383,225	88,711	1.6
165	Surface active agent manufacturing	0	0	0	0



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Industry	Sector Name	Direct*	Total Impacts		
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
166	Toilet preparation manufacturing	0	496,637	66,924	1
167	Printing ink manufacturing	0	30,109	6,397	0.1
168	Explosives manufacturing	0	191	23	0
169	Custom compounding of purchased resins	0	95,198	14,743	0.3
170	Photographic film and chemical manufacturing	0	29,789	4,428	0.1
171	Other miscellaneous chemical product manufacturing	0	49,384	7,500	0.2
172	Plastics packaging materials- film and sheet	0	823,902	125,823	2.7
173	Plastics pipe- fittings- and profile shapes	0	869,888	244,226	4.4
174	Laminated plastics plate- sheet- and shapes	0	116,248	58,138	1.2
175	Plastics bottle manufacturing	0	47,089	9,637	0.2
176	Resilient floor covering manufacturing	0	0	0	0
177	Plastics plumbing fixtures and all other plastics	0	1,418,404	288,163	7.1
178	Foam product manufacturing	0	1,596,294	287,213	7
179	Tire manufacturing	0	1,559	391	0
180	Rubber and plastics hose and belting manufacturing	0	97	28	0
181	Other rubber product manufacturing	0	28,784	7,327	0.2
182	Vitreous china plumbing fixture manufacturing	0	842	348	0
183	Vitreous china and earthenware articles manufactur	0	75	37	0
184	Porcelain electrical supply manufacturing	0	0	0	0
185	Brick and structural clay tile manufacturing	0	375	123	0
186	Ceramic wall and floor tile manufacturing	0	0	0	0
187	Nonclay refractory manufacturing	0	22	7	0
188	Clay refractory and other structural clay products	0	27	9	0
189	Glass container manufacturing	0	14,514	4,051	0.1
190	Glass and glass products- except glass containers	0	378,592	103,610	2.5
191	Cement manufacturing	0	321	46	0
192	Ready-mix concrete manufacturing	0	4,047	1097	0
193	Concrete block and brick manufacturing	0	587	119	0
194	Concrete pipe manufacturing	0	2,234	356	0
195	Other concrete product manufacturing	0	4,830	1,535	0
196	Lime manufacturing	0	0	0	0
197	Gypsum product manufacturing	0	3,693	863	0
198	Abrasive product manufacturing	0	1,327	209	0
199	Cut stone and stone product manufacturing	0	484	174	0
200	Ground or treated minerals and earths manufacturin	0	0	0	0
201	Mineral wool manufacturing	0	442	104	0
202	Miscellaneous nonmetallic mineral products	0	1030	307	0
203	Iron and steel mills	0	9,819	1,404	0
204	Ferroalloy and related product manufacturing	0	0	0	0
205	Iron- steel pipe and tube from purchased steel	0	4,999	1183	0
206	Rolled steel shape manufacturing	0	7,970	2,488	0
207	Steel wire drawing	0	1,305	78	0
208	Alumina refining	0	0	0	0
209	Primary aluminum production	0	892	92	0
210	Secondary smelting and alloying of aluminum	0	0	0	0
211	Aluminum sheet- plate- and foil manufacturing	0	2,875	168	0
212	Aluminum extruded product manufacturing	0	12,940	2,932	0.1
213	Other aluminum rolling and drawing	0	230	52	0
214	Primary smelting and refining of copper	0	0	0	0
215	Primary nonferrous metal- except copper and alumin	0	0	0	0
216	Copper rolling- drawing- and extruding	0	0	0	0
217	Copper wire- except mechanical- drawing	0	0	0	0
218	Secondary processing of copper	0	0	0	0
219	Nonferrous metal- except copper and aluminum- shap	0	30,368	4,871	0.1
220	Secondary processing of other nonferrous	0	3,253	588	0



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Industry	Sector Name	Direct*	Total Impacts		
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
221	Ferrous metal foundries	0	335	110	0
222	Aluminum foundries	0	5,663	1,542	0
223	Nonferrous foundries- except aluminum	0	4,069	809	0
224	Iron and steel forging	0	2,927	848	0
225	Nonferrous forging	0	0	0	0
226	Custom roll forming	0	33,139	2,508	0
227	All other forging and stamping	0	37,607	10,485	0.2
228	Cutlery and flatware- except precious- manufacturi	0	25,930	6,766	0.1
229	Hand and edge tool manufacturing	0	146,836	42,568	1
230	Saw blade and handsaw manufacturing	0	59,926	15,614	0.3
231	Kitchen utensil- pot- and pan manufacturing	0	0	0	0
232	Prefabricated metal buildings and components	0	9,156	2,090	0.1
233	Fabricated structural metal manufacturing	0	24,772	5,992	0.1
234	Plate work manufacturing	0	2,889	1,318	0
235	Metal window and door manufacturing	0	68,912	20,235	0.5
236	Sheet metal work manufacturing	0	27,031	7,347	0.2
237	Ornamental and architectural metal work manufactur	0	22,993	7,718	0.2
238	Power boiler and heat exchanger manufacturing	0	0	0	0
239	Metal tank- heavy gauge- manufacturing	0	4,449	1,257	0
240	Metal can- box- and other container manufacturing	0	58,675	12,052	0.2
241	Hardware manufacturing	0	89,506	14,851	0.4
242	Spring and wire product manufacturing	0	70,537	25,419	0.5
243	Machine shops	0	723,264	261,348	6.7
244	Turned product and screw- nut- and bolt manufactur	0	96,515	24,013	0.6
245	Metal heat treating	0	31,721	9,326	0.1
246	Metal coating and nonprecious engraving	0	89,192	18,961	0.5
247	Electroplating- anodizing- and coloring metal	0	58,364	29,506	0.8
248	Metal valve manufacturing	0	217,872	60,124	1
249	Ball and roller bearing manufacturing	0	4,125	2,011	0
250	Small arms manufacturing	0	0	0	0
251	Other ordnance and accessories manufacturing	0	0	0	0
252	Fabricated pipe and pipe fitting manufacturing	0	21,761	8,016	0.2
253	Industrial pattern manufacturing	0	184	102	0
254	Enameled iron and metal sanitary ware manufacturin	0	0	0	0
255	Miscellaneous fabricated metal product manufacturi	0	2,000	360	0
256	Ammunition manufacturing	0	2	1	0
257	Farm machinery and equipment manufacturing	0	31,314	5,020	0.1
258	Lawn and garden equipment manufacturing	0	0	0	0
259	Construction machinery manufacturing	0	1,858	246	0
260	Mining machinery and equipment manufacturing	0	0	0	0
261	Oil and gas field machinery and equipment	0	0	0	0
262	Sawmill and woodworking machinery	0	10,378	3,530	0.1
263	Plastics and rubber industry machinery	0	46,526	12,694	0.2
264	Paper industry machinery manufacturing	0	0	0	0
265	Textile machinery manufacturing	0	62	17	0
266	Printing machinery and equipment manufacturing	0	10,511	3,038	0
267	Food product machinery manufacturing	0	66,328	20,091	0.4
268	Semiconductor machinery manufacturing	0	10,383	2,376	0
269	All other industrial machinery manufacturing	0	62,239	13,788	0.2
270	Office machinery manufacturing	0	32,801	7,695	0.1
271	Optical instrument and lens manufacturing	0	22,521	8,682	0.1
272	Photographic and photocopying equipment manufactur	0	34,032	8,977	0.2
273	Other commercial and service industry machinery ma	0	467,966	163,803	2
274	Automatic vending- commercial laundry and dryclean	0	27,740	7,466	0.1
275	Air purification equipment manufacturing	0	83	34	0



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Industry	Sector Name	Direct*	Total Impacts		
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
276	Industrial and commercial fan and blower manufactu	0	0	0	0
277	Heating equipment- except warm air furnaces	0	25	6	0
278	AC- refrigeration- and forced air heating	0	1361	260	0
279	Industrial mold manufacturing	0	11,380	4,951	0.1
280	Metal cutting machine tool manufacturing	0	8,332	3,238	0.1
281	Metal forming machine tool manufacturing	0	6,367	2,448	0
282	Special tool- die- jig- and fixture manufacturing	0	14,801	8,196	0.2
283	Cutting tool and machine tool accessory manufactur	0	277,213	82,033	1.9
284	Rolling mill and other metalworking machinery	0	7,012	1,597	0
285	Turbine and turbine generator set units manufactur	0	62,635	11,287	0.1
286	Other engine equipment manufacturing	0	69,438	7,053	0.2
287	Speed changers and mechanical power transmission e	0	17,132	4,000	0.1
288	Pump and pumping equipment manufacturing	0	26,009	5,877	0.1
289	Air and gas compressor manufacturing	0	2,986	883	0
290	Measuring and dispensing pump manufacturing	0	0	0	0
291	Elevator and moving stairway manufacturing	0	0	0	0
292	Conveyor and conveying equipment manufacturing	0	3,900	1058	0
293	Overhead cranes- hoists- and monorail systems	0	2,193	426	0
294	Industrial truck- trailer- and stacker manufacturi	0	908	114	0
295	Power-driven handtool manufacturing	0	3,342	1047	0
296	Welding and soldering equipment manufacturing	0	12,796	2,330	0.1
297	Packaging machinery manufacturing	0	79,000	23,062	0.4
298	Industrial process furnace and oven manufacturing	0	110	41	0
299	Fluid power cylinder and actuator manufacturing	0	256	74	0
300	Fluid power pump and motor manufacturing	0	0	0	0
301	Scales- balances- and miscellaneous general purpos	0	4,879	1,354	0
302	Electronic computer manufacturing	0	430,035	78,188	1.1
303	Computer storage device manufacturing	0	49,477	12,358	0.2
304	Computer terminal manufacturing	0	36,185	11,301	0.3
305	Other computer peripheral equipment manufacturing	0	771,751	239,426	2.9
306	Telephone apparatus manufacturing	0	188,864	41,181	0.5
307	Broadcast and wireless communications equipment	897,130	1,002,261	174,028	2.9
308	Other communications equipment manufacturing	0	201,086	85,043	1
309	Audio and video equipment manufacturing	22,173,810	22,174,378	4,389,256	123.2
310	Electron tube manufacturing	0	0	0	0
311	Semiconductors and related device manufacturing	0	114,713	30,302	0.7
312	All other electronic component manufacturing	0	2,048,004	667,947	11.8
313	Electromedical apparatus manufacturing	0	238,653	51,460	0.9
314	Search- detection- and navigation instruments	413,370	611,483	208,069	2.9
315	Automatic environmental control manufacturing	0	74,044	36,225	0.8
316	Industrial process variable instruments	0	13,316	7,073	0.1
317	Totalizing fluid meters and counting devices	0	86,572	11,312	0.3
318	Electricity and signal testing instruments	0	17,567	5,593	0.1
319	Analytical laboratory instrument manufacturing	0	0	0	0
320	Irradiation apparatus manufacturing	0	8,987	1,262	0
321	Watch- clock- and other measuring and controlling	0	10,637	3,264	0.1
322	Software reproducing	0	29,536	15,057	0.3
323	Audio and video media reproduction	0	244,444	61,795	1.3
324	Magnetic and optical recording media manufacturing	0	0	0	0
325	Electric lamp bulb and part manufacturing	0	230	69	0
326	Lighting fixture manufacturing	0	4,579	1110	0
327	Electric housewares and household fan manufacturin	0	443	150	0
328	Household vacuum cleaner manufacturing	0	58	6	0
329	Household cooking appliance manufacturing	0	0	0	0
330	Household refrigerator and home freezer manufactur	0	0	0	0



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Industry	Sector Name	Direct*	Total Impacts		
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
331	Household laundry equipment manufacturing	0	0	0	0
332	Other major household appliance manufacturing	0	213	31	0
333	Electric power and specialty transformer manufactu	0	44,914	13,594	0.3
334	Motor and generator manufacturing	0	27,242	8,918	0.2
335	Switchgear and switchboard apparatus manufacturing	0	9,905	2,999	0
336	Relay and industrial control manufacturing	0	56,028	15,089	0.3
337	Storage battery manufacturing	0	227,744	71,887	1.1
338	Primary battery manufacturing	0	2,508	637	0
339	Fiber optic cable manufacturing	0	63,804	19,938	0.4
340	Other communication and energy wire manufacturing	0	0	0	0
341	Wiring device manufacturing	0	22,881	7,384	0.2
342	Carbon and graphite product manufacturing	0	45,312	11,384	0.2
343	Miscellaneous electrical equipment manufacturing	0	85,044	16,167	0.3
344	Automobile and light truck manufacturing	0	17,751	689	0
345	Heavy duty truck manufacturing	0	590	61	0
346	Motor vehicle body manufacturing	0	53,132	13,729	0.4
347	Truck trailer manufacturing	0	373	10	0
348	Motor home manufacturing	0	0	0	0
349	Travel trailer and camper manufacturing	0	104,182	15,109	0.7
350	Motor vehicle parts manufacturing	0	3,426,337	0	37.4
351	Aircraft manufacturing	0	3,382	138	0
352	Aircraft engine and engine parts manufacturing	0	2,195,958	563,505	9.9
353	Other aircraft parts and equipment	0	637,912	122,733	3.4
354	Guided missile and space vehicle manufacturing	0	0	0	0
355	Propulsion units and parts for space vehicles and	0	0	0	0
356	Railroad rolling stock manufacturing	0	0	0	0
357	Ship building and repairing	0	7,334	3,252	0
358	Boat building	0	18,918	3,940	0.1
359	Motorcycle- bicycle- and parts manufacturing	0	853	105	0
360	Military armored vehicles and tank parts manufactu	0	0	0	0
361	All other transportation equipment manufacturing	0	1,210	15	0
362	Wood kitchen cabinet and countertop manufacturing	0	524,944	196,101	5.8
363	Upholstered household furniture manufacturing	0	99,749	27,187	0.9
364	Nonupholstered wood household furniture manufactur	0	164,740	37,013	1.4
365	Metal household furniture manufacturing	0	56,750	10,512	0.3
366	Institutional furniture manufacturing	0	107,276	23,796	0.9
367	Other household and institutional furniture	0	96,776	23,669	0.9
368	Wood office furniture manufacturing	0	1,747	590	0
369	Custom architectural woodwork and millwork	0	5,813	931	0
370	Office furniture- except wood- manufacturing	0	15,905	2,671	0.1
371	Showcases- partitions- shelving- and lockers	0	299,484	102,297	2.6
372	Mattress manufacturing	0	304,474	79,913	2
373	Blind and shade manufacturing	0	160,916	45,811	1.5
374	Laboratory apparatus and furniture manufacturing	0	0	0	0
375	Surgical and medical instrument manufacturing	0	681,584	280,557	4.4
376	Surgical appliance and supplies manufacturing	0	831,226	224,138	3.4
377	Dental equipment and supplies manufacturing	0	27,478	8,932	0.2
378	Ophthalmic goods manufacturing	0	277,119	137,869	1.9
379	Dental laboratories	0	229,386	161,309	3.2
380	Jewelry and silverware manufacturing	0	3,825	1,364	0
381	Sporting and athletic goods manufacturing	0	19,555	5,265	0.1
382	Doll- toy- and game manufacturing	0	2,341	621	0
383	Office supplies- except paper- manufacturing	0	28,945	12,435	0.2
384	Sign manufacturing	0	801,828	301,082	6.3
385	Gasket- packing- and sealing device manufacturing	0	125	51	0



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Industry	Sector Name	Direct*	Total Impacts		
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
386	Musical instrument manufacturing	0	3,118	1,308	0
387	Broom- brush- and mop manufacturing	0	9,243	2,920	0.1
388	Burial casket manufacturing	0	538	208	0
389	Buttons- pins- and all other miscellaneous manufac	0	226,834	63,217	1.1
390	Wholesale trade	0	56,842,848	22,966,800	391.2
391	Air transportation	351,523,008	356,629,792	95,114,304	1,816.00
392	Rail transportation	0	780,954	78,033	0.9
393	Water transportation	0	1,984,705	291,735	4.2
394	Truck transportation	0	8,351,536	2,575,153	84.4
395	Transit and ground passenger transportation	10,312,027	13,390,753	4,065,614	105.3
396	Pipeline transportation	0	0	0	0
397	Scenic and sightseeing transportation and support	22,066,662	56,818,004	20,509,864	638.1
398	Postal service	0	5,451,358	4,623,035	64.1
399	Couriers and messengers	0	5,129,610	2,088,375	82.5
400	Warehousing and storage	0	2,119,199	1,146,726	31.2
401	Motor vehicle and parts dealers	0	16,958,342	8,042,137	164.9
402	Furniture and home furnishings stores	0	3,926,301	1,681,240	50.5
403	Electronics and appliance stores	0	3,545,703	1,868,057	39.8
404	Building material and garden supply stores	0	7,445,426	3,235,968	104.9
405	Food and beverage stores	1,691,057	14,320,027	6,664,078	317.9
406	Health and personal care stores	0	6,053,181	2,766,836	85.2
407	Gasoline stations	0	3,258,095	1,402,004	55.3
408	Clothing and clothing accessories stores	0	5,393,915	2,206,056	115.6
409	Sporting goods- hobby- book and music stores	0	1,877,974	901,692	44.3
410	General merchandise stores	42,296,320	22,567,008	10,620,223	475.3
411	Miscellaneous store retailers	11,206,572	9,782,412	5,037,081	215.4
412	Nonstore retailers	0	5,693,544	1,913,878	125.5
413	Newspaper publishers	0	7,072,646	2,700,982	71
414	Periodical publishers	0	4,952,246	1,312,155	26.9
415	Book publishers	0	164,487	31,876	0.6
416	Database- directory- and other publishers	0	1,762,460	313,535	6.5
417	Software publishers	0	107,037	27,827	0.4
418	Motion picture and video industries	0	3,797,707	1,067,570	31.2
419	Sound recording industries	0	233,293	35,511	0.9
420	Radio and television broadcasting	0	6,324,033	2,126,339	31.9
421	Cable networks and program distribution	0	778,913	68,183	1.3
422	Telecommunications	0	21,668,382	5,933,863	92.4
423	Information services	0	899,277	342,390	4.9
424	Data processing services	0	2,235,991	1,064,237	12.8
425	Nondepository credit intermediation and related a	0	22,295,844	8,258,539	146.6
426	Securities- commodity contracts- investments	0	14,847,496	5,374,312	146.5
427	Insurance carriers	0	19,474,818	4,990,561	101.3
428	Insurance agencies- brokerages- and related	215,336	5,091,364	2,298,459	46.3
429	Funds- trusts- and other financial vehicles	0	4,373,431	932,029	14.2
430	Monetary authorities and depository credit interme	1,903,188	24,755,458	6,114,918	127.4
431	Real estate	6,450,095	64,987,044	10,306,305	598.5
432	Automotive equipment rental and leasing	202,491,936	207,683,872	34,091,980	941.4
433	Video tape and disc rental	0	355,961	136,175	5.7
434	Machinery and equipment rental and leasing	0	7,328,143	1,069,299	19.4
435	General and consumer goods rental except video tap	0	2,757,925	1,638,818	45.4
436	Lessors of nonfinancial intangible assets	0	8,426,064	401,021	2
437	Legal services	0	19,387,640	11,809,090	178.6
438	Accounting and bookkeeping services	0	8,903,030	6,530,703	126.1
439	Architectural and engineering services	7,023,079	23,314,200	15,002,248	291.2
440	Specialized design services	0	1,604,977	607,404	17.8
441	Custom computer programming services	1,839,345	4,317,379	3,812,466	65.6



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Industry	Sector Name	Direct*	Total Impacts		
		Impact	Output	Income	Employment
		(\$ million)	(\$ million)	(\$ million)	(#)
442	Computer systems design services	0	7,380,837	5,038,170	62
443	Other computer related services- including facilit	0	3,113,935	1,972,087	29.2
444	Management consulting services	0	9,932,499	6,382,050	136.4
445	Environmental and other technical consulting servi	0	1,296,441	616,037	12
446	Scientific research and development services	0	814,829	677,152	12.9
447	Advertising and related services	0	7,880,479	4,133,514	97.1
448	Photographic services	0	349,029	128,333	8.3
449	Veterinary services	0	1,086,102	463,638	17.8
450	All other miscellaneous professional and technical	0	1,798,734	473,132	13.4
451	Management of companies and enterprises	0	20,167,248	9,592,164	124.5
452	Office administrative services	0	5,574,107	1,666,905	34.8
453	Facilities support services	0	54,038	19,532	0.6
454	Employment services	0	12,441,400	9,737,802	376.2
455	Business support services	0	5,045,571	2,422,833	78.3
456	Travel arrangement and reservation services	0	38,986,224	14,474,033	430.3
457	Investigation and security services	2,464,129	5,145,063	3,454,049	139.1
458	Services to buildings and dwellings	6,576,123	12,686,914	10,286,012	387.9
459	Other support services	0	2,462,884	673,836	21.5
460	Waste management and remediation services	1,036,786	3,807,833	1,175,884	27.5
461	Elementary and secondary schools	0	1,766,245	1,224,978	52.3
462	Colleges- universities- and junior colleges	0	2,218,446	1,114,060	41.2
463	Other educational services	0	2,359,461	982,826	34.2
464	Home health care services	0	3,509,379	2,278,261	71.2
465	Offices of physicians- dentists- and other health	0	25,330,736	17,122,058	273.4
466	Other ambulatory health care services	0	7,597,837	2,709,753	61.4
467	Hospitals	0	28,106,736	12,820,568	274.8
468	Nursing and residential care facilities	0	8,103,920	4,634,386	169.8
469	Child day care services	0	2,917,696	1,153,515	76.7
470	Social assistance- except child day care services	0	3,501,410	2,076,623	81.9
471	Performing arts companies	0	1,400,045	694,370	69.7
472	Spectator sports	17,366,728	20,711,556	15,339,276	299.5
473	Independent artists- writers- and performers	0	994,658	217,349	12.5
474	Promoters of performing arts and sports and agents	0	1,151,887	371,454	38.3
475	Museums- historical sites- zoos- and parks	0	369,173	155,863	5.7
476	Fitness and recreational sports centers	0	1,160,577	629,120	36
477	Bowling centers	0	169,123	57,695	3.9
478	Other amusement- gambling- and recreation industri	82,101,424	86,943,232	26,573,754	1,392.80
479	Hotels and motels- including casino hotels	117,787,432	134,088,144	48,631,216	1,816.10
480	Other accommodations	0	710,213	257,615	10.8
481	Food services and drinking places	92,195,864	146,497,328	53,751,852	3,209.50
482	Car washes	0	462,936	250,712	20.2



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Industry	Sector Name	Direct*	Total Impacts		
		Impact (\$ million)	Output (\$ million)	Income (\$ million)	Employment (#)
483	Automotive repair and maintenance- except car wash	0	10,621,823	4,247,021	172.4
484	Electronic equipment repair and maintenance	0	4,671,594	1,594,093	45.5
485	Commercial machinery repair and maintenance	0	6,916,003	2,123,383	70.3
486	Household goods repair and maintenance	0	2,970,434	542,881	22
487	Personal care services	633,362	2,790,414	1,229,000	69
488	Death care services	0	868,541	359,991	14.2
489	Drycleaning and laundry services	0	2,359,455	1,237,435	53.8
490	Other personal services	0	2,986,911	581,676	28.1
491	Religious organizations	0	2,517,966	1,992,946	75.9
492	Grantmaking and giving and social advocacy organiz	0	1,273,752	604,689	13.5
493	Civic- social- professional and similar organizati	0	3,386,258	1,458,614	52.4
494	Private households	0	821,017	821,017	123.3
495	Federal electric utilities	0	0	0	0
496	Other Federal Government enterprises	0	286,327	69,437	1.7
497	State and local government passenger transit	0	655,367	773,858	16.3
498	State and local government electric utilities	0	2,893,259	217,043	3.6
499	Other State and local government enterprises	44,851,257	81,854,400	12,719,124	317.8
500	Noncomparable imports	0	0	0	0
501	Scrap	0	0	0	0
502	Used and secondhand goods	0	0	0	0
503	State & Local Education	0	0	0	0
504	State & Local Non-Education	0	0	0	0
505	Federal Military	0	0	0	0
506	Federal Non-Military	35,276,024	35,276,024	35,276,024	421.6
507	Rest of the world adjustment to final uses	0	0	0	0
508	Inventory valuation adjustment	0	0	0	0
509	Owner-occupied dwellings	0	51,895,324	0	0
25001	Foreign Trade	3,401,678	3,401,678	0	0
28001	Domestic Trade	46,133,712	46,133,712	0	0
Total		\$1,242,281,409	\$2,213,347,430	\$740,905,899	21,783

Note: Import and Exports are treated separately



Appendix B – Input Output Multipliers



Input Output Multipliers

IMPLAN Sector	Industry	Multipliers			
		Output	Labor Income	Labor Income Direct Effects	Employment (per \$ million)
1	Crop Farming	1.70	0.57	0.29	14.25
12	Livestock	1.81	0.35	0.08	12.99
14	Forestry & Logging	1.49	0.35	0.13	4.37
16	Fishing- Hunting & Trapping	1.94	0.86	0.45	24.05
18	Ag & Forestry services	2.12	1.26	0.82	41.51
19	Oil & gas extraction	1.55	0.41	0.23	22.84
20	Mining	1.66	0.60	0.35	5.79
27	Mining services	1.90	0.57	0.20	16.46
30	Utilities	1.36	0.35	0.21	2.34
33	Construction	1.91	0.72	0.35	9.49
46	Food products	1.82	0.44	0.16	4.09
85	Beverage & Tobacco	1.73	0.48	0.20	3.15
92	Textile Mills	1.73	0.45	0.18	7.53
99	Textile Products	1.69	0.51	0.24	9.93
104	Apparel manufacturing	1.63	0.53	0.27	8.07
109	Leather & Allied	1.56	0.60	0.38	16.53
112	Wood Products	1.58	0.50	0.27	7.34
124	Paper Manufacturing	1.72	0.49	0.21	5.05
136	Printing & Related	1.75	0.65	0.35	8.47
142	Petroleum & coal prod	1.48	0.29	0.12	2.09
147	Chemical Manufacturing	1.80	0.46	0.16	2.37
172	Plastics & rubber prod	1.74	0.49	0.22	5.03
183	Nonmetal mineral prod	1.72	0.54	0.26	5.66
203	Primary metal manufacturing	1.75	0.51	0.21	5.05
224	Fabricated metal prod	1.66	0.53	0.26	6.01
257	Machinery manufacturing	1.82	0.60	0.28	4.87
302	Computer & other electron	2.02	0.67	0.28	4.30
325	Electrical equipment & appliances	1.74	0.57	0.28	6.29
344	Transportation equipment	1.63	0.42	0.18	8.45
362	Furniture & related prod	1.76	0.58	0.29	8.69
374	Miscellaneous manufacturing	1.83	0.72	0.39	6.72
390	Wholesale Trade	1.75	0.71	0.40	7.21
391	Air transportation	2.04	0.71	0.27	5.35
392	Rail Transportation	1.39	0.25	0.10	1.19
393	Water transportation	1.98	0.54	0.15	2.17
394	Truck transportation	2.01	0.70	0.31	10.41
395	Transit & ground passengers	2.01	0.70	0.30	8.28
396	Pipeline transportation	2.03	0.62	0.19	1.85
397	Sightseeing transportation	2.02	0.78	0.36	11.77
398	Postal service	2.01	1.25	0.85	12.48
399	Couriers & messengers	1.87	0.76	0.41	16.56
400	Warehousing & storage	1.93	0.90	0.54	15.04
401	Motor vehicles & parts dealers	1.78	0.79	0.47	10.30
402	Furniture & home furnishings	1.76	0.74	0.43	13.64
403	Electronics & appliances stores	1.80	0.85	0.53	11.91
404	Bldg materials & garden dealers	1.70	0.72	0.43	14.93
405	Food & beverage stores	1.77	0.78	0.47	23.52



IMPLAN Sector	Industry	Multipliers			
		Output	Labor Income	Labor Income Direct Effects	Employment (per \$ million)
406	Health & personal care stores	1.79	0.78	0.46	14.92
407	Gasoline stations	1.78	0.75	0.43	17.97
408	Clothing & accessories stores	1.69	0.69	0.41	22.72
409	Sports- hobby- book & music stores	1.75	0.79	0.48	25.00
410	General merchandise stores	1.73	0.77	0.47	22.32
411	Misc retailers	1.85	0.86	0.51	23.33
412	Non-store retailers	1.78	0.65	0.34	23.36
413	Publishing industries	1.86	0.64	0.29	7.00
418	Motion picture & sound recording	2.10	0.69	0.27	8.61
420	Broadcasting	1.69	0.54	0.28	4.45
423	Internet & data process services	2.04	0.89	0.46	5.93
425	Credit intermediation & related	1.76	0.69	0.37	6.81
426	Securities & other financial	2.26	0.87	0.36	10.52
427	Insurance carriers & related	1.94	0.64	0.30	6.51
429	Funds- trusts & other finance	2.44	0.78	0.21	3.36
430	Monetary authorities	1.73	0.54	0.25	5.37
431	Real estate	1.55	0.37	0.16	9.65
432	Rental & leasing services	2.08	0.72	0.29	8.24
436	Lessor of nonfinance intangible assets	1.11	0.09	0.05	0.25
437	Professional- scientific & tech services	1.91	0.99	0.61	12.05
451	Management of companies	1.86	0.83	0.48	6.70
452	Admin support services	2.00	1.10	0.69	27.01
460	Waste mgmt & remediation services	1.90	0.65	0.31	7.42
461	Educational services	1.98	0.88	0.50	20.04
464	Ambulatory health care	1.95	0.98	0.59	11.65
467	Hospitals	2.07	0.88	0.46	10.53
468	Nursing & residential care	1.98	0.96	0.57	21.74
469	Social assistance	1.95	0.87	0.50	26.53
471	Performing arts & spectator sports	2.00	1.06	0.63	21.05
475	Museums & similar	2.32	0.96	0.42	16.14
476	Amusement- gambling & recreation	1.93	0.71	0.34	19.02
479	Accommodations	1.59	0.62	0.39	15.56
481	Food services & drinking places	1.98	0.75	0.39	24.60
482	Repair & maintenance	1.90	0.69	0.34	13.90
487	Personal & laundry services	2.02	0.77	0.38	19.03
491	Religious- grant making- & similar orgs	2.06	1.02	0.60	21.63
494	Private households	1.95	1.38	1.00	154.49
495	Government & non NAICs	1.58	0.67	0.44	9.38



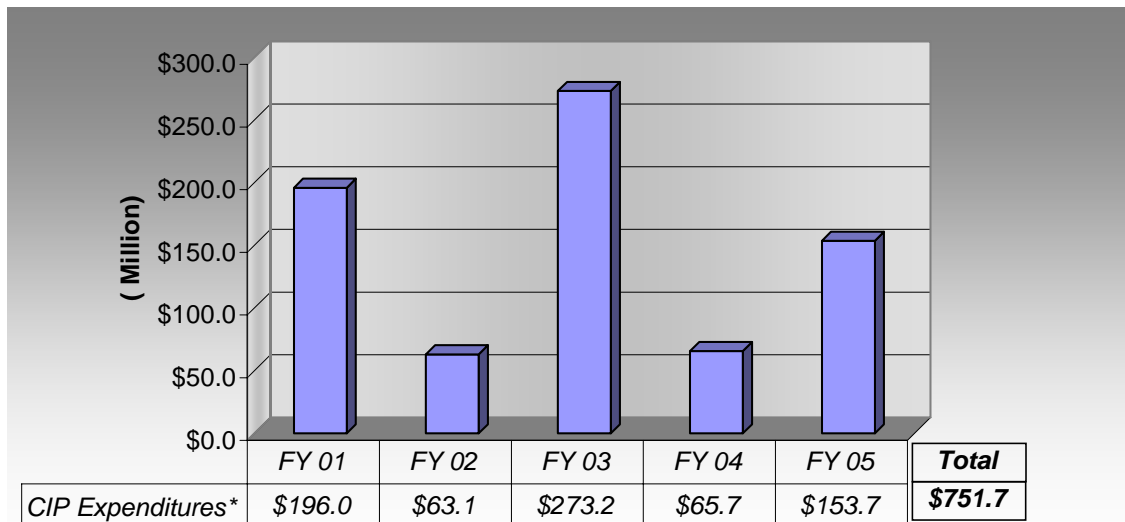
Appendix C – Capital Improvement Program: Cumulative Impact



Capital Improvement Program: Cumulative Impact

In addition to estimating the annualized impact of the CIP, the Authority was interested in considering the cumulative impact of CIP expenditures for the past six years. To satisfy this interest, CUTR estimated the total economic impact of the CIP program from FY 2001 until FY 2005 (projected expenditures). Table C.1 displays the CIP outlays on behalf of the Authority. CIP investments include all money spent by the Authority, inclusive of federal and state funds received to support the ongoing capital investments.

Figure C.7
Capital Improvement Program: Annual Expenditures



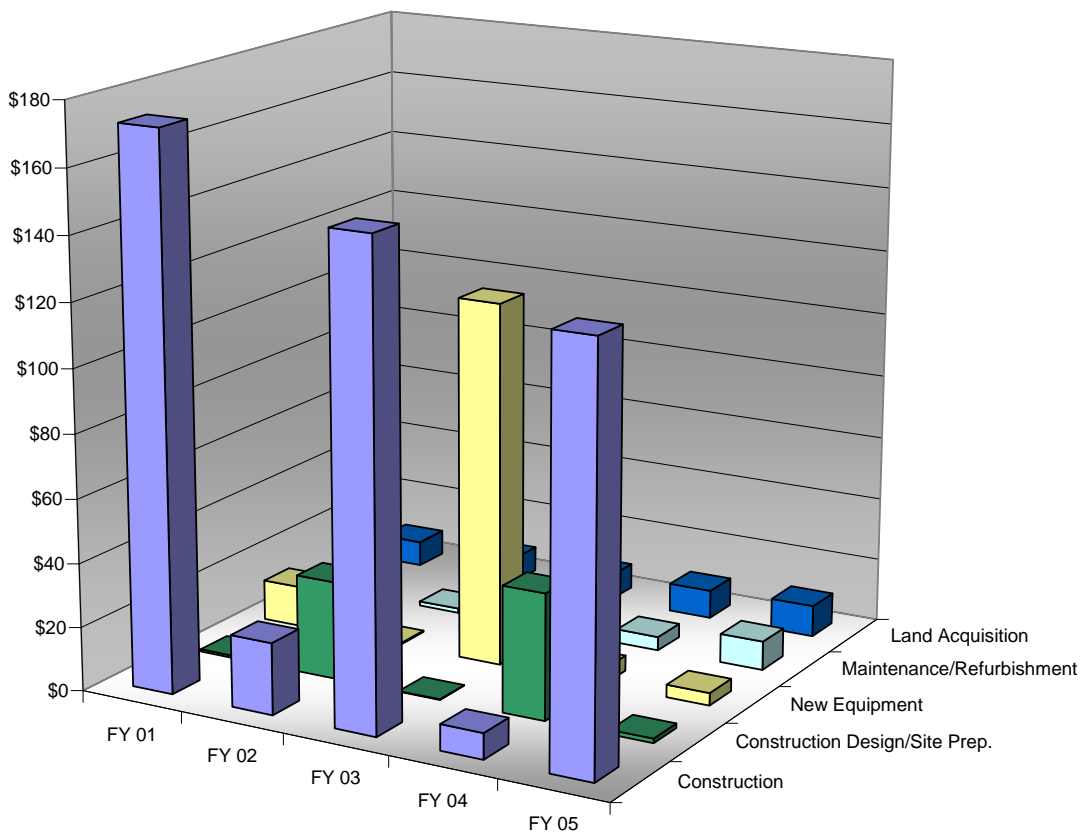
* In current dollars.

The total annual expenditures were further differentiated by type, as reported in Figure C.2, which shows that construction costs (including design and site



preparation, such as demolition of existing structures), as well as the purchase of new capital equipment, tend to vary across the years.

Figure C.2
CIP Expenditures Breakdown by Type



** In current dollars*

Summary of Impacts

Table C.1 summarizes the economic impacts of the Authority's CIP on the 3-county study area. The impact on total output brought about by the CIP expenditures from FY 2001 to FY 2005 approximates \$1.4 billion, inclusive of



indirect and induced effects. CIP total outlays have an impact of 15,067 jobs, with a ratio of 19.8 jobs per \$1 million of CIP expenditures.

Table C.1

Cumulative Total Impacts: Capital Improvement Program

<i>Impact Type</i>	<i>Impact</i>		
	<i>Output</i>	<i>Income</i>	<i>Employment</i>
Direct	\$762,708,267	\$312,068,362	8,117
Indirect	283,423,962	121,358,162	2,950
Induced	370,963,135	131,456,518	4,001
Total	\$1,417,095,364	\$564,883,042	15,067

This ratio, though, does not differentiate the short-term nature of construction related impacts, which represent 64 percent of the CIP direct impacts, from longer lasting impacts related to the operation and maintenance of new facilities. The total impact on labor income is about \$565million, inclusive of indirect and induced impacts.



Appendix D – Input Output Modeling: A Brief Primer



Input Output Modeling: A Brief Primer

Input-output modeling describes commodity flows from producers to intermediate and final consumers. The total industry purchases of commodities, services, employment compensation, value added, and imports is equal to the value of the commodities produced. Purchases for final use (final demand) drive the model. Industries producing goods and services for final demand purchases goods and services from other producers. These other producers, in turn, purchase goods and services. This buying of goods and services (indirect purchases) continues until leakages from the region (imports and value added) stop the cycle.

These indirect and induced effects (the effects of household spending) can be mathematically derived. The derivation is called the Leontief inverse. The resulting sets of multipliers describe the change of output for each and every regional industry caused by a one-dollar change in final demand for any given industry.

How are economic impacts measured?

IMPLAN provides a means to assess economic impacts caused by changes made to the accounting expenditure matrix for the region analyzed. By entering a change, say, in expenditure in one industry sector, the analyst can see how this affects the overall economic structure of the region. The effects are measured in terms of the same metric used to express the elements composing the original database matrix.

The changes are measured in terms of:

- Industry Output
- Employment
- Value Added
- Final Demands



Industry output is a single number in dollars, or million of dollars, for each industry present in the region. The dollars represent the value of an industry's production.

Employment is listed as a single number of jobs for each industry. Data is usually derived from the ES202 employment security data supplemented by count business patterns and REIS data. It includes both temporary and permanent jobs.

Value added. There are four sub-components of value-added. These are:

1. Employee Compensation
2. Proprietary Income
3. Other Property Type Income
4. Indirect Business Taxes

Employee compensation describes the total payroll costs (including benefits) of each industry in the region. It includes the wages and salaries of workers paid by employers, as well as benefits such as health insurance and life insurance, etc.

Proprietary income consists of payments received by self-employed individuals as income. Other type of income consists of payments for rents, royalties, and dividends.

Indirect business taxes consist of excise taxes, property taxes, fees, licenses and taxes paid by businesses.



What is IMPLAN?

IMPLAN Professional is an economic impact assessment software system. IMPLAN is designed and sold by the Minnesota Implan Group, Inc (MIG). IMPLAN, combined with MIG databases, allows the user to develop local level input-output models that can estimate the economic impact of new firms moving into an area, professional sports teams, recreation and tourism, and many more activities.

Creating regional input-output model requires a tremendous amount of data. The costs of surveying industries within each region to derive a list of commodity purchases (production functions) are prohibitive. IMPLAN was developed as a cost-effective means to develop regional input-output models. The IMPLAN accounts closely follow the accounting conventions used in the "Input-Output Study of the U.S. Economy" by the Bureau of Economic Analysis (1980) and the rectangular format recommended by the United Nations.

The IMPLAN system was designed to serve three functions: 1) data retrieval, 2) data reduction and model development, and 3) impact analysis. Comprehensive and detailed data coverage of the entire U.S. by county, and the ability to incorporate user-supplied data at each stage of the model building process, provides a high degree of flexibility both in terms of geographic coverage and model formulation. IMPLAN databases combined with the IMPLAN Professional software system allow the user to develop local level input-output models that can estimate the economic impact of new firms moving into an area, professional sports teams, recreation and tourism, and many other activities. The data and software also generates a complete set of social accounting matrices for advanced CGE and tax analysis.



Appendix E – Survey of Tenants



TAMPA INTERNATIONAL AIRPORT Economic Impact Study

Airport Tenants Survey

The Hillsborough County Aviation Authority, in cooperation with the Center for Urban Transportation Research at the University of South Florida, is conducting an Economic Impact Study of the Tampa International Airport, and we need your help.

This airport tenant survey is intended to acquire information that will help us better understand the economic links between aviation-dependent businesses and the greater Tampa Bay area.

Your responses will remain strictly confidential and only summary data will be included in the final report.

Thank you for taking the time to respond to our survey.

Louis Miller, Executive Director
Tampa International Airport



I. BUSINESS ACTIVITY

Please check each of the main activities that applies to your business at the airport.

- Certified Passenger Airline
- Certified Cargo Airline
- Air Taxi
- Aircraft Leasing or Rental
- Aircraft Maintenance
- Sales of Aviation Gasoline/Jet Fuel
- Agricultural Spraying
- Rental Cars
- Retail Apparel and Accessories
- Miscellaneous Retail (e.g., gift store, florist, etc.)
- Hotel and Lodging
- Food and Drinking
- Arrangement of Passenger Transportation
- Services to Buildings (e.g. janitorial, etc.)
- Beauty, Barber Shops, and Other Personal Services
- Banking
- Transportation Services (Please Identify _____)
- Federal Government Agency (Please Indicate if Military Non-Military)
- State and Local Government
- Other (Please Identify _____)

II. EMPLOYMENT

How many employment positions did your business have at the airport in 2003?

Full-time positions _____

Part-time positions _____



III. EXPENSES

1. Please report your total 2003 payroll expense \$ _____
2. Please report how much tax (sales, property, etc.) your business at the airport paid in 2003.
\$ _____ state taxes \$ _____ local taxes
3. Please report annual operating expenses (excluding payroll, taxes, and capital improvements) for 2003.
\$ _____ in operating expenses

IV. GROSS SALES

Please report your business' total gross sales at the airport in 2003

\$ _____ gross sales

Please return your completed questionnaire prior to November 1, 2004. A self-addressed envelope is included for your convenience.

Alternatively, you may fax your completed survey to Maryemma Bachelder at 813-926-2962.

If you have any questions or concerns please contact Michael Audino at 813-974-3275.

Thank You for Your Cooperation.



Appendix F – Tenants List



<u>Company Name</u>	<u>Responded to Survey?</u>	<u>Details</u>
ABX Air, Inc.	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees
ADS Telecom	N	N/A
Aeronautical Radio, Inc.	N	N/A
Academy of Hospitality	N	N/A
Air Canada	N	No response to follow-up call or e-mail
Air General, Inc.	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees Returned survey on 12/1 in response to follow-up call; also provided us with their # of TPA-based employees
Air Tran Airways, Inc.	Y	N/A; Informed me via phone on 11/29 that they are no longer a TIA tenant.
ABX Air, Inc.	N	Responded to initial mailing; also provided us with their # of TPA-based employees
Aircraft Services International, Inc.	Y	No response to follow-up call or e-mail
Airnet Systems, Inc. d/b/a US Check	N	No response to follow-up call or e-mail
Altitudes	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees
America West Airlines, Inc.	N	No response to follow-up call or e-mail
American Airlines, Inc.	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees Sent survey in response to e-mail follow-up; also provide dus with # of TPA-based employees.
Astar Air Cargo, Inc.	Y	No response to follow-up call or e-mail
Atlantic Coast Airlines, Inc. d/b/a Independence Air	N	Sent survey in response to follow-up call and e-mail; Are a part of HMS Host Retail
Author's Bookstore/ Aviation, Inc. Sports Scene/ Priceless	Y	No response to follow-up call or e-mail; did provide us with # of TPA-based employees
Aviation Support Services (AASI) a/k/a U.S.E. (Universal Staffing Employment)	N	No response to follow-up call or e-mail
Bankair, Inc.	N	No response to follow-up call or e-mail



<u>Company Name</u>	<u>Responded to Survey?</u>	<u>Details</u>
Bay Area Concessions/ Florida Attractions/ Florida Market/ Tranquility Bath and Body	Y	Sent survey in response to follow-up call and e-mail; Are a part of HMS Host Retail
Bay Shuttle Transportation	Y	Responded to initial mailing; also provided us with their # of TPA-based employees Returned survey on 12/7 in response to follow-up call and e-mail
Bayside Eatery	Y	
BDFS, Inc. f/k/a Black Diamond Flight Svcs., Inc.	N	N/A; Informed me via phone on 11/29 that they are not yet a tenant; did provide us with projected # of TPA-based employees
Bombardier Transportation	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees
Boys and Girls Club of Tampa Bay, Inc.	N	N/A
Brendan Airways LLC d/b/a USA 3000 Airlines	N	N/A; Do not have any employees based at TPA
British Ariways	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees
Buccaneers Limited Partnership	Y	Responded to initial mailing.
Tampa Bay NFL		
Cayman Airways, Ltd.	N	No response to follow-up call or e-mail
Carrier Corporation	N	N/A; Invalid contact information
Carrieir Building Systems & Services		
Cendant Car Rental Group, Inc. (Avis Rent A Car System, Inc./ Budget Rent A Car System, Inc.)	N	No response to follow-up call or e-mail
Central Florida Limousine, Inc. and Central Florida Transit	N	No response to follow-up call or e-mail
Chautauqua Airlines	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees.
Cintas Corporation	N	No response to follow-up call or e-mail
City of Tampa Police Department	N	N/A
Cole Enterprises, Ltd	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees



<u>Company Name</u>	<u>Responded to Survey?</u>	<u>Details</u>
Com-Net Software Specialists, Inc.	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees
Concorde Companies	N	No response to follow-up call or e-mail.
Continental Air Lines, Inc.	Y	Responded to initial mailing.
Continental Air Lines, Inc. Reservations	N	No response to follow-up call or e-mail
Corey Entertainment	N	N/A
CSX Real Property, Inc.	N	N/A
DAL Global Services, Inc.	N	N/A
DTG Operations d/b/a Dollar Rent A Car System, Inc./ Thrifty Car Rental	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees
Delta Airlines, Inc.	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees
Department of Homeland Security - TSA	N	Part of TSA; did provide us with # of TPA-based employees.
Drew Park Cold Storage	N	N/A
Evergreen Aviation Ground	N	No response to follow-up call or e-mail.
Escot Bus Lines, Inc.	Y	Responded to initial mailing
Euro Vision, Inc.	N	N/A
Federal ADP	N	N/A
Federal Aviation Administration	Y	Responded to initial mailing; also provided us with # of TPA-based employees
Federal Express Corporation	Y	Responded to initial mailing; also provided us with # of TPA-based employees
Flight Express, Inc.	N	No response to follow-up call or e-mail. No response to follow-up call or e-mail; did provide us with # of TPA-based employees.
Fire Department - TPA Fire Rescue	N	
Florida Bar	Y	Responded to initial mailing; also provided us with # of TPA-based employees No response to follow-up call or e-mail; did provide us with # of TPA-based employees.
Frontier Airlines, Inc.	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees.
Gate Gourmet	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees.



<u>Company Name</u>	<u>Responded to Survey?</u>	<u>Details</u>
Globe Aviation Services	Y	Sent survey in response to follow-up call and e-mail; also provided us with # of TPA-based employees
Gulfcoast Transportation (United Cab)	Y	Responded to initial mailing
Gulfstream International Airlines d/b/a Continental Connection	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees.
Healthscape, Inc.	N	No response to follow-up call or e-mail; did provide us with # of TPA-based employees.
H & H Driving Range	N	N/A
Hertz Corporation, The Authority	N	No response to follow-up call or e-mail.
Hillsborough County Mosquito Road & Street Mosquito & Aquatic Weed Control	N	N/A
HMS Host	Y	Sent survey in response to follow-up call and e-mail.
HMS Host Employment Center	Y	
Hollywood Air, Inc.	N	No response to follow-up call and e-mail.
Hyannis Air Service, Inc.	N	No response to follow-up call and e-mail.
JC Decaux Airport, Inc.	N	No response to follow-up call and e-mail.
Jet Aircraft Maintenance	Y	Responded to initial mailing
JetBlue Airways Corporation	N	No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
Johnson Controls, Inc.	N	N/A
Kanaby Court Reporters	N	N/A
LSG Sky Sheds	N	No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
Menlo Worldwide Forwarding f/k/a Emery Forwarding	N	No response to follow-up call and e-mail.
Metro Traffic	N	N/A
Midwest Express Airlines (*seasonal December - May)	N	N/A
Mind Works	Y	Sent survey in response to follow-up call and e-mail; Are a part of HMS Host Retail
MN Airlines, LLC d/b/a Sun Country Airlines	N	No response to follow-up call and e-mail.
Monocle Book Store	N	N/A
Nathan Accessories & Electronics	N	N/A



<u>Company Name</u>	<u>Responded to Survey?</u>	<u>Details</u>
Nextel South Corporation	N	N/A No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
Northwest Airlines, Inc.	N	
Oxford Airport Technical Services	Y	Responded to initial mailing
The Plasencia Group	N	No response to follow-up call and e-mail.
Prospect of Tampa	N	N/A
Rampart Construction Services, LP	N	N/A
Renaissance	N	N/A
Republic Parking Systems	Y	Sent survey in response to follow-up call and e-mail; also provided us with # of TPA-based employees No response to follow-up call and e-mail; did provide us with # of TPA-based employees
Rick's Touch	N	No response to follow-up call and e-mail.
Roth Investment Realty, Inc.	N	No response to follow-up call and e-mail. Sent survey in response to follow-up call and e-mail.
Rubber Products, Inc.	Y	
Ryan International Airlines, Inc.	N	N/A
Schindler Elevator Corporation	N	N/A
Schon Creative Services	N	No response to follow-up call and e-mail; did provide us with # of TPA-based employees Sent survey in response to follow-up call and e-mail.
SCIS Air Security	Y	
Shalimar's Jewelry-Watches and Collectibles	N	No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
Simplexgrinnel	N	
Signal Connections, Inc.	N	N/A
Skanska, Inc.	Y	Responded to initial mailing; also provided us with a # of Tpa-based employees. Sent survey in response to follow-up call and e-mail
Smarte Carte, Inc.	Y	No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
Southwest Airlines Co.	N	
Spirit Airlines, Inc.	N	No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
Stellar Partners, Inc.	N	No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
Sunglass International	N	N/A
Suntrust Bank of Tampa Bay	Y	Responded to initial mailing; also provided us with a # of Tpa-based employees. Sent survey in response to follow-up call and e-mail
Tampa Airport Marriott Hotel	Y	



<u>Company Name</u>	<u>Responded to Survey?</u>	<u>Details</u>
Tampa Electric Company	N	N/A No response to follow-up call and e-mail; did provide us with # of TPA-based employees
Tampa Fire & Rescue	N	
Tampa Gifts & News	N	No response to follow-up call and e-mail
Tampa International Jet Center	Y	Responded to initial mailing
Tampa Pipeline Corporation	N	N/A
Tampa Port Authority	N	N/A
Tampa Sports Authority		N/A
TGIFriday's	N	No response to follow-up call and e-mail No response to follow-up call and e-mail; did provide us with # of TPA-based employees
Tie Rack	N	
Top T's Airport Florist	N	No response to follow-up call and e-mail.
Transportation Security Administration (TSA)	Y	Responded to initial mailing
Travelers Aid Society	Y	Responded to initial mailing No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
Travelex America, Inc.	N	
Triangle Services of Florida, Inc.	Y	Responded to initial mailing; also provided us with # of TPA-based employees.
TruGreen/Landcare USA Co.	N	N/A
United Airways	Y	Responded to initial mailing; also provided us with # of TPA-based employees.
United States Postal Service (USPS)	N	N/A
U.S. Airways	N	No response to follow-up call and e-mail
U S Customs	N	No response to follow-up call and e-mail
U S Immigration & Naturalization	N	N/A
U.S.E., Inc.	N	No response to follow-up call and e-mail
Vaisala, Inc.	N	N/A
Vanguard Car Rental USA, Inc. (National/ Alamo)	N	No response to follow-up call and e-mail
Verizon Florida, Inc.	N	N/A No response to follow-up call and e-mail; did provide us with # of TPA-based employees.
WestJet (an Alberta Partnership)	N	
Wilson's Leather	N	N/A
Worldcom (Intermedia Communications)	N	N/A
Worldwide Shore Services, Inc.	N	No response to follow-up call and e-mail.
Ye Mystic Krewe of Gasparilla	Y	Responded to initial mailing
Yellow Cab of Tampa, Inc.	N	N/A



Appendix G – Presentation



TPA

Master Plan Update

BOARD WORKSHOP #5




Economic Impacts



Work-In-Progress Briefing

May 19, 2005





TPA
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Annual Economic Impact Estimates

- **TOTAL OUTPUT** **\$2.54B**
 - Direct \$1.57B
 - Indirect \$.49B
 - Induced \$.48B
- **TOTAL INCOME** **\$853M**
- **TOTAL EMPLOYMENT** **24,157**

2



TPA
Master Plan Update

Annual Impacts by Category

- Airport and Airline Operations \$ 787,840,244
- On-Airport Activities \$ 622,693,792
- Visitor Expenditures \$ 516,101,634
- Capital Improvement Program \$ 286,711,760
- Imports/Exports \$ 330,857,211
- TOTAL \$2,544,204,641

3



Annual Import/Export Data

TPA
Master Plan Update

- Imports
 - 38,156 Tons (57.4%)
 - \$268,688,939 (28%)
- Exports
 - 28,353 Tons (42.6%)
 - \$685,562,603 (72%)







 Tampa International Airport

Key Ratios

TPA
Master Plan Update

- 1,515 Jobs/1,000,000 Passengers
- 19.8 Jobs/\$1,000,000 of CIP
- 39 Jobs/1,000 Tons of Cargo Export
- \$6.1 Million/1,000 Tons of Cargo Export

5



Annual Government Revenue Estimates

TPA
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6



Cumulative Impacts of 2000-2005 CIP

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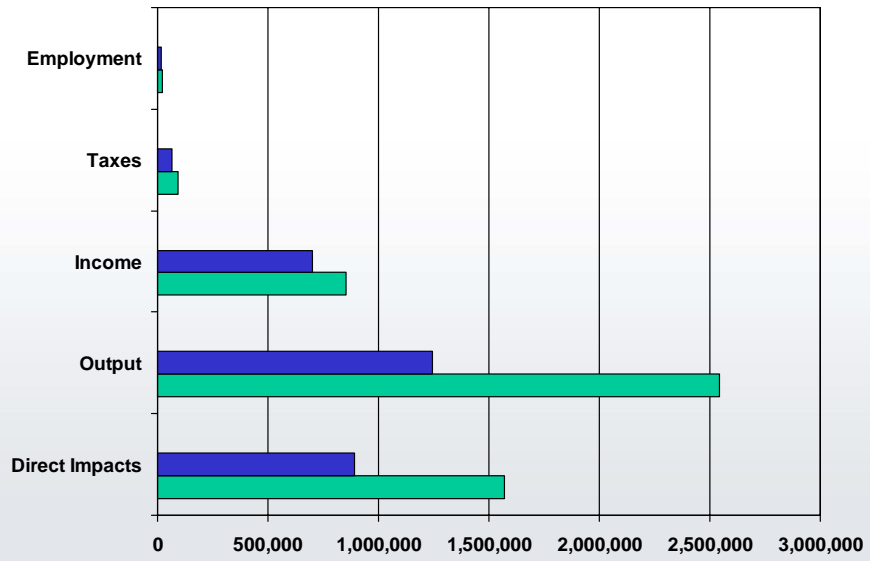
7

<i>Impact Type</i>	<i>Impact</i>		
	<i>Output</i>	<i>Income</i>	<i>Employment</i>
Direct	\$762,708,267	\$312,068,362	8,117
Indirect	283,423,962	121,358,162	2,950
Induced	370,963,135	131,456,518	4,001
Total	\$1,417,095,364	\$564,883,042	15,067



Then and Now

TPA
Master Plan Update





Annual Estimates for HCAA

TPA
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- Plant City \$ 3,175,922
- Peter O. Knight \$ 7,974,762
- Vanderberg \$ 11,289,876
- Tampa International \$2,544,204,641

- TOTAL \$2,566,645,201



THANK YOU!

TPA
Master Plan Update

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