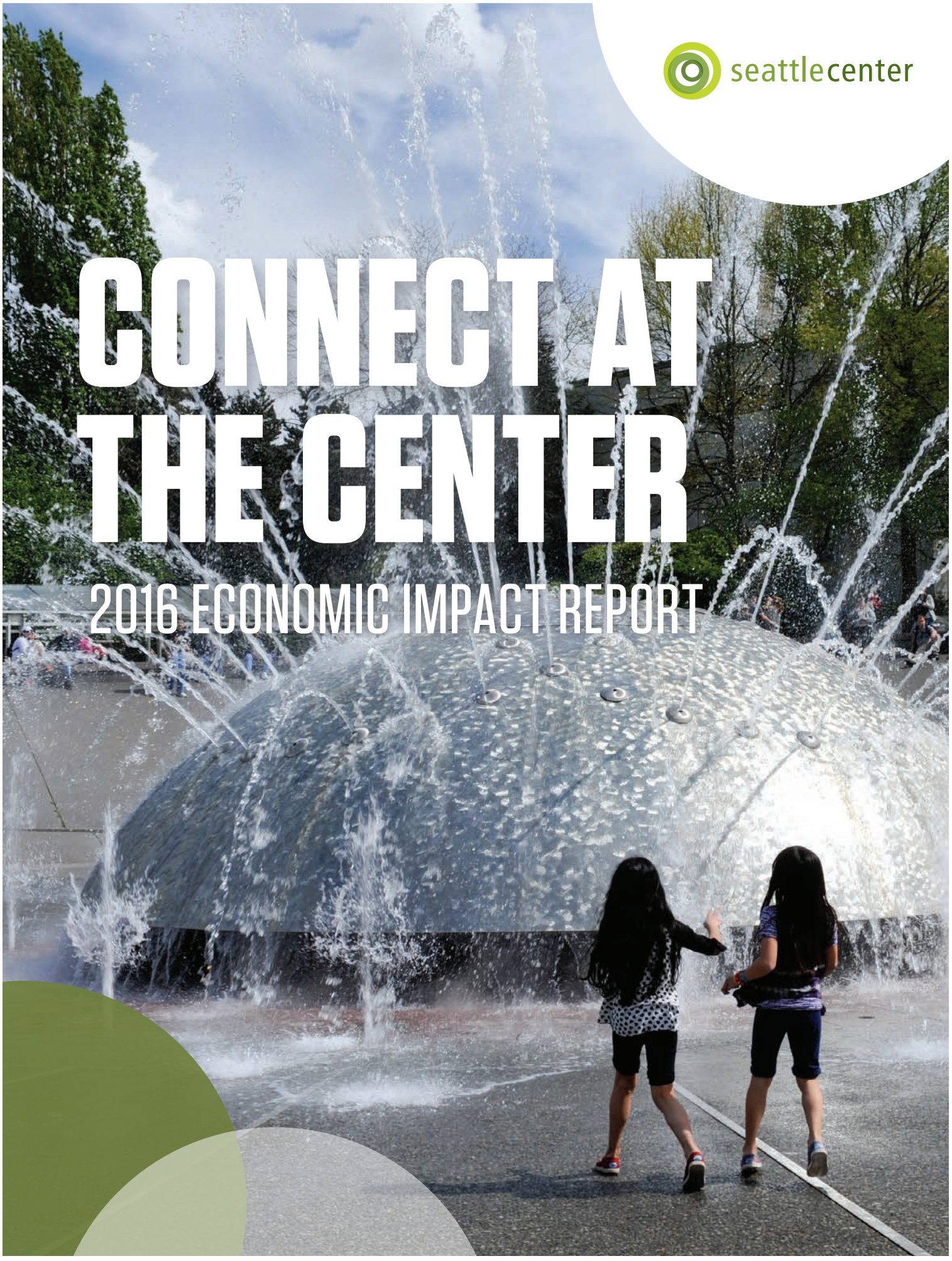
seattlecenter



CONNECT AT THE CENTER

2016 ECONOMIC IMPACT REPORT

AN ECONOMIC IMPACT STUDY OF SEATTLE CENTER IN KING COUNTY 2016

STUDY COMMISSIONED BY

SEATTLE CENTER FOUNDATION

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Released June 2017

EXECUTIVE SUMMARY

Seattle Center remains a vital center for cultural activities in the City of Seattle, more than half a century after the 1962 World's Fair created this campus. The organizations sited there have changed over time, and will change in the future. It attracts a large cohort of its visitors from outside the local area, contributing to the economic base of the regional economy. It generates jobs and income for thousands of people in King County, and is a major tourist destination. This legacy of the 1962 World's Fair is a treasure that continues to provide many kinds of benefits for the citizens of the City of Seattle.

Each year Seattle Center welcomes a multitude of visitors who participate in numerous activities from attending Bumbershoot to taking in the city skyline from the Space Needle observation deck. In total, Seattle Center counts over 12 million attendance each year to the 74-acre campus and residing organizations. The estimation of net visitors versus gross attendance measured by Seattle Center is necessary to not overestimate economic impacts. This economic impact study identifies 3.9 million net visitors in the year 2016 at Seattle Center. They spent $815 million in relation to their visits to Seattle Center. Seattle Center is also the home of many non-profit and for-profit businesses that had revenue of $303 million in the year 2016. Nearly $233 million of this revenue came from tickets and admissions to events and performances that took place on the Seattle Center campus.

The combined spending of Seattle Center visitors and businesses created $1.864 billion in business activity, 18,621 jobs, and $631 million in labor income in King County in the year 2016. This spending also generated tax revenues of $90 million to state and local governments. It was estimated that 7,446 people were employed by businesses at Seattle Center; most of these are part-time or contract employees.

Seattle Center is a major tourist attraction, with about 58% of visitors coming from outside King County. Most of these people make their trips primarily to go to events or activities at Seattle Center. The spending of these visitors, plus the revenue income earned by Seattle Center businesses from sources outside King County results in economic impacts that would not occur if Seattle Center were not located here or if businesses located there were not in King County. The economic impact of this non-local spending is referred to

as "new money," export income driving the regional economy like the impact of airplane manufacture or cargo movements through the Port of Seattle. New money economic impacts due to Seattle Center created 10,625 jobs, $1.182 billion in business activity, $381 million in labor income, and $65 million in tax revenues in the year 2016.

Based on survey data, the typical group of visitors to Seattle Center is two or three people. About three-fourths of these people made their trip primarily to visit Seattle Center. Female visitors outnumber male visitors, while overall visitors fall into all age categories. The majority are working full-time, although there are also substantial numbers of retired and self-employed visitors. Their typical household size is 2.6 persons, and median income is in the $75 thousand to $100 thousand range. Seattle Center visitors are well educated, with almost three-fourths of those completing a visitor survey having a four-year college or university degree, or a post-graduate degree. Local visitors tend to make more annual visits to Seattle Center than those from outside King County. Most visitors stay two or three hours, or four to eight hours.

Seattle Center businesses largest expense is for labor (60%), followed by 25% spent on services, 3% on utilities and telephone, 5% on taxes, and 7% for other goods and services. Seventeen percent of employees are full time, while 52% were part time and 31% were contract employees.

This report is primarily based on two surveys. All businesses at Seattle Center participated in a survey that documented their revenue, attendance, and expenditures. A survey of Seattle Center visitors was conducted primarily online, while some surveys were undertaken by the intercept method at Seattle Center. A total of 2,309 visitor surveys were used in this report.

The economic impact of Seattle Center has increased since 2005, the date of the first Seattle Center economic impact study.

- Direct jobs increased from 6,489 to 7,446, while direct, indirect, and induced jobs increased from 15,534 to 18,621.
- The impacts from the combined spending of Seattle Center visitors and businesses in King County increased across business activity ($1.15 billion to $1.864 billion) and labor income ($387 million to $631 million).
- New Money impacts increased across business activity ($597 million to $1.182 billion), jobs (7,349 to 10,625), labor income ($193 million to $381 million) and tax revenue ($23 million to $65 million).
- State and local government tax revenues as a result of business activity at Seattle Center increased from $41.1 million to $90 million.

The major drivers of increased economic impacts were higher levels of per capita visitor spending, and a larger share of visitors coming from outside King County.

In addition to changes in the economic impact of Seattle Center since 2005, the characteristics and demographics of a typical visitor also changed.

- Increased visitors who travelled from outside King County (50% to 58%).
- The ethnicity of Seattle Center visitors became more diverse:
  - » Caucasian survey respondents declined from 84% to 77%
  - » Asian and Hispanic visitors increased their shares of visitors from 11% to 14% of the total
- Highly educated, with visitors increasing attainment of a four-year college degree or a post-graduate degree (43% to 74%).

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

This study was made possible by the cooperation of Seattle Center visitors, and by businesses located on the Seattle Center campus. Seattle Center visitors provided detailed information about their expenditures on trips to Seattle Center, and on aspects of their participation in activities at Seattle Center. Seattle Center businesses provided crucial information on their revenues, expenditures, and attendance. In addition, data was utilized for a select group of campus organizations from a survey undertaken by ArtsFund in 2014; the authors gratefully acknowledge use of this data source. The study would not have been possible without the support of Seattle Center and Seattle Center Foundation. In particular, Mr. Thomas Israel and Mr. JP Shin helped conceptualize the approach to this study, and were instrumental in requesting the cooperation of Seattle Center businesses. Mr. Israel, Mr. Shin, and Ms. Kerry Smith provided helpful feedback on the conduct of the study as well as useful comments on drafts of this report. We also acknowledge the support of Robert Nellams, Director of Seattle Center, for this research project and Jane Zalutsky, Executive Director at Seattle Center Foundation. The authors thank all of these contributors to this research project.

“Financial success is critical to our ability to fulfill our purpose at Seattle Center, to delight and inspire individuals to build strong communities. The statistics and stories contained in the Study reveal our reach and impact economically, and ultimately, in how we serve Seattle residents and the region as a whole.”

— Robert Nellams
Seattle Center Director

“Seattle Center Foundation actively inspires broad community engagement to support and promote the evolution of Seattle Center, so we are pleased to have the Economic Impact Study verifying Seattle Center’s role as a strong economic contributor in our region.”

— Jane Zalutsky
Seattle Center Foundation
Executive Director

I. INTRODUCTION

Seattle Center is located north of downtown Seattle on a site that was developed for the 1962 Seattle World's Fair. The campus is depicted in Figure 1. The campus is largely owned by the City of Seattle, which has redeveloped the World's Fair site as a facility that serves a multitude of activities by both non-profit and for-profit organizations. Seattle Center exists to create exceptional events, experiences and environments that delight and inspire the human spirit to build stronger communities. This report documents economic impacts of Seattle Center, benchmarked against data for the year 2016. It uses methodology similar to that used in a report completed in 2006 by the same authors (Beyers & GMA Research 2006). Economic impacts are measured in terms of jobs created, business sales, labor income, and selected taxes. These impacts are benchmarked against King County.

This report was funded by Seattle Center Foundation. It is based on two surveys, and utilizes a model of the Washington State economy that has been widely used in economic impact analyses. A survey was undertaken of visitors to Seattle Center. This survey was administered by GMA Research, largely through online requests to Seattle Center visitors. These data were gathered between May and December 2016. While this survey's primary purpose was to gather data needed for the economic impact study, it also gathered data desired by Seattle Center for marketing and other purposes. Results of the visitor survey are reported in Section II of this report. A copy of the visitor survey form is found in Appendix I. A second survey was conducted of businesses located on the Seattle Center campus. A copy of the business survey form is found in Appendix III. This survey asked for data on revenue and expenditures, as well as attendance. Businesses located on the Seattle Center campus were asked to respond to the survey and responses were included in the data used in this study. Seattle Center took leadership in reaching out to these businesses; some of them reported confidential data to the authors of this report. Results from the business survey are reported in Section III of this report.

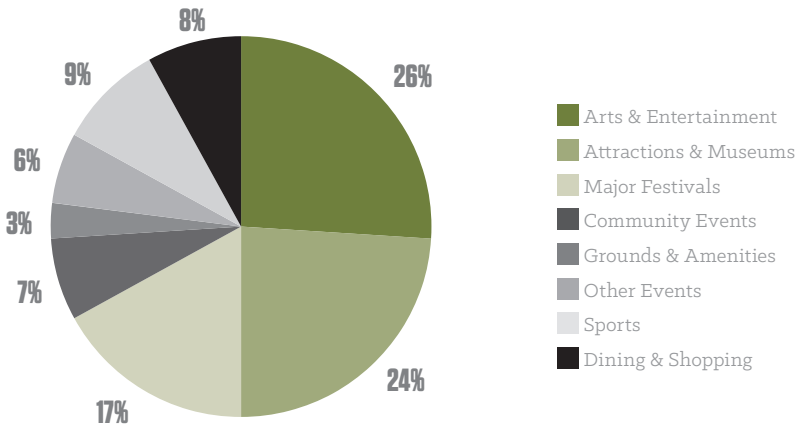
This report is organized as follows. We first report data from the survey of Seattle Center visitors (Section II). Then we report data from the survey of Seattle Center businesses (Section III). This is followed by estimates of the economic impact of Seattle Center (Section IV). The economic impact section reports total impacts and "new money" impacts. The next section of the report (Section V) compares selected results from the current study with those reported a decade ago. The final section of the report (Section VI) draws some conclusions and makes recommendations about how future studies of this type could lead to improved results. Appendix I and III are copies of the surveys used for visitors and businesses while Appendix IV provides a brief technical description of the input-output model used for this study. Appendix II explains the procedure used to estimate net Seattle Center visitor statistics.

FIGURE 1 SEATTLE CENTER CAMPUS

II. SEATTLE CENTER VISITOR SURVEY

A questionnaire was developed to obtain responses from Seattle Center visitors on a variety of topics; a copy of this questionnaire is contained in Appendix I. This questionnaire closely followed the 2005 survey format developed for the 2005 Seattle Center Economic Impact Study (Beyers & GMA Research 2006). A sampling plan was developed by GMA Research to gather these data primarily through online data requests. The online surveys resulted in much larger total responses than needed in this sampling plan, and GMA developed a file with randomly selected responses in parts of the sample that exceeded the sampling plan response quotas. Data were sought for eight categories of activities at Seattle Center. A total of 2,309 surveys were included in the analysis, with the percentage of the total sample done for each of the categories as documented in Figure 2. The questionnaire in Appendix I is the version used for Seattle Opera visitors. Similar questionnaires were utilized for each of the survey locations identified in Appendix I Table 1, edited to customize text for each survey location.

FIGURE 2 PERCENTAGE OF ALL VISITOR QUESTIONNAIRES



Survey data for sports came from visitors attending Seattle Storm and Seattle University basketball games, and the 2016 Kellogg's Tour of Gymnastics Champions. People surveyed in the dining and shopping category attended Seattle Center Armory, Collections Café at Chihuly Garden & Glass, Culture Café at Museum of Pop Culture (MoPOP), and SkyCity restaurant at the Space Needle. Arts and entertainment visitors attended concerts and performances at Pacific Northwest Ballet, Seattle Children's Theatre, Seattle Opera, and the Seattle Repertory Theatre. People contacted in relation to visits to attractions and museums were from the Gates Foundation Visitor Center, Chihuly Garden and Glass, Museum of

Pop Culture (MoPOP), Pacific Science Center, Seattle Center Monorail, Seattle Children's Museum, and the Space Needle. Visitors in the major festivals category had attended the Bite of Seattle, Bumbershoot, and Northwest Folklife. Community events visitors were surveyed in relation to visits to Seattle Center Festál, Seattle's Best Damn Happy Hour, Seafair Fanfest, and Winterfest. Grounds and amenities visitors were interviewed in park spaces and at the International Fountain. Other visitors were contacted in relation to visits via the Seattle Center website, and concerts and shows at Marion Oliver McCaw Hall.

CHARACTERISTICS OF SEATTLE CENTER VISITORS

Seattle Center visitors were asked a series of questions about characteristics of their group, including socioeconomic characteristics and trip purposes. Results of these questions are presented in tables that identify responses for visitors in the various categories reported in Figure 2. The presentation of these data is divided into two sections: (1) Seattle Center Visitor Trip Characteristics, and (2) Socioeconomic Characteristics of Seattle Center Visitor Groups. The sample size reported in tables in these two sections differs from the total of 2,309 visitor surveys because in some instances visitors did not respond to questions, or their responses were not considered valid for certain statistical purposes (see the discussion of visitor spending and participation on page 17).

(1) Seattle Center Visitor Trip Characteristics

These data are reported for the entire sample and the total is not weighted by the relative size of patronage in the different visitor categories. It should be noted that in the tables which follow in this report, in some cases the percentage numbers in the tables do not add up exactly to 100% due to rounding errors. In most cases these differences are only 0.1%.

Visitors were asked if their primary reason for their visit to Seattle Center was to attend the attraction/event at which they were surveyed. Table 1 reports responses to this question. About three-quarters of Seattle Center visitors said that their trip was primarily to attend the attraction for which they were surveyed. This percentage varies considerably across categories of visitation in the survey. Most visitors at sports, arts and entertainment, festivals, community events, and other events were primarily on their trips to attend the activity in which they were surveyed. In contrast, many of those surveyed in dining and shopping, attractions and museums, and grounds and amenities venues were on trips with other primary purposes.

Visitors who said that their primary trip purpose was not a visit to Seattle Center were asked to describe their trip purpose. There were a wide variety of responses to this question. Table 2 below presents a sample of these responses. A substantial number

of visitors who said that their primary trip purpose was not to visit Seattle Center nevertheless wrote text indicating that their trip purpose was do something at a Seattle Center venue. Table 1 reports that nearly half of the respondents who answered this question with a "no" wrote text clearly indicating that their primary trip purpose was to do something at Seattle Center, or who were very likely on a trip to Seattle Center. Thus, approximately 86% of responses indicated the trip purpose was to visit Seattle Center. It appears as though there are differing understandings on the part of visitors as to the geographic definition of Seattle Center.

The remaining 14% of respondents wrote text indicating a primary trip purpose other than visiting Seattle Center. Table 2 contains a sampling of these responses. Common trip purposes included vacations, visiting family, business trips, and sightseeing. Visitors contacted at dining and shopping, museums and attractions, and at grounds and amenities had a much higher frequency of "other" primary trip reasons than was the case for other groups, and these visitors were overwhelmingly from out-of-state (87%).

TABLE 1 WAS THE PRIMARY REASON FOR YOUR TRIP TO VISIT SEATTLE CENTER?

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	**TOTAL**
YES	99.1%	40.0%	99.2%	32.7%	90.4%	89.1%	33.9%	90.1%	**73.9%**
NO – BUT TEXT INDICATES A SEATTLE CENTER DESTINATION	0.5%	13.3%	0.3%	27.7%	6.5%	8.5%	16.9%	3.1%	**10.2%**
NO – BUT TEXT INDICATES MAYBE A SEATTLE CENTER DESTINATION	0.0%	4.1%	0.0%	5.7%	0.0%	0.0%	6.8%	0.8%	**1.9%**
NO – OTHER PRIMARY TRIP PURPOSES	0.5%	42.6%	0.5%	33.9%	3.0%	2.4%	42.4%	6.1%	**14.0%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	214	195	591	545	397	165	59	131	**2,297**

TABLE 2 EXAMPLES OF PRIMARY TRIP PURPOSES OTHER THAN GOING TO SEATTLE CENTER
(TEXT IS AS WRITTEN BY SURVEY RESPONDENT)

"DOTA 2 gaming event with two daughters. I have wanted to see your exhibition (Chihuly Garden and Glass) since I saw the exhibit in Denver."
"Meet up with friends, kids play together at playground and lunch in the Armory food court."
"We flew in to Seattle to have a couple days of exploration from PA and Dale Chihuly was on our list as a must visit!! Always have heard wonderful things!!"
"Guest of boyfriend attending a conference."
"Two grannies taking four granddaughters to learn about what you do and what they can do, we have all been several times, we love the Gates Foundation."
"Stop-over in Seattle before Alaskan cruise."
"Taking Japanese students around to tourist attractions."
"Visitors from out of town, wanted to be touristy."
"We stumbled upon Bite of Seattle. We were in Seattle for the day from Ohio."
"50th wedding anniversary celebration."
"Classes at Seattle Children's Theatre."
"A girl's weekend out, out of town friends."

The number of people in groups surveyed at Seattle Center are reported in Table 3. This table reports that the average group had 3.15 persons in it, while the median group size was two persons. (The median group size is the number of persons in the group in the middle of the overall distribution). There are significant variations in the size of groups interviewed in the different groups of visitors in Table 3. Sports, dining and shopping, arts and entertainment, festivals, and other events have a median of two person groups, while attractions and museums and community events had a median size of three persons. The grounds and amenities sample reported a larger median, four persons. Mean (average) sizes of groups tend to be higher than the median values, due to a small percentage of groups with very large numbers of people.

Table 4 reports length of stay at Seattle Center on trips by various groups of visitors. The largest cohort of visitors stayed two to three hours, followed by those who spent four to eight hours. A small share of visitors reported one-hour stays, and 17% reported stays of more than eight hours. There are significant variations in these length-of-stay reports by different groups. People attending festivals tended to report long stays, while those attending sports, arts and entertainment and other events reported stays of two to three hours—about the length of a game or a performance.

Seattle Center visitors were asked how often they came to Seattle Center for five types of activities. Tables 5a through 5e report responses to these questions. Data are organized by columns, indicating how many times per year people responding to the survey category labelled at the top of the column attended the type of event included in each question. For example, people interviewed at sports events reported that 8.8% of them went weekly, while 44.4% reported that they went once a month.

The data reported in Tables 5a through 5e are not summarized easily. There is a tendency to report "never" in cases outside the category in which people were interviewed. For example, almost all of those interviewed at ticketed sports events reported some participation for sports events (0.5% reported "never" when they were surveyed for such an event is open to question), and they report never for large percentages of all other types of participation. It should be noted that the five categories used for this question do not correspond clearly to the sample groups reported elsewhere in this report, making it difficult to interpret overall responses to this set of questions. We will be reporting data on overall participation later in this report, and these data document complex patterns of participation by respondents to this survey.

Seattle Center visitors were also asked to report how many times they came each year to Seattle Center. Table 6 reports responses to this question. Some people who were interviewed did not think that they were at Seattle Center, as 11.6% of respondents reported a value of zero (the responses in this table omit non-respondents), reinforcing the finding in

Table 2 that visitors have different understandings of what Seattle Center is. A good share of these were people interviewed at venues like the Space Needle, which while surrounded by Seattle Center grounds and being identified as at Seattle Center, is a privately-owned property. Visitors surveyed at sports events tend to report high annual visitation rates.

TABLE 3 NUMBER OF PEOPLE IN PARTY

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
1	9.9%	5.1%	11.1%	5.6%	25.4%	12.7%	10.3%	15.4%	**12.0%**
2	49.3%	53.3%	59.5%	37.9%	40.3%	33.9%	24.1%	46.2%	**46.1%**
3	13.6%	16.8%	9.5%	19.7%	12.6%	14.5%	12.1%	13.8%	**14.1%**
4 OR 5	23.0%	18.8%	17.1%	25.0%	15.4%	26.7%	34.5%	19.2%	**20.6%**
6 TO 10	3.8%	4.1%	2.5%	10.2%	5.3%	10.3%	10.3%	4.6%	**6.0%**
OVER 10	0.5%	2.0%	0.3%	1.6%	1.0%	1.8%	8.6%	0.8%	**1.3%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
MEAN	2.79	2.95	2.5	4.14	2.66	4.57	4.49	2.73	**3.15**
MEDIAN	2	2	2	3	2	3	4	2	**2**
SAMPLE SIZE	213	197	592	549	397	165	58	130	**2,301**

TABLE 4 LENGTH OF STAY ON SEATTLE CENTER TRIP

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
ONE HOUR	0.0%	2.0%	1.0%	3.5%	1.8%	3.1%	8.8%	4.0%	**2.2%**
TWO TO THREE HOURS	70.4%	31.5%	57.3%	44.6%	13.6%	36.5%	45.6%	66.4%	**44.5%**
FOUR TO EIGHT HOURS	28.6%	41.1%	36.4%	38.6%	33.0%	47.2%	28.1%	26.4%	**36.0%**
MORE THAN EIGHT HOURS	0.9%	25.4%	5.3%	13.2%	51.7%	13.2%	17.5%	3.2%	**17.2%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	213	197	588	536	391	159	57	125	**2,267**

TABLE 5A FREQUENCY OF ATTENDANCE AT TICKETED SPORTS EVENTS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
DAILY	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	**0.1%**
WEEKLY	8.8%	4.8%	0.4%	0.8%	0.0%	1.6%	2.1%	1.8%	**1.8%**
ONCE OR MORE PER MONTH	44.4%	5.4%	3.6%	5.3%	3.8%	4.7%	4.3%	1.8%	**8.3%**
ABOUT 3 OR 4 TIMES A YEAR	27.8%	4.2%	12.5%	8.3%	14.4%	20.9%	4.3%	13.6%	**13.1%**
ONCE A YEAR	10.2%	6.6%	15.3%	16.2%	12.2%	21.7%	14.9%	10.9%	**14.0%**
LESS THAN ONCE A YEAR	8.3%	21.6%	28.2%	28.8%	18.5%	16.3%	10.6%	30.9%	**23.2%**
NEVER	0.5%	57.5%	40.0%	40.0%	51.1%	34.9%	63.8%	40.9%	**39.5%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	205	167	550	493	319	129	47	110	**2,020**

TABLE 5B FREQUENCY OF ATTENDANCE AT TICKETED CULTURAL/ARTS/PERFORMANCES/EXHIBITS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
DAILY	0.0%	0.6%	0.0%	0.4%	0.0%	0.8%	0.0%	0.0%	**0.2%**
WEEKLY	0.5%	0.0%	1.1%	0.8%	2.7%	0.8%	2.1%	1.7%	**1.2%**
ONCE OR MORE PER MONTH	12.1%	5.3%	22.2%	5.0%	9.6%	5.4%	4.2%	2.6%	**11.1%**
ABOUT 3 OR 4 TIMES A YEAR	35.8%	17.6%	45.2%	19.4%	35.4%	36.4%	22.9%	35.7%	**32.6%**
ONCE A YEAR	28.4%	15.3%	14.4%	18.0%	26.1%	31.0%	16.7%	35.7%	**20.9%**
LESS THAN ONCE A YEAR	15.3%	27.6%	13.2%	29.1%	13.2%	14.0%	16.7%	17.4%	**18.8%**
NEVER	7.9%	33.5%	3.9%	27.3%	12.9%	11.6%	37.5%	7.0%	**15.3%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	190	170	562	484	333	129	48	115	**2,031**

TABLE 5C FREQUENCY OF ATTENDANCE AT FREE CULTURAL/ARTS/PERFORMANCES/EXHIBITS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
DAILY	0.0%	0.6%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	**0.2%**
WEEKLY	0.6%	0.6%	0.4%	2.3%	1.8%	1.5%	2.0%	0.0%	**1.2%**
ONCE OR MORE PER MONTH	9.9%	1.2%	4.6%	5.4%	10.9%	12.2%	10.0%	1.8%	**6.5%**
ABOUT 3 OR 4 TIMES A YEAR	28.2%	21.5%	23.4%	20.4%	37.6%	47.3%	18.0%	25.5%	**26.9%**
ONCE A YEAR	26.5%	12.9%	26.3%	17.9%	25.5%	28.2%	20.0%	31.8%	**23.3%**
LESS THAN ONCE A YEAR	20.4%	22.1%	19.4%	24.0%	11.2%	5.3%	20.0%	20.0%	**18.6%**
NEVER	14.4%	41.1%	25.9%	29.6%	13.0%	5.3%	30.0%	20.9%	**23.3%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	181	163	525	480	330	131	50	110	**1,970**

TABLE 5D FREQUENCY OF ATTENDANCE AT FESTIVALS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
DAILY	0.0%	0.6%	0.0%	0.4%	0.6%	0.0%	0.0%	0.0%	**0.2%**
WEEKLY	0.5%	0.0%	0.6%	1.1%	0.6%	0.0%	2.1%	0.0%	**0.6%**
ONCE OR MORE PER MONTH	4.3%	1.8%	1.5%	2.5%	4.3%	5.1%	2.1%	0.0%	**2.7%**
ABOUT 3 OR 4 TIMES A YEAR	27.4%	16.5%	15.9%	18.3%	38.2%	47.1%	25.0%	20.0%	**24.0%**
ONCE A YEAR	41.4%	14.0%	29.9%	16.0%	47.1%	37.7%	12.5%	34.5%	**29.7%**
LESS THAN ONCE A YEAR	18.3%	20.1%	26.1%	25.1%	7.8%	8.7%	20.8%	22.7%	**20.0%**
NEVER	8.1%	47.0%	26.1%	36.6%	1.4%	1.4%	37.5%	22.7%	**22.8%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	186	164	536	475	346	138	48	110	**2,003**

TABLE 5E FREQUENCY OF ATTENDANCE AT COMMUNITY GATHERINGS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
DAILY	0.0%	0.6%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	**0.2%**
WEEKLY	0.6%	0.6%	0.8%	0.7%	0.7%	0.8%	4.5%	0.0%	**0.7%**
ONCE OR MORE PER MONTH	1.2%	1.9%	1.4%	2.6%	3.6%	3.3%	4.5%	0.9%	**2.2%**
ABOUT 3 OR 4 TIMES A YEAR	10.2%	8.8%	6.7%	11.0%	19.2%	23.3%	11.4%	8.5%	**11.6%**
ONCE A YEAR	19.2%	8.8%	15.1%	11.7%	25.7%	25.8%	15.9%	15.1%	**16.5%**
LESS THAN ONCE A YEAR	29.9%	15.6%	26.3%	23.6%	19.5%	23.3%	15.9%	23.6%	**23.3%**
NEVER	38.9%	63.8%	49.8%	50.0%	31.3%	23.3%	47.7%	51.9%	**45.4%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	167	160	510	454	307	120	44	106	**1,868**

TABLE 6 ANNUAL VISITS TO SEATTLE CENTER

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
NONE	0.0%	34.4%	4.9%	24.9%	3.2%	3.1%	28.0%	3.7%	**11.6%**
1	5.3%	28.8%	10.8%	30.0%	14.1%	9.3%	16.0%	14.7%	**17.0%**
2	2.7%	6.1%	7.3%	8.2%	7.6%	10.1%	8.0%	12.8%	**7.5%**
3	3.2%	0.6%	6.0%	3.6%	5.6%	10.9%	6.0%	10.1%	**5.2%**
4	5.9%	4.3%	9.5%	5.3%	8.5%	10.9%	2.0%	15.6%	**7.8%**
5	2.1%	1.2%	9.3%	3.1%	8.2%	7.0%	4.0%	5.5%	**5.9%**
6	4.8%	2.5%	9.5%	4.9%	7.0%	7.0%	0.0%	4.6%	**6.3%**
7–10	17.1%	4.3%	17.2%	7.3%	15.0%	16.3%	10.0%	19.3%	**13.3%**
11–15	12.8%	4.3%	11.8%	4.7%	12.6%	11.6%	6.0%	5.5%	**9.3%**
16–25	28.3%	4.3%	8.8%	3.1%	9.1%	5.4%	10.0%	4.6%	**8.6%**
26–50	14.4%	8.0%	3.2%	4.0%	5.3%	7.0%	2.0%	2.8%	**5.4%**
51–100	2.7%	1.2%	0.9%	0.7%	2.1%	0.8%	4.0%	0.9%	**1.3%**
101–200	0.0%	0.0%	0.6%	0.0%	0.9%	0.8%	4.0%	0.0%	**0.5%**
201–360	0.5%	0.0%	0.4%	0.2%	0.9%	0.0%	0.0%	0.0%	**0.4%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	187	163	536	450	341	129	50	109	**1,965**

(2) Socioeconomic Characteristics of Seattle Center Visitor Groups.

Seattle Center visitors were asked a series of questions about their socioeconomic characteristics. The following section presents the results from these questions. The data are presented for all respondents to the survey.

Seattle Center visitors were asked their gender, and the gender of up to seven other people in their party. Table 7 reports that about 40% of the respondents were male, and about 60% were female. This question also allowed respondents to indicate "other," but the questionnaire did not ask visitors to describe this response, which was cited by half of one percent of respondents. Female visitors accounted for a relatively large share of visitors at sports events, where surveys were dominated by visitors at Seattle Storm basketball games. (The sample size for Tables 7 and 8 are much higher than for other visitor tables, because the data cover all individuals in visitor groups, rather than only the individual surveyed).

Respondents to the questionnaire were also asked to report their age, and the ages of up to seven other persons in their party. Table 8 reports results from this question. The median age is in the 35-44 year age cohort. Relatively large numbers of visitors under the age of 18 were recorded at attractions and museums, as well as on the grounds. Festivals reported relatively large numbers of people in the 18-24 year age category.

The person answering the survey form was asked to report their level of educational attainment. Table 9 presents results from this question. The result of this question finds respondents to be highly educated, with almost 74% reporting holding a four-year college degree or a post-graduate degree. These results were found across all groups except those interviewed in the community events and grounds and amenities sample, which recorded a larger share of visitors with some college or vocational-technical educations and less than a high-school degree. A cross-tabulation of these levels of educational attainment was undertaken with respect to the geographic origin of visitors. This cross-tabulation found local (King County) visitors with a higher level of educational attainment than those coming from elsewhere in Washington State. Out-of-state visitors had levels of educational attainment lower than King County visitors, but higher than visitors from the rest of Washington State. This cross-tabulation was highly significant, as measured by the chi-square statistic, a standard measure of differences in expected outcomes.

People responding to the Seattle Center visitor questionnaire were asked to identify their employment status, as reported in Table 10. About 60% of respondents were employed full-time or part-time, while another 10% were either contract employees or self-employed. About 20% of respondents were retired, and the balance (about 10%) were stay-at-home parents, military, students, or not employed. A relatively large share of those interviewed at festival and community events were self-employed, while a large share of those responding from grounds and amenities were students, and a small share of these visitors were retired.

TABLE 7 GENDER OF SEATTLE CENTER VISITORS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
MALE	31.5%	42.4%	35.7%	42.4%	43.3%	40.0%	47.7%	53.8%	**40.5%**
FEMALE	68.0%	57.6%	64.0%	57.2%	55.3%	59.3%	51.8%	46.3%	**59.0%**
OTHER	0.5%	0.0%	0.3%	0.4%	1.4%	0.6%	0.5%	0.0%	**0.5%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	632	540	1,510	1,687	990	462	218	320	**6,359**

TABLE 8 AGE OF SEATTLE CENTER VISITORS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
UNDER 18	19.7%	11.2%	15.1%	22.8%	11.9%	14.6%	26.9%	8.1%	**16.8%**
18-24	4.7%	4.8%	4.0%	4.3%	14.8%	4.0%	10.0%	9.3%	**6.3%**
25-34	10.3%	13.5%	9.9%	9.9%	15.2%	18.2%	11.0%	34.2%	**13.0%**
35-44	18.8%	13.9%	18.7%	15.5%	12.4%	19.0%	21.9%	18.6%	**16.6%**
45-54	18.8%	19.0%	20.0%	13.4%	14.2%	13.4%	16.9%	15.3%	**16.3%**
55-64	17.8%	21.7%	17.4%	17.2%	18.3%	18.0%	7.8%	9.9%	**17.2%**
65 AND OLDER	9.9%	15.8%	14.8%	16.8%	13.4%	12.6%	5.5%	4.5%	**13.8%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	634	562	1,558	1,764	1,003	499	219	333	**6,572**

TABLE 9 EDUCATION OF VISITOR RESPONDING TO SEATTLE CENTER SURVEY

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
SOME HIGH SCHOOL	1.0%	0.6%	0.2%	1.2%	0.9%	0.7%	5.3%	0.0%	**0.8%**
HIGH SCHOOL GRADUATE	4.0%	5.1%	3.0%	4.9%	3.8%	5.9%	3.5%	5.5%	**4.2%**
SOME COLLEGE / VOCATIONAL / TECHNICAL	15.8%	28.4%	15.5%	24.4%	20.6%	30.4%	33.3%	20.0%	**21.3%**
FOUR YEAR COLLEGE / UNIVERSITY DEGREE	40.1%	38.1%	39.8%	33.6%	40.7%	34.1%	35.1%	49.1%	**38.4%**
POST GRADUATE DEGREE	39.1%	27.8%	41.4%	35.9%	34.0%	28.9%	22.8%	25.5%	**35.3%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	202	176	560	488	344	135	57	110	**2,072**

TABLE 10 EMPLOYMENT STATUS OF SEATTLE CENTER VISITOR RESPONDING TO SEATTLE CENTER SURVEY

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
WORKING FULL TIME	59.6%	50.3%	53.6%	52.3%	47.5%	51.5%	64.3%	74.5%	**53.9%**
WORKING PART TIME	4.5%	6.9%	6.2%	7.2%	10.7%	9.7%	3.6%	2.7%	**7.1%**
CONTRACT EMPLOYEE	0.5%	2.3%	0.7%	1.0%	2.1%	2.2%	0.0%	0.9%	**1.2%**
SELF EMPLOYED	9.1%	8.0%	7.3%	7.2%	13.7%	14.9%	7.1%	8.2%	**9.1%**
STAY-AT-HOME PARENT	5.1%	2.9%	7.5%	8.1%	0.6%	5.2%	5.4%	2.7%	**5.4%**
MILITARY	0.5%	1.1%	0.2%	0.2%	0.0%	0.7%	0.0%	0.9%	**0.3%**
STUDENT	2.0%	0.6%	1.1%	1.4%	2.7%	0.7%	8.9%	0.9%	**1.7%**
RETIRED	16.7%	26.3%	21.9%	21.7%	20.6%	11.9%	7.1%	7.3%	**19.7%**
NOT EMPLOYED	2.0%	1.7%	1.5%	0.8%	2.1%	3.0%	3.6%	1.8%	**1.7%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	198	175	548	484	335	134	56	110	**2,040**

Seattle Center visitors were asked if they were U.S. citizens, and about 94% answered yes. Table 11 reports results of this question by group. Attractions and museums reported a relatively high share of non-U.S. citizens, as did the grounds and amenities sample.

Visitors to Seattle Center were asked to report the size of their households, and these data are reported in Table 12. The average household size was 2.6 persons, with a median value of two persons. The only exception to this median value was grounds and amenities, which had a median household size of three persons. Festivals had a much smaller average household size (one person) than the sample-as-a-whole. Grounds and amenities respondents had many fewer two person households and many more three or four person households than the sample-as-a-whole.

Seattle Center visitors are predominantly Caucasian, as reported in Table 13. This percentage was dominant across all groups of visitors. The data reported in Table 13 are for the person responding to this survey; it could be that groups of visitors or their households have a different ethnic mix. Community events attract a somewhat different ethnic mix. Grounds and amenity events attracted a relatively high percentage of Asian American visitors, while dining and shopping attracted a relatively high percentage of Hispanic visitors.

The person answering the Seattle Center visitor questionnaire was asked to document their household income. Table 14 reports results from this question. About one-fifth of the respondents to this question opted to not answer it. Of those responding with their household income, the largest percentages are in the upper income brackets. Visitors at festivals report a lower distribution of income than the entire sample. A cross-tabulation of household income with geographic origin found the local (King County) visitors to have the highest income distribution, while those from the rest of Washington State reported a lower distribution of income. Visitors from out of state reported an income distribution between that of King County and out-of-state visitors.

TABLE 11 SHARE OF SEATTLE CENTER VISITORS THAT ARE UNITED STATES CITIZENS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
CITIZENS	99.5%	91.5%	95.9%	86.7%	96.8%	97.8%	84.2%	100.0%	**93.9%**
NOT CITIZENS	0.5%	8.5%	4.1%	13.1%	3.2%	2.2%	15.8%	0.0%	**6.1%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**99.8%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	202	177	562	487	344	137	57	113	**2,079**

TABLE 12 HOUSEHOLD SIZE OF SEATTLE CENTER VISITORS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
1	17.4%	9.0%	17.5%	9.8%	25.0%	15.2%	4.0%	18.4%	**15.8%**
2	48.4%	47.3%	46.4%	40.6%	43.2%	47.7%	20.0%	40.8%	**43.9%**
3	10.0%	19.8%	15.0%	17.7%	14.7%	18.9%	30.0%	22.3%	**16.5%**
4	18.9%	16.8%	14.7%	22.3%	10.0%	9.1%	28.0%	12.6%	**16.1%**
5	2.6%	3.6%	4.9%	6.3%	4.7%	9.1%	14.0%	5.8%	**5.4%**
6	1.1%	1.2%	0.9%	2.8%	0.3%	0.0%	2.0%	0.0%	**1.2%**
7-21	1.6%	2.4%	0.6%	0.4%	2.1%	0.0%	2.0%	0.0%	**1.0%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	190	167	532	458	340	132	50	103	**1,972**
MEAN	2.51	2.74	2.48	2.84	2.43	2.49	3.42	2.47	**2.61**
MEDIAN	2	2	2	2	2	2	3	2	**2**

TABLE 13 ETHNICITY OF SEATTLE CENTER VISITORS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
AFRICAN AMERICAN	4.4%	1.7%	2.1%	3.2%	3.1%	2.1%	1.6%	2.7%	**2.8%**
ASIAN AMERICAN	9.8%	5.6%	6.5%	11.8%	6.0%	12.1%	22.6%	9.0%	**8.9%**
CAUCASIAN	77.1%	73.6%	85.0%	70.8%	79.8%	63.6%	59.7%	79.3%	**76.6%**
HISPANIC	3.9%	12.9%	3.7%	6.9%	4.0%	5.0%	6.5%	2.7%	**5.4%**
NATIVE AMERICAN	2.0%	1.1%	1.2%	2.6%	1.7%	2.1%	3.2%	0.0%	**1.8%**
OTHER ETHNICITY	2.9%	5.1%	1.4%	4.7%	5.4%	15.0%	6.5%	6.3%	**4.6%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	205	178	568	493	351	140	62	111	**2,108**

TABLE 14 INCOME OF SEATTLE CENTER VISITOR HOUSEHOLDS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
UNDER $20,000	0.5%	2.3%	0.9%	1.7%	2.7%	2.3%	0.0%	0.9%	**1.5%**
$20,000–$39,999	5.5%	5.2%	3.7%	5.5%	11.2%	6.2%	7.0%	4.6%	**6.0%**
$40,000–$59,999	6.0%	8.1%	7.4%	10.4%	13.6%	11.6%	8.8%	8.3%	**9.4%**
$60,000–$74,999	8.5%	7.5%	6.3%	9.1%	11.8%	7.0%	3.5%	10.2%	**8.4%**
$75,000–$99,999	11.1%	8.7%	13.4%	13.6%	12.7%	14.0%	12.3%	11.1%	**12.6%**
$100,000–$124,999	17.1%	24.3%	14.7%	16.0%	13.0%	14.7%	22.8%	13.0%	**15.9%**
$125,000–$249,999	23.1%	17.3%	19.2%	16.4%	13.3%	19.4%	17.5%	24.1%	**18.0%**
$250,000 OR MORE	10.6%	8.7%	10.3%	5.3%	4.7%	5.4%	8.8%	4.6%	**7.4%**
PREFER NOT TO ANSWER	17.6%	17.9%	24.1%	21.9%	17.1%	19.4%	19.3%	23.1%	**20.8%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SAMPLE SIZE	199	173	543	470	339	129	57	108	**2,018**

VISITOR SPENDING AND PARTICIPATION

Two aspects of the survey were examined for statistical validity issues: visitor spending and visitor participation. Visitors were asked to report spending directly related to their trip to Seattle Center. It was recognized that many visitors at Seattle Center were on trips that had other purposes, such as going on a cruise ship or on a vacation. In some cases respondents did not answer this question, and in other cases they provided responses that were not considered probable responses to the questions about their Seattle Center trip.

The visitors who indicated that they were on a trip with a primary purpose other than visiting the Seattle Center attraction at which they were surveyed were asked to describe their primary trip purpose. These responses were used to evaluate the answers visitors made about their overall expenditures related to their Seattle Center trip, as well as to evaluate their responses about the activities that they participated in on the trip over which they were interviewed. The result of analyses of these responses was to eliminate from the data base some responses that were considered not valid. Table 15 reports that about 80% of questionnaires for both of these evaluations were considered valid. It also indicates that the highest percentages of responses judged to not be valid for spending were for those visitors responding to surveys in dining and shopping and museum and attractions venues. People surveyed in these venues tended to be on trips whose primary purpose was not to visit Seattle Center, and they tended to report expenditures unrelated to their Seattle Center visit. Data on valid participation were relatively low for dining and shopping, community events, and other events. There are several bases for determining that a response was not valid. In some cases, respondents simply did not answer the question. In other cases they entered values that were inconsistent with what they reported they were doing at Seattle Center on their current trip. For example, some visitors checked off all possible categories of participation on their current trip—clearly not a possibility. In the case of spending, many of those whose primary trip was not to attend Seattle Center reported large expenditures on travel and hotels, and provided text indicating that they were on a cruise to Alaska. It is recognized that the determination of cases considered to be not valid is judgmental, but the overall sample size for purposes of the economic impact analysis and participation analysis is large enough to be confident that results contained in this report are robust from a statistical perspective.

Table 16 reports average visitor spending by visitor category. This table reports significant differences in spending by visitor category, which in turn are largely related to the composition of visitor origins, as reported in Table 18. Categories with large shares of non-local visitors tend to have high per-capita expenditures, which in turn are high for air and other travel, lodging, and meals and entertainment. High ticket costs were recorded for major festivals due to Bumbershoot ticket costs, and for arts and entertainment for some

KeyArena concerts. Table 17 reports average visitor expenditures by geographic origin, and a clear increase in average spending as distance travelled increases. Table 19 reports total visitor spending by region of origin; tickets and admissions account for the largest share of total spending. Lodging and air travel costs are largely incurred by visitors from out of state.

TABLE 15 ESTIMATES OF VALID SPENDING AND PARTICIPATION BY SEATTLE CENTER VISITORS

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
% VALID SPENDING	91.6%	58.4%	94.6%	62.9%	88.0%	88.0%	76.3%	88.5%	**81.3%**
% VALID PARTICIPATION	82.2%	72.6%	92.3%	82.2%	77.5%	55.4%	88.1%	69.5%	**80.7%**
SAMPLE SIZE	214	197	594	552	400	166	59	131	**2,313**

TABLE 16 AVERAGE SPENDING BY SEATTLE CENTER VISITOR GROUP

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	COMMUNITY EVENTS	GROUNDS & AMENITIES	OTHER EVENTS	TOTAL
TICKETS AND ADMISSIONS	$49.00	$40.66	$106.01	$23.77	$74.88	$5.80	$14.28	$41.08	**$56.86**
SOUVENIRS AND GIFTS	5.05	22.04	6.28	9.16	14.25	18.07	5.92	2.63	**9.97**
PARKING FEES	3.78	4.59	3.85	2.93	5.22	2.93	3.42	3.71	**3.81**
BUS-FERRY-TAXI-RIDE SHARE-MONORAIL-LIGHT RAIL	0.56	4.64	1.65	3.17	3.25	1.05	2.99	1.07	**2.28**
AUTO TRAVEL COSTS (GAS, RENTALS)	2.29	18.51	5.07	4.71	7.00	3.12	10.07	2.17	**5.66**
FOOD AND BEVERAGES BEFORE AND AFTER EVENT	10.67	42.45	18.45	10.86	18.07	3.48	13.54	12.21	**15.49**
FOOD AND BEVERAGES AT EVENT	6.79	29.89	5.05	5.82	22.79	10.77	1.97	5.59	**10.37**
ENTERTAINMENT BEFORE OR AFTER EVENT	0.72	3.08	1.81	0.82	1.19	0.10	0.85	0.64	**1.20**
LODGING	0.81	66.12	17.41	21.00	43.21	2.79	25.30	1.21	**21.77**
AIR TRAVEL COSTS	0.75	47.35	10.54	25.49	19.82	3.16	54.62	0.00	**16.70**
CHILD CARE COSTS	0.00	1.69	0.87	0.09	0.66	0.10	0.00	0.11	**0.48**
OTHER COSTS	0.24	1.88	0.47	2.86	6.51	0.65	2.53	8.67	**2.63**
TOTAL	**$80.66**	**$282.89**	**$177.45**	**$110.69**	**$216.83**	**$52.03**	**$135.50**	**$79.08**	**$147.24**
SAMPLE SIZE	196	115	562	347	352	146	45	116	**1,879**

TABLE 17 AVERAGE VISITOR EXPENDITURES BY REGION OF ORIGIN

	KING COUNTY	OTHER WASHINGTON STATE LOCATIONS	OUT OF STATE
TICKETS AND ADMISSIONS	$51.99	$68.14	$63.37
SOUVENIRS AND GIFTS	7.13	11.18	18.25
PARKING FEES	3.37	4.78	3.93
BUS-FERRY-TAXI-RIDE SHARE-MONORAIL-LIGHT RAIL	1.29	2.21	5.80
AUTO TRAVEL COSTS (GAS, RENTALS)	1.54	6.62	17.45
FOOD AND BEVERAGES BEFORE AND AFTER EVENT	10.29	17.21	32.04
FOOD AND BEVERAGES AT EVENT	8.21	12.71	14.96
ENTERTAINMENT BEFORE OR AFTER EVENT	0.41	1.00	4.29
LODGING	0.70	18.24	94.08
AIR TRAVEL COSTS	0.47	5.64	79.93
CHILD CARE COSTS	0.44	0.58	0.68
OTHER COSTS	2.29	1.31	6.06
TOTAL	**$88.13**	**$149.60**	**$340.84**
SAMPLE SIZE	1,074	316	343

TABLE 18 ORIGIN OF VISITORS BY CATEGORY

	KING COUNTY	OTHER WASHINGTON	OUT OF STATE	TOTAL
SPORTS	78.7%	19.8%	1.5%	**100.0%**
ARTS & ENTERTAINMENT	67.7%	19.4%	12.8%	**100.0%**
MUSEUMS & ATTRACTIONS	31.8%	11.3%	56.9%	**100.0%**
MAJOR FESTIVALS	64.2%	17.9%	17.9%	**100.0%**
COMMUNITY	74.4%	19.5%	6.0%	**100.0%**
GROUNDS	33.9%	12.5%	53.6%	**100.0%**
OTHER	73.5%	24.5%	2.0%	**100.0%**
WEIGHTED AVERAGE	**42.5%**	**13.8%**	**43.8%**	**100.0%**

TABLE 19 TOTAL SPENDING BY VISITORS BY REGION OF ORIGIN ($ MILLIONS)

	KING COUNTY	OTHER WASHINGTON STATE LOCATIONS	OUT OF STATE	TOTAL
TICKETS AND ADMISSIONS	$86.950	$36.875	$109.125	**$232.951**
SOUVENIRS AND GIFTS	11.929	6.048	31.435	**49.412**
PARKING FEES	5.629	2.585	6.776	**14.990**
BUS-FERRY-TAXI-RIDE SHARE-MONORAIL-LIGHT RAIL	2.155	1.193	9.980	**13.328**
AUTO TRAVEL COSTS (GAS, RENTALS)	2.581	3.581	30.055	**36.217**
FOOD AND BEVERAGES BEFORE AND AFTER EVENT	17.214	9.315	55.175	**81.703**
FOOD AND BEVERAGES AT EVENT	13.725	6.877	25.761	**46.363**
ENTERTAINMENT BEFORE OR AFTER EVENT	0.690	0.540	7.380	**8.610**
LODGING	1.165	9.873	162.003	**173.042**
AIR TRAVEL COSTS	0.781	3.053	137.647	**141.481**
CHILD CARE COSTS	0.733	0.314	1.166	**2.213**
OTHER COSTS	3.836	0.708	10.437	**14.981**
TOTAL	**$147.388**	**$80.961**	**$586.939**	**$815.289**

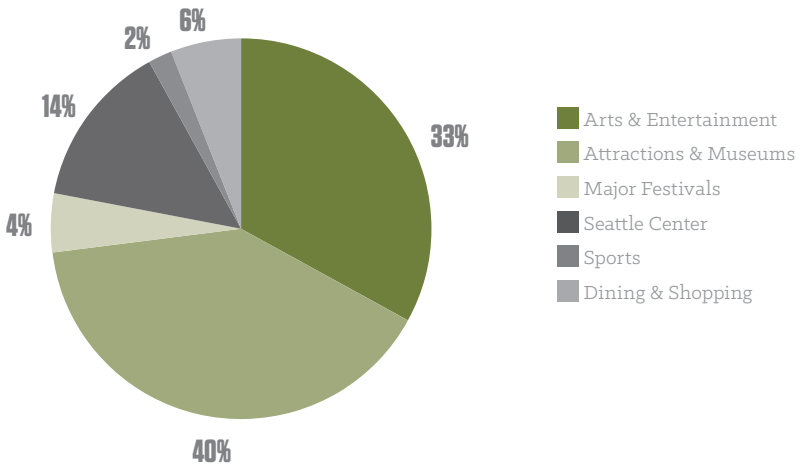
III. SEATTLE CENTER BUSINESS SURVEY

A survey was undertaken of businesses located at Seattle Center as a part of this study. A list of businesses included in this survey is contained in Appendix I, while a copy of the survey form is contained in Appendix III. Food service suppliers in the Armory provided limited data as a part of this survey, on their number of employees and their wage payments. Seattle Center staff distributed copies of this survey to Seattle Center businesses, and were instrumental in obtaining responses from them. Responses were sent either to Seattle Center Foundation or to the authors of this study in cases where confidentiality was an issue for study respondents. The survey sought information on revenues, levels of employment, and expenditures of Seattle Center businesses. Data were also sought on the geography of these levels of income and expenditures, particularly whether the revenue was from outside King County, and whether expenditures were made outside King County; these data were sought as a part of the economic impact analysis. Income from outside King County is part of the stream of "new money," revenues that would not accrue to the King County economy if these businesses were not located here. Expenditures made outside King County are excluded from the economic impact analysis, as they do not directly impact the King County economy.

REVENUE OF SEATTLE CENTER BUSINESSES

Seattle Center businesses were estimated to have had revenues of $303 million in 2016. Figure 3 presents estimates of these revenues by business category. Attractions and museums accounted for the largest share of revenues (40%), followed by arts and entertainment (33%). The Seattle Center category is composed of the combination of Seattle Center itself (a City of Seattle department), Seattle Center Foundation, The Center School and Academy of Interactive Entertainment. Arts and entertainment occurs in a number of venues at Seattle Center, including McCaw Hall, Seattle Repertory Theatre, Seattle Children's Theatre, and KeyArena. While dining is an important activity at the Space Needle, revenue related to dining there is included in Figure 3 with attractions and museums. Attractions and museums also includes Pacific Science Center, Chihuly Garden and Glass, Gates Foundation Visitor Center, Seattle Children's Museum, Seattle Center Monorail, and Museum of Pop Culture (MoPOP). Some activities at Seattle Center are excluded from this estimate of business activity, including the Memorial Stadium and some runs, walks and festivals. The activities that are excluded have a minor presence on the Seattle Center campus in terms of business activity. For example, SIFF does some presentations at Seattle Center venues, but the majority of SIFF's activity takes place elsewhere in the Seattle metropolitan area, and only SIFF's administrative staff is employed at Seattle Center.

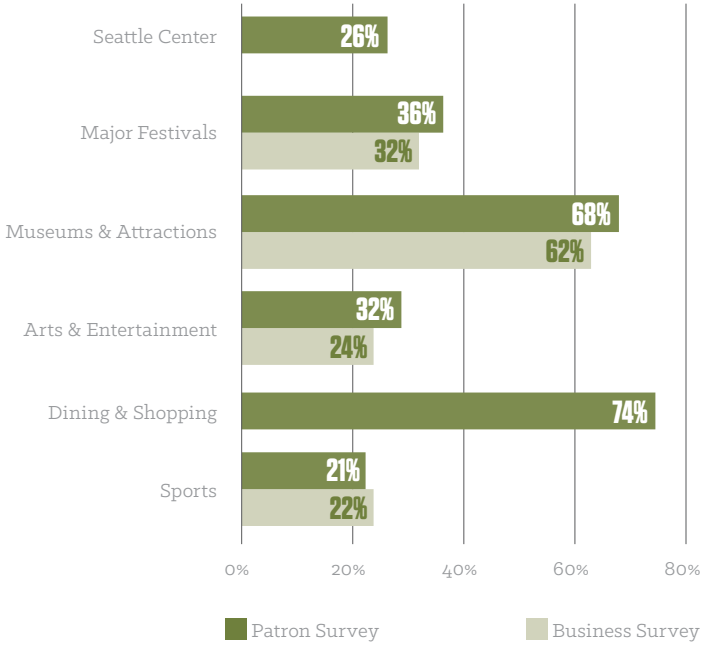
FIGURE 3 REVENUE SHARE BY SEATTLE CENTER BUSINESS CATEGORY



Section II of this report reported that 58% of Seattle Center visitors travelled from outside King County. These visitors generate economic impacts in King County that is referred to as "new money" in studies of this type. New money has two components: funds that come to Seattle Center businesses from outside King County, and other spending made by visitors from outside King County in the regional economy. Figure 4 presents two estimates of new money shares for Seattle Center businesses: (1) estimates of nonlocal shares of visitors from the visitor survey, and (2) estimates of nonlocal revenue to Seattle Center businesses from the business survey. The new money share of revenue to Seattle Center businesses from the business survey was 37%. Similar percentages of new money are reported in Figure 4 for major festivals, museums and attractions, arts and entertainment, and sports from these two sources. The business survey reported no non-King County income for dining and shopping venues and for Seattle Center. The visitor survey data for the Seattle Center category in Figure 4 recorded data for visitors to McCaw Hall for activities not included with arts and entertainment, while the Seattle Center business questionnaire excluded these visitors. The number of visitors included in the Seattle Center group is small. The percentage from the visitor survey for dining and shopping from outside the region is driven by visitor surveys at the Space Needle, Seattle Center Armory, Collections Café at Chihuly Garden and Glass, and Culture Kitchen at Museum of Pop Culture (MoPOP). The business survey did not obtain revenue data in these four dining locations, as revenue for dining at the Space Needle, Museum of Pop Culture (MoPOP), and Chihuly Garden and Glass were included with museums and attractions. The authors note that dining and beverage spending takes place in many venues at Seattle Center besides the three locations reported in the previous sentence. For example, at McCaw Hall and at

KeyArena visitors can avail themselves of dining and beverage opportunities provided by the concessionaires. The calculation of new money economic impacts in section IV of this report makes use of the actual reported non-local revenues based on the business and visitor surveys.

FIGURE 4 NEW MONEY SHARES

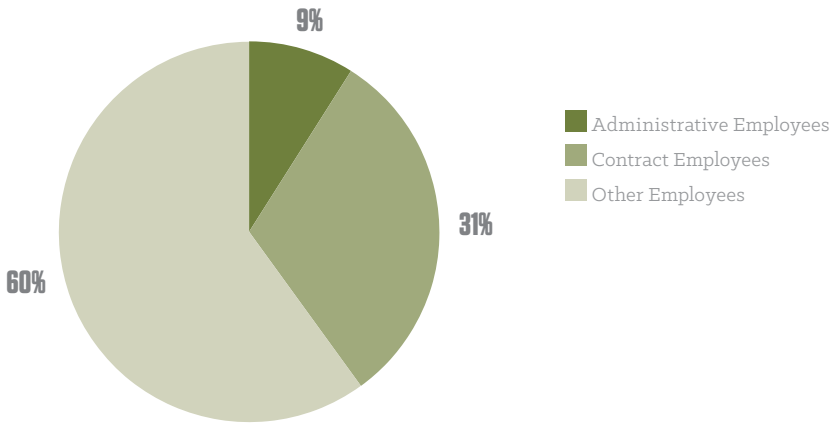


EMPLOYMENT OF SEATTLE CENTER BUSINESSES

Businesses located at Seattle Center have considerable employment, as reported in Tables 20 and 21, and Figure 5. Data presented in these tables and this figure were derived from the business survey, including a tabulation of employment at food services located in the Armory. These data exclude people working at events such as runs and walks, as well as at some festivals, many of whom are volunteers. They also exclude people employed by organizations producing concerts and other events at KeyArena, but include Seattle Center staff working at KeyArena as a part of these events. However, Table 20 records nearly 10,000 volunteers at organizations covered by the business survey, along with several hundred work-study/intern students. Table 21 excludes volunteers and work study/intern students; this table reports nearly 7,500 people employed at Seattle Center, of which 9% were administrative employees, 60% other employees, and 31% were contract employees. Volunteers are strongly connected to major festivals, followed by arts and entertainment

organizations. Contract personnel are largely employed by arts and entertainment organizations. Part-time employees are primarily found in the dining and shopping, arts and entertainment, and Seattle Center categories of businesses reported in Table 20.

FIGURE 5 COMPOSITION OF EMPLOYMENT



Another perspective on employment is presented in Figure 6, which documents employment by work type. It is estimated that 17% of people covered by the business survey are full-time employees, while 52% are part-time employees. It is estimated that 92% of these wage payments were made to King County residents. In contrast, many contract employees reside outside King County. An estimated 39% of contract employee payments were made to persons residing outside King County, many of whom are visiting artistic and entertainment employees, such as actors or musicians.

FIGURE 6 COMPOSITION OF EMPLOYMENT BY WORK TYPE

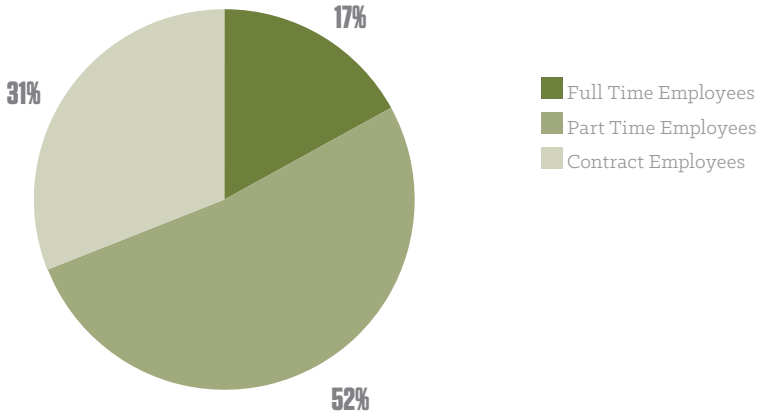


TABLE 20 DETAILED EMPLOYMENT & VOLUNTEER COMPOSITION OF SEATTLE CENTER ACTIVITIES

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	SEATTLE CENTER	TOTAL
FULL-TIME ADMINISTRATIVE	16	5	237	105	27	63	**453**
PART-TIME ADMINISTRATIVE	0	90	103	13	6	11	**223**
WORK STUDY/INTERNS ADMINISTRATIVE	17	0	58	7	3	9	**94**
VOLUNTEERS ADMINISTRATIVE	0	80	950	440	130	2	**1,602**
FULL-TIME OTHER EMPLOYEES	26	1	358	277	6	161	**829**
PART-TIME OTHER EMPLOYEES	57	98	1,664	813	262	774	**3,668**
WORK STUDY/INTERNS OTHER EMPLOYEES	8	0	108	19	0	0	**135**
VOLUNTEERS OTHER EMPLOYEES	2	0	2,021	175	6,064	13	**8,275**
CONTRACT EMPLOYEES	26	50	1,847	68	277	5	**2,273**
TOTAL	**152**	**324**	**7,346**	**1,917**	**6,775**	**1,038**	**17,552**

TABLE 21 AGGREGATE EMPLOYMENT COMPOSITION OF SEATTLE CENTER ACTIVITIES

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	SEATTLE CENTER	TOTAL
ADMINISTRATIVE EMPLOYEES	16	95	340	118	33	74	**676**
OTHER EMPLOYEES	83	99	2,022	1,090	268	935	**4,497**
CONTRACT PERSONNEL	26	50	1,847	68	277	5	**2,273**
TOTAL	**125**	**244**	**4,209**	**1,276**	**578**	**1,014**	**7,446**

EXPENSES OF SEATTLE CENTER BUSINESSES

The business survey provided data on detailed expenditures other than employee expenses. Table 22 presents these reported expenses by major categories, including labor costs. Table 22 reports total revenues are slightly above total expenses ($303 million vs. $279 million). Figure 7 reports that 60% of these expenses were for wages and salaries, and contract employees. Various services account for the majority of other expenses, with the majority of these expenditures made in King County.

TABLE 22 MAJOR EXPENSE CATEGORIES ($ MILLIONS)

	TOTAL	$ KING	% IN KING COUNTY
WAGES AND SALARIES	$152.711	$140.681	92.1%
CONTRACT LABOR	14.792	9.017	61.0%
SERVICES	70.618	63.474	89.9%
UTILITIES AND TELEPHONE	9.239	8.697	94.1%
OTHER GOODS AND SERVICES	18.593	13.592	73.1%
TAXES	12.807	12.566	98.1%
TOTAL EXPENSES	**$278.760**	**$248.027**	**89.0%**
(TOTAL REVENUE $302.943)			

FIGURE 7 COMPOSITION OF EXPENSES

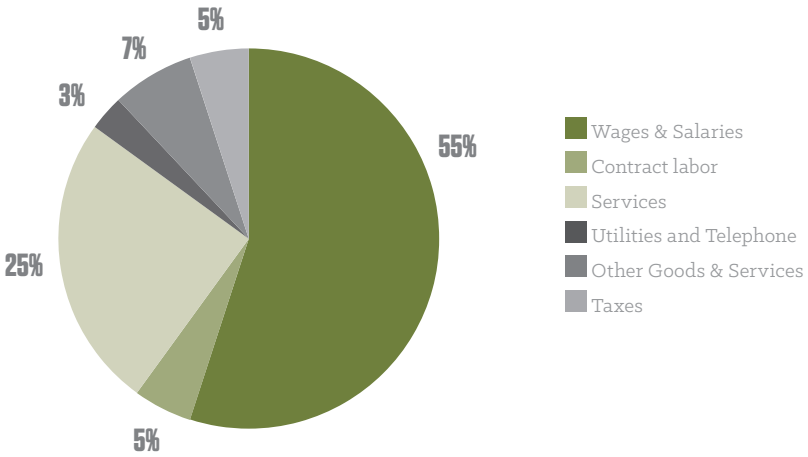


Table 23 reports earnings by occupation by group. Contract employees are concentrated in the arts and entertainment group, with a lesser concentration in attractions and museums.

TABLE 23 EARNINGS BY OCCUPATION ($ MILLIONS))

	SPORTS	DINING & SHOPPING	ARTS & ENTERTAINMENT	ATTRACTIONS & MUSEUMS	MAJOR FESTIVALS	SEATTLE CENTER	TOTAL
ADMINISTRATIVE EMPLOYEES	$0.663	$1.368	$15.211	$15.243	$0.389	$7.277	**$40.152**
OTHER EMPLOYEES	3.120	3.445	41.180	40.315	0.793	23.706	**112.559**
CONTRACT EMPLOYEES	0.265	0.050	8.688	4.402	1.380	0.008	**14.792**
TOTAL	**$4.048**	**$4.863**	**$65.078**	**$59.961**	**$2.562**	**$30.991**	**$167.503**
CONTRACT EMPLOYEE EARNINGS OUTSIDE KING COUNTY	$0.003	$0.000	$5.465	$0.036	$0.272	$0.000	**$5.776**

Approximately 26% of wage and salary payments were made to administrative employees, while other employees received approximately 74% of wage and salary payments.

Non-employee expenses reported in Figure 7 are reported in greater detail in Tables 24-27. Table 24 presents detailed information on service purchases; approximately 90% of these purchases were made in King County. The largest shares of service expenditures were made for marketing, food and beverage, costume and set rental, and "other" services. Other services included construction, retail, software, legal/accounting/management, architecture/engineering, administrative/employment, waste management, and payments to performers (which were treated as labor income). Relatively large percentages of banking services were made outside King County, as was also the case for travel related services (transportation and lodging).

TABLE 24 SERVICE EXPENDITURES ($ MILLIONS)

		% OF TOTAL SERVICES	% KING COUNTY
MARKETING EXPENSES	$12.252	17.3%	83.5%
PRESS AND PUBLIC RELATIONS	3.257	4.6%	93.3%
PHOTOGRAPHIC/ART SERVICES	0.551	0.8%	78.4%
BANKING	2.009	2.8%	60.3%
INSURANCE	2.813	4.0%	80.6%
ACCOUNTING, AUDITING	0.855	1.2%	96.3%
TRANSPORTATION	1.879	2.7%	72.5%
LODGING	1.141	1.6%	57.7%
FOOD/BEVERAGE SERVICES	5.922	8.4%	98.4%
SET/COSTUME/EXHIBIT RENTAL	6.267	8.9%	89.7%
EQUIPMENT RENTAL	1.117	1.6%	79.1%
HALL RENTAL	4.003	5.7%	100.0%
OFFICE AND WORK SPACE RENTAL	6.165	8.7%	96.3%
ROYALTIES	4.751	6.7%	85.3%
OTHER SERVICES	17.637	25.0%	97.1%
TOTAL	**$70.618**	**100.0%**	**89.9%**

Table 25 reports that Seattle Center businesses spent $9 million on telephone, postage, and utilities, with two-thirds of these outlays for utilities. Almost all of these expenditures were made in King County.

TABLE 25 TELEPHONE AND UTILITY EXPENDITURES ($ MILLIONS)

		% OF TOTAL SERVICES	% KING COUNTY
TELEPHONE	$1.052	11.4%	90.6%
POSTAGE	1.830	19.8%	90.9%
OTHER UTILITIES	6.356	68.8%	95.7%
TOTAL	**$9.239**	**100.0%**	**94.1%**

About 7% of the expenditures of Seattle Center businesses were for "other goods and services," as reported in Table 26. A higher share of these expenditures were made outside King County than reported for other expense categories. Exhibition materials were primarily acquired outside King County.

TABLE 26 OTHER GOODS AND SERVICES EXPENDITURES ($ MILLIONS)

		% OF TOTAL	% KING COUNTY
PRINTING OF PROGRAMS, ETC.	$1.092	5.9%	97.4%
EXHIBITION MATERIALS	3.113	16.7%	16.9%
PRODUCTION MATERIALS	3.142	16.9%	80.3%
SUPPLIES	4.193	22.6%	95.7%
OTHER GOODS AND SERVICES	7.054	37.9%	77.5%
TOTAL	**$18.593**	**100.0%**	**73.1%**

Table 27 presents estimates of selected taxes paid by Seattle Center businesses. The largest share of these payments were sales taxes, which are collected on sales of food, beverages, and gifts/souvenirs sold in shops of organizations located at Seattle Center. Although businesses reported most of the sales taxes as paid in King County, it should be noted that the majority of these payments were to the State of Washington (6.5% of the 9.6% King County sales tax collection rate). Leasehold Excise Tax, paid by private entities leasing public property, is included in lieu of property tax and is paid to the State of Washington (12.84% of the rent for use of the property).

TABLE 27 TAX PAYMENTS ($ MILLIONS)

		% OF TOTAL	% KING COUNTY
SALES TAX	$6.758	52.8%	98.9%
BUSINESS AND OCCUPATION TAX	2.214	17.3%	92.5%
PROPERTY TAX	0.926	7.2%	100.0%
CITY ADMISSIONS TAX AND STATE LEASEHOLD TAX	2.910	22.7%	100.0%
TOTAL	**$12.807**	**100.0%**	**98.1%**

IV. ECONOMIC IMPACT ANALYSIS

The data gathered in the survey of Seattle Center visitors and in the survey of Seattle Center businesses were used to calculate economic impacts through use of the Washington State input-output model. Appendix IV provides technical information about this model. A version of this model benchmarked against King County was used for this analysis. This model adjusted the structure of the Washington State input-output model through use of the location-quotient method of coefficient adjustment (Miller & Blair 2009). This methodology reduces multipliers in the model, by omitting industries found in the state economy, but not present in the local economy (such as petroleum refining). It also corrects multipliers for industries whose presence in the local economy is a smaller share than found in the state economy (such as agriculture).

Two estimates of economic impact are reported in this section of the report: (1) an estimate of gross economic impacts, related to spending of all visitors to Seattle Center and all spending of businesses impacted by this spending, and (2) an estimate of "new money"—impacts driven by spending by visitors from outside King County and Seattle Center business income from outside King County. The new money estimate can be considered a measure of the contribution of Seattle Center to the "economic base" of King County. These impacts would not occur if the activities found at Seattle Center were not present in the King County economy, and can be interpreted as a measure of the "net" impact of Seattle Center on the King County economy. In contrast, the gross economic impact estimate includes expenditures made by local residents that could be shifted to other goods and services if the activities located at Seattle Center were not present in King County. If these shifts in spending occurred, economic impacts would be felt in other industries.

The input-output models require use of employment, labor income, other value added, and total revenue (sales) in order to calculate economic impacts. These data were based on the surveys of Seattle Center visitors and businesses, as well as data reported in the Washington State input-output model.

OVERALL ECONOMIC IMPACTS

The data in Table 28 report part of the data entering the input-output model, based on the survey of Seattle Center businesses and visitors. Direct sales, employment, labor income, and other value added are also entered into the input-output model. Data reported in Sections II and III were re-categorized in the input-output model sectors, using

conventions utilized in these models. The data reported in Section II were expressed in consumer expenditure categories, while input-output models use conventions expressing values in "producers prices." For example, spending on souvenirs and gifts documented in the visitor survey was reported in Table 16. In the input-output model, retail value of souvenirs is decomposed into (a) the manufacturers value of the souvenirs, (b) transport costs in hauling these commodities from where they are manufactured to where they are sold, and (c) the margins earned by wholesalers and retailers in distributing these goods to consumers. All expenditures in the visitor survey were re-expressed in producers prices, and values not considered to represent King County economic activity were omitted from the impact model. Data from the business survey were similarly modified, when necessary. The result of this translation reduces the total expenditures reported in Tables 19 and 22 for production occurring outside King County. It should be noted that the business survey explicitly asked respondents for the share of their purchases made on goods and services in King County, as reported in Section III of this report. It should also be noted that tickets/admissions reported for visitors in Section II do not enter the input-output model; rather the expenses incurred by the organizations attended by these visitors enter the model. The direct expenditures entering the input-output model are reported in Table 28. The setup of this model also includes the direct sales (revenue) of Seattle Center businesses, their direct expenditures on labor, and direct levels of employment.

TABLE 28 KING COUNTY FIRST ROUND PURCHASES ($ MILLIONS)

	I/O MODEL SECTOR	
1.	CROP PRODUCTION	$0.000
2.	ANIMAL PRODUCTION	0.000
3.	FORESTRY AND LOGGING	0.000
4.	FISHING, HUNTING, AND TRAPPING	0.000
5.	MINING	0.000
6.	ELECTRIC UTILITIES	4.023
7.	GAS UTILITIES	1.416
8.	OTHER UTILITIES	0.641
9.	HIGHWAY, STREET, AND BRIDGE CONSTRUCTION	0.000
10.	OTHER CONSTRUCTION	0.160
11.	FOOD, BEVERAGE, AND TOBACCO MANUFACTURING	0.000
12.	TEXTILES AND APPAREL MILLS	0.000
13.	WOOD PRODUCT MANUFACTURING	0.000
14.	PAPER MANUFACTURING	0.000
15.	PRINTING AND RELATED ACTIVITIES	1.064
16.	PETROLEUM AND COAL PRODUCTS MANUFACTURING	0.000
17.	CHEMICAL MANUFACTURING	0.000
18.	NONMETALLIC MINERAL PRODUCTS MANUFACTURING	0.000
19.	PRIMARY METAL MANUFACTURING	0.000
20.	FABRICATED METALS MANUFACTURING	0.000
21.	MACHINERY MANUFACTURING	0.000
22.	COMPUTER AND ELECTRONIC PRODUCT MANUFACTURING	0.000
23.	ELECTRICAL EQUIPMENT MANUFACTURING	0.000
24.	AIRCRAFT AND PARTS MANUFACTURING	0.000
25.	SHIP AND BOAT BUILDING	0.000
26.	OTHER TRANSPORTATION EQUIPMENT MANUFACTURING	0.000

	I/O MODEL SECTOR	
27.	FURNITURE PRODUCT MANUFACTURING	0.000
28.	OTHER MANUFACTURING	0.000
29.	WHOLESALE	0.000
30.	NON-STORE RETAIL	0.000
31.	OTHER RETAIL	27.724
32.	AIR TRANSPORTATION	70.350
33.	WATER TRANSPORTATION	0.000
34.	TRUCK TRANSPORTATION	1.588
35.	OTHER TRANSPORTATION/POSTAL OFFICES	14.991
36.	SUPPORT ACTIVITIES FOR STORAGE, TRANSPORTATION, AND WAREHOUSING	0.000
37.	SOFTWARE PUBLISHERS & DATA PROCESSING AND RELATED SERVICES	0.455
38.	TELECOMMUNICATIONS	0.953
39.	OTHER INFORMATION	0.000
40.	CREDIT INTERMEDIATION AND RELATED ACTIVITIES	1.212
41.	OTHER FINANCE AND INSURANCE	2.620
42.	REAL ESTATE AND RENTAL AND LEASING	16.443
43.	LEGAL / ACCOUNTING AND BOOKKEEPING / MANAGEMENT SERVICES	19.700
44.	ARCHITECTURAL, ENGINEERING, AND COMPUTING SERVICES	0.338
45.	EDUCATIONAL SERVICES	0.000
46.	AMBULATORY HEALTH CARE SERVICES	0.000
47.	HOSPITALS	0.000
48.	NURSING AND RESIDENTIAL CARE FACILITIES, SOCIAL ASSISTANCE	0.000
49.	ARTS, RECREATION, AND ACCOMMODATION	150.348
50.	FOOD SERVICES AND DRINKING PLACES	130.530
51.	ADMINISTRATIVE/ EMPLOYMENT SUPPORT SERVICES	0.228
52.	WASTE MANAGEMENT / OTHER AND AGRICULTURE SERVICES	16.186

TOTAL	**$460.971**

The input-output model produces estimates of economic impact by sector, on three basic measures: output (sales), employment and labor income, as reported in Tables 29 and 30. Table 29 reports these impacts by detailed industry categories, while Table 30 reports these data for aggregations of the industries in Table 29. Direct sales of Seattle Center businesses were estimated to be $303 million, direct employment to be 7,446, and labor income to be $167.5 million (including contract labor). Total visitor expenditures were estimated to be $815 million, some of which is paid to Seattle Center businesses as admissions and other expenditures. Total economic impacts are estimated to lead to King County business or sales of $1.864 billion, to create 18,621 jobs and $631 million in labor income. Some sectors in Table 29 have small impacts (such as ship and boat building), while others have very substantial impacts due to direct spending by Seattle Center and its visitors (such as other retail). The actual pattern of impacts is a function of the direct spending of Seattle Center and its visitors, and is largely felt in the services sectors (#29 – #52). The economic impact model traces out linkages based on direct spending by impacted sectors, as well as the impacts of household income earnings and expenditures. The latter are called personal consumption expenditures, and they are also largely concentrated in service industries.

TABLE 29 KING COUNTY OUTPUT, EMPLOYMENT, AND LABOR INCOME IMPACTS

	I/O MODEL SECTOR	OUTPUT (MILS. $2015)	EMPLOYMENT	LABOR INCOME (MILS. $2015)
1.	CROP PRODUCTION	$0.077	1	$0.026
2.	ANIMAL PRODUCTION	0.059	0	0.020
3.	FORESTRY AND LOGGING	0.024	0	0.005
4.	FISHING, HUNTING, AND TRAPPING	4.204	10	1.191
5.	MINING	1.495	6	0.301
6.	ELECTRIC UTILITIES	27.463	36	8.404
7.	GAS UTILITIES	6.247	4	0.489
8.	OTHER UTILITIES	3.822	16	1.280
9.	HIGHWAY, STREET, AND BRIDGE CONSTRUCTION	5.843	18	1.569
10.	OTHER CONSTRUCTION	55.618	206	13.843
11.	FOOD, BEVERAGE, AND TOBACCO MANUFACTURING	22.547	34	1.965
12.	TEXTILES AND APPAREL MILLS	0.455	2	0.091
13.	WOOD PRODUCT MANUFACTURING	0.221	1	0.036
14.	PAPER MANUFACTURING	1.157	2	0.158
15.	PRINTING AND RELATED ACTIVITIES	4.799	22	1.260
16.	PETROLEUM AND COAL PRODUCTS MANUFACTURING	0.986	0	0.020
17.	CHEMICAL MANUFACTURING	0.217	0	0.044
18.	NONMETALLIC MINERAL PRODUCTS MANUFACTURING	2.880	6	0.422
19.	PRIMARY METAL MANUFACTURING	0.064	0	0.010
20.	FABRICATED METALS MANUFACTURING	1.486	5	0.323
21.	MACHINERY MANUFACTURING	0.997	2	0.151
22.	COMPUTER AND ELECTRONIC PRODUCT MANUFACTURING	0.452	1	0.151
23.	ELECTRICAL EQUIPMENT MANUFACTURING	0.086	0	0.014
24.	AIRCRAFT AND PARTS MANUFACTURING	0.136	0	0.029
25.	SHIP AND BOAT BUILDING	0.112	0	0.032
26.	OTHER TRANSPORTATION EQUIPMENT MANUFACTURING	0.801	1	0.094
27.	FURNITURE PRODUCT MANUFACTURING	0.509	3	0.134
28.	OTHER MANUFACTURING	1.029	4	0.215
29.	WHOLESALE	52.414	181	15.096
30.	NON-STORE RETAIL	2.102	15	0.523
31.	OTHER RETAIL	84.282	839	33.363
32.	AIR TRANSPORTATION	78.187	135	12.134
33.	WATER TRANSPORTATION	3.212	7	0.677
34.	TRUCK TRANSPORTATION	7.499	41	2.468
35.	OTHER TRANSPORTATION/ POSTAL OFFICES	34.452	163	11.372
36.	SUPPORT ACTIVITIES FOR STORAGE, TRANSPORTATION, AND WAREHOUSING	9.167	45	3.435
37.	SOFTWARE PUBLISHERS & DATA PROCESSING & RELATED SERVICES	8.189	16	3.018
38.	TELECOMMUNICATIONS	30.226	58	5.555
39.	OTHER INFORMATION	38.844	1,447	18.651
40.	CREDIT INTERMEDIATION AND RELATED ACTIVITIES	49.887	113	11.798
41.	OTHER FINANCE AND INSURANCE	43.931	212	14.619
42.	REAL ESTATE AND RENTAL AND LEASING	47.220	451	9.658
43.	LEGAL/ACCOUNTING AND BOOKKEEPING/ MANAGEMENT SERVICES	84.366	1,357	62.542
44.	ARCHITECTURAL, ENGINEERING, AND COMPUTING SERVICES	11.881	73	6.537
45.	EDUCATIONAL SERVICES	12.150	154	5.205
46.	AMBULATORY HEALTH CARE SERVICES	38.281	280	21.047
47.	HOSPITALS	34.255	164	13.002
48.	NURSING AND RESIDENTIAL CARE FACILITIES, SOCIAL ASSISTANCE	15.912	215	6.860
49.	ARTS, RECREATION, AND ACCOMMODATION	383.933	6,883	172.628
50.	FOOD SERVICES AND DRINKING PLACES	187.842	2,481	60.912
51.	ADMINISTRATIVE/ EMPLOYMENT SUPPORT SERVICES	17.880	325	12.844
52.	WASTE MANAGEMENT/ OTHER AND AGRICULTURE SERVICES	72.028	541	23.490
53.	STATE AND LOCAL GOVERNMENT	372.242	2,046	71.754
TOTAL		**$1,864.165**	**18,621**	**$631.467**

TABLE 30 SUMMARY IMPACTS

	OUTPUT ($ MILLIONS)	EMPLOYMENT	LABOR INCOME ($ MILLIONS)
NATURAL RESOURCES AND UTILITIES	$43.391	73	$11.717
CONSTRUCTION AND MANUFACTURING	100.395	308	20.561
RETAIL AND WHOLESALE TRADE	138.798	1,035	48.982
PRODUCER AND TRANSPORT SERVICES	464.940	4,442	175.309
CONSUMER SERVICES AND STATE AND LOCAL GOVERNMENT	1,116.642	12,764	374.897
TOTAL	**$1,864.165**	**18,621**	**$631.467**

Spending by Seattle Center and its visitors also leads to tax revenue to various governments. Table 31 presents an estimate of selected tax revenues. Some of the spending of Seattle Center visitors is subject to sales tax revenue, and that is reported as state and local direct sales tax revenue in Table 31. Seattle Center businesses also reported sales tax revenues, but it was assumed that these were largely captured in estimates of Seattle Center visitor expenditures. State and local sales tax is also generated indirectly, through spending of labor income earned as a result of Seattle Center business and visitor spending. Using data from the State of Washington Office of the Forecast Council, Table 31 presents estimates of this indirect sales tax revenue as a function of labor income. The visitor survey yields a direct estimate of payments of the Seattle hotel tax. The state and Seattle business and occupation tax estimates were derived from data reported by the Washington State Department of Revenue, and tax rates published by the City of Seattle. The admissions and property tax estimates comes from the business survey. There are other taxes generated by business activity and visitor spending at Seattle Center that are not included with this analysis due to lack of data. They include indirect property taxes and auto rental taxes.

TABLE 31 SELECTED TAX IMPACTS

	STATE	LOCAL	TOTAL
SALES TAX ON DIRECT SALES TO VISITORS	$11.925	$5.687	$17.612
SALES TAX AS A SHARE OF LABOR INCOME	18.857	8.703	29.081
CITY ADMISSIONS TAX	——	2.778	2.778
CITY HOTEL-MOTEL TAX (DIRECT)	——	23.194	23.194
PROPERTY TAX – SEATTLE CENTER BUSINESSES	——	0.926	0.926
STATE LEASEHOLD TAX	0.142	——	0.142
BUSINESS AND OCCUPATION TAX	10.224	5.749	15.973
TOTAL	**$41.148**	**$47.038**	**$89.564**

NEW MONEY IMPACTS

"New money" impacts are those related to sales or income originating outside the King County region that represent net estimates of impact that would not occur if the activities at Seattle Center were not present in King County. These estimates are often made in economic impact studies to document the "net" versus "gross" economic impacts of the activities being modelled.

In this study, new money has been defined as income from outside King County. Given the integrated commuting patterns and economic interdependencies within the larger Puget Sound region, this may be a conservative definition of new money. About 8% of Seattle Center visitors came from the larger Central Puget Sound region (Snohomish, Kitsap, and Pierce counties). If these visitors were excluded from new money impact estimates, the impacts would be lower than reported below.

Table 32 reports new money economic impacts, while Table 33 reports new money tax revenues. New money economic impacts generated sales of $1.182 billion, 10,625 jobs, and $381 million in labor income. New money economic impacts are larger than their share of total Seattle Center business revenue (37%), because they are largely driven by non-local visitor spending. New money economic impacts are in the range of 59% to 76% of total economic impacts, depending on the metric selected. For output they are 66% of total impacts, while for employment they are 59%, for labor income 62%, and for taxes 73%. Thus, it is clear that Seattle Center is a major generator of economic impacts due to new money—a type of economic impact typically associated with export industries such as aerospace or producer services (Beyers & Lin).

TABLE 32 NEW MONEY ECONOMIC IMPACTS

	OUTPUT ($ MILLIONS)	EMPLOYMENT	LABOR INCOME ($ MILLIONS)
NATURAL RESOURCES AND UTILITIES	$26.825	45	$7.262
CONSTRUCTION AND MANUFACTURING	68.563	209	13.956
RETAIL AND WHOLESALE TRADE	91.159	685	32.277
PRODUCER AND TRANSPORT SERVICES	297.649	2,200	101.691
CONSUMER SERVICES AND STATE AND LOCAL GOVERNMENT	697.860	7,485	226.103
TOTAL	**$1,182.055**	**10,625**	**$381.288**

TABLE 33 NEW MONEY TAX IMPACTS ($ MILLIONS)

	WASHINGTON STATE	KING	TOTAL
SALES TAX DIRECT TO VISITORS	$9.114	$4.347	$13.461
SALES TAX AS A SHARE OF LABOR INCOME	11.386	5.255	16.642
CITY ADMISSIONS TAX	——	1.028	1.028
PROPERTY TAX—SEATTLE CENTER BUSINESSES	——	.343	.343
CITY HOTEL-MOTEL TAX (DIRECT)	——	23.194	23.194
STATE LEASEHOLD TAX	0.053	——	0.053
BUSINESS AND OCCUPATION TAX	6.481	3.712	10.194
TOTAL	**$27.034**	**$37.879**	**$64.913**

V. COMPARISONS TO 2005 SEATTLE CENTER ECONOMIC IMPACT STUDY

This report follows methodology used a decade ago to document the economic impact of Seattle Center, allowing comparisons to results reported in that study. Not every aspect of the earlier study will be compared with results reported in this study. However, this section does speak to comparisons on major metrics used in both studies from the visitor survey, business survey, and economic impact analysis. Seattle Center staff provided the listing of changes in attractions at Seattle Center between 2005 and 2016. Table 34 lists these changes, but it should be noted that organizations and events that were present in both 2005 and 2016 are likely to have undergone changes in their presence at Seattle Center.

TABLE 34 CHANGES IN ATTRACTIONS AT SEATTLE CENTER 2005 - 2016

ATTRACTIONS THAT HAVE LEFT SEATTLE CENTER	ATTRACTIONS THAT HAVE COME TO SEATTLE CENTER
FUN FOREST AMUSEMENT PARK	CHIHULY GARDEN AND GLASS
SEATTLE SUPERSONICS (NBA)	GATES FOUNDATION VISITOR CENTER
SEATTLE THUNDERBIRDS (WHL)	CORNISH COLLEGE OF THE ARTS
INTIMAN THEATRE	ARTISTS AT PLAY CHILDREN'S PLAYGROUND
SEATTLE INTERNATIONAL CHILDREN'S FESTIVAL	ARMORY FOOD COURT – ADDED HIGHER QUALITY FOOD VENDORS
ARMORY FOOD COURT – VARIOUS VENDORS	KEXP, VERA PROJECT, SIFF
NORTHWEST ROOMS – MEETING ROOMS CLOSED	

VISITOR ATTENDANCE NUMBERS AND SPENDING COMPARISONS

A major measurement issue for this study is how many people come to Seattle Center. To obtain a good estimate of the number of visitors we asked them to identify what they did on the visit which led them to be contacted. Appendix II explains the logic of how we estimated this in the current study; the visitor questionnaire in Appendix I contains the question used to unpack this matter.

The bottom line is this: visitor levels in 2005 and 2016 were similar, but the mix of activities participated in changed. These changes were driven by major changes in attractions—such as the large decline in sports estimated attendance due to the departure of the Sonics and Thunderbirds. Figures 8 and 9 report two measures of visitor activity. Figure 8 reports

estimated total citations of participation in activities at Seattle Center from the visitor surveys. Visitors identified multiple activities participated in on their trips to Seattle Center in these surveys, about twelve million activities in both surveys. There are some differences in definitions of activities used in the 2005 and 2016 surveys, but the two survey instruments used are similar. The broad contours of data reported in Figures 8 and 9 are similar—attendance at Seattle Center is strong in attractions and museums, arts and entertainment, at major festivals—and fell in sports with the departure of the Sonics and the Thunderbirds. The Seattle SuperSonics from 2003 – 2007 had an annual average home attendance of 520,000, which represented 50% of all KeyArena attendance during that time period. Dining is a category in the survey for participation that is referred to as food and beverages either before or after an event, or at it. It was not modelled as a primary reason for a visit to Seattle Center, even though it is recognized that many people travel to Seattle Center primarily to dine at venues such as the Space Needle. These visitors are also captured in the survey as visiting the Space Needle itself, so in some sense their dining activity is related to coming to the Space Needle. Likewise, visitors attending a performance at Seattle Opera may dine at Prelude, the restaurant in McCaw Hall, but their primary reasons for their trip was to go to the opera, not to dine at Prelude. Another activity not modelled as a direct reason for a trip to Seattle Center was visiting Seattle Center grounds. Figure 8 shows significant estimates of attendance on Seattle Center grounds, derived from the visitor participation survey.

Future surveys of visitor activity at Seattle Center could approach the question of attendance in a different manner, although there is consistency between the 2005 and 2016 surveys. Seattle Center attracted about 4 million net visitors in both 2005 and 2016, and they engaged in about 12 million activities subject to measurement in these years. Seattle Center has a campus wireless network that in future research could provide additional data to clarify total net visitors to Seattle Center.

FIGURE 8 ESTIMATED ATTENDANCE BY ACTIVITY

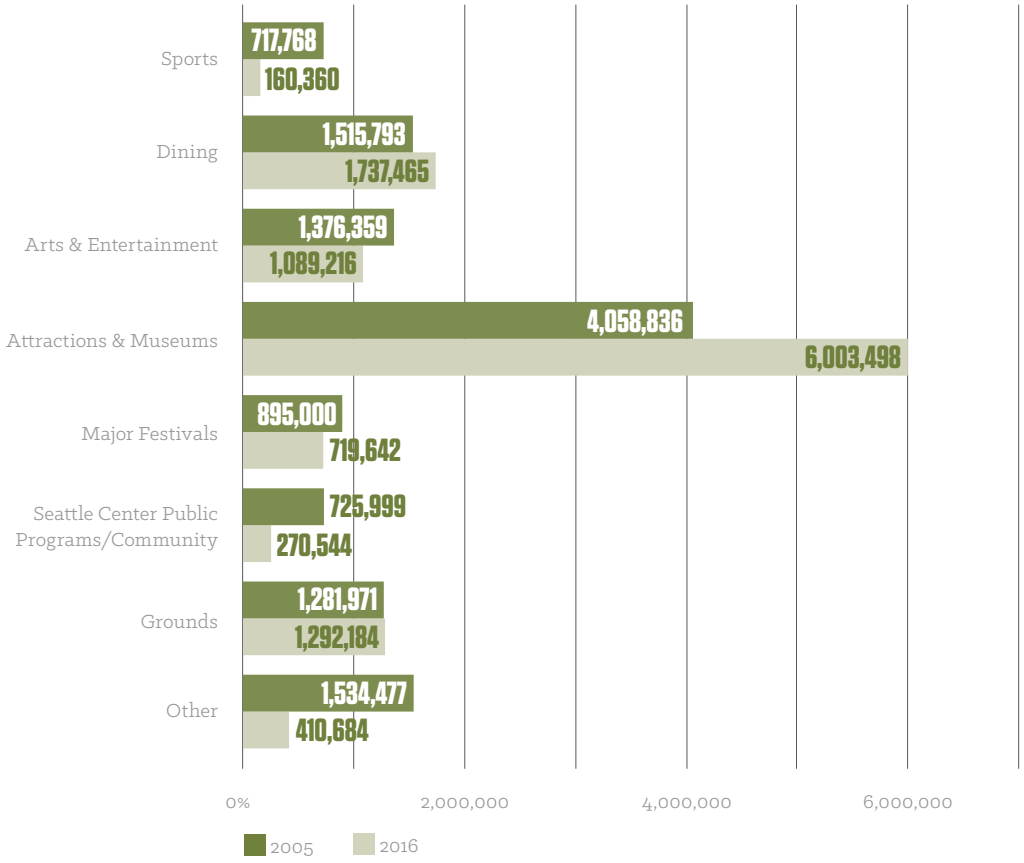
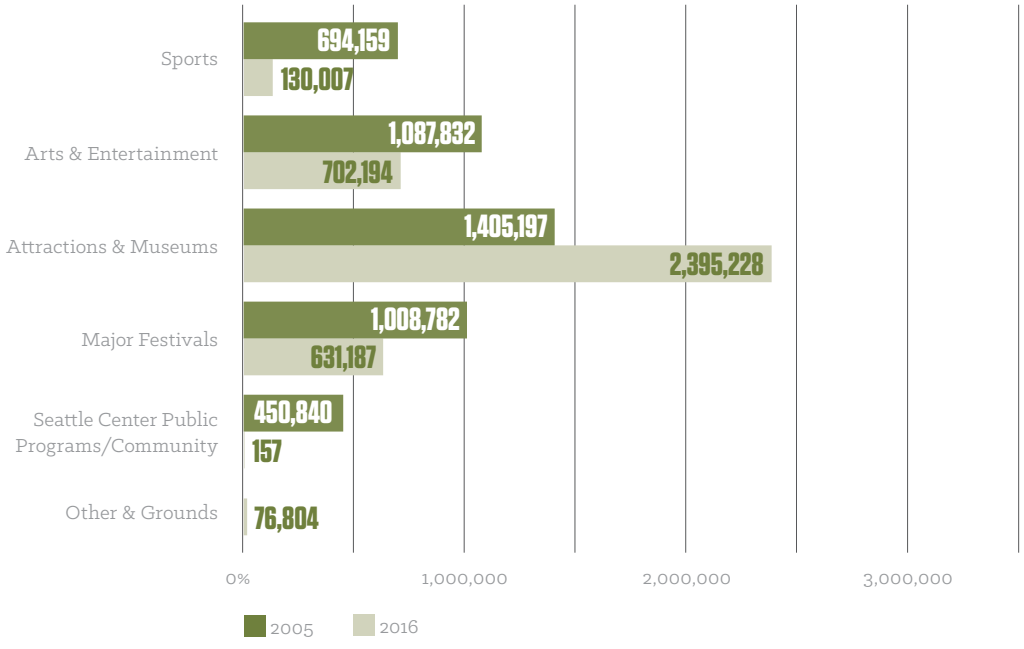


FIGURE 9 ESTIMATED NET DIRECT ATTENDANCE



Seattle Center visitors were surveyed on their spending in relation to their Seattle Center visits. Figure 10 presents estimates of per capita estimates of these expenditures, in 2016 (the consumer price index was used to adjust 2005 data to 2016). It is clear from Figure 10 that average outlays were higher in 2016 by visitors from all three geographic regions included in Figure 10. Table 35 presents estimates of per capita visitor spending in constant 2016 dollars by region of origin. This table makes it clear that average visitor spending was up in the 2016 survey over the 2005 survey in most categories, even after correcting for inflation (using the Consumer Price Index as the basis for adjusting 2005 average visitor spending data). The major exceptions to this trend were local auto travel costs (which declined), and local and other Washington entertainment expenses (which also declined).

FIGURE 10 ESTIMATED TOTAL VISITOR SPENDING ($2016)

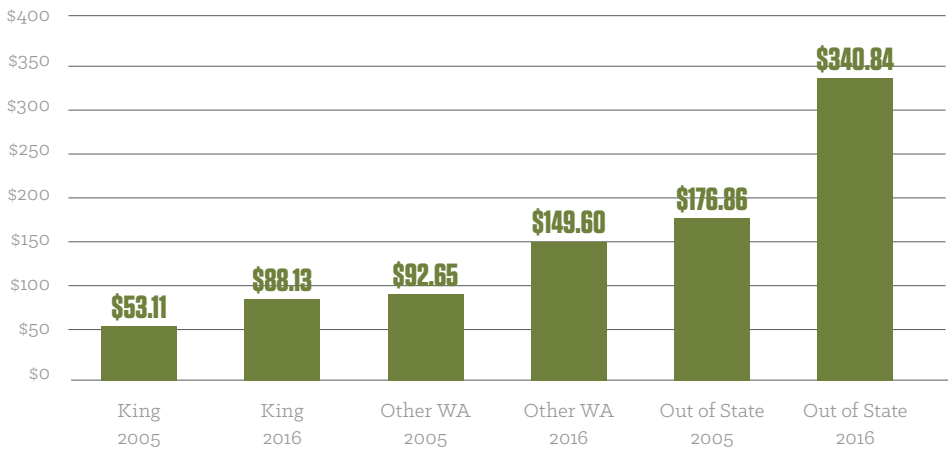
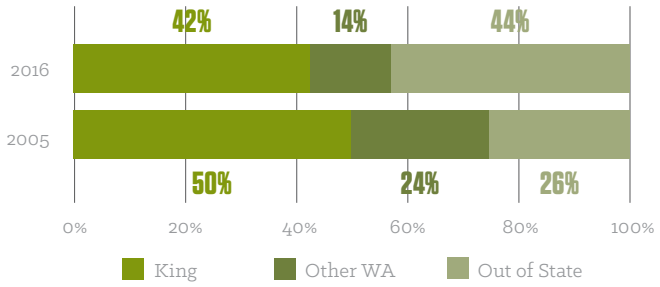


TABLE 35 INFLATION ADJUSTED PER CAPITA VISITOR SPENDING ($2016)

	2005 KING	2016 KING	2005 OTHER WA	2016 OTHER WA	2005 OUT OF STATE	2016 OUT OF STATE
TICKETS AND ADMISSIONS	$27.98	$51.99	$37.33	$68.14	$33.11	$63.37
SOUVENIRS AND GIFTS	4.02	7.13	7.64	11.18	10.35	18.25
PARKING FEES	2.24	3.37	2.28	4.78	2.02	3.93
BUS-FERRY-TAXI-RIDE SHARE-MONORAIL-LIGHT RAIL	0.37	1.29	1.88	2.21	3.57	5.80
AUTO TRAVEL COSTS (GAS, RENTALS)	2.18	1.54	4.42	6.62	6.83	17.45
FOOD AND BEVERAGES BEFORE AND AFTER EVENT	6.74	10.29	11.67	17.21	13.78	32.04
FOOD AND BEVERAGES AT EVENT	4.32	8.21	5.19	12.71	4.65	14.96
ENTERTAINMENT BEFORE OR AFTER EVENT	0.96	0.41	2.66	1.00	3.67	4.29
LODGING	0.76	0.70	9.12	18.24	29.43	94.08
AIR TRAVEL COSTS	1.86	0.47	7.69	5.64	66.04	79.93
CHILD CARE COSTS	0.26	0.44	0.27	0.58	0.30	0.68
OTHER COSTS	1.43	2.29	2.51	1.31	3.14	6.06
TOTAL	**$53.12**	**$88.13**	**$92.66**	**$149.60**	**$176.89**	**$340.84**

Figure 11 presents estimates of visitor origins from the 2005 Seattle Center economic impact study and from the current study. These data are weighted by the proportions of visitors originating in King County, elsewhere in Washington State, and from out-of-state by attendance estimates by group. Local visitors have declined slightly as a share of the total, as have visitors from elsewhere in Washington State. In contrast, out-of-state visitors as a share of the total have increased. Seattle Center has become a more important tourist destination since the 2005 study.

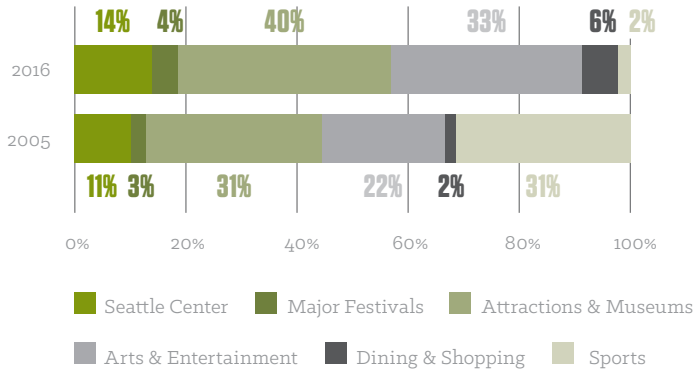
FIGURE 11 COMPOSITION OF VISITOR ORIGINS



SEATTLE CENTER BUSINESS COMPARISONS

Figure 12 reports composition of total income of Seattle Center businesses from the 2005 and 2016 surveys. The proportion of total revenue attributed to sports declined by 21% in constant dollars, largely due to the departure of the Seattle SuperSonics. The largest share of revenues beyond sports in 2005 came from attractions and museums and arts and entertainment, consistent with data on attendance reported in Figures 8 and 9. Dining and shopping and major festival revenue were up as a share of total income revenue in 2016.

FIGURE 12 COMPOSITION OF REVENUE SEATTLE CENTER BUSINESSES



New money as a share of Seattle Center business category revenue was quite similar in 2005 and 2016. Figure 13 reports that it declined slightly (from 39% to 37%), driven largely by declines in new money from sports. Data were not gathered on direct new money revenues for dining in the 2016 survey. Food service tenants at Seattle Center Armory did not report these data, and dining data for the Space Needle and other venues were included in other attendance categories. Seattle Center reported no new money income in 2016, while it reported about 10% in the 2005 survey. Data for the key attendance categories of museums and attractions and arts and entertainment are quite similar in these two surveys, while the 2016 survey reports a somewhat higher new money level for major festivals than in 2005.

FIGURE 13 NEW MONEY PERCENTAGES

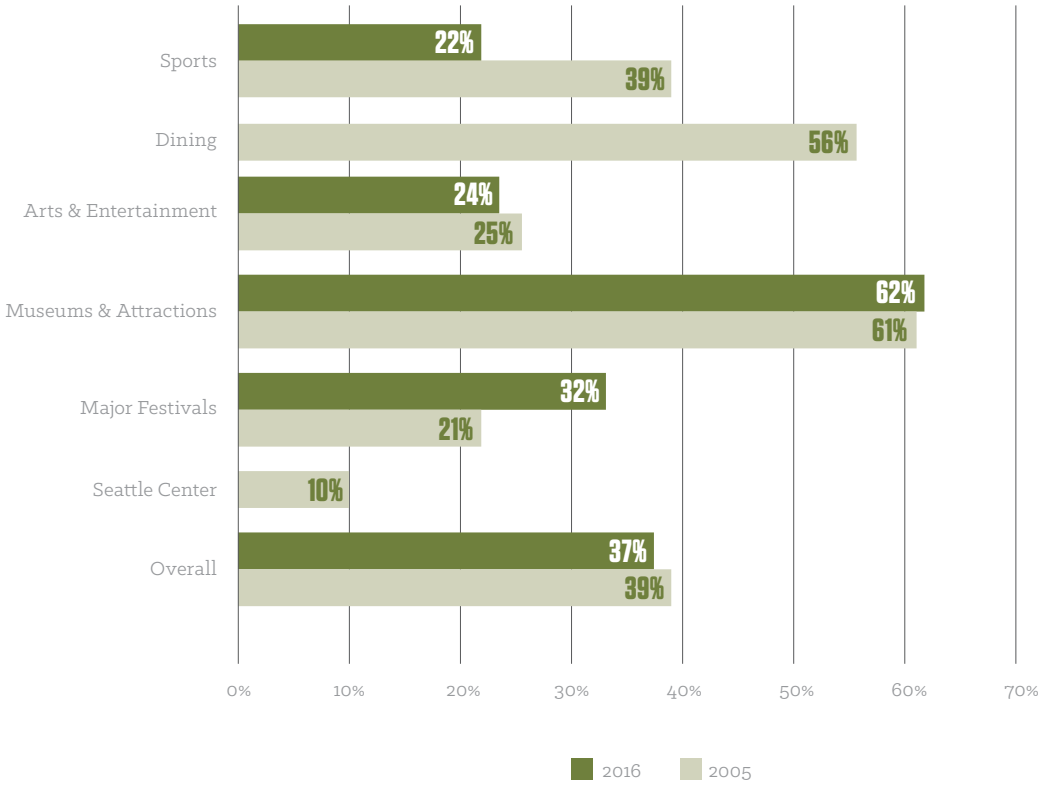
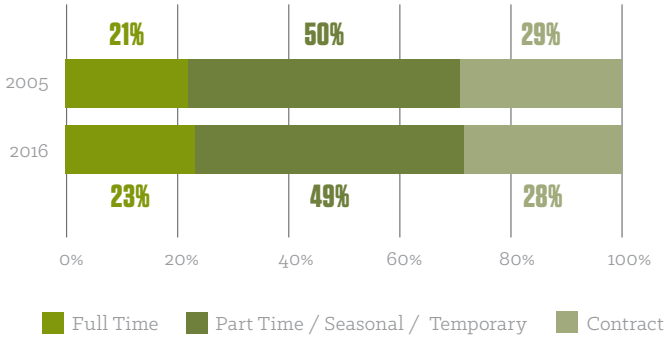


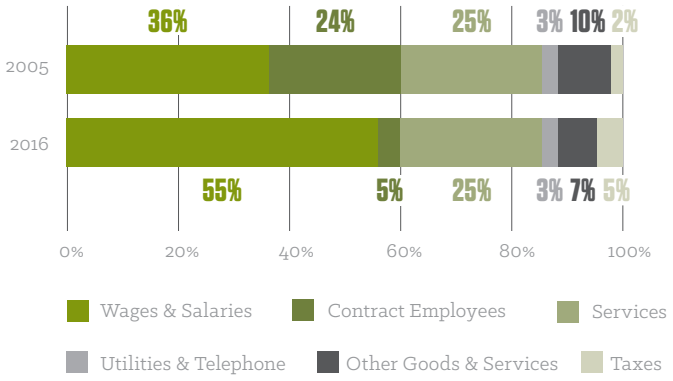
Figure 14 reports the composition of employment at Seattle Center in the 2005 and 2016 business surveys. They are almost identical. Full time employment increased slightly, while part-time / seasonal / temporary employment decreased slightly.

FIGURE 14 COMPOSITION OF EMPLOYMENT SEATTLE CENTER BUSINESSES



Expenditures of Seattle Center Businesses are compared for the 2005 and 2016 studies in Figure 15. This figure reports a large increase in the share of these expenditures as wages and salaries, and a corresponding decrease in the share of payments to contract workers. Spending on services and utilities and telephone were quite similar, while the share of payments on taxes rose while the share of payments for other goods and services were lower in 2016 than in 2005.

FIGURE 15 COMPOSITION OF EXPENDITURES OF SEATTLE CENTER BUSINESSES



The large decline in the share of contract employee payments is due to the loss of the Seattle SuperSonics, whose highly-paid players were considered contract employees.

ECONOMIC IMPACT COMPARISONS

Economic impacts were calculated in both the 2005 and 2016 studies through the use of the Washington State input-output model. The 2005 impact study utilized the 1997 Washington input-output model, while the 2016 study utilized the 2007 Washington input-output model. The overall structure of these models did not change greatly, but multipliers in them are different. Most importantly, labor requirements (as measured by employment per unit of output) has declined over time across the economy, due to productivity improvements. Table 35 presents one measure of change in impacts, the number of jobs created as a result of total visitor and business spending, and as result of new money (See the discussion of the new money concept on page 37). Table 36 finds an increase in total employment impacts, from 15,534 to 18,621. New money employment impacts increase from 7,349 to 10,625. Thus, while the number of visitors to Seattle Center was similar in 2005 and 2016,

economic impacts in 2016 are somewhat higher. These higher impacts are primarily related to increased spending by Seattle Center visitors, rather than by increases in spending by Seattle Center businesses (This analysis accounts for the fact that Seattle Center businesses receive income from Seattle Center visitors, but the methodology used in the impact analysis does not double-count expenditures made by visitors and businesses).

TABLE 36 CHANGES IN ECONOMIC IMPACT EMPLOYMENT MEASURES

	2016 TOTAL IMPACT	2016 NEW MONEY IMPACT	2005 TOTAL IMPACT	2005 NEW MONEY IMPACT
NATURAL RESOURCES AND UTILITIES	73	45	60	30
CONSTRUCTION AND MANUFACTURING	308	209	352	183
RETAIL AND WHOLESALE TRADE	1,035	685	1,218	652
PRODUCER AND TRANSPORT SERVICES	4,442	2,200	2,122	1,217
CONSUMER SERVICES AND STATE AND LOCAL GOVERNMENT	12,764	7,485	11,782	5,268
TOTAL	**18,621**	**10,625**	**15,534**	**7,349**
% CHANGE TOTAL	19.9%	44.6%		

VISITOR TRIP AND DEMOGRAPHIC COMPARISONS

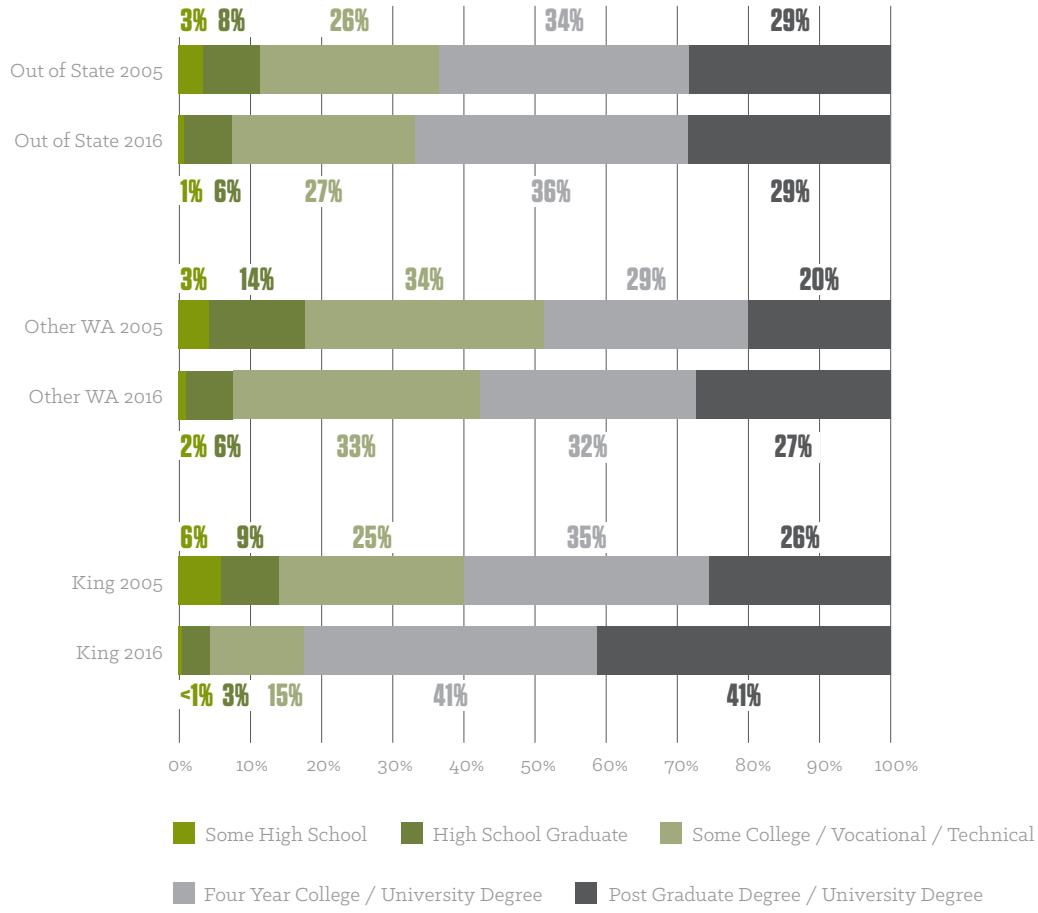
Section II reported details of visitor expenditures and participation in Seattle Center activities. This section presents selected comparisons with the 2005 Seattle Center Economic Impact Study.

Very similar results were obtained for a number of visitor characteristics and demographics. The primary trip reason was a visit to Seattle Center for a similar percentage of visitors—78% in the 2005 study and 74% in the current study. The number of people in the party interviewed was also very similar; the median was two persons in both studies, while the mean was 3.6 persons in the 2005 study and 3.15 persons in the current study. The gender of the respondent was also quite similar, 44% female in the 2005 study and 41% in the current study. The age distribution was most common for those in the 35-44 age group in both studies. Household size was smaller in the current study than in the 2005 study. The average household size was 2.61 in the current study versus 2.83 in the 2005 study; the median household size declined from 3 to 2 persons between the two studies. The occupational profile of visitors was also quite similar, with 54% working full-time in both studies. The retired cohort increased from 10.5% to 19.7%, while the student cohort

declined from 5.3% to 1.7%. Part time workers were almost the same (7.3% vs. 7.1%, as were the not-employed (2.4% vs. 1.7%). The ethnicity of Seattle Center visitors became more diverse, as Caucasians responding to the visitor survey declined from 84% to 77% of the total. Asian and Hispanic visitors increased their shares of visitors from 11% to 14% of the total, while African American visitors accounted for 2.8% of the total in both studies. (It should be noted that the questions about ethnicity differ slightly between the 2005 and 2016 studies. The 2016 study included the category "other ethnicity," while the 2005 study did not include this category). The length of stay for the Seattle Center visit remained quite similar, with 87% staying 2-8 hours in the 2005 survey, versus 81% in the current survey. The number of times people visited annually was also similar between the two surveys.

One dimension in the visitor survey had quite a different distribution in the current survey, versus the 2005 survey, and that was in the reported educational characteristics of those completing the survey. Figure 16 reports these data. Both samples have a high level of respondents with a post graduate degree. However, the 2005 survey reported a much smaller percentage of visitors with a four-year baccalaureate degree, and a much higher percentage of respondents with a high-school degree. King County visitors had a sharply higher percentage of persons with at least a four-year college degree in the 2016 survey than was case in 2005 survey, as well as a higher level of educational attainment than visitors from outside King County. Visitors from out of state had similar educational characteristics in the 2005 and 2016 surveys, while visitors from Washington State outside King County have higher levels of at least a four year college degree, and a decreased share of visitors with a high school degree as their highest level of educational attainment.

TABLE 16 EDUCATIONAL CHARACTERISTICS OF VISITOR RESPONDENTS



VI. CONCLUDING COMMENTS

This is the second economic impact study of Seattle Center undertaken by the authors of this report. The methodology used was quite similar to that used in the first study, benchmarked against the year 2005. This study was benchmarked against the year 2016. Both studies relied on primary data gathered from Seattle Center visitors and businesses. Excellent returns were obtained from Seattle Center visitors, and all businesses included in the study provided data for the analyses included in this report. As with any survey-based research project, errors are likely due to sampling and measurement errors, but the authors feel confident that the results presented in this report are accurate.

The questionnaires utilized in this research project produced data of good quality, although we did need to adjust some responses in the visitor survey as described in section II of this report. The complexity of visits to Seattle Center remains a statistical challenge for a research project of this type. The estimation of net visits versus gross participation on types of activities measured by Seattle Center is necessary to not overestimate economic impacts. This study utilized the Internet for most visitor surveys, and asked visitors to report for their "last visit to Seattle Center" the activities that they participated in. If a future study were to be conducted and utilized the Internet as the primary means of gathering visitor data, it would be appropriate to ask visitors more specifically about the visit for which they were being surveyed. We also did not ask for businesses to describe some of the "other" categories of expenditures, and it would help in the economic impact analysis if these data were more complete. Although these issues are important to address in future studies, the current study has obtained excellent results from both visitors and businesses at Seattle Center.

Seattle Center remains a vital center for cultural activities in the City of Seattle, more than half a century after the 1962 World's Fair created this campus. The organizations sited there have changed over time, and will change in the future. It attracts a large cohort of its visitors from outside the local area, contributing to the economic base of the regional economy. It generates jobs and income for thousands of people in King County, and is a major tourist destination. This legacy of the 1962 World's Fair is a treasure that continues to provide many kinds of benefits for the citizens of the City of Seattle.

APPENDIX I VISITOR QUESTIONNAIRE, SURVEY SAMPLE SIZE, AND ESTIMATED ATTENDANCE

GMA RESEARCH

Seattle Center 2016 Visitor Survey
Seattle Opera

Dear Seattle Center Visitor:

We are conducting a survey to learn more about Seattle Center visitors to Seattle Opera. Please take a few minutes to help us with this very brief survey regarding your recent visit.

The information you provide will be used for research purposes only and will be kept strictly confidential.

Please note one person should answer these questions for the entire group/party.

Thank you!
Seattle Center

1. Including yourself, how many people were in your party?
(Please use numbers only)

2. Was the primary reason for your visit to Seattle Center to attend a performance/exhibition/event?

- Yes
- No

3. If Q2 is "Yes", what was the performance/exhibit/event?

4. If Q2 is "No", what was the primary reason?

1

GMA RESEARCH

Seattle Center 2016 Visitor Survey
Seattle Opera

5. Please check ALL activities you participated in on your visit to Seattle Center?
(Select all that apply)

- [ ] Arts & Entertainment (Ballet, SEATTLE OPERA, Rep, Children's Theatre, Shakespeare, Pottery NW, KeyArena Concerts, etc.)
- [ ] Museums (EMP, Chihuly Garden and Glass, Children's Museum, Gates Visitor Center, etc.)
- [ ] Pacific Science Center
- [ ] Space Needle (Observation Deck, Gift Shop)
- [ ] Sports Event (Reign, Storm, SU, Pac 12, NCAA, Gymnastics)
- [ ] Major Festivals(Northwest Folklife Festival, Bite of Seattle, Bumbershoot, Seattle Pridefest, etc.)
- [ ] Monorail (To or from Seattle Center)
- [ ] Meeting, Fundraiser or Conference
- [ ] Dining & Beverages (Space Needle Restaurant, Armory Food Court, Pop Kitchen/EMP, Collections/Chihuly, etc.)
- [ ] Gardens, Fountains or Play Spaces
- [ ] Community Events, Cultural Festivals or runs/walks
- [ ] Other: Please describe.

6. How long was your stay at Seattle Center?

- ○ 1 hour
- ○ 2 to 3 hours
- ○ 4 to 8 hours
- ○ More than 8 hours

2

GMA RESEARCH

Seattle Center 2016 Visitor Survey
Seattle Opera

7. Please estimate the total expenditures IN WHOLE DOLLARS made by your party for each of the following. Include only those expenditures you attribute to/associate with attending the performance/activity/event.
(Note: One person should estimate expenditure for the entire party.)

Tickets & admissions

Souvenirs and gifts

Parking fees

Bus-ferry-taxi-ride share-monorail-light rail costs

Auto travel costs (gas, rentals)

Food & beverages before or after the event

Food & beverages at the event

Entertainment before or after the event

Lodging & accommodation costs

Air travel costs

Child care & babysitting

Other costs (Please specify both item and cost in space provided)

3

Seattle Center 2016 Visitor Survey
Seattle Opera

Please answer the following questions regarding sources you use to find out about local events, entertainment, and things to do.

8. Social Media? (Please check all that apply)

- ☐ Facebook
- ☐ Instagram
- ☐ Twitter
- ☐ YouTube
- ☐ Snapchat
- ☐ Pinterest
- ☐ Tumblr
- ☐ Other (please specify)

9. Internet/Digital Media? (Please check all that apply)

- ☐ Google
- ☐ Bing
- ☐ E-Newsletter
- ☐ Website
- ☐ Other

If selected E-Newsletter, Website, or Other, please specify here:

4

10. Print? (Please check all that apply)

- [ ] The Stranger
- [ ] Seattle Weekly
- [ ] The Seattle Times
- [ ] Puget Sound Business Journal
- [ ] SeattleMet Magazine
- [ ] Seattle Magazine
- [ ] 425 Magazine
- [ ] Parent Map
- [ ] Seattle Child's
- [ ] City Arts
- [ ] Other (please specify)

11. Radio? (Please check all that apply)

- [ ] KEXP 90.3 FM
- [ ] KUOW 94.9 FM
- [ ] KING FM 98.1
- [ ] Other (please specify)

12. TV? (Please check all that apply)

- [ ] KOMO
- [ ] KING
- [ ] KIRO
- [ ] KCPQ
- [ ] Other (please specify)

5

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Seattle Center 2016 Visitor Survey
Seattle Opera

13. What role/part does Seattle Center play in your life?

14. Please describe why Seattle Center is important to the community?

6

GMA RESEARCH

Seattle Center 2016 Visitor Survey
Seattle Opera

15. How often do you attend the following activities<u>at Seattle Center</u>?

	Daily	Weekly	Once or more per month	About 3 or 4 times per year	Once a year	Less than once a year	Never
Ticketed sports events	○	○	○	○	○	○	○
Ticketed cultural/arts/performances/exhibits	○	○	○	○	○	○	○
Free cultural/arts performances/exhibits	○	○	○	○	○	○	○
Festivals	○	○	○	○	○	○	○
Community gatherings	○	○	○	○	○	○	○

16. Approximately how many times do you come to Seattle Center per year?
(Please use whole numbers, if None, use "0")

[ ]

7

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Seattle Center 2016 Visitor Survey
Seattle Opera

The following questions are confidential and your answers will be combined with others for reporting purposes.

17. What are the ages of everyone in your party during your visit to Seattle Center?

	Under 18	18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65+
Yourself	○	○	○	○	○	○	○
Guest #1	○	○	○	○	○	○	○
Guest #2	○	○	○	○	○	○	○
Guest #3	○	○	○	○	○	○	○
Guest #4	○	○	○	○	○	○	○
Guest #5	○	○	○	○	○	○	○
Guest #6	○	○	○	○	○	○	○
Guest #7	○	○	○	○	○	○	○

18. What is the gender of everyone in your party during your visit to Seattle Center?

	Male	Female	Other
Yourself	○	○	○
Guest #1	○	○	○
Guest #2	○	○	○
Guest #3	○	○	○
Guest #4	○	○	○
Guest #5	○	○	○
Guest #6	○	○	○
Guest #7	○	○	○

8

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Seattle Center 2016 Visitor Survey
Seattle Opera

19. Please indicate years of school you completed.

- ◯ Some high school
- ◯ High school graduate
- ◯ Some college/vocations/technical
- ◯ Four year college/university degree
- ◯ Post graduate degree

20. What is your employment status?

- ◯ Working full time
- ◯ Working part time
- ◯ Contract employee
- ◯ Self employed
- ◯ Stay-at-home parent
- ◯ Military
- ◯ Student
- ◯ Retired
- ◯ Not employed
- ◯ Other (please specify)

21. Are you a resident of the United States?

- ◯ Yes
- ◯ No

22. What is your USA zip code, Canadian postal code or country of residence (if outside USA)?

9

23. How many people are in your household, including yourself?

24. Please indicate your ethnic origin.

- [ ] African American/Black
- [ ] Asian/Asian American
- [ ] Caucasian/White
- [ ] Hispanic Origin
- [ ] Native American/Inuit/Aleut
- [ ] Other (please specify)

25. Please indicate your annual, combined household income.

- ◯ Under $20,000
- ◯ $20,000 to $39,999
- ◯ $40,000 to $59,999
- ◯ $60,000 to $74,999
- ◯ $75,000 to $99,999
- ◯ $100,000 to $124,999
- ◯ $125,000 to $249,999
- ◯ $250,000 or more
- ◯ Prefer not to answer

10

GMA RESEARCH

Seattle Center 2016 Visitor Survey
Seattle Opera

26. Thank you for participating.

Please add any other comments below and then click the "DONE" button to complete the survey.

11

APPENDIX I TABLE 1 NUMBER OF SURVEYS BY LOCATION AND ESTIMATED ATTENDANCE (INCLUDES STUDENT ATTENDANCE)

LOCATION	# OF SURVEYS	ESTIMATED ATTENDANCE
SEATTLE STORM	175	71,084
SEATTLE UNIVERSITY	4	31,830
MEMORIAL STADIUM	0	54,614
OTHER KEYARENA	35	20,071
TOTAL SPORTS	**214**	**177,599**
SPACE NEEDLE	70	INCLUDED WITH MUSEUMS & ATTRACTIONS
MUSEUM OF POP CULTURE (MOPOP)	23	73,976
COLLECTIONS CAFÉ	64	INCLUDED WITH MUSEUMS & ATTRACTIONS
ARMORY FOOD SERVICES	40	NOT ESTIMATED
TOTAL DINING	**197**	**73,976**
BOOK-IT REPERTORY THEATRE	0	14,774
CORNISH COLLEGE OF THE ARTS	0	44,367
KCTS	0	450
KEXP	0	31,000
PACIFIC NORTHWEST BALLET	67	251,261
POTTERY NORTHWEST	0	4,000
SEATTLE CHILDREN'S THEATRE	73	125,113
SEATTLE OPERA	120	84,158
SEATTLE REPERTORY THEATRE	59	102,462
SEATTLE SHAKESPEARE COMPANY	0	54,182
TEATRO ZINZANNI	0	51,733
THE VERA PROJECT	0	11,082
THEATRE PUGET SOUND	0	21,600
ART/NOT TERMINAL GALLERY	0	0
KEYARENA	275	359,488
MCCAW HALL OTHER EVENTS	0	54,538
TOTAL ARTS & ENTERTAINMENT	**594**	**1,210,208**

LOCATION	# OF SURVEYS	ESTIMATED ATTENDANCE
MUSEUM OF POP CULTURE (MOPOP)	41	745,038
GATES FOUNDATION VISITOR CENTER	40	***
PACIFIC SCIENCE CENTER	70	782,002
SEATTLE CHILDREN'S MUSEUM	50	190,000
SEATTLE MONORAIL SERVICES	25	2,292,953
CHIHULY GARDEN & GLASS	150	***
SPACE NEEDLE	175	***
TOTAL MUSEUMS & ATTRACTIONS	**551**	**6,167,505**
BITE OF SEATTLE	46	350,000
NORTHWEST FOLKLIFE FESTIVAL	197	238,000
PRIDEFEST	0	50,000
BUMBERSHOOT	154	81,642
TOTAL MAJOR FESTIVALS	**397**	**719,642**
FESTÁL	137	NOT ESTIMATED
SEATTLE'S BEST DAMN HAPPY HOUR	16	NOT ESTIMATED
SEAFAIR FANFEST	10	NOT ESTIMATED
WINTERFEST	3	NOT ESTIMATED
KEYARENA	0	4,514
TOTAL COMMUNITY	**166**	**270,544**
GROUNDS & AMENITIES - PARK SPACES	11	NOT ESTIMATED SEPARATELY
GROUNDS & AMENITIES - FOUNTAIN	48	NOT ESTIMATED SEPARATELY
TOTAL GROUNDS	**59**	**306,500**
SEATTLE CENTER OTHER	40	193,803
ACADEMY OF INTERACTIVE ENTERTAINMENT (AIE)	0	18,460
THE CENTER SCHOOL	0	45,000
KEYARENA	0	72,076
MCCAW HALL	91	31,557
TOTAL OTHER	**131**	**360,896**

TOTAL	**2,309**	**9,286,870**

*** NOT REPORTED TO MAINTAIN CONFIDENTIALITY

APPENDIX II ESTIMATING NET SEATTLE CENTER VISITOR STATISTICS

Seattle Center visitors have multiple reasons for visiting the campus, and they get counted in multiple ways for their visits. One of the most important issues confronting this study was the estimation of a "net" number of visitors, so as to not over-state the economic impacts of Seattle Center. To address this issue, the visitor questionnaire asked respondents to "Please check all activities you participated in on your last visit to Seattle Center." Most visitors were contacted by e-mail, either directly by the organization where their visit was recorded, or through a newsletter sent to them by that organization. Seattle Center also posted on its website a request for visitors to respond to this questionnaire. About 5,700 responses were received from this request for data, and GMA Research created a file with 2,309 responses categorized by the eight groups included in this study. This file contained a sufficient number of responses in each visitor group for the statistical analyses undertaken in this report.

A challenge for this project was how to take responses from this survey, and use it to estimate the net number of Seattle Center visitors. The following approach was utilized. Responses of each visitor group were analyzed, to ascertain responses that appeared to be plausible. In some cases people did not answer questions related to this topic, and in other cases they made responses that were infeasible (such as saying that they participated in every activity possible on their Seattle Center trip). As reported in Table 15, 80.7% of responses were considered to be valid in the file of 2,309 responses. In the 2005 study 97.7% of the surveys were considered to have provided useable data.

In the 2005 Seattle Center study the question about participation in Seattle Center activities was answered largely by visitors in intercept surveys—surveys done on the same day onsite with the visitors. In the current survey, most responses were obtained through the Internet. This resulted in a larger number of the responses being considered not valid. When reasons for trips were examined relative to responses to this question, some people cited reasons for trips that did not match their trip purpose. For example, they cited attending a sports event at Seattle Center, and said that their primary trip reason was to go to a Seattle Mariners game. Reading all text related to the question led to the omission of slightly less than 20% of total responses.

Table I-2 reports data from the visitor survey on citations of participation in categories described in this survey. The data in this table was converted to proportions, as reported in Table I-3. These proportions were multiplied by the values labelled benchmark in Table I-4, to produce the row totals reported in Table I-4 (excluding student admissions). These row values correspond closely to estimated levels of direct attendance, as reported in Table I-1. Dining was not modelled directly in this process because it was regarded as an activity

either covered in other direct survey data (such as a visitor dining at the Space Needle was counted as an admission at the Space Needle); it was considered to be a "derived demand" as a part of visits to Seattle Center. The result of this model is found in Table I-4, which reports an estimated 3.9 million individual visitors engaging in 11.7 million activities, or 3.06 activities subject to visitation statistical counts per capita. The absolute numbers of visitors resulting from this model were used to calculate total visitor spending and economic impacts related to this spending.

TABLE 1-2 DETAILED CITATIONS BY SURVEY GROUPS

	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8	ALL GROUPS
VALID REPONSES	SPORTS	DINING	ARTS	MUSEUMS/ SPACE NEEDLE	FESTIVALS	COMMUNITY	GROUNDS	OTHER	**TOTAL**
ARTS & ENTERTAINMENT	9	13	540	30	111	19	5	63	**790**
MUSEUMS	5	94	38	313	52	10	24	8	**544**
PACIFIC SCIENCE CENTER	2	21	20	138	29	5	13	7	**235**
SPACE NEEDLE (NOT DINING)	2	100	29	311	28	5	32	6	**513**
SPORTS EVENT	176	16	3	35	7	1	1	5	**244**
MAJOR FESTIVALS	10	7	7	16	309	29	4	3	**385**
MONORAIL	3	53	54	234	60	14	46	10	**474**
MEETING, FUNDRAISER, OR CONFERENCE	0	4	2	8	9	2	2	2	**29**
DINING AND BEVERAGES	44	140	128	229	131	40	40	30	**782**
GARDENS, FOUNTAINS, OR PLAY SPACES	26	56	65	174	103	21	23	13	**481**
COMMUNITY EVENTS, CULTURAL FESTIVALS, OR RUNS/WALKS	3	8	12	29	47	84	8	10	**201**
OTHER	3	26	29	51	10	9	3	5	**136**
TOTAL CITATIONS	283	538	927	1,568	896	239	201	162	**4,814**
NUMBER OF RESPONDENTS	176	143	548	454	310	92	52	82	**1,857**
RATIO	1.61	3.76	1.69	3.45	2.89	2.60	3.87	1.98	**2.59**

TABLE 1-3 PROBABILITIES OF VISITATION BY GROUP (READ DOWN COLUMNS)

	SPORTS	ARTS	MUSEUMS/ SPACE NEEDLE	FESTIVALS	COMMUNITY	GROUNDS	OTHER	TOTAL (NOT WEIGHTED)
SPORTS	1.000	0.002	0.007	0.017	0.000	0.020	0.000	**0.109**
DINING	0.261	0.235	0.507	0.424	0.435	0.780	0.315	**0.374**
ARTS	0.055	0.985	0.064	0.356	0.200	0.100	0.907	**0.460**
MUSEUMS / SPACE NEEDLE / MONORAIL	0.055	0.259	2.222	0.529	0.376	2.260	0.167	**0.757**
FESTIVALS	0.061	0.013	0.028	0.997	0.294	0.080	0.019	**0.219**
COMMUNITY	0.018	0.022	0.061	0.149	0.906	0.160	0.019	**0.106**
GROUNDS	0.152	0.119	0.396	0.332	0.212	0.420	0.093	**0.248**
OTHER	0.018	0.058	0.134	0.061	0.118	0.100	0.037	**0.078**
TOTAL	**1.618**	**1.693**	**3.420**	**2.864**	**2.541**	**3.920**	**1.556**	**2.351**

TABLE 1-4 ESTIMATION OF VISITATION

	SPORTS	ARTS	MUSEUMS/ SPACE NEEDLE	FESTIVALS	COMMUNITY	GROUNDS	OTHER	TOTAL	CONTROL	DIFFERENCE
SPORTS	130,007	1,308	16,947	10,698	0	1,400	0	**160,360**	160,360	0
DINING	33,881	164,761	1,214,561	267,452	68	54,600	2,142	**1,737,465**	0	
ARTS	7,091	691,733	152,526	224,660	31	7,000	6,174	**1,089,216**	1,089,216	0
MUSEUMS/ SPACE NEEDLE/ MONORAIL	7,091	181,760	5,321,474	333,780	59	158,200	1,134	**6,003,498**	6,003,497	1
FESTIVALS	7,879	9,153	67,789	629,047	46	5,600	126	**719,642**	719,642	0
COMMUNITY	2,364	15,691	146,877	94,143	142	11,200	126	**270,544**	270,544	0
GROUNDS	19,698	83,688	949,053	209,682	33	29,400	630	**1,292,184**		
OTHER	2,364	40,536	322,000	38,513	18	7,000	252	**410,684**		
TOTAL	**210,375**	**1,188,630**	**8,191,228**	**1,807,976**	**399**	**274,400**	**10,584**	**11,683,592**		**2.97**
BENCHMARK	**130,007**	**702,194**	**2,395,228**	**631,187**	**157**	**70,000**	**6,804**			**3,935,577**
DIRECT TOTAL	**160,360**	**1,089,216**	**6,003,497**	**719,642**	**270,544**	**306,500**	**297,436**	**8,847,195**		
WEIGHTED AVERAGE										**3.057**

APPENDIX III SEATTLE CENTER BUSINESS QUESTIONNAIRE

2016 Seattle Center Economic Impact Study Page 1 of 2

Answer Page 1 and Page 2 only. Ignore Administration

ORGANIZATION INFORMATION:

ESTIMATES ARE ACCEPTABLE!

Name of Organization:		
Name of Person Completing Questionnaire:		Last, First
Telephone:		(888)-888-8888
E-mail contact for person completing questionnaire:		

Instructions: Please complete this questionnaire for the latest year for which financial information are available. When exact figures are not available, please provide an estimate.

King County includes zip codes beginning with 980 and 981.

Answers to this questionnaire will be regarded as confidential. They will be combined with responses from other Seattle Center businesses in the impact study report, so that information about individual businesses will not be revealed.

1. Income and Attendance for the most recent fiscal year:

		% of Income from Outside King County
Income from retail sales, box office, admissions, tuition, workshops, and services:	$ -	
Income from other sources (contributions, government, other):	$ -	
Total Income:	$	
Total Attendance:		
Discounted Student Tickets:		
Free Student Tickets:		

2. Employees

Report only operational activity (programming, administration etc.) in this question. **Exclude contract personnel; enter contract personnel below in question 3.**

	Administrative	Other Employees
Please include wages, benefits, and employment taxes for full- and part-time employees. **(1)**:	$ -	$ -
% of $'s spent on employees residing outside King County:		
Number of Full-time Employees:		
Number of Part-Time Employees (Headcount):		
Total Estimated Hours: All Part-time Employees:		
Number of Work Study / Interns:		
Number of Volunteers:		
Total Estimated Hours: Volunteers:		

3. Contract Personnel

Total Amount Paid:	$ -
% of $ paid to people residing outside King County:	
Number of contract personnel:	
Estimated total hours worked by contract personnel:	

Footnotes for Page 1

(1) Exclude contract personnel in this question, contract personnel are reported in question 3

Page 1

2016 Seattle Center Economic Impact Study Page 2 of 2

4. Operating Expenses (1)

	$ for FY ending:	% outside King County
Services		
Marketing expenses	$ -	
Press and public relations	$ -	
Photographic/art services	$ -	
Banking	$ -	
Insurance	$ -	
Accounting, auditing	$ -	
Transportation	$ -	
Lodging	$ -	
Food/beverage services	$ -	
Set/Costume/Exhibit Rental	$ -	
Equipment Rental	$ -	
Hall Rental	$ -	
Office and work space rental	$ -	
Royalties	$ -	
Other Services (Please specify)	$ -	
Subtotal Services	$ -	0%
Utilities & Postage		
Telephone	$ -	
Postage	$ -	
Other Utilities	$ -	
Subtotal Utilities & Postage	$ -	0%
Other Goods & Services		
Printing of Programs, etc.	$ -	
Exhibition Materials	$ -	
Production Materials	$ -	
Supplies	$ -	
Other goods and services	$ -	
Subtotal Goods & Services	$ -	0%
Taxes (2)		
Sales Tax	$ -	
B&O Tax	$ -	
Property Tax	$ -	
Other Taxes (Please specify)	$ -	
Subtotal Taxes	$ -	0%

Subtotal This Page ->	$ -	
Subtotal Administrative Employees ->	$ -	From Page 1
Subtotal Other Employees ->	$ -	From Page 1
Subtotal Contract Personnel ->	$ -	From Page 1
Grand Total Operating Costs ->	$ -	

Footnotes for Page 2

(1) Report only operational activity (programming, administration, fundraising etc.) on this page. Exclude employee (non-contract personal; employee information should be entered on page 1. DO NOT report on endowments, capital projects, or other non-operational activity.

(2) Do not include employment taxes here. Employment taxes should be included as part of your labor costs on page 1.

Page 2

APPENDIX IV INPUT-OUTPUT MODEL TECHNICAL APPENDIX

The impact estimates developed in this study stem from the utilization of an "input-output model." Models of this type are based on static, cross-sectional measures of trade relationships in regional or national economies. They document how industries procure their inputs and where they sell their outputs. Pioneered by Wassily Leontief, who won the Nobel Prize in Economic Science for his insights into the development of input-output models at the national level, these models have become "workhorses" in regional economic impact analysis in recent decades.

Washington State is fortunate to have a rich legacy of research developing input-output models. Early work was led by Philip J. Bourque and Charles M. Tiebout. Input-output models have now been estimated in Washington State for the years 1963, 1967, 1972, 1982, 1987, 1997, 2002, and 2007. No other state in the U.S. has this rich historical legacy of survey-based or quasi-survey based regional input-output models. The current study is based on work completed in 2011 and 2012 by a team of Washington State government staff and William B. Beyers (Beyers and Lin 2012).

Input-output models decompose regional economies into "sectors"–groups of industries with a common industrial structure. The heart of these models are "Leontief production functions," which are distributions of the cost of producing the output of sectors. Leontief augmented the national accounts schema developed by Kuznets (also a Nobel laureate in economics) to take into account the significant levels of intermediate transactions that occur in economic systems in the process of transforming raw materials and services into "finished products" or "final products." Sales distributions among intermediate and final sources of demand are used as the accounting bases for the development of the core innovation of Leontief: that these relationships can be used to link levels of final demand to total industrial output by way of a system of "multipliers" that are linked through the channels of purchase in every industry to the production of output for final demand.

This system of relationships is based on accounting identities for sales and purchases. Mathematically, the system may be represented as follows. For each industry we have two balance equations:

(1) $X_i = x_{i,1} + x_{i,2} + ... + x_{i,n} + Y_i$

(2) $X_j = x_{1,j} + x_{2,j} + ...+ x_{n,j} + V_j + M_j$

where:

X_i =total sales in industry i,

X_j = total purchases in industry j

$x_{i,j}$ = intermediate sales from industry i to industry j

Y_i = final sales in industry i

M_j = imports to sector j

V_j = value added in sector j.

For any given sector, there is equality in total sales and total purchases:

(3) $X_i = X_j$ when i=j.

This system of transactions is generalized through the articulation of Leontief production functions, which are constructed around the columns of the regional input-output model. They are defined in the following manner.

Let us define a regional purchase coefficient:

$$r_{i,j} = x_{i,j}/X_j.$$

Rearranging,

$$x_{i,j} = r_{i,j}X_j$$

Substituting this relationship into equation (1) we have:

(4) $X_i = r_{i,1}X_1 + r_{i,2}X_2 + \ldots + r_{i,n}X_n + Y_i$

Each sector in the regional model has this equation structure, and since the values of Xi equal Xj when i=j, it is possible to set this system of equations into matrix notation as:

(5) $X = RX + Y$

This system of equations can then be manipulated to derive a relationship between final demand (Y) and total output (X). The resulting formulation is:

(6) $X = (I-R)^{-1}Y$

where the $(I-R)^{-1}$ matrix captures the direct and indirect impacts of linkages in the input-output model system. The input-output model utilized in the modeling for this research project was developed by a committee led by Dr. William Beyers and Dr. Ta-Win Lin, and was published in 2012 by the Washington State Office of Financial Management. The model has 52 sectors.

A major issue that surrounds the estimation of the $(I-R)^{-1}$ matrix is the level of "closure" with regard to regional final demand components, which are personal consumption expenditures, state and local government outlays, and capital investment. It is common practice to include the impacts of labor income and the disposition of this income in the form of personal consumption expenditures in the multiplier structure of regional input-output models. The additional leveraging impact of these outlays is referred to as "induced" effects in the literature on models of this type. It is less common to include state and local government expenditures in the induced effects impacts, but it can be argued that demands on state and local governments are proportional to the general level of business

activity and related demographics. In contrast, investment is classically argued to be responsive to more exogenous forces, and is not a simple function of local business volume. In the model that developed for this impact study, personal consumption expenditures and state and local governments have been included as a part of the induced-demand linkages system. We have considered Washington personal consumption expenditures to be a function of labor income, and state and local government expenditures to be a function of other value added.

The Washington State input-output model was adjusted through the use of the location quotient method into a formulation benchmarked against King County. The location quotient method of input-output model adjustment is widely utilized (Miller & Blair 2009). The fundamental assumption is that local regions that do not have the concentration of an industry found in a benchmark region are unable to supply the output of this industry locally. Instead, they must import output of these industries from other regions. An example of this situation in King County versus Washington State is with the petroleum refining industry. Washington State has four major petroleum refineries all located in Skagit and Whatcom counties. Part of the expenditures for auto travel are for fuel, manufactured by local petroleum refineries. However, it would be inappropriate to estimate that purchases of the manufacturers value of products from these refineries were made in King County. The location quotient method adjusts regional purchases to account for differences in the geographic concentration of industries, reducing these purchases when the local concentration of these industries is lower than found in a benchmark region, and leaving these purchases shares when the region as a concentration at least equal to that found in a benchmark region.

BIBLIOGRAPHY

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