



2022 Contribution & Economic Impact Analysis Report

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Project Overview

The following report illustrates the Chattanooga Zoo's 2021-22 contribution and visitor impact to the southeastern region of Tennessee. While both analyses inform a zoological park's economic stimulus to a specified location or region, they are distinctive according to the changes they account for. The contribution analysis detailed in this report estimates the gross change in the southeastern TN region's economy based on the zoo's operational, employee, and capital expenditures during the 2021 fiscal year. Expenditures provided by the zoo's operational ledger detail ways their presence supports other businesses in the local economy. In contrast, economic impact analysis uncovers the net new change to an economy emanating from spending derived from consumers residing outside of the region. In this case, a visitor's direct spending will induce a trickling effect on interrelated commerce, job growth, and income within the region. Examining this tourism effect required primary data collection from "tourists" who visited the zoo. A tourist was defined as someone who traveled 50 miles or more to visit Chattanooga. In isolating the contribution v. economic effects, methodological steps were taken by the researchers to ensure "double counting" was avoided. IMPLAN software was utilized to quantify the indirect (i.e., spending by linked industries) and induced effects (i.e., household spending) to all related sectors of the economy impacted from the economic activity incited by the zoo. Additional information pertaining to the research methods and analysis is provided in subsequent pages.

45% of visitors traveled from outside of the study's geographical impact area, deeming them a non-local attendee



Total Volunteer Impact:

\$66,424

Total Visitor Impact:

\$23,746,839

Total Contribution Impact:

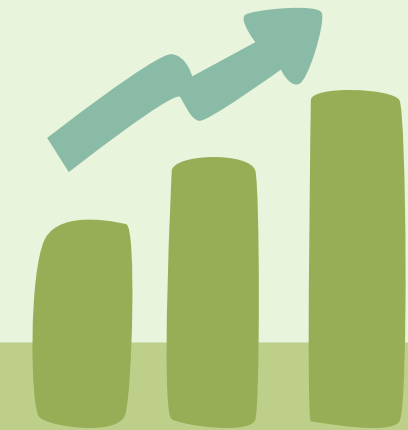
\$6,493,483



Educational Programs Serving **40,000** children per year

Total tax result: \$3,808,292

Created a total of **267** Jobs



The Zoo Generates an Estimated **\$11,000,000** in Household Spending



\$30,306,746 Total Impact

In 2021, 288,561 individuals visited the Chattanooga Zoo

735 Total Volunteers

Contribution Analysis Methods

Operational & Capital Expenditures

Economic contribution analysis was employed to analyze existing organizational ventures rather than new economic activity. Data was analyzed by using an input-output model, Impact Analysis for PLANing (IMPLAN), to estimate the Zoo's economic contributions. Expenditure data was gathered through correspondence with representatives from the Chattanooga Zoo. Itemized operational and capital expenses were each coded to reflect specific economic sectors within the IMPLAN software. As capital project expenditures vary from year to year, some expenditure categories were likely to skew higher or lower depending upon the data collection year selected. To account for this, expenditures related to construction costs, for instance, were averaged from years 2017, 2018, 2019, and 2021. It should be noted that 2019 economic data was applied in IMPLAN, as it is more representative of current economic conditions when compared to 2020 data (due to Covid 19 pandemic). Overall, these expenses fell among 35 unique categories when applied to Industry Impact Analysis. The next step involved identifying a regional geographic impact area that would best represent a regional impact. Eighteen counties were included to reflect a Southeastern Tennessee impact region. This delineation then permitted the research team to identify what percentage of each commodity purchased was done within the designated region. Only expenses which were made with vendors residing within the impact region were included in the analysis.

Contribution Analysis Methods cont.

Employee Wages

Induced impacts from increased household income from employee expenditures on the local economy were also taken into consideration when generating the contributive impact from annual operations to the Southeastern Tennessee region.

Volunteerism

Economic impacts pertaining to volunteerism were established according to standards set by The Independent Sector. This is a non-partisan network of organizations providing, among other services, research expertise to nonprofits. According to their assessments, volunteer work in Chattanooga, TN is valued at \$23 per hour.

Direct Economic Effects

Total Operating Expenses \$1,419,811.66

Total Capital Expenses.....\$421,542.75

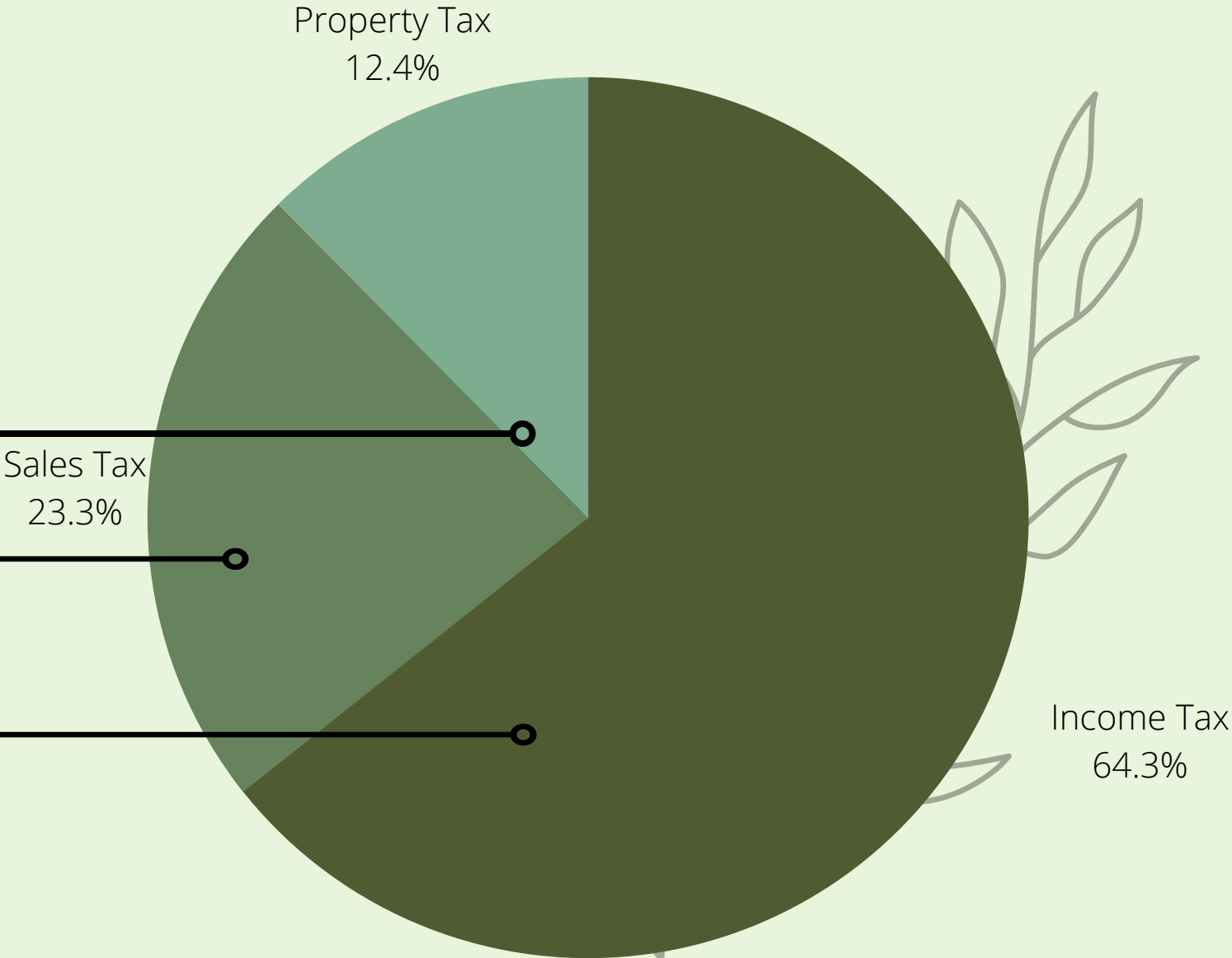
Labor \$1,811,803.72

Total Direct Spending in 2021 \$3,653,158.13

Local vendors in the Southeastern Tennessee region captured an estimated **65%** of Chattanooga Zoo’s expenditures

Annual Fiscal Impact

Income Tax \$204,500
Sales Tax \$74,000
Property Tax \$39,500
Total Impact on County, State, and Federal Taxes: \$696,815



Volunteer Impact



735 Total Volunteers

**2,888 Total Volunteer
Hours @ \$23/hour**

**Total Volunteer
Impact: \$66,424.00**



Educational Impact

Outreach programs provide fun & interactive opportunities to schools and community organizations throughout the Southeastern Tennessee region:

Educational programs include:

- Zoo camps
- Zoo overnight camps
- Zoo tales
- Series of homeschool programs
- Movin' and Groovin' Animals
- Recipe for a Habitat
- Amazing Adaptions
- Buy, Sell, Save
- Kits & Cubs
- Scout Programs

**Serving 40,000
children per year**



Direct, Indirect, Induced Impact Explained

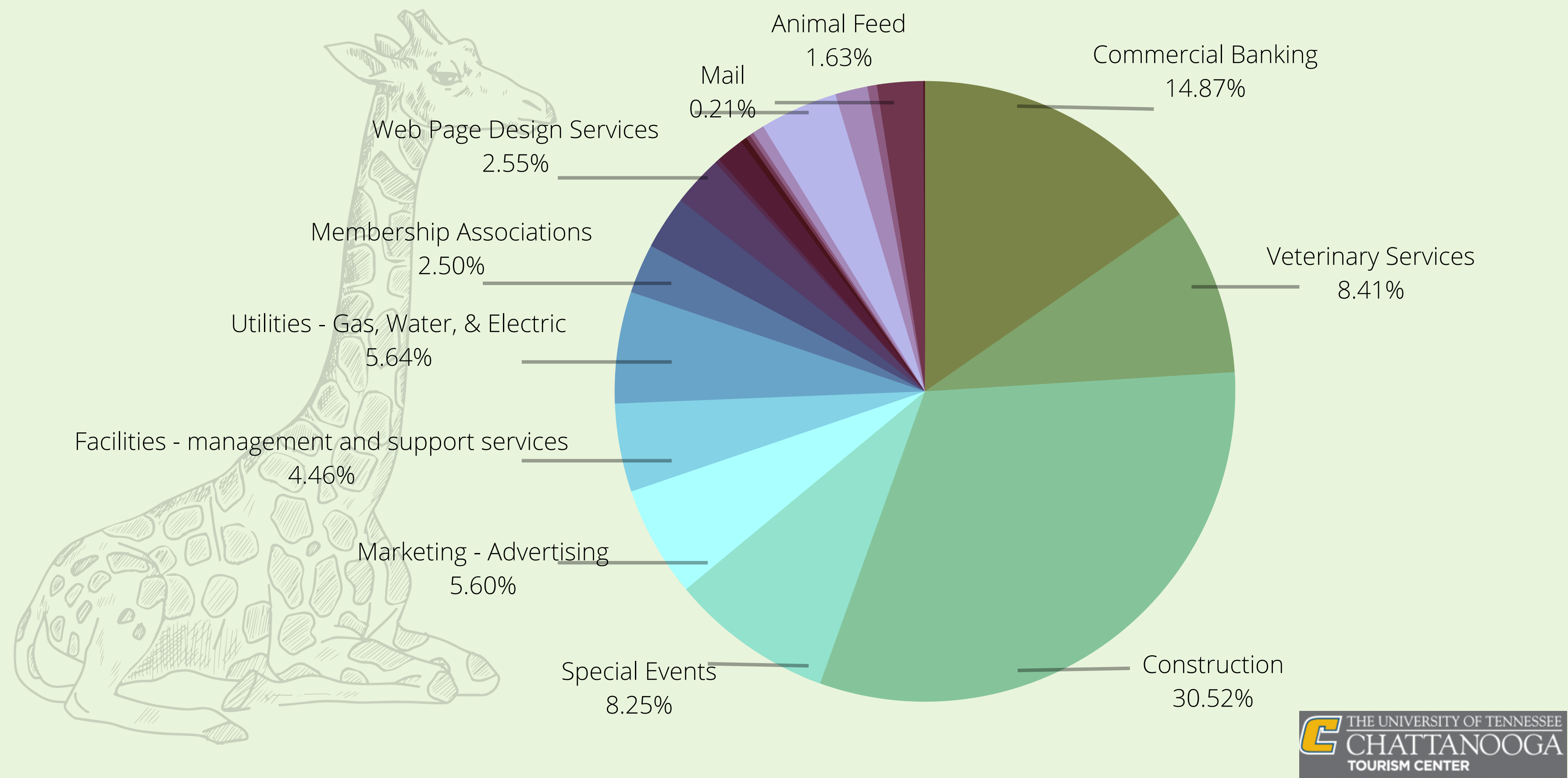
Total Economic Impact is the result of a non-linear ripple effect generated from the direct expenditures made by the Zoo within the specified Southeastern TN region. In the table below, the **Direct Effect** represents the marginal (non-leaked) money remaining in the region attributed to operational and capital expenditures.

Indirect Effects are the result of local businesses spending more on employment and materials as a result of added business. **Induced Effects** include additional spending by local employees that came from increased hours/income due to zoo operations. Further, these effects impact the region in various ways: 1) **Employment**: the number of full-year, full-time jobs supported by the zoo, 2) **Labor Income**: added income for current employees, 3) **Total Value**: true profits after accounting for employment, taxes, and other everyday business expenses, and 4) **Output**: total overall sales and revenue from zoo operations.

Impact	Employment	Labor Income	Value Added	Output
Direct	0.00	1,811,804.00	1,811,804.00	3,231,616.00
Indirect	13.21	668,637.67	896,965.93	1,854,181.23
Induced	9.53	448,050.36	801,831.55	1,407,686.38
	22.74	2,928,492.04	3,510,601.48	6,493,483.61

Revenue by Source

% of Expenditures per Industry Category



	Display Code	Display Description	Industry Total Output	Impact Output
1	501	Museums, historical sites, zoos and parks	\$58,108,340.35	\$3,249,697.38
2	500	Promoters of performing arts and sports and agents for public figures	\$49,322,368.89	\$91,481.62
3	467	Veterinary services	\$112,355,121.22	\$117,000.35
4	55	Construction of new commercial structures, including farm structures	\$500,174,505.92	\$415,295.01
5	174	Biological product (except diagnostic) manufacturing	\$6,720,701.18	\$3,505.64
6	438	Internet publishing and broadcasting and web search portals	\$103,548,897.46	\$42,560.32
7	523	Business and professional associations	\$84,074,390.32	\$25,510.29
8	499	Independent artists, writers, and performers	\$73,884,909.36	\$21,124.58
9	64	Other animal food manufacturing	\$53,142,601.09	\$13,914.33
10	471	Facilities support services	\$383,393,060.62	\$74,477.89
11	441	Monetary authorities and depository credit intermediation	\$1,446,846,938.46	\$271,386.39
12	477	Landscape and horticultural services	\$254,430,674.77	45,716.69
13	426	Directory, mailing list, and publishers	10,760,090.32	\$1,800.94
14	424	Periodical publishers	\$8,841,344.24	1,388.96
15	48	Natural gas distribution	\$113,521,001.98	\$17,559.97

Top 15 Industries affected from Zoo Operational Activities



Industry	Indirect Impact Employment	Induced Impact Employment	Total Impact Employment
55 - Construction of new commercial structures, including farm structures	3.61	0.00	3.61
467 - Veterinary services	1.26	0.04	1.29
500 - Promoters of performing arts and sports and agents for public figures	1.16	0.02	1.18
441 - Monetary authorities and depository credit intermediation	0.77	0.12	0.89
472 - Employment services	0.51	0.23	0.74
471 - Facilities support services	0.51	0.01	0.52
477 - Landscape and horticultural services	0.49	0.04	0.53
60 - Maintenance and repair construction of nonresidential structures	0.34	0.03	0.37
465 - Advertising, public relations, and related services	0.32	0.04	0.37
456 - Accounting, tax preparation, bookkeeping, and payroll services	0.26	0.06	0.32

Employment: Top 10 Industries Impacted Indirectly from Zoo Operational Activities



	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Industry Display	Employee Compensation	Employee Compensation	Employee Compensation	Employee Compensation
501 - Museums, historical sites, zoos, and parks	\$1,811,804.00	\$6,510.67	\$476.22	\$1,818,790.89
55 - Construction of new commercial structures, including farm structures	\$0.00	\$126,523.12	\$0.00	\$126,523.12
441 - Monetary authorities and depository credit intermediation	\$0.00	\$51,938.76	\$8,382.01	\$60,320.77
467 - Veterinary services	\$0.00	\$43,677.70	\$1,310.62	\$44,988.32
483 - Offices of physicians	\$0.00	\$0.00	\$33,599.15	\$33,599.15
490 - Hospitals	\$0.00	\$0.00	\$24,971.43	\$24,971.43
472 - Employment services	\$0.00	\$13,452.23	\$5,963.17	\$19,415.41
477 - Landscape and horticultural services	\$0.00	\$15,976.10	\$1,374.57	\$17,350.67
465 - Advertising, public relations, and related services	\$0.00	\$15,057.08	\$2,027.08	\$17,084.16
471 - Facilities support services	\$0.00	\$15,520.85	\$275.66	\$15,796.51

Employee Compensation: Top 10 Industries Impacted from Zoo Operational Activities

**Total Employee
Compensation
emanating from
direct, indirect, and
induced effects:
\$2,650,417.87**

Economic Impact Methods: Quantifying the Tourism Effect.

The zoo doesn't just symbolize a valuable asset to residents residing in Chattanooga and the surrounding area, but to visitors as well. The zoo represents a tourism attraction, affording visitors with an experience distinctive to Southeastern Tennessee. While it represents just one of several attractions that people visit, each positive experience can enhance perceptions of Chattanooga as a tourism destination, ultimately increasing visitors' duration of stay and future choice evaluation when traveling. These outcomes are paramount based upon the economic benefits linked to tourists.

In 2021, 288,561 individuals visited the Chattanooga Zoo. According to zip code data associated with each unique visitation, 45% of visitors traveled from outside of the study's geographical impact area, deeming them non-local attendees. When a non-resident travels to a location, they commonly spend money at hotels, restaurants, retail stores, and local attractions, to name just a few. Each of these expenditures exemplifies net new dollars being funneled into the region's economy that would not have existed without the presence of the tourist. This spending not only has a direct impact on the local economy, but also produces an indirect and induced effect in the form of additional spending from inter-related businesses and increased employee earnings. Estimating the amount of direct, indirect, and induced spending attributable to the zoo was the basis of this data capture procedure.

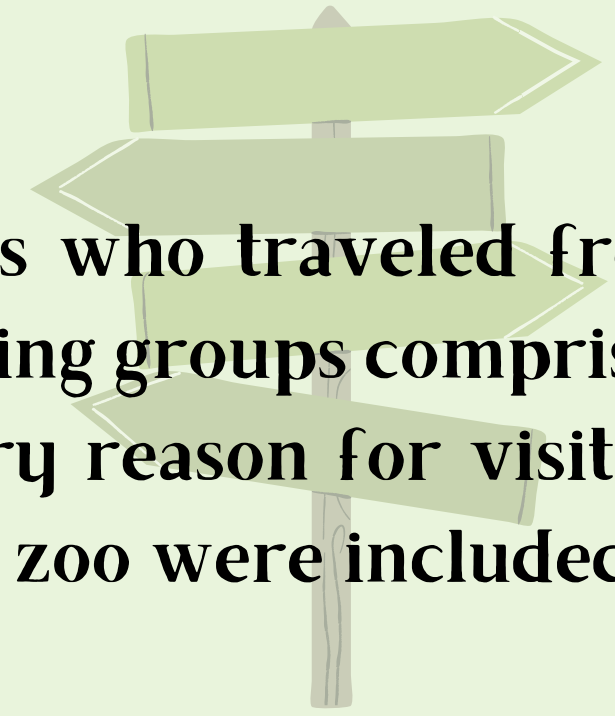
Data Collection

This economic impact report was the product of an on-site, six-month data collection procedure completed by the University of Tennessee at Chattanooga's Tourism Center. This time frame ensured light and heavily trafficked seasons for the zoo were represented. A randomized response was achieved by incorporating weekdays and weekends into the data capture. Participants in the study were also approached with this intent. Every third group who entered the park was intercepted by the research team and asked to voluntarily participate in completing the survey. Only groups who acknowledged traveling from 50 miles or more to visit the zoo were allowed to participate in the economic impact study. The study's data collection procedures rendered a sample of 420 visitor groups.

Segmenting Zoo Attendees According to Travel Profile

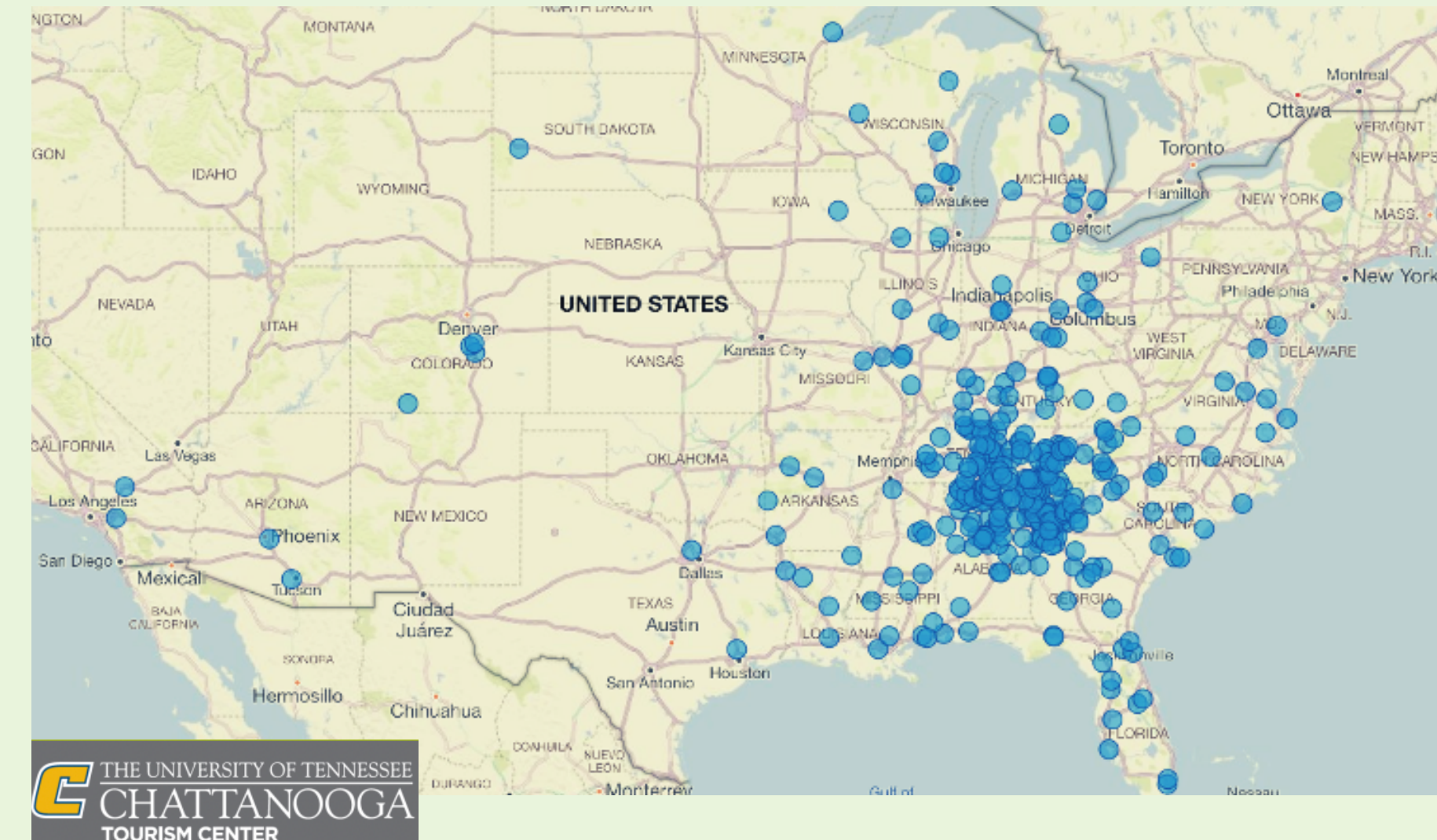
A local resident's spending is considered "displaced" spending and is not contributive to economic impact. In addition to this criterion, prospective participants of the research were also asked whether the zoo was their primary reason for visiting the zoo. If their initial response was no, a follow-up question was posed, asking if the travel group extended their stay in Chattanooga for reasons of attending the zoo. Travel groups that responded no to both questions were excluded from the analysis. If respondents cited the zoo as the primary reason for their visit to Chattanooga, group expenditures over the duration of the party's stay were calculated for purposes of economic impact analysis. However, if the travel group indicated that they chose to extend their stay due to a desire to visit the zoo, then only one day of travel expenditures (excluding lodging) were calculated in the economic impact analysis. The two travel groups (extended stay & overnight visitors) were analyzed separately in IMPLAN as unique groups, but aggregated when illustrating the full visitor impact of the Chattanooga Zoo on the Southeastern Tennessee region.

Visitor Profiles

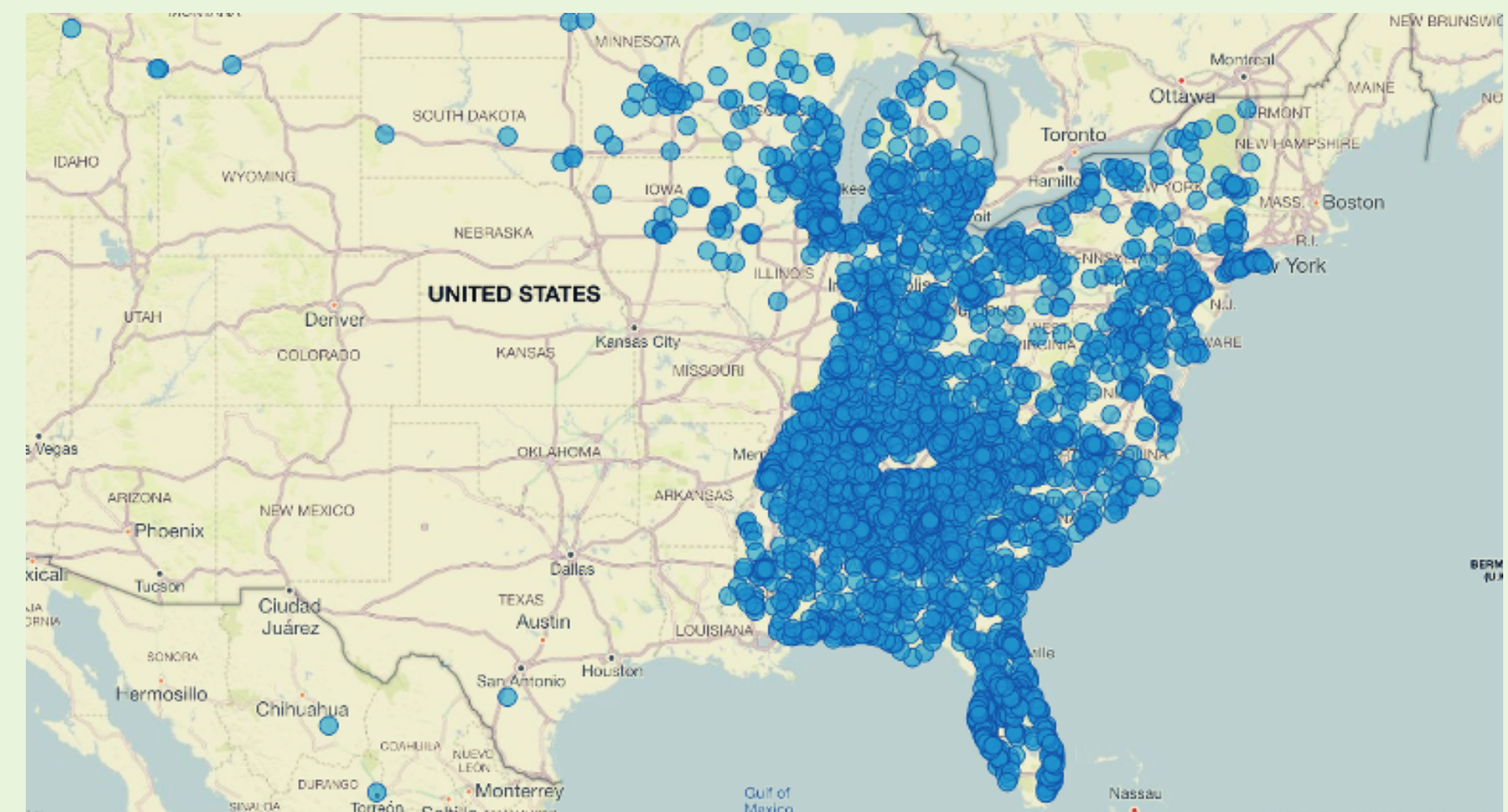


The economic impact analysis consisted of analyzing the spending behavior of visitors who traveled from outside of the Southeastern Tennessee region. The map below provides a snapshot of visiting groups comprised of the study's sample. As noted previously, only those who indicated that their primary reason for visiting Chattanooga was the zoo (OR) had elected to extend their stay in Chattanooga to visit the zoo were included in the economic impact analysis.

Map of the study's sample:



Map of the full population of visitors in 2022:



Visitor Profiles cont.

Ethnicity:

5.9% Black
6.5% Hispanic
85% White
2.5% Other



Group Size:

M=3.82

Number of
individuals within
group under the
age of 18:

M=1.29

Duration of Stay:

M=2.61 (Full Non-Local Sample)
M=1.64 (Visitors who indicated the
zoo to be the primary reason for
Chattanooga visit)

Age:



40.66 (Associated with individual who
completed the survey on behalf of travel
group)

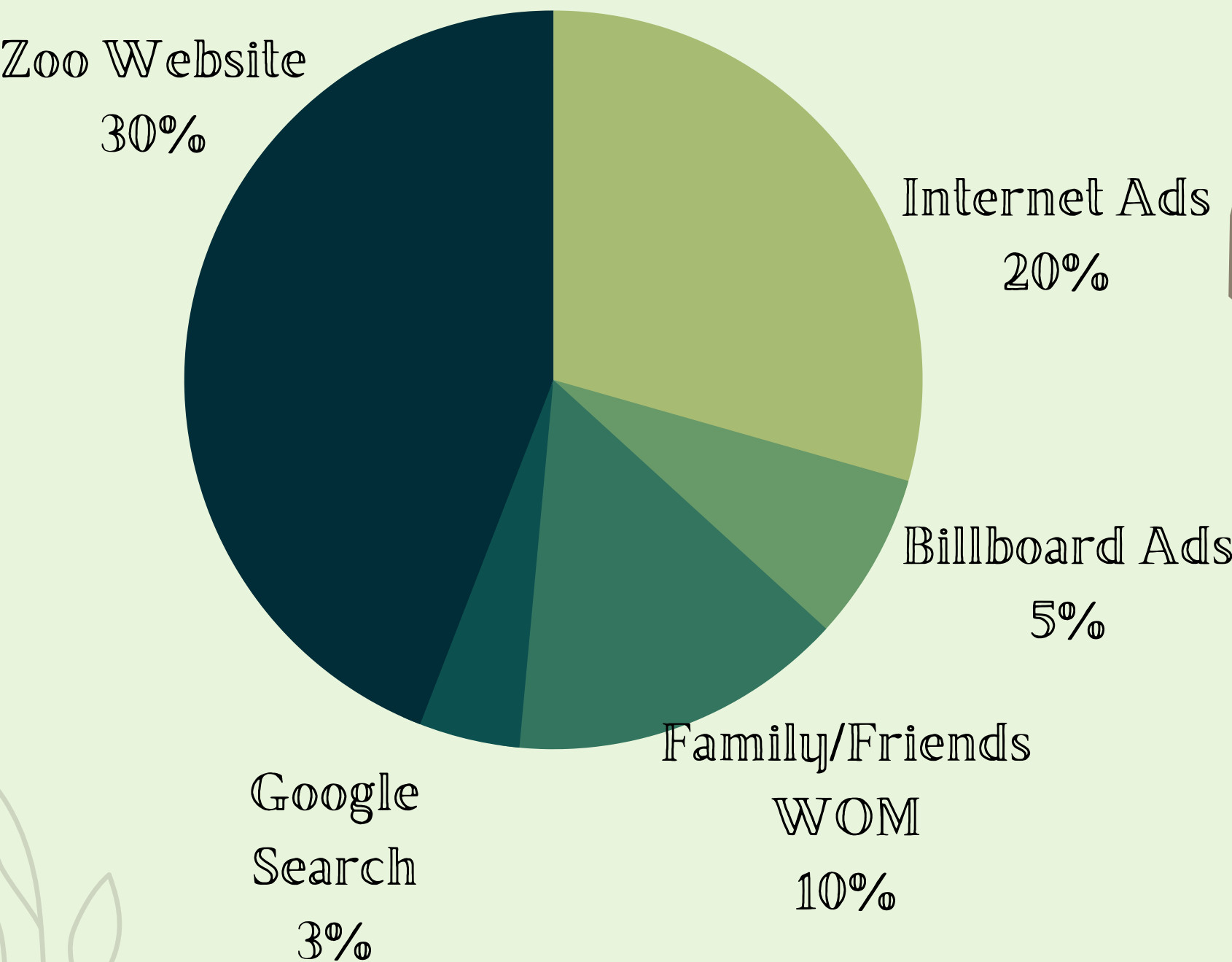
Gender:

48% Female, 32% Male
20% Elected to not respond

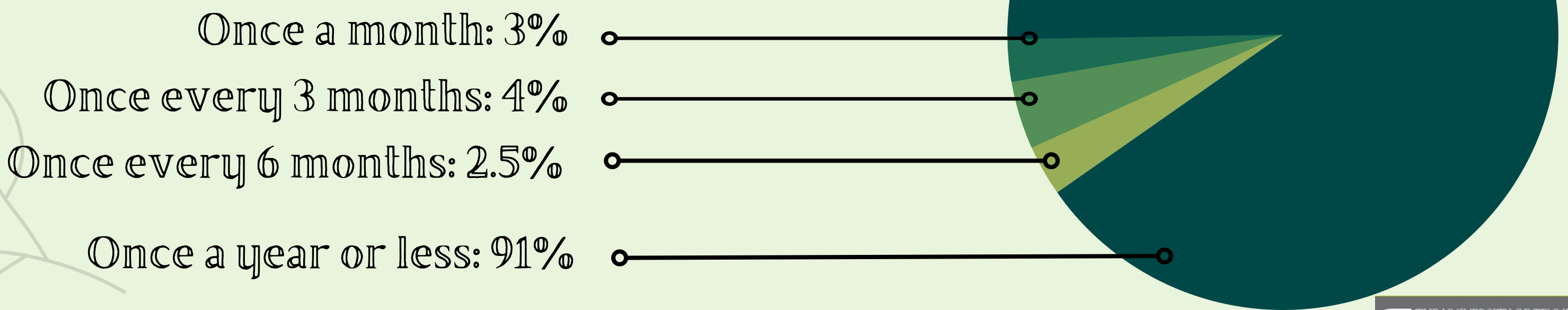
Income:

<50k=20%
50k-100k=42%
100k-150k=19%
>150k=19%

How did you learn about the zoo?



How often do you visit the zoo?



Economic Impact Results

The following information provides a dollar value assessment of zoo visitors' impact on the Southeastern Tennessee region. Dollar value impacts are derived from three components: Direct, Indirect, and Induced effects. Direct effects are measured by the actual local expenditures exhibited by tourists when visiting the area. Tourist-related spending on restaurants, lodging, retail stores, and transportation all represent an influx of new wealth to a region that circulates through an economy and benefits local residents. This secondary benefit reflects an indirect impact whereby local businesses exhibit additional input purchases in the form of employment, income, and increased turnover of goods and services. The resulting chain reaction varies according to a region's structure and business network but will continue to trickle through an economy and subsequently affect personal purchasing. Added spending created from local business owners, suppliers, and employees receiving additional income they earned from the direct impact represents the induced effect. Collectively, the indirect and induced impacts represent a multiplier effect. The total impact, then, is a multiple of the direct effect.

Expenditures

The tables below reflect the direct expenditures made by overnight visitors, as well as those who extended their stay in Chattanooga to visit the zoo. The expenses captured reflect per day spending made by non-local groups (not individuals) across seven categories. These figures were used to extrapolate the overall spending that occurs amongst annual visiting groups.

Summary of direct spending among overnight visitors:

Expenditure Category	Daily Spending per Category	Total Group Spending
Access To Tourism Amenities (Other than Zoo)	\$81.58	\$1,636,647.95
Restaurants	\$94.56	\$1,896,892.68
Auto/Transportation	\$57.30	\$1,149,470.22
Lodging	\$131.30	\$2,634,003.65
Retail	\$67.99	\$1,363,985.30
Entertainment	\$27.19	\$545,405.54
Miscellaneous	\$10.76	\$215,778.94
Total	\$470.67	\$9,442,184.29

According to zip code data acquired from the zoo and primary data acquired from the study's sample, total group spending is based upon an estimated 12,232 annual visiting groups who visit Chattanooga with the primary reason being the Zoo and 21,761 annual visiting groups who extend their stay to visit the zoo.

Summary of direct spending among visiting groups who extended their stay:

Expenditure Category	Daily Spending Per Category	Total Group Spending
Access To Tourism Amenities (Other than Zoo)	\$86.93	\$1,891,758.81
Restaurants	\$121.65	\$2,647,113.15
Auto/Transportation	\$61.30	\$1,333,948.53
Lodging		
Retail	\$72.69	\$1,581,806.18
Entertainment	\$38.16	\$830,399.28
Miscellaneous	\$12.45	\$270,924.29
Total	\$393.18	\$8,555,950.25

Economic Impact Results Cont.

Table A: Summary of Economic Impact

Impact	Employment	Labor Income	Value Added	Output
Direct	182.96	\$5,153,481.43	\$7,892,146.06	\$14,467,568.37
Indirect	34.18	\$1,733,885.71	\$2,544,330.66	\$5,289,810.60
Induced	27.02	\$1,269,976.42	\$2,272,472.92	\$3,989,460.46
Total	244.16	\$8,157,343.56	\$12,708,949.64	\$23,746,839.43

Table B: County, State, and Federal Tax Impact

Impact	Sub County General	Sub County Special Districts	County	State	Federal	Total
Direct	\$137,281.89	\$1,481.64	\$251,663.35	\$595,085.64	\$1,101,442.60	\$2,086,955.12
Indirect	\$21,729.58	\$234.48	\$39,858.48	\$101,990.19	\$335,458.18	\$499,270.91
Induced	\$34,582.56	\$373.24	\$63,396.10	\$155,148.26	\$271,751.21	\$525,251.38
Total	\$193,594.04	\$2,089.37	\$354,917.93	\$852,224.09	\$1,708,651.99	\$3,111,477.41



**Direct expenditures
from zoo visitors
impacts the region's
workforce in the form
of increased
compensation. The table
reflects industries
impacted the most.**

	Impact	Direct	Indirect	Induced	Total
	Industry Display	Employee Compensation	Employee Compensation	Employee Compensation	Employee Compensation
1	509 - Full-service restaurants	\$1,451,404.51	\$17,517.27	\$36,803.44	\$1,505,725.22
2	501 - Museums, historical sites, zoos, and parks	1,363,424.15	\$1.16	\$1,354.51	\$1,364,779.81
3	507 - Hotels and motels, including casino hotels	\$625,944.60	\$26.84	\$54.14	\$626,025.57
4	412 - Retail - Miscellaneous store retailers	\$384,604.08	\$2,399.84	\$11,318.20	\$398,322.12
5	409 - Retail - Clothing and clothing accessories stores	\$148,281.95	\$42.63	\$5,473.03	\$153,797.61
6	408 - Retail - Gasoline stores	\$125,383.37	\$527.39	\$6,469.66	\$132,380.41
7	469 - Management of companies and enterprises	\$0.00	\$112,302.99	\$13,620.57	\$125,923.56
8	500 - Promoters of performing arts and sports and agents for public figures	\$104,980.15	\$4,035.51	\$342.28	\$109,357.93
9	483 - Offices of physicians	\$0.00	\$0.00	\$95,210.71	\$95,210.71
10	472 - Employment services	\$0.00	\$72,844.01	16,903.26	\$89,747.27

As a consequence of new economic stimulus, industries inter-related to zoo tourism are able to create new jobs. Job growth attributed to the visitor impact are reflected in the table.

	Impact	Direct	Indirect	Induced	Total
	Industry Display	Impact Employment	Impact Employment	Impact Employment	Impact Employment
1	509 - Full-service restaurants	68.23	0.82	1.73	70.78
2	501 - Museums, historical sites, zoos, and parks	40.30	0.00	0.04	40.34
3	507 - Hotels and motels, including casino hotels	23.96	0.00	0.00	23.96
4	412 - Retail - Miscellaneous store retailers	18.31	0.11	0.54	18.96
5	500 - Promoters of performing arts and sports and agents for public figures	17.82	0.68	0.06	18.56
6	409 - Retail - Clothing and clothing accessories stores	9.43	0.00	0.35	9.78
7	447 - Other real estate	0.00	6.08	0.69	6.77
8	408 - Retail - Gasoline stores	4.92	0.02	0.25	5.20
9	472 - Employment services	0.00	2.77	0.64	3.42
10	510 - Limited-service restaurants	0.00	0.24	1.86	2.10

Visitors to Chattanooga impact industry growth via direct, indirect, and induced effects. The table below reflects industries most impacted from zoo tourism. The **Impact Output** reflects the direct effect, while the **Industry Total Output** represents the multiplying effect estimated by IMPLAN.

	Display Code	Display Description	Industry Total Output	Impact Output	Estimated Growth Percentage
1	501	Museums, historical sites, zoos, and parks	\$58,108,340.35	\$3,531,915.09	6.08%
2	500	Promoters of performing arts and sports and agents for public figures	\$49,322,368.89	\$1,433,177.32	2.91%
3	507	Hotels and motels, including casino hotels	\$473,263,966.87	\$2,634,344.38	0.56%
4	509	Full-service restaurants	\$1,253,547,690.63	\$4,714,071.18	0.38%
5	412	Retail - Miscellaneous store retailers	\$319,191,469.33	\$1,065,833.32	0.33%
6	409	Retail - Clothing and clothing accessories stores	\$261,189,285.50	\$840,867.99	0.32%
7	408	Retail - Gasoline stores	\$352,775,287.13	\$575,951.25	0.16%
8	499	Independent artists, writers, and performers	\$73,884,909.36	\$80,270.32	0.11%

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