



A Bureau of Business Research Report
From the UNL College of Business Administration

Final Report

The 2012 Economic Impact of the Lincoln Children's Zoo on Lancaster County

Prepared for the Lincoln Children's Zoo

October 9, 2013
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Executive Summary

The Lincoln Children's Zoo is a key cultural and recreation attraction serving the Lincoln, Nebraska area. The Zoo also brings and retains visitors and visitor spending in the City of Lincoln and Lancaster County. The Zoo attracted 183,000 visitors during 2012, including many from outside of Lancaster County. Just as importantly, the Zoo retained the recreation spending of many Lincoln families within the city.

This study estimates the annual economic impact of the Lincoln Children's Zoo on Lancaster County during 2012. The annual economic income flows from three components 1) operations of the Zoo; 2) construction and other capital expenditures of the Zoo, and 3) off-site spending of visitors attracted to or retained in Lancaster County by the Zoo. Table ES.1 provides a summary of the annual economic impact of the Lincoln Children's Zoo on Lancaster County. The overall economic impact in 2012 was \$6.31 million. This impact included \$2.32 million in labor income paid to workers in 73 full-year equivalent jobs, some of which were at the Zoo but others at businesses throughout the community. There also was \$94,000 tax revenue impact in local sales, use, and lodging taxes, including \$22,000 in local taxes paid directly by the Lincoln Children's Zoo. The Lincoln Children's Zoo also benefits the economy by making a significant contribution to quality of life in Lancaster County.

Table ES.1
Economic Impact and Labor Market Impact of the Lincoln Children's Zoo on Lancaster County 2012

Economic Impact (Millions of \$)	Labor Income Component (Millions of \$)	Employment Impact (Jobs)	Local Sales, Use and Lodging Tax (1000s of \$)	Portion Remitted by Zoo on Zoo Sales (1000s of \$)
\$6.31	\$2.32	73	\$93.82	\$22.09

Source: Bureau of Business Research Estimates.

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I. Introduction

The City of Lincoln, Nebraska and Lancaster County as a whole benefit from the activities of the Lincoln Children's Zoo. The Zoo makes an important contribution to the quality of life in Lancaster County. The Zoo also creates an economic impact on the community by attracting visitors to Lancaster County and retaining the recreation spending of Lancaster County residents within their home county.

The current study estimates the annual economic impact on Lancaster County from the Lincoln Children's Zoo. The focus of the report is the additional economic activity in Lancaster County due to the operations of the Zoo, capital investments of the Zoo, and visitors attracted to or retained in Lancaster County. The study considers both the direct economic impact as well as the "multiplier" impact, for the year 2012.

Section II of the report describes the basic methodology utilized in economic impact analysis. The 2012 economic impact of the Lincoln Children's Zoo on Lancaster County is estimated in Section III. There is also a discussion of fiscal impact. The conclusion is presented in Section IV.

II. Economic Impact Methodology

The first step in estimating the economic impact of the Lincoln Children's Zoo is to estimate the direct increase in spending that it generates in Lancaster County. This increase in spending is known as the direct impact. There is also an additional "multiplier" impact at businesses throughout Lancaster County as the initial spending circulates within the local economy. In particular, the Lincoln Children's Zoo supports employment in the businesses which are suppliers to the Zoo. Zoo employees also spend their paychecks at businesses throughout the community. In Section III below, the BBR will utilize the IMPLAN model to estimate these economic multiplier effects for each type of direct new spending attracted to Lancaster County by the Lincoln Children's Zoo.¹ The calculated multiplier effect is then added to the direct impact to estimate the total economic impact.

¹ The IMPLAN model software is the leading multiplier model with capacity to estimate the economic impact of businesses and organizations in over 400 industries, in cities, counties, states, or combinations of counties.

As noted earlier, there are three types of new spending attracted to or retained in Lancaster County due to the Lincoln Children's Zoo: 1) spending on Zoo operations, 2) spending on Zoo construction projects, and 3) off-site spending by Zoo visitors, at restaurants, and retail stores, among other businesses. A total economic impact estimate will be generated for each of the three types of spending, as seen in Figure 1. The total economic impact for each component is the sum of the direct spending impact and the multiplier effect. The overall economic impact of Lincoln Children's Zoo on Lancaster County is the sum of the total economic impact from each of these three components.

III. Economic Impact on Lancaster County

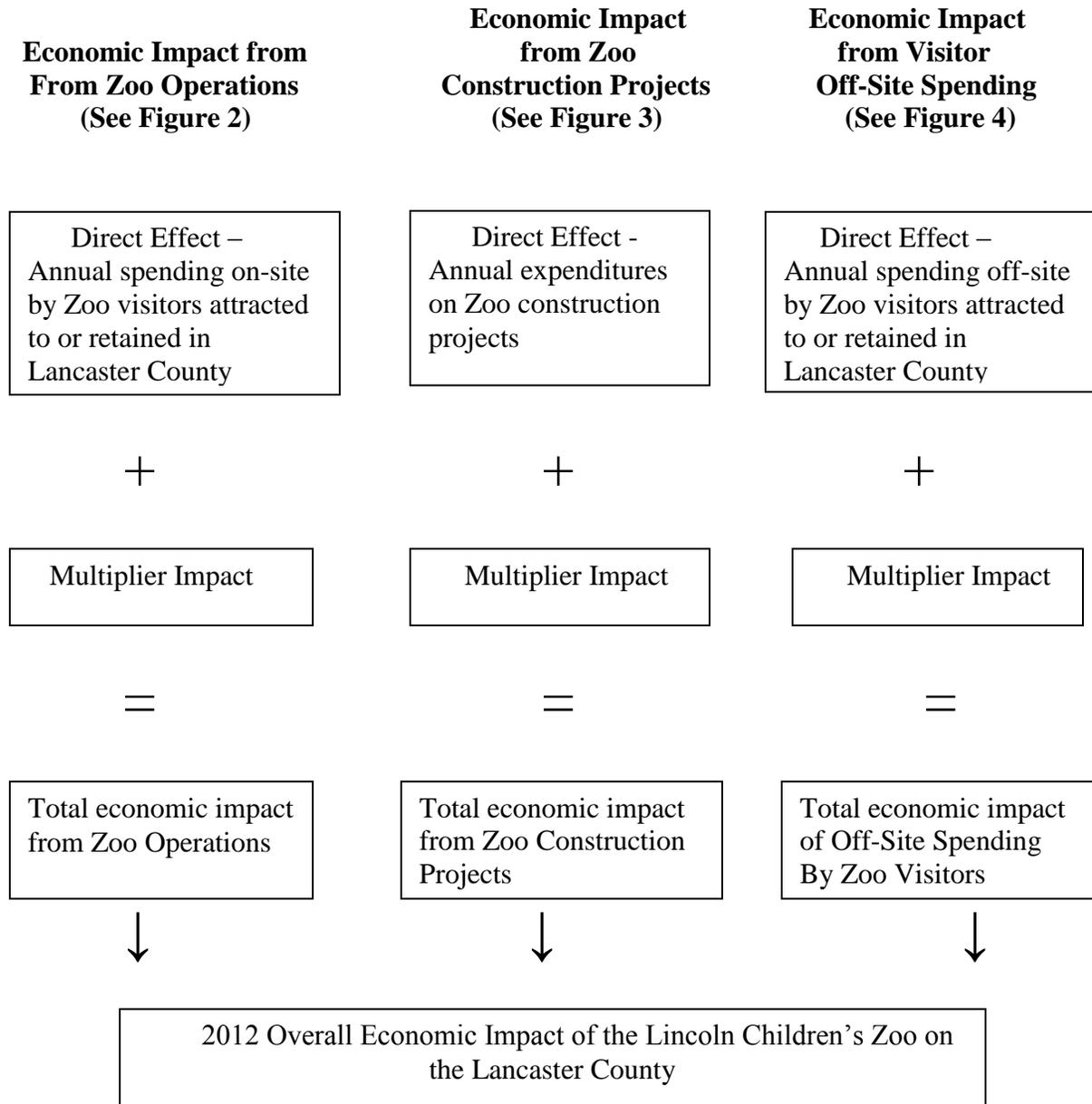
In this section, we estimate the economic impact of the Lincoln Children's Zoo on Lancaster County in 2012. The total economic impact is estimated for: 1) on-site spending on operations at the Zoo, 2) spending on Zoo construction projects and other capital spending, and 3) off-site spending by Zoo visitors. The overall economic impact is the sum of the impact from all three components. In addition to estimating the overall economic impact, we examine the labor market impact, including the impact on employment and labor income.

A. Zoo Operations

The first part of the economic impact of the Lincoln Children's Zoo comes from "new" on-site spending on operations by the Zoo. The term "new" refers to spending by visitors who come to Lancaster County primarily to visit the Zoo, other visitors who stay in Lancaster County longer because of the Zoo, or Lancaster County residents who visit the Zoo rather than traveling to an alternative attraction in another city. Such on-site spending is substantial given that most revenue from the Lincoln Children's Zoo is earned revenue, that is, revenue from admissions, memberships, concessions, gift shops, and train rides.

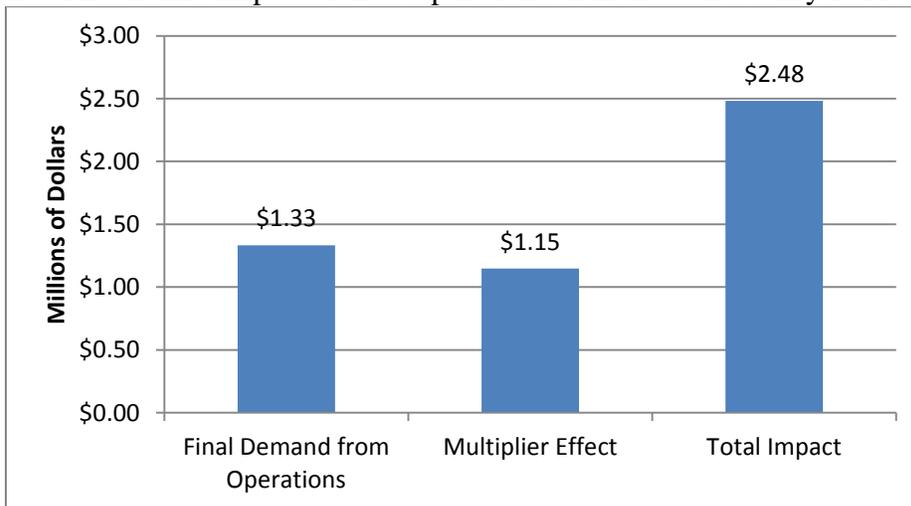
Figure 1

Approach for calculating the 2012 Economic Impact of the Lincoln Children's Zoo on Lancaster County



This new spending supports operations such as spending for the feeding and caring for animals, making displays available to the public, operating the Zoo train, and buying supplies for concessions or the gift shop. In 2012, the Lincoln Children’s Zoo took in \$2.03 million in earned revenue (revenue less donations, fundraisers, grants and interest income). Based on both an email survey of Lincoln Children’s Zoo members and visitors included on the Zoo’s email list and a zip code survey of visitors to the Lincoln Children’s Zoo (see Section C), we estimate that 53% of that revenue was earned from the expenditures of Lancaster residents who otherwise would have spent that money elsewhere in Lancaster. The remaining 47% of revenue was earned from residents of other Nebraska counties or other states, or Lancaster County residents who specifically answered that they would have travelled out of town to another attraction if the Lincoln Children’s Zoo was not present. Therefore, an estimated \$0.95 million, or 47%, was new spending for Lancaster County. Total income of \$0.38 million from grants, donations, fundraisers and interest income is added to this figure to yield a total of \$1.33 million. This increase, which is also known as the final demand, yields an economic impact, as shown in Figure 2. The left bar of the column shows the estimated increase in final demand of \$1.33 million. The Figure also shows the multiplier effect. The total impact is the sum of the final demand and the multiplier effect. The estimated total economic impact was \$2.48 million in 2012.

Figure 2
Total Economic Impact of Zoo Operations on Lancaster County 2012

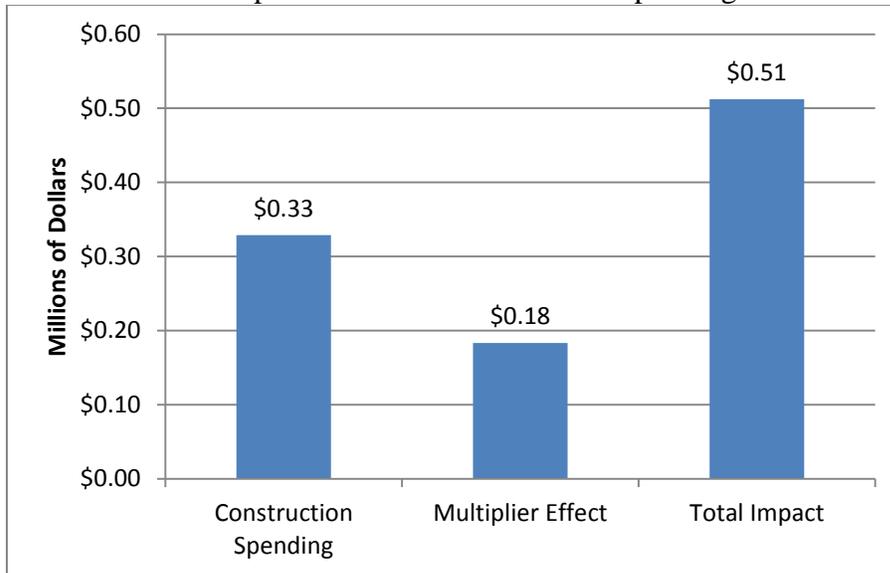


Source: Bureau of Business Research estimates using IMPLAN Model

B. Zoo Construction Projects

The Lincoln Children's Zoo is constantly maintaining its facilities. These investments create new final demand for construction activity and other types of capital expenditure in Lancaster County. The amount of investment was \$0.33 million in 2012. Figure 3 shows the economic impact due to this 2012 spending. The left bar of the Figure shows the direct investment spending of \$0.33 million. The Figure also shows the multiplier effect, and the total economic impact. The total economic impact on Lancaster County was \$0.51 million in 2012.

Figure 3
Total Economic Impact from Zoo Construction Spending on Lancaster County 2012



Source: Bureau of Business Research Estimates Using IMPLAN Model

C. Off-Site Spending of Zoo Visitors

There were 183,000 visits to the Lincoln Children's Zoo during 2012. Many of these visitors spent money off-site in Lancaster County at restaurants, gas stations, retail outlets, and in some cases, at hotels. Much of this off-site spending represents new money attracted to Lancaster County. This section estimates the economic impact of this off-site spending. Among the 183,000 visitors to the Lincoln Children's Zoo during 2012, spending varied based on how far visitors travelled for their visit. As a result, we examine the origin of these visitors; in particular, the share of visitors from Lancaster County, the share from other Nebraska counties and the share from other states. These data on the

origin of visitors were gathered during a zip code survey of all visitors to the Lincoln Children’s Zoo during a one week period in late August 2013. Origin patterns are expected to be similar in 2013 and 2012. The week long survey gathered origin information for approximately 2,750 visitors. Visitor origin estimates for the Lincoln Children’s Zoo are presented in Table 1. Nearly three-quarters of visitors (73.8%) were from Lancaster County, while 17.6% were from other Nebraska counties and 8.5% were from other states. Roughly half of visitors from other states were from Kansas, Missouri, or Iowa (not shown in Table).

Table 1
Estimated Origin of Zoo Visitors

Visitor Origin	Share of Visitors
Lancaster County	73.8%
Other Nebraska Counties	17.6%
Other States	8.5%

Source: Lincoln Children’s Zoo Zip Code Survey of Visitors, August 2013

Note: Row Totals may not sum to 100% due to rounding

Table 2 shows the estimated off-site spending attracted to Lancaster County by each visitor to Lincoln Children’s Zoo. Separate estimates are developed for visitors from Lancaster County, other nearby Nebraska counties, and other states. Spending estimates for Lancaster County reflect the fact that many visitors do not bring new money into the County. Their spending at restaurants, gasoline stations, retail stores, or elsewhere on the day they visit the Zoo likely would have occurred in Lancaster County in any case. However, the Zoo does help retain some spending by Lancaster County residents. In particular, we conducted a survey of individuals on the Lincoln Children’s Zoo email list and inquired about spending patterns on the day of visit to the Zoo as well as alternative cultural and entertainment options. Among the approximately 800 respondents to the survey, 16% of Lancaster County residents indicated that they would have traveled outside of Lancaster County to visit another attraction if the Lincoln Children’s Zoo was not an option for them. Nearly all would have traveled to an attraction in another part of Nebraska, rather than traveling out of state. This spending of these residents represents “retained” spending for Lancaster County. In this sense, it is equivalent to “new” spending for the county in that it is spending that would have been lost if not for the

Lincoln Children’s Zoo. To estimate the amount of spending lost, we took the average spending per visitor by visitors who traveled into Lancaster County from another county in order to visit the Lincoln Children’s Zoo. The spending of these visitors would be similar to what Lancaster County residents would spend if they traveled outside of the county to visit an attraction. The average spending was then multiplied by 0.16, to account for our finding that 16% of Lancaster County visitors to the Zoo are “retained.” The finding was that there was an average \$2.96 of spending retained in Lancaster County for each county resident who visits the Lincoln Children’s Zoo. This estimate is reported in Table 2.

Table 2
Estimated Off-Site Visitor Spending By Origin

Location	Spending Per visitor Per Trip
Lancaster County	\$2.96
Other Nebraska Counties	\$12.75
Other States	\$103.14

Source: Bureau of Business Research estimate

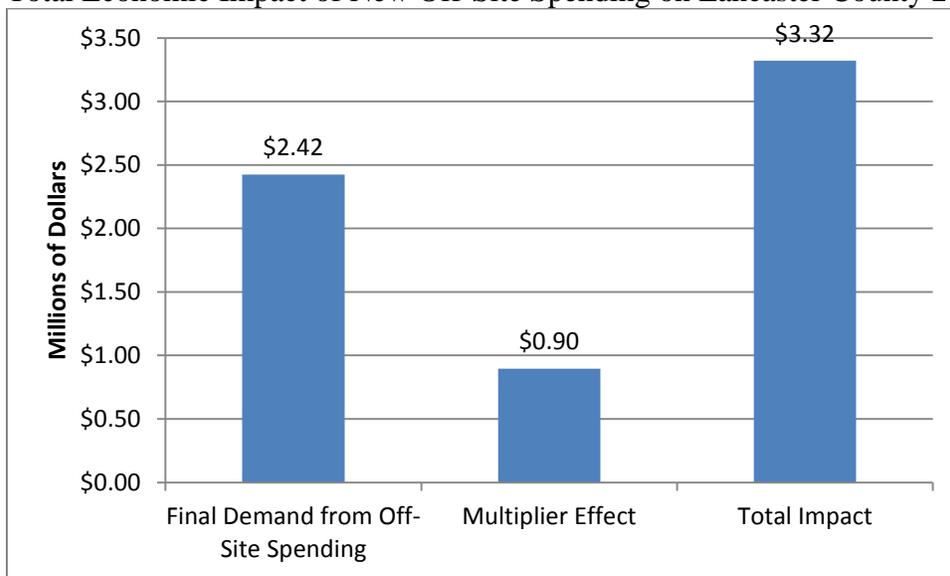
Off-site spending estimates, as expected, were higher for Zoo visitors from outside of Lancaster County. Many of these visitors were traveling to Lancaster County primarily to visit the Lincoln Children’s Zoo, so their off-site spending is among the direct economic impacts of the Zoo on Lancaster County. Survey respondents from outside of Lancaster County were asked to provide the primary reason for their trip and 59% reported that the primary reason was to visit the Zoo. The remaining 41% had another primary purpose, most often shopping or visiting family and friends. The Lincoln Children’s Zoo is not credited with the off-site spending of these visitors. The survey also inquired about spending on restaurants, retail, lodging, transportation (primarily gasoline), other entertainment and other spending. Among visitors from another Nebraska county, there was an average of \$12.75 in spending per visitor counting only the off-site spending of visitors whose primary trip purpose was to visit the Lincoln Children’s Zoo.

Estimates of spending by out of-state visitors were based on spending estimates from studies of zoos in Milwaukee, Cincinnati, and Northwest Florida (Institute for Survey Policy and Research 2007; Economics Center for Education and Research, 2007;

Haas Center for Business Research and Economic Development, 2004). This was necessary since the email list of Lincoln Children’s Zoo members and other visitors contained few out-of-state residents, and there were very few out of state residents among the respondents. Estimates from the other zoo studies were updated to the year 2012 using the Consumer Price Index, the measure of inflation developed by the U.S. Bureau of Labor Statistics. The average spending per out-of-state visitor is estimated to be \$103.14.

The per-visitor spending figures in Table 2 suggest a substantial off-site spending impact from visitors to the Lincoln Children’s Zoo. Based on the data in Tables 1 and 2, and given 183,000 visitors to the Lincoln Children’s Zoo in 2012, we estimate a \$2.42 million in off-site spending in Lancaster County due to the Zoo. The total impact from this new off-site spending, including this direct spending and the multiplier impact, is \$3.32 million, as seen in Figure 4.

Figure 4
Total Economic Impact of New Off-Site Spending on Lancaster County 2012



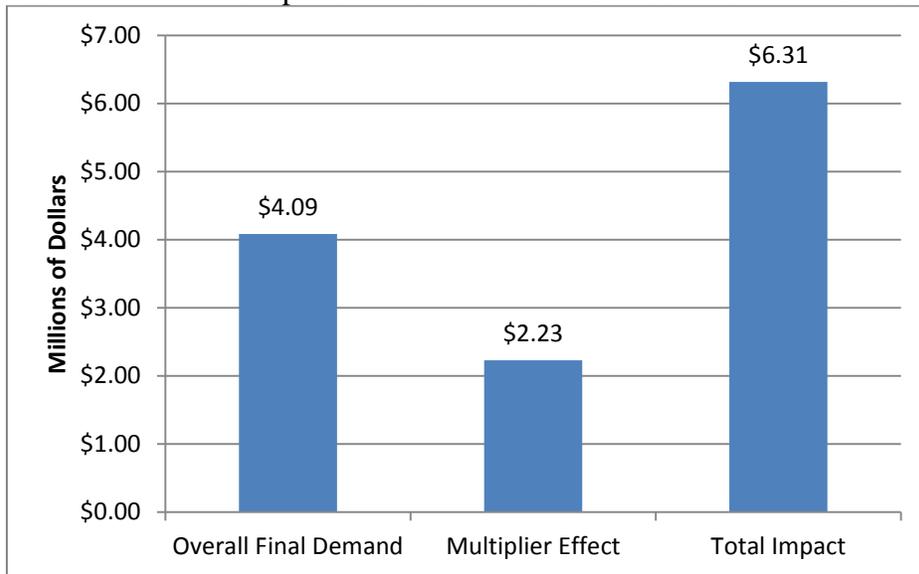
Source: Bureau of Business Research Estimates Using IMPLAN Model

D. Overall Economic and Fiscal Impact

There are three components to the economic impact of the Lincoln Children’s Zoo: the impact of on-site spending that supports Zoo operations, the impact from spending construction projects and other capital expenditures, and the impact from off-site spending by Zoo visitors. Figure 5 shows the overall economic impact from combining all three components. The overall economic impact was \$6.31 million in 2012.

Labor income is an important component of this economic impact. Labor income includes the wages and benefits earned by workers and the income earned by proprietors. Table 3 again shows the overall economic impact of the Lincoln Children’s Zoo. It also shows the labor income component of the economic impact, and the employment associated with those earnings. The \$6.31 million economic impact in 2012 included a \$2.32 million impact on labor income. Further, there were an estimated 73 jobs associated with that impact. These represent year-round equivalents, however, so the actual employment impact during peak summer months could be substantially higher, and substantially lower during off-peak periods.

Figure 5
Overall Economic Impact of the Lincoln Children’s Zoo on Lancaster County 2012



Source: Bureau of Business Research Estimates Using IMPLAN Model

The Lincoln Children’s Zoo not only provides employment opportunities for Lancaster County, it also generates sales tax revenue for the City of Lincoln. As seen in Table 3, the additional economic activity in Lancaster County due to the Zoo generates an additional \$94,000 in local sales, use and lodging tax revenue in 2012. The local option sales tax (1.5%) accrues to the City of Lincoln, as does the occupation tax (4%) portion of the lodging tax. A portion of the local tax impact is specifically due to Lincoln sales tax collected and remitted by the Zoo on its sales. This was \$22,000 in 2012, and is also reported in Table 3.

Table 3
2012 Economic Impact and Labor Market Impact of the Lincoln Children’s Zoo on Lancaster County

Economic Impact (Millions of \$)	Labor Income Component (Millions of \$)	Employment Impact (Jobs)	Local Sales, Use and Lodging Tax (1000s of \$)	Portion Remitted by Zoo on Zoo Sales (1000s of \$)
\$6.31	\$2.32	73	\$93.82	\$22.09

Source: Bureau of Business Research Estimates Using IMPLAN Model

IV. Quality of Life

Aside from these substantial contributions to Lincoln’s tourism economy, the primary economic benefit of the Lincoln Children’s Zoo is its contribution to quality of life in the Lincoln area. The Zoo provides outstanding learning and cultural opportunities for the families of Lancaster County, adjacent counties, and other areas that provide visitors. These opportunities include Zoo visits and associated opportunities to observe, learn about and in some cases interact with a vast array of animals and habitats, and through these activities, learn about the nature of the wider world. There also are education opportunities for students at the Lincoln Children’s Zoo through camps, classes, and class visits as well as special events valued by children and families alike. The Zoo also is a centerpiece of the primary urban park system operating in an around central Lincoln.

These quality-of-life benefits create direct benefits for Lincoln families and children. Further, there are important economic consequences. In particular, amenities like the Lincoln Children’s Zoo which increase the quality of life also contribute to

property values and population growth in the communities they serve. This section examines the educational benefits provided by the Lincoln Children's Zoo. It also examines research on the contribution of cultural attractions to the quality of life, including the impact of zoos on property values.

A. Education Programs

The Lincoln Children's Zoo has one of the largest and fastest growing zoo education programs in the country, now serving over one thousand students of all ages each year, with a special emphasis on children ages 3 to 18. One of the key goals of all Zoo education initiatives is that each one provides a high quality, hands-on experience. Lincoln Children's Zoo's summer camps are a core component of the program and have been extremely successful. In fact, from 2009 to 2013, enrollment in the Zoo's summer camps rose by an impressive 286%, from 245 participants in 2009 to 946 in 2013. Through a partnership with Lincoln Public Schools, the Zoo is the host location for the district's longest running focus program, *LPS Zoo School*. Another cornerstone of the Zoo education program is *Adventures*, which encourages science-focused career exploration through national and international travel expeditions for students ages 14-18 (one of only four U.S. zoos to offer international education programs for teenagers).

In addition to youth education opportunities, the Zoo offers a variety of programs for adults, most notably an annual, once-in-a-lifetime international journey with Zoo president & CEO John Chappo. In 2013, 18 people experienced the wildlife of the African savanna on a trip to Botswana and Zambia.

Beyond age-specific programs, the Zoo also utilizes its strong volunteer program as yet another vehicle for education. *Zoo Crew* is a youth volunteer program that teaches important life and job skills. *Zoo Crew* is a popular service program in the city, with a current membership of 330 youth in grades 7 to 12. The educational value of the program is apparent, but the program also provides an important element of job training for participants. Students participating in the program learn the soft skills of punctuality, reliability, customer services, and attitude that are critical for entering the world of paid work. The program has been so successful that it has been used as a best practices model for youth volunteer programs at zoos across the country.

Adults also serve as zoo volunteers in every department. Positions range from conducting and engineering the train, to master gardening with the staff horticulturalist. In 2012, the Zoo's adult volunteers donated 12,126 service hours. This is a practical benefit for the Zoo but also a great learning opportunity. By having a volunteer corps of adults and children, the Zoo facilitates intergenerational learning in which children can acquire an understanding and respect for people of all ages.

Through these and many other Zoo education programs, it is clear that the Zoo continually proves itself as an integral part of the learning community of Lincoln as well as an organization that is proactive in ensuring its relevance and value proposition to the Lincoln community.

B. Other Contributions to Quality of Life

Economists have increasingly noted the critical role that cultural and entertainment opportunities play in the competitive situation of cities. Cities no longer function only as centers for business and production, but are increasingly known as centers for consumption. The ability to consume cultural amenities and other entertainment and recreation opportunities at a greater convenience and lower cost creates an advantage for cities, and the greater the opportunities in a city, the greater the advantage. Along these lines, Glaeser, Kolko, and Saiz (2001) argue for the ascendance of "consumer cities," where the concentration of cultural and entertainment amenities is key to helping cities attract investment and talent. Florida (2005) points to the central role of the "creative class" in the economic growth of cities, and the role of cultural institutions and activities in helping cities attract the creative class. Markusen and King (2003) found that both productivity and earnings increase with increased artistic and cultural activity in a local economy. These studies all show that a vibrant cultural community provides cities with advantages in attracting and maintaining entrepreneurs but also managers and other professionals. These cultural amenities become part of the advantage of living in a community, much like good schools, lower levels of crime, clean air, limited traffic or any other of the well-known benefits of living in Lincoln, Nebraska.

The key to seeing the value of this access is to consider another city without the benefit of a high quality zoo. Residents of this city would need to spend additional time

and money traveling to visit a zoo in another city. Residents who are willing to make these trips will need to face these costs. Other residents, and their children, would be unwilling or unable to pay these travel costs and would miss out on the experience.

This example implies that residents of Lincoln have options that are not available to residents of many other cities. This option becomes a “good” that is valued in the economy. Specifically, the option created by the zoo and other cultural attractions would be reflected in the relative wages and property values in the city. Property values would be higher in a city with a high quality zoo. Residents of that city would be willing to pay a few dollars more per year due to their easy access to a zoo. Business in that city also would have some advantage in recruiting workers at prevailing wages.

How much would property values increase? A study by Clark and Kahn (1988) estimated the influence of zoos and other cultural attractions on property values within metropolitan areas located throughout the United States. In particular, the study estimated that the presence of a zoo increases property values for the average household in a metropolitan area by \$183, after adjusting for inflation. The study was referring to zoos of all sizes, and not just to the largest zoos in the country. This increase in property value implies that a local zoo creates an annual flow of services for households valued between \$10 and \$15 each year.² This is in additional value beyond what households pay for admissions and membership to use zoo facilities. Such estimates of average values for all area households include the amenity values of both frequent and rare zoo users; amenity values are likely to be much higher among regular users (Thompson et al., 2002).

V. Conclusion

The Lincoln Children's Zoo attracts millions of dollars of new spending to Lancaster County each year and attracted 183,000 visitors in 2012. Most of this economic activity occurs within the City of Lincoln, given that the City contains more than 85% of the county population and more than 90% of county commercial activity outside of agriculture. This money supports both Zoo operations and businesses throughout Lincoln and Lancaster County that cater to visitors. Both new and retained spending leads to a

² The annual flow of value from a public amenity would need to be \$10 to \$15 per year in order to create a present value of \$183 dollars (reflected in higher housing prices). The precise annual value would depend on interest rate used to calculate present value.

substantial economic impact on Lancaster County. In 2012, the estimated economic impact of the Lincoln Children's Zoo on Lancaster County was \$6.31 million. A substantial component of this impact, \$2.32 million, was labor income, which is the wages and benefits of workers or the income of the self-employed. Nearly \$94,000 in local sales and lodging tax revenue were generated due to this economic impact for the City of Lincoln, including \$22,000 in direct local sales tax payments by the Zoo. The Lincoln Children's Zoo also benefits the economy by making a significant contribution to quality of life in Lancaster County.

Finally, we note that the results of this study also are broadly consistent with results for Nebraska from another recent report *The Economic Impact of Spending for Operations and Construction at AZA-accredited Zoos and Aquariums in 2012* developed by the Center for Regional Analysis at George Mason University (GMU). That study examined the economic impact of Zoos and Aquariums located throughout the nation and world. That study found that zoos and aquariums in Nebraska had a total economic impact of \$84.2 million in 2012. Unfortunately, the results were not separated out for different areas of the state. The GMU report also omits an important source of impact. In particular, the GMU report in its state-by-state estimates only included 2 of the 3 types of impacts used in the current report. The GMU report did not include the economic from off-site visitor spending, which is a significant omission given that off-site visitor spending is typically the largest source of economic impact. After accounting for this omission, the results of the GMA study for Nebraska are consistent with the estimated annual economic impact of the Lincoln Children's Zoo estimated in this study.

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Appendix 1
Lincoln Children's Zoo On-line Survey

*Required Question(s)

*1. What is your zip code?

50 characters left.

*2. When you visit the Lincoln Children's Zoo, on average how many adults are in your immediate travel party?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 or more

*3. When you visit the Lincoln Children's Zoo, on average how many children are in your immediate travel party?

- 1
- 2
- 3
- 4

- 5
- 6
- 7
- 8
- 9
- 10 or more

*4. On the following lines, please estimate the average amount of money that you and the members of your immediate travel party spend as a result of a visit to the Zoo. Remember to include money spent before, during and after your visit.

Food, drinks, or meals purchased before or after your visit, i.e., at a restaurant

*5. Shopping, souvenirs, gifts, books and/or clothing

*6. Transportation, including gasoline, parking, tolls, rental car, taxi, or bus fare

*7. Other Entertainment / Recreation

*8. Lodging and/or overnight accommodations because of your visit to the Zoo

*9. Other, please specify

*10. On average, what share of that spending occurs in Lincoln (please indicate a percentage)

11. If you do not live in the Lincoln area, what is the primary factor that brings you to Lincoln when you visit the Lincoln Children's Zoo?

- To visit the zoo
- Shopping or other entertainment/recreation options besides the performances
- To visit friends or relatives

- On vacation or holiday
- To conduct business
- Other

12. If you do not live in the Lincoln area, on average how many nights are you away from your primary residence when you visit Lincoln Children's Zoo?

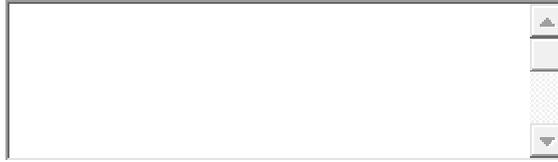
*13. If you could not visit Lincoln Children's Zoo, what would you have most likely do instead? (please choose only one - the most likely option.)

- I would have attended another entertainment/recreational venue in the Lincoln area
- I would have spent the money on something else in the Lincoln area
- I would have spent the money on visiting another zoo or entertainment/recreation venue or something else in another part of Nebraska
- I would have spent the money on an event or something else in another state
- I would have stayed home
- Other

*14. What is your gender?

- Female
- Male

*15. In what year were you born?



*16. What is the highest level of education you have completed?

- Less than high school
- Graduated from high school or obtained GED
- Some college
- Graduated from college
- Some graduate or professional school
- Completed graduate or professional school