



Little Rock Zoo Economic Impact Analysis

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A. Executive Summary

Intelligent Analytics and Modeling (IAMECON) was asked to calculate the economic impact created by the Little Rock Zoo (“LRZ” or “the institution”) on Little Rock City and Pulaski County for the period 2015-2030.

Our study uses the impact analysis model using IMPLAN software - the standard for such analyses. The basic process of this impact study is to measure the total effects the institution has on the local economy in terms of increased economic activity due to its operations and capital improvement projects, and tourism impact attributable to the existence of the Little Rock Zoo in the region.

Throughout this study, we carefully separate Economic Impact from Economic Activity, and only attribute outside-of-county-visitor originated economic activities into *the economic impact* category. A thorough explanation of the model and relevant definitions are explained throughout the report.¹

The cumulative impact and activity figures covering 2015-2030 are contained in Table 1. All figures contained are reported in 2020 dollars.

<<Table 1: Estimated Economic Impact and Activity of Little Rock Zoo on Pulaski County, 2015 - 2030>>

Type	Category	Total (2015 – 2030)	Average Annual (2015 – 2030)	Past Actual Figures (2015-2020)	Projected Future Figures (2021-2030)
Economic Impact	Employment Impact ²	14,061	879	4,351	9,710
	Total Fiscal Impact	\$38,891,543	\$2,430,721	\$11,697,593	\$27,193,950
	Total Economic Impact	\$567,393,191	\$35,462,074	\$176,106,837	\$391,286,354
Economic Activity	Employment Activity	23,687	1,480	7,329	16,358
	Total Fiscal Activity	\$65,516,561	\$4,094,785	\$19,705,725	\$45,810,835
	Total Economic Activity	\$955,828,627	\$59,739,289	\$296,668,975	\$659,159,652

¹ Full data and model in its native form is available upon request.

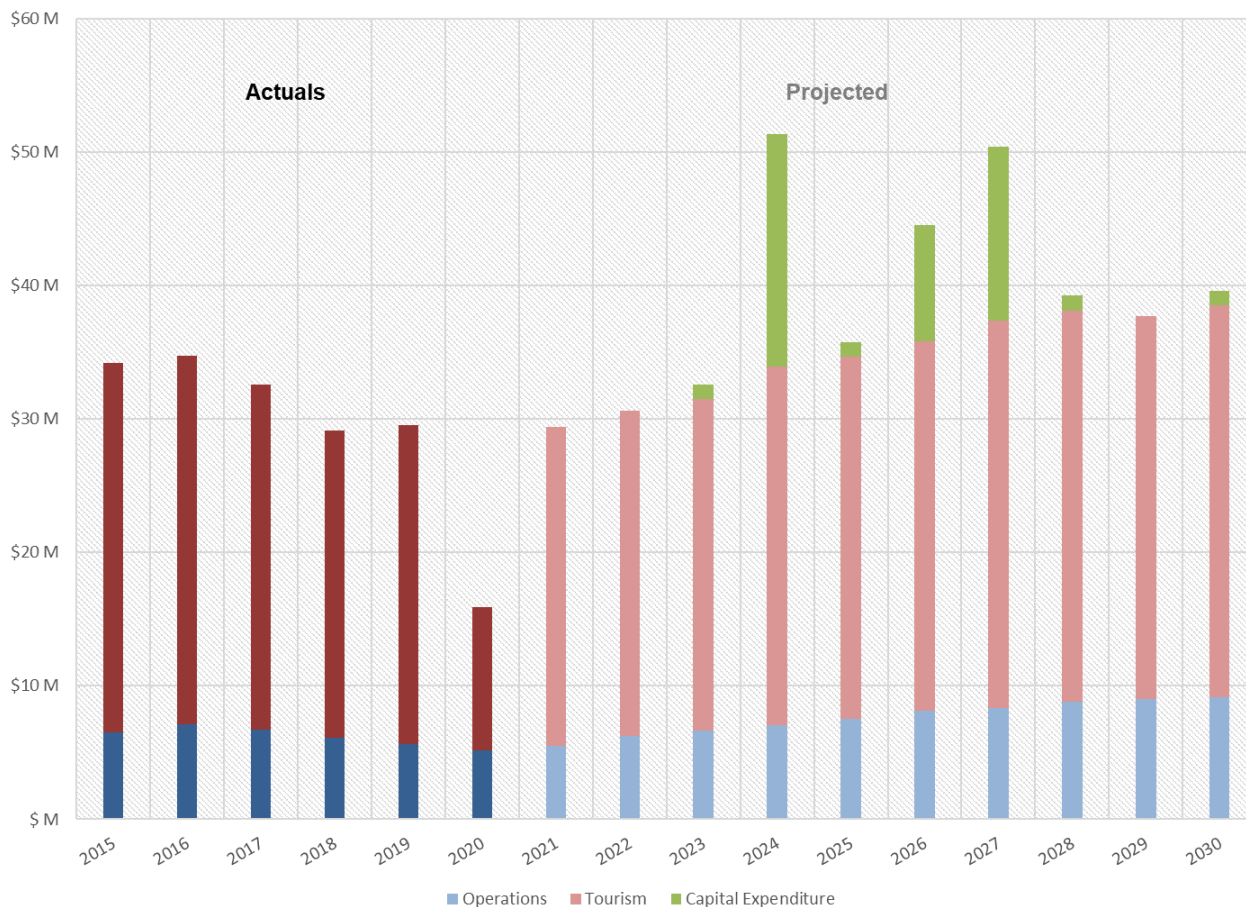
² Note: Employment calculations throughout this report refer to both Part/Full Time Staff Members.

As can be seen in Table 1, the Little Rock Zoo has a substantial economic impact on Pulaski County. The total economic impact is created through three distinct sources:

- Impact of Zoo Operations (Related to the Zoo's operating expenses)
- Impact of Tourism Revenues Attributable to Zoo Visitors (Non-local Zoo visitors spending)
- Impact of Capital Projects (Generated by spending on capital construction and renovation projects, as part of Zoo's plan)

A year-by-year and category breakdown of economic impact figures are displayed below in Figure 1. As shown below, the majority of economic impact is created by visitor's tourism activities in the region.

<<Figure 1: Pulaski County Level Economic Impact by Year (2015 - 2030)>>



Economic impact attributable to each of these three components are broken down below:

<<Table 2: Total Economic and Fiscal Impact Attributable to Non-local Visitors (2015 - 2030)>>

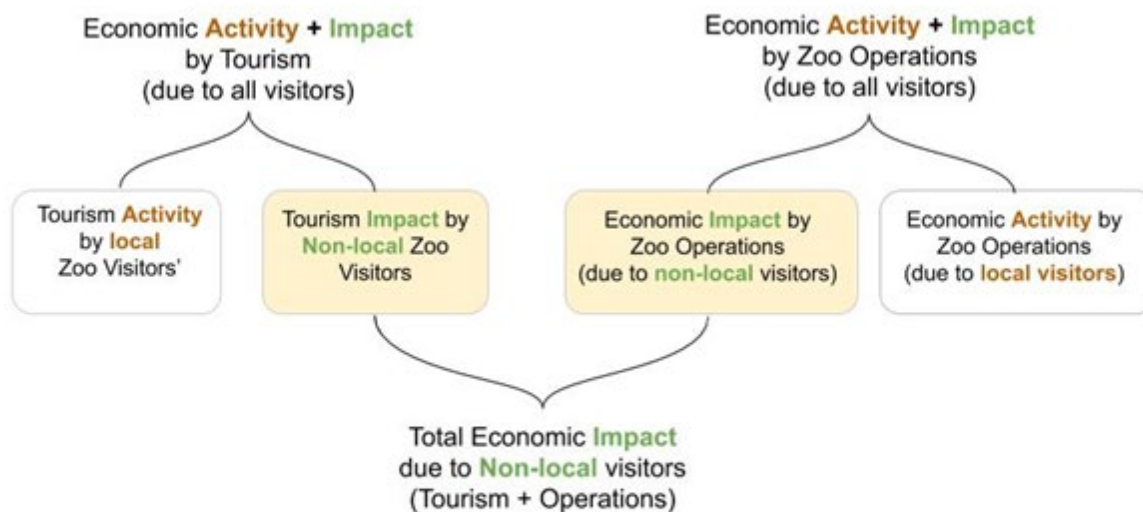
Region	Total Employment	Operational Impact	Non-local Visitor Tourism Impact	Capital Expenditure Impact	Total Economic Impact	Total Fiscal Impact
Pulaski County Total	14,061	\$113.59 M	\$410.23 M	\$43.58 M	\$567.39 M	\$38.89 M
Pulaski County Excl. Little Rock	483	\$3.15 M	\$38.17 M	\$3.69 M	\$45.01 M	\$2.79 M
Little Rock	13,578	\$110.44 M	\$372.06 M	\$39.89 M	\$522.38 M	\$36.10 M

Note: Non-local defined as Out-of-County visitors.

B. Introduction

In this report, we build a model to measure the Economic Activity and Economic Impact generated by the Little Rock Zoo. It is important to clearly distinguish between the two variables, in order to better understand the tables herein. The following diagram summarizes the relationship between Economic Activity vs. Economic Impact.

<<Figure 2: Economic Impact vs. Economic Activity>>



Note: Operations include P&L expenses and Capital Expenditures

As shown above, we do not include the portion of the economic activity generated by the Zoo’s local visitors into our impact figures (a local visitor is defined as someone that lives in the Pulaski County). This is a conservative assumption of our model since one could argue that if the Little Rock Zoo did not exist, the local money spent on the Zoo could otherwise have left the county (for people deciding to visit nearby Zoos or attractions outside the county). However, since we have no reliable data to estimate this portion of the funds, we conservatively assume that all local Zoo spending would have stayed in the local economy and have been spent elsewhere within the county if the Little Rock Zoo did not exist.

I. Total Economic Impact by Type

To calculate true economic impact, we quantify the economic impact of the spending that emanates from outside the county. As stated above, this is a conservative estimate as the economic impact theoretically could also include trips to LRZ by local residents, in which they chose the Zoo over a similar attraction outside of Little Rock.

The total impact therefore includes all spending that occurs due to visitors from outside the county. This includes the LRZ operations expenses attributable to out of county visitors *combined with* the economic impact of the spending out of county visitors across all other tourist industries. The total economic impact of LRZ operations and capital expenditure attributable to out of county visitors and tourism is displayed in the table below.

<<Table 3: Economic Impacts of LRZ Operations, Tourism and Capital Expenditure on Pulaski County>>

Region	Employment				Output			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Pulaski County Total	11,953	1,605	502	14,061	\$364.11 M	\$154.74 M	\$48.54 M	\$567.39 M
Pulaski County Excl. Little Rock	-	387	96	483	\$.00 M	\$36.06 M	\$8.95 M	\$45.01 M
Little Rock	11,953	1,218	406	13,578	\$364.11 M	\$118.68 M	\$39.59 M	\$522.38 M

Note: Non-local is defined as Out-of-County visitors.

Next, we break down the economic impact figures in terms of their origination and explain the methodology and necessary assumptions used to calculate these figures.

II. Economic Impact from Little Rock Zoo Operations

To arrive at the most accurate result (rather than just apply industry standards) we first improved the accuracy of the generic IMPLAN industry assumptions for industry Museums, historical sites, zoos, and parks in the county. We improved the overall accuracy of results by applying the Analysis by Parts methodology. This methodology involved bucketing the LRZ’s specific total operating costs into industries and inputting the total labor costs. The output generated from these activities is then multiplied by the percentage of out of town visitors to arrive at the economic impact of LRZ operations.

<<Table 4: Direct, Indirect, Induced Economic Impact (Output) of Little Rock Zoo Operations>>

Region	Employment				Output			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Pulaski County Total	2,461	286	112	2,859	\$74.97 M	\$27.73 M	\$10.89 M	\$113.59 M
Pulaski County Excl. Little Rock	-	21	12	34	\$.00 M	\$2.00 M	\$1.15 M	\$3.15 M
Little Rock	2,461	264	100	2,825	\$74.97 M	\$25.73 M	\$9.74 M	\$110.44 M

Note: Non-local is defined as Out-of-County visitors.

III. Tourism Impact Calculations

For this analysis, we rely on tourism economic impact studies conducted by the State of Arkansas, in order to estimate visitor impact. Specifically, we use the tourism spending, number of visitors and number of trips taken during their visit, provided by 2017, 2018 and 2019 Arkansas tourism impact reports prepared by Arkansas Department of Parks, Heritage and Tourism.³ Other critical statistics such as annual visitor volume, visitor breakdown by origin and average visitor spending (while visiting the Zoo facilities) were provided to us by the Little Rock Zoo for past years (actuals) and future estimates through 2030.⁴

For 2019, Arkansas had 36.3 million visitors visiting 51.7 million places (i.e. 1.42 places visited per visitor during their trip) spending a total of \$7.68 billion with an average \$211.57 spending per trip.⁵ Since each visitor on average visits 1.42 places during their trip, we first adjust the total spending per visitor down to total spending per place visited, i.e. we reach \$149.55 spending per visitor associated with their visit to one attraction ($\$211.57 / 1.42 = \149.55).⁶

³ <https://www.arkansas.com/industry-insider/research-and-development/research-services>

⁴ Despite the aforementioned statistics, to accurately estimate the economic impact of the Little Rock Zoo, we must make some assumptions due to lack of detailed visitor behavior data. In an ideal world, an intercept survey could be conducted with visitors in advance of the next economic impact study, in order to study their behavior.

⁵ We follow similar steps for 2017 and 2018, and project future spending figures accordingly.

⁶ For the visitors of Little Rock Zoo 1 out of the 1.42 places visited is by definition the zoo itself, the ratio of which, 70%, we use to apportion the reason for the trip.

In other words, we assume that each visitor to the Zoo has a total tourism spending of \$149.55 driven by their visit to the Zoo, while in town. Next, we adjust the amount of money Zoo visitors spend inside the Zoo (\$25.01 on average in 2019), since those values are already reflected as part of the “operations impact”, to prevent double counting.⁷ This gives $\$149.55 - \$25.01 = \$123.54$ non-zoo spending per trip attributable to the zoo.⁸

<<Table 5: Direct, Indirect, Induced Economic Impact (Employment) of Tourism on Little Rock Zoo>>

Region	Employment				Output			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Pulaski County Total	8,518	1,231	334	10,083	\$259.47 M	\$118.54 M	\$32.23 M	\$410.23 M
Pulaski County Excl. Little Rock	-	336	74	410	\$.00 M	\$31.30 M	\$6.87 M	\$38.17 M
Little Rock	8,518	896	260	9,674	\$259.47 M	\$87.24 M	\$25.35 M	\$372.06 M

Note: Non-local is defined as Out-of-County visitors.

As our final step, we multiply per visitor non-zoo related spending of \$123.54, with the total number of “out of Pulaski County” visitors only (**%59 of all visitors are coming from out of County**), in order to isolate “impact” attributable to the non-locals. It is important to note that using this approach, we are attributing only non-local visitors’ spending associated with their Zoo visit as the impact contribution of the Little Rock zoo (as opposed to all visitors’ entire spending during their trip).

After making this assumption, we then calculate total visitor spend by category, proportionally into the respective six industries where tourists spend their money in Little Rock, and mapped spending equally into IMPLAN’s industries that correspond to these six overarching tourist industries⁹ before calculating our tourist impact figures.

⁷ This is a necessary adjustment since visitors’ spending while in the zoo is income to the Zoo, and in return is accounted for in their expenses already.

⁸ These numbers are adjusted for inflation using Consumer Price Index (CPI) numbers by FRED.

⁹ <https://repositories.lib.utexas.edu/bitstream/handle/2152/22209/Gieryn-2008.pdf?sequence=2>

IV. Economic Activity (local + non-local)

Economic activity refers to all transactions that occur due to the Little Rock Zoo operations, investments and tourism impacts driven by Zoo visitors, i.e. local plus non-local impact (including spending that occurs due to Little Rock residents). The importance of Economic Activity is that even though (without the Little Rock Zoo) many local citizens would have spent their money in a similar fashion within the city, as the Zoo does exist, and local citizens did in fact have a choice, they chose Little Rock Zoo. This choice therefore demonstrates the inherent value of the Little Rock Zoo to the Pulaski county residents in terms of entertainment, education and enrichment.¹⁰ We provide the breakdown of Economic Activity in Table 6:

<<Table 6: Total Economic and Fiscal Activity (2015 - 2030)>>

Region	Total Employment	Operational Activity	Visitor Tourism Activity	Capital Expenditure Activity	Total Economic Activity	Total Fiscal Activity
Pulaski County Total	23,687	\$191.35 M	\$691.07 M	\$73.41 M	\$955.83 M	\$65.52 M
Pulaski County Excl. Little Rock	814	\$5.31 M	\$64.30 M	\$6.22 M	\$75.83 M	\$4.70 M
Little Rock	22,873	\$186.04 M	\$626.77 M	\$67.20 M	\$880.00 M	\$60.82 M

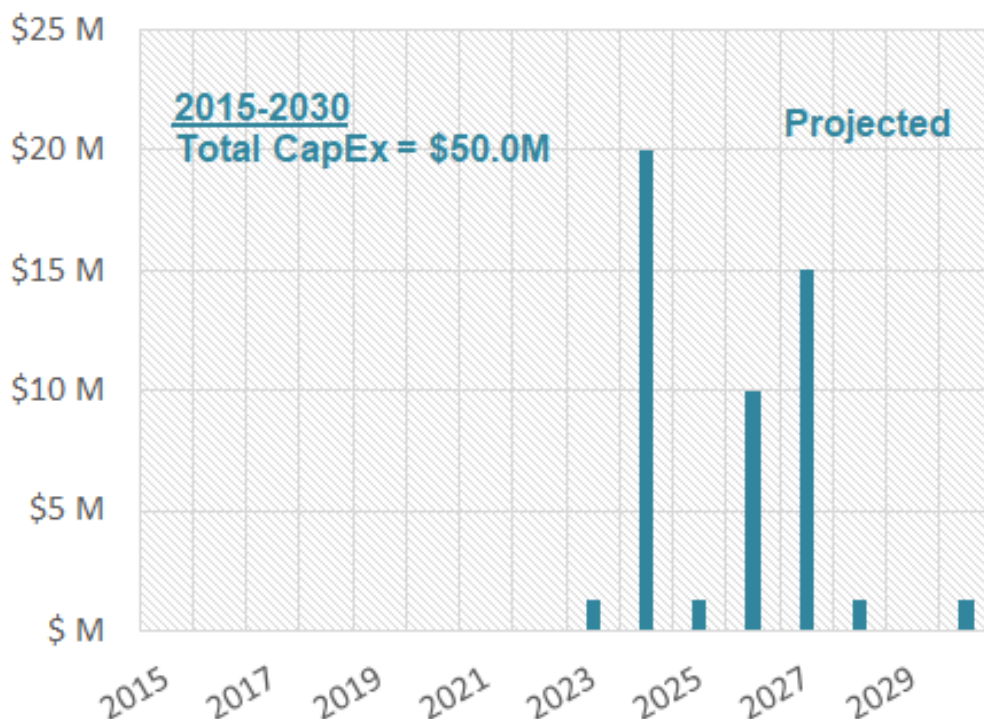
Note: Economic activity figures shown above represent exactly 100% of economic activity generated by Zoo operations and its visitors.

¹⁰<https://static1.squarespace.com/static/5af07fd050a54f8fc370c748/t/5b593f7503ce645f31d837b7/1532575610050/201805+Final+Zoo+Economic+Impact+Study.pdf>

C. Capital Expenditures Impact

In the following section, we provide the economic and employment impact of the construction projects that are part of historical and planned capital improvement projects. Specifically, the following past and planned future construction related capital expenditures were provided to us by Little Rock Zoo:

<<Figure 3: Past and Projected Future Capital Expenditures, 2015 - 2030>>



Below we provide estimates in Table 7, regarding the economic impact of past and planned future capital expenditures, the ultimate economic impact on the LRZ will inherently depend on the choice of local contractors / suppliers employed during the project.

<<Table 7: Direct, Indirect, Induced Economic Impact Capital Expenditures of Little Rock Zoo>>

Region	Employment				Output			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Pulaski County Total	974	88	56	1,119	\$29.68 M	\$8.47 M	\$5.43 M	\$43.58 M
Pulaski County Excl. Little Rock	-	30	10	40	\$.00 M	\$2.76 M	\$.93 M	\$3.69 M
Little Rock	974	59	46	1,079	\$29.68 M	\$5.71 M	\$4.50 M	\$39.89 M

Note: Non-local is defined as Out-of-County visitors.

D. Fiscal Revenue Generated for State / Local and Federal Government

Finally, we calculated the fiscal revenue generated from each source (overall economic impact, tourism impact, and economic activity and impact of zoo operations) for LRZ and broke it into the impact on State and Local Taxes and the impact on Federal Taxes and display these findings in tables 8 and 9.

<<Table 8: Overall Fiscal Impact of Little Rock Zoo by Impact Channel>>

Type of Impact	State and Local Taxes	Federal Taxes	Fiscal Impact
Zoo Ops	\$2,048,913	\$1,953,069	\$4,001,982
Tourism	\$16,533,022	\$14,140,890	\$30,673,913
Capital Expenditure	\$1,163,595	\$3,052,053	\$4,215,649
Total Impact	\$19,745,530	\$19,146,013	\$38,891,543

<<Table 9: Overall Fiscal Impact of Little Rock Zoo, by Region>>

Type of Impact	Impact on State and Local Taxes	Impact on Federal Taxes	Total Fiscal Impact
Pulaski County Excl. Little Rock	\$1,260,980	\$1,527,576	\$2,788,556
Little Rock	\$18,484,550	\$17,618,437	\$36,102,988

E. Limitations of Model and Disclaimer

This economic impact study is prepared using financial documents provided by the Little Rock Zoo, publicly available data sources as explicitly cited throughout the report, and the commercially licensed IMPLAN software. As needed, and explicitly stated throughout the report, we have used reasonable assumptions in order to estimate parameters and statistics that are otherwise not publicly available, based on careful background research and consultations with the Client's representatives. Zoo Advisors and IAMECON have made all possible efforts to ensure the data and methodology used is up to the highest economic and statistical standards, and as accurate as possible.

Estimates are not to be interpreted as representations of fact, but instead are statistically sound predictions. No responsibility is assumed for inaccuracies in reporting by the Client, the Client's agent, and representatives or any other third party presenting this study. Moreover, Zoo Advisors and IAMECON disclaim any liability due to errors, omissions, or discrepancies made by third parties whose material IAMECON relied on in good faith to produce the report.

The fee received for undertaking this project is in no way dependent upon the conclusions reached in this report and Zoo Advisors and IAMECON have no financial interest in the project. This study may not be used for purposes other than that for which it is prepared. Exceptions to these restrictions may be permitted only after obtaining written consent from Zoo Advisors and IAMECON.