

# **Thunderhill Raceway Park**

## Economic Impact Analysis



Fall 2022

Report and analysis prepared by the Center for Economic Development  
at California State University, Chico

## Acknowledgements

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## Introduction

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The Center for Economic Development (CED) was contracted by Thunderhill Properties Foundation to conduct an economic impact study to determine the track's significance in and effect on the local economy of Willows and Glenn County. For the past 29 years, Thunderhill Raceway Park has been located in Glenn County, near the Town of Willows. Thunderhill hosts racers and spectators from all over the world and hosts approximately 92,000 visitors a year.

In addition to races and events, Thunderhill Raceway is a destination for filming car commercials and TV shows including Myth Busters, NOVA, and CBS Sunday Morning News. The track is mentioned in the book, *The Art of Racing in the Rain* by Garth Stein, later made into a movie. It has also hosted Stanford University, Toyota Development, LUCID, Tesla, and ZOOX.

The purpose of this study is to quantify the local economic impact of Thunderhill Raceway on Willows and Glenn County as a whole, allowing local entities to leverage the track's success and notoriety to advance economic growth in the region. This study will focus on the tourism dollars brought in by the track, which can in turn be used to justify expanding businesses to support the track's visitors.

## Methodology

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This economic impact study was conducted through primary survey research and economic impact modeling using IMPLAN to provide an analysis of Thunderhill Raceway's economic impact on Glenn County.

### *Survey Methodology*

The survey questions were crafted by the CED, in partnership with Thunderhill Raceway. The survey was built out in Qualtrics and distributed by the Thunderhill Team via social media, website, and email promotion. In-person outreach was also conducted at the track and local businesses by CED staff. Responses were collected between August 8<sup>th</sup> and September 30<sup>th</sup>, 2022. Survey responses were collected and tabulated by the CED. The CED received a total of 841 survey responses. Of those, 19 (2% of respondents) were businesses in Glenn County and 822 (98% of respondents) were visitors to Thunderhill.

### *IMPLAN Methodology*

The CED used data provided by Thunderhill Raceway to run multiple IMPLAN analyses to determine the wider economic impact the track has on the local economy of Glenn County. The first analysis is based on the track's 2021 income, \$7,364,359, and the number of their employees, 44. These figures were then attributed to the "504 Other amusement and recreation industries," code within the IMPLAN Industry Schemes classification system. This code was chosen over "498 Racing and track operation services" because IMPLAN showed no record of any operating Glenn County business within that industry code. Additionally, the model was run using 2020 data, it being the most recent available. Lastly, results were inflation adjusted to 2022 dollars.

In addition to measuring the impacts of the visitor spending at the Raceway, CED staff developed an additional two IMPLAN models measuring the impacts of additional spending made by visitors to Thunderhill outside of the Raceway at other Glenn County businesses. More specifically, the CED analyzed the impacts of spending by visitors from outside of Glenn County, as spending by these visitors may not have occurred in the region had they not been drawn there by the Raceway. The local annual spending of Thunderhill visitors by industry was calculated using survey data. The survey prompted respondents to indicate their party's daily

spending range in each industry. Their responses were divided by the number of people in their party and separated out into a low average and a high average, based on the given range. Additionally, respondents were categorized as either spectators or participants based on their response to the question, “What experience will you have at Thunderhill on this visit or your most recent visit?” The total spending tables were created by multiplying high and low averages from survey responses for each of the two types of visitors by the proportion of annual out of county visitors in each category provided to the CED by Thunderhill, 20,041 spectators and 53,709 participants. The spending totals are self-reported and the CED has not verified, nor can it guarantee, the accuracy of the spending behaviors reported.

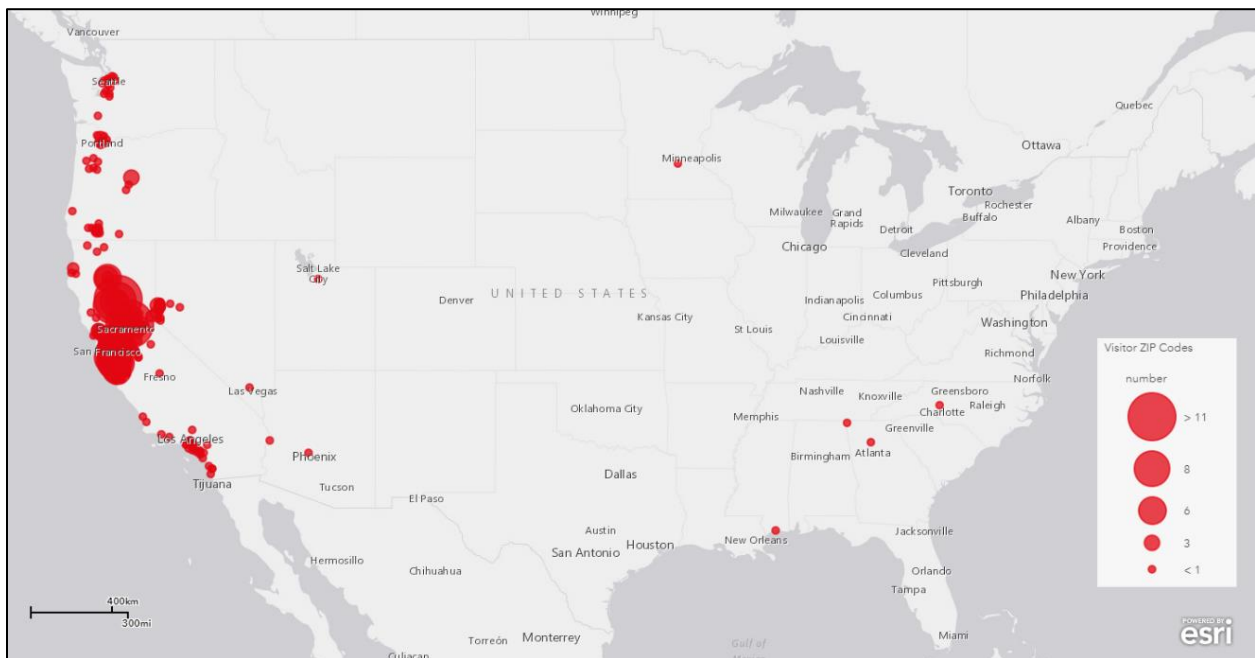
Based on data provided by Thunderhill Raceway, 73,750 of their 92,000 annual visitors travel in from outside of Glenn County. CED staff filtered survey results by ZIP Code to remove any local respondents. CED staff also sorted respondents by their primary reason for visiting the raceway, whether it be as a spectator or non-spectator (participant). Using survey responses regarding additional visitor spending, total spending on reported industries were entered into the corresponding IMPLAN Industry Schemes classifications. IMPLAN is the industry standard for economic modeling.

## Survey Results

### About the respondents

The first set of survey questions asked respondents to identify their home ZIP Code and how they first heard of Thunderhill Raceway. Visitors' home ZIP Codes are mostly along the West Coast of the United States, with the highest concentration in Northern California. These results suggest that the vast majority of visitors to Thunderhill Raceway are in relatively close geographic proximity to the raceway. The map below does not include seven international participants who took part in the survey.

Map 1: The map displays the home ZIP Codes of survey participants located in the United States. n=745



When asked about how they heard of Thunderhill Raceway, 67 percent of respondents indicated that they heard of Thunderhill through either a race group or recommendations from fellow racers. This suggests that a large portion, if not a majority, of respondents were not only visitors but also participants in Thunderhill events. These results also suggest that Thunderhill Raceway is most frequented by visitors that are active within the racing community. Lastly, very few respondents identified social media or radio/TV advertisement as the means by which they heard of Thunderhill Raceway. Thunderhill Raceway has a robust social media presence, but it appears that social media is not the primary means by which survey respondents first heard of the raceway.

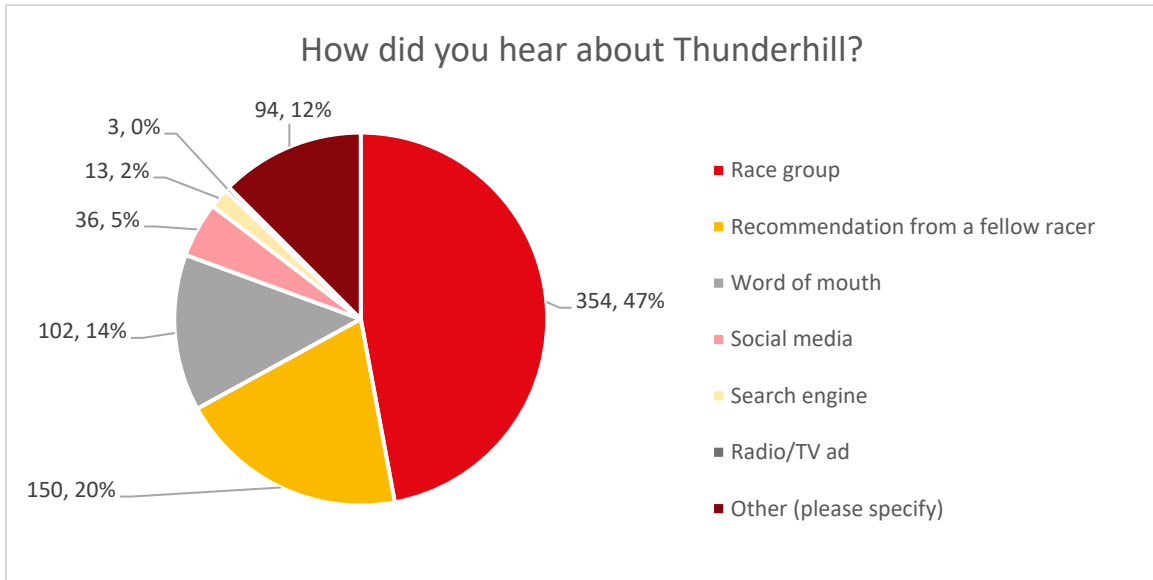


Figure 1: Results from survey question: "How did you hear about Thunderhill?" n=752

### Interactions with Thunderhill

The second set of questions asked respondents about their interactions and experiences at Thunderhill. When survey respondents were asked about the capacity in which they last visited Thunderhill Raceway, 71 percent indicated that they visited Thunderhill as Racers and another 3 percent identified that they were part of a pit crew. Together, this means that at least 74 percent of respondents were active participants in racing events at Thunderhill. This fact should be considered when reviewing other survey responses and the survey-based impact assessments, as these proportions of participants to spectators may not accurately reflect the actual proportion of participants to spectators among Thunderhill visitors. For instance, according to data provided by Thunderhill Raceway, the largest portion of visitors (32.6%) are actually members of pit crews, while only 3 percent of respondents were members of pit crews. Data provided by Thunderhill also identified 27.2 percent of visitors as spectators, while only 6 percent of survey respondents identified themselves as spectators.

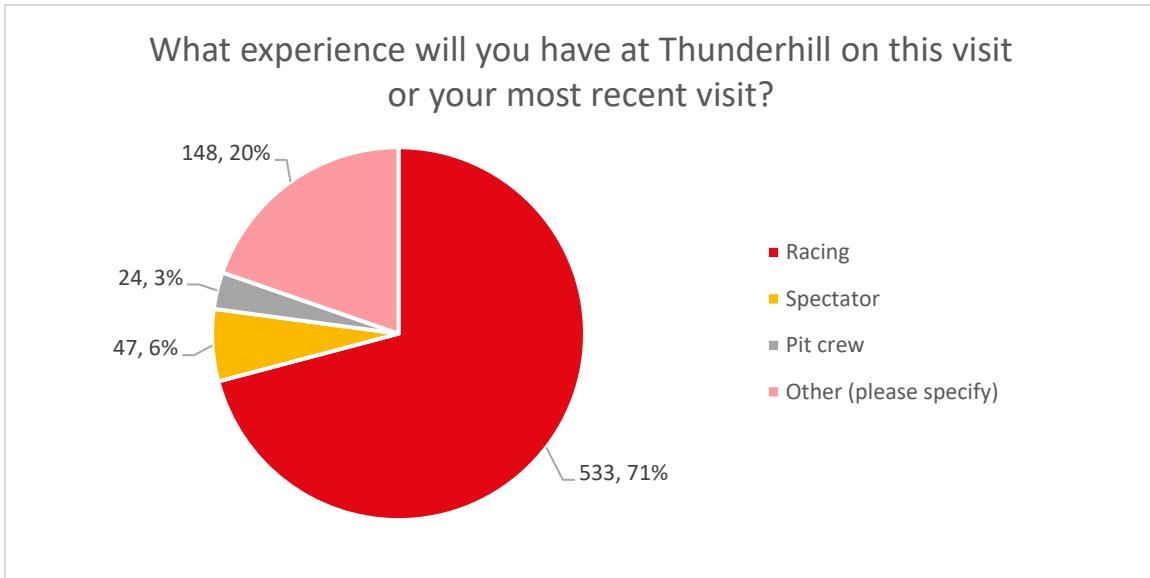


Figure 2: Results from survey question: "What experience will you have at Thunderhill on this visit or your most recent visit?" n=752

According to survey respondents, it appears that Thunderhill Raceway's most popular events are street car events by a significant degree, representing a larger portion of responses than the second and third most popular (specially prepared road race automobile events and motorcycle events) responses combined.

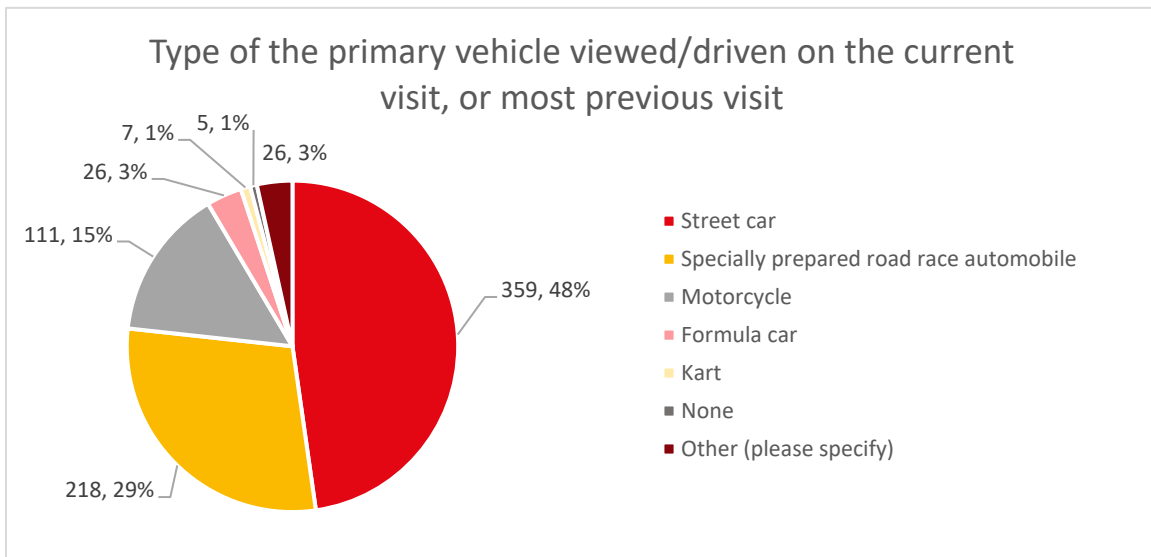


Figure 3: Results from survey question: "What is the type of the primary vehicle you are viewing/driving on this visit, or your most recent visit to Thunderhill Raceway?" n=752

Survey respondents were also asked to identify which of the many services offered by Thunderhill Raceway they used during their most recent visit. Survey results show that many of the services offered by Thunderhill Raceway are popular among visitors. Thunderhill's three-



mile track seems to be the most popular track at the raceway while their lunch concessions are their most popular food concessions.

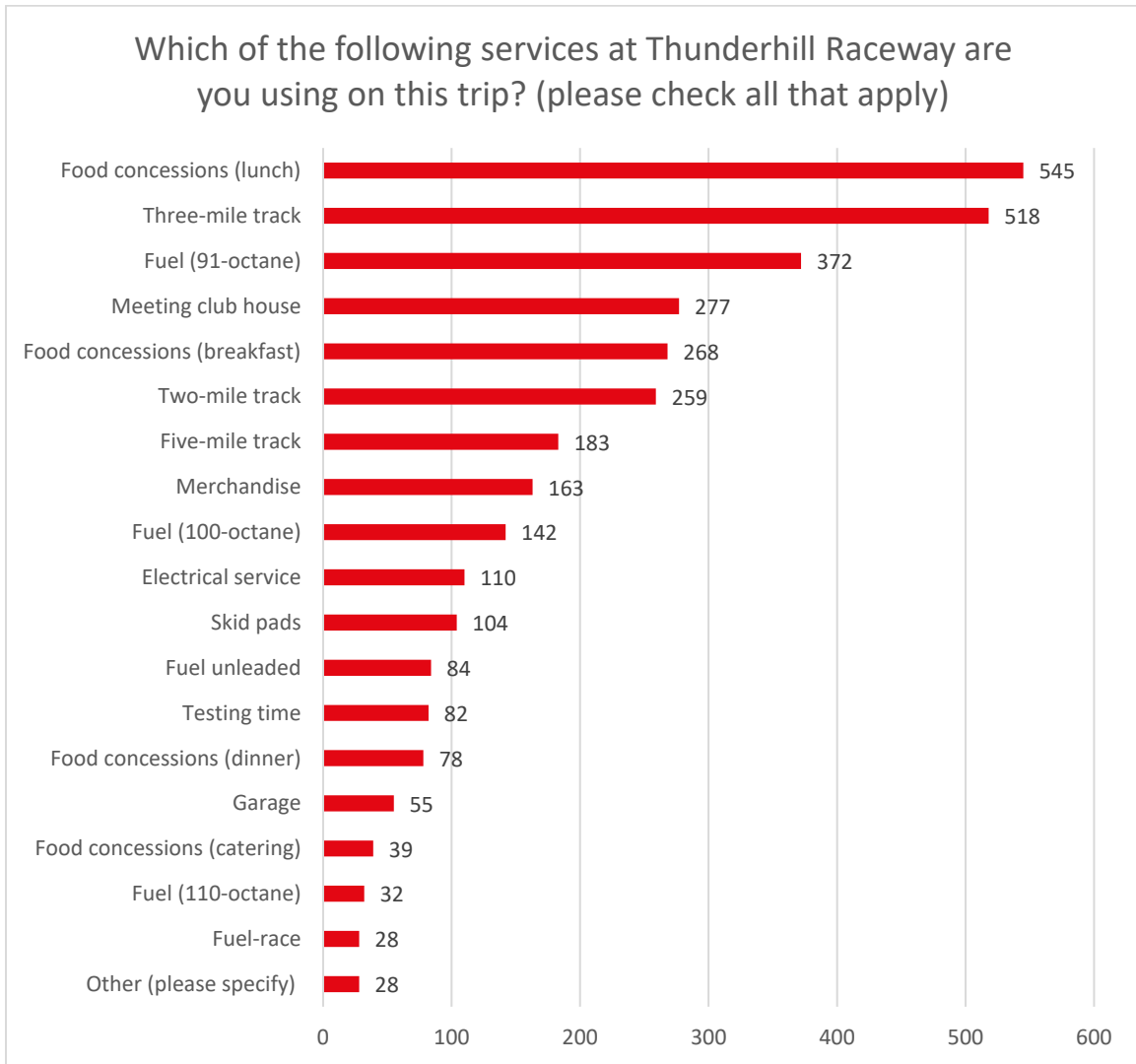


Figure 2: Results from survey question: "Which of the following services at Thunderhill Raceway are you using on this trip?" May result in more responses than respondents due to "Select all that apply." n=752

A significant majority of respondents identified that their trips to Thunderhill Raceway last multiple days and an even larger proportion of respondents identified that they make multiple trips to Thunderhill a year. The majority of respondents were frequent visitors to Thunderhill Raceway with 317 respondents indicating that they make five or more trips to Thunderhill Raceway a year.

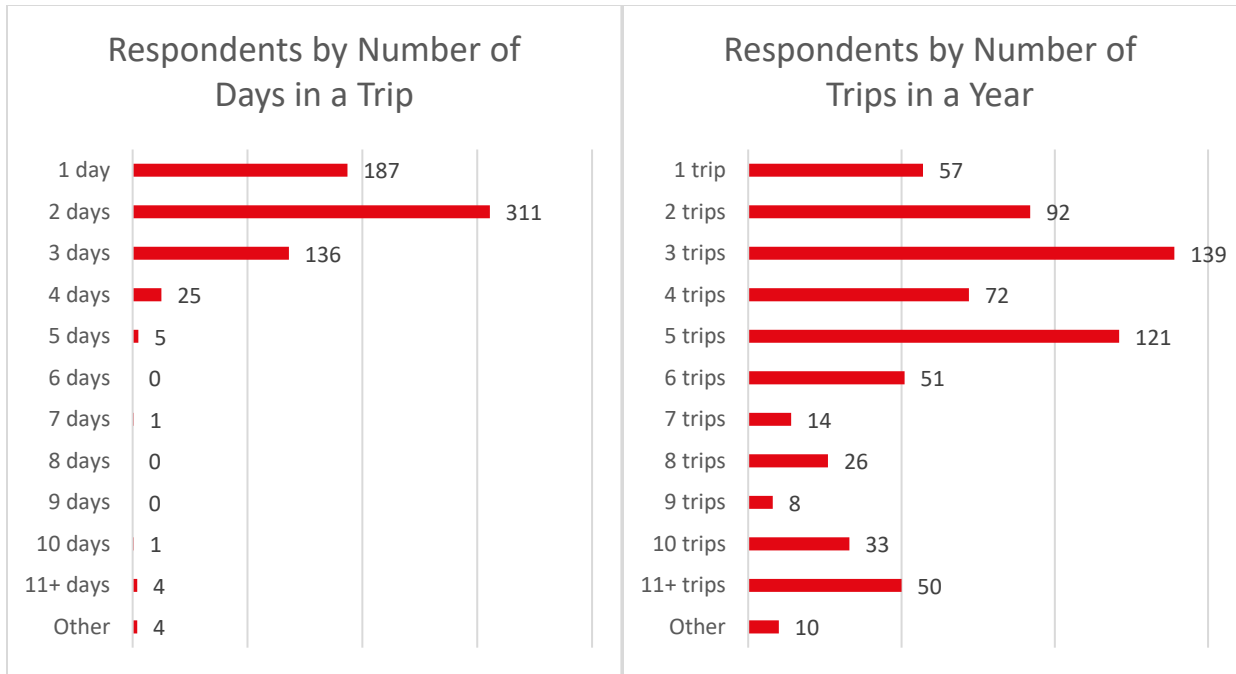


Figure 3: Results to survey question: "Approximately, how many days do you typically spend at Thunderhill in one trip?" n=681  
 Figure 4: Results to survey question: "Approximately, how many trips do you take to Thunderhill each year?" n=681

### Interactions with the local community

The final section in the survey asked respondents a series of questions regarding their interactions with the business community in Willows, including their spending behaviors. From these questions, the CED was able to draw conclusions about the direct impact visitors to Thunderhill have on the local economy of Willows and the surrounding Glenn County.

When asked where they stay when visiting Thunderhill, a significant majority of respondents (71 percent) identified that they stay in Willows; however, a substantial number of respondents identified that they do not stay overnight (15 percent). Of those that stay overnight, an overwhelming majority of respondents (80 percent) identified that they stay at a hotel or motel when visiting Thunderhill Raceway.

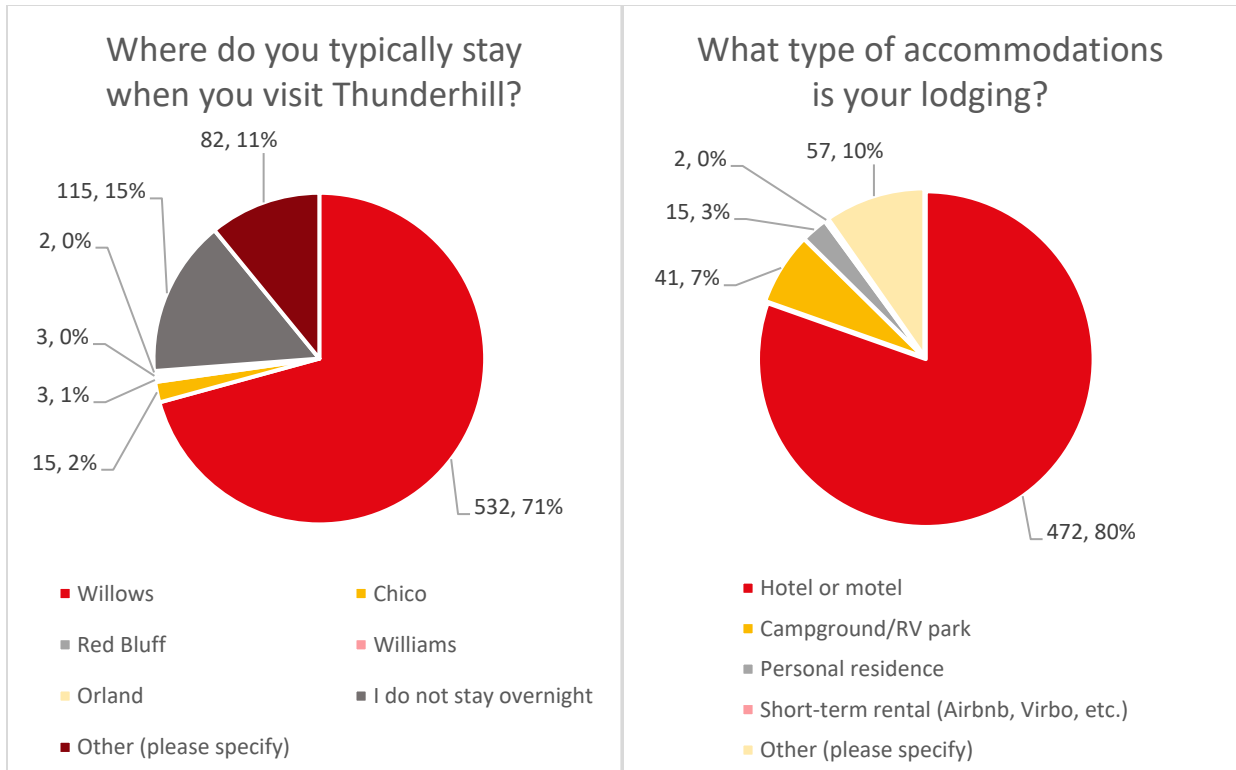


Figure 5: Results to survey question: “Where do you typically stay when you visit Thunderhill?” n=752

Figure 6: Results to survey question: “When visiting Thunderhill overnight, what type of accommodations is your lodgings?” n=587

Survey respondents were then asked to identify the dollar range their party spent on specific services and industries in the Willows area during their most recent visit to Thunderhill Raceway. The greatest proportion of spending by visitor parties was on lodging, gasoline, and restaurants. A majority of the daily spending for lodging (72%), gasoline (82%), and restaurants (59%) fell between \$50-\$499. For the remaining industries and services, the majority of respondents either spent less than \$50, or did not spend money at all.

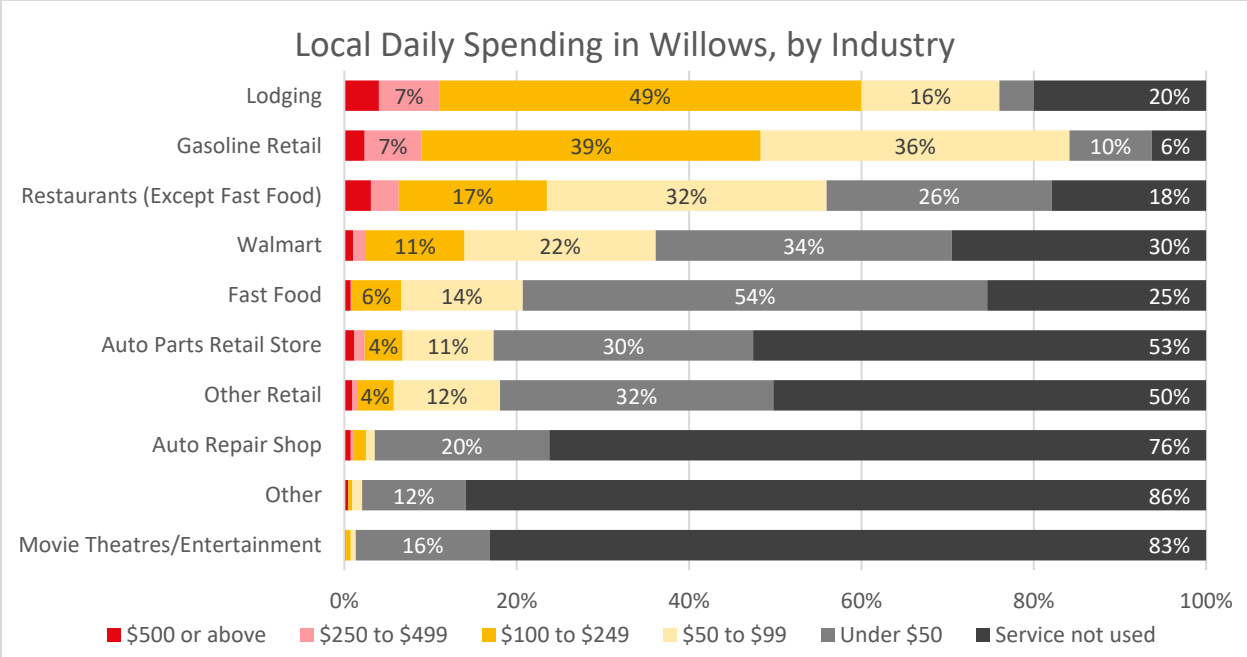


Figure 7: Aggregated results to survey question: “What services are you using in the Willows area (NOT including Thunderhill Raceway) and how much does your party spend on average per day?” (All industries) n=681

An additional survey effort was made to gather data from local business, but unfortunately, very few businesses responded to the survey. Due to this, the resulting sample size was too small to provide any meaningful results.

## IMPLAN Analysis

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A total of three different IMPLAN models were developed to provide a comprehensive estimate of the total positive impacts Thunderhill Raceway has on Glenn County's economy. An initial IMPLAN analysis measured specifically the impacts the Raceway's 2021 revenue of \$7,364,359 and the 44 persons the Raceway employs. This model includes the impact of Thunderhill revenue and employment on local employment, labor income, value added, output, and taxes. Two additional models were run to determine the impacts of spending by visitors from outside of Glenn County at other Glenn County businesses during their visits to Thunderhill Raceway. The two models differ by the type of visitors, the first using data from those respondents that identified themselves primarily as spectators and the second using data from those respondents that identified themselves as participants. These two types of visitors displayed very different spending habits and were run separately to provide more accurate approximations of the average Thunderhill visitor.

### **IMPLAN Model 1**

IMPLAN Model 1 provides an in-depth analysis of the impacts of the revenue generated by Thunderhill Raceway and the staff of 44 it employs. Table 1 displays these impacts on employment, labor income, value added, and output.

Employment represents the number of employees required to support Thunderhill activities, or in other words, the number of jobs created by the business. Thunderhill Raceway employs a staff of 44, and the track supports an additional 15 jobs in Glenn County through the indirect and induced impacts of the Raceway's revenue and the 44 persons the track employs. Labor income includes all employment income, which is a combination of employee wages, employee benefits, and proprietor income<sup>1</sup>. In addition, to the \$4.2 million in direct labor

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<sup>1</sup> Labor Income is the sum of Employee Compensation (wages and benefits) and Proprietor Income. Labor Income represents the total value of all forms of employment income paid throughout a defined economy during a specified period of time. It reflects the combined cost of total payroll paid to employees (e.g. wages and salaries, benefits, payroll taxes) and payments received by self-employed individuals and/or unincorporated business owners across the defined economy (proprietors).

income, over \$773,000 in indirect and induced labor income was generated within Glenn County as a result of Thunderhill Raceway’s operations.

Looking at the impacts on the regional economy as a whole, the value-added impact is the total output minus the cost of intermediate inputs (i.e., the cost of production, operation, and raw materials), in other words, the difference between a product’s price to consumers and the cost of producing it. The track has directly increased the value added in the region by \$3.8 million. Additionally, the track has an indirect and induced value-added impact of \$1.3 million in Glenn County. Lastly, output captures the entire economic value of Thunderhill Raceway based on its direct revenue and employment. In addition to the \$7.4 million in direct economic output from the Thunderhill Raceway, the track generated an indirect and induced output of \$2.3 million in Glenn County’s local economy. The table below breaks out the employment, labor income, value added, and output by impact type.

*Table 1: Impact table resulting from the IMPLAN analysis conducted October 2022. Based on Thunderhill’s 2021 income (\$7,364,359) and number of employees (44).*

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	44	\$ 4,224,080.16	\$ 3,781,788.29	\$ 7,364,359.00
2 - Indirect	7.903738485	\$ 462,930.69	\$ 611,332.11	\$ 1,241,866.33
3 - Induced	7.337433884	\$ 310,843.63	\$ 644,900.37	\$ 1,081,000.63
<b>TOTAL Impact</b>	<b>59.24117237</b>	<b>\$ 4,997,854.48</b>	<b>\$ 5,038,020.77</b>	<b>\$ 9,687,225.95</b>

For a closer look at the impact of the Thunderhill Raceway, CED staff identified the five industries within the IMPLAN impact analysis that have the greatest indirect or induced economic output in Glenn County due to the existence of the Thunderhill racetrack. Table 2 displays the industries in order of output.

*Table 2: Top 5 industries by output table resulting from the IMPLAN analysis conducted October 2022. Based on Thunderhill’s 2021 income (\$7,364,359) and number of employees (44).*

Industry Code	Industry Description	Impact Type	Output
449	Owner-occupied dwellings	Induced	\$ 297,484.88
447	Other real estate	Indirect	\$ 239,072.29
417	Truck transportation	Indirect	\$ 91,794.93
400	Wholesale - Other nondurable goods merchant wholesalers	Indirect	\$ 80,928.42
534	Other local government enterprises	Indirect	\$ 80,056.55

Further, the IMPLAN analysis can also reveal Thunderhill Raceway’s impact on taxes. A look at the impact the track has on taxes can provide a clear picture of the positive impact that Thunderhill Raceway has on the local economy. The track supports a total of \$1.3 million in taxes. This includes federal, state, and local tax impacts. Locally, the track generates \$28,147.75 in county and sub-county taxes. The tables below display the tax impact in more detail.

Table 3: Total tax impact table resulting from the IMPLAN analysis conducted October 2022. Based on Thunderhill’s 2021 income (\$7,364,359) and number of employees (44).

Summary of Thunderhill’s Total Tax Impact	
Impact	Total Tax Impacts
1 - Direct	\$1,004,837.34
2 - Indirect	\$149,076.12
3 - Induced	\$145,517.98
<b>Total Impact</b>	<b>\$1,299,431.44</b>

Table 4: Local tax impact table resulting from the IMPLAN analysis conducted October 2022. Based on Thunderhill’s 2021 income (\$7,364,359) and number of employees (44).

Thunderhill’s Tax Impact by Local Tax				
Impact	Sub-County General	Sub-County Special Districts	County	Total Local Tax by Impact
1 - Direct	\$1,458.15	\$4,672.23	\$3,810.24	\$9,940.62
2 - Indirect	\$1,122.12	\$3,251.40	\$2,710.39	\$7,083.91
3 - Induced	\$1,778.52	\$5,089.80	\$4,254.90	\$11,123.22
<b>Total Impact</b>	<b>\$4,358.79</b>	<b>\$13,013.44</b>	<b>\$10,775.53</b>	<b>\$28,147.75</b>

Table 5: State and Federal tax impact table resulting from the IMPLAN analysis conducted October 2022. Based on Thunderhill’s 2021 income (\$7,364,359) and number of employees (44).

Thunderhill’s Tax Impact by State and Federal Tax		
Impact	State	Federal
1 - Direct	\$142,238.59	\$852,658.13
2 - Indirect	\$23,440.92	\$118,551.30
3 - Induced	\$21,641.44	\$112,753.32
<b>Total Impact</b>	<b>\$187,320.94</b>	<b>\$1,083,962.74</b>

### IMPLAN Model 2 & 3

IMPLAN models 2 & 3 were used to determine the impacts of spending at other Glenn County businesses by visitors to Thunderhill Raceway.

Tables 6, 7, and 8 display the annual spending by industry in Willows by Thunderhill Visitors that are not Glenn County residents. Table 6 displays total spending by spectators and table 7 displays the total spending by participants. Table 8 provides total spending of the two

types of Thunderhill visitors combined. Based on the survey results, the average Thunderhill spectator spends \$58.32 to \$170.34 a day in the Willows area while the average participant spends between \$99.70 and \$258.56 a day. To calculate the average annual spending, the CED multiplied the per day totals by the total number of out of county visitors provided by Thunderhill Raceway (73,750) divided proportionally by the percentage of annual visitors identified by Thunderhill Raceway as spectators (27.17%) and participants (72.83%). This results in out-of-town visitors spending an average of \$6.5-\$17.3 million in the Willows area, annually. The three industries with the highest visitor spending are lodging, gasoline retail, and restaurants.

*Table 6: Total spending by Thunderhill spectators at other Glenn County businesses. Calculations based on spending totals reported by survey participants in question: "What services are you using in the Willows area (NOT including Thunderhill Raceway) and how much does your party spend on average per day?"*

<b>Annual Spending of Thunderhill Spectators in the Willows areas, by Industry</b>				
<b>Industry</b>	<b>Spending per Spectator</b>		<b>Spending all Spectators</b>	
	<b>Low</b>	<b>High</b>	<b>Low</b>	<b>High</b>
Lodging	\$18.72	\$42.48	\$375,194.93	\$851,367.96
Gasoline	\$14.59	\$36.87	\$292,337.01	\$738,965.10
Other Restaurants	\$8.02	\$23.43	\$160,800.54	\$469,629.42
Walmart	\$6.43	\$22.14	\$128,879.55	\$443,758.62
Fast Food	\$5.18	\$17.54	\$103,771.67	\$351,472.43
Auto Part Store	\$2.75	\$9.32	\$55,017.20	\$186,853.53
Other Retail	\$2.39	\$11.74	\$47,843.52	\$235,281.57
Auto Repair	\$0.16	\$2.63	\$3,260.42	\$52,679.11
Other	\$0.05	\$2.55	\$1,043.79	\$51,145.69
Movie Theatres/Entertainment	\$0.03	\$1.62	\$664.23	\$32,547.26
<b>Total</b>	<b>\$58.32</b>	<b>\$170.34</b>	<b>\$ 1,168,812.85</b>	<b>\$3,413,700.70</b>



Table 7. Total spending by Thunderhill participants at other Glenn County businesses. Calculations based on spending totals reported by survey participants in question: "What services are you using in the Willows area (NOT including Thunderhill Raceway) and how much does your party spend on average per day?"

<b>Annual Spending of Thunderhill Participants in the Willows areas, by Industry</b>				
<b>Industry</b>	<b>Spending per Participant</b>		<b>Spending all Participants</b>	
	<b>Low</b>	<b>High</b>	<b>Low</b>	<b>High</b>
Lodging	\$32.56	\$73.19	\$ 1,748,528.76	\$ 3,931,003.47
Gasoline	\$28.52	\$65.44	\$ 1,531,879.16	\$ 3,514,965.60
Other Restaurants	\$15.47	\$36.73	\$830,844.45	\$1,972,618.44
Walmart	\$7.51	\$23.42	\$403,550.91	\$1,257,685.96
Fast Food	\$4.37	\$19.45	\$234,794.44	\$1,044,654.95
Auto Part Store	\$4.39	\$14.00	\$235,928.06	\$751,677.92
Other Retail	\$4.07	\$13.41	\$218,669.46	\$720,068.60
Auto Repair	\$1.33	\$6.02	\$71,351.49	\$323,460.16
Other	\$1.18	\$3.51	\$63,294.57	\$188,699.98
Movie Theatres/Entertainment	\$ 0.30	\$3.39	\$16,010.90	\$182,340.00
<b>Total</b>	<b>\$99.70</b>	<b>\$258.56</b>	<b>\$5,354,852.19</b>	<b>\$13,887,175.08</b>

Table 8. Total spending by Thunderhill visitors at other Glenn County businesses

<b>Total Annual Spending of Thunderhill Visitors in the Willows areas</b>		
<b>Industry</b>	<b>Spending all Participant</b>	
	<b>Low</b>	<b>High</b>
Spectators	\$1,168,812.85	\$3,413,700.70
Participants	\$5,354,852.19	\$13,887,175.08
<b>Total</b>	<b>\$6,523,665.04</b>	<b>\$17,300,875.78</b>

The IMPLAN impact analysis results for Thunderhill visitor spending at Glenn County businesses are presented in tables 9, 10, and 11. The average of the high and low spending totals presented in tables 6, 7, and 8 were used to run the IMPLAN analysis. Table 9 presents the impacts of spectators, table 10 presents the impacts of participants, and table 11 presents the total impacts of both types of visitors. These tables present the impacts of visitor spending on employment, labor income, value added, and output. Direct output is less than the total spending presented in tables 6, 7, and 8 due to net leakages in excess of 3.5 million dollars between both types of visitors. The high amount output lost to leakages is largely due to the large amounts of spending by visitors on gasoline and at retail, which both rely heavily on commodities sourced from outside of the county.

Table 9. IMPLAN impact analysis of Thunderhill spectator spending in Glenn County.

<b>Annual Regional Impacts of Thunderhill Spectator Spending at Other Glenn County Businesses</b>				
<b>Impact</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
1 - Direct	19.49	\$717,866.08	\$927,280.24	\$1,591,466.58
2 - Indirect	1.58	\$105,671.25	\$129,241.82	\$222,902.04
3 - Induced	1.32	\$55,899.91	\$116,095.20	\$194,546.60
<b>Total</b>	<b>22.40</b>	<b>\$879,437.24</b>	<b>\$1,172,617.26</b>	<b>\$2,008,915.23</b>

Table 10. IMPLAN impact analysis of Thunderhill participant spending in Glenn County.

<b>Annual Regional Impacts of Thunderhill Participants Spending at Other Glenn County Businesses</b>				
<b>Impact</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
1 - Direct	81.76	\$3,072,941.37	\$3,911,523.58	\$6,631,971.56
2 - Indirect	6.66	\$444,733.48	\$542,913.39	\$930,463.02
3 - Induced	5.65	\$239,114.75	\$496,623.60	\$832,207.96
<b>Total</b>	<b>94.07</b>	<b>\$3,756,789.61</b>	<b>\$4,951,060.58</b>	<b>\$8,394,642.54</b>

Table 11. IMPLAN impact analysis of Thunderhill visitor spending in Glenn County.

<b>Annual Regional Impacts of Thunderhill Visitors spending at other Glenn County Businesses</b>				
<b>Impact</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
1 - Direct	101.25	\$3,790,807.45	\$4,838,803.83	\$8,223,438.15
2 - Indirect	8.24	\$550,404.73	\$672,155.21	\$1,153,365.06
3 - Induced	6.97	\$295,014.66	\$612,718.80	\$1,026,754.56
<b>Total</b>	<b>116.46</b>	<b>\$4,636,226.85</b>	<b>\$6,123,677.84</b>	<b>\$10,403,557.77</b>

## Findings

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The findings of the IMPLAN analyses reveal that the Thunderhill Raceway makes a substantial impact to the Glenn County economy and workforce. In IMPLAN Model 1, the impact is a direct result of the Track's revenue and employees. Thunderhill Raceway brings in many tourists to Glenn County, and the impact of their spending in the Willows area is seen in IMPLAN Model 2&3

### **Employment Impact**

The Track itself, as seen in IMPLAN Model 1, supports 59.24 jobs in Glenn County, and Thunderhill visitor tourism dollars, as seen in IMPLAN Models 2&3, support a total of 116.46 jobs in Glenn County. In total, both the Track and the tourism dollars by Thunderhill visitors support 175.7 jobs in Glenn County. This is 3.3% of all jobs in the County, based on Census Bureau 2020 employment numbers. (<https://www.census.gov/quickfacts/glenncountycalifornia>)

### **Total Output Impact**

The total output impact of Track revenue and employees in Glenn County is \$9.7 million and the impact of Thunderhill visitor tourism dollars yields an output of \$10.4 million in the Glenn County economy. In total, the impact of both the Track and the tourism dollars by Thunderhill visitors results in a total output of \$20.1 million in Glenn County's economy.