

Memorandum

To: Jack Niedermeyer, Columbia County
Copy: Matt Treat, Columbia County Sports, LLC
From: Jennifer Danziger, PE
Date: January 20, 2025
Subject: Trip Generation Estimate for Frisbee Golf Course
57244 Hazen Road, DR 25-01 & DSU 25-04



RENEWS: 12/31/2025

Introduction

Columbia County Sports, LLC is proposing to utilize the site of the former St. Helens Golf Course, located at 57244 Hazen Road, as a frisbee golf course with 18 holes in a "temporary" manner as they continue the process of developing the property "back" into a functioning golf course with other sports-related activities. This memorandum provides trip generation estimates for typical operating conditions under the proposal as well as two tournament scenarios for the temporary use.

Description

The site is located on Tax Map 4213-D0 Lot 103. The project site is shown in blue in Figure 1.



Figure 1: Vicinity Map

The St. Helens Golf Course was opened on the site in 1959 and operated until 2018. The course included 9 holes with dual tees that allowed it to be played as an 18-hole course; however, only 9 holes could actively be played at a time. According to the 2024 Columbia County Real Property Assessment Report, the site includes a 1,468-square foot (SF) home built in 1934. A 6,088-SF clubhouse and two commercial/industrial farm-type buildings totaling 4,896 SF were added in 1970. Even though operations have ceased, the property is still valued as a golf course.

The proposed project will temporarily repurpose the existing 9-hole traditional golf course, which closed in 2018/2019, as an 18-hole frisbee golf course. In general, it will operate similarly to a traditional golf course with groups of up to 4 players with scheduled tee times. However, the site may also host some tournaments with between 72 and 150 players in attendance, depending on the tournament format.

Trip Generation

The *Trip Generation Manual*¹ has standard rates for a golf course (land use code 430) based on the number of holes. The proposed frisbee golf course will operate similarly to a traditional public golf course; therefore, the manual rates should be applicable to this type of facility. A closer review of the trip generation studies shows the trip rates for peak hours differ depending on the size of the course (9 holes, 18 holes, or 36 holes). To better reflect behavior specific to the course size, data was filtered to estimate average rates for a 9-hole course and average rates for an 18-hole course. Table 1 summarizes the trip generation estimates for a typical weekday. The filtered data and resulting trip rates are attached to this memorandum.

Table 1: Trip Generation Estimates

Use	Intensity	AM Peak Hour			PM Peak Hour			Daily Trips
		In	Out	Total	In	Out	Total	
Existing Traditional Golf Course	9 Holes	12	3	15	23	14	37	264
Proposed Frisbee Golf Course	18 Holes	27	7	34	29	26	55	526
Net Increase		15	4	19	6	12	18	262

* No daily surveys were conducted at 9-hole courses; therefore, the average rate for 18-hole courses was applied to estimate weekday trips.

The frisbee golf course is estimated to generate a net increase of 19 AM peak hour trips, 18 PM peak hour trips, and 262 daily trips on a weekday.

Weekend Tournaments

Columbia County Sports, LLC also intends to operate occasional frisbee golf tournaments. These would happen on weekends. Two tournament styles may occur. One option is a shotgun-style event with as many as 72 participants playing the course twice in a single day. The other option is to schedule tee times with groups of

¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.



players (4 per group) starting at the first hole and playing through the course. These events generally occur over two days with as many as 150 participants.

To estimate the trip generation for these tournaments, the following assumptions were made:

- Shotgun Start
 - Tournament has a maximum of 72 players.
 - All players start at the same time in the morning.
 - Two rounds of play are scheduled.
 - Each round of play takes approximately 3.5 hours with a break in between.
 - Awards are distributed at the end of play.
 - Total time on site for each player is 8 to 9 hours
- Staggered Tee Times
 - Tee times will be staggered in 10-minute intervals allowing 6 groups of players to begin play in one hour.
 - Groups will typically consist of 4 players; 24 players will begin play in one hour.
 - The 18-hole course can be played in approximately 3.5 hours.
 - Players will remain on site for 30 minutes to 1 hour after completing their round of golf.
 - Total time on site for each player is 4 to 4.5 hours.
- Common Assumptions
 - Up to 5 staff members will be on site during the tournament but they will arrive before and stay after tournament players.
 - Players frequently carpool; average vehicle occupancy is estimated at 1.5 players.
 - Staff are more likely to travel alone.

Table 2 presents the tournament trip generation estimates based on these assumptions.



Table 2: Tournament Trip Generation Estimates

Hour	Shotgun Style (72 players)			Staggered Tee Times (150 players)		
	Arriving	Departing	Total	Arriving	Departing	Total
Setup	5	0	5	5	0	5
1	48	0	48	16	0	16
2	0	0	0	16	0	16
3	0	0	0	16	0	16
4	0	0	0	16	8	24
5	0	0	0	16	16	32
6	0	0	0	16	16	32
7	0	0	0	4	16	16
8	0	0	24		16	16
9	0	48	24		16	16
Breakdown	0	5	5	0	17	17
Total	53	53	106	105	105	210

As shown in Table 2, the most conservative estimate of daily trip generation for a tournament is 210 trips for the scheduled tee times. With the shotgun style tournament, an estimated 48 inbound trips would occur in the morning peak hour and 24 outbound trips would occur in the evening peak hour. With staggered tee times, demand would be spread throughout the day with the highest volumes anticipated to occur midday with 32 peak hour trips.

Transportation Impact Analysis Requirements

Section 1450 of the Columbia County Zoning Ordinance (CCZO) outlines the criteria for when a transportation impact analysis (TIA) shall be required to be submitted to the County with a land use application. The criteria are listed below along with responses.

- A. Changes in land use designation, or zoning designation that will generate more vehicle trip ends.

The proposal does not require a change in land use or zoning designation. This criterion is not met.

- B. Projected increase in trip generation of 25 or more trips during either the AM or PM peak hour, or more than 400 daily trips.

The frisbee golf course is estimated to generate a net increase of 19 AM peak hour trips, 18 PM peak hour trips, and 262 daily trips on a weekday. This criterion is not met.

The proposal may also include occasional tournaments with up to 150 players. The daily trip generation for the tournaments is estimated at a maximum of 210 trips. Peak hour trip generation will vary depending on the type of tournament with a maximum of 48 trips added in any hour. While this traffic volume would exceed the weekday AM or PM peak hour commuter threshold, these trips would occur on



occasional weekends and not correspond with the peak commute times that are the basis of the thresholds. Therefore, this criterion is not met.

C. Potential impacts to intersection operations.

Volumes on the area roadways are generally very low. The Oregon Traffic Monitoring System (OTMS) has a count on Church Road west of US 30 that shows an estimated 1,980 vehicles per day for the year 2023. Volumes further to the west on Church Road and on Hazen Road are likely to be lower than the volumes close to the highway. The intersection of these roadways is all-way stop-controlled. With these low volumes, the roadway network surrounding the golf course should not have operational concerns at this intersection. The resumption of traditional golf or the proposal for frisbee golf will not change this conclusion. Added traffic on the state highway is anticipated to fall below the ODOT thresholds for a traffic study. Therefore, this criterion is not met.

D. Potential impacts to residential areas or local roadways, including any non-residential development that will generate traffic through a residential zone.

Hazen Road and Church Road are both classified as Major Collector roadways in the Columbia County Transportation System Plan (TSP). According to the TSP, "Major Collectors are intended to serve local traffic traveling to and from principal arterial or minor arterial roadways. These roadways provide greater accessibility to neighborhoods, often connecting to major activity generators and providing efficient through movement for local traffic." Since these roadways are the appropriate classification to serve the site, this criterion is not met.

E. Potential impacts to pedestrian and bicycle routes, including, but not limited to school routes and multimodal roadway improvements identified in the TSP.

The street standard in the TSP for Major Collector roads includes 5-foot shoulders. Currently, neither of the routes have consistent shoulders at all. Walking and bicycle ridership along these rural routes is minimal and school buses stop at individual homes rather than requiring children to walk to aggregated bus stops. The resumption of traditional golf or the proposal for frisbee golf will not change these conditions. Therefore, this criterion is not met.

F. The location of an existing or proposed access driveway does not meet minimum spacing or sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, thereby creating a safety hazard.

The existing site driveway meets the 130-foot access spacing standard for a Major Collector Roadway. Hazen Road is straight and a preliminary review of available sight distance based on aerial photos shows that standards can likely be met with trimming of landscaping along the roadway on the site property. The should be confirmed in the field. Adequate sight distance would need to be provided with the resumption of traditional golf and the proposal for frisbee golf will not change this need. Therefore, this criterion is not met.



- G. A change in internal traffic patterns may cause safety concerns.

The proposed use will not change internal traffic patterns that would give rise to safety concerns; therefore, this criterion is not met.

- H. A TIA is required by ODOT pursuant with OAR 734-051.

The site will not have direct access to a state highway; therefore, ODOT will not require a TIA. Furthermore, the trips generated by the historic and proposed uses fall below the ODOT criteria for a TIA. Therefore, this criterion is not met.

- I. Projected increase of five trips by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) per day, or an increase in use of adjacent roadways by vehicles exceeding 26,000-pound gross vehicle weight (13 tons) by 10 percent.

The proposal will not generate heavy vehicle traffic; therefore, this criterion is not met.

None of the nine criteria above are met; therefore, a TIA should not be required for the proposed use.

Conclusion

Although it has not been in active use in recent years, reopening the golf course to frisbee golf with 18 holes rather than traditional golf with 9 holes will result in a small increase in traffic over levels that have historically existed on the site regardless of prior land use applications. The net increase in trips is estimated at 19 AM peak hour trips, 18 PM peak hour trips, and 262 daily trips on a weekday.

The proposal may also include occasional tournaments with up to 150 players. The daily trip generation for the tournaments is estimated at a maximum of 210 trips. Peak hour trip generation will vary depending on the type of tournament with a maximum of 48 trips added in any hour. While this traffic volume would exceed the weekday AM or PM peak hour commuter threshold, these trips would occur on occasional weekends and not correspond with the peak commute times that are the basis of the thresholds.

CCZO Section 1450 outlines the criteria for when a TIA shall be required to be submitted to the County with a land use application. None of the nine criteria are met; therefore, a TIA should not be necessary for the proposed use. However, sight distance at the site driveway should be field-checked and landscaping should be trimmed to provide adequate sight lines.

Attachment:

Trip Generation Rates and Estimates





TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition

Land Use: Golf Course
Land Use Code: 430
Land Use Subcategory: All Sites
Setting/Location: General Urban/Suburban
Variable: Holes
Trip Type: Vehicle
Formula Type: Rate
Variable Quantity: 9

AM PEAK HOUR

Trip Rate: 1.72

	Enter	Exit	Total
Directional Split	79%	21%	
Trip Ends	12	3	15

PM PEAK HOUR

Trip Rate: 4.11

	Enter	Exit	Total
Directional Split	63%	37%	
Trip Ends	23	14	37

WEEKDAY

Trip Rate: 29.24

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	132	132	264

Based on surveys for 18 holes; no surveys for 9 holes available.



TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition

Land Use: Golf Course
Land Use Code: 430
Land Use Subcategory: All Sites
Setting/Location: General Urban/Suburban
Variable: Holes
Trip Type: Vehicle
Formula Type: Rate
Variable Quantity: **18**

AM PEAK HOUR

Trip Rate: 1.91

	Enter	Exit	Total
Directional Split	79%	21%	
Trip Ends	27	7	34

PM PEAK HOUR

Trip Rate: 3.07

	Enter	Exit	Total
Directional Split	52%	48%	
Trip Ends	29	26	55

WEEKDAY

Trip Rate: 29.24

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	263	263	526

Golf Course (430)

Vehicle Trip Ends vs: Holes
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 4 out of 15
 Avg. Num. of Holes: 9
 Directional Distribution: 79% entering , 21% exiting

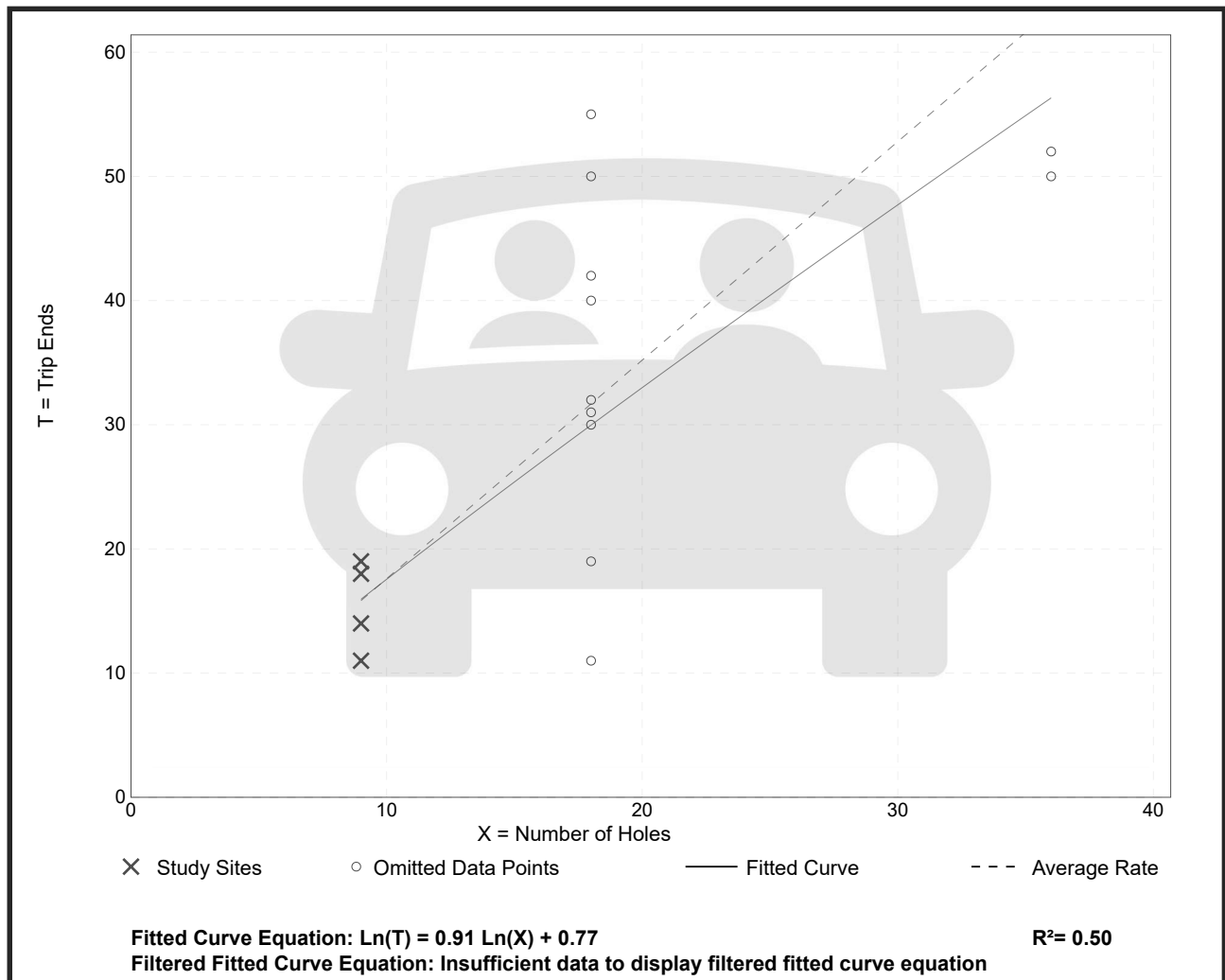
Vehicle Trip Generation per Hole

Average Rate	Range of Rates	Standard Deviation
1.72	1.22 - 2.11	0.41

Data Filtered By: [IV Value: 9-9]

Data Plot and Equation

Caution – Filtered Data Set



Golf Course (430)

Vehicle Trip Ends vs: Holes
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 3 out of 14
 Avg. Num. of Holes: 9
 Directional Distribution: 63% entering , 37% exiting

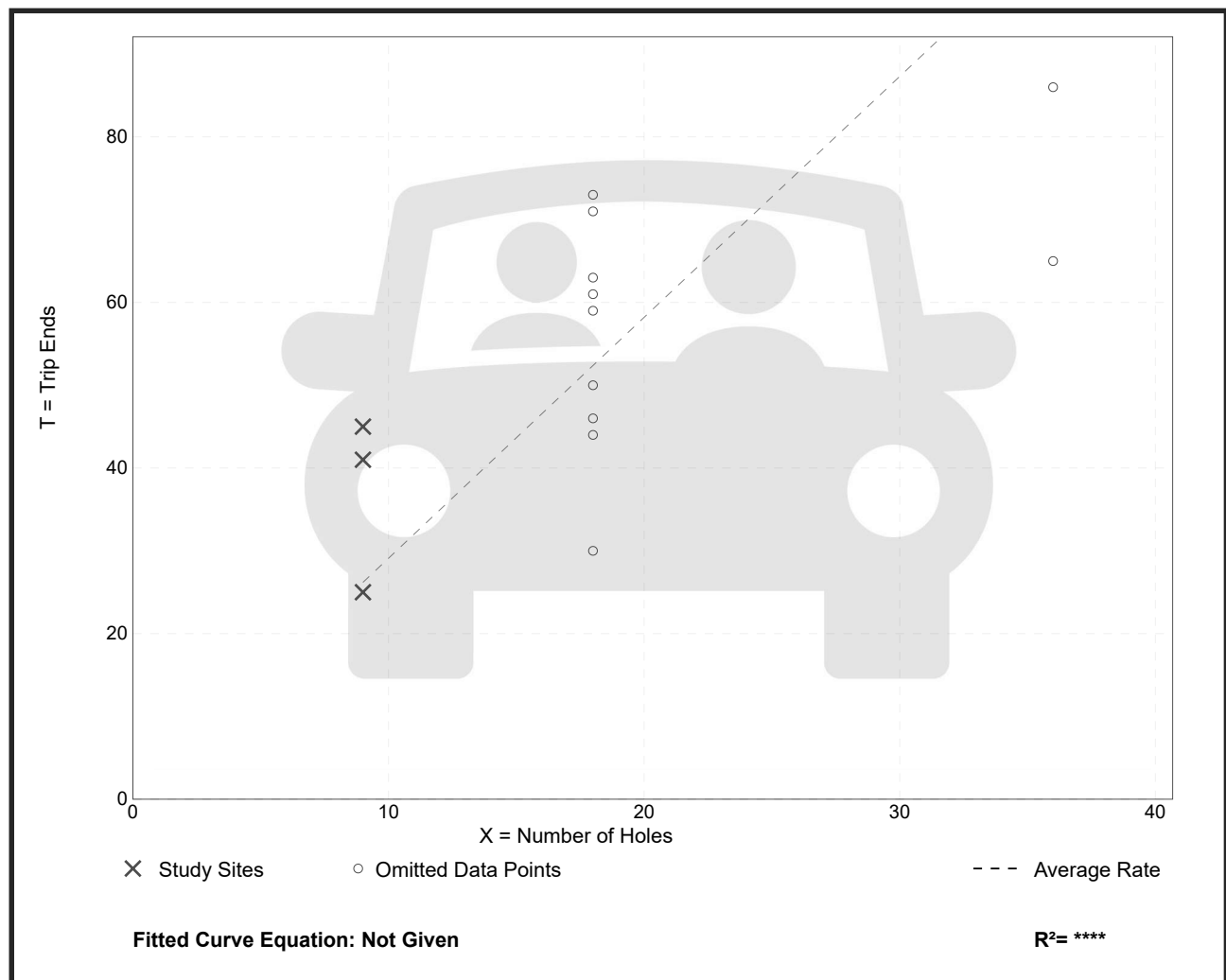
Vehicle Trip Generation per Hole

Average Rate	Range of Rates	Standard Deviation
4.11	2.78 - 5.00	1.18

Data Filtered By: [IV Value: 9-9]

Data Plot and Equation

Caution – Filtered Data Set



Golf Course (430)

Vehicle Trip Ends vs: Holes
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 9 out of 15
 Avg. Num. of Holes: 18
 Directional Distribution: 79% entering , 21% exiting

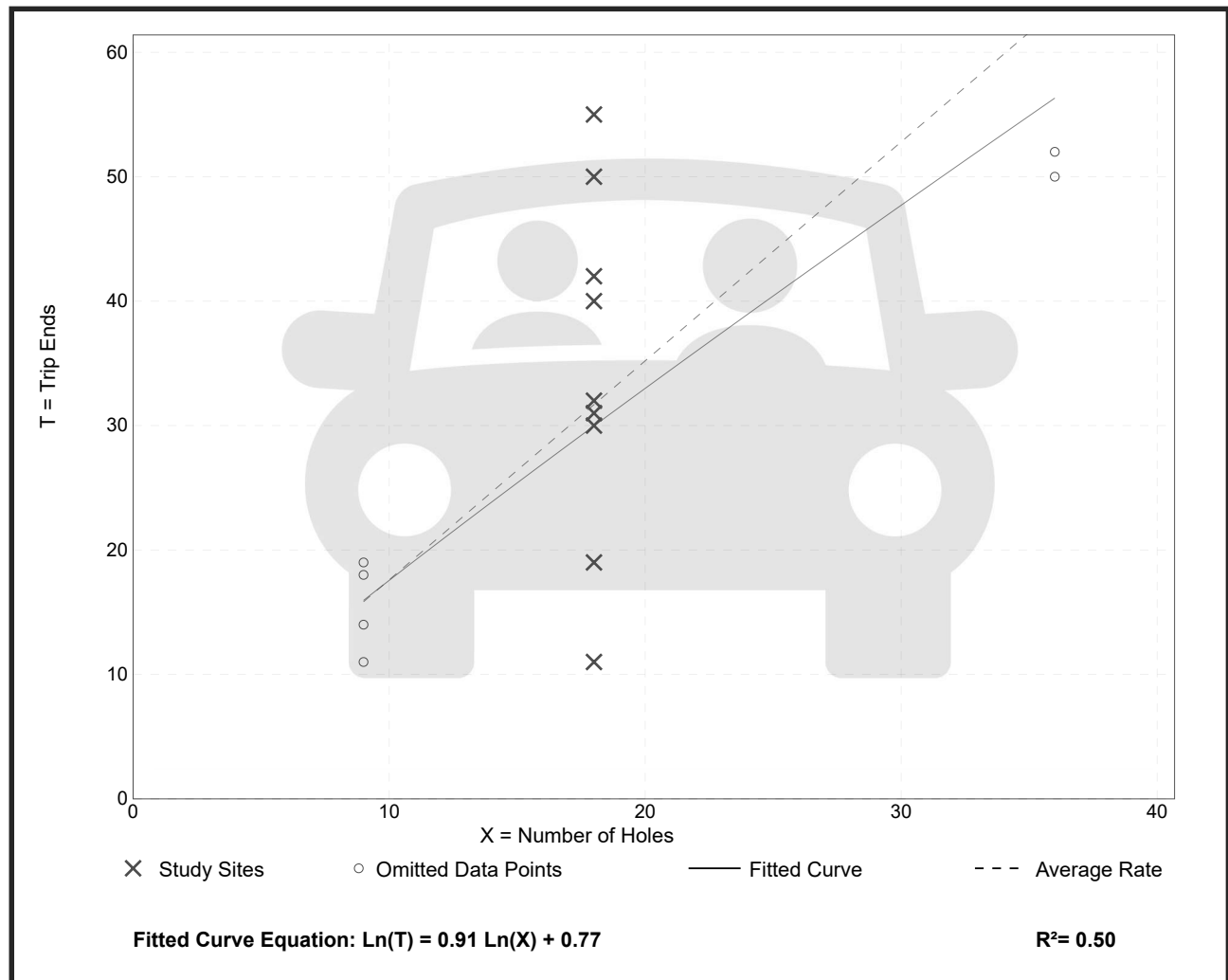
Vehicle Trip Generation per Hole

Average Rate	Range of Rates	Standard Deviation
1.91	0.61 - 3.06	0.78

Data Filtered By: [IV Value: 18-18]

Data Plot and Equation

Caution – Filtered Data Set



Golf Course (430)

Vehicle Trip Ends vs: Holes
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 9 out of 14
 Avg. Num. of Holes: 18
 Directional Distribution: 52% entering , 48% exiting

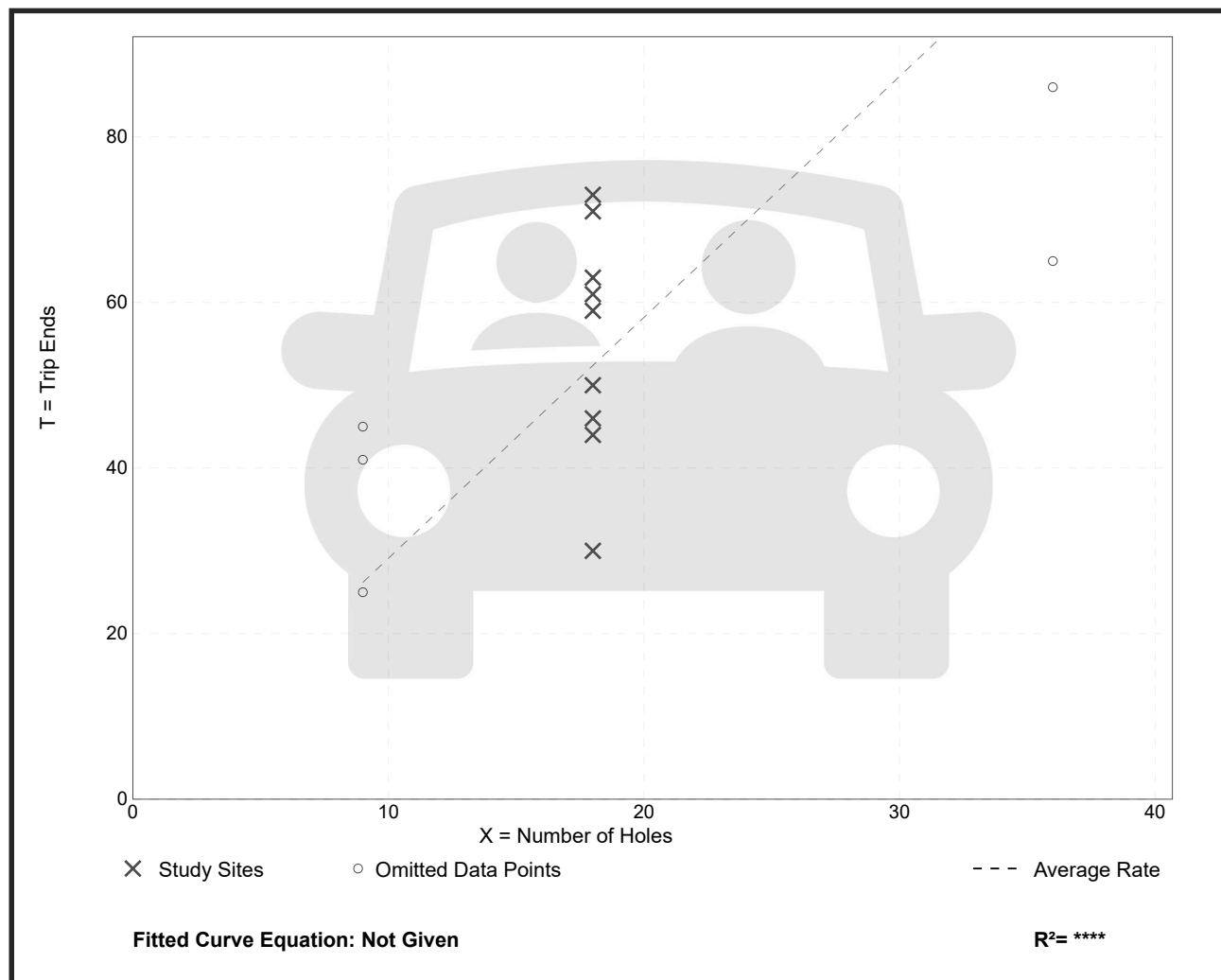
Vehicle Trip Generation per Hole

Average Rate	Range of Rates	Standard Deviation
3.07	1.67 - 4.06	0.77

Data Filtered By: [IV Value: 18-18]

Data Plot and Equation

Caution – Filtered Data Set



Golf Course (430)

Vehicle Trip Ends vs: Holes
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 3 out of 4
Avg. Num. of Holes: 18
Directional Distribution: 50% entering , 50% exiting

Vehicle Trip Generation per Hole

Average Rate	Range of Rates	Standard Deviation
29.24	14.50 - 40.50	13.35

Data Filtered By: [IV Value: 18-18]

Data Plot and Equation

Caution – Filtered Data Set
Caution – Small Sample Size

