OLD JEFFERSON ROAD
TRAFFIC IMPACT STUDY

Athens-Clarke County, Georgia

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1 Introduction

The purpose of this report is to analyze the traffic impacts from the proposed residential development on Old Jefferson Road in Athens-Clarke County, Georgia. This report details the analysis of existing traffic surrounding the site, impacts of the proposed development on the transportation infrastructure, and identifies mitigation measures to support the projected traffic volumes, if needed.

2 Project Location

The proposed development is located at Old Jefferson Road, in Athens-Clarke County, Georgia. The development will have 3 access driveways, two on Old Jefferson Road and one through W Vincent Drive. The project location is shown in **Figure 1** and the study intersections are shown in **Figure 2**.

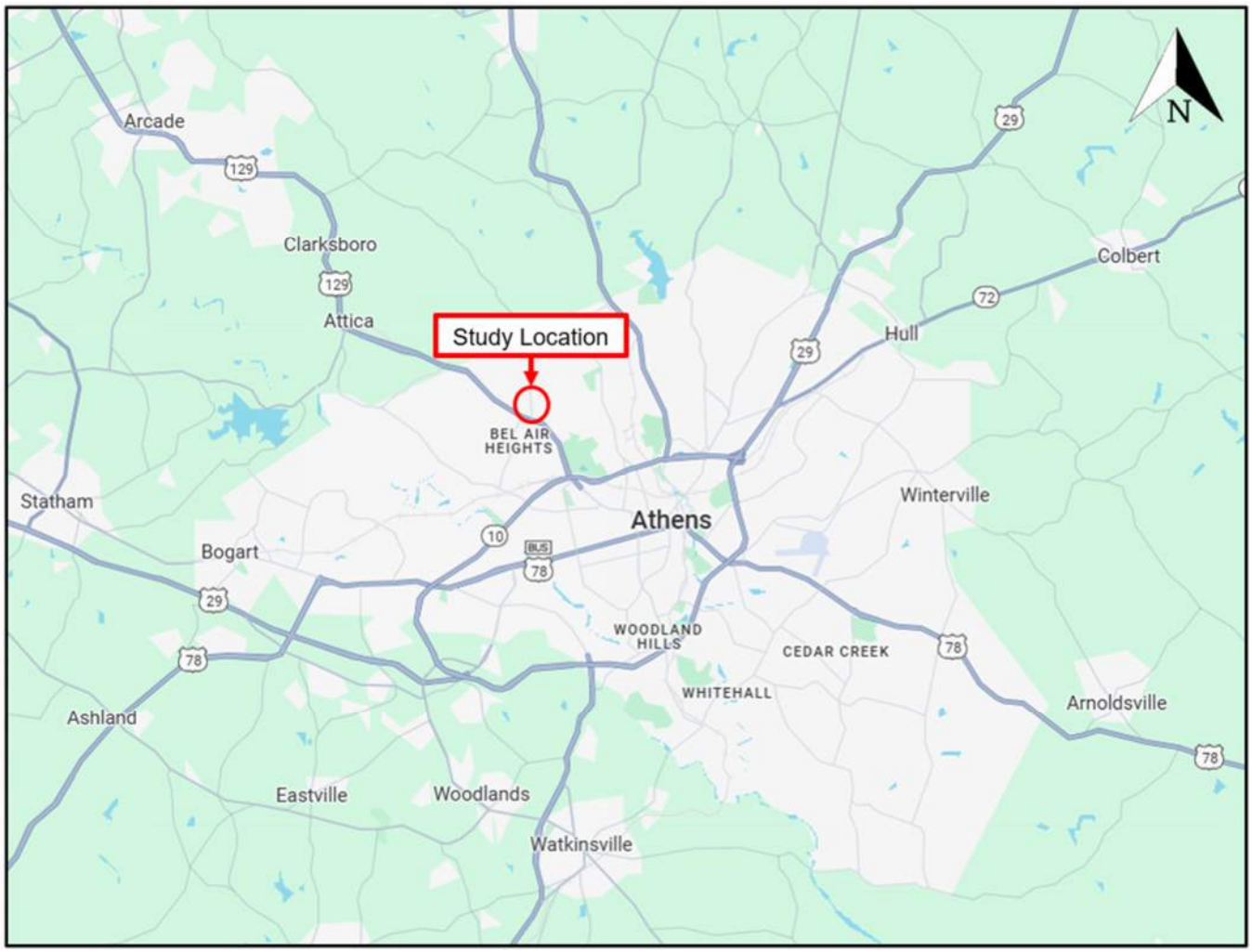

Figure 1: Project Location Map

Figure 2: Study Intersection Map

3 Existing Conditions

An assessment was performed of surrounding intersections and driveways accessing the site to determine existing lane configurations, traffic control, signs, posted speed limits, pavement marking, and other geometric features. A condition diagram was developed to graphically illustrate the existing conditions at the study intersections as shown in **Figure 3**.

Existing conditions at the study intersections are summarized below:

- US-129/Jefferson Road is a four-lane roadway with two lanes provided in each direction and is classified as an Urban Principal Arterial Road. Near Oak Grove Road (intersection #2), the posted speed limit is 55 miles per hour (mph) and there is a 42-foot-wide grassed median. The roadway tapers to an undivided, 12-foot-wide center turn lane at Whitehead Road (intersection #6). East of Lavender Road (intersection #4), the speed limit decreases to 45 mph with no center lane or divider. The lane widths are 12-foot and a 6-foot-wide sidewalk is provided along the south side of Jefferson Road west of Addison Road.
- Old Jefferson Road is a two-lane undivided roadway classified as a Local Road (Residential). The posted speed limit is 35 mph near the study intersections. The lane widths are 10-foot.
- Oak Grove Road, north of US-129 is a two-lane undivided roadway classified as a Local Road

(Residential). The posted speed limit is 40 mph and the lane widths are 10-foot.

- Whitehead Road is a two-lane undivided roadway classified as a Major Collector Road. The posted speed limit is 35 mph. The lane widths are 12-foot with 2-foot outside shoulders.
- Jefferson River Road is a two-lane undivided roadway classified as a Major Collector Road. The posted speed limit is 40 mph. The lane widths are 12-foot.
- W Vincent Drive is a two-lane divided roadway with one lane provided in each direction and is classified as a Local Road (Residential). The posted speed limit is 25 mph. The lane widths are 14-foot with 8-foot dedicated parking with curb and gutter section. It has a 10-foot-wide median near its intersection with Jefferson River Road.
- Vincent Drive is a two-lane undivided roadway classified as a Major Collector Road. The posted speed limit is 45 mph and the lane widths are 12-foot.
- Oak Grove Rd and Old Jefferson Rd form a four-legged intersection that currently operates as a two-way minor stop-controlled intersection.
- US-129/Jefferson Rd and Oak Grove Rd form a four-legged intersection that currently operates as a two-way minor stop-controlled intersection. It has a left turn storage lane of approximately 550-foot and right turn storage lane of approximately 300-foot on eastbound and westbound approaches respectively. It also has a channelized right turn lane on eastbound, westbound and northbound approaches.
- Jefferson River Rd and Old Jefferson Rd form a four-legged intersection that currently operates as a two-way minor stop-controlled intersection.
- US-129/Jefferson Rd and Jefferson River Rd form a three-legged intersection that currently operates as a signalized intersection.
- Jefferson River Rd and W Vincent Dr/Vincent Dr form a four-legged intersection that currently operates as a two-way minor stop-controlled intersection. It has a right turn storage lane of 150-foot on the southbound approach.
- US-129/Jefferson Rd and Whitehead Rd form a four-legged intersection that currently operates as a signalized intersection. It has a left turn storage lane of 70-foot on eastbound approach, 110-foot on westbound approach and right turn storage lane of 130-foot on northbound approach.
- There is a CSX Transportation (CSXT) railroad that runs between US-129/Jefferson Rd and Old Jefferson Road. The railroad crossings impact all the existing intersections along these two roads in the study area. The storage length of the signalized intersections are reduced due to the crossing gate zones.

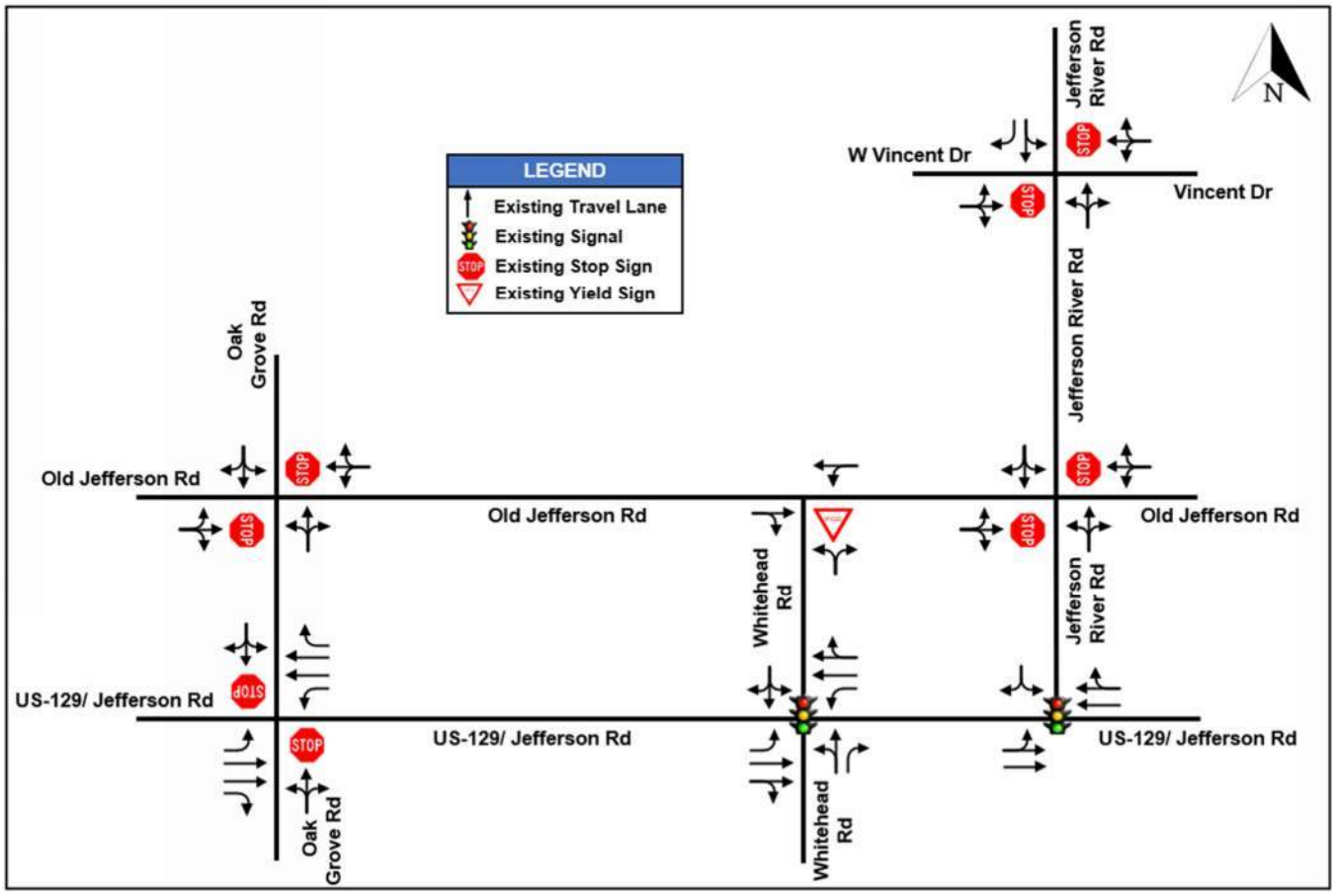

Figure 3: Existing Condition

4 Data Collection and Analysis

4.1 Turning Movement Counts

Turning Movement Counts (TMC's) were conducted at the study intersections on Thursday, August 29, 2024, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. The TMC data is provided in **Appendix A**.

The AM Peak Hour was found to be 7:15 AM to 8:15 AM and the PM Peak Hour was found to be 4:45 PM to 5:45 PM. Existing Peak Hour turning movement volumes are shown in **Figure 4**.

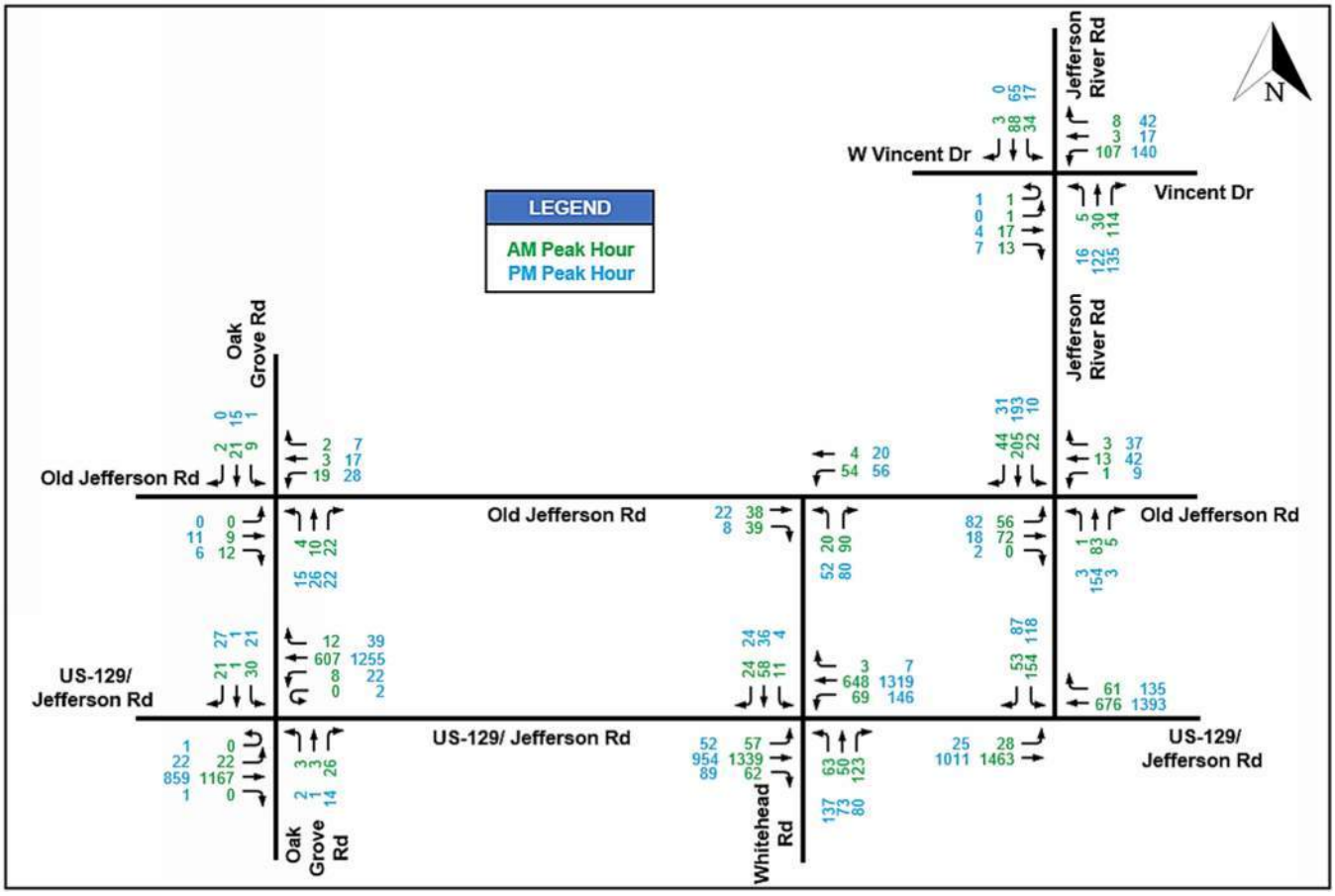

Figure 4: Existing 2024 Traffic Volumes

5 Planned Development

The proposed residential development is located on Old Jefferson Road, in Athens-Clarke County, GA and is planned to have 348 units in total which include 276 single-family attached housing units and 72 multifamily housing units.

The development will have 3 access driveways, two on Old Jefferson Road approximately 1600-foot and 2200-foot west of Whitehead Road and one through W Vincent Drive of Lantern Walk**,** Riz Communities and Development. The proposed site plan is shown in **Figure 5** and is also provided in **Appendix B**.

6 Traffic Projection

The methodology used to estimate future traffic growth included examination of Clarke County census data and historic trends from the nearby count stations maintained by the Georgia Department of Transportation (GDOT).

Figure 5: Layout Plan

6.1 Census Data

Census data for Clarke County, Georgia is shown in **Table 1** and shows growth rate of **0.98%** between the years 2010 and 2020.

Table 1: Census Data – Clarke County, Georgia

County	2010	2020	Growth Rate
Clarke County, GA.	116,714	128,671	**0.98%**

Source: Clarke County Census.gov

6.2 Historic Traffic Data

GDOT maintains multiple annual traffic count stations in the vicinity of the study area; for the purpose of this study, five GDOT count stations are considered. The locations of these count stations are shown in **Figure 6**. Average annual daily traffic (AADT) volumes collected from 2014 to 2023 at these count stations are listed in **Table 2** and were used to establish historic growth rates for the area. Raw data from the count stations is presented in **Appendix C**.

Figure 6: Nearby GDOT Count Stations

Table 2: Historic Traffic Data

Year	GDOT Count Stations				
	059-0125	059-0132	059-0613	059-0178	059-0425
2014	22700*	14800*	3350*	4930*	4400*
2015	22500	16300	3490	5130*	4580*
2016	23200*	16800*	3820	5470	4690*
2017	24500	19400	3930	5580*	4780*
2018	24300*	19200*	4010	5900	4890
2019	28400	18700	4070	6020*	4990*
2020	25700*	16900*	3950	5140	4630*
2021	26400	20300	4180	5460*	4920*
2022	27000*	20700*	4150	5660	4840
2023	27200*	22700	4290	5810*	4970*

Source: GDOT Traffic Data

6.3 Growth Rate

Clarke County has an annual population growth rate of **0.98%** between the years 2010 and 2020. Based on the data available from the nearby GDOT count stations, the average growth trend was calculated to be **2.37%** for the past eight years. Based on these rates and the surrounding area, the background traffic growth rate was established and considered to be **1.5%** from the Existing Year (2024) to the Design Year (2036).

6.4 Growth Factor

The growth factors were generated by applying the growth rate to the below equation. The Build Year and Design Year growth factors are shown in **Table 3.**

$$\boldsymbol{Growth\ Factor} = (\mathbf{1} + \boldsymbol{r})^{\boldsymbol{n}}$$

Where:
***r** = growth rate*
***n** = number of years*

Table 3: Growth Factor

Build Year (2026)	Design Year (2036)
1.03	1.20

Figure 7 and **Figure 8** show the estimated background growth traffic volumes at the study intersections for the Build Year (2026) and Design Year (2036) respectively.

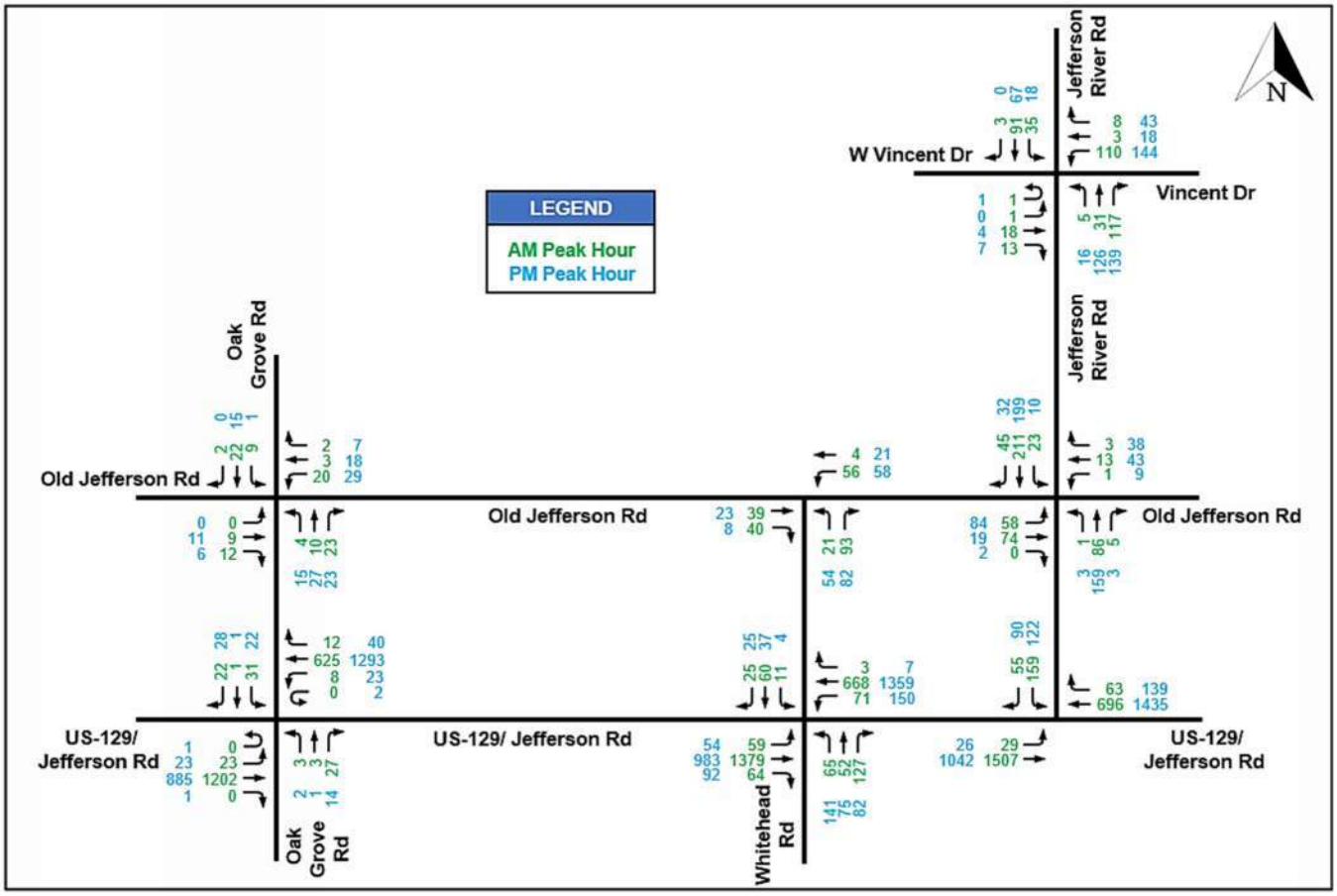

Figure 7: Background Growth Volumes (2026)

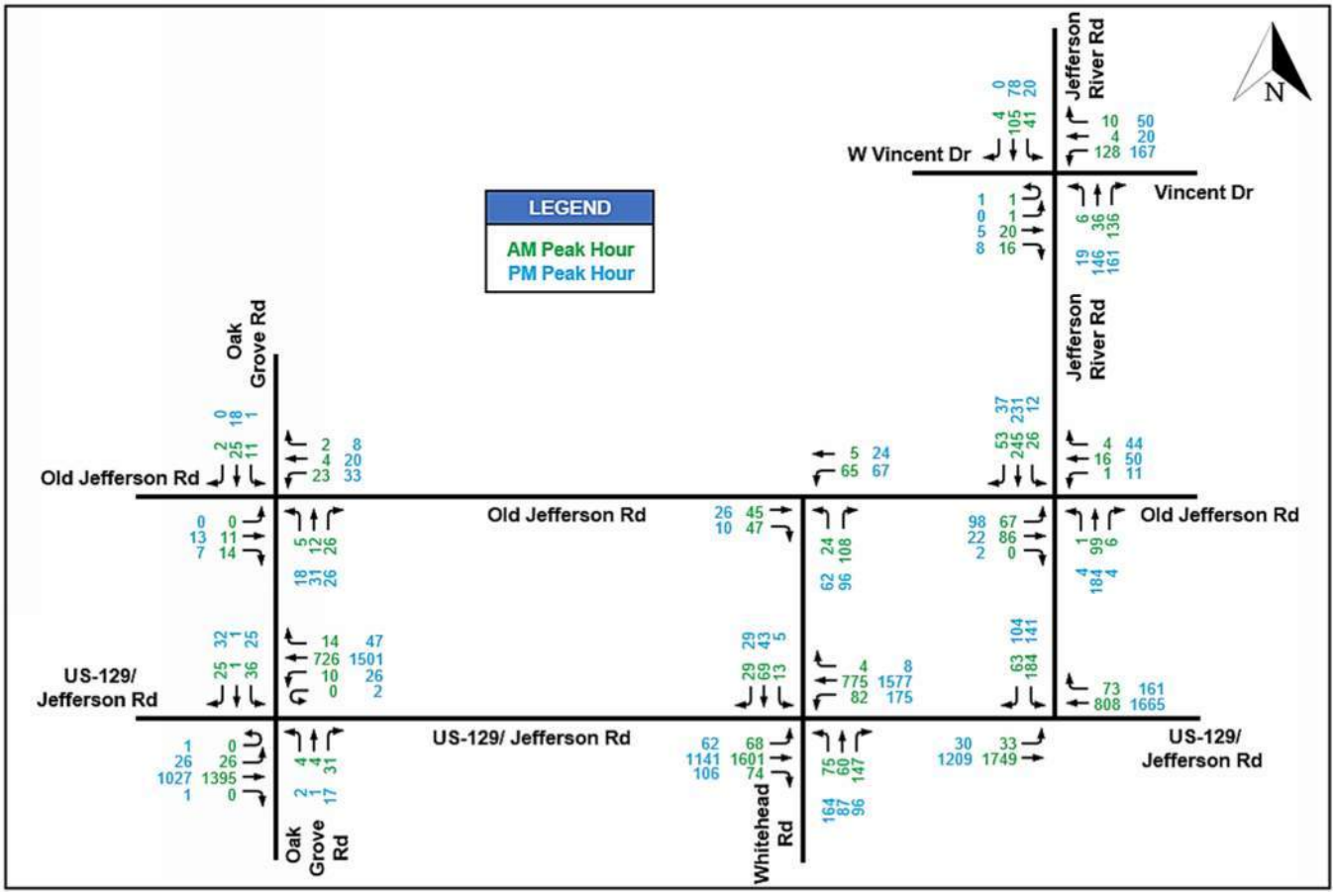

Figure 8: Background Growth Volumes (2036)

6.5 Trip Generation

To account for traffic generated by the new development, the Institute of Transportation Engineers (ITE) provides a TripGen Web-Based Application in which calculated trips are sorted by development type.

This development will consist of a combination of duplexes, cottages, and townhomes. Trip generation for the proposed development was calculated based upon the following land uses:

- Land Use 215: Single-Family Attached Housing
- Land Use 220: Multifamily Housing (Low-Rise)

The site is expected to generate a net daily of 2538 weekday trips with a 50-50 distribution and a maximum of 186 weekday AM peak hour trips and 209 weekday PM peak hour trips. The results of this trip generation are shown in **Table 4**. The ITE data plots are attached to this report in **Appendix D.**

Table 4: Trip Generation

Land Use	ITE Code	# Units	Daily Traffic (Weekday)			AM Peak (Weekday)			PM Peak (Weekday)		
			Entry	Exit	Total	Entry	Exit	Total	Entry	Exit	Total
Single-Family Attached Housing	215	276	1026	1027	2053	38	114	152	104	64	168
Multifamily Housing	220	72	243	242	485	8	26	34	25	16	41
TOTAL		348	1269	1269	2538	46	140	186	129	80	209

6.6 Trip Distribution

Trip distribution describes the direction drivers will be going to and coming from when they turn into and depart from the development. The distribution pattern developed for this development is shown in **Figure 9**. Specifically, 34% of trips will use Driveway 1, 33% will use Driveway 2, and 30% will use W Vincent Drive to access the proposed site. The remaining 3% of trips will utilize Alice Walker Drive to enter and exit the site from Jefferson River Road; however, this intersection is not included in the analysis.

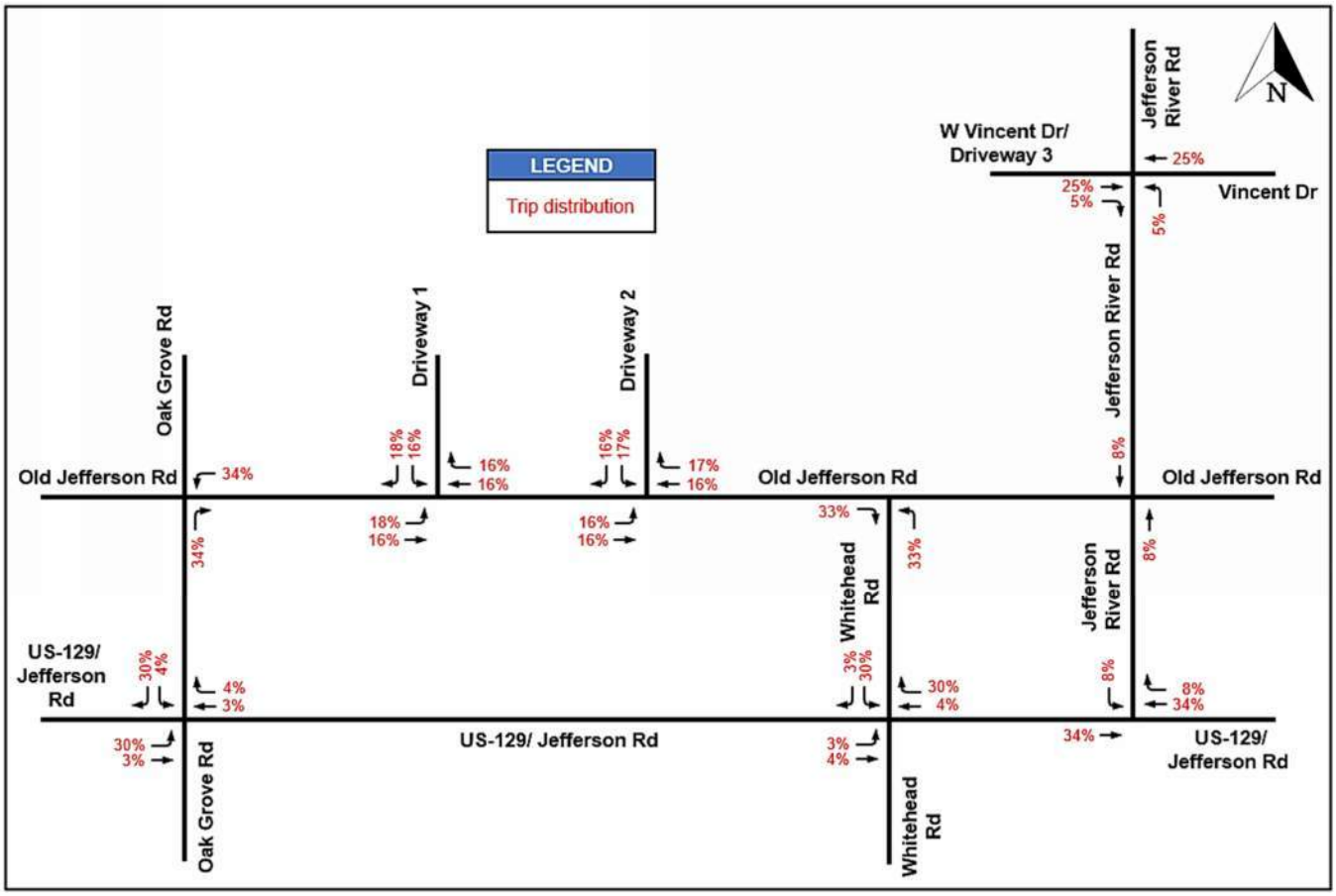

Figure 9: Trips Distribution

6.7 Traffic Assignment

The new trips generated by the site for each peak hour for Build Year (2026) and Design Year (2036) are shown in **Figure 10**.

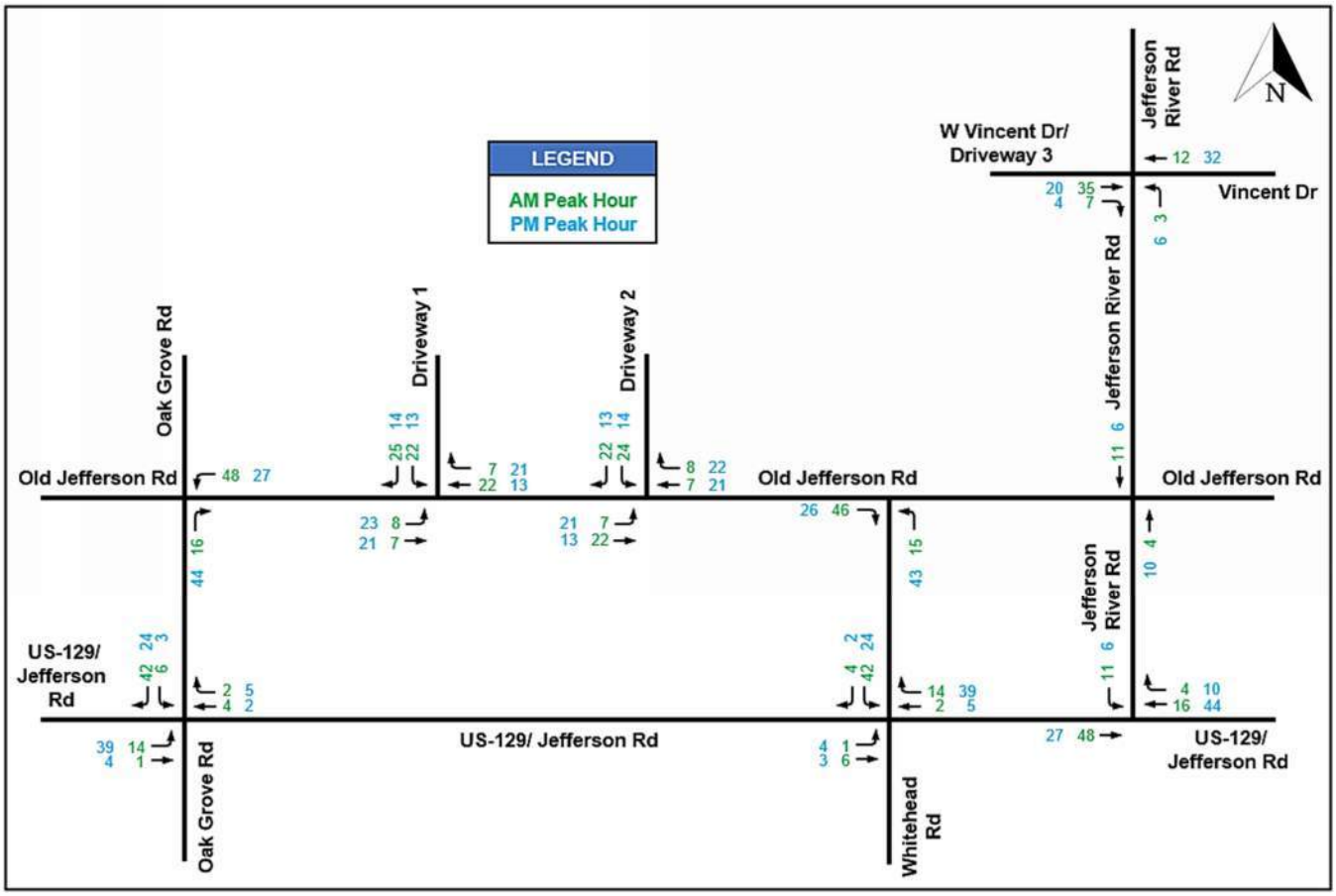

Figure 10: New Trips Generated

6.7.1 Total Peak Hour Volumes

Total peak hour volumes are derived by combining the generated volumes with Background Growth Volumes.

Figure 11 shows net trips generated for Build Year (2026). Total trips were derived by adding background growth volumes in 2026 **(Figure 7)** and new trips generated by land use **(Figure 10)**.

Figure 12 shows net trips generated for Design Year (2036). Total trips were derived by adding background growth volumes in 2036 **(Figure 8)** and new trips generated by land use **(Figure 10)**.

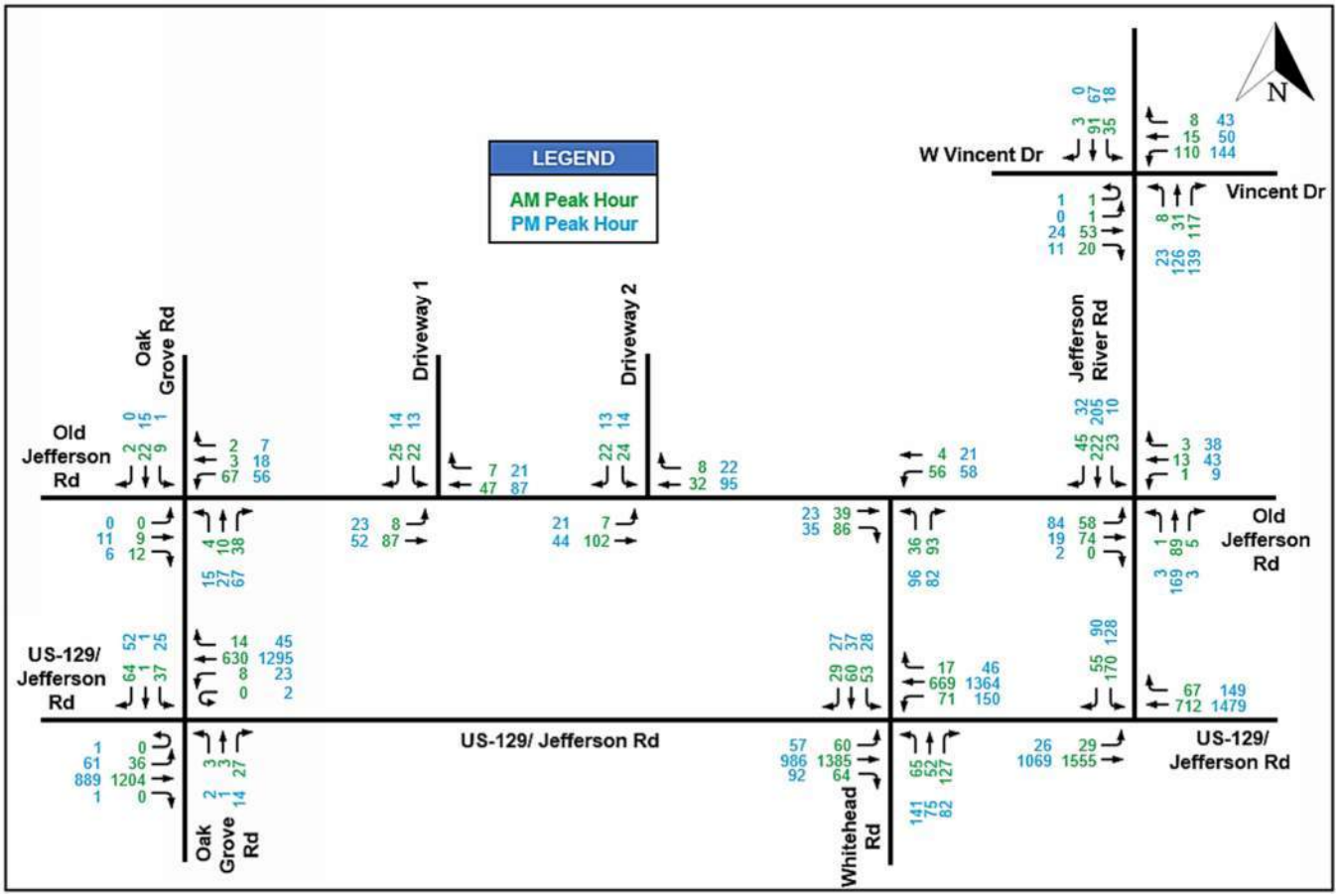

Figure 11: Total Peak Hour Volumes (2026)

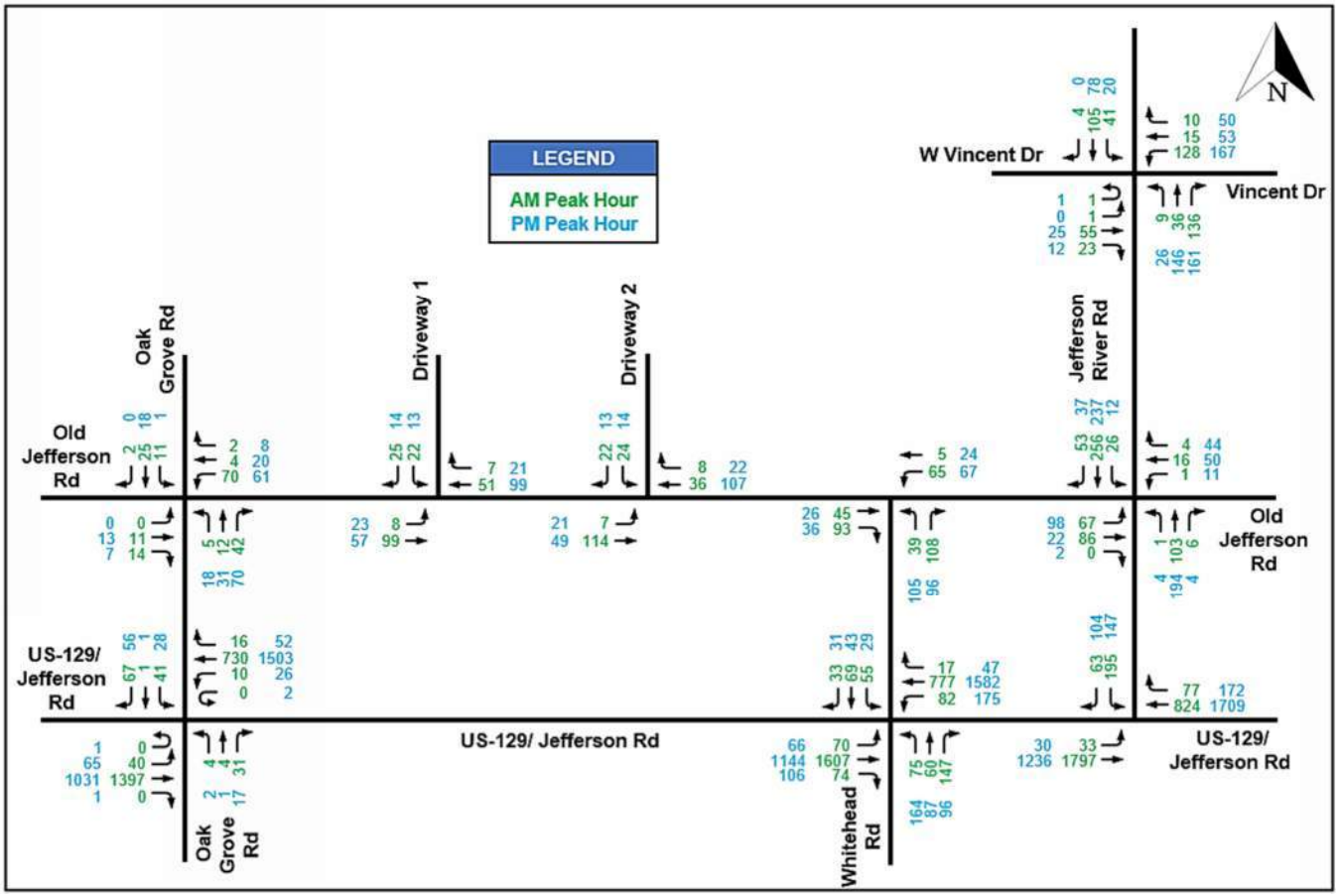

Figure 12: Total Peak Hour Volumes (2036)

6.8 Auxiliary Lane Analysis

Included below are analyses for right-turn lanes and left-turn lanes for site driveways per GDOT standards. The analyses below are based off the "trip distribution". According to the trip generation, the total site generated trips are 2,538 without any reduction. Therefore, the 24-hour two-way volume generated by the site is 2,538 vehicles.

6.8.1 Right Turn Lane Analysis

The minimum volumes requiring right turn deceleration lanes are provided in **Table 5** and projected right-turn deceleration volumes per day for each driveway are included below in **Table 6**.

Table 5: Minimum Volumes Requiring Right Turn Lanes

Posted Speed	2 Lane Routes		More than 2 Lanes on Main Road	
	AADT		AADT	
	< 6,000	>=6,000	< 10,000	>=10,000
35 MPH or Less	200 RTV a day	100 RTV a day	200 RTV a day	100 RTV a day
40 to 50 MPH	150 RTV a day	75 RTV a day	150 RTV a day	75 RTV a day
55 to 60 MPH	100 RTV a day	50 RTV a day	100 RTV a day	50 RTV a day
>= 65 MPH	Always	Always	Always	Always

Source: GDOT Driveway Manual Table 4-6 Rev 5.7

Table 6: Projected Right Turn Volumes per GDOT Requirements for Right Turn Lanes

Intersection	Right- turn traffic (% entering)	Right-turn Volume (vehicle/day)	Roadway Speed/# lanes /ADT	GDOT Threshold (vehicle/day)
Old Jefferson Rd & Driveway 1	16%	(Total trips – mixed use) ÷ 2 × % total entering = 2538 ÷ 2 x 0.16 = 204	35 mph / 2-lane/ <6,000	200
Old Jefferson Rd & Driveway 2	17%	(Total trips – mixed use) ÷ 2 × % total entering = 2538 ÷ 2 x 0.17 = 216	35 mph / 2-lane/ <6,000	200

Since the projected number of right turning vehicles at Driveway 1 and Driveway 2 from Old Jefferson Road exceeds the threshold of 200 right turning vehicles, a right turn deceleration lane is warranted at Old Jefferson Road, per GDOT standards.

6.8.2 Left Turn Lane Analysis

The minimum volumes requiring left turn lanes are provided in **Table 7** and projected left-turn volumes per day for each driveway are included below in **Table 8**.

Table 7: Minimum Volumes Requiring Left Turn Lanes

Posted Speed	2 Lane Routes		More than 2 Lanes on Main Road	
	AADT		AADT	
	< 6,000	>=6,000	< 10,000	>=10,000
35 MPH or Less	300 LTV a day	200 LTV a day	400 LTV a day	300 LTV a day
40 to 50 MPH	250 LTV a day	175 LTV a day	325 LTV a day	250 LTV a day
>= 55 MPH	200 LTV a day	150 LTV a day	250 LTV a day	200 LTV a day

Source: GDOT Driveway Manual Table 4-7a Rev 5.7

Table 8: Projected Left Turn Volumes per GDOT Requirements for Left Turn Lanes

Intersection	Left- turn traffic (% entering)	Left-turn Volume (vehicle/day)	Roadway Speed/ # lanes /ADT	GDOT Threshold (vehicle/day)
Old Jefferson Rd & Driveway 1	18%	(Total trips – mixed use) ÷ 2 × % total entering = 2538 ÷ 2 x 0.18 = 229	35 mph / 2-lane/ <6,000	300
Old Jefferson Rd & Driveway 2	16%	(Total trips – mixed use) ÷ 2 × % total entering = 2538 ÷ 2 x 0.16 = 204	35 mph / 2-lane/ <6,000	300
Jefferson River Rd & W Vincent Dr/ Driveway 3	5%	(Total trips – mixed use) ÷ 2 × % total entering = 2538 ÷ 2 x 0.05 = 64	40 mph / 2-lane/ <6,000	250

Since the projected number of left-turning vehicles from Old Jefferson Road at Driveway 1 and Driveway 2 does not exceed the threshold of 300 left turning vehicles and number of left-turning vehicles at W Vincent Drive from Jefferson River Road in addition with existing left turning traffic volumes does not exceed the threshold of 250 left turning vehicles, a left-turn lane is not warranted at Old Jefferson Road and at Jefferson River Road per GDOT standards.

7 Capacity Analysis

Existing and projected conditions were evaluated using capacity analysis techniques described in the Highway Capacity Manual, 6th Edition (HCM), published by the Transportation Research Board, 2016. *Synchro 11* from Cubic Transportation Systems (formerly Trafficware) was used to facilitate the analysis.

In general, the HCM level-of-service (LOS) may be defined as a measure of operating conditions within a traffic stream and the perception of the conditions by the general motoring public. The six levels of service are briefly described, as follows:

LOS A – Little or no traffic delays;
LOS B – Minimal to short traffic delays;
LOS C – Average traffic delays;
LOS D – Relatively long traffic delays;
LOS E – Intersections are at or near the maximum capacity and traffic experiences long delays;
LOS F – Intersections are operating above their maximum capacity and traffic delays are long and unstable.

Table 9: Level of Service Criteria

Level of Service	Delay Per Vehicle (Seconds)	
	Signalized Intersections	Unsignalized Intersections
A	≤10.0	≤10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 79.9	35.1 to 49.9
F	>80.0	>50.0

Source: HCM 6th Edition, Transportation Research Board, 2016

7.1 Existing Condition

Intersections included in the study were first evaluated using existing geometry and volumes. Results of the capacity analysis for each intersection are summarized in **Table 10**. For each condition, the level of service is shown, followed parenthetically by average control delay per vehicle, in seconds. Capacity analysis reports for the intersections under Existing Condition are provided in **Appendix E**.

Existing condition peak hour capacity analysis indicates:

- **US-129/Jefferson Rd & Oak Grove Rd**
    - The southbound approach is currently operating at LOS 'E' during the AM peak hour and at LOS 'F' during the PM peak hour.
    - All remaining approaches are operating at an acceptable LOS during both AM and PM peak hours.
- All other study intersections are currently operating at an acceptable LOS during both AM and PM peak hours.

Table 10: Capacity Analysis Results - Existing Condition

Intersection	Control Type	Movement	AM Peak	PM Peak
Old Jefferson Rd & Oak Grove Rd	Unsignalized	NBL	A (7.3)	A (7.3)
		NBT	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)
		EBL/T/R	A (9.0)	A (9.3)
		WBL/T/R	A (9.4)	A (9.6)
		SBL	A (7.3)	A (7.3)
		SBT	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)
US-129/Jefferson Rd & Oak Grove Rd	Unsignalized	NBL/T/R	A (0.0)	A (0.0)
		EBL	A (9.1)	B (12.6)
		EBT	A (0.0)	A (0.0)
		WBL	B (14.2)	B (10.2)
		WBT	A (0.0)	A (0.0)
		WBR	A (0.0)	A (0.0)
		SBL/T/R	E (38.5)	F (99.3)
Jefferson River Rd & Old Jefferson Rd	Unsignalized	NBL	A (9.0)	A (7.7)
		NBT	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)
		EBL/T/R	B (13.9)	C (15.6)
		WBL/T/R	B (11.6)	B (12.0)
		SBL	A (7.4)	A (7.6)
		SBT	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)
US-129/Jefferson Rd & Jefferson River Rd	Signalized	**Overall**	**A (5.3)**	**A (7.6)**
		EB	A (1.4)	A (1.1)
		WB	A (4.3)	A (8.0)
		SB	D (37.0)	D (36.8)
Jefferson River Rd & W Vincent Dr/Vincent Dr	Unsignalized	NBL	A (7.4)	A (7.4)
		NBT	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)
		EBL/T/R	B (10.9)	A (9.9)
		WBL/T/R	B (13.6)	B (13.3)
		SBL	A (7.7)	A (7.9)
		SBT	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)
US-129/Jefferson Rd & Whitehead Rd	Signalized	**Overall**	**B (12.8)**	**B (20.0)**
		EB	B (15.2)	B (18.7)
		WB	A (1.7)	B (19.0)
		NB	C (26.9)	C (30.1)
		SB	C (24.6)	B (17.9)
Old Jefferson Rd & Whitehead Rd*	Unsignalized	EBT/R	A (0.0)	A (0.0)
		WBL/T	A (7.0)	A (5.5)
		NBL/R	A (9.3)	A (9.6)

Due to limitations in HCM 6th Edition, HCM 2000 was used for the analysis of intersections having 'YIELD' condition.

7.2 Projected No-Build Conditions

Projected No-Build Conditions include existing geometry and background growth volumes without new trips generated from the development.

Capacity analysis results for each study intersection under projected No-Build Conditions 2026 and 2036 are provided in **Table 11**. Capacity analysis reports for intersections under projected No-Build Conditions can be found in **Appendix F**.

No-Build condition 2026 peak hour capacity analysis indicates:

- **US-129/Jefferson Rd & Oak Grove Rd**
    - The southbound approach is projected to operate at LOS 'E' during the AM peak hour and at LOS 'F' during the PM peak hour in Build Year (2026).
    - All remaining approaches are projected to operate at an acceptable LOS during both AM and PM peak hours.
- All other intersections are projected to operate at an acceptable Level of Service during both AM and PM peak hours in Build Year (2026).

No-Build condition 2036 peak hour capacity analysis indicates:

- **US-129/Jefferson Rd & Oak Grove Rd**
    - The southbound approach is projected to operate at LOS 'F' during both AM and PM peak hours in Design Year (2036).
    - All remaining approaches are projected to operate at an acceptable LOS during both AM and PM peak hours.
- All other intersections are projected to operate at an acceptable Level of Service during both AM and PM peak hours in Design Year (2036).

Table 11: Capacity Analysis Results – No-Build Conditions

Intersection	Control Type	Movement	Build Year (2026)		Design Year (2036)	
			AM Peak	PM Peak	AM Peak	PM Peak
Old Jefferson Rd & Oak Grove Rd	Unsignalized	NBL	A (7.3)	A (7.3)	A (7.3)	A (7.3)
		NBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		EBL/T/R	A (9.0)	A (9.3)	A (9.1)	A (9.4)
		WBL/T/R	A (9.4)	A (9.6)	A (9.6)	A (9.7)
		SBL	A (7.3)	A (7.3)	A (7.3)	A (7.3)
		SBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
US-129/Jefferson Rd & Oak Grove Rd	Unsignalized	NBL/T/R	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		EBL	A (9.2)	B (12.9)	A (9.7)	B (14.8)
		EBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		WBL	B (14.6)	B (10.4)	C (17.0)	B (11.2)
		WBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		WBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBL/T/R	E (42.2)	F (127.4)	F (92.0)	F ($)
Jefferson River Rd & Old Jefferson Rd	Unsignalized	NBL	A (9.1)	A (7.7)	A (9.3)	A (7.8)
		NBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		EBL/T/R	B (14.2)	C (16.0)	C (16.2)	C (19.6)
		WBL/T/R	B (11.7)	B (12.2)	B (12.3)	B (13.3)
		SBL	A (7.4)	A (7.6)	A (7.5)	A (7.6)
		SBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
US-129/Jefferson Rd & Jefferson River Rd	Signalized	**Overall**	**A (5.5)**	**A (8.1)**	**A (5.5)**	**B (11.4)**
		EB	A (1.5)	A (1.2)	A (0.6)	A (2.1)
		WB	A (4.5)	A (8.6)	A (5.5)	B (13.5)
		SB	D (37.6)	D (38.9)	D (40.9)	D (42.1)
Jefferson River Rd & W Vincent Dr/Vincent Dr	Unsignalized	NBL	A (7.4)	A (7.4)	A (7.5)	A (7.4)
		NBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		EBL/T/R	B (11.1)	B (10.0)	B (11.6)	B (10.4)
		WBL/T/R	B (13.9)	B (13.7)	C (16.2)	C (15.8)
		SBL	A (7.7)	A (7.9)	A (7.8)	A (8.0)
		SBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
US-129/Jefferson Rd & Whitehead Rd	Signalized	**Overall**	**B (13.7)**	**C (20.9)**	**C (24.4)**	**C (31.8)**
		EB	B (16.7)	B (19.4)	C (34.8)	C (25.7)
		WB	A (1.9)	B (20.0)	A (2.6)	C (32.8)
		NB	C (26.8)	C (31.8)	C (26.4)	D (52.6)
		SB	C (24.5)	B (18.0)	C (24.0)	B (18.2)
Old Jefferson Rd & Whitehead Rd*	Unsignalized	EBT/R	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		WBL/T	A (7.0)	A (5.5)	A (7.1)	A (5.6)
		NBL/R	A (9.4)	A (9.7)	A (9.6)	A (9.9)

$ Delay exceeds 300 sec.

****Due to limitations in HCM 6th Edition, HCM 2000 was used for the analysis of intersections having 'YIELD' condition.***

7.3 Projected Build Conditions

Projected Build Conditions include existing geometry and Total Peak Hour Traffic Volumes, which include background growth and new trips generated by the development. The new intersections of Old Jefferson Rd at Driveway 1 and Driveway 2 will be operating as minor street stop-controlled intersections along with one ingress and one egress lane on both the driveways. Capacity analysis results for each study intersection under projected Build Conditions 2026 and 2036 are provided in **Table 12**. Detailed capacity analysis reports can be found in **Appendix G**.

Build condition 2026 peak hour capacity analysis indicates:

- **US-129/Jefferson Rd & Oak Grove Rd**
    - The southbound approach is projected to operate at LOS 'E' during the AM peak hour and LOS 'F' during the PM peak hour in Build Year (2026).
    - All remaining approaches are projected to operate at an acceptable LOS during both AM and PM peak hours.
- All the intersections are projected to operate at an acceptable Level of Service during both AM and PM peak hours in Build Year (2026).

Build condition 2036 peak hour capacity analysis indicates:

- **US-129/Jefferson Rd & Oak Grove Rd**
    - The southbound approach is projected to operate at LOS 'F' during both AM and PM peak hours in Design Year (2036).
    - All remaining approaches are projected to operate at an acceptable LOS during both AM and PM peak hours.
- All the intersections are projected to operate at an acceptable Level of Service during both AM and PM peak hours in Design Year (2036).

Table 12: Capacity Analysis Results – Build Conditions

Intersection	Control Type	Movement	Build Year (2026)		Design Year (2036)	
			AM Peak	PM Peak	AM Peak	PM Peak
Old Jefferson Rd & Oak Grove Rd	Unsignalized	NBL	A (7.3)	A (7.3)	A (7.3)	A (7.3)
		NBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		EBL/T/R	A (9.1)	A (9.5)	A (9.2)	A (9.6)
		WBL/T/R	A (9.8)	A (9.9)	B (10.0)	B (10.2)
		SBL	A (7.3)	A (7.4)	A (7.3)	A (7.4)
		SBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
US-129/Jefferson Rd & Oak Grove Rd	Unsignalized	NBL/T/R	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		EBL	A (9.3)	B (13.2)	A (9.8)	C (15.5)
		EBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		WBL	B (14.6)	B (10.4)	C (17.0)	B (11.2)
		WBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		WBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBL/T/R	E (41.4)	F (197.0)	F (110.2)	F ($)
Jefferson River Rd & Old Jefferson Rd	Unsignalized	NBL	A (9.1)	A (7.8)	A (9.3)	A (7.9)
		NBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		EBL/T/R	B (14.5)	C (16.5)	C (16.7)	C (20.2)
		WBL/T/R	B (11.8)	B (12.4)	B (12.5)	B (13.5)
		SBL	A (7.4)	A (7.6)	A (7.5)	A (7.7)
		SBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
US-129/Jefferson Rd & Jefferson River Rd	Signalized	**Overall**	**A (6.4)**	**A (8.6)**	**A (6.9)**	**B (12.8)**
		EB	A (1.6)	A (1.3)	A (1.4)	A (3.1)
		WB	A (4.6)	A (9.3)	A (5.6)	B (15.2)
		SB	D (46.5)	D (39.4)	D (50.9)	D (42.6)
Jefferson River Rd & W Vincent Dr/Vincent Dr	Unsignalized	NBL	A (7.5)	A (7.4)	A (7.5)	A (7.4)
		NBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		NBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		EBL/T/R	B (12.4)	B (11.5)	B (13.2)	B (12.0)
		WBL/T/R	C (16.2)	C (15.6)	C (19.7)	C (18.7)
		SBL	A (7.7)	A (7.9)	A (7.8)	A (8.0)
		SBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBR	A (0.0)	A (0.0)	A (0.0)	A (0.0)
US-129/Jefferson Rd & Whitehead Rd	Signalized	**Overall**	**B (15.3)**	**B (17.7)**	**C (28.2)**	**C (32.1)**
		EB	B (18.7)	B (16.4)	D (41.0)	C (25.8)
		WB	A (2.1)	B (17.2)	A (3.0)	D (38.0)
		NB	C (27.4)	C (23.9)	C (26.5)	C (28.3)
		SB	C (29.8)	C (21.2)	C (29.1)	C (21.9)
Old Jefferson Rd & Whitehead Rd*	Unsignalized	EBT/R	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		WBL/T	A (7.1)	A (5.5)	A (7.2)	A (5.6)
		NBL/R	A (9.8)	B (10.3)	B (10.0)	B (10.7)
Old Jefferson Rd & Driveway 1	Unsignalized	EBL	A (7.3)	A (7.5)	A (7.4)	A (7.5)
		EBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		WBT/R	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBL/R	A (9.2)	A (9.4)	A (9.3)	A (9.5)

Intersection	Control Type	Movement	Build Year (2026)		Design Year (2036)	
			AM Peak	PM Peak	AM Peak	PM Peak
Old Jefferson Rd & Driveway 2	Unsignalized	EBL	A (7.3)	A (7.5)	A (7.3)	A (7.5)
		EBT	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		WBT/R	A (0.0)	A (0.0)	A (0.0)	A (0.0)
		SBL/R	A (9.2)	A (9.4)	A (9.3)	A (9.5)

$ Delay exceeds 300 sec.

****Due to limitations in HCM 6th Edition, HCM 2000 was used for the analysis of intersections having 'YIELD' condition.***

8 Summary of Findings

- The purpose of this report is to analyze the traffic impacts from the proposed residential development at Old Jefferson Road in Athens-Clarke County, Georgia. This study includes the evaluation of Build Year (2026) and Design Year (2036).
- There is a CSXT railroad running along the US-129/Jefferson Road. CSXT connects major industrial hubs and ports and its rail line run through part of Georgia.
- TMC's were conducted at the study intersections on Thursday, August 29, 2024, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM.
- The AM Peak Hour was found to be 7:15 AM to 8:15 AM and the PM Peak Hour was found to be 4:45 PM to 5:45 PM.
- Based on census data from Clarke County, Georgia and growth trend analyses for the nearby Georgia DOT Count Stations, an annual growth rate was established and considered to be 1.5% between the Existing Year (2024) to the Design Year (2036).
- The proposed development is located at Old Jefferson Road, in Athens-Clarke County, Georgia.
- The development will have 3 access driveways, two on Old Jefferson Road and one through W Vincent Drive.
- The site is expected to generate a total of 186 trips occur during the AM peak hour and 209 trips occur during the PM peak hour.
- Existing Condition peak hour capacity analysis indicates that all the study intersections are currently operating at an acceptable LOS during both AM and PM peak hours. The southbound approach of US-129/Jefferson Rd & Oak Grove Rd intersection is currently operating at LOS 'E' during the AM peak hour and LOS 'F' during the PM peak hour.
- No-Build Conditions peak hour capacity analysis indicates that all the study intersections are projected to operate at an acceptable LOS during both AM and PM peak hours in Build Year (2026) and Design Year (2036). The southbound approach of US-129/Jefferson Rd & Oak Grove Rd intersection is projected to operate at LOS 'E' and LOS 'F' during the AM and PM peak hours in Build Year (2026) respectively, and at LOS 'F' during both the peak hours in Design Year (2036).
- Build Condition 2026 and 2036 peak hour capacity analysis indicates that all the study intersections are projected to operate at an acceptable LOS during both the peak hours. The southbound approach of US-129/Jefferson Rd & Oak Grove Rd intersection is projected to operate at LOS 'E' and LOS 'F' during the AM and PM peak hours in Build Year (2026) respectively, and at LOS 'F' during both the peak hours in Design Year (2036).
- According to the GDOT's Regulations for Driveway and Encroachment Control Manual, a right turn lane is warranted on Old Jefferson Rd approaching the site for both Driveway 1 and Driveway 2.

9 Recommendations

- Per Athens-Clarke County standards, Site Driveways 1 and 2 should be minimum 20-foot-wide entrances with 10-foot ingress and 10-foot egress lane.
- Install stop signs ‘R1-1’ and stop bar pavement markings at Site Driveway 1 and 2 for safe operations.
- Due to the southbound approach of Oak Grove Rd at the US-129 intersection falling below the acceptable LOS under existing conditions, no improvements are recommended. The substandard conditions existed prior to any impacts from the proposed development and should not be the responsibility of the developer.
- As per section '4.9.2, Right Turn Lane Lengths' in GDOT's Regulations for Driveway and Encroachment Control Manual, right turn deceleration lanes should be constructed with 100-foot storage and 50-foot tapers on Old Jefferson Road at its intersection with the proposed Driveway 1 and Driveway 2.