

**TRAFFIC IMPACT STUDY
FOR
RESIDENTIAL DEVELOPMENT (FITTS SITE) AT 275 OLD
DAWSONVILLE ROAD**

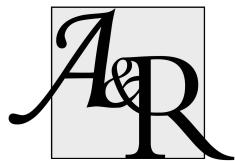
CITY OF BALL GROUND, GEORGIA



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TABLE OF CONTENTS

Item	Page
1.0 Introduction	1
2.0 Existing Facilities / Conditions	3
2.1 Roadway Facilities.....	3
2.1.1 Old Dawsonville Road	3
2.1.2 Groover Street	3
2.1.3 William Court	3
3.0 Study Methodology	4
4.0 Existing 2021 Traffic Analysis.....	6
4.1 Existing Traffic Volumes.....	6
4.2 Existing Traffic Operations.....	8
5.0 Proposed Development.....	10
5.1 Trip Generation.....	10
5.2 Trip Distribution	11
6.0 Future 2024 Traffic Analysis	14
6.1 Nearby Planned Development – Farmer’s Crossing Residential Development.....	14
6.2 Future “No-Build” Conditions	18
6.2.1 Annual Traffic Growth.....	18
6.3 Future “Build” Conditions	18
6.4 Auxiliary Lane Analysis.....	21
6.4.1 Left Turn Lane Analysis	21
6.4.2 Deceleration Turn Lane Analysis.....	21
6.5 Future Traffic Operations.....	22
6.5.1 Site Mitigation Improvements	22
7.0 Conclusions and Recommendations.....	25
7.1 Site Access Configuration.....	25
Appendix	

L I S T O F T A B L E S

Item	Page
Table 1 – Level-of-service Criteria for Unsignalized Intersections.....	4
Table 2 – Level-of-service Criteria for Signalized Intersections	5
Table 3 – Existing Intersection Operations	8
Table 4 – Trip Generation (Proposed Development).....	11
Table 5 – Trip Generation (Farmer’s crossing).....	15
Table 6 – GDOT Requirements for Left Turn Lanes	21
Table 7 – GDOT Requirements for Deceleration Lanes	21
Table 8 – Future Intersection Operations.....	22

L I S T O F F I G U R E S

Item	Page
Figure 1 – Location Map.....	2
Figure 2 – Existing Weekday Peak Hour Volumes.....	7
Figure 3 – Existing Traffic Control and Lane Geometry	9
Figure 4 – Site Plan (Proposed Development)	12
Figure 5 – Outer Leg Trip Distribution and Site Generated Peak Hour Volumes.....	13
Figure 6 – Farmer’s Crossing Site Plan	16
Figure 7 – Farmer’s Crossing Volumes.....	17
Figure 8– Future (No-Build) Peak Hour Volumes.....	19
Figure 9 – Future (Build) Peak Hour Volumes.....	20
Figure 10 – Future Traffic Control and Lane Geometry	24

1.0 INTRODUCTION

The purpose of this study is to determine the traffic impact that will result from the proposed residential development located at 275 Old Dawsonville Road. The traffic analysis evaluates the current operations compared to the future conditions with the traffic generated by the development. The proposed development will consist of 66 Single-Family detached homes.



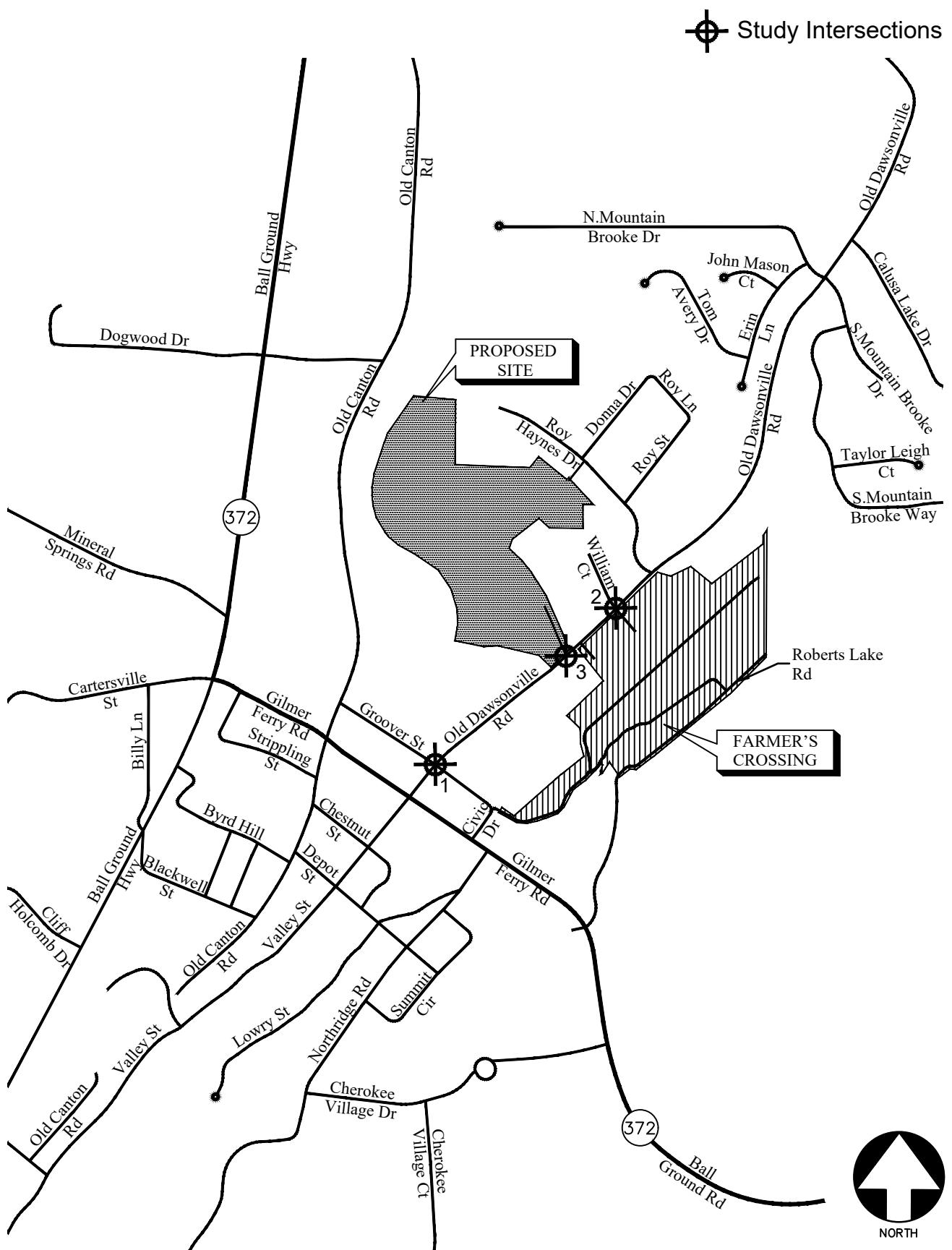
The development proposes access at the following locations:

- Site Driveway 1: Full-access driveway on Old Dawsonville Road
- Site Driveway 2: Emergency driveway on Donna Drive

The AM and PM peak hours have been analyzed in this study. In addition to the site access points, this study includes the evaluation of traffic operations at the intersections of:

- Old Dawsonville Road at Groover Street
- Old Dawsonville Road at William Court

Recommendations to improve traffic operations have been identified as appropriate and are discussed in detail in the following sections of the report. The location of the development and the surrounding roadway network is shown in Figure 1.



LOCATION MAP

FIGURE 1
A&R Engineering Inc.

2.0 EXISTING FACILITIES / CONDITIONS

2.1 Roadway Facilities

The following is a brief description of each of the roadway facilities located in proximity to the site:

2.1.1 Old Dawsonville Road

Old Dawsonville Road is a north-south, two-lane, undivided roadway with a posted speed limit of 25 mph in the vicinity of the site.

2.1.2 Groover Street

Groover Street is an east-west, two-lane, undivided roadway with a posted with a speed limit of 25 mph in the vicinity of the site.

2.1.3 William Court

William Court is an east-west, two-lane, undivided roadway with a posted with a speed limit of 25 mph in the vicinity of the site.

3.0 STUDY METHODOLOGY

In this study, the methodology used for evaluating traffic operations at each of the subject intersections is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 6th edition (HCM 6). Synchro software, which utilizes the HCM methodology, was used for the analysis. The following is a description of the methodology employed for the analysis of unsignalized and signalized intersections.

3.1 Unsignalized Intersections

For unsignalized intersections at which the side street or minor street is controlled by a stop sign, the criteria for evaluating traffic operations are the level-of-service (LOS) for the turning movements at the intersection and the level-of-service for the overall intersection. Level-of-service is based on control delay incurred at the intersection. Control delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the control delay for unsignalized intersections, such as the availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

Level-of-service is assigned a letter designation from "A" through "F". Level-of-service "A" indicates excellent operations with little delay to motorists, while level-of-service "F" exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross safely, resulting in extremely long total delays and long queues. The level-of-service criteria for two-way stop-controlled and all-way stop-controlled (unsignalized) intersections are given in Table 1.

TABLE 1 – LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level-of-service	Control Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: Highway Capacity Manual

3.2 Signalized Intersections

For signalized intersections, it is necessary to evaluate both capacity and level-of-service in order to evaluate the overall operation of the intersection. The capacity analysis of an intersection is performed by comparing the volume of traffic using the various lane groups at the intersection to the capacity of those lane groups. This results in a volume/capacity (v/c) ratio for each lane group. A v/c ratio greater than 1.0 indicates that the volume of traffic has exceeded the capacity available, resulting in a temporary excess of demand. Although the capacity of the entire intersection is not defined, a composite v/c ratio for the sum of the critical lane groups within the intersection is computed. This composite v/c ratio is an indication of the overall intersection sufficiency.

Level-of-service for a signalized intersection is defined in terms of control delay per vehicle, which is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for signalized intersections, based on control delay, are shown in Table 2. Level-of-service “A” indicates operations with very low control delay, while level-of-service “F” describes operations with extremely high control delay. Level-of-service “E” is typically considered to be the limit of acceptable delay, and level-of-service “F” is considered unacceptable by most drivers.

TABLE 2 — LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level-of-service	Control Delay (sec)
A	≤ 10
B	$> 10 \text{ and } \leq 20$
C	$> 20 \text{ and } \leq 35$
D	$> 35 \text{ and } \leq 55$
E	$> 55 \text{ and } \leq 80$
F	> 80

Source: Highway Capacity Manual

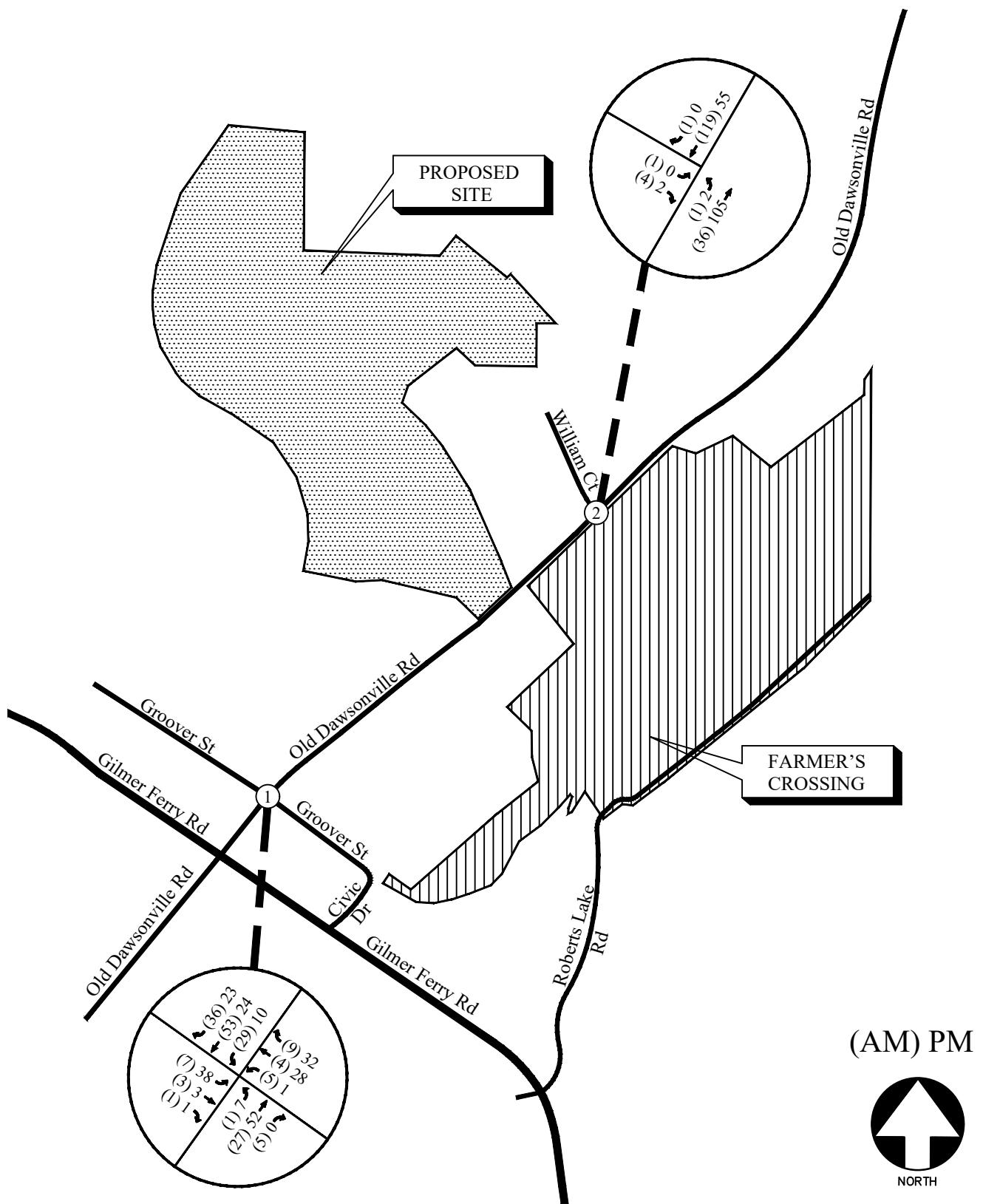
4.0 EXISTING 2021 TRAFFIC ANALYSIS

4.1 Existing Traffic Volumes

Existing traffic counts were obtained at the following study intersections:

- Old Dawsonville Road at Groover Street
- Old Dawsonville Road at William Court

Turning movement counts were collected on Tuesday, November 30, 2021. All turning movement counts were recorded during the AM and PM peak hours between 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively. The four consecutive 15-minute interval volumes that summed to produce the highest volume at the intersections were then determined. These volumes make up the peak hour traffic volumes for the intersections counted and are shown in Figure 2.



EXISTING WEEKDAY PEAK-HOUR VOLUMES

FIGURE 2
A&R Engineering Inc.

4.2 Existing Traffic Operations

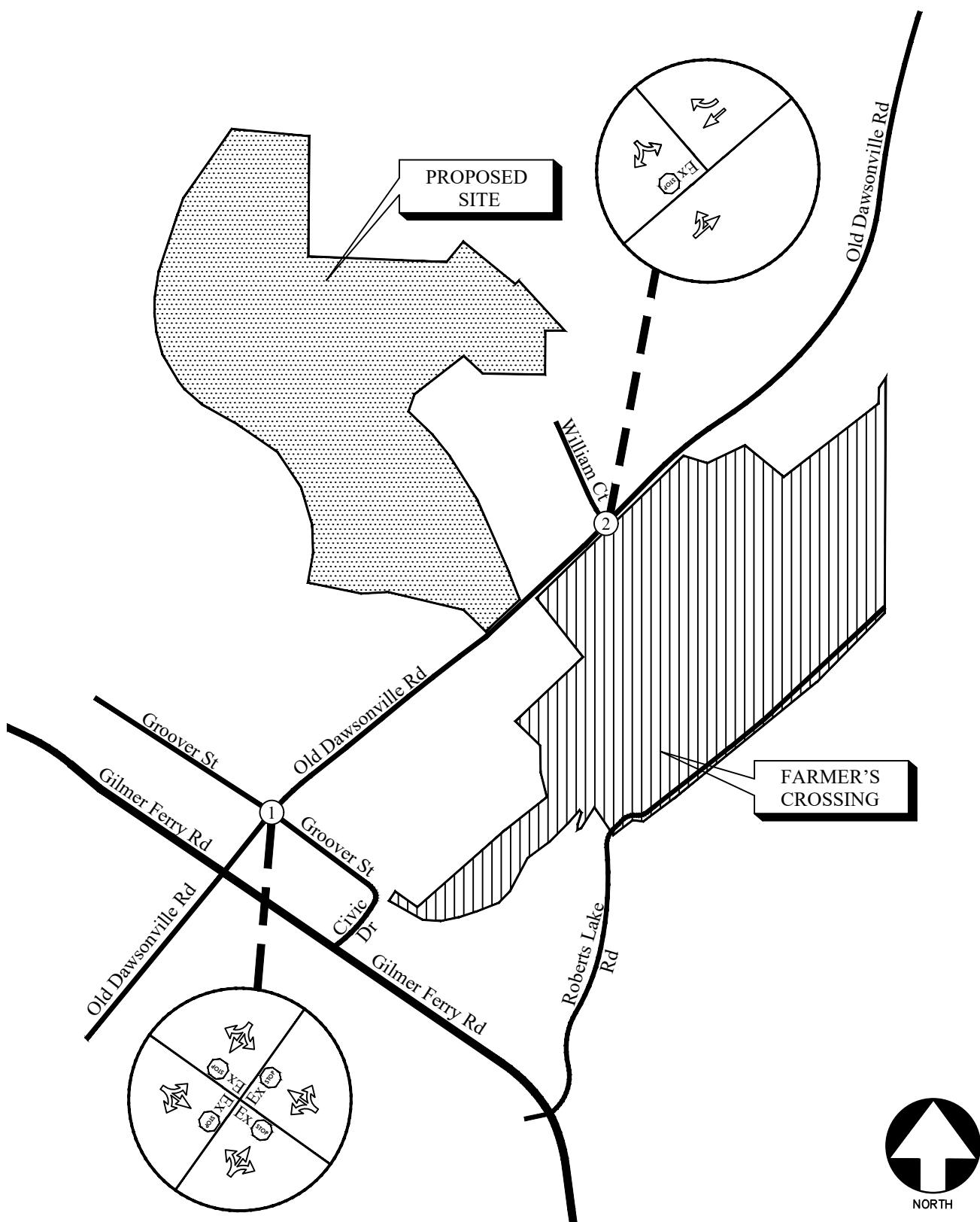
Existing 2021 traffic operations were analyzed at the study intersections in accordance with the HCM methodology. The results of the analyses are shown in Table 3.

Intersection		Traffic Control	LOS (Delay)	
			AM Peak Hour	PM Peak Hour
1	Old Dawsonville Road @ Groover Street	All – Way Stop Control	A (7.5)	A (7.4)
	-Eastbound Approach		A (7.5)	A (7.7)
	-Westbound Approach		A (7.2)	A (7.2)
	-Northbound Approach		A (7.2)	A (7.6)
2	Old Dawsonville Road @ William Court	Stop Controlled on EB Approach	A (7.6)	A (7.3)
			A (9.2)	A (8.6)
			A (7.5)	A (7.3)

The results of existing traffic operations analysis indicate that all the study intersections are operating at satisfactory level of service “A” in both the AM and PM peak hours. The eastbound approach at the intersection of Old Dawsonville Road and Williams Court is operating at a level-of-service “A” during the AM and PM peak hours. The existing traffic control and lane geometry for the intersections are shown in Figure 3.

LEGEND

- Ex Existing Signed Approach
Ex Existing Lane Geometry
Ex Existing Traffic Signal



EXISTING TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 3
A&R Engineering Inc.

5.0 PROPOSED DEVELOPMENT

The proposed site will be located at 275 Old Dawsonville Road. The development will consist of 66 units Single-Family Detached Homes

The development proposes access at the following locations:

- Site Driveway 1: Full-access driveway on Old Dawsonville Road
- Site Driveway 2: Emergency driveway on Roy Haynes Drive



A site plan (Proposed Development) is shown in Figure 4.

5.1 Trip Generation

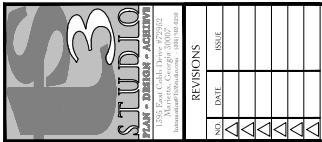
Trip generation estimates for the project were based on the rates and equations published in the 11th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Use: 210 – Single-Family Detached Housing. The calculated total trip generation for the proposed development is shown in Table 4.

TABLE 4 – TRIP GENERATION (PROPOSED DEVELOPMENT)

Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hour
		Enter	Exit	Total	Enter	Exit	Total	Two-way
ITE 210 – Single-Family Detached Housing	66 units	13	38	51	42	25	67	688

5.2 Trip Distribution

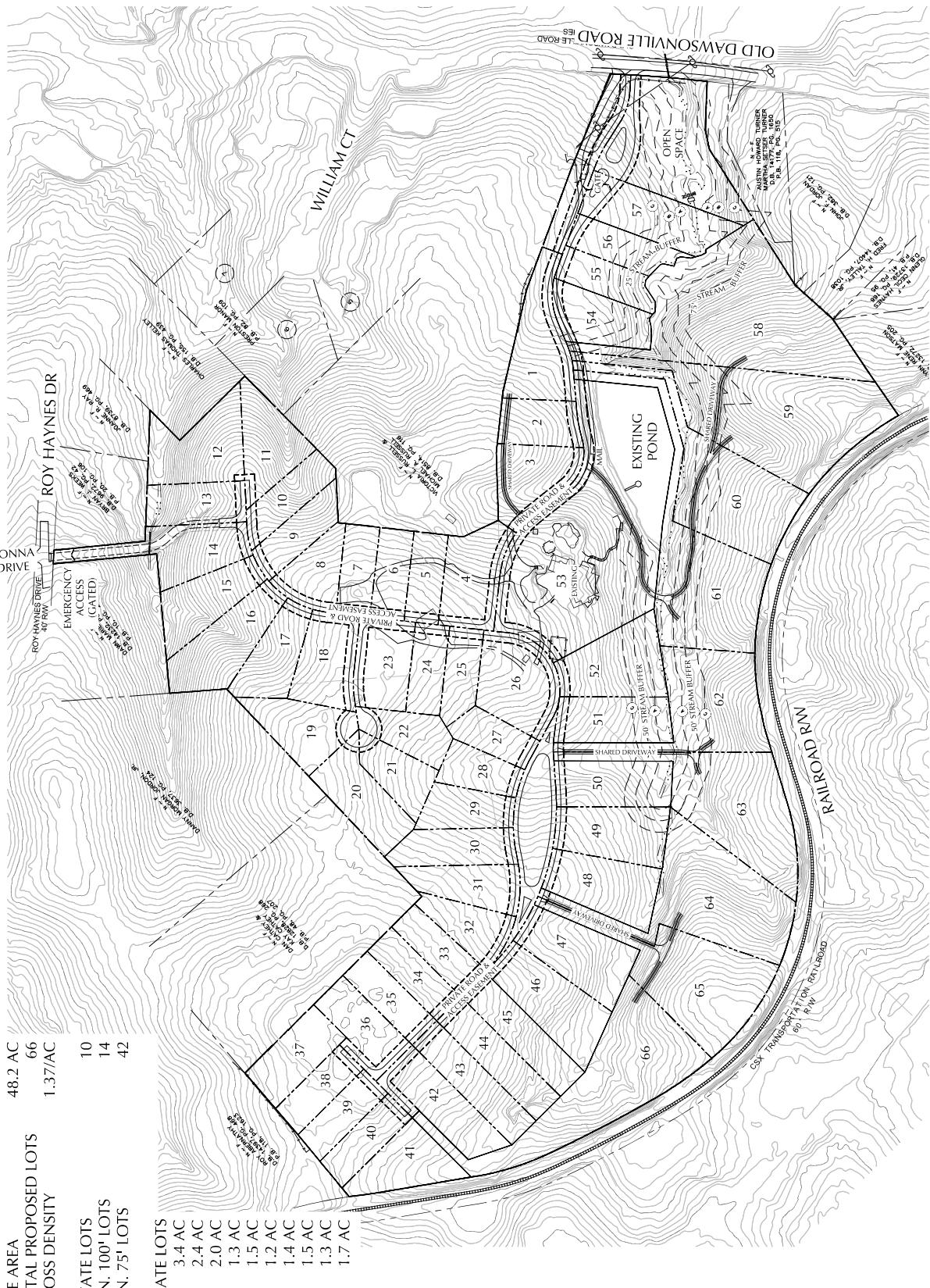
The trip distribution describes how traffic arrives and departs from the site. An overall trip distribution was developed for the site based on a review of the existing travel patterns in the area and the locations of major roadways and highways that will serve the development. The site-generated peak hour traffic volumes, shown in Table 4, were assigned to the study area intersections based on this distribution. The outer-leg distribution and AM and PM peak hour new traffic generated by the site are shown in Figure 5.



OLD DAWSONVILLE ROAD TRACT

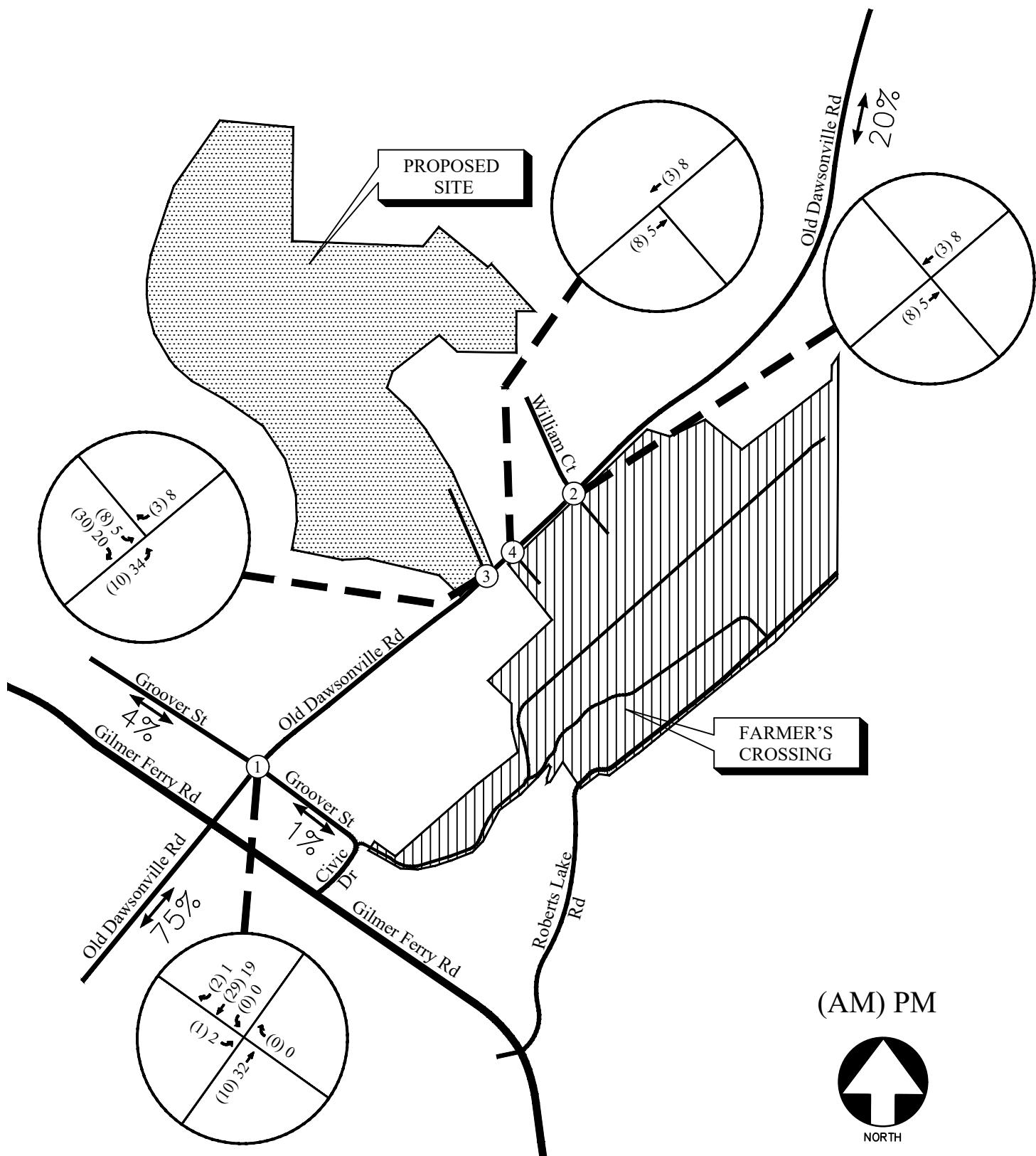
OLD DAWS STAN FITS

Not Released For Construction



A compass rose icon with a north arrow pointing upwards.

A north arrow symbol consisting of a circle with a diagonal line, positioned above a vertical scale bar.



TRIP DISTRIBUTION AND SITE-GENERATED WEEKDAY
PEAK HOUR VOLUMES (FITTS DEVELOPMENT)

FIGURE 5
A&R Engineering Inc.

6.0 FUTURE 2024 TRAFFIC ANALYSIS

The future 2024 traffic operations are analyzed for the “Build” and “No-Build” conditions.

6.1 Nearby Planned Development – Farmer’s Crossing Residential Development

There is a planned residential development that will be located on the east side of Old Dawsonville Road called Farmer’s crossing. The site will have two access points for 104 units townhomes on Old Dawsonville Road, one access point for 117 units single family detached housing on Groover Street via Civic Drive another on Roberts Lake Road. An overlay that shows both the Fitts Residential Development and Farmer’s Crossing Development is included below.



A Farmer's crossing site plan is shown in Figure 6.

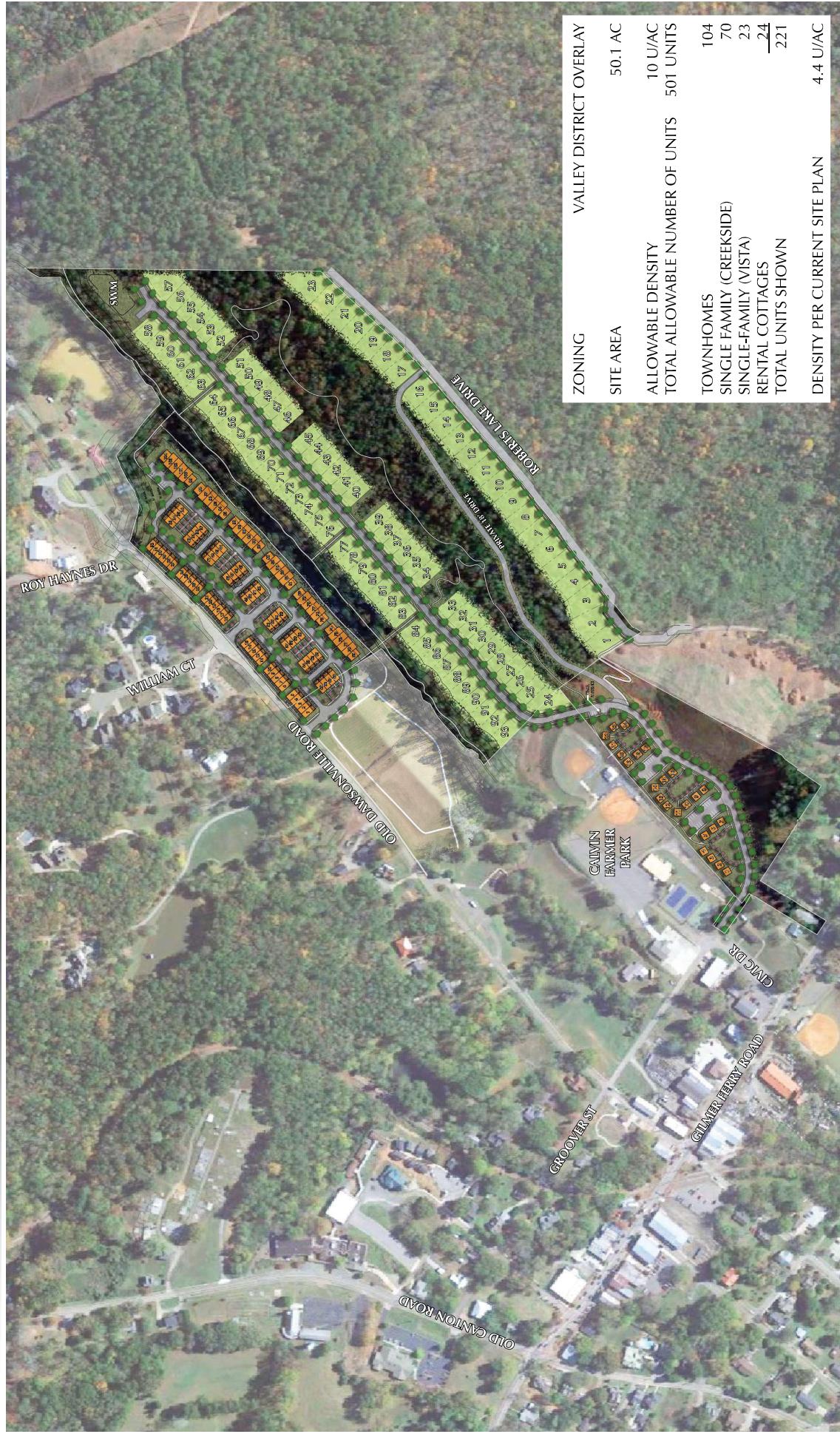
Traffic from the Farmer's Crossing residential developments trip generation estimates for the project were based on the rates and equations published in the 11th edition of the Institute of Transportation Engineers (ITE) Trip Generation report. This reference contains traffic volume count data collected at similar facilities nationwide. The trip generation was based on the following ITE Land Uses: 210 – *Single-Family Detached Housing* and 215 – *Single-Family Attached Housing*. The calculated total trip generation for the Farmer's crossing residential development is shown in Table 5.

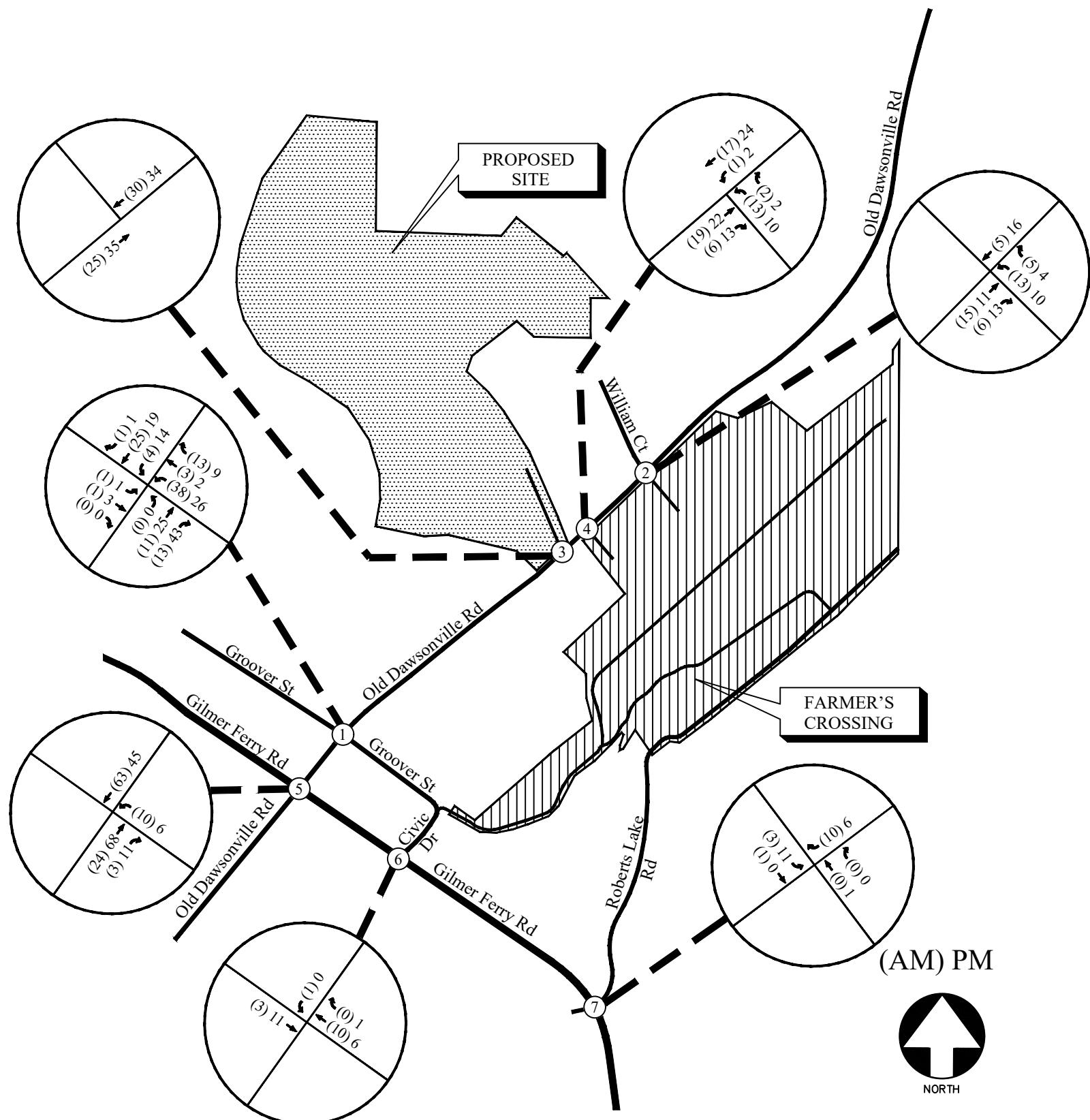
TABLE 5 – TRIP GENERATION (FARMER'S CROSSING)

Land Use	Size	AM Peak Hour			PM Peak Hour			24 Hour
		Enter	Exit	Total	Enter	Exit	Total	Two-way
ITE 210 – Single-Family Detached Housing	117 units	22	64	86	72	43	115	1,166
ITE 215 – Single-Family Attached Housing	104 units	15	33	48	33	25	58	742
Total Site Trips		37	97	134	105	68	173	1,908

Traffic for this development was also included in the analysis of the future "No-Build" and "Build" conditions. Farmer's Crossing volumes are shown in Figure 7.

FARMER'S CROSSING





TRIP DISTRIBUTION AND SITE-GENERATED WEEKDAY
PEAK HOUR VOLUMES (FARMER'S CROSSING)

FIGURE 7
A&R Engineering Inc.

6.2 Future “No-Build” Conditions

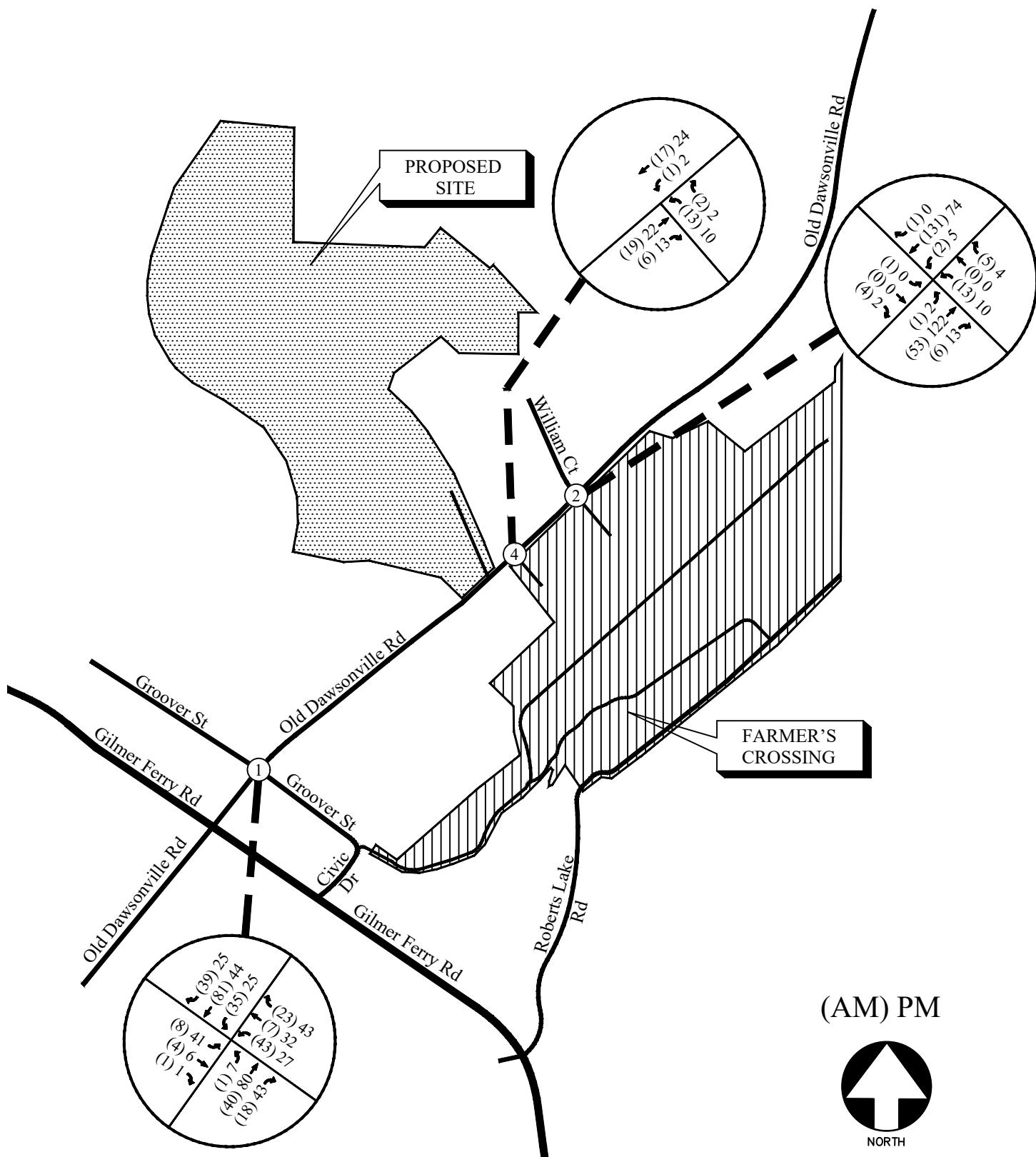
The “No-Build” (or background) conditions provide an assessment of how traffic will operate in the study horizon year without the study site being developed as proposed, with projected increases in through traffic volumes due to normal annual growth. The Future “No-Build” volumes consist of the existing traffic volumes (Figure 2) plus increases for annual growth of through traffic and added traffic from other nearby planned development (Figure 7).

6.2.1 Annual Traffic Growth

In order to evaluate future traffic operations in this area, a projection of normal traffic growth was applied to the existing volumes. The Georgia Department of Transportation recorded average daily traffic volumes at several locations in the vicinity of the site. Reviewing the growth over the last three years revealed growth of approximately 2% in the area. This growth factor was applied to the existing traffic volumes between collector and arterial roadways in order to estimate the future year traffic volumes prior to the addition of site-generated traffic. The resulting Future “No-Build” volumes on the roadway are shown in Figure 8.

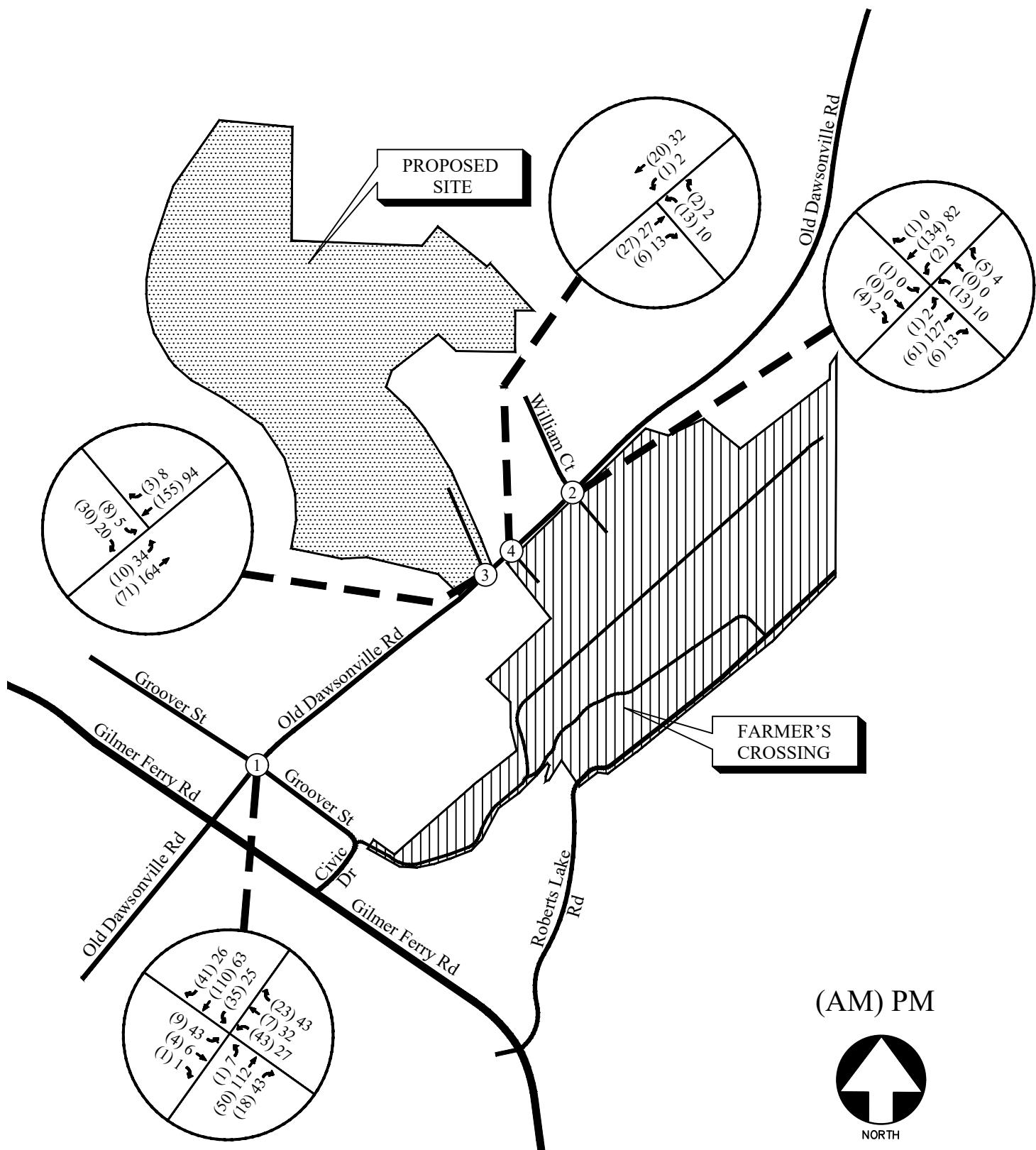
6.3 Future “Build” Conditions

The “Build” or development conditions include the estimated background traffic from the “No-Build” conditions plus the added traffic from the proposed development. In order to evaluate future traffic operations in this area, the additional traffic volumes from the site (Figure 5) were added to base traffic volumes (Figure 8) to calculate the future traffic volumes after the construction of the development. These total future “Build” traffic volumes are shown in Figure 9.



FUTURE (NO-BUILD) WEEKDAY PEAK HOUR VOLUMES

FIGURE 8
A&R Engineering Inc.



FUTURE (BUILD) WEEKDAY PEAK HOUR VOLUMES

A&R Engineering Inc.

6.4 Auxiliary Lane Analysis

Included below are analyses for left-turn lanes and deceleration lanes for all site driveways per GDOT standards. The analyses below are based off the trip distribution included in Section 5.2. According to the trip distribution, the 24-hour two-way volume entering and exiting the site is 688 vehicles.

6.4.1 Left Turn Lane Analysis

For two lane roadways with AADT's less than 6,000 vehicles and a posted speed limit of 25 mph, the daily site generated traffic left-turn movements threshold to warrant a left-turn lane is 300 left-turning vehicles a day. The projected left-turn volumes per day for each driveway is included below.

TABLE 6 – GDOT REQUIREMENTS FOR LEFT TURN LANES

Intersection	Left-turn traffic (% total entering)	Left-turn Volume (veh/day)	Roadway Speed/ # lanes	GDOT Threshold (veh/day)
Old Dawsonville Road @ Site Driveway	80%	275 (total trips) ÷ 2 × 0.8 = (688) ÷ 2 × 0.8 = 275	25 mph / 2 lane / < 6,000	300

Since the projected number of left-turning vehicles at Site Driveway does not exceed the threshold of 300 left turning vehicles, a left-turn lane is not warranted at Site Driveway per GDOT standards.

6.4.2 Deceleration Turn Lane Analysis

For two lane roadways with AADT's less than 6,000 vehicles and a posted speed limit of 25 mph, the daily site generated traffic right-turn movements threshold to warrant a deceleration lane is 200 right turning vehicles a day. The projected right-turn volumes per day for each driveway is included in Table 7.

TABLE 7 – GDOT REQUIREMENTS FOR DECELERATION LANES

Intersection	Right-turn traffic (% total entering)	Right-turn Volume (veh/day)	Roadway Speed/ # lanes	GDOT Threshold (veh/day)
Old Dawsonville Road @ Site Driveway	20%	69 (total trips) ÷ 2 × 0.2 = (688) ÷ 2 × 0.2 = 69	25 mph / 2 lane / < 6,000	200

Since the projected number of right turning vehicles does not exceed the threshold of 200 right turning vehicles, a deceleration lane is not warranted at Site Driveway per GDOT standards.

6.5 Future Traffic Operations

The future “No-Build” and “Build” traffic operations were analyzed using the volumes in Figure 8 and Figure 9, respectively. The results of the future traffic operations analysis are shown below in Table 8. Recommendations on traffic control and lane geometry are shown graphically in Figure 10.

TABLE 8 – FUTURE INTERSECTION OPERATIONS

Intersection		Future Condition: LOS (Delay)			
		NO-BUILD		BUILD with Site Mitigation Improvements	
		AM Peak	PM Peak	AM Peak	PM Peak
1	Old Dawsonville Road @ Groover Street	A (7.9)	A (8.0)	A (8.1)	A (8.3)
	-Eastbound Approach	A (7.7)	A (8.1)	A (7.8)	A (8.3)
	-Westbound Approach	A (7.8)	A (8.0)	A (8.0)	A (8.2)
	-Northbound Approach	A (7.5)	A (8.0)	A (7.6)	A (8.4)
2	Old Dawsonville Road @ William Court / Farmer's Northern Driveway			A (8.1)	A (8.1)
	-Eastbound Approach	A (9.2)	A (8.7)	A (7.1)	A (6.9)
	-Westbound Approach	A (9.6)	A (9.8)	A (7.5)	A (7.6)
	-Northbound Left/ Approach	A (7.5)	A (7.4)	A (7.7)	A (8.2)
3	Old Dawsonville Road @ Site Driveway				
	-Eastbound Approach	-	-	A (9.5)	A (9.3)
	-Northbound Left			A (7.6)	A (7.5)
4	Old Dawsonville Road @ Farmer's Southern Driveway				
	-Westbound Approach	A (8.8)	A (8.8)	A (8.8)	A (8.9)
	-Southbound Left	A (7.3)	A (7.3)	A (7.3)	A (7.3)

The results of future traffic operations indicate that after addition of site generated volumes (Build Scenario), all study intersection approaches will continue to operate at level of service “A” in both the AM and PM peak hours. Site Mitigation Improvements were coded in the analysis for the Build Scenario and are detailed below.

6.5.1 Site Mitigation Improvements

Proposed Site Driveway for Fitts Development

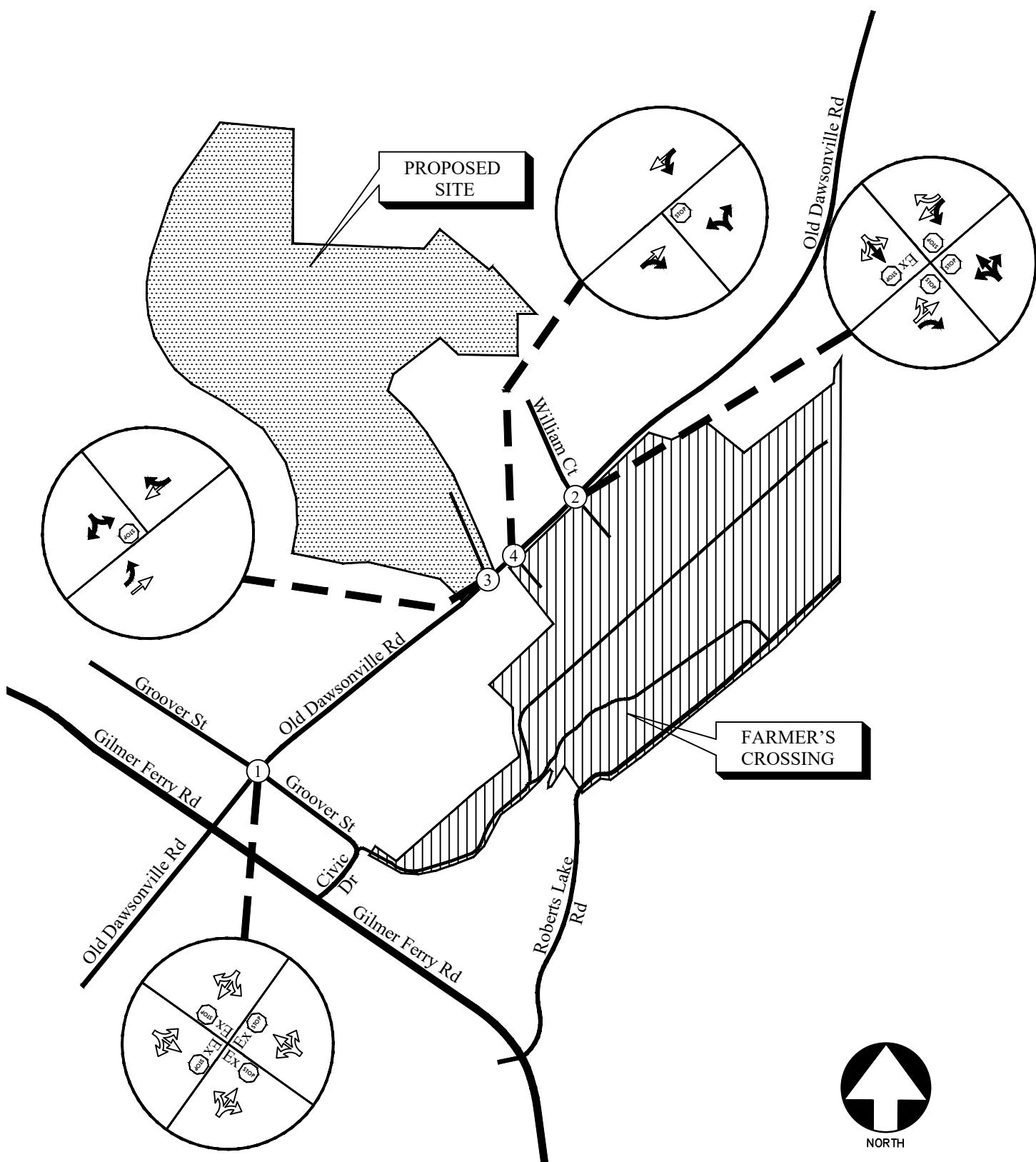
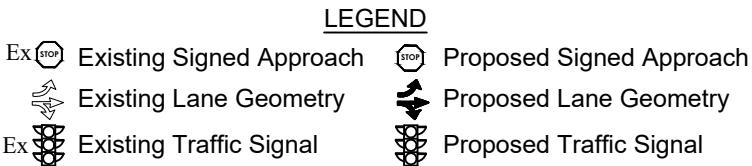
Although GDOT warrants for a left turn lane at the proposed site driveway (Fitts site) on Old Dawsonville Road are not met, we recommend that a left turn lane be provided.

Wilson Court and Northern Driveway to Farmer's Crossing Residential Development

It is recommended that an all way stop sign be installed at this intersection due to existing sight distance concerns. It is also recommended that a short northbound right turn flare (separated by a raised island) be provided on Old Dawsonville Road for entering movements at the northern driveway for the Farmer's Crossing Residential Development.

Southern Driveway to Farmer's Crossing Residential Development

It is recommended that the southern driveway to the Farmer's Crossing Development be a full access driveway that is stop sign controlled on the driveway approach. A deceleration lane and left turn lane are not recommended at this driveway.



FUTURE TRAFFIC CONTROL AND LANE GEOMETRY

FIGURE 10
A&R Engineering Inc.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Traffic impacts were evaluated for the added traffic from the proposed residential development that will be located at 275 Old Dawsonville Road. The development will consist of 66 units Single-Family Detached Homes.

The development proposes access at the following locations:

- Site Driveway 1: Full-access driveway on Old Dawsonville Road
- Site Driveway 2: Emergency driveway on Roy Haynes Drive

Existing and future operations after completion of the project were analyzed at the intersections of:

- Old Dawsonville Road at Groover Street
- Old Dawsonville Road at William Court / Farmer's Crossing Northern Driveway
- Old Dawsonville Road at Site Driveway
- Old Dawsonville Road at Farmer's Crossing Southern Driveway

The analysis included the evaluation of Future operations for "No-Build" and "Build" conditions, the differences between "No-Build" and "Build" account for increases in annual growth of through traffic and added traffic from other nearby planned developments. The results of existing and future traffic operations indicate that after addition of site generated volumes, all approaches of the study intersections will be operating at satisfactory level of service "A" in both the AM and PM peak hours.

7.1 Site Access Configuration

The following access configuration was utilized when modeling the proposed site driveway intersections.

- Site Driveway 1: Full access driveway on Old Dawsonville Road
 - It is recommended to be the driveway includes one entering and one exiting lane. The eastbound (driveway) approach is shown to have a shared left/right-turn lane for exiting traffic.
 - The intersection is recommended to be unsignalized with a stop-sign controlled on the driveway approach and that available sight distance is verified per AASHTO standards during driveway design.
 - A dedicated left-turn lane is recommended to be constructed for entering traffic (See Section 6.3). A deceleration lane is warranted per GDOT standards and not recommended (See Section 6.3).

7.1.1 Site Mitigation Improvements

Proposed Site Driveway for Fitts Development

Although GDOT warrants for a left turn lane at the proposed site driveway (Fitts site) on Old Dawsonville Road are not met, we recommend that a left turn lane be provided and that available sight distance per AASHTO standards is verified during driveway design.

Wilson Court and Northern Driveway to Farmer's Crossing Residential Development

It is recommended that an all way stop sign be installed at this intersection due to existing sight distance concerns. It is also recommended that a short northbound right turn flare (separated by a raised island) be provided on Old Dawsonville Road for entering movements at the northern driveway for the Farmer's Crossing Residential Development.

Southern Driveway to Farmer's Crossing Residential Development

It is recommended that the southern driveway to the Farmer's Crossing Development be a full access driveway that is stop sign controlled on the driveway approach. A deceleration lane and left turn lane are not recommended at this driveway.

Based on the analysis performed in this study, it is concluded that the traffic operations at all intersections/driveways evaluated in this study will operate at very good level of service of "A" after the developments are completed if all recommended improvements are completed. The roadway had adequate capacity to accommodate future traffic demand.

The posted speed limit on Old Dawsonville Road is 25 Mph. The required sight distance according to American Association of State Highway and Transportation Officials (ASSHTO) for that speed is 280 feet. This adequate sight distance of 280 feet is available looking to the left and right of the Fitts site driveway. The Farmers Crossing southern driveway has adequate sight distance looking to the left and looking to the right. The Farmers Crossing northern driveway has adequate sight distance looking to the left. However, since there is not adequate sight distance available when looking to the right from the Farmers Crossing southern driveway, an all-way stop sign control intersection is recommended at William Court and Old Dawsonville Road. Sight distance profiles have been included in the Appendix.

Appendix

Existing Intersection Traffic Counts.....
Site Distance Profiles.....
Linear Regression of Daily Traffic.....
Existing Intersection Analysis
Future “No-Build” Intersection Analysis.....
Future “Build” Intersection Analysis
Traffic Volume Worksheets

EXISTING INTERSECTION TRAFFIC COUNTS

A & R Engineering, Inc.

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TMC DATA
Groover St @ Old Dawsonville Rd
7-9 am | 4-6 pm

File Name : 20210398
Site Code : 20210398
Start Date : 11/30/2021
Page No : 1

Groups Printed- Cars,Buses & Trucks

	Old Dawsonville Rd Northbound				Old Dawsonville Rd Southbound				Groover St Eastbound				Groover St Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	8	1	9	8	20	4	32	3	1	0	4	0	1	3	4	49
07:15 AM	0	6	0	6	7	14	12	33	1	1	0	2	1	0	2	3	44
07:30 AM	0	9	2	11	7	11	16	34	3	1	0	4	1	1	2	4	53
07:45 AM	1	4	2	7	7	8	4	19	0	0	1	1	3	2	2	7	34
Total	1	27	5	33	29	53	36	118	7	3	1	11	5	4	9	18	180
08:00 AM	1	4	1	6	6	6	5	17	0	0	1	1	2	0	5	7	31
08:15 AM	0	4	2	6	5	7	4	16	1	1	0	2	2	0	6	8	32
08:30 AM	1	3	0	4	4	9	1	14	0	0	1	1	0	0	5	5	24
08:45 AM	0	4	0	4	5	9	6	20	3	0	1	4	0	2	5	7	35
Total	2	15	3	20	20	31	16	67	4	1	3	8	4	2	21	27	122

*** BREAK ***

04:00 PM	0	10	1	11	4	10	6	20	6	1	0	7	3	1	4	8	46
04:15 PM	0	11	0	11	6	7	7	20	1	0	0	1	2	5	9	16	48
04:30 PM	2	15	0	17	6	6	5	17	12	1	0	13	0	6	6	12	59
04:45 PM	2	13	0	15	3	7	4	14	6	0	1	7	0	4	9	13	49
Total	4	49	1	54	19	30	22	71	25	2	1	28	5	16	28	49	202
05:00 PM	1	15	0	16	1	3	5	9	13	2	0	15	0	6	9	15	55
05:15 PM	2	9	0	11	0	8	9	17	7	0	0	7	1	12	8	21	56
05:30 PM	2	12	1	15	3	9	4	16	9	1	1	11	0	5	4	9	51
05:45 PM	0	12	0	12	5	9	1	15	8	4	1	13	1	1	3	5	45
Total	5	48	1	54	9	29	19	57	37	7	2	46	2	24	24	50	207

Grand Total	12	139	10	161	77	143	93	313	73	13	7	93	16	46	82	144	711
Apprch %	7.5	86.3	6.2		24.6	45.7	29.7		78.5	14	7.5		11.1	31.9	56.9		
Total %	1.7	19.5	1.4	22.6	10.8	20.1	13.1		44	10.3	1.8	1	13.1	2.3	6.5	11.5	20.3

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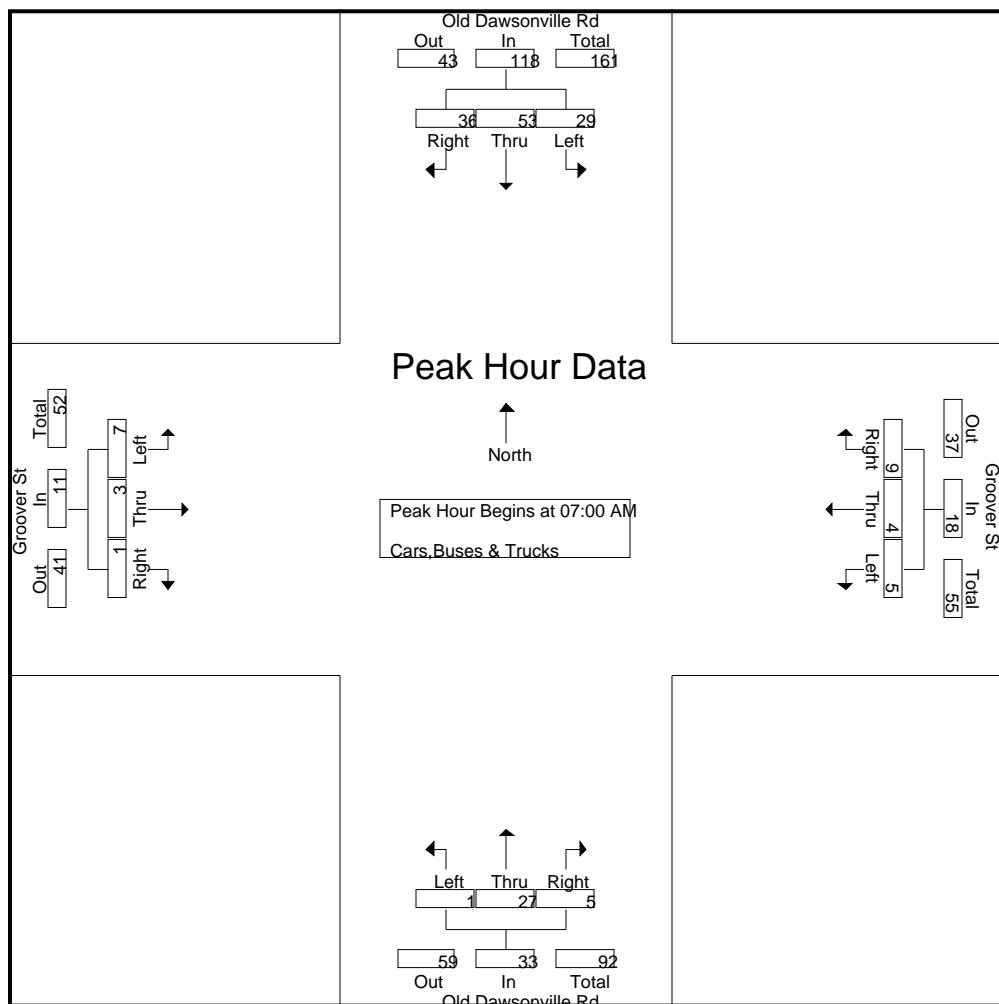
2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Groover St @ Old Dawsonville Rd
7-9 am | 4-6 pm

File Name : 20210398
Site Code : 20210398
Start Date : 11/30/2021
Page No : 2

	Old Dawsonville Rd Northbound				Old Dawsonville Rd Southbound				Groover St Eastbound				Groover St Westbound				
	Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
07:00 AM	0	8	1	9	8	20	4	32	3	1	0	4	0	1	3	4	49
07:15 AM	0	6	0	6	7	14	12	33	1	1	0	2	1	0	2	3	44
07:30 AM	0	9	2	11	7	11	16	34	3	1	0	4	1	1	2	4	53
07:45 AM	1	4	2	7	7	8	4	19	0	0	1	1	3	2	2	7	34
Total Volume	1	27	5	33	29	53	36	118	7	3	1	11	5	4	9	18	180
% App. Total	3	81.8	15.2		24.6	44.9	30.5		63.6	27.3	9.1		27.8	22.2	50		
PHF	.250	.750	.625	.750	.906	.663	.563	.868	.583	.750	.250	.688	.417	.500	.750	.643	.849



A & R Engineering, Inc.

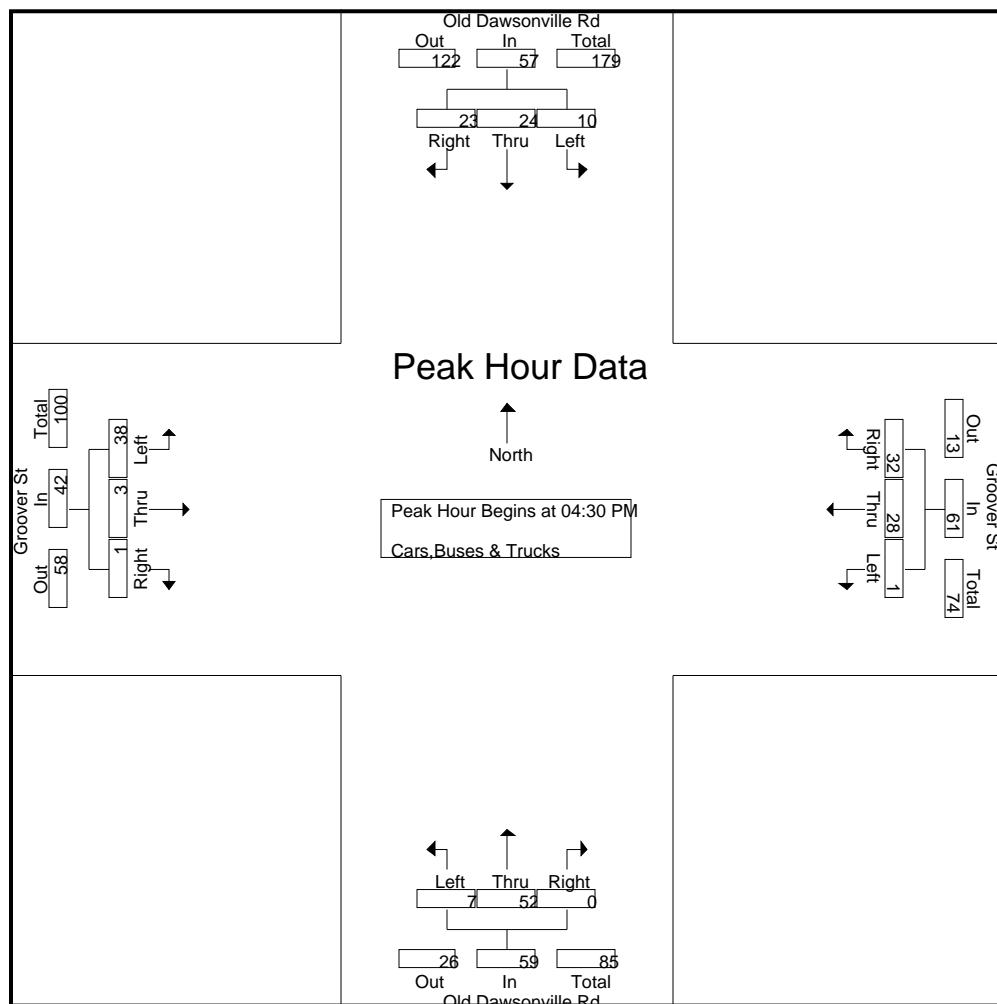
2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA

Groover St @ Old Dawsonville Rd
7-9 am | 4-6 pm

File Name : 20210398
Site Code : 20210398
Start Date : 11/30/2021
Page No : 3

	Old Dawsonville Rd Northbound				Old Dawsonville Rd Southbound				Groover St Eastbound				Groover St Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	2	15	0	17	6	6	5	17	12	1	0	13	0	6	6	12	59
04:45 PM	2	13	0	15	3	7	4	14	6	0	1	7	0	4	9	13	49
05:00 PM	1	15	0	16	1	3	5	9	13	2	0	15	0	6	9	15	55
05:15 PM	2	9	0	11	0	8	9	17	7	0	0	7	1	12	8	21	56
Total Volume	7	52	0	59	10	24	23	57	38	3	1	42	1	28	32	61	219
% App. Total	11.9	88.1	0		17.5	42.1	40.4		90.5	7.1	2.4		1.6	45.9	52.5		
PHF	.875	.867	.000	.868	.417	.750	.639	.838	.731	.375	.250	.700	.250	.583	.889	.726	.928



A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA
Old Dawsonville Rd @ William Ct
7-9 am | 12-2 pm | 4-6 pm

File Name : 20210399
Site Code : 20210399
Start Date : 11/30/2021
Page No : 1

Groups Printed- Cars,Buses & Trucks

	Old Dawsonville Rd Northbound				Old Dawsonville Rd Southbound				William Ct Eastbound				Farmer's Crossing Drwy Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	5	1	6	0	31	0	31	0	0	0	0	1	0	0	0	38
07:15 AM	1	12	0	13	0	35	0	35	1	0	2	3	0	0	0	0	51
07:30 AM	0	10	0	10	0	26	0	26	0	0	1	1	0	0	0	0	37
07:45 AM	0	9	0	9	1	27	1	29	0	0	1	1	0	0	0	0	39
Total	1	36	1	38	1	119	1	121	1	0	4	5	1	0	0	1	165
08:00 AM	0	9	2	11	1	23	0	24	1	0	0	1	2	0	1	3	39
08:15 AM	0	10	1	11	1	25	0	26	1	0	0	1	1	0	1	2	40
08:30 AM	0	8	4	12	1	17	0	18	0	0	0	0	2	0	1	3	33
08:45 AM	0	9	2	11	1	18	0	19	0	0	1	1	2	0	1	3	34
Total	0	36	9	45	4	83	0	87	2	0	1	3	7	0	4	11	146
09:00 AM	0	17	2	19	0	16	0	16	0	0	0	0	2	0	0	2	37
09:15 AM	0	13	2	15	0	15	0	15	0	0	0	0	2	0	0	2	32
09:30 AM	0	12	3	15	0	15	0	15	0	0	0	0	1	0	1	2	32
09:45 AM	0	12	3	15	1	16	0	17	0	0	0	0	2	0	0	2	34
Total	0	54	10	64	1	62	0	63	0	0	0	0	7	0	1	8	135
10:00 AM	0	18	3	21	0	20	0	20	0	0	0	0	4	0	0	4	45
10:15 AM	2	10	4	16	0	12	0	12	1	0	2	3	5	0	0	5	36
10:30 AM	1	12	4	17	1	17	0	18	0	0	0	0	3	0	1	4	39
10:45 AM	1	11	3	15	0	15	0	15	0	0	0	0	4	0	0	4	34
Total	4	51	14	69	1	64	0	65	1	0	2	3	16	0	1	17	154
11:00 AM	1	12	3	16	0	14	0	14	0	0	0	0	5	0	0	5	35
11:15 AM	0	14	5	19	1	16	0	17	0	0	0	0	3	0	0	3	39
11:30 AM	1	13	4	18	0	19	0	19	0	0	3	3	4	0	0	4	44
11:45 AM	0	13	3	16	0	17	0	17	0	0	0	0	3	0	0	3	36
Total	2	52	15	69	1	66	0	67	0	0	3	3	15	0	0	15	154
12:00 PM	0	19	0	19	2	18	1	21	0	0	0	0	1	0	0	1	41
12:15 PM	2	13	1	16	2	11	0	13	1	0	2	3	1	0	0	1	33
12:30 PM	0	22	1	23	0	13	0	13	1	0	1	2	0	0	0	0	38
12:45 PM	1	12	0	13	0	13	0	13	1	0	0	1	0	0	0	0	27
Total	3	66	2	71	4	55	1	60	3	0	3	6	2	0	0	2	139
01:00 PM	0	19	0	19	0	17	0	17	0	0	1	1	0	0	0	0	37
01:15 PM	0	12	0	12	0	13	0	13	0	0	0	0	0	0	0	0	25
01:30 PM	0	9	0	9	0	13	0	13	0	0	0	0	0	0	0	0	22
01:45 PM	1	15	0	16	0	16	0	16	0	0	1	1	0	0	0	0	33
Total	1	55	0	56	0	59	0	59	0	0	2	2	0	0	0	0	117
02:00 PM	1	14	0	15	0	15	0	15	0	0	0	0	0	0	0	0	30
02:15 PM	0	10	0	10	0	13	0	13	1	0	1	2	0	0	0	0	25

A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA
Old Dawsonville Rd @ William Ct
7-9 am | 12-2 pm | 4-6 pm

File Name : 20210399
Site Code : 20210399
Start Date : 11/30/2021
Page No : 2

Groups Printed- Cars,Buses & Trucks

Start Time	Old Dawsonville Rd Northbound				Old Dawsonville Rd Southbound				William Ct Eastbound				Farmer's Crossing Drwy Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
02:30 PM	2	13	0	15	0	12	0	12	1	0	0	1	0	0	0	0	28
02:45 PM	1	10	1	12	0	14	1	15	0	0	2	2	0	0	0	0	29
Total	4	47	1	52	0	54	1	55	2	0	3	5	0	0	0	0	112
03:00 PM	0	28	0	28	0	18	0	18	0	0	1	1	0	0	1	1	48
03:15 PM	1	17	0	18	0	18	0	18	0	0	0	0	0	0	0	0	36
03:30 PM	1	21	0	22	1	9	1	11	2	0	0	2	0	0	0	0	35
03:45 PM	0	19	0	19	0	13	0	13	0	0	0	0	0	0	0	0	32
Total	2	85	0	87	1	58	1	60	2	0	1	3	0	0	1	1	151
04:00 PM	1	22	0	23	0	14	0	14	0	0	0	0	0	0	0	0	37
04:15 PM	1	14	0	15	0	15	0	15	1	0	0	1	0	0	0	0	31
04:30 PM	1	27	0	28	0	20	0	20	0	0	0	0	0	0	0	0	48
04:45 PM	1	26	0	27	0	15	0	15	0	0	1	1	0	0	0	0	43
Total	4	89	0	93	0	64	0	64	1	0	1	2	0	0	0	0	159
05:00 PM	0	27	0	27	0	10	0	10	0	0	0	0	0	0	0	0	37
05:15 PM	0	25	0	25	0	10	0	10	0	0	1	1	0	0	0	0	36
05:30 PM	0	22	0	22	0	17	0	17	0	0	1	1	0	0	0	0	40
05:45 PM	2	19	0	21	0	11	0	11	0	0	0	0	0	0	0	0	32
Total	2	93	0	95	0	48	0	48	0	0	2	2	0	0	0	0	145
06:00 PM	1	27	0	28	0	10	1	11	0	0	0	0	0	0	0	0	39
06:15 PM	4	19	0	23	0	8	1	9	1	0	0	1	0	0	0	0	33
06:30 PM	0	18	0	18	0	9	0	9	0	0	1	1	0	0	0	0	28
06:45 PM	1	17	0	18	0	4	0	4	1	0	0	1	0	0	0	0	23
Total	6	81	0	87	0	31	2	33	2	0	1	3	0	0	0	0	123
Grand Total	29	745	52	826	13	763	6	782	14	0	23	37	48	0	7	55	1700
Apprch %	3.5	90.2	6.3		1.7	97.6	0.8		37.8	0	62.2		87.3	0	12.7		
Total %	1.7	43.8	3.1	48.6	0.8	44.9	0.4	46	0.8	0	1.4	2.2	2.8	0	0.4	3.2	

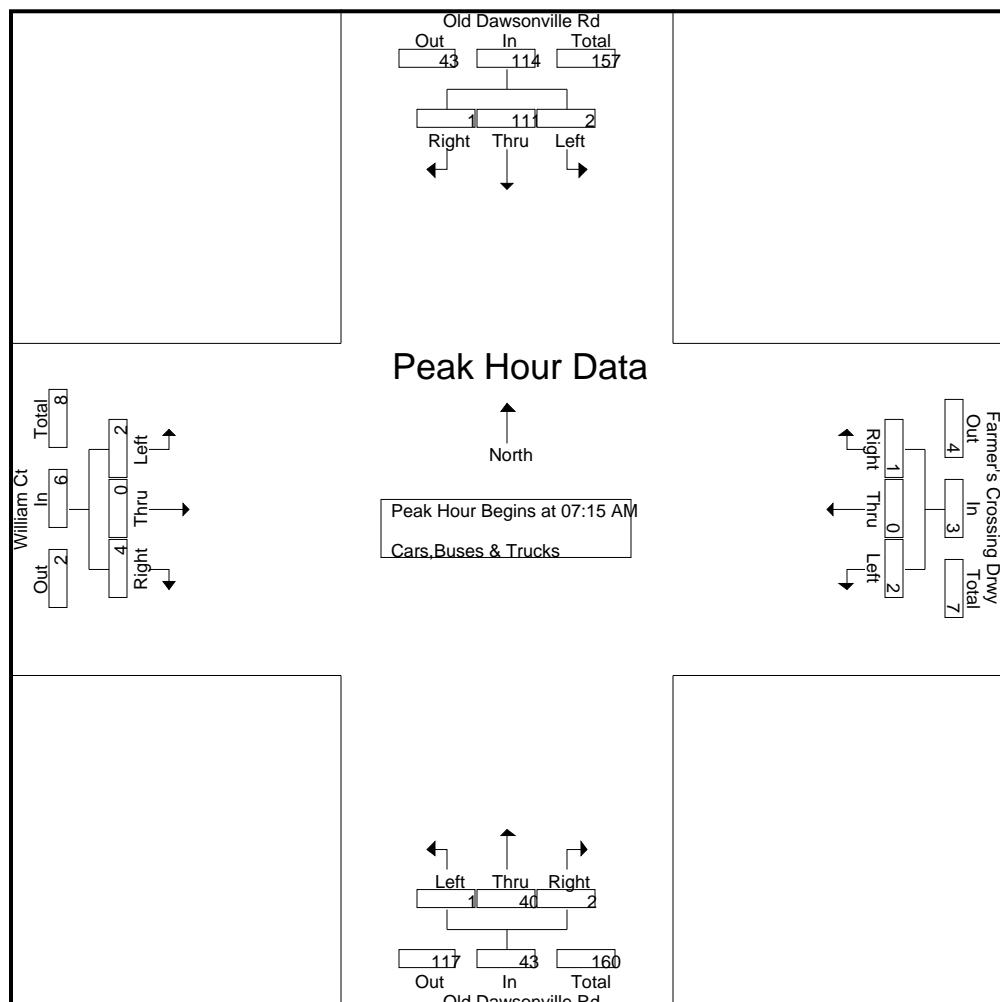
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA
Old Dawsonville Rd @ William Ct
7-9 am | 12-2 pm | 4-6 pm

File Name : 20210399
Site Code : 20210399
Start Date : 11/30/2021
Page No : 3

	Old Dawsonville Rd Northbound				Old Dawsonville Rd Southbound				William Ct Eastbound				Farmer's Crossing Drwy Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	1	12	0	13	0	35	0	35	1	0	2	3	0	0	0	0	51
07:30 AM	0	10	0	10	0	26	0	26	0	0	1	1	0	0	0	0	37
07:45 AM	0	9	0	9	1	27	1	29	0	0	1	1	0	0	0	0	39
08:00 AM	0	9	2	11	1	23	0	24	1	0	0	1	2	0	1	3	39
Total Volume	1	40	2	43	2	111	1	114	2	0	4	6	2	0	1	3	166
% App. Total	2.3	93	4.7		1.8	97.4	0.9		33.3	0	66.7		66.7	0	33.3		
PHF	.250	.833	.250	.827	.500	.793	.250	.814	.500	.000	.500	.500	.250	.000	.250	.250	.814



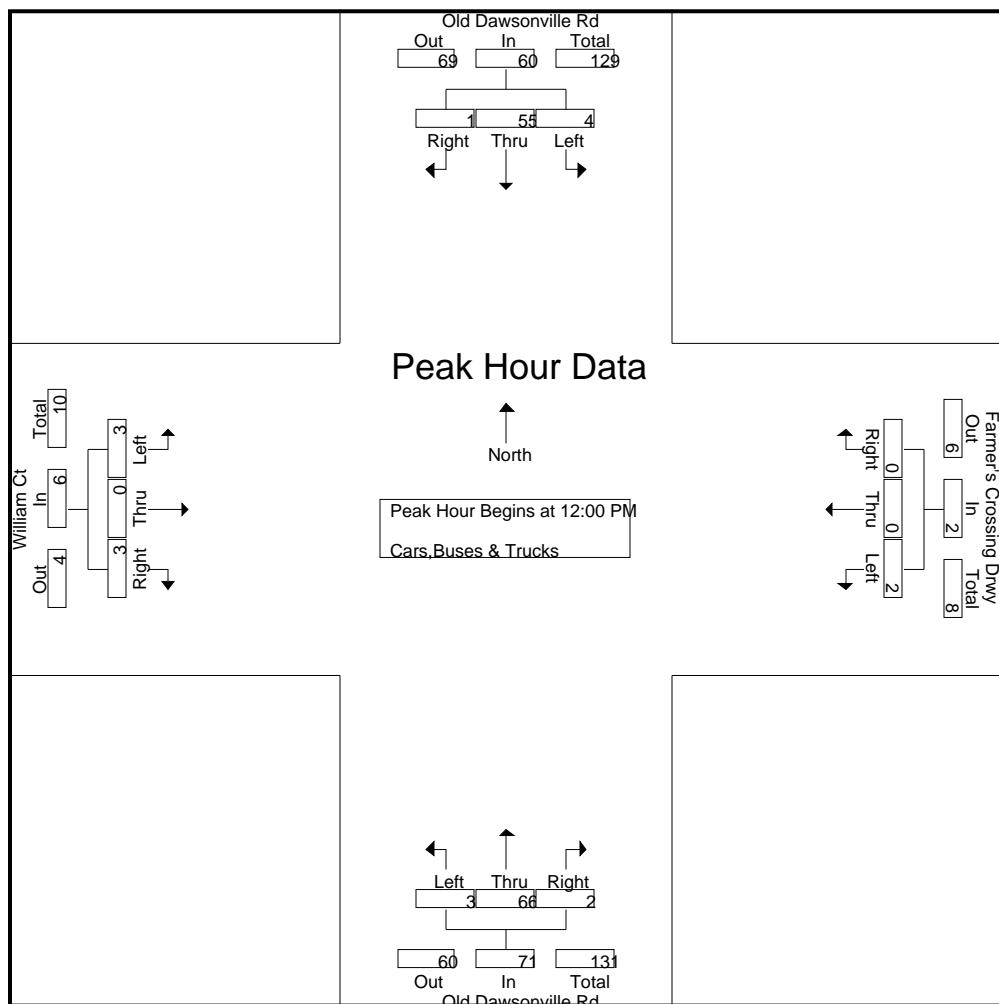
A & R Engineering, Inc.

2160 Kingston Court, Suite 'O'
Marietta, GA 30067

TMC DATA
Old Dawsonville Rd @ William Ct
7-9 am | 12-2 pm | 4-6 pm

File Name : 20210399
Site Code : 20210399
Start Date : 11/30/2021
Page No : 4

	Old Dawsonville Rd Northbound				Old Dawsonville Rd Southbound				William Ct Eastbound				Farmer's Crossing Drwy Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	19	0	19	2	18	1	21	0	0	0	0	1	0	0	1	41
12:15 PM	2	13	1	16	2	11	0	13	1	0	2	3	1	0	0	0	33
12:30 PM	0	22	1	23	0	13	0	13	1	0	1	2	0	0	0	0	38
12:45 PM	1	12	0	13	0	13	0	13	1	0	0	1	0	0	0	0	27
Total Volume	3	66	2	71	4	55	1	60	3	0	3	6	2	0	0	2	139
% App. Total	4.2	93	2.8		6.7	91.7	1.7		50	0	50		100	0	0		
PHF	.375	.750	.500	.772	.500	.764	.250	.714	.750	.000	.375	.500	.500	.000	.000	.500	.848



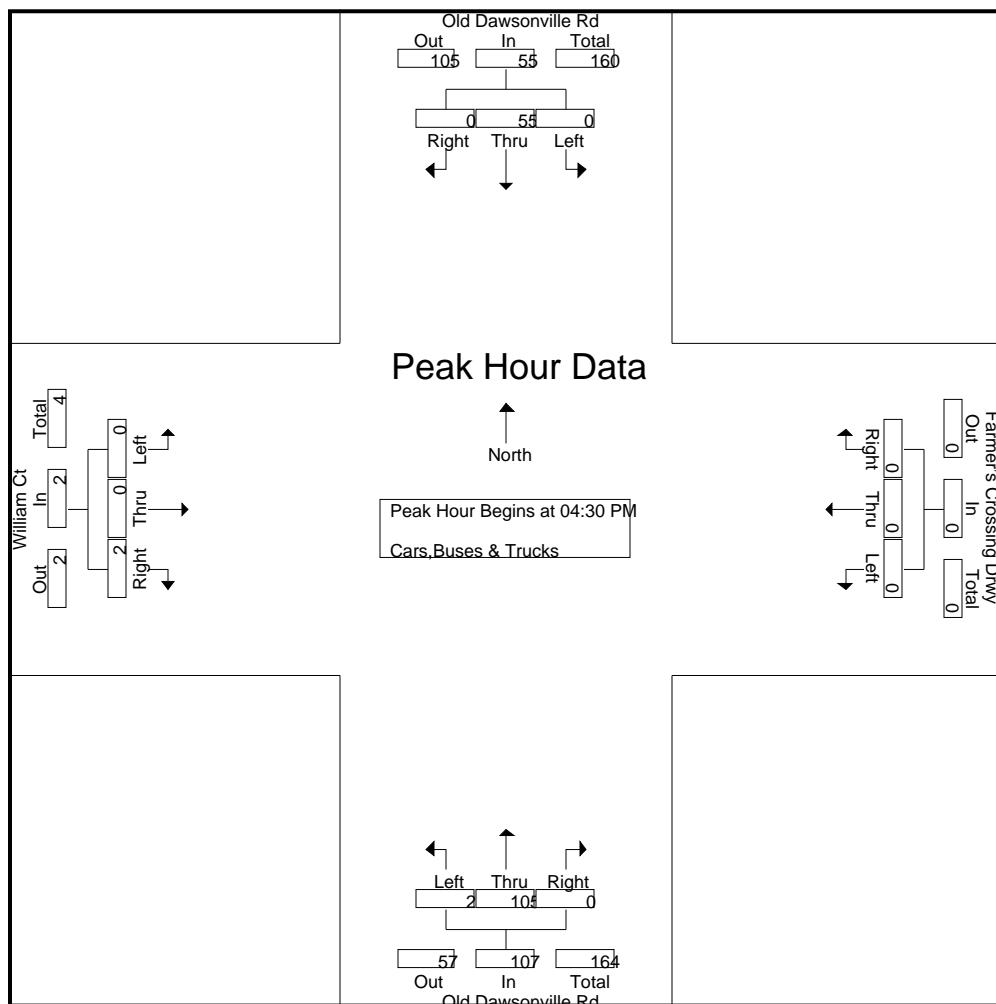
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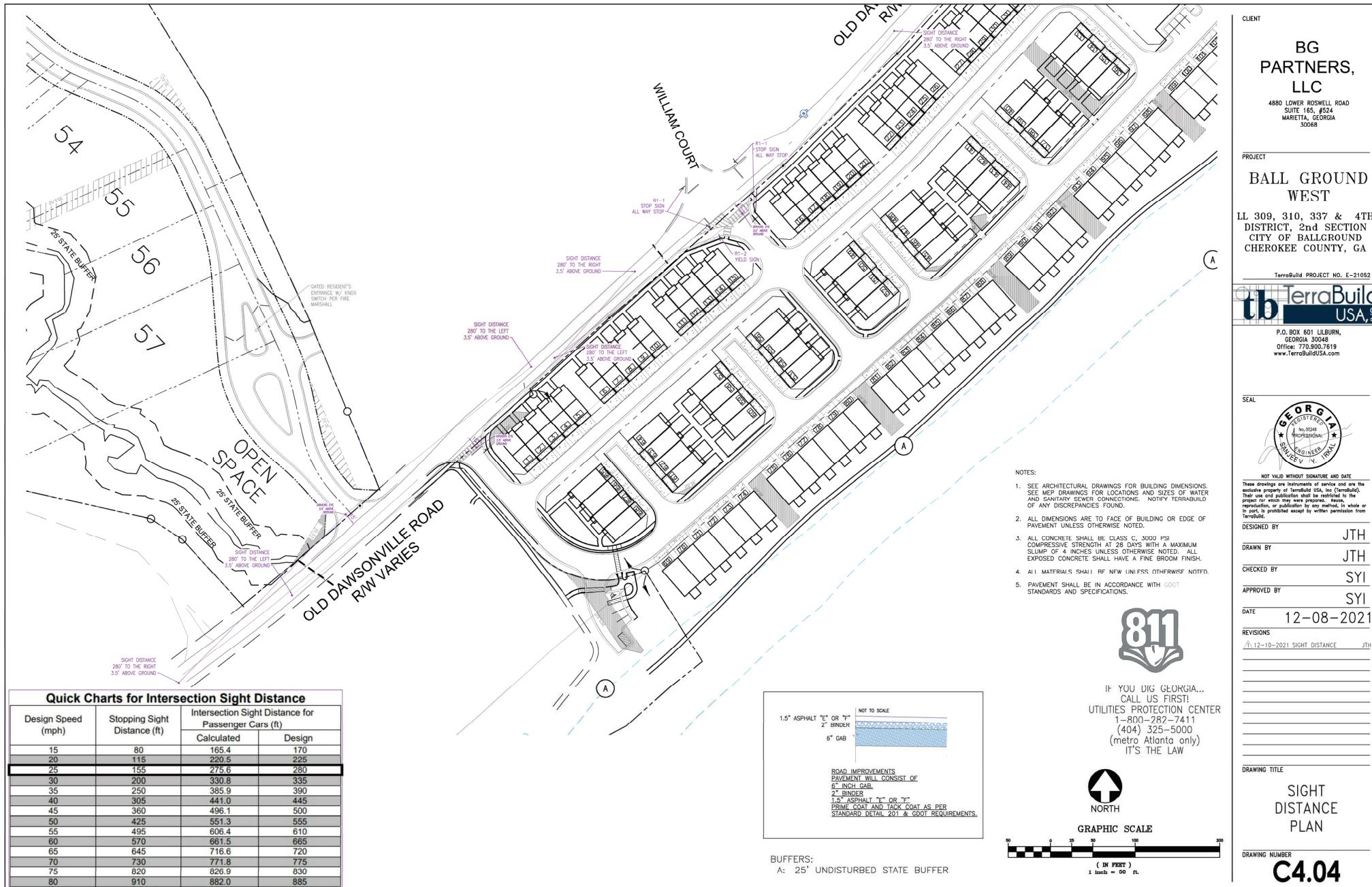
TMC DATA
Old Dawsonville Rd @ William Ct
7-9 am | 12-2 pm | 4-6 pm

File Name : 20210399
Site Code : 20210399
Start Date : 11/30/2021
Page No : 5

	Old Dawsonville Rd Northbound				Old Dawsonville Rd Southbound				William Ct Eastbound				Farmer's Crossing Drwy Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	27	0	28	0	20	0	20	0	0	0	0	0	0	0	0	48
04:45 PM	1	26	0	27	0	15	0	15	0	0	1	1	0	0	0	0	43
05:00 PM	0	27	0	27	0	10	0	10	0	0	0	0	0	0	0	0	37
05:15 PM	0	25	0	25	0	10	0	10	0	0	1	1	0	0	0	0	36
Total Volume	2	105	0	107	0	55	0	55	0	0	2	2	0	0	0	0	164
% App. Total	1.9	98.1	0	0	0	100	0	0	0	0	100	0	0	0	0	0	
PHF	.500	.972	.000	.955	.000	.688	.000	.688	.000	.000	.500	.500	.000	.000	.000	.854	

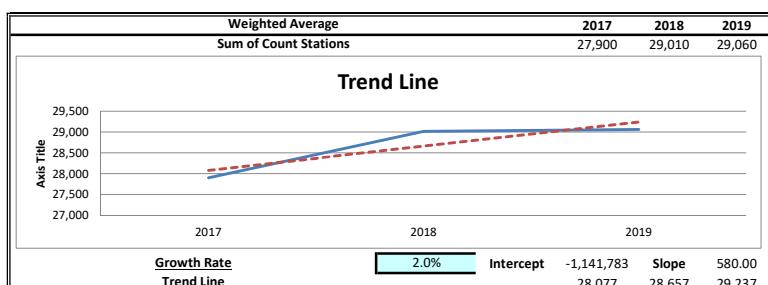
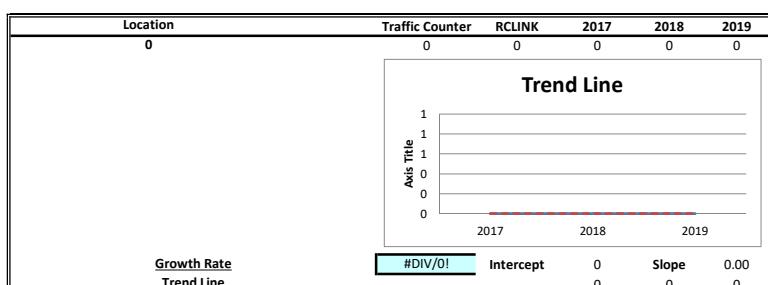
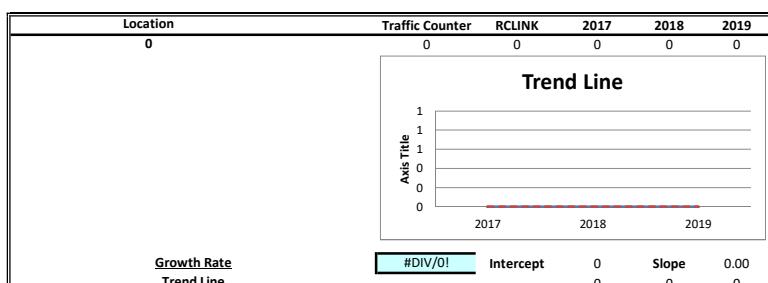
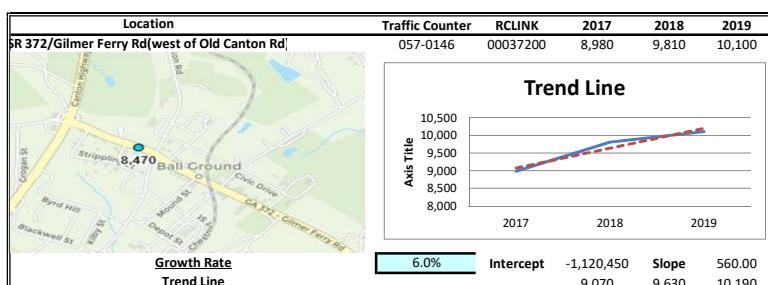
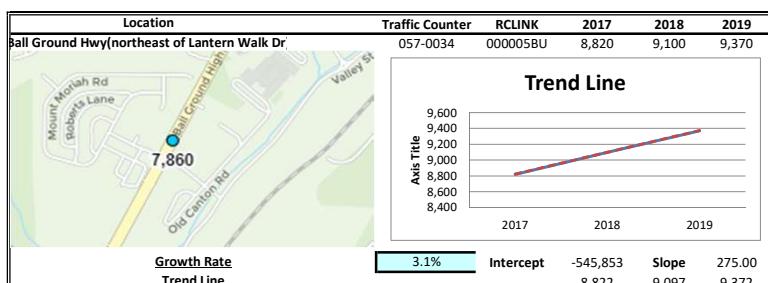
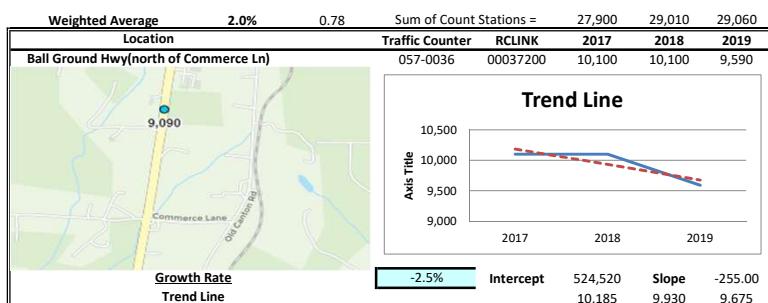


SIGHT DISTANCE PROFILES



LINEAR REGRESSION OF DAILY TRAFFIC

Location	Growth Rate	R Squared	Station ID	Route	2017	2018	2019
Ball Ground Hwy(north of Comi	-2.5%	0.75	057-0036	00037200	10,100	10,100	9,590
Ball Ground Hwy(northeast of L	3.1%	1.00	057-0034	000005BU	8,820	9,100	9,370
SR 372/Gilmer Ferry Rd(west of	6.0%	0.93	057-0146	00037200	8,980	9,810	10,100



EXISTING INTERSECTION ANALYSIS

Intersection

Intersection Delay, s/veh 7.5
Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	3	1	5	4	9	1	27	5	29	53	36
Future Vol, veh/h	7	3	1	5	4	9	1	27	5	29	53	36
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	1	6	5	11	1	32	6	34	62	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach												
Opposing Approach	WB			EB			NB			SB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	7.5			7.2			7.2			7.6		
HCM LOS	A			A			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	64%	28%	25%
Vol Thru, %	82%	27%	22%	45%
Vol Right, %	15%	9%	50%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	11	18	118
LT Vol	1	7	5	29
Through Vol	27	3	4	53
RT Vol	5	1	9	36
Lane Flow Rate	39	13	21	139
Geometry Grp	1	1	1	1
Degree of Util (X)	0.043	0.016	0.024	0.15
Departure Headway (Hd)	4.014	4.331	4.007	3.89
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	818	883	922
Service Time	2.055	2.403	2.077	1.915
HCM Lane V/C Ratio	0.044	0.016	0.024	0.151
HCM Control Delay	7.2	7.5	7.2	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0.1	0.5

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	Y	Y	Y
Traffic Vol, veh/h	1	4	1	36	119	1
Future Vol, veh/h	1	4	1	36	119	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	1	46	151	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	199	151	152	0	-	0
Stage 1	151	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	790	895	1429	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	789	895	1429	-	-	-
Mov Cap-2 Maneuver	789	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	0.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1429	-	872	-	-	
HCM Lane V/C Ratio	0.001	-	0.007	-	-	
HCM Control Delay (s)	7.5	0	9.2	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection

Intersection Delay, s/veh 7.4

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	3	1	1	28	32	7	52	0	10	24	23
Future Vol, veh/h	38	3	1	1	28	32	7	52	0	10	24	23
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	3	1	1	30	34	8	56	0	11	26	25
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach												
Opposing Approach	WB			EB			NB			SB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	7.7			7.2			7.6			7.3		
HCM LOS	A			A			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	90%	2%	18%
Vol Thru, %	88%	7%	46%	42%
Vol Right, %	0%	2%	52%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	42	61	57
LT Vol	7	38	1	10
Through Vol	52	3	28	24
RT Vol	0	1	32	23
Lane Flow Rate	63	45	66	61
Geometry Grp	1	1	1	1
Degree of Util (X)	0.074	0.055	0.071	0.068
Departure Headway (Hd)	4.196	4.366	3.871	3.966
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	846	812	913	892
Service Time	2.263	2.44	1.946	2.037
HCM Lane V/C Ratio	0.074	0.055	0.072	0.068
HCM Control Delay	7.6	7.7	7.2	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.2	0.2

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	Y
Traffic Vol, veh/h	0	2	2	105	55	0
Future Vol, veh/h	0	2	2	105	55	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	2	124	65	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	193	65	65	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	796	999	1537	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	795	999	1537	-	-	-
Mov Cap-2 Maneuver	795	-	-	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.6	0.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1537	-	999	-	-	
HCM Lane V/C Ratio	0.002	-	0.002	-	-	
HCM Control Delay (s)	7.3	0	8.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

**FUTURE “NO-BUILD” INTERSECTION
ANALYSIS**

Intersection

Intersection Delay, s/veh 7.9
Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	4	1	43	7	23	1	40	18	35	81	39
Future Vol, veh/h	8	4	1	43	7	23	1	40	18	35	81	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	4	1	46	8	25	1	43	19	38	87	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach												
Opposing Approach	WB			EB			NB			SB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	7.7			7.8			7.5			8.1		
HCM LOS	A			A			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	62%	59%	23%
Vol Thru, %	68%	31%	10%	52%
Vol Right, %	31%	8%	32%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	13	73	155
LT Vol	1	8	43	35
Through Vol	40	4	7	81
RT Vol	18	1	23	39
Lane Flow Rate	63	14	78	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.071	0.018	0.095	0.187
Departure Headway (Hd)	4.043	4.597	4.375	4.037
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	871	783	824	878
Service Time	2.139	2.599	2.376	2.111
HCM Lane V/C Ratio	0.072	0.018	0.095	0.19
HCM Control Delay	7.5	7.7	7.8	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.3	0.7

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↓			↑↓			↑↓			↑↓		↑↓
Traffic Vol, veh/h	1	0	4	13	0	5	1	53	6	2	131	1
Future Vol, veh/h	1	0	4	13	0	5	1	53	6	2	131	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	92	95	92	92	92	95	95	92	92	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	4	14	0	5	1	56	7	2	138	1

Major/Minor	Minor2	Minor1			Major1			Major2			
Conflicting Flow All	206	207	138	207	205	60	139	0	0	63	0
Stage 1	142	142	-	62	62	-	-	-	-	-	-
Stage 2	64	65	-	145	143	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-
Pot Cap-1 Maneuver	752	690	910	751	691	1005	1445	-	-	1540	-
Stage 1	861	779	-	949	843	-	-	-	-	-	-
Stage 2	947	841	-	858	779	-	-	-	-	-	-
Platoon blocked, %											
Mov Cap-1 Maneuver	747	689	910	746	690	1005	1445	-	-	1540	-
Mov Cap-2 Maneuver	747	689	-	746	690	-	-	-	-	-	-
Stage 1	860	778	-	948	842	-	-	-	-	-	-
Stage 2	941	840	-	853	778	-	-	-	-	-	-

Approach	EB	WB			NB			SB		
HCM Control Delay, s	9.2	9.6			0.1			0.1		
HCM LOS	A	A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	E BLn1	W BLn1	SBL	SBT	SBR		
Capacity (veh/h)	1445	-	-	872	804	1540	-	-		
HCM Lane V/C Ratio	0.001	-	-	0.006	0.024	0.001	-	-		
HCM Control Delay (s)	7.5	0	-	9.2	9.6	7.3	0	-		
HCM Lane LOS	A	A	-	A	A	A	A	-		
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-		

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	2	19	6	1	17
Future Vol, veh/h	13	2	19	6	1	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	2	21	7	1	18
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	45	25	0	0	28	0
Stage 1	25	-	-	-	-	-
Stage 2	20	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	965	1051	-	-	1585	-
Stage 1	998	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	964	1051	-	-	1585	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.8	0	0.4			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR	WBL	Ln1	SBL	SBT
Capacity (veh/h)	-	-	975	1585	-	-
HCM Lane V/C Ratio	-	-	0.017	0.001	-	-
HCM Control Delay (s)	-	-	8.8	7.3	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-	-

Intersection

Intersection Delay, s/veh 8
Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	6	1	27	32	43	7	80	43	25	44	25
Future Vol, veh/h	41	6	1	27	32	43	7	80	43	25	44	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	6	1	28	34	45	7	84	45	26	46	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach												
Opposing Approach	WB			WB			NB			SB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	8.1			8			8			7.9		
HCM LOS	A			A			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	85%	26%	27%
Vol Thru, %	62%	12%	31%	47%
Vol Right, %	33%	2%	42%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	48	102	94
LT Vol	7	41	27	25
Through Vol	80	6	32	44
RT Vol	43	1	43	25
Lane Flow Rate	137	51	107	99
Geometry Grp	1	1	1	1
Degree of Util (X)	0.16	0.066	0.129	0.119
Departure Headway (Hd)	4.218	4.735	4.316	4.336
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	853	758	833	829
Service Time	2.232	2.753	2.331	2.352
HCM Lane V/C Ratio	0.161	0.067	0.128	0.119
HCM Control Delay	8	8.1	8	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.2	0.4	0.4

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↓			↑↓			↑↓			↑↓		↑↓
Traffic Vol, veh/h	0	0	2	10	0	4	2	122	13	5	74	0
Future Vol, veh/h	0	0	2	10	0	4	2	122	13	5	74	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	92	94	92	92	92	94	94	92	92	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	2	11	0	4	2	130	14	5	79	0

Major/Minor	Minor2	Minor1			Major1			Major2			
Conflicting Flow All	232	237	79	231	230	137	79	0	0	144	0
Stage 1	89	89	-	141	141	-	-	-	-	-	-
Stage 2	143	148	-	90	89	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-
Pot Cap-1 Maneuver	723	664	981	724	670	911	1519	-	-	1438	-
Stage 1	918	821	-	862	780	-	-	-	-	-	-
Stage 2	860	775	-	917	821	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-
Mov Cap-1 Maneuver	716	661	981	720	667	911	1519	-	-	1438	-
Mov Cap-2 Maneuver	716	661	-	720	667	-	-	-	-	-	-
Stage 1	917	818	-	861	779	-	-	-	-	-	-
Stage 2	855	774	-	911	818	-	-	-	-	-	-

Approach	EB	WB			NB			SB		
HCM Control Delay, s	8.7	9.8			0.1			0.5		
HCM LOS	A	A								

Minor Lane/Major Mvmt	NBL	NBT	NBR	E BLn1	W BLn1	SBL	SBT	SBR
Capacity (veh/h)	1519	-	-	981	766	1438	-	-
HCM Lane V/C Ratio	0.001	-	-	0.002	0.02	0.004	-	-
HCM Control Delay (s)	7.4	0	-	8.7	9.8	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		Y		Y	
Traffic Vol, veh/h	10	2	22	13	2	24
Future Vol, veh/h	10	2	22	13	2	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	2	24	14	2	26
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	61	31	0	0	38	0
Stage 1	31	-	-	-	-	-
Stage 2	30	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	945	1043	-	-	1572	-
Stage 1	992	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	944	1043	-	-	1572	-
Mov Cap-2 Maneuver	944	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.8	0	0.6			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR	WBL	Ln1	SBL	SBT
Capacity (veh/h)	-	-	959	1572	-	-
HCM Lane V/C Ratio	-	-	0.014	0.001	-	-
HCM Control Delay (s)	-	-	8.8	7.3	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-

FUTURE “BUILD” INTERSECTION ANALYSIS

Intersection

Intersection Delay, s/veh 8.1

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	4	1	43	7	23	1	50	18	35	110	41
Future Vol, veh/h	9	4	1	43	7	23	1	50	18	35	110	41
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	4	1	46	8	25	1	54	19	38	118	44
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach												
Opposing Approach	WB			EB			NB			SB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	7.8			8			7.6			8.4		
HCM LOS	A			A			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	64%	59%	19%
Vol Thru, %	72%	29%	10%	59%
Vol Right, %	26%	7%	32%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	14	73	186
LT Vol	1	9	43	35
Through Vol	50	4	7	110
RT Vol	18	1	23	41
Lane Flow Rate	74	15	78	200
Geometry Grp	1	1	1	1
Degree of Util (X)	0.087	0.02	0.098	0.226
Departure Headway (Hd)	4.202	4.709	4.476	4.059
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	856	763	805	872
Service Time	2.21	2.717	2.482	2.146
HCM Lane V/C Ratio	0.086	0.02	0.097	0.229
HCM Control Delay	7.6	7.8	8	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.1	0.3	0.9

Intersection

Intersection Delay, s/veh 8.1

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	4	13	0	5	1	61	6	2	134	1
Future Vol, veh/h	1	0	4	13	0	5	1	61	6	2	134	1
Peak Hour Factor	0.95	0.92	0.95	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	4	14	0	5	1	64	7	2	141	1
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	1
Approach												
Opposing Approach	WB			WB			NB			SB		
Opposing Lanes	1			1			2			2		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	2			2			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	2			2			1			1		
HCM Control Delay	7.1			7.5			7.7			8.4		
HCM LOS	A			A			A			A		

Lane	NBLn1	NBLn2	EBln1	WBln1	SBln1	SBln2
Vol Left, %	2%	0%	20%	72%	1%	0%
Vol Thru, %	98%	0%	0%	0%	99%	0%
Vol Right, %	0%	100%	80%	28%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	6	5	18	136	1
LT Vol	1	0	1	13	2	0
Through Vol	61	0	0	0	134	0
RT Vol	0	6	4	5	0	1
Lane Flow Rate	65	7	5	20	143	1
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.084	0.007	0.006	0.024	0.184	0.001
Departure Headway (Hd)	4.655	3.946	4.031	4.433	4.62	3.912
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	767	902	893	812	776	913
Service Time	2.402	1.693	2.032	2.433	2.351	1.643
HCM Lane V/C Ratio	0.085	0.008	0.006	0.025	0.184	0.001
HCM Control Delay	7.8	6.7	7.1	7.5	8.4	6.6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0	0	0.1	0.7	0

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	Y	Y	
Traffic Vol, veh/h	8	30	10	71	155	3
Future Vol, veh/h	8	30	10	71	155	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	33	11	77	168	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	269	170	171	0	-	0
Stage 1	170	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	720	874	1406	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	714	874	1406	-	-	-
Mov Cap-2 Maneuver	714	-	-	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.5	0.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1406	-	835	-	-	
HCM Lane V/C Ratio	0.008	-	0.049	-	-	
HCM Control Delay (s)	7.6	-	9.5	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection

Int Delay, s/veh 2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations	
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Traffic Vol, veh/h	13	2	27	6	1	20
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Future Vol, veh/h	13	2	27	6	1	20
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	0	-	0	-	-	0
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Grade, %	0	-	0	-	-	0
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Peak Hour Factor	92	92	92	92	92	92
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Heavy Vehicles, %	2	2	2	2	2	2
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Mvmt Flow	14	2	29	7	1	22
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Major/Minor	Minor1	Major1	Major2			
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Conflicting Flow All	57	33	0	0	36	0
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Stage 1	33	-	-	-	-	-
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Stage 2	24	-	-	-	-	-
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Critical Hdwy	6.42	6.22	-	-	4.12	-
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Critical Hdwy Stg 1	5.42	-	-	-	-	-
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Critical Hdwy Stg 2	5.42	-	-	-	-	-
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Follow-up Hdwy	3.518	3.318	-	-	2.218	-
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Pot Cap-1 Maneuver	950	1041	-	-	1575	-
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Stage 1	989	-	-	-	-	-
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Stage 2	999	-	-	-	-	-
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Platoon blocked, %	-	-	-	-	-	-
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Mov Cap-1 Maneuver	949	1041	-	-	1575	-
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Mov Cap-2 Maneuver	949	-	-	-	-	-
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Stage 1	989	-	-	-	-	-
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Stage 2	998	-	-	-	-	-
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Approach	WB	NB	SB			
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HCM Control Delay, s	8.8	0	0.3			
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HCM LOS	A					
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Minor Lane/Major Mvmt	NBT	NBR	WBL	Ln1	SBL	SBT
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Capacity (veh/h)	-	-	960	1575	-	-
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HCM Lane V/C Ratio	-	-	0.017	0.001	-	-
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HCM Control Delay (s)	-	-	8.8	7.3	0	-
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HCM Lane LOS	-	-	A	A	A	-
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HCM 95th %tile Q(veh)	-	-	0.1	0	-	-
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Intersection

Intersection Delay, s/veh 8.3
Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	6	1	27	32	43	7	112	43	25	63	26
Future Vol, veh/h	43	6	1	27	32	43	7	112	43	25	63	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	6	1	28	34	45	7	118	45	26	66	27
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach												
Opposing Approach	WB			EB			NB			SB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	8.3			8.2			8.4			8.2		
HCM LOS	A			A			A			A		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	86%	26%	22%
Vol Thru, %	69%	12%	31%	55%
Vol Right, %	27%	2%	42%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	50	102	114
LT Vol	7	43	27	25
Through Vol	112	6	32	63
RT Vol	43	1	43	26
Lane Flow Rate	171	53	107	120
Geometry Grp	1	1	1	1
Degree of Util (X)	0.203	0.071	0.133	0.147
Departure Headway (Hd)	4.293	4.869	4.447	4.401
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	837	736	807	816
Service Time	2.313	2.896	2.47	2.423
HCM Lane V/C Ratio	0.204	0.072	0.133	0.147
HCM Control Delay	8.4	8.3	8.2	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.2	0.5	0.5

Intersection

Intersection Delay, s/veh 8.1

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	2	10	0	4	2	127	13	5	82	0
Future Vol, veh/h	0	0	2	10	0	4	2	127	13	5	82	0
Peak Hour Factor	0.94	0.92	0.94	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	2	11	0	4	2	135	14	5	87	0
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	1
Approach												
Opposing Approach		WB		EB			SB			NB		
Opposing Lanes		1		1			2			2		
Conflicting Approach Left		SB		NB			EB			WB		
Conflicting Lanes Left		2		2			1			1		
Conflicting Approach Right		NB		SB			WB			EB		
Conflicting Lanes Right		2		2			1			1		
HCM Control Delay		6.9		7.6			8.2			8.1		
HCM LOS		A		A			A			A		

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	0%	0%	71%	6%	0%
Vol Thru, %	98%	0%	0%	0%	94%	100%
Vol Right, %	0%	100%	100%	29%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	13	2	14	87	0
LT Vol	2	0	0	10	5	0
Through Vol	127	0	0	0	82	0
RT Vol	0	13	2	4	0	0
Lane Flow Rate	137	14	2	15	93	0
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.176	0.015	0.002	0.019	0.12	0
Departure Headway (Hd)	4.618	3.91	3.932	4.49	4.668	4.639
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	777	914	915	802	765	0
Service Time	2.35	1.641	1.933	2.49	2.409	2.38
HCM Lane V/C Ratio	0.176	0.015	0.002	0.019	0.122	0
HCM Control Delay	8.3	6.7	6.9	7.6	8.1	7.4
HCM Lane LOS	A	A	A	A	A	N
HCM 95th-tile Q	0.6	0	0	0.1	0.4	0

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	Y	Y	
Traffic Vol, veh/h	5	20	34	164	94	8
Future Vol, veh/h	5	20	34	164	94	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	22	37	178	102	9
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	359	107	111	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	640	947	1479	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	790	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	624	947	1479	-	-	-
Mov Cap-2 Maneuver	624	-	-	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	790	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.3	1.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1479	-	858	-	-	
HCM Lane V/C Ratio	0.025	-	0.032	-	-	
HCM Control Delay (s)	7.5	-	9.3	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	2	27	13	2	32
Future Vol, veh/h	10	2	27	13	2	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	2	29	14	2	35
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	75	36	0	0	43	0
Stage 1	36	-	-	-	-	-
Stage 2	39	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	928	1037	-	-	1566	-
Stage 1	986	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	927	1037	-	-	1566	-
Mov Cap-2 Maneuver	927	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.9	0	0.4			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR	WBL	Ln1	SBL	SBT
Capacity (veh/h)	-	-	944	1566	-	-
HCM Lane V/C Ratio	-	-	0.014	0.001	-	-
HCM Control Delay (s)	-	-	8.9	7.3	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-	-

TRAFFIC VOLUME WORKSHEETS

21-212 TIS Request for Old Dawsonville Road, Ball Ground, GA
Traffic Volumes

A&R Engineering
 December 2021

1. Old Dawsonville @ Groover

A.M. Peak Hour

Condition	Old Dawsonville Road			Old Dawsonville Road			Groover Street			Groover Street		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2021 Counts:	1	27	5	33	29	53	36	118	7	3	1	11
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
Farmer's Crossing Townhomes Trips:	0	11	0	11	0	25	1	26	1	0	0	0
Farmer's Crossing Single family Trips:	0	0	13	13	4	0	0	4	0	1	0	1
Total Farmer's Crossing Trips:	0	11	13	24	4	25	1	30	1	1	0	2
No-Build 2024 Volumes:	1	40	18	59	35	81	39	155	8	4	1	13
Total Fitts Trips:	0	10	0	10	0	29	2	31	1	0	0	1
Future 2024 Traffic Volumes:	1	50	18	69	35	110	41	186	9	4	1	14
									43	7	23	73

P.M. Peak Hour

Condition	Old Dawsonville Road			Old Dawsonville Road			Groover Street			Groover Street		
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2021 Counts:	7	52	0	59	10	24	23	57	38	3	1	42
Growth Factor (%):	2	2	2		2	2	2		2	2	2	
Farmer's Crossing Townhomes Trips:	0	25	0	25	0	19	1	20	1	0	0	1
Farmer's Crossing Single family Trips:	0	0	43	43	14	0	0	14	0	3	0	3
Total Farmer's Crossing Trips:	0	25	43	68	14	19	1	34	1	3	0	4
No-Build 2024 Volumes:	7	80	43	130	25	44	25	94	41	6	1	48
Total Fitts Trips:	0	32	0	32	0	19	1	20	2	0	0	2
Future 2024 Traffic Volumes:	7	112	43	162	25	63	26	114	43	6	1	50
									27	32	43	102

Number of Years = 3
 Growth Factor (%) = 2

21-212 TIS Request for Old Dawsonville Road, Ball Ground, GA
Traffic Volumes

A&R Engineering
December 2021

2. Old Dawsonville @ William

A.M. Peak Hour

Condition	Old Dawsonville Road			Old Dawsonville Road			William Court			Farmer's Crossing Northern Driveway Westbound		
	Northbound			Southbound			Eastbound					
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2021 Counts:	1	36	0	37	0	119	1	120	1	0	4	5
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
Farmer's Crossing Townhomes Trips:	0	2	6	8	2	1	0	3	0	0	0	5
Farmer's Crossing Single family Trips:	0	13	0	13	0	4	0	4	0	0	0	0
Total Farmer's Crossing Trips:	0	15	6	21	2	5	0	7	0	0	0	18
No-Build 2024 Volumes:	1	53	6	60	2	131	1	134	1	0	4	5
Total Fitts Trips:	0	8	0	8	0	3	0	3	0	0	0	0
Future 2024 Traffic Volumes:	1	61	6	68	2	134	1	137	1	0	4	5

P.M. Peak Hour

Condition	Old Dawsonville Road			Old Dawsonville Road			William Court			Farmer's Crossing Northern Driveway Westbound		
	Northbound			Southbound			Eastbound					
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2021 Counts:	2	105	0	107	0	55	0	55	0	0	2	2
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
Farmer's Crossing Townhomes Trips:	0	2	13	15	5	2	0	7	0	0	0	14
Farmer's Crossing Single family Trips:	0	9	0	9	0	14	0	14	0	0	0	0
Total Farmer's Crossing Trips:	0	11	13	24	5	16	0	21	0	0	0	14
No-Build 2024 Volumes:	2	122	13	137	5	74	0	79	0	2	2	14
Total Fitts Trips:	0	5	0	5	0	8	0	8	0	0	0	0
Future 2024 Traffic Volumes:	2	127	13	142	5	82	0	87	0	0	2	14

Number of Years = 3
Growth Factor (%) = 2

21-212 TIS Request for Old Dawsonville Road, Ball Ground, GA
Traffic Volumes

A&R Engineering
 December 2021

3. Old Dawsonville @ Site Drwy

A.M. Peak Hour

Condition	Old Dawsonville Road			Old Dawsonville Road			Fitt's Site Driveway			Westbound		
	Northbound			Southbound			Eastbound			Tot		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2021 Counts:	0	43	0	43	0	118	0	118	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
Farmer's Crossing Townhomes Trips:	0	12	0	12	0	26	0	26	0	0	0	0
Farmer's Crossing Single family Trips:	0	13	0	13	0	4	0	4	0	0	0	0
Total Farmer's Crossing Trips:	0	25	0	25	0	30	0	30	0	0	0	0
No-Build 2024 Volumes:	0	71	0	71	0	155	0	155	0	0	0	0
Total Fitts Trips:	10	0	0	10	0	0	3	3	8	0	30	38
Future 2024 Traffic Volumes:	10	71	0	81	0	155	3	158	8	0	30	38

P.M. Peak Hour

Condition	Old Dawsonville Road			Old Dawsonville Road			Fitt's Site Driveway			Westbound		
	Northbound			Southbound			Eastbound			Tot		
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2021 Counts:	0	122	0	122	0	57	0	57	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2
Farmer's Crossing Townhomes Trips:	0	26	0	26	0	20	0	20	0	0	0	0
Farmer's Crossing Single family Trips:	0	9	0	9	0	14	0	14	0	0	0	0
Total Farmer's Crossing Trips:	0	35	0	35	0	34	0	34	0	0	0	0
No-Build 2024 Volumes:	0	164	0	164	0	94	0	94	0	0	0	0
Total Fitts Trips:	34	0	0	34	0	0	8	8	5	0	20	25
Future 2024 Traffic Volumes:	34	164	0	198	0	94	8	102	5	0	20	25

Number of Years = 3
 Growth Factor (%) = 2

21-212 TIS Request for Old Dawsonville Road, Ball Ground, GA
 Traffic Volumes

A&R Engineering
 December 2021

4. Old Dawsonville @ FarmerDrwy

A.M. Peak Hour

Condition	Old Dawsonville Road			Old Dawsonville Road			Old Dawsonville Road			Old Dawsonville Road			Farmer's Crossing Southern Driveway Westbound			
	Northbound			Southbound			-			Eastbound			-			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2021 Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Farmer's Crossing Townhomes Trips:	0	6	6	12	1	13	0	14	0	0	0	0	13	0	2	15
Farmer's Crossing Single family Trips:	0	13	0	13	0	4	0	4	0	0	0	0	0	0	0	0
Total Farmer's Crossing Trips:	0	19	6	25	1	17	0	18	0	0	0	0	13	0	2	15
No-Build 2024 Volumes:	0	19	6	25	1	17	0	18	0	0	0	0	13	0	2	15
Total Fitts Trips:	0	8	0	8	0	3	0	3	0	0	0	0	0	0	0	0
Future 2024 Traffic Volumes:	0	27	6	33	1	20	0	21	0	0	0	0	13	0	2	15

P.M. Peak Hour

Condition	Old Dawsonville Road			Old Dawsonville Road			Old Dawsonville Road			Old Dawsonville Road			Farmer's Crossing Southern Driveway Westbound			
	Northbound			Southbound			-			Eastbound			-			
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot
Existing 2021 Counts:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (%):	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Farmer's Crossing Townhomes Trips:	0	13	13	26	2	10	0	12	0	0	0	0	10	0	2	12
Farmer's Crossing Single family Trips:	0	9	0	9	0	14	0	14	0	0	0	0	0	0	0	0
Total Farmer's Crossing Trips:	0	22	13	35	2	24	0	26	0	0	0	0	10	0	2	12
No-Build 2024 Volumes:	0	22	13	35	2	24	0	26	0	0	0	0	10	0	2	12
Total Fitts Trips:	0	5	0	5	0	8	0	8	0	0	0	0	10	0	0	0
Future 2024 Traffic Volumes:	0	27	13	40	2	32	0	34	0	0	0	0	10	0	2	12

Number of Years = 3
 Growth Factor (%) = 2