

WHISPER RIDGE SUBDIVISION – PHASE 2

Transportation Impact Analysis

Maloneyville Road

Knoxville, TN

A Transportation Impact Analysis for the Whisper Ridge Subdivision – Phase 2

Submitted to

Knoxville-Knox County Planning

Updated September 17, 2024
August 19, 2024
Ardurra Project No. 592.016

Submitted By:



TABLE OF CONTENTS

EXECUTIVE SUMMARY 3

1 INTRODUCTION 4

 1.1 PROJECT DESCRIPTION 4

 1.2 STUDY AREA 7

 TABLE 1.2-1 WHISPER RIDGE SUBDIVISION - PHASE 2 STUDY AREA

 1.3 EXISTING SITE CONDITIONS 7

 TABLE 1.3-1 WHISPER RIDGE SUBDIVISION – PHASE 2 EXISTING SITE CONDITIONS

2 EXISTING TRAFFIC VOLUMES 8

3 BACKGROUND GROWTH..... 10

 3.1 WHISPER RIDGE SUBDIVISION 10

 TABLE 3.1-1 WHISPER RIDGE SUBDIVISION - UNDEVELOPED TRIP GENERATION SUMMARY

4 TRIP GENERATION AND TRIP DISTRIBUTION..... 14

 TABLE 4-1 WHISPER RIDGE SUBDIVISION – PHASE 2 TRIP GENERATION SUMMARY

5 PROJECTED CAPACITY AND LEVEL OF SERVICE 18

 TABLE 5-1 LEVEL OF SERVICE (LOS) INDEX

 TABLE 5-2 INTERSECTION ANALYSIS LEVEL OF SERVICE (LOS) SUMMARY

6 TURN LANE WARRANT ANALYSIS..... 19

7 CONCLUSIONS AND RECOMMENDATIONS 19

 7.1 MALONEYVILLE ROAD AT WHISPER RIDGE LANE 19

FIGURES

1 LOCATION MAP 5
2 SITE PLAN..... 6
3 2024 EXISTING PEAK HOUR TRAFFIC..... 9
4 WHISPER RIDGE SUBDIVISION UNDEVELOPED PEAK HOUR SITE TRIPS..... 12
5 2027 BACKGROUND PEAK HOUR TRAFFIC 13
6 SUBDIVISION PEAK HOUR TRIP DISTRIBUTION 15
7 SUBDIVISION PEAK HOUR SITE TRIPS 16
8 2027 FULL BUILDOUT PEAK HOUR TRAFFIC 17

ATTACHMENTS

1 AERIAL PHOTOS
2 TRAFFIC COUNTS
3 ADT TRENDS
4 TRIP GENERATION
5 INTERSECTION WORKSHEETS – EXISTING AM/PM PEAKS
6 INTERSECTION WORKSHEETS – BACKGROUND AM/PM PEAKS
7 INTERSECTION WORKSHEETS – FULL BUILDOUT AM/PM PEAKS
8 TURN LANE WARRANTS
9 SIGHT DISTANCE

Executive Summary

Ball Homes, LLC is proposing the addition of Phase 2 to the existing Whisper Ridge Subdivision. Whisper Ridge Subdivision is located at the existing intersection of Maloneyville Road at Whisper Ridge Lane in Knox County, TN. The existing subdivision has 41 developed single-family lots and 6 undeveloped lots with access to the internal subdivision roadways. The full buildout of Phase 2 of the Whisper Ridge Subdivision proposes an additional 102 single-family residential lots. The total combined lots for Whisper Ridge Subdivision including Phase 1 and Phase 2 are 149 single-family residential lots. Construction is proposed to take place this year and this study assumes full build out for the development will occur in 2027.

Whisper Ridge Subdivision has an existing roadway connection to Maloneyville Road. The existing subdivision entrance is two-way stop-controlled intersection with a raised median boulevard. Phase 2 of the Whisper Ridge Subdivision will tie into Shadow Branch Lane.

In order to maintain or provide an acceptable level-of-service for each of the intersections studied, some recommendations are presented.

Maloneyville Road at Whisper Ridge Lane

After the completion of the full buildout of the Whisper Ridge Subdivision – Phase 2 the intersection of Maloneyville Road at Whisper Ridge Lane will operate as follows. The eastbound approach (Whisper Ridge Lane) will operate at a LOS A during both the AM and PM peak hours and the northbound approach (Maloneyville Road) will operate at a LOS A during both the AM and PM peak hours.

At the intersection of Maloneyville Road at Whisper Ridge Lane neither a northbound left turn lane nor a southbound right turn lane is warranted during the AM or PM peak hours per the Knox County Department of Engineering and Public Works handbook, "Access Control and Driveway Design Policy."

1 Introduction

1.1 Project Description

This report provides a summary of a transportation impact analysis that was performed for the Whisper Ridge Subdivision – Phase 2 residential development. The existing Whisper Ridge Subdivision has 41 developed single-family lots and 6 undeveloped lots with access to the internal subdivision roadways. The full buildout of Phase 2 of the Whisper Ridge Subdivision proposes an additional 102 single-family residential lots. The total combined lots for Whisper Ridge Subdivision including Phase 1 and Phase 2 are 149 single-family residential lots. The location of the site is shown in Figure 1.

Construction is proposed to take place this year and this study assumes full build out for the subdivision and the future development area will occur in 2027.

Whisper Ridge Subdivision has an existing roadway connection to Maloneyville Road. The existing subdivision entrance is two-way stop-controlled intersection with a raised median boulevard. Phase 2 of the Whisper Ridge Subdivision will tie into Shadow Branch Lane.

The proposed site layout is shown in Figure 2.

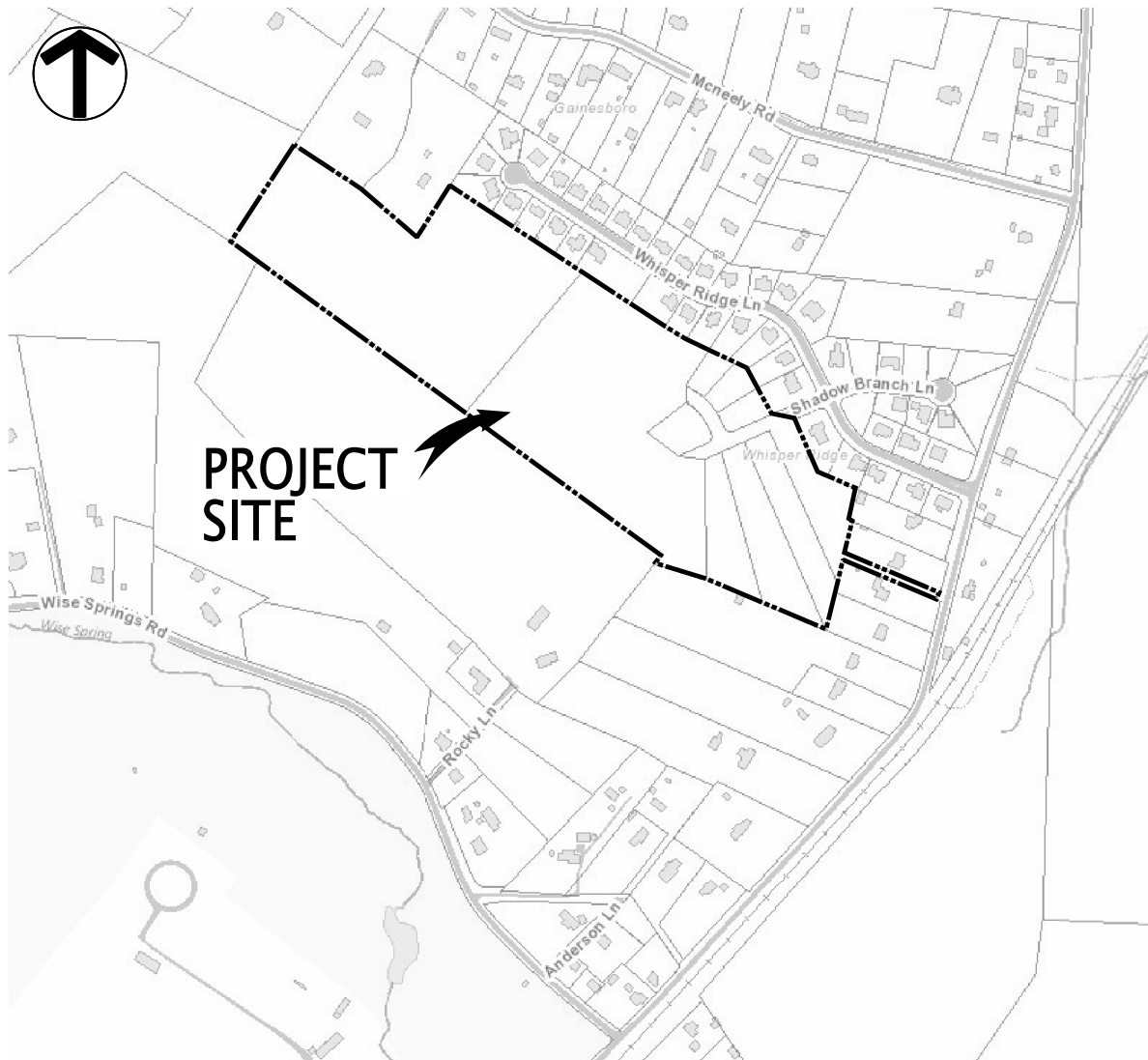


Figure 1: Location Map

Whisper Ridge Subdivision - Phase 2
Transportation Impact Analysis
September 17, 2024

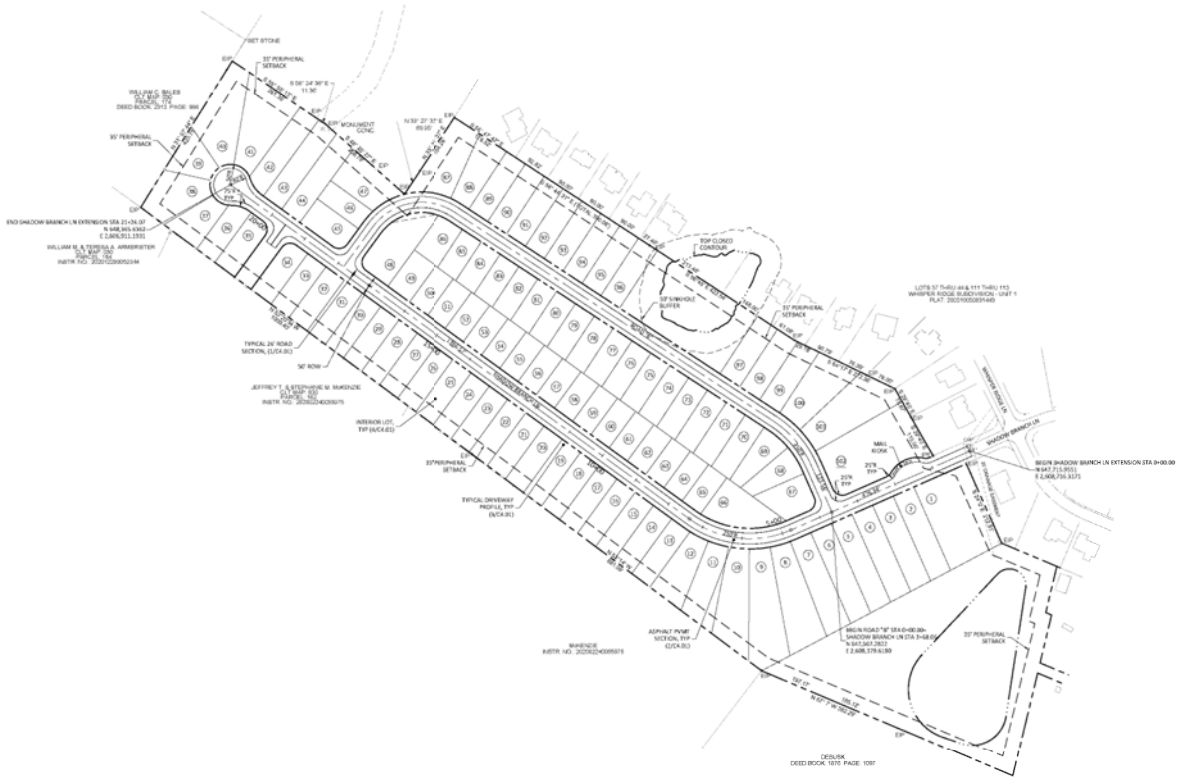


Figure 2: Site Plan

1.2 Study Area

The purpose of this study is to evaluate the impacts to the traffic conditions caused by the proposed development. Maloneyville Road is considered a north-south orientated roadway and Whisper Ridge Lane is considered an east-west oriented roadway. The existing intersections and existing traffic control are summarized in Table 1.2-1 Study Area.

**Table 1.2-1
Whisper Ridge Subdivision – Phase 2
Study Area**

Intersection	Existing Traffic Control
Maloneyville Road at Whisper Ridge Lane	TWSC

1.3 Existing Site Conditions

Roadway geometry and posted speed limits were obtained by field observations. The Knoxville-Knox County Planning “2018 Major Road Plan” was used to determine road classification. This information is summarized in Table 1.3-1 Existing Site Conditions.

**Table 1.3-1
Whisper Ridge Subdivision – Phase 2
Existing Site Conditions**

Roadway	Speed Limit	Lanes	Road Width	Major Road Plan
Maloneyville Road	30 mph	2	~ 18 feet	Major Collector
Whisper Ridge Lane	25 mph	2	~ 26 feet	Local Street

Whisper Ridge Subdivision has an existing roadway connection to Maloneyville Road. The existing subdivision entrance is a two-way stop-controlled intersection with a raised median boulevard. Whisper Ridge Lane has an approximate length of 2,100 feet and Shadow Branch Lane has an approximate length of 550 feet. The intersection of Whisper Ridge Lane at Shadow Branch Lane is located approximately 650 feet west of the intersection with Maloneyville Road

The intersection of Maloneyville Road at Whisper Ridge Lane is located approximately 1,100 feet south of McNeely Road and approximately 2,400 feet north of Wise Springs Road.

An aerial photo of the intersection of Maloneyville Road at Whisper Ridge Lane and Whisper Ridge Lane at Shadow Branch Lane are included in Attachment 1.

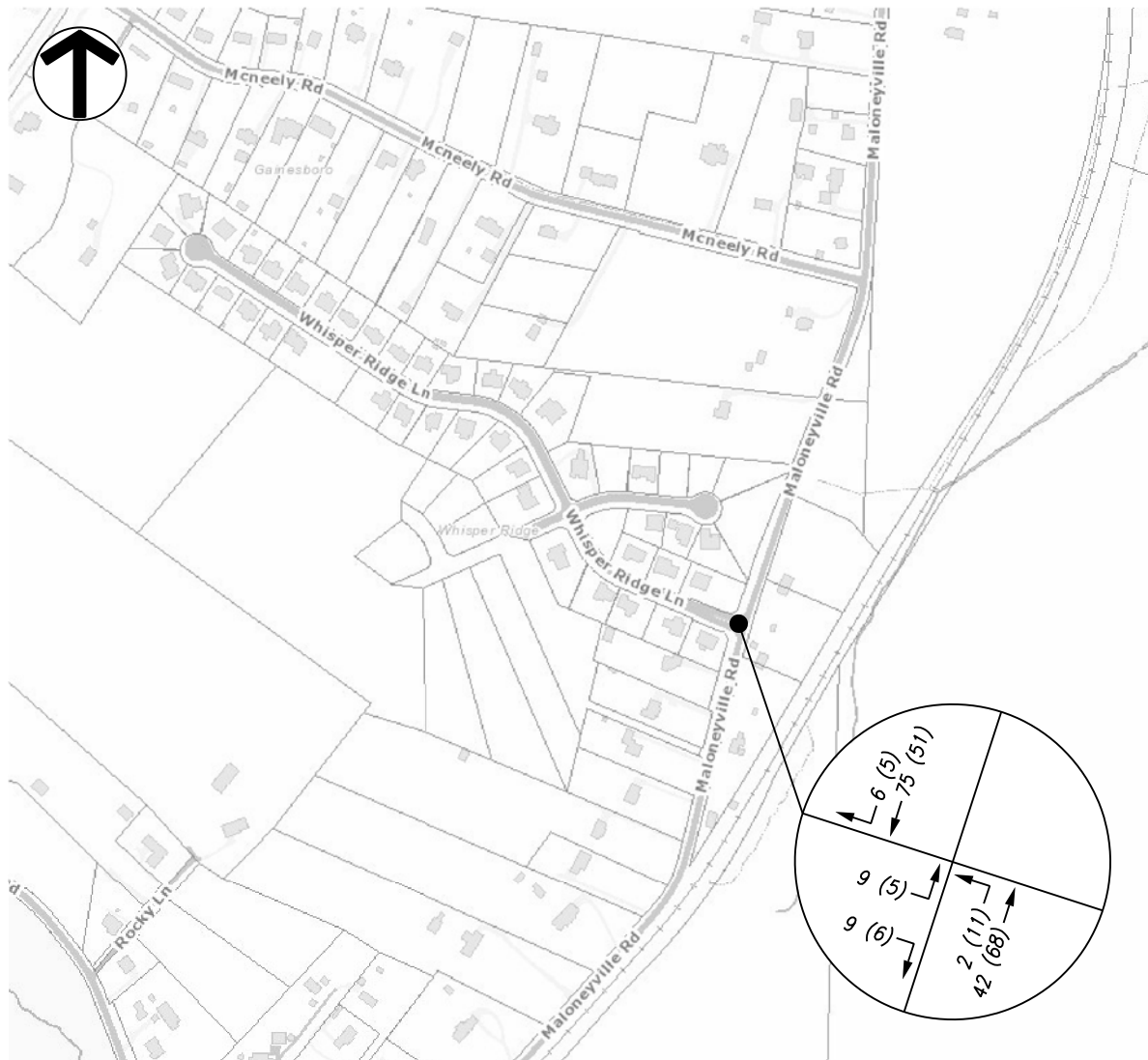
There are no sidewalks, bike infrastructure or Knoxville Area Transit (KAT) bus stops located in the vicinity of the proposed development.

2 Existing Traffic Volumes

Ardurra conducted a peak hour turning movement count at the two-way stop-controlled intersection of Maloneyville Road at Whisper Ridge Lane on Tuesday August 13, 2024. The AM peak hour occurred between 7:15 a.m. and 8:15 a.m. with an AM PHF of 0.94 and an hourly volume of 143 vehicles. The PM peak hour occurred between 3:30 p.m. and 4:30 p.m. with a PM PHF of 0.87 and an hourly volume of 146 vehicles.

The existing volumes including the AM and PM peak hour traffic volumes at the count locations are shown in Figure 3, and the count data collected is included in Attachment 2.

Whisper Ridge Subdivision - Phase 2
 Transportation Impact Analysis
 September 17, 2024



LEGEND:

← 5 (16) TURNING MOVEMENT VOLUME AM (PM)

Figure 3: 2024 Existing Peak Hour Traffic

3 Background Growth

The Tennessee Department of Transportation (TDOT) and the Knoxville Regional Transportation Organization (TPO) maintain count stations in the vicinity of the proposed development.

TDOT count station ID 47000338 is located on Maloneyville Road between Washington Pike and Wise Springs Road in Knoxville, TN. The annual growth rate for this station over the last ten years is approximately -1.09%. The 2022 ADT was 1,297 vehicles per day.

TPO count station ID 093M350 is located on Wise Springs Road north of Washington Pike. The annual growth rate for this station over the last twenty years is approximately 0.52%. The 2023 ADT was 1,650 vehicles per day.

For the purpose of this study, an annual growth rate of 0.5% was assumed for traffic at the studied intersections until full occupancy is reached in 2027. Attachment 3 shows the trend line growth charts for the TPO and TDOT count stations.

3.1 Whisper Ridge Subdivision

In addition to the background growth, the trips from the undeveloped Whisper Ridge Subdivision – Phase 1 lots were calculated and included in the projected background peak hour traffic.

The existing Whisper Ridge Subdivision – Phase 1 has 47 lots and only 41 single-family houses built; therefore, there are 6 undeveloped lots that are available for future construction.

Single-Family Detached Housing or Land Use 210 was used to calculate site trips for the development using the fitted curve equations from the Trip Generation, 11th Edition, published by the Institute of Transportation Engineers.

The land use worksheets are included in Attachment 4 and a trip generation summary is shown in Table 3.1-1.

**Whisper Ridge Subdivision – Phase 2
Transportation Impact Analysis
September 17, 2024**

**Table 3.1-1
Whisper Ridge Subdivision – Undeveloped
Trip Generation Summary**

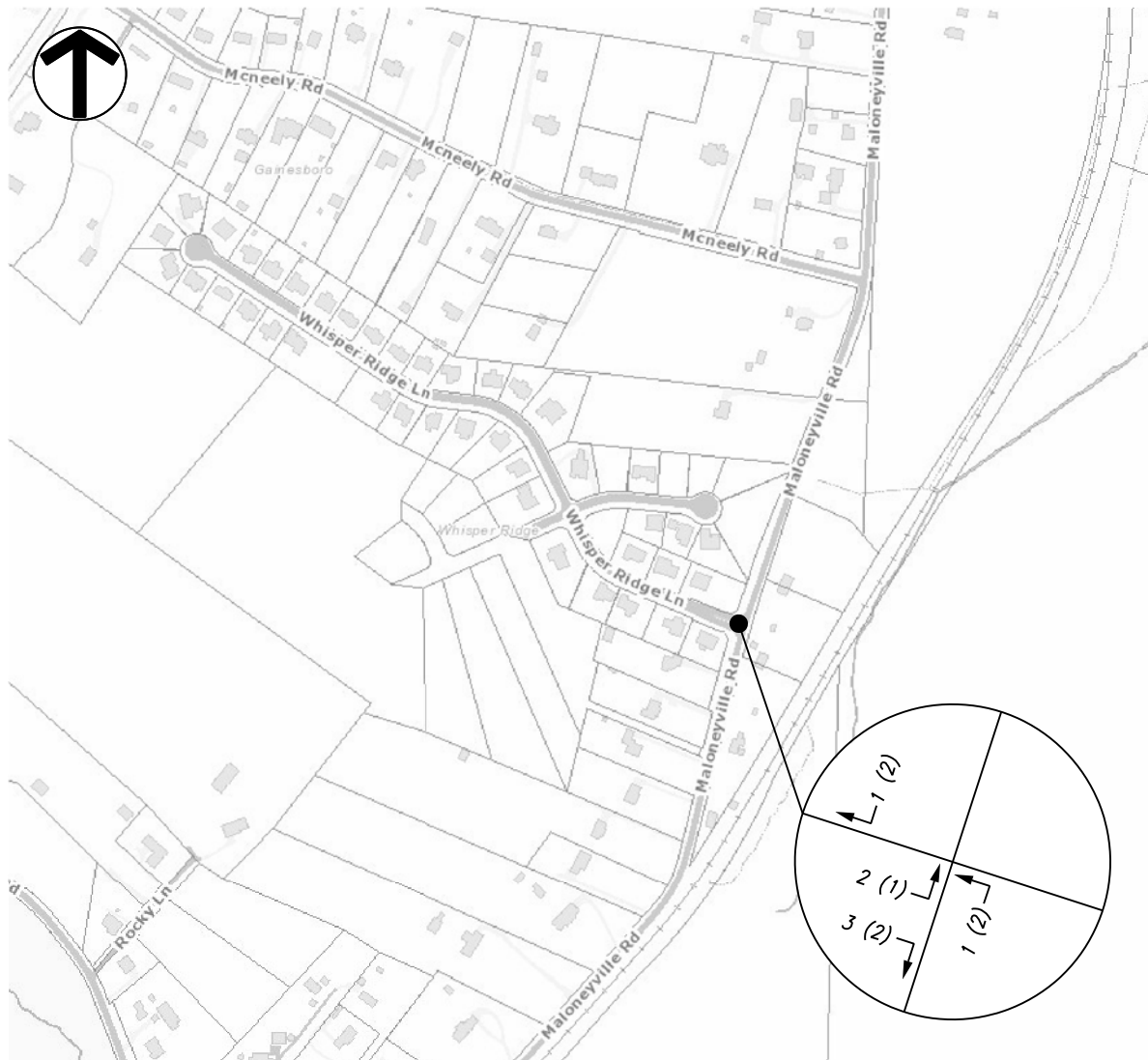
Land Use	Density	Daily Trips	AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit
Single Family Detached Housing (LUC)	6 Lots	76	2	5	4	3

The total combined trips generated by the Whisper Ridge Subdivision – Phase 1 undeveloped lots were estimated to be 76 daily trips. The estimated trips are 6 trips during the AM peak hour and 7 trips during the PM peak hour.

The directional distribution of the traffic generated by the Whisper Ridge Subdivision was determined using the existing traffic volumes in combination with the site plan layout. The entering/exiting traffic was assumed to be 45% Maloneyville Road northbound and 55% Maloneyville Road southbound.

Figure 4 shows the Whisper Ridge Subdivision – Phase 1 site trips from the undeveloped lots.

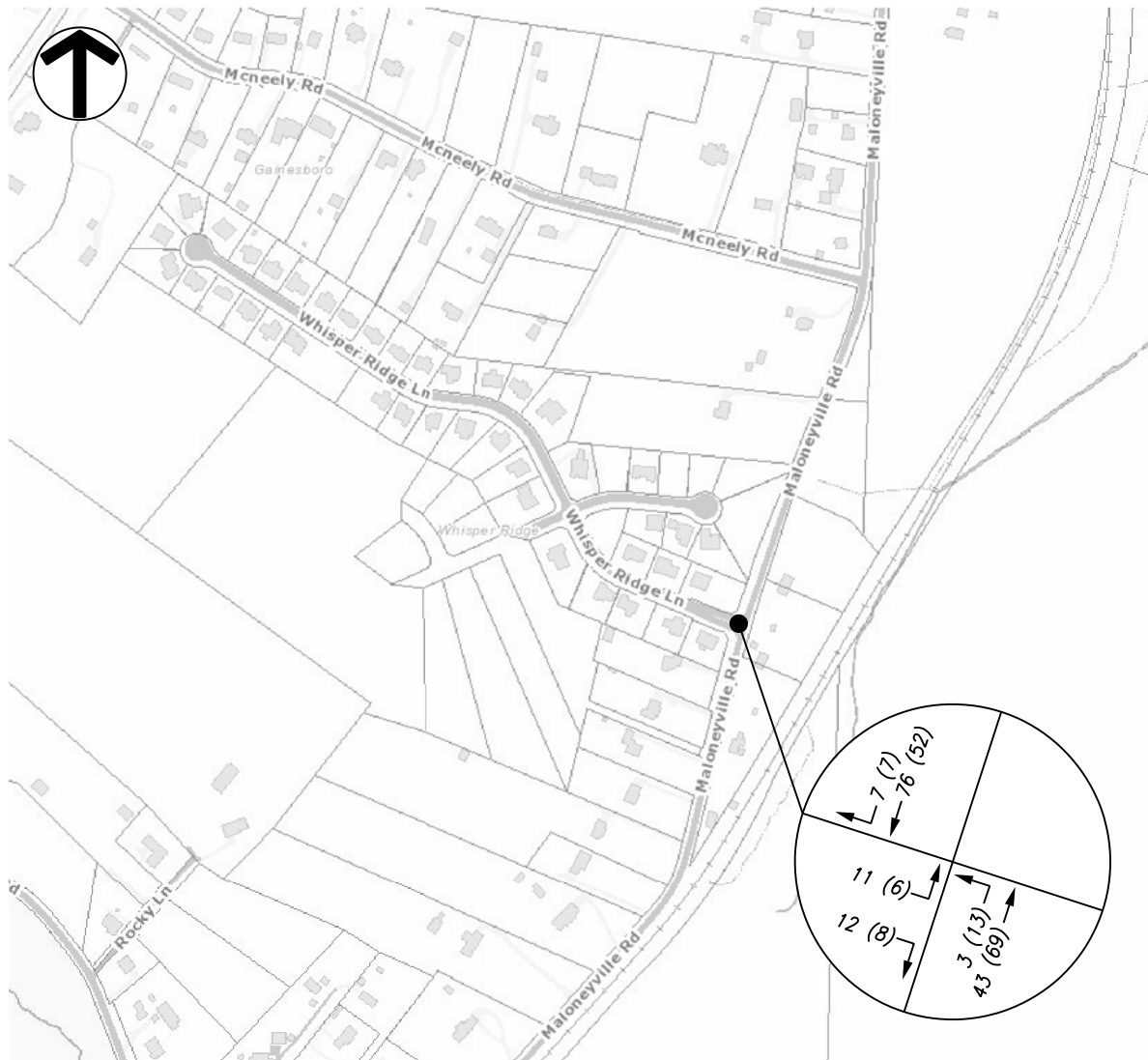
Figure 5 demonstrates the projected background peak hour volumes at the studied intersection including the background growth and the additional site trips from the undeveloped lots from the Whisper Ridge Subdivision – Phase 1.



LEGEND:

← 5 (16) *TURNING MOVEMENT VOLUME AM (PM)*

Figure 4: Whisper Ridge Subdivision Undeveloped Peak Hour Site Trips



LEGEND:

← 50% (50%) TRIP DISTRIBUTION ENTERING (EXITING)

Figure 5: 2027 Background Peak Hour Traffic

4 Trip Generation and Trip Distribution

Whisper Ridge Subdivision Phase 2 proposes 102 single-family residential lots. Single-Family Detached Housing or Land Use 210 was used to calculate site trips for the development using the fitted curve equations from the Trip Generation, 11th Edition, published by the Institute of Transportation Engineers.

The land use worksheets are included in Attachment 4. A trip generation summary is shown in Table 4-1.

**Table 4-1
Whisper Ridge Subdivision – Phase 2
Trip Generation Summary**

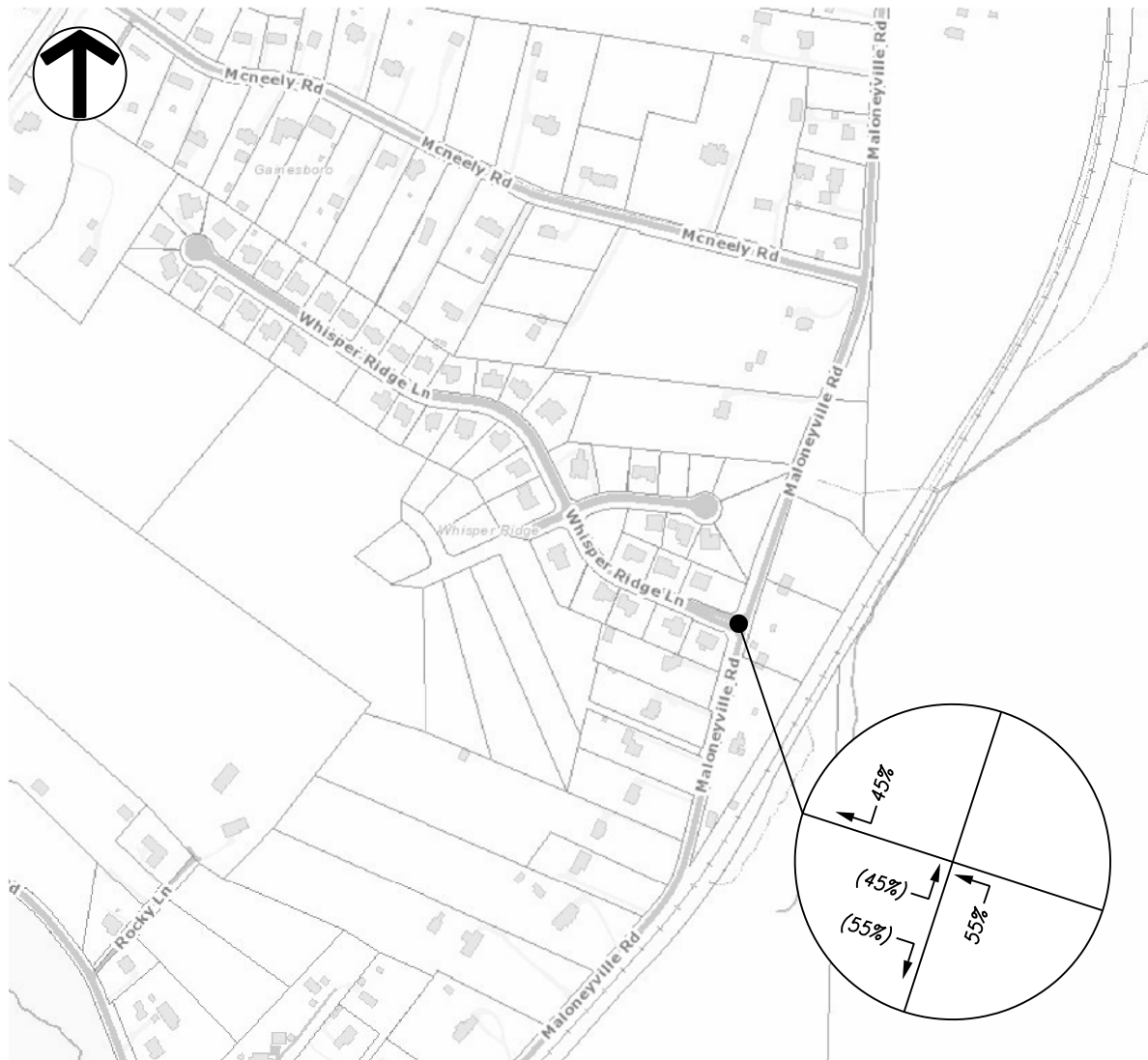
Land Use	Density	Daily Trips	AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit
Single Family Detached Housing (LUC)	102 Lots	1,028	19	57	64	37

The total new trips generated by the Whisper Ridge Subdivision - Phase 2 were estimated to be 1,028 daily trips. The estimated trips are 76 trips during the AM peak hour and 101 trips during the PM peak hour.

Maloneyville Road at the intersection with Whisper Ridge Lane has an existing trip distribution of 35% northbound and 65% southbound during the AM peak hour and 60% northbound and 40% southbound during the PM peak hour.

The directional distribution of the traffic generated by the Whisper Ridge Subdivision Phase 2 was determined using the existing traffic volumes in combination with the concept plan layout. The entering/exiting traffic was assumed to be 45% Maloneyville Road northbound and 55% Maloneyville Road southbound.

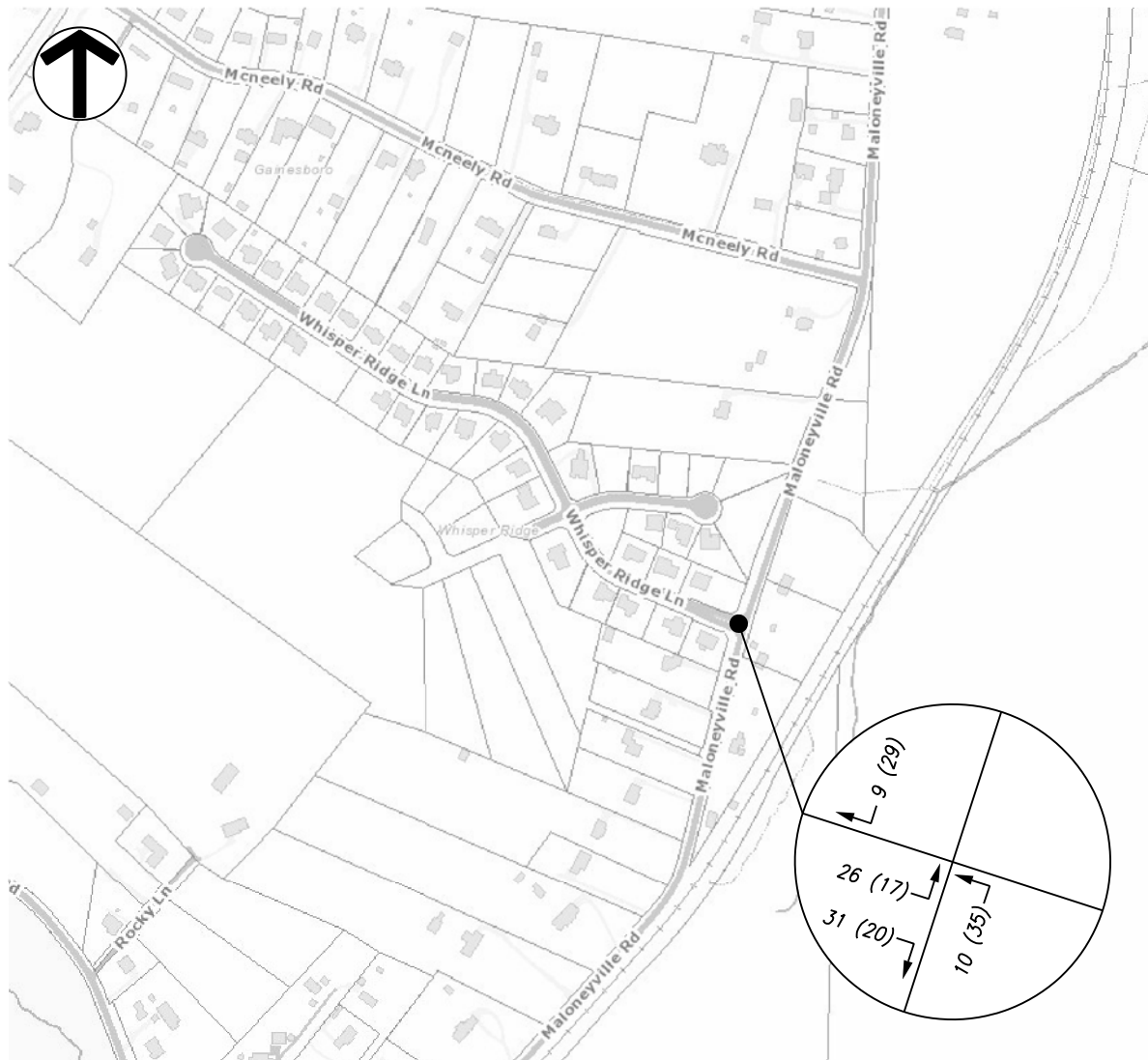
Figure 6 and Figure 7 show the Whisper Ridge Subdivision – Phase 2 peak hour trip distribution and subdivision peak hour site trips. Figure 8 shows the 2027 full buildout peak hour traffic including the background growth and the peak hour site trips from both the undeveloped lots from the Whisper Ridge Subdivision – Phase 1 and the proposed lots from the Whisper Ridge Subdivision – Phase 2.



LEGEND:

← 50% (50%) TRIP DISTRIBUTION ENTERING (EXITING)

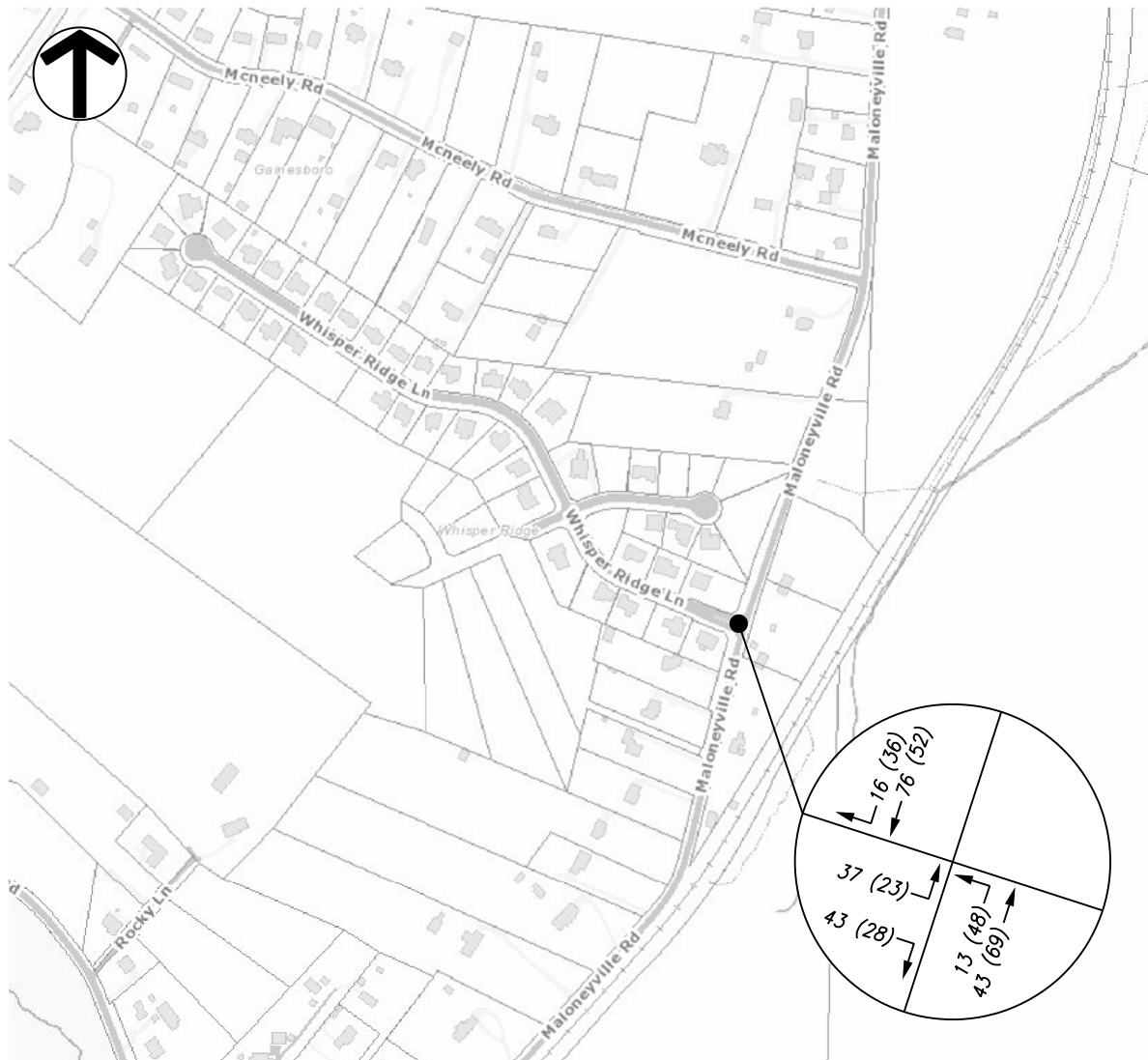
Figure 6: Subdivision Peak Hour Trip Distribution



LEGEND:

← 5 (16) TURNING MOVEMENT VOLUME AM (PM)

Figure 7: Subdivision Peak Hour Site Trips



LEGEND:

← 5 (16) TURNING MOVEMENT VOLUME AM (PM)

Figure 8: 2027 Full Buildout Peak Hour Traffic

5 Projected Capacity and Level of Service

Intersection capacity analyses were performed using the Highway Capacity Software 2024 at the two-way stop-controlled intersection in order to evaluate the AM and PM peak hours for existing, background and full buildout conditions.

Level of Service

The results from the analyses are expressed with a term “level of service” (LOS), which is based on the amount of delay experienced at the intersection. The LOS index ranges from LOS A, indicating excellent traffic conditions with minimal delay, to LOS F indicating very congested conditions with excessive delay. LOS D generally is considered the minimum acceptable condition in urban areas. Table 5-1 shows the LOS index range for signalized and unsignalized intersections as defined by the Highway Capacity Manual (HCM).

**Table 5-1
 Level of Service (LOS) Index**

Level of Service	Signalized Intersection	Unsignalized Intersection
LOS A	≤ 10 sec	≤ 10 sec
LOS B	10 – 20 sec	10 – 15 sec
LOS C	20 – 35 sec	15 – 25 sec
LOS D	35 – 55 sec	25 – 35 sec
LOS E	55 – 80 sec	35 – 50 sec
LOS F	> 80 sec	> 50 sec

The HCS2024 worksheets are included in Attachments 5, 6, and 7. Table 5-2 shows the results of the capacity analyses.

**Table 5-2
Level of Service (LOS) Summary**

Intersection	Time Period	Year 2024 Existing (Delay/LOS)	Year 2027 Background (Delay/LOS)	Year 2027 Full Buildout (Delay/LOS)
Maloneyville Road @ Whisper Ridge Lane	AM Peak			
	EB Approach	9.0 / A	9.1 / A	9.5 / A
	NB Approach	0.3 / A	0.5 / A	1.8 / A
	PM Peak			
	EB Approach	9.0 / A	9.0 / A	9.7 / A
	NB Approach	1.1 / A	1.2 / A	3.3 / A

Notes:

1. Whole intersection weighted average control delay expressed in second per vehicle for signalized intersections and all-way stop controlled intersections.

6 Turn Lane Warrant Analysis

The intersection of Maloneyville Road at Whisper Ridge Lane was evaluated to determine if a northbound left turn lane or a southbound right turn lane are warranted. The Knox County Department of Engineering and Public Works handbook, "Access Control and Driveway Design Policy," was used to analyze the information.

At the intersection of Maloneyville Road at Whisper Ridge Lane neither a northbound left turn lane nor a southbound right turn lane is warranted during the AM or PM peak hours.

The turn lane warrant worksheets and analysis are included in Attachment 8.

7 Conclusions and Recommendations

7.1 Maloneyville Road at Whisper Ridge Lane

The existing intersection of Maloneyville Road at Whisper Ridge Lane is three-legged two-way stop-controlled intersection with the stop sign located on eastbound approach (Whisper Ridge Lane).

Under the existing and 2027 background conditions the intersection of Maloneyville Road at Whisper Ridge Lane operates as follows. The eastbound approach (Whisper Ridge Lane) will operate at a LOS A during both the AM and PM

**Whisper Ridge Subdivision – Phase 2
Transportation Impact Analysis
September 17, 2024**

peak hours and the northbound approach (Maloneyville Road) will operate at a LOS A during both the AM and PM peak hours.

After the completion of the full buildout of the Whisper Ridge Subdivision – Phase 2 the intersection of Maloneyville Road at Whisper Ridge Lane will operate as follows. The eastbound approach (Whisper Ridge Lane) will operate at a LOS A during both the AM and PM peak hours and the northbound approach (Maloneyville Road) will operate at a LOS A during both the AM and PM peak hours.

The 95% queue length is defined as the queue length that has only a 5-percent probability of being exceeded during the analysis time period. The 95% queue length is typically used to determine the length of turning lanes in order to minimize the risk of blockage.

The eastbound approach (Whisper Ridge Lane) has an existing storage length of 75 feet before the vehicle queue would exceed the boulevard entrance. The unsignalized intersection capacity analysis shows the full buildout 95% queue length for Whisper Ridge Lane of less than one vehicle length during the AM and PM peak hours; therefore, the queue is not expected to exceed the length of the boulevard entrance.

At the intersection of Maloneyville Road at Whisper Ridge Lane neither a northbound left turn lane nor a southbound right turn lane is warranted during the AM or PM peak hours per the Knox County Department of Engineering and Public Works handbook, "Access Control and Driveway Design Policy."

Maloneyville Road is classified as Major Collector per the Major Road Plan. The minimum intersection spacing required on a collector road is 300 feet per the "Knoxville-Knox County Subdivision Regulations" amended through October 6, 2022. Whisper Ridge Lane is located approximately 1,100 feet south of McNeely Road and approximately 2,400 feet north of Wise Springs Road; therefore, the minimum separation on a collector is met and no change is necessary.

The minimum required sight distance for a road with a posted speed limit of 30 mph is 300 feet in each direction in accordance with the "Knoxville-Knox County Subdivision Regulations" amended through October 6, 2022.

At 15 feet from the edge of pavement the intersection sight distance is approximately 1,045 feet looking left and approximately 465 feet looking right. Attachment 9 includes pictures of the intersection sight distance at the intersection of Maloneyville Road at Whisper Ridge Lane.

**Whisper Ridge Subdivision – Phase 2
Transportation Impact Analysis
September 17, 2024**

Ardurra recommends that the intersection sight distance be certified by a land surveyor prior to construction in order to verify that Maloneyville Road has adequate intersection sight distance at the existing subdivision entrance to comply with Knox County Engineering and Public Works guidelines.

The proposed Whisper Ridge Subdivision – Phase 2 layout includes the extension of Shadow Branch Lane with a straight stretch of roadway ending in a cul-de-sac and a new Road “B” that will connect to Shadow Branch Road creating a loop road. A straight stretch of roadway in a subdivision layout can encourage higher vehicle speeds. Ardurra recommends the consideration of traffic calming measures including but not limited to speed humps and speed tables. Ardurra recommends that any future traffic calming improvements be reviewed, coordinated and approved by Knox County Engineering and Public Works.

Ardurra recommends that any future intersection improvements be reviewed, coordinated and approved by Knox County Engineering and Public Works.

Attachment 1
Aerial Photos



Maloneyville Road at Whisper Ridge Lane – TWSC



Whisper Ridge Lane at Shadow Branch Lane - TWSC

Attachment 2
Traffic Counts

Project: 592.016 Whisper Ridge Subdivision - Phase 2
Intersection: Maloneyville Road at Whisper Ridge Lane
Date Conducted: Tuesday August 13, 2024

Start	Maloneyville Road Southbound				Westbound				Maloneyville Road Northbound				Whisper Ridge Lane Eastbound				Int. Total	
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total		
7:00 AM	0	17	0	17	0	0	0	0	0	0	4	0	4	0	0	3	3	24
7:15 AM	0	17	3	20	0	0	0	0	1	11	0	12	3	0	1	4	36	
7:30 AM	0	23	1	24	0	0	0	0	0	9	0	9	1	0	4	5	38	
7:45 AM	0	13	1	14	0	0	0	0	0	15	0	15	4	0	0	4	33	
Total	0	70	5	75	0	0	0	0	1	39	0	40	8	0	8	16	131	
8:00 AM	0	22	1	23	0	0	0	0	1	7	0	8	1	0	4	5	36	
8:15 AM	0	13	1	14	0	0	0	0	0	4	0	4	1	0	0	1	19	
8:30 AM	0	11	2	13	0	0	0	0	0	4	0	4	0	0	2	2	19	
8:45 AM	0	7	0	7	0	0	0	0	1	5	0	6	0	0	2	2	15	
Total	0	53	4	57	0	0	0	0	2	20	0	22	2	0	8	10	89	
9:00 AM	0	11	0	11	0	0	0	0	1	7	0	8	0	0	1	1	20	
9:15 AM	0	7	0	7	0	0	0	0	0	2	0	2	1	0	3	4	13	
9:30 AM	0	8	2	10	0	0	0	0	1	10	0	11	0	0	1	1	22	
9:45 AM	0	4	0	4	0	0	0	0	0	9	0	9	1	0	1	2	15	
Total	0	30	2	32	0	0	0	0	2	28	0	30	2	0	6	8	70	
10:00 AM	0	7	0	7	0	0	0	0	1	9	0	10	1	0	1	2	19	
10:15 AM	0	2	2	4	0	0	0	0	1	4	0	5	2	0	0	2	11	
10:30 AM	0	8	0	8	0	0	0	0	0	5	0	5	2	0	1	3	16	
10:45 AM	0	10	1	11	0	0	0	0	0	6	0	6	0	0	0	0	17	
Total	0	27	3	30	0	0	0	0	2	24	0	26	5	0	2	7	63	
11:00 AM	0	9	1	10	0	0	0	0	1	4	0	5	0	0	3	3	18	
11:15 AM	0	4	1	5	0	0	0	0	1	7	0	8	2	0	1	3	16	
11:30 AM	0	8	1	9	0	0	0	0	0	3	0	3	0	0	0	0	12	
11:45 AM	0	7	1	8	0	0	0	0	3	4	0	7	1	0	0	1	16	
Total	0	28	4	32	0	0	0	0	5	18	0	23	3	0	4	7	62	
12:00 PM	0	8	1	9	0	0	0	0	0	14	0	14	1	0	1	2	25	
12:15 PM	0	10	3	13	0	0	0	0	2	7	0	9	2	0	1	3	25	
12:30 PM	0	7	0	7	0	0	0	0	0	5	0	5	0	0	0	0	12	
12:45 PM	0	7	0	7	0	0	0	0	2	11	0	13	0	0	0	0	20	
Total	0	32	4	36	0	0	0	0	4	37	0	41	3	0	2	5	82	
1:00 PM	0	4	0	4	0	0	0	0	0	13	0	13	0	0	4	4	21	
1:15 PM	0	7	1	8	0	0	0	0	1	4	0	5	2	0	0	2	15	
1:30 PM	0	11	0	11	0	0	0	0	1	7	0	8	1	0	2	3	22	
1:45 PM	0	13	0	13	0	0	0	0	1	7	0	8	1	0	0	1	22	
Total	0	35	1	36	0	0	0	0	3	31	0	34	4	0	6	10	80	
2:00 PM	0	5	1	6	0	0	0	0	1	9	0	10	1	0	0	1	17	
2:15 PM	0	11	0	11	0	0	0	0	1	9	0	10	1	0	2	3	24	
2:30 PM	0	8	0	8	0	0	0	0	3	11	0	14	2	0	2	4	26	
2:45 PM	0	4	1	5	0	0	0	0	1	13	0	14	0	0	0	0	19	
Total	0	28	2	30	0	0	0	0	6	42	0	48	4	0	4	8	86	
3:00 PM	0	5	5	10	0	0	0	0	1	14	0	15	1	0	0	1	26	
3:15 PM	0	6	1	7	0	0	0	0	2	7	0	9	3	0	2	5	21	
3:30 PM	0	11	0	11	0	0	0	0	2	15	0	17	1	0	1	2	30	
3:45 PM	0	13	4	17	0	0	0	0	2	19	0	21	1	0	1	2	40	
Total	0	35	10	45	0	0	0	0	7	55	0	62	6	0	4	10	117	
4:00 PM	0	14	0	14	0	0	0	0	5	18	0	23	2	0	3	5	42	
4:15 PM	0	13	1	14	0	0	0	0	2	16	0	18	1	0	1	2	34	
4:30 PM	0	8	0	8	0	0	0	0	2	17	0	19	1	0	1	2	29	
4:45 PM	0	11	0	11	0	0	0	0	2	22	0	24	0	0	2	2	37	
Total	0	46	1	47	0	0	0	0	11	73	0	84	4	0	7	11	142	
5:00 PM	0	7	1	8	0	0	0	0	1	21	0	22	1	0	1	2	32	
5:15 PM	0	8	0	8	0	0	0	0	3	20	0	23	1	0	1	2	33	
5:30 PM	0	10	0	10	0	0	0	0	2	21	0	23	1	0	0	1	34	
5:45 PM	0	5	0	5	0	0	0	0	2	21	0	23	2	0	2	4	32	
Total	0	30	1	31	0	0	0	0	8	83	0	91	5	0	4	9	131	
Grand Total	0	414	37	451	0	0	0	0	51	450	0	501	46	0	55	101	1053	
Approach %	0.0	91.8	8.2		####	####	####		10.2	89.8	0.0		45.5	0.0	54.5			
Total %	0.0	39.3	3.5	42.8	0.0	0.0	0.0	0.0	4.8	42.7	0.0	47.6	4.4	0.0	5.2	9.6		

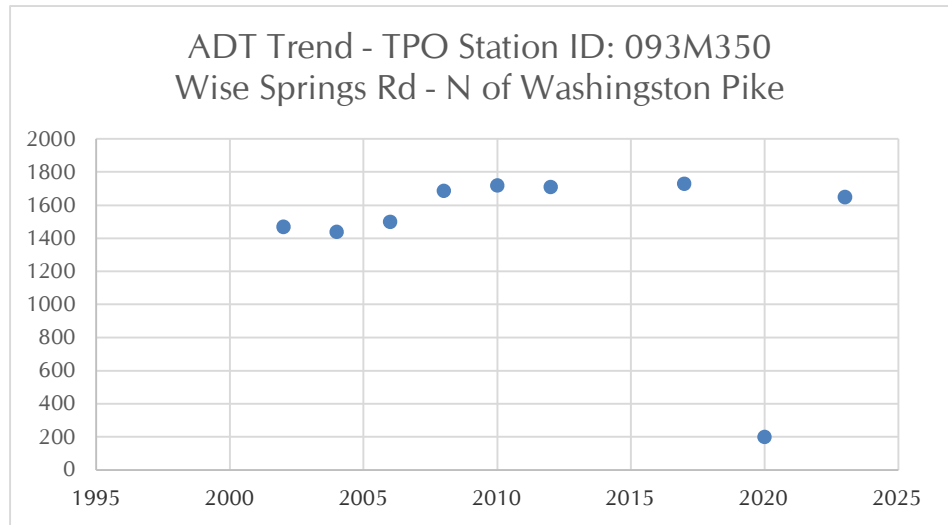
Project: 592.016 Whisper Ridge Subdivision - Phase 2
Intersection: Maloneyville Road at Whisper Ridge Lane
Date Conducted: Tuesday August 13, 2024

AM Peak Hour	7:15 AM - 8:15 AM	143
PM Peak Hour	3:30 PM - 4:30 PM	146

Start	Maloneyville Road Southbound				Westbound				Maloneyville Road Northbound				Whisper Ridge Lane Eastbound				Int. Total
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	
Peak Hour Analysis from 7:00 AM to 9:00 AM																	
AM Peak Hour begins at 7:15 AM																	
7:15 AM	0	17	3	20	0	0	0	0	1	11	0	12	3	0	1	4	36
7:30 AM	0	23	1	24	0	0	0	0	0	9	0	9	1	0	4	5	38
7:45 AM	0	13	1	14	0	0	0	0	0	15	0	15	4	0	0	4	33
8:00 AM	0	22	1	23	0	0	0	0	1	7	0	8	1	0	4	5	36
Total Volume	0	75	6	81	0	0	0	0	2	42	0	44	9	0	9	18	143
Future (0.5% over 3 yrs)	0	76	6		0	0	0		2	43	0		9	0	9		145
PHF	-	0.82	0.50		-	-	-		0.50	0.70	-		0.56	-	0.56		0.94
Peak Hour Analysis from 3:00 PM to 6:00 PM																	
PM Peak Hour begins at 3:30 PM																	
3:30 PM	0	11	0	11	0	0	0	0	2	15	0	17	1	0	1	2	30
3:45 PM	0	13	4	17	0	0	0	0	2	19	0	21	1	0	1	2	40
4:00 PM	0	14	0	14	0	0	0	0	5	18	0	23	2	0	3	5	42
4:15 PM	0	13	1	14	0	0	0	0	2	16	0	18	1	0	1	2	34
Total Volume	0	51	5	56	0	0	0	0	11	68	0	79	5	0	6	11	146
Future (0.5% over 3 yrs)	0	52	5		0	0	0		11	69	0		5	0	6		148
PHF	-	0.91	0.31		-	-	-		0.55	0.89	-		0.63	-	0.50		0.87

Attachment 3
ADT Trends

Year	Adjusted Average Daily Traffic
2001	
2002	1470
2003	
2004	1440
2005	
2006	1500
2007	
2008	1687
2009	
2010	1720
2011	
2012	1710
2013	
2014	
2015	
2016	
2017	1730
2018	
2019	
2020	200
2021	
2022	
2023	1650



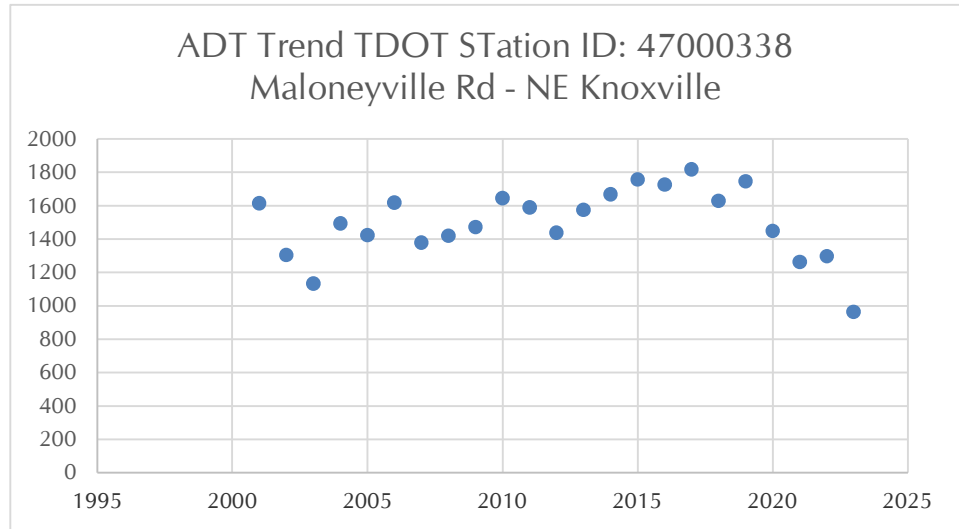
Most Recent Trend Line Growth

Year	ADT
2002	1470
2023	1650

Annual Percent Growth

0.52%

Year	Adjusted Average Daily Traffic
2001	1615
2002	1304
2003	1134
2004	1494
2005	1423
2006	1618
2007	1379
2008	1420
2009	1473
2010	1646
2011	1589
2012	1439
2013	1576
2014	1669
2015	1757
2016	1727
2017	1818
2018	1630
2019	1746
2020	1449
2021	1264
2022	1297
2023	964



Most Recent Trend Line Growth

Year	ADT
2012	1439
2022	1297

Annual Percent Growth

-1.09%

Attachment 4
Trip Generation

Project: Whisper Ridge Subdivision - Phase 1
Date Conducted: 8/12/2024

Single-Family Detached Housing (LUC 210)
6 Lots - Undeveloped

Average Daily Traffic

$$\ln(T) = 0.92 \ln(X) + 2.68$$

$$\ln(T) = 0.92 \ln(6) + 2.68$$

$$T = 76$$

Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

$$\ln(T) = 0.91 \ln(X) + 0.12$$

$$\ln(T) = 0.91 \ln(6) + 0.12$$

$$T = 6$$

Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

$$\ln(T) = 0.94 \ln(X) + 0.27$$

$$\ln(T) = 0.94 \ln(6) + 0.27$$

$$T = 7$$

Time Period	Total Trips	Percent		Number	
		Enter	Exit	Enter	Exit
Weekday (24 hours)	76	50%	50%	38	38
AM Peak Hour	6	25%	75%	2	5
PM Peak Hour	7	63%	37%	4	3

Project: Whisper Ridge Subdivision - Phase 2
Date Conducted: 8/12/2024

Single-Family Detached Housing (LUC 210)
102 Lots

Average Daily Traffic

$\ln(T) = 0.92 \ln(X) + 2.68$
 $\ln(T) = 0.92 \ln(102) + 2.68$
 $T = 1028$

Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

$\ln(T) = 0.91 \ln(X) + 0.12$
 $\ln(T) = 0.91 \ln(102) + 0.12$
 $T = 76$

Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

$\ln(T) = 0.94 \ln(X) + 0.27$
 $\ln(T) = 0.94 \ln(102) + 0.27$
 $T = 101$

Time Period	Total Trips	Percent		Number	
		Enter	Exit	Enter	Exit
Weekday (24 hours)	1028	50%	50%	514	514
AM Peak Hour	76	25%	75%	19	57
PM Peak Hour	101	63%	37%	64	37

Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 174

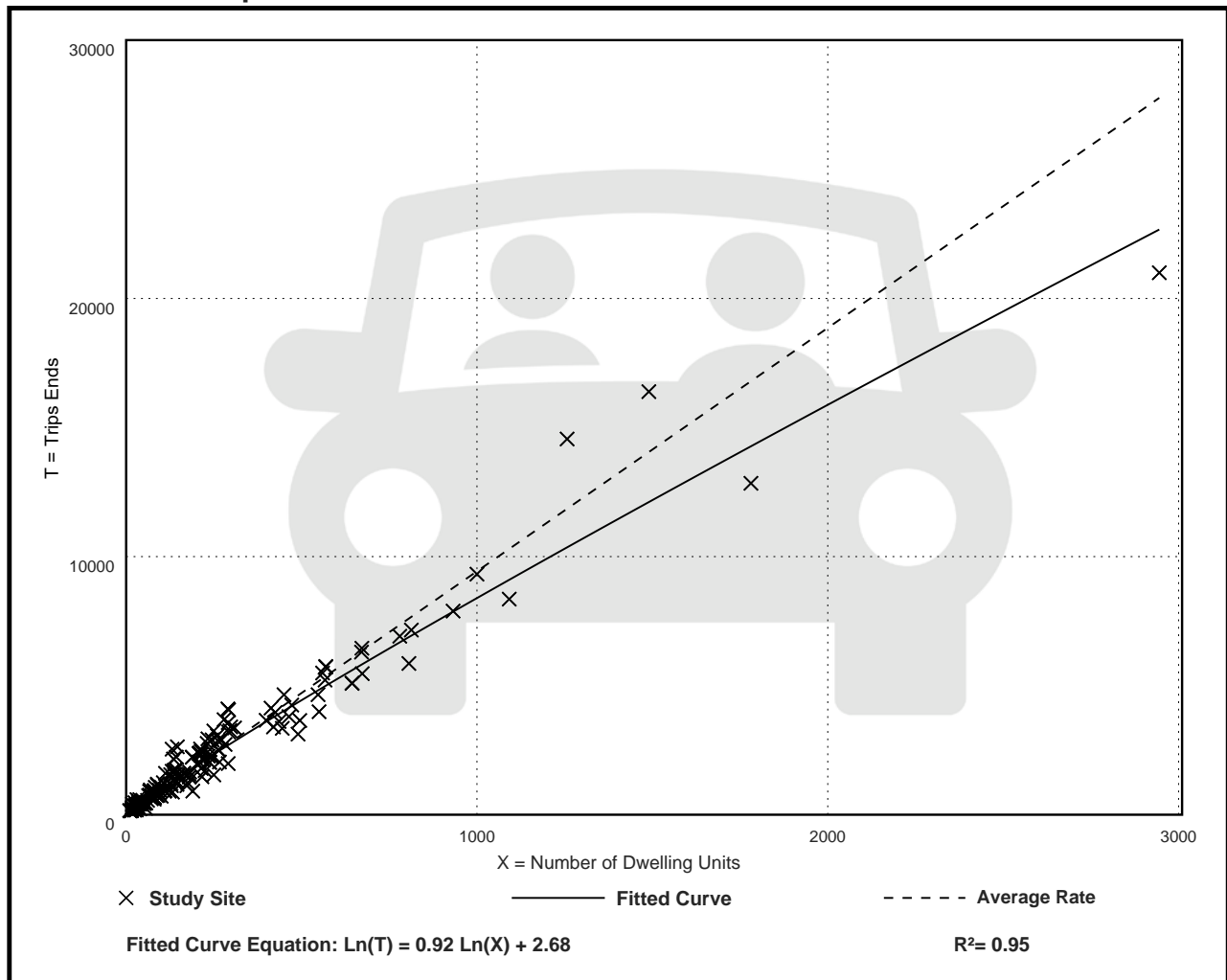
Avg. Num. of Dwelling Units: 246

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 192

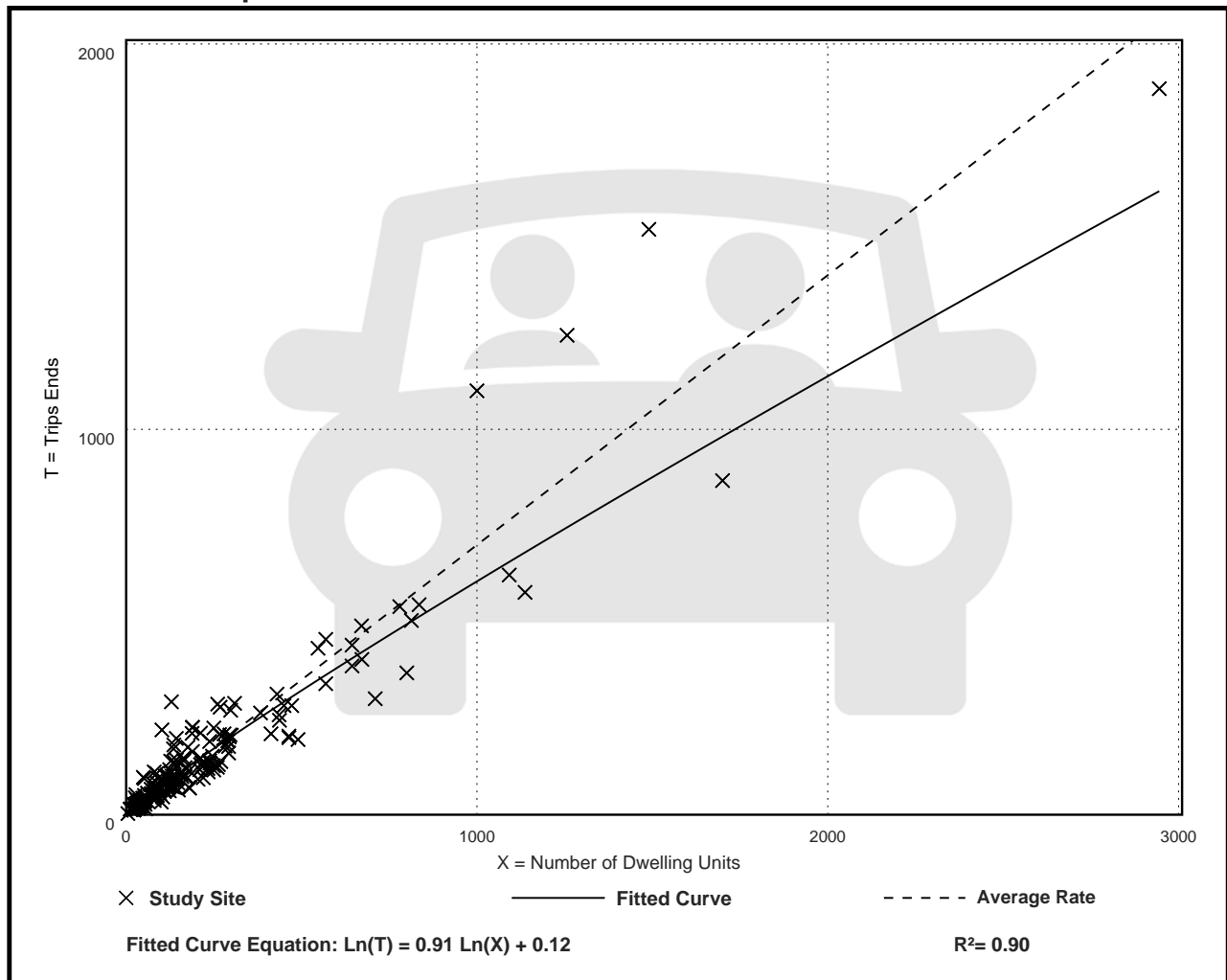
Avg. Num. of Dwelling Units: 226

Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 208

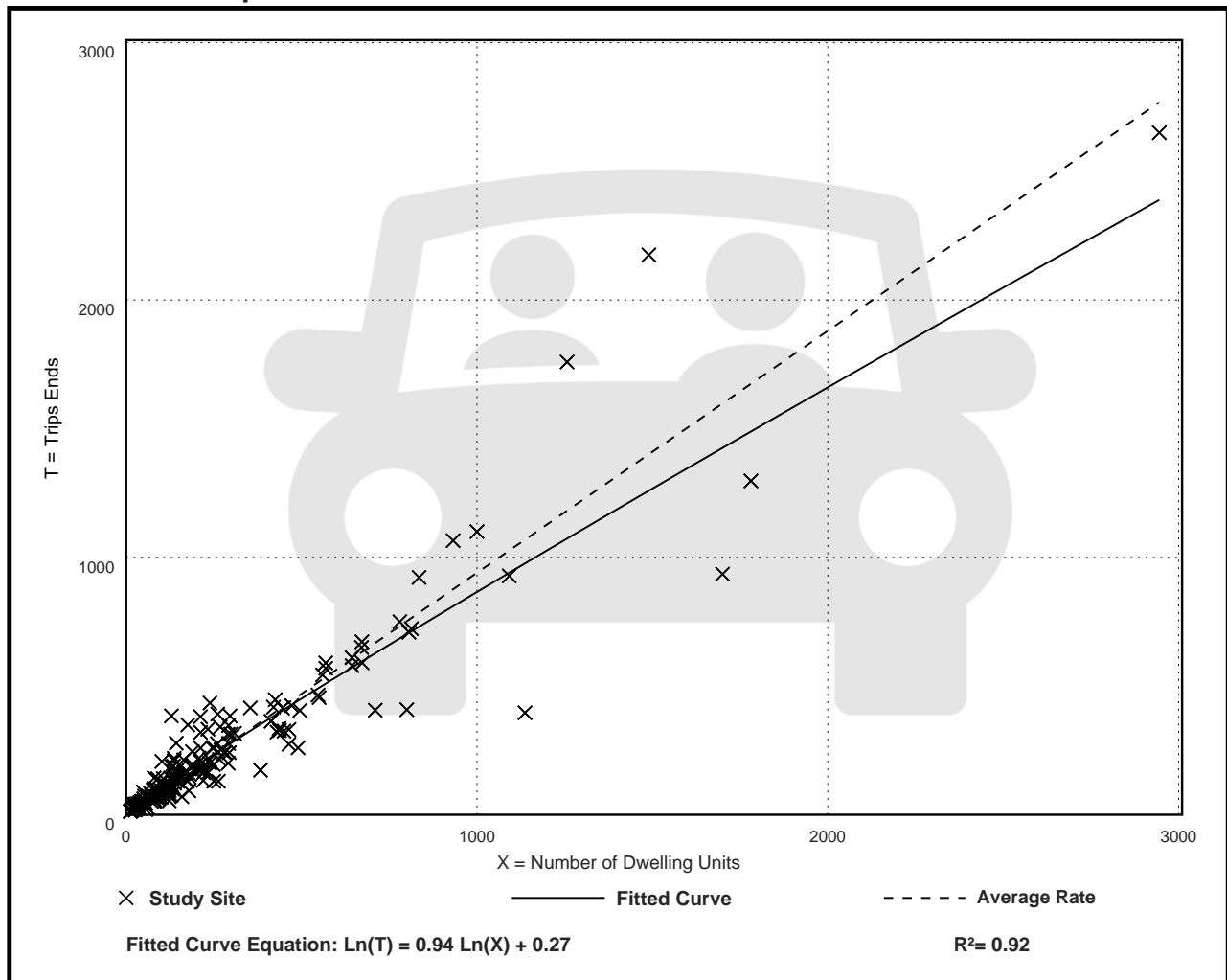
Avg. Num. of Dwelling Units: 248

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation

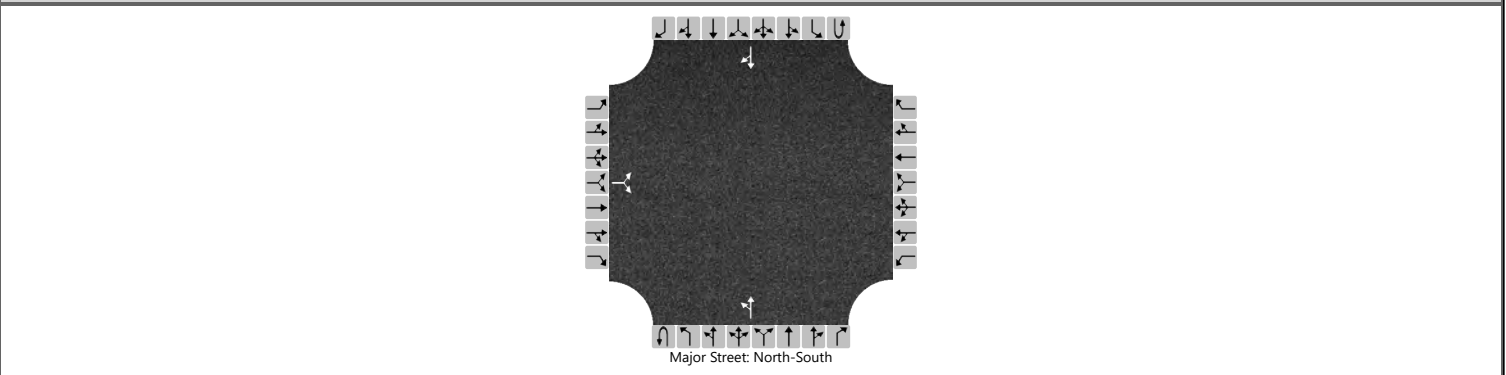


Attachment 5
Intersection Worksheets – Existing AM/PM Peaks

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Addie Kirkham	Intersection	Maloneyville Road at Whisper Ridge Lane
Agency/Co.	Ardurra	Jurisdiction	Knox County
Date Performed	8/15/2024	East/West Street	Whisper Ridge Lane
Analysis Year	2024	North/South Street	Maloneyville Road
Time Analyzed	Existing AM Peak	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	592.016 - Whisper Ridge Subdivision		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		9		9						2	42				75	6
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

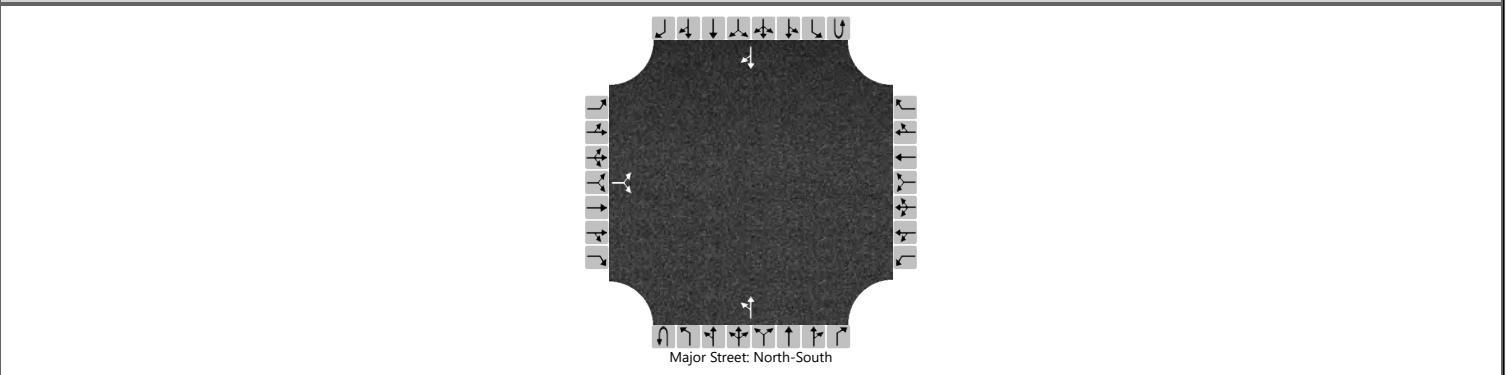
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			19							2						
Capacity, c (veh/h)			915							1510						
v/c Ratio			0.02							0.00						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
95% Queue Length, Q ₉₅ (ft)			2.5							0.0						
Control Delay (s/veh)			9.0							7.4	0.0					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.0								0.3							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Addie Kirkham	Intersection	Maloneyville Road at Whisper Ridge Lane
Agency/Co.	Ardurra	Jurisdiction	Knox County
Date Performed	8/15/2024	East/West Street	Whisper Ridge Lane
Analysis Year	2024	North/South Street	Maloneyville Road
Time Analyzed	Existing PM Peak	Peak Hour Factor	0.87
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	592.016 - Whisper Ridge Subdivision		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		5		6						11	68				51	5
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

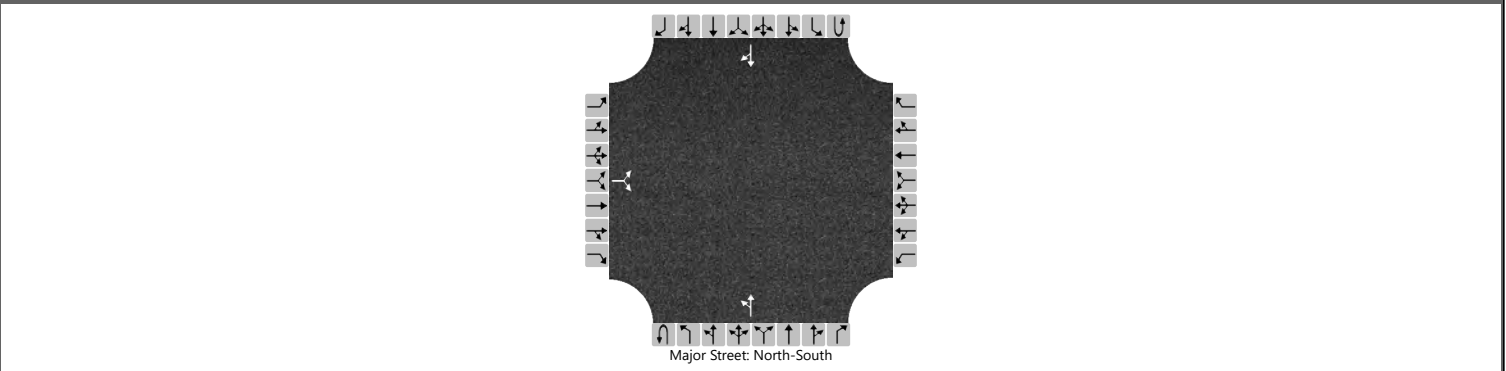
Flow Rate, v (veh/h)			13							13						
Capacity, c (veh/h)			910							1538						
v/c Ratio			0.01							0.01						
95% Queue Length, Q ₉₅ (veh)			0.0							0.0						
95% Queue Length, Q ₉₅ (ft)			0.0							0.0						
Control Delay (s/veh)			9.0							7.4	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)		9.0								1.1						
Approach LOS		A								A						

Attachment 6
Intersection Worksheets – Background AM/PM Peaks

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Addie Kirkham	Intersection	Maloneyville Road at Whisper Ridge Lane
Agency/Co.	Ardurra	Jurisdiction	Knox County
Date Performed	8/15/2024	East/West Street	Whisper Ridge Lane
Analysis Year	2027	North/South Street	Maloneyville Road
Time Analyzed	Background AM Peak	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	592.016 - Whisper Ridge Subdivision		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		11		12						3	43				76	7
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

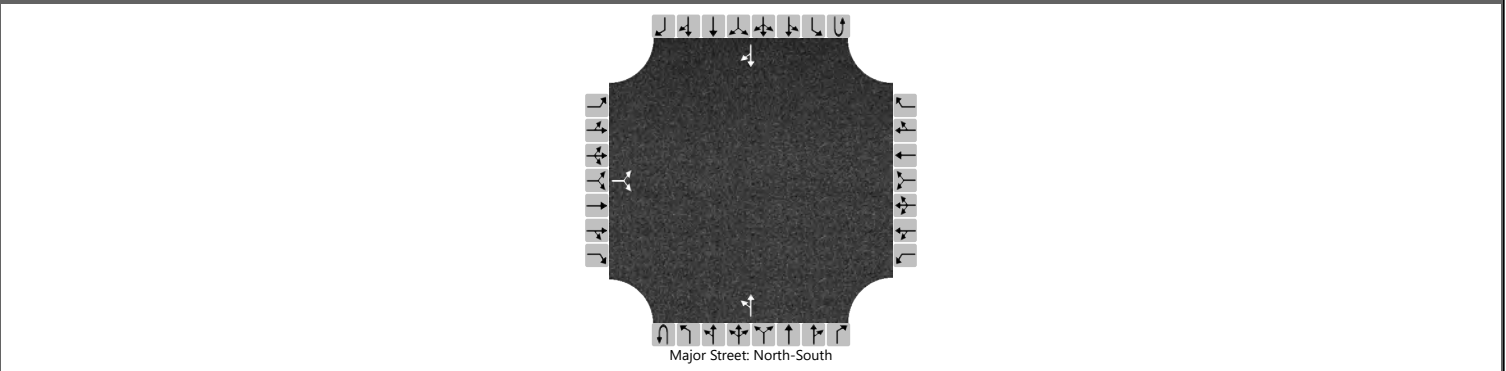
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			24							3						
Capacity, c (veh/h)			913							1507						
v/c Ratio			0.03							0.00						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
95% Queue Length, Q ₉₅ (ft)			2.5							0.0						
Control Delay (s/veh)			9.1							7.4	0.0					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)		9.1								0.5						
Approach LOS		A								A						

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Addie Kirkham			Intersection	Maloneyville Road at Whisper Ridge Lane		
Agency/Co.	Ardurra			Jurisdiction	Knox County		
Date Performed	8/15/2024			East/West Street	Whisper Ridge Lane		
Analysis Year	2027			North/South Street	Maloneyville Road		
Time Analyzed	Background PM Peak			Peak Hour Factor	0.87		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	592.016 - Whisper Rldge Subdivision						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		6		8						13	69				52	7
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

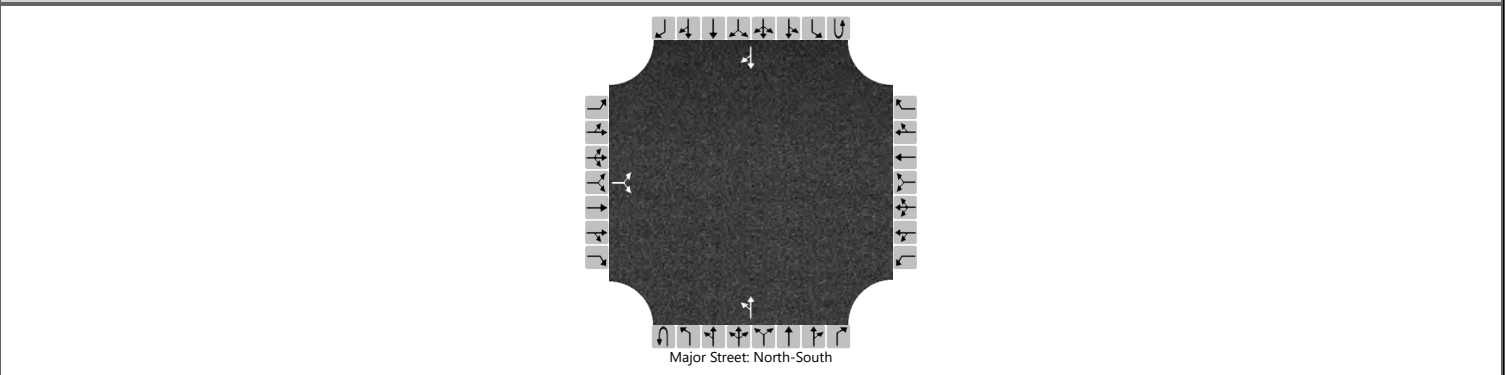
Flow Rate, v (veh/h)			16							15						
Capacity, c (veh/h)			908							1533						
v/c Ratio			0.02							0.01						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
95% Queue Length, Q ₉₅ (ft)			2.5							0.0						
Control Delay (s/veh)			9.0							7.4	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)		9.0								1.2						
Approach LOS		A								A						

Attachment 7
Intersection Worksheets – Full Buildout AM/PM Peaks

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Addie Kirkham	Intersection	Maloneyville Road at Whisper Ridge Lane
Agency/Co.	Ardurra	Jurisdiction	Knox County
Date Performed	8/15/2024	East/West Street	Whisper Ridge Lane
Analysis Year	2027	North/South Street	Maloneyville Road
Time Analyzed	Buildout AM Peak	Peak Hour Factor	0.94
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	592.016 - Whisper Ridge Subdivision		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		37		43						13	43					76
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

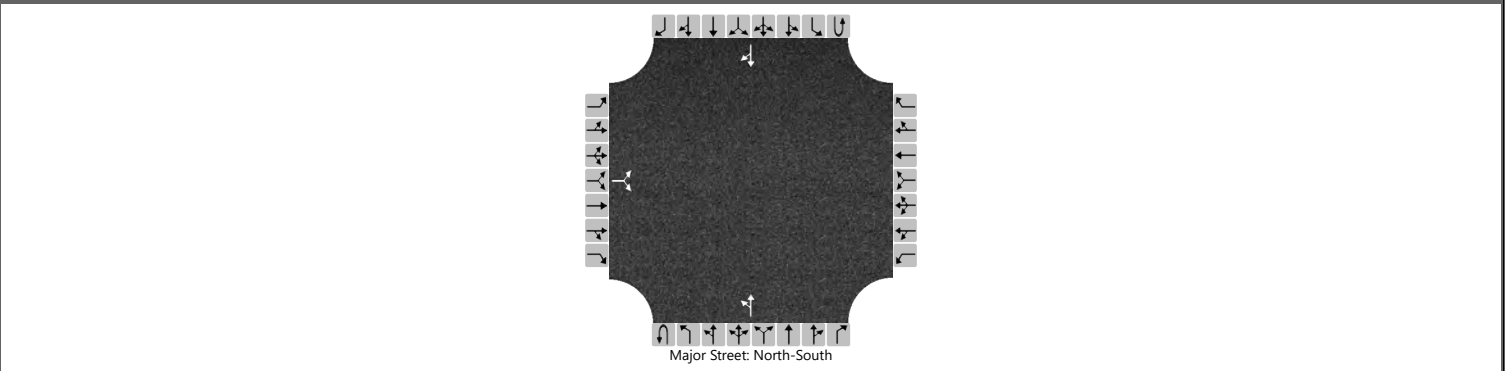
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			85							14						
Capacity, c (veh/h)			894							1495						
v/c Ratio			0.10							0.01						
95% Queue Length, Q ₉₅ (veh)			0.3							0.0						
95% Queue Length, Q ₉₅ (ft)			7.6							0.0						
Control Delay (s/veh)			9.5							7.4	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)		9.5								1.8						
Approach LOS		A								A						

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Addie Kirkham	Intersection	Maloneyville Road at Whisper Ridge Lane				
Agency/Co.	Ardurra	Jurisdiction	Knox County				
Date Performed	8/15/2024	East/West Street	Whisper Ridge Lane				
Analysis Year	2027	North/South Street	Maloneyville Road				
Time Analyzed	Buildout PM Peak	Peak Hour Factor	0.87				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	592.016 - Whisper Ridge Subdivision						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR	
Volume (veh/h)		23		28						48	69					52	36
Percent Heavy Vehicles (%)		2		2						2							
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			59							55						
Capacity, c (veh/h)			825							1491						
v/c Ratio			0.07							0.04						
95% Queue Length, Q ₉₅ (veh)			0.2							0.1						
95% Queue Length, Q ₉₅ (ft)			5.1							2.5						
Control Delay (s/veh)			9.7							7.5	0.3					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)		9.7								3.3						
Approach LOS		A								A						

Attachment 8
Turn Lane Warrants

Project: Whisper Ridge Subdivision - Phase 2

Maloneyville Road at Whisper Ridge Lane

**Maloneyville Road
at Whisper Ridge Lane** VOLUMES

LEFT TURN	Opposing	Thru	LT	LT MAX	Warrant Met
AM	92	43	13	300	NO
PM	88	69	48	300	NO

**Maloneyville Road
at Whisper Ridge Lane** VOLUMES

RIGHT TURN	Thru	RT	RT MAX	Warrant Met
AM	76	16	599	NO
PM	52	36	599	NO

TABLE 4A

LEFT-TURN LANE VOLUME THRESHOLDS
FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 35 MPH OR LESS

(If the left-turn volume exceeds the table value a left -turn lane is needed)

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	100 - 149	150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
100 - 149	300	235	185	145	120	100
150 - 199	245	200	160	130	110	90
200 - 249	205	150	140	115	100	80
250 - 299	175	150	125	105	90	70
300 - 349	155	135	110	95	80	65
350 - 399	135	120	100	85	70	60
400 - 449	120	105	90	75	65	55
450 - 499	105	90	80	70	60	50
500 - 549	95	80	70	65	55	50
550 - 599	85	70	65	60	50	45
600 - 649	75	65	60	55	45	40
650 - 699	70	60	55	50	40	35
700 - 749	65	55	50	45	35	30
750 or More	60	50	45	40	35	30

AM Peak - 13 LT
PM Peak - 48 LT

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	= / > 600
100 - 149	100	80	70	60	55	50
150 - 199	90	75	65	55	50	45
200 - 249	80	72	60	55	50	45
250 - 299	70	65	55	50	45	40
300 - 349	65	60	50	50	45	40
350 - 399	60	55	50	45	40	40
400 - 449	55	50	45	45	40	35
450 - 499	50	45	45	40	35	35
500 - 549	50	45	40	40	35	35
550 - 599	45	40	40	35	35	35
600 - 649	40	35	35	35	35	30
650 - 699	35	35	35	30	30	30
700 - 749	30	30	30	30	30	30
750 or More	30	30	30	30	30	30

* Or through volume only if a right-turn lane exists.

TABLE 4B
RIGHT-TURN LANE VOLUME THRESHOLDS
FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 35 MPH OR LESS

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	<100	100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
Fewer Than 25 25 - 49 50 - 99						
100 - 149 150 - 199						
200 - 249 250 - 299						Yes
300 - 349 350 - 399				Yes	Yes	Yes
400 - 449 450 - 499			Yes	Yes	Yes	Yes
500 - 549 550 - 599		Yes	Yes	Yes	Yes	Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

AM Peak - 16 RT
PM Peak - 36 RT

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 600	+ / > 600
Fewer Than 25 25 - 49 50 - 99					Yes	Yes
100 - 149 150 - 199			Yes	Yes	Yes	Yes
200 - 249 250 - 299	Yes	Yes	Yes	Yes	Yes	Yes
300 - 349 350 - 399	Yes	Yes	Yes	Yes	Yes	Yes
400 - 449 450 - 499	Yes	Yes	Yes	Yes	Yes	Yes
500 - 549 550 - 599	Yes	Yes	Yes	Yes	Yes	Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

* Or through volume only if a left-turn lane exists.

Attachment 9
Sight Distance



Maloneyville Road at Whisper Ridge Lane – Looking Left (Northbound)



Maloneyville Road at Whisper Ridge Lane – Looking Right (Southbound)



Date: September 17, 2024

To: Knoxville Knox-County Planning

Subject: TIS Review for Whisper Ridge Subdivision Phase 2

Dear Knoxville Knox-County Planning staff,

The following comment response document is submitted to address comments dated September 6, 2024:

- 1. Reviewer Comment:** The long and very straight road segments shown in the proposed site plan will likely encourage higher vehicle speeds. Please reference such in the TIS regarding the internal circulation review aspect and note whether it may be recommended that the civil site designer consider including traffic calming measures on any of the internal roads such as speed humps or tables. Please also note that the specifics regarding this recommendation should be discussed in the design phase with Knox County Engineering.

Response: Added the following statement to the Conclusions and Recommendations on page 21. "The proposed Whisper Ridge Subdivision – Phase 2 layout includes the extension of Shadow Branch Lane with a straight stretch of roadway ending in a cul-de-sac and a new Road "B" that will connect to Shadow Branch Road creating a loop road. A straight stretch of roadway in a subdivision layout can encourage higher vehicle speeds. Ardurra recommends the consideration of traffic calming measures including but not limited to speed humps and speed tables. Ardurra recommends that any future traffic calming improvements be reviewed, coordinated and approved by Knox County Engineering and Public Works."

Sincerely,

Addie Kirkham, P.E.

