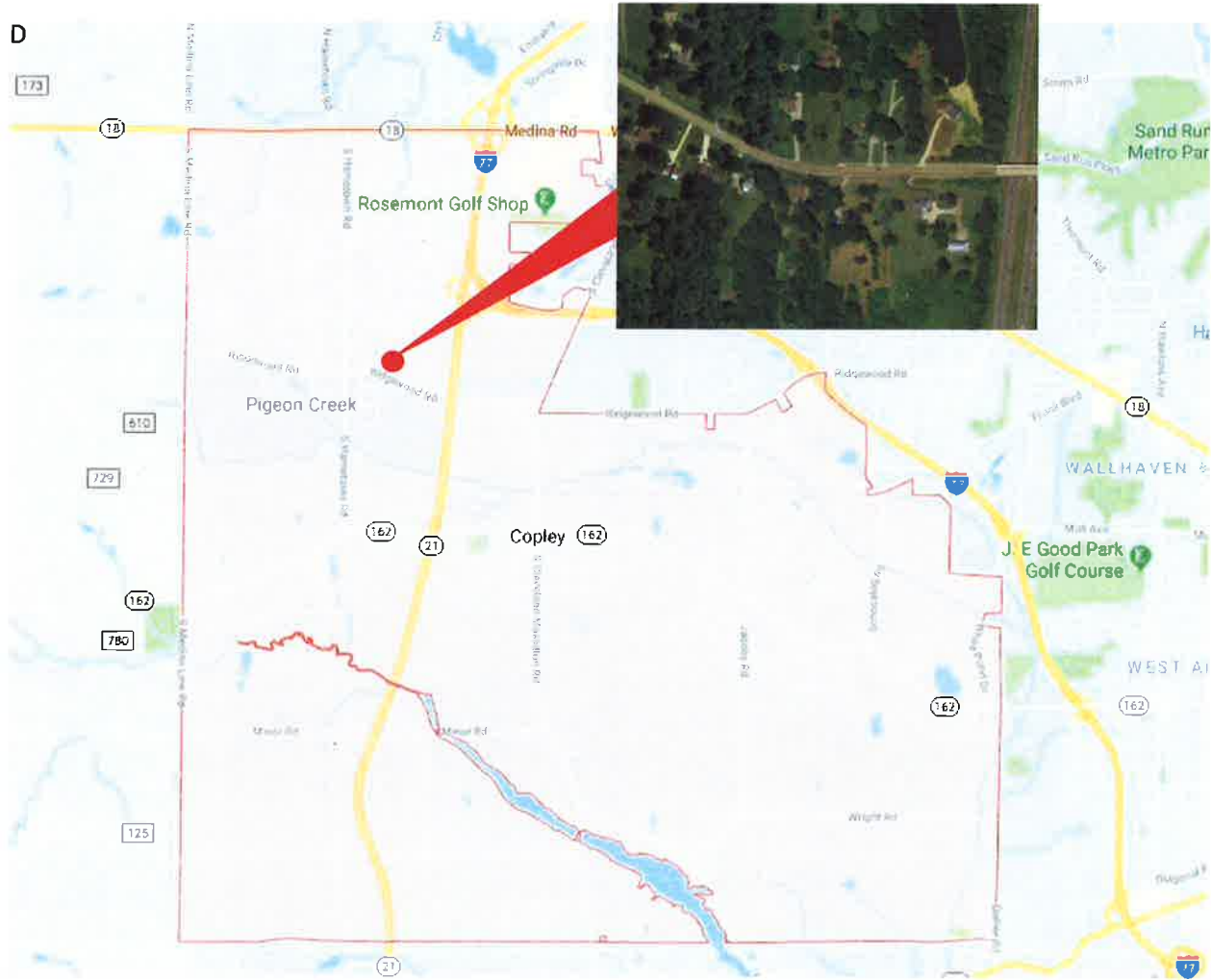


Redwood Living Traffic Impact Assessment

Copley Township, Summit County Ohio



January 2019

PRIME AE[®]

Traffic Impact Assessment

Redwood Living

Copley Township, Summit County, Ohio

Prepared For:



Redwood Living, Inc.
7510 East Pleasant Valley Road
Independence, Ohio 44131

January 2019

Prepared By:

A handwritten signature in blue ink, appearing to read "Eric William Smith", written over a horizontal line.

Eric William Smith, PE, PTOE
Registration No. 58426
Certification No. 015



PRIME AE Group, Inc.
540 White Pond Drive, Suite E, Akron, Ohio 44320
330.247.0928 | www.primeeng.com



Table of Contents

Executive Summary 2

 Site Location and Study Area 2

 Existing Roadway Function and Geometrics 2

 Site Traffic Generation 2

 Anticipated Transportation Conditions 2

 Conclusions and Mitigation Measures 2

Introduction..... 3

 Transportation Impact Questionnaire..... 3

 Site Location and Study Area 3

 Proposed Site Development..... 3

Existing Transportation Conditions 4

 Existing Roadway Function and Geometrics 4

 Background Transportation Conditions 4

Anticipated Future Transportation Conditions 5

 Site Traffic Generation 5

 Anticipated Site Traffic Distribution..... 5

 Projected Local Traffic 5

 2019 Design Year Traffic 5

 Traffic Capacity 6

 Analysis of Turn Lane Requirements..... 7

Conclusions and Mitigation Measures 8

List of Appendices:

Appendix A: Transportation Impact Questionnaire

Appendix B: Site Plan

Appendix C: Existing Conditions Diagram and Sight Distance Analysis

Appendix D: Traffic Data and Growth Analysis

Appendix E: Trip Generation, Distribution Pattern, 2019 Build Traffic Volumes

Appendix F: Capacity Analysis Worksheets, Auxiliary Turn-Lane Analysis

Executive Summary

Redwood Living plans to construct a 100-unit low-rise residential apartment community located on the north side of Ridgewood Road west of SR 21 in Copley Township, Summit County, Ohio. This study has been undertaken to determine how traffic generated by the new construction will impact traffic operations in the vicinity and whether any roadway improvements are needed to accommodate site-generated traffic. This study conforms with the procedures and requirements set forth in the Summit County Access Management Manual.

Site Location and Study Area

The proposed site is located on Ridgewood Road west of SR 21 on over 58 acres of undeveloped land north of the roadway. Access to the property from Ridgewood Road is to be located approximately 1,000 feet west of the Ridgewood Road bridge over SR 21.

Existing Roadway Function and Geometrics

Ridgewood Road is classified as a Major Collector by the Akron Metropolitan Area Transportation Study (AMATS). The average daily traffic (ADT) on this section of Ridgewood Road is reported as 6070 vehicles. Ridgewood Road consists of two travel lanes (one in each direction) and has a posted speed limit of 40mph. There exists a curve in Ridgewood Road east of the proposed site access drive which is signed in each direction with W1-2 horizontal alignment advanced warning signs with 35mph advisory speed plates. A variety of single-family residential driveways surround the proposed site drive on each side of the road. No sidewalks or bicycle lanes exist on Ridgewood Road near the site. Metro RTA provides no transit service on Ridgewood Road. Land uses in the area include commercial, institutional and residential developments.

Intersection and stopping sight distance studies (ISD and SSD) have been performed at the proposed site access drive by TGC Engineering. Both intersection and stopping sight distance are achievable with the current roadway location and geometry. However, intersection sight distance is artificially impeded by some low bushes on neighboring property to the east. If those bushes were removed, ISD would be satisfied. Stopping sight distances are, however achieved along the roadway itself with no obstruction, meeting minimum Ohio Department of Transportation (ODOT) standards for intersection placement.

Site Traffic Generation

The development is anticipated to generate 48 new trips in the AM Peak and 59 new trips in the PM Peak.

Anticipated Transportation Conditions

The introduction of the Site Drive onto Ridgewood Road will not have a significant impact on traffic flow. Levels of Service A are anticipated for traffic turning left into the Site Drive from Ridgewood Road. Similarly, traffic exiting the site will experience a LOS B turning left onto Ridgewood Road. The need for auxiliary turn lanes also was evaluated. The 2019 Build AM and PM Peak-Hour traffic volumes were used in this analysis. Based upon those analyses, it is determined that auxiliary lanes are not required at the site drive.

Conclusions and Mitigation Measures

This study was prepared to evaluate future traffic conditions on Ridgewood Road if the subject development is constructed. Existing and future traffic on Ridgewood Road was analyzed using the methodologies and requirements set forth in the COSE Access Management Manual and it has been found that traffic operations on Ridgewood Road will not be substantially affected by the development. Further, analysis indicates that there is no need for auxiliary turn lanes at the site entrance. Sight distance at the drive also is acceptable but could be improved with bush clearing on adjacent private property. No mitigation measures are required or recommended.

Introduction

PRIME AE Group (PRIME) has been retained by Redwood Living, Inc. to evaluate existing and future traffic conditions in the area surrounding a proposed residential development on Ridgewood Road in Copley township, Summit County, Ohio. Redwood Living plans to construct a 100-unit low-rise residential apartment community located on the north side of Ridgewood Road west of S.R. 21. This study has been undertaken to determine how traffic generated by the new construction will impact traffic operations in the vicinity and whether any roadway improvements are needed to accommodate site-generated traffic. This study has been prepared following the criteria and requirements of the Summit County Access Management Manual¹ and conforms with generally accepted traffic engineering methodologies.

Transportation Impact Questionnaire

In accordance with County of Summit Engineer (COSE) process and procedures, a Transportation Impact Questionnaire was prepared and submitted for COSE review and evaluation of study requirements. A copy of that document is included in Appendix A. Upon review, the COSE determined that a Transportation Impact Assessment was required for this project, focusing solely on the proposed site access point on Ridgewood Road.

Site Location and Study Area

The proposed site is located on Ridgewood Road west of SR 21 on over 58 acres of undeveloped land north of the roadway. Access to the property from Ridgewood Road is to be located approximately 1,000 feet west of the Ridgewood Road bridge over SR 21.

Proposed Site Development

Redwood Living plans to construct a 100-unit low-rise residential apartment community. These units are rented by their tenants and provide one-floor living with attached garages. For purposes of trip generation, this land use will perform similarly to any type of low-rise multifamily development, including apartments and condominiums. Appendix B contains a copy of the proposed site plan and location.

¹ Summit County Access Management Manual, County of Summit Engineer, 2015

Existing Transportation Conditions

Understanding both the geometric and traffic characteristics of a roadway is critical to evaluating existing and future traffic operations. This section contains a discussion of each.

Existing Roadway Function and Geometrics

Ridgewood Road is classified as a Major Collector by the Akron Metropolitan Area Transportation Study (AMATS). Which also reports a seasonally adjusted Average Annual Daily Traffic (AADT) volume of 6,070 vehicles. Ridgewood Road consists of two travel lanes (one in each direction) and has a posted speed limit of 40mph. There exists a curve in Ridgewood Road east of the proposed site access drive which is signed in each direction with W1-2 horizontal alignment advanced warning signs with 35mph advisory speed plates. A variety of single-family residential driveways surround the proposed site drive on each side of the road. No sidewalks or bicycle lanes exist on Ridgewood Road near the site. Metro RTA provides no transit service on Ridgewood Road. Land uses in the area include commercial, institutional and residential developments. Appendix C contains an Existing Conditions diagram.

Intersection and stopping sight distance studies (ISD and SSD) have been performed at the proposed site access drive by TGC Engineering. A copy of their measurements and analysis is contained in Appendix C. That exhibit illustrates that both intersection and stopping sight distance are achievable with the current roadway location and geometry. However, intersection sight distance is artificially impeded by some low bushes on neighboring property to the east. If those bushes were removed, ISD would be satisfied. Stopping sight distance is, however, are achieved along the roadway itself with no obstruction. Guidance is provided by ODOT regarding sight distance needs, stating "to enhance traffic operations, intersection sight distance should be provided at all intersections. If intersections sight distance cannot be provided due to environmental or right-of-way constraints, then as a minimum, the stopping sight distance for vehicles on the major road should be provided."²

Background Transportation Conditions

AMATS provided three historic traffic counts dating from 2011 to 2015. In compliance with COSE requirements, traffic counts were conducted for this project on Wednesday, December 12, 2018. The count indicates that the AM Peak hour occurs between 7:00 AM and 8:00 AM, with a PM Peak between 4:45 PM and 5:45 PM. Appendix D contains a summary of that data along with a growth rate analysis. Using the AM and PM peak hour data available, it appears that traffic has been growing at about a 3% compounded annual growth rate.

The only funded transportation improvement project identified in the area is a COSE sponsored project at the intersection of Cleveland-Massillon Road and Ridgewood Road, where intersection improvements are planned and funded. No known other developments are being planned in the general area. It is anticipated that the Redwood development will be completed in 2019.

² Location and Design Manual, Volume 1, Ohio Department of Transportation, Section 201.3, page 2-2, July 2013

Anticipated Future Transportation Conditions

An evaluation of anticipated traffic conditions within the study area requires an estimation of future site-generated traffic volumes which then are superimposed onto projected local traffic volumes. These combined traffic volumes are used to test the adequacy of the access plan and roadways within the study area. This chapter summarizes and presents the methodologies used to determine the anticipated traffic volumes associated with the proposed development. Given the nature of this project, this study is focused on an Opening Year scenario.

Site Traffic Generation

The developer proposes construction of 100 Low-Rise Residential Apartments. Appendix B presents a copy of the site plan. No project phasing is anticipated and the sole access point to the property is from one access drive onto Ridgewood Road. Traffic anticipated to be generated by these residences has been calculated using data contained in the Institute of Transportation Engineers (ITE) manual entitled Trip Generation³. As indicated below, the development is anticipated to generate 48 new trips in the AM Peak and 59 new trips in the PM Peak. No trip reduction factors should be applied for this use.

Trip Generation Redwood Living Ridgewood Road

LAND USE	SIZE	IE CODE	WEEKDAY	AM PEAK		PM PEAK	
				Enter	Exit	Enter	Exit
Low-Rise Multi-Family	100 Units	220	715	11	37	37	22

Anticipated Site Traffic Distribution

A site traffic distribution pattern has been created using existing traffic volumes as a guide. This approach is appropriate for this land use as it is a residential development and associated trips in the area can be attributed to residential origins and destinations. In general, site traffic is anticipated to gravitate towards the east with a 70% / 30% bias in that direction.

Projected Local Traffic

It commonly is appropriate to project existing traffic into a design year prior to adding site-generated traffic to account for normal regional growth. For this project, AMATS was contacted for an annual growth rate that could be applied to existing traffic. AMATS suggested that their data shows a 0.75 to 1.0 percent annual growth rate for traffic on Ridgewood Road. However, the historic peak-hour growth rate analysis earlier presented indicates a 3% growth rate. PRIME is using an Opening (Design) Year of 2019 for purposes of this study. As such, existing traffic was grown from 2018 to 2019 by increasing it by 3 percent.

2019 Design Year Traffic

Site-generated traffic volumes were assigned to the study area roadways based on the site traffic distribution pattern described above. Those future site-generated traffic volumes then were superimposed upon projected local traffic for both peak hours. This effort resulted in Build Year 2019 Traffic. These traffic volumes will be used to evaluate anticipated future traffic conditions and the need for roadway improvements necessary to mitigate the additional site traffic.

Appendix E contains Trip Generation graphs, Existing Traffic, Distribution and 2019 Build Traffic Volume graphics.

³ "Trip Generation Manual, 10th Edition", Institute of Transportation Engineers, 2017.

Traffic Capacity

Capacity analysis techniques contained in The Highway Capacity Manual⁴ and supported by the Highway Capacity Software⁵ were used to evaluate the ability of the intersection to process the traffic demand. The engineering industry uses a rating system referred to as Level of Service (LOS) to describe traffic operational efficiency. These service conditions are defined by the letter's "A" through "F", with "A" being excellent (very little delay) traffic conditions and "F" equating to congested, unstable traffic flow with excessive delay.

LEVEL OF SERVICE DEFINITIONS		
L.O.S.	ROADWAY SEGMENTS OR CONTROLLED-ACCESS HIGHWAYS	INTERSECTIONS
A	Free flow, low traffic density.	No vehicle waits longer than one signal indication.
B	Delay is not unreasonable, stable traffic flow.	On a rare occasion, motorists will wait longer than one signal indication.
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectional for motorists.	Intermittently, drivers wait more than one signal indication, and occasionally backups may develop behind left-turning vehicles, traffic flow still stable and acceptable.
D	Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive delay.	Delays at intersections may become extensive with some, especially left-turning vehicles, waiting two or more signal indications, enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.
E	Actual capacity of the roadway. Involves delay to all motorists due to congestion.	Very long queues may create lengthy delays, especially for left-turning vehicles.
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach, creating a storage area during part or all of an hour.

SOURCE: A Policy on Design of Urban Highway and Arterial Streets, 1984 based upon material published in the Highway Capacity Manual, Transportation Research Board.

At STOP controlled intersections, drivers on the stop-controlled approaches are required to select gaps in the major-street flow to execute crossing or turning maneuvers. In the presence of a queue, each driver on the controlled approach must also spend time moving to the front-of-queue position and prepare to evaluate gaps in the major-street flow. Thus, the capacity of the controlled legs is based primarily on three factors: the distribution of gaps in the major-street traffic stream, driver judgment in selecting gaps through which to execute the desired maneuvers, and the follow-up headways required by each driver in a queue.

According to the Highway Capacity Manual, LOS for a Stop-Control (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement), as well as the major-street left turns, by using the criteria given below. LOS is not defined for

⁴ Highway Capacity Manual, 6th Edition, The national Academy of Sciences, Transportation Research Board, 2016

⁵ Highway Capacity Software, University of Florida. 2017

the intersection as a whole or for major-street approaches for three primary reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at a typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay for all vehicles; and (c) the resulting low delay can mask LOS deficiencies for minor movements. As the table below notes, LOS F is assigned to a movement if its volume-to-capacity ratio exceeds 1.0, regardless of the control delay.

Control Delay (s/veh)	LOS by Volume-to Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Note: The LOS Criteria apply to each lane on a give approach and to each approach on the minor street
LOS is not calculated for major street approaches or for the intersection as a whole.

Capacity analysis was performed for the intersection of Ridgewood Road and the Site Drive during the 2019 Build AM and PM peak hours. The results of that analysis are presented below.

Level of Service Summary

INTERSECTION	UNSIGNALIZED INTERSECTIONS			
	AM Peak		PM Peak	
	LOS (1)	v/c (2)	LOS (1)	v/c (2)
Ridgewood Road/Site Drive				
- Eastbound Left	A	0.01	A	.01
- Southbound Left	B	0.08	B	0.06

NOTES:

- (1) LOS = Level of Service
- (2) v/c = Volume over Capacity (v/c < 1.00 is good)

As indicated above, the introduction of the Site Drive onto Ridgewood Road will not have a significant impact on traffic flow. Levels of Service A are anticipated for traffic turning left into the Site Drive from Ridgewood Road, meaning that there will be adequate gaps in westbound traffic flows to accommodate those left turners. Similarly, traffic exiting the site will experience a LOS B turning left onto Ridgewood Road. These service levels are well above minimum requirements and indicate that there is enough capacity on Ridgewood Road to accommodate this development.

Analysis of Turn Lane Requirements

The need for auxiliary lanes at unsignalized intersections is based upon the number or percentage of turning vehicles and advancing and opposing traffic volumes. COSE provides design guidelines in the form of charts contained in their Access Management Manual. Those charts were used to evaluate the need for an eastbound left-turn lane and a westbound right-turn lane. The 2019 Build AM and PM Peak-Hour traffic volumes were used in this analysis. Based upon those analyses, it is determined that auxiliary lanes are not required at the site drive.

Appendix F contains the Highway Capacity Analysis and turn-lane analysis worksheets,

Conclusions and Mitigation Measures

This study was prepared to evaluate future traffic conditions on Ridgewood Road if the subject development is constructed. Existing and future traffic on Ridgewood Road were analyzed using the methodologies and requirements set forth in the COSE Access Management Manual and it has been found that traffic operations on Ridgewood Road will not be substantially affected by the development. Further, analysis indicates that there is no need for auxiliary turn lanes at the site entrance. Sight distance at the drive also is acceptable but could be improved with bush clearing on adjacent private property. No mitigation measures are required or recommended.

APPENDIX A
TRANSPORTATION IMPACT Questionnaire

Transportation Impact Questionnaire



Existing Use

Please describe the existing use and zoning designation of the project parcel(s) below:

Currently open space and woods zoned P.D.D-Planned Development District.

Proposed Use

Please describe the proposed use and zoning designation of the project parcel(s) below:

Single story residential apartments zoned P.D.D.-Planned Development District.

Note: All projects require a traffic comparison to determine which type of traffic study is necessary, including site plans special conditional uses, condominium projects, subdivision plat or rezoning. The Trip Generation table below helps to identify specific thresholds to determine the necessary type of traffic study.

Trip Generation

Calculate existing and future vehicle trips using the most recent edition of the ITE Trip Generation Manual.

Existing Use(s) (fast food restaurant, medical office, warehouse)	Building or Lot Size (sq. ft., acres)	ITE Land Use Code	AM Peak Hour in/out (rate/# of trips)	PM Peak Hour in/out (rate/# of trips)	Daily Trips in/out (rate/# of trips)
<i>Example: fast food restaurant with drive-through</i>	5,000 sq. ft.	934	(53.61/268.05) 51% in/49%out	(47.30/236.5) 50% in/50%out	(496.12/2480.6) 50% in/50%out
Total Existing Trips:					

Proposed Use(s)	Building or Lot Size (sq. ft., acres)	ITE Land Use Code	AM Peak Hour in/out (rate/# of trips)	PM Peak Hour in/out (rate/# of trips)	Daily Trips in/out (rate/# of trips)
Low Rise Residential Apartments		220	48	59	715
Total New Trips:					

Trip Reduction: In some cases, trips may be reduced for internal trips between land uses, trips by walking, bicycling or transit. Please see the Summit County Access Management Manual to review trip reduction factors and to determine reduction rates for specific uses.

Estimated Trip Reduction 0

Total Number of Trips Estimated

AM Peak Hour (in/out) 48

PM Peak Hour (in/out) 59

Daily Trips (in/out) 715

What type of Traffic Study is Required based on the above calculations:

Note: In all cases, the Summit County Engineer may require a traffic study if the project has potential to require significant transportation improvements or is located in a sensitive area due to environmental or safety conditions.

Situation	No	Yes	Study Type Required if Yes
Does the proposed use generate below 100 peak hour trip ends?		X	No Study Required
Does the traffic comparison yield a difference greater than 50-99 directional trips during a peak hour or 500-749 trips on a typical weekday?		X	Transportation Impact Assessment
Does the traffic comparison yield over 100 directional trips during the peak hour of the traffic generator or the peak hour on the adjacent streets, or over 750 trips on a typical weekday?	X		Traffic Impact Study
Is the request for rezoning likely to generate at least 100 directional trips during a peak hour, or over 750 trips in an average day?	X		Traffic Impact Study

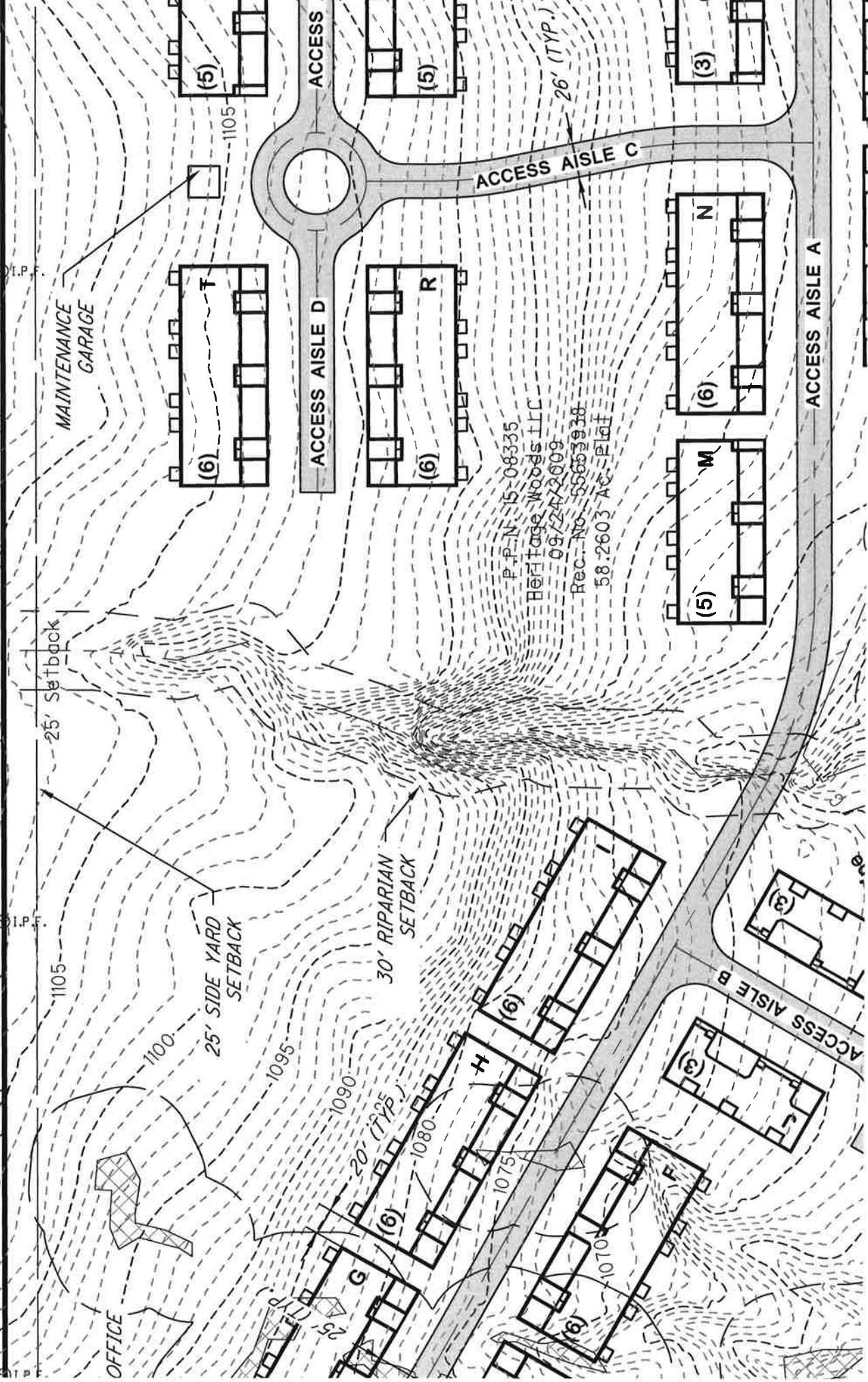
**APPENDIX B
SITE PLAN**

Kingsbury Trace No. 3
 Rec. No. 54076332
 11/12/1997

Kingsbury Trace No. 4
 Rec. No. 54216537
 11/16/1998

S.L. 145
 S.L. 144
 S.L. 179
 S.L. 178
 S.L. 177
 S.L. 176

Drainage Esmt.
 25' San. Esmt.



P.P.N. 15-08335
 Heritage Woods LLC
 09/27/2009
 Rec. No. 58653938
 58.2603 AC. Plat

ACCESS AISLE A

ACCESS AISLE B

ACCESS AISLE C

ACCESS AISLE D

MAINTENANCE GARAGE

OFFICE

25' SIDE YARD SETBACK

30' RIPARIAN SETBACK

25' Setback

26' (TYP.)

(5)

(5)

(3)

(6)

(6)

(6)

(5)

(6)

(6)

(5)

(6)

(5)

(6)

(5)

(6)

(5)

(6)

(5)

(6)

(5)

(6)

(5)

(6)

(5)

(6)

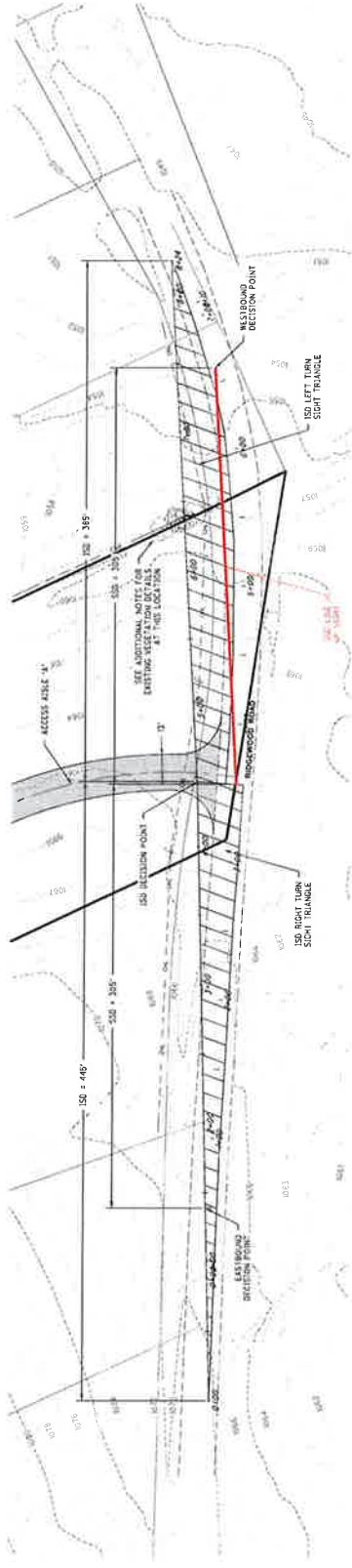
APPENDIX C
Existing Conditions Diagram
TRIP SIGHT DISTANCE ANALYSIS



EXISTING CONDITIONS

RIDGEWOOD ROAD, COPLEY OH

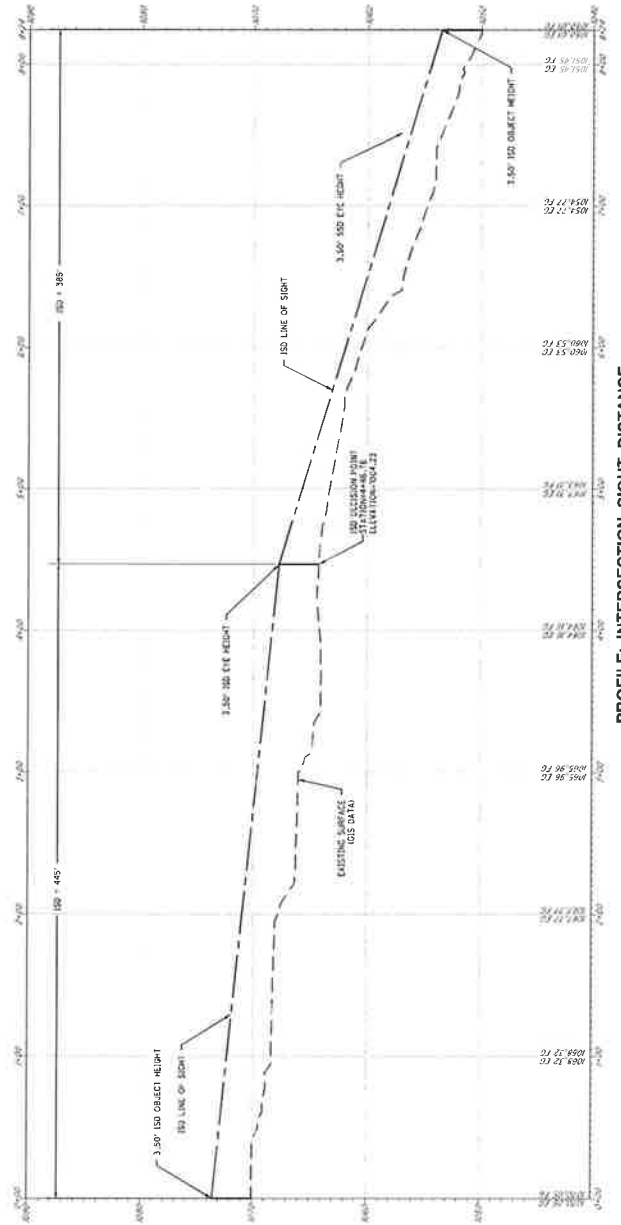




PLAN: INTERSECTION SIGHT DISTANCE

SIGHT DISTANCE SUMMARY

- DESIGN SPEED:
- ACCORDING TO SECTION 104.2 OF THE ODOT LOCATION AND DESIGN MANUAL VOLUME 1, THE MINIMUM DESIGN SPEED SHALL BE EQUAL TO OR GREATER THAN THE LEGAL SPEED.
 - THE SPEED LIMIT IN BOTH DIRECTIONS IS POSTED AT 40 MPH.
 - THEREFORE THE DESIGN SPEED OF THE ROAD IS 40 MPH.
- SIGHT TRIANGLES:
- THE DECISION POINT IS LOCATED IN THE CENTER OF THE MINOR STREET LANE AND AT THE 14.4' MINIMUM FROM THE ROAD EDGE.
 - THE SIGHT TRIANGLE EXTENDS TO HALF THE LANE WIDTH FOR A RIGHT TURN, AND ONE AND A HALF LANE WIDTHS FOR A LEFT TURN.
- INTERSECTION SIGHT DISTANCE (ISD):
- FROM TABLE 201-5E, THE INTERSECTION SIGHT DISTANCE AT 40 MPH IS 385 FEET FOR A RIGHT TURN, AND 448 FEET FOR A LEFT TURN.
 - THE PROFILE ABOVE COMPARES THE LINE OF SIGHT TO THE EXISTING SURFACE DETERMINED FROM GIS DATA USING AN OBJECT HEIGHT OF 3.5 FEET AND AN OBJECT HEIGHT OF 3.5 FEET.
 - IF ISD CANNOT BE PROVIDED DUE TO ENVIRONMENTAL OR R/W CONSTRAINTS, THEN AS A MINIMUM, THE SSD FOR VEHICLES ON THE MAJOR ROAD SHOULD BE PROVIDED.
 - USING THE INTERSECTION SIGHT DISTANCE PROFILE, THE AMOUNT OF REQUIRED INTERSECTION SIGHT DISTANCE IS BEING PROVIDED AT THE PROPOSED LOCATION.
- ADDITIONAL NOTES:
- VEGETATION ON THE PROPERTY LOCATED WITHIN THE INTERSECTION SIGHT TRIANGLES WILL BE CLEARED TO PROVIDE PROPER INTERSECTION SIGHT DISTANCE.
 - IF THE EXISTING VEGETATION AT THE EAST PROPERTY LINE IS UNABLE TO BE CLEARED AND IS CONSTRAINING INTERSECTION SIGHT DISTANCE FOR THE MINOR ROAD, TABLE 201-5E OF THE L&D MANUAL ALLOWS STOPPING SIGHT DISTANCE ON THE MAJOR ROAD TO BE PROVIDED AS AN ALTERNATIVE. THIS HAS BEEN CONSIDERED IN THE PROFILE. THE PROPOSED LOCATION ALSO PROVIDES THE REQUIRED STOPPING SIGHT DISTANCE.



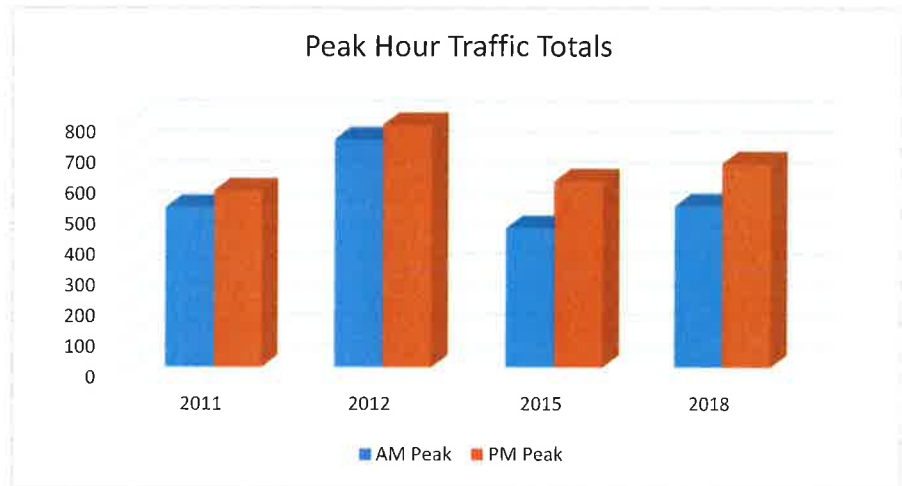
PROFILE: INTERSECTION SIGHT DISTANCE
 SCALE: 1" = 4' V, 1" = 40' H

APPENDIX D
TRAFFIC COUNT DATA AND ANALYSIS

TRAFFIC GROWTH RATE ANALYSIS
Ridgewood Road (CR) Between Hametown Road and SR 21

Year	AM Peak				PM Peak			
	EB	WB	Total	Annual Growth Rate	EB	WB	Total	Annual Growth Rate
2011	N/A	N/A	522		N/A	N/A	577	
				42.53%				37.26%
2012	411	333	744		307	485	792	
				-15.12%				-8.44%
2015	292	163	455		215	393	608	
				11.04%				5.21%
2018	481	142	623		300	408	708	
Compounded 7-Year Growth Rate				2.56%	2.97%			

	AM Peak	PM Peak
2011	522	577
2012	744	792
2015	455	608
2018	527	666



Eric Smith

From: Prater, Amy <APrater@akronohio.gov>
Sent: Monday, October 29, 2018 9:42 AM
To: Eric Smith
Cc: Pulay, Dave
Subject: RE: Ridgewood Road
Attachments: 1360 2015.pdf; 1360 2012 Summit Co.pdf; 1360 2011.pdf

Eric,

I attached counts for years 2015, 2012 (Summit Co), and 2011. We also took at count in 2007 which had 6,550 ADT. Ridgewood is not part of our Congestion Management System so no future projections were estimated. I would not assume too high of a growth rate in this area because much of the area has been built already. I would assume less than 1% per year.

AMATS does not have any planned/future improvements that we know of west of SR 21 on Ridgewood. There is a project at Ridgewood and Cleveland Massillon intersection that includes adding turn lanes.

Let me know if you need anything else for this request via email or feel free to give me a call.

Thanks,
Amy Prater, P.E.
Transportation Engineer
Akron Metropolitan Area Transportation Study
330-375-2436 ext 4633

From: Eric Smith [mailto:esmith@primeeng.com]
Sent: Sunday, October 28, 2018 2:40 PM
To: Prater, Amy
Subject: Ridgewood Road

Amy,

Good morning! I am hoping you can point me in the right direction. I see that AMATS has published a 2016 ADT of 6070 on Ridgewood Road just west of SR 21. I am doing a study there and am interested in the following:

1. Can I get a copy of the actual count?
2. What kind of traffic growth do you anticipate out there?
3. Does AMATS have any planned or funded improvements to Ridgewood Road there? I am specifically looking at the section of Ridgewood just west of the SR 21 bridge.

Thank you so much for your help. Please feel free to call Monday morning to chat.

Eric

Eric Smith, PE | PTOE | MBA
Vice President of National Traffic Engineering | ITS



PRIME AE Group, Inc.
540 White Pond Drive | Suite E | Akron, Ohio 44320
C: 330 730 3095 | esmith@primeeng.com

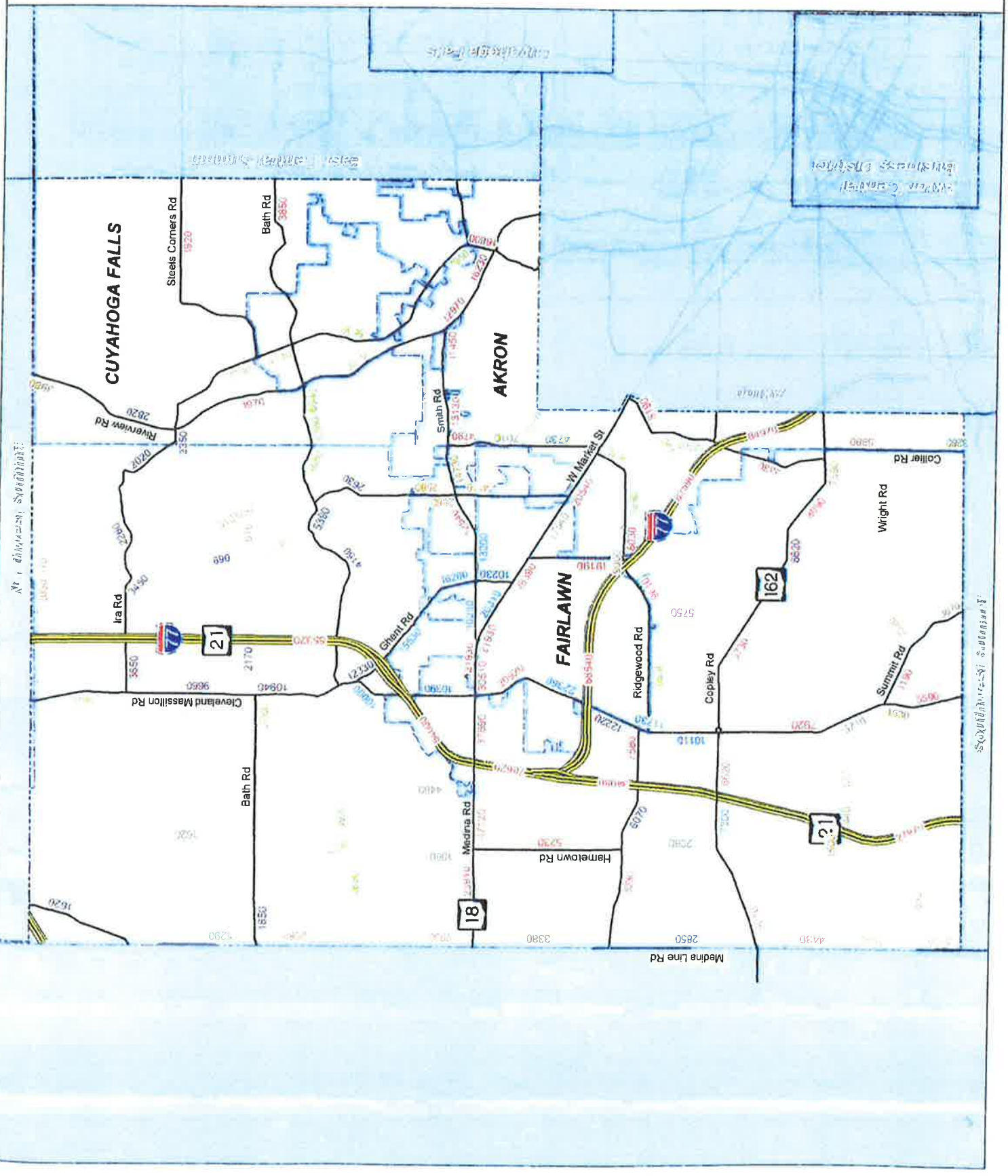
2016 Latest Average Daily Traffic

West Central Summit

2016 Count
 2015 Count
 2014 Count
 2013 Count



May 2017



Ridgewood Rd. ATR - ATR

Wed Dec 12, 2018

Full Length (12AM-12AM(+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 599908, Location: 41.111838, -81.658823



LOUKAS
Engineering
TRAFFIC DATA & CONSULTING

Provided by: Loukas Engineering
232 19th St. NW, Canton, OH, 44709, US

Leg Direction Time	East Westbound		West Eastbound		Int
	T	App	T	App	
2018-12-12 12:00AM	3	3	0	0	3
12:15AM	4	4	3	3	7
12:30AM	3	3	3	3	6
12:45AM	2	2	1	1	3
Hourly Total	12	12	7	7	19
1:00AM	3	3	1	1	4
1:15AM	1	1	0	0	1
1:30AM	0	0	1	1	1
1:45AM	1	1	0	0	1
Hourly Total	5	5	2	2	7
2:00AM	1	1	0	0	1
2:15AM	1	1	0	0	1
2:30AM	0	0	0	0	0
2:45AM	0	0	0	0	0
Hourly Total	2	2	0	0	2
3:00AM	1	1	0	0	1
3:15AM	2	2	1	1	3
3:30AM	0	0	1	1	1
3:45AM	0	0	2	2	2
Hourly Total	3	3	4	4	7
4:00AM	0	0	1	1	1
4:15AM	0	0	0	0	0
4:30AM	1	1	3	3	4
4:45AM	1	1	2	2	3
Hourly Total	2	2	6	6	8
5:00AM	1	1	1	1	2
5:15AM	0	0	8	8	8
5:30AM	3	3	10	10	13
5:45AM	4	4	15	15	19
Hourly Total	8	8	34	34	42
6:00AM	5	5	17	17	22
6:15AM	4	4	24	24	28
6:30AM	7	7	49	49	56
6:45AM	15	15	90	90	105
Hourly Total	31	31	180	180	211
7:00AM	53	53	166	166	219
7:15AM	46	46	122	122	168
7:30AM	21	21	97	97	118
7:45AM	22	22	96	96	118
Hourly Total	142	142	481	481	623
8:00AM	36	36	117	117	153
8:15AM	29	29	86	86	115
8:30AM	31	31	72	72	103
8:45AM	27	27	96	96	123
Hourly Total	123	123	371	371	494
9:00AM	29	29	51	51	80
9:15AM	23	23	54	54	77
9:30AM	27	27	36	36	63
9:45AM	38	38	32	32	70
Hourly Total	117	117	173	173	290
10:00AM	25	25	37	37	62
10:15AM	24	24	39	39	63
10:30AM	35	35	40	40	75
10:45AM	26	26	47	47	73

Leg Direction	East Westbound		West Eastbound		Int
	T	App	T	App	
Time					
Hourly Total	110	110	163	163	273
11:00AM	39	39	45	45	84
11:15AM	26	26	56	56	82
11:30AM	42	42	40	40	82
11:45AM	44	44	33	33	77
Hourly Total	151	151	174	174	325
12:00PM	52	52	22	22	74
12:15PM	36	36	42	42	78
12:30PM	44	44	51	51	95
12:45PM	37	37	38	38	75
Hourly Total	169	169	153	153	322
1:00PM	48	48	31	31	79
1:15PM	46	46	44	44	90
1:30PM	61	61	42	42	103
1:45PM	66	66	55	55	121
Hourly Total	221	221	172	172	393
2:00PM	45	45	52	52	97
2:15PM	70	70	45	45	115
2:30PM	131	131	47	47	178
2:45PM	59	59	50	50	109
Hourly Total	305	305	194	194	499
3:00PM	67	67	43	43	110
3:15PM	98	98	42	42	140
3:30PM	74	74	42	42	116
3:45PM	95	95	45	45	140
Hourly Total	334	334	172	172	506
4:00PM	111	111	52	52	163
4:15PM	100	100	57	57	157
4:30PM	82	82	48	48	130
4:45PM	104	104	76	76	180
Hourly Total	397	397	233	233	630
5:00PM	133	133	68	68	201
5:15PM	78	78	91	91	169
5:30PM	93	93	65	65	158
5:45PM	87	87	52	52	139
Hourly Total	391	391	276	276	667
6:00PM	82	82	51	51	133
6:15PM	72	72	53	53	125
6:30PM	80	80	38	38	118
6:45PM	68	68	32	32	100
Hourly Total	302	302	174	174	476
7:00PM	58	58	31	31	89
7:15PM	60	60	26	26	86
7:30PM	65	65	13	13	78
7:45PM	53	53	24	24	77
Hourly Total	236	236	94	94	330
8:00PM	48	48	31	31	79
8:15PM	45	45	14	14	59
8:30PM	36	36	20	20	56
8:45PM	43	43	19	19	62
Hourly Total	172	172	84	84	256
9:00PM	39	39	16	16	55
9:15PM	30	30	13	13	43
9:30PM	28	28	12	12	40
9:45PM	18	18	8	8	26
Hourly Total	115	115	49	49	164
10:00PM	13	13	0	0	13
10:15PM	15	15	6	6	21
10:30PM	16	16	10	10	26
10:45PM	7	7	4	4	11

Leg Direction	East		West		Int
	Westbound		Eastbound		
Time	T	App	T	App	
Hourly Total	51	51	20	20	71
11:00PM	5	5	7	7	12
11:15PM	2	2	5	5	7
11:30PM	5	5	2	2	7
11:45PM	2	2	3	3	5
Hourly Total	14	14	17	17	31
Total	3413	3413	3233	3233	6646
% Approach	100%	-	100%	-	-
% Total	51.4%	51.4%	48.6%	48.6%	-
Lights	3370	3370	3184	3184	6554
% Lights	98.7%	98.7%	98.5%	98.5%	98.6%
Articulated Trucks	3	3	2	2	5
% Articulated Trucks	0.1%	0.1%	0.1%	0.1%	0.1%
Buses and Single-Unit Trucks	40	40	47	47	87
% Buses and Single-Unit Trucks	1.2%	1.2%	1.5%	1.5%	1.3%

*T: Thru

Ridgewood Rd. ATR - ATR

Wed Dec 12, 2018

Full Length (12AM-12AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 599908, Location: 41.111838, -81.658823

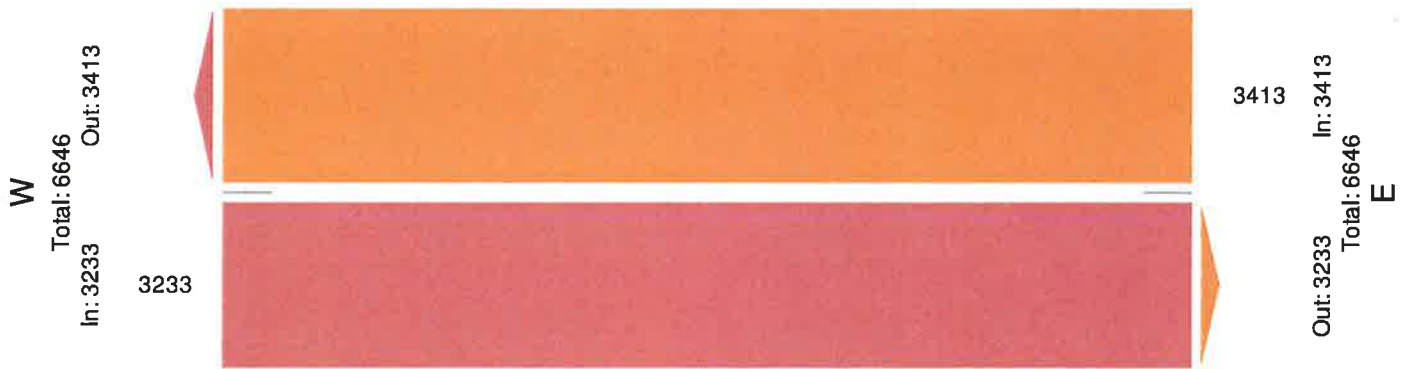


LOUKAS

Engineering

TRAFFIC DATA & CONSULTING

Provided by: Loukas Engineering
232 19th St. NW, Canton, OH, 44709, US



Ridgewood Rd. ATR - ATR

Wed Dec 12, 2018

AM Peak (Dec 12 2018 7AM - 8AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 599908, Location: 41.111838, -81.658823



LOUKAS

engineering
TRAFFIC DATA & CONSULTING

Provided by: Loukas Engineering
232 19th St. NW, Canton, OH, 44709, US

Leg Direction	East		West		Int
	Westbound		Eastbound		
Time	T	App	T	App	
2018-12-12 7:00AM	53	53	166	166	219
7:15AM	46	46	122	122	168
7:30AM	21	21	97	97	118
7:45AM	22	22	96	96	118
Total	142	142	481	481	623
% Approach	100%	-	100%	-	-
% Total	22.8%	22.8%	77.2%	77.2%	-
PHF	0.670	0.670	0.724	0.724	0.711
Lights	136	136	476	476	612
% Lights	95.8%	95.8%	99.0%	99.0%	98.2%
Articulated Trucks	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	6	6	5	5	11
% Buses and Single-Unit Trucks	4.2%	4.2%	1.0%	1.0%	1.8%

*T: Thru

Ridgewood Rd. ATR - ATR

Wed Dec 12, 2018

Midday Peak (Dec 12 2018 1:45PM - 2:45PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 599908, Location: 41.111838, -81.658823



LOUKAS

engineering
TRAFFIC DATA & CONSULTING

Provided by: Loukas Engineering
232 19th St. NW, Canton, OH, 44709, US

Leg Direction	East Westbound		West Eastbound		Int
	T	App	T	App	
Time					
2018-12-12 1:45PM	66	66	55	55	121
2:00PM	45	45	52	52	97
2:15PM	70	70	45	45	115
2:30PM	131	131	47	47	178
Total	312	312	199	199	511
% Approach	100%	-	100%	-	-
% Total	61.1%	61.1%	38.9%	38.9%	-
PHF	0.595	0.595	0.905	0.905	0.718
Lights	303	303	193	193	496
% Lights	97.1%	97.1%	97.0%	97.0%	97.1%
Articulated Trucks	0	0	1	1	1
% Articulated Trucks	0%	0%	0.5%	0.5%	0.2%
Buses and Single-Unit Trucks	9	9	5	5	14
% Buses and Single-Unit Trucks	2.9%	2.9%	2.5%	2.5%	2.7%

*T: Thru

Ridgewood Rd. ATR - ATR

Wed Dec 12, 2018

Midday Peak (Dec 12 2018 1:45PM - 2:45PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 599908, Location: 41.111838, -81.658823

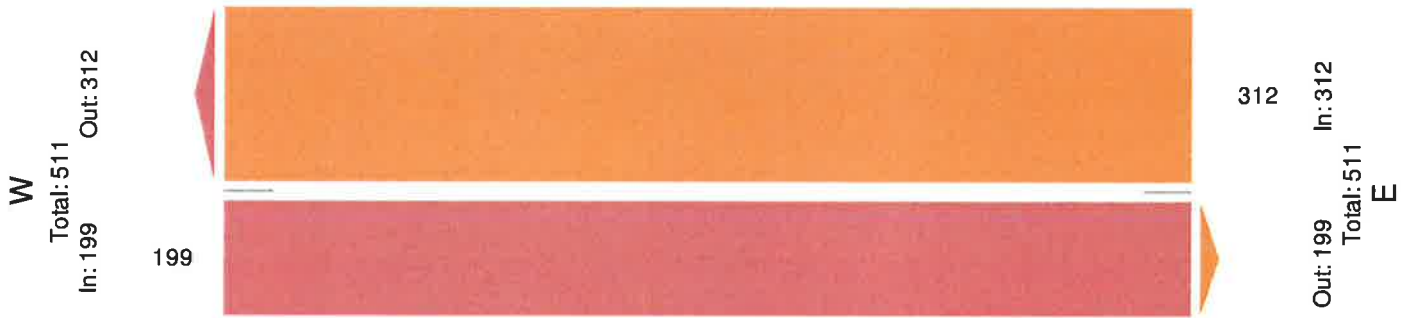


LOUKAS

engineering

TRAFFIC DATA & CONSULTING

Provided by: Loukas Engineering
232 19th St. NW, Canton, OH, 44709, US



Ridgewood Rd. ATR- ATR

Wed Dec 12, 2018

PM Peak (Dec 12 2018 4:45PM - 5:45PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 599908, Location: 41.111838, -81.658823



LOUKAS

Engineering
TRAFFIC DATA & CONSULTING

Provided by: Loukas Engineering
232 19th St. NW, Canton, OH, 44709, US

Leg Direction	East Westbound		West Eastbound		
Time	T	App	T	App	Int
2018-12-12 4:45PM	104	104	76	76	180
5:00PM	133	133	68	68	201
5:15PM	78	78	91	91	169
5:30PM	93	93	65	65	158
Total	408	408	300	300	708
% Approach	100%	-	100%	-	-
% Total	57.6%	57.6%	42.4%	42.4%	-
PHF	0.767	0.767	0.824	0.824	0.881
Lights	407	407	298	298	705
% Lights	99.8%	99.8%	99.3%	99.3%	99.6%
Articulated Trucks	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	1	1	2	2	3
% Buses and Single-Unit Trucks	0.2%	0.2%	0.7%	0.7%	0.4%

*T: Thru

Ridgewood Rd. ATR - ATR

Wed Dec 12, 2018

PM Peak (Dec 12 2018 4:45PM - 5:45PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 599908, Location: 41.111838, -81.658823

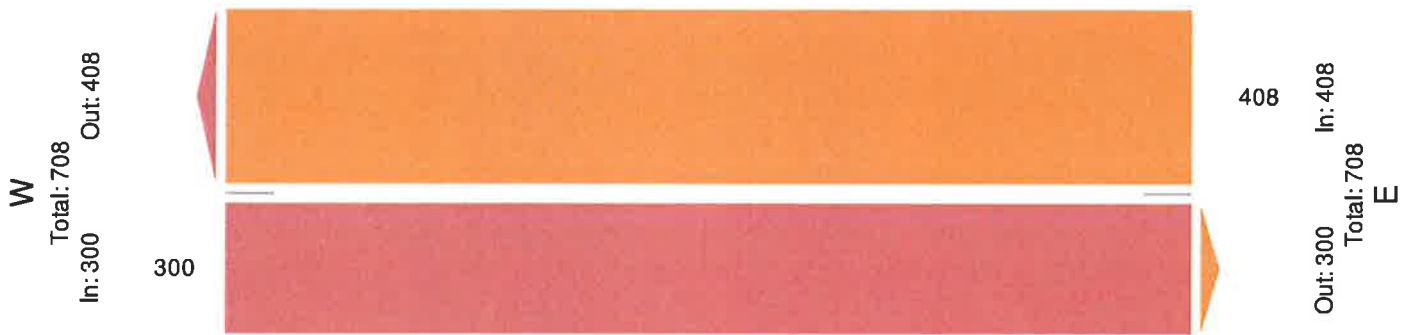


LOUKAS

engineering

TRAFFIC DATA & CONSULTING

Provided by: Loukas Engineering
232 19th St. NW, Canton, OH, 44709, US



Basic Volume Report: 1360 EB

Station ID : 1360 EB

Info Line 1 : Ridgewood EB
 Info Line 2 : E of Hametown

GPS Lat/Lon : 41D 06.692m N / 81D 39.373m W
 DB File : 1360 EB.DB

Last Connected Device Type : Omega
 Version Number : 1.36
 Serial Number : 19852

Number of Lanes : 1
 Posted Speed Limit : 40.0 mph

Lane #1 Configuration

#	Dir. Information	Volume Mode	Volume Sensors	Divide By 2	Comment
1.	EB			Yes	SAF = .860

Lane #1 Basic Volume Data From: 12:00 - 08/06/2015 To: 11:59 - 08/07/2015

Date	Time	:00	:15	:30	:45	Total
8/6/2015	12:00	40	37	46	54	177
Thu	13:00	40	33	43	50	166
	14:00	45	42	37	36	160
	15:00	36	33	38	54	161
	16:00	36	41	46	66	189
	17:00	57	46	44	67	214
	18:00	50	36	53	42	181
	19:00	36	44	31	32	143
	20:00	33	31	17	28	109
	21:00	25	21	19	16	81
	22:00	20	11	13	7	51
	23:00	7	5	3	4	19
Day Total :						1651

AM Total :	Peak AM Hour :	Peak AM Factor :	Average Period :	34.4
PM Total : 1651 (100.0%)	Peak PM Hour : 16:30 = 215 (13.0%)	Peak PM Factor : 0.802	Average Hour :	137.6

	<u>Total</u>	<u>Pass & A</u>	<u>B & C</u>
EB	2,888	99 % 2,859	1 % 29
WB	3,178	99 % 3,146	1 % 32
2-Way	6,066	99 % 6,005	1 % 61

ADT = 6,070

Peak Hour 17:15 600

Date	Time	:00	:15	:30	:45	Total
8/7/2015	00:00	6	2	2	2	12
Fri	01:00	2	3	3	1	9
	02:00	0	0	0	1	1
	03:00	0	2	0	2	4
	04:00	0	1	0	3	4
	05:00	3	3	8	12	26
	06:00	13	16	40	36	105
	07:00	43	53	71	85	252
	08:00	71	65	65	67	268
	09:00	51	31	40	68	190
	10:00	52	40	41	43	176
	11:00	43	36	52	59	190
Day Total :						1237

AM Total :	1237 (100.0%)	Peak AM Hour : 07:30 =	292 (23.6%)	Peak AM Factor : 0.859	Average Period :	25.8
PM Total :		Peak PM Hour :		Peak PM Factor :	Average Hour :	103.1

Basic Volume Summary: 1360 EB

Grand Total For Data From: 12:00 - 08/06/2015 To: 11:59 - 08/07/2015

Lane	Total Count	# Of Days	ADT	Avg. Period	Avg. Hour	AM Total & Percent	PM Total & Percent
#1.	2888 (100.0%)	1.00	2888	30.1	120.3	1237 (42.8%)	1651 (57.2%)
ALL	2888	1.00	2888	30.1	120.3	1237 (42.8%)	1651 (57.2%)

Lane	Peak AM Hour	Date	Peak AM Factor	Peak PM Hour	Date	Peak PM Factor
#1.	07:30 = 292	08/07/2015	0.859	16:30 = 215	08/06/2015	0.802

Basic Axle Classification Report: 1360 EB

Station ID : 1360 EB

Info Line 1 : Ridgewood EB

Info Line 2 : E of Hametown

GPS Lat/Lon : 41D 06.692m N / 81D 39.373m W

DB File : 1360 EB.DB

Last Connected Device Type : Omega

Version Number : 1.36

Serial Number : 19852

Number of Lanes : 1

Posted Speed Limit : 40.0 mph

Lane #1 Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length	Comment
1.	EB		Ax-Ax	4.0 ft	6.0 ft	SAF = .860

Lane #1 Basic Axle Classification Data From: 12:00 - 08/06/2015 To: 12:59 - 08/07/2015

(DEFAULTC)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
Date	Time	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	5A-MT	6A-MT	Other	
8/6/2015	12:00	0	158	18	0	0	0	0	0	0	0	0	0	0	176
Thu	13:00	0	144	20	0	0	1	0	0	0	0	0	0	0	165
	14:00	0	135	24	0	1	0	0	1	0	0	0	0	0	161
	15:00	0	138	20	0	3	0	0	0	0	0	0	0	0	161
	16:00	0	169	22	0	0	0	0	0	0	0	0	0	0	191
	17:00	1	188	23	0	0	0	0	0	0	1	0	0	0	213
	18:00	1	167	12	0	0	0	0	1	0	0	0	0	0	181
	19:00	3	128	13	0	0	1	0	0	0	0	0	0	0	145
	20:00	0	100	9	0	0	0	0	0	0	0	0	0	0	109
	21:00	0	75	5	0	0	1	0	0	0	0	0	0	0	81
	22:00	0	50	1	0	0	0	0	0	0	0	0	0	0	51
	23:00	0	17	2	0	0	1	0	0	0	0	0	0	0	20
Daily Total :		5	1469	169	0	4	4	0	2	0	1	0	0	0	1654
Percent :		0%	89%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Average :		0	122	14	0	0	0	0	0	0	0	0	0	0	136

(DEFAULTC)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
Date	Time	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	5A-MT	6A-MT	Other	
8/7/2015	00:00	0	10	2	0	0	0	0	0	0	0	0	0	0	12
Fri	01:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
	02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	03:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
	04:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
	05:00	0	24	3	0	0	0	0	0	0	0	0	0	0	27
	06:00	0	99	6	0	0	1	0	0	0	0	0	0	0	106
	07:00	0	237	16	0	0	0	0	0	0	0	0	0	0	253
	08:00	0	249	19	0	0	0	0	0	0	0	0	0	0	268
	09:00	3	161	25	0	1	1	0	0	0	0	0	0	0	191
	10:00	1	159	16	0	1	0	0	0	0	0	0	0	0	177
	11:00	0	166	23	0	0	0	1	0	0	0	0	0	0	190
Daily Total :		4	1121	113	0	2	2	1	0	0	0	0	0	0	1243
Percent :		0%	90%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Average :		0	93	9	0	0	0	0	0	0	0	0	0	0	102

Basic Axle Class Summary: 1360 EB

(DEFAULTC)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
Description	Lane	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	5A-MT	6A-MT	Other	
TOTAL COUNT :	#1.	9	2590	282	0	6	6	1	2	0	1	0	0	0	2897
		9	2590	282	0	6	6	1	2	0	1	0	0	0	2897
Percents :	#1.	0%	89%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		0%	89%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Average :	#1.	0	108	12	0	0	0	0	0	0	0	0	0	0	120
		0	108	12	0	0	0	0	0	0	0	0	0	0	120
Days & ADT :	#1.	1.0	2897												
		1.0	2897												

Basic Volume Report: 1360 WB

Station ID : 1360 WB

Info Line 1 : Ridgewood WB
 Info Line 2 : E of Hametown

GPS Lat/Lon : 41D 06.692m N / 81D 39.375m W
 DB File : 1360 WB.DB

Last Connected Device Type : Omega
 Version Number : 1.33
 Serial Number : 19857

Number of Lanes : 1
 Posted Speed Limit : 40.0 mph

Lane #1 Configuration

#	Dir. Information	Volume Mode	Volume Sensors	Divide By 2	Comment
1.	WB			Yes	.860

Lane #1 Basic Volume Data From: 12:00 - 08/06/2015 To: 11:59 - 08/07/2015

Date	Time	:00	:15	:30	:45	Total
8/6/2015	12:00	63	47	41	46	197
Thu	13:00	41	34	40	49	164
	14:00	68	54	49	56	227
	15:00	44	34	43	71	192
	16:00	73	71	74	89	307
	17:00	95	111	82	83	371
	18:00	117	74	71	59	321
	19:00	41	59	45	48	193
	20:00	58	51	64	54	227
	21:00	55	44	39	34	172
	22:00	36	26	26	12	100
	23:00	13	12	9	12	46

Day Total : 2517

AM Total :	Peak AM Hour :	Peak AM Factor :	Average Period :	52.4
PM Total : 2517 (100.0%)	Peak PM Hour : 17:15 = 393 (15.6%)	Peak PM Factor : 0.840	Average Hour :	209.8

Date	Time	:00	:15	:30	:45	Total
8/7/2015	00:00	7	4	3	4	18
Fri	01:00	3	4	2	3	12
	02:00	2	1	1	1	5
	03:00	1	3	2	1	7
	04:00	1	0	0	0	1
	05:00	1	3	2	3	9
	06:00	3	5	13	11	32
	07:00	5	8	11	24	48
	08:00	26	21	40	19	106
	09:00	16	28	31	34	109
	10:00	45	44	28	34	151
	11:00	28	43	40	52	163
Day Total :						661

AM Total :	661 (100.0%)	Peak AM Hour : 11:00 =	163 (24.7%)	Peak AM Factor : 0.784	Average Period :	13.8
PM Total :		Peak PM Hour :		Peak PM Factor :	Average Hour :	55.1

Basic Volume Summary: 1360 WB

Grand Total For Data From: 12:00 - 08/06/2015 To: 11:59 - 08/07/2015

Lane	Total Count	# Of Days	ADT	Avg. Period	Avg. Hour	AM Total & Percent	PM Total & Percent
#1.	3178 (100.0%)	1.00	3178	33.1	132.4	661 (20.8%)	2517 (79.2%)
ALL	3178	1.00	3178	33.1	132.4	661 (20.8%)	2517 (79.2%)

Lane	Peak AM Hour	Date	Peak AM Factor	Peak PM Hour	Date	Peak PM Factor
#1.	11:00 = 163	08/07/2015	0.784	17:15 = 393	08/06/2015	0.840

Basic Axle Classification Report: 1360 WB

Station ID : 1360 WB

Info Line 1 : Ridgewood WB

Info Line 2 : E of Hametown

GPS Lat/Lon : 41D 06.692m N / 81D 39.375m W

DB File : 1360 WB.DB

Last Connected Device Type : Omega

Version Number : 1.33

Serial Number : 19857

Number of Lanes : 1

Posted Speed Limit : 40.0 mph

Lane #1 Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length	Comment
1.	WB		Ax-Ax	4.0 ft	6.0 ft	.860

Lane #1 Basic Axle Classification Data From: 12:00 - 08/06/2015 To: 12:59 - 08/07/2015

(DEFAULT)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
Date	Time	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	5A-MT	6A-MT	Other	
8/6/2015	12:00	0	174	24	0	0	0	0	0	0	0	0	0	0	198
Thu	13:00	1	139	22	0	1	0	0	0	0	2	0	0	0	165
	14:00	2	202	23	0	1	0	0	1	0	0	0	0	0	229
	15:00	0	168	23	0	1	0	0	0	0	0	0	0	0	192
	16:00	1	277	28	0	1	0	0	0	0	0	0	0	0	307
	17:00	2	338	32	0	0	0	0	1	0	0	0	0	0	373
	18:00	0	298	24	0	0	0	0	0	0	0	0	0	0	322
	19:00	3	179	11	0	0	0	0	0	0	0	0	0	0	193
	20:00	0	206	19	0	0	0	0	0	0	0	0	0	0	225
	21:00	0	159	13	0	0	0	0	1	0	0	0	0	0	173
	22:00	0	92	7	0	0	0	1	0	0	0	0	0	0	100
	23:00	1	42	2	0	0	1	0	0	0	0	0	0	0	46
Daily Total :		10	2274	228	0	4	1	1	3	0	2	0	0	0	2523
Percent :		0%	90%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Average :		1	190	19	0	0	0	0	0	0	0	0	0	0	210

(DEFAULTC)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
Date	Time	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	5A-MT	6A-MT	Other	
8/7/2015	00:00	0	16	1	0	0	0	1	0	0	0	0	0	0	18
Fri	01:00	0	12	1	0	0	0	0	0	0	0	0	0	0	13
	02:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
	03:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
	04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	05:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
	06:00	0	25	6	0	1	0	0	0	0	0	0	0	0	32
	07:00	0	43	6	0	0	0	0	0	0	0	0	0	0	49
	08:00	0	91	16	0	0	0	0	0	0	0	0	0	0	107
	09:00	1	91	16	0	0	0	0	0	0	0	0	0	0	108
	10:00	0	129	19	0	2	0	1	0	0	0	0	0	0	151
	11:00	0	146	18	0	1	0	0	0	0	0	0	0	0	165
Daily Total :		1	573	85	0	4	0	2	0	0	0	0	0	0	665
Percent :		0%	86%	13%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	
Average :		0	48	7	0	0	0	0	0	0	0	0	0	0	55

Basic Axle Class Summary: 1360 WB

(DEFAULTC)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	
Description	Lane	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	5A-MT	6A-MT	Other	Total
TOTAL COUNT : #1.		11	2847	313	0	8	1	3	3	0	2	0	0	0	3188
		11	2847	313	0	8	1	3	3	0	2	0	0	0	3188
Percents : #1.		0%	89%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		0%	89%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Average : #1.		0	119	13	0	0	0	0	0	0	0	0	0	0	132
		0	119	13	0	0	0	0	0	0	0	0	0	0	132
Days & ADT : #1.		1.0	3188												
		1.0	3188												

Summit County Engineer

538 E. South Street
Akron, Ohio 44311
(330)-643-2850

Site Code: Ridgewood Road
Station ID: Volume
Hametown to Cleveland-Massillon
Copley Township
Latitude: 0' 0.000 Undefined

Start Time	20-Aug-12		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	*	*	*	*	13	11	18	43	21	38	17	31
01:00	*	*	*	*	*	*	*	6	16	12	16	13	13	10	15	15
02:00	*	*	*	*	*	*	*	5	12	2	9	6	6	4	11	11
03:00	*	*	*	*	*	*	*	3	8	1	6	3	8	3	7	7
04:00	*	*	*	*	*	*	*	7	5	7	8	2	6	5	6	6
05:00	*	*	*	*	*	*	*	27	13	17	3	3	8	17	7	7
06:00	*	*	*	*	*	*	*	118	98	43	21	19	14	60	44	44
07:00	*	*	*	*	*	*	*	396	365	101	49	46	16	181	143	143
08:00	*	*	*	*	*	*	*	357	151	170	100	152	50	226	100	100
09:00	*	*	*	*	*	*	*	234	132	258	193	146	87	213	137	137
10:00	*	*	*	*	*	*	*	197	182	280	202	217	140	226	173	173
11:00	*	*	*	*	*	*	*	212	199	271	233	191	186	220	200	200
12:00 PM	*	*	*	*	*	*	*	224	243	262	239	183	259	218	242	242
01:00	*	*	*	*	*	*	*	198	194	223	249	199	194	212	226	226
02:00	*	*	*	*	*	*	*	316	278	340	293	215	229	208	266	266
03:00	*	*	*	*	*	*	*	284	409	241	387	218	275	207	322	322
04:00	*	*	*	*	*	*	*	286	377	311	430	227	220	207	238	238
05:00	*	*	*	*	*	*	*	313	512	292	488	220	247	184	261	323
06:00	*	*	*	*	*	*	*	310	371	264	367	190	202	208	252	369
07:00	*	*	*	*	*	*	*	201	340	182	222	146	206	165	230	287
08:00	*	*	*	*	*	*	*	188	243	181	153	96	166	143	165	242
09:00	*	*	*	*	*	*	*	89	172	283	108	131	96	143	173	173
10:00	*	*	*	*	*	*	*	36	90	151	143	61	86	126	152	152
11:00	*	*	*	*	*	*	*	16	40	44	73	37	33	74	118	118
Lane	0	0	0	0	0	0	0	2855	3603	4311	4547	3184	3236	2550	3408	3650
Day	0	0	0	0	0	0	6458	8858	6420	5265	7058	3408	3650	3408	3650	3650
AM Peak Vol.			10:00	11:00	07:00	07:00	10:00	10:00	11:00	10:00	11:00	11:00	10:00	11:00	08:00	11:00
PM Peak Vol.			14:00	17:00	14:00	17:00	12:00	12:00	15:00	16:00	14:00	14:00	16:00	14:00	14:00	17:00
			209	184	396	365	280	280	233	217	186	226	220	270	270	369
			316	512	340	488	262	275	275	220	265	270	220	270	270	369

ADT = 7,420
Peak Hour 17:00 792

05/18/11
10:24:47

AMATS

Page

Akron Metropolitan Area Transportation Study
806 CitiCenter / 146 S High St / Akron, OH 44308
330-375-2436

*** Basic Count Print (#302) ***

```

*****
Site ID : 1360 2-Way           Data Starts : 10:45 on 05/12/1
Info 1 : Ridgewood Rd 2-Way   Data Ends   : 10:30 on 05/13/1
Info 2 : E of Hametown Rd     Adj. Factor : 0.858%
*****
Lane #1 Info : 2WY
Lane Mode    : Normal          Sensor Used  : Axle
*****

```

***** Lane 1 Basic Count Print *****

Date	Time	:00	:15	:30	:45	Total
05/12/11	10:00				59	59
	11:00	67	66	60	72	265
	12:00	72	73	80	81	306
	13:00	62	59	53	64	238
	14:00	72	65	74	110	321
	15:00	164	128	123	128	543
	16:00	132	119	135	153	539
	17:00	157	132	134	140	563
	18:00	109	113	131	78	431
	19:00	84	60	61	58	263
	20:00	94	88	57	44	283
	21:00	45	43	32	42	162
	22:00	30	20	15	10	75
	23:00	6	10	2	7	25

```

Daily Total : 4073
AM Total    : 324 ( 8.0%)
PM Total    : 3749 ( 92.0%)
Peak AM Hour: 11:00= 265 ( 6.5%)
Peak PM Hour: 16:30= 577 ( 14.2%)

Average Period: 76.8
Average Hour   : 290.9
Peak AM Factor: 0.920
Peak PM Factor: 0.919

```

ADT = 5690

Peak Hour 16:30 577

05/18/11
10:24:47

AMATS

Page:

Akron Metropolitan Area Transportation Study
806 CitiCenter / 146 S High St / Akron, OH 44308
330-375-2436

***** Lane 1 Basic Count Print *****

Date	Time	:00	:15	:30	:45	Total
05/13/11	00:00	10	2	3	1	16
	01:00	2	4	2	0	8
	02:00	4	3	1	0	8
	03:00	0	6	1	1	8
	04:00	0	0	5	1	6
	05:00	3	6	5	8	22
	06:00	12	27	33	104	176
	07:00	202	108	102	140	552
	08:00	124	99	105	73	401
	09:00	65	62	62	65	254
	10:00	50	59	60		169

Daily Total : 1620
AM Total : 1620 (100.0%)
PM Total : 0 (0.0%)
Peak AM Hour: 07:00= 552 (34.1%)
Peak PM Hour:

Average Period: 37.7
Average Hour : 147.3
Peak AM Factor: 0.683
Peak PM Factor:

05/18/11
10:24:47

AMATS

Page:

Akron Metropolitan Area Transportation Study
806 CitiCenter / 146 S High St / Akron, OH 44308
330-375-2436

=====
GRAND TOTALS
=====

***** LANE 1 FINAL *****

Grand Total :	5693	Average Period:	59.3
# Of Days :	1	ADT :	5693
AM Total :	1944 (34.1%)	Average Hour :	227.7
PM Total :	3749 (65.9%)		
Peak AM Hour: 07:00=	552 (05/13/11)	Peak AM Factor:	0.683
Peak PM Hour: 16:30=	577 (05/12/11)	Peak PM Factor:	0.919

**APPENDIX E
TRIP GENERATION
DISTRIBUTION PATTERN
2019 COMBINED BUILD TRAFFIC**

Multifamily Housing (Low-Rise) (220)

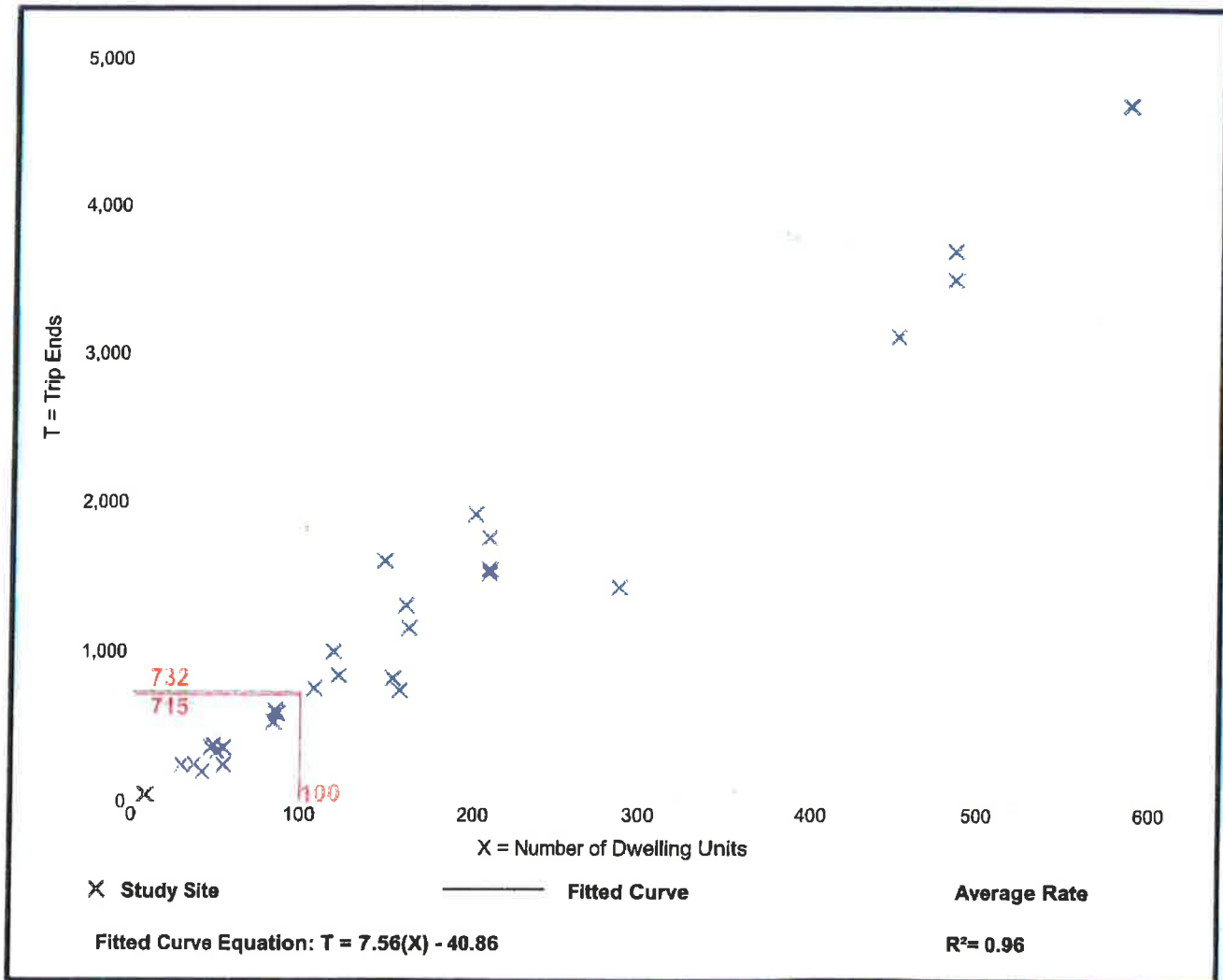
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

Multifamily Housing (Low-Rise) (220)

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: 42

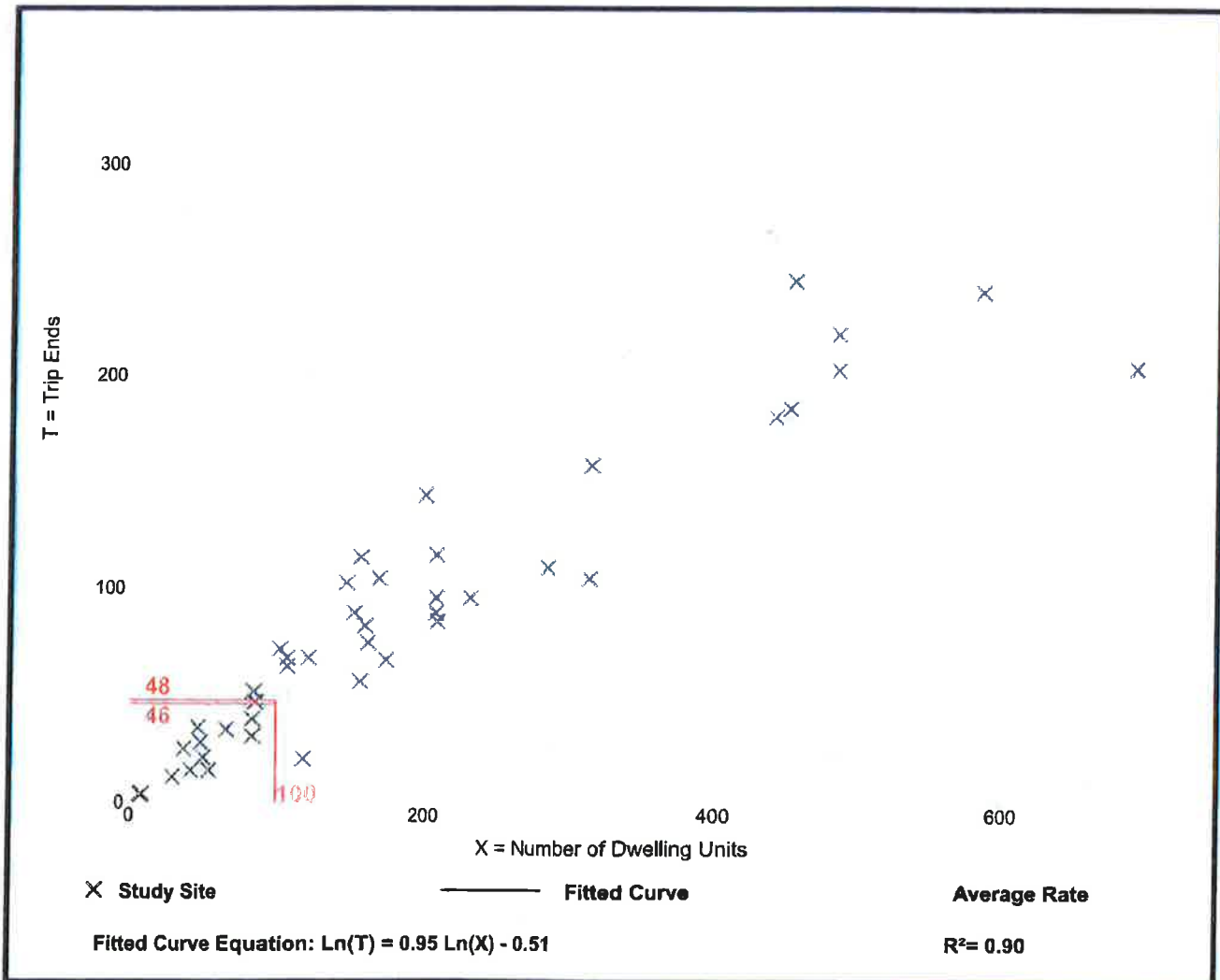
Avg. Num. of Dwelling Units: 199

Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

Multifamily Housing (Low-Rise) (220)

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: 50

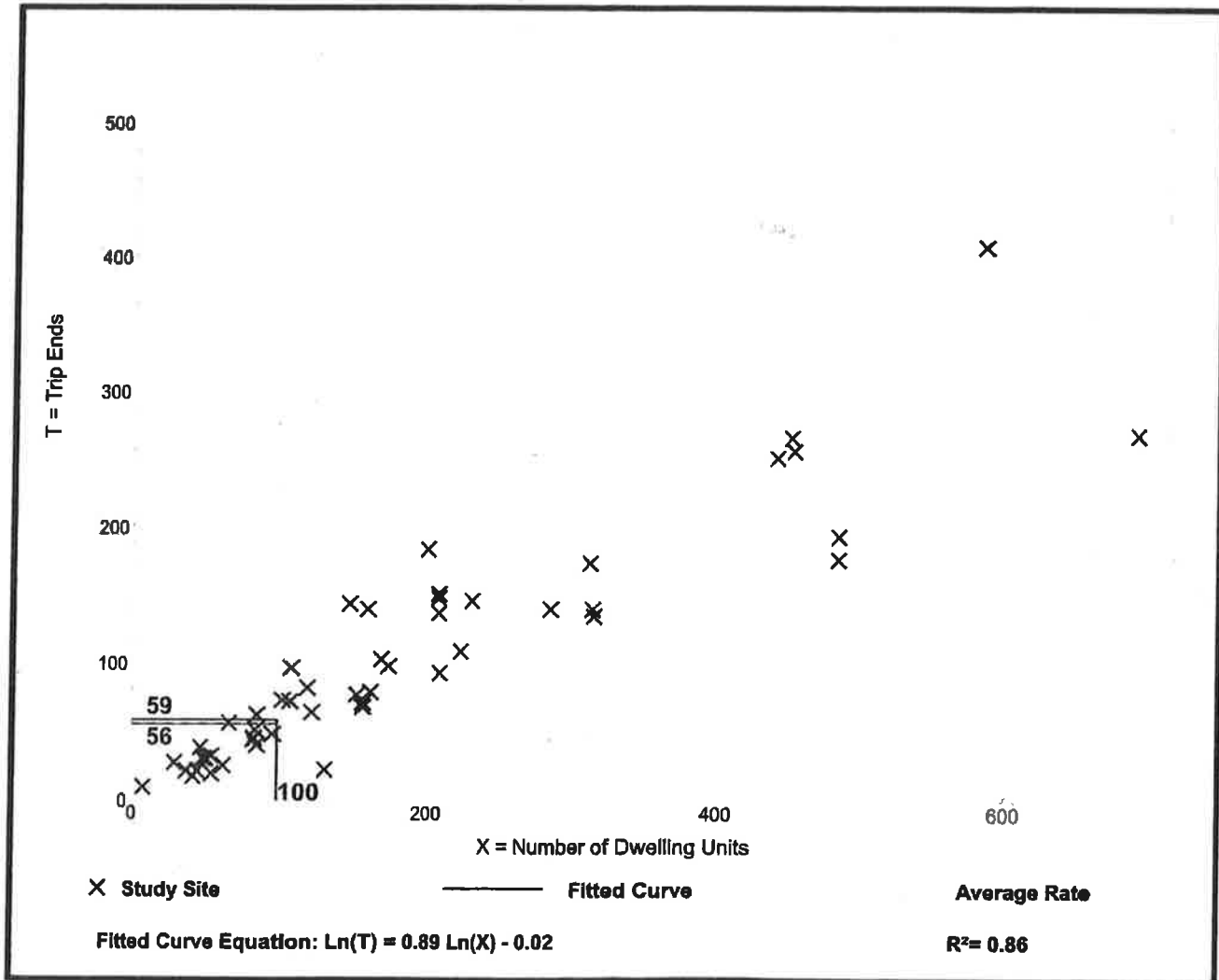
Avg. Num. of Dwelling Units: 187

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

PROPOSED
SITE DRIVE

AM Peak: 481
PM Peak: 300

AM Peak: 142
PM Peak: 408



EXISTING PEAK HOUR TRAFFIC

RIDGEWOOD ROAD, COPLEY OH

PROPOSED
SITE DRIVE

30%

70%

30%

30%

70%

70%



PERCENT DISTRIBUTION

RIDGEWOOD ROAD, COPLEY OH



PROPOSED
SITE DRIVE

AM Peak: 11
PM Peak: 7

AM Peak: 26
PM Peak: 15

AM Peak: 4
PM Peak: 11

AM Peak: 7
PM Peak: 26



SITE TRAFFIC

RIDGEWOOD ROAD, COPLEY OH



PROPOSED
SITE DRIVE

AM Peak: 11
PM Peak: 7

AM Peak: 26
PM Peak: 15

AM Peak: 495
PM Peak: 309

AM Peak: 4
PM Peak: 11

AM Peak: 7
PM Peak: 26

AM Peak: 146
PM Peak: 424



2019 COMBINED TRAFFIC

RIDGEWOOD ROAD, COPLEY OH

APPENDIX F
CAPACITY ANALYSIS
AUXILIARY TURN-LANE ANALYSIS

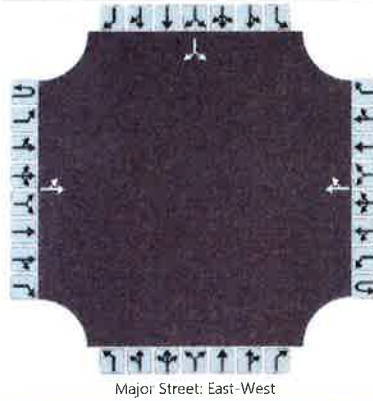
HCS7 Two-Way Stop-Control Report

General Information

Analyst	Eric Smith	Intersection	Ridgewood at Site Drive
Agency/Co.	Prime AE Group	Jurisdiction	Copley Township
Date Performed	1/11/19	East/West Street	Ridgewood Road
Analysis Year	2011	North/South Street	Redwood Drive
Time Analyzed	AM Peak	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Redwood Living		

Site Information

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		4	495				146	7						26		11
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)																0
Right Turn Channelized		No			No					No			No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

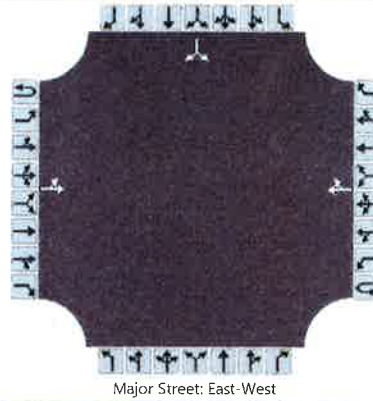
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4														40
Capacity, c (veh/h)		1403														476
v/c Ratio		0.00														0.08
95% Queue Length, Q ₉₅ (veh)		0.0														0.3
Control Delay (s/veh)		7.6														13.3
Level of Service, LOS		A														B
Approach Delay (s/veh)		0.1												13.3		
Approach LOS														B		

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Eric Smith			Intersection	Ridgewood Road at Redwood		
Agency/Co.	Prime AE Group			Jurisdiction	Copley Township		
Date Performed	1/11/19			East/West Street	Ridgewood Road		
Analysis Year	2019			North/South Street	Redwood Drive		
Time Analyzed	PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Redwood Living						

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume, V (veh/h)		11	309				424	26						15		7
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized		No				No				No				No		
Median Type/Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

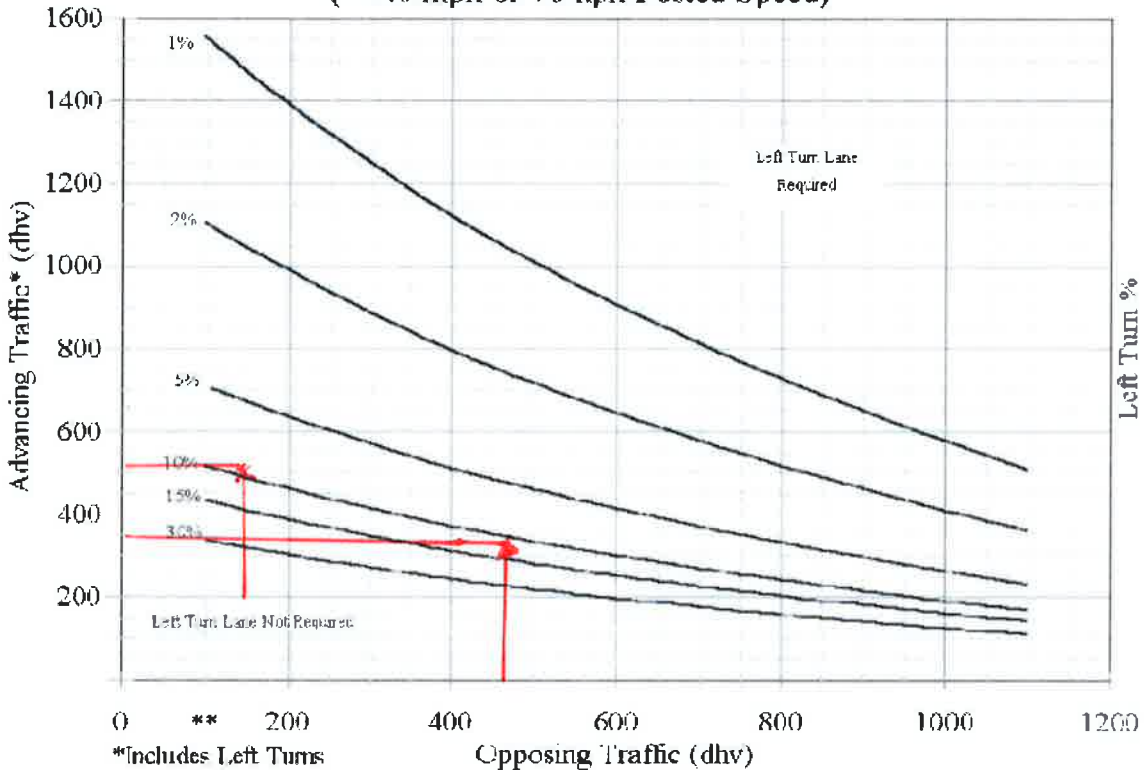
Flow Rate, v (veh/h)		12														24
Capacity, c (veh/h)		1068														389
v/c Ratio		0.01														0.06
95% Queue Length, Q ₉₅ (veh)		0.0														0.2
Control Delay (s/veh)		8.4														14.9
Level of Service, LOS		A														B
Approach Delay (s/veh)		0.4												14.9		
Approach LOS														B		

2-Lane Highway Left Turn Lane Warrant (≤ 40 MPH)

Project: Redwood Ridgewood
 Project No: _____ PID: _____ Date: January 11, 20198
 Location: Ridgewood Road at Redwood Drive
 Prepared for: Redwood Calculated by: E. Smith Checked by: A. Cristiano
 Posted speed: 40 mph

Traffic Volumes: Based on Turning Movement Count, Date: November 1st, 2018
 Based on Certified Traffic Projections, Year: _____
 Other _____

2-Lane Highway Left Turn Lane Warrant (≤ 40 mph or 70 kph Posted Speed)



Direction	Advancing Volume	Opposing Volume	% Left Turns	Warrants (Yes or No)	Data Point Graph Symbol
EB AM	499	153	1.0%	No	✗
EB PM	320	450	3.5%	No	▲

2-Lane Highway Right Turn Lane Warrant (=< 40 MPH)

Project: Redwood Ridgewood

Project No: _____ PID: _____ Date: January 11/ 2019

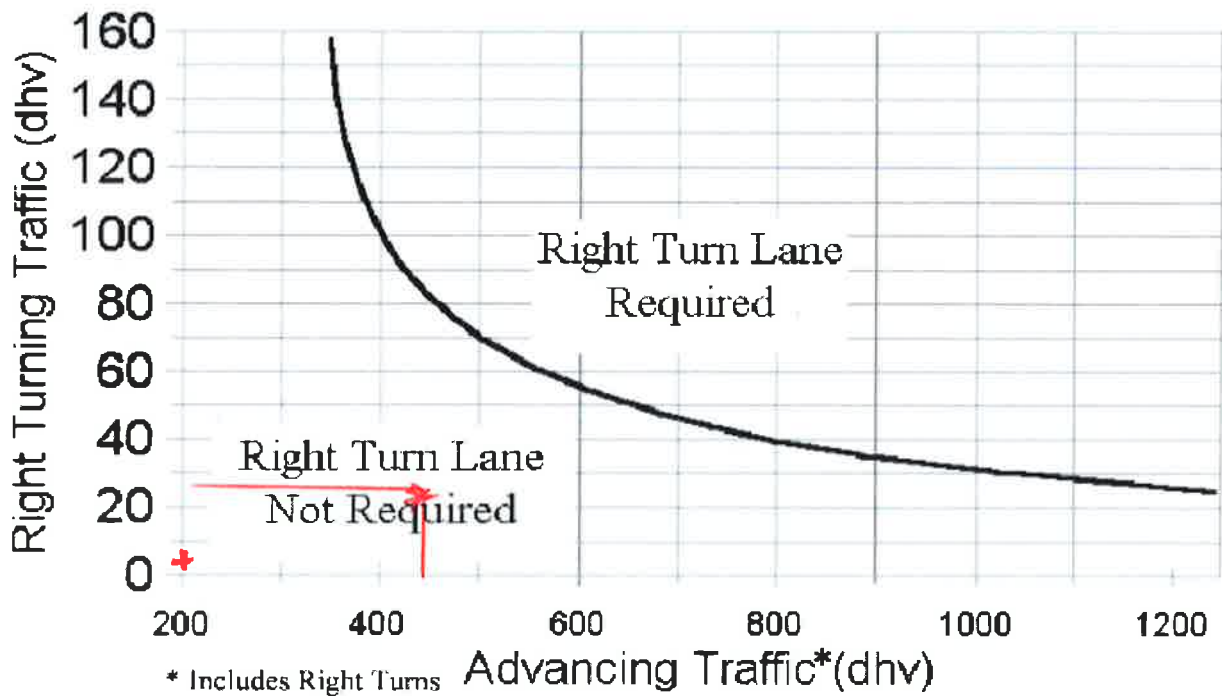
Location: Ridgewood Rd. At Redwood Dr.

Prepared for: Redwood Calculated by: E. Smith Checked by: A. Christiano

Posted speed: _____

Traffic Volumes: Based on Turning Movement Count, Date: _____
 Based on Certified Traffic Projections, Year: _____
 Other

2-Lane Highway Right Turn Lane Warrant =< 40 mph or 70 kph Posted Speed



Direction	Advancing Volume	Right Turns		Warrants (Yes or No)	Data Point Graph Symbol
WB AM	153	7		No	+
WB PM	450	26		No	*