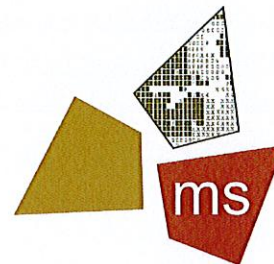


ms consultants, inc.
engineers, architects, planners

One South Main Street
Suite 801
Akron, Ohio 44308-1864
p 330.258.9920
f 330.258.9921
www.msconsultants.com



February 20, 2023

Mr. Tim Boley, P.E.
Summit County Engineer's Office
538 E. South Street
Akron, OH 44311

**RE: Parkview Senior Living Development
Carter Road Traffic Analysis**

Dear Mr Boley:

ms consultants, inc. has developed a traffic study for the proposed Parkview senior living development located at SR 82 (W. Aurora Road) and Carter Road in Sagamore Hills Township, Summit County. Only the eastern portion of the development will be analyzed (e.g., the portion accessing Carter Road). This consists of 101 senior residential dwelling units, with two proposed access points on Carter Road. A study area map is shown as **Figure 1**. The proposed site plan is attached as **Figure 2**.

The background volumes used for this study were derived from turning movement counts completed on Tuesday, May 24, 2022 by Prime AE Group at the intersection of SR 82/W. Aurora Road and Carter Road. The AM peak period is from 7:45 AM to 8:45 AM, and the PM peak period is from 4:45 PM. to 5:45 PM. Based on nearby historical count data from 2010 to 2022 obtained from the ODOT MS2 traffic data management website, a linear annual growth rate of 1.61% was used to project the 2022 counts into the design year of 2034. (It should be noted that the historic growth rate on SR 82 is negative, but to be conservative a positive growth rate of nearby SR 8 was used.)

Trip Generation & Distribution

The proposed trip generation was estimated using the ITE Trip Generation Manual (11th Edition), using land use code 251: Senior Adult Housing – Single Family. The proposed number of dwelling units relevant to this study is 101. See **Table 1** below for a summary, and attached for more detailed trip generation data.

Table 1: Site Trip Generation – Traffic Volumes

		AM Peak			PM Peak		
Land Use	Dwelling Units	In	Out	Total	In	Out	Total
Senior Adult Housing – Single Family (LU 251)	101	28	35	63	44	38	82

The proposed trip distribution is 10% to/from the north, and 90% to/from the south, with the assumption that most traffic will be headed to or from SR82/W. Aurora Road for all trip purposes. It is proposed that the volume split between the two driveways on Carter Road will be 50% each, based on the site plan showing a roughly equal number of homes on the north and south portions of the site.

The proposed site trips were added to the background volumes to obtain the Build condition volumes, shown in **Figure 3** and **Figure 4**.

Turn Lane Warrants

Both proposed site driveways were evaluated using ODOT L&D Volume 1 criteria to determine if any right or left turn lanes are warranted. No turn lanes are warranted on Carter Road with the proposed development. Copies of the turn lane warrant graphs are attached.

Driveway Spacing/Access Management

Based on the *Summit County Access Management Manual*, driveway spacing requirements in for a local street in a suburban area are 155' on the same side, and 155' on the far side. The proposed driveways will meet the minimum 155' spacing on the same side of the street, and will provide greater spacing than the existing driveways on the west side of Carter Road.

While the proposed site driveways do not appear to satisfy the 155' spacing criteria for the far side of the street, the proposed spacing will be no worse than the existing condition. The existing driveways that serviced the previous land use on the proposed site were located directly across from residential driveways, and thus did not meet the 155' far side spacing criteria. Given the spacing of single-family driveways on the east side of the road, there would be no practical way for any proposed site driveways to meet the far side access management criteria. Given the low volumes on Carter Road and low volumes from the single-family residences, the instances of vehicle conflicts resulting from the proposed driveways will be very infrequent, if at all. Thus, the proposed driveway spacing should not adversely affect the safety or efficiency of the roadway network.

Sight Distance

The sight distance for turning left and right out of both proposed driveways is adequate. The minimum intersection sight distance for a road with a 25mph speed limit (and 30mph design speed) is 335' for a left turn and 290' for a right turn, per ODOT L&D Volume 1 Figure 201-5.

The estimated sight distance from the north driveway is approximately 500' towards the north (to Merrit Drive) and 600' towards the south. The estimated sight distance from the south driveway

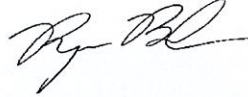
Mr. Tim Boley, P.E.
February 20, 2023
Page 2 of 3

towards the north is 1400' (to Merrit Drive) and 370' (to SR 82/W. Aurora Road).. Photos taken at the driveway locations are attached.

Conclusion

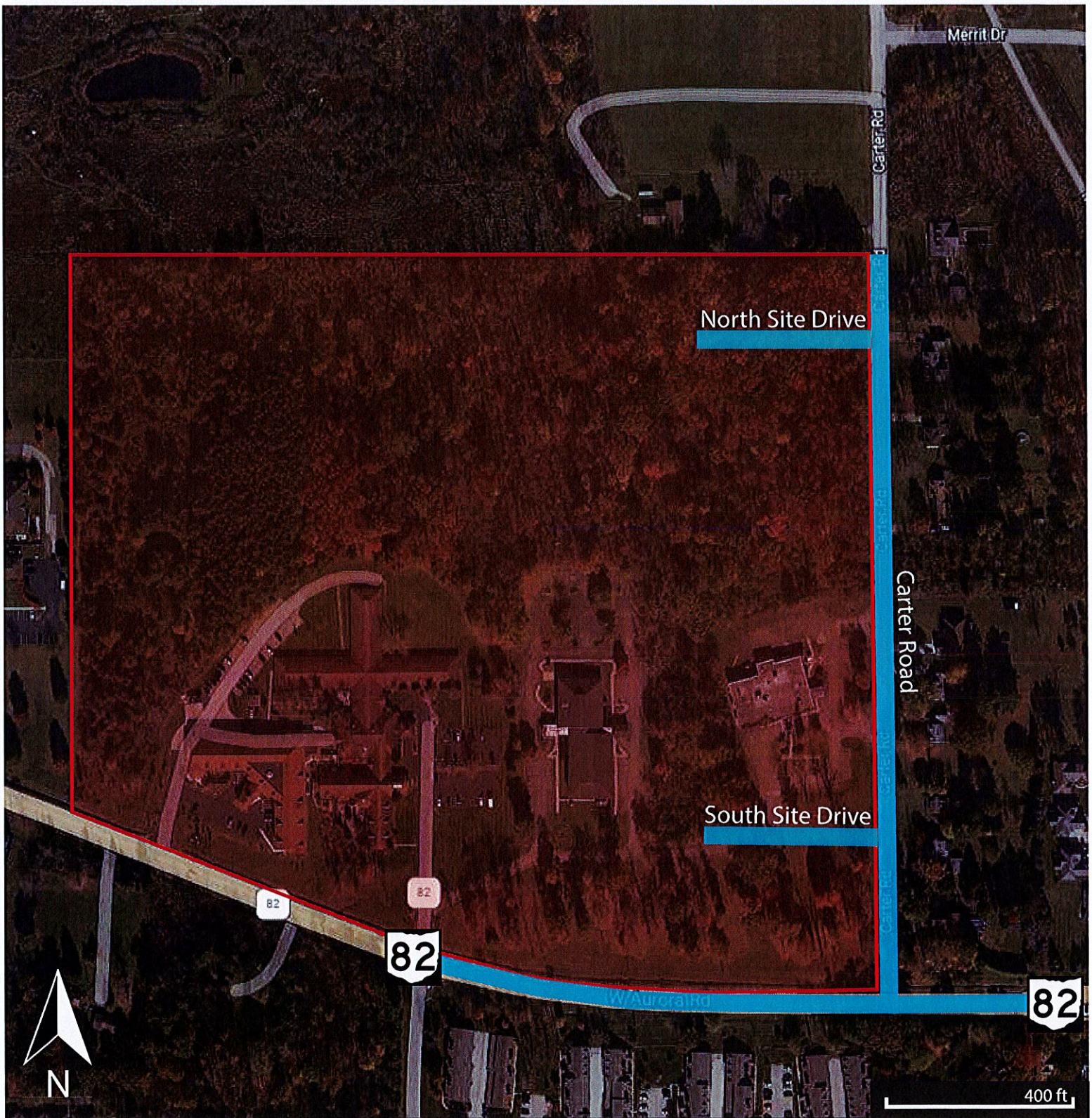
Based on the above findings, the proposed site will not trigger the need for any roadway improvements to Carter Road. The proposed site driveways will operate safely and efficiently.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ryan Bush', is positioned above the printed name.

Ryan Bush, P.E., AICP
Project Manager

N:\03\60\10733-SagamoreParkviewSeniorLiving\2023-02-20 Sagamore Carter Rd Traffic Analysis.docx



Legend

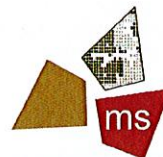


Project Site

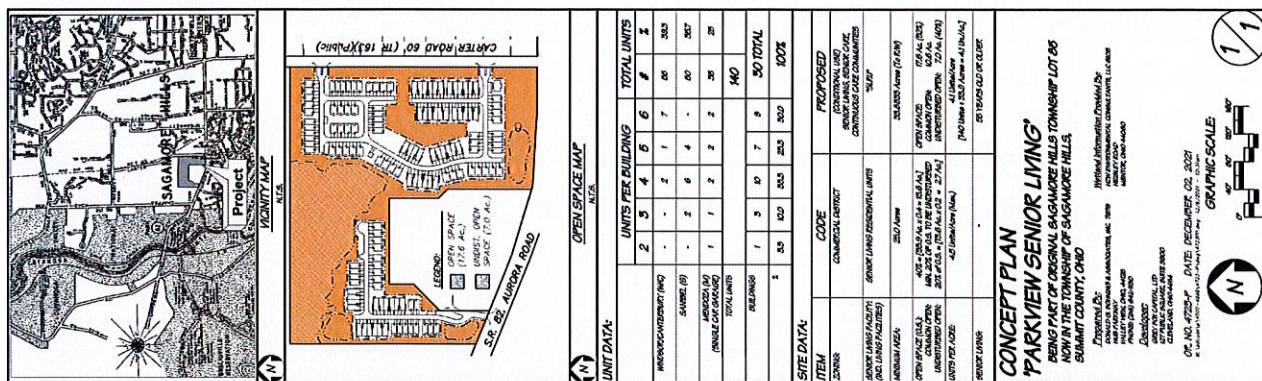
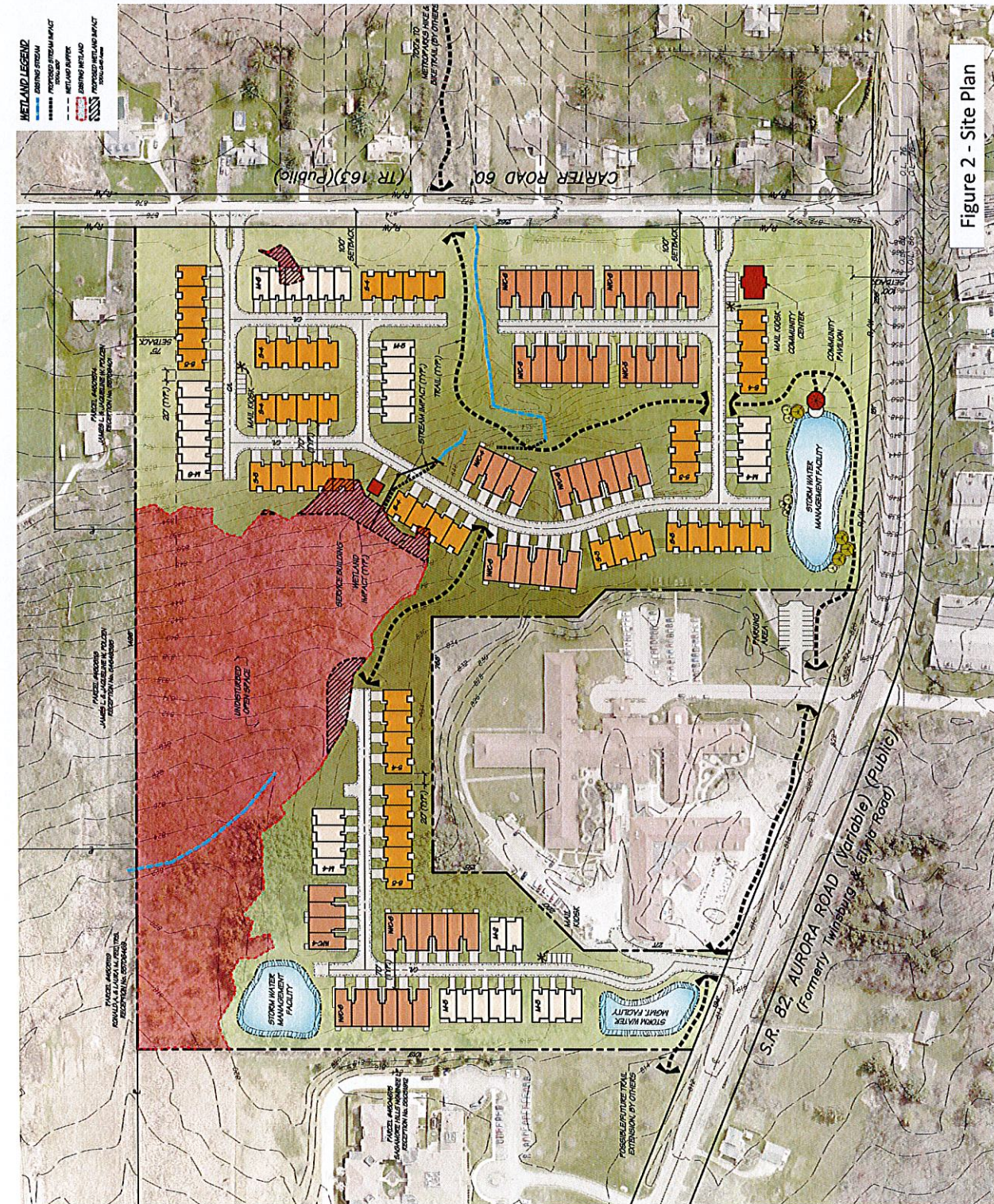


Study Area

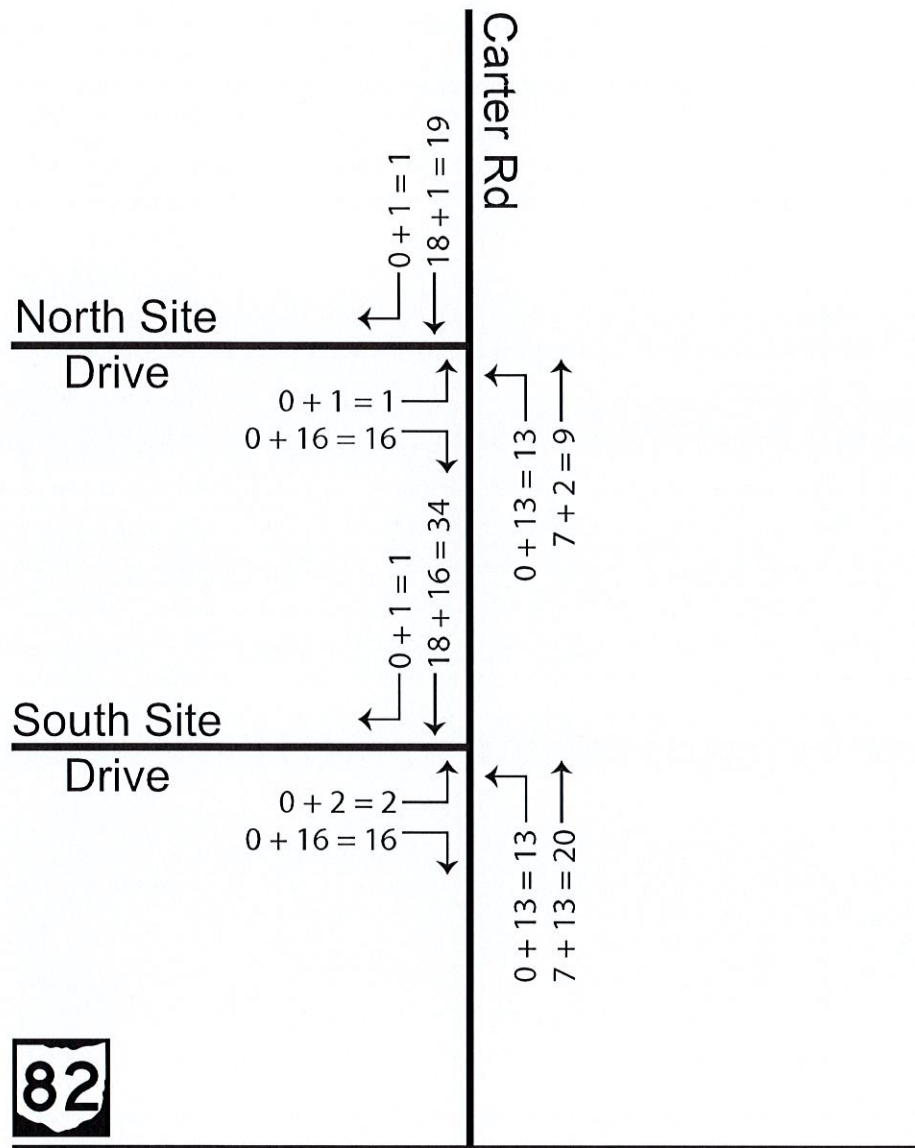
Sagamore/Parkview Senior Living Facility
Traffic Study - Figure 1
Study Area



ms consultants, inc.
engineers, architects, planners

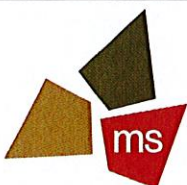


AM Build Volumes



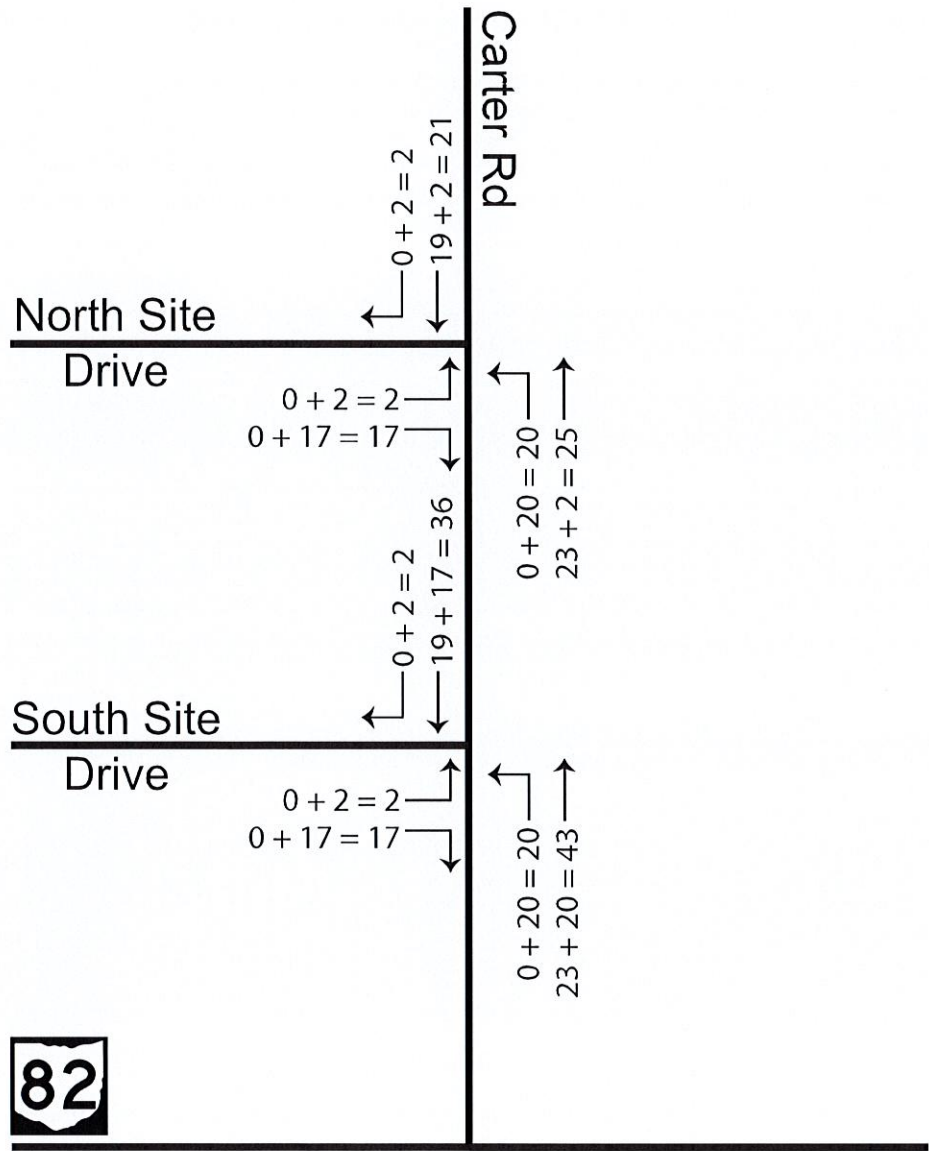
$$A + B = C$$

- A - Design Year Background Traffic
- B - Traffic Generated by Site
- C - Total Build Volume



ms consultants, inc.
engineers, architects, planners

Sagamore/Parkview Senior Living Facility
Traffic Study - Figure 3
Total AM Build Volumes



$$A + B = C$$

- A - Design Year Background Traffic
- B - Traffic Generated by Site
- C - Total Build Volume



ms consultants, inc.
engineers, architects, planners

Sagamore/Parkview Senior Living Facility
Traffic Study - Figure 4
Total PM Build Volumes

W Aurora Rd & Carter Rd - TMC

Tue May 24, 2022

Full Length (7 AM-7 PM)

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

All Movements

ID: 957261, Location: 41.31448, -81.56807



Provided by: Prime AE Group

540 White Pond Drive, Suite E, Akron, OH, 44320, US

Leg Direction	Carter Rd Southbound				W Aurora Rd Westbound				W Aurora Rd Eastbound				
Time	L	R	U	App	T	R	U	App	L	T	U	App	Int
2022-05-24 7:00AM	2	0	0	2	91	2	0	93	1	69	0	70	165
7:15AM	2	0	0	2	97	1	0	98	1	93	0	94	194
7:30AM	1	1	0	2	99	0	0	99	0	112	0	112	213
7:45AM	3	2	0	5	112	2	0	114	1	110	0	111	230
Hourly Total	8	3	0	11	399	5	0	404	3	384	0	387	802
8:00AM	2	4	0	6	102	0	0	102	1	99	0	100	208
8:15AM	1	2	0	3	106	0	0	106	1	99	0	100	209
8:30AM	1	1	0	2	118	1	0	119	0	95	0	95	216
8:45AM	1	2	0	3	100	0	0	100	0	94	0	94	197
Hourly Total	5	9	0	14	426	1	0	427	2	387	0	389	830
9:00AM	0	2	0	2	96	0	0	96	0	79	0	79	177
9:15AM	1	2	0	3	89	0	0	89	0	78	0	78	170
9:30AM	1	1	0	2	71	0	0	71	1	80	0	81	154
9:45AM	0	0	0	0	72	0	0	72	1	103	0	104	176
Hourly Total	2	5	0	7	328	0	0	328	2	340	0	342	677
10:00AM	0	0	0	0	78	3	0	81	1	66	0	67	148
10:15AM	4	0	0	4	86	0	0	86	0	73	0	73	163
10:30AM	2	0	0	2	81	0	0	81	0	74	0	74	157
10:45AM	0	0	0	0	83	1	0	84	0	103	0	103	187
Hourly Total	6	0	0	6	328	4	0	332	1	316	0	317	655
11:00AM	2	1	0	3	78	2	0	80	0	89	0	89	172
11:15AM	1	1	0	2	76	1	0	77	0	78	0	78	157
11:30AM	2	0	0	2	75	1	0	76	0	87	1	88	166
11:45AM	1	1	0	2	87	2	0	89	1	99	0	100	191
Hourly Total	6	3	0	9	316	6	0	322	1	353	1	355	686
12:00PM	3	2	0	5	90	1	0	91	2	100	0	102	198
12:15PM	0	0	0	0	83	3	0	86	2	87	0	89	175
12:30PM	0	1	0	1	79	1	0	80	0	95	0	95	176
12:45PM	2	1	0	3	87	2	0	89	2	97	0	99	191
Hourly Total	5	4	0	9	339	7	0	346	6	379	0	385	740
1:00PM	2	0	0	2	104	3	0	107	1	103	0	104	213
1:15PM	0	3	0	3	91	1	0	92	0	87	0	87	182
1:30PM	1	0	0	1	101	2	0	103	0	104	0	104	208
1:45PM	2	0	0	2	96	4	0	100	1	83	0	84	186
Hourly Total	5	3	0	8	392	10	0	402	2	377	0	379	789
2:00PM	0	2	0	2	112	2	0	114	0	104	0	104	220
2:15PM	3	3	0	6	97	2	0	99	2	83	0	85	190
2:30PM	2	1	0	3	87	3	0	90	1	106	0	107	200
2:45PM	6	0	0	6	119	1	0	120	2	109	0	111	237
Hourly Total	11	6	0	17	415	8	0	423	5	402	0	407	847
3:00PM	4	2	0	6	120	8	0	128	3	96	0	99	233
3:15PM	2	0	0	2	96	3	0	99	1	120	0	121	222
3:30PM	2	2	0	4	115	4	0	119	2	108	0	110	233
3:45PM	3	3	0	6	116	3	0	119	1	107	0	108	233
Hourly Total	11	7	0	18	447	18	0	465	7	431	0	438	921
4:00PM	2	0	0	2	102	0	0	102	1	131	0	132	236
4:15PM	0	2	0	2	148	5	0	153	0	114	0	114	269
4:30PM	1	1	0	2	110	3	0	113	3	103	0	106	221
4:45PM	0	2	0	2	121	4	0	125	4	105	0	109	236
Hourly Total	3	5	0	8	481	12	0	493	8	453	0	461	962
5:00PM	2	0	0	2	138	4	0	142	1	111	0	112	256
5:15PM	4	4	0	8	138	1	0	139	1	117	0	118	265
5:30PM	2	2	0	4	140	2	0	142	2	144	0	146	292
5:45PM	2	4	0	6	137	2	0	139	1	86	0	87	232

Leg Direction	Carter Rd Southbound				W Aurora Rd Westbound				W Aurora Rd Eastbound				
Time	L	R	U	App	T	R	U	App	L	T	U	App	Int
Hourly Total	10	10	0	20	553	9	0	562	5	458	0	463	1045
6:00PM	2	2	0	4	97	1	0	98	1	92	0	93	195
6:15PM	4	1	0	5	94	1	0	95	1	88	0	89	189
6:30PM	4	1	0	5	104	3	0	107	2	98	0	100	212
6:45PM	3	1	0	4	103	3	0	106	2	82	0	84	194
Hourly Total	13	5	0	18	398	8	0	406	6	360	0	366	790
Total	85	60	0	145	4822	88	0	4910	48	4640	1	4689	9744
% Approach	58.6%	41.4%	0%	-	98.2%	1.8%	0%	-	1.0%	99.0%	0%	-	-
% Total	0.9%	0.6%	0%	1.5%	49.5%	0.9%	0%	50.4%	0.5%	47.6%	0%	48.1%	-
Lights	83	56	0	139	4647	84	0	4731	48	4519	1	4568	9438
% Lights	97.6%	93.3%	0%	95.9%	96.4%	95.5%	0%	96.4%	100%	97.4%	100%	97.4%	96.9%
Single-Unit Trucks	0	1	0	1	112	2	0	114	0	76	0	76	191
% Single-Unit Trucks	0%	1.7%	0%	0.7%	2.3%	2.3%	0%	2.3%	0%	1.6%	0%	1.6%	2.0%
Articulated Trucks	0	0	0	0	48	0	0	48	0	26	0	26	74
% Articulated Trucks	0%	0%	0%	0%	1.0%	0%	0%	1.0%	0%	0.6%	0%	0.6%	0.8%
Buses	2	3	0	5	15	2	0	17	0	19	0	19	41
% Buses	2.4%	5.0%	0%	3.4%	0.3%	2.3%	0%	0.3%	0%	0.4%	0%	0.4%	0.4%

*L: Left, R: Right, T: Thru, U: U-Turn

W Aurora Rd & Carter Rd - TMC

Tue May 24, 2022

Full Length (7 AM-7 PM)

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

All Movements

ID: 957261, Location: 41.31448, -81.56807



Provided by: Prime AE Group

540 White Pond Drive. Suite E, Akron, OH, 44320, US

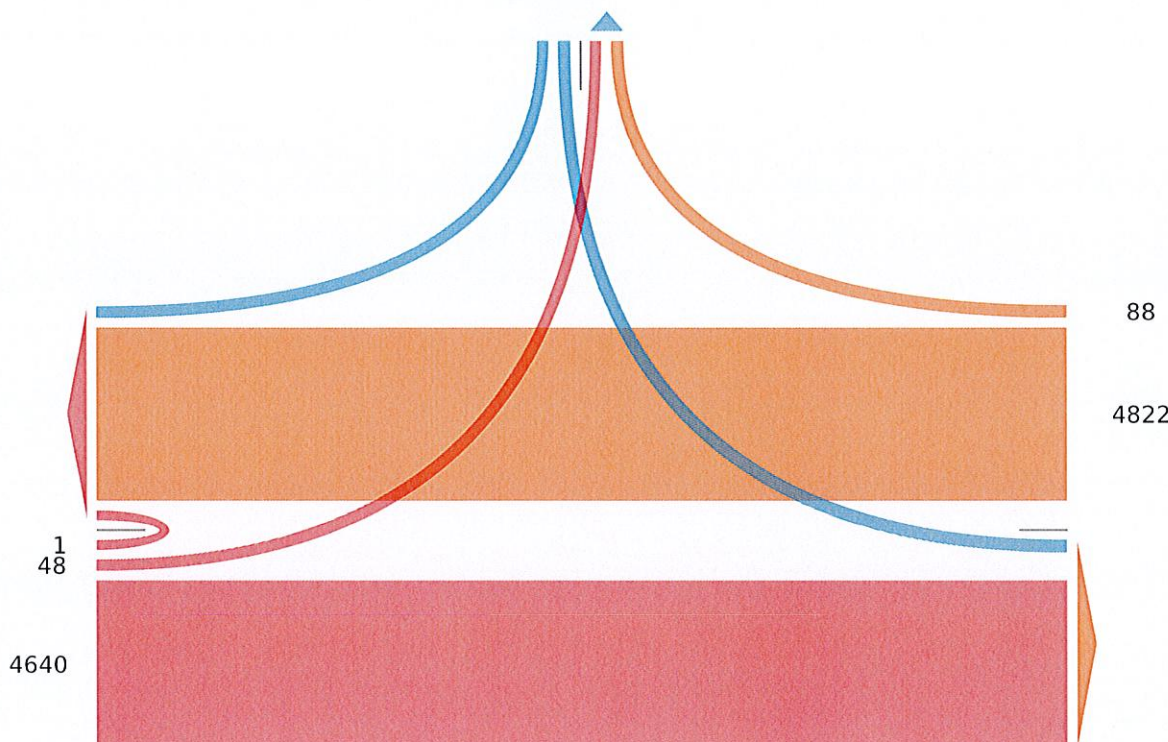
[N] Carter Rd

Total: 281

In: 145 Out: 136

60.5

[W] W Aurora Rd
Total: 9572
In: 4689 Out: 4883



Out: 4725 In: 4910
Total: 9635
[E] W Aurora Rd

W Aurora Rd & Carter Rd - TMC

Tue May 24, 2022

AM Peak (7:45 AM - 8:45 AM)

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

All Movements

ID: 957261, Location: 41.31448, -81.56807



Provided by: Prime AE Group

540 White Pond Drive, Suite E, Akron, OH, 44320, US

Leg Direction	Carter Rd Southbound				W Aurora Rd Westbound				W Aurora Rd Eastbound				
Time	L	R	U	App	T	R	U	App	L	T	U	App	Int
2022-05-24 7:45AM	3	2	0	5	112	2	0	114	1	110	0	111	230
8:00AM	2	4	0	6	102	0	0	102	1	99	0	100	208
8:15AM	1	2	0	3	106	0	0	106	1	99	0	100	209
8:30AM	1	1	0	2	118	1	0	119	0	95	0	95	216
Total	7	9	0	16	438	3	0	441	3	403	0	406	863
% Approach	43.8%	56.3%	0%	-	99.3%	0.7%	0%	-	0.7%	99.3%	0%	-	-
% Total	0.8%	1.0%	0%	1.9%	50.8%	0.3%	0%	51.1%	0.3%	46.7%	0%	47.0%	-
PHF	0.583	0.563	-	0.667	0.928	0.375	-	0.926	0.750	0.916	-	0.914	0.938
Lights	6	8	0	14	402	3	0	405	3	384	0	387	806
% Lights	85.7%	88.9%	0%	87.5%	91.8%	100%	0%	91.8%	100%	95.3%	0%	95.3%	93.4%
Single-Unit Trucks	0	0	0	0	23	0	0	23	0	14	0	14	37
% Single-Unit Trucks	0%	0%	0%	0%	5.3%	0%	0%	5.2%	0%	3.5%	0%	3.4%	4.3%
Articulated Trucks	0	0	0	0	12	0	0	12	0	2	0	2	14
% Articulated Trucks	0%	0%	0%	0%	2.7%	0%	0%	2.7%	0%	0.5%	0%	0.5%	1.6%
Buses	1	1	0	2	1	0	0	1	0	3	0	3	6
% Buses	14.3%	11.1%	0%	12.5%	0.2%	0%	0%	0.2%	0%	0.7%	0%	0.7%	0.7%

* L: Left, R: Right, T: Thru, U: U-Turn

W Aurora Rd & Carter Rd - TMC

Tue May 24, 2022

AM Peak (7:45 AM - 8:45 AM)

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

All Movements

ID: 957261, Location: 41.31448, -81.56807



Provided by: Prime AE Group

540 White Pond Drive, Suite E, Akron, OH, 44320, US

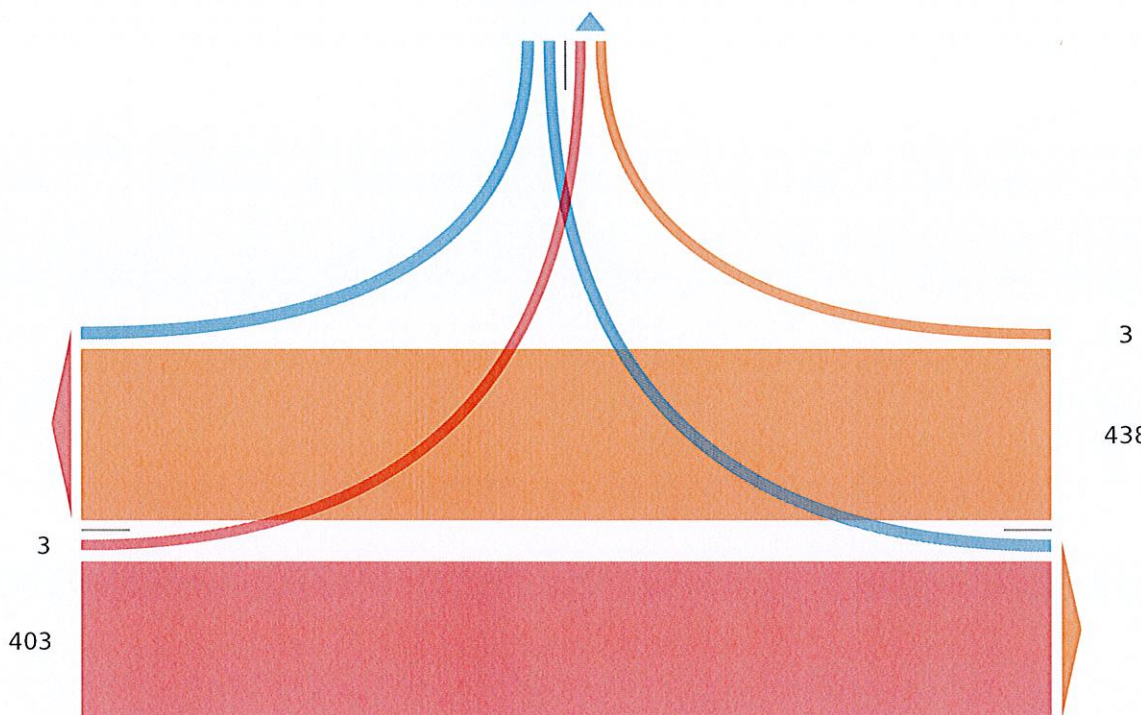
[N] Carter Rd

Total: 22

In: 16 Out: 6

97

[W] W Aurora Rd
Total: 853
In: 406 Out: 447



[E] W Aurora Rd
Total: 851
In: 441 Out: 410

W Aurora Rd & Carter Rd - TMC

Tue May 24, 2022

Midday Peak (12:45 PM - 1:45 PM)

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

All Movements

ID: 957261, Location: 41.31448, -81.56807



Provided by: Prime AE Group

540 White Pond Drive, Suite E, Akron, OH, 44320, US

Leg Direction	Carter Rd Southbound				W Aurora Rd Westbound				W Aurora Rd Eastbound				
Time	L	R	U	App	T	R	U	App	L	T	U	App	Int
2022-05-24 12:45PM	2	1	0	3	87	2	0	89	2	97	0	99	191
1:00PM	2	0	0	2	104	3	0	107	1	103	0	104	213
1:15PM	0	3	0	3	91	1	0	92	0	87	0	87	182
1:30PM	1	0	0	1	101	2	0	103	0	104	0	104	208
Total	5	4	0	9	383	8	0	391	3	391	0	394	794
% Approach	55.6%	44.4%	0%	-	98.0%	2.0%	0%	-	0.8%	99.2%	0%	-	-
% Total	0.6%	0.5%	0%	1.1%	48.2%	1.0%	0%	49.2%	0.4%	49.2%	0%	49.6%	-
PHF	0.625	0.333	-	0.750	0.921	0.667	-	0.914	0.375	0.940	-	0.947	0.932
Lights	5	4	0	9	368	8	0	376	3	381	0	384	769
% Lights	100%	100%	0%	100%	96.1%	100%	0%	96.2%	100%	97.4%	0%	97.5%	96.9%
Single-Unit Trucks	0	0	0	0	11	0	0	11	0	7	0	7	18
% Single-Unit Trucks	0%	0%	0%	0%	2.9%	0%	0%	2.8%	0%	1.8%	0%	1.8%	2.3%
Articulated Trucks	0	0	0	0	4	0	0	4	0	3	0	3	7
% Articulated Trucks	0%	0%	0%	0%	1.0%	0%	0%	1.0%	0%	0.8%	0%	0.8%	0.9%
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

* L: Left, R: Right, T: Thru, U: U-Turn

W Aurora Rd & Carter Rd - TMC

Tue May 24, 2022

Midday Peak (12:45 PM - 1:45 PM)

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

All Movements

ID: 957261, Location: 41.31448, -81.56807



Provided by: Prime AE Group

540 White Pond Drive, Suite E, Akron, OH, 44320, US

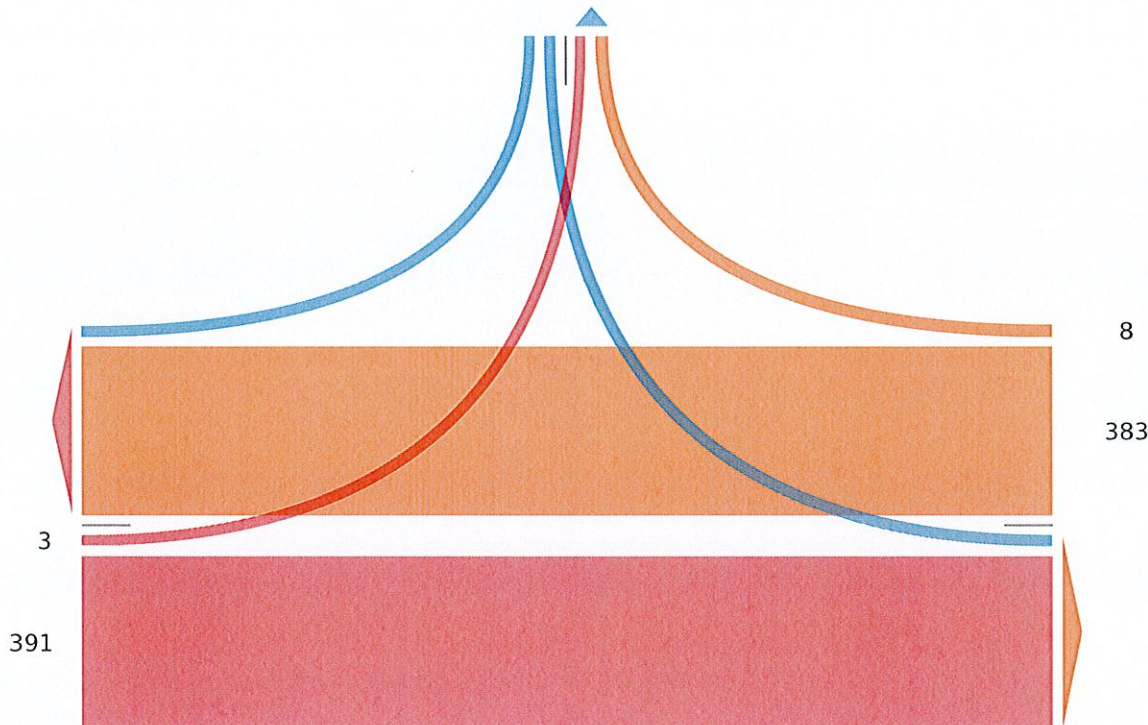
[N] Carter Rd

Total: 20

In: 9 Out: 11

45

[W] W Aurora Rd
Total: 781
In: 394 Out: 387



Out: 396 In: 391
Total: 787
[E] W Aurora Rd

W Aurora Rd & Carter Rd - TMC

Tue May 24, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

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

All Movements

ID: 957261, Location: 41.31448, -81.56807



Provided by: Prime AE Group

540 White Pond Drive, Suite E, Akron, OH, 44320, US

Leg Direction	Carter Rd Southbound				W Aurora Rd Westbound				W Aurora Rd Eastbound				
Time	L	R	U	App	T	R	U	App	L	T	U	App	Int
2022-05-24 4:45PM	0	2	0	2	121	4	0	125	4	105	0	109	236
5:00PM	2	0	0	2	138	4	0	142	1	111	0	112	256
5:15PM	4	4	0	8	138	1	0	139	1	117	0	118	265
5:30PM	2	2	0	4	140	2	0	142	2	144	0	146	292
Total	8	8	0	16	537	11	0	548	8	477	0	485	1049
% Approach	50.0%	50.0%	0%	-	98.0%	2.0%	0%	-	1.6%	98.4%	0%	-	-
% Total	0.8%	0.8%	0%	1.5%	51.2%	1.0%	0%	52.2%	0.8%	45.5%	0%	46.2%	-
PHF	0.500	0.500	-	0.500	0.959	0.688	-	0.965	0.500	0.828	-	0.830	0.898
Lights	8	8	0	16	532	11	0	543	8	472	0	480	1039
% Lights	100%	100%	0%	100%	99.1%	100%	0%	99.1%	100%	99.0%	0%	99.0%	99.0%
Single-Unit Trucks	0	0	0	0	5	0	0	5	0	3	0	3	8
% Single-Unit Trucks	0%	0%	0%	0%	0.9%	0%	0%	0.9%	0%	0.6%	0%	0.6%	0.8%
Articulated Trucks	0	0	0	0	0	0	0	0	0	2	0	2	2
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.4%	0%	0.4%	0.2%
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

*L: Left, R: Right, T: Thru, U: U-Turn

W Aurora Rd & Carter Rd - TMC

Tue May 24, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

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

All Movements

ID: 957261, Location: 41.31448, -81.56807



Provided by: Prime AE Group

540 White Pond Drive, Suite E, Akron, OH, 44320, US

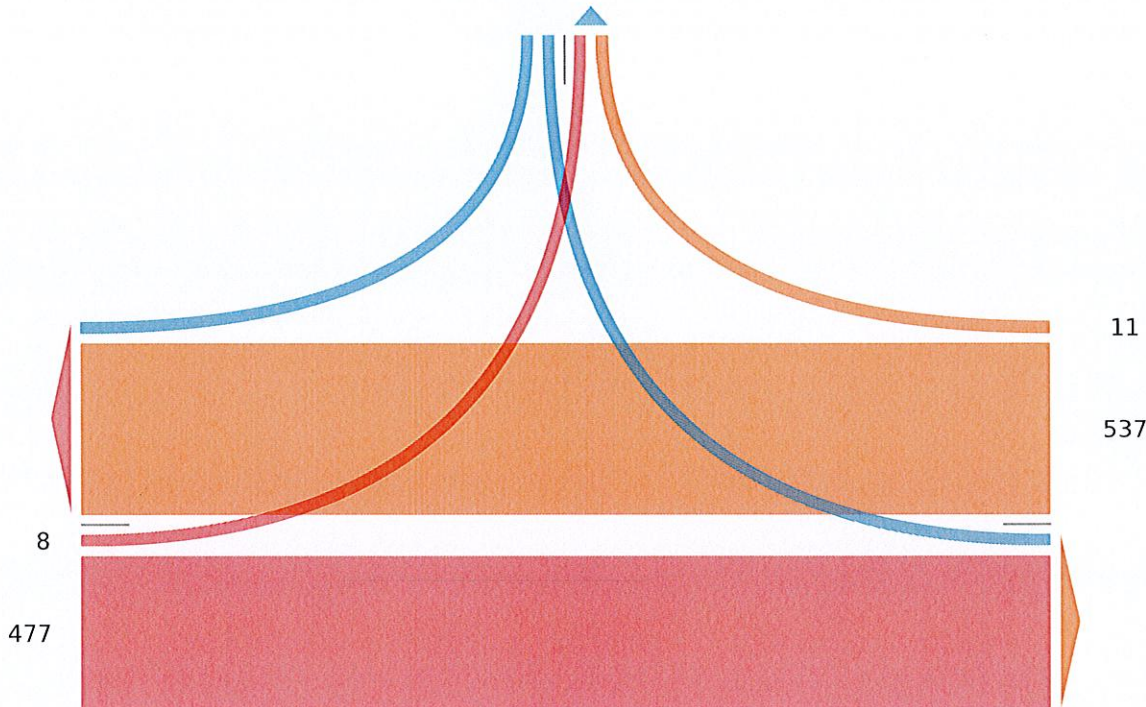
[N] Carter Rd

Total: 35

In: 16 Out: 19

∞ ∞

[W] W Aurora Rd
Total: 1030
In: 485 Out: 545



Out: 485 In: 548
Total: 1033
[E] W Aurora Rd

Growth Rate for Parkview Senior Living Traffic Analysis

Based on ODOT TCDS MS2 data <https://odot.public.ms2soft.com/tcds/tsearch.asp?loc=odot>

Location ID 28677

Location SR82 W of Chaffee Rd

Year	AADT	% Change
2022	12583	-3%
2019	13956	4%
2016	12462	1%
2013	12210	-5%
2010	14425	n/a

-0.93%

Location ID 15277

Location SR-8 NW of SR 82

Year	AADT	% Change
2022	20083	-2%
2019	21453	2%
2016	20031	4%
2013	17893	2%
2010	16769	n/a

1.61%

Location ID 28777

Location SR-82 Aurora Rd E of SR-8

Year	AADT	% Change
2022	21091	-4%
2019	23720	1%
2016	22952	0%
2013	22655	-6%
2010	27167	n/a

-1.92%

Senior Adult Housing - Single-Family (251)

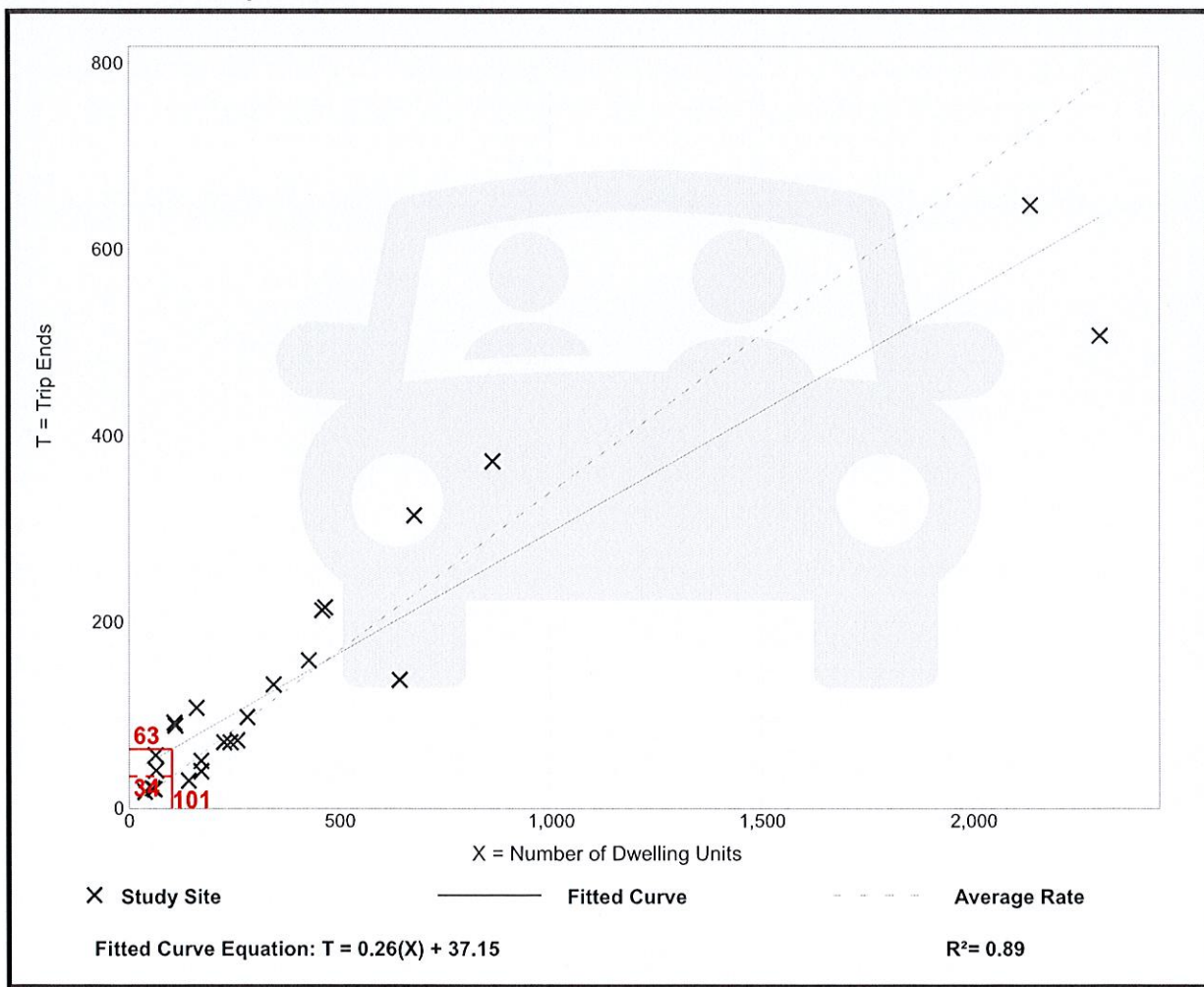
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 24
Avg. Num. of Dwelling Units: 435
Directional Distribution: 43% entering, 57% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.34	0.21 - 0.90	0.14

Data Plot and Equation



Trip Gen Manual, 11th Edition

• Institute of Transportation Engineers

Senior Adult Housing - Single-Family (251)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 24

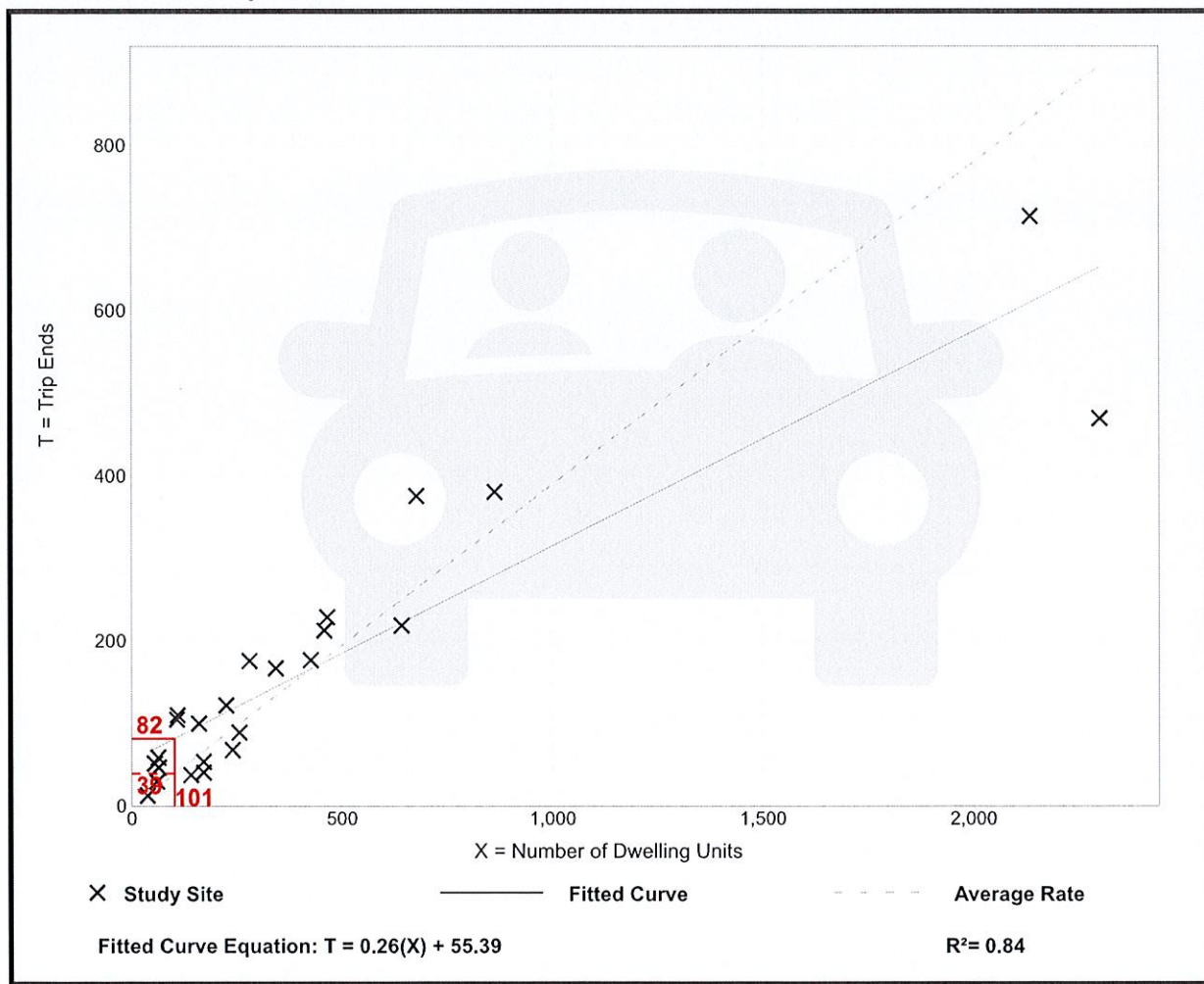
Avg. Num. of Dwelling Units: 435

Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.20 - 1.01	0.17

Data Plot and Equation

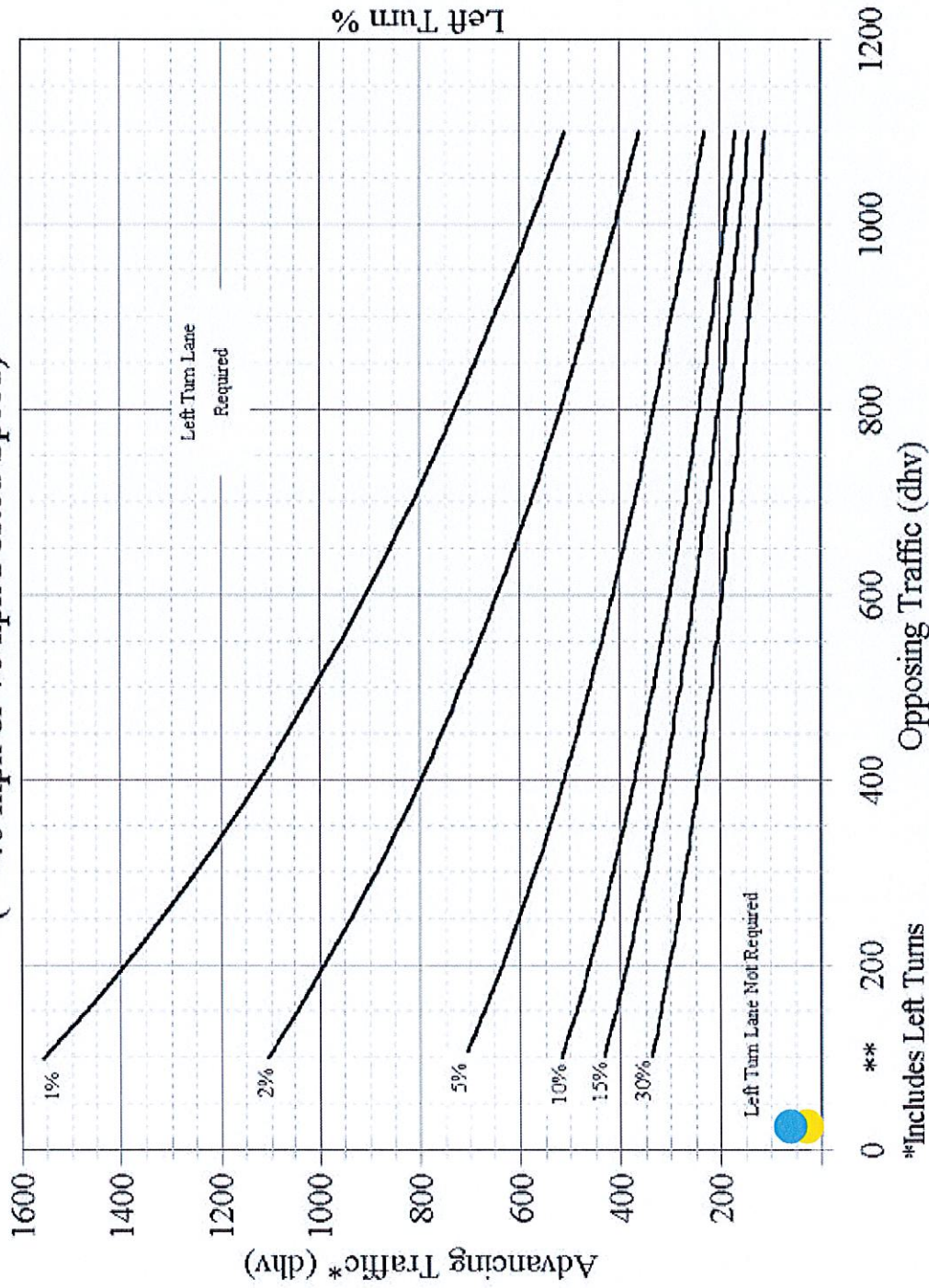


Trip Gen Manual, 11th Edition

• Institute of Transportation Engineers

Carter Rd @ North Site Drive Northbound Left Turn

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



AM Peak - Build

22 advancing
20 opposing
59% left turns

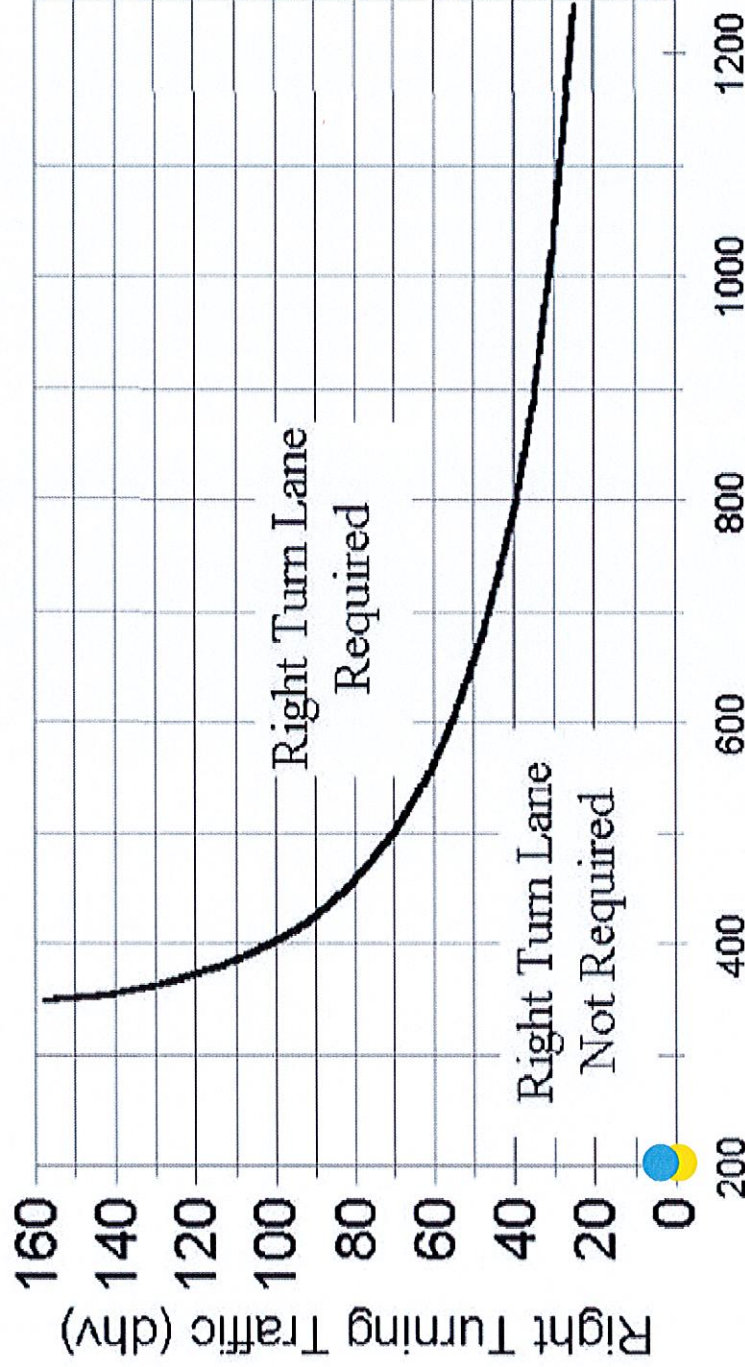
NOT WARRANTED

PM Peak - Build

45 advancing
23 opposing
44% left turns

NOT WARRANTED

Carter Rd @ North Site Drive
 Southbound Right Turn
2-Lane Highway Right Turn Lane Warrant
 =< 40 mph or 70 kph Posted Speed



* Includes Right Turns
Advancing Traffic* (dhv)

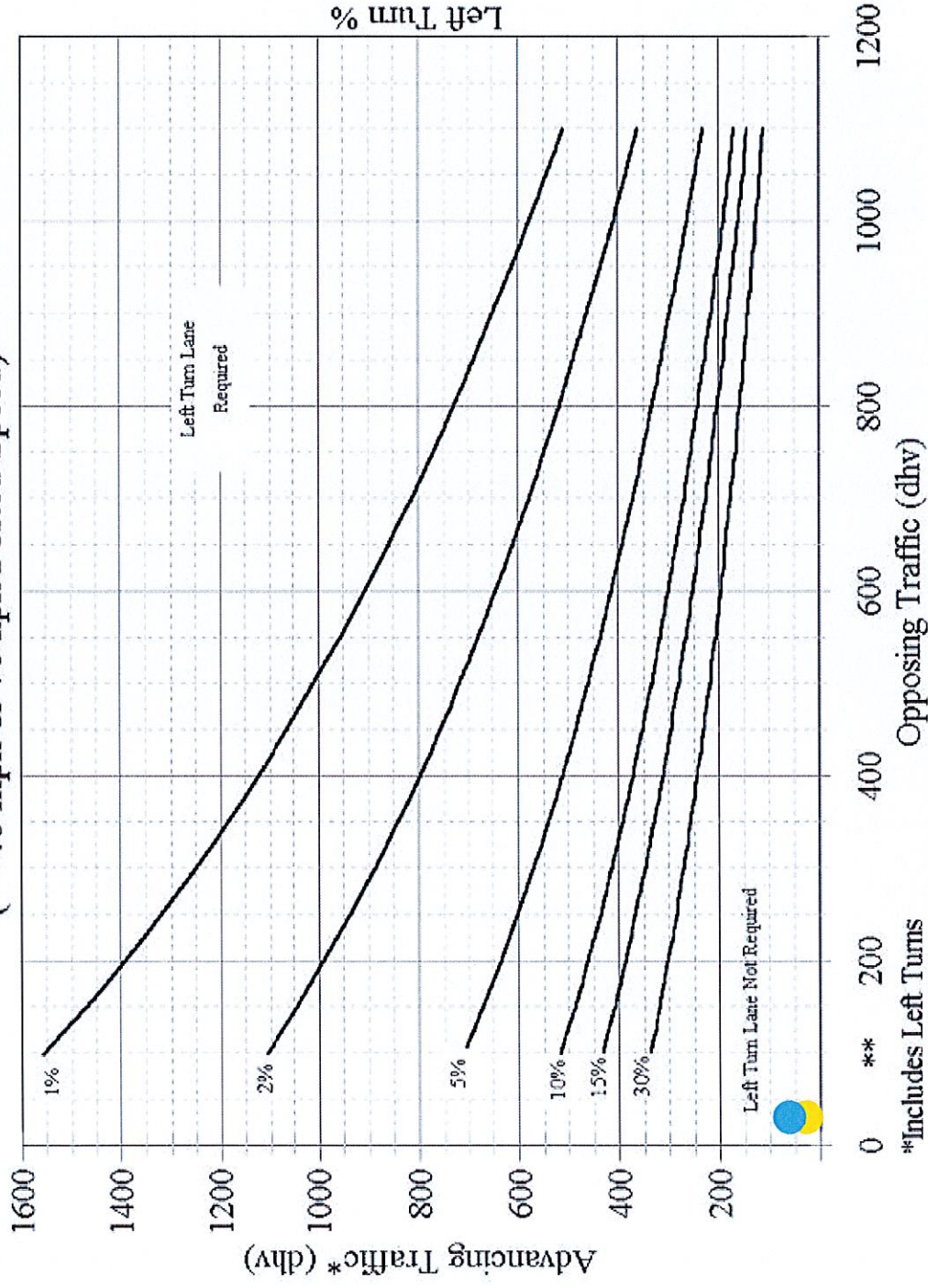
*Includes Right Turns

AM Peak - Build
 20 advancing
 1 right turns
 ●
NOT WARRANTED

PM Peak - Build
 23 advancing
 2 right turns
 ●
NOT WARRANTED

Carter Rd @ South Site Drive Northbound Left Turn

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



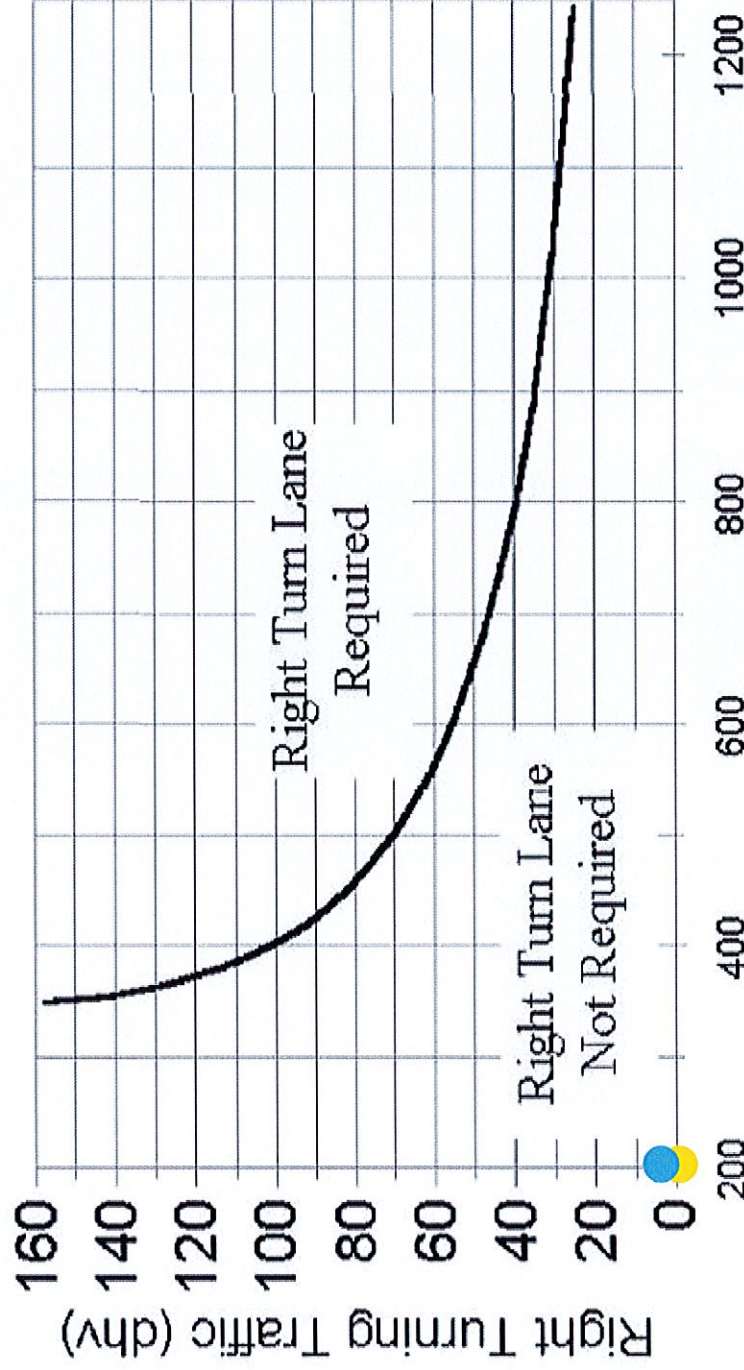
Left Turn Lane
Required

Left Turn Lane Not Required

AM Peak - Build
33 advancing
35 opposing
39% left turns
NOT WARRANTED

PM Peak - Build
63 advancing
38 opposing
32% left turns
NOT WARRANTED

Carter Rd @ South Site Drive
Southbound Right Turn
2-Lane Highway Right Turn Lane Warrant
 =< 40 mph or 70 kph Posted Speed



* Includes Right Turns
Advancing Traffic* (dhv)

*Includes Right Turns

AM Peak - Build
 35 advancing
 1 right turns
 NOT WARRANTED

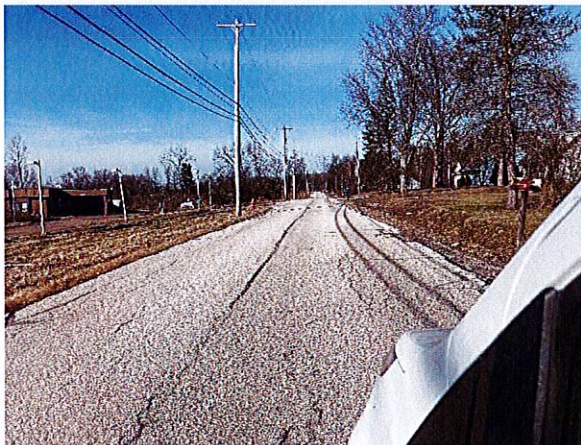
PM Peak - Build
 38 advancing
 2 right turns
 NOT WARRANTED



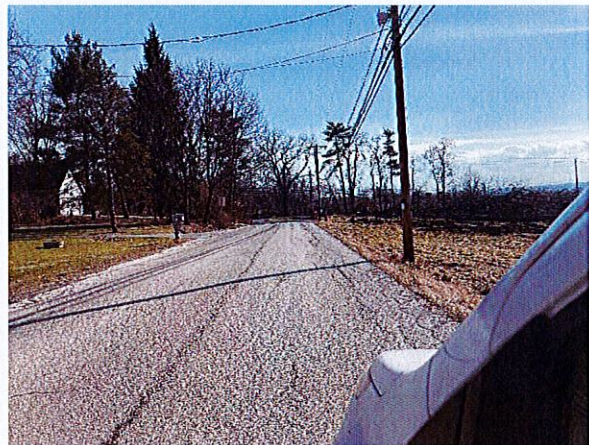
North Driveway Looking North



North Driveway Looking South



South Driveway Looking North



South Driveway Looking South