TRAFFIC IMPACT STUDY

MAPLE HEIGHTS, CUYAHOGA COUNTY, OHIO

PROPOSED DOLLAR GENERAL

PREPARED BY GPD GROUP FOR: ZAREMBA GROUP, LLC

OCTOBER 2020

GPD GROUP®

TRAFFIC IMPACT STUDY

Proposed Dollar General
Warrensville Center Road

City of Maple Heights, Cuyahoga County, Ohio

Prepared For:

Zaremba Group, LLC
14600 Detroit Avenue
Suite 1500
Lakewood, OH 44107

Prepared By:

GPD Group
520 South Main Street
Suite 2531
Akron, OH 44311

October 2020

Engineer's Seal

STATE OF OHIO
MICHAEL A. HOBBS
E-68713
REGISTERED
PROFESSIONAL ENGINEER

Prepared By:

Ryan M. Gillespie, P.E., PTOE
Registration No. 74312
Certification No. 3183

Prepared Under The Responsible Charge of:

Michael A. Hobbs, P.E., PTOE
Registration No. 68713
Certification No. 1346

October 23, 2020
Date

GPD GROUP

TABLE OF CONTENTS

I. Purpose: 1
II. Project Setting: 1
- Study Area 1
- Area Roadway System 1
- Existing Traffic Volumes 1

III. Proposed Action: 2
IV. Trip Generation: 2
- Trip Generation Calculations 2

V. Traffic Volumes: 3
- Historical Growth Trends 3
- 'No-Build' Traffic Volumes 3
- Site Trip Distribution and Assignment 3
- 'Build' Traffic Volumes 3

VI. Traffic Analysis: 4
- HCS Intersection Capacity Analysis 4

VII. Summary and Recommendations: 8

LIST OF APPENDICES

Appendix A: Turning Movement Count
Appendix B: KFC Site Trip Assignment
Appendix C: ITE Trip Generation Calculations
Appendix D: Growth Rate Calculations
Appendix E: Site Trip Distribution and Assignment
Appendix F: HCS Intersection Capacity Analysis

LIST OF TABLES

Table 1: HCS Intersection Capacity Analysis Summary – Opening Year 2021 Conditions
Table 2: HCS Intersection Capacity Analysis Summary – Design Year 2041 Conditions
Table 3: HCS Intersection Capacity Analysis Summary – Existing Traffic Condition

LIST OF FIGURES

Figure 1: Project Location Map
Figure 2: Aerial Photograph
Figure 3: Existing Year 2020 Peak Hour Traffic Volumes
Figure 4: Preliminary Site Plan
Figure 5: Opening Year 2021 'No-Build' Peak Hour Traffic Volumes
Figure 6: Design Year 2041 'No-Build' Peak Hour Traffic Volumes
Figure 7: Opening Year 2021 'Build' Peak Hour Traffic Volumes
Figure 8: Design Year 2041 'Build' Peak Hour Traffic Volumes

I. Purpose:

This Traffic Impact Study is being prepared at the request of Zaremba Group, LLC in association with the proposed construction of a new Dollar General store which is to be located along the west side of Warrensville Center Road in the City of Maple Heights. The purpose of this particular Traffic Impact Study is to analyze the roadway's vehicular operating conditions in the vicinity of the proposed development, both before and after its construction, to determine what, if any, impact the proposed Dollar General will have on the surrounding roadway network.

II. Project Setting:

Study Area

The subject property currently exists as a parking lot. It is located along the west side of Warrensville Center Road approximately 400 feet south of the Warrensville Center Road / Southgate Park Boulevard intersection. The area surrounding the proposed development along Warrensville Center Road is a mix of commercial and residential uses. See **Figure 1** for a project location map and **Figure 2** for an aerial photograph of the project area.

Area Roadway System

Warrensville Center Road exists as an undivided four (4) lane concrete roadway having two (2) lanes of travel in each direction in the subject property's vicinity. The current posted speed limit on Warrensville Center Road is 25 miles per hour (mph). According to information obtained from the Ohio Department of Transportation's (ODOT) Transportation Information Mapping System (TIMS), Warrensville Center Road is classified as an 'Urban Minor Arterial' roadway.

Existing Traffic Volumes

For this traffic study, the Existing Year 2020 peak hour traffic volumes were developed from a turning movement count performed on Tuesday, December 4th, 2018 by Cummins Consulting Services, PLLC. Site trips and a growth rate of 0.5% from the previously completed KFC Traffic Impact Study were applied to the turning movement count to create the Existing Year 2020 peak hour traffic volumes.

From the count data, the AM peak hour of the study area was determined to occur from 7:15 AM to 8:15 AM while the PM peak hour was found to occur from 4:45 PM to 5:45 PM. See **Figure 3** for the Existing Year 2020 peak hour traffic volumes, **Appendix A** for the turning movement count, and **Appendix B** for the KFC site trip assignment.

III. Proposed Action:

The proposed development will be a Dollar General store consisting of 9,100 square feet (SF) of gross floor area. The development will be constructed on the west side of Warrensville Center Drive approximately 400 feet south of the Warrensville Center Road / Southgate Park Boulevard intersection (directly south of the KFC). The proposed Dollar General will replace an existing parking lot that does not currently have direct access to Warrensville Center Road. See **Figure 4** for a preliminary site plan.

As proposed in the site plan, one full movement drive to Warrensville Center Road will be the primary access to the Dollar General property. The full access drive to Warrensville Center Road will be referred to as 'Dollar General Drive' for the purpose of this study. The site will have secondary access to the adjacent properties to both the north and south through a cross-access frontage drive being constructed parallel to Warrensville Center Road. Lastly, an additional cross-access drive will be constructed along the rear of the property that will also provide interconnectivity between the adjacent properties, but no access to the Dollar General parking lot will be provided from this drive.

IV. Trip Generation:

Trip Generation Calculations

The trip generation calculations were performed for the proposed store utilizing the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. This manual includes data from numerous trip generation studies of different land uses performed by public agencies, developers, consulting firms and associations, and submitted to ITE. It serves as a tool for estimating the number of vehicle trips generated by a proposed development. For this study, the trip generation calculations will evaluate the AM and PM peak periods.

According to the information contained in the ITE Trip Generation Manual, 10th Edition, the proposed Dollar General store is expected to generate the following trip ends once constructed:

LAND USE 814 – Variety Store

i. Weekday AM Peak Hour (i.e. morning rush hour):
   = 29 trip ends (17 enter and 12 exit)
ii. Weekday PM Peak Hour (i.e. evening rush hour):
   = 63 trip ends (33 enter and 30 exit)

Note that the variable utilized in the trip generation calculations was 'square feet of gross floor area,' which in this case is 9,100 SF. See **Appendix C** for the detailed trip generation calculations for the proposed Dollar General store.

V. Traffic Volumes:

Historical Growth Trends

As previously mentioned, the growth rates used in this study are from the KFC Traffic Impact Study completed in 2018. Those growth rates were determined based on historical traffic volumes obtained from ODOT's website on Warrensville Center Road near the Warrensville Center Road / Applegate Road intersection as well as on State Route 8 just north of the State Route 8 / Rockside Road intersection. Growth rate calculations based on the available traffic volume data from 1980 – 2016 are in **Appendix D**. It had been determined that the traffic volumes have been decreasing (linearly) along Warrensville Center Road near the Applegate Road intersection by -6.66% per year and on State Route 8 just north of State Route 8 / Rockside Road intersection by -0.87% per year. While the traffic volumes have been decreasing in the study area, an annual growth rate of 0.5% will be used in the analysis in order to be consistent with the previous study.

'No-Build' Traffic Volumes

The construction of the proposed Dollar General is anticipated to be completed in 2021. In addition to the 0.5% growth rate being utilized, design hour factors from the previously completed KFC Traffic Impact Study were also applied to the raw traffic data to develop the projected design hour volumes. In order to be consistent with the pervious study, a DHV factor of 1.15 was utilized for the analysis based on the ODOT Peak Hour to Design Hour Factor Chart. **Figure 5** represents the Opening Year 2021 'No-Build' peak hour traffic volumes and **Figure 6** exhibits the Design Year 2041 'No-Build' peak hour traffic volumes.

Site Trip Distribution and Assignment

The new trips discussed in the Trip Generation section were distributed and assigned to the roadway network based on existing travel volumes/patterns near the site, the surrounding land uses and roadway network, and engineering judgment. It was estimated that 50% of the projected site trips would travel to/from the north on Warrensville Center Road and 50% of the projected site trips would travel to/from the south. The peak hour distribution and assignment of new site trips are shown in **Appendix E**.

'Build' Traffic Volumes

The site trips discussed in the previous section were added to the Opening Year 2021 and Design Year 2041 'No-Build' peak hour traffic volumes to create the' Build' traffic condition volumes. The 'Build' traffic volumes will allow a direct comparison between the projected traffic conditions without the development and those following the proposed Dollar General store's

completion. **Figure 7** displays the Opening Year 2021 'Build' peak hour traffic volumes and **Figure 8** shows the Design Year 2041 'Build' peak hour traffic volumes.

VI. Traffic Analysis:

HCS Intersection Capacity Analysis

Intersection capacity analyses were performed for the Opening Year 2021 and Design Year 2041 'Build' condition to determine the operating condition that would be expected to be experienced at the study intersection. The quality of the operating conditions experienced by an intersection is measured in terms of Levels-of-Service (LOS). Level-of-Service can range from LOS A to LOS F. Level-of-Service rating of A, B, and C are considered to be in the acceptable range. LOS D is typically considered acceptable in urban areas (which the site and study area utilized for this report have been determined to be within). Level-of-Service E and F are considered below average with a significant level of delay experienced by vehicles. The Level-of-Service thresholds unsignalized intersection are as follows:

Level-of- Service	*Delay Threshold – Unsignalized (Sec)*
A	< 10
B	> 10 – 15
C	> 15 – 25
D	> 25 - 35
E	> 35 - 50
F	> 50

The capacity analyses were performed for the weekday AM and PM peak hours utilizing the computer program HCS7 (Version 7.8), which is developed by McTrans Corporation and based on the Highway Capacity Manual and the 2009 Manual of Uniform Traffic Control Devices (MUTCD). Based on criteria established by ODOT, the Highway Capacity Software (HCS) is used to determine the required number of lanes and lane assignments at the intersection (i.e., the needed capacity).

Table 1 summarizes the HCS Intersection Capacity Analysis and details the Levels-of-Service and delays experienced under the AM and PM peak hours for the Opening Year 2021 'Build' traffic conditions for the Warrensville Center Road / Dollar General Drive intersection. See **Appendix F** for HCS analysis printouts.

Table 1: HCS Intersection Capacity Analysis Summary Opening Year 2021 Conditions

Intersection / Movement	'Build' Condition			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay (sec)	LOS	Delay (sec)
Warrensville Center Road / Dollar General Drive				
Eastbound Left	C	20.0	F	57.1
Eastbound Right	A	10.0	B	13.7
Eastbound Approach	*B*	*15.0*	*E*	*35.4*
Northbound Left-Thru	A	8.5	B	11.6
Northbound Approach	*A*	*0.1*	*A*	*0.5*

As shown in **Table 1**, all movements and approaches at the Warrensville Center Road / Dollar General Drive intersection are anticipated operate at an acceptable Level-of-Service C or better under the Opening Year 2021 'Build' conditions with the exception of the eastbound left turn movement which is expected to operate at LOS F and the eastbound approach which is expected to operate at LOS E during the PM peak hour. This is typical of unsignalized driveways located along primary thoroughfares and as previously discussed, customers of the Dollar General will have access to the properties to the north and south which both have secondary access to Southgate Park Boulevard and Watercrest Avenue should drivers determine that such wait times are intolerable. It should also be noted that these deficient Levels-of-Service will only be expected in the event that traffic volumes along Warrensville Center Road do end up increasing at a rate of 0.5% per year, despite the historical data indicating that such a trend is unlikely.

Table 2 summarizes the HCS intersection Capacity Analysis and details the Levels-of-Service and delay experienced under the AM and PM peak hours for the Design Year 2041 'Build' traffic conditions for the Warrensville Center Road / Dollar General Drive intersection. See **Appendix F** for the HCS analysis printouts.

Table 2: HCS Intersection Capacity Analysis Summary Design Year 2041 Conditions

Intersection / Movement	'Build' Condition			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay (sec)	LOS	Delay (sec)
Warrensville Center Road / Dollar General Drive				
Eastbound Left	C	22.3	F	76.6
Eastbound Right	B	10.2	B	14.5
Eastbound Approach	*C*	*16.2*	*E*	*45.6*
Northbound Left-Thru	A	8.7	B	12.4
Northbound Approach	*A*	*0.2*	*A*	*0.6*

As shown in **Table 2**, all movements and approaches at the Warrensville Center Road / Dollar General Drive intersection are anticipated to continue to operate at an acceptable Level-of-Service C or better under the Design Year 2041 'Build' conditions with the exception of the eastbound left turn movement which is still expected to operate at LOS F and the eastbound approach which is still expected to operate at LOS E during the PM peak hour. Once again, this is typical of unsignalized driveways located along primary thoroughfares and as previously discussed, customers of the Dollar General will have access to the properties to the north and south which both have secondary access to Southgate Park Boulevard and Watercrest Avenue should drivers determine that such wait times are intolerable. It should also be noted that these deficient Levels-of-Service will only be expected in the event that traffic volumes along Warrensville Center Road do end up increasing at a rate of 0.5% per year, despite the historical data indicating that such a trend is unlikely.

The combination of background growth and design hour factors ultimately result in a 28% increase in traffic from what was counted in 2018. As this could be overestimating the actual traffic conditions, additional capacity analysis was performed to evaluate the operation that would be expected if only accounting for the existing traffic count data, the KFC site trips, and the Dollar General site trips.

Table 3 summarizes the HCS intersection Capacity Analysis and details the Levels-of-Service and delay that will be experienced with these traffic volumes. This analysis is anticipated to show a more realistic representation of the how the intersection would be expected to operate during the PM peak hour. See **Appendix F** for the HCS analysis printouts.

Table 3: HCS Intersection Capacity Analysis Summary – Existing Traffic Condition

Intersection / Movement	**'Build' Condition**	
	PM Peak Hour	
	LOS	**Delay** (sec)
Warrensville Center Road / Dollar General Drive		
Eastbound Left	E	39.0
Eastbound Right	B	12.6
Eastbound Approach	*D*	*25.8*
Northbound Left-Thru	B	10.7
Northbound Approach	*A*	*0.5*

As shown in **Table 3**, this additional capacity analysis found that without inflating the existing traffic volumes to account for potential growth and design hour factors (which are likely overestimating the future conditions), the eastbound approach would be expected to operate at an LOS D while the eastbound left turn movement would only be LOS E, both of which being more acceptable to drivers than the previous delays reported for the Opening Year 2021 and Design Year 2041 'Build' conditions.

VII. Summary and Recommendations:

This Traffic Impact Study is being prepared at the request of Zaremba Group, LLC in association with the proposed construction of a new Dollar General store which is to be located along the west side of Warrensville Center Road in the City of Maple Heights. The purpose of this particular Traffic Impact Study is to analyze the roadway's vehicular operating conditions in the vicinity of the proposed development, both before and after its construction, to determine what, if any, impact the proposed Dollar General will have on the surrounding roadway network.

In Summary,

1. The proposed development will consist of a 9,100 square foot Dollar General store to be located along the west side of Warrensville Center Road approximately 400 feet south of the Warrensville Center Road / Southgate Park Boulevard.

2. The primary site access will consist of one (1) full movement driveway located along Warrensville Center Road. Additionally, the site will have secondary access to adjacent properties to both the north and south through a cross-access frontage drive being constructed parallel to Warrensville Center Road.

3. The proposed Dollar General is expected to generate the following trips ends once constructed:

   LAND USE 814 – Variety Store

   i. Weekday AM Peak Hour (i.e. morning rush hour):
      = 29 trip ends (17 enter and 12 exit)

   ii. Weekday PM Peak Hour (i.e. evening rush hour):
      = 63 trip ends (33 enter and 30 exit)

4. The capacity analysis found that all movements and approaches at the Warrensville Center Road / Dollar General Drive intersection are anticipated operate at an acceptable Level-of-Service C or better under the Opening Year 2021 and Design Year 2041 'Build' conditions with the exception of the eastbound left turn movement which is expected to operate at LOS F and the eastbound approach which is expected to operate at LOS E during the PM peak hour. This is typical of unsignalized driveways located along primary thoroughfares and customers of the Dollar General will have access to the properties to the north and south which both have secondary access to Southgate Park Boulevard and Watercrest Avenue should drivers determine that such wait times are intolerable. It should also be noted these deficient Levels-of-Service will only be

expected in the event that traffic volumes along Warrensville Center Road do end up increasing at a rate of 0.5% per year, despite the historical data indicating that such a trend is unlikely.

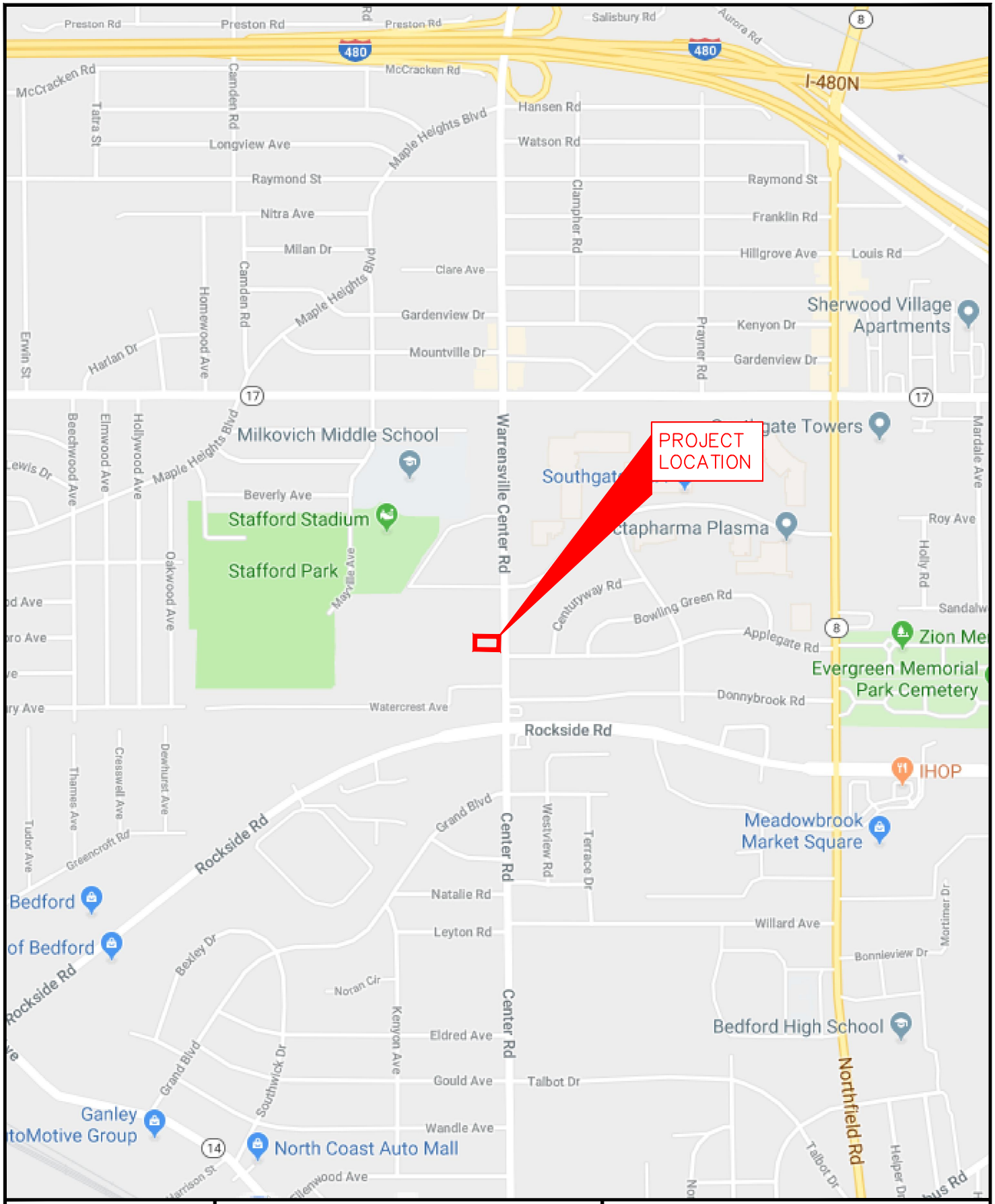
5. Additional capacity analysis found that without inflating the existing traffic volumes to account for potential growth and design hour factors (which are likely overestimating the future conditions), the eastbound approach would be expected to operate at LOS D while the eastbound left turn movement would only be LOS E, both of which being more acceptable to drivers than the delays reported for the Opening Year 2021 and Design Year 2041 'Build' conditions.

Based on the information and analyses in this study, GPD Group recommends the following:

1. The proposed Dollar General store should be constructed as currently depicted in the preliminary site plan.

2. Based on the analysis contain in this study, the proposed Dollar General store is not anticipated to have an adverse impact on the surrounding roadway network and will provide adequate accessibility to and from the site under the projected traffic conditions.

FIGURES



N

N.T.S.

FIGURE 1

PROJECT LOCATION MAP

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\FIGURE 1.DWG
DATE: 10/13/2020 TIME: 4:46:30 PM
TECHNICIAN: ALBERT

N

N.T.S.

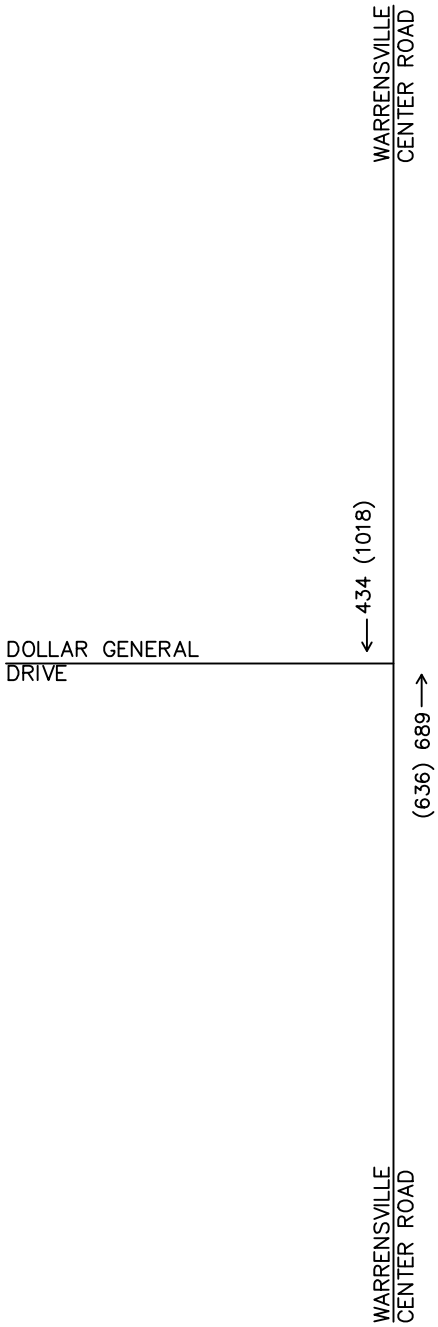
FIGURE 2

AERIAL PHOTOGRAPH

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\FIGURE 2.DWG
DATE: 10/22/2020 TIME: 10:17:57 AM
TECHNICIAN: ALIBERT



LEGEND
– AM PEAK
(##) – PM PEAK

N

N.T.S.

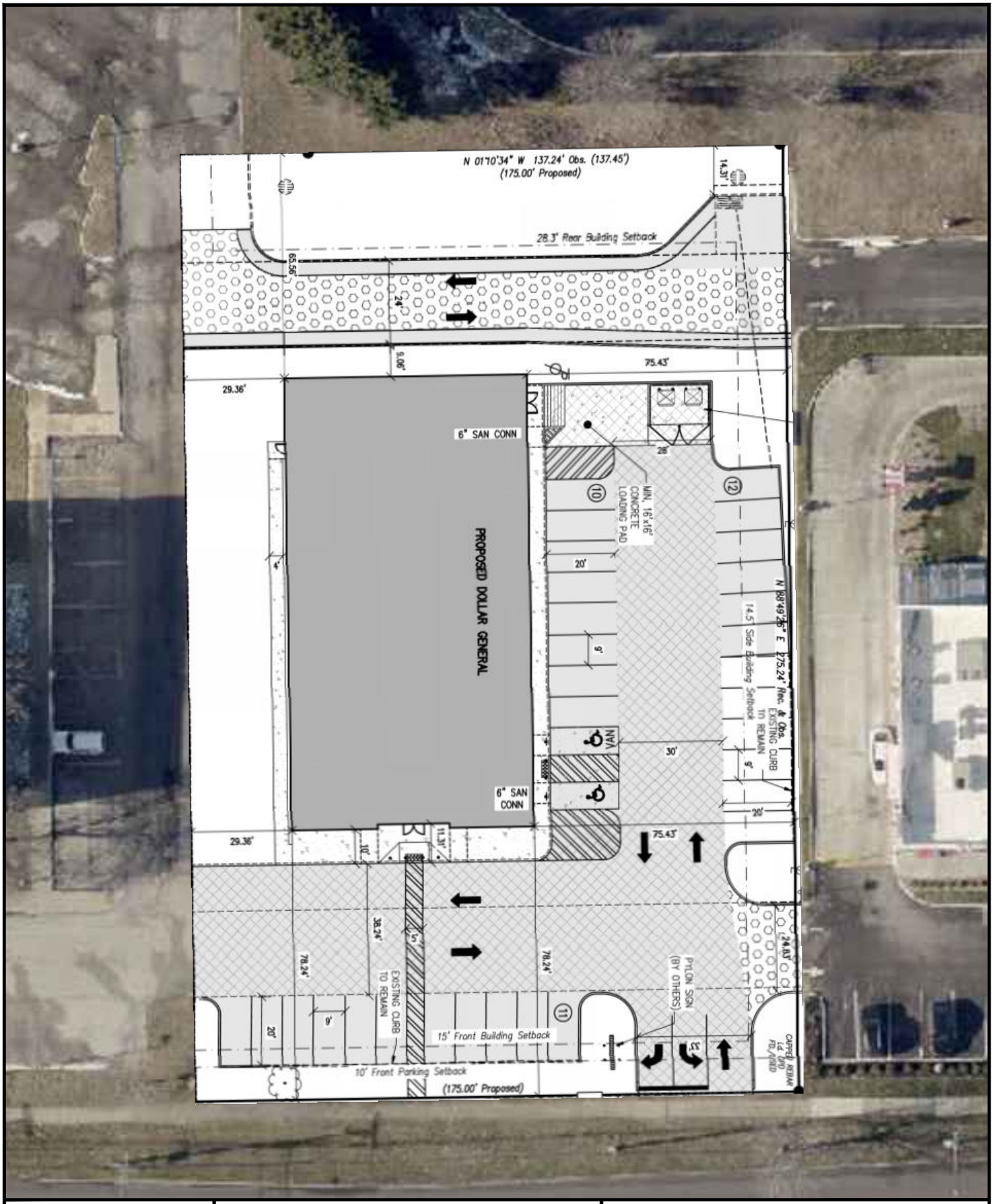
FIGURE 3

EXISTING YEAR 2020
PEAK HOUR TRAFFIC
VOLUMES

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\APPENDIX E – SITE TRIP DISTRIBUTION.DWG
DATE: 10/22/2020 TIME: 10:21:10 AM
TECHNICIAN: ALIBERT



N.T.S.

FIGURE 4

PRELIMINARY SITE PLAN

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\FIGURE 4.DWG
DATE: 10/22/2020 TIME: 10:12:26 AM
TECHNICIAN: ALIBERT

LEGEND
– AM PEAK
(##) – PM PEAK

N.T.S.

FIGURE 5

OPENING YEAR 2021
'NO–BUILD' PEAK HOUR
TRAFFIC VOLUMES

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\APPENDIX E – SITE TRIP DISTRIBUTION.DWG
DATE: 10/22/2020 TIME: 10:22:01 AM
TECHNICIAN: ALIBERT

LEGEND
– AM PEAK
(##) – PM PEAK

N.T.S.

FIGURE 6

DESIGN YEAR 2041
'NO–BUILD' PEAK HOUR
TRAFFIC VOLUMES

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\APPENDIX E – SITE TRIP DISTRIBUTION.DWG
DATE: 10/22/2020 TIME: 10:24:57 AM
TECHNICIAN: ALIBERT

LEGEND
– AM PEAK
(##) – PM PEAK

N

N.T.S.

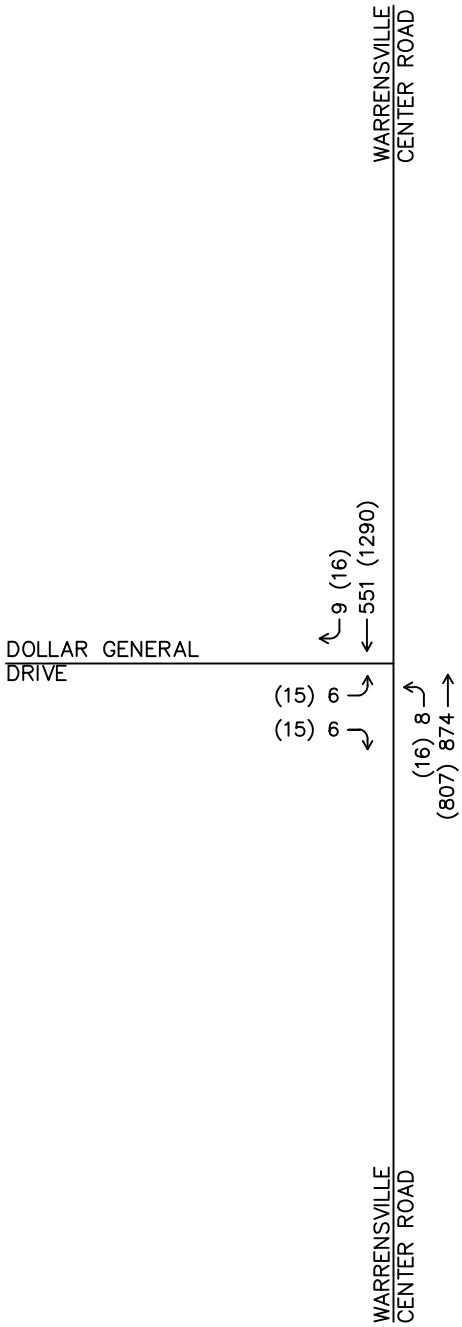
FIGURE 7

OPENING YEAR 2021
'BUILD' PEAK HOUR
TRAFFIC VOLUME

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\APPENDIX E - SITE TRIP DISTRIBUTION.DWG
DATE: 10/22/2020 TIME: 10:22:39 AM
TECHNICIAN: ALIBERT



LEGEND
– AM PEAK
(##) – PM PEAK

N

N.T.S.

FIGURE 8

DESIGN YEAR 2041
'BUILD' PEAK HOUR
TRAFFIC VOLUME

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\APPENDIX E - SITE TRIP DISTRIBUTION.DWG
DATE: 10/22/2020 TIME: 10:26:35 AM
TECHNICIAN: ALIBERT

APPENDIX A
TURNING MOVMENT COUNT

Cummins Consulting Services

2216 Young Drive, Suite 1, Lexington, KY 40505
swcummins@windstream.net 859.361.2589
"simplifying Data Collection since 2004"

File Name : Warrensville_Ctr_at_Access_S_of_Fire_Station_596546_12-04-2018
Site Code : Site 1
Start Date : 12/4/2018
Page No : 1

Schools in Session
Tuesday - Cold and Cloudy

Groups Printed- Cars - Buses - Trucks - Bicycles on Crosswalk - Pedestrians

	Warrensville Center Road From North					Pkg Lot Access From East					Warrensville Center Road From South					Pkg Lot Access From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	59	0	0	59	0	0	0	0	0	0	156	0	0	156	0	0	0	0	0	215
07:15 AM	1	91	0	0	92	0	0	0	0	0	0	158	0	0	158	0	0	0	0	0	250
07:30 AM	0	124	0	0	124	0	0	0	0	0	0	168	0	0	168	0	0	0	0	0	292
07:45 AM	0	100	0	0	100	0	0	0	0	0	0	197	0	1	198	0	0	0	0	0	298
Total	1	374	0	0	375	0	0	0	0	0	0	679	0	1	680	0	0	0	0	0	1055
08:00 AM	0	115	0	0	115	0	0	0	0	0	0	159	0	0	159	0	0	0	0	0	274
08:15 AM	0	92	0	0	92	0	0	0	0	0	0	133	0	0	133	0	0	0	0	0	225
08:30 AM	0	142	0	0	142	0	0	0	0	0	0	121	0	0	121	0	0	0	0	0	263
08:45 AM	0	114	0	0	114	0	0	0	0	0	0	136	0	0	136	0	0	0	0	0	250
Total	0	463	0	0	463	0	0	0	0	0	0	549	0	0	549	0	0	0	0	0	1012
09:00 AM	0	97	1	0	98	0	0	0	0	0	0	137	0	0	137	0	0	0	0	0	235
09:15 AM	0	90	0	0	90	0	0	0	0	0	0	124	0	0	124	1	0	0	0	1	215
09:30 AM	0	81	0	0	81	0	0	0	0	0	0	127	0	0	127	0	0	0	1	1	209
09:45 AM	0	107	0	0	107	0	0	0	0	0	1	119	0	0	120	0	0	1	0	1	228
Total	0	375	1	0	376	0	0	0	0	0	1	507	0	0	508	1	0	1	1	3	887
10:00 AM	0	110	0	0	110	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	208
10:15 AM	0	110	0	0	110	0	0	0	0	0	0	119	0	0	119	0	0	0	0	0	229
10:30 AM	0	118	1	0	119	0	0	0	0	0	0	135	0	0	135	0	0	0	0	0	254
10:45 AM	0	112	0	0	112	0	0	0	0	0	0	128	0	0	128	0	0	0	1	1	241
Total	0	450	1	0	451	0	0	0	0	0	0	480	0	0	480	0	0	0	1	1	932
11:00 AM	0	130	0	0	130	0	0	0	0	0	0	105	0	0	105	0	0	0	0	0	235
11:15 AM	0	125	0	0	125	0	0	0	0	0	2	121	0	0	123	0	0	0	0	0	248
11:30 AM	0	124	0	0	124	0	0	0	0	0	0	129	0	0	129	0	0	1	1	2	255
11:45 AM	0	128	0	0	128	0	0	0	0	0	0	143	0	0	143	0	0	0	1	1	272
Total	0	507	0	0	507	0	0	0	0	0	2	498	0	0	500	0	0	1	2	3	1010
12:00 PM	0	135	0	0	135	0	0	0	0	0	0	126	0	0	126	0	0	1	1	2	263
12:15 PM	0	149	0	1	150	0	0	0	1	1	0	154	0	0	154	0	0	0	0	0	305
12:30 PM	0	178	0	0	178	0	0	0	0	0	1	141	0	0	142	0	0	1	1	2	322
12:45 PM	0	153	0	0	153	0	0	0	0	0	0	154	0	0	154	0	0	0	0	0	307
Total	0	615	0	1	616	0	0	0	1	1	1	575	0	0	576	0	0	2	2	4	1197
01:00 PM	0	159	0	0	159	0	0	0	0	0	0	130	0	0	130	0	0	0	0	0	289
01:15 PM	0	151	0	0	151	0	0	0	0	0	0	130	0	0	130	0	0	0	0	0	281
01:30 PM	0	164	0	0	164	0	0	0	0	0	0	153	0	0	153	0	0	0	0	0	317
01:45 PM	0	169	0	1	170	0	0	0	0	0	0	142	0	0	142	0	0	0	2	2	314
Total	0	643	0	1	644	0	0	0	0	0	0	555	0	0	555	0	0	0	2	2	1201
02:00 PM	0	152	0	0	152	0	0	0	0	0	0	158	0	0	158	0	0	0	0	0	310
02:15 PM	0	149	0	0	149	0	0	0	0	0	0	148	0	0	148	0	0	0	1	1	298
02:30 PM	0	142	0	0	142	0	0	0	0	0	0	162	0	0	162	0	0	0	0	0	304
02:45 PM	0	179	0	0	179	0	0	0	0	0	0	166	0	0	166	0	0	0	0	0	345
Total	0	622	0	0	622	0	0	0	0	0	0	634	0	0	634	0	0	0	1	1	1257
03:00 PM	0	163	0	0	163	0	0	0	0	0	0	165	0	0	165	0	0	0	0	0	328
03:15 PM	0	196	0	0	196	0	0	0	0	0	0	194	0	0	194	0	0	0	1	1	391
03:30 PM	0	173	0	0	173	0	0	0	0	0	0	180	0	0	180	0	0	0	0	0	353
03:45 PM	0	225	0	0	225	0	0	0	0	0	0	141	0	0	141	0	0	0	0	0	366
Total	0	757	0	0	757	0	0	0	0	0	0	680	0	0	680	0	0	0	1	1	1438
04:00 PM	0	205	0	0	205	0	0	0	0	0	0	189	0	0	189	0	0	0	0	0	394
04:15 PM	0	239	0	0	239	0	0	0	0	0	1	185	0	0	186	0	0	0	0	0	425
04:30 PM	0	229	0	0	229	0	0	0	0	0	0	174	0	0	174	0	0	0	1	1	404
04:45 PM	0	257	0	0	257	0	0	0	0	0	0	129	0	0	129	0	0	1	0	1	387
Total	0	930	0	0	930	0	0	0	0	0	1	677	0	0	678	0	0	1	1	2	1610

Cummins Consulting Services

2216 Young Drive, Suite 1, Lexington, KY 40505

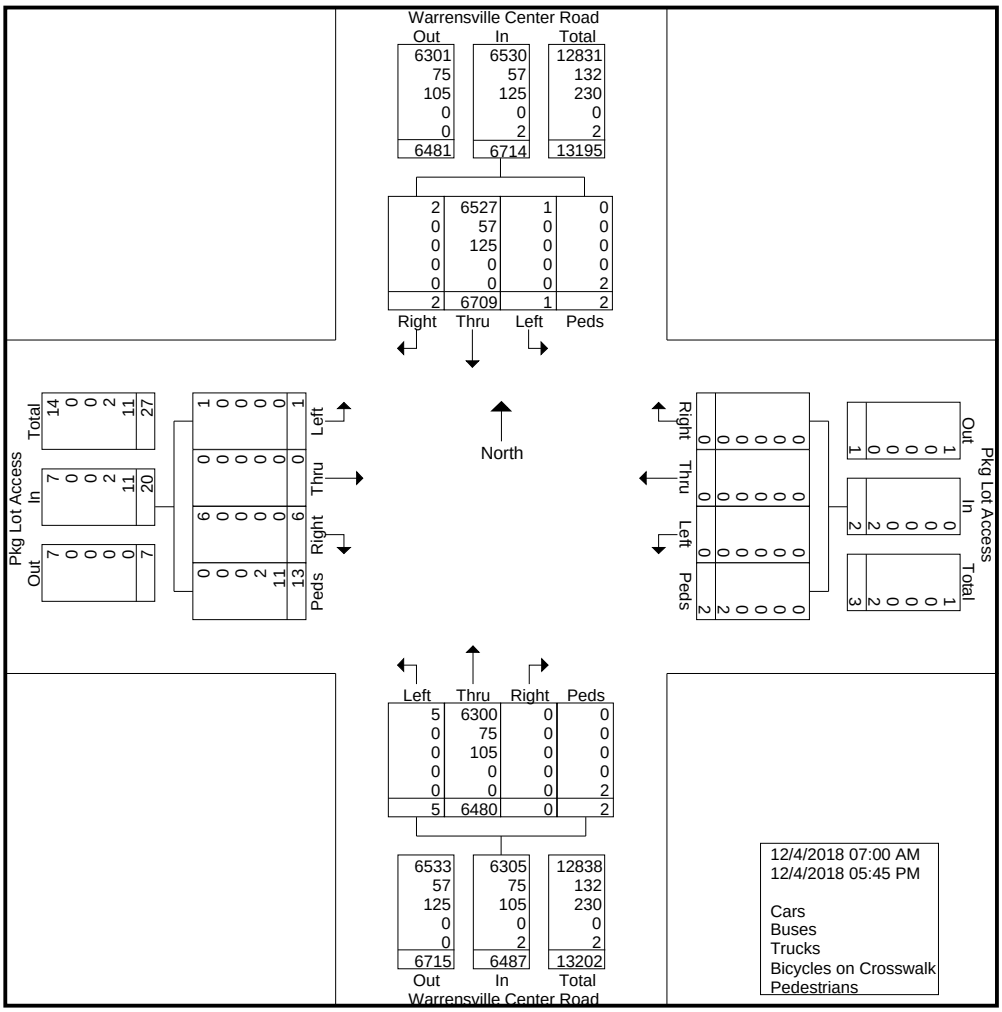
swcummins@windstream.net 859.361.2589

"simplifying Data Collection since 2004"

File Name : Warrensville_Ctr_at_Access_S_of_Fire_Station_596546_12-04-2018
Site Code : Site 1
Start Date : 12/4/2018
Page No : 2

Groups Printed- Cars - Buses - Trucks - Bicycles on Crosswalk - Pedestrians

	Warrensville Center Road From North					Pkg Lot Access From East					Warrensville Center Road From South					Pkg Lot Access From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
05:00 PM	0	234	0	0	234	0	0	0	0	0	0	169	0	0	169	0	0	0	0	0	403
05:15 PM	0	246	0	0	246	0	0	0	0	0	0	157	0	1	158	0	0	0	2	2	406
05:30 PM	0	262	0	0	262	0	0	0	0	0	0	167	0	0	167	0	0	0	0	0	429
05:45 PM	0	231	0	0	231	0	0	0	1	1	0	153	0	0	153	0	0	1	0	1	386
Total	0	973	0	0	973	0	0	0	1	1	0	646	0	1	647	0	0	1	2	3	1624
Grand Total	1	6709	2	2	6714	0	0	0	2	2	5	6480	0	2	6487	1	0	6	13	20	13223
Apprch %	0	99.9	0	0		0	0	0	100		0.1	99.9	0	0		5	0	30	65		
Total %	0	50.7	0	0	50.8	0	0	0	0	0	0	49	0	0	49.1	0	0	0	0.1	0.2	
Cars	1	6527	2	0	6530	0	0	0	0	0	5	6300	0	0	6305	1	0	6	0	7	12842
% Cars	100	97.3	100	0	97.3	0	0	0	0	0	100	97.2	0	0	97.2	100	0	100	0	35	97.1
Buses	0	57	0	0	57	0	0	0	0	0	0	75	0	0	75	0	0	0	0	0	132
% Buses	0	0.8	0	0	0.8	0	0	0	0	0	0	1.2	0	0	1.2	0	0	0	0	0	1
Trucks	0	125	0	0	125	0	0	0	0	0	0	105	0	0	105	0	0	0	0	0	230
% Trucks	0	1.9	0	0	1.9	0	0	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0	1.7
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15.4	10	0
Pedestrians	0	0	0	2	2	0	0	0	2	2	0	0	0	2	2	0	0	0	11	11	17
% Pedestrians	0	0	0	100	0	0	0	0	100	100	0	0	0	100	0	0	0	0	84.6	55	0.1



Cummins Consulting Services

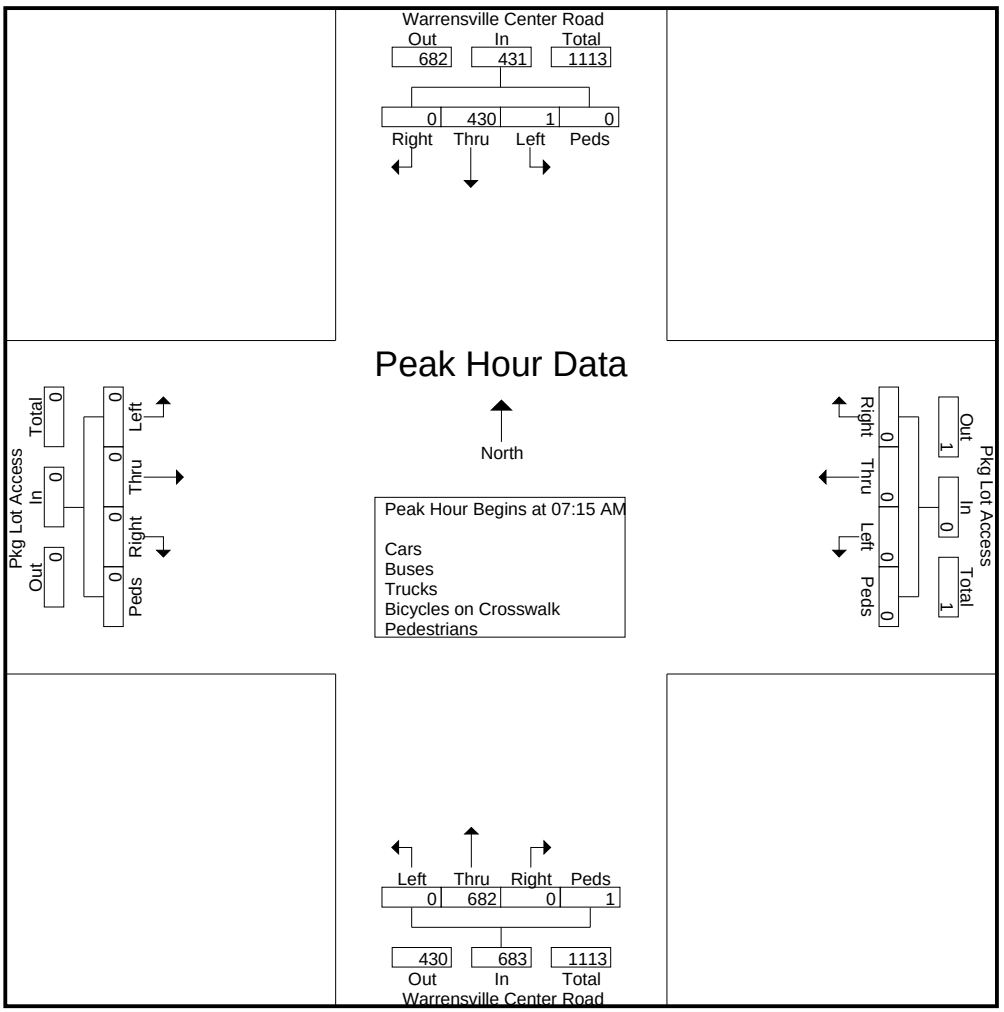
2216 Young Drive, Suite 1, Lexington, KY 40505

swcummins@windstream.net 859.361.2589

"simplifying Data Collection since 2004"

File Name : Warrensville_Ctr_at_Access_S_of_Fire_Station_596546_12-04-2018
Site Code : Site 1
Start Date : 12/4/2018
Page No : 3

	Warrensville Center Road From North					Pkg Lot Access From East					Warrensville Center Road From South					Pkg Lot Access From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**1**	91	0	0	92	0	0	0	0	0	0	158	0	0	158	0	0	0	0	0	250
07:30 AM	0	**124**	0	0	**124**	0	0	0	0	0	0	168	0	0	168	0	0	0	0	0	292
07:45 AM	0	100	0	0	100	0	0	0	0	0	0	**197**	0	**1**	**198**	0	0	0	0	0	**298**
08:00 AM	0	115	0	0	115	0	0	0	0	0	0	159	0	0	159	0	0	0	0	0	274
Total Volume	1	430	0	0	431	0	0	0	0	0	0	682	0	1	683	0	0	0	0	0	1114
% App. Total	0.2	99.8	0	0		0	0	0	0		0	99.9	0	0.1		0	0	0	0		
PHF	.250	.867	.000	.000	.869	.000	.000	.000	.000	.000	.000	.865	.000	.250	.862	.000	.000	.000	.000	.000	.935



Cummins Consulting Services

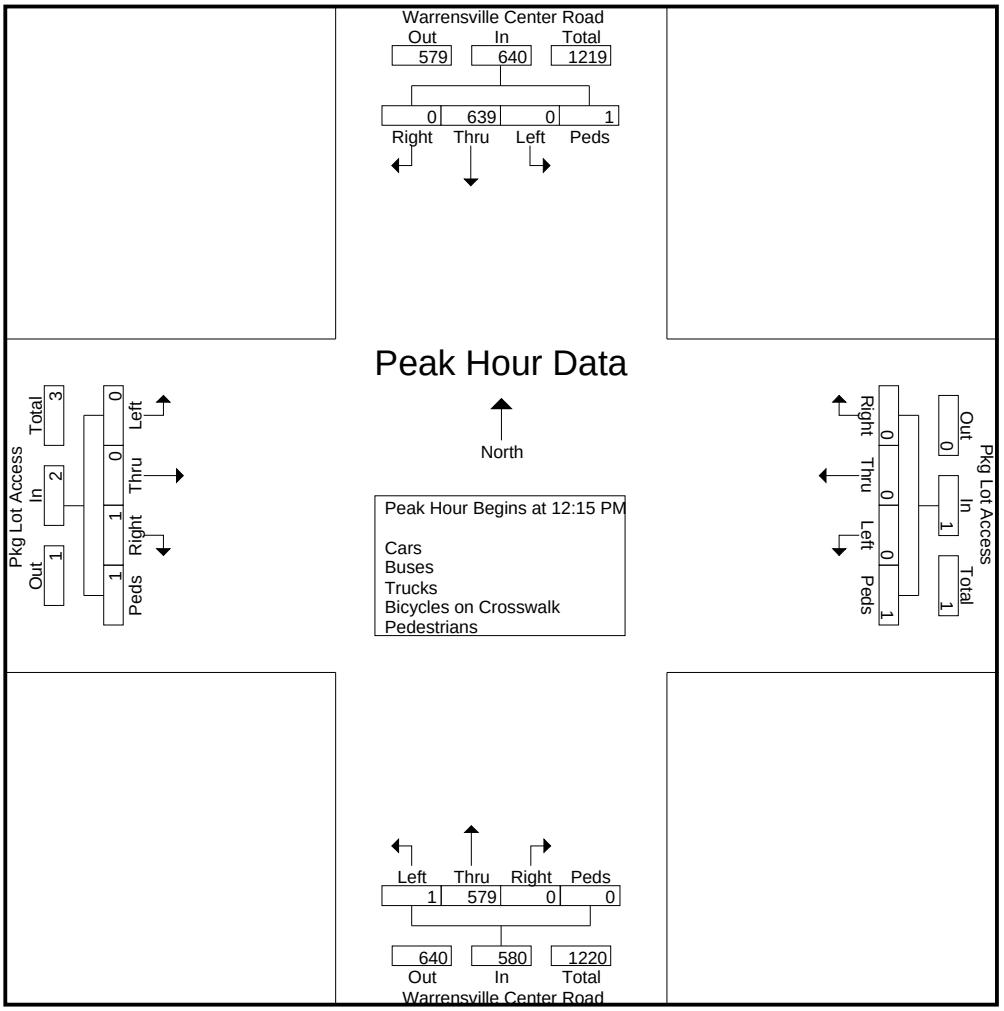
2216 Young Drive, Suite 1, Lexington, KY 40505

swcummins@windstream.net 859.361.2589

"simplifying Data Collection since 2004"

File Name : Warrensville_Ctr_at_Access_S_of_Fire_Station_596546_12-04-2018
Site Code : Site 1
Start Date : 12/4/2018
Page No : 4

	Warrensville Center Road From North					Pkg Lot Access From East					Warrensville Center Road From South					Pkg Lot Access From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	0	149	0	**1**	150	0	0	0	**1**	**1**	0	**154**	0	0	**154**	0	0	0	0	0	305
12:30 PM	0	**178**	0	0	**178**	0	0	0	0	0	**1**	141	0	0	142	0	0	**1**	**1**	**2**	**322**
12:45 PM	0	153	0	0	153	0	0	0	0	0	0	154	0	0	154	0	0	0	0	0	307
01:00 PM	0	159	0	0	159	0	0	0	0	0	0	130	0	0	130	0	0	0	0	0	289
Total Volume	0	639	0	1	640	0	0	0	1	1	1	579	0	0	580	0	0	1	1	2	1223
% App. Total	0	99.8	0	0.2		0	0	0	100		0.2	99.8	0	0		0	0	50	50		
PHF	.000	.897	.000	.250	.899	.000	.000	.000	.250	.250	.250	.940	.000	.000	.942	.000	.000	.250	.250	.250	.950



Cummins Consulting Services

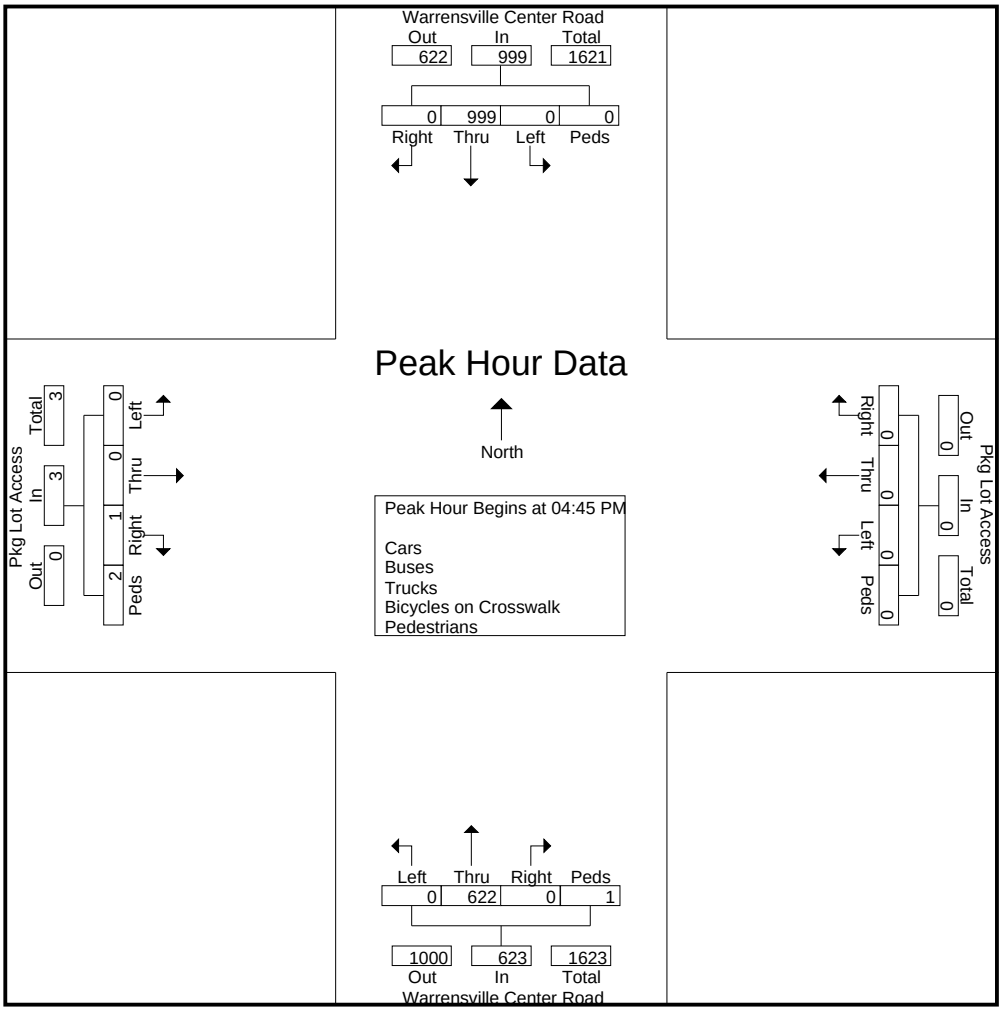
2216 Young Drive, Suite 1, Lexington, KY 40505

swcummins@windstream.net 859.361.2589

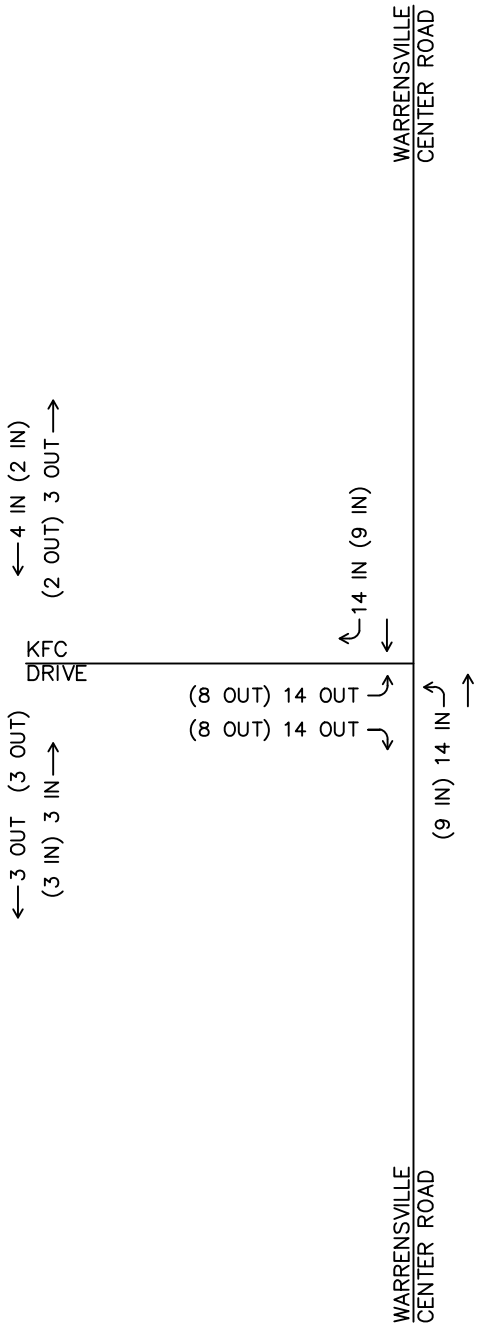
"simplifying Data Collection since 2004"

File Name : Warrensville_Ctr_at_Access_S_of_Fire_Station_596546_12-04-2018
Site Code : Site 1
Start Date : 12/4/2018
Page No : 5

	Warrensville Center Road From North					Pkg Lot Access From East					Warrensville Center Road From South					Pkg Lot Access From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	257	0	0	257	0	0	0	0	0	0	129	0	0	129	0	0	**1**	0	1	387
05:00 PM	0	234	0	0	234	0	0	0	0	0	0	**169**	0	0	**169**	0	0	0	0	0	403
05:15 PM	0	246	0	0	246	0	0	0	0	0	0	157	0	**1**	158	0	0	0	**2**	**2**	406
05:30 PM	0	**262**	0	0	**262**	0	0	0	0	0	0	167	0	0	167	0	0	0	0	0	**429**
Total Volume	0	999	0	0	999	0	0	0	0	0	0	622	0	1	623	0	0	1	2	3	1625
% App. Total	0	100	0	0		0	0	0	0		0	99.8	0	0.2		0	0	33.3	66.7		
PHF	.000	.953	.000	.000	.953	.000	.000	.000	.000	.000	.000	.920	.000	.250	.922	.000	.000	.250	.250	.375	.947



APPENDIX B
KFC SITE TRIP ASSIGNMENT



LEGEND
– MID–DAY PEAK
(##) – PM PEAK

N

N.T.S.

APPENDIX E

PRIMARY TRIP ASSIGNMENT

REVISED APRIL 2019

GPD GROUP.
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
Copyright; Glaus, Pyle, Schomer, Burns & DeHaven, Inc. 2015

CAD FILE: O:\2018\2018054\02 – KFC_MAPLE HEIGHTS, OH\TRAFFIC\FIGURES\APPENDIX E – SITE TRIP ASSIGNMENT.DWG
DATE: 4/4/2019 TIME: 12:58:59 PM
TECHNICIAN: MSUMMERVILLE

APPENDIX C
ITE TRIP GENERATION CALCULATIONS

ITE Trip Generation Procedure

Land Use 814 (Variety Store)

Trip Generations per 1000 Sq. Feet Gross Floor Area
Setting / Location General Urban / Suburban

Weekday Trip Generation and Trip Distribution

Trip Generation Formula: T = 63.47 * (X)
where: T = Number of Trips Generated
X = 1000 Sq. Feet Gross Floor Area

Gross Floor Area: 9,100

Total Trip Ends in the Average Weekday: 578

Distribution Percentages of Entering and Exiting Trips, From ITE Trip Generation Manual, 10th Edition

Entering Trip Percentage: 50%
Exiting Trip Percentage: 50%
Number of Entering Trips: 289
Number of Exiting Trips: 289

AM Peak Trip Generation and Trip Distribution (Peak Hour of Adjacent Street)

Trip Generation Formula: T = 3.18 * (X)
Total Trip Ends in the AM Peak Hour: 29

Distribution Percentages of Entering and Exiting Trips, From ITE Trip Generation Manual, 10th Edition

Entering Trip Percentage: 57%
Exiting Trip Percentage: 43%

Entering Primary Trips: 17
Exiting Primary Trips: 12

PM Peak Trip Generation and Trip Distribution (Peak Hour of Adjacent Street)

Trip Generation Formula: T = 6.84 * (X)
Total Trip Ends in the PM Peak Hour: 63

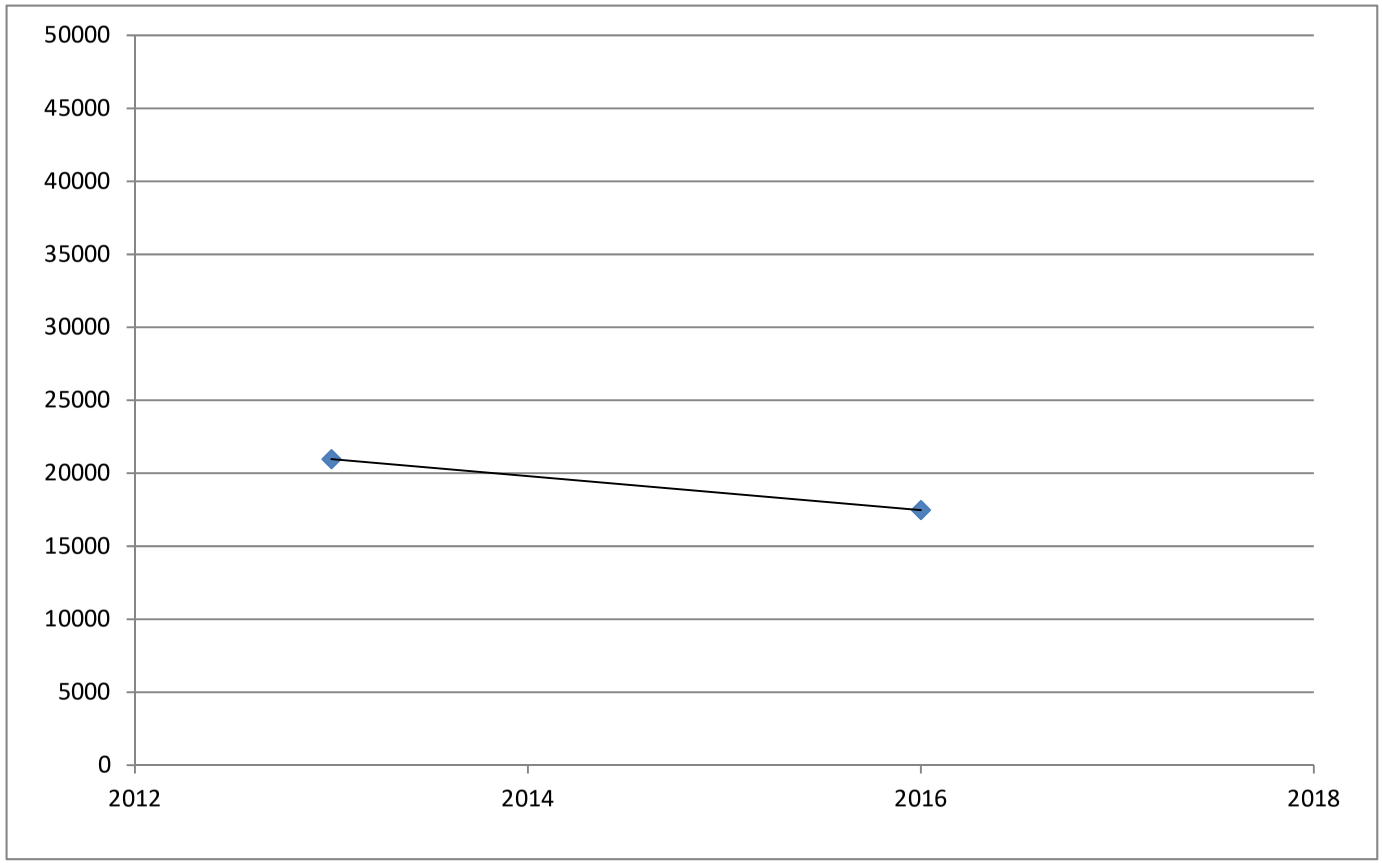
Distribution Percentages of Entering and Exiting Trips, From ITE Trip Generation Manual, 10th Edition

Entering Trip Percentage: 52%
Exiting Trip Percentage: 48%

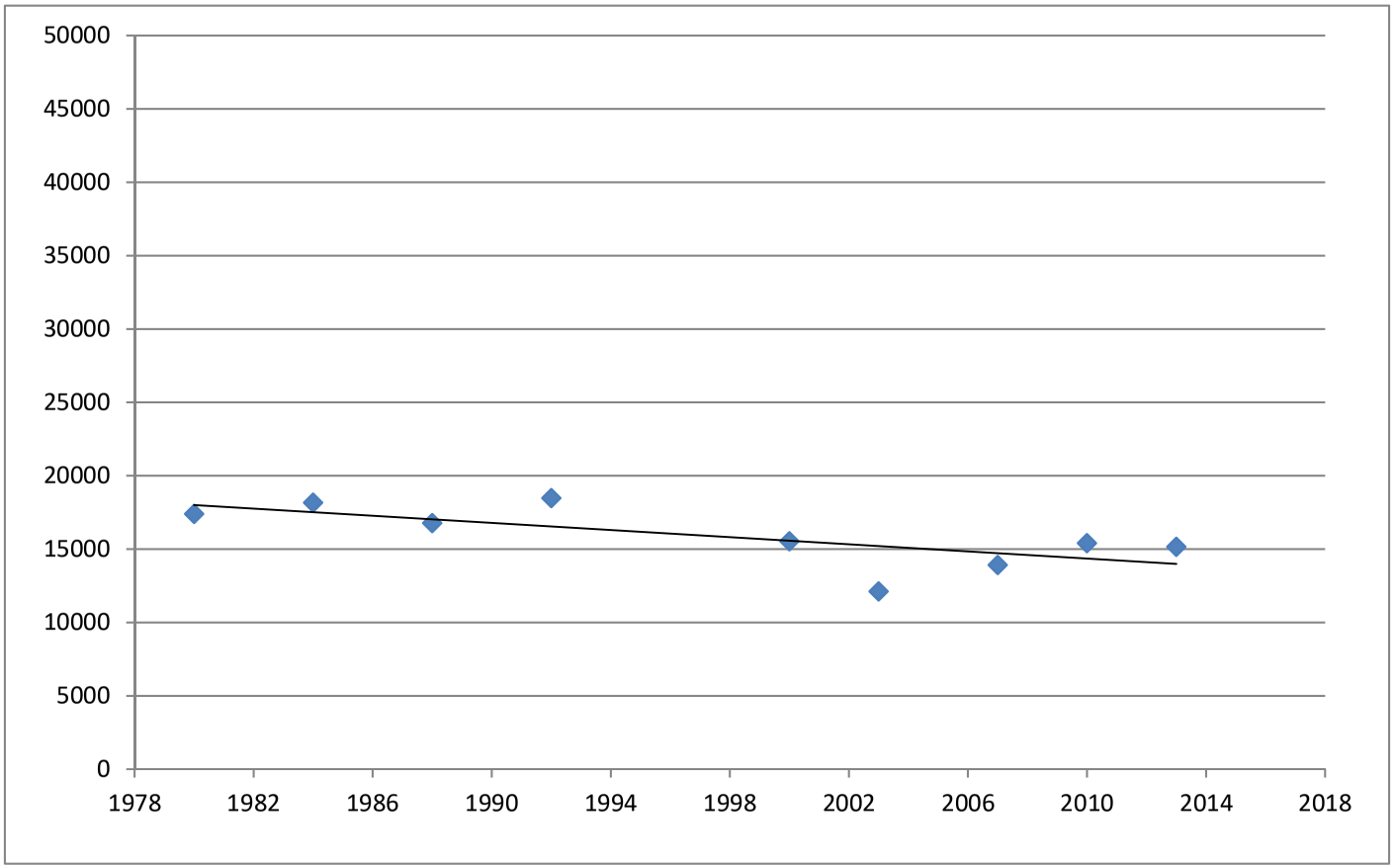
Entering Primary Trips: 33
Exiting Primary Trips: 30

APPENDIX D
GROWTH RATE CALCULATIONS

Roadway Section	"Warrensville Center Road" - Historical Traffic Volumes		Growth Rate
	2013	2016	
"Applegate Road"	20966	17474	
Trendline	*20966*	*17474*	*-6.66%*



Roadway Section	"State Route 8" - Historical Traffic Volumes									Growth Rate
	1980	1984	1988	1992	2000	2003	2007	2010	2013	
"Rockside Road"	17400	18170	16770	18480	15540	12120	13920	15410	15156	
Trendline	*18004*	*17518*	*17032*	*16546*	*15575*	*15210*	*14725*	*14360*	*13996*	*-0.87%*



2000 CUYAHOGA CO 2
AVERAGE 24-HR TRAFFIC VOLUME

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	PASS & A COM'L	B & C COM'L	TOTAL VEH.
		US-6 (Cont'd)				
U	13.00	EDGEWATER PARK	.60	36890	400	37290
U	13.60	ATR 595	.13	36890	400	37290
U	13.73	HERMAN AVE.	.49	41930	430	42360
U	14.22	SR 2 ENTER RAMP	.15	7270	210	7480
U	14.37	SR 2 (MEMORIAL SHOREWAY)	.12	7270	210	7480
U	14.49	US 42 (25TH) ENTER SUPERIOR AVE.	.87	17020	810	17830
U	15.36	US 20 (WEST SIDE PUBLIC SQ.)	.05	10210	340	10550
U	15.41	US 422 (ONTARIO ST.)	.55	12350	440	12790
U	15.96	US 322 (PAYNE ST.)	.60	11550	430	11980
U	16.56	E. 24TH ST.	.16	15800	710	16510
U	16.72	IR 90	.10	15380	860	16240
U	16.82	E. 30TH ST.	1.10	12940	390	13330
U	17.92	SR 283 (E. 55TH ST.)	.64	12040	240	12280
U	18.56	ADDISON RD.	2.18	13230	160	13390
U	20.74	W. CORP. EAST CLEVELAND (E. 125TH ST)	.44	13230	160	13390
U	21.18	US 20 ENTER EUCLID AVE.	2.02	17120	400	17520
U	23.20	RE-ENTER CLEVELAND	1.24	17120	400	17520
U	24.44	W. CORP. EUCLID	.11	17120	400	17520
U	24.55	AUTOMATIC TRAFFIC RECORDER C-13	.85	17120	400	17520
U	25.40	US 20 ENTER CHARDON RD.	1.14	4890	60	4950
U	26.54	W. CORP. RICHMOND HTS.	1.07	8380	70	8450
U	27.61	SR 175 (RICHMOND RD.)	.16	7970	90	8060
U	27.77	ALT. APPROACH TO US6	.48	10650	220	10870
	28.25	EQUALS STA. 0.00 IN LAKE CO.	.00			
		US-6 ALTERNATE				
U	00.00	US 6 (LAKE RD.) IN ROCKY RIVER	.03	1580	20	1600
U	00.03	SR 2 (RAMP)	.20	1580	20	1600
U	00.23	RAMP ENTER W. LAKE RD.	.17	6710	190	6900
U	00.40	US 20 ENTER ROCKY RIVER AVE.	.05	11460	250	11710
U	00.45	W. CORP. LAKEWOOD	.11	11460	250	11710
U	00.56	US 20 (SLOANE AVE.)	.42	11520	310	11830
U	00.98	SR 237 (CLIFTON BLVD.)	2.87	10210	290	10500
U	03.85	W. CORP. CLEVELAND W. 117TH ST.	.77	6960	130	7090
U	04.62	BEREA RD.	.99	10220	170	10390
U	05.61	LAKE AVE.	1.69	6440	250	6690
	07.30	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-8				
U	00.00	SUMMIT CO. LINE S. CORP. WALTON HILLS	.52	14600	970	15570
U	00.52	ALEXANDER RD.	1.02	9990	860	10850
U	01.54	S. CORP. BEDFORD	.72	9990	860	10850
U	02.26	SR 14 (BROADWAY)	1.89	15080	460	15540
U	04.15	S. CORP. MAPLE HEIGHTS	.51	15080	460	15540

2000 CUYAHOGA CO 3
AVERAGE 24-HR TRAFFIC VOLUME

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	PASS & A COM'L	B & C COM'L	TOTAL VEH.
		SR-8 (Cont'd)				
U	04.66	SR 17 (LIBBY RD.)	.40	23880	730	24610
U	05.06	IR 480	.05	23880	730	24610
U	05.11	S. CORP. BEDFORD HTS. SR 43	.03	29050	870	29920
U	05.14	IR 480 NORTH	.03	29050	870	29920
U	05.17	S. CORP. WARRENSVILLE HTS.	.08	29050	870	29920
U	05.25	S. CORP. NORTH RANDALL	.13	29050	870	29920
U	05.38	SR 43 (MILES RD.)	.56	19680	810	20490
U	05.94	RE-ENTER WARRENSVILLE HTS. EMERY RD.	.53	17460	720	18180
	06.47	N. CORP. WARRENSVILLE HTS.	1.50	17460	720	18180
U	07.97	S.E. CORP. SHAKER HTS.	.15	17460	720	18180
U	08.15	US 422 ENTER CHAGRIN BLVD.	8.90	SEE PREFERRED ROUTE		
	17.05	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-10				
U	00.00	LORAIN CO. LINE W. CORP. N. OLMSTEAD	.96	7190	250	7440
U	00.96	BARTON RD.	1.76	18880	330	19210
U	02.72	PORTER RD.	.33	17980	310	18290
U	03.05	DOVER CENTER RD.	.48	26360	450	26810
U	03.53	SR 17 (BROOKPARK RD.)	.81	20390	320	20710
	04.34	SR 252 (GREAT NORTHERN BLVD.)	.39	21370	680	22050
U	04.73	SR 252 (COLUMBIA RD.)	1.27	20320	520	20840
U	06.00	W. CORP. FAIRVIEW PARK	2.88	20320	520	20840
U	08.88	W. CORP. CLEVELAND	.17	20320	520	20840
U	09.05	AUTOMATIC TRAFFIC RECORDER C-05	.30	20320	520	20840
U	09.35	SR 237 (ROCKY RIVER DR.)	3.49	16870	530	17400
U	12.84	DENISON AVE.	.46	13310	370	13680
U	13.30	IR 90	2.48	13310	370	13680
U	15.76	US 42 (W. 25TH ST.)	1.13	13280	380	13660
	16.89	ROUTE ENDS AT US 422 IN CLEVELAND	.00			
		SR-14				
U	00.00	US 6 IN CLEVELAND	.91	SEE PREFERRED ROUTE		
U	00.91	US 422 (ORANGE ST.) ENTER BROADWAY	.63	6750	1300	8050
U	01.54	E. 30TH ST.	.65	14460	2450	16910
U	02.19	IR 490	.37	17760	2440	20200
U	02.56	IR 77	.80	12500	760	13260
U	03.36	E. 55TH ST.	1.34	15870	720	16590
U	04.70	E. 78TH	.41	15810	760	16570
U	05.11	HARVARD AVE.	.33	18740	920	19660
U	05.44	SR 14DA	.44	5130	390	5520
U	05.88	SR 14DA	.21	14420	990	15410
U	06.09	N.W. CORP. GARFIELD HTS.	1.39	14420	990	15410
U	07.48	E. 131ST ST.	.31	21930	1310	23240
U	07.79	BEDFORD FREEWAY	.27	10490	640	11130

2003 CUYAHOGA CO 2
AVERAGE 24-HR TRAFFIC VOLUME

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	PASS & A COM'L	B & C COM'L	TOTAL VEH.
		US-6 (Cont'd)				
U	13.00	EDGEWATER PARK	.59	36950	440	37390
U	13.59	ATR # 595	.14	36950	440	37390
U	13.73	HERMAN AVE.	.49	39550	590	40140
U	14.22	SR 2 ENTER RAMP	.15	7180	200	7380
U	14.37	SR 2 (MEMORIAL SHOREWAY)	.12	7180	200	7380
U	14.49	US 42 (W. 25TH.) ENTER SUPERIOR AVE.	.87	18360	870	19230
U	15.36	US 20 (WEST SIDE PUBLIC SQUARE)	.05	10400	350	10750
U	15.41	US 422 (ONTARIO ST.)	.55	12160	430	12590
U	15.96	US 322 (E. 13TH. ST.)	.60	10100	380	10480
U	16.56	E. 24TH. ST.	.16	15500	700	16200
U	16.72	IR 90	.10	17430	980	18410
U	16.82	E. 30TH. ST.	1.10	11950	360	12310
U	17.92	SR 283 (E. 55TH. ST.)	.64	11700	230	11930
U	18.56	ADDISON RD. / E. 71ST. ST.	2.18	11110	130	11240
U	20.74	W. CORP. EAST CLEVELAND (E. 125TH ST)	.44	11110	130	11240
U	21.18	US 20 ENTER EUCLID AVE.	2.02	17240	400	17640
U	23.20	RE-ENTER CLEVELAND	1.24	17240	400	17640
U	24.44	W. CORP. EUCLID	.96	17240	400	17640
U	25.40	US 20 (EUCLID AVE.) ENTER CHARDON RD.	1.14	6230	80	6310
U	26.54	W. CORP. RICHMOND HTS.	1.07	8090	190	8280
U	27.61	SR 175 (RICHMOND RD.)	.15	8150	190	8340
U	27.76	ALT. APPROACH 2 TO US 6	.49	12390	300	12690
	28.25	EQUALS STA. 0.00 IN LAKE CO.	.00			
		US-6 ALTERNATE				
U	00.00	US 6 (LAKE RD.) IN ROCKY RIVER	.03	1820	60	1880
U	00.03	SR 2 (RAMP)	.20	1820	60	1880
U	00.23	RAMP ENTER W. LAKE RD.	.17	7300	210	7510
U	00.40	US 20 ENTER ROCKY RIVER AVE.	.05	11240	250	11490
U	00.45	W. CORP. LAKEWOOD	.11	11240	250	11490
U	00.56	US 20 (SLOANE AVE.)	.42	11560	310	11870
U	00.98	SR 237 (CLIFTON BLVD.)	2.87	12730	360	13090
U	03.85	W. CORP. CLEVELAND W. 117TH. ST.	.78	5830	110	5940
U	04.63	BEREA RD.	.98	8900	150	9050
U	05.61	LAKE AVE.	1.69	7590	300	7890
	07.30	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-8				
U	00.00	SUMMIT CO. LINE S. CORP. WALTON HILLS	.53	16330	1090	17420
U	00.53	ALEXANDER RD.	1.01	10350	890	11240
U	01.54	S. CORP. BEDFORD	.72	10350	890	11240
U	02.26	SR 14 (BROADWAY AVE.)	1.89	11760	360	12120
U	04.15	S. CORP. MAPLE HEIGHTS	.51	11760	360	12120
U	04.66	SR 17 (LIBBY RD.)	.40	24050	730	24780

2007 CUYAHOGA CO 2
AVERAGE 24-HR TRAFFIC VOLUME

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	PASS & A COM'L	B & C COM'L	TOTAL VEH.
		US-6 (Cont'd)				
U	13.00	EDGEWATER PARK	.59	37770	390	38160
U	13.59	ATR # 595	.14	37770	390	38160
U	13.73	HERMAN AVE.	.49	39730	560	40290
U	14.22	SR 2 ENTER RAMP	.15	7370	140	7510
U	14.37	SR 2 (MEMORIAL SHOREWAY)	.12	7370	140	7510
U	14.49	US 42 (W. 25TH.) ENTER SUPERIOR AVE.	.87	17810	840	18650
U	15.36	US 20 (WEST SIDE PUBLIC SQUARE)	.05	10030	340	10370
U	15.41	US 422 (ONTARIO ST.)	.55	11800	420	12220
U	15.96	US 322 (E. 13TH. ST.)	.60	9020	340	9360
U	16.56	E. 24TH. ST.	.16	16810	760	17570
U	16.72	IR 90	.10	18320	1030	19350
U	16.82	E. 30TH. ST.	1.10	13750	410	14160
U	17.92	SR 283 (E. 55TH. ST.)	.64	12690	250	12940
U	18.56	ADDISON RD. / E. 71ST. ST.	2.18	11610	140	11750
U	20.74	W. CORP. EAST CLEVELAND (E. 125TH ST)	.44	11610	140	11750
U	21.18	US 20 ENTER EUCLID AVE.	2.02	20500	480	20980
U	23.20	RE-ENTER CLEVELAND	1.24	20500	480	20980
U	24.44	W. CORP. EUCLID	.96	20500	480	20980
U	25.40	US 20 (EUCLID AVE.) ENTER CHARDON RD.	1.14	5920	80	6000
U	26.54	W. CORP. RICHMOND HTS.	1.07	7980	110	8090
U	27.61	SR 175 (RICHMOND RD.)	.15	8450	120	8570
U	27.76	ALT. APPROACH 2 TO US 6	.49	11370	300	11670
	28.25	EQUALS STA. 0.00 IN LAKE CO.	.00			
		US-6 ALTERNATE				
U	00.00	US 6 (LAKE RD.) IN ROCKY RIVER	.03	1440	40	1480
U	00.03	SR 2 (RAMP)	.20	1440	40	1480
U	00.23	RAMP ENTER W. LAKE RD.	.17	6260	180	6440
U	00.40	US 20 ENTER ROCKY RIVER AVE.	.05	11420	250	11670
U	00.45	W. CORP. LAKEWOOD	.11	11420	250	11670
U	00.56	US 20 (SLOANE AVE.)	.42	10960	290	11250
U	00.98	SR 237 (CLIFTON BLVD.)	2.87	8950	250	9200
U	03.85	W. CORP. CLEVELAND W. 117TH. ST.	.78	5540	100	5640
U	04.63	BEREA RD.	.98	9640	160	9800
U	05.61	LAKE AVE.	1.69	5750	230	5980
	07.30	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-8				
U	00.00	SUMMIT CO. LINE S. CORP. WALTON HILLS	.52	18010	1200	19210
U	00.52	ALEXANDER RD.	1.02	9980	860	10840
U	01.54	S. CORP. BEDFORD	.70	9980	860	10840
U	02.24	SR 14 (BROADWAY AVE.)	1.88	13510	410	13920
U	04.12	S. CORP. MAPLE HEIGHTS	.50	13510	410	13920
U	04.62	SR 17 (LIBBY RD.)	.40	23150	700	23850

2010 CUYAHOGA COUNTY 3
AVERAGE 24-HR TRAFFIC VOLUME

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	PASS & A COM'L	B & C COM'L	TOTAL VEH.
		SR-8				
U	00.00	SUMMIT CO. LINE S. CORP. WALTON HILLS	.52	16980	890	17870
U	00.52	ALEXANDER RD.	1.02	11180	740	11920
U	01.54	S. CORP. BEDFORD	.70	11180	740	11920
U	02.24	SR 14 (BROADWAY AVE.)	1.88	14460	950	15410
U	04.12	S. CORP. MAPLE HEIGHTS	.50	14460	950	15410
U	04.62	SR 17 (LIBBY RD.)	.40	20900	1380	22280
U	05.02	IR 480	.05	20900	1380	22280
U	05.07	S. CORP. BEDFORD HTS. SR 43 (CONST.)	.03	20800	1370	22170
U	05.10	IR 480 NORTH (CONSTRUCTION)	.02	20800	1370	22170
U	05.12	S. CORP. WARRENSVILLE HTS. (CONST.)	.10	20800	1370	22170
U	05.22	S. CORP. NORTH RANDALL (CONSTRUCTION)	.12	20800	1370	22170
U	05.34	SR 43 (MILES RD.) (CONSTRUCTION)	.55	23650	1560	25210
U	05.89	RE-ENTER WARRENSVILLE HTS. EMERY RD.	.51	12640	220	12860
U	06.40	N. CORP. WARRENSVILLE HEIGHTS	1.53	12640	220	12860
U	07.93	S.E. CORP. SHAKER HTS.	.15	12640	220	12860
U	08.08	US 422 ENTER CHAGRIN BLVD.	8.84	SEE PREFERRED ROUTE		
	16.92	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-10				
U	00.00	LORAIN CO. LINE W. CORP. N. OLMSTED	.96	8260	550	8810
U	00.96	BARTON RD.	1.77	18550	1240	19790
U	02.73	PORTER RD.	.32	19530	1310	20840
U	03.05	DOVER CENTER RD.	.49	24290	1620	25910
U	03.54	SR 17 (BROOKPARK RD.)	.77	17030	1140	18170
U	04.31	SR 252 (GREAT NORTHERN BLVD.)	.41	18030	1200	19230
U	04.72	SR 252 (COLUMBIA RD.)	1.28	15770	1040	16810
U	06.00	W. CORP. FAIRVIEW PARK	2.88	15770	1040	16810
U	08.88	W. CORP. CLEVELAND	.44	15770	1040	16810
U	09.32	SR 237 (ROCKY RIVER DR.)	3.46	12410	830	13240
U	12.78	DENISON AVE.	.47	9200	610	9810
U	13.25	IR 90	2.45	9200	610	9810
U	15.70	US 42 (W. 25TH. ST.)	1.17	11210	750	11960
	16.87	ROUTE ENDS AT US 422 IN CLEVELAND	.00			
		SR-14				
U	00.00	US 6 IN CLEVELAND	.91	SEE PREFERRED ROUTE		
U	00.91	US 422 (ORANGE ST.) ENTER BROADWAY	.63	6110	400	6510
U	01.54	E. 30TH. ST.	.65	8140	540	8680
U	02.19	IR 490	.37	10400	690	11090
U	02.56	IR 77	.80	8630	570	9200
U	03.36	E. 55TH. ST.	1.34	9140	600	9740

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	AVERAGE 24-HR TRAFFIC VOLUME PASS & A COM'L	B & C COM'L	TOTAL VEH.
		SR-8				
U	02.65	SOLON RD.	.69	11570	630	12200
U	03.34	COLUMBUS ST.	.72	14140	660	14800
U	04.06	ROCKSIDE RD.	.09	16700	700	17400
U	04.15	S. CORP. MAPLE HEIGHTS	.51	16700	700	17400
U	04.66	SR 17 (LIBBY RD.)	.38	17970	700	18670
U	05.04	FRONTAGE ST.	.02	29130	800	29930
U	05.06	IR 480	.05	29130	800	29930
U	05.11	S. CORP. WARRENSVILLE HTS. SR 43	.03	32740	1100	33840
U	05.14	IR 480 NORTH	.11	32740	1100	33840
U	05.25	S. CORP. NORTH RANDALL	.13	32740	1100	33840
U	05.38	SR 43 (MILES RD.)	.56	26250	850	27100
U	05.94	RE-ENTER WARRENSVILLE HTS. EMERY RD.	.53	20400	370	20770
	06.47	N. CORP. WARRENSVILLE HTS.	.60	20400	370	20770
	07.07	HARVARD AVE.	.90	18130	270	18400
U	07.97	S.E. CORP. SHAKER HTS.	.15	18130	270	18400
U	08.15	US 422 ENTER CHAGRIN BLVD.	8.90	SEE PREFERRED ROUTE		
	17.05	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-10				
U	00.00	LORAIN CO. LINE W. CORP. N. OLMSTEAD	.96	14900	880	15780
U	00.96	BARTON RD.	1.43	20300	1030	21330
U	02.39	MACKENZIE RD.	.33	23030	1100	24130
U	02.72	SR 17 (PORTER RD.)	.33	21940	1030	22970
U	03.05	DOVER CENTER RD.	.48	30450	1030	31480
U	03.53	SR 17 (BROOKPARK RD.)	1.20	20700	660	21360
U	04.73	SR 252 (COLUMBIA RD.)	1.27	17660	540	18200
U	06.00	W. CORP. FAIRVIEW PARK	2.07	17660	540	18200
U	08.07	WOOSTER RD.	.82	22340	860	23200
U	08.89	W. CORP. CLEVELAND	.46	22340	860	23200
U	09.35	SR 237 (RIVERSIDE DR.)	.59	19600	780	20380
U	09.94	TRISKETT RD.	3.33	12260	900	13160
U	13.27	CLARK AVE.	.03	7640	500	8140
U	13.30	IR 90	.10	7640	500	8140
U	13.40	N. MARGINAL RD.	1.61	10750	500	11250
U	14.99	W. 44TH ST.	.77	11500	800	12300
U	15.76	US 42 (W. 25TH ST.)	1.13	11440	800	12240
U	16.89	COMMERCIAL ST.	.07	11700	2130	13830
	16.96	ROUTE ENDS AT US 422 IN CLEVELAND.	.00			
		SR-14				
	00.00	US 6 IN CLEVELAND	.91	SEE PREFERRED ROUTE		
U	00.91	US 422 (ORANGE ST.) ENTER BROADWAY	.10	8540	1060	9600
U	01.01	IR 77 AND 14TH ST. CONNECTOR	.27	10220	1480	11700
U	01.28	BROADWAY ST. ENTER PITTSBURGH AVE.	.35	6900	1020	7920
U	01.63	E. 30TH ST.	.99	10340	1640	11980
U	02.62	IR 77	.77	7800	800	8600
U	03.39	E. 55TH ST.	.36	11400	1220	12620
U	03.75	UNION AVE.	.52	9100	820	9920
	04.27	E. 71ST ST.	.71	7640	660	8300
U	04.98	HARVARD AVE.	.51	22100	960	23060
U	05.49	SR 14DA ENTER WARNER RD.	.04	15380	1120	16500

AVERAGE 24-HR TRAFFIC VOLUME

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	PASS & A COM'L	B & C COM'L	TOTAL VEH.
		SR-8				
U	00.00	SUMMIT CO. LINE S. CORP. WALTON HILLS	.52	11300	630	11930
U	00.52	ALEXANDER RD.	1.02	6550	550	7100
U	01.54	S. CORP. BEDFORD	.66	6550	550	7100
U	02.20	UNION ST.	.06	ROAD CLOSED		
U	02.26	SR 14 (BROADWAY)	.39	ROAD CLOSED		
U	02.65	SOLON RD.	.69	6900	400	7300
U	03.34	COLUMBUS ST.	.72	7850	380	8230
U	04.06	ROCKSIDE RD.	.09	17720	450	18170
U	04.15	S. CORP. MAPLE HEIGHTS	.51	17720	450	18170
U	04.66	SR 17 (LIBBY RD.)	.38	21970	530	22500
U	05.04	FRONTAGE ST.	.02	25800	700	26500
U	05.06	IR 480	.05	25800	700	26500
U	05.11	S. CORP. BEDFORD HTS. SR 43	.03	30650	750	31400
U	05.14	IR 480 NORTH	.03	30650	750	31400
U	05.17	S. CORP. WARRENSVILLE HTS.	.08	30650	750	31400
U	05.25	S. CORP. NORTH RANDALL	.13	30650	750	31400
U	05.38	SR 43 (MILES RD.)	.56	25420	600	26020
U	05.94	RE-ENTER WARRENSVILLE HTS. EMERY RD.	.53	20550	250	20800
	06.47	N. CORP. WARRENSVILLE HTS.	1.50	20550	250	20800
U	07.97	S.E. CORP. SHAKER HTS.	.15	20550	250	20800
U	08.15	US 422 ENTER CHAGRIN BLVD.	8.90	SEE PREFERRED ROUTE		
	17.05	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-10				
U	00.00	LORAIN CO. LINE W. CORP. N. OLMSTEAD	.96	4300	200	4500
U	00.96	BARTON RD.	.66	11800	280	12080
U	01.62	ELMHURST DR.	.77	15540	330	15870
U	02.39	MACKENZIE RD.	.33	19700	400	20100
U	02.72	PORTER RD.	.33	23870	470	24340
U	03.05	DOVER CENTER RD.	.48	28060	540	28600
U	03.53	SR 17 (BROOKPARK RD.)	1.20	21000	360	21360
U	04.73	SR 252 (COLUMBIA RD.)	.13	20180	380	20560
U	04.86	WALTER RD.	1.14	15570	370	15940
U	06.00	W. CORP. FAIRVIEW PARK	.93	15570	370	15940
U	06.93	W. 215TH ST.	.39	10970	360	11330
U	07.32	W. 210TH ST.	.75	13060	400	13460
U	08.07	WOOSTER RD.	.82	15750	400	16150
U	08.89	W. CORP. CLEVELAND	.46	15750	400	16150
U	09.35	SR 237 (RIVERSIDE DR.)	.59	12760	380	13140
U	09.94	TRISKETT RD.	.24	7900	360	8260
U	10.18	W. 150TH ST.	.60	11980	470	12450
U	10.78	W. 140TH ST.	2.06	16060	580	16640
U	12.84	DENISON AVE.	.46	10150	430	10580
U	13.30	IR 90	2.48	10150	430	10580
U	15.76	US 42 (W. 25TH ST.)	1.13	10800	520	11320

CUYAHOGA COUNTY
AVERAGE 24-HR TRAFFIC VOLUME

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	PASS & A COM'L	B & C COM'L	TOTAL VEH.
U	04.88	WEST BLVD.	.73	10140	370	10510
U	05.61	LAKE AVE.	1.69	8200	400	8600
U	07.30	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-8				
U	00.00	SUMMIT CO. LINE S. CORP. WALTON HILLS	.52	15480	650	16130
U	00.52	ALEXANDER RD.	1.02	10500	600	11100
U	01.54	S. CORP. BEDFORD	.66	14550	850	15400
U	02.20	UNION ST.	.06	13500	660	14160
U	02.26	SR 14 (BROADWAY)	1.80	13500	660	14160
U	04.06	ROCKSIDE RD.	.09	16070	700	16770
U	04.15	S. CORP. MAPLE HEIGHTS	.51	16070	700	16770
U	04.66	SR 17 (LIBBY RD.)	.38	19670	770	20440
U	05.04	FRONTAGE ST.	.02	31730	870	32600
U	05.06	IR 480	.05	31730	870	32600
U	05.11	S. CORP. BEDFORD HTS. SR 43	.03	37700	1330	39030
U	05.14	IR 480 NORTH	.03	37700	1330	39030
U	05.17	S. CORP. WARRENSVILLE HTS.	.08	37700	1330	39030
U	05.25	S. CORP. NORTH RANDALL	.13	37700	1330	39030
U	05.38	SR 43 (MILES RD.)	.56	31750	940	32690
U	05.94	RE-ENTER WARRENSVILLE HTS. EMERY RD.	.53	21980	360	22340
	06.47	N. CORP. WARRENSVILLE HTS.	1.50	21980	360	22340
U	07.97	S.E. CORP. SHAKER HTS.	.15	21980	360	22340
U	08.15	US 422 ENTER CHAGRIN BLVD.	8.90	SEE PREFERRED ROUTE		
	17.05	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-10				
U	00.00	LORAIN CO. LINE W. CORP. N. OLMSTEAD	.96	5480	240	5720
U	00.96	BARTON RD.	.66	14160	300	14460
U	01.62	ELMHURST DR.	.77	17330	320	17650
U	02.39	MACKENZIE RD.	.33	22850	400	23250
U	02.72	PORTER RD.	.33	28640	470	29110
U	03.05	DOVER CENTER RD.	.48	34240	540	34780
U	03.53	SR 17 (BROOKPARK RD.)	1.20	23470	400	23870
U	04.73	SR 252 (COLUMBIA RD.)	1.27	20630	400	21030
U	06.00	W. CORP. FAIRVIEW PARK	2.88	20630	400	21030
U	08.88	W. CORP. CLEVELAND	.17	20630	400	21030
U	09.05	AUTOMATIC TRAFFIC RECORDER C-05	.30	20630	400	21030
U	09.35	SR 37 (RIVERSIDE DR.)	3.42	15480	410	15890
U	12.77	WEST BLVD.	.07	16130	920	17050
U	12.84	DENISON AVE.	.46	10940	450	11390
U	13.30	IR 90	2.48	10940	450	11390
U	15.76	US 42 (W. 25TH ST.)	1.01	11100	450	11550
U	16.77	COMMERCIAL ST.	.12	19940	1950	21890

1992 CUYAHOGA CO 3
AVERAGE 24-HR TRAFFIC VOLUME

	SECT. BEGINS	TRAFFIC SECTION	SECT. LENGTH	PASS & A COM'L	B & C COM'L	TOTAL VEH.
		US-6 ALTERNATE			(Cont'd)	
U	05.61	LAKE AVE.	1.69	6110	240	6350
U	07.30	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-8				
U	00.00	SUMMIT CO. LINE S. CORP. WALTON HILLS	.52	12760	850	13610
U	00.52	ALEXANDER RD.	1.02	8630	740	9370
U	01.54	S. CORP. BEDFORD	.66	10420	840	11260
U	02.20	UNION ST.	.06	12550	640	13190
U	02.26	SR 14 (BROADWAY)	1.80	12550	640	13190
U	04.06	ROCKSIDE RD.	.09	17930	550	18480
U	04.15	S. CORP. MAPLE HEIGHTS	.51	17930	550	18480
U	04.66	SR 17 (LIBBY RD.)	.38	20350	620	20970
U	05.04	FRONTAGE ST.	.02	30630	910	31540
U	05.06	IR 480	.05	30630	910	31540
U	05.11	S. CORP. BEDFORD HTS. SR 43	.03	38200	1140	39340
U	05.14	IR 480 NORTH	.03	38200	1140	39340
U	05.17	S. CORP. WARRENSVILLE HTS.	.08	38200	1140	39340
U	05.25	S. CORP. NORTH RANDALL	.13	38200	1140	39340
U	05.38	SR 43 (MILES RD.)	.56	32260	770	33030
U	05.94	RE-ENTER WARRENSVILLE HTS. EMERY RD.	.53	22400	280	22680
	06.47	N. CORP. WARRENSVILLE HTS.	1.50	22400	280	22680
U	07.97	S.E. CORP. SHAKER HTS.	.15	22400	280	22680
U	08.15	US 422 ENTER CHAGRIN BLVD.	8.90	SEE PREFERRED ROUTE		
	17.05	ROUTE ENDS AT US 6 IN CLEVELAND	.00			
		SR-10				
U	00.00	LORAIN CO. LINE W. CORP. N. OLMSTEAD	.96	7140	250	7390
U	00.96	BARTON RD.	.66	12940	260	13200
U	01.62	ELMHURST DR.	.77	15840	280	16120
U	02.39	MACKENZIE RD.	.33	20880	350	21230
U	02.72	PORTER RD.	.33	25220	430	25650
U	03.05	DOVER CENTER RD.	.48	29550	500	30050
U	03.53	SR 17 (BROOKPARK RD.)	.81	23590	370	23960
	04.34	SR 252 (GREAT NORTHERN BLVD.)	.39	23160	740	23900
U	04.73	SR 252 (COLUMBIA RD.)	1.27	18490	470	18960
U	06.00	W. CORP. FAIRVIEW PARK	2.88	18490	470	18960
U	08.88	W. CORP. CLEVELAND	.17	18490	470	18960
U	09.05	AUTOMATIC TRAFFIC RECORDER C-05	.30	18490	470	18960
U	09.35	SR 37 (ROCKY RIVER DR.)	3.42	16780	530	17310
U	12.77	WEST BLVD.	.07	19090	600	19690
U	12.84	DENISON AVE.	.46	11570	320	11890
U	13.30	IR 90	2.48	11570	320	11890
U	15.76	US 42 (W. 25TH ST.)	1.01	10420	300	10720
U	16.77	COMMERCIAL ST.	.12	16550	1310	17860

APPENDIX E
SITE TRIP DISTRIBUTION AND ASSIGNMENT

N

N.T.S.

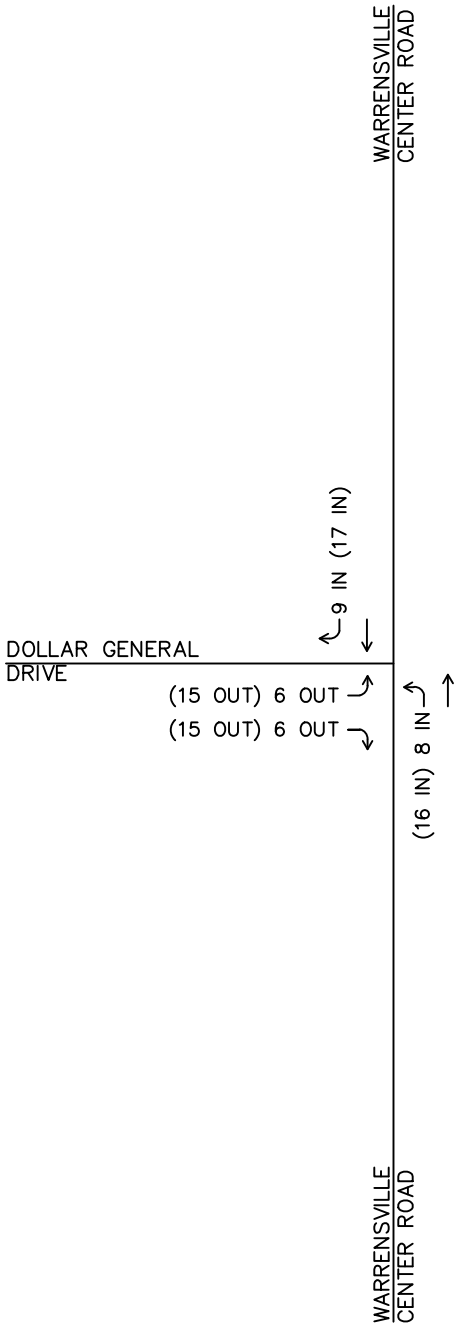
APPENDIX E

PRIMARY TRIP DISTRIBUTION

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\APPENDIX E - SITE TRIP DISTRIBUTION.DWG
DATE: 10/13/2020 TIME: 4:18:54 PM
TECHNICIAN: ALIBERT



LEGEND
– AM PEAK
(##) – PM PEAK

N

N.T.S.

APPENDIX E

PRIMARY TRIP ASSIGNMENT

OCTOBER 2020

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

CAD FILE: O:\2020\2020050\36\FIGURES\APPENDIX E – SITE TRIP DISTRIBUTION.DWG
DATE: 10/15/2020 TIME: 7:33:47 PM
TECHNICIAN: ALIBERT

APPENDIX F
HCS INTERSECTION CAPACITY ANALYSIS

OPENING YEAR 2021 'BUILD' CONDITIONS

HCS7 Two-Way Stop-Control Report

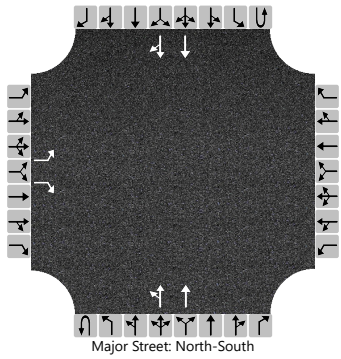
General Information

Analyst	A. Libert
Agency/Co.	GPD GROUP
Date Performed	10/14/2020
Analysis Year	2021
Time Analyzed	AM Peak - 'Build'
Intersection Orientation	North-South
Project Description	Dollar General Maple Heights

Site Information

Intersection	Warrensville Center - DG
Jurisdiction	Maple Heights
East/West Street	Warrensville Center Road
North/South Street	Dollar General Drive
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	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		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		6		6						8	796				502	9
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.80		6.90						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6		6						9						
Capacity, c (veh/h)		247		732						1035						
v/c Ratio		0.03		0.01						0.01						
95% Queue Length, Q_{95} (veh)		0.1		0.0						0.0						
Control Delay (s/veh)		20.0		10.0						8.5						
Level of Service (LOS)		C		A						A						
Approach Delay (s/veh)	15.0								0.1							
Approach LOS	B															

Copyright © 2020 University of Florida. All Rights Reserved.

HCS7 Two-Way Stop-Control Report

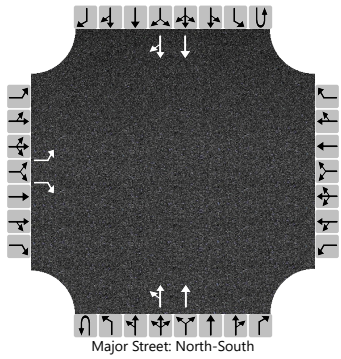
General Information

Analyst	A. Libert
Agency/Co.	GPD GROUP
Date Performed	10/14/2020
Analysis Year	2021
Time Analyzed	PM Peak - 'Build'
Intersection Orientation	North-South
Project Description	Dollar General Maple Heights

Site Information

Intersection	Warrensville Center - DG
Jurisdiction	Maple Heights
East/West Street	Warrensville Center Road
North/South Street	Dollar General Drive
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	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		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		15		15						16	735				1175	17
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.80		6.90						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16		16						17						
Capacity, c (veh/h)		85		431						561						
v/c Ratio		0.19		0.04						0.03						
95% Queue Length, Q_{95} (veh)		0.6		0.1						0.1						
Control Delay (s/veh)		57.1		13.7						11.6						
Level of Service (LOS)		F		B						B						
Approach Delay (s/veh)	35.4								0.5							
Approach LOS	E															

Copyright © 2020 University of Florida. All Rights Reserved.

DESIGN YEAR 2041 'BUILD' CONDITIONS

HCS7 Two-Way Stop-Control Report

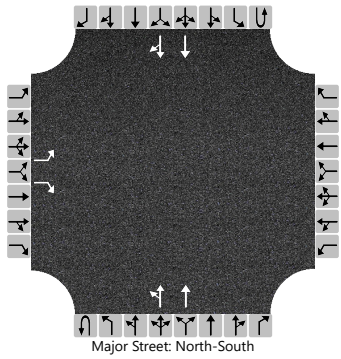
General Information

Analyst	A. Libert
Agency/Co.	GPD GROUP
Date Performed	10/14/2020
Analysis Year	2041
Time Analyzed	AM Peak - 'Build'
Intersection Orientation	North-South
Project Description	Dollar General Maple Heights

Site Information

Intersection	Warrensville Center - DG
Jurisdiction	Maple Heights
East/West Street	Warrensville Center Road
North/South Street	Dollar General Drive
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	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		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		6		6						8	874				551	9
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.80		6.90						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6		6						9						
Capacity, c (veh/h)		214		704						991						
v/c Ratio		0.03		0.01						0.01						
95% Queue Length, Q_{95} (veh)		0.1		0.0						0.0						
Control Delay (s/veh)		22.3		10.2						8.7						
Level of Service (LOS)		C		B						A						
Approach Delay (s/veh)	16.2								0.2							
Approach LOS	C															

Copyright © 2020 University of Florida. All Rights Reserved.

HCS7 Two-Way Stop-Control Report

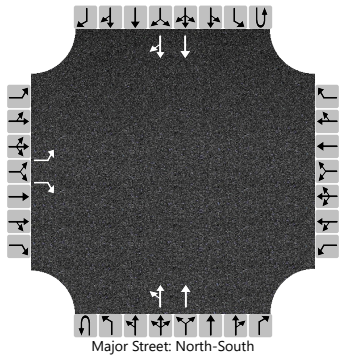
General Information

Analyst	A. Libert
Agency/Co.	GPD GROUP
Date Performed	10/14/2020
Analysis Year	2041
Time Analyzed	PM Peak - 'Build'
Intersection Orientation	North-South
Project Description	Dollar General Maple Heights

Site Information

Intersection	Warrensville Center - DG
Jurisdiction	Maple Heights
East/West Street	Warrensville Center Road
North/South Street	Dollar General Drive
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	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		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		15		15						16	807				1290	17
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.80		6.90						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16		16						17						
Capacity, c (veh/h)		66		393						505						
v/c Ratio		0.24		0.04						0.03						
95% Queue Length, Q_{95} (veh)		0.8		0.1						0.1						
Control Delay (s/veh)		76.6		14.5						12.4						
Level of Service (LOS)		F		B						B						
Approach Delay (s/veh)	45.6								0.6							
Approach LOS	E															

Copyright © 2020 University of Florida. All Rights Reserved.

EXISTING 'BUILD' CONDITION

HCS7 Two-Way Stop-Control Report

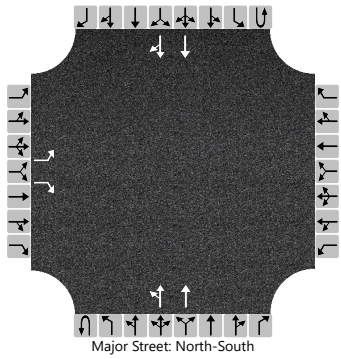
General Information

Analyst	A. Libert
Agency/Co.	GPD GROUP
Date Performed	10/14/2020
Analysis Year	2021
Time Analyzed	PM Peak - 'Build'
Intersection Orientation	North-South
Project Description	Dollar General Maple Heights

Site Information

Intersection	Warrensville Center - DG
Jurisdiction	Maple Heights
East/West Street	Warrensville Center Road
North/South Street	Dollar General Drive
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	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		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		15		15						16	631				1008	17
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.80		6.90						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16		16						17						
Capacity, c (veh/h)		122		492						654						
v/c Ratio		0.13		0.03						0.03						
95% Queue Length, Q_{95} (veh)		0.4		0.1						0.1						
Control Delay (s/veh)		39.0		12.6						10.7						
Level of Service (LOS)		E		B						B						
Approach Delay (s/veh)	25.8								0.5							
Approach LOS	D															

Copyright © 2020 University of Florida. All Rights Reserved.