CORRIDOR PLANNING STUDY
POR-SR 261

City of Kent, Portage County, Ohio

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

Prepared For:

City of Kent
930 Overholt Road
Kent, Ohio 44240

Akron Metropolitan Area Transportation Study
116 South High Street, Suite 201
Akron, Ohio 44308

Ohio Department of Transportation District 4
2088 South Arlington Road
Akron, Ohio 44306

September 2019

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Prepared By:

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

NBBJ
One Beacon Street, Suite 2500
Boston, MA 02108

September 2019

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

September 27, 2019
Date

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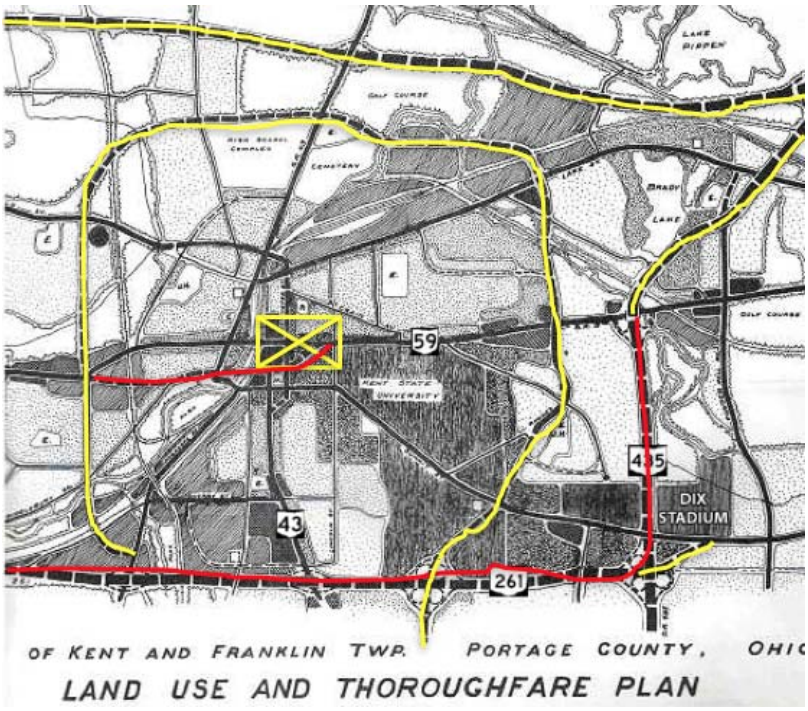
I. Introduction

The current section of State Route 261 was constructed in the 1960's and was intended to be part of a future freeway network throughout Portage County. In anticipation of the construction of State Route 435 which was to be an adjacent limited-access facility with interchanges, State Route 261 was widened to a four-lane divided highway with limited access and 220' of right-of-way. State Route 435 never ended up getting built and State Route 261 never experienced the volume of traffic that would support the need for the additional roadway capacity that was provided.



The purpose of the POR-SR 261 Corridor Planning Study is to increase connectivity and improve livability in the State Route 261 corridor in accordance with AMATS' Connecting Communities Initiative. The SR 261 corridor has several transportation issues caused by high-volume, high-speed facilities that are not fully developed. These include vehicular safety problems, disconnected bike facilities, and poor pedestrian facilities.

For vehicular safety, the SR 261/Franklin Avenue/Sunnybrook Road intersection and the SR 261/Water Street ranked 2nd and 4th, respectively, on AMATS traffic crash list for the City of Kent at the time of the RFP. For disconnect bicycle facilities, the Freedom Hike & Bike Trail, the Portage Hike & Bike Trails, the Sunnybrook Road side path, the Campus Center Drive bike lanes, and Summit Street bike lanes, and the Horning Road side path all end at or near SR 261. For poor pedestrian facilities, there are two locations (SR 261/Franklin Avenue/Sunnybrook Road and SR 261/ Water Street) where pedestrians cross a 4-lane divided highway with a 50 mph speed limit, where SR 261 creates a physical barrier between downtown Kent to the north and those residents living to the south.

II. Project Setting:

Study Area

The limits of the corridor which are under consideration as a part of this study encompass State Route 261 from the Portage County line (just east of the Middlebury Road intersection) to the Summit Road (State Route 59) intersection. This particular section is approximately 5.0 miles in length and passes through the City of Kent, Brimfield Township and Franklin Township. The land uses surrounding the study corridors are a mix of commercial, institutional, residential, and recreational facilities.

Area Roadway System

State Route 261 currently exists as a four (4) lane limited-access divided highway that tapers down to a two (2) lane undivided highway at each end of the study area. The current posted speed limit on State Route 261 is 50 miles per hour (mph) west of Campus Center Drive and 55 mph east of Campus Center Drive. According to information obtained from the Ohio Department of Transportation's (ODOT) Transportation Information Mapping System (TIMS), State Route 261 is classified as an Urban Principal Arterial roadway.

There are five (5) existing signalized intersections that were included within the study area. The five (5) intersections included within the study area are as follows:

State Route 261 / Mogadore Road Intersection:

> This intersection is currently signalized using a typical span wire configuration with strain poles located on the NW and SE corners of the intersection. The intersection consists of four (4) approaches with the following lane configurations: EB & WB State Route 261 – three (3) lanes (left, thru, thru-right), NB Mogadore Road – two (2) lanes (left, thru-right), and SB Mogadore Road – one (1) lane (left-thru-right).

State Route 261 / Sunnybrook Road / Franklin Avenue Intersection:

> This intersection is currently signalized using a typical span wire configuration with strain poles located on the NW and SE corners of the intersection. The intersection consists of four (4) approaches with the following lane configurations: EB & WB State Route 261 – three (3) lanes (left, thru, thru-right), NB & SB Mogadore Road – one (1) lane (left-thru-right).

State Route 261 / Water Street (State Route 43) Intersection:

> This intersection is currently signalized using a typical mast arm configuration with signal poles located on the NE and SW corners of the intersection as well as in the median on each side of the intersection. The intersection consists of four (4) approaches with the following lane configurations: EB & WB State Route 261 – three (3) lanes (left, thru, thru-right), NB State Route 43 – four (4) lanes (left, thru, thru, right) and SB State Route 43 – three (3) lanes (left, thru, thru-right).

State Route 261 / Campus Center Drive Intersection:

This intersection is currently signalized using a typical mast arm configuration with signal poles located in the median on each side of the intersection. The intersection consists of four (4) approaches with the following lane configurations: EB & WB State Route 261 – three (3) lanes (left, thru, thru-right) and NB and SB Campus Center Drive – one (1) lane (left-thru-right).

State Route 261 / Summit Road (State Route 59) Intersection:

This intersection is currently signalized using a typical span wire configuration with strain poles located on each corner of the intersection. The intersection consists of four (4) approaches with the following lane configurations: EB and WB Summit Road – two (2) lanes (left, thru-right), NB State Route 261 – three (3) lanes (left, thru, right), and SB State Route 261 – two (2) lanes (left, thru-right).

III. Traffic Volumes:

Existing Traffic Volumes

For this study, turning movement traffic counts were performed at the study intersections by the Akron Metropolitan Area Transportation Study (AMATS) and GPD Group personnel on multiple dates between the hours of 6:30 AM and 6:30 PM. Based on the turning movement counts, the AM peak hour for the study intersections was found to occur anywhere between the hours of 6:30 AM – 8:15 AM depending on location, while the PM peak hour was found to occur anywhere between 3:15 PM – 5:30 PM. See **Appendix A** for the printouts of the turning movement traffic counts.

Historic Growth Trends

Developing the future traffic volumes on a corridor involves calculating a proposed growth rate based on historic traffic counts collected along the roadway. ODOT has been collecting traffic volumes on State Route 261 and State Route 43 since 1980 and the Average Daily Traffic (ADT) volumes on this route during this time frame are available on the ODOT website. In order to develop a more representative growth rate for recent years, only traffic counts between the years 1998 and 2016 were used in the growth rate calculations.

Based on these historic traffic volumes, GPD Group developed growth trend-line equations for State Route 261 and State Route 43 within the vicinity of the study area. As shown in **Appendix B**, the locations that the State Route 261 and State Route 43 traffic counts were taken show negative growth in the area. Based upon the declining traffic volumes in the area, a 0.00% annual growth rate was deemed applicable for this study.

Future Traffic Volumes

The Existing Year AM and PM peak hour traffic volumes along State Route 261 were developed in accordance with the ODOT certified traffic development process using seasonal adjustment factors, design hour volume (DHV) factors, and an annual growth rate. The Existing Year volumes that were developed represent the 30th highest hour of the year experienced by the roadway network and is the current standard to which roadway design decisions are made, according to the AASHTO guide A Policy on Geometric Design of Highways and Streets. Detailed calculations for developing the future traffic volumes, including the DHV factors, can also be found in **Appendix B**.

The proposed improvements would be anticipated to be completed by the year 2027 which will serve as the 'Opening Year' for the study, making the 'Design Year' 2047 (twenty [20] year design criteria). Since a 0.00% annual growth rate was determined, no background growth was added to the Existing Year traffic volumes when developing the future Design Year forecast. Therefore, the Existing Year peak hour traffic volumes will also represent the Opening Year and Design Year peak hour traffic volumes.

IV. Traffic Analysis:

Intersection capacity analyses were performed for the Design Year 2047 scenario in order to determine the operating conditions experienced by each intersection. The quality of the operating conditions experienced by an intersection is measured in terms of Level-of-Service (LOS). Levels-of-Service can range from LOS A to LOS F. Level-of-Service ratings of A, B, and C are considered to be in the acceptable range. Level-of-Service D is typically considered acceptable in urban areas (which the study area utilized for this project has been determined to be within). Levels-of-Service E and F are considered below average with significant levels of delay experienced by vehicles. The quality of the operating conditions experienced by a roundabout is measured by the same delay thresholds as unsignalized intersections. The thresholds related to average control delay for signalized and unsignalized intersections are as follows:

Level-of-Service	Delay Threshold – Signalized (Sec)	Delay Threshold – Unsignalized (Sec)
A	< 10	< 10
B	> 10 - 20	> 10 – 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50

The capacity analysis for the signalized intersections was performed utilizing the computer program HCS 2010 (Version 6.90), developed by McTrans Corporation, and is based on the Highway Capacity Manual, 2010 Edition (HCM 2010). Based on criteria established by ODOT, the Highway Capacity Software (HCS) is used to determine the required number of lanes and the lane assignments at intersections (i.e. the needed capacity). For purposes of this report, all signalized intersection

capacity analyses were evaluated based on the ODOT balanced approach delay methodology in order to determine if the intersection will provide sufficient capacity for the projected traffic demand. Additionally, all signalized intersections were evaluated with a 90 second cycle length. This approach will allow for a direct comparison between various traffic scenarios. The roundabout capacity analysis was performed utilizing the computer program SIDRA Intersection 7.0, developed by Sidra Solutions, and is also based on the HCM 2010.

'No-Build' Scenario

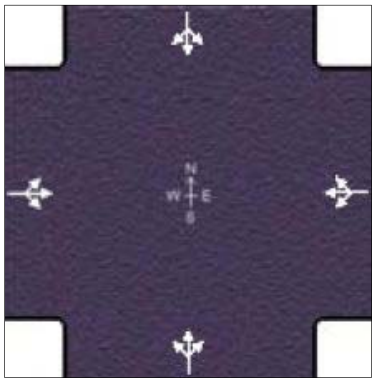
The 'No-Build' traffic scenario represents the existing roadway conditions as they are today with a divided four-lane section and assumed all intersections would remain signalized. Determining the operations of the existing 'No-Build' roadway network creates a baseline from which to compare each of the potential 'Build' traffic scenarios. **Table 1** in **Appendix C** summarizes the HCS Intersection Capacity Analysis and details the Levels-of-Service and delay experienced under the Design Year 2047 'No-Build' traffic conditions for each signalized intersection throughout the study area. See **Appendix C** for the HCS analysis printouts.

The analysis results for the Design Year 2047 'No-Build' traffic conditions shows that only the SR 261 / SR 43 intersection is anticipated to have movements and approaches operate with unacceptable Levels-of-Service during the peak hours. With the SR 261 / SR 43 intersection being an intersection of two (2) state routes, the volumes are high on all approaches. This makes it difficult to balance the delay around the intersection, especially with inadequate capacity for the heavy turn movements of the intersection. The remaining intersections all have sufficient capacity to continue providing acceptable Levels-of-Service through the Design Year.

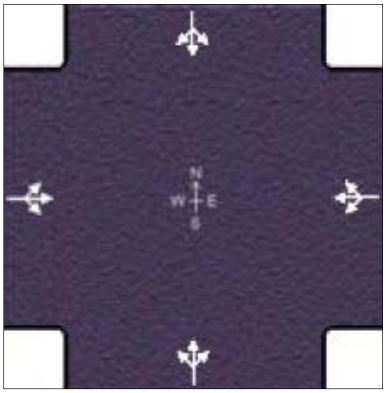
'Signalized Build' Scenario

For the Design Year 2047 'Signalized Build' scenario, the intersections were reevaluated to analyze SR 261 with a single travel lane in each direction throughout the corridor, minimizing the need for turn lanes wherever possible in an effort to reduce the size of the intersections as much as possible. Additionally, the 'Signalized Build' scenario accounts for signal phasing modifications necessary to accommodate the resulting lane configuration and traffic demand where needed. The following intersection layouts were determined to be sufficient to provide acceptable operations under the 'Signalized Build' traffic scenario:

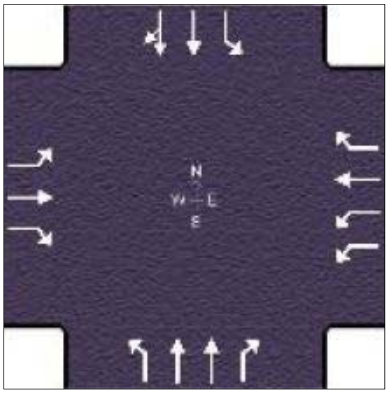
- State Route 261 / Mogadore Road



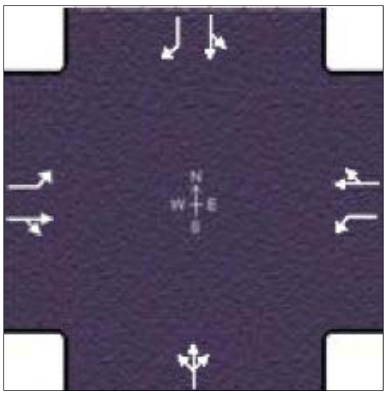
- State Route 261 / Sunnybrook Road / Franklin Avenue



- State Route 261 / State Route 43



- State Route 261 / Campus Center Drive



- State Route 261 / Summit Road

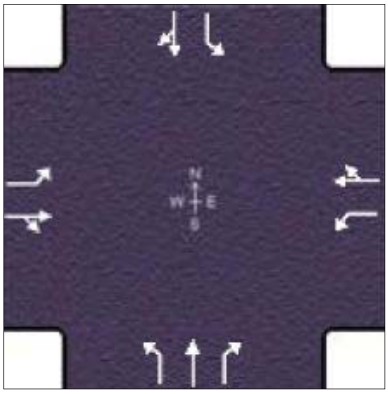


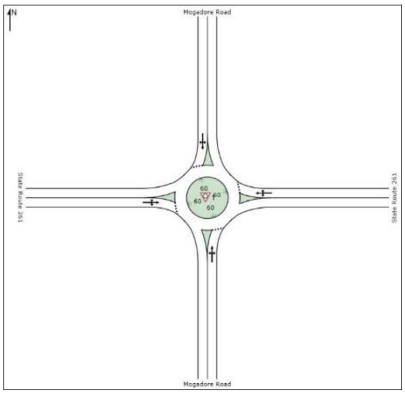
Table 1 in **Appendix C** indicates that all movements, approaches and the overall intersection are anticipated to operate at an acceptable LOS D or better during the peak hours of the Design Year 2047 'Signalized Build' traffic scenario. Acceptable Levels-of-Service were able to be achieved at the SR 261 / SR 43 intersection, even while reducing SR 261 to a single thru lane in each direction, through the addition of left and right turn lanes (which include the addition of dual WB left turns from SR 261 onto SR 43). The additional capacity provided for the heavy turn movements of the intersection allowed for the delay to be more evenly balanced throughout the intersection which then mitigated the deficiencies identified under the 'No-Build' conditions. See **Appendix C** for the HCS analysis printouts.

'Roundabout Build' Scenario

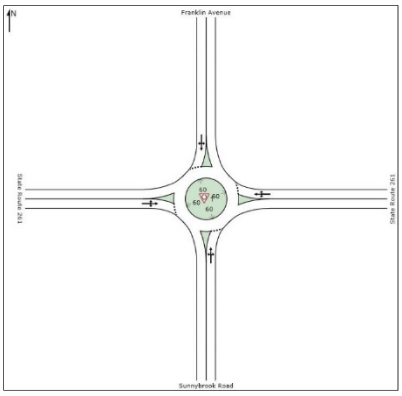
The 'Roundabout Build' scenario was developed to determine if roundabouts would be feasible alternatives for the five (5) study intersections in lieu of signalization. Similar to the 'Signalized Build' scenario, State Route 261 was maintained as a single travel lane in each direction with the addition of turn lanes or slip lanes necessary to accommodate the anticipated traffic demand at the study intersections and maintain acceptable Levels-of-Service.

The following roundabout layouts were determined to be necessary in order to provide acceptable operations under the 'Roundabout Build' traffic scenario:

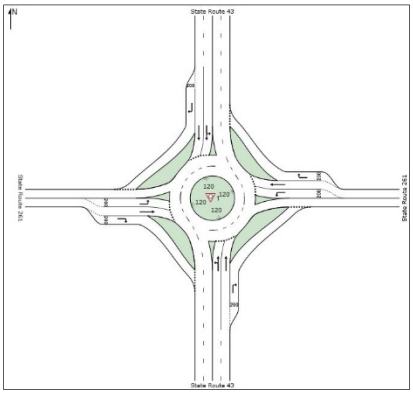
- State Route 261 / Mogadore Road



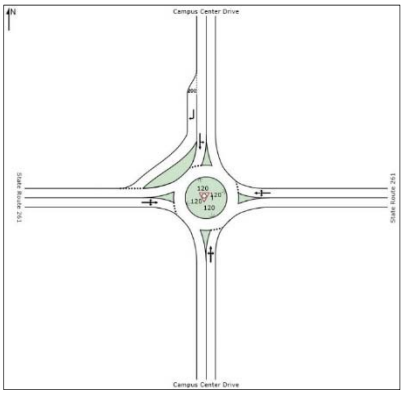
- State Route 261 / Sunnybrook Road / Franklin Avenue



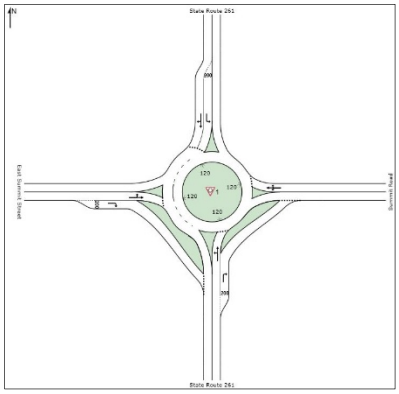
- State Route 261 / State Route 43



- State Route 261 / Campus Center Drive



- State Route 261 / Summit Road



As shown in **Table 2** in **Appendix C**, all movements, approaches and the overall intersections are also anticipated to operate at a LOS D or better during the peak hours under the Design Year 2047 'Roundabout Build' traffic scenario. These results indicate that the implementation of roundabouts along the SR 261 corridor would not only be feasible from a traffic operations standpoint, but would also allow the corridor to be reduced to a single lane in each direction throughout the extents of the study limits. It should be noted that while most intersections would retain a relatively small footprint as a single-lane roundabout, the SR 261/SR 43 and SR 261/Summit Road intersections would require multiple circulating lanes and numerous slip lanes to function properly which will not help address the pedestrian and bicycle needs in these locations.

V. Safety Analysis:

Crash data was obtained from ODOT's GCAT for the calendar years of 2013 to 2015 for the entire study area. A total of 180 crashes were reported within the study area and were analyzed as part of this evaluation. These crashes include 107 rear-end, 28 left turn, 18 angle, 9 fixed object, 9 sideswipe – passing, 6 sideswipe - meeting and 3 backing crashes. 76% of the crashes occurred in daylight and 71% occurred on dry pavement. 73% of the crashes were property damage only and 27% of the crashes were injury crashes with no fatal crashes reported during the 2013 to 2015 calendar years. It should be noted that the Ohio Department of Transportation (ODOT) has prepared collisions diagrams for the study area under the 2013 – 2015 calendar years. Following GPD Group's crash assessment, the collision diagrams were reviewed for accuracy and revised accordingly. See **Appendix D** for the revised ODOT collision diagrams of the study area and crash data summary and charts.

The leading type of crash within the study area are the 107 (59% of total) rear-end related crashes. The majority of the rear-end crashes are occurring at the signalized intersections along State Route 261. This is not surprising as a traffic signal forces vehicles to stop as the light turns red and creates a higher opportunity for a rear-end crash to occur. These collisions are primarily occurring on the State Route 261 approaches where the approach speed is significantly higher than the minor street approaches. Additionally, most of the existing signal heads along the State Route 261 corridor do not have traffic signal backplates which offer reduced visibility of the signal heads along the corridor.

There is a large concentration of rear-end crashes at the State Route 261 / State Route 43 intersection. Again, the rear-end crashes on the State Route 261 approaches at this intersection can be attributed to high vehicular approach speeds and low signal head visibility. Additionally, there is a large concentration of rear-end crashes for the northbound approach (State Route 43) of the intersection. The rear-end crashes are related to signal head visibility as the primary signal heads are over 220 feet away from the stop bar with the supplemental signal head positioned in an unconventional location (mounted on the end of the eastbound controlling mast arm) away from a motorists attention.

The second most common type of crash found along the corridor are the 28 (16% of total) left turn crashes. These crashes are occurring at the signalized intersections along State Route 261 and are primarily caused by the negative offset geometry of the auxiliary left turn lanes and the permitted operation of these turn lanes. As vehicles make a permitted left turn along State Route 261, they are required to cross a divided median, an opposing left turn lane, and two (2) lanes of oncoming traffic. Making this permissive left turn movement across several lanes of oncoming traffic on a roadway with higher rates of speed leads to more crashes as a motorist may not be able to correctly gauge the gap in oncoming traffic needed to successfully complete the turning movement. Additionally, due to the negative offset geometry of the auxiliary left turn lanes, when motorists are attempting to make a left turn movement along State Route 261, vehicles in the opposing left turn lane (inside lane) have the potential to obstruct a motorist's line of sight of the subsequent two (2) outside lanes of oncoming traffic. This obstruction in a left turning motorist's line of sight has the potential to increase left turn related collisions.

The last common type of crash in the study area are the 18 (10% of the total) angle crashes. These crashes are occurring at signalized intersections along the State Route 261 corridor where the primary contributing circumstance that is causing the angle collisions are a lack of compliancy to the traffic control device. Many of the traffic signals along the State Route 261 corridor offer lower signal head visibility, due to not having backplates, which increases the potential for motorists to run a red light and cause an angle crash.

VI. Stakeholders Group / Citizens Advisory Committee

The primary stakeholders group for this project consisted of representatives from the City of Kent, AMATS, and ODOT District 4. A larger group, known as the Citizens Advisory Committee, was then established which consisted of the members of the primary stakeholders group as well as representatives from Kent State University, PARTA, Brimfield Township, and Franklin Township, as well as local business leaders and residents.

The first Citizens Advisory Committee meeting was held on May 22nd, 2017. The meeting included introduction of the project team, a discussion of the goals and expectations, an overview of the project schedule, an open discussion of experiences along the corridor and desires for future uses, and a review of the existing conditions and previous evaluations. See **Appendix E** for the meeting sign-in sheet, agenda, and the one (1) comment form that was received in conjunction with the meeting.

The following morning on May 23rd, 2017, a ride along was held where the project team, stakeholders and members of the Citizens Advisory Committee biked the SR 261 corridor from the KSU Recreation Center on Campus Center Drive to the Middlebury trailhead. The group made multiple stops along the route to discuss various aspects of the project related to both bicycle and pedestrian accommodations. A map of the route and photos from the ride along can be found in **Appendix F**.

The second Citizens Advisory Committee meeting was held on July 17th, 2017. This meeting began to better focus on key project issues and covered discussions on the roadway configuration and typical sections, bike facilities and pedestrian accommodations, adjacent land use, traffic considerations and analysis results, and future development. See **Appendix G** for the meeting sign-in sheet and agenda and **Appendix H** for the various exhibits that were presented at the meeting.

In preparation for the third Citizens Advisory Committee meeting, a comprehensive PowerPoint presentation was developed to reaffirm the project goals based on feedback from earlier public involvement efforts, review the findings from the traffic and safety analysis, discuss alternative concepts related to roadway configuration and bicycle connectivity, and summarize findings of the land use study and speed limit review. See **Appendix I** for the CAC meeting #3 PowerPoint presentation.

VII. Summary

The concepts developed as part of the State Route 261 Corridor Planning Study were found to address the issues long associated with the roadway. Traffic analysis confirmed that a four-lane divided roadway is unnecessary to serve the long term needs of the area, and a reduced two-lane facility will be sufficient in maintaining acceptable Levels-of-Service. Roundabouts, which improve traffic flow and vehicular safety, were found to be appropriate at minor intersections such as Mogadore Road, Franklin Avenue/Sunnybrook Road, and Campus Center Drive. Traffic signals would likely need to be retained at larger intersections such as Water Street (State Route 43) and Summit Street due to having heavier side street volumes.

A two-lane roadway will also limit the size of intersections which will enhance the walkability and improve the safety for pedestrians who desire to cross State Route 261. The available Right-of-Way provides plenty of excess space to develop multi-use paths and trails along the corridor which will not only provide critical connections to existing facilities, but allow for new connections into adjacent neighborhoods throughout the project limits. While the feedback supported new connections to the corridor for pedestrians and bicyclists, there was a general opposition to eliminating the limited-access protection and allowing new vehicular connections. There was a perceived need for additional housing in Kent and rezoning available land along the corridor to allow for such development would be supported, but the consensus indicated that no commercial development that detracts from downtown should be considered.

APPENDIX A
TURNING MOVEMENT COUNTS

GPD Group

520 South Main Street, Suite 2531
Akron, OH 44311
Telephone: (330) 572-2100

State Route 261 / State Route 43 Intersection

Project Number:
Project Name: Traffic Study
Project Location:
Client Name:

File Name : 43 and 261 111616
Site Code : 05016789
Start Date : 11/16/2016
Page No : 1

Groups Printed- Passenger Vehicles - Trucks - Buses

	State Route 261 Eastbound					State Route 261 Westbound					State Route 43 Northbound					State Route 43 Southbound					
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	6	40	15	0	61	43	40	7	0	90	33	126	33	0	192	8	89	0	0	97	440
07:15 AM	5	54	16	0	75	64	47	14	0	125	57	185	41	0	283	11	109	2	0	122	605
07:30 AM	8	74	19	0	101	61	52	15	0	128	36	196	41	0	273	13	115	2	1	131	633
07:45 AM	10	89	13	0	112	45	55	13	0	113	53	189	46	0	288	15	124	2	1	142	655
Total	29	257	63	0	349	213	194	49	0	456	179	696	161	0	1036	47	437	6	2	492	2333
08:00 AM	16	45	24	1	86	43	41	8	0	92	33	163	65	0	261	7	102	0	0	109	548
08:15 AM	6	70	19	0	95	56	45	8	1	110	32	146	65	0	243	11	81	3	0	95	543
08:30 AM	14	90	14	0	118	50	36	8	0	94	25	142	39	0	206	12	95	1	0	108	526
08:45 AM	6	46	17	0	69	30	34	23	0	87	28	164	48	0	240	10	111	3	0	124	520
Total	42	251	74	1	368	179	156	47	1	383	118	615	217	0	950	40	389	7	0	436	2137
09:00 AM	9	38	22	0	69	44	44	31	0	119	24	107	63	1	195	12	88	3	0	103	486
09:15 AM	10	52	14	0	76	30	26	19	0	75	16	121	59	1	197	15	81	3	0	99	447
09:30 AM	9	79	6	0	94	48	22	16	0	86	8	102	53	0	163	11	59	11	0	81	424
09:45 AM	9	36	10	0	55	47	25	19	0	91	16	110	54	0	180	15	95	7	1	118	444
Total	37	205	52	0	294	169	117	85	0	371	64	440	229	2	735	53	323	24	1	401	1801
10:00 AM	8	44	19	0	71	41	35	23	0	99	11	101	44	0	156	9	92	14	0	115	441
10:15 AM	13	46	14	0	73	48	33	19	0	100	14	117	56	0	187	31	87	6	0	124	484
10:30 AM	11	45	15	0	71	51	37	21	0	109	16	113	45	0	174	24	85	9	0	118	472
10:45 AM	8	43	16	0	67	54	41	22	0	117	19	107	37	0	163	19	85	14	0	118	465
Total	40	178	64	0	282	194	146	85	0	425	60	438	182	0	680	83	349	43	0	475	1862
11:00 AM	6	41	18	0	65	58	45	23	0	126	19	102	28	0	149	17	84	16	0	117	457
11:15 AM	12	36	7	0	55	47	40	20	0	107	25	91	35	0	151	23	118	9	0	150	463
11:30 AM	11	49	28	0	88	55	42	22	1	120	7	91	53	0	151	16	107	21	0	144	503
11:45 AM	15	42	12	0	69	51	44	25	0	120	16	118	58	0	192	25	114	13	0	152	533
Total	44	168	65	0	277	211	171	90	1	473	67	402	174	0	643	81	423	59	0	563	1956
12:00 PM	16	48	23	0	87	84	63	34	0	181	15	84	43	0	142	18	84	20	0	122	532
12:15 PM	16	51	12	0	79	60	58	23	0	141	13	99	48	0	160	20	137	16	0	173	553
12:30 PM	8	59	12	0	79	61	51	23	0	135	17	112	32	0	161	24	100	15	0	139	514
12:45 PM	23	49	10	0	82	58	39	17	0	114	19	114	41	0	174	27	134	21	1	183	553
Total	63	207	57	0	327	263	211	97	0	571	64	409	164	0	637	89	455	72	1	617	2152
01:00 PM	17	52	13	0	82	64	52	24	0	140	17	90	37	0	144	34	117	10	0	161	527
01:15 PM	9	42	18	0	69	47	45	27	0	119	17	109	51	1	178	19	126	16	2	163	529
01:30 PM	15	62	12	0	89	68	52	24	0	144	20	131	44	0	195	14	101	19	0	134	562
01:45 PM	17	47	17	0	81	57	42	17	0	116	22	109	48	0	179	19	111	12	0	142	518
Total	58	203	60	0	321	236	191	92	0	519	76	439	180	1	696	86	455	57	2	600	2136
02:00 PM	10	47	24	0	81	95	82	19	0	196	19	101	46	0	166	17	122	7	0	146	589
02:15 PM	13	33	16	0	62	82	83	30	0	195	26	123	45	0	194	23	140	12	0	175	626
02:30 PM	16	45	23	0	84	77	73	27	0	177	28	123	40	0	191	24	133	12	0	169	621
02:45 PM	18	56	31	0	105	73	64	25	0	162	28	121	34	0	183	25	126	9	0	160	610
Total	57	181	94	0	332	327	302	101	0	730	101	468	165	0	734	89	521	40	0	650	2446
03:00 PM	19	68	40	0	127	67	57	23	0	147	29	121	32	1	183	26	123	9	0	158	615

GPD Group
520 South Main Street, Suite 2531
Akron, OH 44311
Telephone: (330) 572-2100

State Route 261 / State Route 43 Intersection

Project Number:
Project Name: Traffic Study
Project Location:
Client Name:

File Name : 43 and 261 111616
Site Code : 05016789
Start Date : 11/16/2016
Page No : 2

Groups Printed- Passenger Vehicles - Trucks - Buses

	State Route 261 Eastbound					State Route 261 Westbound					State Route 43 Northbound					State Route 43 Southbound					
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
03:15 PM	18	64	23	0	105	82	64	20	0	166	32	133	57	1	223	25	172	11	1	209	703
03:30 PM	19	88	43	0	150	101	79	25	0	205	20	103	45	0	168	21	179	10	0	210	733
03:45 PM	13	67	29	0	109	75	81	27	0	183	30	131	36	0	197	31	189	6	0	226	715
Total	69	287	135	0	491	325	281	95	0	701	111	488	170	2	771	103	663	36	1	803	2766
04:00 PM	22	65	47	0	134	76	75	18	0	169	28	114	46	0	188	42	175	18	1	236	727
04:15 PM	9	64	40	0	113	81	82	18	0	181	26	132	48	0	206	18	181	16	0	215	715
04:30 PM	11	75	43	0	129	78	75	19	1	173	29	141	52	0	222	26	192	10	1	229	753
04:45 PM	14	56	44	1	115	76	81	20	0	177	24	153	50	0	227	22	208	10	0	240	759
Total	56	260	174	1	491	311	313	75	1	700	107	540	196	0	843	108	756	54	2	920	2954
05:00 PM	13	67	44	0	124	103	126	25	0	254	19	115	57	2	193	38	231	18	0	287	858
05:15 PM	8	67	45	0	120	92	102	24	0	218	25	139	53	0	217	34	206	19	1	260	815
05:30 PM	19	72	27	0	118	97	88	26	0	211	26	137	47	0	210	20	151	10	0	181	720
05:45 PM	10	51	34	0	95	75	56	14	0	145	15	151	54	0	220	16	176	5	2	199	659
Total	50	257	150	0	457	367	372	89	0	828	85	542	211	2	840	108	764	52	3	927	3052
Grand Total	545	2454	988	2	3989	2795	2454	905	3	6157	1032	5477	2049	7	8565	887	5535	450	12	6884	25595
Apprch %	13.7	61.5	24.8	0.1		45.4	39.9	14.7	0		12	63.9	23.9	0.1		12.9	80.4	6.5	0.2		
Total %	2.1	9.6	3.9	0	15.6	10.9	9.6	3.5	0	24.1	4	21.4	8	0	33.5	3.5	21.6	1.8	0	26.9	
Passenger Vehicles	475	2405	929	2	3811	2728	2392	896	3	6019	982	5324	1983	7	8296	877	5322	401	12	6612	24738
% Passenger Vehicles	87.2	98	94	100	95.5	97.6	97.5	99	100	97.8	95.2	97.2	96.8	100	96.9	98.9	96.2	89.1	100	96	96.7
Trucks	68	38	54	0	160	47	45	3	0	95	45	132	47	0	224	5	177	47	0	229	708
% Trucks	12.5	1.5	5.5	0	4	1.7	1.8	0.3	0	1.5	4.4	2.4	2.3	0	2.6	0.6	3.2	10.4	0	3.3	2.8
Buses	2	11	5	0	18	20	17	6	0	43	5	21	19	0	45	5	36	2	0	43	149
% Buses	0.4	0.4	0.5	0	0.5	0.7	0.7	0.7	0	0.7	0.5	0.4	0.9	0	0.5	0.6	0.7	0.4	0	0.6	0.6

GPD Group

520 South Main Street, Suite 2531
Akron, OH 44311
Telephone: (330) 572-2100

State Route 261 / State Route 43 Intersection

Project Number:
Project Name: Traffic Study
Project Location:
Client Name:

File Name : 43 and 261 111616
Site Code : 05016789
Start Date : 11/16/2016
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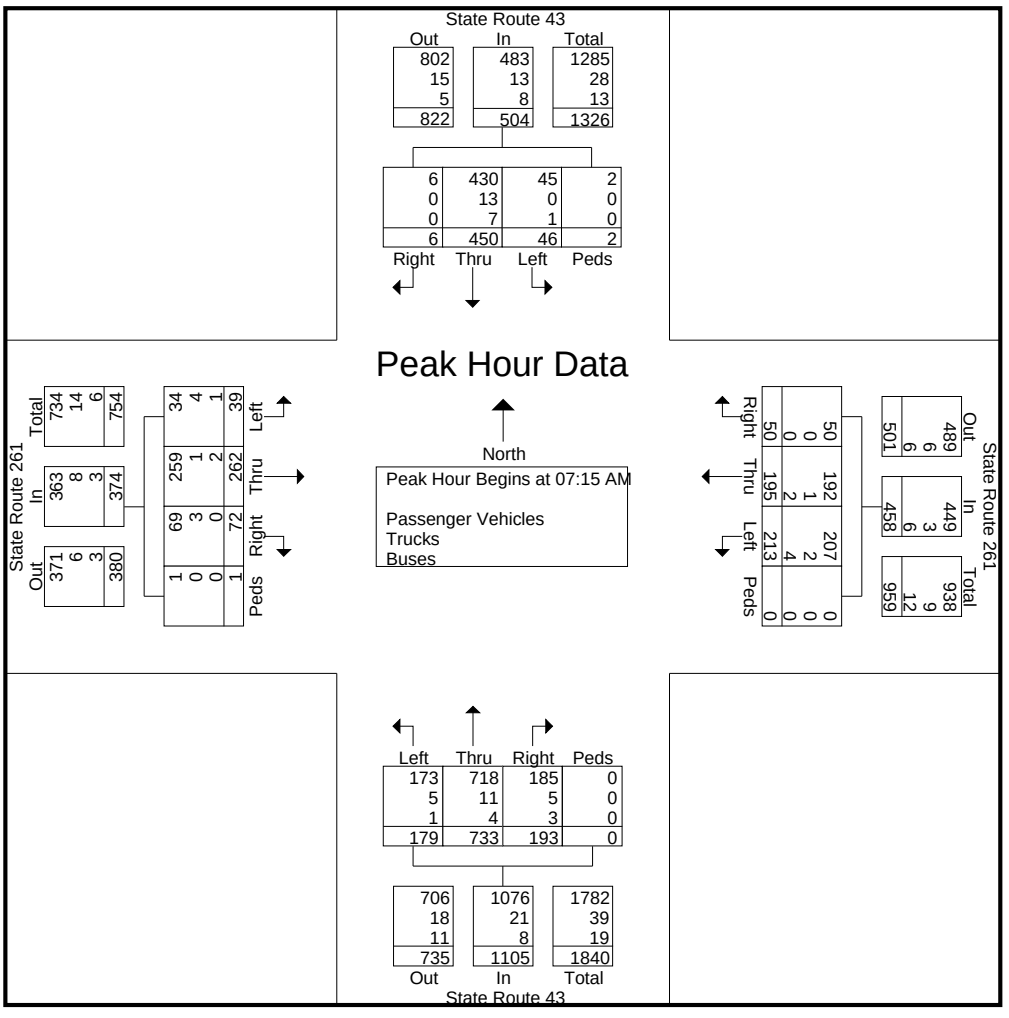
	State Route 261 Eastbound					State Route 261 Westbound					State Route 43 Northbound					State Route 43 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	54	16	0	75	64	47	14	0	125	57	185	41	0	283	11	109	2	0	122	605
07:30 AM	8	74	19	0	101	61	52	15	0	128	36	196	41	0	273	13	115	2	1	131	633
07:45 AM	10	89	13	0	112	45	55	13	0	113	53	189	46	0	288	15	124	2	1	142	655
08:00 AM	16	45	24	1	86	43	41	8	0	92	33	163	65	0	261	7	102	0	0	109	548
Total Volume	39	262	72	1	374	213	195	50	0	458	179	733	193	0	1105	46	450	6	2	504	2441
% App. Total	10.4	70.1	19.3	0.3		46.5	42.6	10.9	0		16.2	66.3	17.5	0		9.1	89.3	1.2	0.4		
PHF	.609	.736	.750	.250	.835	.832	.886	.833	.000	.895	.785	.935	.742	.000	.959	.767	.907	.750	.500	.887	.932
Passenger Vehicles	34	259	69	1	363	207	192	50	0	449	173	718	185	0	1076	45	430	6	2	483	2371
% Passenger Vehicles	87.2	98.9	95.8	100	97.1	97.2	98.5	100	0	98.0	96.6	98.0	95.9	0	97.4	97.8	95.6	100	100	95.8	97.1
Trucks	4	1	3	0	8	2	1	0	0	3	5	11	5	0	21	0	13	0	0	13	45
% Trucks	10.3	0.4	4.2	0	2.1	0.9	0.5	0	0	0.7	2.8	1.5	2.6	0	1.9	0	2.9	0	0	2.6	1.8
Buses	1	2	0	0	3	4	2	0	0	6	1	4	3	0	8	1	7	0	0	8	25
% Buses	2.6	0.8	0	0	0.8	1.9	1.0	0	0	1.3	0.6	0.5	1.6	0	0.7	2.2	1.6	0	0	1.6	1.0



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Akron, OH 44311
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State Route 261 / State Route 43 Intersection

Project Number:
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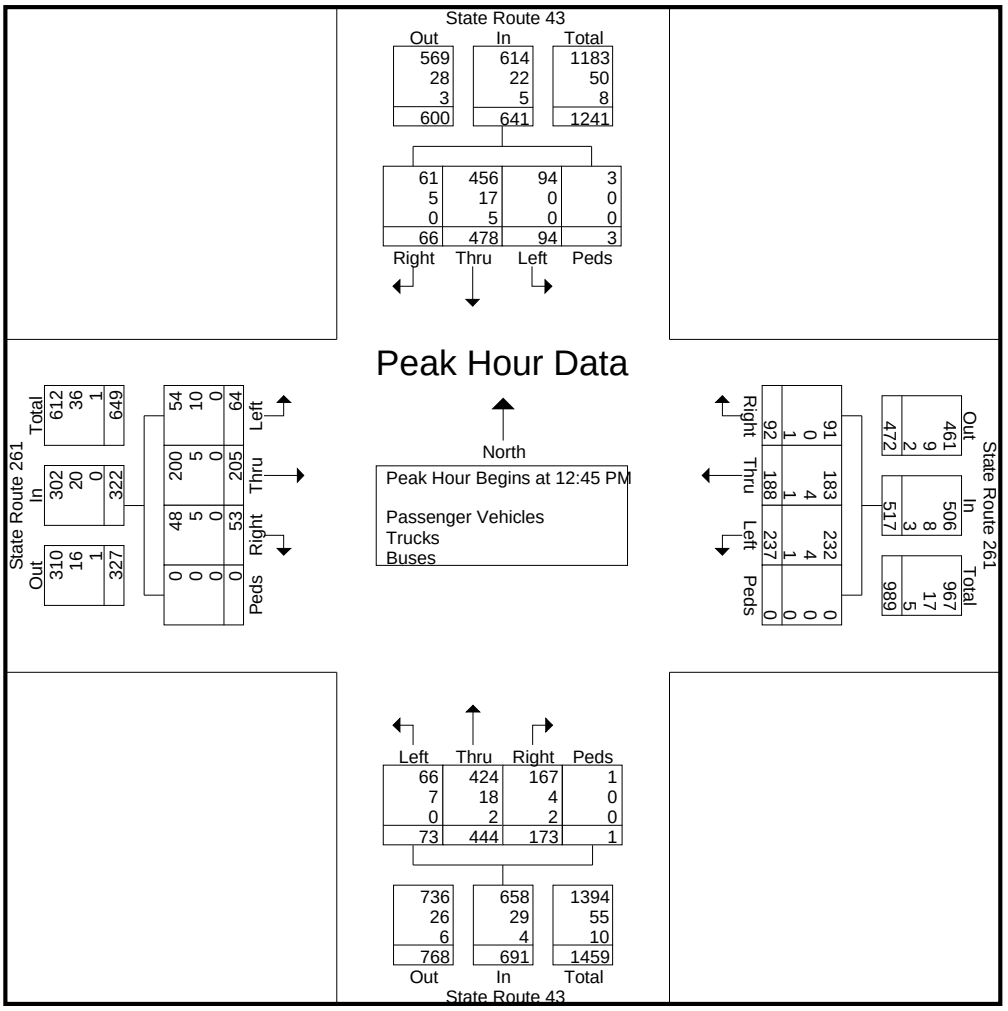
File Name : 43 and 261 111616
Site Code : 05016789
Start Date : 11/16/2016
Page No : 4

	State Route 261 Eastbound					State Route 261 Westbound					State Route 43 Northbound					State Route 43 Southbound					
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 12:45 PM																					
12:45 PM	23	49	10	0	82	58	39	17	0	114	19	114	41	0	174	27	134	21	1	183	553
01:00 PM	17	52	13	0	82	64	52	24	0	140	17	90	37	0	144	34	117	10	0	161	527
01:15 PM	9	42	18	0	69	47	45	27	0	119	17	109	51	1	178	19	126	16	2	163	529
01:30 PM	15	62	12	0	89	68	52	24	0	144	20	131	44	0	195	14	101	19	0	134	562
Total Volume	64	205	53	0	322	237	188	92	0	517	73	444	173	1	691	94	478	66	3	641	2171
% App. Total	19.9	63.7	16.5	0		45.8	36.4	17.8	0		10.6	64.3	25	0.1		14.7	74.6	10.3	0.5		
PHF	.696	.827	.736	.000	.904	.871	.904	.852	.000	.898	.913	.847	.848	.250	.886	.691	.892	.786	.375	.876	.966
Passenger Vehicles	54	200	48	0	302	232	183	91	0	506	66	424	167	1	658	94	456	61	3	614	2080
% Passenger Vehicles	84.4	97.6	90.6	0	93.8	97.9	97.3	98.9	0	97.9	90.4	95.5	96.5	100	95.2	100	95.4	92.4	100	95.8	95.8
Trucks	10	5	5	0	20	4	4	0	0	8	7	18	4	0	29	0	17	5	0	22	79
% Trucks	15.6	2.4	9.4	0	6.2	1.7	2.1	0	0	1.5	9.6	4.1	2.3	0	4.2	0	3.6	7.6	0	3.4	3.6
Buses	0	0	0	0	0	1	1	1	0	3	0	2	2	0	4	0	5	0	0	5	12
% Buses	0	0	0	0	0	0.4	0.5	1.1	0	0.6	0	0.5	1.2	0	0.6	0	1.0	0	0	0.8	0.6



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State Route 261 / State Route 43 Intersection

Project Number:
Project Name: Traffic Study
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File Name : 43 and 261 111616
Site Code : 05016789
Start Date : 11/16/2016
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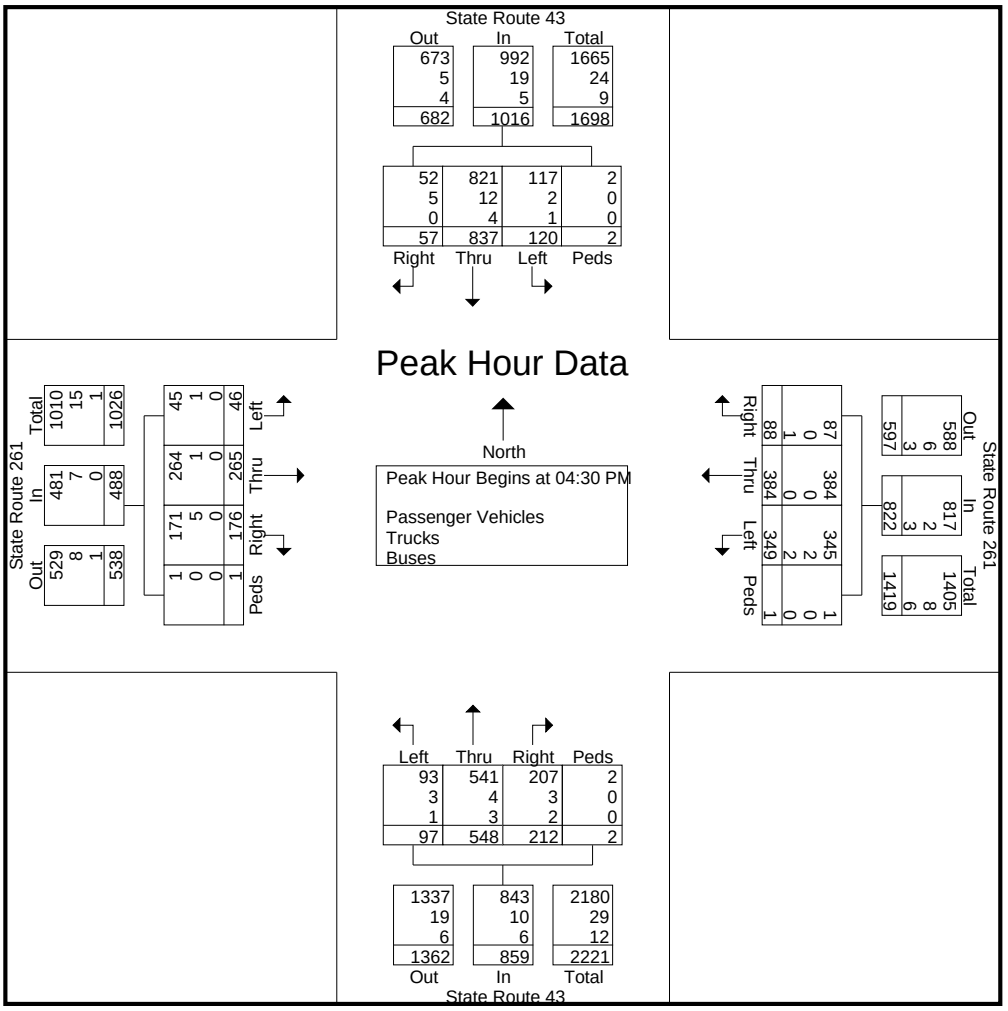
	State Route 261 Eastbound					State Route 261 Westbound					State Route 43 Northbound					State Route 43 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	11	75	43	0	129	78	75	19	1	173	29	141	52	0	222	26	192	10	1	229	753
04:45 PM	14	56	44	1	115	76	81	20	0	177	24	153	50	0	227	22	208	10	0	240	759
05:00 PM	13	67	44	0	124	103	126	25	0	254	19	115	57	2	193	38	231	18	0	287	858
05:15 PM	8	67	45	0	120	92	102	24	0	218	25	139	53	0	217	34	206	19	1	260	815
Total Volume	46	265	176	1	488	349	384	88	1	822	97	548	212	2	859	120	837	57	2	1016	3185
% App. Total	9.4	54.3	36.1	0.2		42.5	46.7	10.7	0.1		11.3	63.8	24.7	0.2		11.8	82.4	5.6	0.2		
PHF	.821	.883	.978	.250	.946	.847	.762	.880	.250	.809	.836	.895	.930	.250	.946	.789	.906	.750	.500	.885	.928
Passenger Vehicles	45	264	171	1	481	345	384	87	1	817	93	541	207	2	843	117	821	52	2	992	3133
% Passenger Vehicles	97.8	99.6	97.2	100	98.6	98.9	100	98.9	100	99.4	95.9	98.7	97.6	100	98.1	97.5	98.1	91.2	100	97.6	98.4
Trucks	1	1	5	0	7	2	0	0	0	2	3	4	3	0	10	2	12	5	0	19	38
% Trucks	2.2	0.4	2.8	0	1.4	0.6	0	0	0	0.2	3.1	0.7	1.4	0	1.2	1.7	1.4	8.8	0	1.9	1.2
Buses	0	0	0	0	0	2	0	1	0	3	1	3	2	0	6	1	4	0	0	5	14
% Buses	0	0	0	0	0	0.6	0	1.1	0	0.4	1.0	0.5	0.9	0	0.7	0.8	0.5	0	0	0.5	0.4



Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Mogadore Rd
Site Code:
Start Date: 05/02/2017

Turning Movement Data

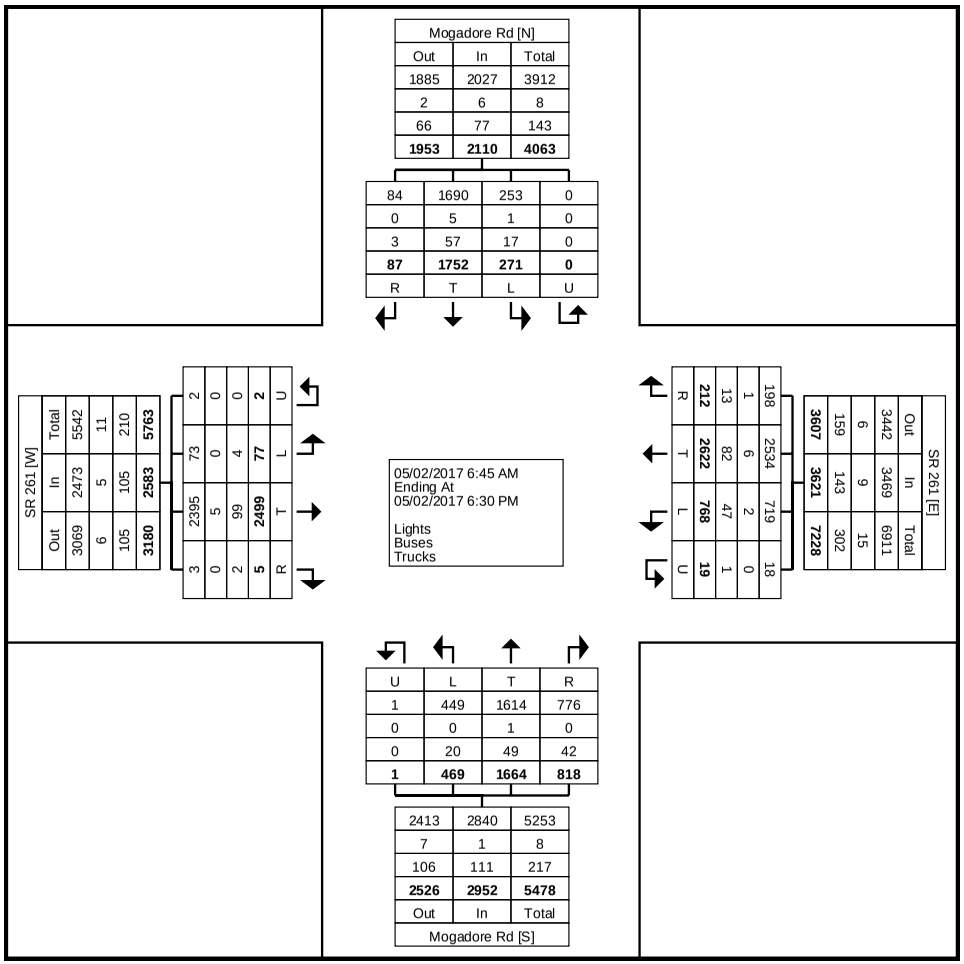
Start Time	Mogadore Rd Southbound					SR 261 Westbound					Mogadore Rd Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:45 AM	1	56	3	0	60	12	62	10	1	85	17	60	10	0	87	1	82	0	0	83	315
Hourly Total	1	56	3	0	60	12	62	10	1	85	17	60	10	0	87	1	82	0	0	83	315
7:00 AM	5	49	3	0	57	8	40	13	0	61	17	41	10	0	68	0	51	3	0	54	240
7:15 AM	3	31	3	0	37	5	43	13	3	64	18	37	9	0	64	0	52	0	0	52	217
7:30 AM	1	46	4	0	51	2	52	14	0	68	18	35	5	0	58	0	71	6	0	77	254
7:45 AM	1	30	0	0	31	10	50	7	1	68	18	29	6	0	53	0	72	4	0	76	228
Hourly Total	10	156	10	0	176	25	185	47	4	261	71	142	30	0	243	0	246	13	0	259	939
8:00 AM	1	24	3	0	28	4	41	13	1	59	13	28	9	0	50	0	34	3	0	37	174
8:15 AM	0	34	1	0	35	1	47	13	0	61	11	25	8	0	44	0	42	1	1	44	184
8:30 AM	0	23	0	0	23	1	30	11	0	42	20	21	5	0	46	0	42	1	0	43	154
8:45 AM	2	15	1	0	18	3	41	12	1	57	13	27	8	0	48	0	39	1	0	40	163
Hourly Total	3	96	5	0	104	9	159	49	2	219	57	101	30	0	188	0	157	6	1	164	675
9:00 AM	3	37	1	0	41	5	31	18	0	54	14	14	8	0	36	1	35	0	0	36	167
9:15 AM	3	22	0	0	25	2	35	16	0	53	14	27	13	0	54	0	40	1	0	41	173
9:30 AM	0	23	7	0	30	6	48	12	0	66	13	23	2	0	38	0	56	3	0	59	193
9:45 AM	3	29	4	0	36	2	42	12	2	58	14	28	10	1	53	0	34	2	0	36	183
Hourly Total	9	111	12	0	132	15	156	58	2	231	55	92	33	1	181	1	165	6	0	172	716
10:00 AM	5	31	5	0	41	8	52	17	0	77	18	23	8	0	49	0	46	1	0	47	214
10:15 AM	2	30	3	0	35	0	47	14	0	61	18	15	7	0	40	0	37	1	0	38	174
10:30 AM	2	32	10	0	44	8	38	18	1	65	19	25	5	0	49	0	38	1	0	39	197
10:45 AM	0	25	8	0	33	2	65	15	1	83	16	30	4	0	50	0	48	1	0	49	215
Hourly Total	9	118	26	0	153	18	202	64	2	286	71	93	24	0	188	0	169	4	0	173	800
11:00 AM	3	39	4	0	46	5	55	17	0	77	19	36	8	0	63	0	50	2	0	52	238
11:15 AM	1	34	6	0	41	3	47	17	0	67	15	52	6	0	73	0	44	3	0	47	228
11:30 AM	1	38	6	0	45	4	38	18	0	60	20	41	11	0	72	0	35	2	0	37	214
11:45 AM	0	39	5	0	44	8	44	20	0	72	17	32	14	0	63	0	47	3	0	50	229
Hourly Total	5	150	21	0	176	20	184	72	0	276	71	161	39	0	271	0	176	10	0	186	909
12:00 PM	2	30	3	0	35	4	58	20	0	82	13	32	5	0	50	0	41	0	0	41	208
12:15 PM	3	28	3	0	34	5	40	18	3	66	15	19	5	0	39	0	47	1	0	48	187
12:30 PM	0	27	2	0	29	3	49	14	1	67	15	26	11	0	52	0	67	1	0	68	216
12:45 PM	3	34	5	0	42	3	50	13	0	66	24	26	17	0	67	0	40	0	0	40	215
Hourly Total	8	119	13	0	140	15	197	65	4	281	67	103	38	0	208	0	195	2	0	197	826
1:00 PM	3	35	4	0	42	2	45	22	1	70	26	35	6	0	67	0	55	2	0	57	236
1:15 PM	2	37	4	0	43	1	60	24	0	85	16	28	12	0	56	0	55	0	1	56	240
1:30 PM	1	44	4	0	49	5	62	22	0	89	15	41	13	0	69	0	45	2	0	47	254
1:45 PM	1	39	5	0	45	1	53	21	0	75	21	27	6	0	54	0	55	0	0	55	229
Hourly Total	7	155	17	0	179	9	220	89	1	319	78	131	37	0	246	0	210	4	1	215	959
2:00 PM	0	43	4	0	47	1	77	25	0	103	26	42	17	0	85	0	63	0	0	63	298
2:15 PM	0	46	10	0	56	4	69	26	0	99	23	21	13	0	57	0	60	3	0	63	275
2:30 PM	0	51	8	0	59	6	97	21	0	124	23	59	15	0	97	0	66	6	0	72	352
2:45 PM	2	43	8	0	53	7	67	23	0	97	22	50	12	0	84	0	73	1	0	74	308

Hourly Total	2	183	30	0	215	18	310	95	0	423	94	172	57	0	323	0	262	10	0	272	1233
3:00 PM	1	60	24	0	85	8	82	16	1	107	18	63	10	0	91	0	85	2	0	87	370
3:15 PM	2	69	14	0	85	4	89	19	0	112	24	62	21	0	107	0	50	0	0	50	354
3:30 PM	2	54	11	0	67	5	83	17	0	105	28	62	10	0	100	0	58	0	0	58	330
3:45 PM	5	53	12	0	70	5	64	14	0	83	13	58	19	0	90	1	69	4	0	74	317
Hourly Total	10	236	61	0	307	22	318	66	1	407	83	245	60	0	388	1	262	6	0	269	1371
4:00 PM	5	72	15	0	92	9	119	20	0	148	18	62	19	0	99	1	73	4	0	78	417
4:15 PM	5	55	11	0	71	17	112	19	1	149	13	54	16	0	83	0	77	2	0	79	382
4:30 PM	4	51	7	0	62	8	73	21	0	102	22	51	16	0	89	0	74	1	0	75	328
4:45 PM	1	36	5	0	42	3	42	14	0	59	21	36	9	0	66	0	47	1	0	48	215
Hourly Total	15	214	38	0	267	37	346	74	1	458	74	203	60	0	337	1	271	8	0	280	1342
5:00 PM	1	30	7	0	38	1	34	11	0	46	13	43	11	0	67	0	52	2	0	54	205
5:15 PM	0	23	6	0	29	2	46	18	0	66	16	35	7	0	58	0	62	0	0	62	215
5:30 PM	1	28	7	0	36	0	44	15	0	59	14	22	9	0	45	0	59	1	0	60	200
5:45 PM	1	27	6	0	34	3	50	10	0	63	11	31	10	0	52	0	48	0	0	48	197
Hourly Total	3	108	26	0	137	6	174	54	0	234	54	131	37	0	222	0	221	3	0	224	817
6:00 PM	3	20	4	0	27	3	62	17	0	82	16	13	8	0	37	1	38	2	0	41	187
6:15 PM	2	30	5	0	37	3	47	8	1	59	10	17	6	0	33	0	45	3	0	48	177
Grand Total	87	1752	271	0	2110	212	2622	768	19	3621	818	1664	469	1	2952	5	2499	77	2	2583	11266
Approach %	4.1	83.0	12.8	0.0	-	5.9	72.4	21.2	0.5	-	27.7	56.4	15.9	0.0	-	0.2	96.7	3.0	0.1	-	-
Total %	0.8	15.6	2.4	0.0	18.7	1.9	23.3	6.8	0.2	32.1	7.3	14.8	4.2	0.0	26.2	0.0	22.2	0.7	0.0	22.9	-
Lights	84	1690	253	0	2027	198	2534	719	18	3469	776	1614	449	1	2840	3	2395	73	2	2473	10809
% Lights	96.6	96.5	93.4	-	96.1	93.4	96.6	93.6	94.7	95.8	94.9	97.0	95.7	100.0	96.2	60.0	95.8	94.8	100.0	95.7	95.9
Buses	0	5	1	0	6	1	6	2	0	9	0	1	0	0	1	0	5	0	0	5	21
% Buses	0.0	0.3	0.4	-	0.3	0.5	0.2	0.3	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.2
Trucks	3	57	17	0	77	13	82	47	1	143	42	49	20	0	111	2	99	4	0	105	436
% Trucks	3.4	3.3	6.3	-	3.6	6.1	3.1	6.1	5.3	3.9	5.1	2.9	4.3	0.0	3.8	40.0	4.0	5.2	0.0	4.1	3.9

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Mogadore Rd
Site Code:
Start Date: 05/02/2017



Turning Movement Data Plot

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Mogadore Rd
Site Code:
Start Date: 05/02/2017

Turning Movement Peak Hour Data (6:45 AM)

Start Time	Mogadore Rd Southbound					SR 261 Westbound					Mogadore Rd Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:45 AM	1	56	3	0	60	12	62	10	1	85	17	60	10	0	87	1	82	0	0	83	315
7:00 AM	5	49	3	0	57	8	40	13	0	61	17	41	10	0	68	0	51	3	0	54	240
7:15 AM	3	31	3	0	37	5	43	13	3	64	18	37	9	0	64	0	52	0	0	52	217
7:30 AM	1	46	4	0	51	2	52	14	0	68	18	35	5	0	58	0	71	6	0	77	254
Total	10	182	13	0	205	27	197	50	4	278	70	173	34	0	277	1	256	9	0	266	1026
Approach %	4.9	88.8	6.3	0.0	-	9.7	70.9	18.0	1.4	-	25.3	62.5	12.3	0.0	-	0.4	96.2	3.4	0.0	-	-
Total %	1.0	17.7	1.3	0.0	20.0	2.6	19.2	4.9	0.4	27.1	6.8	16.9	3.3	0.0	27.0	0.1	25.0	0.9	0.0	25.9	-
PHF	0.500	0.813	0.813	0.000	0.854	0.563	0.794	0.893	0.333	0.818	0.972	0.721	0.850	0.000	0.796	0.250	0.780	0.375	0.000	0.801	0.814
Lights	10	175	12	0	197	24	184	46	4	258	66	166	32	0	264	0	244	8	0	252	971
% Lights	100.0	96.2	92.3	-	96.1	88.9	93.4	92.0	100.0	92.8	94.3	96.0	94.1	-	95.3	0.0	95.3	88.9	-	94.7	94.6
Buses	0	0	0	0	0	0	0	0	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	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Trucks	0	7	1	0	8	3	13	4	0	20	4	7	2	0	13	1	12	1	0	14	55
% Trucks	0.0	3.8	7.7	-	3.9	11.1	6.6	8.0	0.0	7.2	5.7	4.0	5.9	-	4.7	100.0	4.7	11.1	-	5.3	5.4

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Count Name: SR 261 & Mogadore Rd
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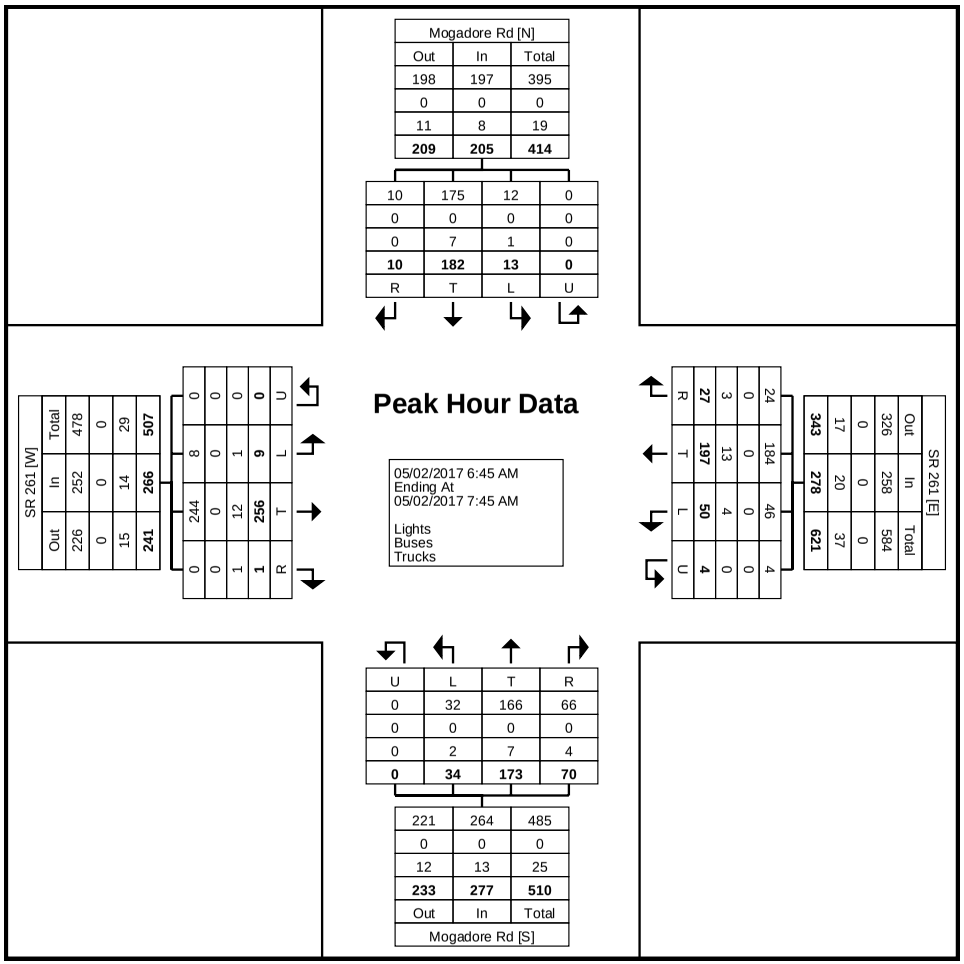

Turning Movement Peak Hour Data Plot (6:45 AM)

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Mogadore Rd
Site Code:
Start Date: 05/02/2017

Turning Movement Peak Hour Data (3:30 PM)

Start Time	Mogadore Rd Southbound					SR 261 Westbound					Mogadore Rd Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:30 PM	2	54	11	0	67	5	83	17	0	105	28	62	10	0	100	0	58	0	0	58	330
3:45 PM	5	53	12	0	70	5	64	14	0	83	13	58	19	0	90	1	69	4	0	74	317
4:00 PM	5	72	15	0	92	9	119	20	0	148	18	62	19	0	99	1	73	4	0	78	417
4:15 PM	5	55	11	0	71	17	112	19	1	149	13	54	16	0	83	0	77	2	0	79	382
Total	17	234	49	0	300	36	378	70	1	485	72	236	64	0	372	2	277	10	0	289	1446
Approach %	5.7	78.0	16.3	0.0	-	7.4	77.9	14.4	0.2	-	19.4	63.4	17.2	0.0	-	0.7	95.8	3.5	0.0	-	-
Total %	1.2	16.2	3.4	0.0	20.7	2.5	26.1	4.8	0.1	33.5	5.0	16.3	4.4	0.0	25.7	0.1	19.2	0.7	0.0	20.0	-
PHF	0.850	0.813	0.817	0.000	0.815	0.529	0.794	0.875	0.250	0.814	0.643	0.952	0.842	0.000	0.930	0.500	0.899	0.625	0.000	0.915	0.867
Lights	17	231	48	0	296	36	373	67	1	477	69	235	63	0	367	2	275	10	0	287	1427
% Lights	100.0	98.7	98.0	-	98.7	100.0	98.7	95.7	100.0	98.4	95.8	99.6	98.4	-	98.7	100.0	99.3	100.0	-	99.3	98.7
Buses	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
% Buses	0.0	0.4	0.0	-	0.3	0.0	0.0	1.4	0.0	0.2	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Trucks	0	2	1	0	3	0	5	2	0	7	3	1	1	0	5	0	2	0	0	2	17
% Trucks	0.0	0.9	2.0	-	1.0	0.0	1.3	2.9	0.0	1.4	4.2	0.4	1.6	-	1.3	0.0	0.7	0.0	-	0.7	1.2

Akron Metropolitan Area Trans. Study
146 South High Street

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Count Name: SR 261 & Mogadore Rd
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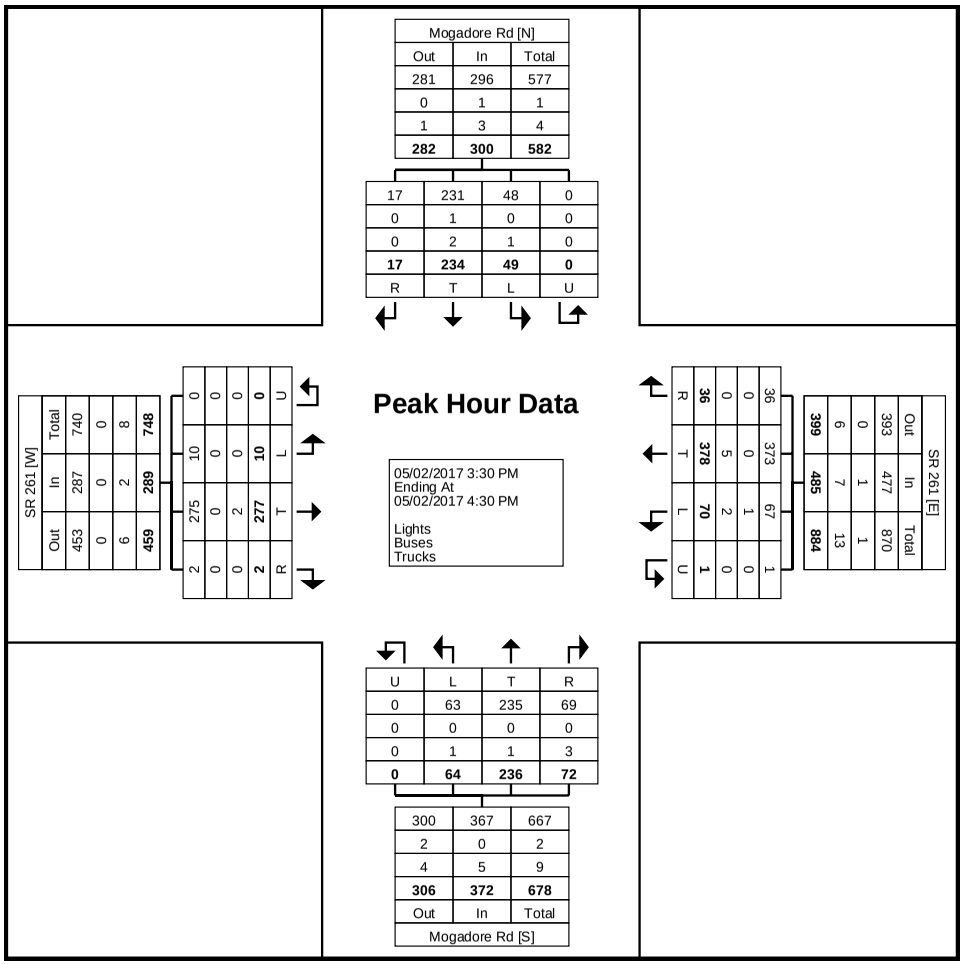

Turning Movement Peak Hour Data Plot (3:30 PM)

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Franklin Ave / Sunnybrook Rd
Site Code:
Start Date: 04/19/2017

Turning Movement Data

Start Time	Franklin Ave Southbound					SR 261 Westbound					Sunnybrook Rd Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:30 AM	7	12	11	0	30	27	59	3	0	89	12	20	4	0	36	1	97	10	0	108	263
6:45 AM	7	5	10	0	22	28	65	4	0	97	4	15	2	0	21	5	72	8	0	85	225
Hourly Total	14	17	21	0	52	55	124	7	0	186	16	35	6	0	57	6	169	18	0	193	488
7:00 AM	6	7	8	0	21	27	65	1	0	93	9	12	5	0	26	4	76	16	0	96	236
7:15 AM	2	6	11	0	19	21	54	2	0	77	10	25	3	0	38	3	70	9	1	83	217
7:30 AM	9	11	10	0	30	21	48	3	0	72	17	20	4	0	41	1	70	12	0	83	226
7:45 AM	2	6	10	0	18	19	53	5	0	77	8	15	2	0	25	1	68	7	0	76	196
Hourly Total	19	30	39	0	88	88	220	11	0	319	44	72	14	0	130	9	284	44	1	338	875
8:00 AM	8	12	7	0	27	10	45	3	0	58	9	15	0	0	24	1	61	1	1	64	173
8:15 AM	5	7	7	0	19	15	59	5	0	79	10	12	3	0	25	3	60	7	0	70	193
8:30 AM	7	8	7	0	22	12	57	7	0	76	12	11	7	0	30	1	57	10	1	69	197
8:45 AM	5	4	18	0	27	15	54	6	0	75	9	10	7	0	26	0	38	12	1	51	179
Hourly Total	25	31	39	0	95	52	215	21	0	288	40	48	17	0	105	5	216	30	3	254	742
9:00 AM	8	9	7	0	24	12	41	6	0	59	8	18	2	0	28	3	47	5	0	55	166
9:15 AM	6	15	10	0	31	11	49	8	0	68	4	10	3	0	17	1	62	11	0	74	190
9:30 AM	14	17	9	0	40	5	56	5	0	66	10	15	3	0	28	6	45	12	0	63	197
9:45 AM	9	12	11	0	32	10	53	9	0	72	10	16	2	0	28	2	48	11	1	62	194
Hourly Total	37	53	37	0	127	38	199	28	0	265	32	59	10	0	101	12	202	39	1	254	747
10:00 AM	10	14	13	0	37	7	50	13	0	70	7	15	2	0	24	5	45	8	1	59	190
10:15 AM	16	10	6	0	32	11	65	12	0	88	5	16	4	0	25	4	56	6	0	66	211
10:30 AM	10	10	11	0	31	12	48	8	0	68	9	14	3	0	26	5	54	10	0	69	194
10:45 AM	11	13	7	0	31	12	45	10	0	67	16	16	7	0	39	5	56	4	0	65	202
Hourly Total	47	47	37	0	131	42	208	43	0	293	37	61	16	0	114	19	211	28	1	259	797
11:00 AM	5	11	8	0	24	18	84	6	0	108	10	13	4	0	27	4	56	8	1	69	228
11:15 AM	8	19	12	0	39	17	60	7	0	84	10	14	1	0	25	3	51	11	0	65	213
11:30 AM	9	14	15	0	38	13	57	5	0	75	11	8	7	0	26	7	47	11	1	66	205
11:45 AM	4	7	11	0	22	19	65	5	0	89	9	14	4	0	27	6	42	15	0	63	201
Hourly Total	26	51	46	0	123	67	266	23	0	356	40	49	16	0	105	20	196	45	2	263	847
12:00 PM	8	20	13	0	41	17	64	12	0	93	10	15	1	0	26	8	60	4	0	72	232
12:15 PM	7	8	3	0	18	9	61	11	1	82	8	10	4	0	22	9	43	9	3	64	186
12:30 PM	13	15	12	0	40	13	55	7	0	75	9	12	2	0	23	3	57	10	1	71	209
12:45 PM	8	6	15	0	29	19	63	6	0	88	19	12	2	0	33	1	60	6	0	67	217
Hourly Total	36	49	43	0	128	58	243	36	1	338	46	49	9	0	104	21	220	29	4	274	844
1:00 PM	11	12	15	0	38	10	69	12	0	91	9	11	4	0	24	3	76	13	1	93	246
1:15 PM	5	15	11	0	31	22	69	12	0	103	10	11	7	0	28	3	45	4	0	52	214
1:30 PM	7	14	16	0	37	21	60	5	0	86	3	13	5	0	21	4	66	7	0	77	221
1:45 PM	14	16	10	0	40	18	55	16	0	89	6	9	3	0	18	3	77	13	1	94	241
Hourly Total	37	57	52	0	146	71	253	45	0	369	28	44	19	0	91	13	264	37	2	316	922
2:00 PM	13	15	21	0	49	25	73	9	0	107	9	13	4	0	26	4	84	14	0	102	284
2:15 PM	20	28	18	0	66	16	112	11	1	140	10	18	8	0	36	1	94	10	0	105	347
2:30 PM	16	37	32	0	85	13	108	11	0	132	14	13	4	0	31	4	52	7	0	63	311

2:45 PM	17	31	12	0	60	20	74	10	0	104	14	19	5	0	38	5	67	9	0	81	283
Hourly Total	66	111	83	0	260	74	367	41	1	483	47	63	21	0	131	14	297	40	0	351	1225
3:00 PM	12	20	27	0	59	9	90	12	0	111	10	17	3	0	30	11	96	15	0	122	322
3:15 PM	10	23	34	0	67	18	102	18	0	138	6	18	5	0	29	5	78	16	0	99	333
3:30 PM	14	20	29	0	63	12	97	10	0	119	10	15	5	0	30	5	91	15	0	111	323
3:45 PM	16	22	11	0	49	18	106	11	0	135	9	23	4	0	36	4	84	13	0	101	321
Hourly Total	52	85	101	0	238	57	395	51	0	503	35	73	17	0	125	25	349	59	0	433	1299
4:00 PM	12	33	38	0	83	22	114	22	0	158	9	19	5	0	33	7	80	5	0	92	366
4:15 PM	9	34	35	0	78	23	122	11	0	156	7	10	8	0	25	8	70	9	0	87	346
4:30 PM	10	32	26	0	68	15	92	11	0	118	5	16	3	0	24	2	82	7	0	91	301
4:45 PM	9	17	14	0	40	14	86	7	0	107	12	11	2	0	25	4	69	6	1	80	252
Hourly Total	40	116	113	0	269	74	414	51	0	539	33	56	18	0	107	21	301	27	1	350	1265
5:00 PM	14	20	18	0	52	15	61	12	0	88	5	9	3	0	17	1	63	5	0	69	226
5:15 PM	7	10	11	0	28	9	63	18	0	90	7	13	1	0	21	9	61	4	0	74	213
5:30 PM	2	22	6	0	30	7	81	6	0	94	12	15	3	0	30	4	66	8	0	78	232
5:45 PM	4	20	6	0	30	10	65	14	0	89	8	5	6	0	19	2	52	6	0	60	198
Hourly Total	27	72	41	0	140	41	270	50	0	361	32	42	13	0	87	16	242	23	0	281	869
6:00 PM	8	22	5	0	35	11	44	15	0	70	6	20	5	0	31	4	50	6	0	60	196
6:15 PM	8	19	6	0	33	11	41	11	0	63	6	9	3	0	18	4	54	11	0	69	183
Grand Total	442	760	663	0	1865	739	3259	433	2	4433	442	680	184	0	1306	189	3055	436	15	3695	11299
Approach %	23.7	40.8	35.5	0.0	-	16.7	73.5	9.8	0.0	-	33.8	52.1	14.1	0.0	-	5.1	82.7	11.8	0.4	-	-
Total %	3.9	6.7	5.9	0.0	16.5	6.5	28.8	3.8	0.0	39.2	3.9	6.0	1.6	0.0	11.6	1.7	27.0	3.9	0.1	32.7	-
Lights	424	756	644	0	1824	717	3082	430	2	4231	438	661	177	0	1276	184	2897	420	14	3515	10846
% Lights	95.9	99.5	97.1	-	97.8	97.0	94.6	99.3	100.0	95.4	99.1	97.2	96.2	-	97.7	97.4	94.8	96.3	93.3	95.1	96.0
Buses	2	1	5	0	8	8	12	1	0	21	1	15	3	0	19	1	8	1	0	10	58
% Buses	0.5	0.1	0.8	-	0.4	1.1	0.4	0.2	0.0	0.5	0.2	2.2	1.6	-	1.5	0.5	0.3	0.2	0.0	0.3	0.5
Trucks	16	3	14	0	33	14	165	2	0	181	3	4	4	0	11	4	150	15	1	170	395
% Trucks	3.6	0.4	2.1	-	1.8	1.9	5.1	0.5	0.0	4.1	0.7	0.6	2.2	-	0.8	2.1	4.9	3.4	6.7	4.6	3.5

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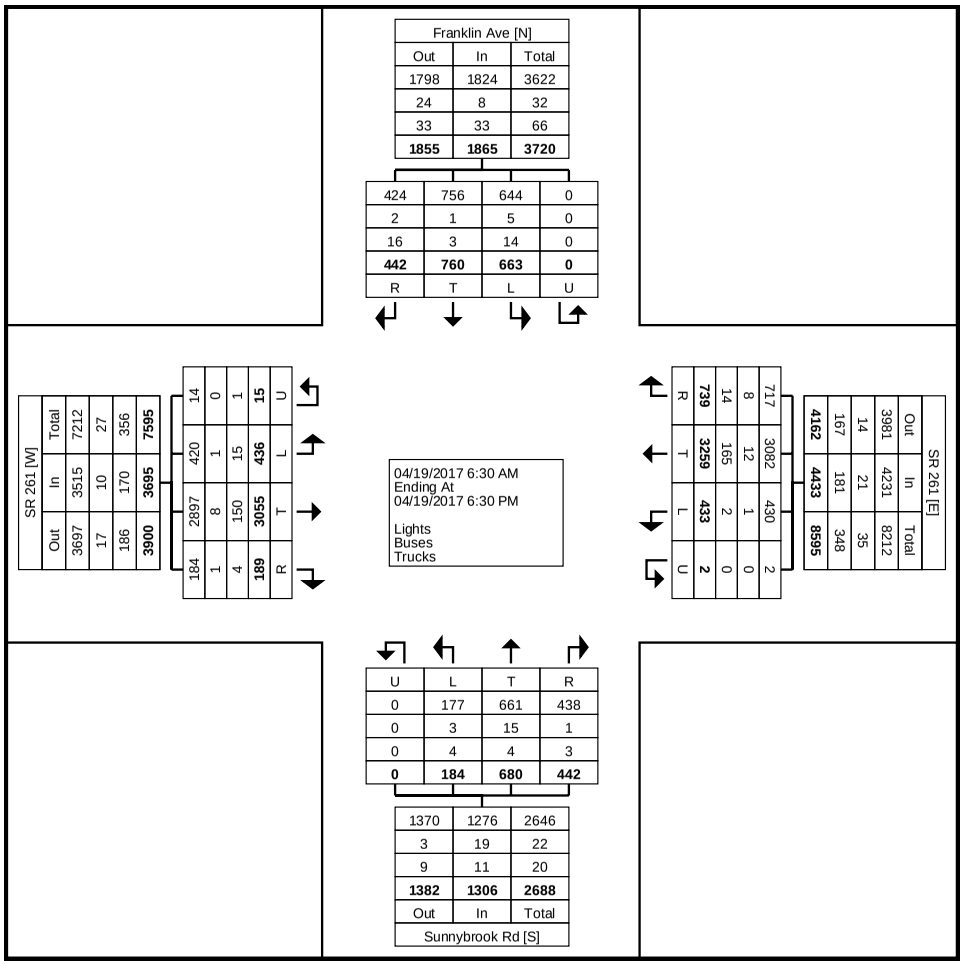


Turning Movement Data Plot

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Franklin Ave / Sunnybrook Rd
Site Code:
Start Date: 04/19/2017

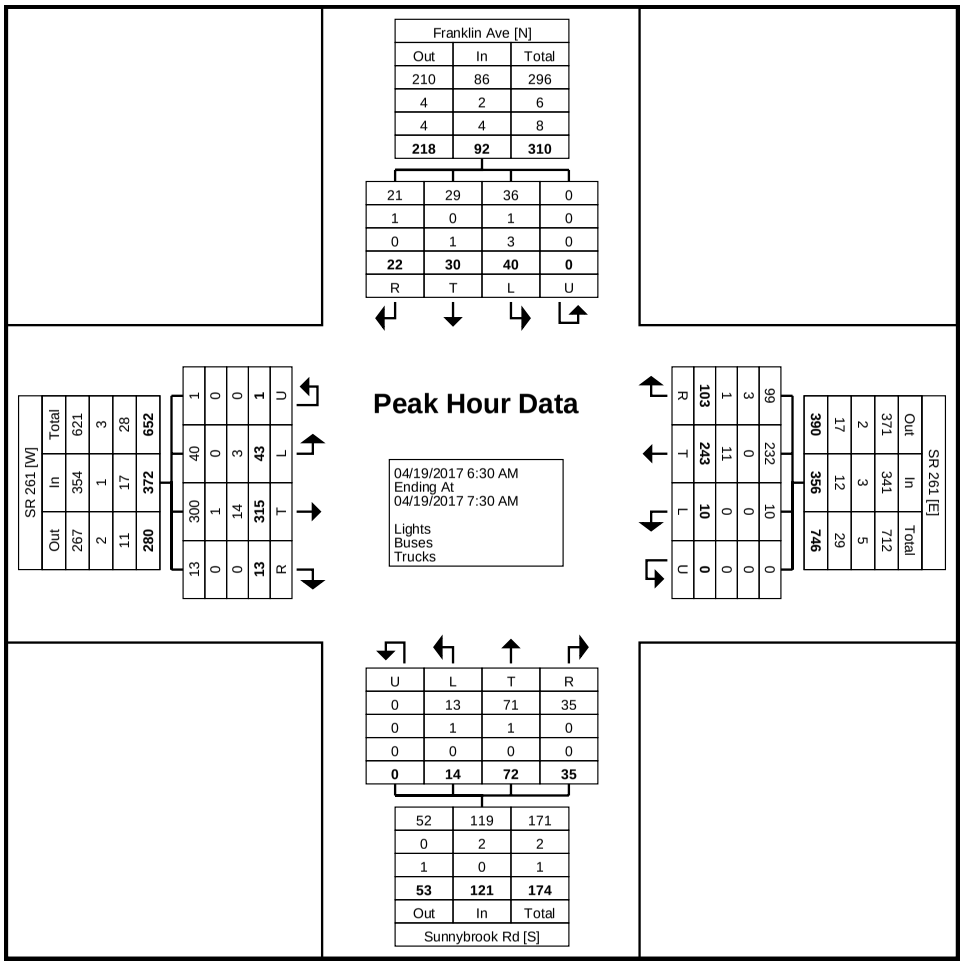
Turning Movement Peak Hour Data (6:30 AM)

Start Time	Franklin Ave Southbound					SR 261 Westbound					Sunnybrook Rd Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:30 AM	7	12	11	0	30	27	59	3	0	89	12	20	4	0	36	1	97	10	0	108	263
6:45 AM	7	5	10	0	22	28	65	4	0	97	4	15	2	0	21	5	72	8	0	85	225
7:00 AM	6	7	8	0	21	27	65	1	0	93	9	12	5	0	26	4	76	16	0	96	236
7:15 AM	2	6	11	0	19	21	54	2	0	77	10	25	3	0	38	3	70	9	1	83	217
Total	22	30	40	0	92	103	243	10	0	356	35	72	14	0	121	13	315	43	1	372	941
Approach %	23.9	32.6	43.5	0.0	-	28.9	68.3	2.8	0.0	-	28.9	59.5	11.6	0.0	-	3.5	84.7	11.6	0.3	-	-
Total %	2.3	3.2	4.3	0.0	9.8	10.9	25.8	1.1	0.0	37.8	3.7	7.7	1.5	0.0	12.9	1.4	33.5	4.6	0.1	39.5	-
PHF	0.786	0.625	0.909	0.000	0.767	0.920	0.935	0.625	0.000	0.918	0.729	0.720	0.700	0.000	0.796	0.650	0.812	0.672	0.250	0.861	0.894
Lights	21	29	36	0	86	99	232	10	0	341	35	71	13	0	119	13	300	40	1	354	900
% Lights	95.5	96.7	90.0	-	93.5	96.1	95.5	100.0	-	95.8	100.0	98.6	92.9	-	98.3	100.0	95.2	93.0	100.0	95.2	95.6
Buses	1	0	1	0	2	3	0	0	0	3	0	1	1	0	2	0	1	0	0	1	8
% Buses	4.5	0.0	2.5	-	2.2	2.9	0.0	0.0	-	0.8	0.0	1.4	7.1	-	1.7	0.0	0.3	0.0	0.0	0.3	0.9
Trucks	0	1	3	0	4	1	11	0	0	12	0	0	0	0	0	0	14	3	0	17	33
% Trucks	0.0	3.3	7.5	-	4.3	1.0	4.5	0.0	-	3.4	0.0	0.0	0.0	-	0.0	0.0	4.4	7.0	0.0	4.6	3.5

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Franklin Ave / Sunnybrook Rd
Site Code:
Start Date: 04/19/2017



Turning Movement Peak Hour Data Plot (6:30 AM)

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
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Count Name: SR 261 & Franklin Ave / Sunnybrook Rd
Site Code:
Start Date: 04/19/2017

Turning Movement Peak Hour Data (3:30 PM)

Start Time	Franklin Ave Southbound					SR 261 Westbound					Sunnybrook Rd Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:30 PM	14	20	29	0	63	12	97	10	0	119	10	15	5	0	30	5	91	15	0	111	323
3:45 PM	16	22	11	0	49	18	106	11	0	135	9	23	4	0	36	4	84	13	0	101	321
4:00 PM	12	33	38	0	83	22	114	22	0	158	9	19	5	0	33	7	80	5	0	92	366
4:15 PM	9	34	35	0	78	23	122	11	0	156	7	10	8	0	25	8	70	9	0	87	346
Total	51	109	113	0	273	75	439	54	0	568	35	67	22	0	124	24	325	42	0	391	1356
Approach %	18.7	39.9	41.4	0.0	-	13.2	77.3	9.5	0.0	-	28.2	54.0	17.7	0.0	-	6.1	83.1	10.7	0.0	-	-
Total %	3.8	8.0	8.3	0.0	20.1	5.5	32.4	4.0	0.0	41.9	2.6	4.9	1.6	0.0	9.1	1.8	24.0	3.1	0.0	28.8	-
PHF	0.797	0.801	0.743	0.000	0.822	0.815	0.900	0.614	0.000	0.899	0.875	0.728	0.688	0.000	0.861	0.750	0.893	0.700	0.000	0.881	0.926
Lights	51	109	112	0	272	75	428	54	0	557	35	66	22	0	123	24	316	42	0	382	1334
% Lights	100.0	100.0	99.1	-	99.6	100.0	97.5	100.0	-	98.1	100.0	98.5	100.0	-	99.2	100.0	97.2	100.0	-	97.7	98.4
Buses	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Buses	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	1.5	0.0	-	0.8	0.0	0.0	0.0	-	0.0	0.1
Trucks	0	0	1	0	1	0	11	0	0	11	0	0	0	0	0	0	9	0	0	9	21
% Trucks	0.0	0.0	0.9	-	0.4	0.0	2.5	0.0	-	1.9	0.0	0.0	0.0	-	0.0	0.0	2.8	0.0	-	2.3	1.5

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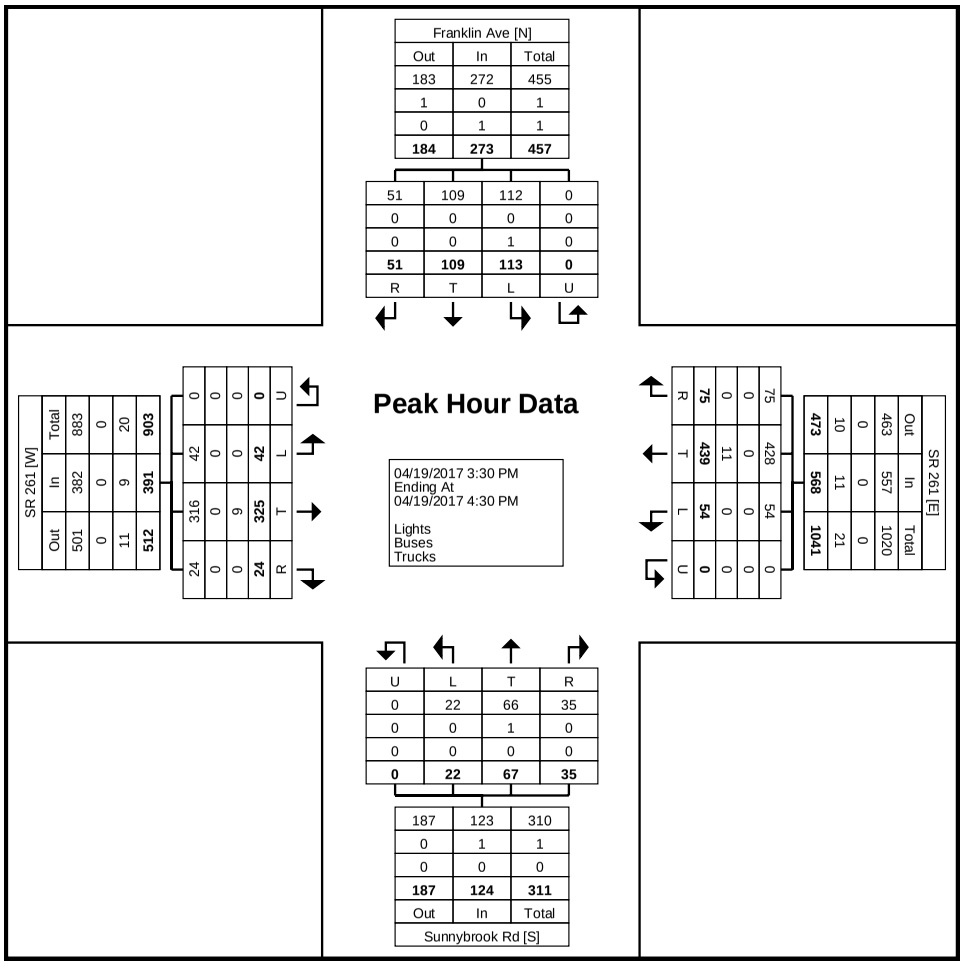

Turning Movement Peak Hour Data Plot (3:30 PM)

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Campus Center Dr
Site Code:
Start Date: 04/27/2017

Turning Movement Data

Start Time	Campus Center Dr Southbound					SR 261 Westbound					Campus Center Dr Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:30 AM	20	2	0	0	22	6	99	0	0	105	17	48	1	0	66	1	108	66	0	175	368
6:45 AM	19	1	0	0	20	0	93	2	0	95	12	50	3	0	65	1	79	62	0	142	322
Hourly Total	39	3	0	0	42	6	192	2	0	200	29	98	4	0	131	2	187	128	0	317	690
7:00 AM	21	1	1	0	23	1	77	1	0	79	11	34	0	0	45	1	72	43	0	116	263
7:15 AM	20	3	1	0	24	1	96	2	0	99	13	29	1	0	43	1	100	66	0	167	333
7:30 AM	26	0	1	0	27	6	84	2	0	92	17	31	3	0	51	0	94	57	1	152	322
7:45 AM	20	0	0	0	20	9	72	0	0	81	14	54	3	0	71	3	81	75	0	159	331
Hourly Total	87	4	3	0	94	17	329	5	0	351	55	148	7	0	210	5	347	241	1	594	1249
8:00 AM	17	6	0	0	23	5	59	2	0	66	13	22	0	0	35	0	60	60	0	120	244
8:15 AM	20	2	1	0	23	1	76	0	0	77	7	16	0	0	23	1	88	30	0	119	242
8:30 AM	28	6	0	0	34	0	69	0	0	69	6	20	1	0	27	0	54	32	0	86	216
8:45 AM	27	7	0	0	34	3	80	1	0	84	11	16	1	0	28	0	59	30	0	89	235
Hourly Total	92	21	1	0	114	9	284	3	0	296	37	74	2	0	113	1	261	152	0	414	937
9:00 AM	17	2	0	0	19	2	74	1	0	77	2	12	1	0	15	2	67	26	0	95	206
9:15 AM	25	2	1	0	28	4	69	1	0	74	9	16	2	0	27	0	76	55	0	131	260
9:30 AM	40	0	1	0	41	4	88	2	0	94	12	29	0	0	41	1	76	72	0	149	325
9:45 AM	34	0	3	0	37	2	95	2	0	99	9	16	0	0	25	0	87	47	0	134	295
Hourly Total	116	4	5	0	125	12	326	6	0	344	32	73	3	0	108	3	306	200	0	509	1086
10:00 AM	26	0	1	0	27	2	91	2	0	95	4	18	0	0	22	1	81	12	0	94	238
10:15 AM	19	0	2	0	21	0	76	3	0	79	4	6	0	0	10	4	71	30	0	105	215
10:30 AM	33	6	0	0	39	1	73	1	0	75	5	11	3	0	19	1	72	40	0	113	246
10:45 AM	43	10	1	0	54	2	81	0	0	83	7	11	1	0	19	1	85	49	0	135	291
Hourly Total	121	16	4	0	141	5	321	6	0	332	20	46	4	0	70	7	309	131	0	447	990
11:00 AM	58	12	0	0	70	5	76	0	0	81	11	17	3	0	31	2	91	51	0	144	326
11:15 AM	57	12	3	0	72	1	106	3	0	110	10	16	1	0	27	1	74	37	0	112	321
11:30 AM	55	12	2	0	69	5	98	1	0	104	6	13	0	0	19	0	87	27	1	115	307
11:45 AM	34	8	1	0	43	1	98	0	0	99	6	10	0	0	16	3	84	30	0	117	275
Hourly Total	204	44	6	0	254	12	378	4	0	394	33	56	4	0	93	6	336	145	1	488	1229
12:00 PM	42	6	2	0	50	2	97	4	0	103	5	8	2	0	15	1	81	26	0	108	276
12:15 PM	42	8	1	0	51	5	96	5	0	106	11	10	1	0	22	2	88	37	2	129	308
12:30 PM	67	9	0	0	76	2	110	2	0	114	9	16	1	0	26	0	74	24	0	98	314
12:45 PM	60	13	4	0	77	2	96	4	0	102	8	15	1	0	24	0	84	44	0	128	331
Hourly Total	211	36	7	0	254	11	399	15	0	425	33	49	5	0	87	3	327	131	2	463	1229
1:00 PM	64	18	1	0	83	2	96	4	0	102	9	5	2	0	16	2	102	33	0	137	338
1:15 PM	61	15	2	0	78	1	109	2	0	112	6	6	3	0	15	1	91	27	1	120	325
1:30 PM	30	5	1	0	36	0	128	4	0	132	3	6	0	0	9	1	71	20	0	92	269
1:45 PM	48	7	0	0	55	1	107	1	0	109	8	9	0	0	17	3	93	26	0	122	303
Hourly Total	203	45	4	0	252	4	440	11	0	455	26	26	5	0	57	7	357	106	1	471	1235
2:00 PM	60	16	0	0	76	1	108	8	0	117	7	5	1	0	13	4	110	27	0	141	347
2:15 PM	77	14	2	0	93	1	124	8	0	133	6	9	3	0	18	5	111	38	0	154	398
2:30 PM	104	50	3	0	157	2	125	10	0	137	4	6	3	0	13	3	121	45	0	169	476

2:45 PM	85	21	1	0	107	0	111	11	0	122	9	12	2	0	23	3	105	42	0	150	402
Hourly Total	326	101	6	0	433	4	468	37	0	509	26	32	9	0	67	15	447	152	0	614	1623
3:00 PM	70	25	18	0	113	1	112	11	0	124	9	5	1	0	15	2	142	28	0	172	424
3:15 PM	72	26	1	0	99	0	120	4	0	124	8	7	0	0	15	4	119	28	0	151	389
3:30 PM	83	62	1	0	146	1	122	13	1	137	10	11	0	1	22	4	110	27	0	141	446
3:45 PM	69	29	2	0	100	1	158	8	0	167	14	11	2	0	27	5	103	40	1	149	443
Hourly Total	294	142	22	0	458	3	512	36	1	552	41	34	3	1	79	15	474	123	1	613	1702
4:00 PM	102	66	4	0	172	0	150	20	0	170	12	11	2	0	25	8	103	34	0	145	512
4:15 PM	69	36	0	0	105	1	112	18	0	131	22	23	1	0	46	2	102	38	0	142	424
4:30 PM	41	11	0	0	52	2	95	5	0	102	7	3	1	0	11	2	127	28	1	158	323
4:45 PM	34	12	0	0	46	2	111	3	0	116	9	7	1	0	17	2	108	37	0	147	326
Hourly Total	246	125	4	0	375	5	468	46	0	519	50	44	5	0	99	14	440	137	1	592	1585
5:00 PM	47	7	2	0	56	3	98	3	0	104	2	5	1	0	8	3	95	30	1	129	297
5:15 PM	61	7	2	0	70	1	101	2	0	104	7	9	1	0	17	2	85	18	0	105	296
5:30 PM	48	7	0	0	55	1	75	4	1	81	7	5	2	0	14	4	74	20	0	98	248
5:45 PM	32	12	1	0	45	1	74	3	0	78	7	5	0	0	12	6	87	25	0	118	253
Hourly Total	188	33	5	0	226	6	348	12	1	367	23	24	4	0	51	15	341	93	1	450	1094
6:00 PM	37	7	0	0	44	1	65	3	0	69	4	4	0	0	8	0	71	39	0	110	231
6:15 PM	32	6	0	0	38	0	74	2	0	76	5	4	1	0	10	4	66	26	0	96	220
Grand Total	2196	587	67	0	2850	95	4604	188	2	4889	414	712	56	1	1183	97	4269	1804	8	6178	15100
Approach %	77.1	20.6	2.4	0.0	-	1.9	94.2	3.8	0.0	-	35.0	60.2	4.7	0.1	-	1.6	69.1	29.2	0.1	-	-
Total %	14.5	3.9	0.4	0.0	18.9	0.6	30.5	1.2	0.0	32.4	2.7	4.7	0.4	0.0	7.8	0.6	28.3	11.9	0.1	40.9	-
Lights	2164	587	66	0	2817	91	4466	186	1	4744	411	711	55	1	1178	95	4109	1779	6	5989	14728
% Lights	98.5	100.0	98.5	-	98.8	95.8	97.0	98.9	50.0	97.0	99.3	99.9	98.2	100.0	99.6	97.9	96.3	98.6	75.0	96.9	97.5
Buses	9	0	1	0	10	4	29	2	0	35	0	0	1	0	1	0	29	11	0	40	86
% Buses	0.4	0.0	1.5	-	0.4	4.2	0.6	1.1	0.0	0.7	0.0	0.0	1.8	0.0	0.1	0.0	0.7	0.6	0.0	0.6	0.6
Trucks	23	0	0	0	23	0	109	0	1	110	3	1	0	0	4	2	131	14	2	149	286
% Trucks	1.0	0.0	0.0	-	0.8	0.0	2.4	0.0	50.0	2.2	0.7	0.1	0.0	0.0	0.3	2.1	3.1	0.8	25.0	2.4	1.9

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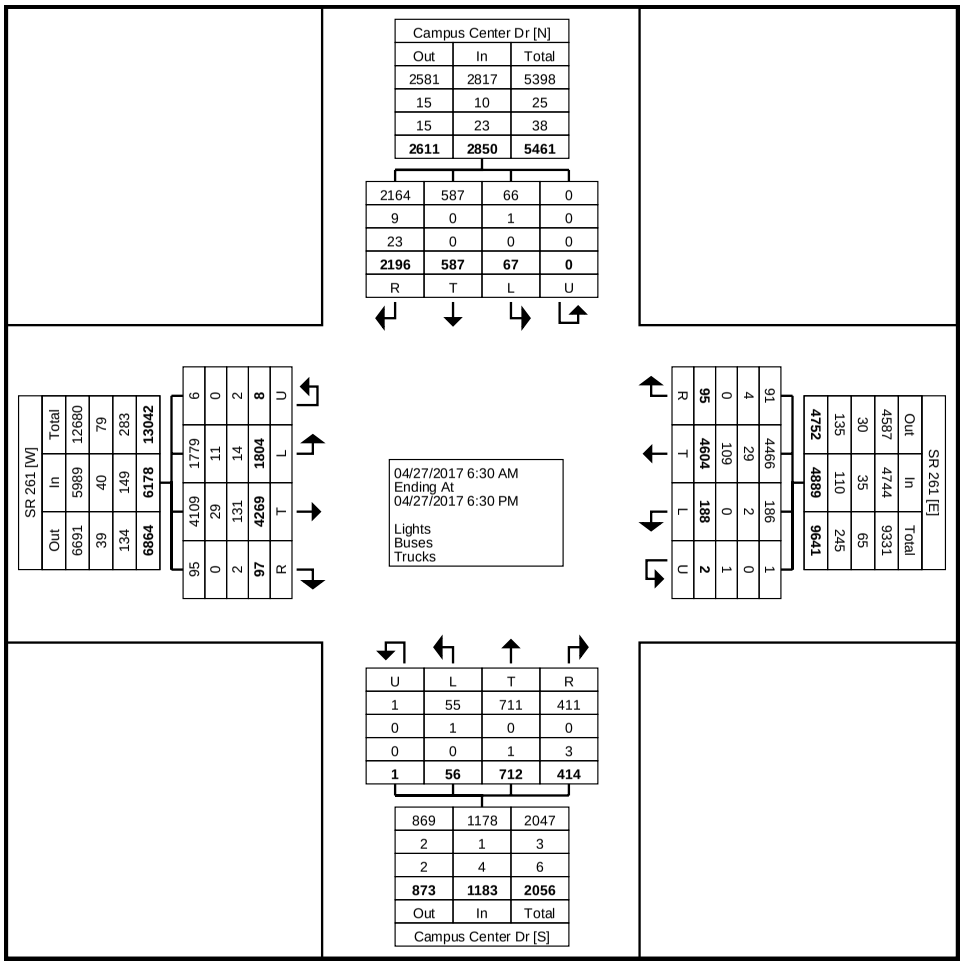

Turning Movement Data Plot

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146 South High Street

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Count Name: SR 261 & Campus Center Dr
Site Code:
Start Date: 04/27/2017

Turning Movement Peak Hour Data (6:30 AM)

Start Time	Campus Center Dr Southbound					SR 261 Westbound					Campus Center Dr Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:30 AM	20	2	0	0	22	6	99	0	0	105	17	48	1	0	66	1	108	66	0	175	368
6:45 AM	19	1	0	0	20	0	93	2	0	95	12	50	3	0	65	1	79	62	0	142	322
7:00 AM	21	1	1	0	23	1	77	1	0	79	11	34	0	0	45	1	72	43	0	116	263
7:15 AM	20	3	1	0	24	1	96	2	0	99	13	29	1	0	43	1	100	66	0	167	333
Total	80	7	2	0	89	8	365	5	0	378	53	161	5	0	219	4	359	237	0	600	1286
Approach %	89.9	7.9	2.2	0.0	-	2.1	96.6	1.3	0.0	-	24.2	73.5	2.3	0.0	-	0.7	59.8	39.5	0.0	-	-
Total %	6.2	0.5	0.2	0.0	6.9	0.6	28.4	0.4	0.0	29.4	4.1	12.5	0.4	0.0	17.0	0.3	27.9	18.4	0.0	46.7	-
PHF	0.952	0.583	0.500	0.000	0.927	0.333	0.922	0.625	0.000	0.900	0.779	0.805	0.417	0.000	0.830	1.000	0.831	0.898	0.000	0.857	0.874
Lights	77	7	1	0	85	6	354	5	0	365	53	161	5	0	219	4	339	233	0	576	1245
% Lights	96.3	100.0	50.0	-	95.5	75.0	97.0	100.0	-	96.6	100.0	100.0	100.0	-	100.0	100.0	94.4	98.3	-	96.0	96.8
Buses	2	0	1	0	3	2	1	0	0	3	0	0	0	0	0	0	4	2	0	6	12
% Buses	2.5	0.0	50.0	-	3.4	25.0	0.3	0.0	-	0.8	0.0	0.0	0.0	-	0.0	0.0	1.1	0.8	-	1.0	0.9
Trucks	1	0	0	0	1	0	10	0	0	10	0	0	0	0	0	0	16	2	0	18	29
% Trucks	1.3	0.0	0.0	-	1.1	0.0	2.7	0.0	-	2.6	0.0	0.0	0.0	-	0.0	0.0	4.5	0.8	-	3.0	2.3

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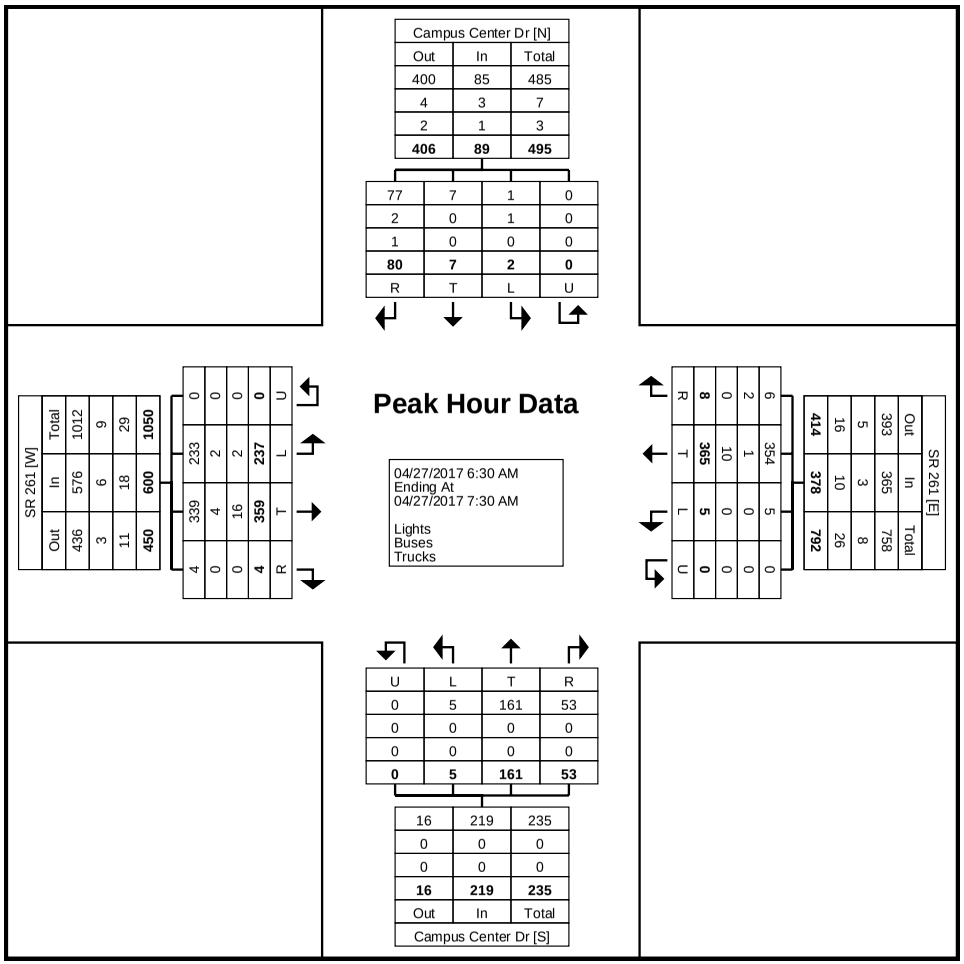

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Count Name: SR 261 & Campus Center Dr
Site Code:
Start Date: 04/27/2017

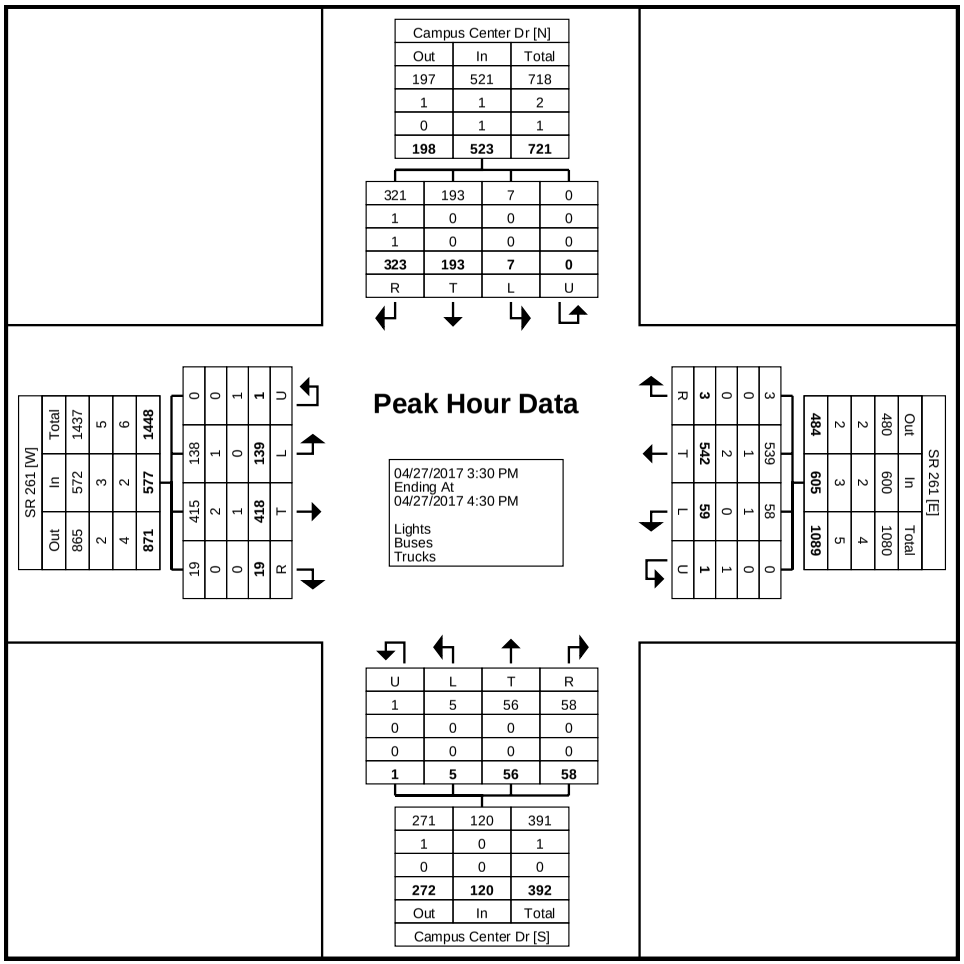
Turning Movement Peak Hour Data (3:30 PM)

Start Time	Campus Center Dr Southbound					SR 261 Westbound					Campus Center Dr Northbound					SR 261 Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:30 PM	83	62	1	0	146	1	122	13	1	137	10	11	0	1	22	4	110	27	0	141	446
3:45 PM	69	29	2	0	100	1	158	8	0	167	14	11	2	0	27	5	103	40	1	149	443
4:00 PM	102	66	4	0	172	0	150	20	0	170	12	11	2	0	25	8	103	34	0	145	512
4:15 PM	69	36	0	0	105	1	112	18	0	131	22	23	1	0	46	2	102	38	0	142	424
Total	323	193	7	0	523	3	542	59	1	605	58	56	5	1	120	19	418	139	1	577	1825
Approach %	61.8	36.9	1.3	0.0	-	0.5	89.6	9.8	0.2	-	48.3	46.7	4.2	0.8	-	3.3	72.4	24.1	0.2	-	-
Total %	17.7	10.6	0.4	0.0	28.7	0.2	29.7	3.2	0.1	33.2	3.2	3.1	0.3	0.1	6.6	1.0	22.9	7.6	0.1	31.6	-
PHF	0.792	0.731	0.438	0.000	0.760	0.750	0.858	0.738	0.250	0.890	0.659	0.609	0.625	0.250	0.652	0.594	0.950	0.869	0.250	0.968	0.891
Lights	321	193	7	0	521	3	539	58	0	600	58	56	5	1	120	19	415	138	0	572	1813
% Lights	99.4	100.0	100.0	-	99.6	100.0	99.4	98.3	0.0	99.2	100.0	100.0	100.0	100.0	100.0	100.0	99.3	99.3	0.0	99.1	99.3
Buses	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	0	2	1	0	3	6
% Buses	0.3	0.0	0.0	-	0.2	0.0	0.2	1.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.0	0.5	0.3
Trucks	1	0	0	0	1	0	2	0	1	3	0	0	0	0	0	0	1	0	1	2	6
% Trucks	0.3	0.0	0.0	-	0.2	0.0	0.4	0.0	100.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	100.0	0.3	0.3

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Campus Center Dr
Site Code:
Start Date: 04/27/2017



Turning Movement Peak Hour Data Plot (3:30 PM)

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Summit Rd
Site Code:
Start Date: 04/25/2017
Page No: 1

Turning Movement Data

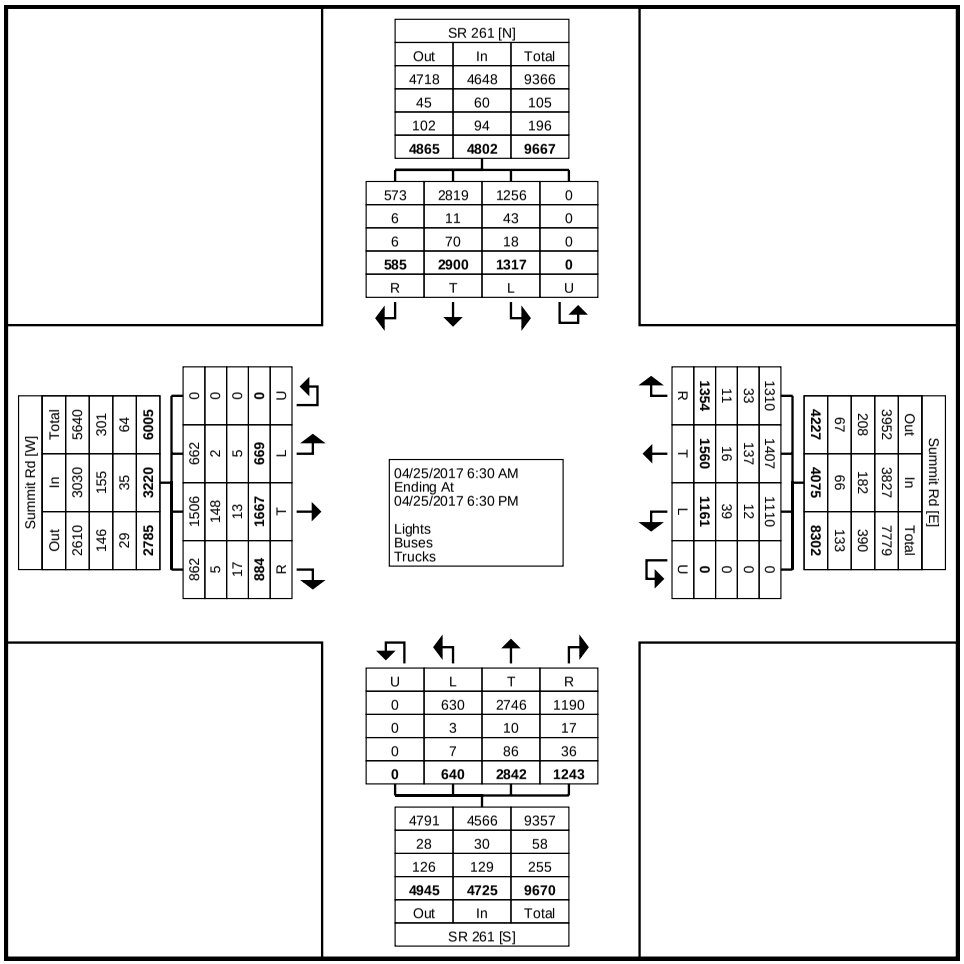
Start Time	SR 261 Southbound					Summit Rd Westbound					SR 261 Northbound					Summit Rd Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:30 AM	10	50	17	0	77	64	67	41	0	172	17	61	13	0	91	15	17	3	0	35	375
6:45 AM	8	44	15	0	67	54	63	26	0	143	30	60	9	0	99	13	28	5	0	46	355
Hourly Total	18	94	32	0	144	118	130	67	0	315	47	121	22	0	190	28	45	8	0	81	730
7:00 AM	7	41	18	0	66	39	32	36	0	107	13	48	14	0	75	9	23	6	0	38	286
7:15 AM	4	52	11	0	67	38	30	26	0	94	17	49	25	0	91	11	16	10	0	37	289
7:30 AM	17	57	18	0	92	26	51	24	0	101	17	65	27	0	109	6	23	9	0	38	340
7:45 AM	18	44	12	0	74	38	66	43	0	147	16	84	16	0	116	9	19	9	0	37	374
Hourly Total	46	194	59	0	299	141	179	129	0	449	63	246	82	0	391	35	81	34	0	150	1289
8:00 AM	12	48	12	0	72	25	36	14	0	75	19	46	25	0	90	13	17	5	0	35	272
8:15 AM	11	48	14	0	73	26	29	15	0	70	13	43	10	0	66	14	17	5	0	36	245
8:30 AM	7	35	11	0	53	22	29	16	0	67	16	50	17	0	83	10	17	8	0	35	238
8:45 AM	8	55	10	0	73	29	35	15	0	79	9	48	8	0	65	16	35	10	0	61	278
Hourly Total	38	186	47	0	271	102	129	60	0	291	57	187	60	0	304	53	86	28	0	167	1033
9:00 AM	15	46	13	0	74	17	24	11	0	52	15	42	12	0	69	11	16	12	0	39	234
9:15 AM	13	54	19	0	86	26	28	29	0	83	14	47	13	0	74	16	15	7	0	38	281
9:30 AM	13	48	15	0	76	26	52	13	0	91	15	48	17	0	80	22	41	19	0	82	329
9:45 AM	15	47	22	0	84	30	34	28	0	92	11	64	10	0	85	22	27	14	0	63	324
Hourly Total	56	195	69	0	320	99	138	81	0	318	55	201	52	0	308	71	99	52	0	222	1168
10:00 AM	8	58	19	0	85	28	34	17	0	79	18	53	11	0	82	13	32	9	0	54	300
10:15 AM	13	49	27	0	89	25	26	26	0	77	19	64	18	0	101	13	22	13	0	48	315
10:30 AM	6	54	17	0	77	24	27	22	0	73	21	66	21	0	108	14	28	9	0	51	309
10:45 AM	15	57	25	0	97	31	39	26	0	96	10	46	6	0	62	17	30	6	0	53	308
Hourly Total	42	218	88	0	348	108	126	91	0	325	68	229	56	0	353	57	112	37	0	206	1232
11:00 AM	13	57	28	0	98	26	43	16	0	85	16	55	13	0	84	17	43	15	0	75	342
11:15 AM	13	61	30	0	104	22	39	12	0	73	32	48	14	0	94	10	37	11	0	58	329
11:30 AM	14	62	25	0	101	22	23	19	0	64	20	60	9	0	89	21	35	13	0	69	323
11:45 AM	5	70	26	0	101	25	25	21	0	71	28	44	9	0	81	15	32	19	0	66	319
Hourly Total	45	250	109	0	404	95	130	68	0	293	96	207	45	0	348	63	147	58	0	268	1313
12:00 PM	13	70	23	0	106	22	21	14	0	57	31	54	8	0	93	19	23	16	0	58	314
12:15 PM	11	47	33	0	91	21	24	18	0	63	26	51	12	0	89	13	27	12	0	52	295
12:30 PM	16	40	15	0	71	24	29	22	0	75	18	50	16	0	84	20	26	13	0	59	289
12:45 PM	10	52	29	0	91	31	35	29	0	95	26	53	14	0	93	18	42	17	0	77	356
Hourly Total	50	209	100	0	359	98	109	83	0	290	101	208	50	0	359	70	118	58	0	246	1254
1:00 PM	11	71	25	0	107	34	28	26	0	88	24	63	9	0	96	38	30	19	0	87	378
1:15 PM	11	69	26	0	106	22	28	39	0	89	25	60	8	0	93	27	36	23	0	86	374
1:30 PM	18	69	33	0	120	26	23	23	0	72	34	69	14	0	117	21	33	9	0	63	372
1:45 PM	12	61	39	0	112	11	37	37	0	85	23	57	10	0	90	18	30	20	0	68	355
Hourly Total	52	270	123	0	445	93	116	125	0	334	106	249	41	0	396	104	129	71	0	304	1479
2:00 PM	18	85	25	0	128	37	37	29	0	103	33	59	13	0	105	27	48	16	0	91	427
2:15 PM	22	85	39	0	146	26	27	18	0	71	26	69	12	0	107	18	51	17	0	86	410
2:30 PM	23	81	39	0	143	25	20	34	0	79	52	76	12	0	140	32	85	27	0	144	506

2:45 PM	17	83	34	0	134	37	34	21	0	92	45	82	12	0	139	35	49	15	0	99	464
Hourly Total	80	334	137	0	551	125	118	102	0	345	156	286	49	0	491	112	233	75	0	420	1807
3:00 PM	10	85	45	0	140	19	31	30	0	80	43	78	11	0	132	25	59	13	0	97	449
3:15 PM	23	92	28	0	143	40	20	30	0	90	37	76	26	0	139	29	48	12	0	89	461
3:30 PM	13	78	39	0	130	33	31	38	0	102	40	89	28	0	157	26	67	25	0	118	507
3:45 PM	9	81	40	0	130	28	25	28	0	81	35	69	12	0	116	19	64	34	0	117	444
Hourly Total	55	336	152	0	543	120	107	126	0	353	155	312	77	0	544	99	238	84	0	421	1861
4:00 PM	11	102	61	0	174	29	32	23	0	84	51	84	10	0	145	29	83	32	0	144	547
4:15 PM	14	73	50	0	137	34	33	40	0	107	41	65	10	0	116	21	47	21	0	89	449
4:30 PM	5	66	58	0	129	25	28	31	0	84	34	76	17	0	127	19	50	18	0	87	427
4:45 PM	15	59	43	0	117	31	30	21	0	82	25	69	10	0	104	15	26	13	0	54	357
Hourly Total	45	300	212	0	557	119	123	115	0	357	151	294	47	0	492	84	206	84	0	374	1780
5:00 PM	6	72	44	0	122	26	27	19	0	72	29	51	8	0	88	23	28	9	0	60	342
5:15 PM	11	58	19	0	88	26	22	20	0	68	46	56	6	0	108	18	25	14	0	57	321
5:30 PM	11	52	35	0	98	22	30	27	0	79	36	51	12	0	99	17	24	21	0	62	338
5:45 PM	9	46	36	0	91	23	18	15	0	56	27	52	18	0	97	15	37	12	0	64	308
Hourly Total	37	228	134	0	399	97	97	81	0	275	138	210	44	0	392	73	114	56	0	243	1309
6:00 PM	9	53	31	0	93	19	33	18	0	70	29	44	6	0	79	17	29	17	0	63	305
6:15 PM	12	33	24	0	69	20	25	15	0	60	21	48	9	0	78	18	30	7	0	55	262
Grand Total	585	2900	1317	0	4802	1354	1560	1161	0	4075	1243	2842	640	0	4725	884	1667	669	0	3220	16822
Approach %	12.2	60.4	27.4	0.0	-	33.2	38.3	28.5	0.0	-	26.3	60.1	13.5	0.0	-	27.5	51.8	20.8	0.0	-	-
Total %	3.5	17.2	7.8	0.0	28.5	8.0	9.3	6.9	0.0	24.2	7.4	16.9	3.8	0.0	28.1	5.3	9.9	4.0	0.0	19.1	-
Lights	573	2819	1256	0	4648	1310	1407	1110	0	3827	1190	2746	630	0	4566	862	1506	662	0	3030	16071
% Lights	97.9	97.2	95.4	-	96.8	96.8	90.2	95.6	-	93.9	95.7	96.6	98.4	-	96.6	97.5	90.3	99.0	-	94.1	95.5
Buses	6	11	43	0	60	33	137	12	0	182	17	10	3	0	30	5	148	2	0	155	427
% Buses	1.0	0.4	3.3	-	1.2	2.4	8.8	1.0	-	4.5	1.4	0.4	0.5	-	0.6	0.6	8.9	0.3	-	4.8	2.5
Trucks	6	70	18	0	94	11	16	39	0	66	36	86	7	0	129	17	13	5	0	35	324
% Trucks	1.0	2.4	1.4	-	2.0	0.8	1.0	3.4	-	1.6	2.9	3.0	1.1	-	2.7	1.9	0.8	0.7	-	1.1	1.9

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Summit Rd
Site Code:
Start Date: 04/25/2017



Turning Movement Data Plot

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Summit Rd
Site Code:
Start Date: 04/25/2017

Turning Movement Peak Hour Data (11:00 AM)

Start Time	SR 261 Southbound					Summit Rd Westbound					SR 261 Northbound					Summit Rd Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
11:00 AM	13	57	28	0	98	26	43	16	0	85	16	55	13	0	84	17	43	15	0	75	342
11:15 AM	13	61	30	0	104	22	39	12	0	73	32	48	14	0	94	10	37	11	0	58	329
11:30 AM	14	62	25	0	101	22	23	19	0	64	20	60	9	0	89	21	35	13	0	69	323
11:45 AM	5	70	26	0	101	25	25	21	0	71	28	44	9	0	81	15	32	19	0	66	319
Total	45	250	109	0	404	95	130	68	0	293	96	207	45	0	348	63	147	58	0	268	1313
Approach %	11.1	61.9	27.0	0.0	-	32.4	44.4	23.2	0.0	-	27.6	59.5	12.9	0.0	-	23.5	54.9	21.6	0.0	-	-
Total %	3.4	19.0	8.3	0.0	30.8	7.2	9.9	5.2	0.0	22.3	7.3	15.8	3.4	0.0	26.5	4.8	11.2	4.4	0.0	20.4	-
PHF	0.804	0.893	0.908	0.000	0.971	0.913	0.756	0.810	0.000	0.862	0.750	0.863	0.804	0.000	0.926	0.750	0.855	0.763	0.000	0.893	0.960
Lights	45	240	100	0	385	88	115	66	0	269	86	197	44	0	327	60	133	58	0	251	1232
% Lights	100.0	96.0	91.7	-	95.3	92.6	88.5	97.1	-	91.8	89.6	95.2	97.8	-	94.0	95.2	90.5	100.0	-	93.7	93.8
Buses	0	1	7	0	8	6	15	0	0	21	2	0	0	0	2	0	14	0	0	14	45
% Buses	0.0	0.4	6.4	-	2.0	6.3	11.5	0.0	-	7.2	2.1	0.0	0.0	-	0.6	0.0	9.5	0.0	-	5.2	3.4
Trucks	0	9	2	0	11	1	0	2	0	3	8	10	1	0	19	3	0	0	0	3	36
% Trucks	0.0	3.6	1.8	-	2.7	1.1	0.0	2.9	-	1.0	8.3	4.8	2.2	-	5.5	4.8	0.0	0.0	-	1.1	2.7

Akron Metropolitan Area Trans. Study
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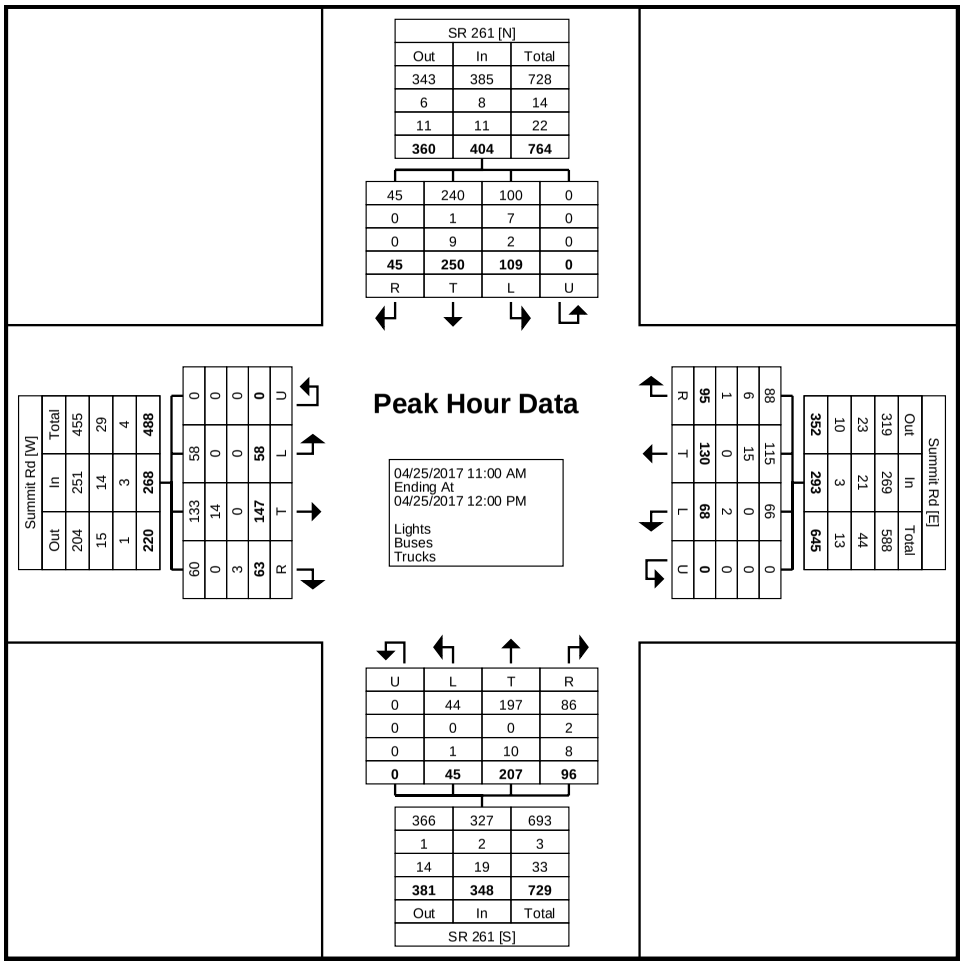
Count Name: SR 261 & Summit Rd
Site Code:
Start Date: 04/25/2017



Turning Movement Peak Hour Data Plot (11:00 AM)

Akron Metropolitan Area Trans. Study
146 South High Street

Akron, Ohio, United States 44308
330.375.2436 DPulay@AkronOhio.gov

Count Name: SR 261 & Summit Rd
Site Code:
Start Date: 04/25/2017

Turning Movement Peak Hour Data (3:15 PM)

Start Time	SR 261 Southbound					Summit Rd Westbound					SR 261 Northbound					Summit Rd Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
3:15 PM	23	92	28	0	143	40	20	30	0	90	37	76	26	0	139	29	48	12	0	89	461
3:30 PM	13	78	39	0	130	33	31	38	0	102	40	89	28	0	157	26	67	25	0	118	507
3:45 PM	9	81	40	0	130	28	25	28	0	81	35	69	12	0	116	19	64	34	0	117	444
4:00 PM	11	102	61	0	174	29	32	23	0	84	51	84	10	0	145	29	83	32	0	144	547
Total	56	353	168	0	577	130	108	119	0	357	163	318	76	0	557	103	262	103	0	468	1959
Approach %	9.7	61.2	29.1	0.0	-	36.4	30.3	33.3	0.0	-	29.3	57.1	13.6	0.0	-	22.0	56.0	22.0	0.0	-	-
Total %	2.9	18.0	8.6	0.0	29.5	6.6	5.5	6.1	0.0	18.2	8.3	16.2	3.9	0.0	28.4	5.3	13.4	5.3	0.0	23.9	-
PHF	0.609	0.865	0.689	0.000	0.829	0.813	0.844	0.783	0.000	0.875	0.799	0.893	0.679	0.000	0.887	0.888	0.789	0.757	0.000	0.813	0.895
Lights	56	346	163	0	565	129	98	116	0	343	162	312	76	0	550	99	251	103	0	453	1911
% Lights	100.0	98.0	97.0	-	97.9	99.2	90.7	97.5	-	96.1	99.4	98.1	100.0	-	98.7	96.1	95.8	100.0	-	96.8	97.5
Buses	0	2	5	0	7	1	10	0	0	11	1	1	0	0	2	0	11	0	0	11	31
% Buses	0.0	0.6	3.0	-	1.2	0.8	9.3	0.0	-	3.1	0.6	0.3	0.0	-	0.4	0.0	4.2	0.0	-	2.4	1.6
Trucks	0	5	0	0	5	0	0	3	0	3	0	5	0	0	5	4	0	0	0	4	17
% Trucks	0.0	1.4	0.0	-	0.9	0.0	0.0	2.5	-	0.8	0.0	1.6	0.0	-	0.9	3.9	0.0	0.0	-	0.9	0.9

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Count Name: SR 261 & Summit Rd
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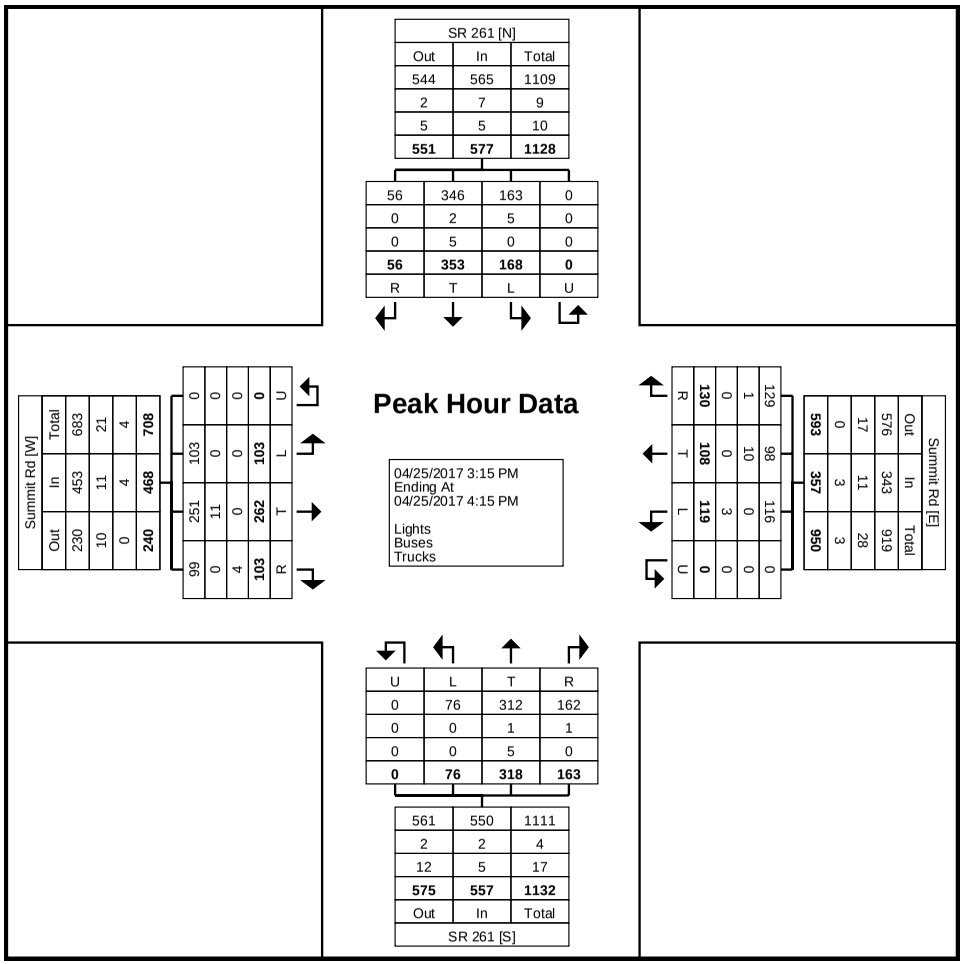
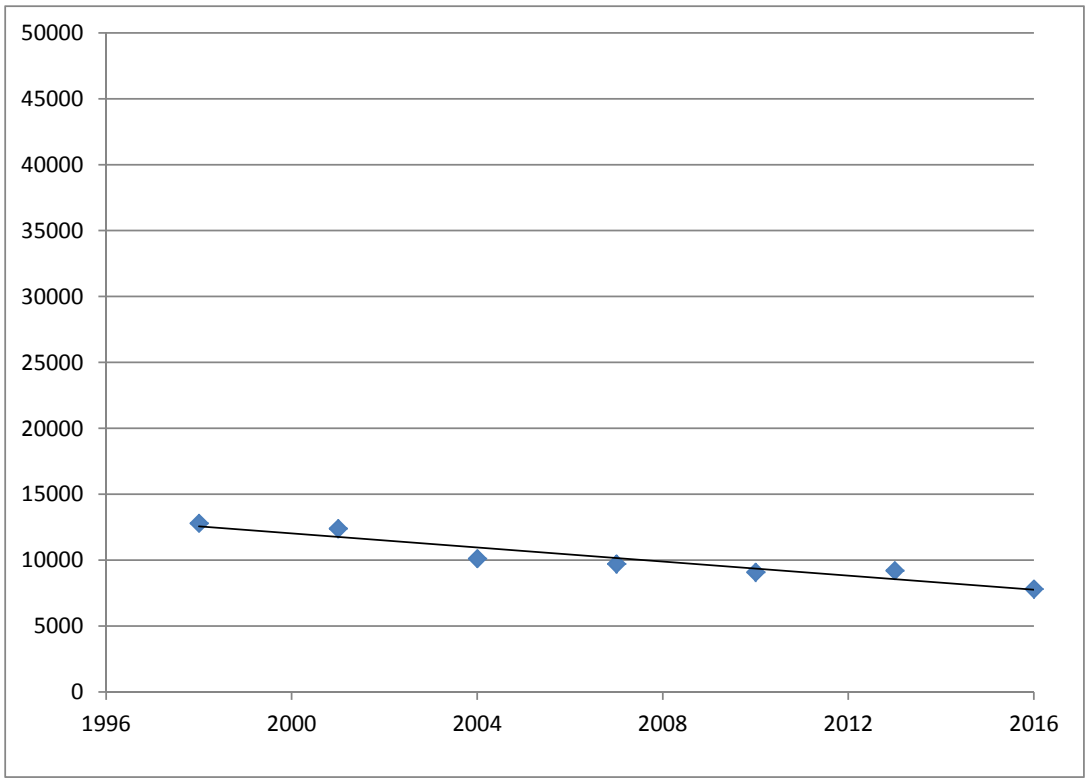
Start Date: 04/25/2017



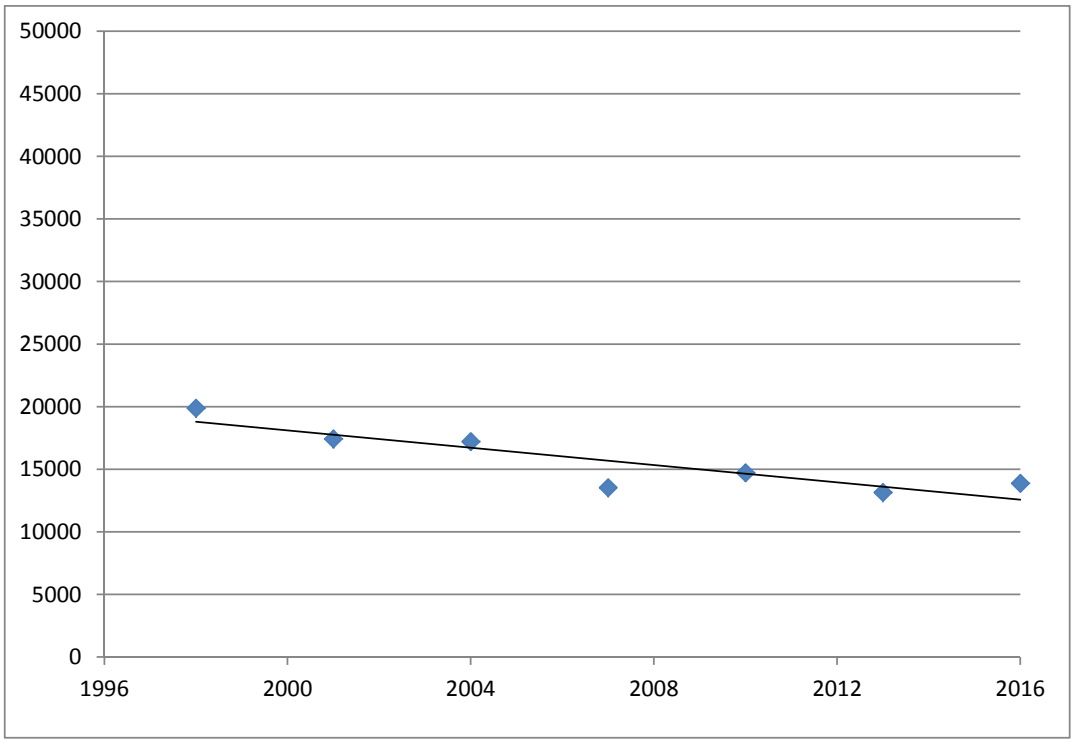
Turning Movement Peak Hour Data Plot (3:15 PM)

APPENDIX B
VOLUME DEVELOPMENT CALCULATIONS

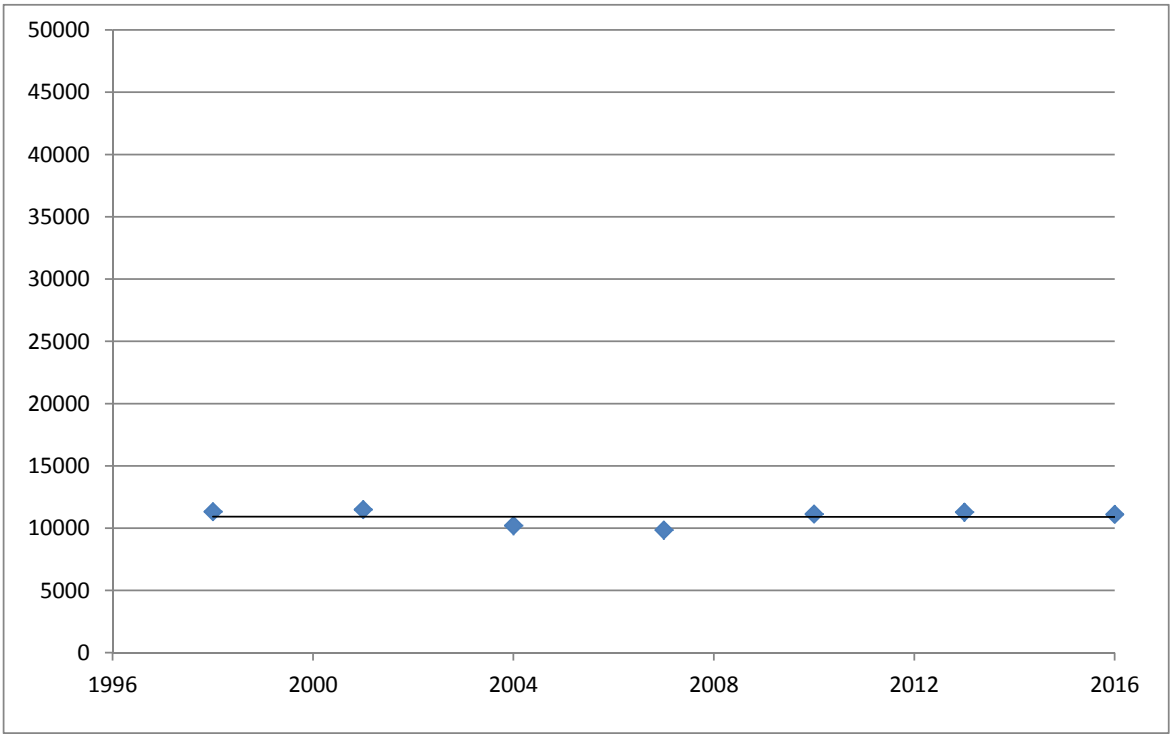
Roadway Section	State Route 261 - West of State Route 43 - Historical Traffic Volumes							Growth Rate
	1998	2001	2004	2007	2010	2013	2016	
State Route 261	12810	12400	10130	9720	9090	9220	7813	
Trendline	*12568*	*11768*	*10969*	*10169*	*9369*	*8570*	*7770*	*-3.43%*



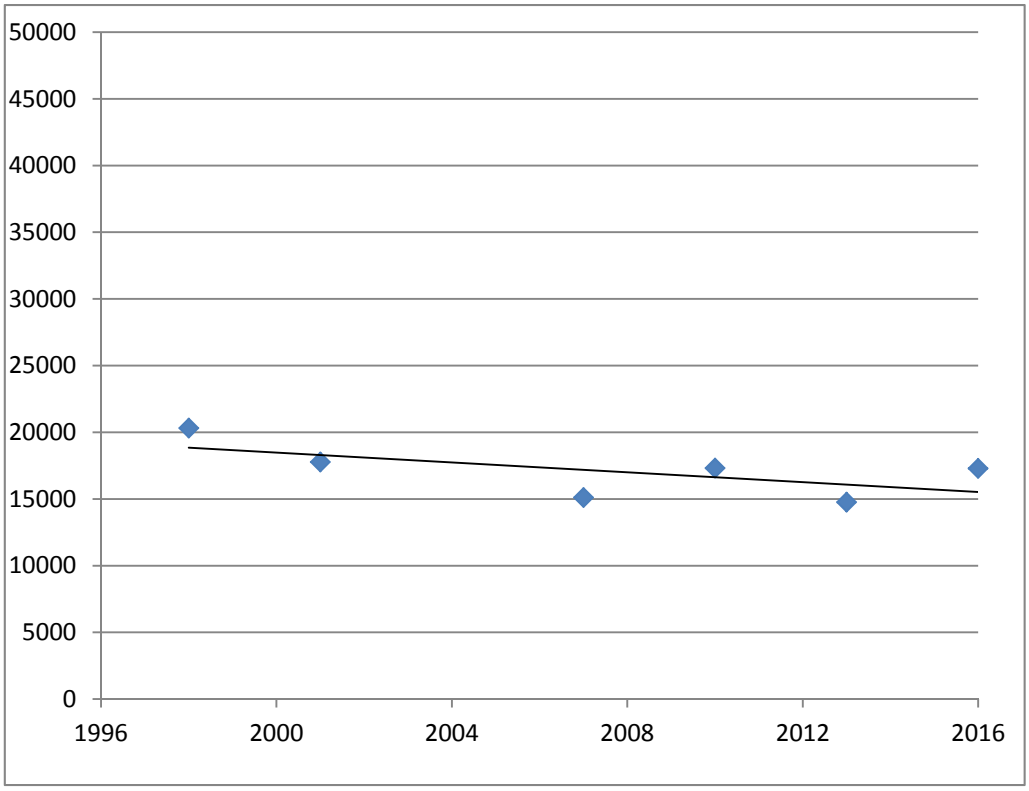
Roadway Section	State Route 261 - East of State Route 43 - Historical Traffic Volumes							Growth Rate
	1998	2001	2004	2007	2010	2013	2016	
State Route 261	19890	17430	17220	13540	14730	13160	13880	
Trendline	*18806*	*17769*	*16731*	*15693*	*14655*	*13617*	*12579*	*-2.75%*



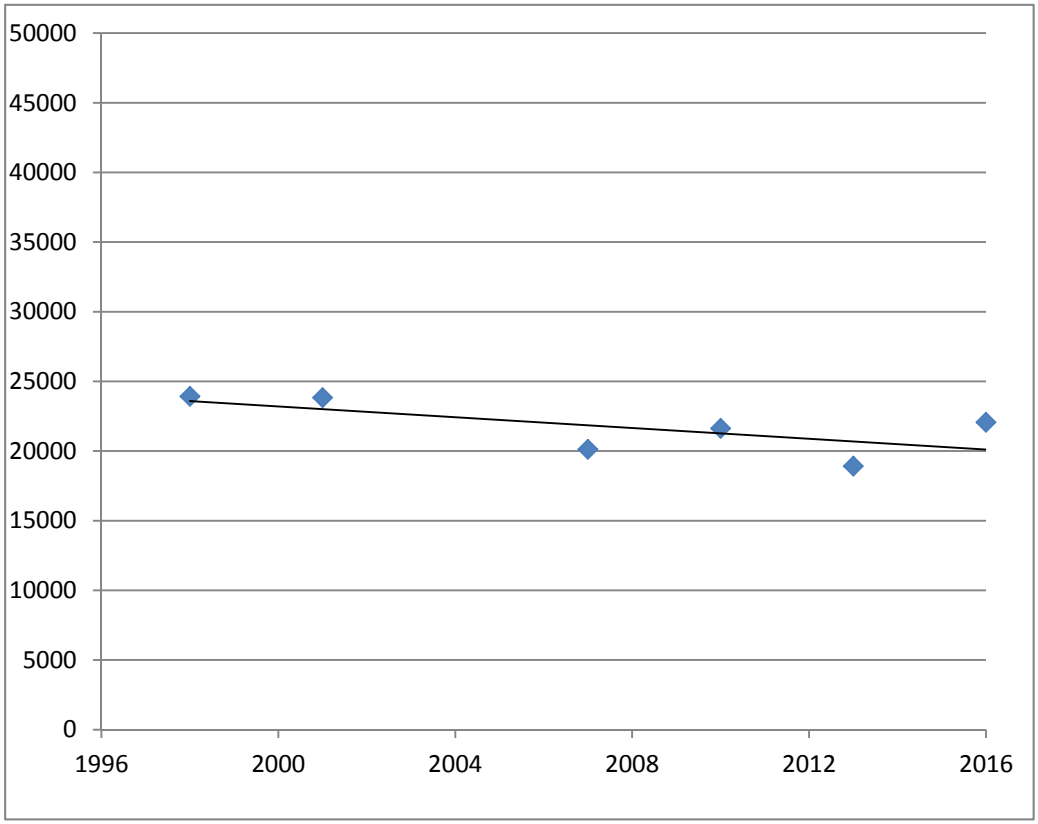
Roadway Section	State Route 261 - Summit Rd to SR 59 - Historical Traffic Volumes							Growth Rate
	1998	2001	2004	2007	2010	2013	2016	
State Route 261	11330	11500	10220	9860	11140	11300	11116	
Trendline	*10937*	*10932*	*10928*	*10924*	*10919*	*10915*	*10911*	*-0.01%*



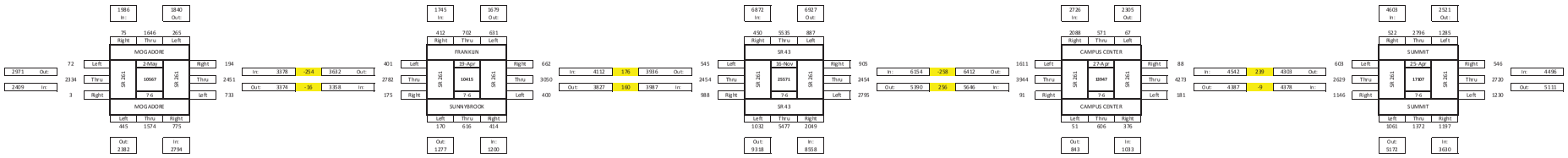
Roadway Section	State Route 43 - North of State Route 261 - Historical Traffic						Growth Rate
	1998	2001	2007	2010	2013	2016	
State Route 43	20320	17770	15110	17320	14760	17292	
Trendline	*18851*	*18297*	*17188*	*16633*	*16079*	*15524*	*-1.19%*



Roadway Section	State Route 43 - South of State Route 261 - Historical Traffic						Growth Rate
	1998	2001	2007	2010	2013	2016	
State Route 43	23930	23830	20120	21630	18920	22063	
Trendline	*23583*	*23004*	*21845*	*21266*	*20687*	*20108*	*-0.96%*



State Route 261 Corridor - Kent, OH
Existing Year 2017
Raw Count Data



State Route 261 Corridor - Kent, OH

Existing Year 2017

Factored Daily Volumes

Daily Volume Factors

Principal Arterial

State Route 261: 71.0%

State Route 43: 71.0%

Minor Arterial

Summit Rd: 72.8%

Major Collector

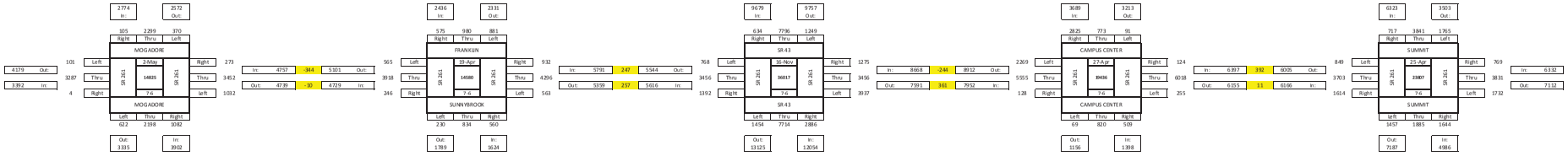
Mogadore Rd: 71.6%

Franklin Ave: 71.8%

Local

Sunnybrook Rd: 73.9%

Campus Center: 73.9%



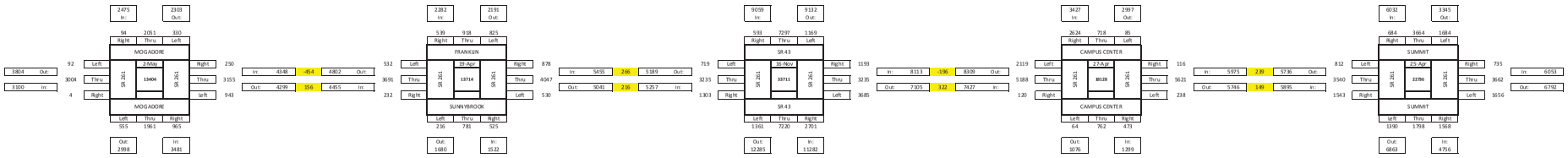
State Route 261 Corridor - Kent, OH

Existing Year 2017

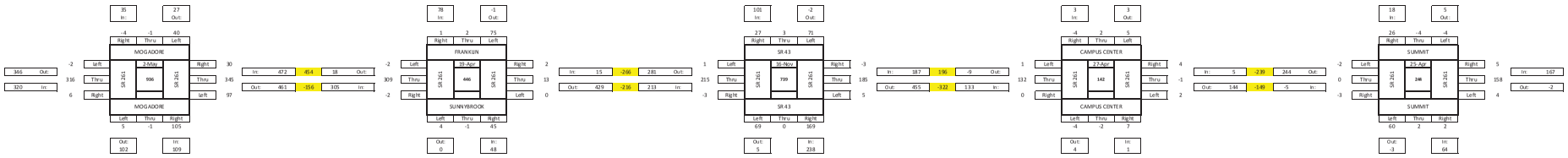
Seasonally Adjusted Volumes

Seasonal Adjustment Factors

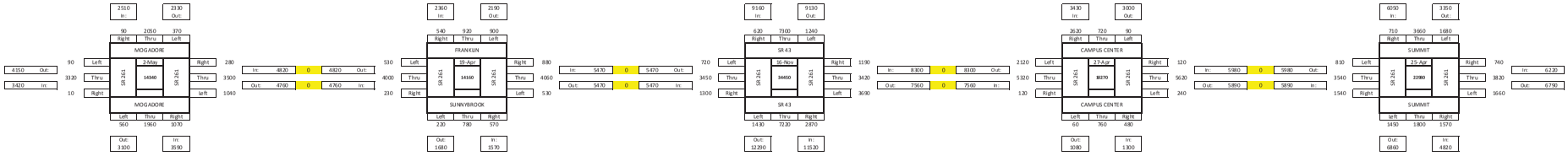
	May 2nd	April 19th	Nov 16th	April 27th	April 25th
Principal Arterial					
State Route 261:	0.914	0.942	0.936	0.934	0.956
State Route 43:			0.936		
Minor Arterial					
Summit Rd:					0.954
Major Collector					
Mogadore Rd:	0.892				
Franklin Ave:		0.937			
local					
Sunnybrook Rd:		0.937			
Campus Center:				0.929	



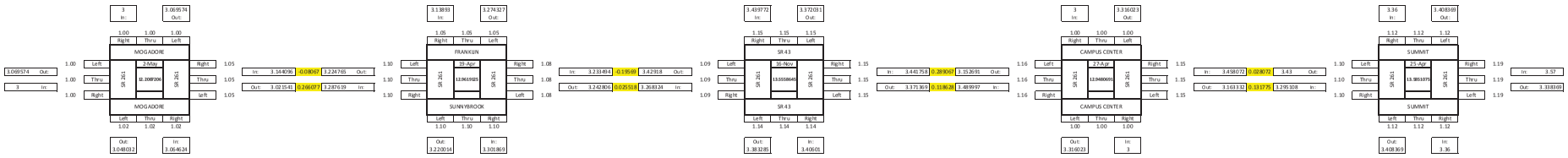
State Route 261 Corridor - Kent, OH
Existing Year 2017
ADT
Balancing Adjustments



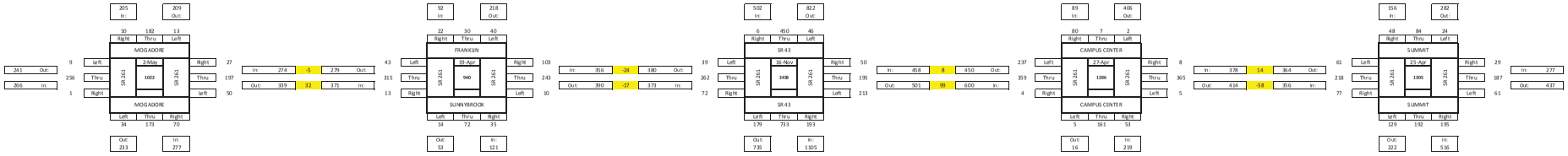
State Route 261 Corridor - Kent, OH
Existing Year 2017
ADT
Final Balanced Volumes



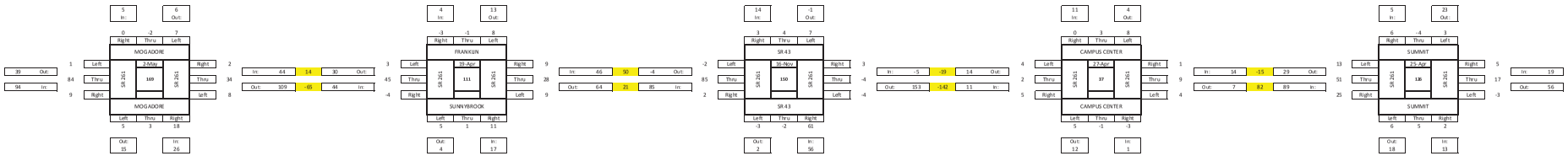
State Route 261 Corridor - Kent, OH
Existing Year 2017
Design Hour Volume Factors



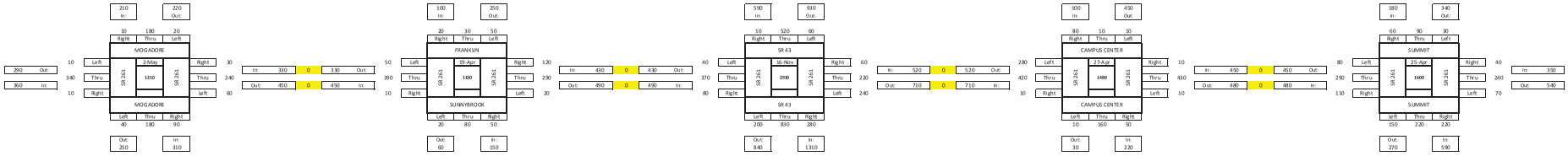
State Route 261 Corridor - Kent, OH
Existing Year 2017
Raw Count Data
AM Peak Hour



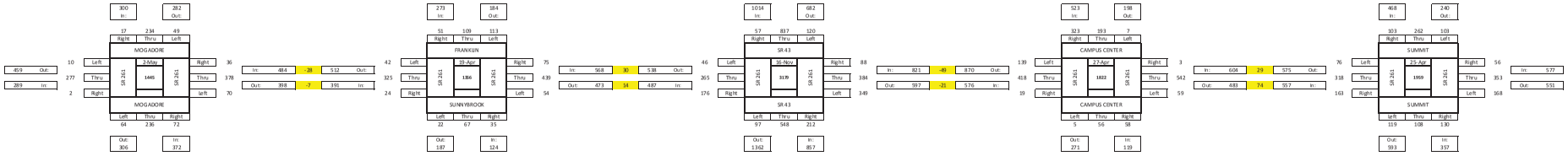
State Route 261 Corridor - Kent, OH
Existing Year 2017
AM Peak Hour
Balancing Adjustments



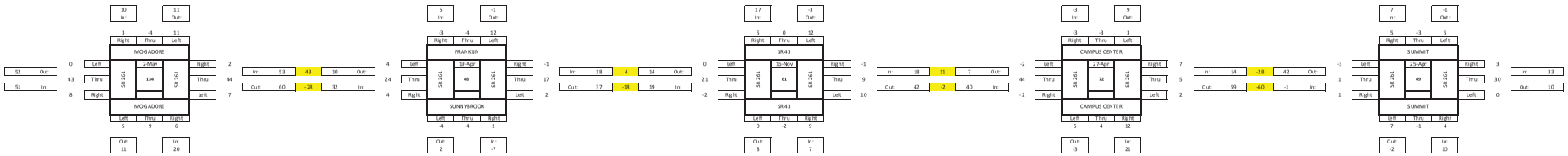
State Route 261 Corridor - Kent, OH
Existing Year 2017
AM Peak Hour
Final Balanced Volumes



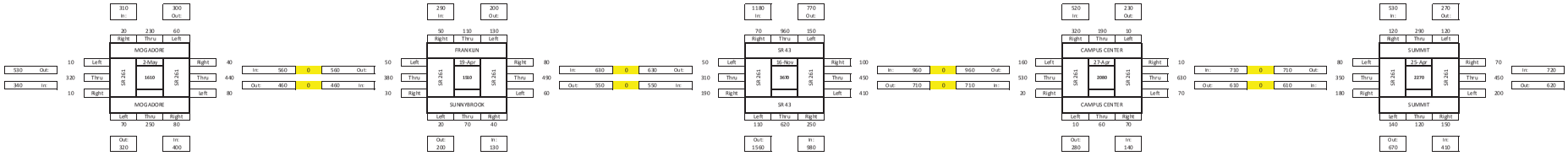
State Route 261 Corridor - Kent, OH
Existing Year 2017
Raw Count Data
PM Peak Hour



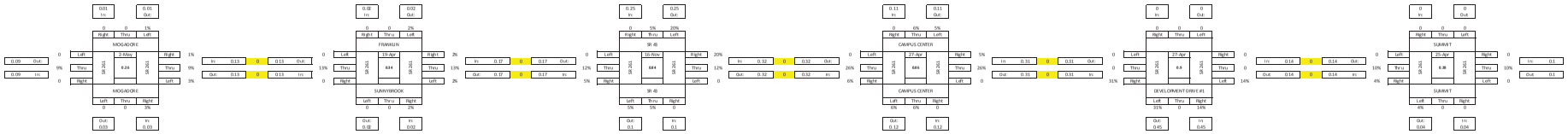
State Route 261 Corridor - Kent, OH
Existing Year 2017
PM Peak Hour
Balancing Adjustments



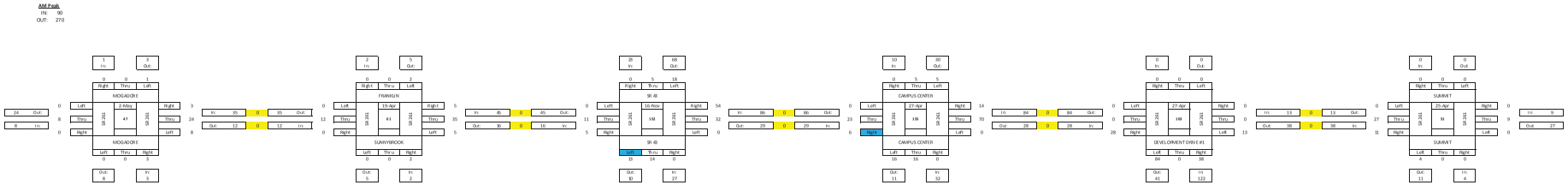
State Route 261 Corridor - Kent, OH
Existing Year 2017
PM Peak Hour
Final Balanced Volumes



State Route 261 Corridor - Kent, OH
LUC 210- Single - Family Detached Housing
Site Trip Distribution

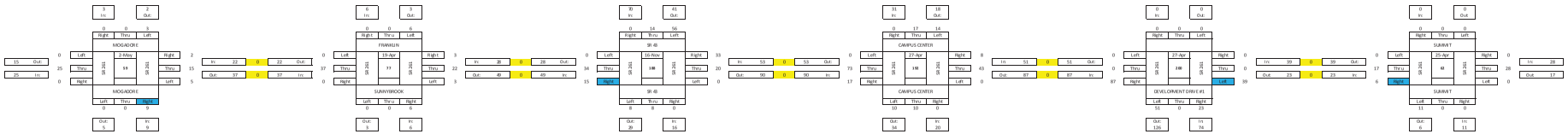


State Route 261 Corridor - Kent, OH
LUC 210- Single - Family Detached Housing
Site Trip Assignment
AM Peak Hour

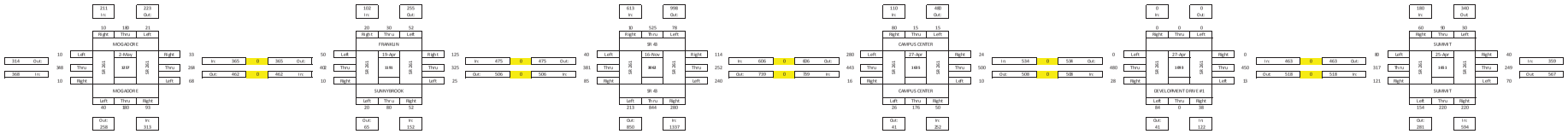


State Route 261 Corridor - Kent, OH
LUC 210- Single - Family Detached Housing
Site Trip Assignment
PM Peak Hour

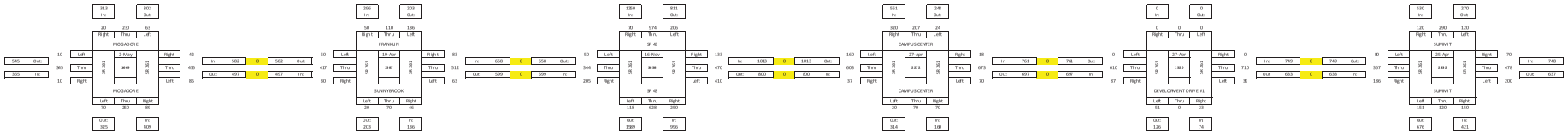
PM Peak
IN: 282
OUT: 166



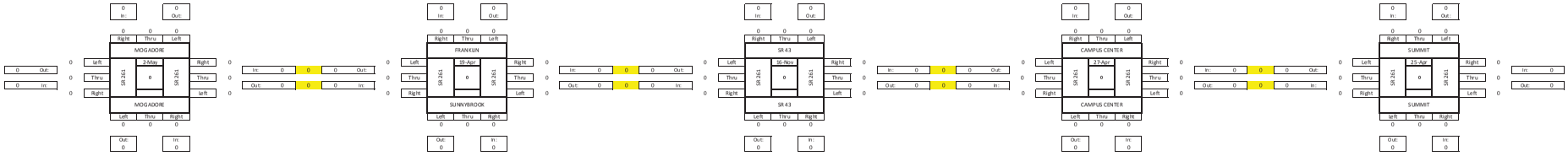
State Route 261 Corridor - Kent, OH
Existing Year 2017 Traffic Volumes + LUC 210- Single - Family Detached Housing
Final 'Build' Volumes
AM Peak Hour



State Route 261 Corridor - Kent, OH
Existing Year 2017 Traffic Volumes + LUC 210- Single - Family Detached Housing
Final 'Build' Volumes
PM Peak Hour



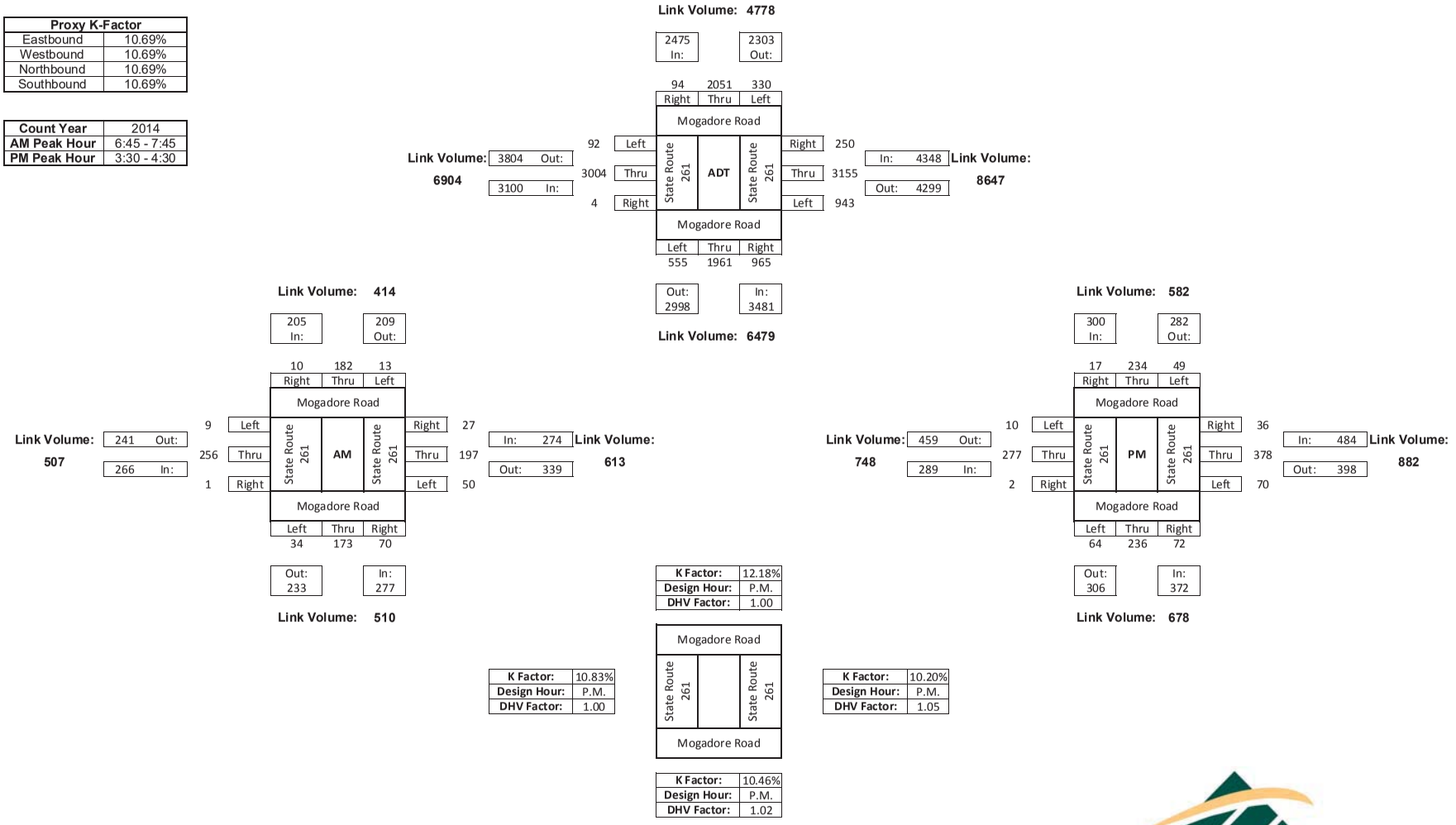
State Route 261 Corridor - Kent, OH
Existing Year 2017
Raw Count Data
AM Peak Hour



DESIGN HOUR VOLUME FACTOR CALCULATION

Proxy K-Factor	
Eastbound	10.69%
Westbound	10.69%
Northbound	10.69%
Southbound	10.69%

Count Year	2014
AM Peak Hour	6:45 - 7:45
PM Peak Hour	3:30 - 4:30



Intersection: State Route 261 / Mogadore Road Intersection

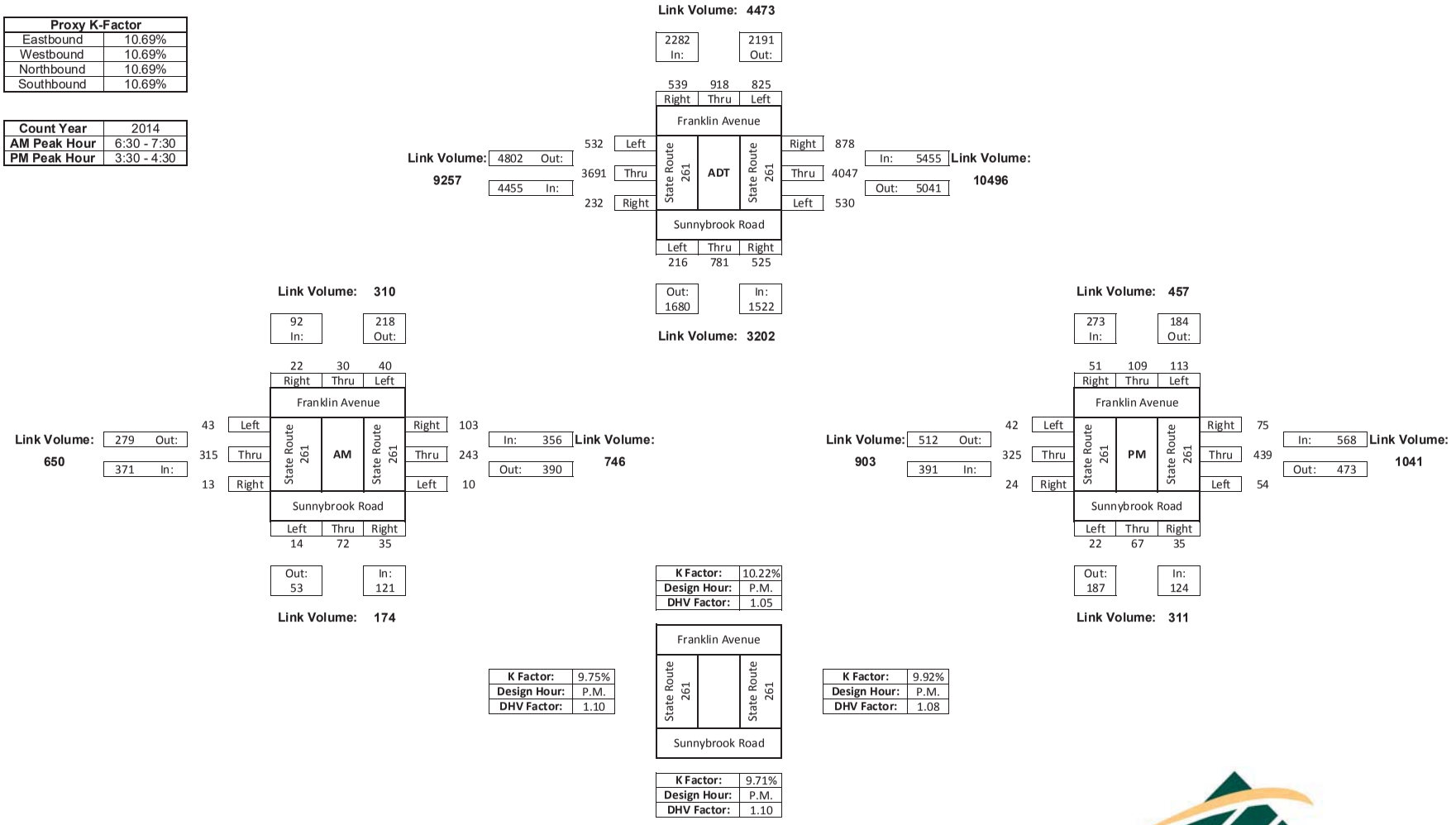
Project: State Route 261 Corridor

GPD GROUP

DESIGN HOUR VOLUME FACTOR CALCULATION

Proxy K-Factor	
Eastbound	10.69%
Westbound	10.69%
Northbound	10.69%
Southbound	10.69%

Count Year	2014
AM Peak Hour	6:30 - 7:30
PM Peak Hour	3:30 - 4:30



Intersection: State Route 261 / Sunnybrook Road / Franklin Avenue Intersection

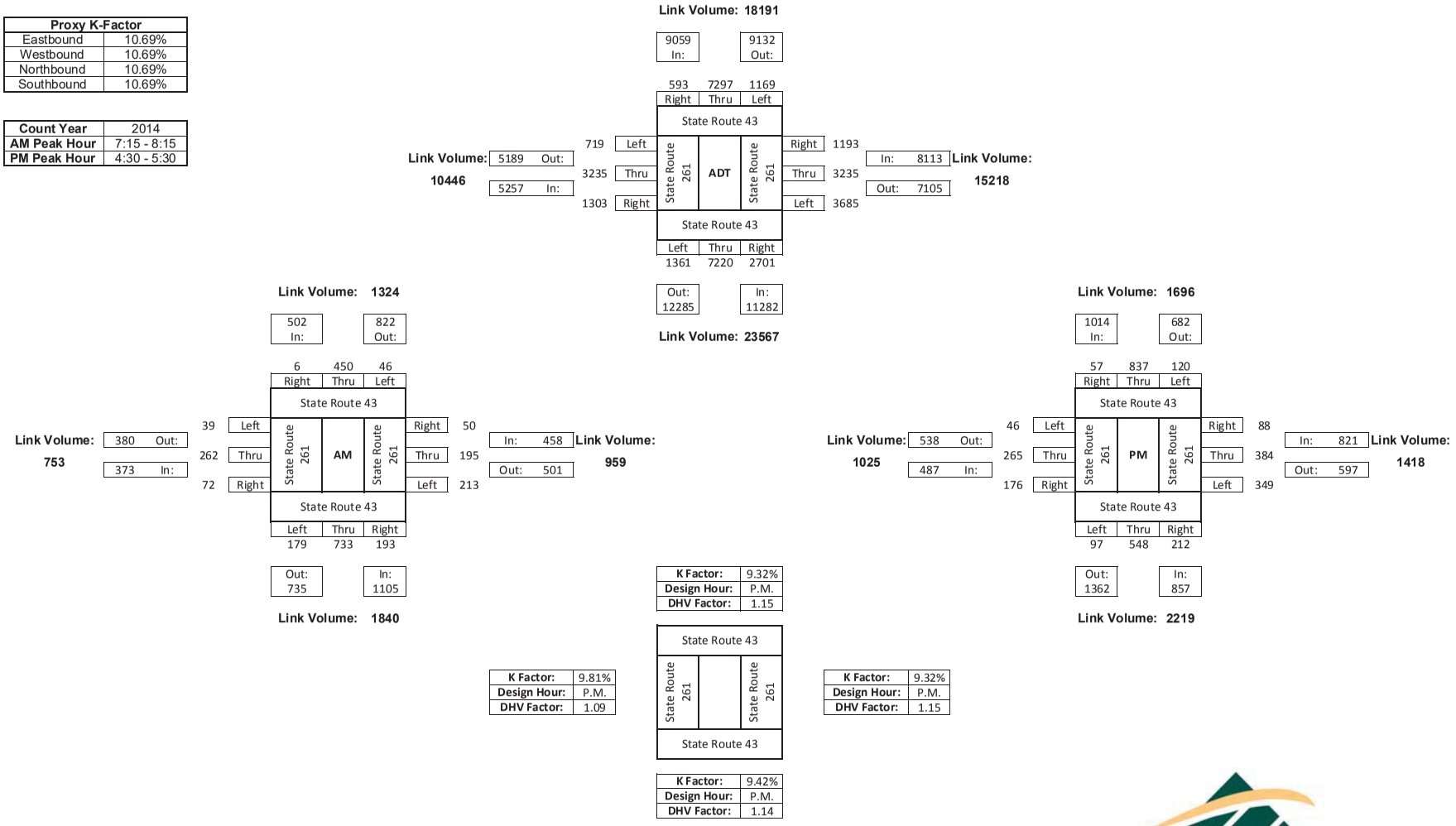
Project: State Route 261 Corridor

GPD GROUP

DESIGN HOUR VOLUME FACTOR CALCULATION

Proxy K-Factor	
Eastbound	10.69%
Westbound	10.69%
Northbound	10.69%
Southbound	10.69%

Count Year	2014
AM Peak Hour	7:15 - 8:15
PM Peak Hour	4:30 - 5:30



Intersection: State Route 261 / State Route 43 Intersection

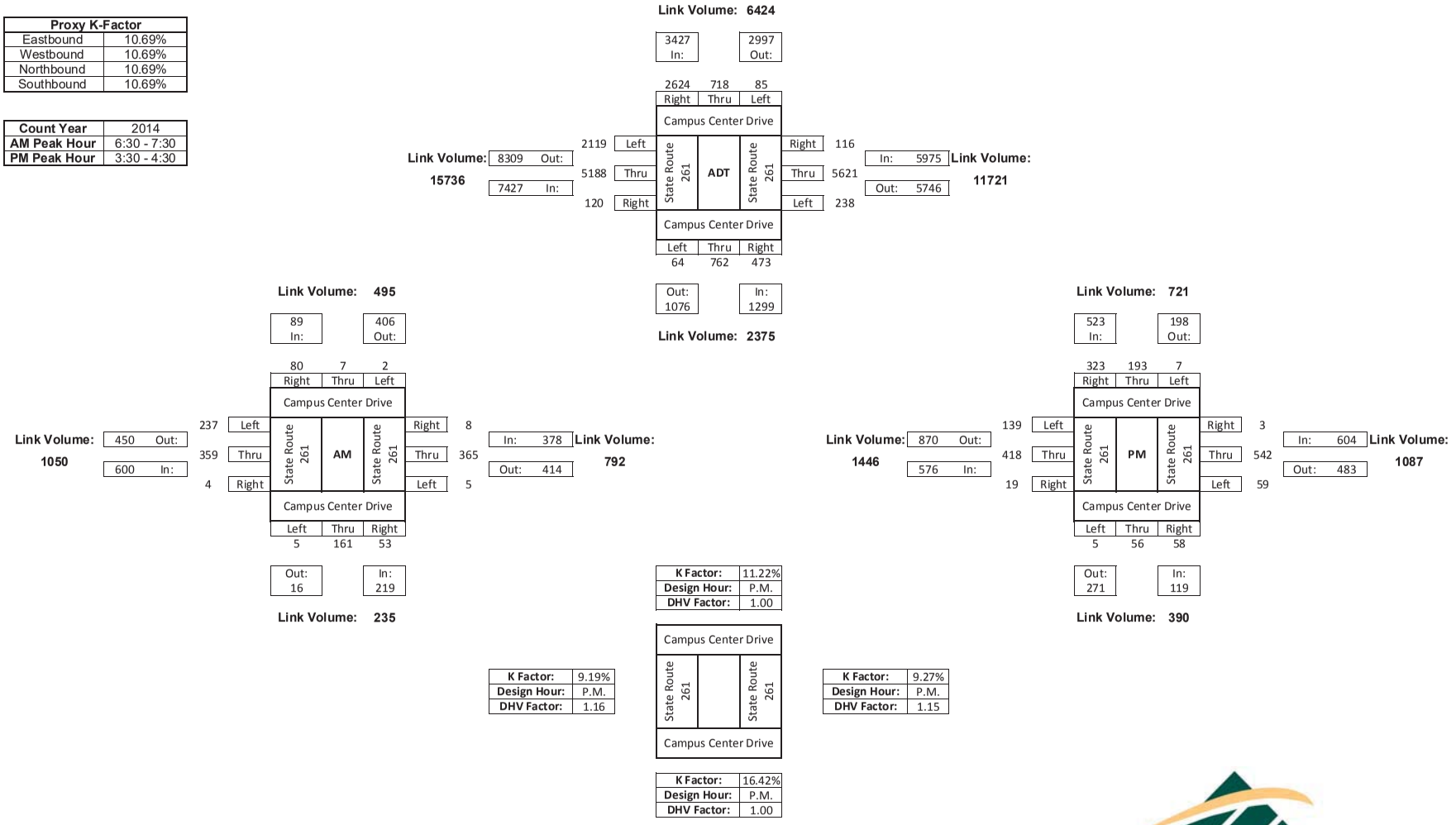
Project: State Route 261 Corridor

GPD GROUP

DESIGN HOUR VOLUME FACTOR CALCULATION

Proxy K-Factor	
Eastbound	10.69%
Westbound	10.69%
Northbound	10.69%
Southbound	10.69%

Count Year	2014
AM Peak Hour	6:30 - 7:30
PM Peak Hour	3:30 - 4:30



Intersection: State Route 261 / Campus Center Drive Intersection

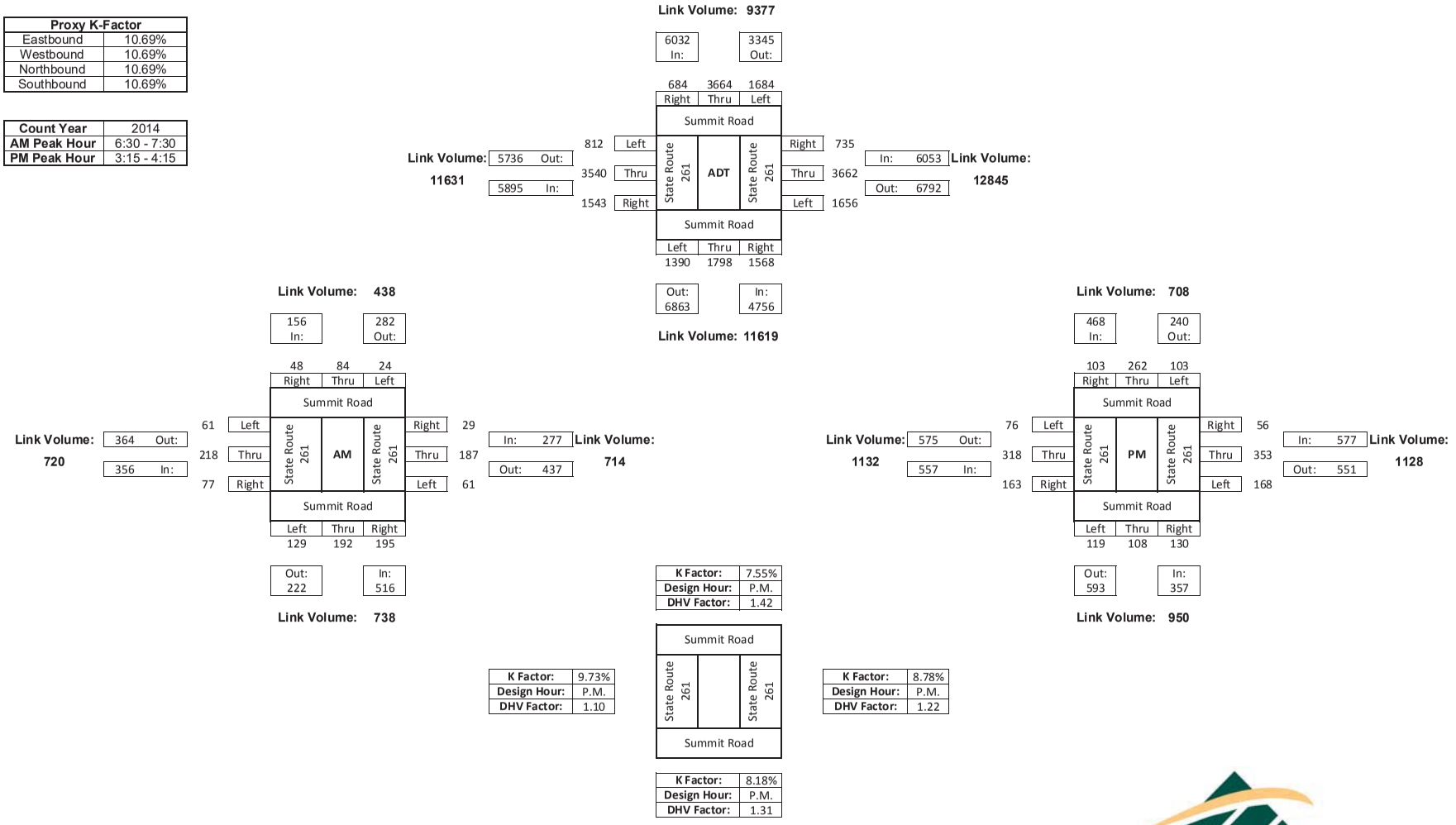
Project: State Route 261 Corridor

GPD GROUP

DESIGN HOUR VOLUME FACTOR CALCULATION

Proxy K-Factor	
Eastbound	10.69%
Westbound	10.69%
Northbound	10.69%
Southbound	10.69%

Count Year	2014
AM Peak Hour	6:30 - 7:30
PM Peak Hour	3:15 - 4:15



Intersection: State Route 261 / Summit Road Intersection

Project: State Route 261 Corridor

GPD GROUP

APPENDIX C
INTERSECTION CAPACITY ANALYSIS

Table 1: HCS Intersection Capacity Analysis Summary Design Year 2047 'No-Build' vs. 'Signalization Build' Conditions								
Intersection / Movement	**'No-Build' Conditions**				**'Signalization Build' Conditions**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	LOS	**Delay** (sec)	**LOS**	**Delay** (sec)	**LOS**	**Delay** (sec)	**LOS**	**Delay** (sec)
SR 261 / Mogadore Road								
Eastbound Left	B	14.5	B	15.8	B	17.5	B	15.6
Eastbound Thru	C	20.5	C	21.4				
Eastbound Right	C	20.5	C	21.4				
Eastbound Approach	*C*	*20.3*	*C*	*21.3*	*B*	*17.5*	*B*	*15.6*
Westbound Left	B	15.1	B	16.2	B	17.2	C	21.5
Westbound Thru	B	19.9	C	22.6				
Westbound Right	B	20.0	C	22.6				
Westbound Approach	*B*	*19.1*	*C*	*21.7*	*B*	*17.2*	*C*	*21.5*
Northbound Left	C	22.4	C	31.4	B	17.6	C	21.5
Northbound Thru-Right	C	20.0	B	19.8				
Northbound Approach	*C*	*20.3*	*C*	*21.8*	*B*	*17.6*	*C*	*21.5*
Southbound Left-Thru-Right	B	19.0	C	21.1	B	16.2	B	19.2
Southbound Approach	*B*	*19.0*	*C*	*21.1*	*B*	*16.2*	*B*	*19.2*
Intersection Total	***B***	***19.8***	***C***	***21.5***	***B***	***17.2***	***B***	***19.8***
SR 261 / Sunnybrook Road / Franklin Avenue								
Eastbound Left	B	14.2	B	15.5	B	17.3	B	15.9
Eastbound Thru	B	19.6	C	20.6				
Eastbound Thru-Right	B	19.6	C	20.6				
Eastbound Approach	*B*	*19.0*	*C*	*20.0*	*B*	*17.3*	*B*	*15.9*
Westbound Left	B	13.9	B	15.0	B	17.1	C	21.3
Westbound Thru	B	19.8	C	21.9				
Westbound Thru-Right	B	19.9	C	21.9				
Westbound Approach	*B*	*19.5*	*C*	*21.2*	*B*	*17.1*	*C*	*21.3*
Northbound Left-Thru-Right	B	19.5	B	18.4	B	17.2	B	18.5
Northbound Approach	*B*	*19.5*	*B*	*18.4*	*B*	*17.2*	*B*	*18.5*
Southbound Left-Thru-Right	B	18.8	C	21.2	B	16.6	C	21.3
Southbound Approach	*B*	*18.8*	*C*	*21.2*	*B*	*16.6*	*C*	*21.3*
Intersection Total	***B***	***19.3***	***C***	***20.6***	***B***	***17.1***	***B***	***19.4***

Table 1: HCS Intersection Capacity Analysis Summary (Cont.)
Design Year 2047 'No-Build' vs. 'Signalization Build' Conditions

Intersection / Movement	'No-Build' Conditions				'Signalization Build' Conditions			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
SR 261 / SR 43								
Eastbound Left	D	39.7	D	40.2	D	39.7	D	40.2
Eastbound Thru	C	31.9	E	70.0	C	32.2	D	43.3
Eastbound Right	C	32.2	E	78.9	B	17.2	C	25.4
Eastbound Approach	*C*	*32.7*	*E*	*71.1*	*C*	*30.4*	*D*	*36.9*
Westbound Left	D	47.7	F	92.2	D	43.8	D	52.6
Westbound Thru	C	21.6	C	24.7	C	23.4	D	46.6
Westbound Right	C	21.7	C	24.8	B	16.6	B	19.1
Westbound Approach	*C*	*33.7*	*D*	*53.5*	*C*	*32.0*	*D*	*46.3*
Northbound Left	C	28.0	C	24.6	C	23.0	C	23.2
Northbound Thru	D	40.9	C	28.6	D	37.7	C	25.6
Northbound Right	B	15.9	B	11.9	C	20.2	B	15.1
Northbound Approach	*C*	*33.6*	*C*	*23.9*	*C*	*31.7*	*C*	*22.6*
Southbound Left	C	22.8	C	22.6	C	23.0	B	19.8
Southbound Thru	C	27.9	F	77.7	C	29.3	D	49.5
Southbound Right	C	27.9	F	78.3	C	29.3	D	49.9
Southbound Approach	*C*	*27.4*	*E*	*70.9*	*C*	*28.7*	*D*	*45.9*
Intersection Total	***C***	***32.2***	***D***	***53.8***	***C***	***30.9***	***D***	***38.4***
SR 261 / Campus Center Drive								
Eastbound Left	D	41.2	D	47.5	C	27.3	B	17.3
Eastbound Thru	B	15.3	C	22.5	B	12.7	B	11.0
Eastbound Right	B	15.3	C	22.5				
Eastbound Approach	*C*	*25.5*	*C*	*28.1*	*B*	*18.5*	*B*	*12.5*
Westbound Left	D	38.6	D	42.8	B	17.1	B	17.6
Westbound Thru	C	24.7	C	28.8	C	22.5	C	25.9
Westbound Right	C	24.7	C	28.8				
Westbound Approach	*C*	*25.0*	*C*	*30.1*	*C*	*22.4*	*C*	*25.1*
Northbound Left-Thru-Right	C	25.6	B	17.8	C	22.3	C	24.9
Northbound Approach	*C*	*25.6*	*B*	*17.8*	*C*	*22.3*	*C*	*24.9*
Southbound Left-Thru	C	23.7	C	30.3	B	19.4	C	25.8
Southbound Right					B	15.8	C	23.9
Southbound Approach	*C*	*23.7*	*C*	*30.3*	*B*	*16.5*	*C*	*24.6*
Intersection Total	***C***	***25.3***	***C***	***28.7***	***C***	***20.1***	***C***	***20.6***

Note: Orange highlighted cells indicate a Level of Service E.
Red highlighted cells indicate a Level of Service F.

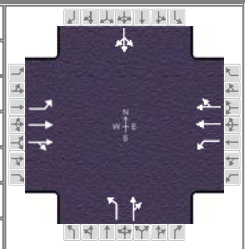
Table 1: HCS Intersection Capacity Analysis Summary (Cont.) Design Year 2047 'No-Build' vs. 'Signalization Build' Conditions								
Intersection / Movement	**'No-Build' Conditions**				**'Signalization Build' Conditions**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	LOS	**Delay** (sec)	**LOS**	**Delay** (sec)	**LOS**	**Delay** (sec)	**LOS**	**Delay** (sec)
SR 261 / Summit Road								
Eastbound Left	C	28.3	C	23.2	B	18.5	C	21.5
Eastbound Thru-Right	C	24.0	C	32.6	C	20.9	D	46.7
Eastbound Approach	*C*	*24.7*	*C*	*30.4*	*C*	*20.5*	*D*	*41.0*
Westbound Left	B	18.0	B	19.8	B	16.6	C	27.7
Westbound Thru-Right	C	21.0	B	15.9	C	32.9	C	29.4
Westbound Approach	*C*	*20.2*	*B*	*17.2*	*C*	*28.8*	*C*	*28.8*
Northbound Left	C	23.0	D	35.2	C	21.7	C	21.6
Northbound Thru	C	25.9	C	31.5	C	30.7	C	26.1
Northbound Right	C	22.9	C	25.9	C	20.8	B	17.7
Northbound Approach	*C*	*24.7*	*C*	*30.3*	*C*	*26.9*	*C*	*23.0*
Southbound Left	B	17.4	C	26.3	C	21.6	C	22.3
Southbound Thru-Right	B	16.5	C	24.5	C	30.6	D	48.1
Southbound Approach	*B*	*16.7*	*C*	*25.0*	*C*	*28.8*	*D*	*41.0*
Intersection Total	***C***	***21.3***	***C***	***26.3***	***C***	***27.3***	***C***	***34.0***

Table 2: Intersection Capacity Analysis Summary Design Year 2047 'Roundabout Build' Conditions				
Intersection / Movement	**AM Peak**		**PM Peak**	
	LOS	**Delay** (sec)	**LOS**	**Delay** (sec)
SR 261 / Mogadore Road				
Eastbound Left-Thru-Right	B	10.9	B	13.5
Eastbound Approach	*B*	*10.9*	*B*	*13.5*
Westbound Left-Thru-Right	A	9.8	D	29.4
Westbound Approach	*A*	*9.8*	*D*	*29.4*
Northbound Left-Thru-Right	B	12.0	C	17.0
Northbound Approach	*B*	*12.0*	*C*	*17.0*
Southbound Left-Thru-Right	A	8.6	C	23.4
Southbound Approach	*A*	*8.6*	*C*	*23.4*
Intersection Total	***B***	***10.5***	***C***	***21.8***
SR 261 / Sunnybrook Road / Franklin Avenue				
Eastbound Left-Thru-Right	A	9.7	C	16.6
Eastbound Approach	*A*	*9.7*	*C*	*16.6*
Westbound Left-Thru-Right	B	10.3	C	17.3
Westbound Approach	*B*	*10.3*	*C*	*17.3*
Northbound Left-Thru-Right	A	8.9	A	9.9
Northbound Approach	*A*	*8.9*	*A*	*9.9*
Southbound Left-Thru-Right	A	6.4	C	18.6
Southbound Approach	*A*	*6.4*	*C*	*18.6*
Intersection Total	***A***	***9.6***	***C***	***16.7***
SR 261 / SR 43				
Eastbound Left	A	7.3	B	11.8
Eastbound Thru	A	9.1	C	18.9
Eastbound Right	A	4.6	A	9.9
Eastbound Approach	*A*	*8.2*	*C*	*15.1*
Westbound Left	A	8.7	B	14.0
Westbound Thru	B	11.8	B	10.8
Westbound Right	A	5.0	A	4.7
Westbound Approach	*A*	*9.6*	*B*	*11.6*
Northbound Left-Thru	B	11.7	A	9.0
Northbound Thru	B	11.0	A	8.4
Northbound Right	A	6.3	A	6.2
Northbound Approach	*B*	*10.1*	*A*	*7.9*
Southbound Left-Thru	A	8.5	D	32.7
Southbound Thru	A	7.8	D	29.2
Southbound Right	A	3.4	A	4.6
Southbound Approach	*A*	*7.8*	*D*	*28.2*
Intersection Total	***A***	***9.2***	***C***	***16.5***

Table 2: Intersection Capacity Analysis Summary (Cont.) Design Year 2047 'Roundabout Build' Conditions				
Intersection / Movement	**AM Peak**		**PM Peak**	
	LOS	**Delay** (sec)	**LOS**	**Delay** (sec)
SR 261 / Campus Center Drive				
Eastbound Left-Thru-Right	B	11.6	D	27.3
Eastbound Approach	*B*	*11.6*	*D*	*27.3*
Westbound Left-Thru-Right	C	15.4	C	23.1
Westbound Approach	*C*	*15.4*	*C*	*23.1*
Northbound Left-Thru-Right	B	12.3	B	12.5
Northbound Approach	*B*	*12.3*	*B*	*12.5*
Southbound Left-Thru	A	4.1	B	10.5
Southbound Right	A	4.7	B	12.7
Southbound Approach	*A*	*4.6*	*B*	*11.9*
Intersection Total	***B***	***12.4***	***C***	***21.0***
SR 261 / Summit Road				
Eastbound Left-Thru	A	5.7	C	18.8
Eastbound Right	A	4.8	C	15.6
Eastbound Approach	*A*	*5.4*	*C*	*18.1*
Westbound Left-Thru-Right	C	23.6	C	20.4
Westbound Approach	*C*	*23.6*	*C*	*20.4*
Northbound Left-Thru	A	6.0	B	13.3
Northbound Right	A	3.6	A	6.0
Northbound Approach	*A*	*5.4*	*B*	*11.1*
Southbound Left	A	8.2	A	8.1
Southbound Thru-Right	A	7.4	B	10.2
Southbound Approach	*A*	*7.6*	*A*	*9.6*
Intersection Total	***B***	***12.6***	***B***	***13.9***

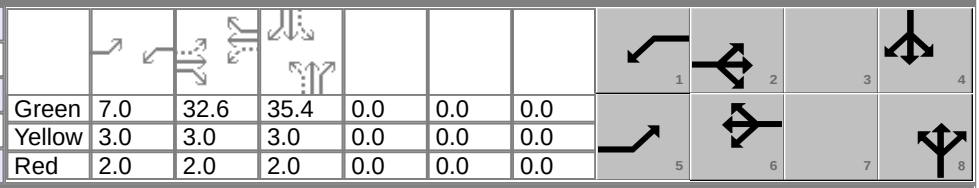
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Mogadore Road	File Name	1. SR 261_Mogadore_2047 'NB' - AM.xus		
Project Description	Design Year 2047 'No-Build' - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	340	10	60	240	30	40	180	90	20	180	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	32.6	35.4	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

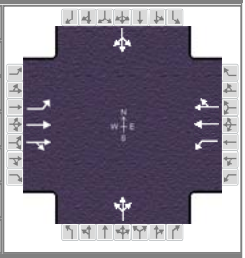
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		6.0		8.0
Phase Duration, s	12.0	37.6	12.0	37.6		40.4		40.4
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (*MAH*), s	3.0	2.9	3.0	2.9		3.2		3.2
Queue Clearance Time (g_s), s	2.3	8.6	3.9	7.1		12.9		9.7
Green Extension Time (g_e), s	0.0	1.0	0.0	1.0		1.1		1.1
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.01	0.00	0.85	0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	11	191	190	65	148	145	43	293			228	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1844	1774	1863	1790	1171	1757			1781	
Queue Service Time (g_s), s	0.3	6.6	6.6	1.9	5.0	5.1	2.4	10.9			0.0	
Cycle Queue Clearance Time (g_c), s	0.3	6.6	6.6	1.9	5.0	5.1	10.1	10.9			7.7	
Green Ratio (*g/C*)	0.44	0.36	0.36	0.44	0.36	0.36	0.39	0.39			0.39	
Capacity (*c*), veh/h	525	675	668	484	675	649	440	691			745	
Volume-to-Capacity Ratio (*X*)	0.021	0.283	0.284	0.135	0.220	0.224	0.099	0.425			0.307	
Back of Queue (*Q*), ft/ln (95 th percentile)	5.1	118.8	118.2	31.8	89.8	88.1	29.5	195.1			144.6	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.2	4.7	4.7	1.3	3.5	3.5	1.2	7.7			5.7	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.05	0.00	0.00	0.32	0.00	0.00	0.12	0.00			0.00	
Uniform Delay (d_1), s/veh	14.5	20.4	20.4	15.1	19.9	19.9	22.4	19.9			18.9	
Incremental Delay (d_2), s/veh	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.2			0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	14.5	20.5	20.5	15.1	19.9	20.0	22.4	20.0			19.0	
Level of Service (LOS)	B	C	C	B	B	B	C	C			B	
Approach Delay, s/veh / LOS	20.3	C		19.1	B		20.3	C		19.0	B	
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Franklin Avenue / Sunny…	File Name	2. SR 261_Franklin_Sunnybrook_2047 'NB' - AM.…		
Project Description	Design Year 2047 'No-Build' - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	390	10	20	290	120	20	80	50	50	30	20

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4	
Green	7.0	34.3	33.7	0.0	0.0	0.0	5	6	7	8	
Yellow	3.0	3.0	3.0	0.0	0.0	0.0					
Red	2.0	2.0	2.0	0.0	0.0	0.0					

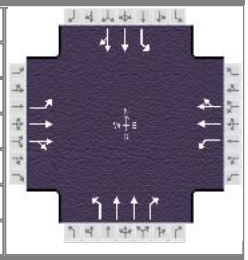
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		8.0		8.0
Phase Duration, s	12.0	39.3	12.0	39.3		38.7		38.7
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (*MAH*), s	3.0	2.9	3.0	2.9		3.2		3.2
Queue Clearance Time (g_s), s	3.5	9.4	2.6	10.2		7.8		6.0
Green Extension Time (g_e), s	0.0	1.4	0.0	1.4		0.5		0.5
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.44	0.00	0.05	0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	54	218	217	22	231	215		163			109	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1846	1774	1863	1679		1705			1474	
Queue Service Time (g_s), s	1.5	7.4	7.4	0.6	7.9	8.2		0.0			0.0	
Cycle Queue Clearance Time (g_c), s	1.5	7.4	7.4	0.6	7.9	8.2		5.8			4.0	
Green Ratio (*g/C*)	0.46	0.38	0.38	0.46	0.38	0.38		0.37			0.37	
Capacity (*c*), veh/h	470	710	704	481	710	640		684			612	
Volume-to-Capacity Ratio (*X*)	0.116	0.307	0.308	0.045	0.326	0.335		0.239			0.178	
Back of Queue (*Q*), ft/ln (95 th percentile)	25.2	132.4	131.5	9.9	141.5	132		103.7			67.1	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	5.2	5.2	0.4	5.6	5.2		4.1			2.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.25	0.00	0.00	0.10	0.00	0.00		0.00			0.00	
Uniform Delay (d_1), s/veh	14.2	19.5	19.5	13.8	19.7	19.8		19.4			18.8	
Incremental Delay (d_2), s/veh	0.0	0.1	0.1	0.0	0.1	0.1		0.1			0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (*d*), s/veh	14.2	19.6	19.6	13.9	19.8	19.9		19.5			18.8	
Level of Service (LOS)	B	B	B	B	B	B		B			B	
Approach Delay, s/veh / LOS	19.0	B		19.5	B		19.5	B		18.8	B	
Intersection Delay, s/veh / LOS	19.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

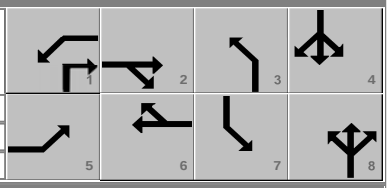
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	State Route 43	File Name	3. SR 261_SR 43_2047 'NB' - AM.xus		
Project Description	Design Year 2047 'No-Build' - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	370	80	240	220	60	200	830	280	60	520	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	4.5	20.9	7.0	25.6	0.0						
Yellow	3.0	3.0	3.0	3.0	3.0	0.0						
Red	2.0	2.0	2.0	2.0	2.0	0.0						



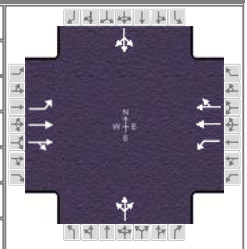
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	12.0	25.9	21.5	35.4	12.0	30.6	12.0	30.6
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.0	2.9	3.0	2.9	3.1	3.1	3.3	3.1
Queue Clearance Time (g_s), s	4.1	12.9	14.7	7.6	9.0	24.0	4.2	13.8
Green Extension Time (g_e), s	0.0	1.0	0.1	1.3	0.0	1.0	0.0	3.8
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.09	1.00	0.00	1.00	1.00	1.00	0.22

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	43	250	239	261	155	149	217	902	304	65	289	287
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1748	1774	1863	1727	1774	1773	1579	1774	1863	1850
Queue Service Time (g_s), s	2.1	10.7	10.9	12.7	5.4	5.6	7.0	22.0	11.4	2.2	11.8	11.8
Cycle Queue Clearance Time (g_c), s	2.1	10.7	10.9	12.7	5.4	5.6	7.0	22.0	11.4	2.2	11.8	11.8
Green Ratio (*g/C*)	0.08	0.23	0.23	0.18	0.34	0.34	0.36	0.28	0.47	0.36	0.28	0.28
Capacity (*c*), veh/h	138	433	406	325	629	583	327	1009	738	229	530	526
Volume-to-Capacity Ratio (*X*)	0.315	0.579	0.588	0.802	0.247	0.256	0.665	0.894	0.412	0.285	0.545	0.546
Back of Queue (*Q*), ft/ln (95 th percentile)	40.1	206.9	200.3	261.5	99.6	96.1	161.9	396.6	176.8	41.7	230.4	225.8
Back of Queue (*Q*), veh/ln (95 th percentile)	1.6	8.1	7.9	10.3	3.9	3.8	6.4	15.6	7.0	1.6	9.1	9.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.40	0.00	0.00	1.05	0.00	0.00	1.08	0.00	0.71	0.33	0.00	0.00
Uniform Delay (d_1), s/veh	39.2	30.6	30.7	35.2	21.5	21.6	23.9	30.9	15.8	22.5	27.3	27.3
Incremental Delay (d_2), s/veh	0.5	1.3	1.5	12.5	0.1	0.1	4.1	10.0	0.1	0.3	0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.7	31.9	32.2	47.7	21.6	21.7	28.0	40.9	15.9	22.8	27.9	27.9
Level of Service (LOS)	D	C	C	D	C	C	C	D	B	C	C	C
Approach Delay, s/veh / LOS	32.7	C		33.7	C		33.6	C		27.4	C	
Intersection Delay, s/veh / LOS	32.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Campus Center Drive	File Name	4. SR 261_Campus Center_2047 'NB' - AM.xus		
Project Description	Design Year 2047 'No-Build' - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	280	420	10	10	430	10	10	160	50	10	10	80

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	7.0	8.0	28.0	27.0	0.0	0.0	5	6	7	8
Yellow	3.0	3.0	3.0	3.0	0.0	0.0				
Red	2.0	2.0	2.0	2.0	0.0	0.0				

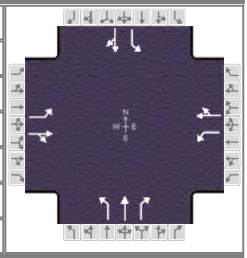
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		8.0		8.0
Phase Duration, s	25.0	46.0	12.0	33.0		32.0		32.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (*MAH*), s	3.0	2.9	3.0	2.9		3.2		3.2
Queue Clearance Time (g_s), s	16.5	9.1	2.5	11.2		11.7		6.5
Green Extension Time (g_e), s	0.2	1.5	0.0	1.4		0.6		0.6
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.63	0.00	0.02	0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	304	234	233	11	240	238		239			109	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1847	1774	1863	1848		1776			1587	
Queue Service Time (g_s), s	14.5	7.1	7.1	0.5	9.2	9.2		0.0			0.0	
Cycle Queue Clearance Time (g_c), s	14.5	7.1	7.1	0.5	9.2	9.2		9.7			4.5	
Green Ratio (*g/C*)	0.22	0.46	0.46	0.39	0.31	0.31		0.30			0.30	
Capacity (*c*), veh/h	394	849	842	138	580	575		575			520	
Volume-to-Capacity Ratio (*X*)	0.772	0.276	0.277	0.079	0.414	0.415		0.416			0.209	
Back of Queue (*Q*), ft/ln (95 th percentile)	276.3	121	120.2	9.8	170.4	169		183.2			77.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	10.9	4.8	4.7	0.4	6.7	6.7		7.2			3.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	1.38	0.00	0.00	0.10	0.00	0.00		0.00			0.00	
Uniform Delay (d_1), s/veh	32.9	15.3	15.3	38.5	24.5	24.5		25.5			23.6	
Incremental Delay (d_2), s/veh	8.3	0.1	0.1	0.1	0.2	0.2		0.2			0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (*d*), s/veh	41.2	15.3	15.3	38.6	24.7	24.7		25.6			23.7	
Level of Service (LOS)	D	B	B	D	C	C		C			C	
Approach Delay, s/veh / LOS	25.5	C		25.0	C		25.6	C		23.7	C	
Intersection Delay, s/veh / LOS	25.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

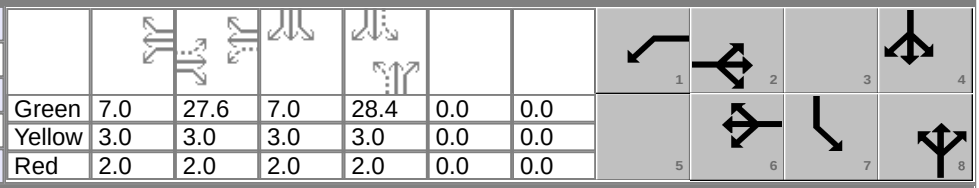
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Summit Road	File Name	5. SR 261_Summit_2047 'NB' - AM.xus		
Project Description	Design Year 2047 'No-Build' - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	90	60	150	220	220	80	290	110	70	240	40

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	27.6	7.0	28.4	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	0.0	0.0
Red	2.0	2.0	2.0	2.0	0.0	0.0

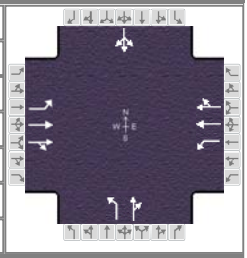
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8	7	4
Case Number		6.3	1.0	4.0		5.3	1.0	4.0
Phase Duration, s		32.6	12.0	44.6		33.4	12.0	45.4
Change Period, ($Y+R_c$), s		5.0	5.0	5.0		5.0	5.0	5.0
Max Allow Headway (*MAH*), s		3.2	3.0	3.2		3.0	2.9	3.0
Queue Clearance Time (g_s), s		12.2	7.4	21.6		14.5	4.4	12.0
Green Extension Time (g_e), s		1.3	0.0	0.9		1.3	0.0	1.4
Phase Call Probability		1.00	1.00	1.00		1.00	1.00	1.00
Max Out Probability		0.00	1.00	0.27		0.01	1.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	33	163		163	478		87	315	120	76	304	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	913	1738		1774	1709		1071	1863	1579	1774	1816	
Queue Service Time (g_s), s	2.6	6.5		5.4	19.6		5.4	12.5	5.0	2.4	10.0	
Cycle Queue Clearance Time (g_c), s	10.2	6.5		5.4	19.6		5.5	12.5	5.0	2.4	10.0	
Green Ratio (*g/C*)	0.31	0.31		0.41	0.44		0.32	0.32	0.32	0.42	0.45	
Capacity (*c*), veh/h	283	533		504	752		418	588	498	405	815	
Volume-to-Capacity Ratio (*X*)	0.115	0.306		0.324	0.636		0.208	0.536	0.240	0.188	0.373	
Back of Queue (*Q*), ft/ln (95 th percentile)	25.5	117.8		93	295.8		57.2	222.5	77.9	38.9	165	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	4.6		3.7	11.6		2.3	8.8	3.1	1.5	6.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.25	0.00		0.74	0.00		0.57	0.00	0.62	0.26	0.00	
Uniform Delay (d_1), s/veh	28.2	23.9		17.9	19.6		22.9	25.4	22.8	17.3	16.4	
Incremental Delay (d_2), s/veh	0.1	0.1		0.1	1.4		0.1	0.5	0.1	0.1	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	28.3	24.0		18.0	21.0		23.0	25.9	22.9	17.4	16.5	
Level of Service (LOS)	C	C		B	C		C	C	C	B	B	
Approach Delay, s/veh / LOS	24.7	C		20.2	C		24.7	C		16.7	B	
Intersection Delay, s/veh / LOS	21.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

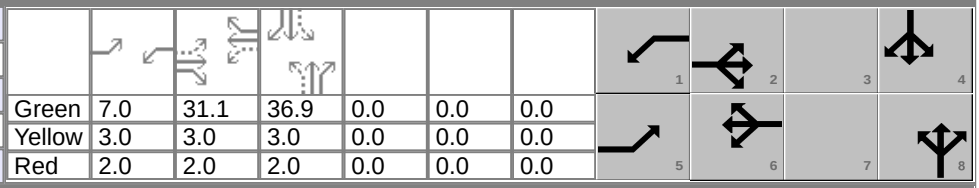
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Mogadore Road	File Name	6. SR 261_Mogadore_2047 'NB' - PM.xus		
Project Description	Design Year 2047 'No-Build' - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	320	10	80	440	40	70	250	80	60	230	20

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	31.1	36.9	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

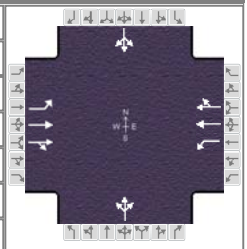
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		6.0		8.0
Phase Duration, s	12.0	36.1	12.0	36.1		41.9		41.9
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (*MAH*), s	3.0	2.9	3.0	2.9		3.2		3.2
Queue Clearance Time (g_s), s	2.3	8.3	4.7	11.8		26.6		21.2
Green Extension Time (g_e), s	0.0	1.4	0.0	1.4		1.4		1.6
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.01	0.00	1.00	0.00		0.06		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	11	180	179	87	264	258	76	359			337	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1843	1774	1863	1808	1103	1785			1422	
Queue Service Time (g_s), s	0.3	6.3	6.3	2.7	9.7	9.8	5.4	13.4			5.9	
Cycle Queue Clearance Time (g_c), s	0.3	6.3	6.3	2.7	9.7	9.8	24.6	13.4			19.2	
Green Ratio (*g/C*)	0.42	0.35	0.35	0.42	0.35	0.35	0.41	0.41			0.41	
Capacity (*c*), veh/h	406	644	637	476	644	625	297	732			631	
Volume-to-Capacity Ratio (*X*)	0.027	0.280	0.281	0.183	0.410	0.413	0.256	0.490			0.534	
Back of Queue (*Q*), ft/ln (95 th percentile)	5.4	115.2	114.5	44.7	177.6	173.8	64.1	229.5			238.4	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.2	4.5	4.5	1.8	7.0	6.8	2.5	9.0			9.4	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.05	0.00	0.00	0.45	0.00	0.00	0.26	0.00			0.00	
Uniform Delay (d_1), s/veh	15.8	21.3	21.3	16.2	22.5	22.5	31.2	19.6			20.6	
Incremental Delay (d_2), s/veh	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2			0.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Control Delay (*d*), s/veh	15.8	21.4	21.4	16.2	22.6	22.6	31.4	19.8			21.1	
Level of Service (LOS)	B	C	C	B	C	C	C	B			C	
Approach Delay, s/veh / LOS	21.3	C		21.7	C		21.8	C		21.1	C	
Intersection Delay, s/veh / LOS	21.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

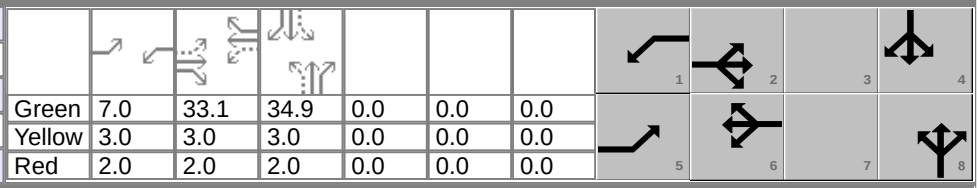
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Franklin Avenue / Sunny…	File Name	7. SR 261_Franklin_Sunnybrook_2047 'NB' - PM.…		
Project Description	Design Year 2047 'No-Build' - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	380	30	60	490	80	20	70	40	130	110	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	33.1	34.9	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

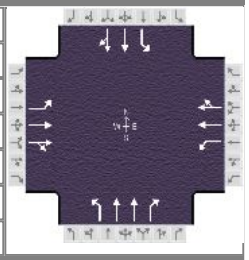
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		8.0		8.0
Phase Duration, s	12.0	38.1	12.0	38.1		39.9		39.9
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (*MAH*), s	3.0	2.9	3.0	2.9		3.2		3.2
Queue Clearance Time (g_s), s	3.6	9.9	3.9	13.7		6.8		15.9
Green Extension Time (g_e), s	0.0	1.8	0.0	1.7		0.9		0.9
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.46	0.00	0.82	0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	54	225	221	65	317	303		141			315	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1814	1774	1863	1771		1682			1524	
Queue Service Time (g_s), s	1.6	7.8	7.9	1.9	11.7	11.7		0.0			9.2	
Cycle Queue Clearance Time (g_c), s	1.6	7.8	7.9	1.9	11.7	11.7		4.8			13.9	
Green Ratio (*g/C*)	0.45	0.37	0.37	0.45	0.37	0.37		0.39			0.39	
Capacity (*c*), veh/h	390	685	667	461	685	651		699			649	
Volume-to-Capacity Ratio (*X*)	0.139	0.328	0.331	0.142	0.462	0.465		0.202			0.486	
Back of Queue (*Q*), ft/ln (95 th percentile)	26	141.4	138.6	31.4	206.4	200.1		86.2			214.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	5.6	5.5	1.2	8.1	7.9		3.4			8.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.26	0.00	0.00	0.31	0.00	0.00		0.00			0.00	
Uniform Delay (d_1), s/veh	15.4	20.5	20.5	14.9	21.7	21.7		18.3			21.0	
Incremental Delay (d_2), s/veh	0.1	0.1	0.1	0.1	0.2	0.2		0.1			0.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (*d*), s/veh	15.5	20.6	20.6	15.0	21.9	21.9		18.4			21.2	
Level of Service (LOS)	B	C	C	B	C	C		B			C	
Approach Delay, s/veh / LOS	20.0	C		21.2	C		18.4	B		21.2	C	
Intersection Delay, s/veh / LOS	20.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	State Route 43	File Name	8. SR 261_SR 43_2047 'NB' - PM.xus		
Project Description	Design Year 2047 'No-Build' - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	310	190	410	450	100	110	620	250	150	960	70

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	7.0	9.5	14.9	7.0	26.6	0.0	5	6	7	8
Yellow	3.0	3.0	3.0	3.0	3.0	0.0				
Red	2.0	2.0	2.0	2.0	2.0	0.0				

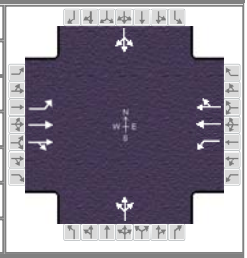
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	12.0	19.9	26.5	34.4	12.0	31.6	12.0	31.6
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.0	3.0	3.0	3.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	4.6	16.1	23.5	14.1	6.1	16.9	7.7	28.6
Green Extension Time (g_e), s	0.0	0.0	0.0	1.9	0.0	4.1	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	0.02	1.00	0.42	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	54	287	257	446	307	291	120	674	272	163	566	553
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1627	1774	1863	1745	1774	1773	1579	1774	1863	1818
Queue Service Time (g_s), s	2.6	13.7	14.1	21.5	12.0	12.1	4.1	14.9	8.7	5.7	26.6	26.6
Cycle Queue Clearance Time (g_c), s	2.6	13.7	14.1	21.5	12.0	12.1	4.1	14.9	8.7	5.7	26.6	26.6
Green Ratio (*g/C*)	0.08	0.17	0.17	0.24	0.33	0.33	0.37	0.30	0.53	0.37	0.30	0.30
Capacity (*c*), veh/h	138	308	269	424	608	570	218	1048	844	300	551	537
Volume-to-Capacity Ratio (*X*)	0.394	0.930	0.953	1.052	0.505	0.510	0.549	0.643	0.322	0.543	1.029	1.029
Back of Queue (*Q*), ft/ln (95 th percentile)	50.5	341.2	332	567.8	214.9	206.6	78	260.6	128.6	110.7	667.1	645.9
Back of Queue (*Q*), veh/ln (95 th percentile)	2.0	13.4	13.1	22.4	8.5	8.1	3.1	10.3	5.1	4.4	26.3	25.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.51	0.00	0.00	2.27	0.00	0.00	0.78	0.00	0.51	0.89	0.00	0.00
Uniform Delay (d_1), s/veh	39.5	37.0	37.2	34.3	24.4	24.5	22.9	27.6	11.8	21.5	31.7	31.7
Incremental Delay (d_2), s/veh	0.7	32.9	41.7	57.9	0.3	0.3	1.7	1.1	0.1	1.1	46.0	46.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.2	70.0	78.9	92.2	24.7	24.8	24.6	28.6	11.9	22.6	77.7	78.3
Level of Service (LOS)	D	E	E	F	C	C	C	C	B	C	F	F
Approach Delay, s/veh / LOS	71.1	E		53.5	D		23.9	C		70.9	E	
Intersection Delay, s/veh / LOS	53.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

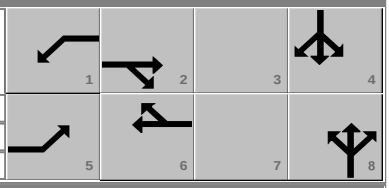
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Campus Center Drive	File Name	9. SR 261_Campus Center_2047 'NB' - PM.xus		
Project Description	Design Year 2047 'No-Build' - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	160	530	20	70	630	10	10	60	70	10	190	320

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	0.0	27.0	36.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	0.0	0.0
Red	2.0	2.0	2.0	2.0	0.0	0.0



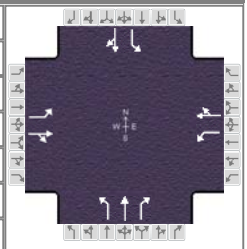
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	2.0	4.0		8.0		8.0
Phase Duration, s	17.0	37.0	12.0	32.0		41.0		41.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (*MAH*), s	3.0	2.9	3.0	2.9		3.3		3.3
Queue Clearance Time (g_s), s	10.5	13.2	5.7	16.5		7.3		29.5
Green Extension Time (g_e), s	0.0	2.1	0.0	1.9		1.7		1.1
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	1.00	0.01	1.00	0.10		0.00		0.26

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	174	301	297	76	349	347		152			565	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1839	1774	1863	1852		1679			1672	
Queue Service Time (g_s), s	8.5	11.2	11.2	3.7	14.5	14.5		0.0			4.9	
Cycle Queue Clearance Time (g_c), s	8.5	11.2	11.2	3.7	14.5	14.5		5.3			27.5	
Green Ratio (*g/C*)	0.13	0.36	0.36	0.38	0.30	0.30		0.40			0.40	
Capacity (*c*), veh/h	237	662	654	138	559	556		714			709	
Volume-to-Capacity Ratio (*X*)	0.735	0.454	0.455	0.551	0.624	0.624		0.213			0.797	
Back of Queue (*Q*), ft/ln (95 th percentile)	187.5	200.6	198.9	74.8	258.6	257.6		91.1			426.4	
Back of Queue (*Q*), veh/ln (95 th percentile)	7.4	7.9	7.8	2.9	10.2	10.1		3.6			16.8	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.94	0.00	0.00	0.75	0.00	0.00		0.00			0.00	
Uniform Delay (d_1), s/veh	37.5	22.3	22.3	40.0	27.1	27.1		17.8			24.4	
Incremental Delay (d_2), s/veh	10.0	0.2	0.2	2.8	1.6	1.6		0.1			5.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (*d*), s/veh	47.5	22.5	22.5	42.8	28.8	28.8		17.8			30.3	
Level of Service (LOS)	D	C	C	D	C	C		B			C	
Approach Delay, s/veh / LOS	28.1	C		30.1	C		17.8	B		30.3	C	
Intersection Delay, s/veh / LOS	28.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

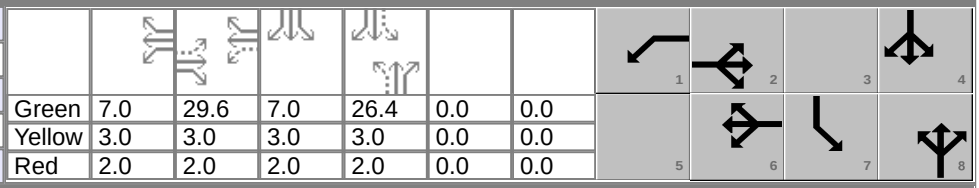
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Summit Road	File Name	10. SR 261_Summit_2047 'NB' - PM.xus		
Project Description	Design Year 2047 'No-Build' - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	290	120	140	120	150	80	350	180	200	450	70

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	29.6	7.0	26.4	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	0.0	0.0
Red	2.0	2.0	2.0	2.0	0.0	0.0

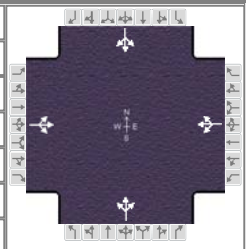
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8	7	4
Case Number		6.3	1.0	4.0		5.3	1.0	4.0
Phase Duration, s		34.6	12.0	46.6		31.4	12.0	43.4
Change Period, ($Y+R_c$), s		5.0	5.0	5.0		5.0	5.0	5.0
Max Allow Headway (*MAH*), s		3.2	3.0	3.2		3.0	2.9	3.0
Queue Clearance Time (g_s), s		22.3	6.8	12.1		21.9	9.0	25.3
Green Extension Time (g_e), s		1.4	0.0	1.8		1.4	0.0	0.5
Phase Call Probability		1.00	1.00	1.00		1.00	1.00	1.00
Max Out Probability		0.23	1.00	0.01		0.66	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	130	446		152	293		87	380	196	217	565	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1081	1770		1774	1693		842	1863	1579	1774	1819	
Queue Service Time (g_s), s	8.3	20.3		4.8	10.1		8.6	16.3	9.0	7.0	23.3	
Cycle Queue Clearance Time (g_c), s	8.3	20.3		4.8	10.1		19.9	16.3	9.0	7.0	23.3	
Green Ratio (*g/C*)	0.33	0.33		0.43	0.46		0.29	0.29	0.29	0.39	0.43	
Capacity (*c*), veh/h	436	582		315	783		221	546	463	330	776	
Volume-to-Capacity Ratio (*X*)	0.299	0.766		0.483	0.375		0.393	0.696	0.423	0.659	0.728	
Back of Queue (*Q*), ft/ln (95 th percentile)	93.5	354.1		83.1	161.7		75.6	288.8	140.5	142.3	358.4	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.7	13.9		3.3	6.4		3.0	11.4	5.5	5.6	14.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.94	0.00		0.66	0.00		0.76	0.00	1.12	0.95	0.00	
Uniform Delay (d_1), s/veh	23.1	27.1		19.4	15.7		34.7	28.2	25.7	22.4	21.5	
Incremental Delay (d_2), s/veh	0.1	5.5		0.4	0.1		0.4	3.3	0.2	3.8	3.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	23.2	32.6		19.8	15.9		35.2	31.5	25.9	26.3	24.5	
Level of Service (LOS)	C	C		B	B		D	C	C	C	C	
Approach Delay, s/veh / LOS	30.4	C		17.2	B		30.3	C		25.0	C	
Intersection Delay, s/veh / LOS	26.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

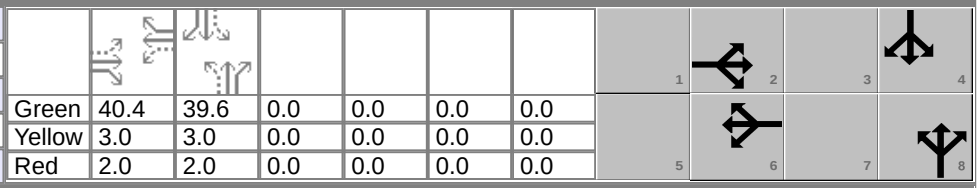
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Mogadore Road	File Name	1. SR 261_Mogadore_2047 - AM.xus		
Project Description	Design Year 2047 - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	340	10	60	240	30	40	180	90	20	180	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	40.4	39.6	0.0	0.0	0.0	0.0						
Yellow	3.0	3.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

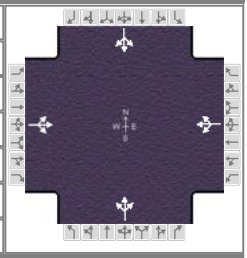
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		45.4		45.4		44.6		44.6
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.0		3.0		3.2		3.2
Queue Clearance Time (g_s), s		15.3		14.6		13.8		9.1
Green Extension Time (g_e), s		1.3		1.3		1.1		1.1
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.00		0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		391			359			337			228	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1840			1643			1689			1778	
Queue Service Time (g_s), s		0.0			0.0			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		13.3			12.6			11.8			7.1	
Green Ratio (*g/C*)		0.45			0.45			0.44			0.44	
Capacity (*c*), veh/h		867			785			788			826	
Volume-to-Capacity Ratio (*X*)		0.451			0.457			0.428			0.276	
Back of Queue (*Q*), ft/ln (95 th percentile)		220.2			202.6			204.8			130.3	
Back of Queue (*Q*), veh/ln (95 th percentile)		8.7			8.0			8.1			5.1	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		17.3			17.0			17.4			16.1	
Incremental Delay (d_2), s/veh		0.1			0.2			0.1			0.1	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		17.5			17.2			17.6			16.2	
Level of Service (LOS)		B			B			B			B	
Approach Delay, s/veh / LOS	17.5	B		17.2	B		17.6	B		16.2	B	
Intersection Delay, s/veh / LOS	17.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Franklin Avenue / Sunny…	File Name	2. SR 261_Franklin_Sunnybrook_2047 - AM.xus		
Project Description	Design Year 2047 - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	390	10	20	290	120	20	80	50	50	30	20

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	42.9	37.1	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	3.0	3.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

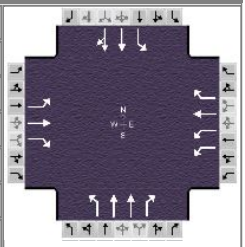
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		47.9		47.9		42.1		42.1
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.0		3.0		3.2		3.2
Queue Clearance Time (g_s), s		19.4		18.9		7.4		5.7
Green Extension Time (g_e), s		1.8		1.8		0.5		0.5
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.00		0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		489			467			163			109	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1730			1738			1702			1471	
Queue Service Time (g_s), s		0.6			0.0			0.0			0.0	
Cycle Queue Clearance Time (g_c), s		17.4			16.9			5.4			3.7	
Green Ratio (*g/C*)		0.48			0.48			0.41			0.41	
Capacity (*c*), veh/h		869			870			747			667	
Volume-to-Capacity Ratio (*X*)		0.563			0.537			0.218			0.163	
Back of Queue (*Q*), ft/ln (95 th percentile)		265.3			254.6			95.6			61.8	
Back of Queue (*Q*), veh/ln (95 th percentile)		10.4			10.0			3.8			2.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		16.8			16.7			17.1			16.6	
Incremental Delay (d_2), s/veh		0.5			0.4			0.1			0.0	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		17.3			17.1			17.2			16.6	
Level of Service (LOS)		B			B			B			B	
Approach Delay, s/veh / LOS	17.3	B		17.1	B		17.2	B		16.6	B	
Intersection Delay, s/veh / LOS	17.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

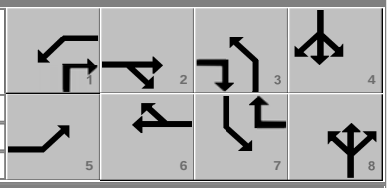
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	State Route 43	File Name	3. SR 261_SR 43_2047 - AM.xus		
Project Description	Design Year 2047 - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	370	80	240	220	60	200	830	280	60	520	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	2.7	26.9	7.0	2.0	24.4						
Yellow	3.0	0.0	3.0	3.0	0.0	3.0						
Red	2.0	0.0	2.0	2.0	0.0	2.0						



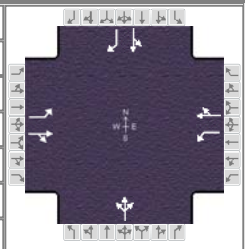
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	1.1	3.0	1.1	4.0
Phase Duration, s	12.0	31.9	14.7	34.6	14.0	31.4	12.0	29.4
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.0	2.9	3.0	2.9	3.1	3.1	3.3	3.1
Queue Clearance Time (g_s), s	4.1	19.4	8.6	10.9	9.9	23.7	4.2	14.1
Green Extension Time (g_e), s	0.0	1.0	0.1	1.3	0.0	1.5	0.0	3.6
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.12	1.00	0.00	1.00	1.00	1.00	0.28

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	43	402	87	261	239	65	217	902	304	65	289	287
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1579	1723	1863	1579	1774	1773	1579	1774	1863	1850
Queue Service Time (g_s), s	2.1	17.4	3.2	6.6	8.9	2.3	7.9	21.7	12.9	2.2	12.0	12.1
Cycle Queue Clearance Time (g_c), s	2.1	17.4	3.2	6.6	8.9	2.3	7.9	21.7	12.9	2.2	12.0	12.1
Green Ratio (*g/C*)	0.08	0.30	0.40	0.11	0.33	0.41	0.37	0.29	0.40	0.35	0.27	0.27
Capacity (*c*), veh/h	138	557	630	371	613	642	372	1040	633	236	505	502
Volume-to-Capacity Ratio (*X*)	0.315	0.722	0.138	0.703	0.390	0.102	0.585	0.867	0.481	0.276	0.572	0.573
Back of Queue (*Q*), ft/ln (95 th percentile)	40.1	310.4	47.6	131.1	163.7	34.5	150	383	202.7	42.7	236.1	231.6
Back of Queue (*Q*), veh/ln (95 th percentile)	1.6	12.2	1.9	5.2	6.4	1.4	5.9	15.1	8.0	1.7	9.3	9.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.40	0.00	0.32	0.52	0.00	0.34	1.00	0.00	0.81	0.34	0.00	0.00
Uniform Delay (d_1), s/veh	39.2	28.2	17.2	38.8	23.3	16.5	21.4	30.1	20.0	22.7	28.3	28.3
Incremental Delay (d_2), s/veh	0.5	4.0	0.0	5.0	0.2	0.0	1.6	7.6	0.2	0.2	1.0	1.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.7	32.2	17.2	43.8	23.4	16.6	23.0	37.7	20.2	23.0	29.3	29.3
Level of Service (LOS)	D	C	B	D	C	B	C	D	C	C	C	C
Approach Delay, s/veh / LOS	30.4	C		32.0	C		31.7	C		28.7	C	
Intersection Delay, s/veh / LOS	30.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

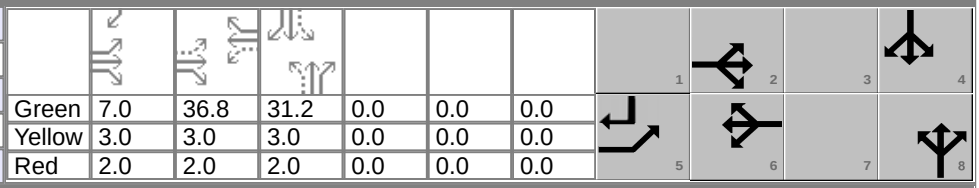
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Campus Center Drive	File Name	4. SR 261_Campus Center_2047 - AM.xus		
Project Description	Design Year 2047 - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	280	420	10	10	430	10	10	160	50	10	10	80

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	36.8	31.2	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

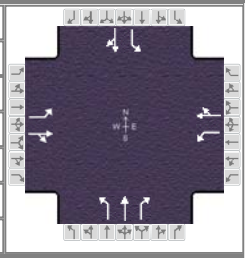
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		4
Case Number	1.0	4.0		6.3		8.0		7.0
Phase Duration, s	12.0	53.8		41.8		36.2		36.2
Change Period, ($Y+R_c$), s	5.0	5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s	3.0	2.9		2.9		3.2		3.2
Queue Clearance Time (g_s), s	9.0	15.9		20.5		11.1		5.0
Green Extension Time (g_e), s	0.0	1.6		1.6		0.6		0.7
Phase Call Probability	1.00	1.00		1.00		1.00		1.00
Max Out Probability	1.00	0.00		0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	304	467		11	478			239			22	87
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1855		922	1855			1780			1416	1610
Queue Service Time (g_s), s	7.0	13.9		0.7	18.5			0.0			0.0	3.0
Cycle Queue Clearance Time (g_c), s	7.0	13.9		2.5	18.5			9.1			0.7	3.0
Green Ratio (*g/C*)	0.51	0.54		0.41	0.41			0.35			0.35	0.42
Capacity (*c*), veh/h	404	1006		438	759			659			551	683
Volume-to-Capacity Ratio (*X*)	0.754	0.465		0.025	0.630			0.363			0.039	0.127
Back of Queue (*Q*), ft/ln (95 th percentile)	178.3	213.2		5.8	299.3			168.1			13.4	46.9
Back of Queue (*Q*), veh/ln (95 th percentile)	7.0	8.4		0.2	11.8			6.6			0.5	1.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.89	0.00		0.06	0.00			0.00			0.00	0.19
Uniform Delay (d_1), s/veh	20.3	12.6		17.1	21.2			22.2			19.4	15.8
Incremental Delay (d_2), s/veh	7.0	0.1		0.0	1.3			0.1			0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Control Delay (*d*), s/veh	27.3	12.7		17.1	22.5			22.3			19.4	15.8
Level of Service (LOS)	C	B		B	C			C			B	B
Approach Delay, s/veh / LOS	18.5	B		22.4	C		22.3	C		16.5	B	
Intersection Delay, s/veh / LOS	20.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

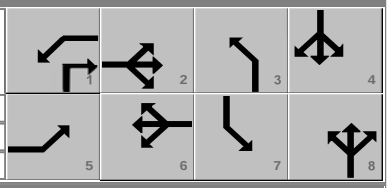
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	AM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Summit Road	File Name	5. SR 261_Summit_2047 - AM.xus		
Project Description	Design Year 2047 - AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	90	60	150	220	220	80	290	110	70	240	40

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	31.7	7.0	24.3	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	0.0	0.0
Red	2.0	2.0	2.0	2.0	0.0	0.0



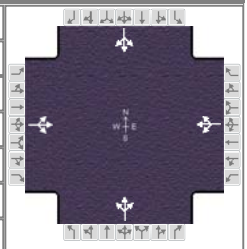
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	12.0	36.7	12.0	36.7	12.0	29.3	12.0	29.3
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.1	3.0	3.1	2.9	2.9	2.9	2.9
Queue Clearance Time (g_s), s	3.0	8.0	7.2	24.7	5.0	15.4	4.6	15.2
Green Extension Time (g_e), s	0.0	1.3	0.0	0.9	0.0	1.0	0.0	1.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.18	0.00	1.00	0.14	1.00	0.05	1.00	0.04

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	33	163		163	478		87	315	120	76	304	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1738		1774	1709		1774	1863	1579	1774	1816	
Queue Service Time (g_s), s	1.0	6.0		5.2	22.7		3.0	13.4	4.8	2.6	13.2	
Cycle Queue Clearance Time (g_c), s	1.0	6.0		5.2	22.7		3.0	13.4	4.8	2.6	13.2	
Green Ratio (*g/C*)	0.43	0.35		0.43	0.35		0.35	0.27	0.35	0.35	0.27	
Capacity (*c*), veh/h	289	612		538	602		326	503	549	323	490	
Volume-to-Capacity Ratio (*X*)	0.113	0.266		0.303	0.795		0.267	0.627	0.218	0.236	0.621	
Back of Queue (*Q*), ft/ln (95 th percentile)	17	108.3		88	370.7		51.8	243.3	73.1	45	236.1	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.7	4.3		3.5	14.6		2.0	9.6	2.9	1.8	9.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.17	0.00		0.70	0.00		0.52	0.00	0.58	0.30	0.00	
Uniform Delay (d_1), s/veh	18.4	20.8		16.5	26.2		21.5	28.9	20.7	21.4	28.8	
Incremental Delay (d_2), s/veh	0.1	0.1		0.1	6.7		0.2	1.9	0.1	0.1	1.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	18.5	20.9		16.6	32.9		21.7	30.7	20.8	21.6	30.6	
Level of Service (LOS)	B	C		B	C		C	C	C	C	C	
Approach Delay, s/veh / LOS	20.5	C		28.8	C		26.9	C		28.8	C	
Intersection Delay, s/veh / LOS	27.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

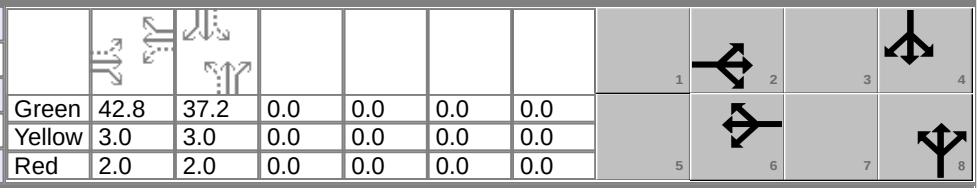
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Mogadore Road	File Name	6. SR 261_Mogadore_2047 - PM.xus		
Project Description	Design Year 2047 - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	320	10	80	440	40	70	250	80	60	230	20

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	42.8	37.2	0.0	0.0	0.0	0.0						
Yellow	3.0	3.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

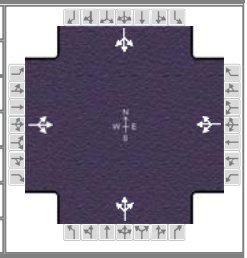
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		47.8		47.8		42.2		42.2
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.0		3.0		3.2		3.2
Queue Clearance Time (g_s), s		13.8		28.0		20.0		15.0
Green Extension Time (g_e), s		1.9		1.8		1.6		1.7
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.00		0.01		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		370			609			435			337	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1832			1686			1659			1616	
Queue Service Time (g_s), s		0.0			14.3			5.0			0.0	
Cycle Queue Clearance Time (g_c), s		11.8			26.0			18.0			13.0	
Green Ratio (*g/C*)		0.48			0.48			0.41			0.41	
Capacity (*c*), veh/h		912			848			733			716	
Volume-to-Capacity Ratio (*X*)		0.405			0.718			0.593			0.471	
Back of Queue (*Q*), ft/ln (95 th percentile)		196.6			363.5			284.2			214.8	
Back of Queue (*Q*), veh/ln (95 th percentile)		7.7			14.3			11.2			8.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		15.5			18.9			20.6			19.1	
Incremental Delay (d_2), s/veh		0.1			2.6			0.9			0.2	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		15.6			21.5			21.5			19.2	
Level of Service (LOS)		B			C			C			B	
Approach Delay, s/veh / LOS	15.6	B		21.5	C		21.5	C		19.2	B	
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

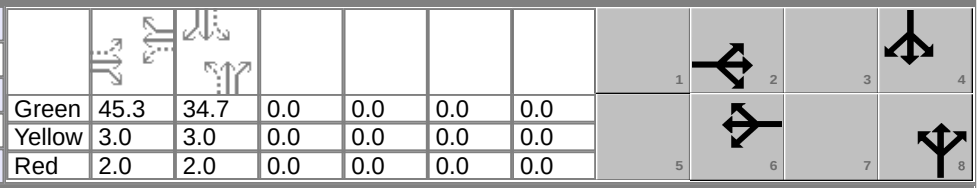
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Franklin Avenue / Sunny…	File Name	7. SR 261_Franklin_Sunnybrook_2047 - PM.xus		
Project Description	Design Year 2047 - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	380	30	60	490	80	20	70	40	130	110	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	45.3	34.7	0.0	0.0	0.0	0.0						
Yellow	3.0	3.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

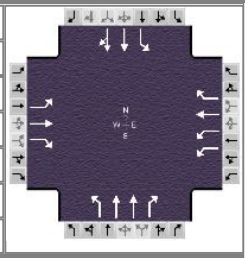
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		50.3		50.3		39.7		39.7
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.1		3.1		3.2		3.2
Queue Clearance Time (g_s), s		19.8		31.0		6.8		16.0
Green Extension Time (g_e), s		2.5		2.4		0.9		0.9
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.00		0.04		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		500			685			141			315	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1629			1714			1683			1524	
Queue Service Time (g_s), s		0.0			11.3			0.0			9.2	
Cycle Queue Clearance Time (g_c), s		17.8			29.0			4.8			14.0	
Green Ratio (*g/C*)		0.50			0.50			0.39			0.39	
Capacity (*c*), veh/h		865			906			695			646	
Volume-to-Capacity Ratio (*X*)		0.578			0.756			0.203			0.488	
Back of Queue (*Q*), ft/ln (95 th percentile)		256.3			400.1			86.6			215.4	
Back of Queue (*Q*), veh/ln (95 th percentile)		10.1			15.8			3.4			8.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00			0.00			0.00			0.00	
Uniform Delay (d_1), s/veh		15.3			18.1			18.5			21.1	
Incremental Delay (d_2), s/veh		0.6			3.3			0.1			0.2	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		15.9			21.3			18.5			21.3	
Level of Service (LOS)		B			C			B			C	
Approach Delay, s/veh / LOS	15.9	B		21.3	C		18.5	B		21.3	C	
Intersection Delay, s/veh / LOS	19.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

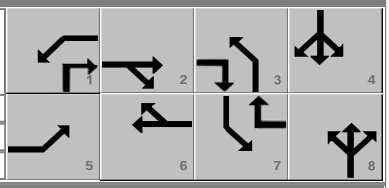
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	State Route 43	File Name	8. SR 261_SR 43_2047 - PM.xus		
Project Description	Design Year 2047 - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	310	190	410	450	100	110	620	250	150	960	70

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	1.3	20.2	7.0	29.5	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	0.0
Red	2.0	2.0	2.0	2.0	2.0	0.0



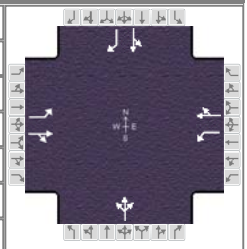
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	3.0	2.0	3.0	1.1	3.0	1.1	4.0
Phase Duration, s	12.0	25.2	18.3	31.5	12.0	34.5	12.0	34.5
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.0	3.0	3.0	3.0	3.1	3.2	3.3	3.2
Queue Clearance Time (g_s), s	4.6	17.4	13.4	24.6	5.9	16.2	7.4	28.5
Green Extension Time (g_e), s	0.0	0.9	0.0	0.6	0.0	4.7	0.0	0.7
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.26	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	54	337	207	446	489	109	120	674	272	163	566	553
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1863	1579	1723	1863	1579	1774	1773	1579	1774	1863	1818
Queue Service Time (g_s), s	2.6	15.4	9.5	11.4	22.6	4.2	3.9	14.2	9.8	5.4	26.4	26.5
Cycle Queue Clearance Time (g_c), s	2.6	15.4	9.5	11.4	22.6	4.2	3.9	14.2	9.8	5.4	26.4	26.5
Green Ratio (*g/C*)	0.08	0.22	0.30	0.15	0.29	0.37	0.41	0.33	0.48	0.41	0.33	0.33
Capacity (*c*), veh/h	138	418	477	509	548	588	224	1163	751	331	611	596
Volume-to-Capacity Ratio (*X*)	0.394	0.806	0.433	0.875	0.892	0.185	0.534	0.580	0.362	0.493	0.928	0.928
Back of Queue (*Q*), ft/ln (95 th percentile)	50.5	308.1	149.9	239	438	63.9	72.4	246.6	150.8	101.6	540.3	523.3
Back of Queue (*Q*), veh/ln (95 th percentile)	2.0	12.1	5.9	9.4	17.2	2.5	2.8	9.7	5.9	4.0	21.3	20.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.51	0.00	1.00	0.96	0.00	0.64	0.72	0.00	0.60	0.81	0.00	0.00
Uniform Delay (d_1), s/veh	39.5	33.0	25.2	37.5	30.4	19.0	21.9	25.1	15.0	19.4	29.2	29.2
Incremental Delay (d_2), s/veh	0.7	10.3	0.2	15.1	16.2	0.1	1.3	0.5	0.1	0.4	20.2	20.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.2	43.3	25.4	52.6	46.6	19.1	23.2	25.6	15.1	19.8	49.5	49.9
Level of Service (LOS)	D	D	C	D	D	B	C	C	B	B	D	D
Approach Delay, s/veh / LOS	36.9	D		46.3	D		22.6	C		45.9	D	
Intersection Delay, s/veh / LOS	38.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS 2010 Signalized Intersection Results Summary

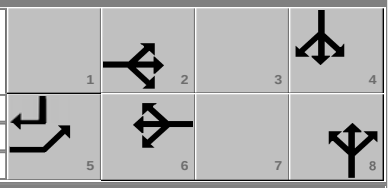
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Campus Center Drive	File Name	9. SR 261_Campus Center_2047 - PM.xus		
Project Description	Design Year 2047 - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	160	530	20	70	630	10	10	60	70	10	190	320

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	41.8	26.2	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



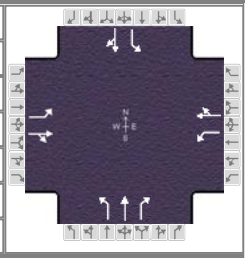
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		4
Case Number	1.0	4.0		6.3		8.0		7.0
Phase Duration, s	12.0	58.8		46.8		31.2		31.2
Change Period, ($Y+R_c$), s	5.0	5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s	3.0	3.0		3.0		3.2		3.2
Queue Clearance Time (g_s), s	6.3	19.3		30.9		8.2		17.7
Green Extension Time (g_e), s	0.0	2.8		2.4		1.5		1.2
Phase Call Probability	1.00	1.00		1.00		1.00		1.00
Max Out Probability	1.00	0.00		0.14		0.00		0.10

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	174	598		76	696			152			217	348
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1851		817	1858			1684			1846	1610
Queue Service Time (g_s), s	4.3	17.3		5.5	28.9			0.0			0.0	15.7
Cycle Queue Clearance Time (g_c), s	4.3	17.3		10.8	28.9			6.2			8.4	15.7
Green Ratio (*g/C*)	0.56	0.60		0.46	0.46			0.29			0.29	0.37
Capacity (*c*), veh/h	325	1106		412	863			533			579	594
Volume-to-Capacity Ratio (*X*)	0.535	0.540		0.185	0.806			0.285			0.375	0.586
Back of Queue (*Q*), ft/ln (95 th percentile)	66.1	242.7		42.7	447.5			112.4			165.6	243.1
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	9.6		1.7	17.6			4.4			6.5	9.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.33	0.00		0.43	0.00			0.00			0.00	0.97
Uniform Delay (d_1), s/veh	16.4	10.8		17.5	20.6			24.8			25.6	22.9
Incremental Delay (d_2), s/veh	0.9	0.3		0.1	5.3			0.1			0.1	1.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Control Delay (*d*), s/veh	17.3	11.0		17.6	25.9			24.9			25.8	23.9
Level of Service (LOS)	B	B		B	C			C			C	C
Approach Delay, s/veh / LOS	12.5	B		25.1	C		24.9	C		24.6	C	
Intersection Delay, s/veh / LOS	20.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

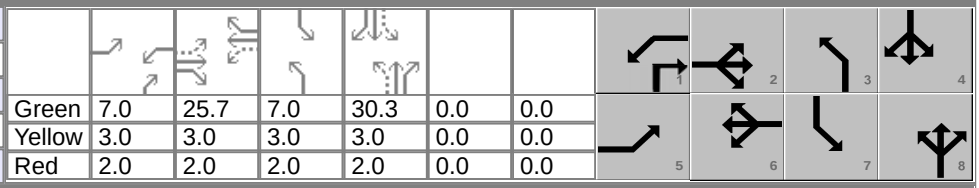
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.25
Analyst	Brett M. Ferrell, P.E.	Analysis Date	Jun 19, 2017	Area Type	Other
Jurisdiction	City of Kent	Time Period	PM Peak Hour	PHF	0.92
Urban Street	State Route 261	Analysis Year	2047	Analysis Period	1> 7:00
Intersection	Summit Road	File Name	10. SR 261_Summit_2047 - PM.xus		
Project Description	Design Year 2047 - PM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	290	120	140	120	150	80	350	180	200	450	70

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	25.7	7.0	30.3	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	0.0	0.0
Red	2.0	2.0	2.0	2.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	12.0	30.7	12.0	30.7	12.0	35.3	12.0	35.3
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.1	3.0	3.1	2.9	2.9	2.9	2.9
Queue Clearance Time (g_s), s	6.5	23.6	7.4	15.5	4.7	17.3	9.0	28.9
Green Extension Time (g_e), s	0.0	0.5	0.0	1.2	0.0	1.9	0.0	0.5
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	0.04	1.00	0.04	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	130	446		152	293		87	380	196	217	565	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1770		1774	1693		1774	1863	1579	1774	1819	
Queue Service Time (g_s), s	4.5	21.6		5.4	13.5		2.7	15.3	7.5	7.0	26.9	
Cycle Queue Clearance Time (g_c), s	4.5	21.6		5.4	13.5		2.7	15.3	7.5	7.0	26.9	
Green Ratio (*g/C*)	0.36	0.29		0.36	0.29		0.41	0.34	0.41	0.41	0.34	
Capacity (*c*), veh/h	341	505		239	484		231	627	654	362	612	
Volume-to-Capacity Ratio (*X*)	0.383	0.882		0.636	0.607		0.377	0.607	0.299	0.601	0.923	
Back of Queue (*Q*), ft/ln (95 th percentile)	83.1	418.3		106.3	229.9		45.3	261.7	109.1	128.8	499.6	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.3	16.5		4.2	9.1		1.8	10.3	4.3	5.1	19.7	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.83	0.00		0.85	0.00		0.45	0.00	0.87	0.86	0.00	
Uniform Delay (d_1), s/veh	21.2	30.7		23.5	27.8		21.2	24.9	17.6	20.4	28.7	
Incremental Delay (d_2), s/veh	0.3	16.0		4.2	1.6		0.4	1.2	0.1	2.0	19.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	21.5	46.7		27.7	29.4		21.6	26.1	17.7	22.3	48.1	
Level of Service (LOS)	C	D		C	C		C	C	B	C	D	
Approach Delay, s/veh / LOS	41.0	D		28.8	C		23.0	C		41.0	D	
Intersection Delay, s/veh / LOS	34.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

LANE LEVEL OF SERVICE

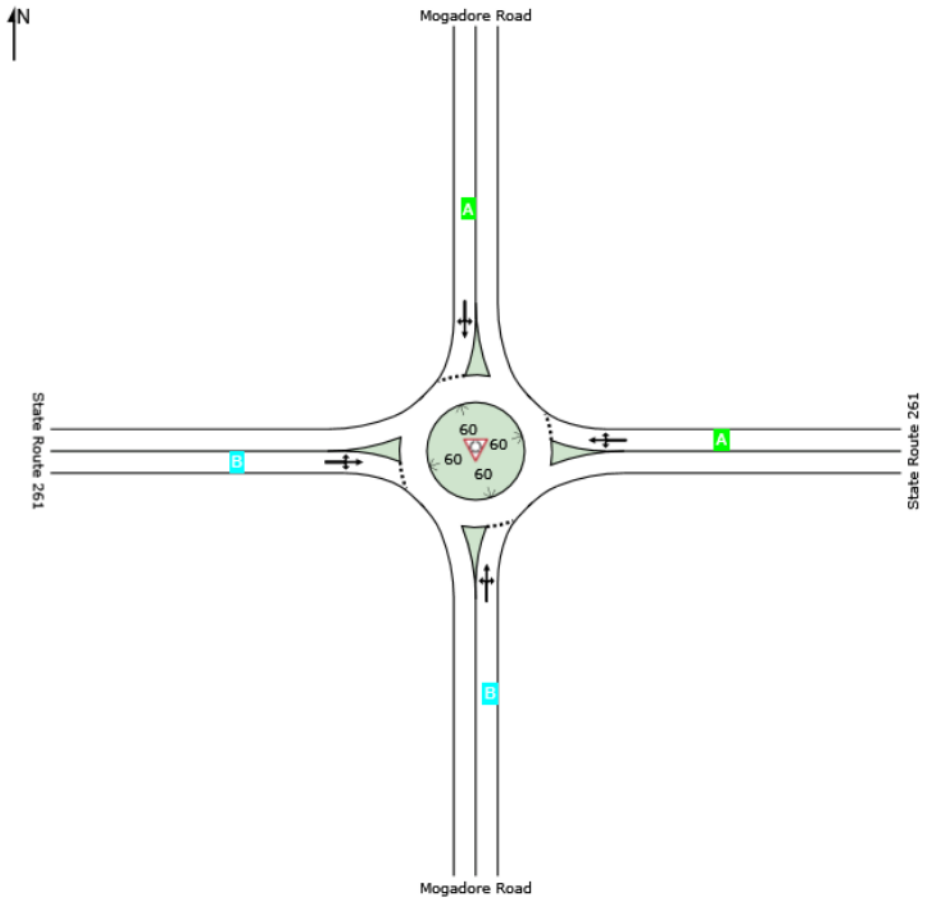
Lane Level of Service

Site: 1 [SR 261 / Mogadore]

Design Year 2047
AM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	B	A	A	B	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / Mogadore]

Design Year 2047
AM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Mogadore Road											
3	L2	43	2.0	0.477	12.0	LOS B	3.5	87.9	0.75	0.70	30.6
8	T1	196	2.0	0.477	12.0	LOS B	3.5	87.9	0.75	0.70	28.2
18	R2	98	2.0	0.477	12.0	LOS B	3.5	87.9	0.75	0.70	30.2
Approach		337	2.0	0.477	12.0	LOS B	3.5	87.9	0.75	0.70	29.1
East: State Route 261											
1	L2	65	2.0	0.433	9.8	LOS A	3.1	77.6	0.63	0.49	32.0
6	T1	261	2.0	0.433	9.8	LOS A	3.1	77.6	0.63	0.49	35.3
16	R2	33	2.0	0.433	9.8	LOS A	3.1	77.6	0.63	0.49	31.3
Approach		359	2.0	0.433	9.8	LOS A	3.1	77.6	0.63	0.49	34.3
North: Mogadore Road											
7	L2	22	2.0	0.309	8.6	LOS A	1.9	47.4	0.64	0.54	32.1
4	T1	196	2.0	0.309	8.6	LOS A	1.9	47.4	0.64	0.54	29.5
14	R2	11	2.0	0.309	8.6	LOS A	1.9	47.4	0.64	0.54	31.7
Approach		228	2.0	0.309	8.6	LOS A	1.9	47.4	0.64	0.54	29.9
West: State Route 261											
5	L2	11	2.0	0.482	10.9	LOS B	3.4	86.3	0.67	0.55	31.8
2	T1	370	2.0	0.482	10.9	LOS B	3.4	86.3	0.67	0.55	35.0
12	R2	11	2.0	0.482	10.9	LOS B	3.4	86.3	0.67	0.55	31.1
Approach		391	2.0	0.482	10.9	LOS B	3.4	86.3	0.67	0.55	34.8
All Vehicles		1315	2.0	0.482	10.5	LOS B	3.5	87.9	0.68	0.57	32.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

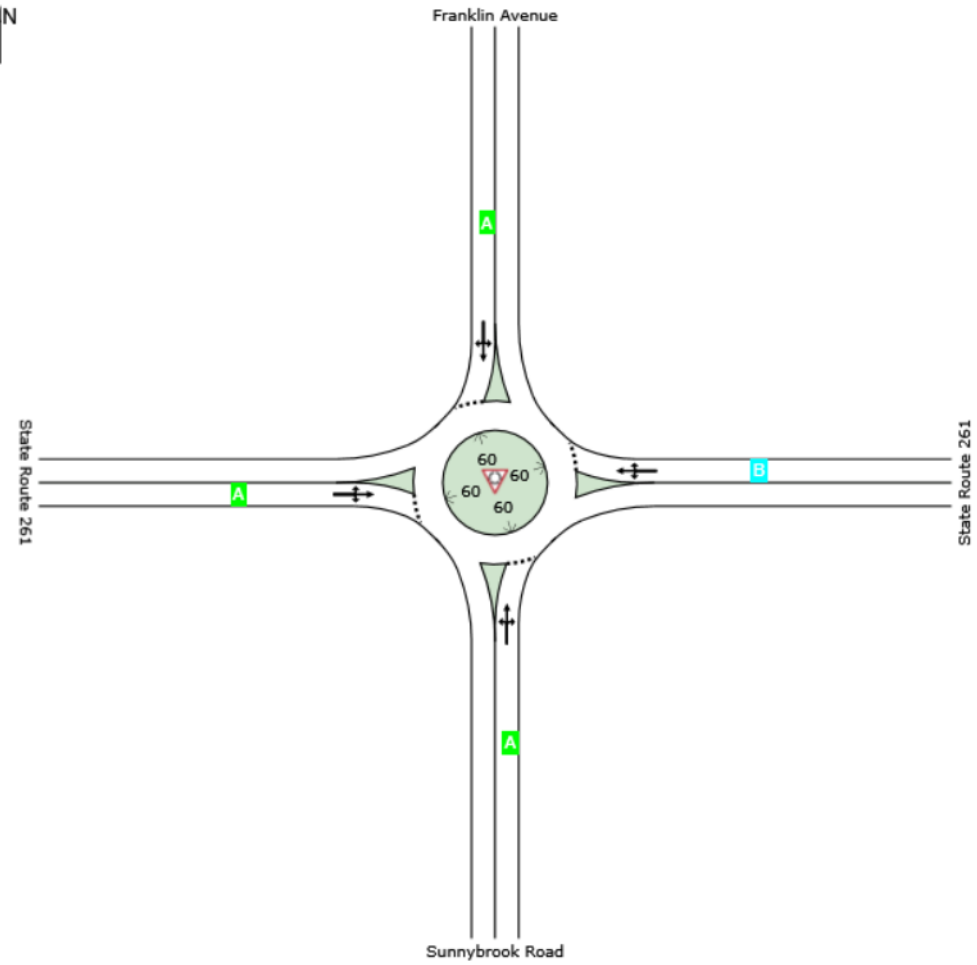
Lane Level of Service

Site: 1 [SR 261 / Franklin / Sunnybrook]

Design Year 2047
AM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	B	A	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / Franklin / Sunnybrook]

Design Year 2047
AM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Sunnybrook Road											
3	L2	22	2.0	0.258	8.9	LOS A	1.5	37.4	0.70	0.63	27.6
8	T1	87	2.0	0.258	8.9	LOS A	1.5	37.4	0.70	0.63	22.9
18	R2	54	2.0	0.258	8.9	LOS A	1.5	37.4	0.70	0.63	27.3
Approach		163	2.0	0.258	8.9	LOS A	1.5	37.4	0.70	0.63	24.8
East: State Route 261											
1	L2	22	2.0	0.506	10.3	LOS B	3.9	99.8	0.57	0.39	28.0
6	T1	315	2.0	0.506	10.3	LOS B	3.9	99.8	0.57	0.39	35.3
16	R2	130	2.0	0.506	10.3	LOS B	3.9	99.8	0.57	0.39	27.1
Approach		467	2.0	0.506	10.3	LOS B	3.9	99.8	0.57	0.39	32.2
North: Franklin Avenue											
7	L2	54	2.0	0.145	6.4	LOS A	0.8	19.9	0.57	0.44	28.0
4	T1	33	2.0	0.145	6.4	LOS A	0.8	19.9	0.57	0.44	23.1
14	R2	22	2.0	0.145	6.4	LOS A	0.8	19.9	0.57	0.44	27.6
Approach		109	2.0	0.145	6.4	LOS A	0.8	19.9	0.57	0.44	26.3
West: State Route 261											
5	L2	54	2.0	0.497	9.7	LOS A	4.0	101.8	0.48	0.29	28.2
2	T1	424	2.0	0.497	9.7	LOS A	4.0	101.8	0.48	0.29	35.5
12	R2	11	2.0	0.497	9.7	LOS A	4.0	101.8	0.48	0.29	27.3
Approach		489	2.0	0.497	9.7	LOS A	4.0	101.8	0.48	0.29	34.3
All Vehicles		1228	2.0	0.506	9.6	LOS A	4.0	101.8	0.55	0.39	31.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

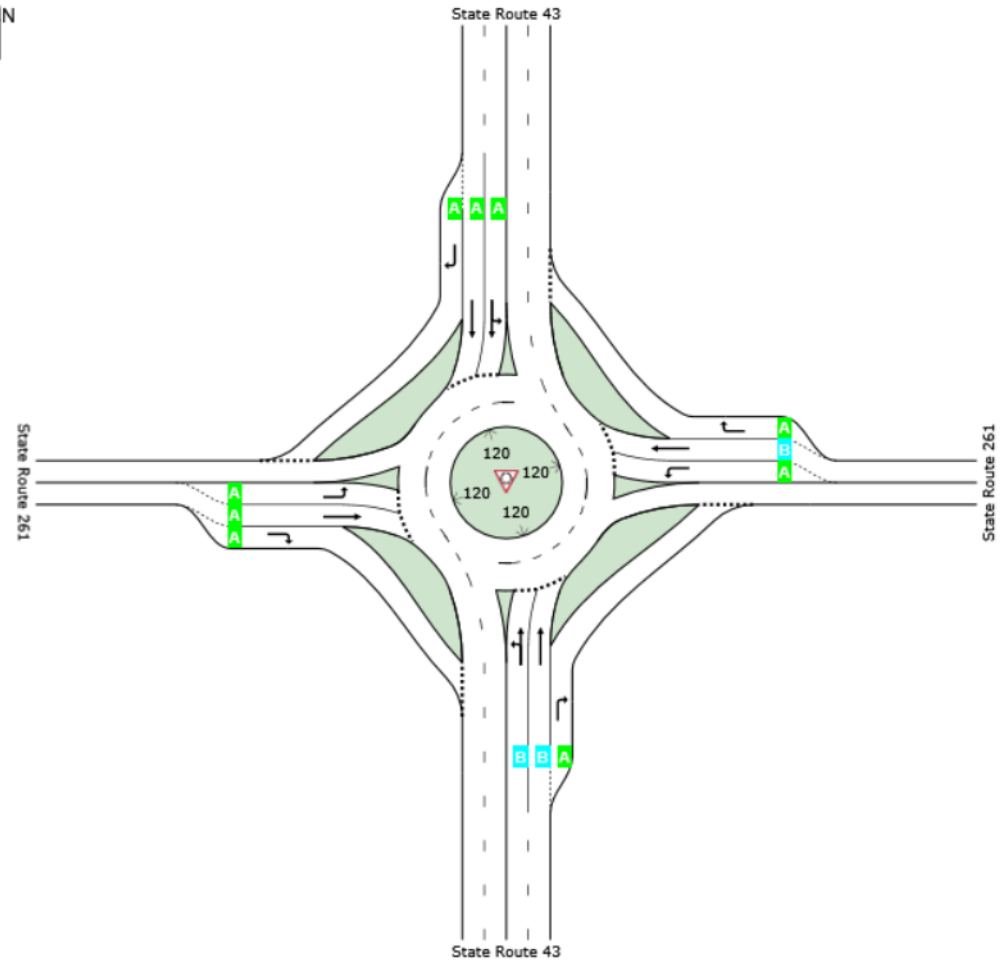
Lane Level of Service

Site: 1 [SR 261 / SR 43]

Design Year 2047
AM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	B	A	A	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / SR 43]

Design Year 2047
AM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: State Route 43											
3	L2	217	2.0	0.566	11.7	LOS B	4.3	108.5	0.73	0.72	31.3
8	T1	902	2.0	0.566	11.0	LOS B	4.4	111.8	0.72	0.70	24.8
18	R2	304	2.0	0.290	6.3	LOS A	1.8	45.3	0.61	0.49	33.9
Approach		1424	2.0	0.566	10.1	LOS B	4.4	111.8	0.70	0.66	27.2
East: State Route 261											
1	L2	261	2.0	0.338	8.7	LOS A	1.8	45.3	0.76	0.76	32.1
6	T1	239	2.0	0.396	11.8	LOS B	2.1	52.4	0.77	0.79	36.2
16	R2	65	2.0	0.077	5.0	LOS A	0.4	9.4	0.65	0.55	29.7
Approach		565	2.0	0.396	9.6	LOS A	2.1	52.4	0.75	0.75	33.4
North: State Route 43											
7	L2	65	2.0	0.351	8.5	LOS A	1.7	44.3	0.66	0.65	28.7
4	T1	565	2.0	0.351	7.8	LOS A	1.8	46.7	0.65	0.62	27.0
14	R2	11	2.0	0.010	3.4	LOS A	0.0	1.2	0.48	0.27	30.2
Approach		641	2.0	0.351	7.8	LOS A	1.8	46.7	0.65	0.62	27.2
West: State Route 261											
5	L2	43	2.0	0.077	7.3	LOS A	0.3	7.8	0.62	0.59	29.0
2	T1	402	2.0	0.438	9.1	LOS A	2.5	64.6	0.71	0.73	37.9
12	R2	87	2.0	0.091	4.6	LOS A	0.4	10.2	0.57	0.49	35.1
Approach		533	2.0	0.438	8.2	LOS A	2.5	64.6	0.68	0.68	36.5
All Vehicles		3163	2.0	0.566	9.2	LOS A	4.4	111.8	0.70	0.67	29.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

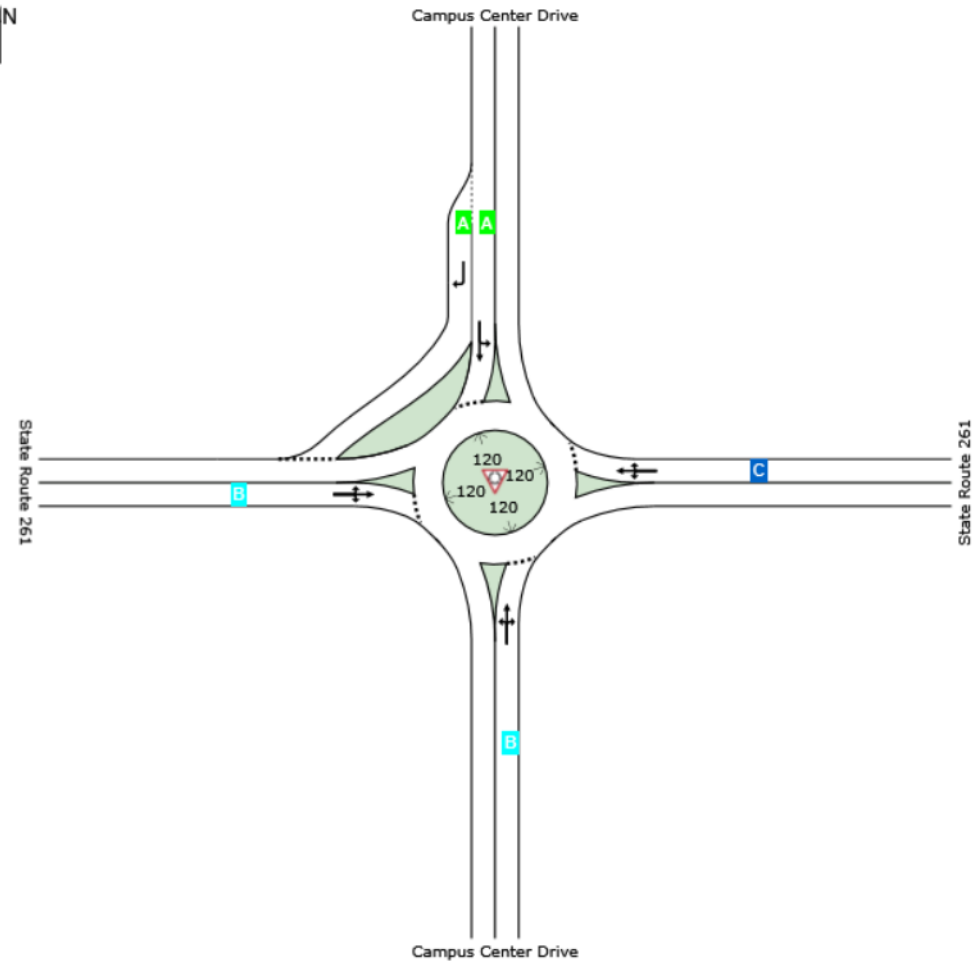
Lane Level of Service

Site: 1 [SR 261 / Campus Center]

Design Year 2047
AM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	B	C	A	B	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / Campus Center]

Design Year 2047
AM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Campus Center Drive											
3	L2	11	2.0	0.407	12.3	LOS B	2.8	70.8	0.84	0.86	32.1
8	T1	174	2.0	0.407	12.3	LOS B	2.8	70.8	0.84	0.86	29.4
18	R2	54	2.0	0.407	12.3	LOS B	2.8	70.8	0.84	0.86	31.3
Approach		239	2.0	0.407	12.3	LOS B	2.8	70.8	0.84	0.86	29.9
East: State Route 261											
1	L2	11	2.0	0.631	15.4	LOS C	6.2	156.4	0.84	0.87	31.6
6	T1	467	2.0	0.631	15.4	LOS C	6.2	156.4	0.84	0.87	34.2
16	R2	11	2.0	0.631	15.4	LOS C	6.2	156.4	0.84	0.87	30.2
Approach		489	2.0	0.631	15.4	LOS C	6.2	156.4	0.84	0.87	34.1
North: Campus Center Drive											
7	L2	11	2.0	0.024	4.1	LOS A	0.1	3.6	0.62	0.39	34.7
4	T1	11	2.0	0.024	4.1	LOS A	0.1	3.6	0.62	0.39	31.7
14	R2	87	2.0	0.093	4.7	LOS A	0.6	14.9	0.64	0.46	34.9
Approach		109	2.0	0.093	4.6	LOS A	0.6	14.9	0.63	0.45	34.5
West: State Route 261											
5	L2	304	2.0	0.647	11.6	LOS B	7.6	193.7	0.34	0.13	32.3
2	T1	457	2.0	0.647	11.6	LOS B	7.6	193.7	0.34	0.13	35.1
12	R2	11	2.0	0.647	11.6	LOS B	7.6	193.7	0.34	0.13	30.9
Approach		772	2.0	0.647	11.6	LOS B	7.6	193.7	0.34	0.13	33.9
All Vehicles		1609	2.0	0.647	12.4	LOS B	7.6	193.7	0.59	0.48	33.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

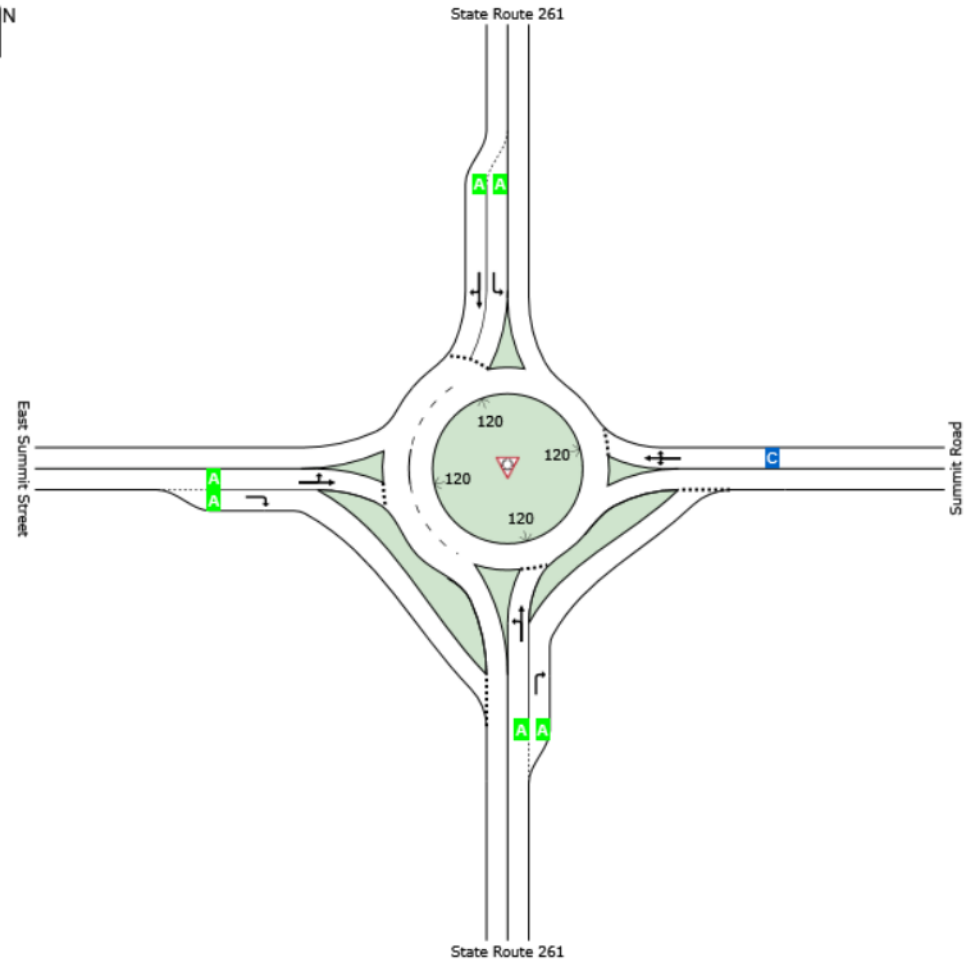
Lane Level of Service

Site: 1 [SR 261 / Summit]

Design Year 2047
AM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	C	A	A	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / Summit]

Design Year 2047
AM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: State Route 261											
3	L2	87	2.0	0.327	6.0	LOS A	2.1	53.9	0.46	0.30	36.5
8	T1	315	2.0	0.327	6.0	LOS A	2.1	53.9	0.46	0.30	40.9
18	R2	120	2.0	0.095	3.6	LOS A	0.5	12.7	0.34	0.19	40.0
Approach		522	2.0	0.327	5.4	LOS A	2.1	53.9	0.43	0.27	39.9
East: Summit Road											
1	L2	163	2.0	0.798	23.6	LOS C	11.7	296.0	0.98	1.09	29.6
6	T1	239	2.0	0.798	23.6	LOS C	11.7	296.0	0.98	1.09	27.0
16	R2	239	2.0	0.798	23.6	LOS C	11.7	296.0	0.98	1.09	29.0
Approach		641	2.0	0.798	23.6	LOS C	11.7	296.0	0.98	1.09	28.3
North: State Route 261											
7	L2	76	2.0	0.137	8.2	LOS A	0.8	19.1	0.68	0.58	34.9
4	T1	261	2.0	0.329	7.4	LOS A	2.4	60.0	0.73	0.60	40.7
14	R2	43	2.0	0.329	7.4	LOS A	2.4	60.0	0.73	0.60	34.5
Approach		380	2.0	0.329	7.6	LOS A	2.4	60.0	0.72	0.60	38.6
West: East Summit Street											
5	L2	33	2.0	0.153	5.7	LOS A	0.7	17.5	0.53	0.44	35.3
2	T1	98	2.0	0.153	5.7	LOS A	0.7	17.5	0.53	0.44	33.9
12	R2	65	2.0	0.074	4.8	LOS A	0.3	8.8	0.50	0.37	35.7
Approach		196	2.0	0.153	5.4	LOS A	0.7	17.5	0.52	0.42	34.7
All Vehicles		1739	2.0	0.798	12.6	LOS B	11.7	296.0	0.71	0.66	34.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

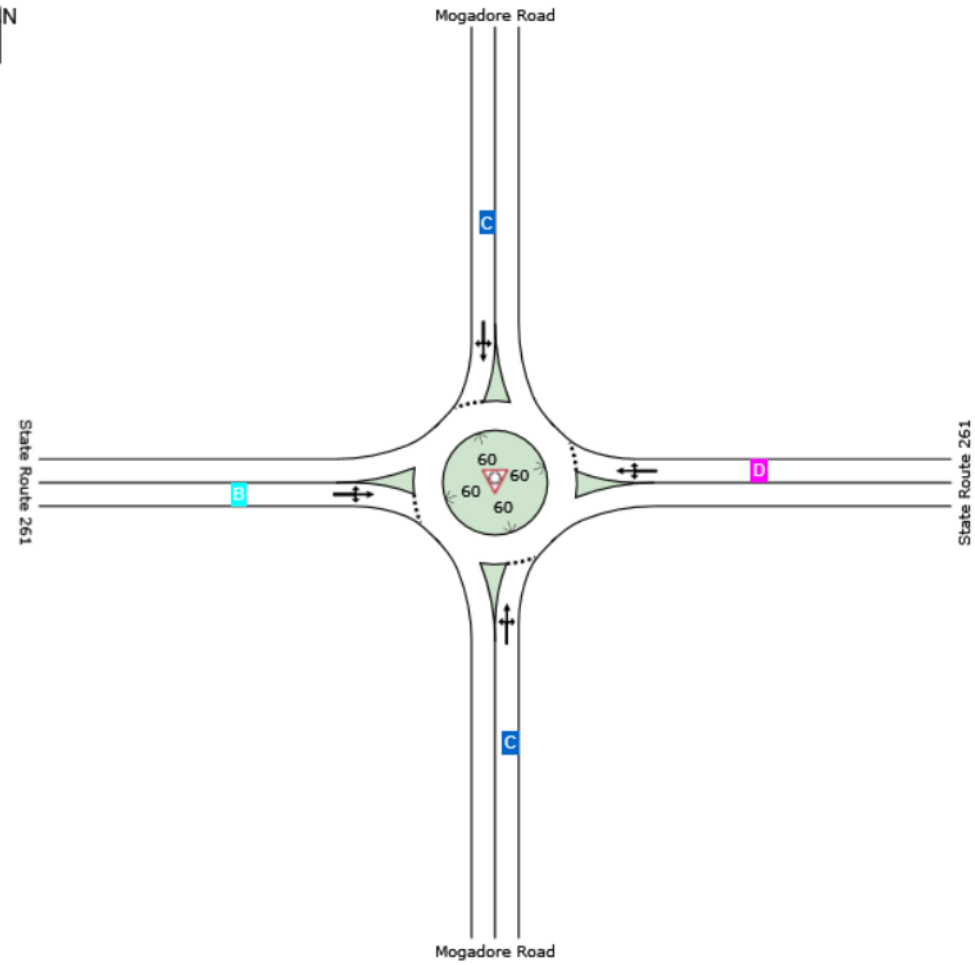
Lane Level of Service

Site: 1 [SR 261 / Mogadore]

Design Year 2047
PM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	C	D	C	B	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / Mogadore]

Design Year 2047
PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Mogadore Road											
3	L2	76	2.0	0.633	17.0	LOS C	6.1	155.8	0.86	0.90	28.6
8	T1	272	2.0	0.633	17.0	LOS C	6.1	155.8	0.86	0.90	26.5
18	R2	87	2.0	0.633	17.0	LOS C	6.1	155.8	0.86	0.90	28.2
Approach		435	2.0	0.633	17.0	LOS C	6.1	155.8	0.86	0.90	27.2
East: State Route 261											
1	L2	87	2.0	0.839	29.4	LOS D	13.7	346.9	1.00	1.11	25.1
6	T1	478	2.0	0.839	29.4	LOS D	13.7	346.9	1.00	1.11	27.1
16	R2	43	2.0	0.839	29.4	LOS D	13.7	346.9	1.00	1.11	24.7
Approach		609	2.0	0.839	29.4	LOS D	13.7	346.9	1.00	1.11	26.6
North: Mogadore Road											
7	L2	65	2.0	0.665	23.4	LOS C	6.5	164.7	0.96	1.11	26.4
4	T1	250	2.0	0.665	23.4	LOS C	6.5	164.7	0.96	1.11	24.6
14	R2	22	2.0	0.665	23.4	LOS C	6.5	164.7	0.96	1.11	26.1
Approach		337	2.0	0.665	23.4	LOS C	6.5	164.7	0.96	1.11	25.1
West: State Route 261											
5	L2	11	2.0	0.530	13.5	LOS B	4.3	109.0	0.79	0.76	30.6
2	T1	348	2.0	0.530	13.5	LOS B	4.3	109.0	0.79	0.76	33.7
12	R2	11	2.0	0.530	13.5	LOS B	4.3	109.0	0.79	0.76	30.0
Approach		370	2.0	0.530	13.5	LOS B	4.3	109.0	0.79	0.76	33.5
All Vehicles		1750	2.0	0.839	21.8	LOS C	13.7	346.9	0.92	0.98	27.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

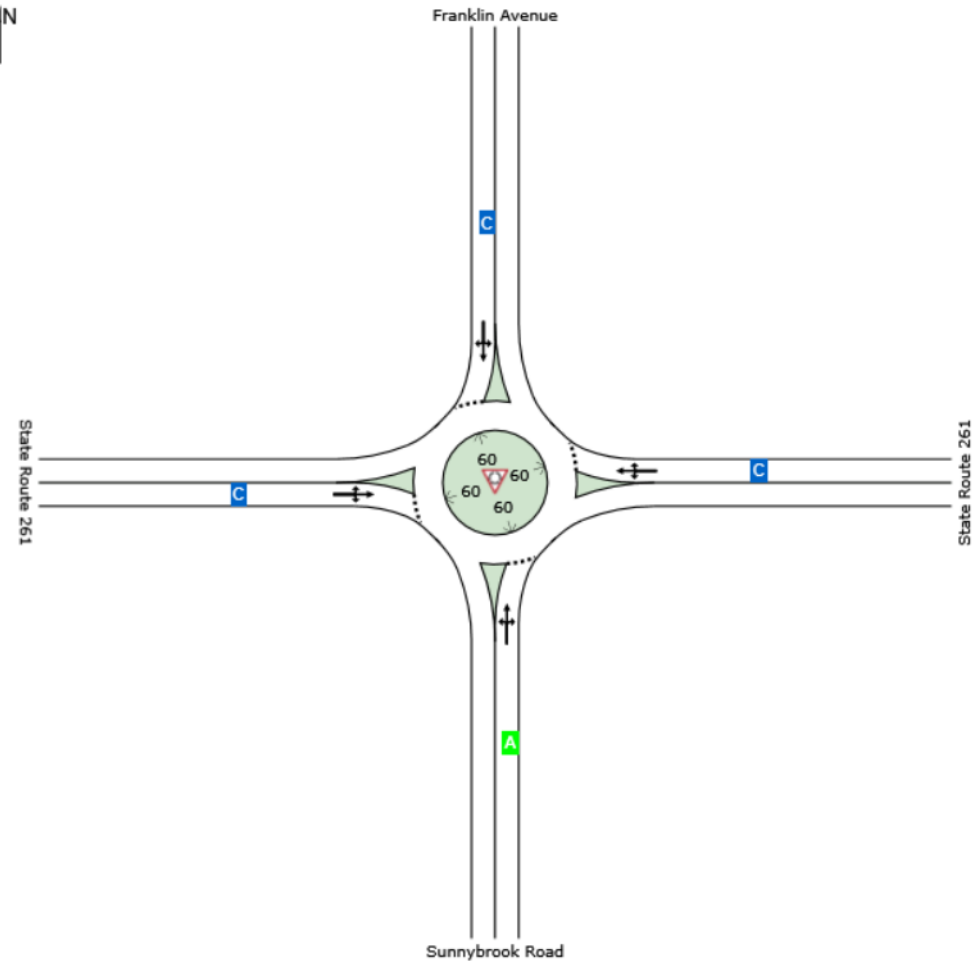
Lane Level of Service

Site: 1 [SR 261 / Franklin / Sunnybrook]

Design Year 2047
PM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	C	C	C	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / Franklin / Sunnybrook]

Design Year 2047
PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Sunnybrook Road											
3	L2	22	2.0	0.253	9.9	LOS A	1.5	38.1	0.76	0.71	27.3
8	T1	76	2.0	0.253	9.9	LOS A	1.5	38.1	0.76	0.71	22.6
18	R2	43	2.0	0.253	9.9	LOS A	1.5	38.1	0.76	0.71	26.9
Approach		141	2.0	0.253	9.9	LOS A	1.5	38.1	0.76	0.71	24.5
East: State Route 261											
1	L2	65	2.0	0.733	17.3	LOS C	9.1	230.2	0.78	0.57	25.7
6	T1	533	2.0	0.733	17.3	LOS C	9.1	230.2	0.78	0.57	31.8
16	R2	87	2.0	0.733	17.3	LOS C	9.1	230.2	0.78	0.57	25.0
Approach		685	2.0	0.733	17.3	LOS C	9.1	230.2	0.78	0.57	30.1
North: Franklin Avenue											
7	L2	141	2.0	0.586	18.6	LOS C	5.1	129.0	0.91	1.04	24.3
4	T1	120	2.0	0.586	18.6	LOS C	5.1	129.0	0.91	1.04	20.6
14	R2	54	2.0	0.586	18.6	LOS C	5.1	129.0	0.91	1.04	24.1
Approach		315	2.0	0.586	18.6	LOS C	5.1	129.0	0.91	1.04	22.7
West: State Route 261											
5	L2	54	2.0	0.658	16.6	LOS C	6.9	174.4	0.84	0.80	25.9
2	T1	413	2.0	0.658	16.6	LOS C	6.9	174.4	0.84	0.80	32.0
12	R2	33	2.0	0.658	16.6	LOS C	6.9	174.4	0.84	0.80	25.2
Approach		500	2.0	0.658	16.6	LOS C	6.9	174.4	0.84	0.80	30.7
All Vehicles		1641	2.0	0.733	16.7	LOS C	9.1	230.2	0.82	0.74	27.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

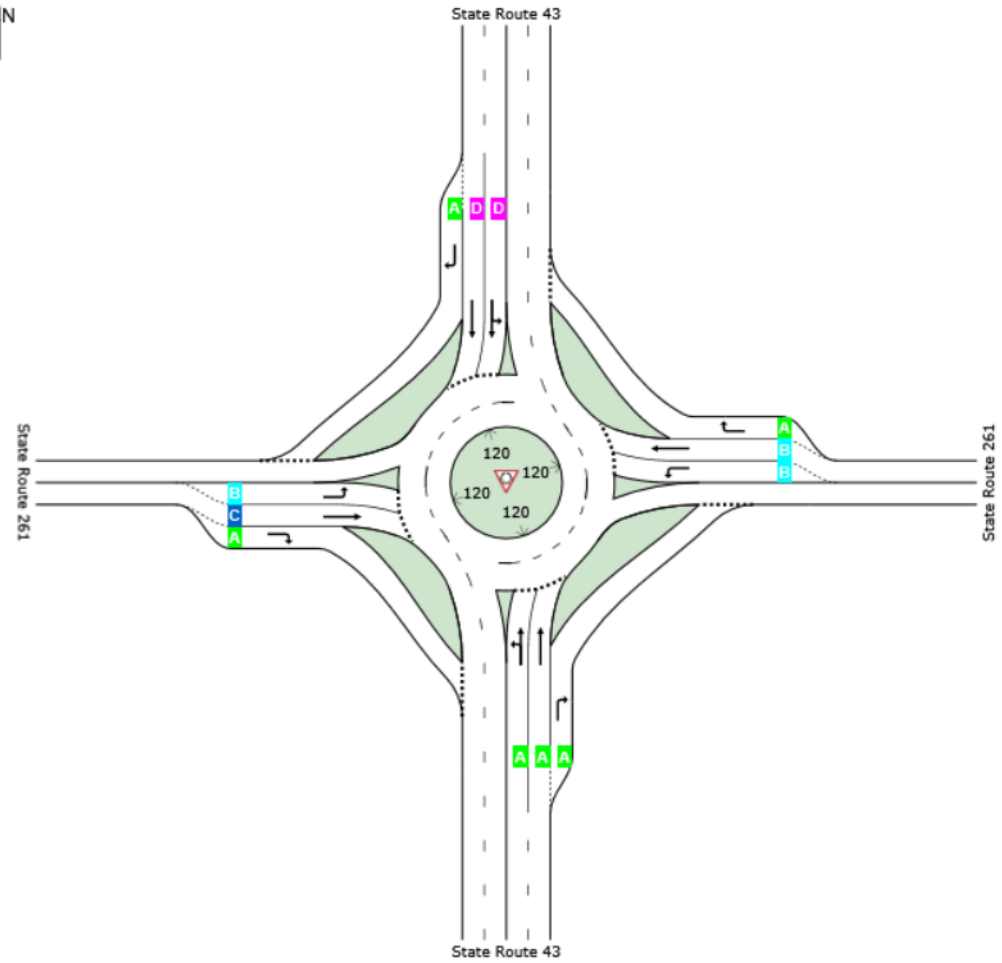
Lane Level of Service

Site: 1 [SR 261 / SR 43]

Design Year 2047
PM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	B	D	C	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / SR 43]

Design Year 2047
PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: State Route 43											
3	L2	120	2.0	0.416	9.0	LOS A	2.5	62.5	0.67	0.62	32.7
8	T1	674	2.0	0.416	8.4	LOS A	2.6	64.8	0.67	0.60	25.5
18	R2	272	2.0	0.267	6.2	LOS A	1.6	41.7	0.63	0.51	34.0
Approach		1065	2.0	0.416	7.9	LOS A	2.6	64.8	0.66	0.58	28.0
East: State Route 261											
1	L2	446	2.0	0.584	14.0	LOS B	3.8	96.1	0.77	0.83	29.9
6	T1	489	2.0	0.529	10.8	LOS B	3.4	85.4	0.74	0.78	36.8
16	R2	109	2.0	0.112	4.7	LOS A	0.5	12.9	0.57	0.48	29.8
Approach		1043	2.0	0.584	11.6	LOS B	3.8	96.1	0.74	0.77	32.7
North: State Route 43											
7	L2	163	2.0	0.840	32.7	LOS D	8.3	210.3	0.94	1.28	22.0
4	T1	1043	2.0	0.840	29.2	LOS D	9.2	232.8	0.95	1.28	21.6
14	R2	76	2.0	0.082	4.6	LOS A	0.5	11.9	0.63	0.47	29.8
Approach		1283	2.0	0.840	28.2	LOS D	9.2	232.8	0.93	1.23	22.0
West: State Route 261											
5	L2	54	2.0	0.144	11.8	LOS B	0.7	17.3	0.81	0.81	27.5
2	T1	337	2.0	0.605	18.9	LOS C	4.5	113.2	0.93	1.02	32.6
12	R2	207	2.0	0.323	9.9	LOS A	1.8	45.3	0.83	0.83	32.4
Approach		598	2.0	0.605	15.1	LOS C	4.5	113.2	0.89	0.94	32.0
All Vehicles		3989	2.0	0.840	16.5	LOS C	9.2	232.8	0.80	0.89	27.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

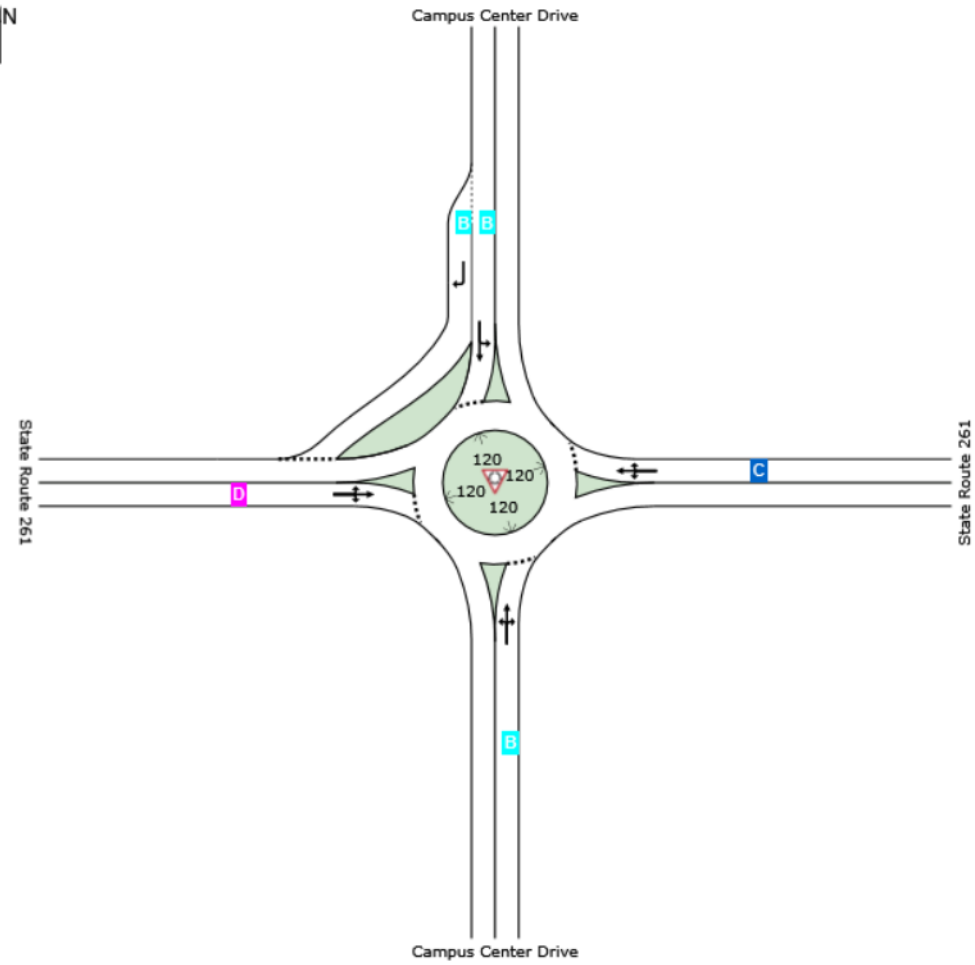
Lane Level of Service

Site: 1 [SR 261 / Campus Center]

Design Year 2047
PM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	B	C	B	D	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / Campus Center]

Design Year 2047
PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Campus Center Drive											
3	L2	11	2.0	0.317	12.5	LOS B	2.2	55.6	0.90	0.86	31.8
8	T1	65	2.0	0.317	12.5	LOS B	2.2	55.6	0.90	0.86	29.2
18	R2	76	2.0	0.317	12.5	LOS B	2.2	55.6	0.90	0.86	31.0
Approach		152	2.0	0.317	12.5	LOS B	2.2	55.6	0.90	0.86	30.3
East: State Route 261											
1	L2	76	2.0	0.824	23.1	LOS C	14.0	356.7	0.99	0.90	28.4
6	T1	685	2.0	0.824	23.1	LOS C	14.0	356.7	0.99	0.90	30.5
16	R2	11	2.0	0.824	23.1	LOS C	14.0	356.7	0.99	0.90	27.3
Approach		772	2.0	0.824	23.1	LOS C	14.0	356.7	0.99	0.90	30.3
North: Campus Center Drive											
7	L2	11	2.0	0.348	10.5	LOS B	2.7	69.8	0.93	0.85	32.9
4	T1	207	2.0	0.348	10.5	LOS B	2.7	69.8	0.93	0.85	30.2
14	R2	348	2.0	0.498	12.7	LOS B	4.5	114.6	0.95	0.92	31.1
Approach		565	2.0	0.498	11.9	LOS B	4.5	114.6	0.94	0.90	30.8
West: State Route 261											
5	L2	174	2.0	0.861	27.3	LOS D	16.3	414.1	1.00	1.01	26.8
2	T1	576	2.0	0.861	27.3	LOS D	16.3	414.1	1.00	1.01	28.6
12	R2	22	2.0	0.861	27.3	LOS D	16.3	414.1	1.00	1.01	25.8
Approach		772	2.0	0.861	27.3	LOS D	16.3	414.1	1.00	1.01	28.1
All Vehicles		2261	2.0	0.861	21.0	LOS C	16.3	414.1	0.97	0.94	29.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

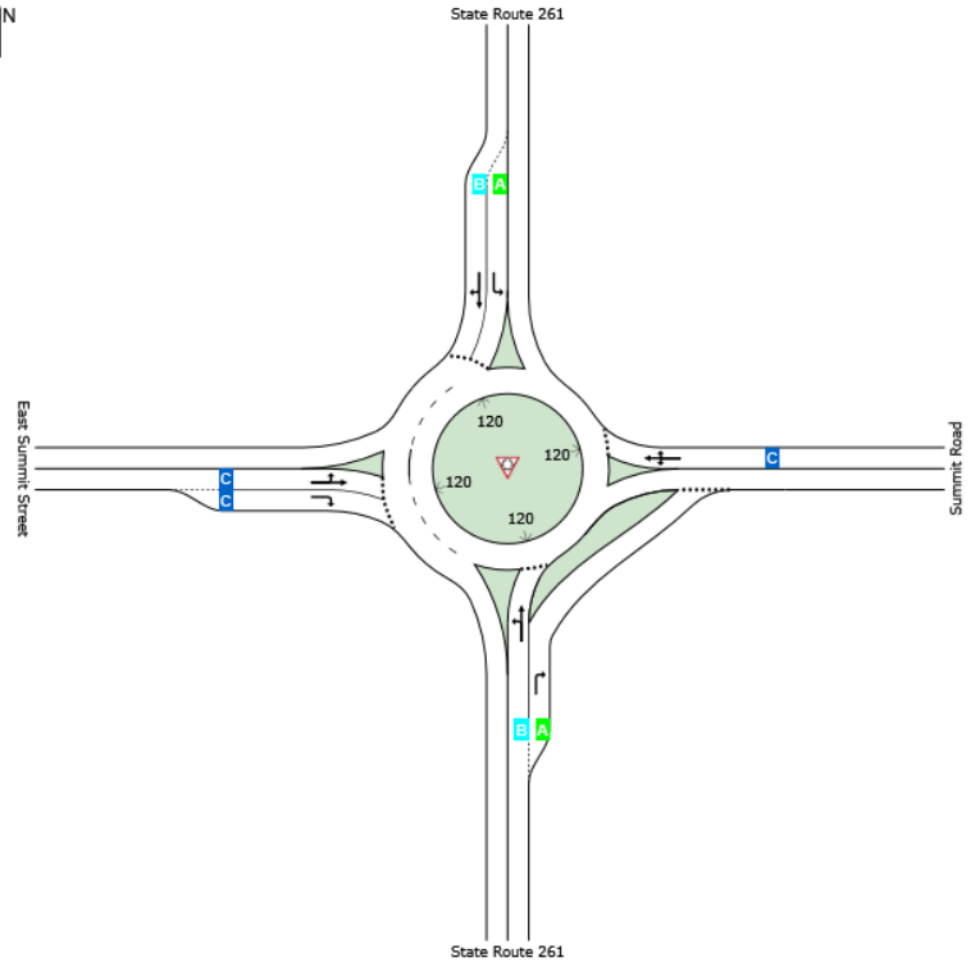
Lane Level of Service

Site: 1 [SR 261 / Summit]

Design Year 2047
PM Peak Hour
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	B	C	A	C	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 1 [SR 261 / Summit]

Design Year 2047
PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: State Route 261											
3	L2	87	2.0	0.578	13.3	LOS B	5.7	144.5	0.91	0.91	32.8
8	T1	380	2.0	0.578	13.3	LOS B	5.7	144.5	0.91	0.91	36.3
18	R2	196	2.0	0.210	6.0	LOS A	1.3	34.0	0.67	0.54	38.4
Approach		663	2.0	0.578	11.1	LOS B	5.7	144.5	0.84	0.80	36.3
East: Summit Road											
1	L2	152	2.0	0.688	20.4	LOS C	7.5	190.7	0.96	1.08	30.7
6	T1	130	2.0	0.688	20.4	LOS C	7.5	190.7	0.96	1.08	27.9
16	R2	163	2.0	0.688	20.4	LOS C	7.5	190.7	0.96	1.08	30.0
Approach		446	2.0	0.688	20.4	LOS C	7.5	190.7	0.96	1.08	29.6
North: State Route 261											
7	L2	217	2.0	0.288	8.1	LOS A	1.8	45.1	0.65	0.54	35.0
4	T1	489	2.0	0.542	10.2	LOS B	4.7	118.9	0.75	0.62	38.9
14	R2	76	2.0	0.542	10.2	LOS B	4.7	118.9	0.75	0.62	33.1
Approach		783	2.0	0.542	9.6	LOS A	4.7	118.9	0.72	0.59	37.1
West: East Summit Street											
5	L2	130	2.0	0.667	18.8	LOS C	5.2	132.4	0.85	0.98	29.3
2	T1	315	2.0	0.667	18.8	LOS C	5.2	132.4	0.85	0.98	28.4
12	R2	130	2.0	0.336	15.6	LOS C	1.5	38.4	0.73	0.75	30.2
Approach		576	2.0	0.667	18.1	LOS C	5.2	132.4	0.82	0.92	29.0
All Vehicles		2467	2.0	0.688	13.9	LOS B	7.5	190.7	0.82	0.81	33.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

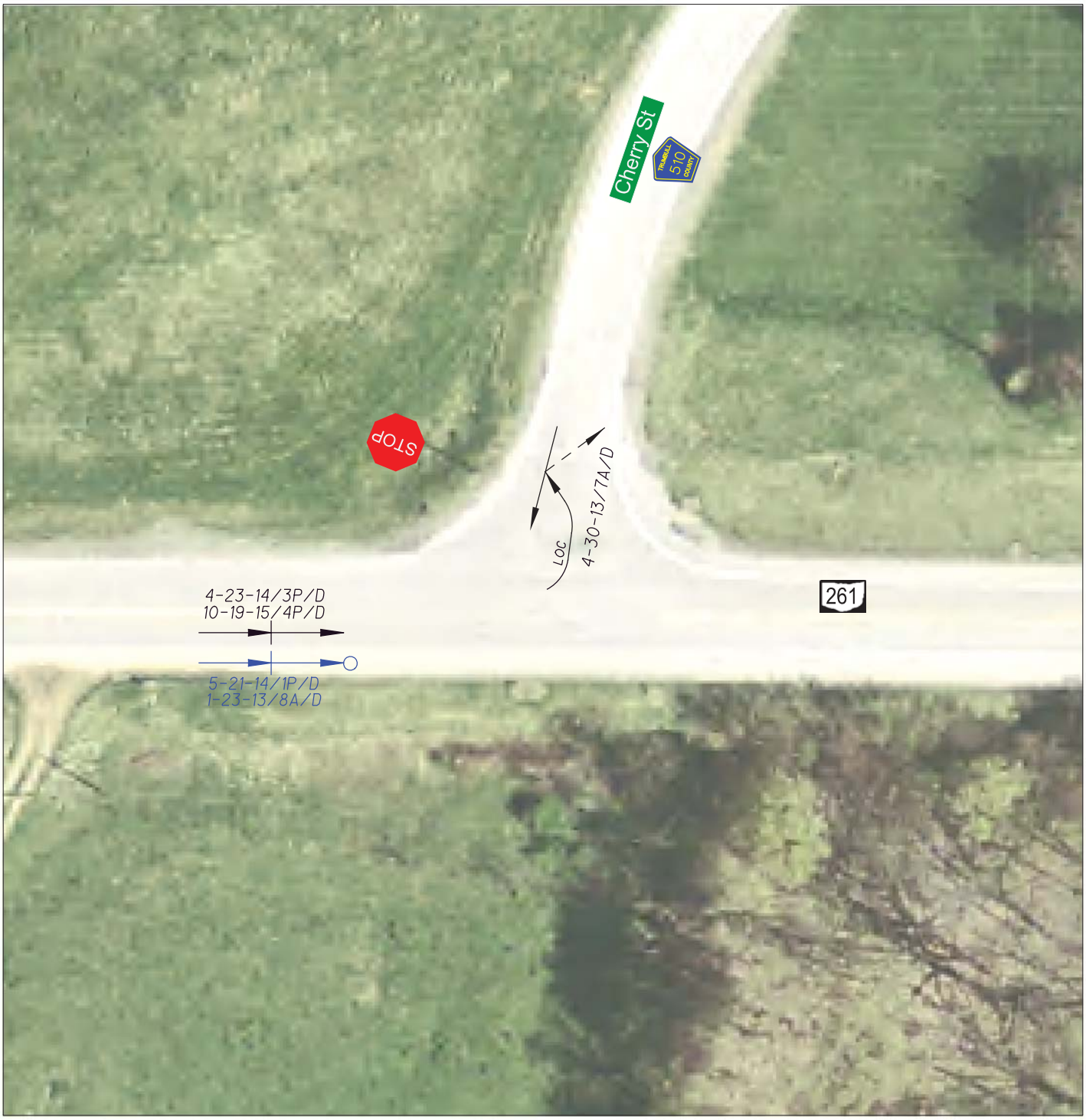
APPENDIX D
COLLISION DIAGRAMS & CRASH ANALYSIS

COLLISION DIAGRAM

POR SR 261 at CHERRY ST (CR510)

SLM 0.41

2013-2015



Vehicle Direction	○ Injury	Road:	FTC = Failure To Control	
Backing	● Fatal	D = Dry	FTS = Failure To Stop	
Pedestrian	□ Fixed Object	W = Wet	FTY = Failure To Yeild	
Out of Control	⊠ Parked Vehicle	I = Ice	LOC = Left of Center	
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	
			OVI = Operating Vehicle Impaired	

TOTAL CRASHES ON PAGE

FREQUENCY		CRASH SEVERITY	
2	2013	2	NON - INJURY
1	2014	2	INJURY OR FATAL
1	2015	4	TOTAL

COLLISION DIAGRAM

POR SR 261 at MOGADORE RD (CR81)

SLM 0.99

2013-2015

Vehicle Direction	○ Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE	
Backing	● Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY	CRASH SEVERITY
Pedestrian	□ Fixed Object	W = Wet	FTY = Failure To Yeild	3 2013	13 NON - INJURY
Out of Control	⊠ Parked Vehicle	I = Ice	LOC = Left of Center	6 2014	3 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	7 2015	16 TOTAL
			OVI = Operating Vehicle Impaired		

COLLISION DIAGRAM

POR SR 261 at FRANKLIN AVE (CR335) and SUNNYBROOK AVE (MR481)

SLM 1.60

2013-2015

Vehicle Direction	Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE	
Backing	Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY	CRASH SEVERITY
Pedestrian	Fixed Object	W = Wet	FTY = Failure To Yeild	7 2013	10 NON - INJURY
Out of Control	Parked Vehicle	I = Ice	LOC = Left of Center	6 2014	8 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	5 2015	18 TOTAL
			OVI = Operating Vehicle Impaired		

COLLISION DIAGRAM

POR SR 43 at SR 261

SLM 10.23/2.02

2013-2015

Vehicle Direction	Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE	
Backing	Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY	CRASH SEVERITY
Pedestrian	Fixed Object	W = Wet	FTY = Failure To Yeild	23 2013	57 NON - INJURY
Out of Control	Parked Vehicle	I = Ice	LOC = Left of Center	20 2014	7 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	21 2015	64 TOTAL
			OVI = Operating Vehicle Impaired		

COLLISION DIAGRAM

POR SR 261 at CAMPUS CENTER DR (CR550)

SLM 2.43

2013-2015

Vehicle Direction	Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE	
Backing	Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY	CRASH SEVERITY
Pedestrian	Fixed Object	W = Wet	FTY = Failure To Yeild	3 2013	12 NON - INJURY
Out of Control	Parked Vehicle	I = Ice	LOC = Left of Center	5 2014	3 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	7 2015	15 TOTAL
			OVI = Operating Vehicle Impaired		

COLLISION DIAGRAM

POR SR 261 at SUMMIT ST (CR148)

SLM 3.85

2013-2015

Vehicle Direction	○ Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE	
Backing	● Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY	CRASH SEVERITY
Pedestrian	□ Fixed Object	W = Wet	FTY = Failure To Yeild	4 2013	12 NON - INJURY
Out of Control	⊠ Parked Vehicle	I = Ice	LOC = Left of Center	8 2014	9 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	9 2015	21 TOTAL
			OVI = Operating Vehicle Impaired		

COLLISION DIAGRAM

POR SR 59 at SR 261

SLM 3.80/5.06

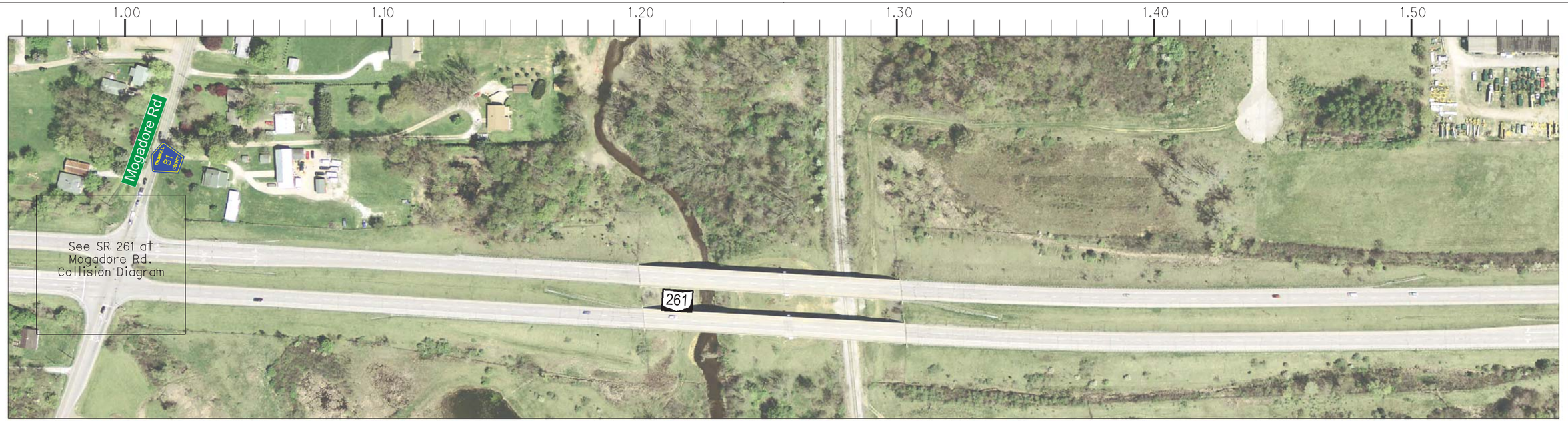
2013-2015

Vehicle Direction	○ Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE
Backing	● Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY: 8 2013; 9 2014; 6 2015
Pedestrian	□ Fixed Object	W = Wet	FTY = Failure To Yield	CRASH SEVERITY: 10 NON - INJURY; 13 INJURY OR FATAL; 23 TOTAL
Out of Control	⊠ Parked Vehicle	I = Ice	LOC = Left of Center	
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	
			OVI = Operating Vehicle Impaired	

Vehicle Direction	○ Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE		
Backing	● Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY		CRASH SEVERITY
Pedestrian	□ Fixed Object	W = Wet	FTY = Failure To Yield	3	2013	4 NON - INJURY
Out of Control	⊠ Parked Vehicle	I = Ice	LOC = Left of Center	2	2014	2 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	1	2015	6 TOTAL
			OVI = Operating Vehicle Impaired			

COLLISION DIAGRAM
POR SR 261
SLM 0.36-0.95
2013-2015

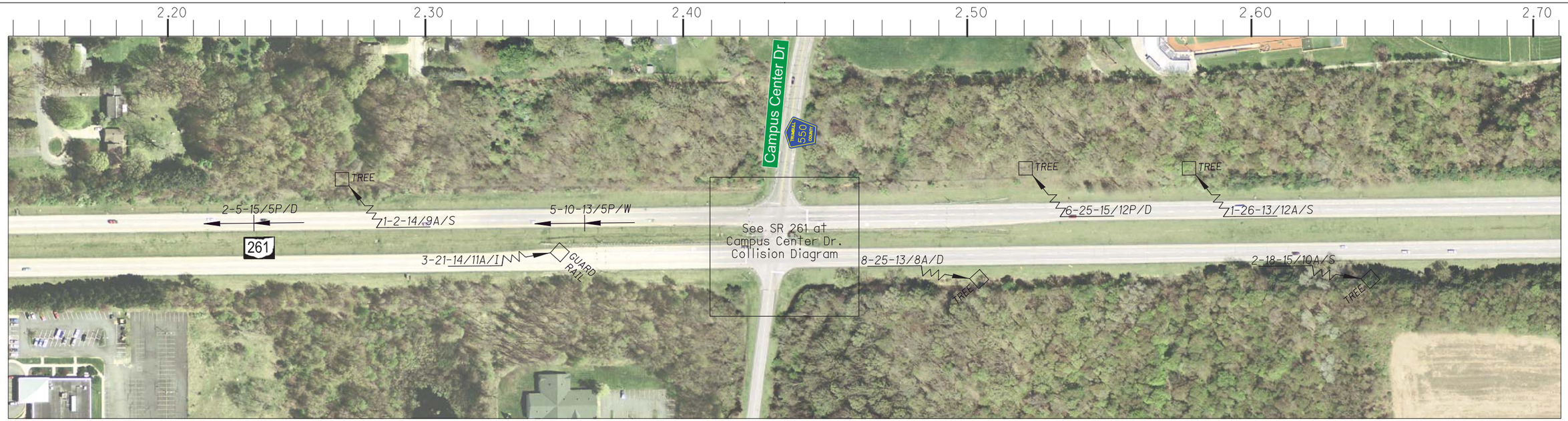
N

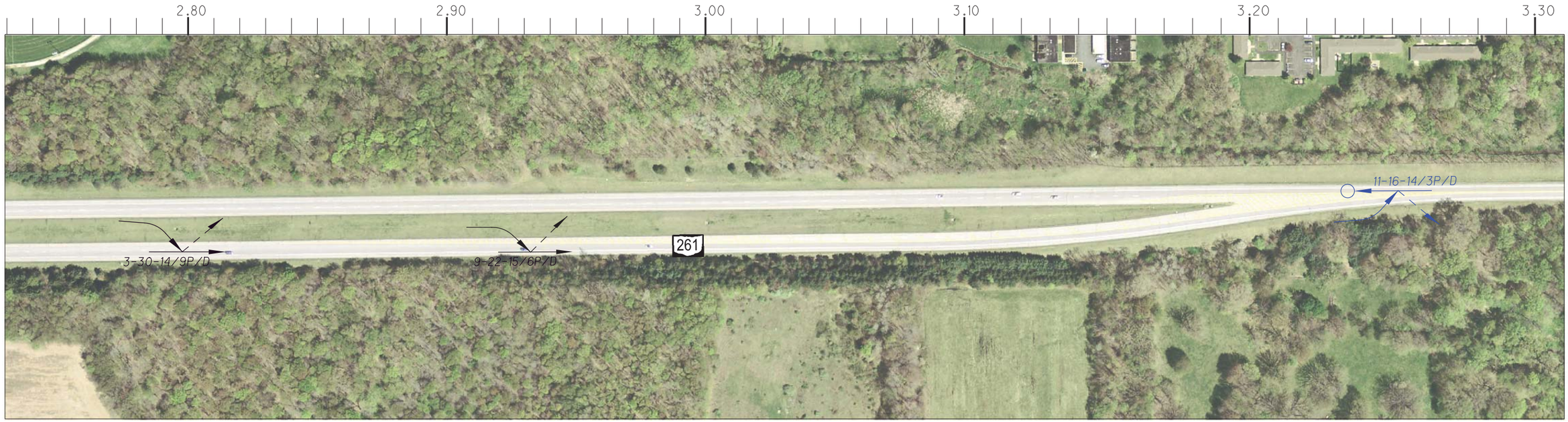


→ Vehicle Direction	○ Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE		
←→ Backing	● Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY		CRASH SEVERITY
⇝ Pedestrian	□ Fixed Object	W = Wet	FTY = Failure To Yield	1	2013	1 NON - INJURY
⇝ Out of Control	⊠ Parked Vehicle	I = Ice	LOC = Left of Center	0	2014	1 INJURY OR FATAL
⇝ Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	1	2015	2 TOTAL
			OVI = Operating Vehicle Impaired			

COLLISION DIAGRAM
POR SR 261
SLM 0.95-2.14
2013-2015

N





Vehicle Direction	Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE		
Backing	Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY		CRASH SEVERITY
Pedestrian	Fixed Object	W = Wet	FTY = Failure To Yield	3	2013	9 NON - INJURY
Out of Control	Parked Vehicle	I = Ice	LOC = Left of Center	2	2014	0 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	4	2015	9 TOTAL
			OVI = Operating Vehicle Impaired			

COLLISION DIAGRAM
POR SR 261
SLM 2.14-3.31
2013-2015

N

Vehicle Direction	Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE	
Backing	Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY	CRASH SEVERITY
Pedestrian	Fixed Object	W = Wet	FTY = Failure To Yield	0 2013	1 NON - INJURY
Out of Control	Parked Vehicle	I = Ice	LOC = Left of Center	3 2014	2 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	0 2015	3 TOTAL
			OVI = Operating Vehicle Impaired		

COLLISION DIAGRAM
POR SR 261
SLM 3.31-3.81
2013-2015

N

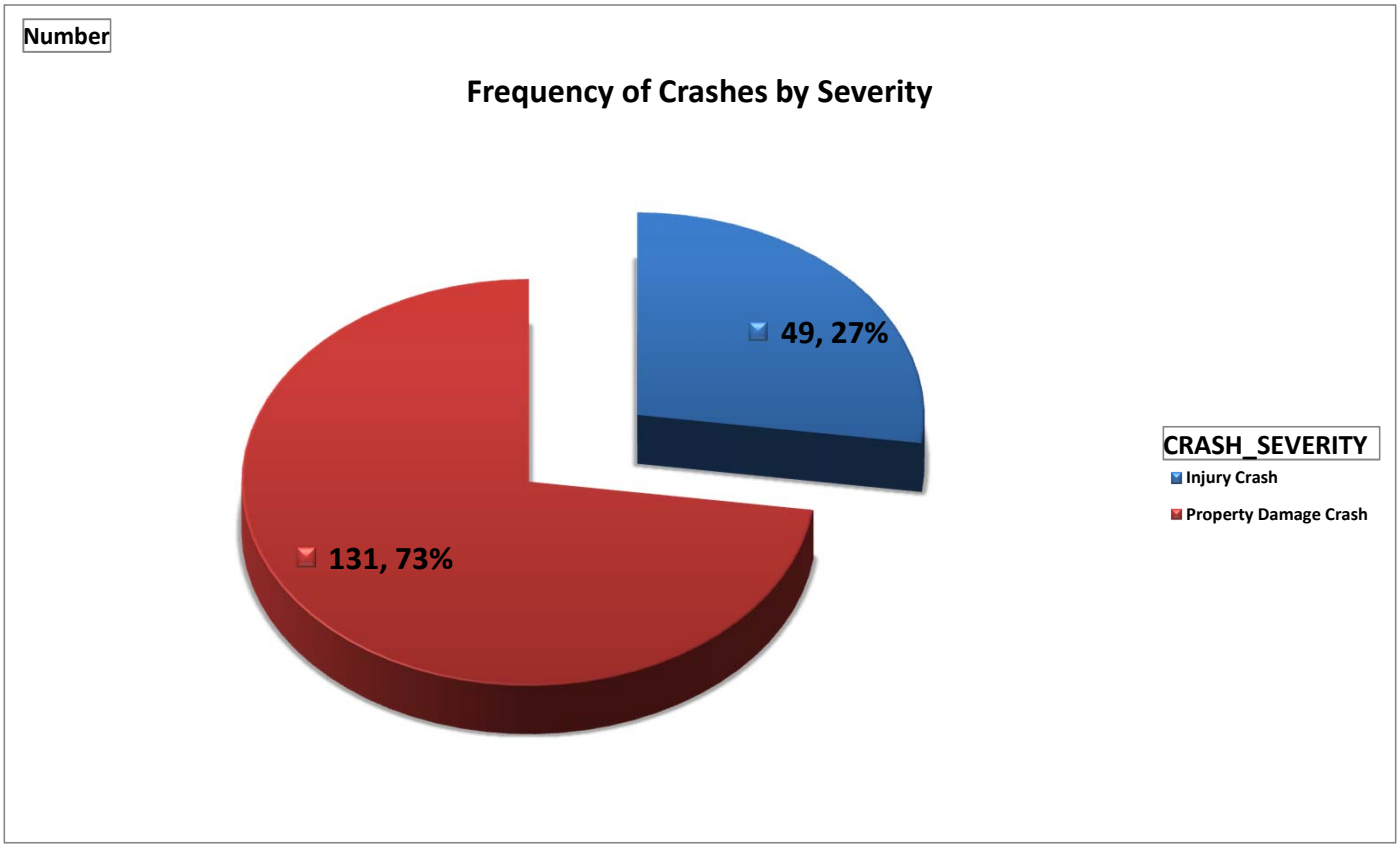
COLLISION DIAGRAM
POR SR 261
SLM 3.81-4.81
2013-2015

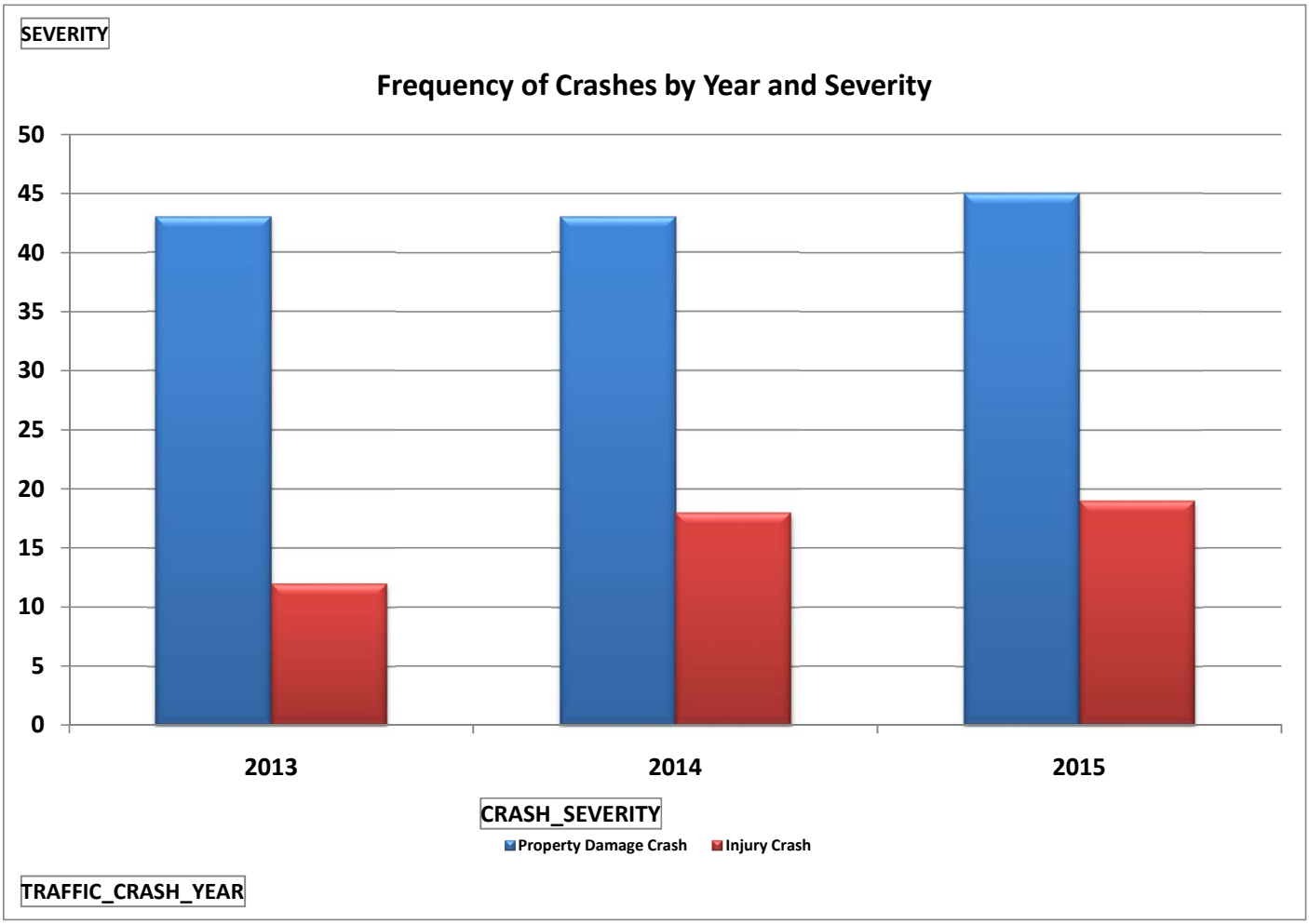
Vehicle Direction	Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE	
Backing	Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY	CRASH SEVERITY
Pedestrian	Fixed Object	W = Wet	FTY = Failure To Yield	0 2013	1 NON - INJURY
Out of Control	Parked Vehicle	I = Ice	LOC = Left of Center	1 2014	1 INJURY OR FATAL
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	1 2015	2 TOTAL
			OVI = Operating Vehicle Impaired		

COLLISION DIAGRAM
POR SR 261
SLM 4.81-5.06
2013-2015

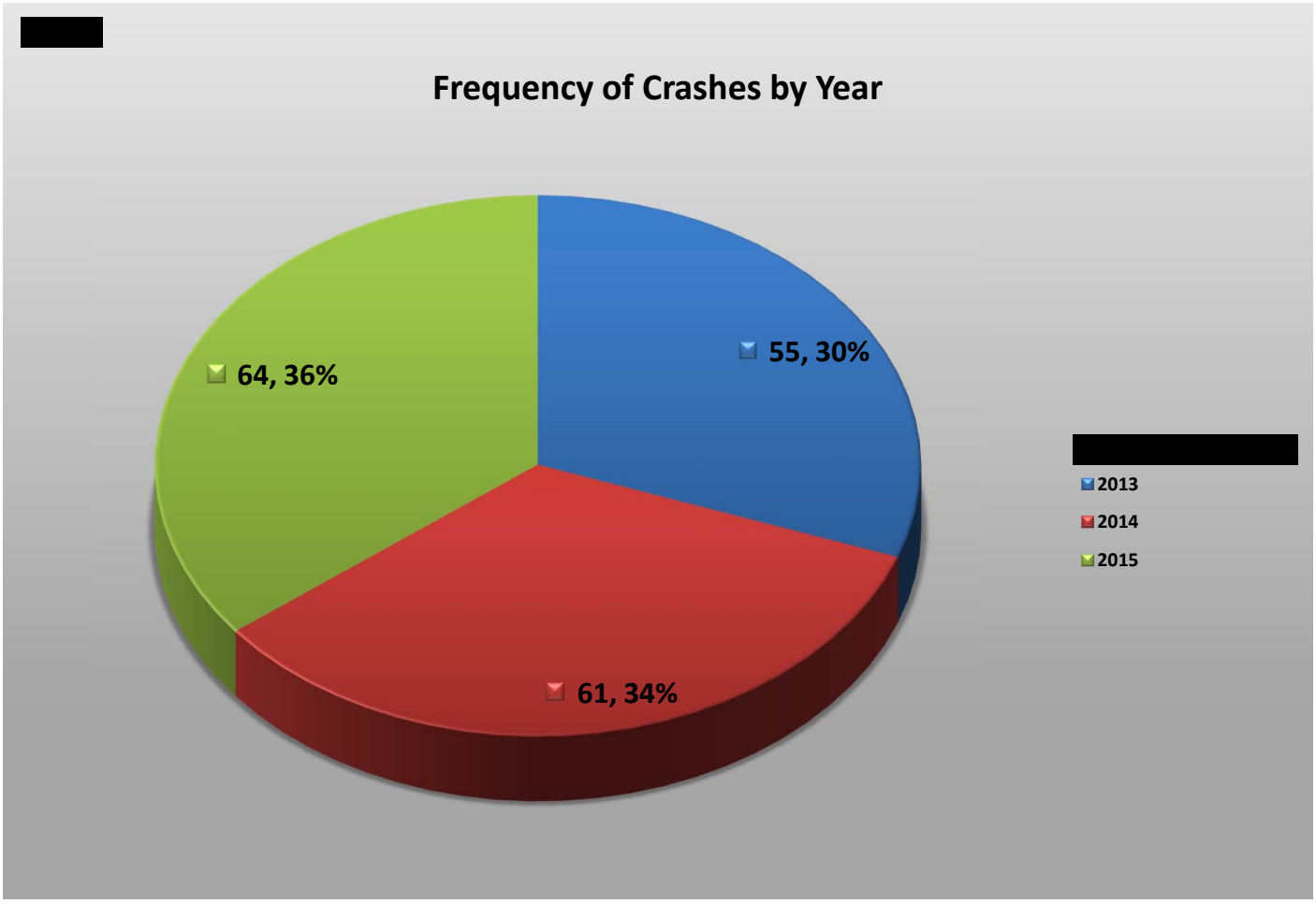
Vehicle Direction	○ Injury	Road:	FTC = Failure To Control	TOTAL CRASHES ON PAGE
Backing	● Fatal	D = Dry	FTS = Failure To Stop	FREQUENCY: 0 2013; 0 2014; 1 2015
Pedestrian	□ Fixed Object	W = Wet	FTY = Failure To Yield	CRASH SEVERITY: 0 NON - INJURY; 1 INJURY OR FATAL; 1 TOTAL
Out of Control	⊠ Parked Vehicle	I = Ice	LOC = Left of Center	
Overturn	TEXT Date/Time/Road/Egress Direction	S = Snow	RRL = Ran Red Light	
			OVI = Operating Vehicle Impaired	

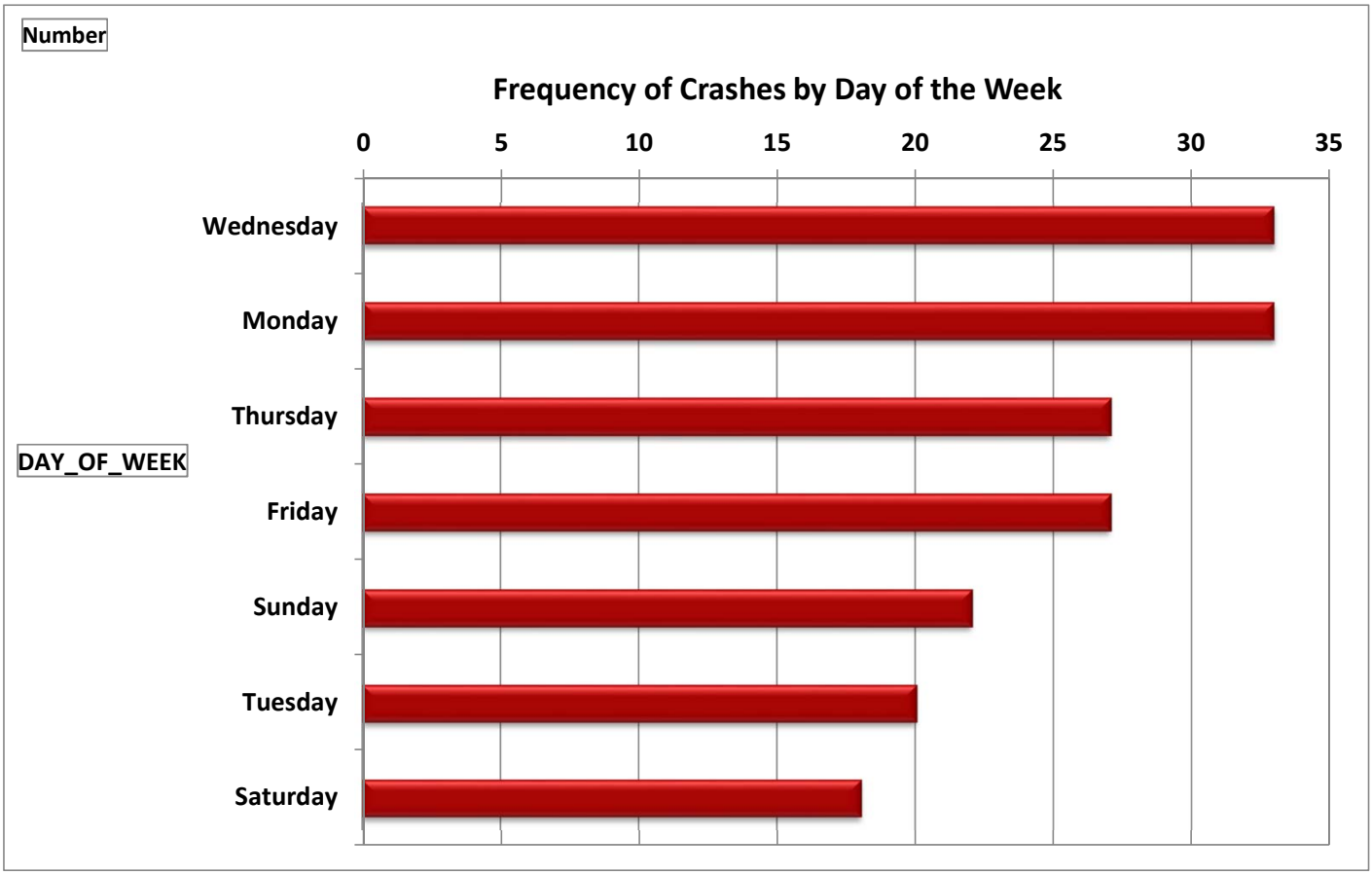
POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015





POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015





POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

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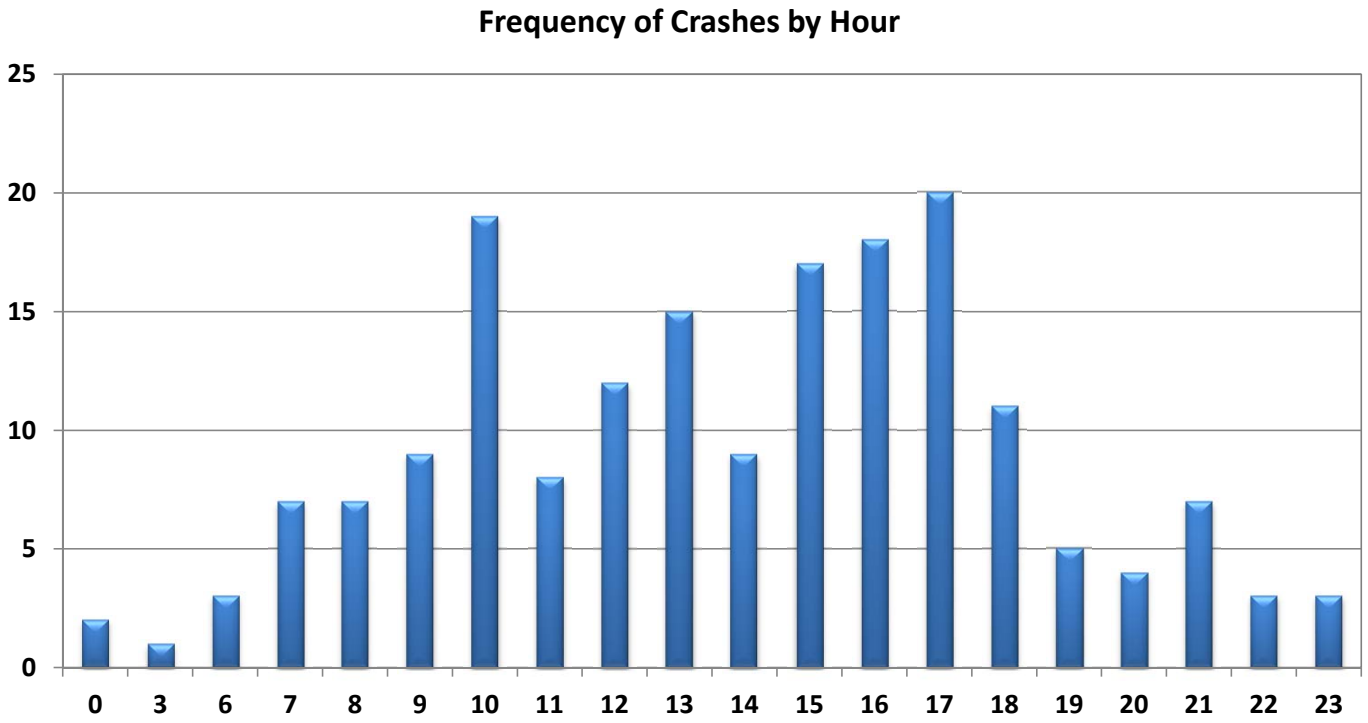

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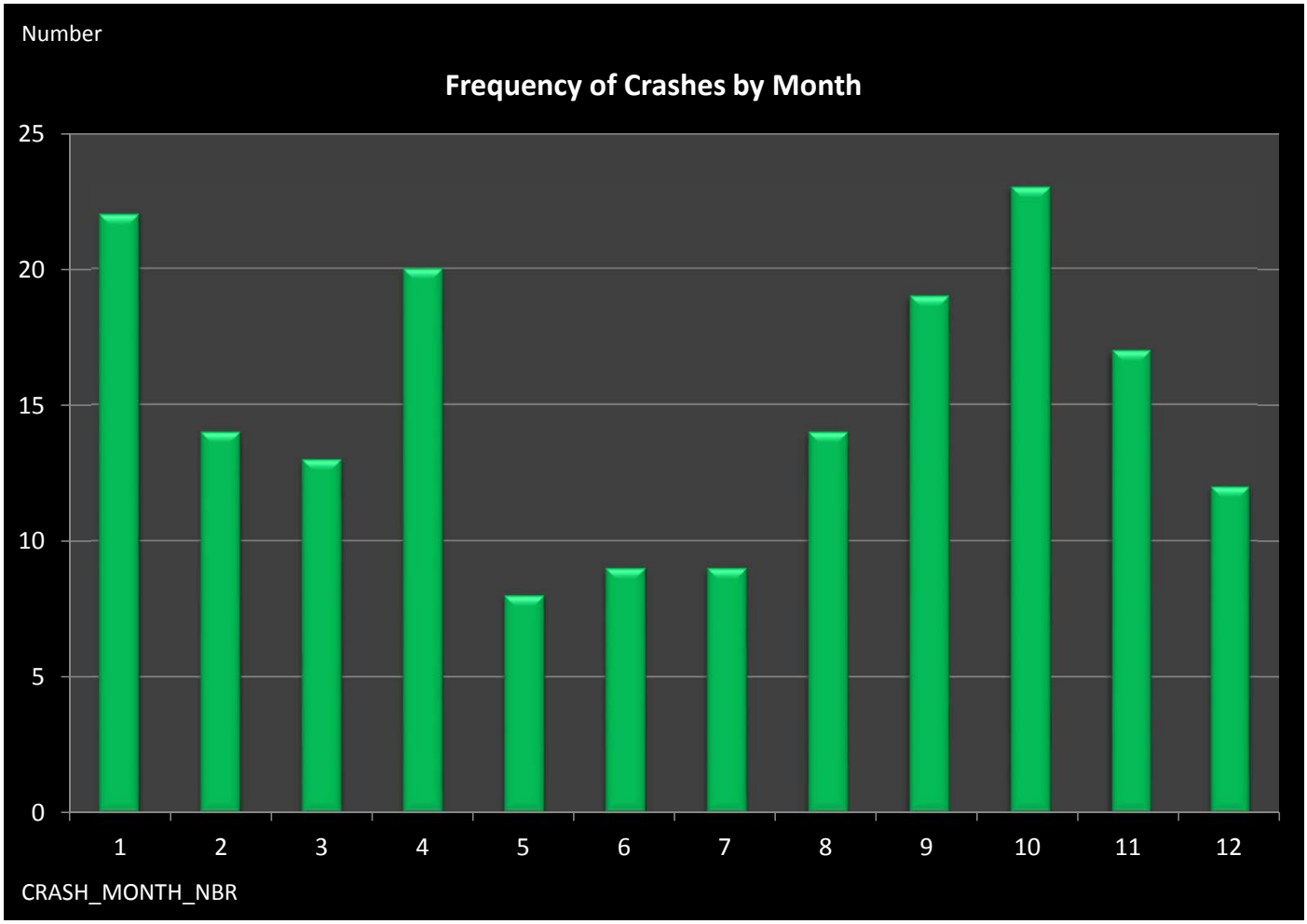
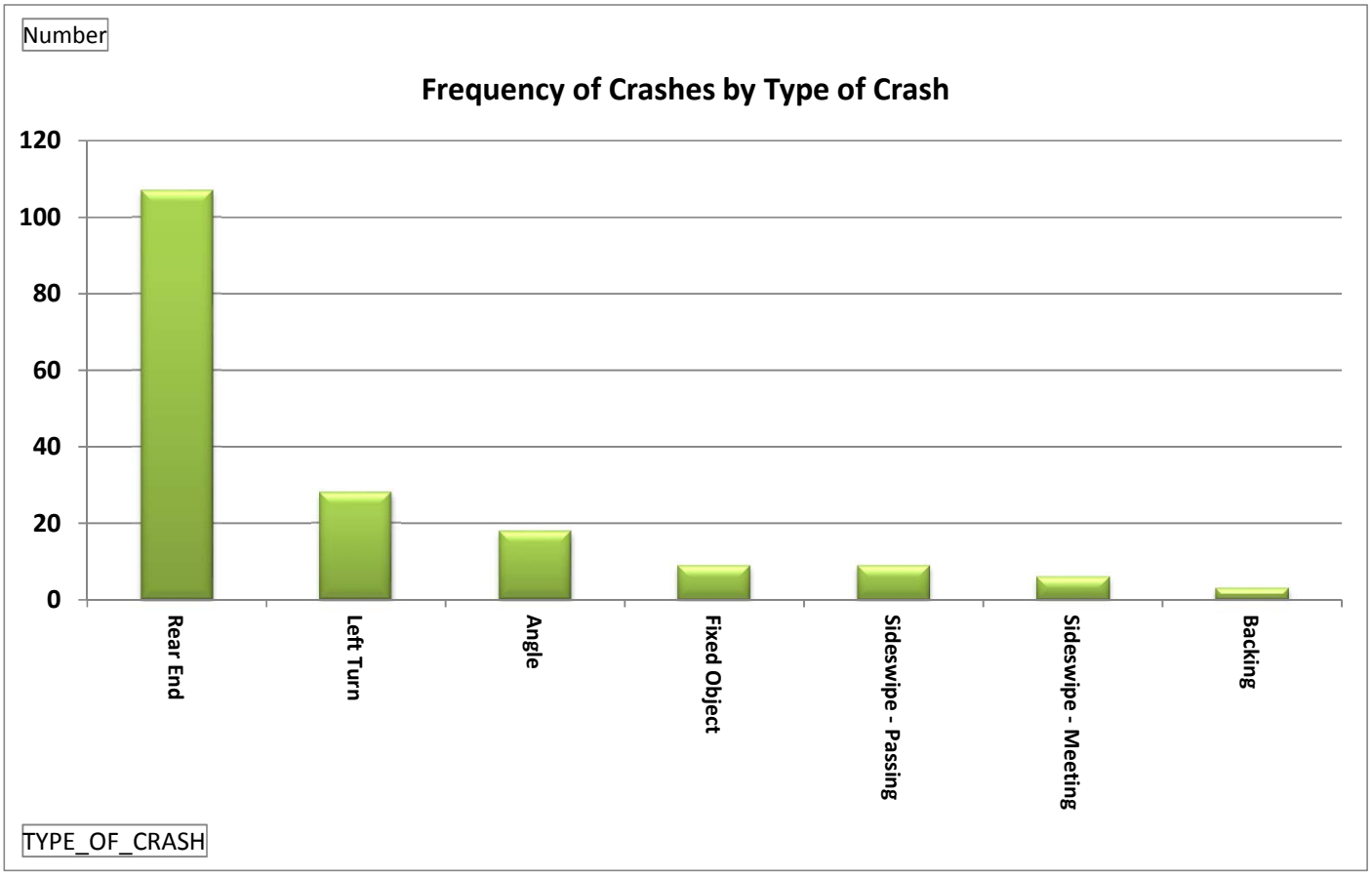
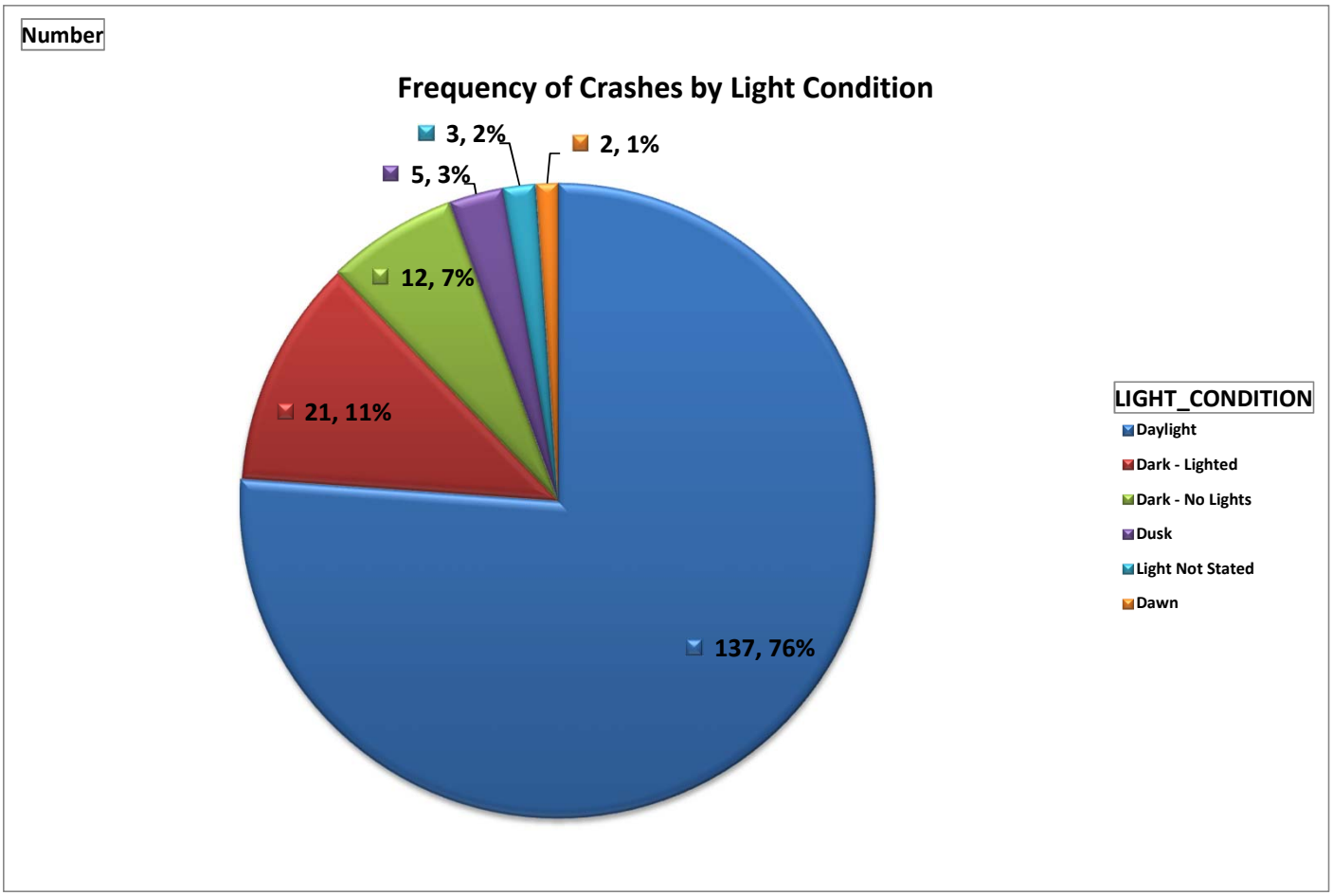
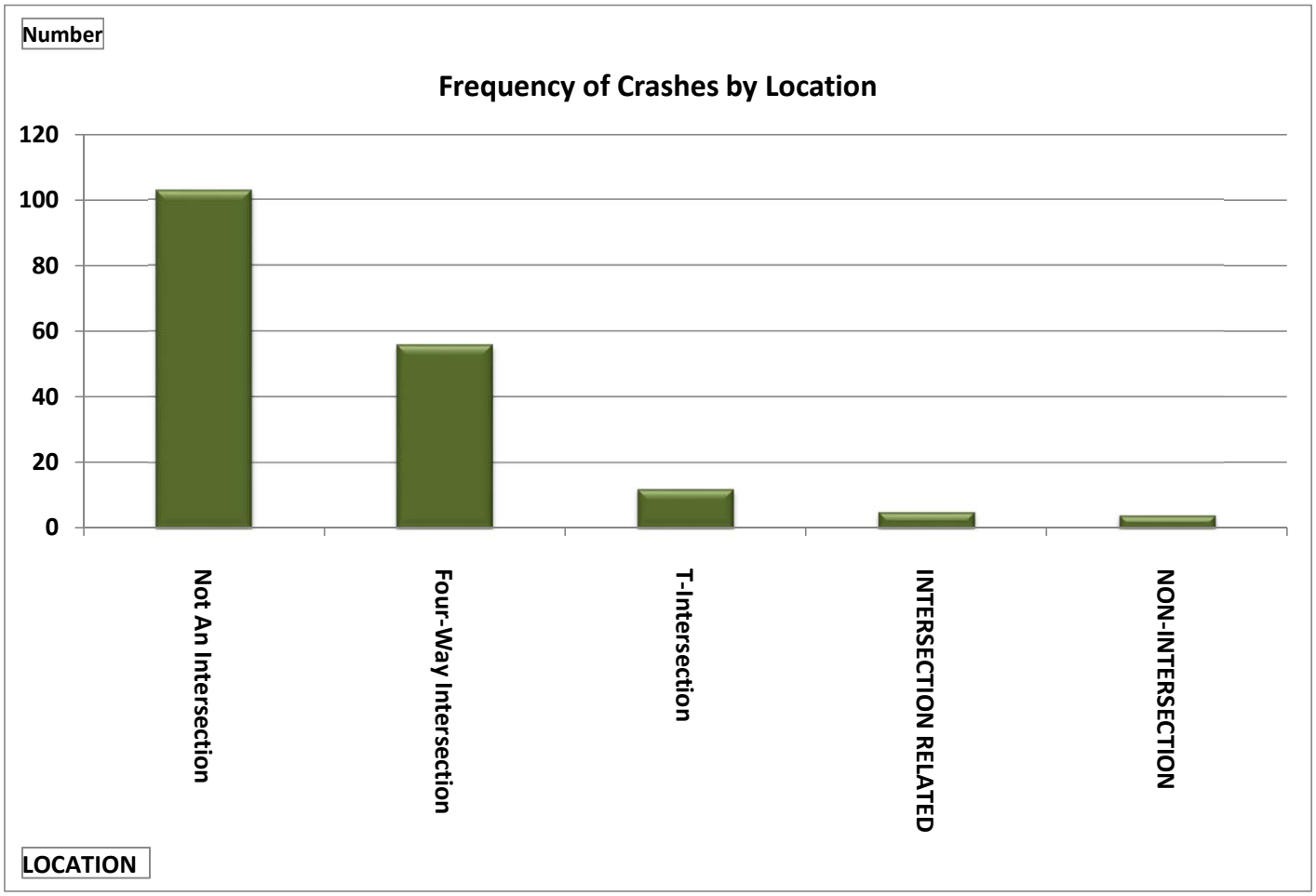
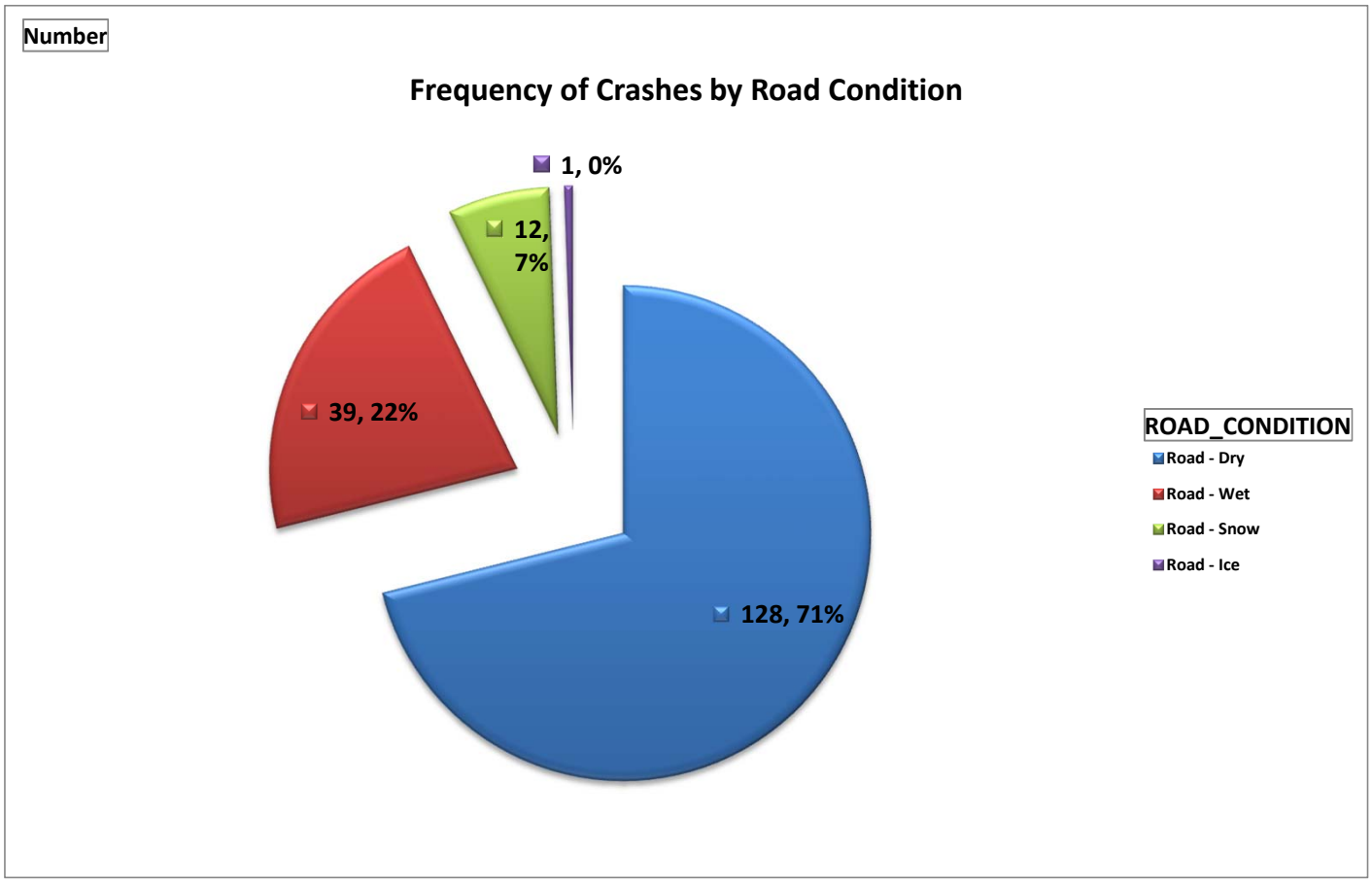


POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

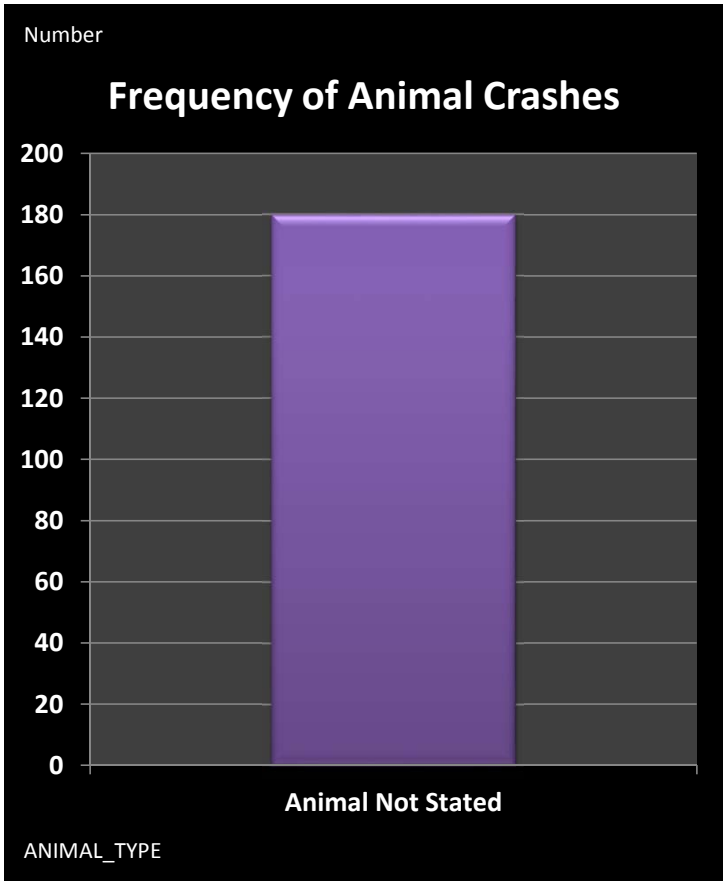


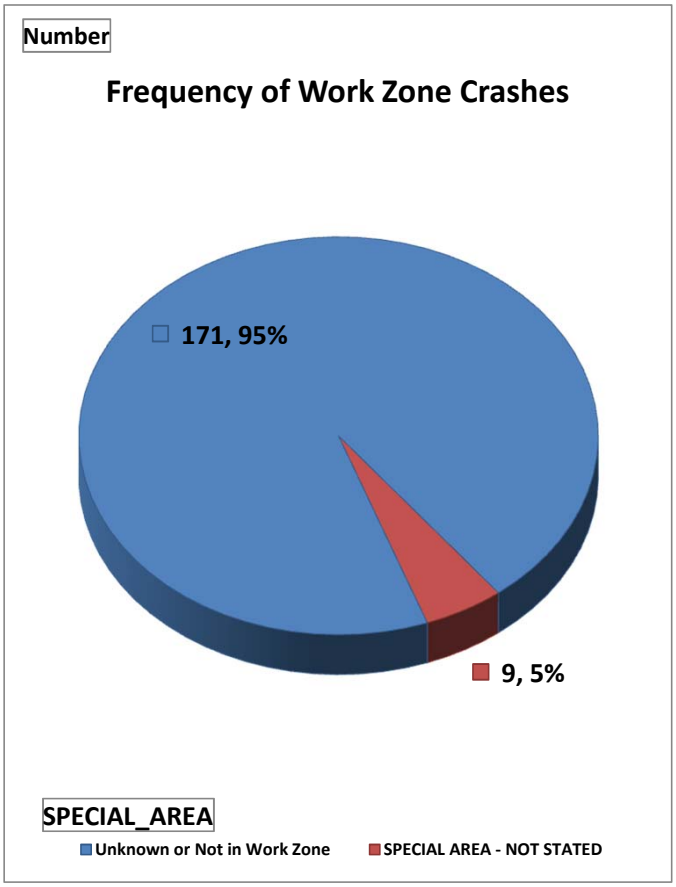


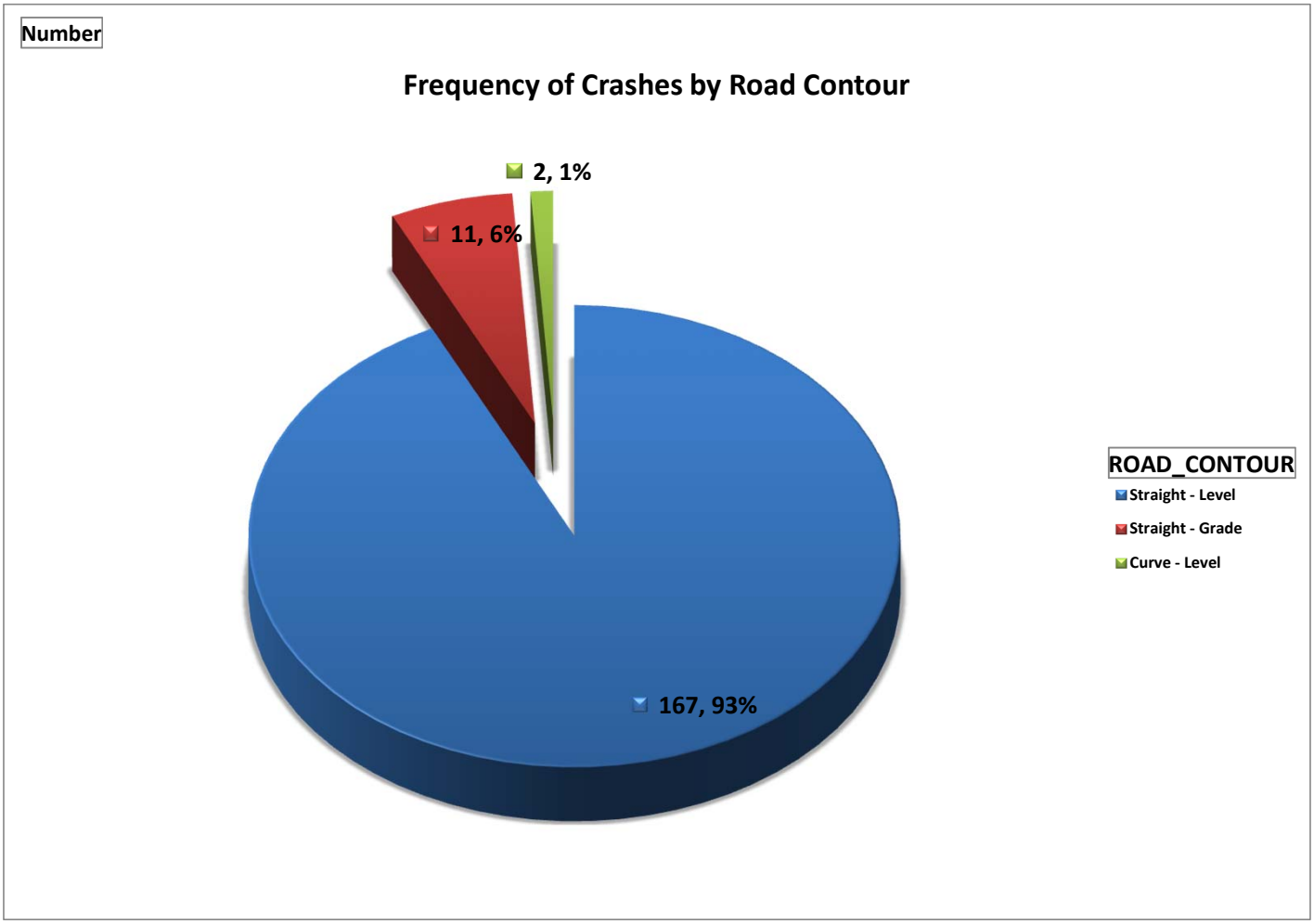

Number
Frequency of Crashes by Location
120
100
80
60
40
20
0
Not An Intersection
Four-Way Intersection
T-Intersection
INTERSECTION RELATED
NON-INTERSECTION
LOCATION


Number
Frequency of Crashes by Road Condition
1, 0%
12, 7%
39, 22%
128, 71%
ROAD_CONDITION
Road - Dry
Road - Wet
Road - Snow
Road - Ice

POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015







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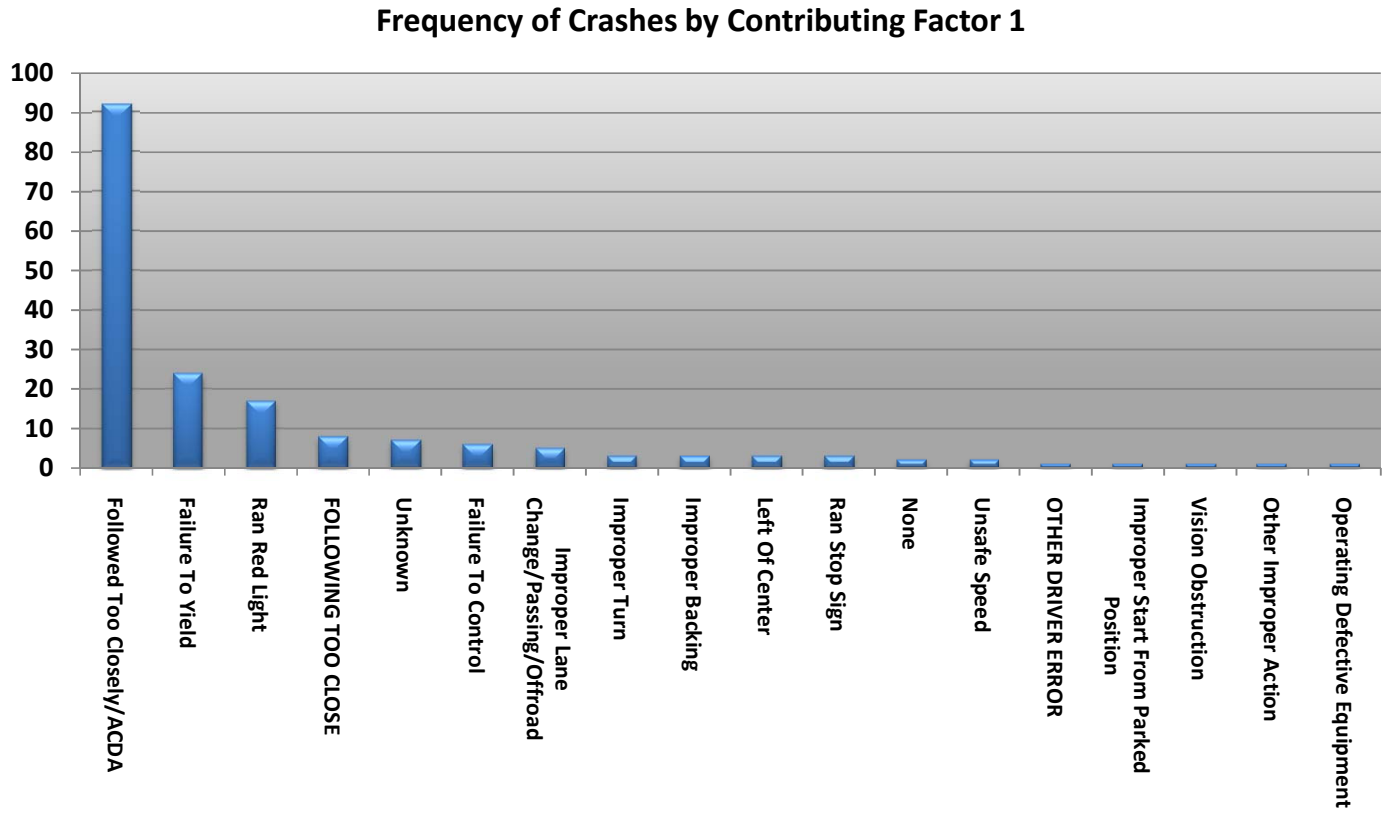

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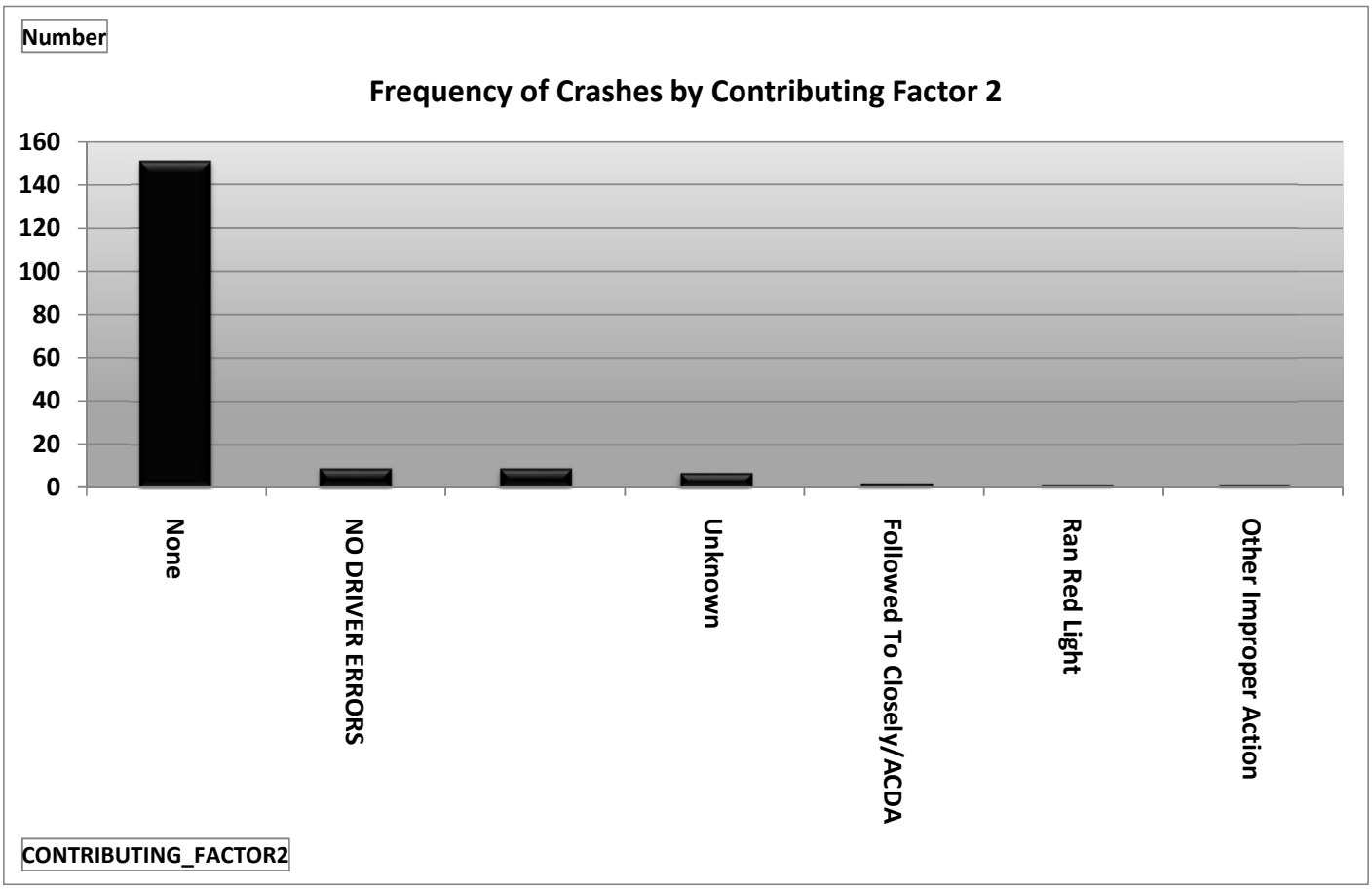
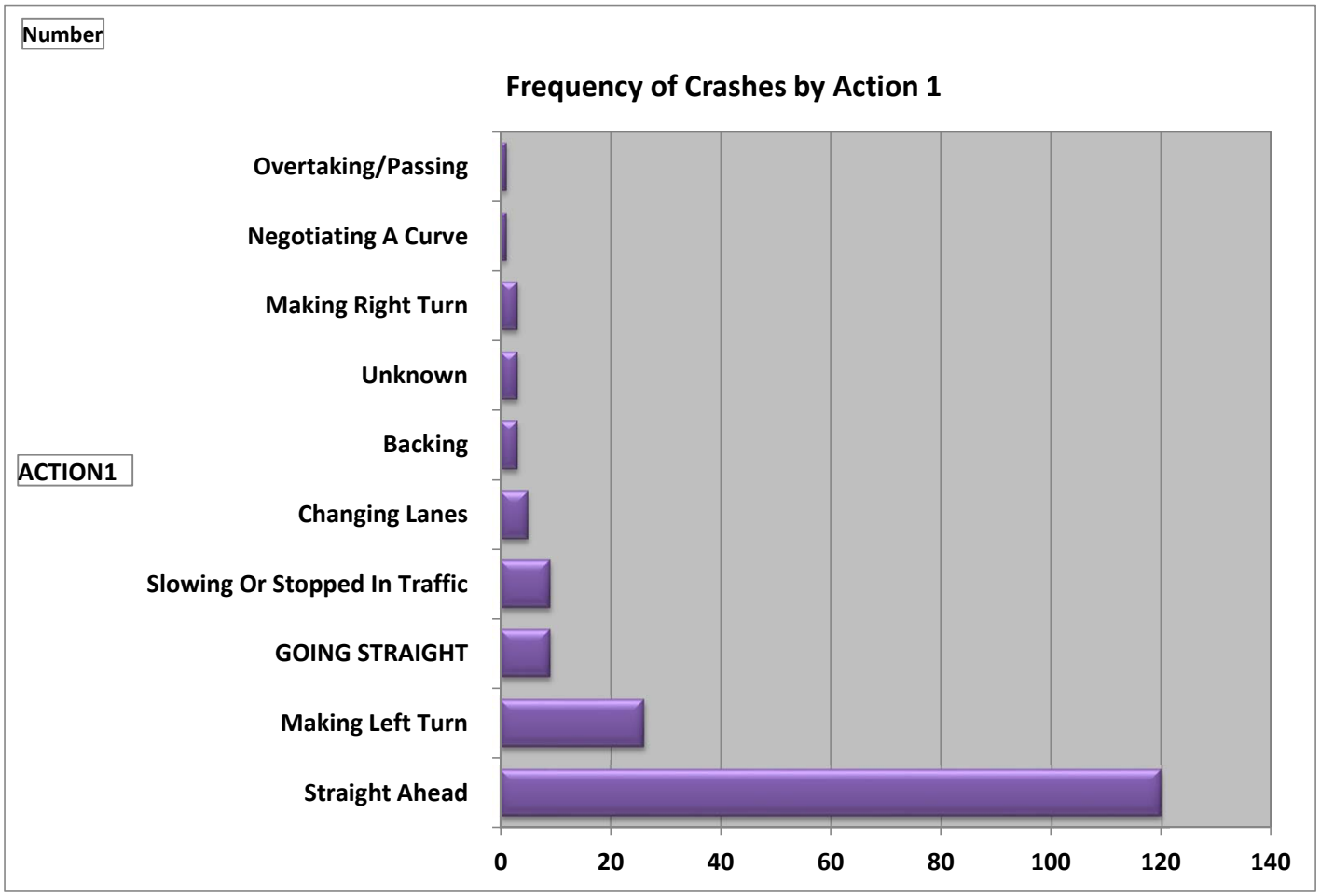
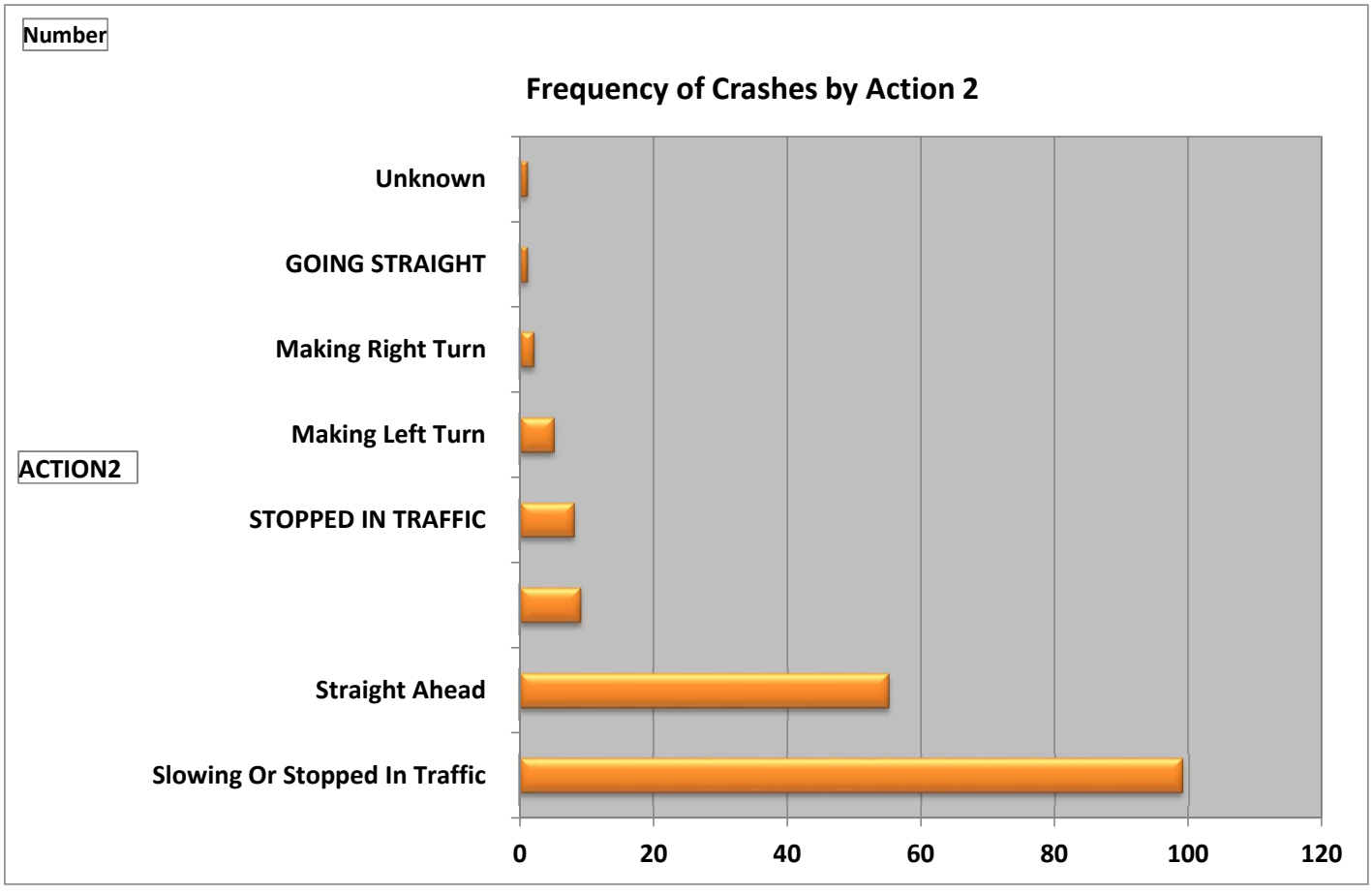
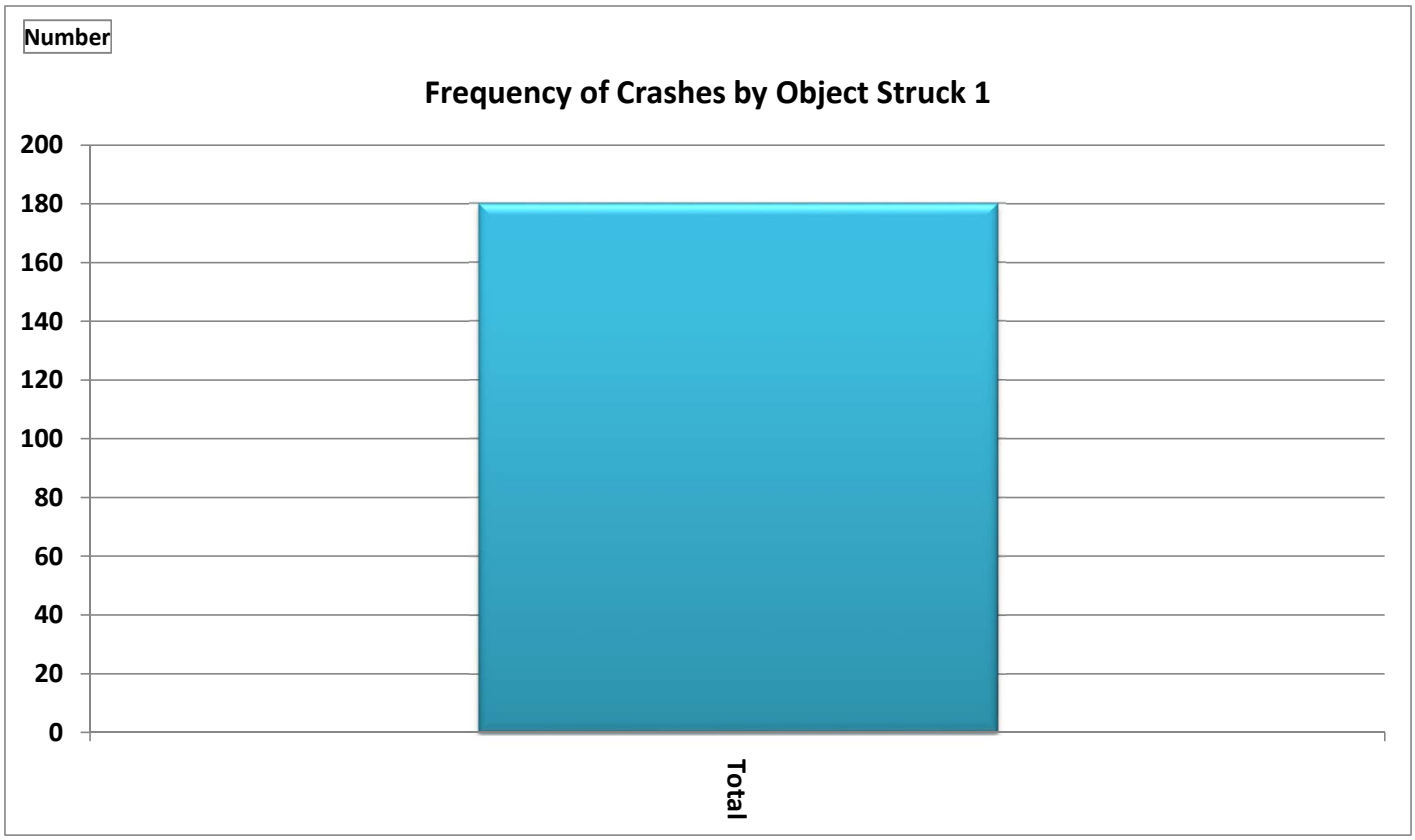


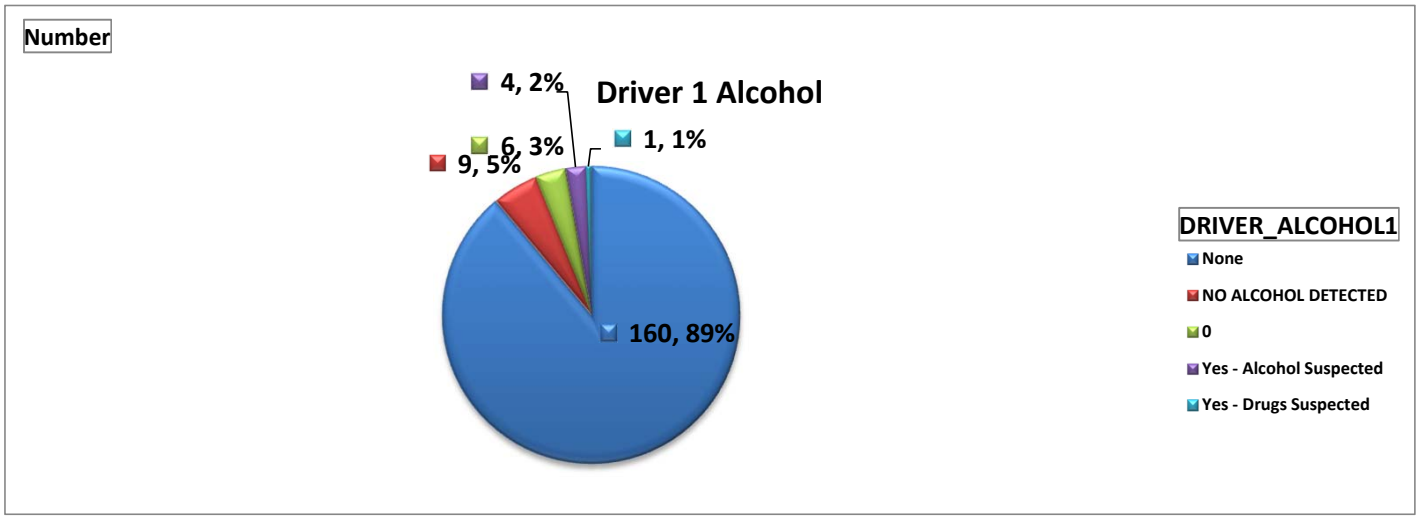
POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

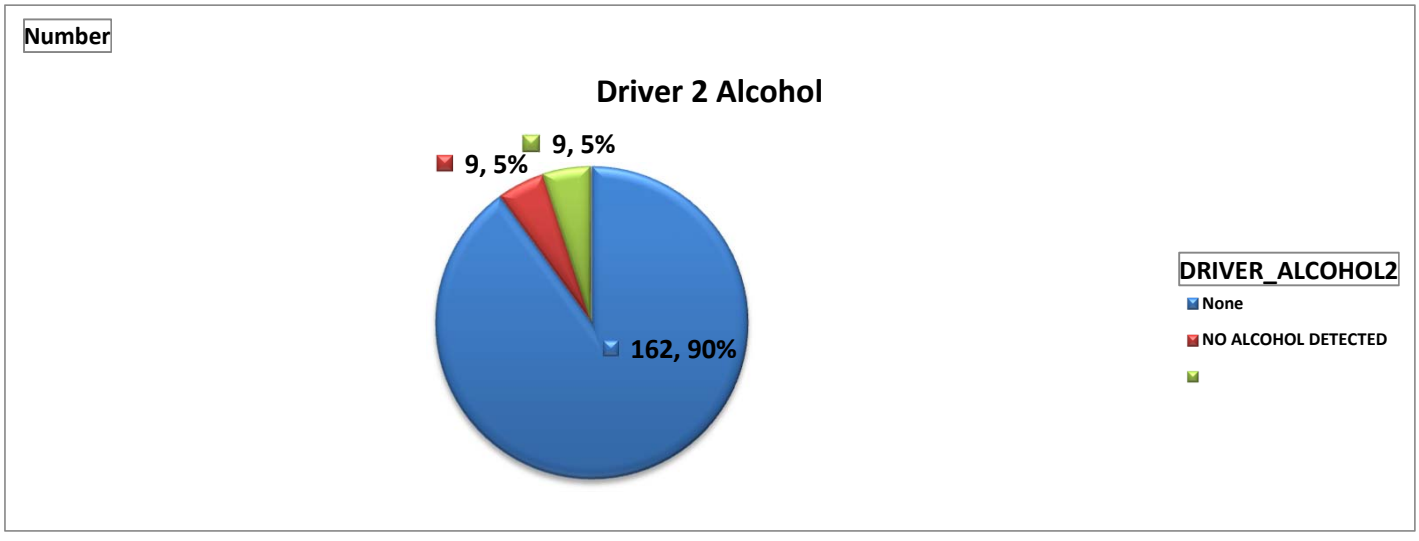




POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015







POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

	Number
Total	**180**

CRASH_SEVERITY	Number	%
Injury Crash	**49**	27.2%
Property Damage Crash	**131**	72.8%
Grand Total	**180**	**100.0%**

TRAFFIC_CRASH_YEAR	Number	%
2013	**55**	30.6%
2014	**61**	33.9%
2015	**64**	35.6%
Grand Total	**180**	**100.0%**

DAY_OF_WEEK	Number	%
Wednesday	**33**	18.3%
Monday	**33**	18.3%
Thursday	**27**	15.0%
Friday	**27**	15.0%
Sunday	**22**	12.2%
Tuesday	**20**	11.1%
Saturday	**18**	10.0%
Grand Total	**180**	**100.0%**

HOUR_OF_DAY	Number	%
0	**2**	1.1%
3	**1**	0.6%
6	**3**	1.7%
7	**7**	3.9%
8	**7**	3.9%
9	**9**	5.0%
10	**19**	10.6%
11	**8**	4.4%
12	**12**	6.7%
13	**15**	8.3%
14	**9**	5.0%
15	**17**	9.4%
16	**18**	10.0%
17	**20**	11.1%
18	**11**	6.1%
19	**5**	2.8%
20	**4**	2.2%
21	**7**	3.9%
22	**3**	1.7%
23	**3**	1.7%
Grand Total	**180**	**100.0%**

TYPE_OF_CRASH	Number	%
Rear End	**107**	59.4%
Left Turn	**28**	15.6%
Angle	**18**	10.0%
Fixed Object	**9**	5.0%
Sideswipe - Passing	**9**	5.0%
Sideswipe - Meeting	**6**	3.3%
Backing	**3**	1.7%
Grand Total	**180**	**100.0%**

POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

WEATHER_CONDITION	Number	%
Clear	**93**	51.7%
Cloudy	**48**	26.7%
Rain	**17**	9.4%
Snow	**12**	6.7%
NO ADVERSE WEATHER CONDITION	**9**	5.0%
Other/Unknown	**1**	0.6%
Grand Total	**180**	**100.0%**

ROAD_CONDITION	Number	%
Road - Dry	**128**	71.1%
Road - Wet	**39**	21.7%
Road - Snow	**12**	6.7%
Road - Ice	**1**	0.6%
Grand Total	**180**	**100.0%**

LIGHT_CONDITION	Number	%
Daylight	**137**	76.1%
Dark - Lighted	**21**	11.7%
Dark - No Lights	**12**	6.7%
Dusk	**5**	2.8%
Light Not Stated	**3**	1.7%
Dawn	**2**	1.1%
Grand Total	**180**	**100.0%**

NUMBER_OF_VEHICLES	Number	%
2	**9**	5.0%
(blank)	**171**	95.0%
Grand Total	**180**	**100.0%**

LOCATION	Number	%
Not An Intersection	**103**	57.2%
Four-Way Intersection	**56**	31.1%
T-Intersection	**12**	6.7%
INTERSECTION RELATED	**5**	2.8%
NON-INTERSECTION	**4**	2.2%
Grand Total	**180**	**100.0%**

CRASH_MONTH_NBR	Number	%
1	**22**	12.2%
2	**14**	7.8%
3	**13**	7.2%
4	**20**	11.1%
5	**8**	4.4%
6	**9**	5.0%
7	**9**	5.0%
8	**14**	7.8%
9	**19**	10.6%
10	**23**	12.8%
11	**17**	9.4%
12	**12**	6.7%
Grand Total	**180**	**100.0%**

ROAD_CONTOUR	Number	%
Straight - Level	**167**	92.8%
Straight - Grade	**11**	6.1%
Curve - Level	**2**	1.1%
Grand Total	**180**	**100.0%**

SPECIAL_AREA	Number	%
Unknown or Not in Work Zone	**171**	95.0%
SPECIAL AREA - NOT STATED	**9**	5.0%
Grand Total	**180**	**100.0%**

ANIMAL_TYPE	Number	%
Animal Not Stated	**180**	100.0%
Grand Total	**180**	**100.0%**

POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

ACTION1	Number	%
Straight Ahead	**120**	66.7%
Making Left Turn	**26**	14.4%
GOING STRAIGHT	**9**	5.0%
Slowing Or Stopped In Traffic	**9**	5.0%
Changing Lanes	**5**	2.8%
Backing	**3**	1.7%
Unknown	**3**	1.7%
Making Right Turn	**3**	1.7%
Negotiating A Curve	**1**	0.6%
Overtaking/Passing	**1**	0.6%
Grand Total	**180**	**100.0%**

CONTRIBUTING_FACTOR1	Number	%
Followed Too Closely/ACDA	**92**	51.1%
Failure To Yield	**24**	13.3%
Ran Red Light	**17**	9.4%
FOLLOWING TOO CLOSE	**8**	4.4%
Unknown	**7**	3.9%
Failure To Control	**6**	3.3%
Improper Lane Change/Passing/Offroad	**5**	2.8%
Improper Turn	**3**	1.7%
Improper Backing	**3**	1.7%
Left Of Center	**3**	1.7%
Ran Stop Sign	**3**	1.7%
None	**2**	1.1%
Unsafe Speed	**2**	1.1%
OTHER DRIVER ERROR	**1**	0.6%
Improper Start From Parked Position	**1**	0.6%
Vision Obstruction	**1**	0.6%
Other Improper Action	**1**	0.6%
Operating Defective Equipment	**1**	0.6%
Grand Total	**180**	**100.0%**

	Number	%
Total	**180**	**100.0%**

TRAFFIC_CONTROL1	Number	%
Traffic Signal	**125**	69.4%
Pavement Markings	**46**	25.6%
No Controls	**8**	4.4%
Stop Sign	**1**	0.6%
Grand Total	**180**	**100.0%**

DRIVER_ALCOHOL1	Number	%
None	**160**	88.9%
NO ALCOHOL DETECTED	**9**	5.0%
0	**6**	3.3%
Yes - Alcohol Suspected	**4**	2.2%
Yes - Drugs Suspected	**1**	0.6%
Grand Total	**180**	**100.0%**

DRIVER_DRUGS1	Number	%
(blank)	**171**	95.0%
NO DRUGS DETECTED	**9**	5.0%
Grand Total	**180**	**100.0%**

POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

DIRECTION_FROM1	Number	%
East	**63**	35.0%
West	**52**	28.9%
South	**36**	20.0%
North	**23**	12.8%
NORTHWEST	**2**	1.1%
Southwest	**2**	1.1%
NORTHEAST	**1**	0.6%
Southeast	**1**	0.6%
Grand Total	**180**	**100.0%**

DIRECTION_TO1	Number	%
West	**49**	27.2%
East	**47**	26.1%
North	**40**	22.2%
South	**34**	18.9%
Unknown	**3**	1.7%
SOUTHEAST	**2**	1.1%
Northeast	**2**	1.1%
Northwest	**2**	1.1%
SOUTHWEST	**1**	0.6%
Grand Total	**180**	**100.0%**

POSTED_SPEED1	Number	%
Posted Speed 46-50	**78**	43.3%
Posted Speed 51-55	**37**	20.6%
Posted Speed 31-35	**33**	18.3%
Posted Speed 21-25	**14**	7.8%
POSTED 35	**7**	3.9%
Posted Speed 41-45	**7**	3.9%
POSTED 45	**2**	1.1%
Posted Speed Not Stated	**1**	0.6%
Posted Speed 26-30	**1**	0.6%
Grand Total	**180**	**100.0%**

ESTIMATED_SPEED1	Number	%
Unit Speed 20 and Under	**105**	58.3%
Unit Speed 46-50	**18**	10.0%
Unit Speed 21-25	**14**	7.8%
Unit Speed Not Stated	**10**	5.6%
Unit Speed 36-40	**7**	3.9%
Unit Speed 31-35	**6**	3.3%
SPEED 20 AND UNDER	**6**	3.3%
Unit Speed 26-30	**4**	2.2%
Unit Speed 41-45	**4**	2.2%
SPEED 26-35	**3**	1.7%
Unit Speed 51-55	**3**	1.7%
Grand Total	**180**	**100.0%**

VEHICLE_TYPE1	Number	%
Mid Size	**62**	34.4%
Compact	**38**	21.1%
Sport Utility Vehicle	**26**	14.4%
Full Size	**13**	7.2%
Pickup	**12**	6.7%
Van	**6**	3.3%
Tractor/Semi-Trailer	**5**	2.8%
Minivan	**5**	2.8%
OTHER VEHICLE	**3**	1.7%
MID-SIZE	**2**	1.1%
Unknown Or Hit/Skip	**2**	1.1%
Motorcycle	**2**	1.1%
Single Unit Truck Or Van 2 Axle, 6 Tires	**1**	0.6%
PICKUP TRUCK	**1**	0.6%
FULL-SIZE	**1**	0.6%
Sub-Compact	**1**	0.6%
Grand Total	**180**	**100.0%**

VEHICLE_TYPE2	Number	%
Mid Size	**57**	31.7%
Compact	**37**	20.6%
Sport Utility Vehicle	**32**	17.8%
Full Size	**17**	9.4%
	9	5.0%
Minivan	**8**	4.4%
Pickup	**8**	4.4%
MID-SIZE	**3**	1.7%
Van	**3**	1.7%
OTHER VEHICLE	**2**	1.1%
PICKUP TRUCK	**1**	0.6%
Unknown Or Hit/Skip	**1**	0.6%
Tractor/Semi-Trailer	**1**	0.6%
Single Unit Truck/Trailer	**1**	0.6%
Grand Total	**180**	**100.0%**

POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

ACTION2	Number	%
Slowing Or Stopped In Traffic	**99**	55.0%
Straight Ahead	**55**	30.6%
	9	5.0%
STOPPED IN TRAFFIC	**8**	4.4%
Making Left Turn	**5**	2.8%
Making Right Turn	**2**	1.1%
GOING STRAIGHT	**1**	0.6%
Unknown	**1**	0.6%
Grand Total	**180**	**100.0%**

CONTRIBUTING_FACTOR2	Number	%
None	**151**	83.9%
NO DRIVER ERRORS	**9**	5.0%
	9	5.0%
Unknown	**7**	3.9%
Followed To Closely/ACDA	**2**	1.1%
Ran Red Light	**1**	0.6%
Other Improper Action	**1**	0.6%
Grand Total	**180**	**100.0%**

DIRECTION_FROM2	Number	%
East	**56**	31.1%
West	**47**	26.1%
South	**43**	23.9%
North	**18**	10.0%
	9	5.0%
Northeast	**2**	1.1%
NORTHWEST	**2**	1.1%
Southwest	**2**	1.1%
Southeast	**1**	0.6%
Grand Total	**180**	**100.0%**

DIRECTION_TO2	Number	%
West	**52**	28.9%
East	**49**	27.2%
North	**40**	22.2%
South	**21**	11.7%
	9	5.0%
Unknown	**3**	1.7%
Southwest	**2**	1.1%
SOUTHEAST	**2**	1.1%
Northeast	**1**	0.6%
Northwest	**1**	0.6%
Grand Total	**180**	**100.0%**

DRIVER_ALCOHOL2	Number	%
None	**162**	90.0%
NO ALCOHOL DETECTED	**9**	5.0%
	9	5.0%
Grand Total	**180**	**100.0%**

DRIVER_DRUGS2	Number	%
(blank)	**171**	95.0%
NO DRUGS DETECTED	**9**	5.0%
Grand Total	**180**	**100.0%**

POR-SR261 - (0.36-5.06) From 01/01/2013 to 12/31/2015

SEVERITY	CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR	Property Damage Crash	Injury Crash
2013	43	12
2014	43	18
2015	45	19
Grand Total	**131**	**49**

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2013	0	3
2014	0	2
2015	0	0
Grand Total	**0**	**5**

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2013	3	5	9
2014	2	14	11
2015	0	11	16
Grand Total	**5**	**30**	**36**

APPENDIX E
CAC MEETING #1 DOCUMENTATION

SR 261 Corridor Planning Study
Citizens Advisory Committee
Meeting 1A

Date: May 22, 2017
Time: 5:00 pm to 7:00 pm
Location: Central Gateway, 2nd Floor Meeting Room

Name	Address	Phone Number	E-Mail Address
James F Fuchs	5231 SUNNYBROOK RD KENT OHIO	330-593-5192	
Jim Bowling	930 Overholt RD, Kent, OH	330-842-2372	
Jon Giaquinto	930 Overholt Rd., Kent, OH	330-842-2370	giaquintoj@kent-ohio.org
Katherine Manning	2000 Summit Rd., Kent OH	330-676-7745	kmanning@portageonline.org
GARY Robinson	352 Oakwood Kent Ohio	330 678 0580	grobinson63@gmail.com
Howard Boyle	4485 River Edge Dr Kent O.	330-842-2500	hboyle@ht-bank.com
Jerry Fiala	614 Pioneer Ave Kent	330-678-8007	fialaj@kent-ohio.org
Don Schjeldahl	122 N. Mantua Kent	828-772-9374	dschjeldahl@gmail.com
Ann Ward.	474 Longmere Dr.	330 285-0899	annhward@gmail.com
Jen Barone	930 Overholt Rd	330-678-8108	barone@kent-ohio.org
Heather Reidl	146 S. High St. Suite 804 Akron	330 375 2436 ext. 4434	hreidl@akronohio.gov
Keith Benjamin	218 Gougler {TRUSTEE FOR FRANKLIN TWP}	330 678 7822	KBENJA 6206@Yahoo.com
CURTIS BAKER			
CHAD ROOST			

SR 261 Corridor Planning Study
Citizens Advisory Committee
Meeting 1A

Date: May 22, 2017
Time: 5:00 pm to 7:00 pm
Location: Central Gateway, 2nd Floor Meeting Room

Name	Address	Phone Number	E-Mail Address
~~Clayton Popik~~	~~PARTA~~	~~330-678-7745~~	~~cpopik@partaonline.org~~
Clayton Popik	PARTA	330-678-7745	cpopik@partaonline.org
Ann Ward.	474 Longmeer	330 285-0826	
Jim Bowling	930 Overholt Rd	330-842-2372	
JOHN IDONE			

SR 261 Corridor Planning Study
Citizens Advisory Committee
Meeting 1A

Date: May 22, 2017
Time: 5:00 pm to 7:00 pm
Location: Central Gateway, 2nd Floor Meeting Room

Name	Address	Phone Number	E-Mail Address
Michael Bruder	1069 Hollister Dr.	330-678-5057	mbruder@kent.edu
MELANIE BAKER	930 overholt dr, Kent	330 678 8105	mbaker@KENT-ohio.org
BILL RUDLOSKY	1898 BASSWOOD DR KENT	330 389-1289	wrudlosky@neo.rr.com
PAUL ORGAN	5876 HORNING RD KENT	330-801-3053	jporganman@marathonfin.com
TOM Euclide	KENT STATE	330 672 9622	TEUCLIDE@KENT.EDU
Mike Finley	1649 S. LINCOLN	330-671.5149	mfinley@hall-green.com

AMATS & City of Kent
SR 261 Corridor Planning Study

Stakeholder Meeting 1A
Date: May 22, 2017
Time: 5:00pm to 7:00pm (approx)
Location: PARTA Kent Central Gateway Transit Center
Address: Erie Street and Depeyster Street
Meeting Room: 2nd floor conference center

AGENDA

1. Introductions & Sign In
2. Citizens Advisory Committee (CAC)
    a. Goals and expectations
    b. Study participation
3. Study Schedule
4. Meeting Intent
    a. Your experiences and observations
    b. Your desired future use of the corridor
5. Study Limits
6. Planning Study Evaluation
    a. Corridor history
    b. Roadway safety
    c. Required size of roadway network
    d. Existing safety conditions for vehicles, pedestrians and bicyclists
    e. Existing connectivity for pedestrians and bicyclists
    f. Existing connectivity to adjacent land uses
    g. City Housing Study results
7. Planning Study Goals
    a. Right sizing the corridor for all users
    b. Prepare the master plan for the future

Stakeholder Meeting 1B
Date: May 23, 2017
Time: 8:30am to 10:30am (approx)
Location: KSU Recreation Center
Address: Summit Street and Ted Boyd Drive
Meeting Room:

AGENDA

1. Meeting Overview
2. Ride Along
    a. Bicycle ride (bikes provided thru KSU Flash Fleet program)
    b. Drive & stop tour at points of interest (see attached map)
3. Follow up Meeting & Debrief

Comment Form

City to Host May 22, 2017 Meeting to Discuss Repurposing of SR 261 Corridor

What I like about the Corridor:
Plenty of room to create a functional multi-purpose/transit corridor.

Safety Concerns about the Corridor:
Speed. Straight shot with no speed control. Light timing for pedestrians. Median areas still not safe for pedestrian "safe haven".

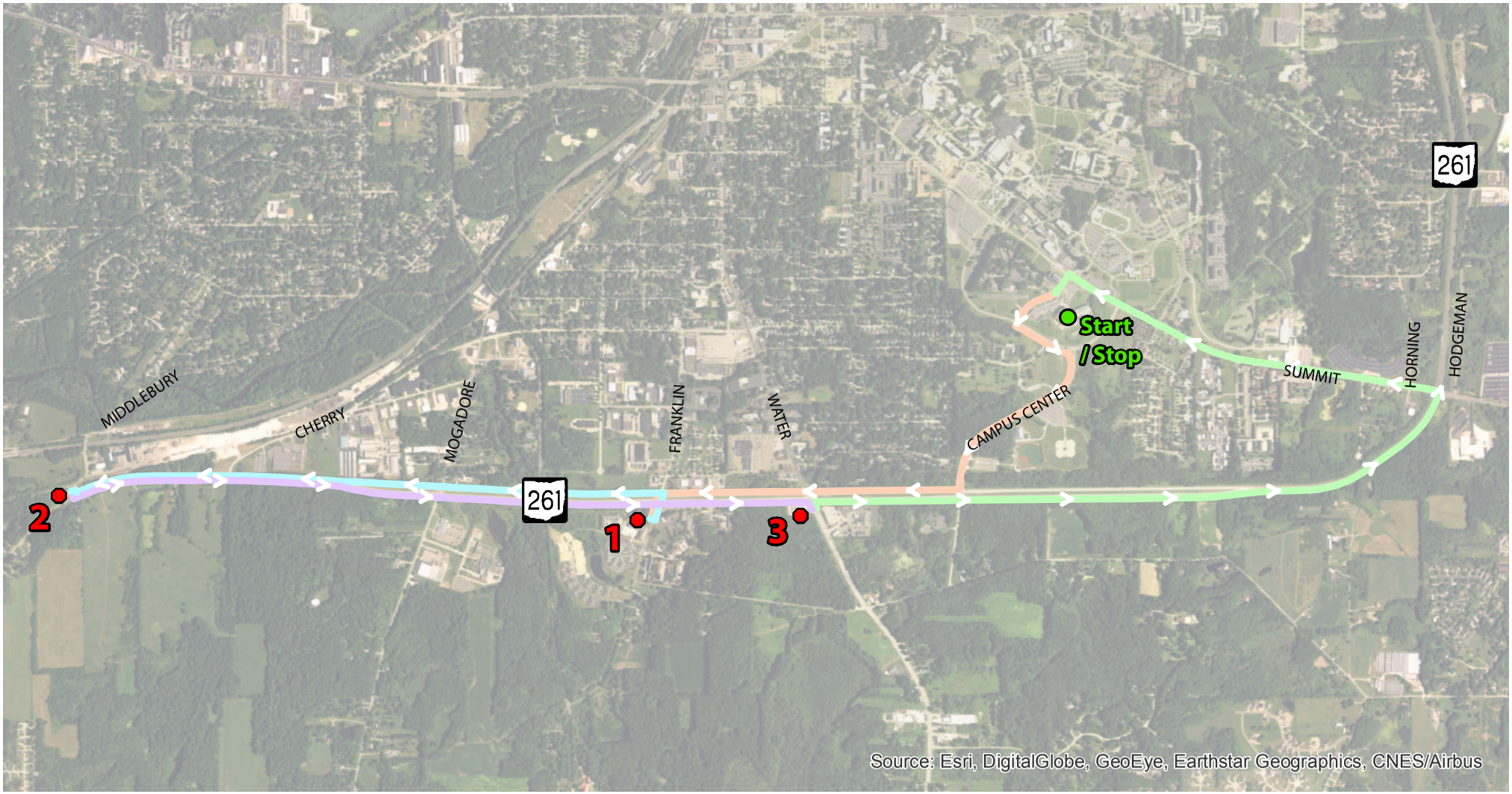
Other comments or Concerns about the Corridor:
Potential to connect many other areas throughout Kent. Ties w/ Brimfield / Franklin Twps as well.

What I would I would like to see the Corridor Become:
Slower paced natural hike/bike/car throughway w/ connections to existing neighborhoods & recreation areas.

Questions and comments can be sent via email to dmartin@gpdgroup.com or they can be mailed to:

GPD Group
520 South Main Street
Suite 2531
Akron, Ohio 44311-1010
Attn: David J. Martin, P.E

APPENDIX F
CAC MEETING #1 & RIDE ALONG MAP & PHOTOS



CONNECTING COMMUNITIES

2016 Planning Grant

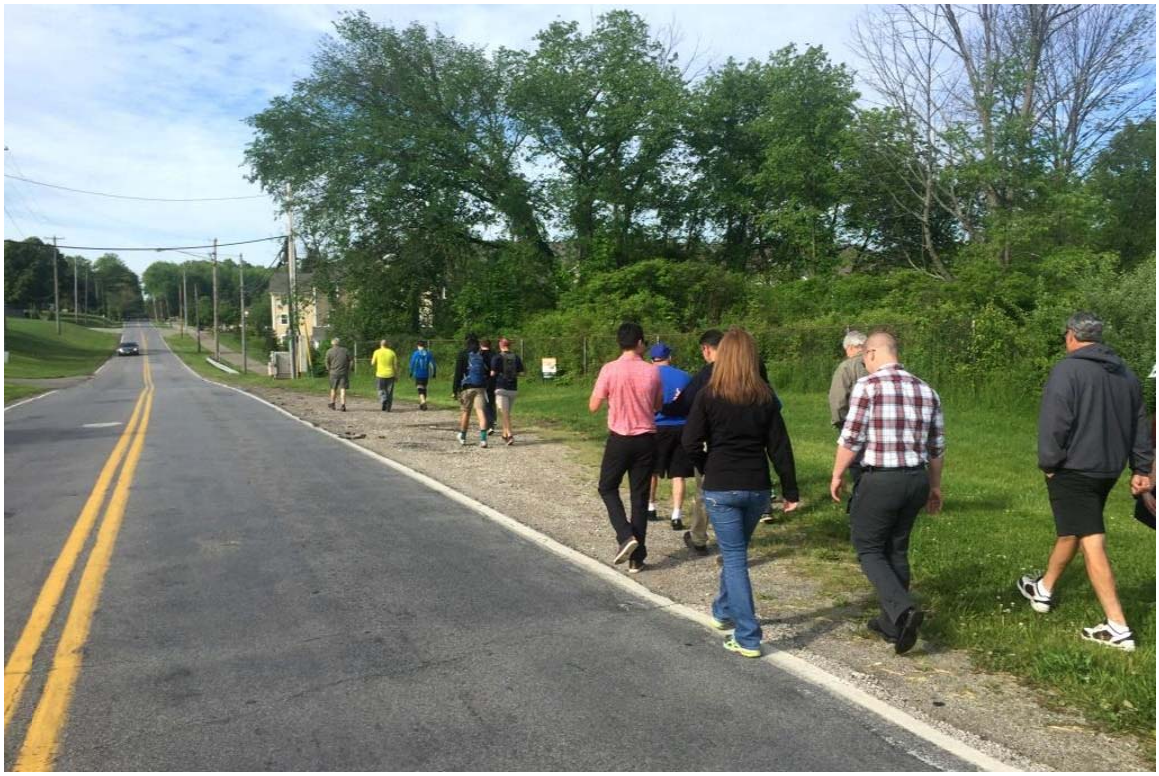
Ride Segments

- 1 - Ted Boyd -> Campus Center -> SR 261 -> Franklin / Sunnybrook (1.75 Miles)
- 2 - Sunnybrook / Franklin -> SR 261 -> Middlebury (1.74 Miles)
- 3 - Middlebury -> SR 261 -> Water (2.08 Miles)
- 4 - Water -> SR 261 -> Summit -> Ted Boyd (3.02 Miles)

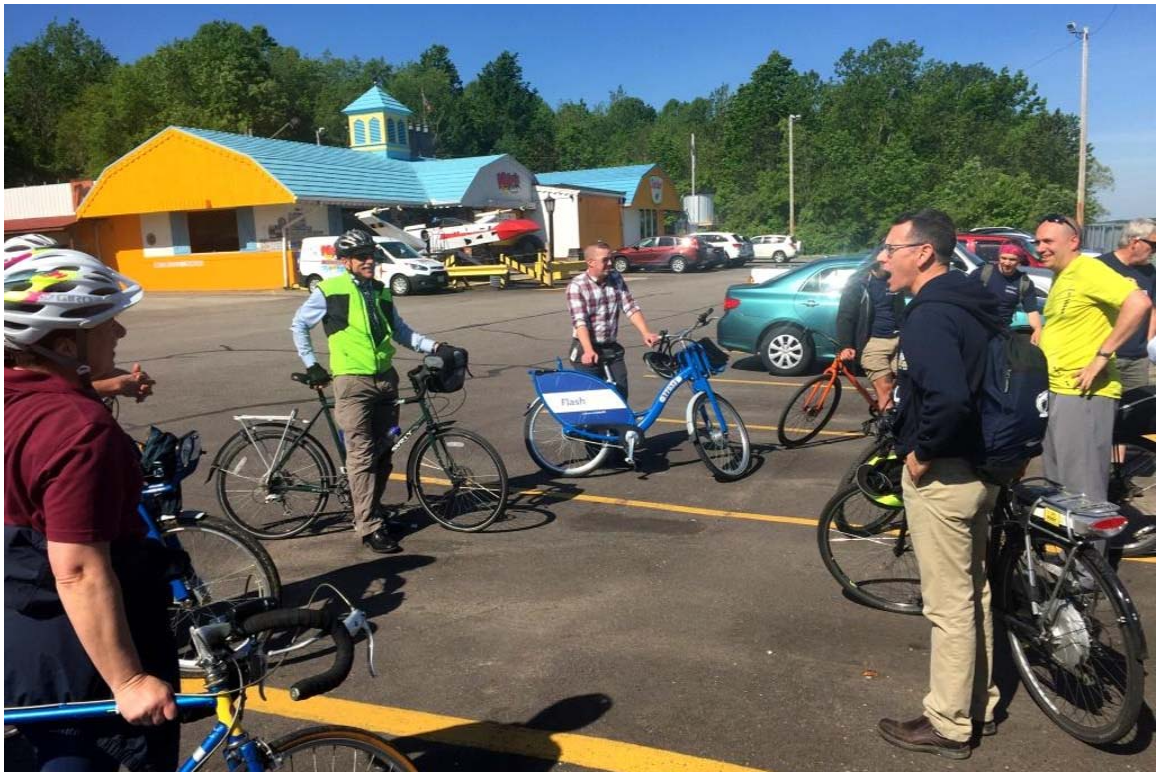
N

amats


TRANSOHIO
BUILDING




DO NOT
ENTER


Flash


SPEED
LIMIT
50


EXIT

APPENDIX G
CAC MEETING #2 DOCUMENTATION

SR 261 Corridor Planning Study
Citizens Advisory Committee
Meeting 2

Date: July 17, 2017
Time: 5:00 pm to 7:00 pm
Location: PARTA Gateway, 2nd Floor Meeting Room

Name	Address	Phone Number	E-Mail Address
James Bowling	City of Kent		bowlingj@kent-ohio.org
Jon Giaquinto	City of Kent		giaquintoj@kent-ohio.org
Chad Root	ODOT Dist 4		Chad.Root@dot.ohio.gov
Curtis Baker	AMATS		cbaker@akronohio.gov
Heather Reidl	AMATS		hreidl@akronohio.gov
Alan Mountjoy	Nbbj		amountjoy@nbbl.com
Dave Martin	GPD Group		dmartin@gpdgroup.com
Ryan Gillespie	GPD Group		rgillespie@gpdgroup.com
Robert Keller	Brimfield Twp.		rkeller@brimfieldohio.gov
Melissa M[illegible]	Kent Council		minionthego@neo.rr.com
Keith Benjamin	Franklin Township		KBENJA6206@yahoo.com
Gary R [illegible]	Oakwood Drive		glrobinson63@gmail.com
Jerry Fiala	Kent		fialaj@kent-ohio.org

SR 261 Corridor Planning Study
Citizens Advisory Committee
Meeting 2

Date: July 17, 2017
Time: 5:00 pm to 7:00 pm
Location: PARTA Gateway, 2nd Floor Meeting Room

Name	Address	Phone Number	E-Mail Address
Clayton Popik	PARTA	330-678-7745	cpopik@partaonline.org
BILL RUDLOSKY	1898 BASSWOOD DR. KENT	330-389-1284	wrudlosky@neo.rr.com
Lori Wemhoff	515 Overlook Dr Kent	3306739055	LWEMHOFF@Kentbiz.com
Ann Ward	474 Longmere Dr.	330 285-0899	annhward@gmail.com
JEN BARONE	CITY OF KENT 930 OVERHOLT	330-678-8108	barone@kent-ohio.gov
John Isaac	497 Middlebury	330-673-8817	idonec@kent-ohio.org
Katherine Manning	2000 Summit Rd. Kent		kmanning@portagepark.org
Chris Craycroft	Portage Parks	297-7728	ccraycroft@portageparkdistrict.org
Ann Ratledge	4441 Sunnybrook	606 7956	aratledge27@gmail.com
Melanie Baker	CITY OF Kent	678 8105	mbaker@kent-ohio.org
Heidi Shaffer	814 S Depeyster Kent	330-256-4346	hshaffer1@neo.rr.com

Kent SR 261 Corridor Study
Citizens Advisory Committee (CAC) Meeting #2

Hosted by: City of Kent, AMATS and ODOT
Presented by: GPD Group & NBBJ
Location: PARTA Gateway Transit Center, 2nd floor meeting room
Date: July 17, 2017; 5:00pm to 7:00 pm

Meeting Agenda

OPENING COMMENTS

1. Sign-in & Introductions
2. Opening Comments by Kent, AMATS or ODOT

REVIEW OF CAC MEETING #1

1. Roadway
    a. Slow traffic down by narrowing lanes and imparting curvature
    b. Make intersections safer and easier to cross on foot
    c. Provide better lighting at intersections and approach roadway segments
    d. Reinforce connectivity at existing intersections with identified corridor utilization (industrial along Mogadore Rd; active recreation at Middlebury; retail at Water St, etc.)
    e. Make strategic connections to existing roadway network; avoid residential streets
    f. Incorporate PARTA and KSU transit stops as warranted within the corridor

2. Bike Facilities and Pedestrian Accommodations
    a. Are separate facilities for bicyclists and pedestrian foot traffic required?
    b. Provide a spine along roadway to interconnect existing bike trails (6); make a network. See attached Portage Parks Master Plan.
    c. Make multiple connections to existing residential neighborhoods and KSU properties
    d. Make connections to Plum Creek Park, KSU athletic complex and other recreational area
    e. Incorporate trees and landscaping to shield trails and sidewalks, except at intersections

3. Adjacent Land Use
    a. Should specific areas along corridor remain agricultural or natural? Educational component?
    b. How can adjacent parcels be developed and what type; housing, industrial, commercial?
    c. Where can specific uses be best sited along corridor?
    d. No retail to compete with downtown, other than along the SR 43 corridor.
    e. How to achieve roadway access safely? No Montrose in terms of drive cuts, etc.
    f. How to get utility services to these areas? Use of available land along SR 261?

4. Traffic Considerations
    a. Need to confirm suitability of a two lane roadway. How much more traffic can be accommodated at each intersection?
    b. Evaluate benefits of signalization versus roundabouts at existing intersections.
    c. Evaluate benefits of a Campus Center Drive connection direct to SR 43

CAC MEETING #2

1. Overview of Traffic Analysis
    a. Signals or roundabouts? What works best and why?
    b. Why signals at Water Street and Summit Street intersections? Pedestrian accommodations?
    c. Campus Center Drive extension to SR 43
    d. Future development and traffic projections

2. Typical Section & Roadway Considerations
    a. Narrower, curbed roadway
    b. Bicycle facilities
    c. Pedestrian accommodations
    d. Induce curvature to roadway for slowing traffic and imparting a parkway feel

3. Future Development
    a. Access points? Where and how many?
    b. How served by utility companies?
    c. What requirements or restrictions in order to eliminate L/A?

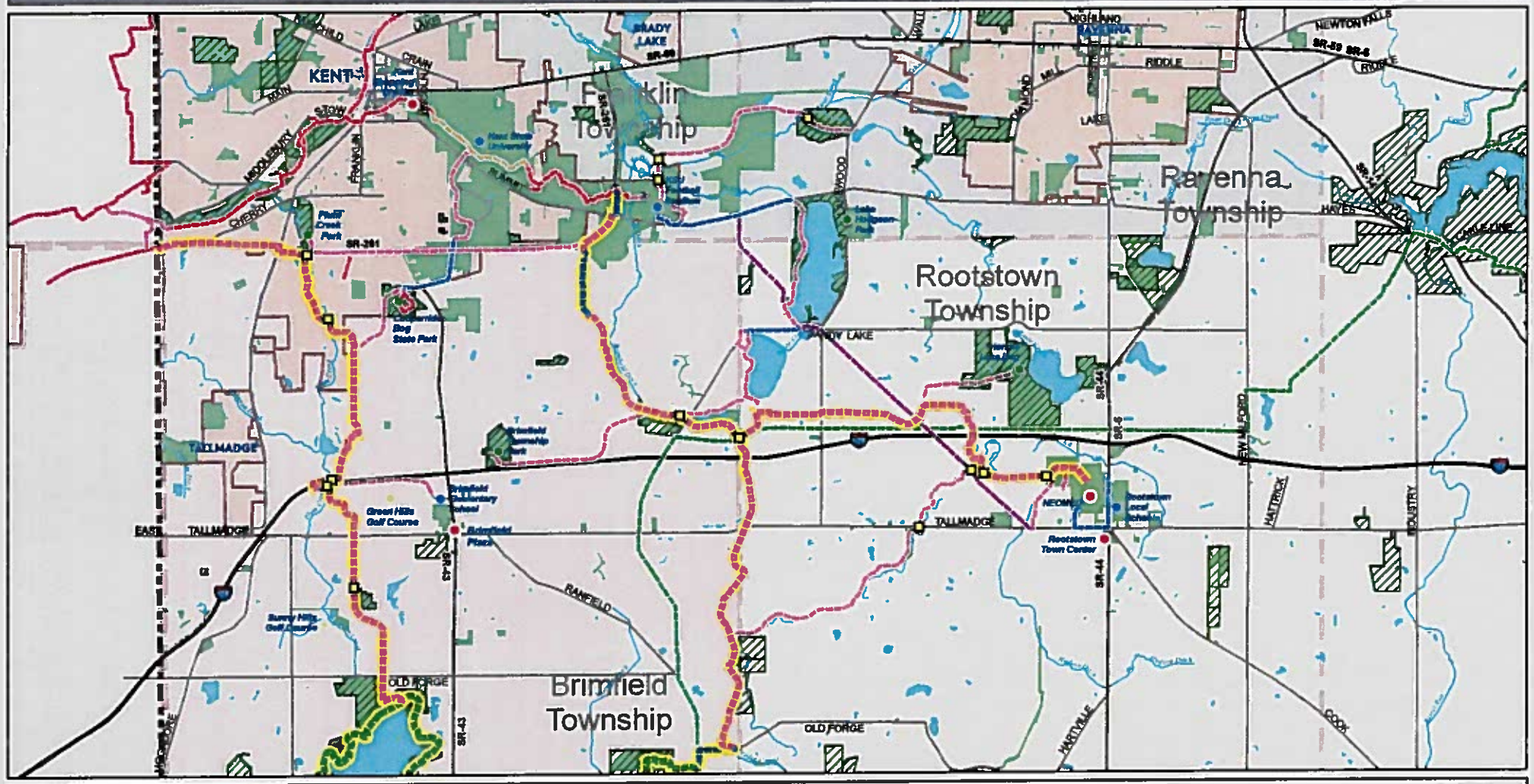
4. Open discussion & comment solicitation

5. Establish next steps

6. Establish meeting date for CAC Meeting #3

SOUTHWEST PORTAGE COUNTY TRAIL AND GREENWAY PLAN - NORTHERN SECTION

Environmental Design Group

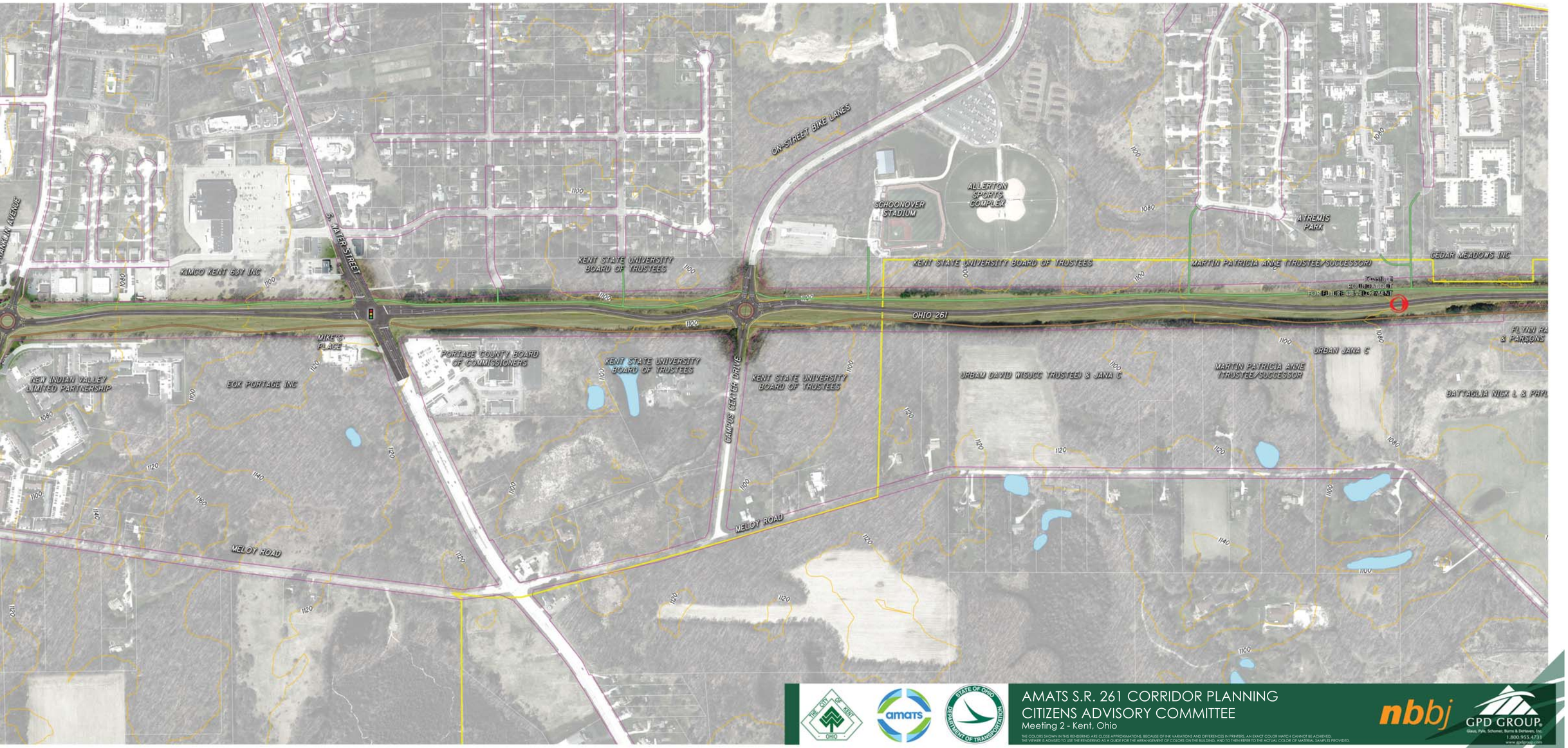


Portage Park District

Northeast Ohio Medical University

APPENDIX H
CAC MEETING #2 EXHIBITS


MIDDLEBURY ROAD
PORTAGE COUNTY BIKE & HIKE TRAIL
CHERRY STREET
THE SHELLY COMPANY
JBUD REALITY LLC
POSSIBLE FUTURE DEVELOPMENT
PLUM CREEK PARK
FREEDOM TRAIL
OHIO 261
NORTHEAST AVE (OHIO 261)
CARTER JONES LUMBER COMPANY
JONES HAROLD JAMES JR
AMERICAN LEGION POST 496
LAND O LAKES INC
DAVEY TREE EXPERT COMPANY INC
KENT INVESTMENT PARTNERS LLC
MAPLEBROOK AT GOLDEN POND II LLC
GABLES OF KENTRIDGE
MULTI-USE PATH
SANITEROOK ROAD
RAILROAD TRACKS
WOODWORTH ROAD



AMATS S.R. 261 CORRIDOR PLANNING
CITIZENS ADVISORY COMMITTEE
Meeting 2 - Kent, Ohio

THE COLORS SHOWN IN THIS RENDERING ARE CLOSE APPROXIMATIONS. BECAUSE OF THE VARIATIONS AND DIFFERENCES IN PRINTERS, AN EXACT COLOR MATCH CANNOT BE ACHIEVED. THE VENDOR IS ADVISED TO USE THE RENDERING AS A GUIDE FOR THE ARRANGEMENT OF COLORS ON THE BUILDING, AND TO THEN REFER TO THE ACTUAL COLOR OF MATERIAL SAMPLES PROVIDED.

nbbj

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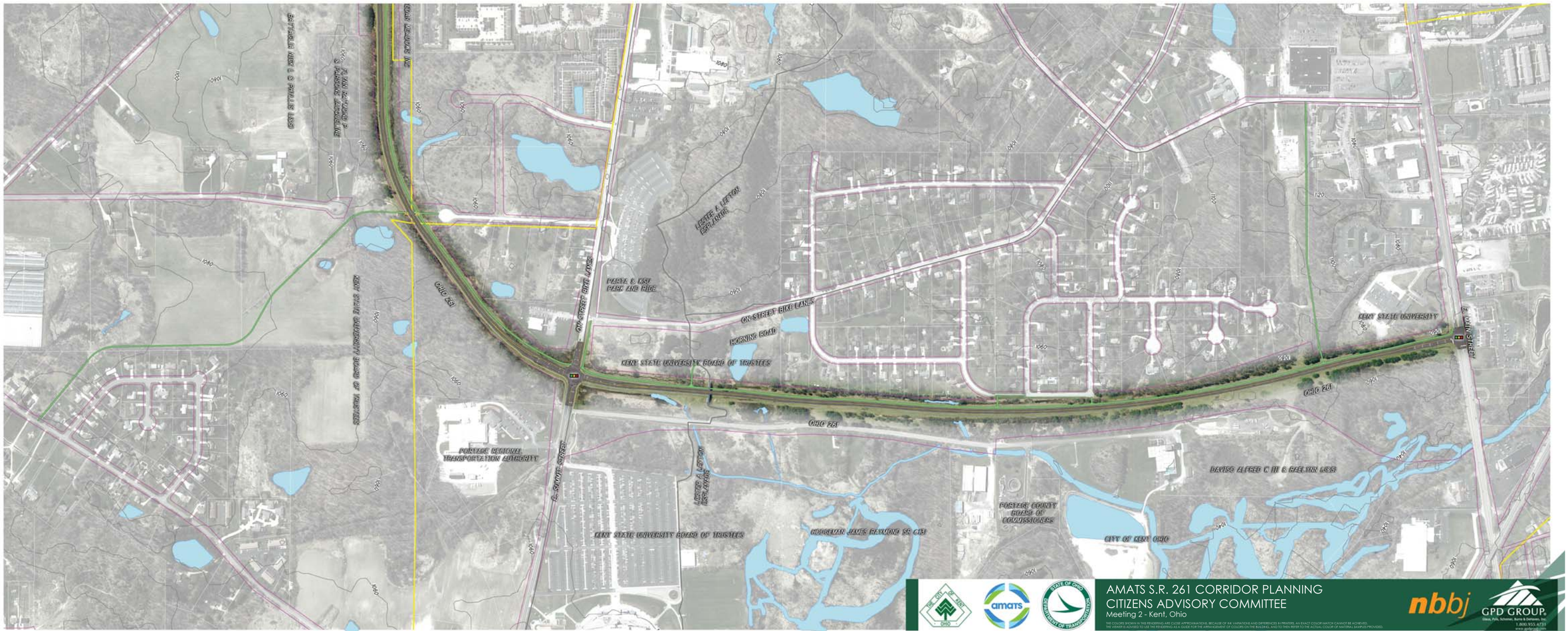

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Meeting 2 - Kent, Ohio

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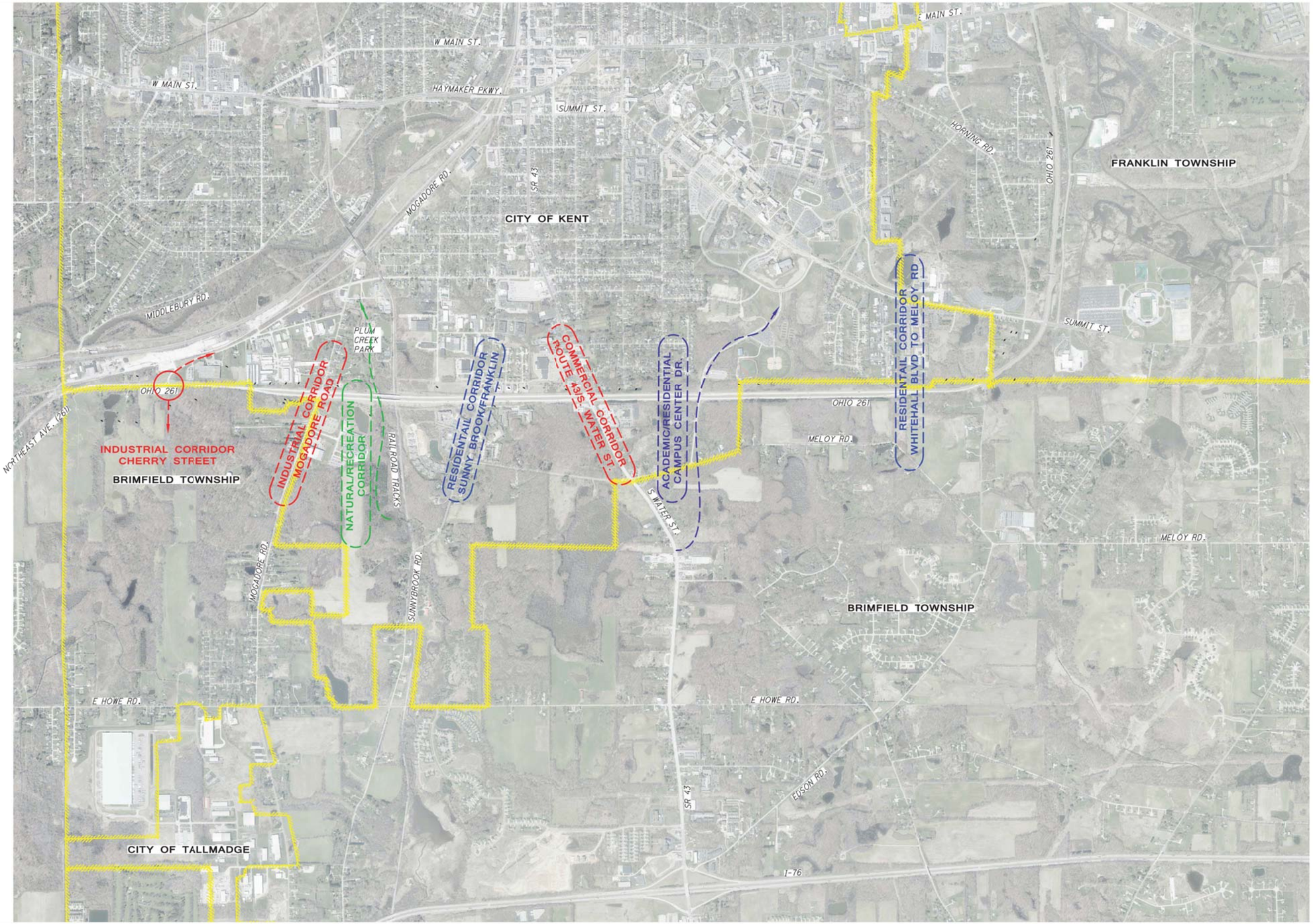

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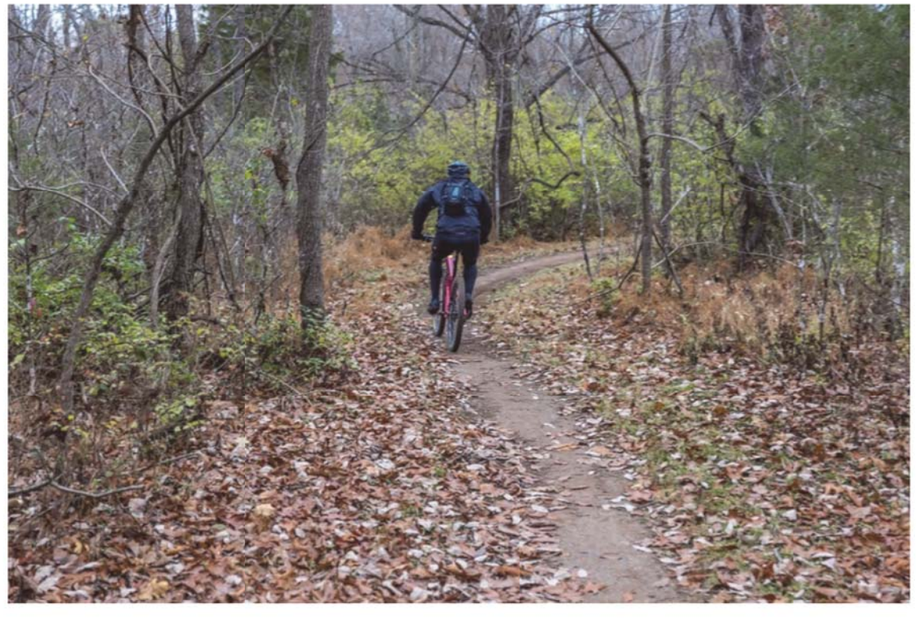
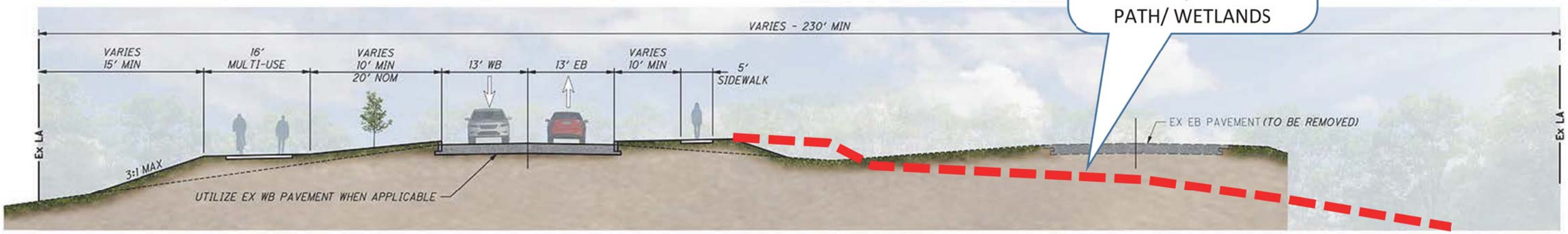


LOWER GRADE TO MATCH ADJACENT LANDSCAPE: PROVIDE VARIETY FOR JOGGING/MTN BIKE PATH/ WETLANDS



UTILIZE WB PAVEMENT
MULTI-USE PATH BELOW ROADWAY

AMATS S.R. 261 CORRIDOR PLANNING
CITIZENS ADVISORY COMMITTEE

Meeting 2 - Kent, Ohio

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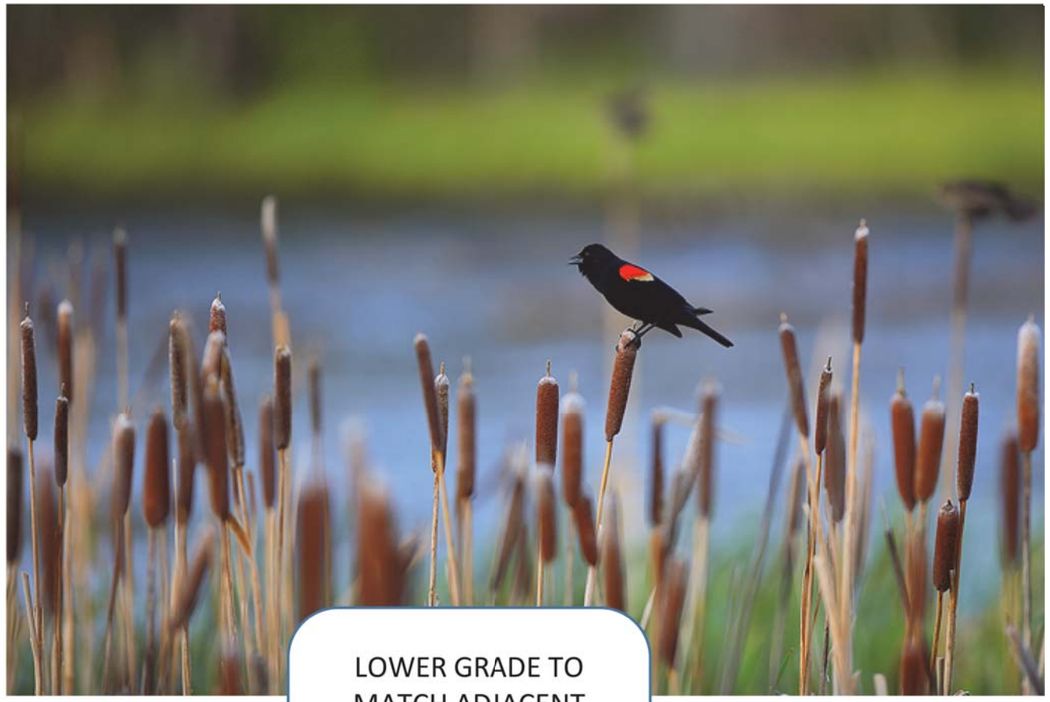

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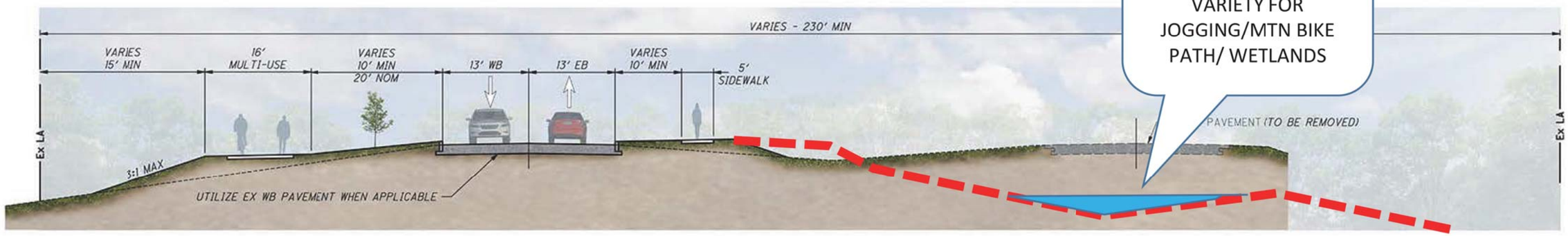

UTILIZE WB PAVEMENT
MULTI-USE PATH BELOW ROADWAY

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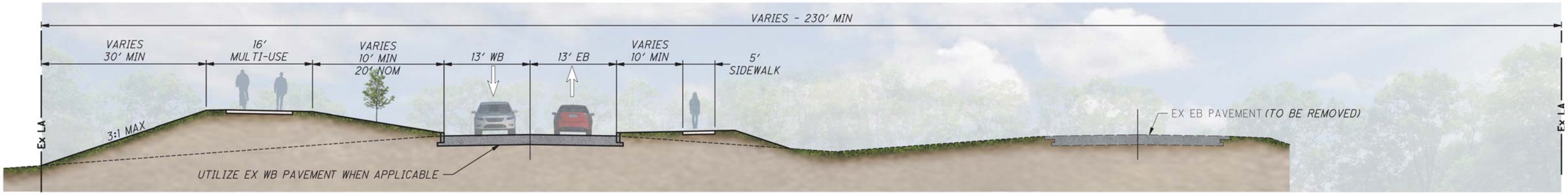
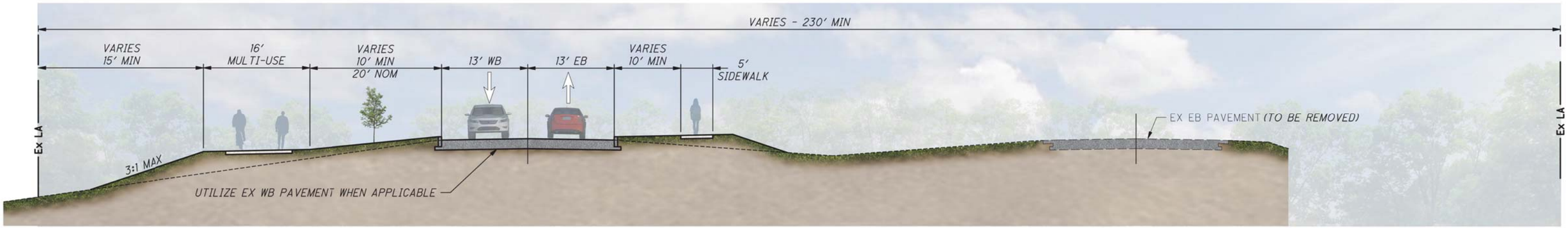


UTILIZE WB PAVEMENT
MULTI-USE PATH ABOVE ROADWAY



UTILIZE WB PAVEMENT
MULTI-USE PATH BELOW ROADWAY

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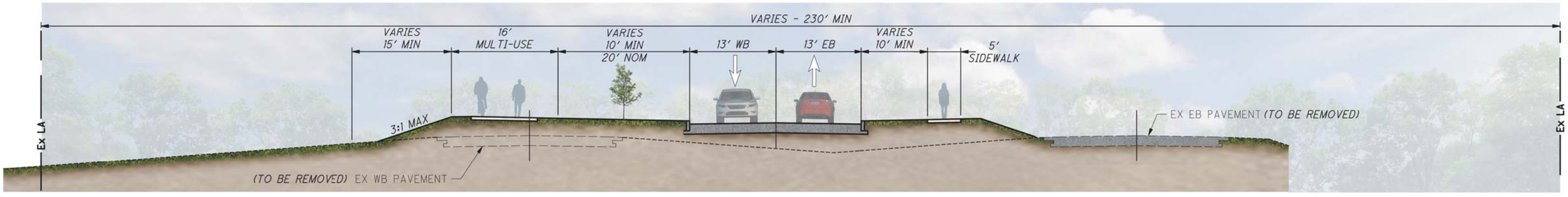
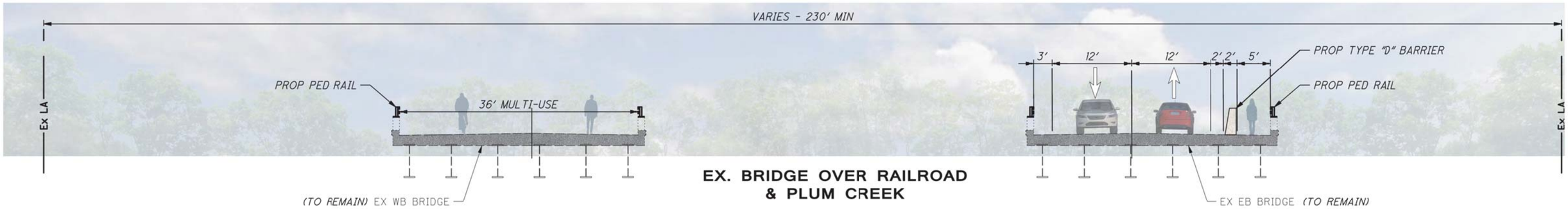


MEANDERING ROADWAY



EX. BRIDGE OVER RAILROAD & PLUM CREEK

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APPENDIX I
CAC MEETING #3 PRESENTATION

STATE ROUTE 261
CORRIDOR PLANNING STUDY
CAC MEETING #3

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Kent, Ohio

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Agenda

- REAFFIRM PROJECT GOALS
- REVIEW TRAFFIC ANALYSIS
- DISCUSS ALTERNATIVE CONCEPTS
- QUESTIONS & ANSWERS

Project Goals

- IMPROVE SAFETY
- REDUCE TRAVEL SPEEDS
- PROVIDE PEDESTRIAN CROSSINGS AND NEIGHBORHOOD CONNECTIVITY
- PROVIDE BICYCLE AND TRAIL CONNECTIONS
- REUSE OF CORRIDOR
  - AESTHETICS
  - ENVIRONMENTAL ASPECTS
  - UTILITY CONNECTIONS
  - SELECT DEVELOPMENT OPPORTUNITY

"CONNECT TO PLUM CREEK"

"CONNECT TO DOWNTOWN"

"IMPROVE PEDESTRIAN CROSSINGS"

"BETTER CONNECTIONS TO NEIGHBORHOODS"

"MORE TREE CANOPY"

"ROOM FOR CARS, PEOPLE BIKES AND PETS"

"MAKE THE EASY FIXES SOON"

"NO STRIP DEVELOPMENT"

"MORE PED CROSSINGS"

"SCARY CROSSING"

CAC COMMENTS: *WHAT WE HEARD*

TWO LANE SECTION

FOUR LANE SECTION

TWO LANE SECTION

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CAC COMMENTS: *REDUCE FOUR LANES TO TWO*

MULTI-USE PATH

ADVENTURE TRAIL

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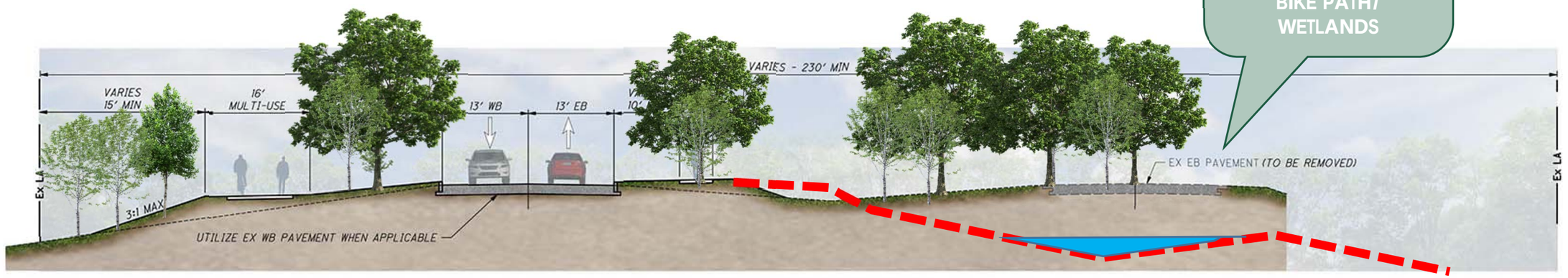
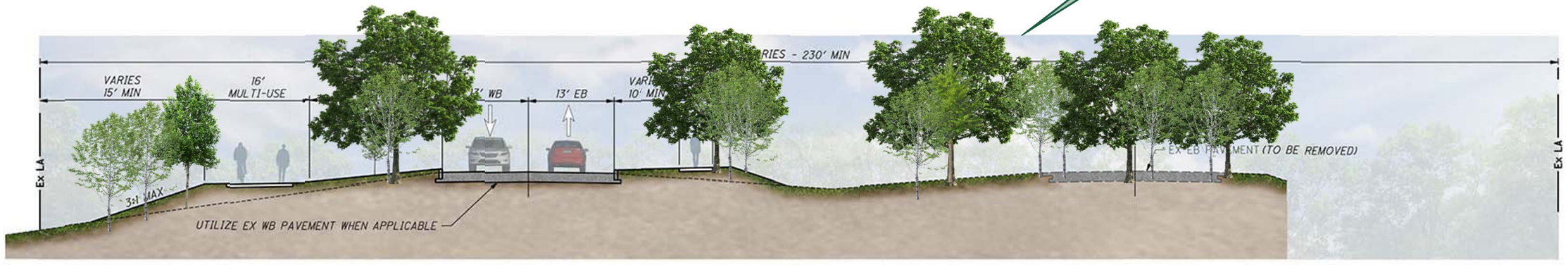
CAC COMMENTS: *ADD PEDESTRIAN PATHS TO CORRIDOR*

LOWER GRADE TO MATCH ADJACENT LANDSCAPE: PROVIDE VARIETY FOR JOGGING/MTN BIKE PATH/ WETLANDS



UTILIZE WB PAVEMENT
MULTI-USE PATH BELOW ROADWAY

"THE WILD SIDE"



"THE WILD SIDE"

UTILIZE WB PAVEMENT
MULTI-USE PATH BELOW ROADWAY

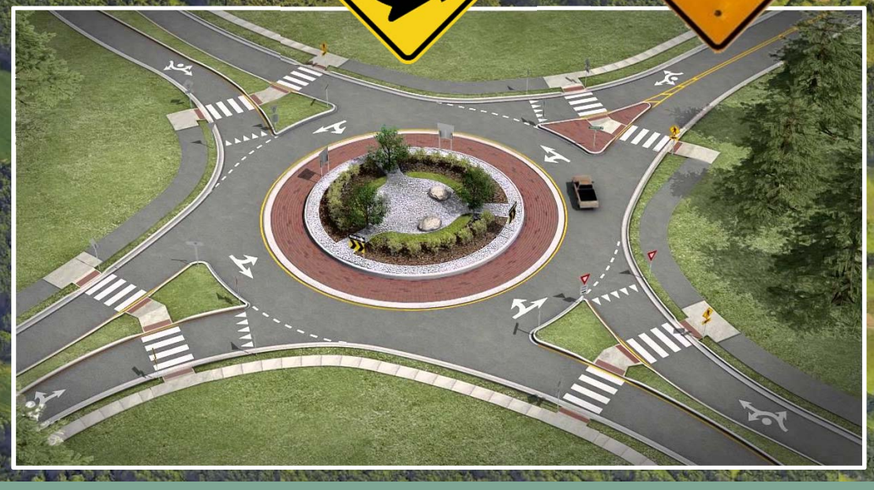
CAMPUS CENTER DR.

E. SUMMIT ST.

ROUTE 43/S. WATER ST.

SUNNYBROOK RD.

MOGADORE RD.



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CAC COMMENTS: *IMPROVE INTERSECTION SAFETY*

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CAC COMMENTS: *ADD GATEWAY ELEMENTS*

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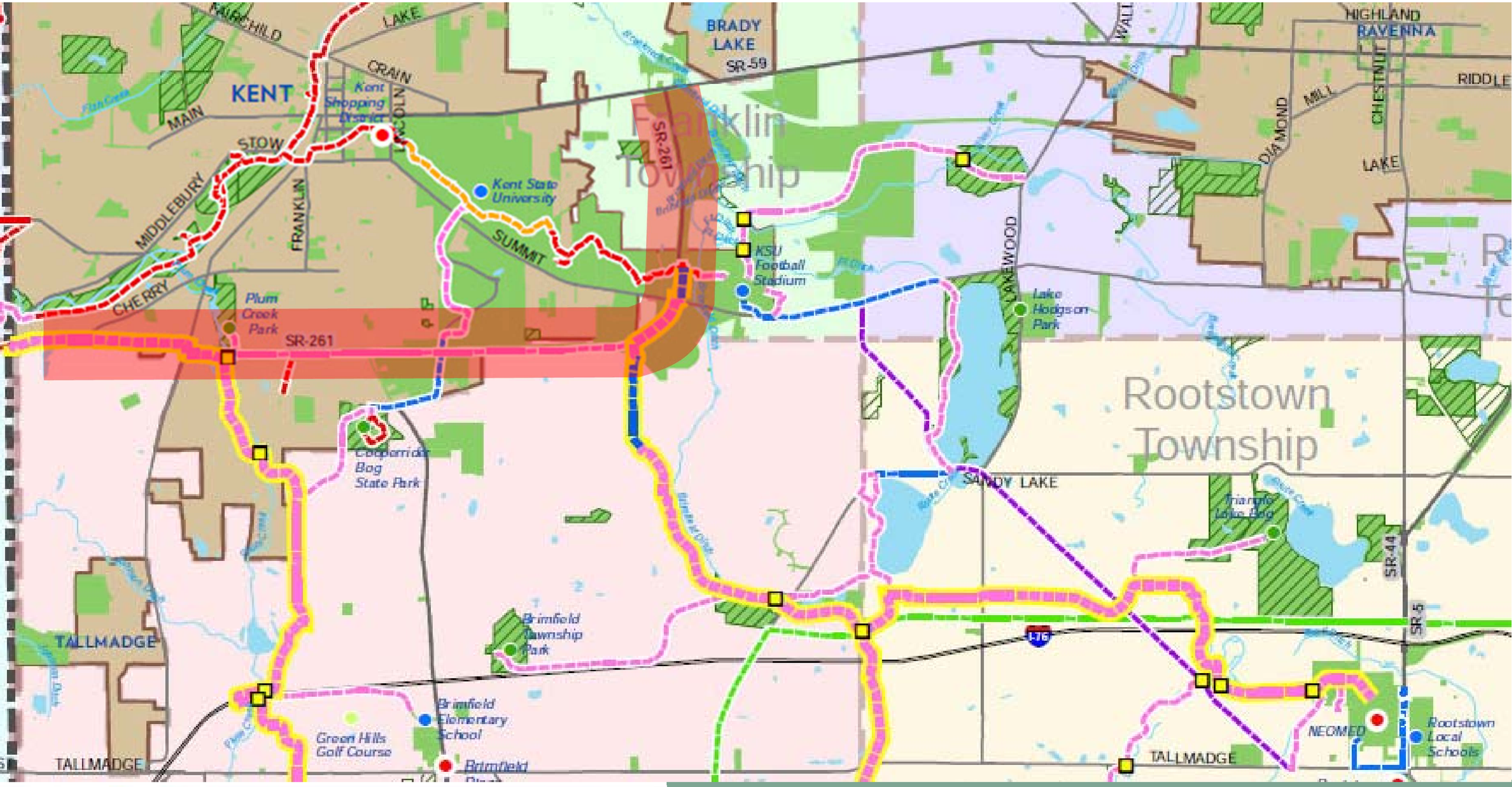
CAC COMMENTS: ***ADD PEDESTRIAN ACCESS POINTS TO CORRIDOR***



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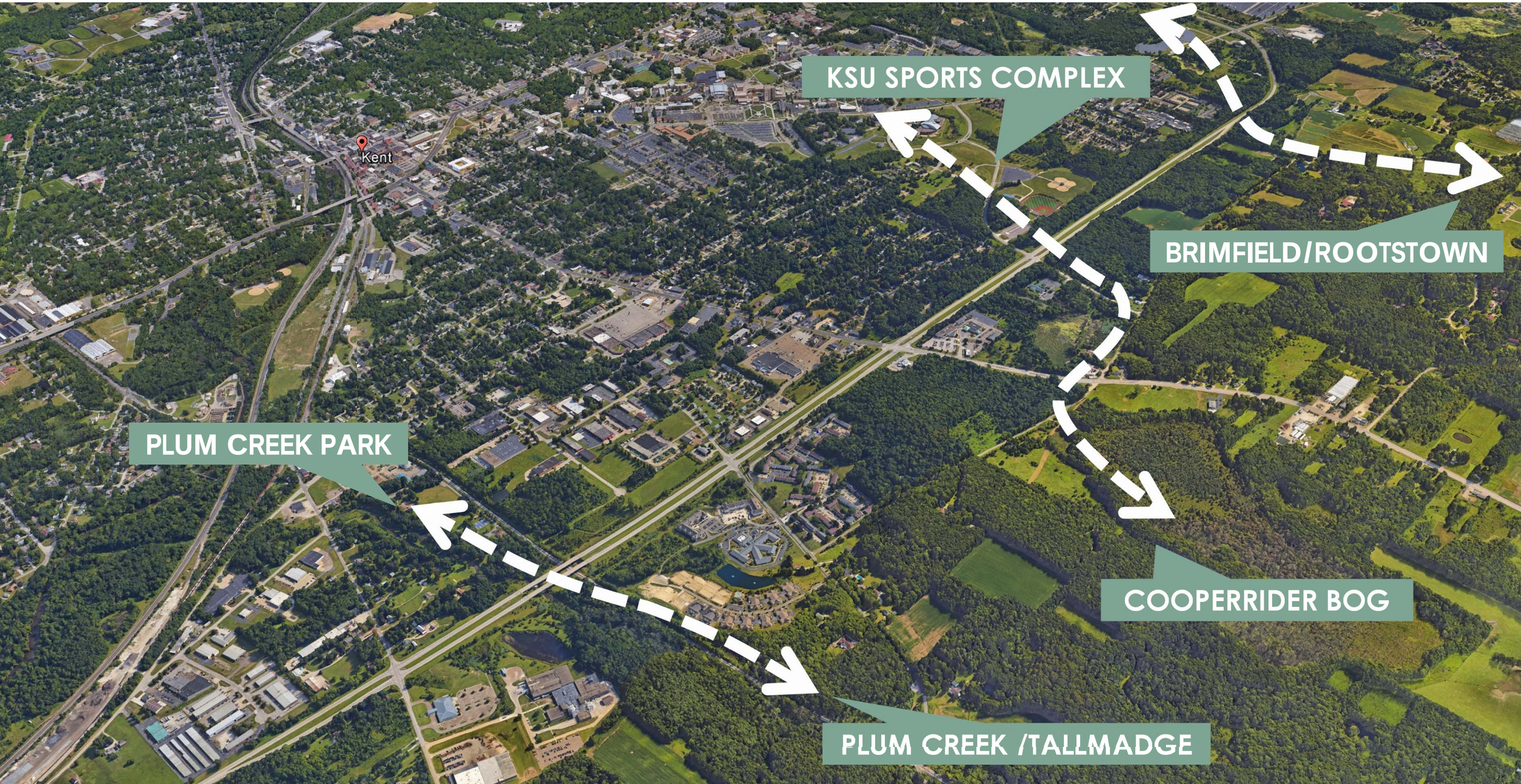
PORTAGE PARKS REGIONAL TRAIL CONNECTIONS



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CAC COMMENTS: ***IMPROVE REGIONAL TRAIL CONNECTIONS***

CAMPUS CENTER DR.

1.43 MILES

MELOY RD.

BURNETT RD.

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CAC COMMENTS: *ADD NEW PEDESTRIAN CROSSINGS*

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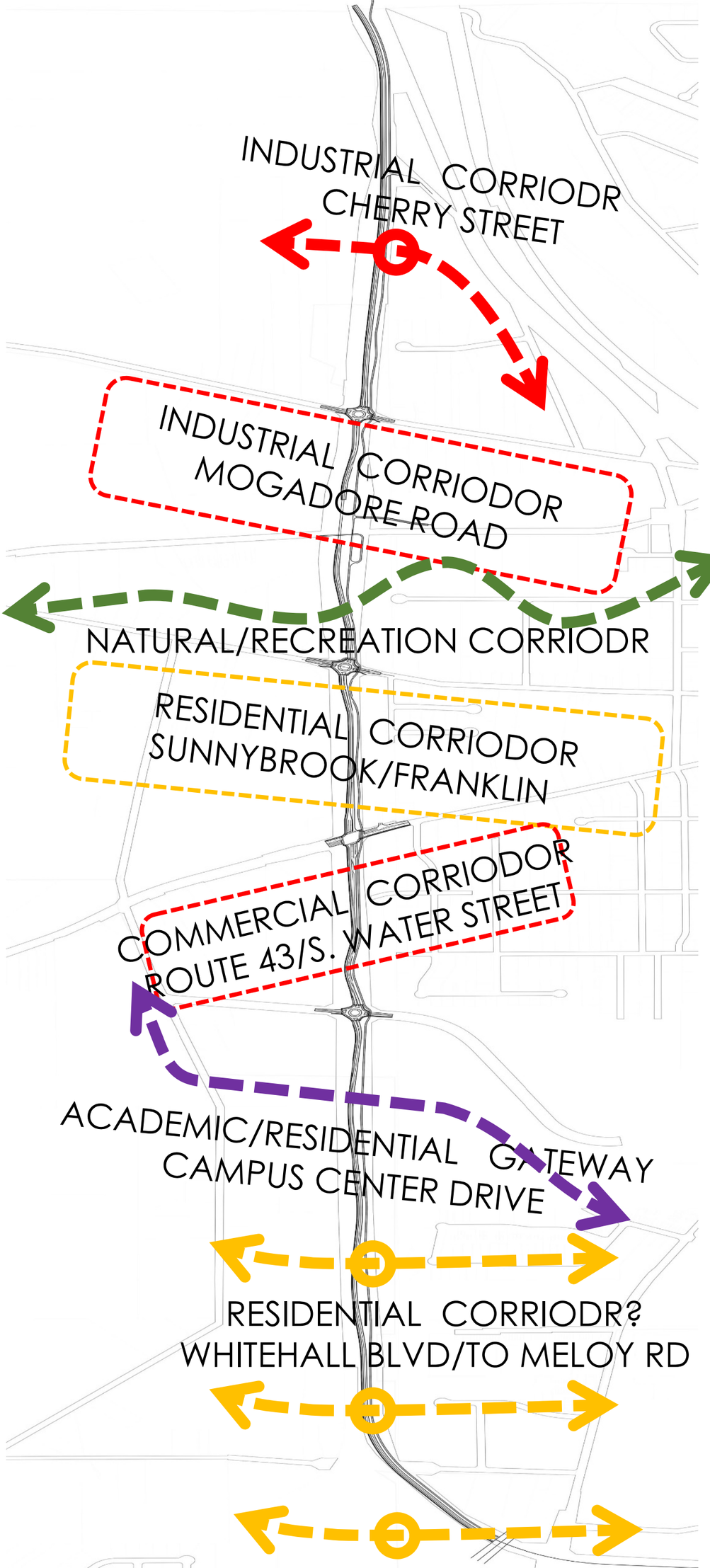

CAC COMMENTS: *REINFORCE EXISTING USE CORRIDORS*

BRIMFIELD R-1 LOW DENSITY RESIDENTIAL
R-1, ZONING 115 ACRES /1.5 ACRES/UNIT* =76 UNITS

KENT
U ZONING

KENT
R-1 ZONING

BRIMFIELD
R-1 ZONING

BRIMFIELD
R-2 ZONING

S.R. 261 CORRIDOR PLANNING
Kent, Ohio

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CAC COMMENTS: ***ADD ONLY ONE NEW VEHICULAR INTERSECTION***

BRIMFIELD L-I, LIGHT INDUSTRIAL
L-I ZONING, 330.8 ACRES

L-I Zoning
Minimum Lot Area: One half (1/2) acre exclusive of right-of-way. With a minimum lot width at minimum building setback line for lots at 100 feet. And minimum rear yard width of 50% of required frontage. Maximum lot coverage cannot exceed 80% of total lot area.

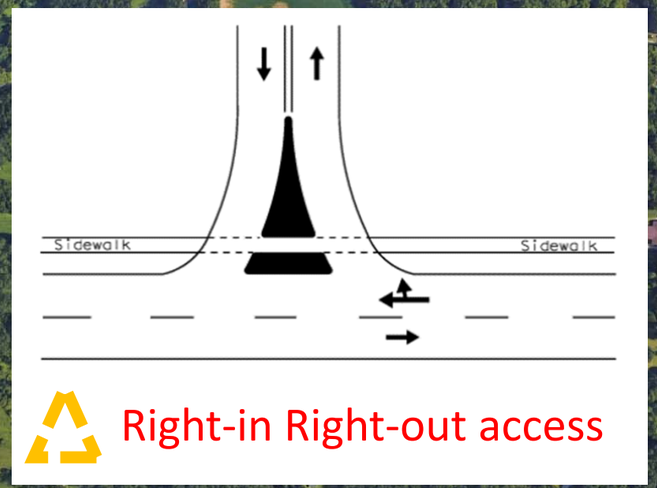
CAC COMMENTS: ***ADD ONLY ONE NEW VEHICULAR INTERSECTION***

KENT
I ZONING

KENT
C ZONING

KENT
C ZONING

KENT
C ZONING



Right-in Right-out access

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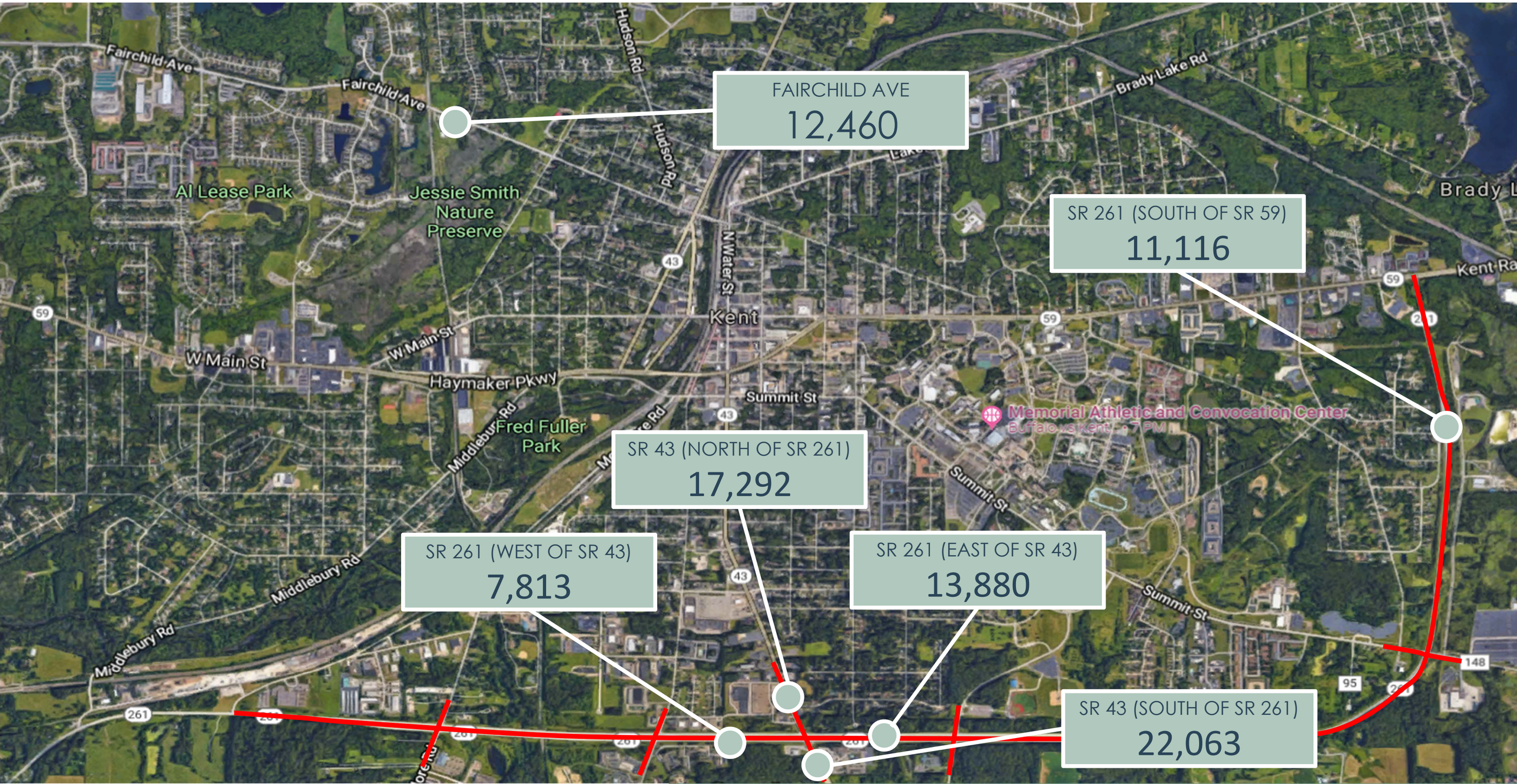
CAC COMMENTS: *ALLOW LIMITED RI-RO ACCESS FROM 261?*



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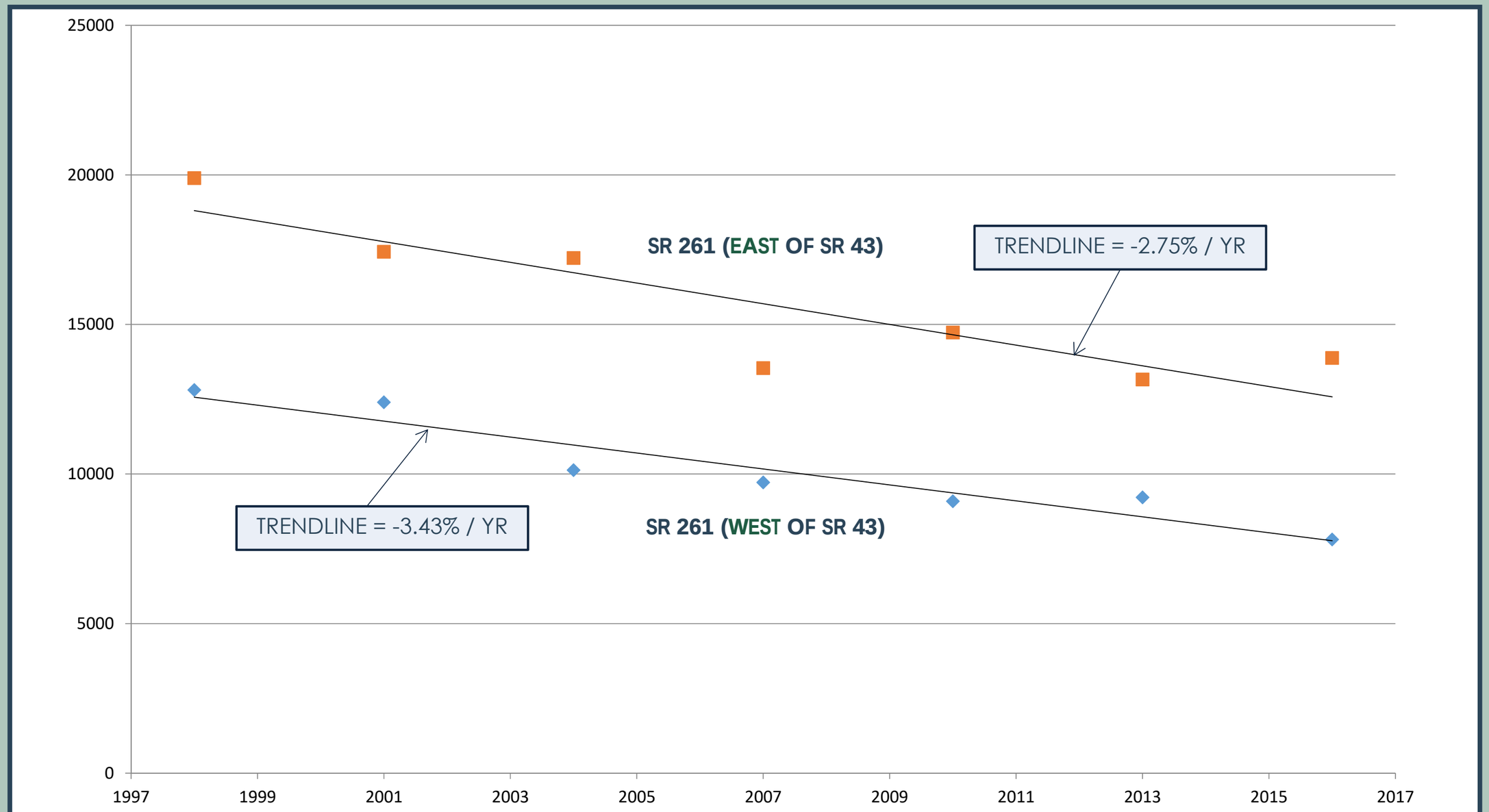
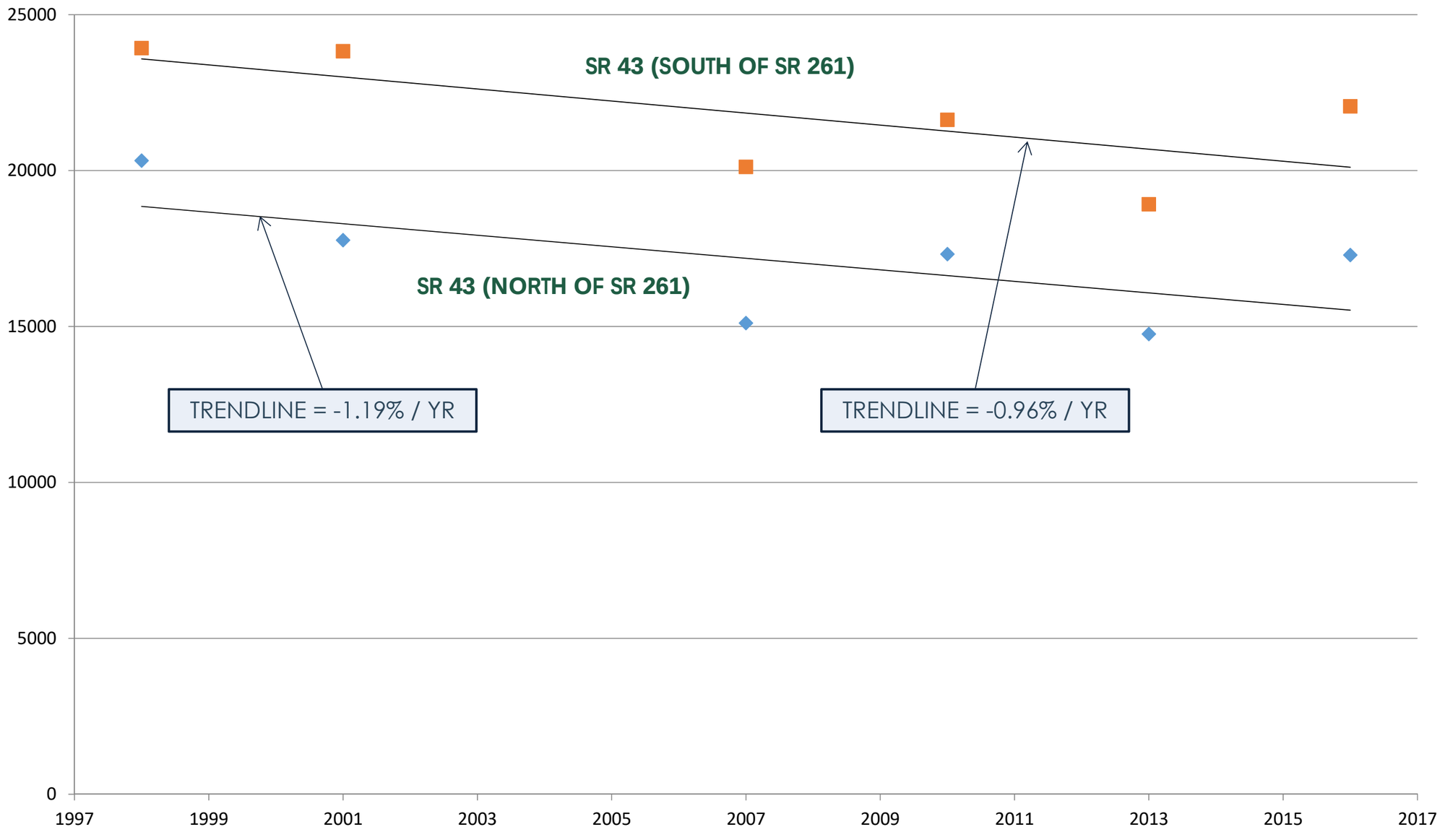
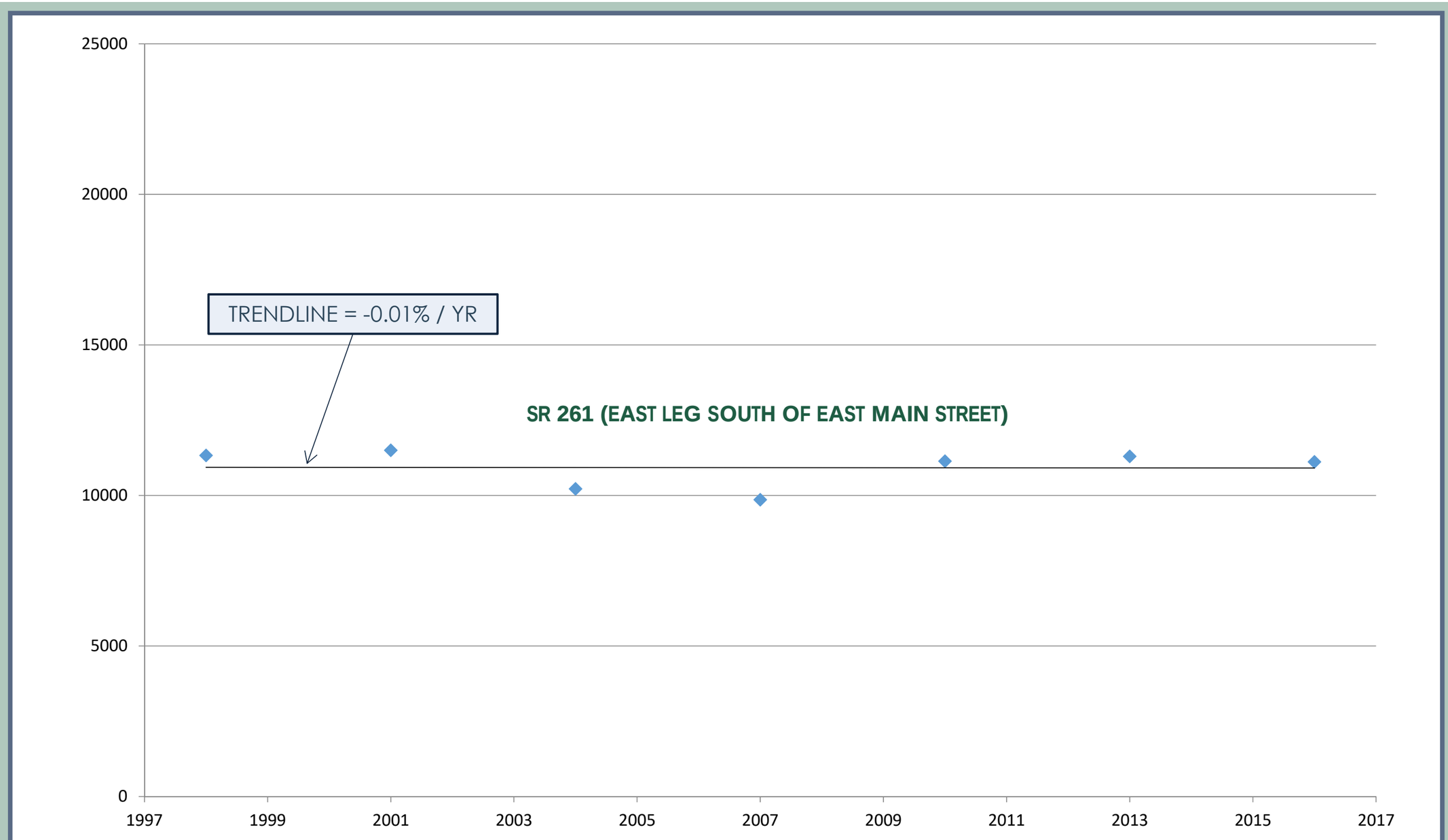
DAILY TRAFFIC VOLUMES: *2016 ODOT TRAFFIC COUNTS*



DAILY TRAFFIC VOLUMES: *SR 261 HISTORICAL GROWTH TRENDS*



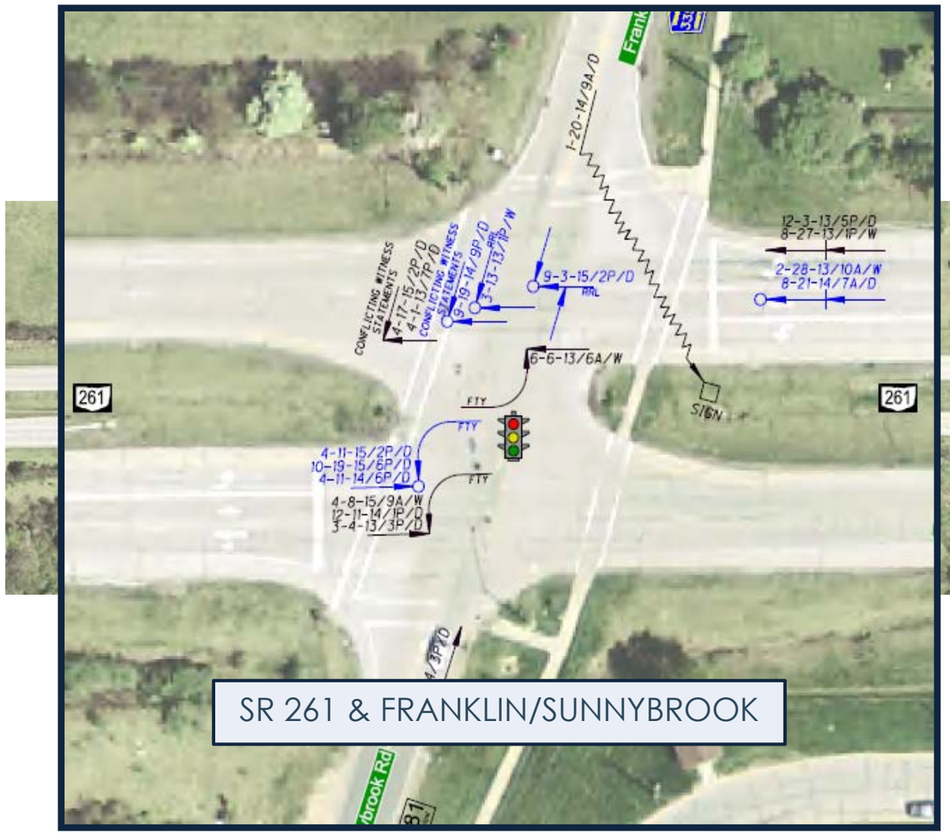
DAILY TRAFFIC VOLUMES: *SR 43 HISTORICAL GROWTH TRENDS*


TRENDLINE = -0.01% / YR
SR 261 (EAST LEG SOUTH OF EAST MAIN STREET)
25000
20000
15000
10000
5000
0
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017

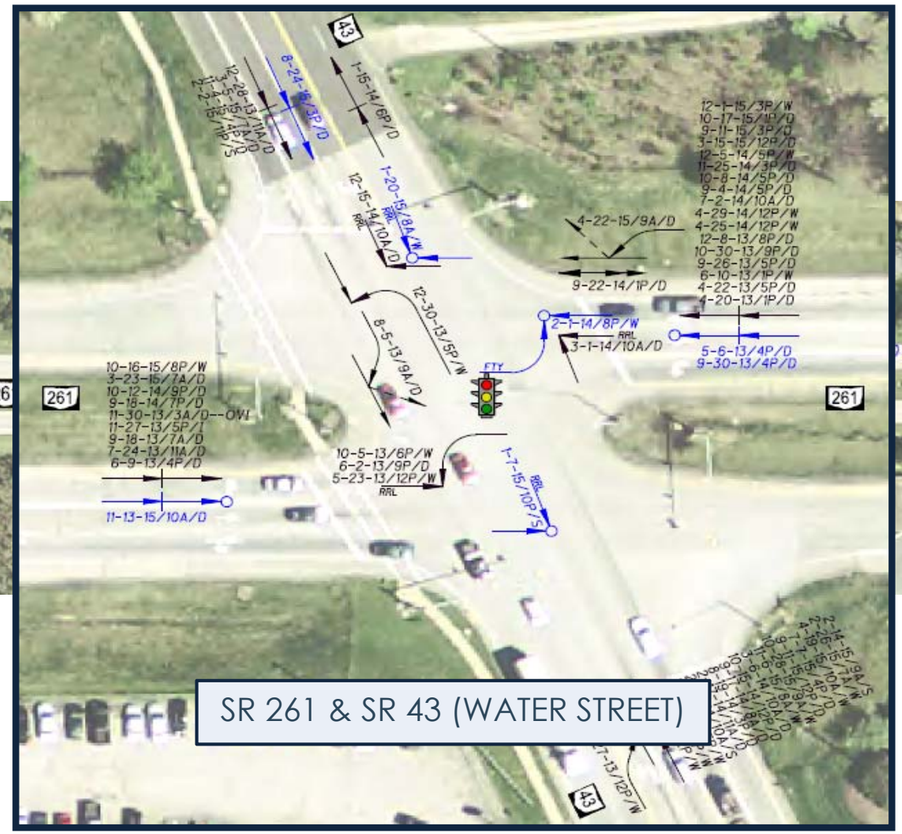
- 2 SEGMENT CRASHES (0 INJURIES)
- 5 CRASHES AT SR 261 & CHERRY STREET (2 INJURIES)
- 15 CRASHES AT SR 261 & MOGADORE ROAD (3 INJURIES)

2013-2015 CRASH HISTORY: *CHERRY ST TO MOGADORE RD*

- 2 SEGMENT CRASHES (1 INJURY)
- 18 CRASHES AT SR 261 & FRANKLIN AVENUE/SUNNYBROOK ROAD (8 INJURIES)
- 64 CRASHES AT SR 261 & SR 43 (WATER STREET) (7 INJURIES)



SR 261 & FRANKLIN/SUNNYBROOK



SR 261 & SR 43 (WATER STREET)

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Kent, Ohio

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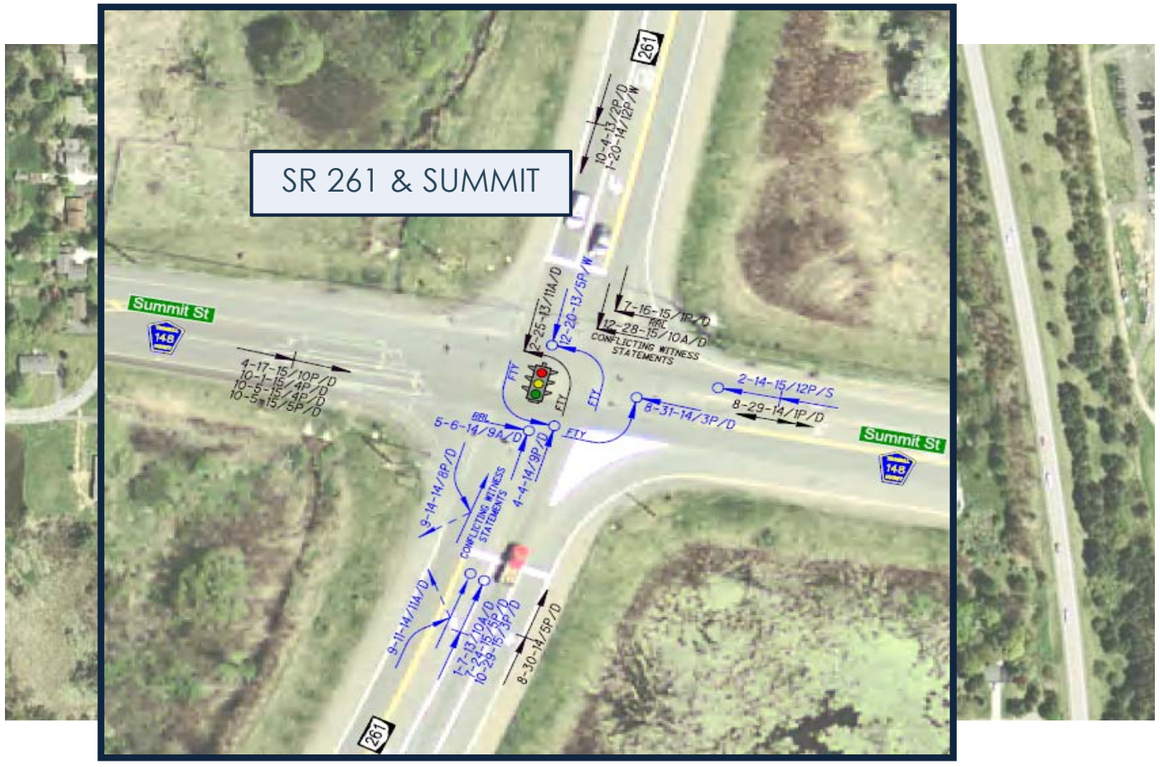
2013-2015 CRASH HISTORY: *FRANKLIN/SUNNYBROOK TO WATER ST*

- 11 SEGMENT CRASHES (1 INJURY)
- 14 CRASHES AT SR 261 & CAMPUS CENTER DRIVE (3 INJURIES)

SR 261 & CAMPUS CENTER

- 1 SEGMENT CRASH (1 INJURY)

- 3 SEGMENT CRASHES (2 INJURIES)
- 21 CRASHES AT SR 261 & SUMMIT STREET (10 INJURIES)

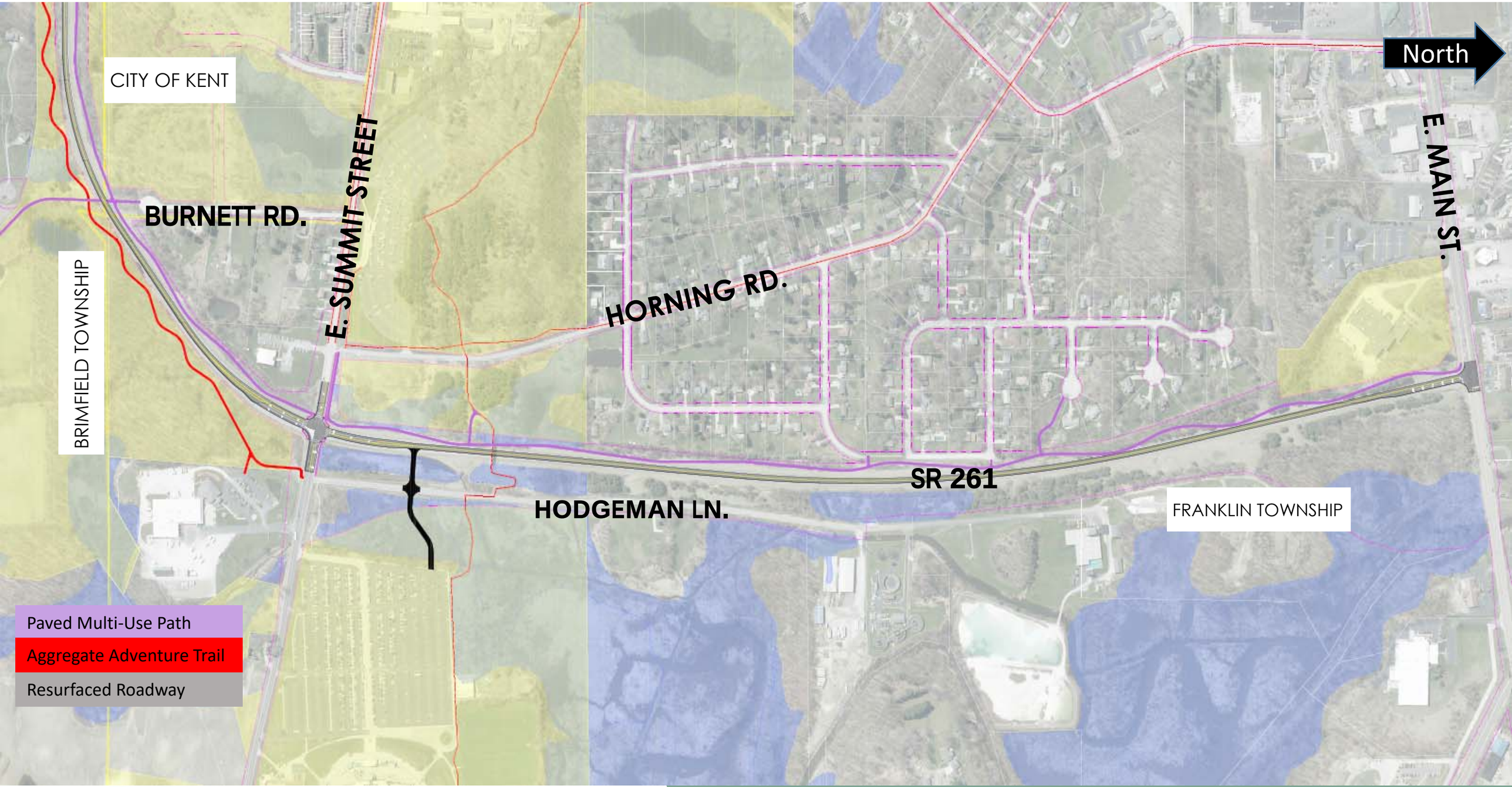


2013-2015 CRASH HISTORY: *SUMMIT ST TO EAST MAIN ST*

STRAIGHT ROADWAY+
FLAT GRADES +
WIDE PAVEMENT +
LIMITED TRAFFIC=

EXCESSIVE SPEEDS

DESIGN ELEMENT TABLE ARTERIAL		
DESIGN ELEMENT	≤ 45 MPH	≥ 50 MPH
CURBED	YES	ONLY IN SPECIAL CASES. 4 INCH MAXIMUM HEIGHT
LANE WIDTH	11 FT. MIN.	12 FT. MIN.
PAVED SHOULDER WIDTH	1 FT. MIN.	4 FT. CURBED. 12 FT. UNCURBED.
CLEAR ZONE WIDTH	8 FT. MIN.	30 FT. MIN.
SIGNALIZED INTERSECTIONS	COMMONLY USED	COMMONLY USED
ROUNDABOUT INTERSECTIONS	COMMONLY USED	ACCEPTABLE, CASE BY CASE BASIS



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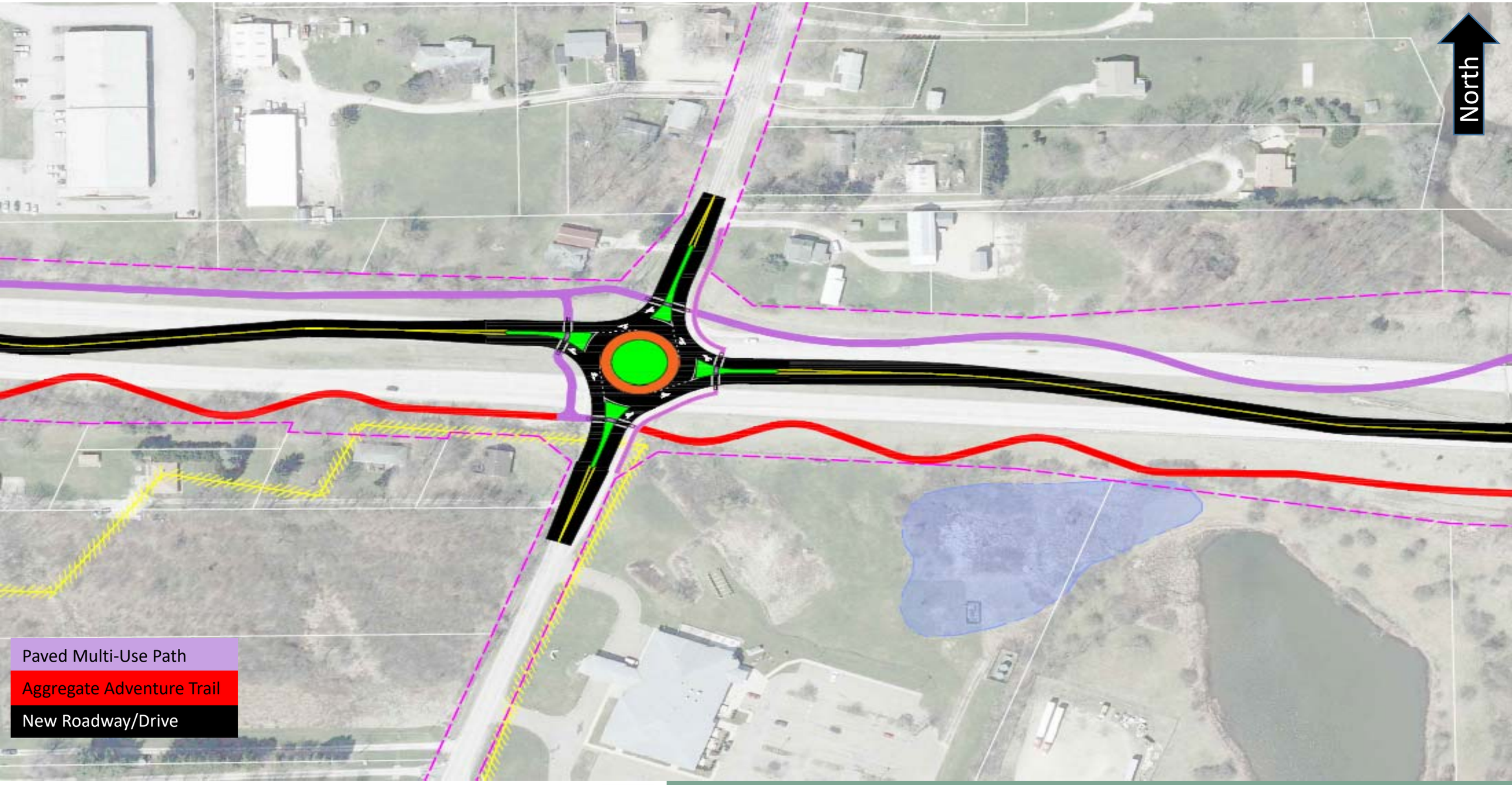
REUSE ALTERNATIVE



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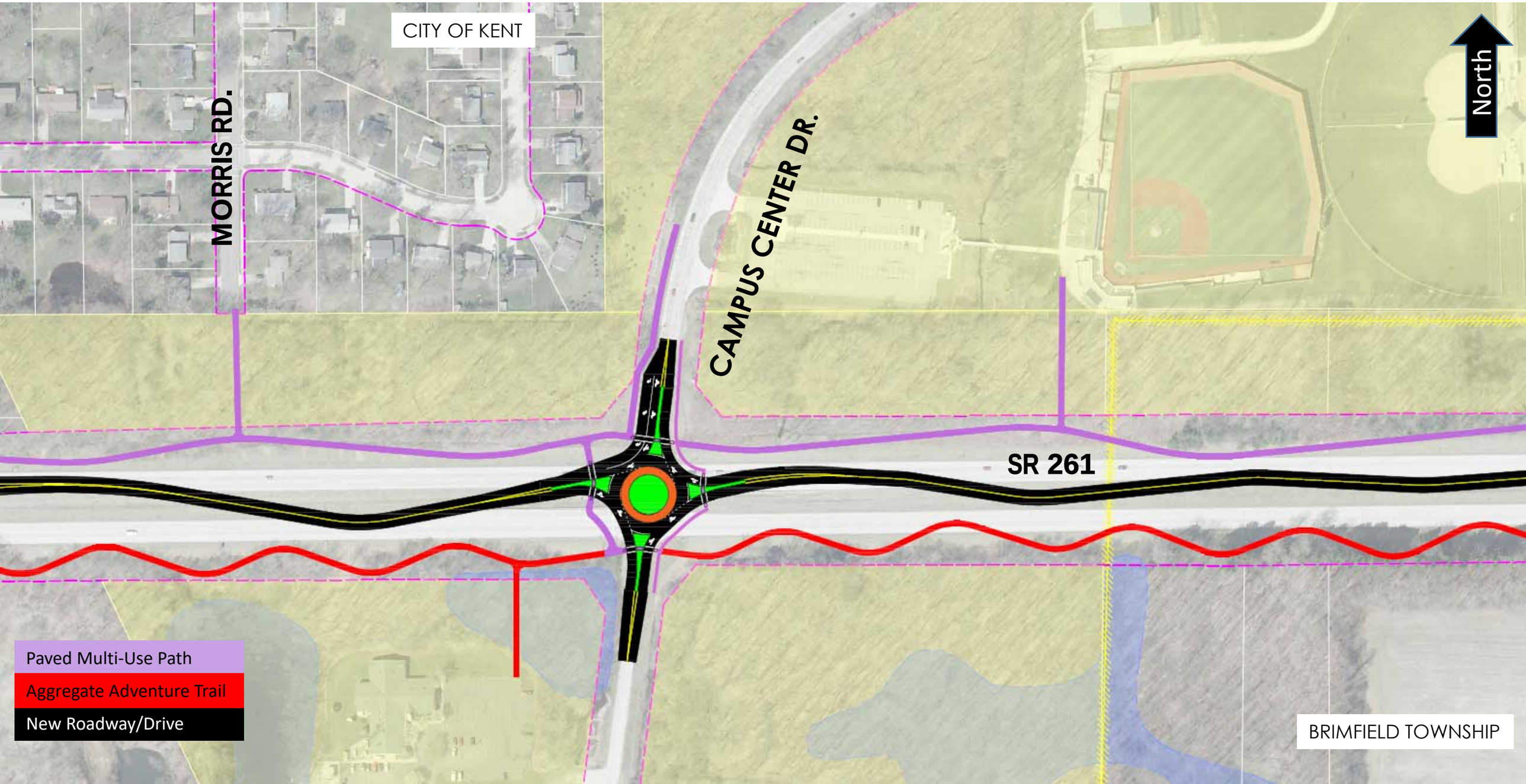
INTERSECTION ALTERNATIVE



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PARKWAY ALTERNATIVE

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PARKWAY TYPICAL SECTION
EASTBOUND VIEW APPROACHING SUNNYBROOK & FRANKLIN

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TYPICAL MULTI-USE PATH CONNECTION
EASTBOUND VIEW AT LINCOLN STREET

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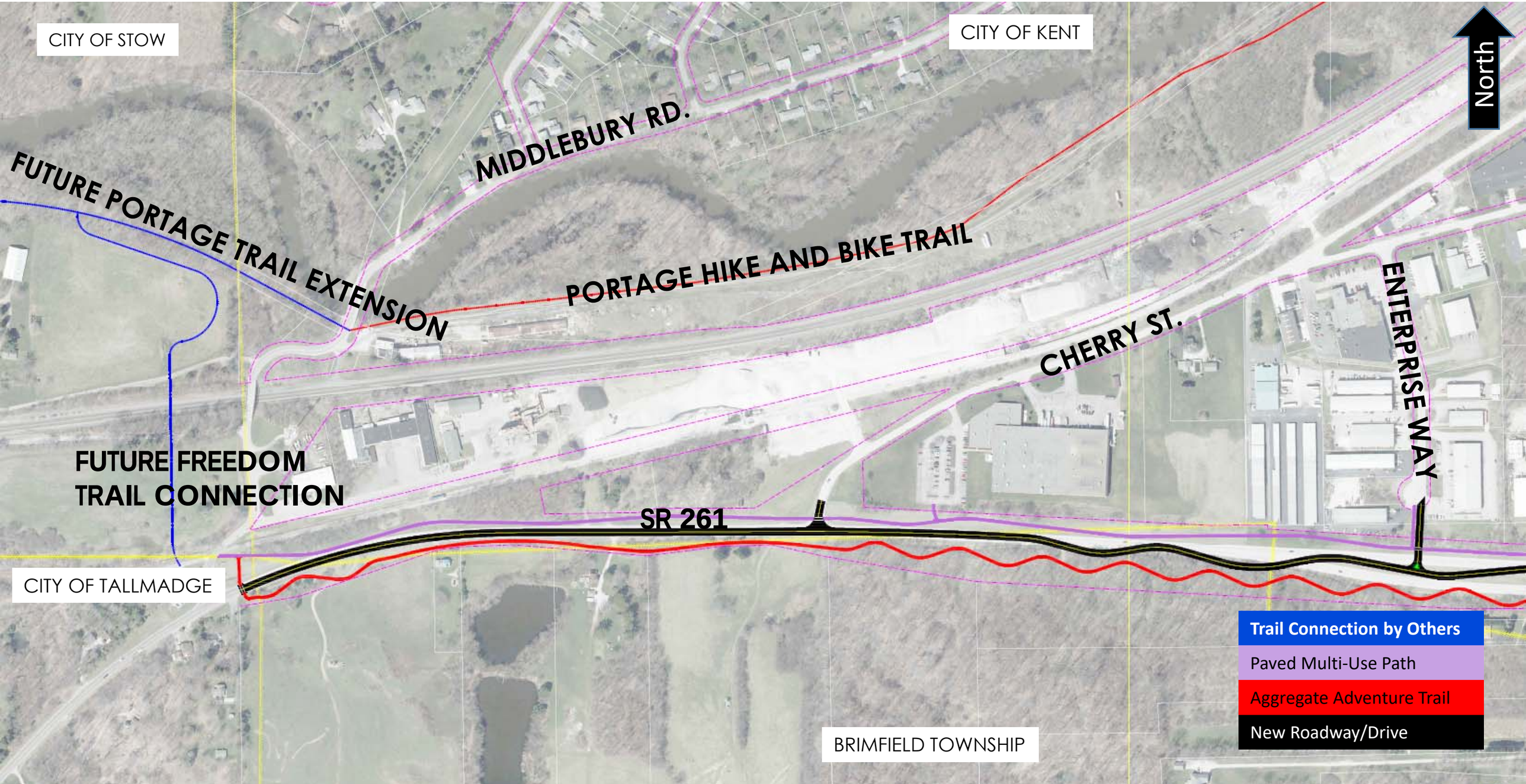
TYPICAL ADVENTURE TRAIL SECTION

EASTBOUND VIEW APPROACHING SUNNYBROOK & FRANKLIN



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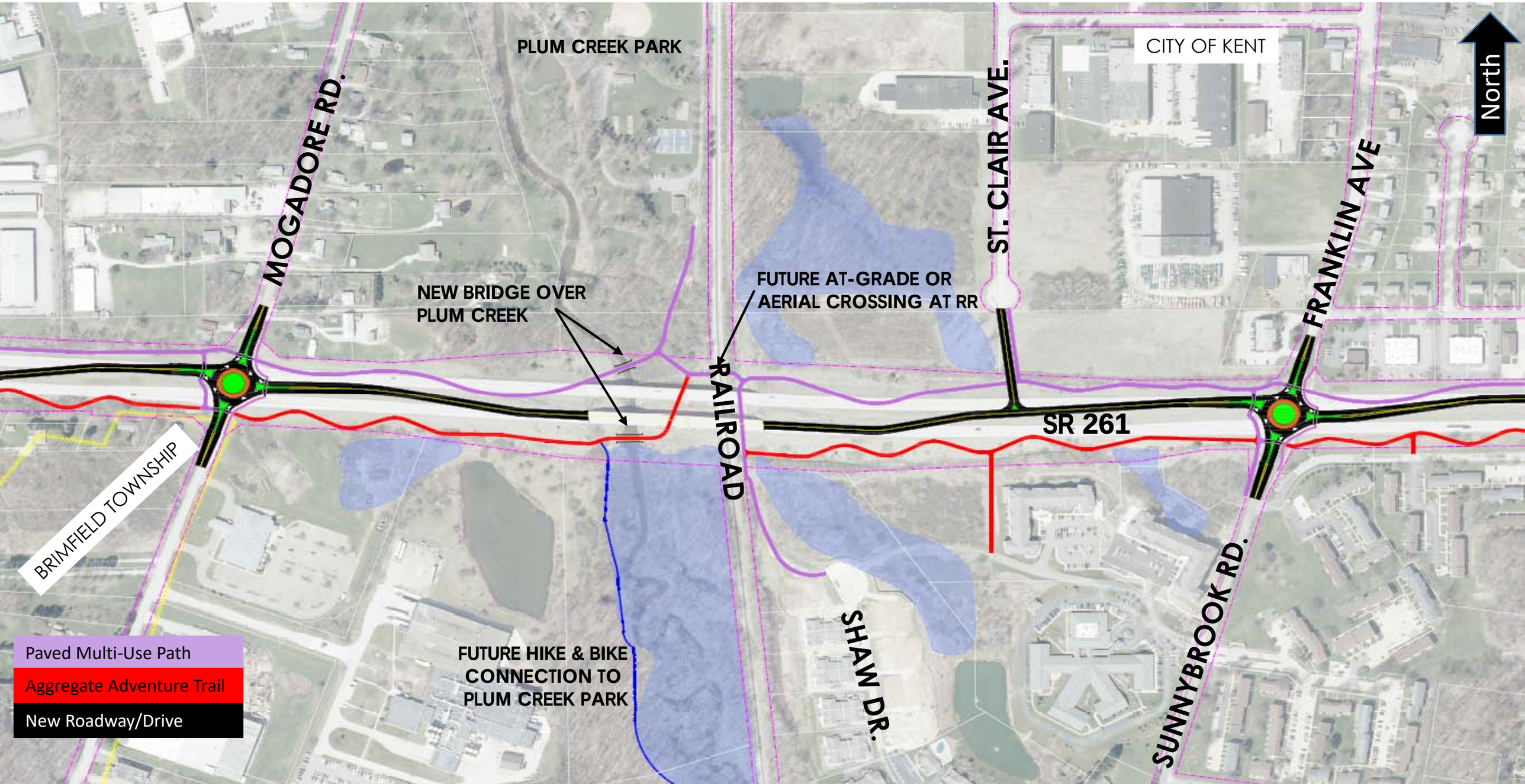
BICYCLE CONNECTIVITY: *PORTAGE, SUMMIT AND FREEDOM TRAILS*



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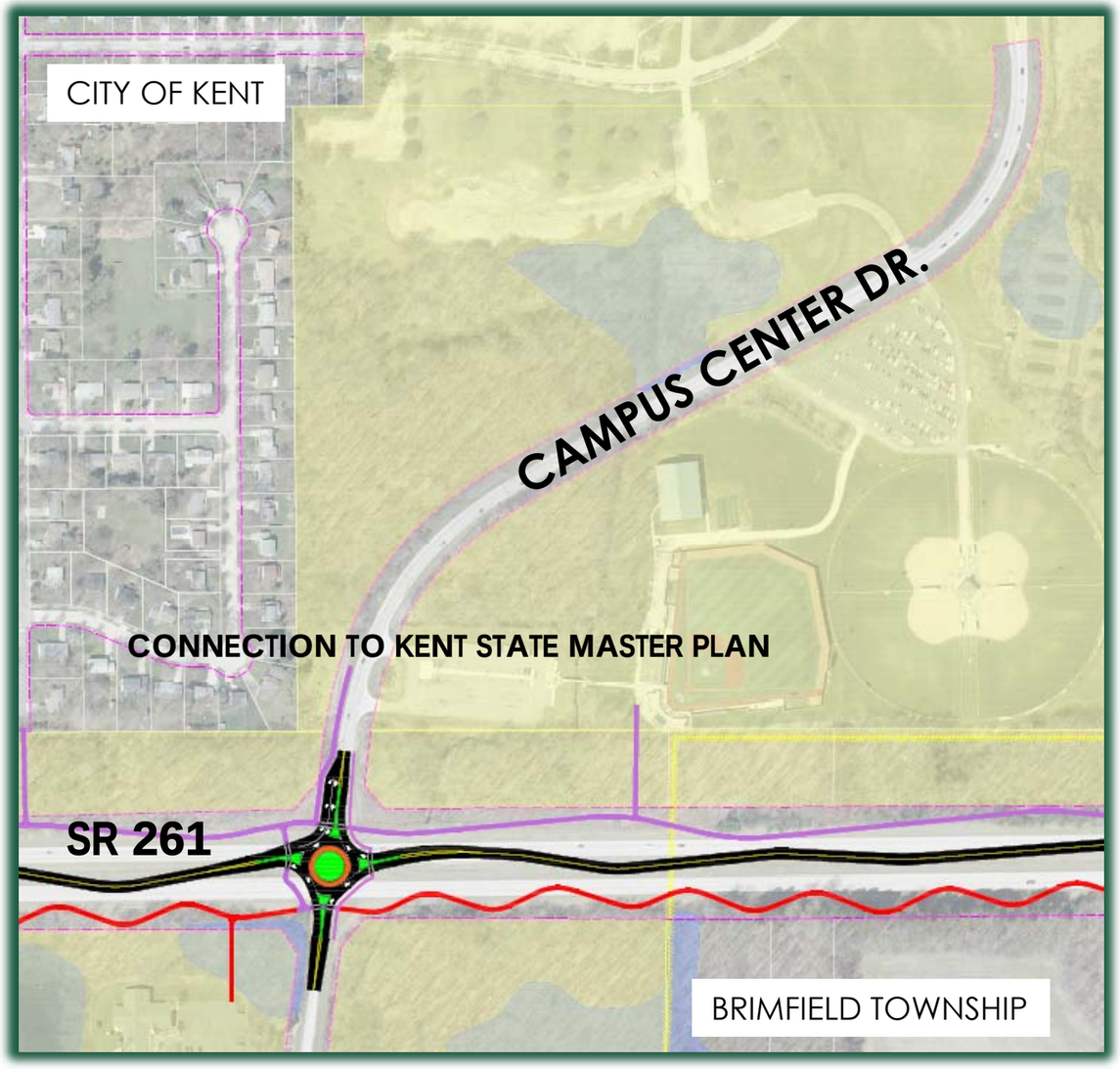
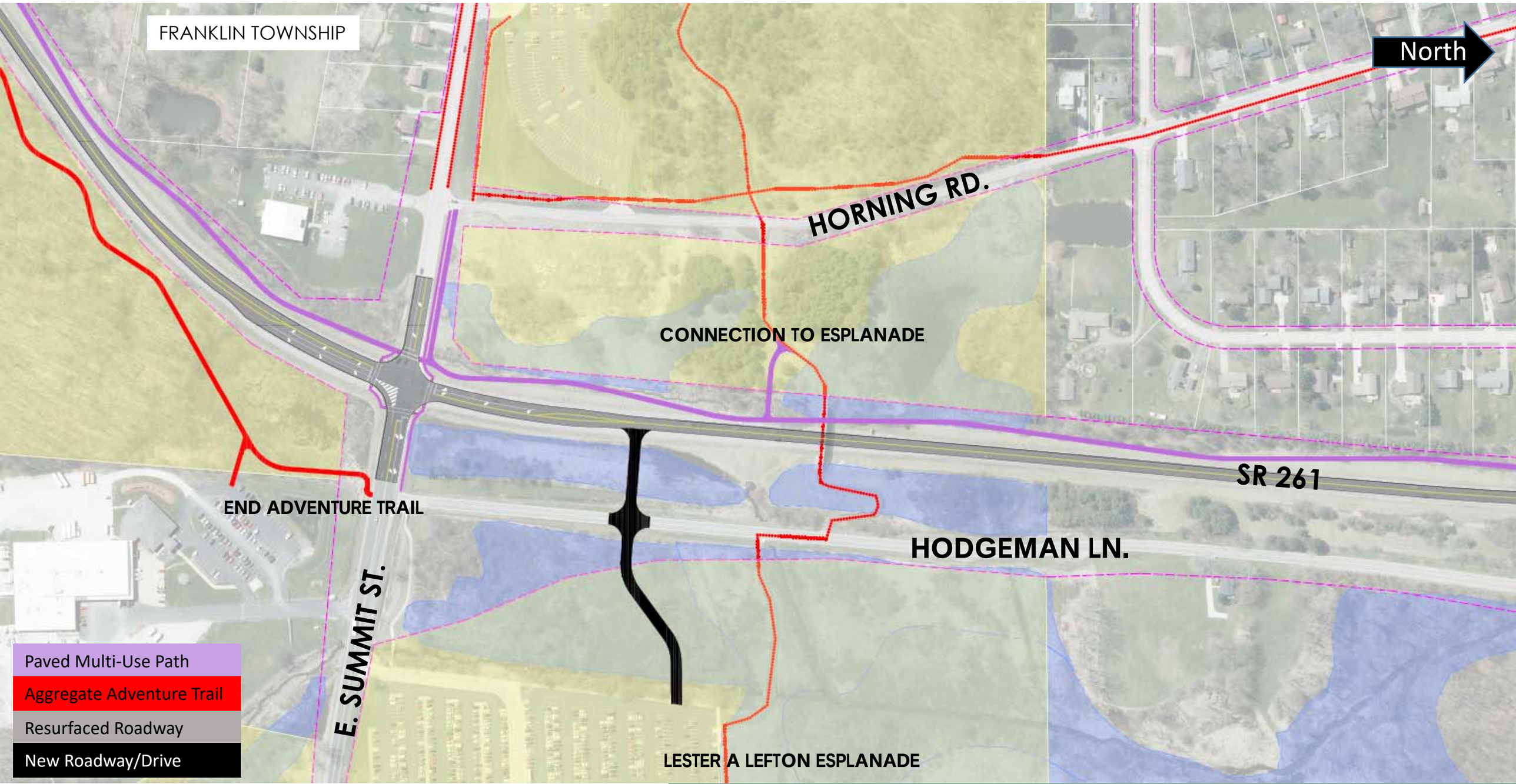
BICYCLE CONNECTIVITY: *TRAIL CONNECTION AT PLUM CREEK*



BICYCLE CONNECTIVITY: *TRAIL CONNECTIONS AT KSU CAMPUS*



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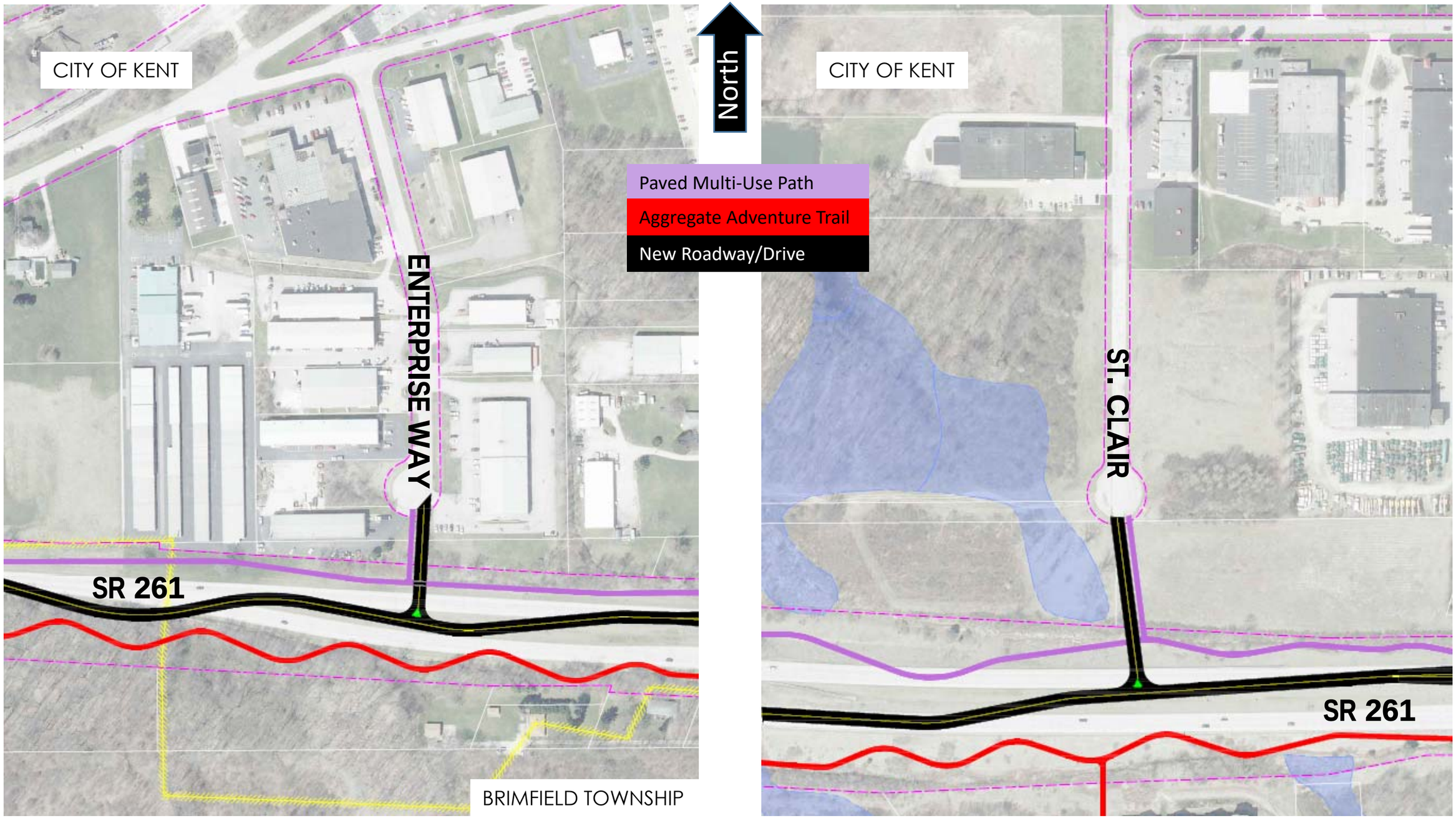
BICYCLE CONNECTIVITY: *TRAIL CONNECTIONS EAST OF KSU CAMPUS*



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VEHICULAR ACCESS: *RIGHT-IN/RIGHT-OUT CONNECTIONS?*

North

HORNING RD.

GATED EXIT

EVENT PARKING CONNECTION

HODGEMAN LN.

E. SUMMIT ST.

SR 261

CITY OF KENT

FRANKLIN TOWNSHIP

Paved Multi-Use Path

Aggregate Adventure Trail

Resurfaced Roadway

New Roadway/Drive

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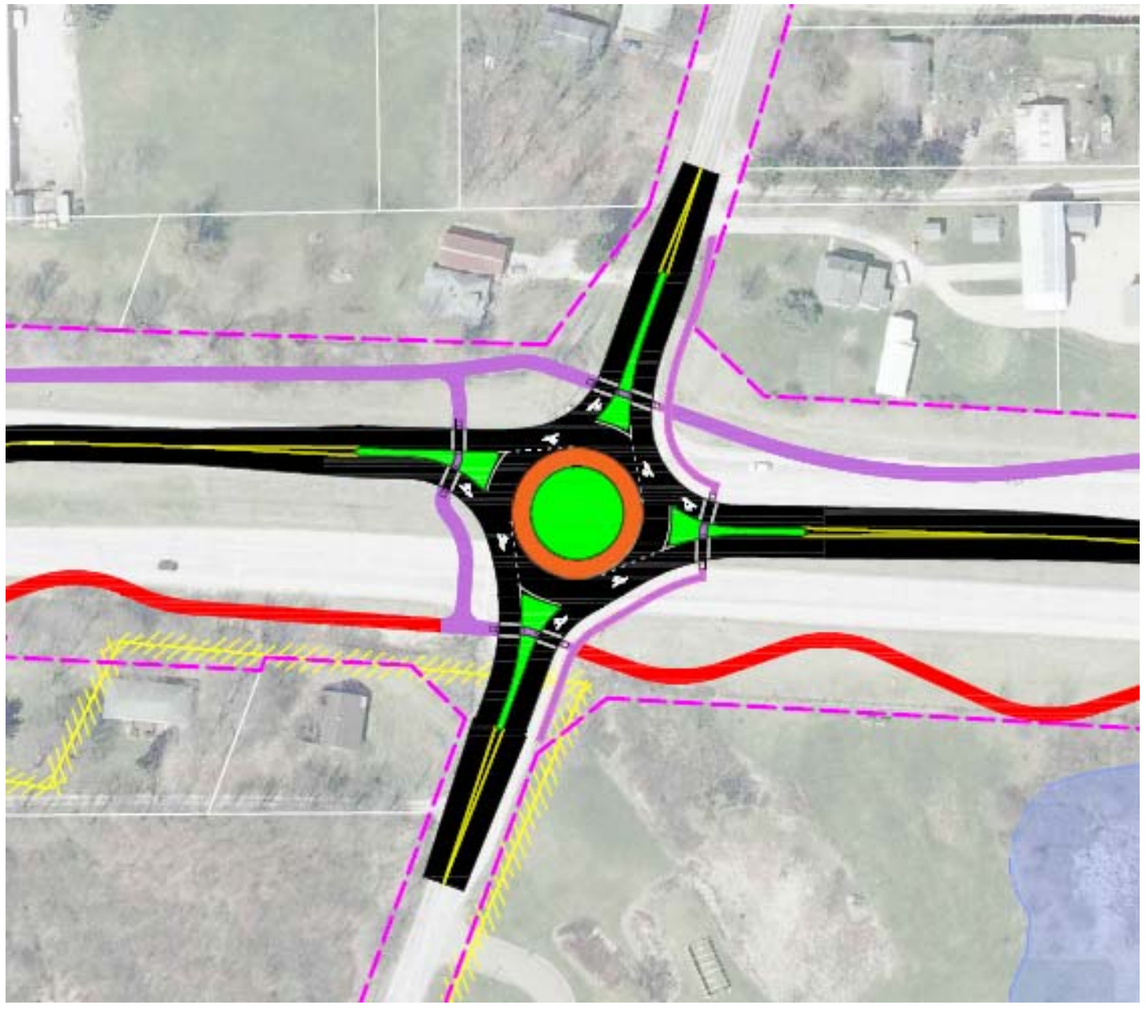
VEHICULAR ACCESS: *GATED / SPECIAL USE?*

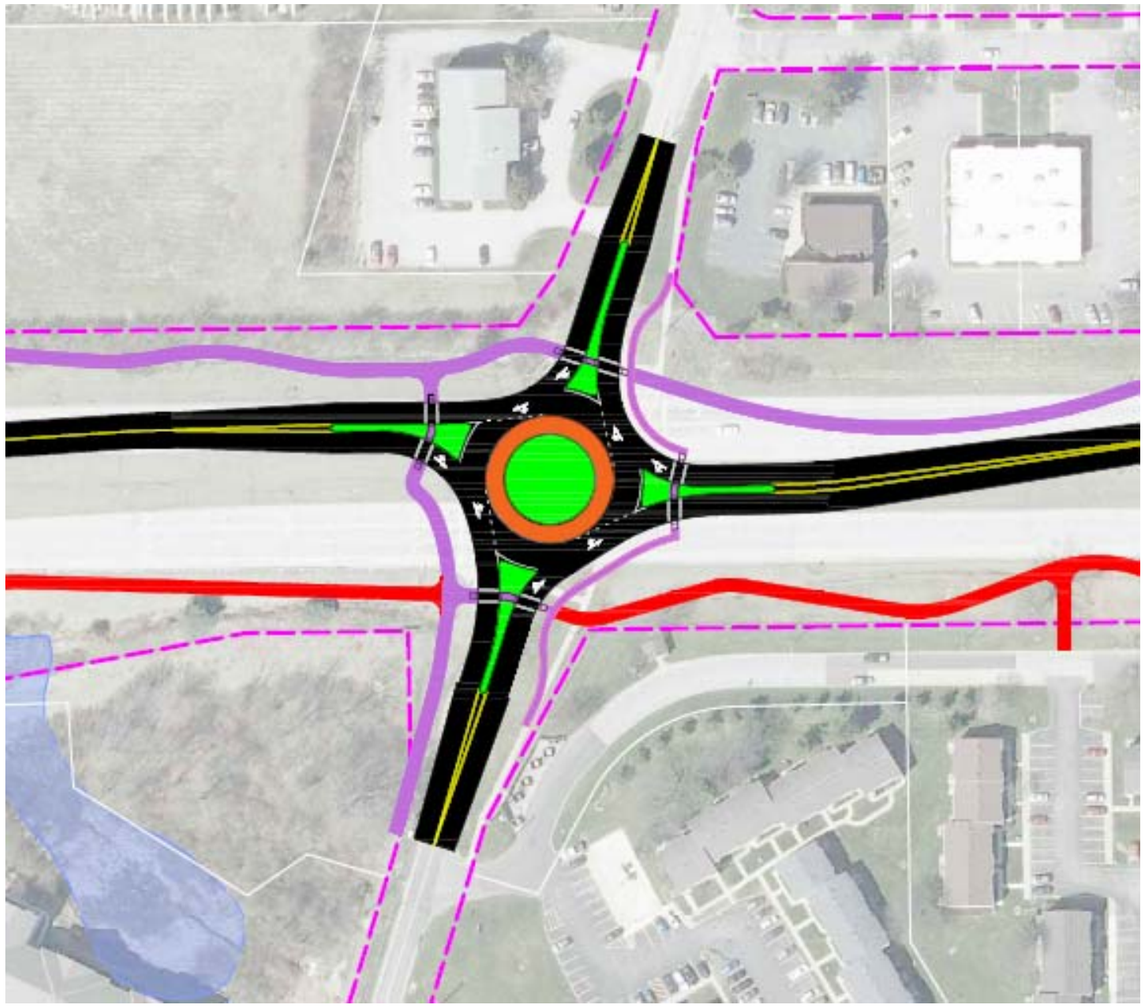
- SINGLE LANE ROUNDABOUT
- SR 261 REDUCED TO SINGLE LANE APPROACHES
- MOGADORE ROAD REDUCED TO SINGLE LANE APPROACHES



AM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	C	20.3	B	19.1	C	20.3	B	19.0	B	19.8
SIGNALIZED – PROPOSED	B	17.5	B	17.2	B	17.6	B	16.2	B	17.2
ROUNDABOUT	B	10.9	A	9.8	B	12.0	A	8.6	B	10.5

PM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	C	21.3	C	21.7	C	21.8	C	21.1	C	21.5
SIGNALIZED – PROPOSED	B	15.6	C	21.5	C	21.5	B	19.2	B	19.8
ROUNDABOUT	B	13.5	D	29.4	C	17.0	C	23.4	C	21.8

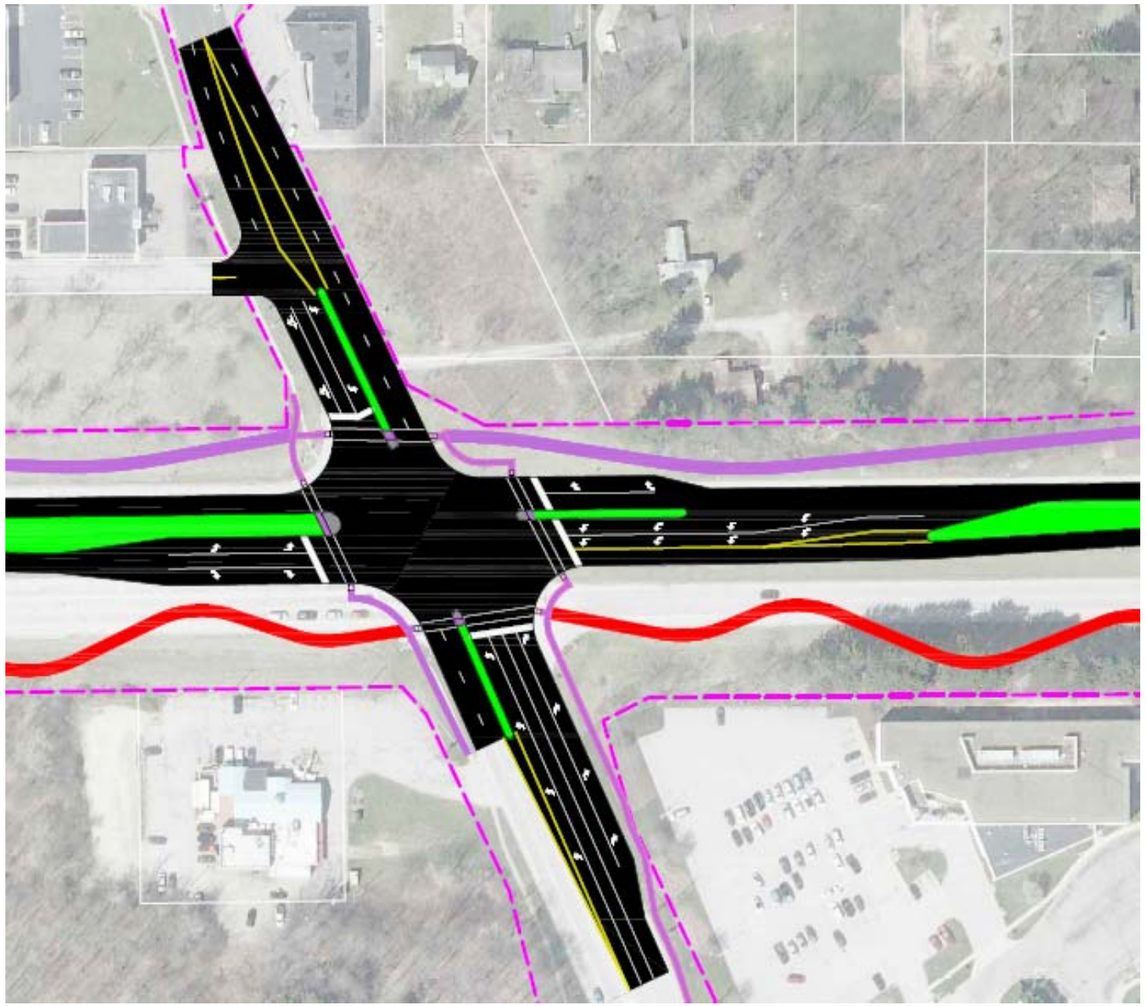
- SINGLE LANE ROUNDABOUT
- SR 261 REDUCED TO SINGLE LANE APPROACHES
- FRANKLIN AVE AND SUNNYBROOK RD MAINTAIN SINGLE LANE APPROACHES



AM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	B	19.0	B	19.5	B	19.5	B	18.8	B	19.6
SIGNALIZED – PROPOSED	B	17.3	B	17.1	B	17.2	B	16.6	B	17.1
ROUNDABOUT	A	9.7	B	10.3	A	8.9	A	6.4	A	9.6

PM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	C	20.0	C	21.2	B	18.4	C	21.2	C	20.6
SIGNALIZED – PROPOSED	B	15.9	C	21.3	B	18.5	C	21.3	B	19.4
ROUNDABOUT	C	16.6	C	17.3	A	9.9	C	18.6	C	16.7

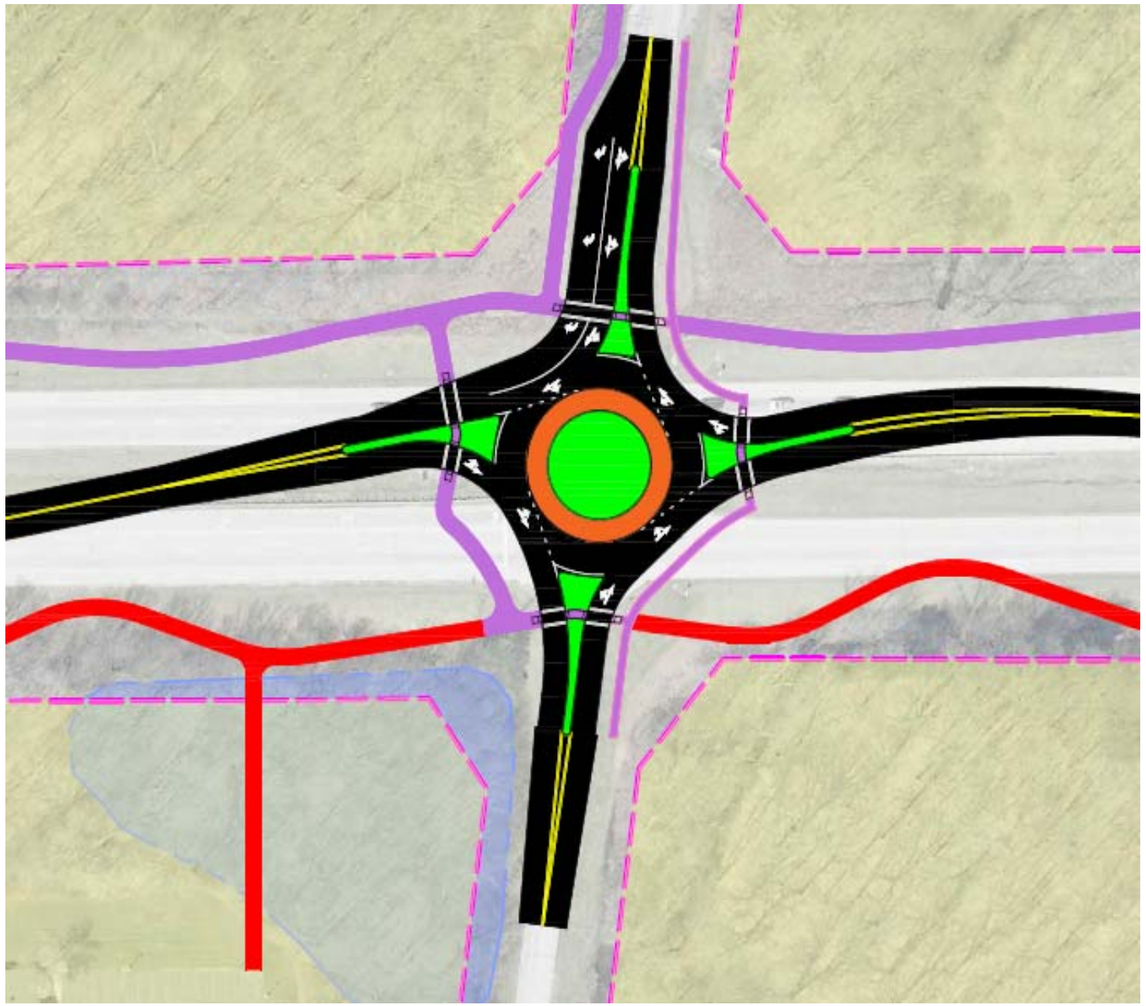
- SIGNALIZED INTERSECTION
- SR 261 REDUCED TO SINGLE THRU LANE BUT WITH ADDITIONAL TURN LANES
- SR 43 (WATER STREET) MAINTAINS SAME APPROACH LANES – NO CHANGES



AM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	C	32.7	C	33.7	C	33.6	C	27.4	C	32.2
SIGNALIZED – PROPOSED	C	30.4	C	32.0	C	31.7	C	28.7	C	30.9

PM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	E	71.1	D	53.5	C	23.9	E	70.9	D	53.8
SIGNALIZED – PROPOSED	D	36.9	D	46.3	C	22.6	D	45.9	D	38.4

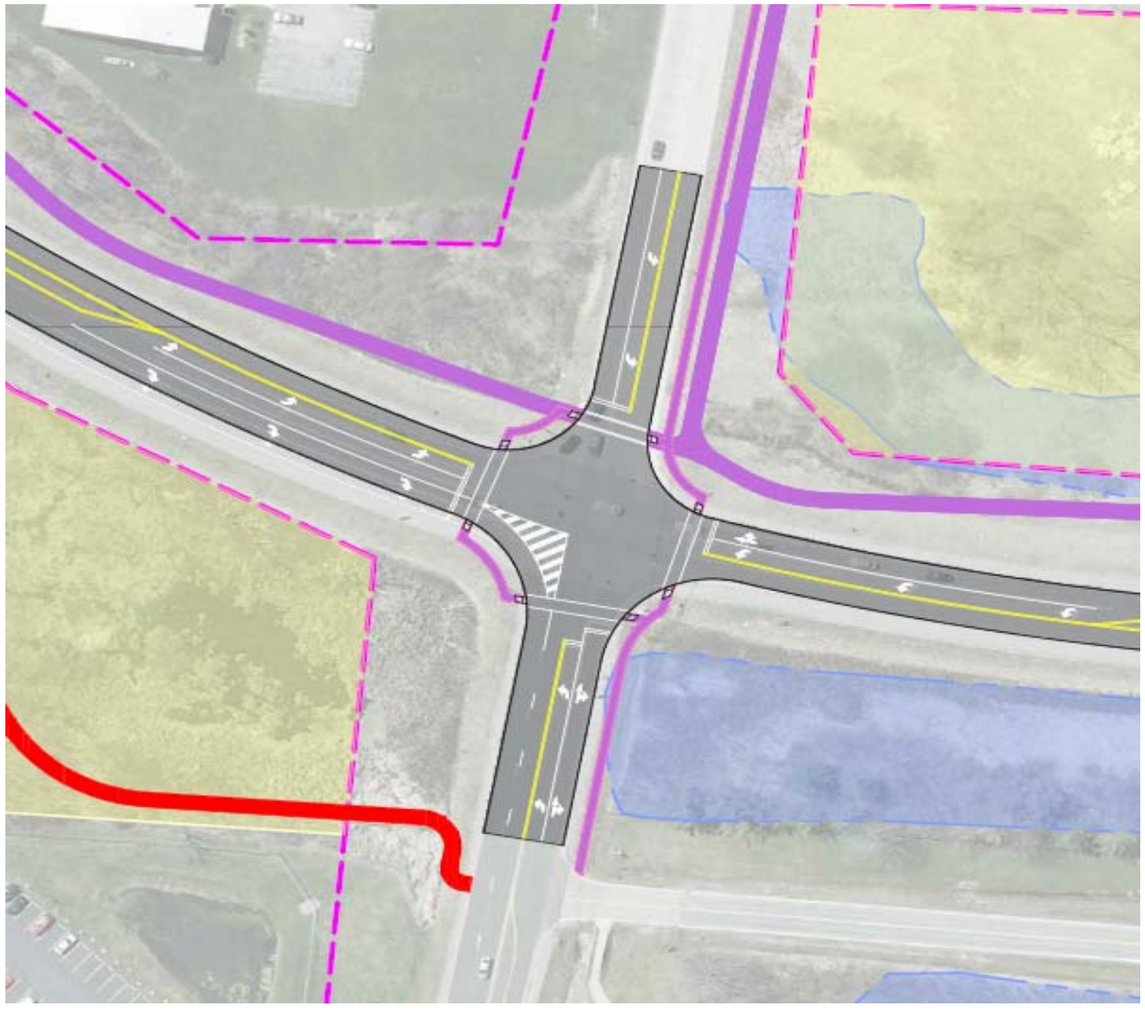
- SINGLE LANE ROUNDABOUT
- SR 261 REDUCED TO SINGLE LANE APPROACHES
- CAMPUS CENTER DRIVE ADDS A SB RIGHT TURN LANE



AM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	C	25.5	C	25.0	C	25.6	C	23.7	C	25.3
SIGNALIZED – PROPOSED	B	18.5	C	22.4	C	22.3	B	16.5	C	20.1
ROUNDABOUT	B	11.6	C	15.4	B	12.3	A	4.6	B	12.4

PM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	C	28.1	C	30.1	B	17.8	C	30.3	C	28.7
SIGNALIZED – PROPOSED	B	12.5	C	25.1	C	24.9	C	24.6	C	20.6
ROUNDABOUT	D	27.3	C	23.1	B	12.5	B	11.9	C	21.0

- SIGNALIZED INTERSECTION
- SR 261 MAINTAINS SAME APPROACH LANES – NO CHANGES
- SUMMIT STREET MAINTAINS SAME APPROACH LANES – NO CHANGES



AM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	C	24.7	C	20.2	C	24.7	B	16.7	C	21.3
SIGNALIZED – PROPOSED	C	24.7	C	20.2	C	24.7	B	16.7	C	21.3

PM PEAK HOUR										
MOVEMENT	EB APPROACH		WB APPROACH		NB APPROACH		SB APPROACH		OVERALL	
	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)	LOS	DELAY (SEC)
SIGNALIZED – EXISTING	C	30.4	B	17.2	C	30.3	C	25.0	C	26.3
SIGNALIZED – PROPOSED	C	30.4	B	17.2	C	30.3	C	25.0	C	26.3

WHENEVER THE DIRECTOR DETERMINES UPON THE BASIS OF A GEOMETRIC AND TRAFFIC CHARACTERISTIC STUDY THAT ANY SPEED LIMIT SET FORTH IN THIS SECTION IS GREATER OR LESS THAN IS REASONABLE AND SAFE UNDER CONDITIONS FOUND TO EXIST AT ANY PORTION OF A STREET OR HIGHWAY UNDER THE JURISDICTION OF THE DIRECTOR, THE DIRECTOR SHALL DETERMINE AND DECLARE A REASONABLE AND SAFE PRIMA-FACIE SPEED LIMIT, WHICH SHALL BE EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE OF IT ARE ERECTED AT THE LOCATION.

- FIFTY MILES PER HOUR ON STATE ROUTES WITHIN MUNICIPAL CORPORATIONS OUTSIDE URBAN DISTRICTS UNLESS A LOWER PRIMA-FACIE SPEED IS ESTABLISHED.
- FIFTY-FIVE MILES PER HOUR ON HIGHWAYS OUTSIDE OF MUNICIPAL CORPORATIONS

S.R. 261 CORRIDOR PLANNING
Kent, Ohio

QUESTIONS AND ANSWERS