

BOARD OF PUBLIC WORKS

City of Kaukauna
Council Chambers
Municipal Services Building
144 W. Second Street, Kaukauna



Monday, October 06, 2025 at 6:00 PM

AGENDA

In-Person and Remote Teleconference via ZOOM

1. Correspondence.
2. Discussion Topics.
 - [a.](#) Authorization to submit a State Trunk Highway Connection Application for a public road at/across from Morningside Drive on STH 55.
 - [b.](#) Ahlstrom/Red Hills Landfill Updates.
 - [c.](#) Recommendation for Bids on Project 8-25 Sanitary and Storm Sewer CIPP Installation.
 - [d.](#) Recommendations for Disposal Site.
 - [e.](#) U.S. Army Corps of Engineers Right of Entry for Construction - Bicentennial Ct.
 - [f.](#) Riverside Park/Pool Hill - Easement to Kaukauna Utilities.
3. Adjourn.

NOTICES

Notice is hereby given that a majority of the City Council will be present at the meeting of the Board of Public Works meeting scheduled for Monday, October 6, 2025 at 6:00 P.M. to gather information about a subject over which they have decision making responsibility.

IF REQUESTED THREE (3) DAYS PRIOR TO THE MEETING, A SIGN LANGUAGE INTERPRETER WILL BE MADE AVAILABLE AT NO CHARGE.



MEETING ACCESS INFORMATION:

You can access this meeting by one of three methods: from your telephone, computer, or by an app. Instructions are below.

To access the meeting by telephone:

1. Dial 1-312-626-6799
2. When prompted, enter Meeting ID 234 605 4161 followed by #
3. When prompted, enter Password 54130 followed by #

To access the meeting by computer:

1. Go to <http://www.zoom.us>
2. Click the blue link in the upper right hand side that says Join a Meeting
3. Enter Meeting ID 234 605 4161
4. Enter Password 54130
5. Allow Zoom to access your microphone or camera if you wish to speak during the meeting

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1. Download the free Zoom app to your device
2. Click the blue button that says Join a Meeting
3. Enter Meeting ID 234 605 4161
4. Enter Password 54130
5. Allow the app to access your microphone or camera if you wish to speak during the meeting

Members of the public will be muted unless there is an agenda item that allows for public comment or if a motion is made to open the floor to public comment.



MEMO

Engineering Department

To: Board of Public Works

From: John Neumeier, Director of Public Works/City Engineer

Date: 10/06/2025

Re: Authorization to submit a State Trunk Highway Connection Application for a public road at/across from Morningside Drive on STH 55

Background information:

The Director of Public Works/City Engineer is requesting authorization to submit a State Trunk Highway (STH) Connection Application for a public road at/across from Morningside Drive on STH 55, on behalf of the City. The application submitted to the Wisconsin Department of Transportation (WisDOT) is required for the access as the project area is under WisDOT permitting authority. This means, the City is asking WisDOT to allow a public roadway connection at this location. The authorization to submit an application is not an approval of any design elements, however, the reviewing parties are in agreement that a roundabout would be the approved traffic control treatment if this intersection is installed for this development. Authorization to submit the application would allow the City and KASD to start working with WisDOT on a formal design for the intersection, including pedestrian accommodations. After the design process and with DOT approval, an access permit would allow for the street connection to be constructed if City BPW and Common Council direction to do so. I will also recommend that a Public Informational Meeting be held during the design process, prior to a final design being considered by the City.

As part of the preliminary WisDOT review of this connection, a Traffic Impact Analysis (TIA) was required. A TIA is a detailed look at the proposed development with proposed roadway connections and the impacts that the development traffic could have on several surrounding roads and intersections. To help provide background on this TIA and the recommendations, attached you will find:

1. TIA concurrence letter from Wisconsin DOT Summary WIS 55 Kaukauna south middle school
2. Email correspondence from Joe Zellmer, Outagamie County Highway Engineer, giving a general concurrence with the TIA
3. Kaukauna Middle School Tech Memo Dated September 3, 2025 from Traffic Analysis & Design Inc (TADI, the company performing the TIA) which amends the original TIA attached.
4. Kaukauna Middle School Development Traffic Impact Analysis with revisions based on preliminary reviews, dated June 19, 2025
5. Original - Kaukauna Middle School Development Traffic Impact Analysis dated April 28, 2025 (Original review comments are also available, please let me know if you would like to see them) This document is provided for reference, but has been revised and is re-submitted as the June 19, 2025 updated TIA (Item #4).

- a. Please note I have not attached all appendices to the TIA, but I do have them available if you would like to get into the details of the technical documents. Please let me know and I will make them available to you.
6. Preliminary CSM from KASD to show a proposed connection location with associated right-of-way that could be dedicated, and the proposed lot division. (Preliminary for Reference and Comment Only)

Please review the attached information. I suggest that you review the documents in the order listed as I believe it will best guide you through the reasoning for the TIA process and then can give you a good understanding of the technical work behind the conclusions. The Preliminary CSM is also attached to provide an introductory visual to how the site and connection may look, I will also ask for any comments or thoughts on the Preliminary CSM to give direction to KASD prior to them submitting a formal CSM for City review/approval this Fall.

Strategic Plan: N/A

Budget: N/A

Staff Recommended Action:

- 1) Authorize the Director of Public Works/City Engineer to submit a State Trunk Highway Connection Application to WisDOT for a public road at/across from Morningside Drive on STH 55, on behalf of the City.
- 2) Provide any comments or concerns with the Preliminary CSM.

WisDOT Division of Transportation System Development
Southeast Regional Office
141 N.W. Barstow Street
P.O. Box 798
Waukesha, WI 53187-0798

Governor Tony Evers
Secretary Kristina Boardman
wisconsindot.gov
Telephone: (262) 548-5903
FAX: (262) 548-5662
Email: waukesha.dtd@dot.wi.gov



September 16, 2025

John Neumeier
Director of Public Works
City of Kaukauna
P.O. Box 890
Kaukauna, Wisconsin 54130

Subject: Development Submittal
Kaukauna Area School District Planned Middle School Campus
WIS 55- vicinity of County KK and County CE

Dear John:

The Traffic Impact Analysis (TIA) (submitted 04/28/2025) performed and supplemental Technical Memorandum (submitted 09/03/2025) by TADI covering the Kaukauna Middle School development has allowed the Wisconsin Department of Transportation (Department) to understand the impacts of the subject development and identify necessary improvements. The below lists the improvement(s) that are to be constructed as a result of this development, including additional pertinent Department comments and understandings.

The acceptance of this TIA is not an approval of proposed recommendations outlined in the TIA, but an acknowledgment that the TIA was submitted in a format that was acceptable for the Department to review and determine appropriate traffic control improvements in the area based on increase traffic volumes of the development.

Following is a summary of the Department's positions and understanding for addressing traffic control improvements and other pertinent Department comments. This summary is based on the TIA submittal(s), supplemental Technical Memorandum(s) and meetings with city, school and consultant team members:

1. The Department concurs with the recommended construction of a two-lane roundabout (RAB) constructed at the proposed public roadway access to the planned middle school campus at the intersection of WIS 55 and Morningside Drive. This plan/construction must include ADA/PROWAG compliant pedestrian accommodations (sidewalk on both sides of WIS 55 north of the RAB) and sidewalk on the south side of the RAB as determined by City. The TIA considered several alternatives at this intersection, including a signalized intersection. The signalized intersection alternative did not meet Manual Uniform of Traffic Control Devices (MUTCD) traffic signal warrants. Roundabout construction is the Departments required traffic control treatment at this intersection.

2. If District/City pursues design and construction of a pedestrian underpass at the RAB, the plans shall include provisions (fencing/railing and signing) to require pedestrian use of the underpass. Physical at grade pedestrian crossing deterrents are required.
3. The Department understands the Kaukauna Area School District (District) plans on delaying sale of developable property between WIS 55 and the planned middle school campus. Based upon that WisDOT does not have comments/concurrence on the portion of the TIA that discusses "Total Traffic" recommendations. When the District moves forward with sale of this property a new or updated TIA submittal will be required to determine impacts to traffic operations on WIS 55 and surrounding roadways as well as required infrastructure improvements to mitigate this additional traffic from the development. WisDOT accepts that analysis but will require notes on the proposed Certified Survey Map and Memorandum of Agreement be signed by all parties agreeing that any changes to the bell schedule or development of the remaining vacant land will require further study.
4. Based on the submitted supplemental Technical Memorandum (dated September 3, 2025) the District will be implementing a staggered bell schedule at the existing High School and planned Middle School. This staggered bell schedule was shown to decrease traffic operation impacts at the existing roundabout at WIS 55 and County CE. If the staggered bell schedule is significantly modified from the times presented in the Technical Memorandum, further analysis of impacts will be needed. The staggered bell schedule shows that addition of several right turn lanes of the WIS 55 and CTH CE RAB can be delayed until additional district owned vacant land is developed.

The development may continue with the Department's Access Permit Process for the proposed connection. The access permit application packet will require design preparation. Plan review (for the RAB) and STH Connection Permit (WisDOT Form DT1504) will be submitted to David Nielsen. All permits will be issued to the local municipality (City of Kaukauna) and the design consultant will need to forward permit plans for review.

For the proposed tunnel under STH 55 there will need to be a Work on Highway Right of Way Permit obtained from the WisDOT Maintenance Unit. The contact for that will be Doug Wiegand at 920-492-7739 or douglas.wiegand@dot.wi.gov.

Sincerely,

David B Nielsen

David B Nielsen, P.E.

Cc: via email:

Chris McDaniel (mcdanielc@kaukaunasd.org); Kaukauna Area School District
 Scott Groholski (scott@pobinc.com); Jim Lundberg (jiml@pobinc.com)
 Don Lee (dlee@tadi-us.com); John Bieberitz (jbieberitz@tadi-us.com)

John Neumeier

From: Zellmer, Joseph J. <Joseph.Zellmer@outagamie.org>
Sent: Monday, September 15, 2025 2:57 PM
To: Don Lee; Caden Uhlenbrauck; Scott Groholski
Cc: John Bieberitz; Chris McDaniel; Jim Lundberg; Lindsey Beaman; Hamilton, Rodney - DOT; Asman, Randy - DOT; Simmons, Mason A - DOT; Nielsen, David - DOT; Morman, Michael R.; Riedy, Curtis M.; John Neumeier
Subject: RE: Kaukauna Middle School - Supplemental Roundabout Analysis, STH 55/CTH CE intersection
Attachments: Kaukauna Middle School Tech Memo 090325.pdf

Good afternoon,

As discussed at last week's work group meeting, Outagamie County concurs with the attached technical memo and current recommended improvements identified as Exhibit 6 with the following conditions:

- It is assumed that there will be no off-site development outside of the proposed Kaukauna Middle School site (Exhibit 1) at this time. As such, any development of the "Total Traffic" condition (referred to as *Off-Site Development Area*) will be deferred and studied at a later date. No new County Highway access requests (including modifications to existing access points) are anticipated for the "Full Build" traffic condition.
- Any access modifications and/or future access requests from Outagamie County resulting from the *Off-Site Development Area* may be subject to additional analysis including but not limited to an updated or modified Traffic Impact Analysis, intersection study/operational analysis, etc. at the time of the request.
- This concurrence is based upon a staggered bell schedule and other assumptions outlined in the attached memo. Outagamie County reserves the right to request an updated traffic analysis if any revisions to the currently-proposed bell schedule or supporting assumptions are made.

We appreciate the opportunity to collaborate with your team on this important project.

Contact me with any questions.

Thanks,

Joe Zellmer, P.E.
 Highway Engineer

920.209.9807

www.outagamie.org/Highway



From: Don Lee <dlee@tadi-us.com>
Sent: Wednesday, September 3, 2025 2:32 PM
To: Nielsen, David - DOT <david.nielsen@dot.wi.gov>; John Neumeier <jneumeier@kaukauna.gov>; Hamilton, Rodney - DOT <Rodney.Hamilton@dot.wi.gov>; Asman, Randy - DOT <Randy.Asman@dot.wi.gov>; Simmons, Mason A - DOT <Mason.Simmons@dot.wi.gov>; Zellmer, Joseph J. <Joseph.Zellmer@outagamie.org>
Cc: John Bieberitz <jbieberitz@tadi-us.com>; Scott Groholski <scott@pobinc.com>; Chris McDaniel <mcdanielc@kaukaunasd.org>; Jim Lundberg <Jiml@pobinc.com>; Lindsey Beaman <lindseyb@pobinc.com>
Subject: Kaukauna Middle School - Supplemental Roundabout Analysis, STH 55/CTH CE intersection

****External Email** Do not open attachments, click links or reply until you know it is safe**

Hi Team,

Due to the operational issues that are expected at the STH 55/CTH CE intersection (as shown in the TIA), the school district has decided to stagger the bell schedules between the high school and middle school to help spread out the traffic at the intersection and reduce the overall delays for the public. Attached is a technical memorandum analyzing the STH 55/CTH CE intersection under a staggered school bell schedule. As shown, the intersection is expected to operate acceptably under the Build (with proposed middle school) traffic scenario. Higher delays are still expected under the Total (with proposed middle school and potential off-site development) traffic scenario; however, the impacts are much less than shown in the TIA with a staggered bell schedule.

I've also included the SIDRA roundabout modeling files in the attached link, if needed.

<https://tadi.egnyte.com/fl/RDM4dT44tPbQ>

We look forward to discussing the results at next week's meeting.

Thanks,

Don Lee, PE
TADI (Traffic Analysis & Design, Inc.)
Serving Wisconsin, Illinois and Michigan
Cell: 414.517.5014
e-mail: dlee@tadi-us.com
<http://www.tadi-us.com>



<http://www.linkedin.com/in/djleetraffic>

Date: September 3, 2025

Technical Memorandum

To: Jim Lundberg, P.E.
Point of Beginning, Inc.

From: Don Lee, P.E.
John Bieberitz, P.E., PTOE

Subject: Kaukauna Middle School – Supplemental Analysis
City of Kaukauna and Town of Buchanan, Outagamie County

PART A – INTRODUCTION

The Kaukauna Area School District is planning to construct a new Middle School to be located on a vacant parcel of land east of State Trunk Highway (STH) 55, south of County Trunk Highway (CTH) CE and southwest of the current high school in the City of Kaukauna and the Town of Buchanan, Outagamie County, Wisconsin (Exhibit 1). A new middle school with two outlots for potential future development, which are expected to include commercial and residential land uses along with a connection roadway to the Kaukauna High School, are being proposed for the development site (Exhibit 1). Additional future connections are also expected and being platted to provide a connection from the internal roadways to both CTH CE, east of STH 55, and to CTH KK, at Speedway Lane, as part of any future off-site development.

A Traffic Impact Analysis (TIA), dated June 19, 2025, was completed for the project analyzing the adjacent transportation network under the full build (with proposed Middle School) and total traffic (with additional adjacent outlots) traffic conditions.

Subsequent to the approval of the project and to alleviate some potential operational issues at the STH 55 intersection with CTH CE, the school district is moving forward with shifting the school bell schedules for the proposed middle school and the existing adjacent high school to provide a staggered bell schedule which will help to spread out school traffic over two different peak periods instead of the current schedule in which the peak hours overlap. This analysis builds off the previously submitted June 19th TIA completed for the proposed school.

PART B – UPDATED ANALYSIS

Revised School Schedule

As stated in the June 19th TIA, the TIA utilized the existing bell schedules of the adjacent high school and the proposed middle school which included the following:

Kaukauna Middle School - City of Kaukauna, Wisconsin
 Page 2 of 3
 September 3, 2025

High School (existing)

- AM Bell 7:45am
- PM Bell 3:15pm

Middle School (existing)

- AM Bell 7:55am
- PM Bell 3:20pm

Therefore, the June 19th TIA identified and utilized the morning and afternoon peak hours for the proposed middle school as being 7:00 to 8:00 am and 3:15 to 4:15 pm; respectively.

Under a staggered bell schedule, the following bell schedules of the adjacent high school and the proposed middle school are expected to be utilized, noting that the final schedules may vary by 5 to 10 minutes:

High School (proposed)

- AM Bell 7:30am
- PM Bell 2:55pm

Middle School (proposed)

- AM Bell 8:10am
- PM Bell 3:30pm

With these new bell schedules, the high school morning and afternoon peak hours were identified as being 6:30 to 7:30 am and 2:45 to 3:45 pm; and the middle school morning and afternoon peak hours were identified as being 7:15 to 8:15 am and 3:15 to 4:15 pm; respectively. The slight overlap between the two peak hours is during the time when the volume of traffic for one of the schools is lowest and the other school is higher. Some overlap between peak hours is required to allow for an optimized bus schedule, with sharing of buses between the two schools, and still allowing for a typical school daytime learning schedule, not too early in the morning while also allowing for after school activities in the evening.

Updated Traffic Volumes

Based on the updated peak hours, the turning movement counts were compiled for each separate peak hour and are summarized in Exhibit 3. Using trip generation calculations based on the existing high school population, the existing high school traffic volumes were subtracted out of the peak hour volumes to determine the base background traffic volumes (summer conditions). Then the new trips for the proposed middle school and the potential off-site developments, as described in the previous TIA, were added to these background (summer conditions) peak hours to determine the Full Build (with both schools at staggered schedules) and Total (with both schools at staggered schedules and off-site development) traffic volume conditions, respectively. The Full Build (with both schools at staggered schedules) and Total (with both schools at staggered schedules and off-site development) traffic volumes are shown in Exhibits 4A&4B.

STH 55/CTH CE Intersection Operation

Exhibit 5A shows the operational analysis at the STH 55/Crooks Avenue & CTH CE/College Avenue intersection for the two staggered peak hours under the Full Build (with both schools at staggered schedules) traffic volume conditions. Exhibit 5B shows the operational analysis at the STH 55/Crooks Avenue & CTH CE/College Avenue intersection for the two staggered peak hours under the Total (with both schools at staggered schedules and off-site development) traffic volume conditions.

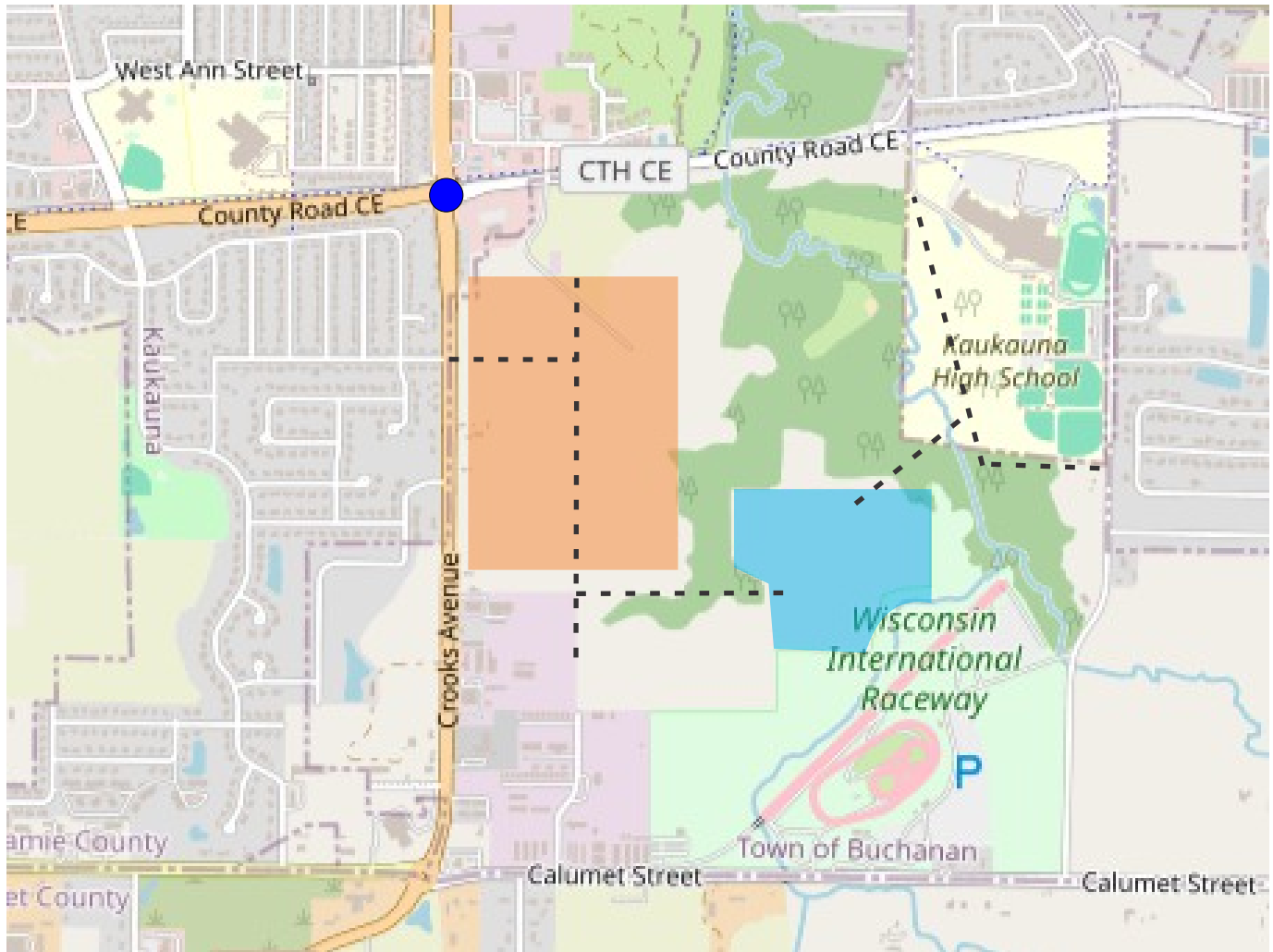
As shown in Exhibit 5A, with a staggered school schedule, the STH 55/Crooks Avenue & CTH CE/College Avenue intersection is expected to operate acceptably at LOS D or better under the Full Build (with both schools at staggered schedules) traffic volumes under the current existing geometry for both schools' peak hours. However, as shown in Exhibit 5B, once the potential off-site development is fully built out, some movements at the intersection are expected to operate with higher delays during the typical weekday morning arrival and weekday afternoon discharge peak periods.

To alleviate these delays under the Total traffic volume scenario, northbound, southbound, and westbound right-turn bypass lanes were included at the STH 55/Crooks Avenue & CTH CE/College Avenue roundabout under Total traffic conditions. Exhibit 5C shows the expected operation with the additional right-turn bypass lanes added. As shown, all movements are expected to operate at LOS D or better with the additional bypass lane, except the westbound (LOS E) movements during the high school and middle school weekday morning peak periods. It is noted that all delays are less than 50 seconds, and all queue lengths are less than 200 feet.

It is also noted that development plans for the off-site development area are unknown at this time and the build-out assumptions used in the study were for planning purposes only. Since future connections are required by WisDOT from the internal roadways to both CTH CE, east of STH 55, and to CTH KK, at Speedway Lane once the offsite development moves forward, it is recommended that a future traffic study should be completed in the future as development plans move forward for the off-site area.

PART C – CONCLUSION

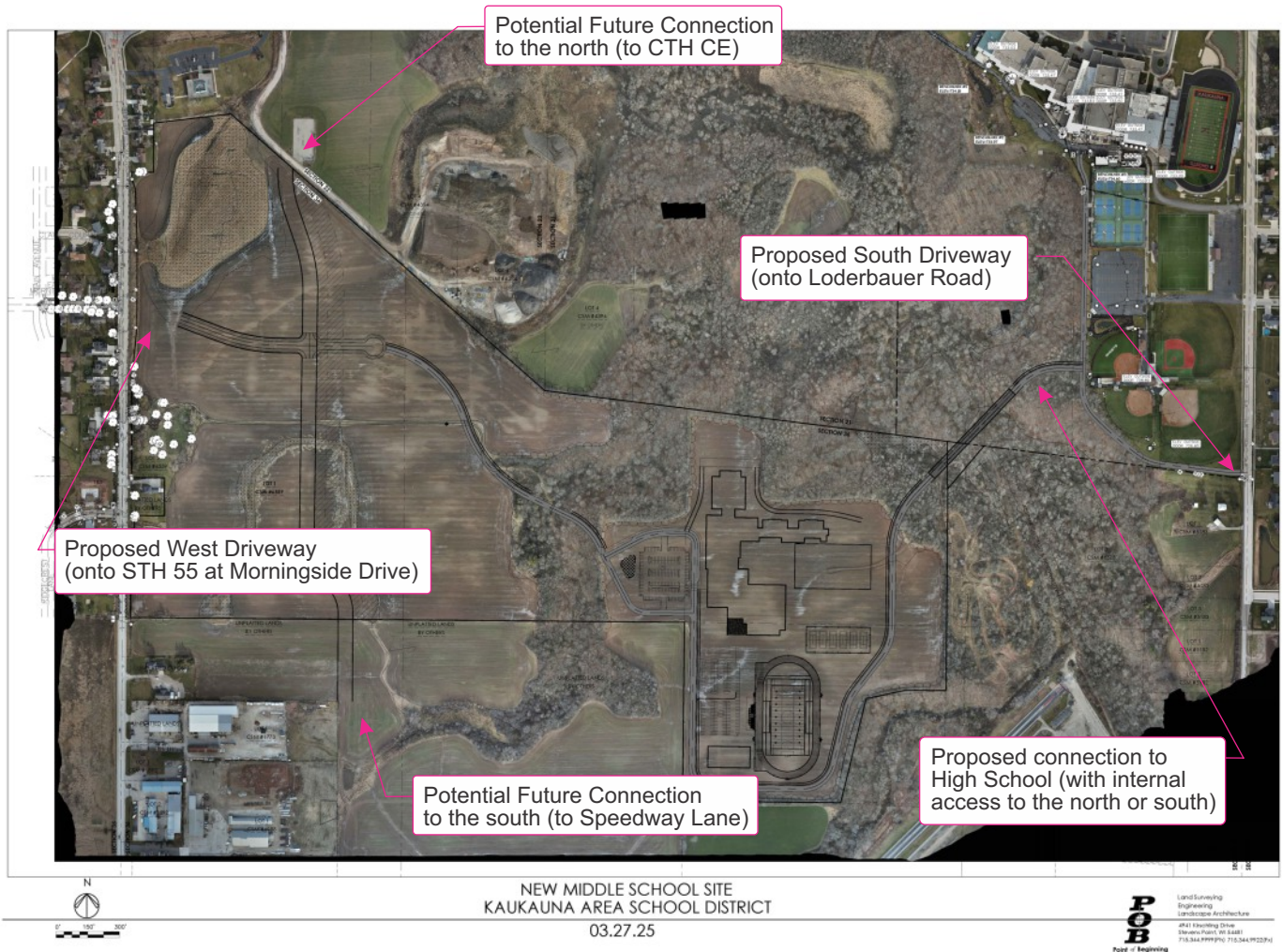
With a staggered school bell schedule as described in this technical memorandum, no modifications are recommended at the STH 55/Crooks Avenue & CTH CE/College Avenue intersection. However, once the potential off-site development moves forward, based on the access assumptions in this study, higher delays are expected for some movements at the subject roundabout; therefore, a future traffic study should be completed as development plans move forward for the off-site area.

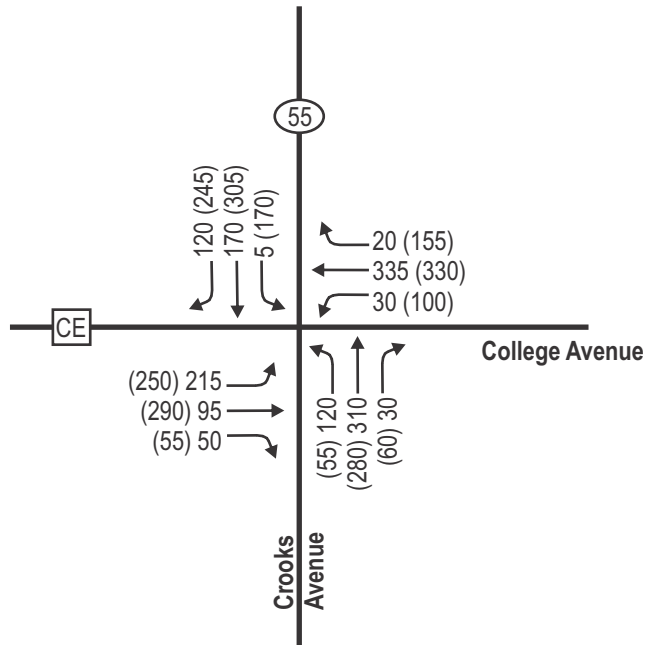


LEGEND

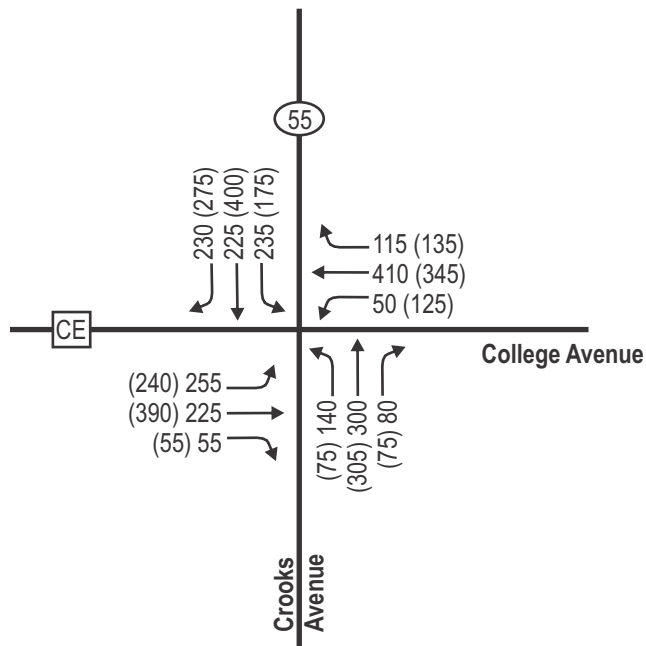
- Tech Memo Subject Intersection
- Proposed Middle School Site
- Off-Site Development Area
- Proposed Internal Roadway





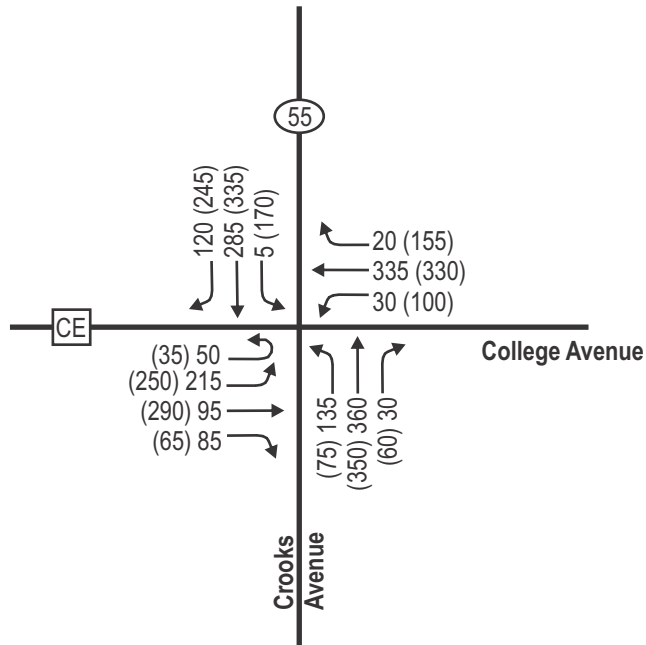
**LEGEND**

- XX AM Peak Hour Volumes (6:30-7:30 AM)
- (XX) PM Peak Hour Volumes (2:45-3:45 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)

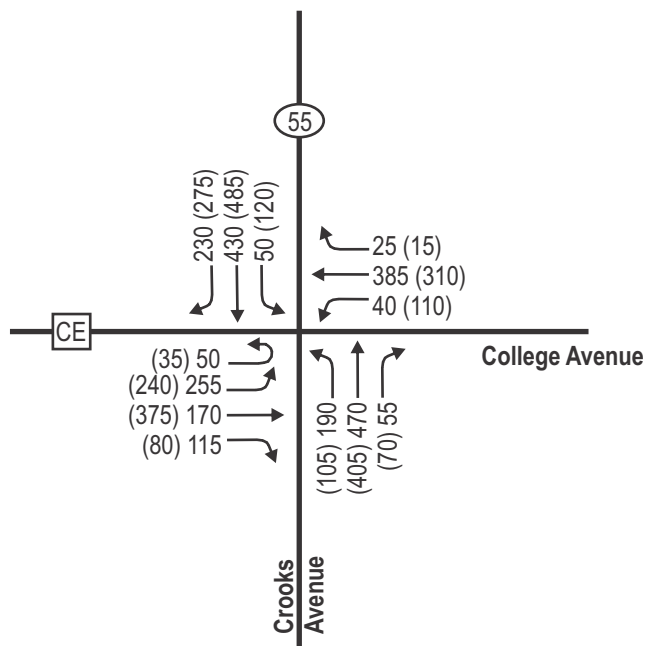
HIGH SCHOOL PEAK HOUR VOLUMES**LEGEND**

- XX AM Peak Hour Volumes (7:15-8:15 AM)
- (XX) PM Peak Hour Volumes (3:15-4:15 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)

MIDDLE SCHOOL PEAK HOUR VOLUMES

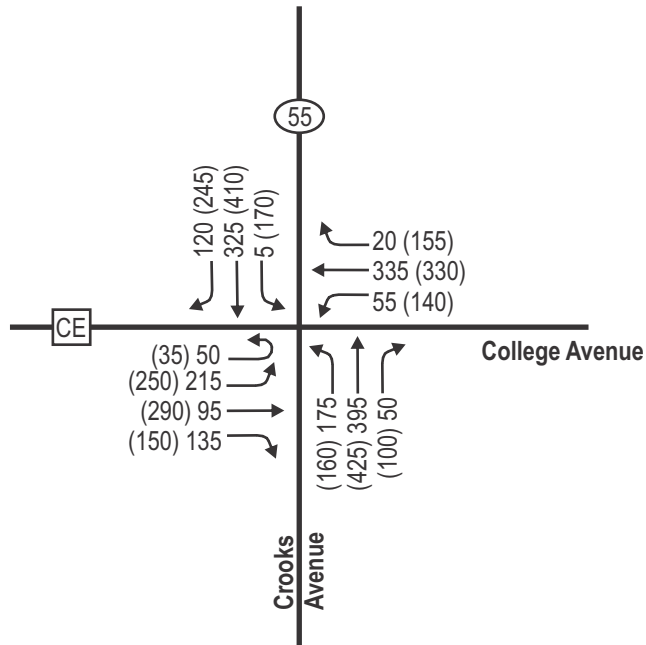
**LEGEND**

- XX AM Peak Hour Volumes (6:30-7:30 AM)
- (XX) PM Peak Hour Volumes (2:45-3:45 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)

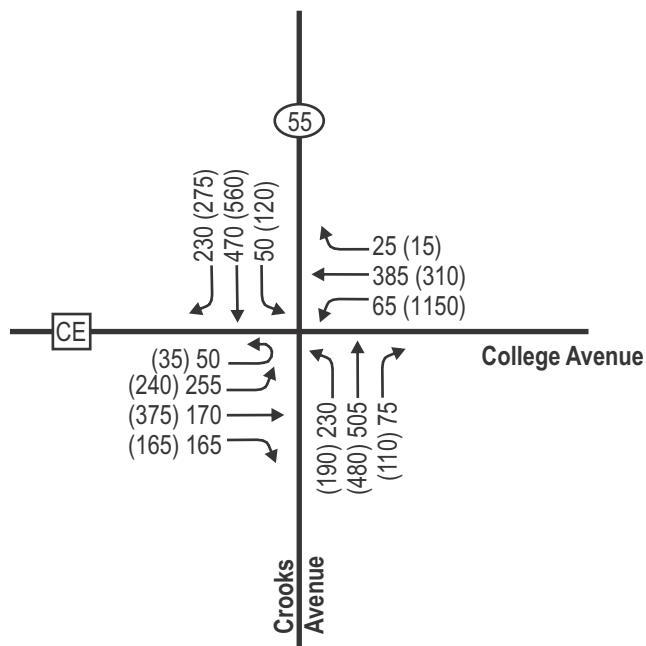
HIGH SCHOOL PEAK HOUR VOLUMES**LEGEND**

- XX AM Peak Hour Volumes (7:15-8:15 AM)
- (XX) PM Peak Hour Volumes (3:15-4:15 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)

MIDDLE SCHOOL PEAK HOUR VOLUMES

**LEGEND**

- XX AM Peak Hour Volumes (6:30-7:30 AM)
- (XX) PM Peak Hour Volumes (2:45-3:45 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)

HIGH SCHOOL PEAK HOUR VOLUMES**LEGEND**

- XX AM Peak Hour Volumes (7:15-8:15 AM)
- (XX) PM Peak Hour Volumes (3:15-4:15 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)

MIDDLE SCHOOL PEAK HOUR VOLUMES

Exhibit 5A
STH 55/Crooks Avenue & CTH CE/College Avenue
Full Build Traffic Peak Hour Operating Conditions - Existing Geometry

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** <i>Roundabout Control</i>	AM	Lanes->	1	1	1	1	1	1	1	1	1	1	1	1
		LOS	B	A	D	D	B	B	C	C	C	C	C	C
		Delay	10.8	7.7	30.5	28.7	12.3	11.8	16.2	15.2	16.2	15.2	15.2	15.2
		Queue	80'	30'	95'	95'	85'	85'	70'	70'	70'	70'	70'	70'
	PM	LOS	C	C	C	C	C	C	C	C	C	C	C	C
		Delay	18.5	17.7	20.0	19.6	19.6	19.2	18.7	18.3	18.7	18.3	18.3	18.3
		Queue	110'	110'	100'	100'	80'	80'	140'	140'	140'	140'	140'	140'
		Lanes->	1	1	1	1	1	1	1	1	1	1	1	1
	AM	LOS	C	B	D	D	C	C	D	D	D	D	D	D
		Delay	16.3	13.5	32.7	30.5	18.7	17.8	32.1	31.0	32.1	31.0	31.0	31.0
		Queue	105'	80'	95'	95'	135'	135'	185'	185'	185'	185'	185'	185'
	PM	LOS	C	C	B	B	C	C	C	C	C	C	C	C
		Delay	18.5	17.6	12.7	11.8	17.4	16.4	17.6	16.9	17.6	16.9	16.9	16.9
		Queue	110'	110'	45'	45'	80'	80'	140'	140'	140'	140'	140'	140'

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

** node 300 dual lane roundabout, left values in table are inside shared lanes and right values are outside shared lanes

Exhibit 5B
STH 55/Crooks Avenue & CTH CE/College Avenue
Total Traffic Peak Hour Operating Conditions - Existing Geometry

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** <i>Roundabout Control</i>	AM	Lanes->	1	1	1	1	1	1	1	1	1	1	1	1
		LOS	B	B	E	E	B	B	B	B	B	B	B	B
		Delay	12.9	10.4	48.4	46.2	14.8	14.2	12.9	10.4	12.9	10.4	12.9	10.4
		Queue	90'	60'	135'	135'	120'	120'	90'	90'	90'	90'	90'	90'
	PM	LOS	D	D	E	E	E	E	E	E	E	E	E	E
		Delay	34.9	33.4	41.1	39.2	38.4	36.9	37.7	36.5	37.7	36.5	37.7	36.5
		Queue	185'	185'	165'	165'	185'	185'	245'	245'	245'	245'	245'	245'
		Lanes->	1	1	1	1	1	1	1	1	1	1	1	1
	AM	LOS	C	C	E	E	C	C	F	E	F	E	F	E
		Delay	20.3	19.3	48.2	45.5	23.5	22.6	51.1	49.7	51.1	49.7	51.1	49.7
		Queue	120'	120'	130'	130'	190'	190'	120'	120'	120'	120'	120'	120'
	PM	LOS	D	D	C	C	D	D	D	D	D	D	D	D
		Delay	31.2	29.7	18.3	17.0	27.5	26.2	30.4	29.5	30.4	29.5	30.4	29.5
		Queue	170'	170'	65'	65'	150'	150'	225'	225'	225'	225'	225'	225'

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

** node 300 dual lane roundabout, left values in table are inside shared lanes and right values are outside shared lanes

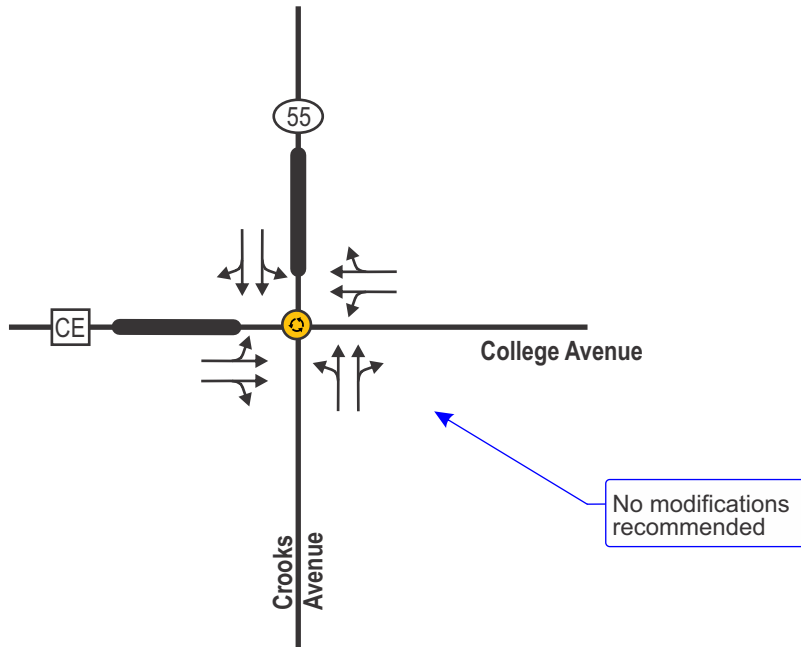
Exhibit 5C
STH 55/Crooks Avenue & CTH CE/College Avenue
Total Traffic Peak Hour Operating Conditions - with modifications

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** <i>Roundabout Control</i>	AM	Lanes->	1	1	1	1	1	1	1	1	1	1	1	1
		LOS	B	B	E	E	A	C	B	B	B	B	B	A
		Delay	12.9	10.4	43.3	41.1	7.4	15.9	14.8	10.2	13.4	12.9	3.7	
		v/c			0.79	0.79								
		Queue	90'	60'	115'	115'	25'	100'	100'	25'	55'	55'	25'	
	PM	LOS	D	D	C	C	B	D	D	A	C	C	C	B
		Delay	34.9	33.4	24.3	22.6	10.2	27.3	25.9	6.6	18.8	17.9	10.6	
		Queue	190'	190'	85'	85'	30'	120'	120'	25'	95'	95'	55'	
		Lanes->	1	1	1	1	1	1	1	1	1	1	1	1
		LOS	C	C	E	E	C	C	C	C	C	C	C	B
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** <i>Two-Way Stop Control</i>	AM	Delay	20.2	19.3	48.2	45.5	23.5	22.6	22.5	21.3	14.9			
		v/c			0.83	0.83								
		Queue	120'	120'	130'	130'	190'	190'	95'	95'	65'			
	PM	LOS	D	D	C	C	D	D	C	C	A			
		Delay	31.2	29.7	18.3	17.0	27.5	26.2	16.7	15.9	9.6			
		Queue	170'	170'	65'	65'	150'	150'	95'	95'	50'			

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

** node 300 dual lane roundabout, left values in table are inside shared lanes and right values are outside shared lanes



FULL BUILD TRAFFIC RECOMMENDED MODIFICATIONS

LEGEND



Roundabout Control



Existing Lane Configuration



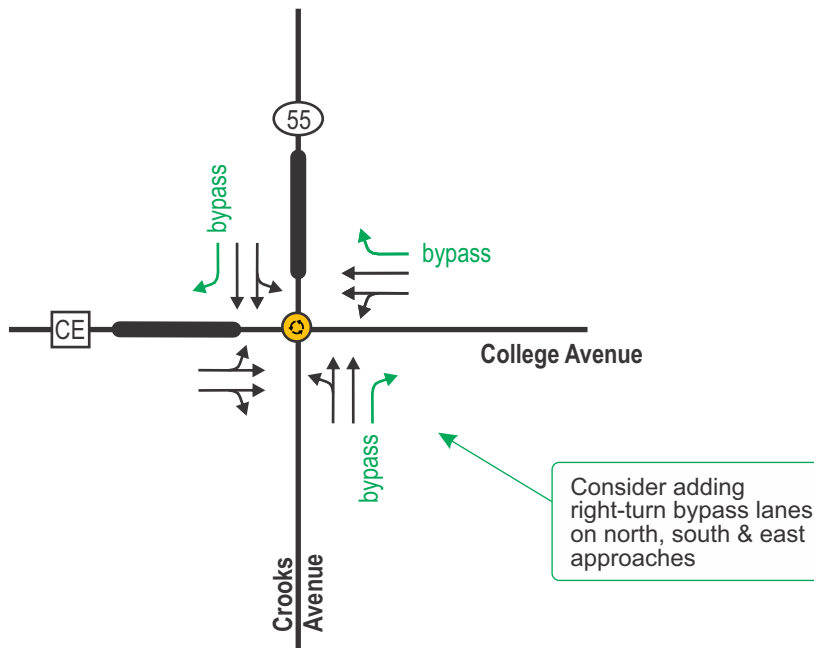
Divided Roadway Median

BLUE

Full Build Traffic Modifications

GREEN

Total Traffic Modifications



TOTAL TRAFFIC RECOMMENDED MODIFICATIONS

Appendix A

Traffic

Existing Turning Movement Counts

Intersection Traffic Volume Report

Count Basics		Version 2024.10		Page
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session	
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events	

Base Information, Observed (5.5) Hour and Estimated (24) Hour Volume Summaries

Major St: STH 55 Crooks Avenue

Minor St: CTH CE College Avenue

Intersection of: STH 55 Crooks Avenue & CTH CE College Avenue IX_ID: 0

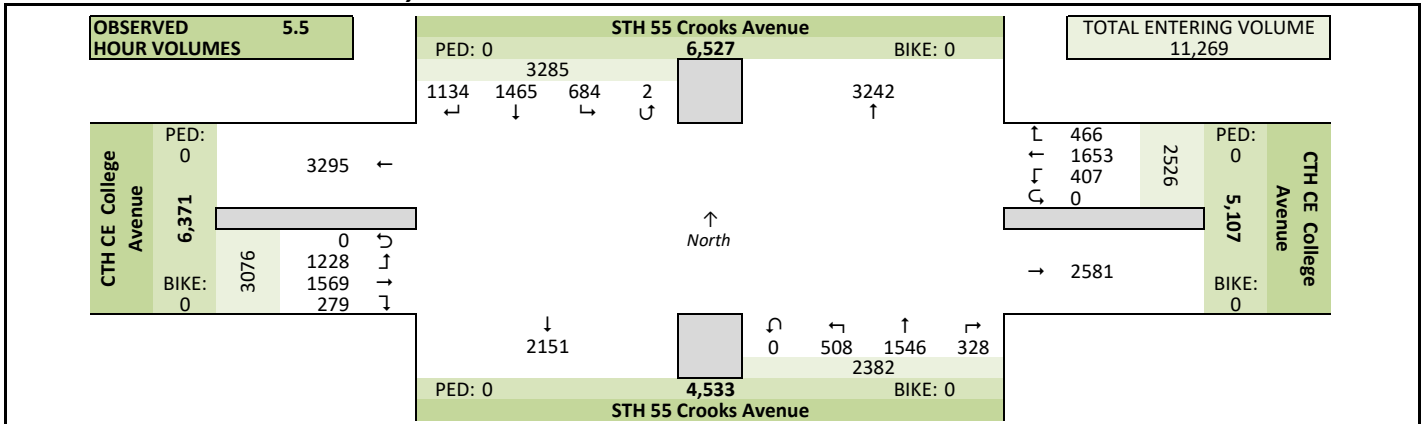
Site Information

Municipality	City of Kaukauna
County	44 - Outagamie
WisDOT Region	NE
Traffic Control	Roundabout
Roadway Names	North Direction
North Leg	STH 55 Crooks Avenue
East Leg	CTH CE College Avenue
South Leg	STH 55 Crooks Avenue
West Leg	CTH CE College Avenue
Special Considerations	
Schools	In Session
Holidays	None
Special Events	None
Special Pedestrians Observed	
Pre-school children	None
Elementary school age children	None
Visually impaired (white cane/helper dog)	None
Elderly/disabled (except wheelchairs)	None
Wheelchairs/electric scooters	None
Other (describe)	None

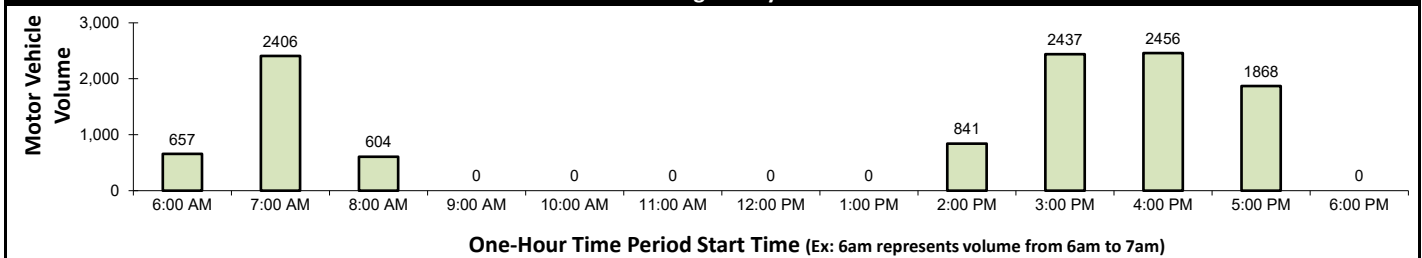
Count Information

Hrs Counted:	06:30 AM-08:30 AM and 02:30 PM-06:00 PM
1st Day of Count	Tuesday, February 11, 2025
Weather	Clear and Dry
AM Peak Period	Tuesday, February 11, 2025
Midday Peak Period	Tuesday, February 11, 2025
PM Peak Period	Tuesday, February 11, 2025
Calculated Peak Hours	
AM	7:00-8:00am
MD	
PM	3:15-4:15pm
Peak Hours Selected for Analysis	
AM	6:30-7:30am
MD	
PM	2:45-3:45pm
Daily/Seasonal Adjustment Group	(1) Non-Interstate Low Truck %
Count Expansion Group	(1) Non-Interstate Low Truck %
Daily/Seasonal Adjustment Factor	0.995
Count Expansion Factor	2.648
Company Name	TADI
Manual Adj.	1.000
Observers	AM Peak Period: Miovision Midday Peak Period: Miovision PM Peak Period: Miovision
Comments	Wis DOT Daily & Seasonal Factors are final for 2012 through 2023, and 2024 uses 2023 final factors.

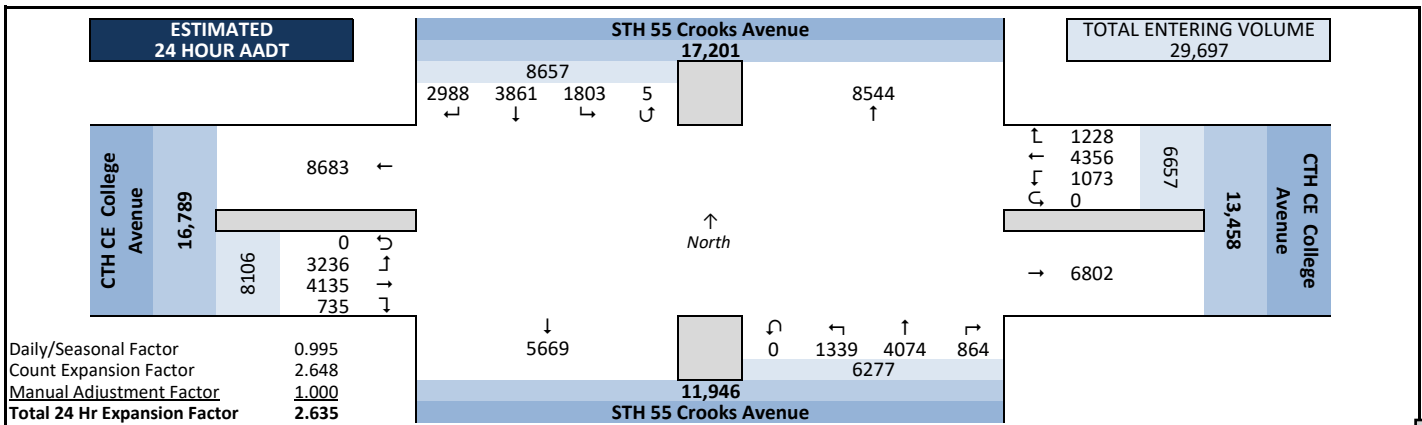
Observed 5.5 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT



Intersection Traffic Volume Report

Peak Hour Volume Graphical Summary

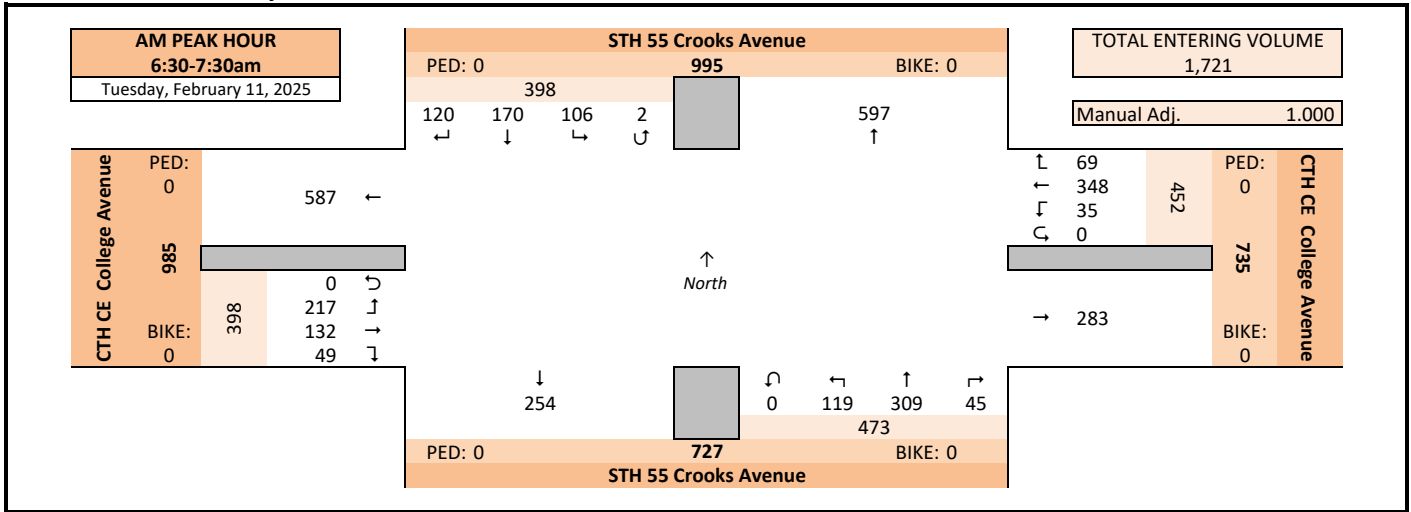
STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.5		Non-Holiday	No Special Events

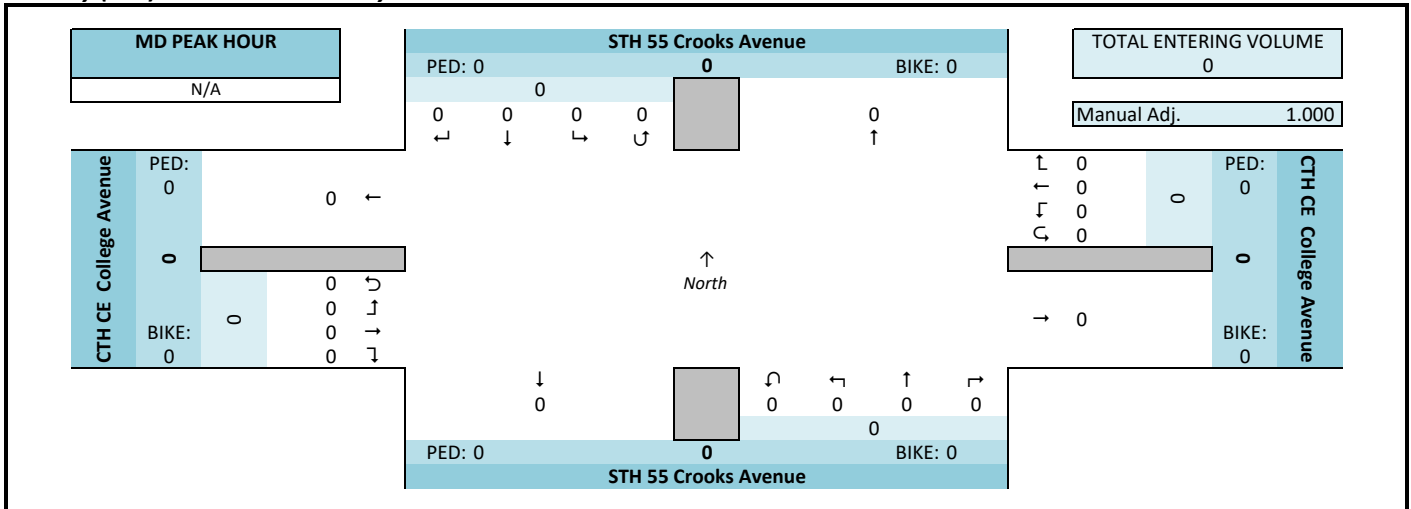
All Motor Vehicles



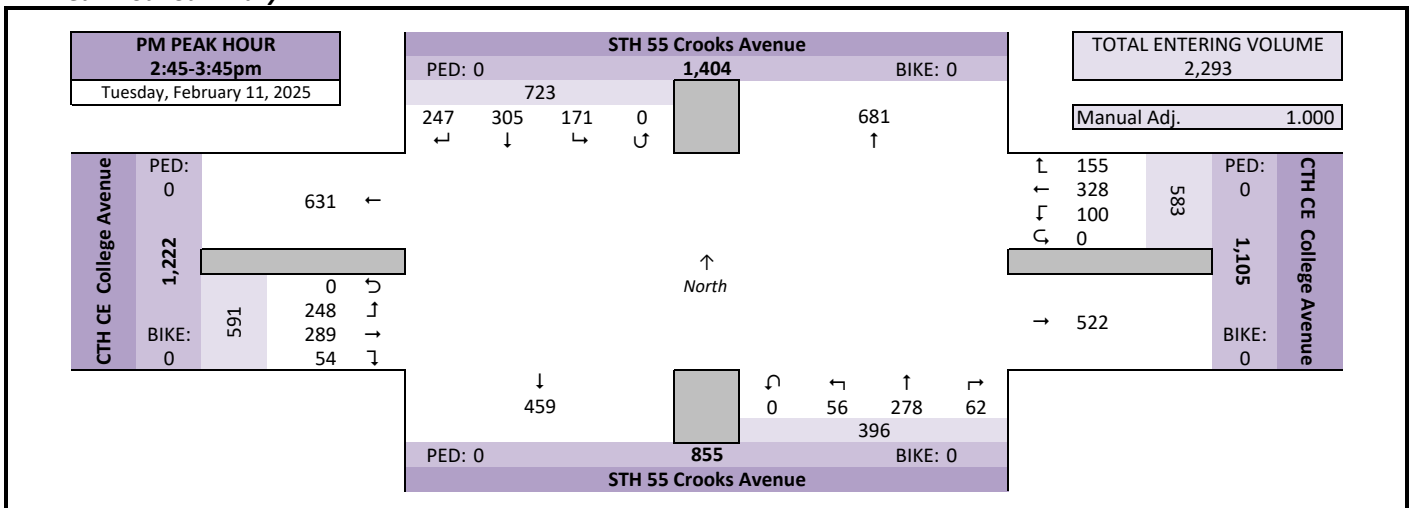
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

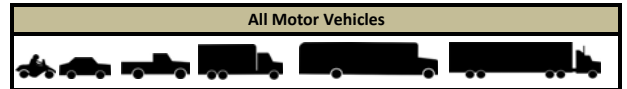


Intersection Traffic Volume Report

Peak Hour Volume Summary

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events



Peak Hour Volumes, Truck Percentages, and PHFs

Tuesday, February 11, 2025		↓					←					↑					→						
		From North					From East					From South					From West						
AM Peak Hour		STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue						
Start Time		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	
6:30 AM		20	46	6	0	72	5	70	8	0	83	6	58	16	0	80	11	17	34	0	62	297	
6:45 AM		28	46	13	2	89	9	65	11	0	85	4	72	33	0	109	11	21	45	0	77	360	
7:00 AM		35	38	29	0	102	14	91	7	0	112	11	84	26	0	121	14	22	49	0	85	420	
7:15 AM		37	40	58	0	135	41	122	9	0	172	24	95	44	0	163	13	72	89	0	174	644	
Peak Hour Volume		120	170	106	2	398	69	348	35	0	452	45	309	119	0	473	49	132	217	0	398	1721	
Rounded Hourly Volume		120	170	105	0	395	70	350	35	0	455	45	310	120	0	475	50	130	215	0	395	1720	
% Single Unit Trucks		1.7	4.1	5.7	0.0	3.8	14.5	2.0	22.9	0.0	5.5	17.8	2.6	2.5	0.0	4.0	8.2	0.8	2.8	0.0	2.8	4.1	
% Heavy Trucks		0.0	2.4	0.9	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.5	0.0	1.3	2.0	0.0	0.0	0.0	0.3	0.7	
% Trucks (Total)		1.7	6.5	6.6	0.0	5.0	14.5	2.0	22.9	0.0	5.5	17.8	3.6	5.0	0.0	5.3	10.2	0.8	2.8	0.0	3.0	4.8	
Peak Hour Factor (PHF)		0.81	0.92	0.46	0.25	0.74	0.42	0.71	0.80	0.00	0.66	0.47	0.81	0.68	0.00	0.73	0.87	0.46	0.61	0.00	0.57	0.67	

N/A		From North					From East					From South					From West					
Midday (MD) Peak Hour	MD Peak Hour	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	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	0.0	0.0	0.0
	% Heavy Trucks	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	0.0	0.0	0.0
% Trucks (Total)	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	0.0	0.0	0.0	
Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Tuesday, February 11, 2025		From North					From East					From South					From West					Totals
PM Peak Hour	PM Peak Hour	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	2:45 PM	44	52	18	0	114	29	58	14	0	101	11	76	14	0	101	11	54	60	0	125	441
	3:00 PM	54	49	40	0	143	21	58	17	0	96	20	65	20	0	105	15	79	69	0	163	507
	3:15 PM	74	112	72	0	258	64	114	43	0	221	16	57	11	0	84	17	83	55	0	155	718
	3:30 PM	75	92	41	0	208	41	98	26	0	165	15	80	11	0	106	11	73	64	0	148	627
	Peak Hour Volume	247	305	171	0	723	155	328	100	0	583	62	278	56	0	396	54	289	248	0	591	2293
	Rounded Hourly Volume	245	305	170	0	720	155	330	100	0	585	60	280	55	0	395	55	290	250	0	595	2295
	% Single Unit Trucks	2.4	3.0	7.6	0.0	3.9	1.9	3.0	3.0	0.0	2.7	3.2	2.5	14.3	0.0	4.3	3.7	3.8	2.8	0.0	3.4	3.5
	% Heavy Trucks	0.8	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.8	0.0	1.5	1.9	0.0	0.8	0.0	0.5	0.6
	% Trucks (Total)	3.2	3.6	7.6	0.0	4.4	1.9	3.0	3.0	0.0	2.7	3.2	4.3	16.1	0.0	5.8	5.6	3.8	3.6	0.0	3.9	4.1
	Peak Hour Factor (PHF)	0.82	0.68	0.59	0.00	0.70	0.61	0.72	0.58	0.00	0.66	0.77	0.87	0.70	0.00	0.93	0.79	0.87	0.90	0.00	0.91	0.80

Peak Hour Pedestrian and Bicyclist Volumes

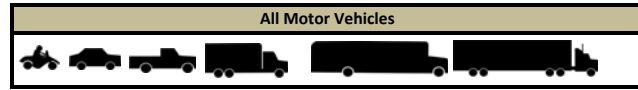
Pedestrians and Bicyclists		Crossing 			Crossing 			Crossing 			Crossing 			Total Ped & Bike Volume
		North Approach			East Approach			South Approach			West Approach			
15-Minute Start Time		STH 55 Crooks Avenue			CTH CE College Avenue			STH 55 Crooks Avenue			CTH CE College Avenue			
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	
PM	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	

Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

STH 55 Crooks Avenue & CTH CE College Avenue

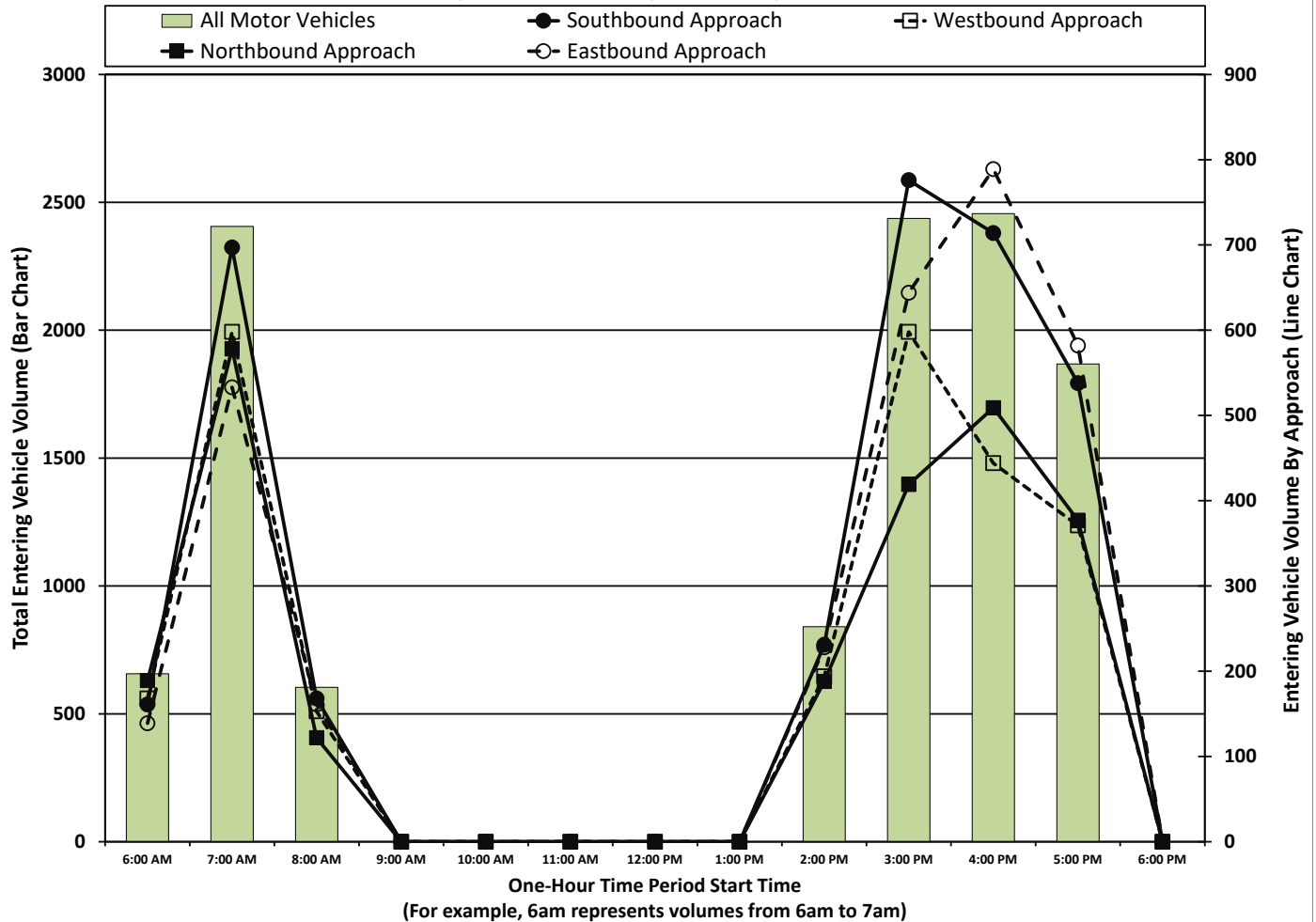
Count Basics			Page 4
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events



One-Hour Motor Vehicle Data

One-Hour Time Period Start Time		From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals	
		STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue							
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM	6:00 AM	48	92	19	2	161	14	135	19	0	168	10	130	49	0	189	22	38	79	0	139	657	307	350
	7:00 AM	219	228	250	0	697	115	437	46	0	598	90	336	152	0	578	56	213	264	0	533	2406	1131	1275
	8:00 AM	78	68	22	0	168	24	110	19	0	153	6	89	27	0	122	14	72	75	0	161	604	314	290
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	86	109	36	0	231	41	125	28	0	194	23	134	31	0	188	23	109	96	0	228	841	422	419
	3:00 PM	258	338	180	0	776	143	341	114	0	598	72	285	62	0	419	54	339	251	0	644	2437	1242	1195
	4:00 PM	230	378	106	0	714	72	266	106	0	444	77	323	109	0	509	61	467	261	0	789	2456	1233	1223
	5:00 PM	215	252	71	0	538	57	239	75	0	371	50	249	78	0	377	49	331	202	0	582	1868	953	915
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		1134	1465	684	2	3285	466	1653	407	0	2526	328	1546	508	0	2382	279	1569	1228	0	3076	11269	5602	5667

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 5 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session	
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events	

All Motor Vehicles					
					

15-Minute Motor Vehicle Data

15-Minute Time Period	From North					From East					From South					From West					15-Min Totals	Hourly Sum	PHF			
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue										
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total						
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
6:30 AM	20	46	6	0	72	5	70	8	0	83	6	58	16	0	80	11	17	34	0	62	297	1721	0.67			
6:45 AM	28	46	13	2	89	9	65	11	0	85	4	72	33	0	109	11	21	45	0	77	360	2177	0.72			
7:00 AM	35	38	29	0	102	14	91	7	0	112	11	84	26	0	121	14	22	49	0	85	420	2406	0.80			
7:15 AM	37	40	58	0	135	41	122	9	0	172	24	95	44	0	163	13	72	89	0	174	644	2318	0.77			
7:30 AM	65	56	98	0	219	38	129	19	0	186	45	90	65	0	200	13	75	60	0	148	753	1946	0.65			
7:45 AM	82	94	65	0	241	22	95	11	0	128	10	67	17	0	94	16	44	66	0	126	589					
8:00 AM	47	35	13	0	95	15	63	10	0	88	2	50	15	0	67	11	33	38	0	82	332					
8:15 AM	31	33	9	0	73	9	47	9	0	65	4	39	12	0	55	3	39	37	0	79	272					
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
2:30 PM	42	57	18	0	117	12	67	14	0	93	12	58	17	0	87	12	55	36	0	103	400	2066	0.72			
2:45 PM	44	52	18	0	114	29	58	14	0	101	11	76	14	0	101	11	54	60	0	125	441	2293	0.80			
3:00 PM	54	49	40	0	143	21	58	17	0	96	20	65	20	0	105	15	79	69	0	163	507	2437	0.85			
3:15 PM	74	112	72	0	258	64	114	43	0	221	16	57	11	0	84	17	83	55	0	155	718	2587	0.90			
3:30 PM	75	92	41	0	208	41	98	26	0	165	15	80	11	0	106	11	73	64	0	148	627	2490	0.95			
3:45 PM	55	85	27	0	167	17	71	28	0	116	21	83	20	0	124	11	104	63	0	178	585	2461	0.94			
4:00 PM	71	112	33	0	216	12	60	27	0	99	21	85	33	0	139	17	128	58	0	203	657	2456	0.93			
4:15 PM	47	88	30	0	165	17	68	29	0	114	26	72	18	0	116	18	137	71	0	226	621	2312	0.93			
4:30 PM	51	91	20	0	162	24	81	16	0	121	19	93	31	0	143	11	102	59	0	172	598	2191	0.92			
4:45 PM	61	87	23	0	171	19	57	34	0	110	11	73	27	0	111	15	100	73	0	188	580	2049	0.88			
5:00 PM	67	78	22	0	167	13	62	13	0	88	12	69	23	0	104	14	92	48	0	154	513	1868	0.91			
5:15 PM	56	66	15	0	137	20	61	21	0	102	12	75	19	0	106	21	88	46	0	155	500					
5:30 PM	45	63	17	0	125	9	58	24	0	91	15	67	22	0	104	6	84	46	0	136	456					
5:45 PM	47	45	17	0	109	15	58	17	0	90	11	38	14	0	63	8	67	62	0	137	399					
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Totals	1134	1465	684	2	3285	466	1653	407	0	2526	328	1546	508	0	2382	279	1569	1228	0	3076	11269					

Peak Hour All Vehicle Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume	PHF
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 6:30 AM	120	170	106	2	398	69	348	35	0	452	45	309	119	0	473	49	132	217	0	398	1721	0.67
PM 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 2:45 PM	247	305	171	0	723	155	328	100	0	583	62	278	56	0	396	54	289	248	0	591	2293	0.80

Intersection Traffic Volume Report

15-Minute Automobile Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 6 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session	
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events	

Automobiles (Cars, Light Trucks, & Motorcycles)



15-Minute Automobile Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 AM	20	42	6	0	68	4	69	6	0	79	4	53	14	0	71	10	17	34	0	61	279
	6:45 AM	28	42	11	2	83	7	63	8	0	78	2	70	30	0	102	10	21	44	0	75	338
	7:00 AM	34	37	27	0	98	11	90	6	0	107	9	82	25	0	116	11	22	46	0	79	400
	7:15 AM	36	38	55	0	129	37	119	7	0	163	22	93	44	0	159	13	71	87	0	171	622
	7:30 AM	63	54	98	0	215	38	127	18	0	183	44	89	63	0	196	11	73	57	0	141	735
	7:45 AM	80	88	58	0	226	21	94	10	0	125	10	65	15	0	90	16	43	65	0	124	565
	8:00 AM	44	33	11	0	88	15	60	10	0	85	2	46	14	0	62	8	29	35	0	72	307
	8:15 AM	30	26	9	0	65	9	45	9	0	63	4	35	10	0	49	3	36	36	0	75	252
Midday Peak Period	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Period	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Period	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	39	54	18	0	111	12	61	14	0	87	12	53	16	0	81	10	54	35	0	99	378
	2:45 PM	41	52	17	0	110	27	55	14	0	96	11	72	11	0	94	10	53	59	0	122	422
	3:00 PM	51	47	37	0	135	21	56	14	0	91	20	63	16	0	99	14	72	66	0	152	477
	3:15 PM	72	104	69	0	245	63	109	43	0	215	15	56	10	0	81	16	82	53	0	151	692
	3:30 PM	75	91	35	0	201	41	98	26	0	165	14	75	10	0	99	11	71	61	0	143	608
	3:45 PM	55	81	26	0	162	15	71	28	0	114	20	77	19	0	116	10	102	63	0	175	567
	4:00 PM	71	107	33	0	211	12	60	26	0	98	19	82	32	0	133	16	128	58	0	202	644
	4:15 PM	47	85	29	0	161	17	68	29	0	114	26	71	18	0	115	18	137	70	0	225	615
	4:30 PM	51	91	20	0	162	24	80	16	0	120	19	89	31	0	139	11	101	59	0	171	592
	4:45 PM	60	83	23	0	166	19	57	34	0	110	11	71	27	0	109	15	100	73	0	188	573
	5:00 PM	66	78	22	0	166	13	62	13	0	88	12	67	23	0	102	14	92	47	0	153	509
	5:15 PM	55	66	14	0	135	20	61	21	0	102	12	73	19	0	104	21	87	45	0	153	494
	5:30 PM	45	63	17	0	125	9	58	24	0	91	15	66	22	0	103	6	83	46	0	135	454
	5:45 PM	47	44	17	0	108	15	58	17	0	90	11	38	14	0	63	8	67	61	0	136	397
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	1110	1406	652	2	3170	450	1621	393	0	2464	314	1486	483	0	2283	262	1541	1200	0	3003	10920	

Peak Hour Automobile Volume Summary

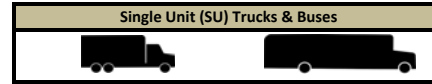
Hourly Time Period	Start Time	From North					From East					From South					From West
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Intersection Traffic Volume Report

15-Minute Single Unit (SU) Truck & Bus Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 7 of 13
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events



15-Minute Single Unit (SU) Truck & Bus Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	2	0	0	2	1	1	2	0	4	2	5	2	0	9	1	0	0	0	1	16	70
	6:45 AM	0	2	1	0	3	2	2	3	0	7	2	2	1	0	5	0	0	1	0	1	16	69
	7:00 AM	1	1	2	0	4	3	1	1	0	5	2	0	0	0	2	3	0	3	0	6	17	75
	7:15 AM	1	2	3	0	6	4	3	2	0	9	2	1	0	0	3	0	1	2	0	3	21	76
	7:30 AM	2	2	0	0	4	0	2	1	0	3	1	0	1	0	2	1	2	3	0	6	15	67
	7:45 AM	2	5	7	0	14	1	1	1	0	3	0	2	2	0	4	0	1	0	0	1	22	
	8:00 AM	2	2	2	0	6	0	3	0	0	3	0	3	0	0	3	1	3	2	0	6	18	
	8:15 AM	1	3	0	0	4	0	2	0	0	2	0	2	1	0	3	0	2	1	0	3	12	
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	2	2	0	0	4	0	6	0	0	6	0	2	1	0	3	0	1	0	0	1	14	78
	2:45 PM	3	0	1	0	4	2	3	0	0	5	0	2	3	0	5	1	1	1	0	3	17	81
	3:00 PM	2	0	3	0	5	0	2	3	0	5	0	0	3	0	3	0	7	2	0	9	22	77
	3:15 PM	1	8	3	0	12	1	5	0	0	6	1	1	1	0	3	1	1	2	0	4	25	68
	3:30 PM	0	1	6	0	7	0	0	0	0	0	1	4	1	0	6	0	2	2	0	4	17	48
	3:45 PM	0	4	1	0	5	2	0	0	0	2	0	3	1	0	4	0	2	0	0	2	13	35
	4:00 PM	0	5	0	0	5	0	0	1	0	1	2	3	1	0	6	1	0	0	0	1	13	26
	4:15 PM	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	5	15
	4:30 PM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1	4	14
	4:45 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4	12
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	2	9
	5:15 PM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	4	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2	
	5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	18	45	31	0	94	16	32	14	0	62	13	37	18	0	68	9	26	21	0	56	280		

SU Truck %age: 1.59 3.072 4.53 0 2.8615 3.43 1.936 3.44 0.0 2.4545 3.96 2.393 3.54 0.0 2.8547 3.23 1.657 1.71 0.0 1.8205 2.4847

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

Southbound Traffic Data (S) From Southbound Volume Summary																					
Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 6:30 AM	2	7	6	0	15	10	7	8	0	25	8	8	3	0	19	4	1	6	0	11	70
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 2:45 PM	6	9	13	0	28	3	10	3	0	16	2	7	8	0	17	2	11	7	0	20	81

Intersection Traffic Volume Report

15-Minute Semi-Truck Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics		Page 8 of 13
Start Date: Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.5	Non-Holiday	No Special Events



15-Minute Semi-Truck Data

[illegible]

Peak Hour Semi-Truck Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 6:30 AM	0	4	1	0	5	0	0	0	0	0	0	3	3	0	6	1	0	0	0	1	
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM 2:45 PM	2	2	0	0	4	0	0	0	0	0	0	5	1	0	6	1	0	2	0	3	

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 9 of 13
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events

Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)



15-Minute Heavy Vehicle Data

15-Minute Time Period	Start Time	From North STH 55 Crooks Avenue					From East CTH CE College Avenue					From South STH 55 Crooks Avenue					From West CTH CE College Avenue					15-Min Totals	Hourly Sum
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 AM	0	4	0	0	4	1	1	2	0	4	2	5	2	0	9	1	0	0	0	1	18	82
	6:45 AM	0	4	2	0	6	2	2	3	0	7	2	2	3	0	7	1	0	1	0	2	22	82
	7:00 AM	1	1	2	0	4	3	1	1	0	5	2	2	1	0	5	3	0	3	0	6	20	84
	7:15 AM	1	2	3	0	6	4	3	2	0	9	2	2	0	0	4	0	1	2	0	3	22	89
	7:30 AM	2	2	0	0	4	0	2	1	0	3	1	1	2	0	4	2	2	3	0	7	18	87
	7:45 AM	2	6	7	0	15	1	1	1	0	3	0	2	2	0	4	0	1	1	0	2	24	
	8:00 AM	3	2	2	0	7	0	3	0	0	3	0	4	1	0	5	3	4	3	0	10	25	
	8:15 AM	1	7	0	0	8	0	2	0	0	2	0	4	2	0	6	0	3	1	0	4	20	
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	3	3	0	0	6	0	6	0	0	6	0	5	1	0	6	2	1	1	0	4	22	97
	2:45 PM	3	0	1	0	4	2	3	0	0	5	0	4	3	0	7	1	1	1	0	3	19	94
	3:00 PM	3	2	3	0	8	0	2	3	0	5	0	2	4	0	6	1	7	3	0	11	30	93
	3:15 PM	2	8	3	0	13	1	5	0	0	6	1	1	1	0	3	1	1	2	0	4	26	76
	3:30 PM	0	1	6	0	7	0	0	0	0	0	1	5	1	0	7	0	2	3	0	5	19	56
	3:45 PM	0	4	1	0	5	2	0	0	0	2	1	6	1	0	8	1	2	0	0	3	18	43
	4:00 PM	0	5	0	0	5	0	0	1	0	1	2	3	1	0	6	1	0	0	0	1	13	32
	4:15 PM	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	6	23
	4:30 PM	0	0	0	0	0	0	1	0	0	1	0	4	0	0	4	0	1	0	0	1	6	23
	4:45 PM	1	4	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7	19
	5:00 PM	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	4	14
	5:15 PM	1	0	1	0	2	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	6	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2	
	5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		24	59	32	0	115	16	32	14	0	62	14	60	25	0	99	17	28	28	0	73	349	

Peak Hour Heavy Vehicle Volume Summary

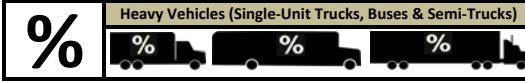
Hourly Time Period	Start Time	From North STH 55 Crooks Avenue					From East CTH CE College Avenue					From South STH 55 Crooks Avenue					From West CTH CE College Avenue					Total Hourly Volume
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM	6:30 AM	2	11	7	0	20	10	7	8	0	25	8	11	6	0	25	5	1	6	0	12	82
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:45 PM	8	11	13	0	32	3	10	3	0	16	2	12	9	0	23	3	11	9	0	23	94</

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Percentages

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics		Page 10 of 13
Start Date: Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.5	Non-Holiday	No Special Events



15-Minute Heavy Vehicle Percentages

[illegible]

Semi Truck Percentage: 0.6123

Peak Hour Heavy Vehicle Percentages Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Hourly Heavy Vehicle Percent
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 6:30 AM	1.7	6.5	6.6	0.0	5.0	14.5	2.0	22.9	0.0	5.5	17.8	3.6	5.0	0.0	5.3	10.2	0.8	2.8	0.0	3.0	4.8
PM 12:00 PM	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	0.0	0.0	0.0
MD 2:45 PM	3.2	3.6	7.6	0.0	4.4	4.9	3.0	3.0	0.0	2.7	3.2	4.3	16.1	0.0	5.8	5.6	3.8	3.6	0.0	3.9	4.7

Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics				Page 11 of 13
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session	
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events	

Pedestrians and Bicyclists



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time	Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
	North Approach			East Approach			South Approach			West Approach				
	STH 55 Crooks Avenue			CTH CE College Avenue			STH 55 Crooks Avenue			CTH CE College Avenue				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/help)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics				Page 12 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session		
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events		

15-Minute Adult & Children Count (Manual Entry)

STH 55 Crooks Avenue & CTH CE College Avenue



15-Minute Adult & Children Pedestrian Data

15-Minute Time Period Start Time	Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum	
	North Approach			East Approach			South Approach			West Approach					
	STH 55 Crooks Avenue			CTH CE College Avenue			STH 55 Crooks Avenue			CTH CE College Avenue					
	Adults	Children	Total	Adults	Children	Total	Adults	Children	Total	Adults	Children	Total			
AM Peak Period	6:00 AM	0		0	0		0	0		0	0		0	0	0
	6:15 AM	0		0	0		0	0		0	0		0	0	0
	6:30 AM	0		0	0		0	0		0	0		0	0	0
	6:45 AM	0		0	0		0	0		0	0		0	0	0
	7:00 AM	0		0	0		0	0		0	0		0	0	0
	7:15 AM	0		0	0		0	0		0	0		0	0	0
	7:30 AM	0		0	0		0	0		0	0		0	0	0
	7:45 AM	0		0	0		0	0		0	0		0	0	0
	8:00 AM	0		0	0		0	0		0	0		0	0	0
	8:15 AM	0		0	0		0	0		0	0		0	0	0
	8:30 AM	0		0	0		0	0		0	0		0	0	0
	8:45 AM	0		0	0		0	0		0	0		0	0	0
	9:00 AM	0		0	0		0	0		0	0		0	0	0
	9:15 AM	0		0	0		0	0		0	0		0	0	0
	9:30 AM	0		0	0		0	0		0	0		0	0	0
	9:45 AM	0		0	0		0	0		0	0		0	0	0
Midday Peak Period	10:00 AM	0		0	0		0	0		0	0		0	0	0
	10:15 AM	0		0	0		0	0		0	0		0	0	0
	10:30 AM	0		0	0		0	0		0	0		0	0	0
	10:45 AM	0		0	0		0	0		0	0		0	0	0
	11:00 AM	0		0	0		0	0		0	0		0	0	0
	11:15 AM	0		0	0		0	0		0	0		0	0	0
	11:30 AM	0		0	0		0	0		0	0		0	0	0
	11:45 AM	0		0	0		0	0		0	0		0	0	0
	12:00 PM	0		0	0		0	0		0	0		0	0	0
	12:15 PM	0		0	0		0	0		0	0		0	0	0
	12:30 PM	0		0	0		0	0		0	0		0	0	0
	12:45 PM	0		0	0		0	0		0	0		0	0	0
	1:00 PM	0		0	0		0	0		0	0		0	0	0
	1:15 PM	0		0	0		0	0		0	0		0	0	0
	1:30 PM	0		0	0		0	0		0	0		0	0	0
	1:45 PM	0		0	0		0	0		0	0		0	0	0
PM Peak Period	2:00 PM	0		0	0		0	0		0	0		0	0	0
	2:15 PM	0		0	0		0	0		0	0		0	0	0
	2:30 PM	0		0	0		0	0		0	0		0	0	0
	2:45 PM	0		0	0		0	0		0	0		0	0	0
	3:00 PM	0		0	0		0	0		0	0		0	0	0
	3:15 PM	0		0	0		0	0		0	0		0	0	0
	3:30 PM	0		0	0		0	0		0	0		0	0	0
	3:45 PM	0		0	0		0	0		0	0		0	0	0
	4:00 PM	0		0	0		0	0		0	0		0	0	0
	4:15 PM	0		0	0		0	0		0	0		0	0	0
	4:30 PM	0		0	0		0	0		0	0		0	0	0
	4:45 PM	0		0	0		0	0		0	0		0	0	0
	5:00 PM	0		0	0		0	0		0	0		0	0	0
	5:15 PM	0		0	0		0	0		0	0		0	0	0
	5:30 PM	0		0	0		0	0		0	0		0	0	0
	5:45 PM	0		0	0		0	0		0	0		0	0	0
	6:00 PM	0		0	0		0	0		0	0		0	0	0
	6:15 PM	0		0	0		0	0		0	0		0	0	0
	6:30 PM	0		0	0		0	0		0	0		0	0	0
	6:45 PM	0		0	0		0	0		0	0		0	0	0
	7:00 PM	0		0	0		0	0		0	0		0	0	0
	7:15 PM	0		0	0		0	0		0	0		0	0	0
	7:30 PM	0		0	0		0	0		0	0		0	0	0
	7:45 PM	0		0	0		0	0		0	0		0	0	0
	8:00 PM	0		0	0		0	0		0	0		0	0	0
	8:15 PM	0		0	0		0	0		0	0		0	0	0
	8:30 PM	0		0	0		0	0		0	0		0	0	0
	8:45 PM	0		0	0		0	0		0	0		0	0	0
9:00 PM	0		0	0		0	0		0	0		0	0	0	
9:15 PM	0		0	0		0	0		0	0		0	0	0	
9:30 PM	0		0	0		0	0		0	0		0	0	0	
9:45 PM	0		0	0		0	0		0	0		0	0	0	
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0		

Intersection Traffic Volume Report

Count Basics				Page 13 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session		
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events		

15-Minute Bicycle Turning Movement Count (Manual Entry)

STH 55 Crooks Avenue & CTH CE College Avenue



15-Minute Bicycle Data

15-Minute Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					15-Min Totals	Hourly Sum
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM				0					0					0					0	0	0
	6:15 AM				0					0					0					0	0	0
	6:30 AM				0					0					0					0	0	0
	6:45 AM				0					0					0					0	0	0
	7:00 AM				0					0					0					0	0	0
	7:15 AM				0					0					0					0	0	0
	7:30 AM				0					0					0					0	0	0
	7:45 AM				0					0					0					0	0	0
	8:00 AM				0					0					0					0	0	0
	8:15 AM				0					0					0					0	0	0
	8:30 AM				0					0					0					0	0	0
	8:45 AM				0					0					0					0	0	0
	9:00 AM				0					0					0					0	0	0
	9:15 AM				0					0					0					0	0	0
	9:30 AM				0					0					0					0	0	0
	9:45 AM				0					0					0					0	0	0
Midday Peak Period	10:00 AM				0					0					0					0	0	0
	10:15 AM				0					0					0					0	0	0
	10:30 AM				0					0					0					0	0	0
	10:45 AM				0					0					0					0	0	0
	11:00 AM				0					0					0					0	0	0
	11:15 AM				0					0					0					0	0	0
	11:30 AM				0					0					0					0	0	0
	11:45 AM				0					0					0					0	0	0
	12:00 PM				0					0					0					0	0	0
	12:15 PM				0					0					0					0	0	0
	12:30 PM				0					0					0					0	0	0
	12:45 PM				0					0					0					0	0	0
	1:00 PM				0					0					0					0	0	0
	1:15 PM				0					0					0					0	0	0
	1:30 PM				0					0					0					0	0	0
	1:45 PM				0					0					0					0	0	0
PM Peak Period	2:00 PM				0					0					0					0	0	0
	2:15 PM				0					0					0					0	0	0
	2:30 PM				0					0					0					0	0	0
	2:45 PM				0					0					0					0	0	0
	3:00 PM				0					0					0					0	0	0
	3:15 PM				0					0					0					0	0	0
	3:30 PM				0					0					0					0	0	0
	3:45 PM				0					0					0					0	0	0
	4:00 PM				0					0					0					0	0	0
	4:15 PM				0					0					0					0	0	0
	4:30 PM				0					0					0					0	0	0
	4:45 PM				0					0					0					0	0	0
	5:00 PM				0					0					0					0	0	0
	5:15 PM				0					0					0					0	0	0
	5:30 PM				0					0					0					0	0	0
	5:45 PM				0					0					0					0	0	0
	6:00 PM				0					0					0					0	0	0
	6:15 PM				0					0					0					0	0	0
	6:30 PM				0					0					0					0	0	0
	6:45 PM				0					0					0					0	0	0
	7:00 PM				0					0					0					0	0	0
	7:15 PM				0					0					0					0	0	0
	7:30 PM				0					0					0					0	0	0
	7:45 PM				0					0					0					0	0	0
	8:00 PM				0					0					0					0	0	0
	8:15 PM				0					0					0					0	0	0
	8:30 PM				0					0					0					0	0	0
	8:45 PM				0					0					0					0	0	0
	9:00 PM				0					0					0					0	0	0
	9:15 PM				0					0					0					0	0	0
	9:30 PM				0					0					0					0	0	0
	9:45 PM				0					0					0					0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Bicycle Turning Movement Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Intersection Traffic Volume Report

Count Basics			
Version 2024.10			
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events

Base Information, Observed (5.5) Hour and Estimated (24) Hour Volume Summaries

Major St: STH 55 Crooks Avenue

Minor St: CTH CE College Avenue

Intersection of: STH 55 Crooks Avenue & CTH CE College Avenue IX_ID: 0

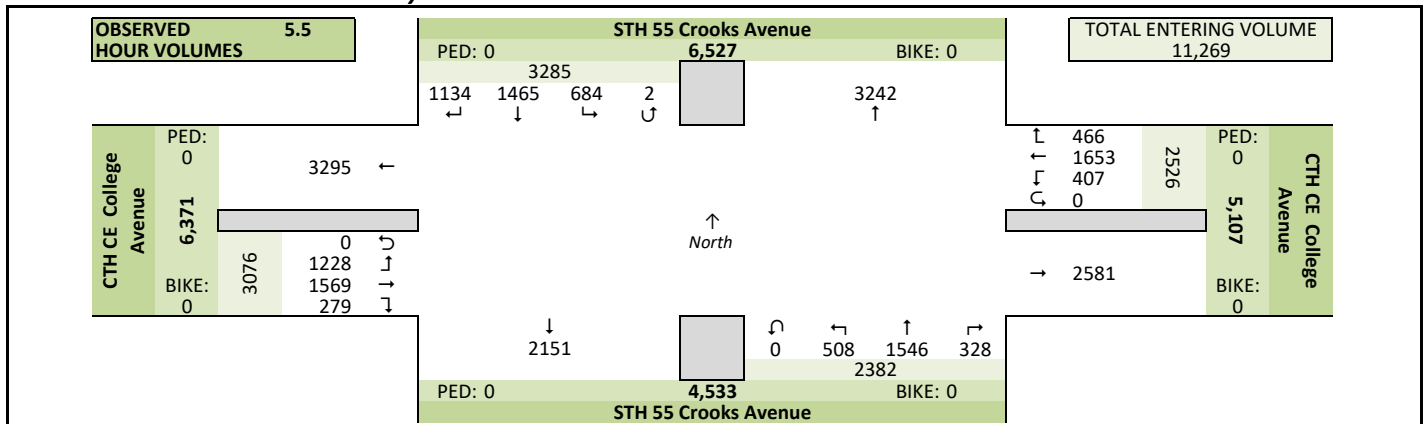
Site Information

Municipality	City of Kaukauna
County	44 - Outagamie
WisDOT Region	NE
Traffic Control	Roundabout
Roadway Names	North Direction
North Leg	STH 55 Crooks Avenue
East Leg	CTH CE College Avenue
South Leg	STH 55 Crooks Avenue
West Leg	CTH CE College Avenue
Special Considerations	
Schools	In Session
Holidays	None
Special Events	None
Special Pedestrians Observed	
Pre-school children	None
Elementary school age children	None
Visually impaired (white cane/helper dog)	None
Elderly/disabled (except wheelchairs)	None
Wheelchairs/electric scooters	None
Other (describe)	None

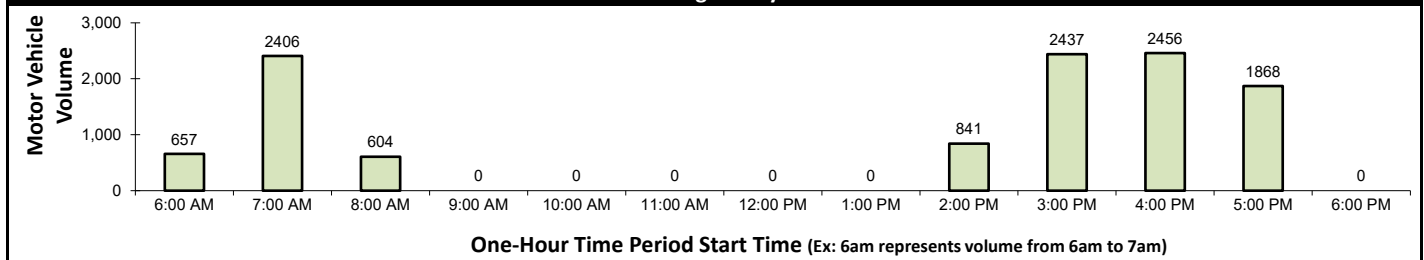
Count Information

Hrs Counted:	06:30 AM-08:30 AM and 02:30 PM-06:00 PM
1st Day of Count	Tuesday, February 11, 2025
Weather	Clear and Dry
AM Peak Period	Tuesday, February 11, 2025
Midday Peak Period	Tuesday, February 11, 2025
PM Peak Period	Tuesday, February 11, 2025
Calculated Peak Hours	
AM	7:00-8:00am
MD	
PM	3:15-4:15pm
Peak Hours Selected for Analysis	
AM	7:15-8:15am
MD	
PM	3:15-4:15pm
Daily/Seasonal Adjustment Group	(1) Non-Interstate Low Truck %
Count Expansion Group	(1) Non-Interstate Low Truck %
Daily/Seasonal Adjustment Factor	0.995
Count Expansion Factor	2.648
Company Name	TADI
Manual Adj.	1.000
Observers	AM Peak Period: Miovision Midday Peak Period: Miovision PM Peak Period: Miovision
Comments	Wis DOT Daily & Seasonal Factors are final for 2012 through 2023, and 2024 uses 2023 final factors.

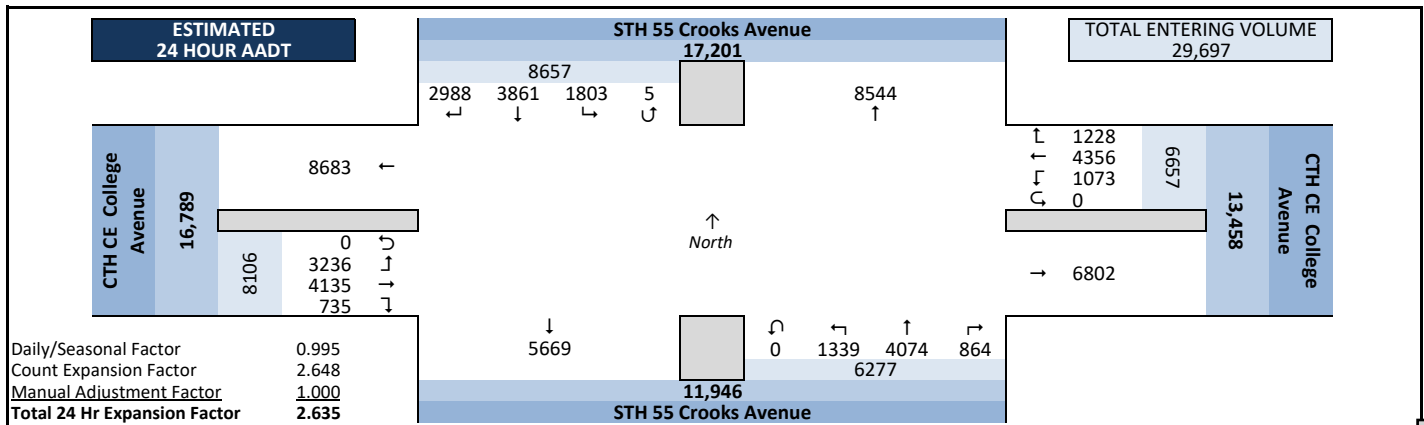
Observed 5.5 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT



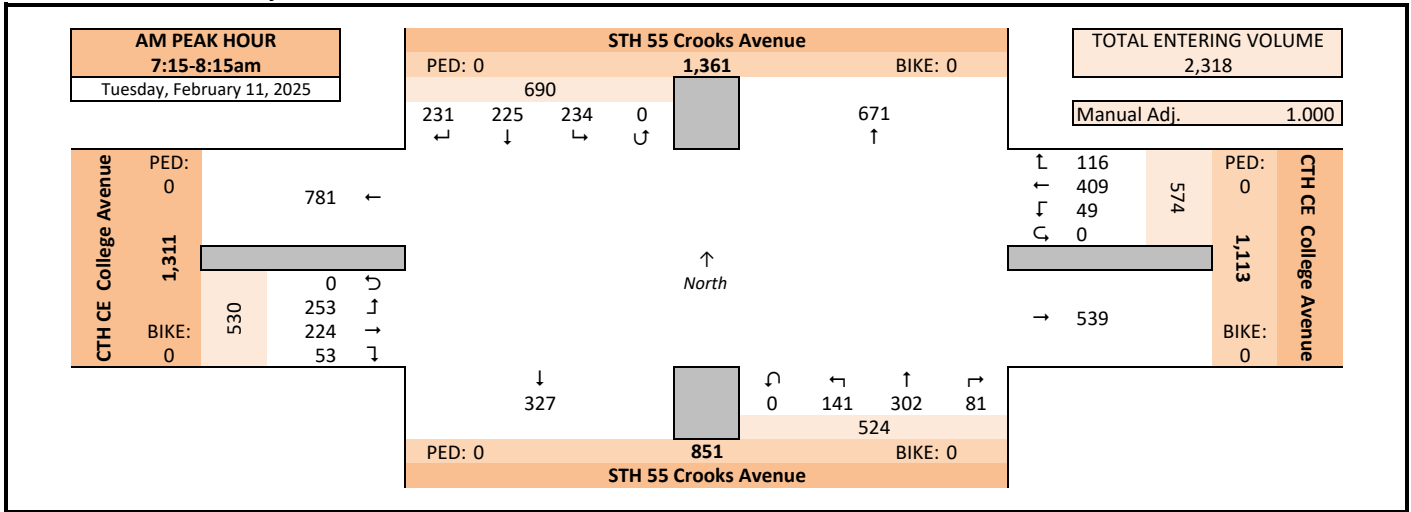
Intersection Traffic Volume Report

Peak Hour Volume Graphical Summary

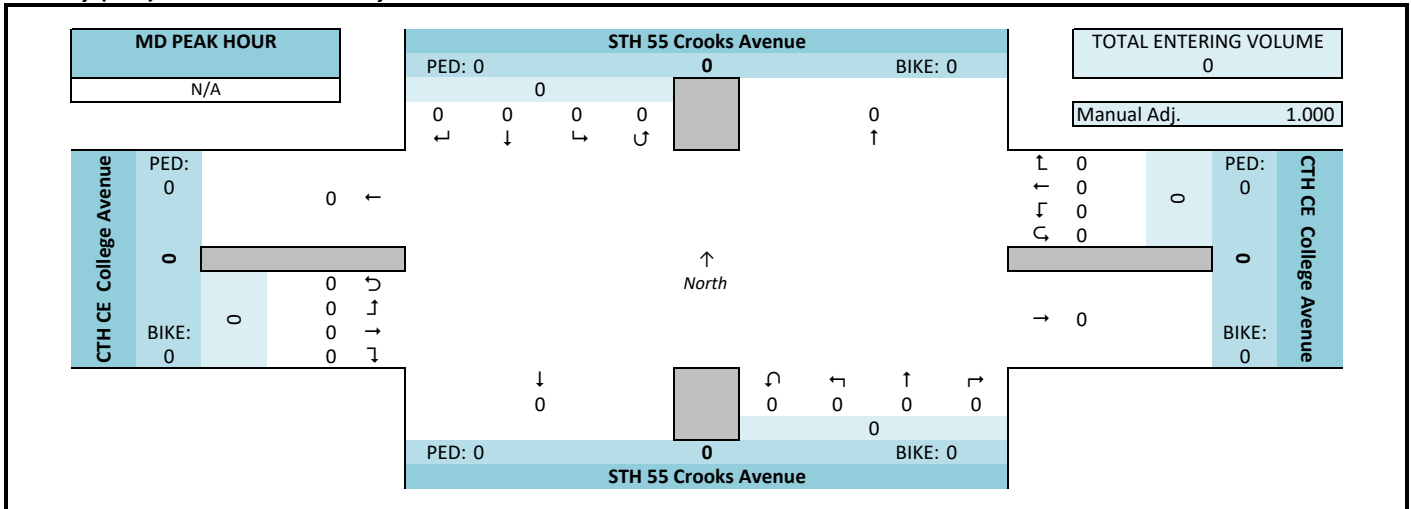
STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.5		Non-Holiday	No Special Events

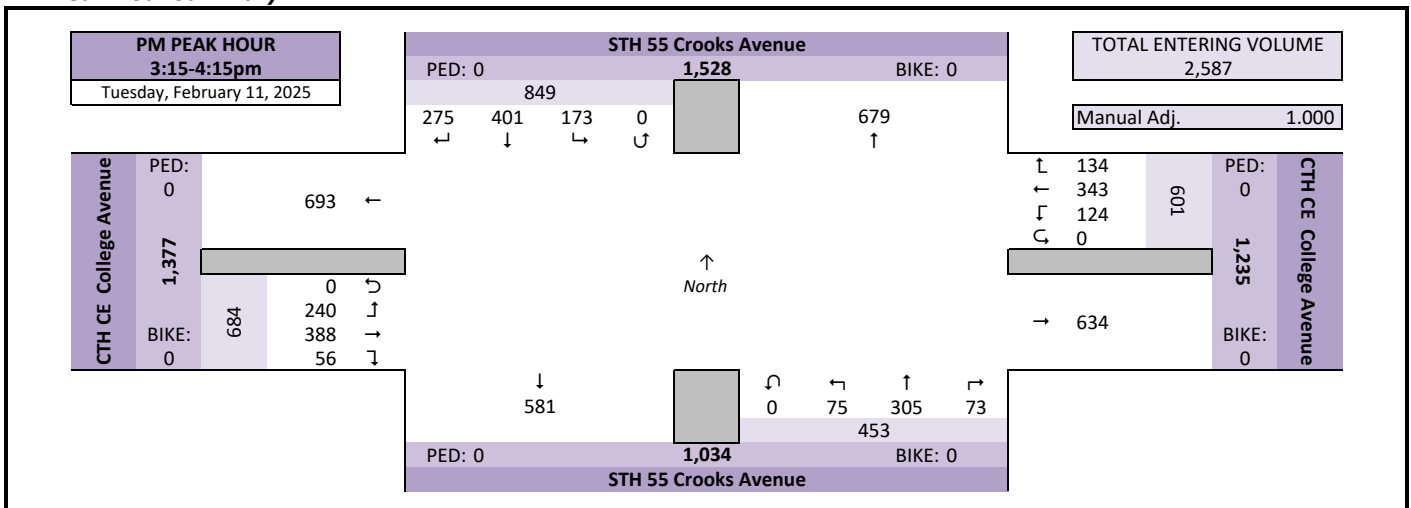
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

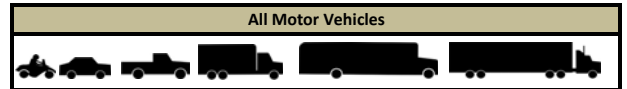


Intersection Traffic Volume Report

Peak Hour Volume Summary

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events



Peak Hour Volumes, Truck Percentages, and PHFs

Tuesday, February 11, 2025		↓					←					↑					→					
		From North					From East					From South					From West					
		STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
AM Peak Hour	AM Peak Hour	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	7:15 AM	37	40	58	0	135	41	122	9	0	172	24	95	44	0	163	13	72	89	0	174	644
	7:30 AM	65	56	98	0	219	38	129	19	0	186	45	90	65	0	200	13	75	60	0	148	753
	7:45 AM	82	94	65	0	241	22	95	11	0	128	10	67	17	0	94	16	44	66	0	126	589
	8:00 AM	47	35	13	0	95	15	63	10	0	88	2	50	15	0	67	11	33	38	0	82	332
	Peak Hour Volume	231	225	234	0	690	116	409	49	0	574	81	302	141	0	524	53	224	253	0	530	2318
	Rounded Hourly Volume	230	225	235	0	690	115	410	50	0	575	80	300	140	0	520	55	225	255	0	535	2320
	% Single Unit Trucks	3.0	4.9	5.1	0.0	4.3	4.3	2.2	8.2	0.0	3.1	3.7	2.0	2.1	0.0	2.3	3.8	3.1	2.8	0.0	3.0	3.3
	% Heavy Trucks	0.4	0.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.4	0.0	1.0	5.7	0.4	0.8	0.0	1.1	0.6
	% Trucks (Total)	3.5	5.3	5.1	0.0	4.6	4.3	2.2	8.2	0.0	3.1	3.7	3.0	3.5	0.0	3.2	9.4	3.6	3.6	0.0	4.2	3.8
Peak Hour Factor (PHF)	0.70	0.60	0.60	0.00	0.72	0.71	0.79	0.64	0.00	0.77	0.45	0.79	0.54	0.00	0.65	0.83	0.75	0.71	0.00	0.76	0.77	

N/A		From North					From East					From South					From West					
Midday (MD) Peak Hour	MD Peak Hour	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	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	0.0	0.0	0.0
	% Heavy Trucks	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	0.0	0.0	0.0
% Trucks (Total)	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	0.0	0.0	0.0	
Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Tuesday, February 11, 2025		From North					From East					From South					From West					
PM Peak Hour	PM Peak Hour	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	3:15 PM	74	112	72	0	258	64	114	43	0	221	16	57	11	0	84	17	83	55	0	155	718
	3:30 PM	75	92	41	0	208	41	98	26	0	165	15	80	11	0	106	11	73	64	0	148	627
	3:45 PM	55	85	27	0	167	17	71	28	0	116	21	83	20	0	124	11	104	63	0	178	585
	4:00 PM	71	112	33	0	216	12	60	27	0	99	21	85	33	0	139	17	128	58	0	203	657
	Peak Hour Volume	275	401	173	0	849	134	343	124	0	601	73	305	75	0	453	56	388	240	0	684	2587
	Rounded Hourly Volume	275	400	175	0	850	135	345	125	0	605	75	305	75	0	455	55	390	240	0	685	2595
	% Single Unit Trucks	0.4	4.5	5.8	0.0	3.4	2.2	1.5	0.8	0.0	1.5	5.5	3.6	5.3	0.0	4.2	3.6	1.3	1.7	0.0	1.6	2.6
	% Heavy Trucks	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.4	1.3	0.0	0.0	1.1	1.8	0.0	0.4	0.0	0.3	0.3
	% Trucks (Total)	0.7	4.5	5.8	0.0	3.5	2.2	1.5	0.8	0.0	1.5	6.8	4.9	5.3	0.0	5.3	5.4	1.3	2.1	0.0	1.9	2.9
	Peak Hour Factor (PHF)	0.92	0.90	0.60	0.00	0.82	0.52	0.75	0.72	0.00	0.68	0.87	0.90	0.57	0.00	0.81	0.82	0.76	0.94	0.00	0.84	0.90

Peak Hour Pedestrian and Bicyclist Volumes

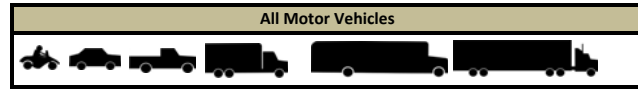
Pedestrians and Bicyclists		Crossing 			Crossing 			Crossing 			Crossing 			Total Ped & Bike Volume
		North Approach			East Approach			South Approach			West Approach			
15-Minute Start Time		STH 55 Crooks Avenue			CTH CE College Avenue			STH 55 Crooks Avenue			CTH CE College Avenue			
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

STH 55 Crooks Avenue & CTH CE College Avenue

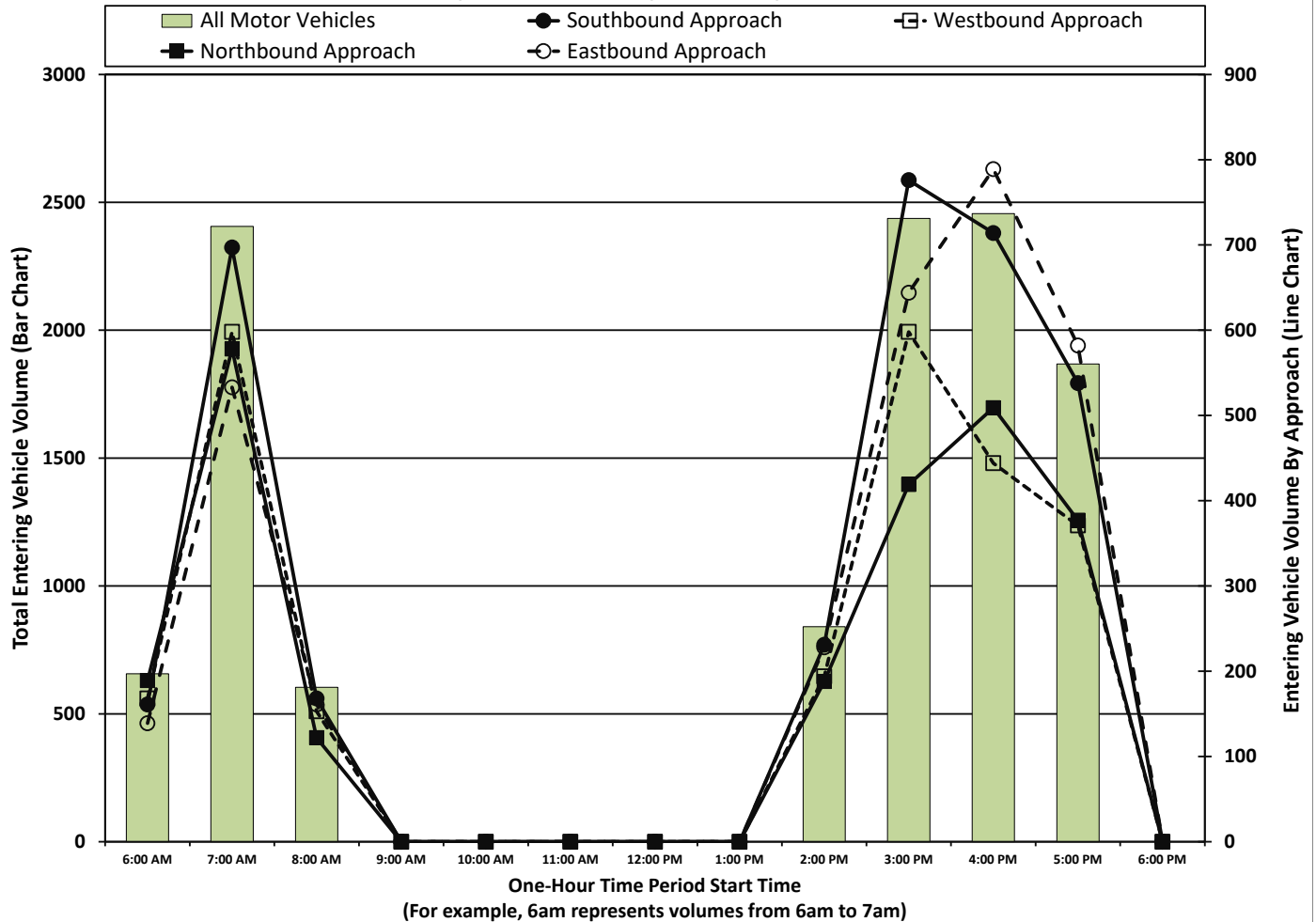
Count Basics			Page 4
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events



One-Hour Motor Vehicle Data

One-Hour Time Period Start Time		From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals	
		STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue							
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM	6:00 AM	48	92	19	2	161	14	135	19	0	168	10	130	49	0	189	22	38	79	0	139	657	307	350
	7:00 AM	219	228	250	0	697	115	437	46	0	598	90	336	152	0	578	56	213	264	0	533	2406	1131	1275
	8:00 AM	78	68	22	0	168	24	110	19	0	153	6	89	27	0	122	14	72	75	0	161	604	314	290
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	86	109	36	0	231	41	125	28	0	194	23	134	31	0	188	23	109	96	0	228	841	422	419
	3:00 PM	258	338	180	0	776	143	341	114	0	598	72	285	62	0	419	54	339	251	0	644	2437	1242	1195
	4:00 PM	230	378	106	0	714	72	266	106	0	444	77	323	109	0	509	61	467	261	0	789	2456	1233	1223
	5:00 PM	215	252	71	0	538	57	239	75	0	371	50	249	78	0	377	49	331	202	0	582	1868	953	915
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		1134	1465	684	2	3285	466	1653	407	0	2526	328	1546	508	0	2382	279	1569	1228	0	3076	11269	5602	5667

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 5 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session	
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events	

All Motor Vehicles					
					

15-Minute Motor Vehicle Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	PHF	
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total				
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:30 AM	20	46	6	0	72	5	70	8	0	83	6	58	16	0	80	11	17	34	0	62	297	1721	0.67
	6:45 AM	28	46	13	2	89	9	65	11	0	85	4	72	33	0	109	11	21	45	0	77	360	2177	0.72
	7:00 AM	35	38	29	0	102	14	91	7	0	112	11	84	26	0	121	14	22	49	0	85	420	2406	0.80
	7:15 AM	37	40	58	0	135	41	122	9	0	172	24	95	44	0	163	13	72	89	0	174	644	2318	0.77
	7:30 AM	65	56	98	0	219	38	129	19	0	186	45	90	65	0	200	13	75	60	0	148	753	1946	0.65
	7:45 AM	82	94	65	0	241	22	95	11	0	128	10	67	17	0	94	16	44	66	0	126	589		
	8:00 AM	47	35	13	0	95	15	63	10	0	88	2	50	15	0	67	11	33	38	0	82	332		
	8:15 AM	31	33	9	0	73	9	47	9	0	65	4	39	12	0	55	3	39	37	0	79	272		
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:30 PM	42	57	18	0	117	12	67	14	0	93	12	58	17	0	87	12	55	36	0	103	400	2066	0.72
	2:45 PM	44	52	18	0	114	29	58	14	0	101	11	76	14	0	101	11	54	60	0	125	441	2293	0.80
3:00 PM	54	49	40	0	143	21	58	17	0	96	20	65	20	0	105	15	79	69	0	163	507	2437	0.85	
3:15 PM	74	112	72	0	258	64	114	43	0	221	16	57	11	0	84	17	83	55	0	155	718	2587	0.90	
3:30 PM	75	92	41	0	208	41	98	26	0	165	15	80	11	0	106	11	73	64	0	148	627	2490	0.95	
3:45 PM	55	85	27	0	167	17	71	28	0	116	21	83	20	0	124	11	104	63	0	178	585	2461	0.94	
4:00 PM	71	112	33	0	216	12	60	27	0	99	21	85	33	0	139	17	128	58	0	203	657	2456	0.93	
4:15 PM	47	88	30	0	165	17	68	29	0	114	26	72	18	0	116	18	137	71	0	226	621	2312	0.93	
4:30 PM	51	91	20	0	162	24	81	16	0	121	19	93	31	0	143	11	102	59	0	172	598	2191	0.92	
4:45 PM	61	87	23	0	171	19	57	34	0	110	11	73	27	0	111	15	100	73	0	188	580	2049	0.88	
5:00 PM	67	78	22	0	167	13	62	13	0	88	12	69	23	0	104	14	92	48	0	154	513	1868	0.91	
5:15 PM	56	66	15	0	137	20	61	21	0	102	12	75	19	0	106	21	88	46	0	155	500			
5:30 PM	45	63	17	0	125	9	58	24	0	91	15	67	22	0	104	6	84	46	0	136	456			
5:45 PM	47	45	17	0	109	15	58	17	0	90	11	38	14	0	63	8	67	62	0	137	399			
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Totals		1134	1465	684	2	3285	466	1653	407	0	2526	328	1546	508	0	2382	279	1569	1228	0	3076	11269		

Peak Hour All Vehicle Volume Summary

Hourly Time Period	From North					From East					From South					From West					Total Hourly Volume
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Intersection Traffic Volume Report

15-Minute Automobile Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 6 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session	
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events	

Automobiles (Cars, Light Trucks, & Motorcycles)



15-Minute Automobile Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 AM	20	42	6	0	68	4	69	6	0	79	4	53	14	0	71	10	17	34	0	61	279
	6:45 AM	28	42	11	2	83	7	63	8	0	78	2	70	30	0	102	10	21	44	0	75	338
	7:00 AM	34	37	27	0	98	11	90	6	0	107	9	82	25	0	116	11	22	46	0	79	400
	7:15 AM	36	38	55	0	129	37	119	7	0	163	22	93	44	0	159	13	71	87	0	171	622
	7:30 AM	63	54	98	0	215	38	127	18	0	183	44	89	63	0	196	11	73	57	0	141	735
	7:45 AM	80	88	58	0	226	21	94	10	0	125	10	65	15	0	90	16	43	65	0	124	565
	8:00 AM	44	33	11	0	88	15	60	10	0	85	2	46	14	0	62	8	29	35	0	72	307
	8:15 AM	30	26	9	0	65	9	45	9	0	63	4	35	10	0	49	3	36	36	0	75	252
Midday Peak Period	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Period	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Period	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	39	54	18	0	111	12	61	14	0	87	12	53	16	0	81	10	54	35	0	99	378
	2:45 PM	41	52	17	0	110	27	55	14	0	96	11	72	11	0	94	10	53	59	0	122	422
	3:00 PM	51	47	37	0	135	21	56	14	0	91	20	63	16	0	99	14	72	66	0	152	477
	3:15 PM	72	104	69	0	245	63	109	43	0	215	15	56	10	0	81	16	82	53	0	151	692
	3:30 PM	75	91	35	0	201	41	98	26	0	165	14	75	10	0	99	11	71	61	0	143	608
	3:45 PM	55	81	26	0	162	15	71	28	0	114	20	77	19	0	116	10	102	63	0	175	567
	4:00 PM	71	107	33	0	211	12	60	26	0	98	19	82	32	0	133	16	128	58	0	202	644
	4:15 PM	47	85	29	0	161	17	68	29	0	114	26	71	18	0	115	18	137	70	0	225	615
	4:30 PM	51	91	20	0	162	24	80	16	0	120	19	89	31	0	139	11	101	59	0	171	592
	4:45 PM	60	83	23	0	166	19	57	34	0	110	11	71	27	0	109	15	100	73	0	188	573
	5:00 PM	66	78	22	0	166	13	62	13	0	88	12	67	23	0	102	14	92	47	0	153	509
	5:15 PM	55	66	14	0	135	20	61	21	0	102	12	73	19	0	104	21	87	45	0	153	494
	5:30 PM	45	63	17	0	125	9	58	24	0	91	15	66	22	0	103	6	83	46	0	135	454
	5:45 PM	47	44	17	0	108	15	58	17	0	90	11	38	14	0	63	8	67	61	0	136	397
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	1110	1406	652	2	3170	450	1621	393	0	2464	314	1486	483	0	2283	262	1541	1200	0	3003	10920	

Peak Hour Automobile Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:15 AM	223	213	222	0	658	111	400	45	0	556	78	293	136	0	507	48	216	244	0	508	2229
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 3:15 PM	273	383	163	0	819	131	338	123	0	592	68	290	71	0	429	53	383	235	0	671	2511

Intersection Traffic Volume Report

15-Minute Single Unit (SU) Truck & Bus Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics		Page 7 of 13
Start Date: Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.5	Non-Holiday	No Special Events

Single Unit (SU) Trucks & Buses	

15-Minute Single Unit (SU) Truck & Bus Data

[illegible]

SU Truck %age:	1.59	3.072	4.53	0	2.8615	3.43	1.936	3.44	0.0	2.4545	3.96	2.393	3.54	0.0	2.8547	3.23	1.657	1.71	0.0	1.8205	2.4847
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Peak Hour Single Unit (SU) Truck & Buses Volume Summary

		←					→					←					→					Total Hourly Volume
Hourly Time Period		From North					From East					From South					From West					
Start Time		STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM	7:15 AM	7	11	12	0	30	5	9	4	0	18	3	6	3	0	12	2	7	7	0	16	76
PM	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	3:15 PM	1	18	10	0	29	3	5	1	0	9	4	11	4	0	19	2	5	4	0	11	68

Intersection Traffic Volume Report

15-Minute Semi-Truck Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 8 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session	
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events	



15-Minute Semi-Truck Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	12
	6:45 AM	0	2	1	0	3	0	0	0	0	0	0	0	2	0	2	1	0	0	0	0	1	6
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	3	9
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	13
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	0	1	3
	7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	
	8:00 AM	1	0	0	0	1	0	0	0	0	0	0	1	1	0	2	2	1	1	0	0	4	7
	8:15 AM	0	4	0	0	4	0	0	0	0	0	0	2	1	0	3	0	1	0	0	0	1	8
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	1	1	0	0	2	0	0	0	0	0	0	3	0	0	3	2	0	1	0	0	3	8
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	13
	3:00 PM	1	2	0	0	3	0	0	0	0	0	0	2	1	0	3	1	0	1	0	0	2	8
	3:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	2
	3:45 PM	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	1	0	0	0	0	1	5
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2
	4:45 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	5:00 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		6	14	1	0	21	0	0	0	0	0	1	23	7	0	31	8	2	7	0	17	69	
Semi Truck %age:		0.53	0.956	0.15	0	0.6393	0	0	0	0.0	0	0.3	1.488	1.38	0.0	1.3014	2.87	0.127	0.57	0.0	0.5527	0.6123	

Semi Truck %age: 0.53 0.956 0.15 0 0.6393 0 0 0 0 0.0 0 0.3 1.488 1.38 0.0 1.3014 2.87 0.127 0.57 0.0 0.5527 0.6123

Peak Hour Semi-Truck Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:15 AM	1	1	0	0	2	0	Thru	Left	U-Tn	0	0	3	2	0	5	3	1	Left	U-Tn	0	6
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 3:15 PM	1	0	0	0	1	0	0	0	0	0	1	4	0	0	5	1	0	1	0	0	2

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 9 of 13
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events

Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)



15-Minute Heavy Vehicle Data

15-Minute Time Period	Start Time	From North STH 55 Crooks Avenue					From East CTH CE College Avenue					From South STH 55 Crooks Avenue					From West CTH CE College Avenue					15-Min Totals	Hourly Sum
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	4	0	0	4	1	1	2	0	4	2	5	2	0	9	1	0	0	0	1	18	82
	6:45 AM	0	4	2	0	6	2	2	3	0	7	2	2	3	0	7	1	0	1	0	2	22	82
	7:00 AM	1	1	2	0	4	3	1	1	0	5	2	2	1	0	5	3	0	3	0	6	20	84
	7:15 AM	1	2	3	0	6	4	3	2	0	9	2	2	0	0	4	0	1	2	0	3	22	89
	7:30 AM	2	2	0	0	4	0	2	1	0	3	1	1	2	0	4	2	2	3	0	7	18	87
	7:45 AM	2	6	7	0	15	1	1	1	0	3	0	2	2	0	4	0	1	1	0	2	24	
	8:00 AM	3	2	2	0	7	0	3	0	0	3	0	4	1	0	5	3	4	3	0	10	25	
	8:15 AM	1	7	0	0	8	0	2	0	0	2	0	4	2	0	6	0	3	1	0	4	20	
Midday Peak Period	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	3	3	0	0	6	0	6	0	0	6	0	5	1	0	6	2	1	1	0	4	22	97
	2:45 PM	3	0	1	0	4	2	3	0	0	5	0	4	3	0	7	1	1	1	0	3	19	94
	3:00 PM	3	2	3	0	8	0	2	3	0	5	0	2	4	0	6	1	7	3	0	11	30	93
	3:15 PM	2	8	3	0	13	1	5	0	0	6	1	1	1	0	3	1	1	2	0	4	26	76
	3:30 PM	0	1	6	0	7	0	0	0	0	0	1	5	1	0	7	0	2	3	0	5	19	56
	3:45 PM	0	4	1	0	5	2	0	0	0	2	1	6	1	0	8	1	2	0	0	3	18	43
PM Peak Period	4:00 PM	0	5	0	0	5	0	0	1	0	1	2	3	1	0	6	1	0	0	0	1	13	32
	4:15 PM	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	6	23
	4:30 PM	0	0	0	0	0	0	1	0	0	1	0	4	0	0	4	0	1	0	0	1	6	23
	4:45 PM	1	4	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7	19
	5:00 PM	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	4	14
	5:15 PM	1	0	1	0	2	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	6	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2	
	5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		24	59	32	0	115	16	32	14	0	62	14	60	25	0	99	17	28	28	0	73	349	

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:15 AM	8	12	12	0	32	5	9	4	0	18	3	9	5	0	17	5	8	9	0	22	89
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 3:15 PM	2	18	10	0	30	3	5	1	0	9	5	15	4	0	24	3	5	5	0	13	76

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Percentages

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics			Page 10 of 13
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events

Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)			
%	%	%	%

15-Minute Heavy Vehicle Percentages

15-Minute Time Period	Start Time	From North					From East					From South					From West					Total Heavy Vehicle Percent	Hourly Heavy Vehicle Percent		
		STH 55 Crooks Avenue					CTH CE College Avenue					STH 55 Crooks Avenue					CTH CE College Avenue								
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total				
AM Peak Period	6:00 AM	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	0.0	0.0	0.0			
	6:15 AM	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	0.0	0.0	0.0			
	6:30 AM	0.0	8.7	0.0	0.0	5.6	20.0	1.4	25.0	0.0	4.8	33.3	8.6	12.5	0.0	11.3	9.1	0.0	0.0	0.0	1.6	6.1	4.8		
	6:45 AM	0.0	8.7	15.4	0.0	6.7	22.2	3.1	27.3	0.0	8.2	50.0	2.8	9.1	0.0	6.4	9.1	0.0	2.2	0.0	2.6	6.1	3.8		
	7:00 AM	2.9	2.6	6.9	0.0	3.9	21.4	1.1	14.3	0.0	4.5	18.2	2.4	3.8	0.0	4.1	21.4	0.0	6.1	0.0	7.1	4.8	3.5		
	7:15 AM	2.7	5.0	5.2	0.0	4.4	9.8	2.5	22.2	0.0	5.2	8.3	2.1	0.0	0.0	2.5	0.0	1.4	2.2	0.0	1.7	3.4	3.8		
	7:30 AM	3.1	3.6	0.0	0.0	1.8	0.0	1.6	5.3	0.0	1.6	2.2	1.1	3.1	0.0	2.0	15.4	2.7	5.0	0.0	4.7	2.4	4.5		
	7:45 AM	2.4	6.4	10.8	0.0	6.2	4.5	1.1	9.1	0.0	2.3	0.0	3.0	11.8	0.0	4.3	0.0	2.3	1.5	0.0	1.6	4.1			
	8:00 AM	6.4	5.7	15.4	0.0	7.4	0.0	4.8	0.0	0.0	3.4	0.0	8.0	6.7	0.0	7.5	27.3	12.1	7.9	0.0	12.2	7.5			
	8:15 AM	3.2	21.2	0.0	0.0	11.0	0.0	4.3	0.0	0.0	3.1	0.0	10.3	16.7	0.0	10.9	0.0	7.7	2.7	0.0	5.1	7.4			
	8:30 AM	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	0.0	0.0	0.0			
	8:45 AM	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	0.0	0.0	0.0			
	9:00 AM	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	0.0	0.0	0.0			
	9:15 AM	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	0.0	0.0	0.0			
	9:30 AM	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	0.0	0.0	0.0			
	9:45 AM	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	0.0	0.0	0.0			
Midday Peak Period	10:00 AM	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	0.0	0.0	0.0			
	10:15 AM	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	0.0	0.0	0.0			
	10:30 AM	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	0.0	0.0	0.0			
	10:45 AM	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	0.0	0.0	0.0			
	11:00 AM	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	0.0	0.0	0.0			
	11:15 AM	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	0.0	0.0	0.0			
	11:30 AM	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	0.0	0.0	0.0			
	11:45 AM	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	0.0	0.0	0.0			
	12:00 PM	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	0.0	0.0	0.0			
	12:15 PM	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	0.0	0.0	0.0			
	12:30 PM	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	0.0	0.0	0.0			
	12:45 PM	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	0.0	0.0	0.0			
	1:00 PM	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	0.0	0.0	0.0			
	1:15 PM	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	0.0	0.0	0.0			
	1:30 PM	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	0.0	0.0	0.0			
	1:45 PM	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	0.0	0.0	0.0			
PM Peak Period	2:00 PM	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	0.0	0.0	0.0			
	2:15 PM	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	0.0	0.0	0.0			
	2:30 PM	7.1	5.3	0.0	0.0	5.1	0.0	9.0	0.0	0.0	6.5	0.0	8.6	5.9	0.0	6.9	16.7	1.8	2.8	0.0	3.9	5.5	4.7		
	2:45 PM	6.8	0.0	5.6	0.0	3.5	6.9	5.2	0.0	0.0	5.0	0.0	5.3	21.4	0.0	6.9	9.1	1.9	1.7	0.0	2.4	4.3	4.1		
	3:00 PM	5.6	4.1	7.5	0.0	5.6	0.0	3.4	17.6	0.0	5.2	0.0	3.1	20.0	0.0	5.7	6.7	8.9	4.3	0.0	6.7	5.9	3.8		
	3:15 PM	2.7	7.1	4.2	0.0	5.0	1.6	4.4	0.0	0.0	2.7	6.3	1.8	9.1	0.0	3.6	5.9	1.2	3.6	0.0	2.6	3.6	2.9		
	3:30 PM	0.0	1.1	14.6	0.0	3.4	0.0	0.0	0.0	0.0	0.0	6.7	6.3	9.1	0.0	6.6	0.0	2.7	4.7	0.0	3.4	3.0	2.2		
	3:45 PM	0.0	4.7	3.7	0.0	3.0	11.8	0.0	0.0	0.0	1.7	4.8	7.2	5.0	0.0	6.5	9.1	1.9	0.0	0.0	1.7	3.1	1.7		
	4:00 PM	0.0	4.5	0.0	0.0	2.3	0.0	0.0	3.7	0.0	1.0	9.5	3.5	3.0	0.0	4.3	5.9	0.0	0.0	0.0	0.5	2.0	1.3		
	4:15 PM	0.0	3.4	3.3	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.9	0.0	0.0	1.4	0.0	0.4	1.0	1.0		
	4:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.8	0.0	4.3	0.0	0.0	2.8	0.0	1.0	0.0	0.0	0.6	1.0	1.0		
	4:45 PM	1.6	4.6	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	1.2	0.9		
	5:00 PM	1.5	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	1.9	0.0	0.0	2.1	0.0	0.6	0.8	0.7		
	5:15 PM	1.8	0.0	6.7	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	1.9	0.0	1.1	2.2	0.0	1.3	1.2			
	5:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.0	0.0	1.2	0.0	0.0	0.7	0.4			
	5:45 PM	0.0	2.2	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.7	0.5			
	6:00 PM	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	0.0	0.0	0.0			
	6:15 PM	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	0.0	0.0	0.0			
	6:30 PM	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	0.0	0.0	0.0			
	6:45 PM	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	0.0	0.0	0.0			
	7:00 PM	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	0.0	0.0	0.0			
	7:15 PM	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	0.0	0.0	0.0			
	7:30 PM	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	0.0	0.0	0.0			
	7:45 PM	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	0.0	0.0	0.0			
	8:00 PM</																								

Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

STH 55 Crooks Avenue & CTH CE College Avenue

Count Basics				Page 11 of 13
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session	
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events	

Pedestrians and Bicyclists



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time	Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
	North Approach			East Approach			South Approach			West Approach				
	STH 55 Crooks Avenue			CTH CE College Avenue			STH 55 Crooks Avenue			CTH CE College Avenue				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/help)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics				Page 12 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session		
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events		

15-Minute Adult & Children Count (Manual Entry)

STH 55 Crooks Avenue & CTH CE College Avenue



15-Minute Adult & Children Pedestrian Data

15-Minute Time Period Start Time	Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
	North Approach			East Approach			South Approach			West Approach				
	STH 55 Crooks Avenue			CTH CE College Avenue			STH 55 Crooks Avenue			CTH CE College Avenue				
	Adults	Children	Total	Adults	Children	Total	Adults	Children	Total	Adults	Children	Total		
AM Peak Period	6:00 AM	0		0	0		0		0	0		0	0	0
	6:15 AM	0			0		0		0	0			0	0
	6:30 AM	0		0		0		0		0		0	0	0
	6:45 AM	0		0	0		0	0		0		0	0	0
	7:00 AM	0		0	0		0	0		0	0		0	0
	7:15 AM	0		0	0		0	0		0	0		0	0
	7:30 AM	0		0	0		0	0		0	0		0	0
	7:45 AM	0		0	0		0	0		0	0		0	0
	8:00 AM	0		0	0		0	0		0	0		0	0
	8:15 AM	0		0	0		0	0		0	0		0	0
	8:30 AM	0		0	0		0	0		0	0		0	0
	8:45 AM	0		0	0		0	0		0	0		0	0
	9:00 AM	0		0	0		0	0		0	0		0	0
	9:15 AM	0		0	0		0	0		0	0		0	0
	9:30 AM	0		0	0		0	0		0	0		0	0
	9:45 AM	0		0	0		0	0		0	0		0	0
Midday Peak Period	10:00 AM	0		0	0		0	0		0	0		0	0
	10:15 AM	0		0	0		0	0		0	0		0	0
	10:30 AM	0		0	0		0	0		0	0		0	0
	10:45 AM	0		0	0		0	0		0	0		0	0
	11:00 AM	0		0	0		0	0		0	0		0	0
	11:15 AM	0		0	0		0	0		0	0		0	0
	11:30 AM	0		0	0		0	0		0	0		0	0
	11:45 AM	0		0	0		0	0		0	0		0	0
	12:00 PM	0		0	0		0	0		0	0		0	0
	12:15 PM	0		0	0		0	0		0	0		0	0
	12:30 PM	0		0	0		0	0		0	0		0	0
	12:45 PM	0		0	0		0	0		0	0		0	0
	1:00 PM	0		0	0		0	0		0	0		0	0
	1:15 PM	0		0	0		0	0		0	0		0	0
	1:30 PM	0		0	0		0	0		0	0		0	0
	1:45 PM	0		0	0		0	0		0	0		0	0
PM Peak Period	2:00 PM	0		0	0		0	0		0	0		0	0
	2:15 PM	0		0	0		0	0		0	0		0	0
	2:30 PM	0		0	0		0	0		0	0		0	0
	2:45 PM	0		0	0		0	0		0	0		0	0
	3:00 PM	0		0	0		0	0		0	0		0	0
	3:15 PM	0		0	0		0	0		0	0		0	0
	3:30 PM	0		0	0		0	0		0	0		0	0
	3:45 PM	0		0	0		0	0		0	0		0	0
	4:00 PM	0		0	0		0	0		0	0		0	0
	4:15 PM	0		0	0		0	0		0	0		0	0
	4:30 PM	0		0	0		0	0		0	0		0	0
	4:45 PM	0		0	0		0	0		0	0		0	0
	5:00 PM	0		0	0		0	0		0	0		0	0
	5:15 PM	0		0	0		0	0		0	0		0	0
	5:30 PM	0		0	0		0	0		0	0		0	0
	5:45 PM	0		0	0		0	0		0	0		0	0
	6:00 PM	0		0	0		0	0		0	0		0	0
	6:15 PM	0		0	0		0	0		0	0		0	0
	6:30 PM	0		0	0		0	0		0	0		0	0
	6:45 PM	0		0	0		0	0		0	0		0	0
	7:00 PM	0		0	0		0	0		0	0		0	0
	7:15 PM	0		0	0		0	0		0	0		0	0
	7:30 PM	0		0	0		0	0		0	0		0	0
	7:45 PM	0		0	0		0	0		0	0		0	0
	8:00 PM	0		0	0		0	0		0	0		0	0
	8:15 PM	0		0	0		0	0		0	0		0	0
	8:30 PM	0		0	0		0	0		0	0		0	0
	8:45 PM	0		0	0		0	0		0	0		0	0
	9:00 PM	0		0	0		0	0		0	0		0	0
	9:15 PM	0		0	0		0	0		0	0		0	0
	9:30 PM	0		0	0		0	0		0	0		0	0
	9:45 PM	0		0	0		0	0		0	0		0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	

Intersection Traffic Volume Report

Count Basics				Page 13 of 13	
Start Date:	Tuesday, February 11, 2025	Weekday	Schools in Session		
Total Number of Hours Counted:	5.5	Non-Holiday	No Special Events		

15-Minute Bicycle Turning Movement Count (Manual Entry)

STH 55 Crooks Avenue & CTH CE College Avenue



15-Minute Bicycle Data

15-Minute Time Period	Start Time	From North STH 55 Crooks Avenue					From East CTH CE College Avenue					From South STH 55 Crooks Avenue					From West CTH CE College Avenue					15-Min Totals	Hourly Sum
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM					0					0					0					0	0	0
	6:15 AM					0					0					0					0	0	0
	6:30 AM					0					0					0					0	0	0
	6:45 AM					0					0					0					0	0	0
	7:00 AM					0					0					0					0	0	0
	7:15 AM					0					0					0					0	0	0
	7:30 AM					0					0					0					0	0	0
	7:45 AM					0					0					0					0	0	0
	8:00 AM					0					0					0					0	0	0
	8:15 AM					0					0					0					0	0	0
	8:30 AM					0					0					0					0	0	0
	8:45 AM					0					0					0					0	0	0
	9:00 AM					0					0					0					0	0	0
	9:15 AM					0					0					0					0	0	0
	9:30 AM					0					0					0					0	0	0
	9:45 AM					0					0					0					0	0	0
Midday Peak Period	10:00 AM					0					0					0					0	0	0
	10:15 AM					0					0					0					0	0	0
	10:30 AM					0					0					0					0	0	0
	10:45 AM					0					0					0					0	0	0
	11:00 AM					0					0					0					0	0	0
	11:15 AM					0					0					0					0	0	0
	11:30 AM					0					0					0					0	0	0
	11:45 AM					0					0					0					0	0	0
	12:00 PM					0					0					0					0	0	0
	12:15 PM					0					0					0					0	0	0
	12:30 PM					0					0					0					0	0	0
	12:45 PM					0					0					0					0	0	0
	1:00 PM					0					0					0					0	0	0
	1:15 PM					0					0					0					0	0	0
	1:30 PM					0					0					0					0	0	0
	1:45 PM					0					0					0					0	0	0
PM Peak Period	2:00 PM					0					0					0					0	0	0
	2:15 PM					0					0					0					0	0	0
	2:30 PM					0					0					0					0	0	0
	2:45 PM					0					0					0					0	0	0
	3:00 PM					0					0					0					0	0	0
	3:15 PM					0					0					0					0	0	0
	3:30 PM					0					0					0					0	0	0
	3:45 PM					0					0					0					0	0	0
	4:00 PM					0					0					0					0	0	0
	4:15 PM					0					0					0					0	0	0
	4:30 PM					0					0					0					0	0	0
	4:45 PM					0					0					0					0	0	0
	5:00 PM					0					0					0					0	0	0
	5:15 PM					0					0					0					0	0	0
	5:30 PM					0					0					0					0	0	0
	5:45 PM					0					0					0					0	0	0
	6:00 PM					0					0					0					0	0	0
	6:15 PM					0					0					0					0	0	0
	6:30 PM					0					0					0					0	0	0
	6:45 PM					0					0					0					0	0	0
	7:00 PM					0					0					0					0	0	0
	7:15 PM					0					0					0					0	0	0
	7:30 PM					0					0					0					0	0	0
	7:45 PM					0					0					0					0	0	0
	8:00 PM					0					0					0					0	0	0
	8:15 PM					0					0					0					0	0	0
	8:30 PM					0					0					0					0	0	0
	8:45 PM					0					0					0					0	0	0
	9:00 PM					0					0					0					0	0	0
	9:15 PM					0					0					0					0	0	0
	9:30 PM					0					0					0					0	0	0
	9:45 PM					0					0					0					0	0	0
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Bicycle Turning Movement Volume Summary

Hourly Time Period	Start Time	From North STH 55 Crooks Avenue				From East CTH CE College Avenue				From South STH 55 Crooks Avenue				From West CTH CE College Avenue				Total Hourly Volume
		Right	Thru	Left	U-Tn	Right	Thru	Left	U-Tn	Right	Thru	Left	U-Tn	Right	Thru	Left	U-Tn	
AM	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B

SIDRA Peak Hour Analysis Outputs

Full Build Traffic

Total Traffic

Total Traffic – With Mods

SITE LAYOUT

 **Site: [300] STH 55 & CTH CE/College Ave. (Folder1)**

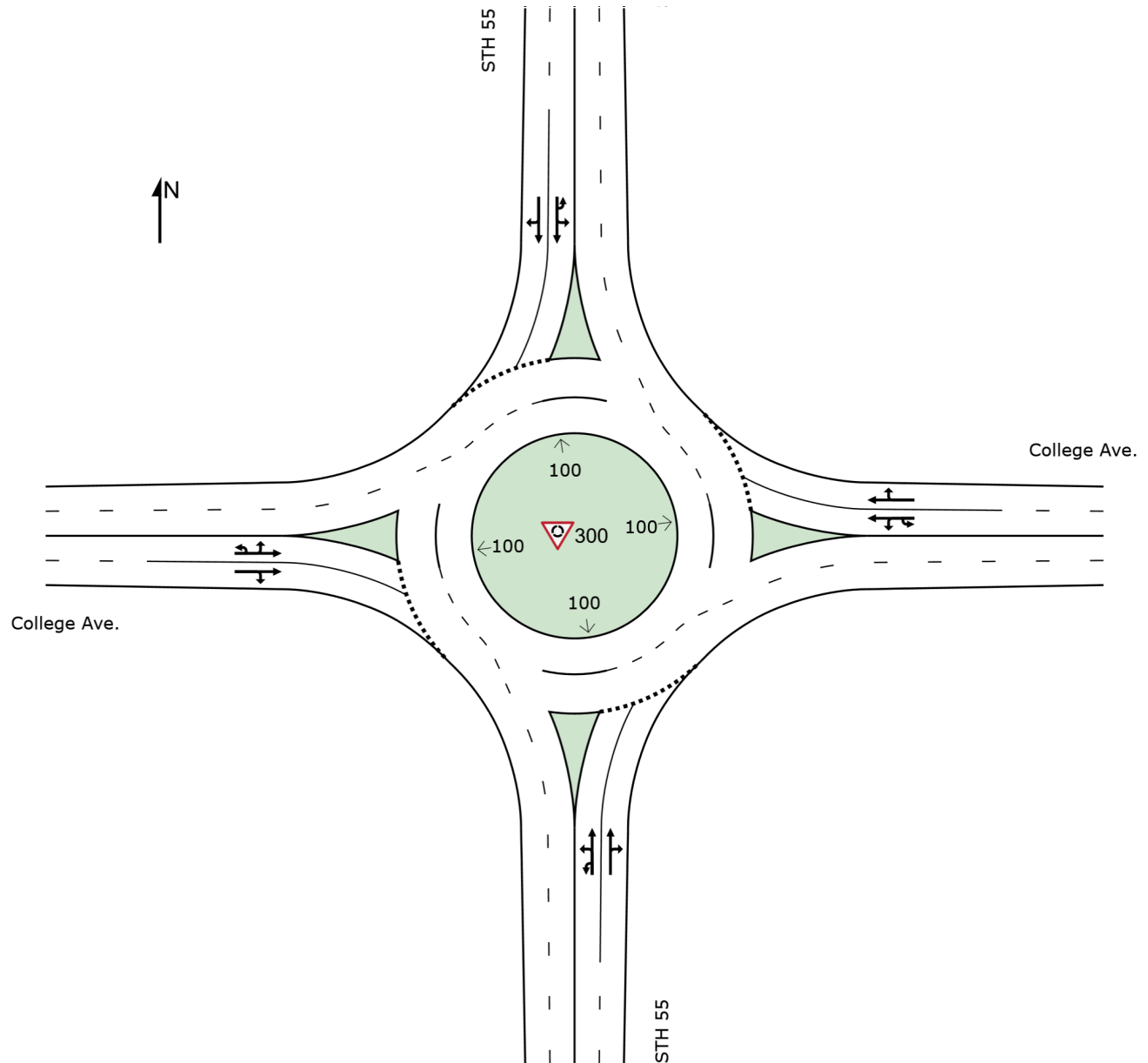
Build Traffic - AM Peak Hour (7:15 - 8:15 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: Z:\Shared\W\13422 Middle School Kaukauna\analysis\roundabout 2025_08 Update\STH 55_College Sidra Build Vol Exist Geometry.sipx

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: [300] STH 55 & CTH CE/College Ave. (Folder1)

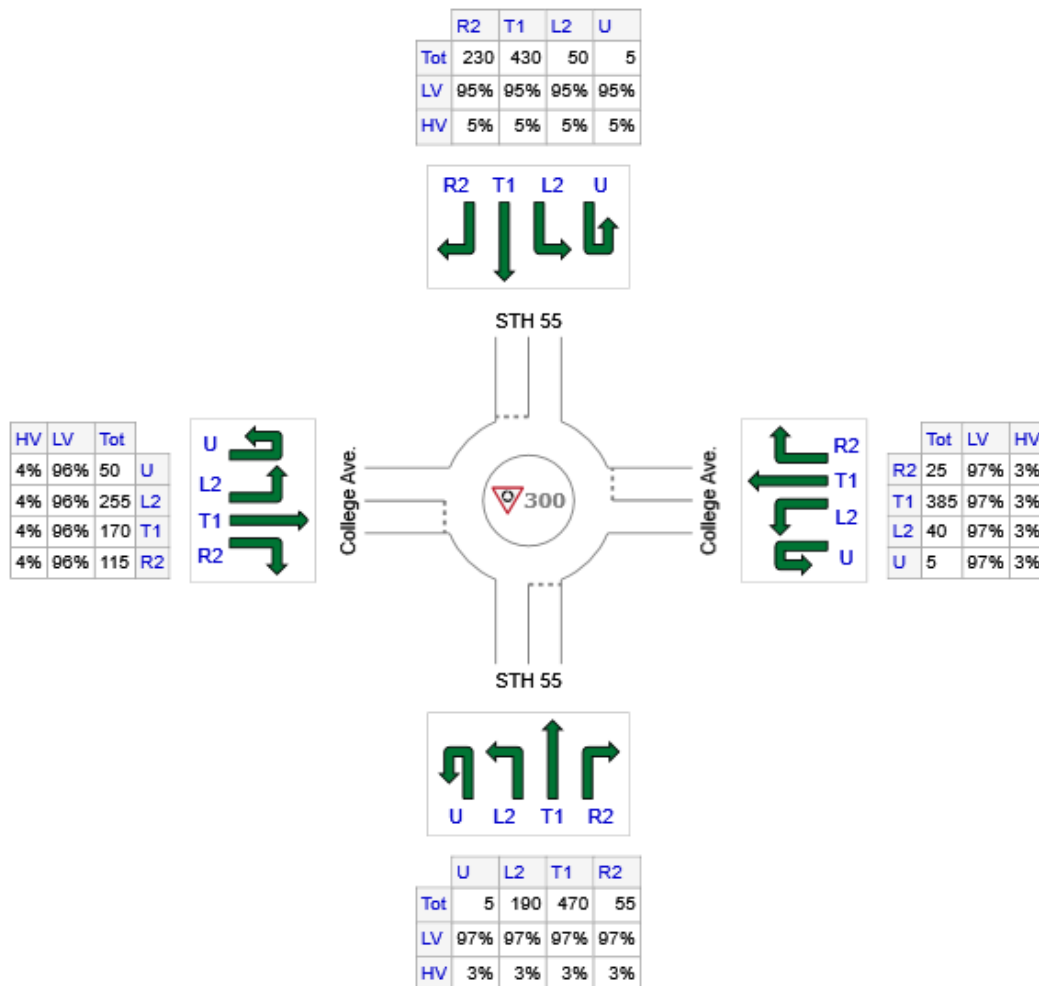
Build Traffic - AM Peak Hour (7:15 - 8:15 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	720	698	22
E: College Ave.	455	441	14
N: STH 55	715	679	36
W: College Ave.	590	566	24
Total	2480	2385	95

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Project: Z:\Shared\WI\3422 Middle School Kaukauna\analysis\roundabout 2025_08 Update\STH 55_College Sidra Build Vol Exist Geometry.sipx

MOVEMENT SUMMARY

 Site: [300] STH 55 & CTH CE/College Ave. (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Build Traffic - AM Peak Hour (7:15 - 8:15 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] ft				mph
South: STH 55															
3u	U	All MCs	6	3.0	6	3.0	0.669	18.6	LOS C	5.2	134.0	0.81	0.94	1.44	27.0
3	L2	All MCs	247	3.0	247	3.0	0.669	18.7	LOS C	5.2	134.0	0.81	0.94	1.44	27.0
8	T1	All MCs	610	3.0	610	3.0	0.669	17.8	LOS C	5.2	134.0	0.80	0.93	1.43	28.1
18	R2	All MCs	71	3.0	71	3.0	0.669	17.8	LOS C	5.2	133.3	0.79	0.92	1.43	28.3
Approach			935	3.0	935	3.0	0.669	18.0	LOS C	5.2	134.0	0.80	0.93	1.43	27.8
East: College Ave.															
1u	U	All MCs	6	3.0	6	3.0	0.714	32.7	LOS D	3.8	96.4	0.88	1.08	1.61	23.9
1	L2	All MCs	52	3.0	52	3.0	0.714	32.7	LOS D	3.8	96.4	0.88	1.08	1.61	23.9
6	T1	All MCs	500	3.0	500	3.0	0.714	30.5	LOS D	3.8	96.4	0.88	1.08	1.61	24.4
16	R2	All MCs	32	3.0	32	3.0	0.714	30.5	LOS D	3.8	96.1	0.87	1.07	1.61	24.4
Approach			591	3.0	591	3.0	0.714	30.7	LOS D	3.8	96.4	0.88	1.08	1.61	24.4
North: STH 55															
7u	U	All MCs	6	5.0	6	5.0	0.809	32.1	LOS D	7.0	183.2	0.89	1.21	2.02	23.9
7	L2	All MCs	65	5.0	65	5.0	0.809	32.1	LOS D	7.0	183.2	0.89	1.21	2.02	23.9
4	T1	All MCs	558	5.0	558	5.0	0.809	31.0	LOS D	7.0	183.2	0.89	1.21	2.02	24.3
14	R2	All MCs	299	5.0	299	5.0	0.809	30.9	LOS D	7.0	183.0	0.89	1.21	2.02	24.2
Approach			929	5.0	929	5.0	0.809	31.0	LOS D	7.0	183.2	0.89	1.21	2.02	24.2
West: College Ave.															
5u	U	All MCs	65	4.0	65	4.0	0.602	16.3	LOS C	4.0	104.4	0.78	0.86	1.26	26.8
5	L2	All MCs	331	4.0	331	4.0	0.602	16.3	LOS C	4.0	104.4	0.78	0.86	1.26	26.8
2	T1	All MCs	221	4.0	221	4.0	0.533	13.5	LOS B	3.1	78.9	0.71	0.76	1.08	30.0
12	R2	All MCs	149	4.0	149	4.0	0.533	13.5	LOS B	3.1	78.9	0.71	0.76	1.08	29.8
Approach			766	4.0	766	4.0	0.602	14.9	LOS B	4.0	104.4	0.75	0.81	1.17	28.2
All Vehicles			3221	3.8	3221	3.8	0.809	23.4	LOS C	7.0	183.2	0.83	1.01	1.57	26.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300] STH 55 & CTH CE/College Ave. (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Build Traffic - AM Peak Hour (7:15 - 8:15 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] ft		ft	%	%
South: STH 55															
Lane 1	459	3.0	459	3.0	687	0.669	100	18.3	LOS C	5.2	134.0	Full	1600	0.0	0.0
Lane 2 ^d	476	3.0	476	3.0	711	0.669	100	17.8	LOS C	5.2	133.3	Full	1600	0.0	0.0
Approach	935	3.0	935	3.0		0.669		18.0	LOS C	5.2	134.0				
East: College Ave.															
Lane 1	293	3.0	293	3.0	410	0.714	100	31.0	LOS D	3.8	96.4	Full	1600	0.0	0.0
Lane 2 ^d	298	3.0	298	3.0	418	0.714	100	30.5	LOS D	3.8	96.1	Full	1600	0.0	0.0
Approach	591	3.0	591	3.0		0.714		30.7	LOS D	3.8	96.4				
North: STH 55															
Lane 1	462	5.0	462	5.0	571	0.809	100	31.1	LOS D	7.0	183.2	Full	1600	0.0	0.0
Lane 2 ^d	467	5.0	467	5.0	577	0.809	100	30.9	LOS D	7.0	183.0	Full	1600	0.0	0.0
Approach	929	5.0	929	5.0		0.809		31.0	LOS D	7.0	183.2				
West: College Ave.															
Lane 1 ^d	396	4.0	396	4.0	658	0.602	100	16.3	LOS C	4.0	104.4	Full	1600	0.0	0.0
Lane 2	370	4.0	370	4.0	694	0.533	89 ⁵	13.5	LOS B	3.1	78.9	Full	1600	0.0	0.0
Approach	766	4.0	766	4.0		0.602		14.9	LOS B	4.0	104.4				
All Vehicles	3221	3.8	3221	3.8		0.809		23.4	LOS C	7.0	183.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: STH 55										
Mov.	U	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From S To Exit:	S	W	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	6	247	206	-	459	3.0	687	0.669	100	NA	NA
Lane 2	-	-	404	71	476	3.0	711	0.669	100	NA	NA
Approach	6	247	610	71	935	3.0		0.669			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From E To Exit:	E	S	W	N			Cap. veh/h				
Lane 1	6	52	234	-	293	3.0	410	0.714	100	NA	NA
Lane 2	-	-	266	32	298	3.0	418	0.714	100	NA	NA
Approach	6	52	500	32	591	3.0		0.714			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From N To Exit:	N	E	S	W			Cap. veh/h				
Lane 1	6	65	391	-	462	5.0	571	0.809	100	NA	NA
Lane 2	-	-	168	299	467	5.0	577	0.809	100	NA	NA
Approach	6	65	558	299	929	5.0		0.809			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From W To Exit:	W	N	E	S			Cap. veh/h				
Lane 1	65	331	-	-	396	4.0	658	0.602	100	NA	NA
Lane 2	-	-	221	149	370	4.0	694	0.533	89 ⁵	NA	NA
Approach	65	331	221	149	766	4.0		0.602			
Total %HV Deg.Satn (v/c)											
All Vehicles	3221	3.8						0.809			

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

Merge Analysis

Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	Merge Queue [Veh Dist] ft
There are no Exit Short Lanes for Merge Analysis at this Site.										

Variable Demand Analysis

Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: STH 55			
Lane 1	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

SITE LAYOUT

 **Site: [300-1] STH 55 & CTH CE/College Ave. (Folder1)**

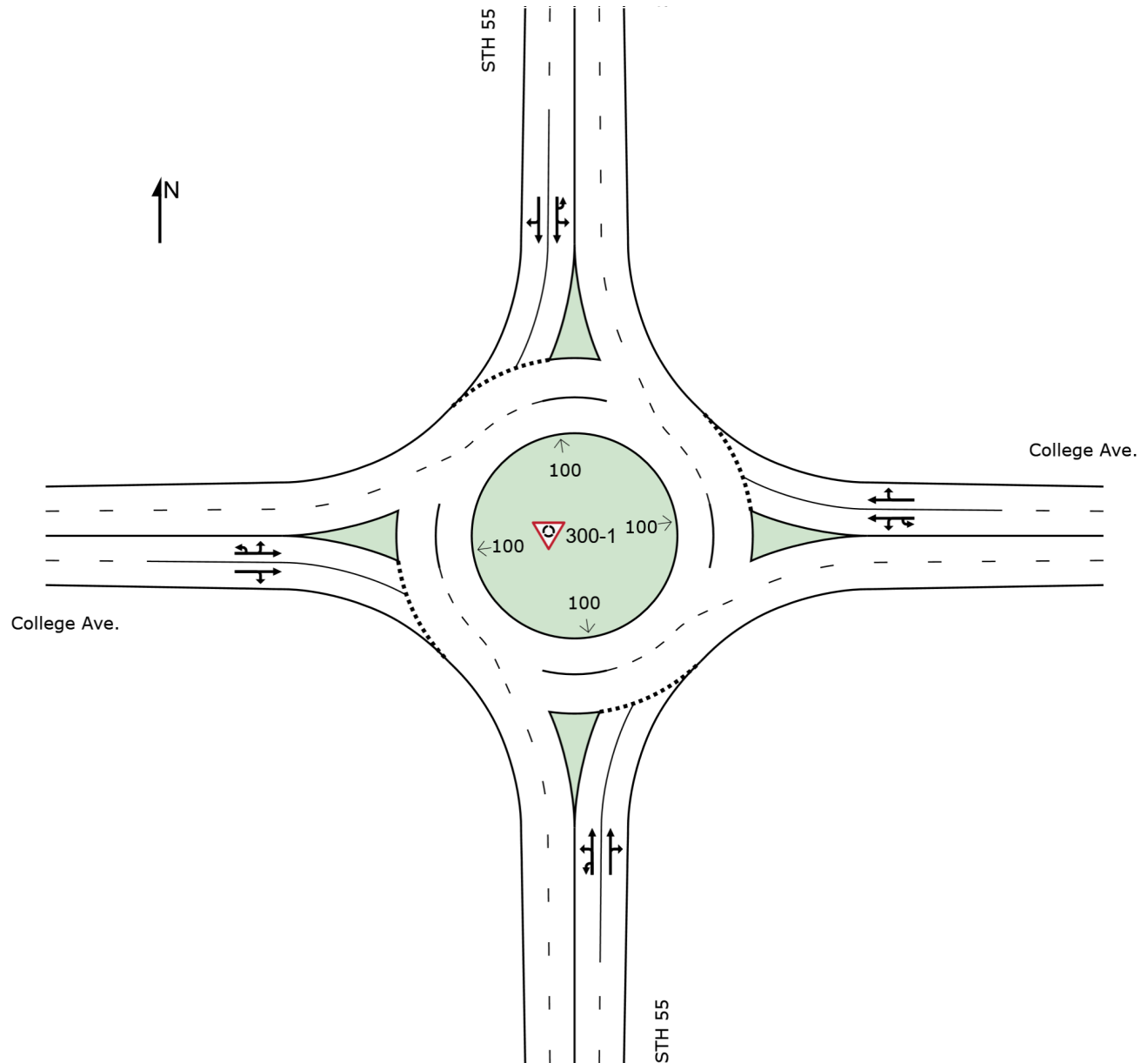
Build Traffic - PM Peak Hour (3:15 - 4:15 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: [300-1] STH 55 & CTH CE/College Ave. (Folder1)**

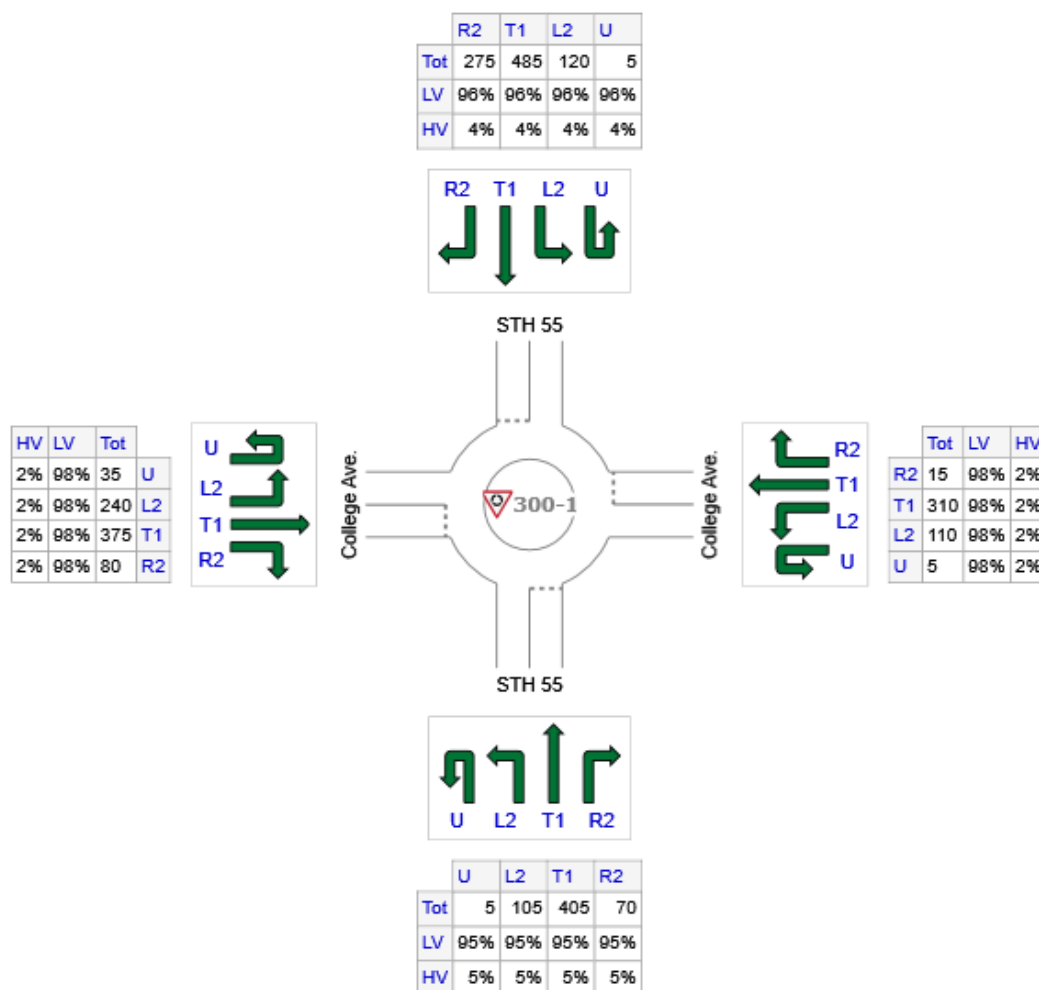
Build Traffic - PM Peak Hour (3:15 - 4:15 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	585	556	29
E: College Ave.	440	431	9
N: STH 55	885	850	35
W: College Ave.	730	715	15
Total	2640	2552	88

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MOVEMENT SUMMARY

 Site: [300-1] STH 55 & CTH CE/College Ave. (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Build Traffic - PM Peak Hour (3:15 - 4:15 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] ft				mph
South: STH 55															
3u	U	All MCs	6	5.0	6	5.0	0.562	17.3	LOS C	3.0	77.8	0.75	0.86	1.19	27.7
3	L2	All MCs	117	5.0	117	5.0	0.562	17.4	LOS C	3.0	77.8	0.75	0.86	1.19	27.7
8	T1	All MCs	450	5.0	450	5.0	0.562	16.4	LOS C	3.0	77.8	0.75	0.86	1.19	28.6
18	R2	All MCs	78	5.0	78	5.0	0.562	16.4	LOS C	3.0	77.1	0.74	0.85	1.18	28.7
Approach			650	5.0	650	5.0	0.562	16.6	LOS C	3.0	77.8	0.75	0.86	1.19	28.4
East: College Ave.															
1u	U	All MCs	6	2.0	6	2.0	0.407	12.7	LOS B	1.8	46.4	0.70	0.74	0.92	29.1
1	L2	All MCs	122	2.0	122	2.0	0.407	12.7	LOS B	1.8	46.4	0.70	0.74	0.92	29.1
6	T1	All MCs	344	2.0	344	2.0	0.407	11.8	LOS B	1.8	46.4	0.69	0.73	0.91	30.4
16	R2	All MCs	17	2.0	17	2.0	0.407	11.8	LOS B	1.8	45.4	0.68	0.73	0.90	30.6
Approach			489	2.0	489	2.0	0.407	12.0	LOS B	1.8	46.4	0.69	0.74	0.91	30.0
North: STH 55															
7u	U	All MCs	6	4.0	6	4.0	0.664	17.6	LOS C	5.5	141.9	0.79	0.91	1.42	27.8
7	L2	All MCs	133	4.0	133	4.0	0.664	17.6	LOS C	5.5	141.9	0.79	0.91	1.42	27.8
4	T1	All MCs	539	4.0	539	4.0	0.664	16.9	LOS C	5.5	141.9	0.79	0.90	1.42	28.4
14	R2	All MCs	306	4.0	306	4.0	0.664	16.9	LOS C	5.5	141.0	0.78	0.90	1.41	28.5
Approach			983	4.0	983	4.0	0.664	17.0	LOS C	5.5	141.9	0.79	0.90	1.42	28.3
West: College Ave.															
5u	U	All MCs	39	2.0	39	2.0	0.635	18.5	LOS C	4.3	109.0	0.80	0.93	1.36	26.6
5	L2	All MCs	267	2.0	267	2.0	0.635	18.5	LOS C	4.3	109.0	0.80	0.93	1.36	26.6
2	T1	All MCs	417	2.0	417	2.0	0.635	17.6	LOS C	4.3	109.0	0.78	0.92	1.34	28.2
12	R2	All MCs	89	2.0	89	2.0	0.635	17.6	LOS C	4.2	107.4	0.78	0.91	1.34	28.4
Approach			811	2.0	811	2.0	0.635	17.9	LOS C	4.3	109.0	0.79	0.92	1.35	27.6
All Vehicles			2933	3.3	2933	3.3	0.664	16.3	LOS C	5.5	141.9	0.76	0.87	1.26	28.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300-1] STH 55 & CTH CE/College Ave. (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Build Traffic - PM Peak Hour (3:15 - 4:15 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	321	5.0	321	5.0	571	0.562	100	16.8	LOS C	3.0	77.8	Full	1600	0.0	0.0
Lane 2 ^d	329	5.0	329	5.0	586	0.562	100	16.4	LOS C	3.0	77.1	Full	1600	0.0	0.0
Approach	650	5.0	650	5.0		0.562		16.6	LOS C	3.0	77.8				
East: College Ave.															
Lane 1	240	2.0	240	2.0	589	0.407	100	12.2	LOS B	1.8	46.4	Full	1600	0.0	0.0
Lane 2 ^d	249	2.0	249	2.0	612	0.407	100	11.8	LOS B	1.8	45.4	Full	1600	0.0	0.0
Approach	489	2.0	489	2.0		0.407		12.0	LOS B	1.8	46.4				
North: STH 55															
Lane 1	488	4.0	488	4.0	735	0.664	100	17.1	LOS C	5.5	141.9	Full	1600	0.0	0.0
Lane 2 ^d	495	4.0	495	4.0	746	0.664	100	16.9	LOS C	5.5	141.0	Full	1600	0.0	0.0
Approach	983	4.0	983	4.0		0.664		17.0	LOS C	5.5	141.9				
West: College Ave.															
Lane 1	395	2.0	395	2.0	622	0.635	100	18.3	LOS C	4.3	109.0	Full	1600	0.0	0.0
Lane 2 ^d	416	2.0	416	2.0	655	0.635	100	17.6	LOS C	4.2	107.4	Full	1600	0.0	0.0
Approach	811	2.0	811	2.0		0.635		17.9	LOS C	4.3	109.0				
All Vehicles	2933	3.3	2933	3.3		0.664		16.3	LOS C	5.5	141.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: STH 55										
Mov.	U	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From S To Exit:	S	W	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	6	117	198	-	321	5.0	571	0.562	100	NA	NA
Lane 2	-	-	252	78	329	5.0	586	0.562	100	NA	NA
Approach	6	117	450	78	650	5.0		0.562			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From E To Exit:	E	S	W	N			Cap. veh/h				
Lane 1	6	122	112	-	240	2.0	589	0.407	100	NA	NA
Lane 2	-	-	233	17	249	2.0	612	0.407	100	NA	NA
Approach	6	122	344	17	489	2.0		0.407			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From N To Exit:	N	E	S	W			Cap. veh/h				
Lane 1	6	133	349	-	488	4.0	735	0.664	100	NA	NA
Lane 2	-	-	190	306	495	4.0	746	0.664	100	NA	NA
Approach	6	133	539	306	983	4.0		0.664			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From W To Exit:	W	N	E	S			Cap. veh/h				
Lane 1	39	267	90	-	395	2.0	622	0.635	100	NA	NA
Lane 2	-	-	327	89	416	2.0	655	0.635	100	NA	NA
Approach	39	267	417	89	811	2.0		0.635			
Total %HV Deg.Satn (v/c)											
All Vehicles	2933	3.3						0.664			

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	Merge Queue [Veh Dist] ft
There are no Exit Short Lanes for Merge Analysis at this Site.										

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: STH 55				
Lane 1	0.0	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300 (3)] STH 55 & CTH CE/College Ave. - Build Traffic**
Existing Geometry (Folder1)

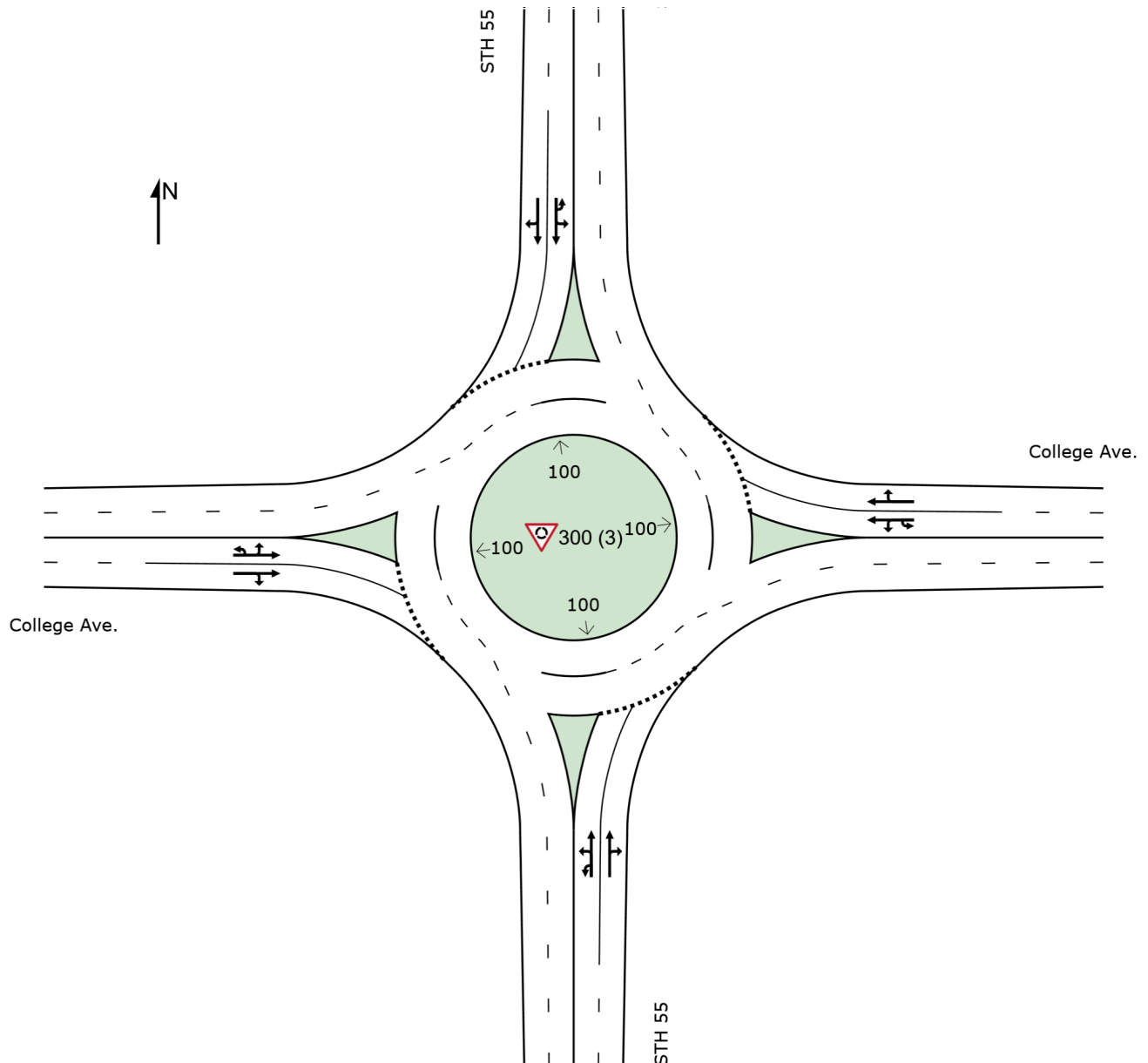
Build Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: [300 (3)] STH 55 & CTH CE/College Ave. - Build Traffic**
Existing Geometry (Folder1)

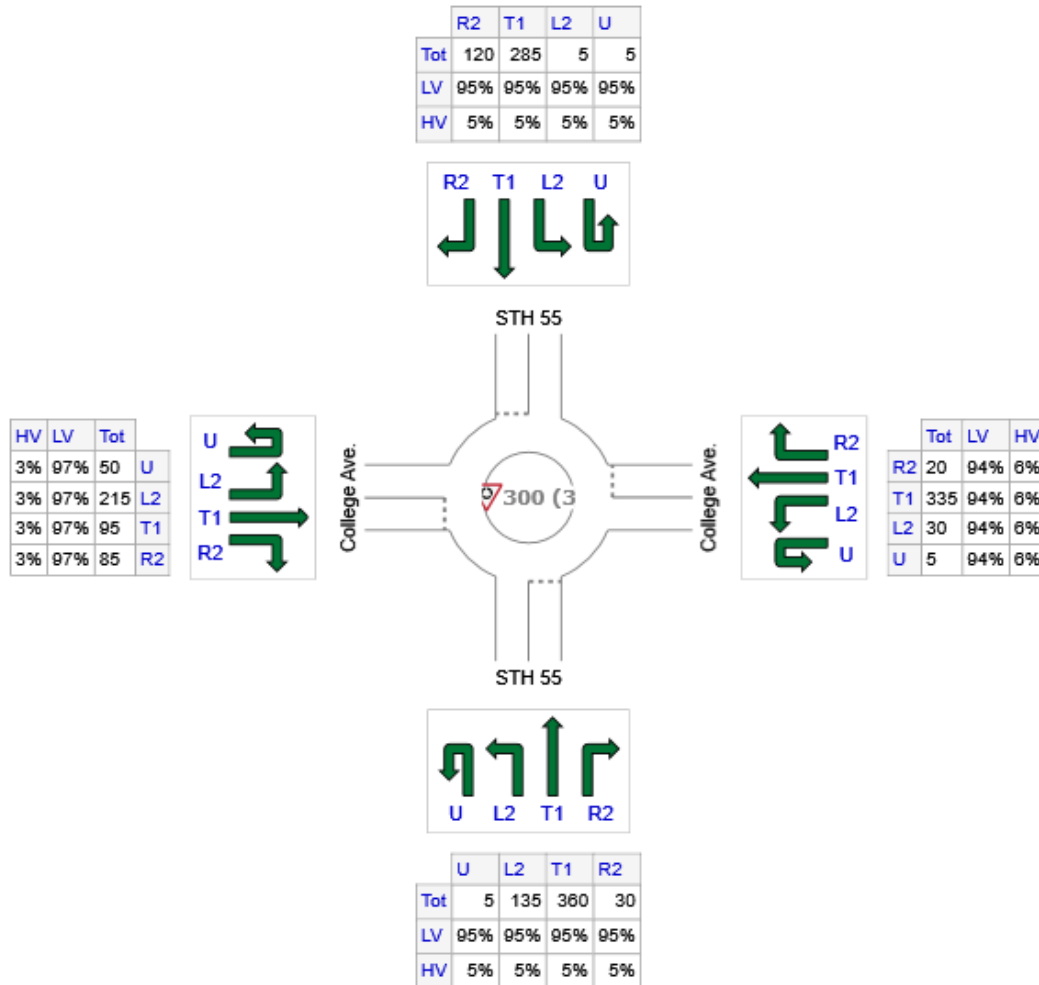
Build Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	530	504	26
E: College Ave.	390	367	23
N: STH 55	415	394	21
W: College Ave.	445	432	13
Total	1780	1696	84

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MOVEMENT SUMMARY

 **Site: [300 (3)] STH 55 & CTH CE/College Ave. - Build Traffic**
Existing Geometry (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Build Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh. veh	Dist]				mph
			veh/h	%	veh/h	%	v/c	sec			ft				
South: STH 55															
3u	U	All MCs	7	5.0	7	5.0	0.512	12.2	LOS B	3.2	82.3	0.68	0.69	1.00	29.0
3	L2	All MCs	201	5.0	201	5.0	0.512	12.3	LOS B	3.2	82.3	0.68	0.69	1.00	29.0
8	T1	All MCs	537	5.0	537	5.0	0.512	11.8	LOS B	3.2	82.3	0.67	0.68	0.98	30.3
18	R2	All MCs	45	5.0	45	5.0	0.512	11.8	LOS B	3.1	81.0	0.67	0.67	0.98	30.5
Approach			791	5.0	791	5.0	0.512	11.9	LOS B	3.2	82.3	0.68	0.68	0.99	30.0
East: College Ave.															
1u	U	All MCs	7	6.0	7	6.0	0.693	30.5	LOS D	3.5	92.6	0.85	1.06	1.58	24.4
1	L2	All MCs	45	6.0	45	6.0	0.693	30.5	LOS D	3.5	92.6	0.85	1.06	1.58	24.4
6	T1	All MCs	500	6.0	500	6.0	0.693	28.7	LOS D	3.5	92.6	0.85	1.06	1.58	24.9
16	R2	All MCs	30	6.0	30	6.0	0.693	28.7	LOS D	3.5	92.2	0.85	1.06	1.58	24.9
Approach			582	6.0	582	6.0	0.693	28.9	LOS D	3.5	92.6	0.85	1.06	1.58	24.8
North: STH 55															
7u	U	All MCs	7	5.0	7	5.0	0.527	16.2	LOS C	2.6	68.9	0.73	0.82	1.12	28.8
7	L2	All MCs	7	5.0	7	5.0	0.527	16.2	LOS C	2.6	68.9	0.73	0.82	1.12	28.8
4	T1	All MCs	425	5.0	425	5.0	0.527	15.2	LOS C	2.6	68.9	0.73	0.82	1.12	29.3
14	R2	All MCs	179	5.0	179	5.0	0.527	15.2	LOS C	2.6	68.7	0.73	0.82	1.12	29.1
Approach			619	5.0	619	5.0	0.527	15.2	LOS C	2.6	68.9	0.73	0.82	1.12	29.2
West: College Ave.															
5u	U	All MCs	75	3.0	75	3.0	0.485	10.8	LOS B	3.0	78.0	0.67	0.63	0.91	28.6
5	L2	All MCs	321	3.0	321	3.0	0.485	10.8	LOS B	3.0	78.0	0.67	0.63	0.91	28.6
2	T1	All MCs	142	3.0	142	3.0	0.317	7.7	LOS A	1.3	32.1	0.55	0.45	0.55	32.5
12	R2	All MCs	127	3.0	127	3.0	0.317	7.7	LOS A	1.3	32.1	0.55	0.45	0.55	32.2
Approach			664	3.0	664	3.0	0.485	9.6	LOS A	3.0	78.0	0.62	0.56	0.76	29.9
All Vehicles			2657	4.7	2657	4.7	0.693	15.8	LOS C	3.5	92.6	0.71	0.76	1.09	28.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300 (3)] STH 55 & CTH CE/College Ave. - Build Traffic**
Existing Geometry (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Build Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h	HV] %	[Total veh/h	HV] %	veh/h	v/c	%	sec		[Veh	Dist] ft		ft	%	%
South: STH 55															
Lane 1	390	5.0	390	5.0	762	0.512	100	12.0	LOS B	3.2	82.3	Full	1600	0.0	0.0
Lane 2 ^d	401	5.0	401	5.0	783	0.512	100	11.8	LOS B	3.1	81.0	Full	1600	0.0	0.0
Approach	791	5.0	791	5.0		0.512		11.9	LOS B	3.2	82.3				
East: College Ave.															
Lane 1	289	6.0	289	6.0	417	0.693	100	29.1	LOS D	3.5	92.6	Full	1600	0.0	0.0
Lane 2 ^d	293	6.0	293	6.0	423	0.693	100	28.7	LOS D	3.5	92.2	Full	1600	0.0	0.0
Approach	582	6.0	582	6.0		0.693		28.9	LOS D	3.5	92.6				
North: STH 55															
Lane 1	309	5.0	309	5.0	587	0.527	100	15.3	LOS C	2.6	68.9	Full	1600	0.0	0.0
Lane 2 ^d	310	5.0	310	5.0	589	0.527	100	15.2	LOS C	2.6	68.7	Full	1600	0.0	0.0
Approach	619	5.0	619	5.0		0.527		15.2	LOS C	2.6	68.9				
West: College Ave.															
Lane 1 ^d	396	3.0	396	3.0	815	0.485	100	10.8	LOS B	3.0	78.0	Full	1600	0.0	0.0
Lane 2	269	3.0	269	3.0	849	0.317	65 ⁵	7.7	LOS A	1.3	32.1	Full	1600	0.0	0.0
Approach	664	3.0	664	3.0		0.485		9.6	LOS A	3.0	78.0				
All Vehicles	2657	4.7	2657	4.7		0.693		15.8	LOS C	3.5	92.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)															
South: STH 55															

Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	S	W	N	E			veh/h	v/c	%	%	No.
Lane 1	7	201	181	-	390	5.0	762	0.512	100	NA	NA
Lane 2	-	-	356	45	401	5.0	783	0.512	100	NA	NA
Approach	7	201	537	45	791	5.0		0.512			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From E							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	7	45	237	-	289	6.0	417	0.693	100	NA	NA
Lane 2	-	-	263	30	293	6.0	423	0.693	100	NA	NA
Approach	7	45	500	30	582	6.0		0.693			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.
Lane 1	7	7	294	-	309	5.0	587	0.527	100	NA	NA
Lane 2	-	-	131	179	310	5.0	589	0.527	100	NA	NA
Approach	7	7	425	179	619	5.0		0.527			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	W	N	E	S			veh/h	v/c	%	%	No.
Lane 1	75	321	-	-	396	3.0	815	0.485	100	NA	NA
Lane 2	-	-	142	127	269	3.0	849	0.317	65 ⁵	NA	NA
Approach	75	321	142	127	664	3.0		0.485			
Total %HV Deg.Satn (v/c)											
All Vehicles	2657	4.7				0.693					

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

Merge Analysis

Exit Lane Number	Short Lane Length	Percent Opng in Lane	Opposing Flow Rate	Critical Gap	Follow-up Headway	Lane Capacity Flow Rate	Deg. Satn	Min. Delay	Merge Delay	Merge Queue [Veh	Dist]
	ft	% veh/h	pcu/h	sec	sec	veh/h	veh/h	v/c	sec	sec	ft

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

Initial Queued Demand	Residual Queued Demand	Time for Residual Demand to Clear	Duration of Oversatn
veh	veh	sec	sec
South: STH 55			

Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300-1 (3)] STH 55 & CTH CE/College Ave. - Build Traffic**
Existing Geometry (Folder1)

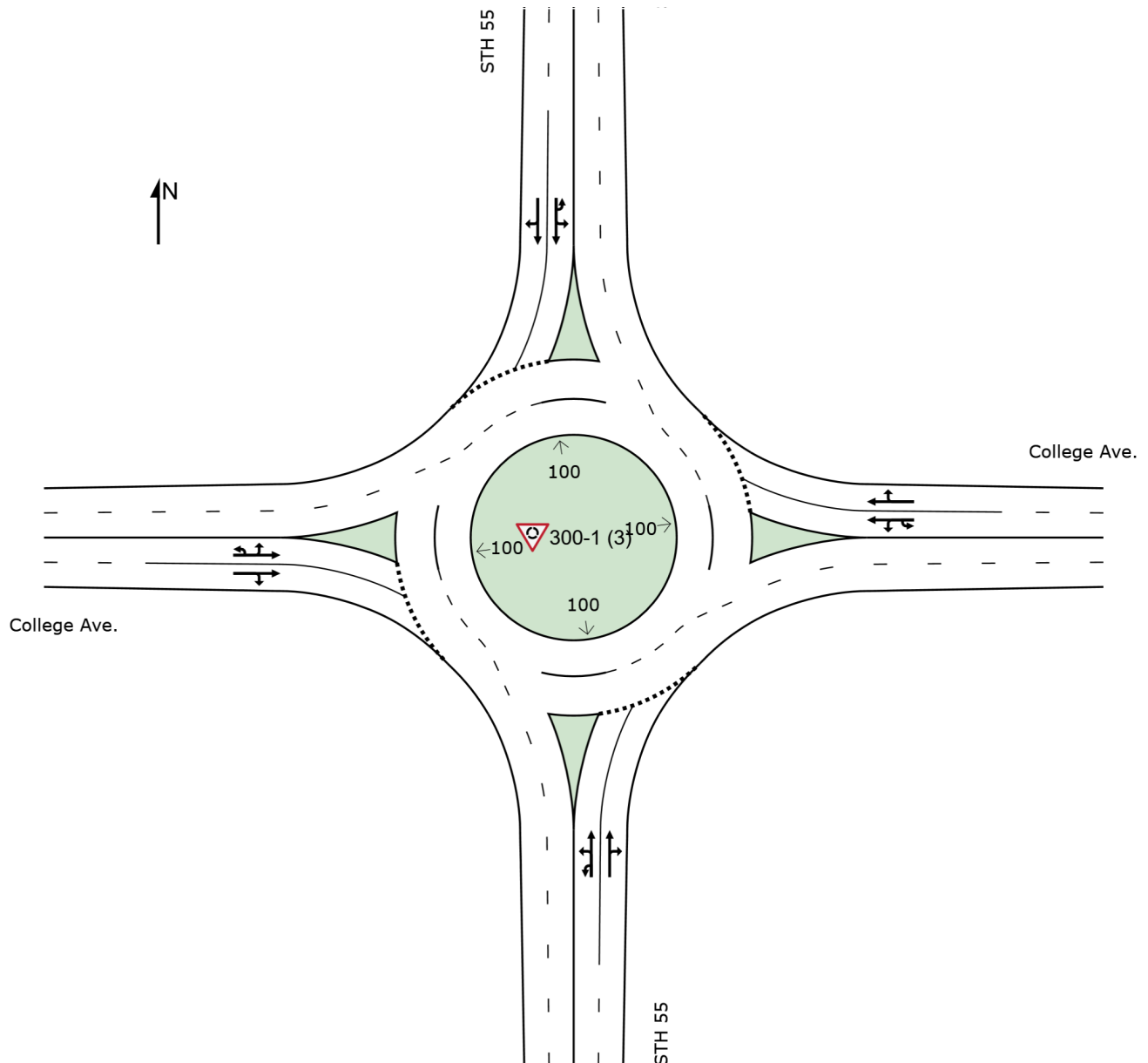
Build Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: [300-1 (3)] STH 55 & CTH CE/College Ave. - Build Traffic**
Existing Geometry (Folder1)

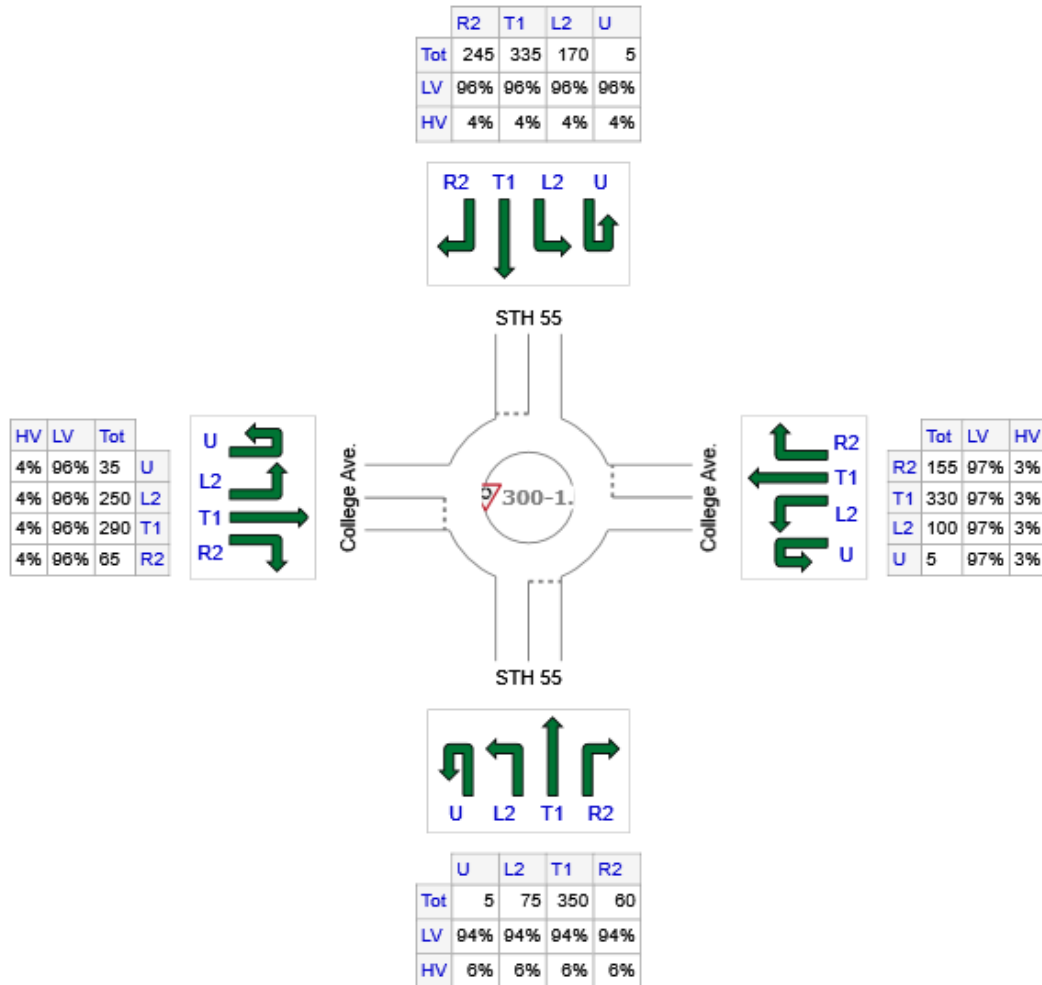
Build Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	490	461	29
E: College Ave.	590	572	18
N: STH 55	755	725	30
W: College Ave.	640	614	26
Total	2475	2372	103

MOVEMENT SUMMARY

 **Site: [300-1 (3)] STH 55 & CTH CE/College Ave. - Build Traffic**
Existing Geometry (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Build Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] ft				mph
South: STH 55															
3u	U	All MCs	6	6.0	6	6.0	0.592	20.3	LOS C	3.0	79.1	0.77	0.92	1.27	26.8
3	L2	All MCs	94	6.0	94	6.0	0.592	20.4	LOS C	3.0	79.1	0.77	0.92	1.27	26.8
8	T1	All MCs	438	6.0	438	6.0	0.592	19.2	LOS C	3.0	79.1	0.77	0.91	1.27	27.6
18	R2	All MCs	75	6.0	75	6.0	0.592	19.2	LOS C	3.0	78.4	0.76	0.91	1.26	27.7
Approach			612	6.0	612	6.0	0.592	19.4	LOS C	3.0	79.1	0.77	0.91	1.27	27.5
East: College Ave.															
1u	U	All MCs	6	3.0	6	3.0	0.642	20.8	LOS C	4.0	101.5	0.80	0.96	1.40	26.7
1	L2	All MCs	125	3.0	125	3.0	0.642	20.8	LOS C	4.0	101.5	0.80	0.96	1.40	26.7
6	T1	All MCs	412	3.0	412	3.0	0.642	19.6	LOS C	4.0	101.5	0.79	0.96	1.39	27.4
16	R2	All MCs	194	3.0	194	3.0	0.642	19.6	LOS C	3.9	100.7	0.79	0.95	1.39	27.6
Approach			738	3.0	738	3.0	0.642	19.8	LOS C	4.0	101.5	0.79	0.96	1.39	27.3
North: STH 55															
7u	U	All MCs	6	4.0	6	4.0	0.678	19.1	LOS C	5.4	139.6	0.81	0.95	1.47	26.9
7	L2	All MCs	212	4.0	212	4.0	0.678	19.1	LOS C	5.4	139.6	0.81	0.95	1.47	26.9
4	T1	All MCs	419	4.0	419	4.0	0.678	18.3	LOS C	5.4	139.6	0.81	0.94	1.47	27.7
14	R2	All MCs	306	4.0	306	4.0	0.678	18.3	LOS C	5.4	138.3	0.80	0.94	1.46	28.0
Approach			944	4.0	944	4.0	0.678	18.5	LOS C	5.4	139.6	0.80	0.94	1.47	27.6
West: College Ave.															
5u	U	All MCs	44	4.0	44	4.0	0.635	18.6	LOS C	4.3	109.9	0.80	0.93	1.36	26.3
5	L2	All MCs	312	4.0	312	4.0	0.635	18.6	LOS C	4.3	109.9	0.80	0.93	1.36	26.3
2	T1	All MCs	362	4.0	362	4.0	0.635	17.7	LOS C	4.3	109.9	0.78	0.91	1.34	28.3
12	R2	All MCs	81	4.0	81	4.0	0.635	17.7	LOS C	4.2	107.7	0.78	0.90	1.34	28.3
Approach			800	4.0	800	4.0	0.635	18.1	LOS C	4.3	109.9	0.79	0.92	1.35	27.3
All Vehicles			3094	4.2	3094	4.2	0.678	18.9	LOS C	5.4	139.6	0.79	0.93	1.38	27.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300-1 (3)] STH 55 & CTH CE/College Ave. - Build Traffic**
Existing Geometry (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Build Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	303	6.0	303	6.0	511	0.592	100	19.6	LOS C	3.0	79.1	Full	1600	0.0	0.0
Lane 2 ^d	310	6.0	310	6.0	523	0.592	100	19.2	LOS C	3.0	78.4	Full	1600	0.0	0.0
Approach	612	6.0	612	6.0		0.592		19.4	LOS C	3.0	79.1				
East: College Ave.															
Lane 1	364	3.0	364	3.0	567	0.642	100	20.0	LOS C	4.0	101.5	Full	1600	0.0	0.0
Lane 2 ^d	374	3.0	374	3.0	582	0.642	100	19.6	LOS C	3.9	100.7	Full	1600	0.0	0.0
Approach	738	3.0	738	3.0		0.642		19.8	LOS C	4.0	101.5				
North: STH 55															
Lane 1	466	4.0	466	4.0	687	0.678	100	18.7	LOS C	5.4	139.6	Full	1600	0.0	0.0
Lane 2 ^d	478	4.0	478	4.0	705	0.678	100	18.3	LOS C	5.4	138.3	Full	1600	0.0	0.0
Approach	944	4.0	944	4.0		0.678		18.5	LOS C	5.4	139.6				
West: College Ave.															
Lane 1	389	4.0	389	4.0	613	0.635	100	18.5	LOS C	4.3	109.9	Full	1600	0.0	0.0
Lane 2 ^d	411	4.0	411	4.0	647	0.635	100	17.7	LOS C	4.2	107.7	Full	1600	0.0	0.0
Approach	800	4.0	800	4.0		0.635		18.1	LOS C	4.3	109.9				
All Vehicles	3094	4.2	3094	4.2		0.678		18.9	LOS C	5.4	139.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)															
South: STH 55															

Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	S	W	N	E			veh/h	v/c	%	%	No.
Lane 1	6	94	203	-	303	6.0	511	0.592	100	NA	NA
Lane 2	-	-	235	75	310	6.0	523	0.592	100	NA	NA
Approach	6	94	438	75	612	6.0		0.592			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From E							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	6	125	233	-	364	3.0	567	0.642	100	NA	NA
Lane 2	-	-	180	194	374	3.0	582	0.642	100	NA	NA
Approach	6	125	412	194	738	3.0		0.642			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.
Lane 1	6	212	247	-	466	4.0	687	0.678	100	NA	NA
Lane 2	-	-	172	306	478	4.0	705	0.678	100	NA	NA
Approach	6	212	419	306	944	4.0		0.678			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	W	N	E	S			veh/h	v/c	%	%	No.
Lane 1	44	312	33	-	389	4.0	613	0.635	100	NA	NA
Lane 2	-	-	330	81	411	4.0	647	0.635	100	NA	NA
Approach	44	312	362	81	800	4.0		0.635			
Total %HV Deg.Satn (v/c)											
All Vehicles	3094	4.2		0.678							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit	Short	Percent	Opposing	Critical	Follow-up	Lane Capacity	Deg.	Min.	Merge	Merge Queue
Lane	Lane	Opng in	Flow Rate	Gap	Headway	Flow	Satn	Delay	Delay	[Veh Dist]
Number	Length	Lane				Rate				
	ft		% veh/h	pcu/h	sec	sec veh/h	veh/h	v/c	sec	sec
										ft

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

Initial	Residual	Time for	Duration
Queued	Queued	Residual	of
Demand	Demand	Demand	Oversatn
veh	veh	sec	sec
South: STH 55			
Lane 1	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300] STH 55 & CTH CE/College Ave. (Folder1)**

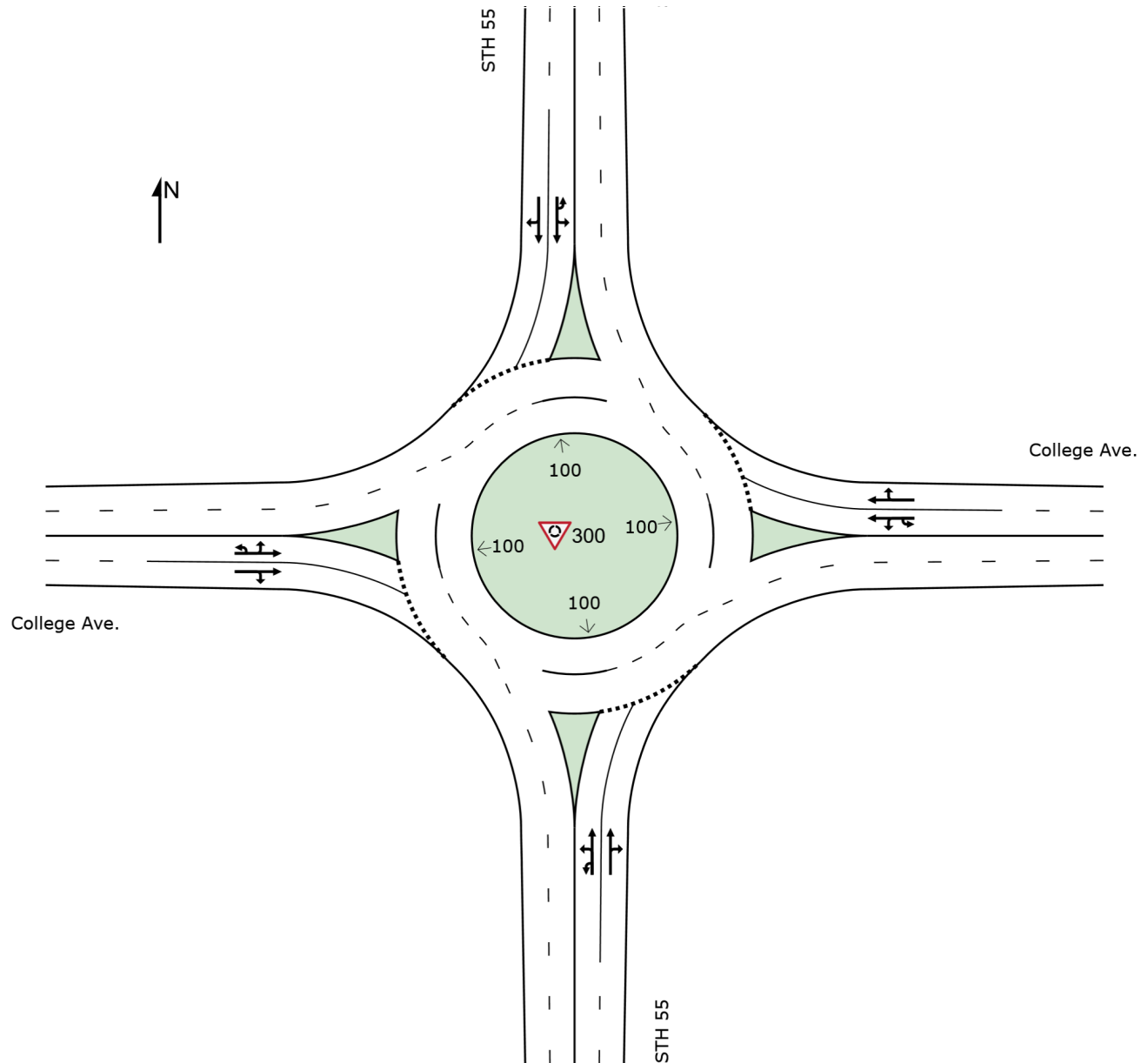
Total Traffic - AM Peak Hour (7:15 - 8:15 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: [300] STH 55 & CTH CE/College Ave. (Folder1)

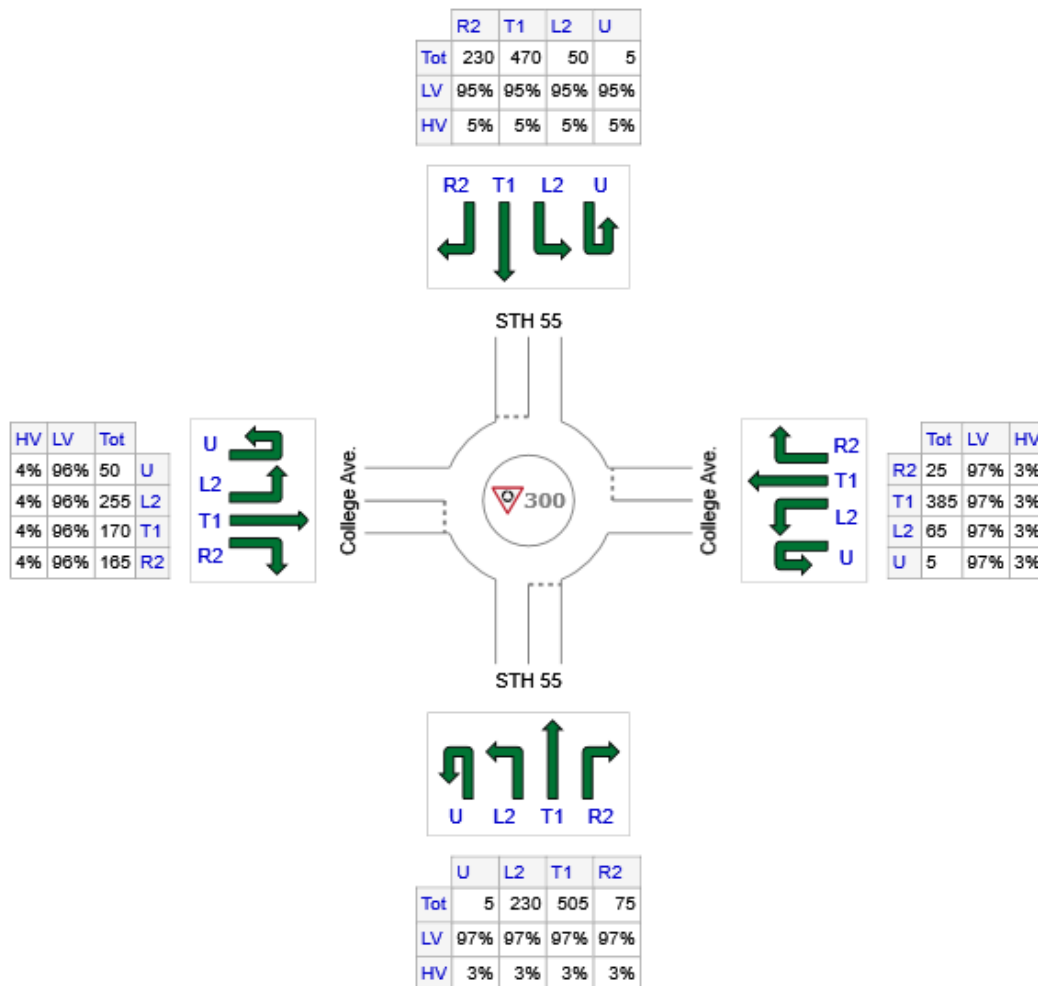
Total Traffic - AM Peak Hour (7:15 - 8:15 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	815	791	24
E: College Ave.	480	466	14
N: STH 55	755	717	38
W: College Ave.	640	614	26
Total	2690	2588	102

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MOVEMENT SUMMARY

 Site: [300] STH 55 & CTH CE/College Ave. (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - AM Peak Hour (7:15 - 8:15 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: STH 55															
3u	U	All MCs	6	3.0	6	3.0	0.758	23.4	LOS C	7.3	187.0	0.87	1.08	1.76	25.5
3	L2	All MCs	299	3.0	299	3.0	0.758	23.5	LOS C	7.3	187.0	0.87	1.08	1.76	25.5
8	T1	All MCs	656	3.0	656	3.0	0.758	22.6	LOS C	7.3	187.0	0.86	1.07	1.76	26.5
18	R2	All MCs	97	3.0	97	3.0	0.758	22.5	LOS C	7.3	186.9	0.86	1.07	1.75	26.7
Approach			1058	3.0	1058	3.0	0.758	22.8	LOS C	7.3	187.0	0.86	1.07	1.76	26.2
East: College Ave.															
1u	U	All MCs	6	3.0	6	3.0	0.831	48.2	LOS E	5.1	130.0	0.93	1.23	2.06	20.5
1	L2	All MCs	84	3.0	84	3.0	0.831	48.2	LOS E	5.1	130.0	0.93	1.23	2.06	20.5
6	T1	All MCs	500	3.0	500	3.0	0.831	45.5	LOS E	5.1	130.0	0.93	1.23	2.06	21.0
16	R2	All MCs	32	3.0	32	3.0	0.831	45.3	LOS E	5.1	129.9	0.93	1.23	2.06	21.1
Approach			623	3.0	623	3.0	0.831	45.8	LOS E	5.1	130.0	0.93	1.23	2.06	21.0
North: STH 55															
7u	U	All MCs	6	5.0	6	5.0	0.927	51.1	LOS F	11.0	285.6	0.95	1.56	2.99	20.0
7	L2	All MCs	65	5.0	65	5.0	0.927	51.1	LOS F	11.0	285.6	0.95	1.56	2.99	20.0
4	T1	All MCs	610	5.0	610	5.0	0.927	49.7	LOS E	11.0	286.1	0.95	1.56	2.99	20.2
14	R2	All MCs	299	5.0	299	5.0	0.927	49.6	LOS E	11.0	286.1	0.95	1.56	2.99	20.1
Approach			981	5.0	981	5.0	0.927	49.8	LOS E	11.0	286.1	0.95	1.56	2.99	20.2
West: College Ave.															
5u	U	All MCs	65	4.0	65	4.0	0.668	20.3	LOS C	4.7	120.5	0.82	0.97	1.44	25.7
5	L2	All MCs	331	4.0	331	4.0	0.668	20.3	LOS C	4.7	120.5	0.82	0.97	1.44	25.7
2	T1	All MCs	221	4.0	221	4.0	0.668	19.3	LOS C	4.7	120.5	0.80	0.94	1.41	27.8
12	R2	All MCs	214	4.0	214	4.0	0.668	19.3	LOS C	4.6	118.3	0.80	0.94	1.41	27.6
Approach			831	4.0	831	4.0	0.668	19.8	LOS C	4.7	120.5	0.81	0.95	1.42	26.7
All Vehicles			3494	3.8	3494	3.8	0.927	33.8	LOS D	11.0	286.1	0.89	1.21	2.08	23.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300] STH 55 & CTH CE/College Ave. (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - AM Peak Hour (7:15 - 8:15 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	519	3.0	519	3.0	685	0.758	100	23.2	LOS C	7.3	187.0	Full	1600	0.0	0.0
Lane 2 ^d	539	3.0	539	3.0	711	0.758	100	22.5	LOS C	7.3	186.9	Full	1600	0.0	0.0
Approach	1058	3.0	1058	3.0		0.758		22.8	LOS C	7.3	187.0				
East: College Ave.															
Lane 1	307	3.0	307	3.0	369	0.831	100	46.4	LOS E	5.1	130.0	Full	1600	0.0	0.0
Lane 2 ^d	317	3.0	317	3.0	381	0.831	100	45.3	LOS E	5.1	129.9	Full	1600	0.0	0.0
Approach	623	3.0	623	3.0		0.831		45.8	LOS E	5.1	130.0				
North: STH 55															
Lane 1	488	5.0	488	5.0	526	0.927	100	49.9	LOS E	11.0	285.6	Full	1600	0.0	0.0
Lane 2 ^d	493	5.0	493	5.0	531	0.927	100	49.6	LOS E	11.0	286.1	Full	1600	0.0	0.0
Approach	981	5.0	981	5.0		0.927		49.8	LOS E	11.0	286.1				
West: College Ave.															
Lane 1	403	4.0	403	4.0	604	0.668	100	20.2	LOS C	4.7	120.5	Full	1600	0.0	0.0
Lane 2 ^d	428	4.0	428	4.0	640	0.668	100	19.3	LOS C	4.6	118.3	Full	1600	0.0	0.0
Approach	831	4.0	831	4.0		0.668		19.8	LOS C	4.7	120.5				
All Vehicles	3494	3.8	3494	3.8		0.927		33.8	LOS D	11.0	286.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: STH 55										
Mov.	U	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From S To Exit:	S	W	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	6	299	214	-	519	3.0	685	0.758	100	NA	NA
Lane 2	-	-	442	97	539	3.0	711	0.758	100	NA	NA
Approach	6	299	656	97	1058	3.0		0.758			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From E To Exit:	E	S	W	N			Cap. veh/h				
Lane 1	6	84	216	-	307	3.0	369	0.831	100	NA	NA
Lane 2	-	-	284	32	317	3.0	381	0.831	100	NA	NA
Approach	6	84	500	32	623	3.0		0.831			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From N To Exit:	N	E	S	W			Cap. veh/h				
Lane 1	6	65	416	-	488	5.0	526	0.927	100	NA	NA
Lane 2	-	-	194	299	493	5.0	531	0.927	100	NA	NA
Approach	6	65	610	299	981	5.0		0.927			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From W To Exit:	W	N	E	S			Cap. veh/h				
Lane 1	65	331	7	-	403	4.0	604	0.668	100	NA	NA
Lane 2	-	-	214	214	428	4.0	640	0.668	100	NA	NA
Approach	65	331	221	214	831	4.0		0.668			
Total %HV Deg.Satn (v/c)											
All Vehicles	3494	3.8						0.927			

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	Merge Queue [Veh Dist] ft
There are no Exit Short Lanes for Merge Analysis at this Site.										

Variable Demand Analysis

Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: STH 55			
Lane 1	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300-1] STH 55 & CTH CE/College Ave. (Folder1)**

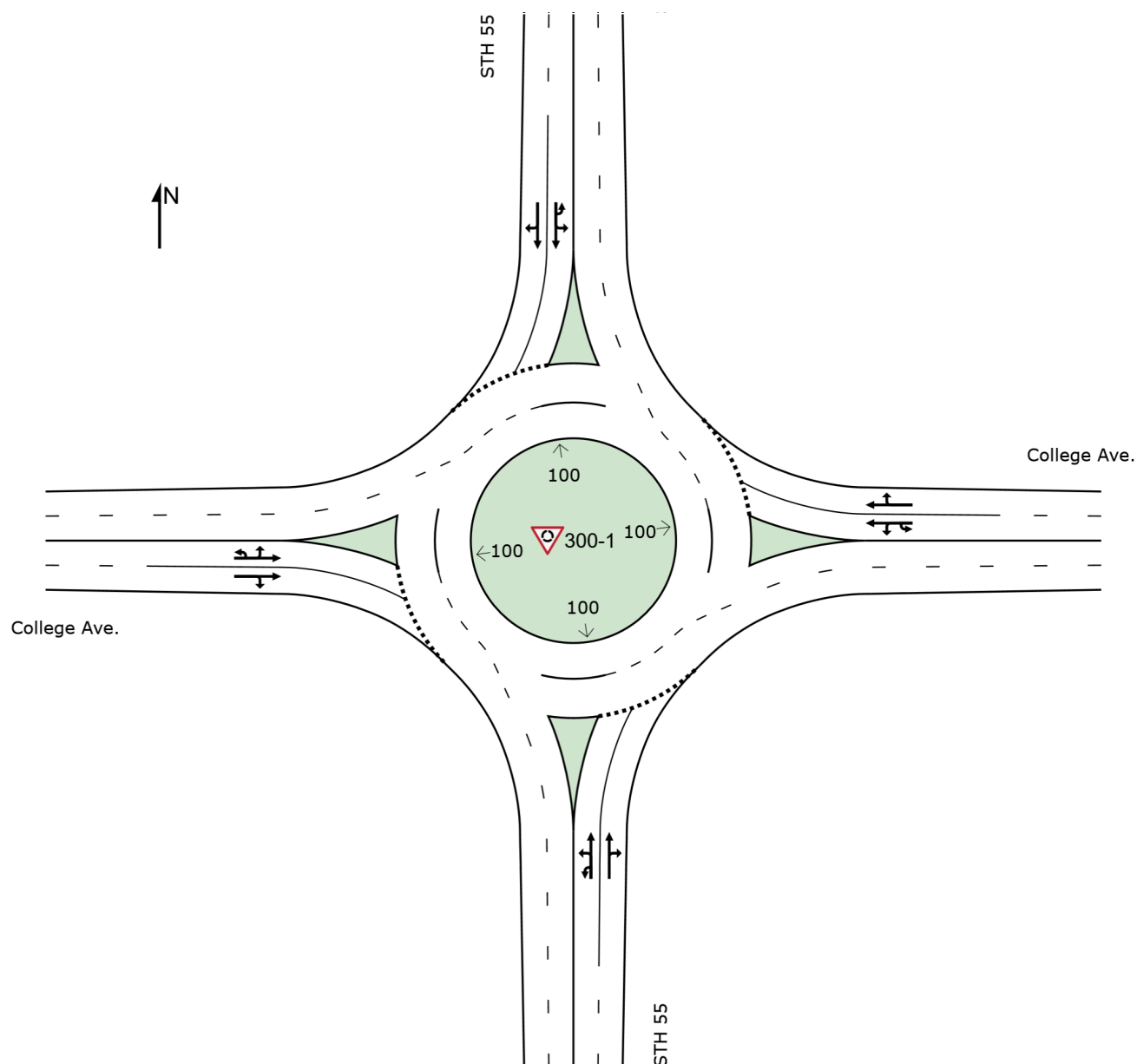
Total Traffic - PM Peak Hour (3:15 - 4:15 PM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: [300-1] STH 55 & CTH CE/College Ave. (Folder1)**

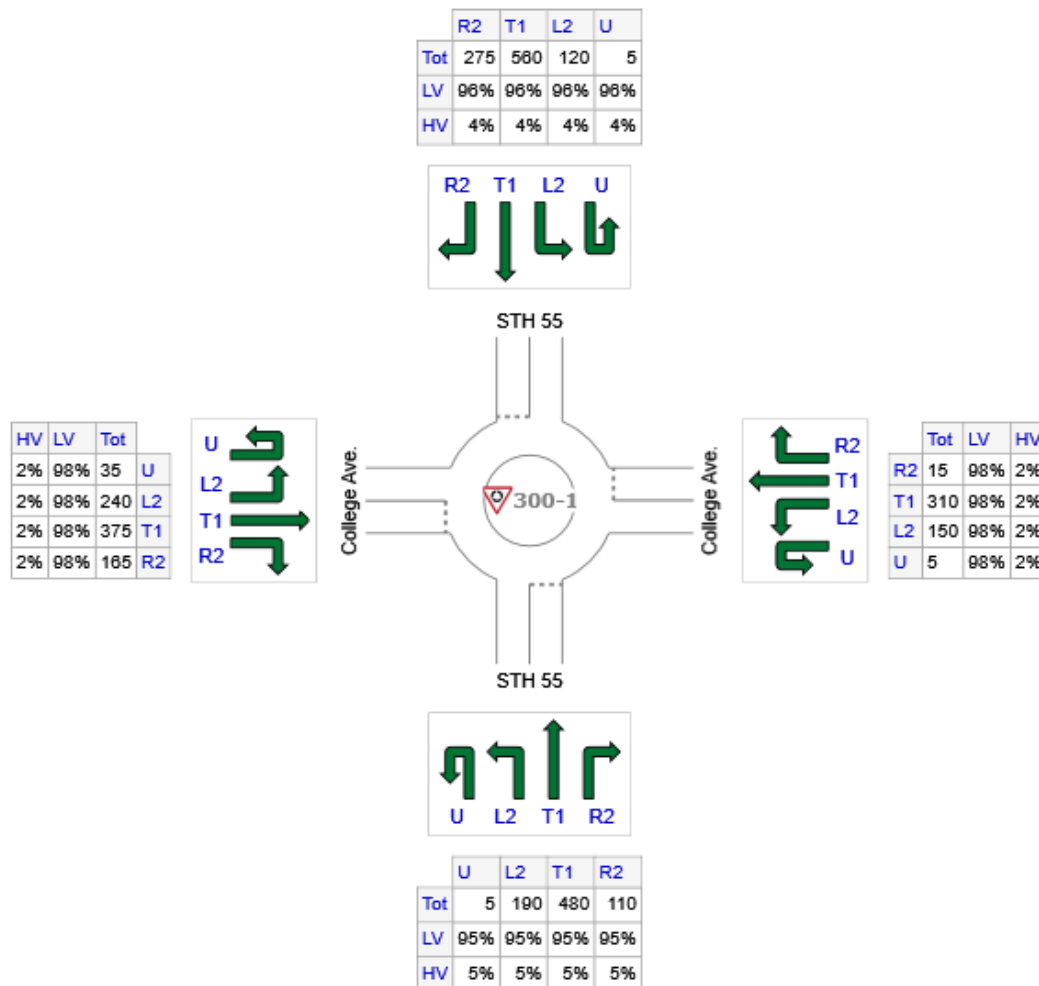
Total Traffic - PM Peak Hour (3:15 - 4:15 PM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	785	746	39
E: College Ave.	480	470	10
N: STH 55	960	922	38
W: College Ave.	815	799	16
Total	3040	2936	104

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MOVEMENT SUMMARY

 Site: [300-1] STH 55 & CTH CE/College Ave. (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - PM Peak Hour (3:15 - 4:15 PM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]									
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist]				mph
South: STH 55															
3u	U	All MCs	6	5.0	6	5.0	0.757	27.3	LOS D	5.8	150.8	0.86	1.10	1.74	24.5
3	L2	All MCs	211	5.0	211	5.0	0.757	27.5	LOS D	5.8	150.8	0.86	1.10	1.74	24.5
8	T1	All MCs	533	5.0	533	5.0	0.757	26.2	LOS D	5.8	150.8	0.86	1.10	1.74	25.4
18	R2	All MCs	122	5.0	122	5.0	0.757	26.2	LOS D	5.8	150.4	0.85	1.09	1.74	25.6
Approach			872	5.0	872	5.0	0.757	26.5	LOS D	5.8	150.8	0.86	1.10	1.74	25.2
East: College Ave.															
1u	U	All MCs	6	2.0	6	2.0	0.529	18.3	LOS C	2.5	64.5	0.78	0.89	1.16	27.0
1	L2	All MCs	167	2.0	167	2.0	0.529	18.3	LOS C	2.5	64.5	0.78	0.89	1.16	27.0
6	T1	All MCs	344	2.0	344	2.0	0.529	16.9	LOS C	2.5	64.5	0.77	0.88	1.15	28.4
16	R2	All MCs	17	2.0	17	2.0	0.529	17.0	LOS C	2.5	63.3	0.76	0.87	1.14	28.6
Approach			533	2.0	533	2.0	0.529	17.4	LOS C	2.5	64.5	0.77	0.88	1.15	27.9
North: STH 55															
7u	U	All MCs	6	4.0	6	4.0	0.823	30.4	LOS D	8.7	225.5	0.91	1.24	2.14	24.1
7	L2	All MCs	133	4.0	133	4.0	0.823	30.4	LOS D	8.7	225.5	0.91	1.24	2.14	24.1
4	T1	All MCs	622	4.0	622	4.0	0.823	29.5	LOS D	8.7	225.5	0.91	1.24	2.14	24.6
14	R2	All MCs	306	4.0	306	4.0	0.823	29.4	LOS D	8.7	225.3	0.91	1.24	2.14	24.6
Approach			1067	4.0	1067	4.0	0.823	29.6	LOS D	8.7	225.5	0.91	1.24	2.14	24.5
West: College Ave.															
5u	U	All MCs	39	2.0	39	2.0	0.797	31.2	LOS D	6.6	168.4	0.88	1.17	1.90	23.4
5	L2	All MCs	267	2.0	267	2.0	0.797	31.2	LOS D	6.6	168.4	0.88	1.17	1.90	23.4
2	T1	All MCs	417	2.0	417	2.0	0.797	29.7	LOS D	6.6	168.4	0.88	1.17	1.89	24.4
12	R2	All MCs	183	2.0	183	2.0	0.797	29.6	LOS D	6.6	168.3	0.87	1.16	1.89	24.6
Approach			906	2.0	906	2.0	0.797	30.2	LOS D	6.6	168.4	0.88	1.17	1.89	24.1
All Vehicles			3378	3.4	3378	3.4	0.823	27.0	LOS D	8.7	225.5	0.87	1.13	1.82	25.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: Z:\Shared\WI\3422 Middle School Kaukauna\analysis\roundabout 2025_08 Update\STH 55_College Sidra Total Vol Exist Geometry.sipx

LANE SUMMARY



Site: [300-1] STH 55 & CTH CE/College Ave. (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - PM Peak Hour (3:15 - 4:15 PM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	428	5.0	428	5.0	566	0.757	100	26.9	LOS D	5.8	150.8	Full	1600	0.0	0.0
Lane 2 ^d	444	5.0	444	5.0	586	0.757	100	26.2	LOS D	5.8	150.4	Full	1600	0.0	0.0
Approach	872	5.0	872	5.0		0.757		26.5	LOS D	5.8	150.8				
East: College Ave.															
Lane 1	259	2.0	259	2.0	490	0.529	100	17.8	LOS C	2.5	64.5	Full	1600	0.0	0.0
Lane 2 ^d	274	2.0	274	2.0	519	0.529	100	17.0	LOS C	2.5	63.3	Full	1600	0.0	0.0
Approach	533	2.0	533	2.0		0.529		17.4	LOS C	2.5	64.5				
North: STH 55															
Lane 1	529	4.0	529	4.0	643	0.823	100	29.8	LOS D	8.7	225.5	Full	1600	0.0	0.0
Lane 2 ^d	538	4.0	538	4.0	653	0.823	100	29.4	LOS D	8.7	225.3	Full	1600	0.0	0.0
Approach	1067	4.0	1067	4.0		0.823		29.6	LOS D	8.7	225.5				
West: College Ave.															
Lane 1	441	2.0	441	2.0	553	0.797	100	30.8	LOS D	6.6	168.4	Full	1600	0.0	0.0
Lane 2 ^d	465	2.0	465	2.0	583	0.797	100	29.6	LOS D	6.6	168.3	Full	1600	0.0	0.0
Approach	906	2.0	906	2.0		0.797		30.2	LOS D	6.6	168.4				
All Vehicles	3378	3.4	3378	3.4		0.823		27.0	LOS D	8.7	225.5				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)										
South: STH 55										
Mov.	U	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From S To Exit:	S	W	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	6	211	212	-	428	5.0	566	0.757	100	NA	NA
Lane 2	-	-	322	122	444	5.0	586	0.757	100	NA	NA
Approach	6	211	533	122	872	5.0		0.757			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From E To Exit:	E	S	W	N			Cap. veh/h				
Lane 1	6	167	87	-	259	2.0	490	0.529	100	NA	NA
Lane 2	-	-	258	17	274	2.0	519	0.529	100	NA	NA
Approach	6	167	344	17	533	2.0		0.529			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From N To Exit:	N	E	S	W			Cap. veh/h				
Lane 1	6	133	390	-	529	4.0	643	0.823	100	NA	NA
Lane 2	-	-	232	306	538	4.0	653	0.823	100	NA	NA
Approach	6	133	622	306	1067	4.0		0.823			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
From W To Exit:	W	N	E	S			Cap. veh/h				
Lane 1	39	267	135	-	441	2.0	553	0.797	100	NA	NA
Lane 2	-	-	281	183	465	2.0	583	0.797	100	NA	NA
Approach	39	267	417	183	906	2.0		0.797			
Total %HV Deg.Satn (v/c)											
All Vehicles	3378	3.4						0.823			

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit Lane Number	Short Lane Length ft	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	Merge Queue [Veh Dist] ft
There are no Exit Short Lanes for Merge Analysis at this Site.										

Variable Demand Analysis

Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: STH 55			
Lane 1	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300 (5)] STH 55 & CTH CE/College Ave. - Total Traffic**
Existing Geometry (Folder1)

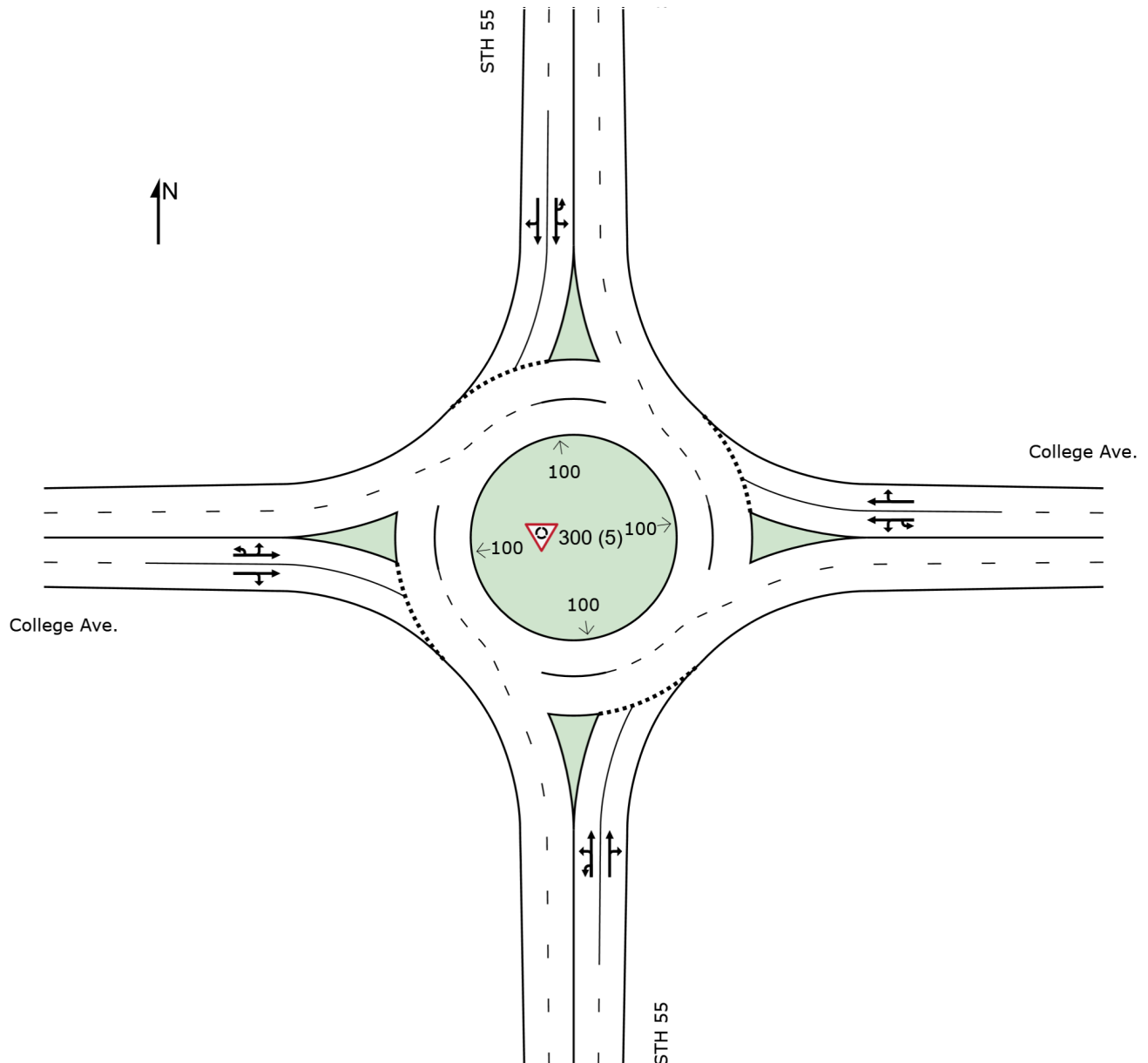
Total Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: [300 (5)] STH 55 & CTH CE/College Ave. - Total Traffic**
Existing Geometry (Folder1)

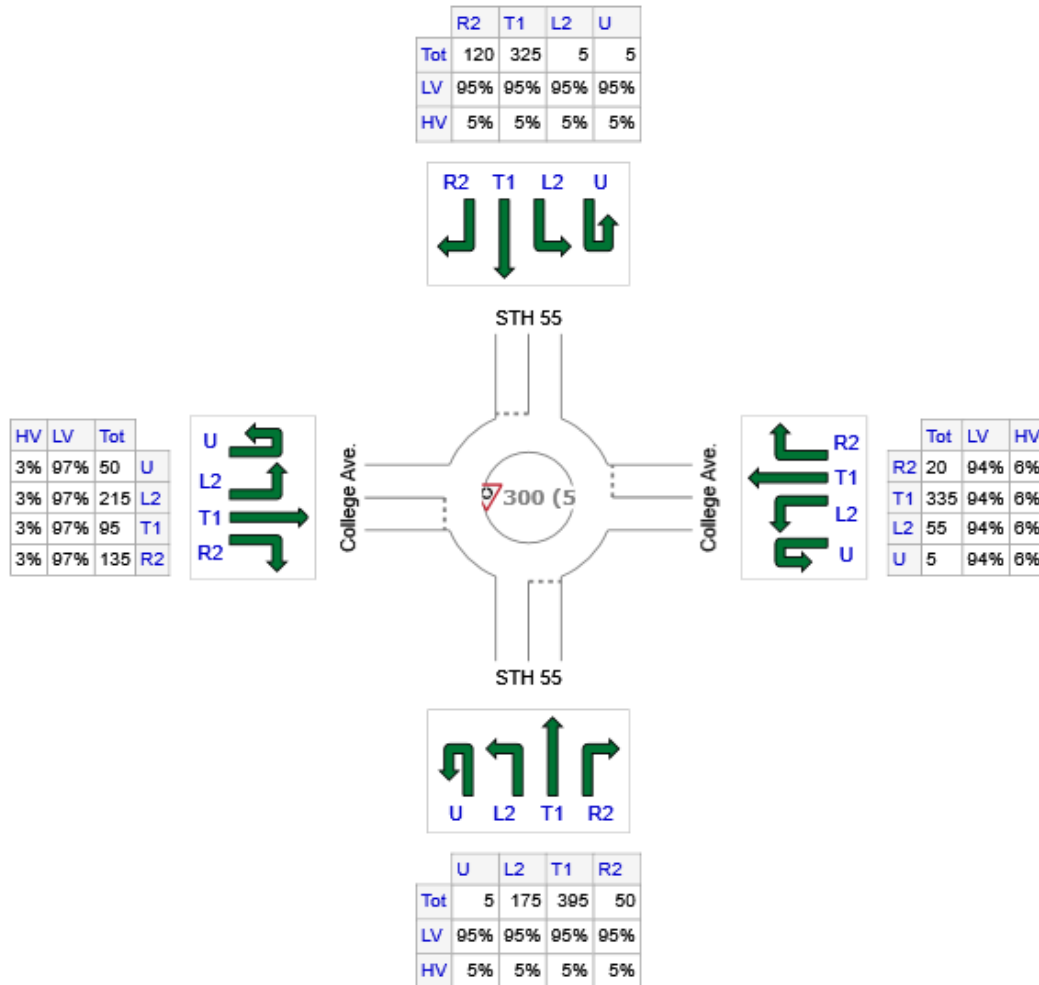
Total Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	625	594	31
E: College Ave.	415	390	25
N: STH 55	455	432	23
W: College Ave.	495	480	15
Total	1990	1896	94

MOVEMENT SUMMARY

 **Site: [300 (5)] STH 55 & CTH CE/College Ave. - Total Traffic**
Existing Geometry (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]									
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist]				mph
South: STH 55															
3u	U	All MCs	7	5.0	7	5.0	0.605	14.7	LOS B	4.6	119.7	0.75	0.80	1.22	28.1
3	L2	All MCs	261	5.0	261	5.0	0.605	14.8	LOS B	4.6	119.7	0.75	0.80	1.22	28.1
8	T1	All MCs	590	5.0	590	5.0	0.605	14.2	LOS B	4.6	119.7	0.73	0.79	1.21	29.4
18	R2	All MCs	75	5.0	75	5.0	0.605	14.2	LOS B	4.5	118.3	0.73	0.78	1.20	29.5
Approach			933	5.0	933	5.0	0.605	14.4	LOS B	4.6	119.7	0.74	0.79	1.21	29.0
East: College Ave.															
1u	U	All MCs	7	6.0	7	6.0	0.833	48.4	LOS E	5.1	133.0	0.93	1.26	2.14	20.4
1	L2	All MCs	82	6.0	82	6.0	0.833	48.4	LOS E	5.1	133.0	0.93	1.26	2.14	20.4
6	T1	All MCs	500	6.0	500	6.0	0.833	46.2	LOS E	5.1	133.0	0.92	1.26	2.14	20.9
16	R2	All MCs	30	6.0	30	6.0	0.833	46.1	LOS E	5.1	132.5	0.92	1.26	2.14	20.9
Approach			619	6.0	619	6.0	0.833	46.5	LOS E	5.1	133.0	0.92	1.26	2.14	20.8
North: STH 55															
7u	U	All MCs	7	5.0	7	5.0	0.636	21.9	LOS C	3.5	91.6	0.79	0.95	1.36	26.9
7	L2	All MCs	7	5.0	7	5.0	0.636	21.9	LOS C	3.5	91.6	0.79	0.95	1.36	26.9
4	T1	All MCs	485	5.0	485	5.0	0.636	20.7	LOS C	3.5	91.6	0.79	0.95	1.36	27.4
14	R2	All MCs	179	5.0	179	5.0	0.636	20.7	LOS C	3.5	91.4	0.78	0.95	1.36	27.2
Approach			679	5.0	679	5.0	0.636	20.7	LOS C	3.5	91.6	0.79	0.95	1.36	27.3
West: College Ave.															
5u	U	All MCs	75	3.0	75	3.0	0.536	12.9	LOS B	3.5	90.0	0.73	0.75	1.08	27.9
5	L2	All MCs	321	3.0	321	3.0	0.536	12.9	LOS B	3.5	90.0	0.73	0.75	1.08	27.9
2	T1	All MCs	142	3.0	142	3.0	0.443	10.4	LOS B	2.3	58.9	0.64	0.62	0.85	31.3
12	R2	All MCs	201	3.0	201	3.0	0.443	10.4	LOS B	2.3	58.9	0.64	0.62	0.85	31.0
Approach			739	3.0	739	3.0	0.536	11.8	LOS B	3.5	90.0	0.69	0.69	0.97	29.2
All Vehicles			2970	4.7	2970	4.7	0.833	21.9	LOS C	5.1	133.0	0.77	0.90	1.38	26.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300 (5)] STH 55 & CTH CE/College Ave. - Total Traffic**
Existing Geometry (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	460	5.0	460	5.0	760	0.605	100	14.6	LOS B	4.6	119.7	Full	1600	0.0	0.0
Lane 2 ^d	473	5.0	473	5.0	783	0.605	100	14.2	LOS B	4.5	118.3	Full	1600	0.0	0.0
Approach	933	5.0	933	5.0		0.605		14.4	LOS B	4.6	119.7				
East: College Ave.															
Lane 1	306	6.0	306	6.0	367	0.833	100	46.9	LOS E	5.1	133.0	Full	1600	0.0	0.0
Lane 2 ^d	314	6.0	314	6.0	377	0.833	100	46.1	LOS E	5.1	132.5	Full	1600	0.0	0.0
Approach	619	6.0	619	6.0		0.833		46.5	LOS E	5.1	133.0				
North: STH 55															
Lane 1	339	5.0	339	5.0	533	0.636	100	20.8	LOS C	3.5	91.6	Full	1600	0.0	0.0
Lane 2 ^d	340	5.0	340	5.0	535	0.636	100	20.7	LOS C	3.5	91.4	Full	1600	0.0	0.0
Approach	679	5.0	679	5.0		0.636		20.7	LOS C	3.5	91.6				
West: College Ave.															
Lane 1 ^d	396	3.0	396	3.0	738	0.536	100	12.9	LOS B	3.5	90.0	Full	1600	0.0	0.0
Lane 2	343	3.0	343	3.0	775	0.443	83 ⁵	10.4	LOS B	2.3	58.9	Full	1600	0.0	0.0
Approach	739	3.0	739	3.0		0.536		11.8	LOS B	3.5	90.0				
All Vehicles	2970	4.7	2970	4.7		0.833		21.9	LOS C	5.1	133.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)															
South: STH 55															

Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	S	W	N	E			veh/h	v/c	%	%	No.
Lane 1	7	261	191	-	460	5.0	760	0.605	100	NA	NA
Lane 2	-	-	399	75	473	5.0	783	0.605	100	NA	NA
Approach	7	261	590	75	933	5.0		0.605			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From E							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	7	82	216	-	306	6.0	367	0.833	100	NA	NA
Lane 2	-	-	284	30	314	6.0	377	0.833	100	NA	NA
Approach	7	82	500	30	619	6.0		0.833			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.
Lane 1	7	7	324	-	339	5.0	533	0.636	100	NA	NA
Lane 2	-	-	161	179	340	5.0	535	0.636	100	NA	NA
Approach	7	7	485	179	679	5.0		0.636			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	W	N	E	S			veh/h	v/c	%	%	No.
Lane 1	75	321	-	-	396	3.0	738	0.536	100	NA	NA
Lane 2	-	-	142	201	343	3.0	775	0.443	83 ⁵	NA	NA
Approach	75	321	142	201	739	3.0		0.536			
Total %HV Deg.Satn (v/c)											
All Vehicles	2970	4.7						0.833			

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

Merge Analysis

Exit	Short	Percent	Opposing	Critical	Follow-up	Lane Capacity	Deg.	Min.	Merge	Merge Queue
Lane	Lane	Opng in	Flow Rate	Gap	Headway	Flow	Satn	Delay	Delay	[Veh
Number	Length	Lane				Rate				Dist]
	ft		% veh/h	pcu/h	sec	sec veh/h	veh/h	v/c	sec	sec
										ft

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

Initial	Residual	Time for	Duration
Queued	Queued	Residual	of
Demand	Demand	Demand	Oversatn
veh	veh	to Clear	
		sec	sec
South: STH 55			

Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300-1-5] STH 55 & CTH CE/College Ave. - Total PM**
Existing Geometry (Folder1)

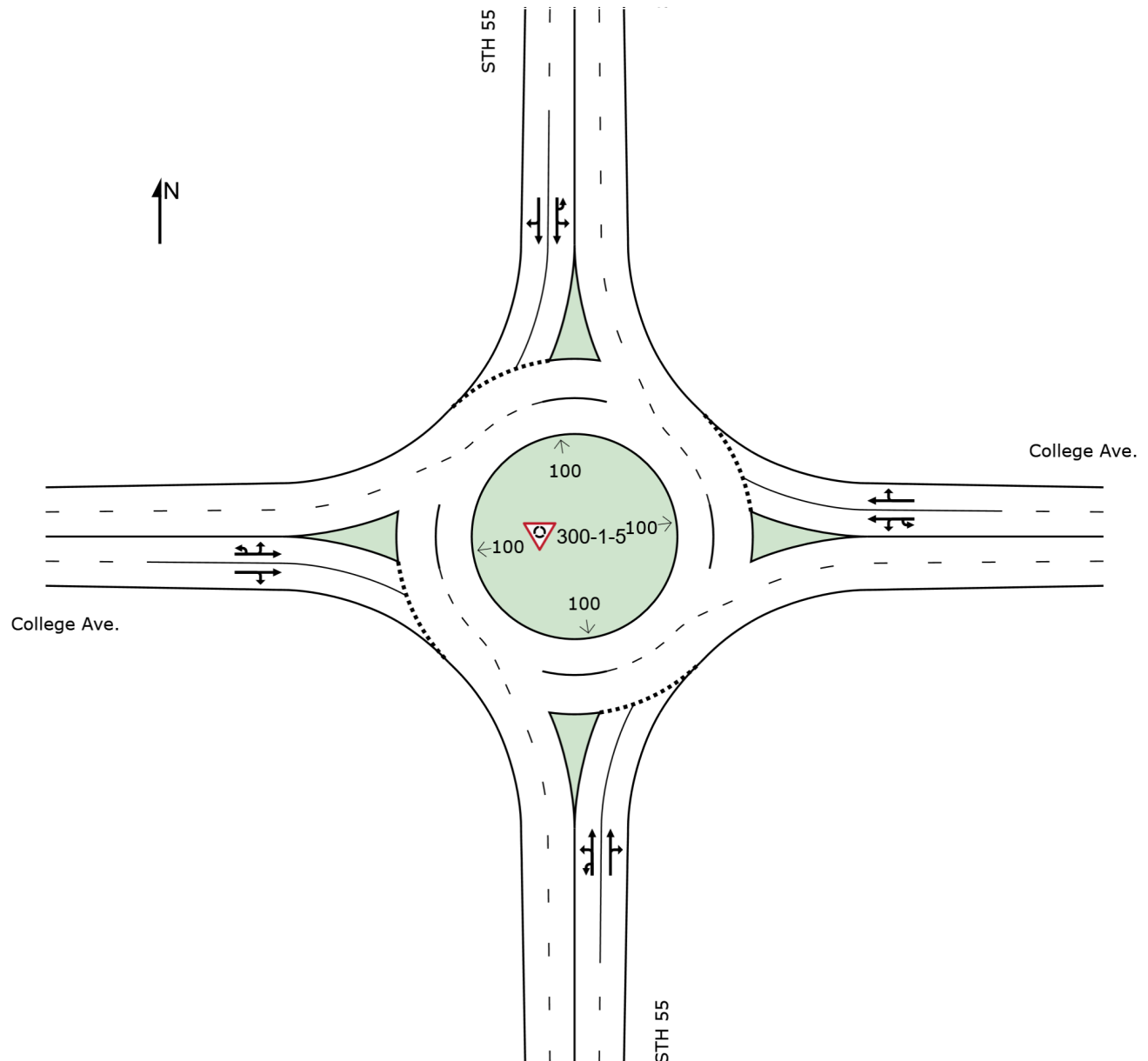
Total Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: [300-1-5] STH 55 & CTH CE/College Ave. - Total PM**
Existing Geometry (Folder1)

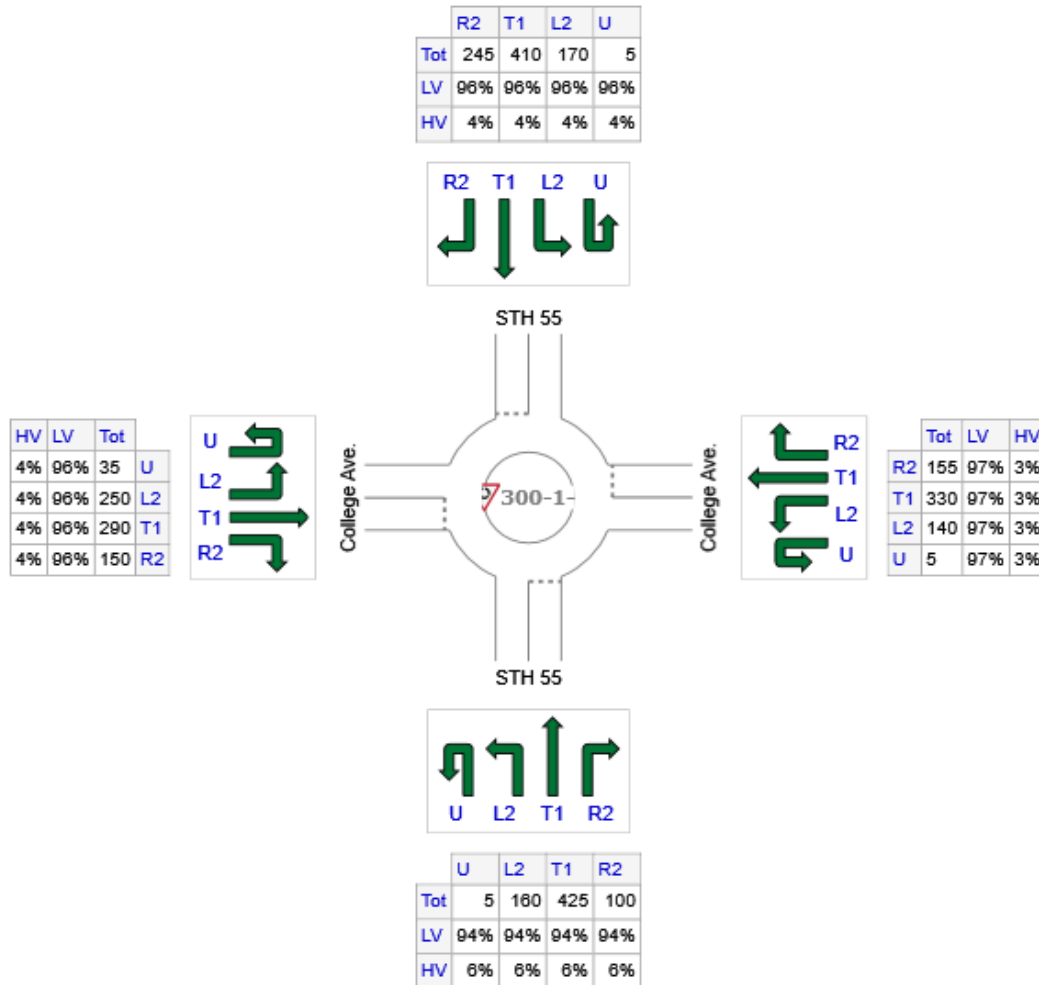
Total Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	690	649	41
E: College Ave.	630	611	19
N: STH 55	830	797	33
W: College Ave.	725	696	29
Total	2875	2752	122

MOVEMENT SUMMARY

 **Site: [300-1-5] STH 55 & CTH CE/College Ave. - Total PM**
Existing Geometry (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] ft				mph
South: STH 55															
3u	U	All MCs	6	6.0	6	6.0	0.839	38.3	LOS E	7.0	184.2	0.90	1.27	2.15	22.0
3	L2	All MCs	200	6.0	200	6.0	0.839	38.4	LOS E	7.0	184.2	0.90	1.27	2.15	22.0
8	T1	All MCs	531	6.0	531	6.0	0.839	36.9	LOS E	7.0	184.3	0.90	1.27	2.16	22.7
18	R2	All MCs	125	6.0	125	6.0	0.839	36.7	LOS E	7.0	184.3	0.90	1.27	2.16	22.8
Approach			862	6.0	862	6.0	0.839	37.2	LOS E	7.0	184.3	0.90	1.27	2.16	22.6
East: College Ave.															
1u	U	All MCs	6	3.0	6	3.0	0.838	41.1	LOS E	6.4	164.1	0.92	1.26	2.13	21.6
1	L2	All MCs	175	3.0	175	3.0	0.838	41.1	LOS E	6.4	164.1	0.92	1.26	2.13	21.6
6	T1	All MCs	412	3.0	412	3.0	0.838	39.2	LOS E	6.4	164.2	0.91	1.26	2.13	22.1
16	R2	All MCs	194	3.0	194	3.0	0.838	39.0	LOS E	6.4	164.2	0.91	1.26	2.13	22.3
Approach			788	3.0	788	3.0	0.838	39.6	LOS E	6.4	164.2	0.91	1.26	2.13	22.0
North: STH 55															
7u	U	All MCs	6	4.0	6	4.0	0.868	37.7	LOS E	9.5	246.1	0.94	1.36	2.41	22.2
7	L2	All MCs	212	4.0	212	4.0	0.868	37.7	LOS E	9.5	246.1	0.94	1.36	2.41	22.2
4	T1	All MCs	513	4.0	513	4.0	0.868	36.5	LOS E	9.6	246.4	0.93	1.35	2.41	22.7
14	R2	All MCs	306	4.0	306	4.0	0.868	36.4	LOS E	9.6	246.4	0.93	1.35	2.42	22.8
Approach			1038	4.0	1038	4.0	0.868	36.7	LOS E	9.6	246.4	0.93	1.35	2.42	22.7
West: College Ave.															
5u	U	All MCs	44	4.0	44	4.0	0.826	34.9	LOS D	7.2	185.9	0.90	1.24	2.06	22.4
5	L2	All MCs	312	4.0	312	4.0	0.826	34.9	LOS D	7.2	185.9	0.90	1.24	2.06	22.4
2	T1	All MCs	362	4.0	362	4.0	0.826	33.4	LOS D	7.2	185.9	0.89	1.23	2.06	23.5
12	R2	All MCs	188	4.0	188	4.0	0.826	33.3	LOS D	7.2	185.5	0.89	1.23	2.06	23.6
Approach			906	4.0	906	4.0	0.826	34.0	LOS D	7.2	185.9	0.90	1.23	2.06	23.1
All Vehicles			3594	4.3	3594	4.3	0.868	36.8	LOS E	9.6	246.4	0.91	1.28	2.20	22.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300-1-5] STH 55 & CTH CE/College Ave. - Total PM**
Existing Geometry (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	424	6.0	424	6.0	505	0.839	100	37.7	LOS E	7.0	184.2	Full	1600	0.0	0.0
Lane 2 ^d	439	6.0	439	6.0	523	0.839	100	36.7	LOS E	7.0	184.3	Full	1600	0.0	0.0
Approach	862	6.0	862	6.0		0.839		37.2	LOS E	7.0	184.3				
East: College Ave.															
Lane 1	386	3.0	386	3.0	460	0.838	100	40.2	LOS E	6.4	164.1	Full	1600	0.0	0.0
Lane 2 ^d	402	3.0	402	3.0	480	0.838	100	39.0	LOS E	6.4	164.2	Full	1600	0.0	0.0
Approach	788	3.0	788	3.0		0.838		39.6	LOS E	6.4	164.2				
North: STH 55															
Lane 1	512	4.0	512	4.0	589	0.868	100	37.1	LOS E	9.5	246.1	Full	1600	0.0	0.0
Lane 2 ^d	526	4.0	526	4.0	606	0.868	100	36.4	LOS E	9.6	246.4	Full	1600	0.0	0.0
Approach	1038	4.0	1038	4.0		0.868		36.7	LOS E	9.6	246.4				
West: College Ave.															
Lane 1	440	4.0	440	4.0	533	0.826	100	34.7	LOS D	7.2	185.9	Full	1600	0.0	0.0
Lane 2 ^d	466	4.0	466	4.0	564	0.826	100	33.3	LOS D	7.2	185.5	Full	1600	0.0	0.0
Approach	906	4.0	906	4.0		0.826		34.0	LOS D	7.2	185.9				
All Vehicles	3594	4.3	3594	4.3		0.868		36.8	LOS E	9.6	246.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)															
South: STH 55															

Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	S	W	N	E			veh/h	v/c	%	%	No.
Lane 1	6	200	217	-	424	6.0	505	0.839	100	NA	NA
Lane 2	-	-	314	125	439	6.0	523	0.839	100	NA	NA
Approach	6	200	531	125	862	6.0		0.839			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From E							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	6	175	204	-	386	3.0	460	0.838	100	NA	NA
Lane 2	-	-	208	194	402	3.0	480	0.838	100	NA	NA
Approach	6	175	412	194	788	3.0		0.838			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.
Lane 1	6	212	293	-	512	4.0	589	0.868	100	NA	NA
Lane 2	-	-	220	306	526	4.0	606	0.868	100	NA	NA
Approach	6	212	513	306	1038	4.0		0.868			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	W	N	E	S			veh/h	v/c	%	%	No.
Lane 1	44	312	84	-	440	4.0	533	0.826	100	NA	NA
Lane 2	-	-	278	188	466	4.0	564	0.826	100	NA	NA
Approach	44	312	362	188	906	4.0		0.826			
Total %HV Deg.Satn (v/c)											
All Vehicles	3594	4.3		0.868							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit	Short	Percent	Opposing	Critical	Follow-up	Lane Capacity	Deg.	Min.	Merge	Merge Queue
Lane	Lane	Opng in	Flow Rate	Gap	Headway	Flow	Satn	Delay	Delay	[Veh Dist]
Number	Length	Lane				Rate				
	ft		% veh/h	pcu/h	sec	sec veh/h	veh/h	v/c	sec	sec
										ft

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

Initial	Residual	Time for	Duration
Queued	Queued	Residual	of
Demand	Demand	Demand	Oversatn
veh	veh	to Clear	
		sec	sec
South: STH 55			
Lane 1	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300] STH 55 & CTH CE/College Ave. (Folder1)**

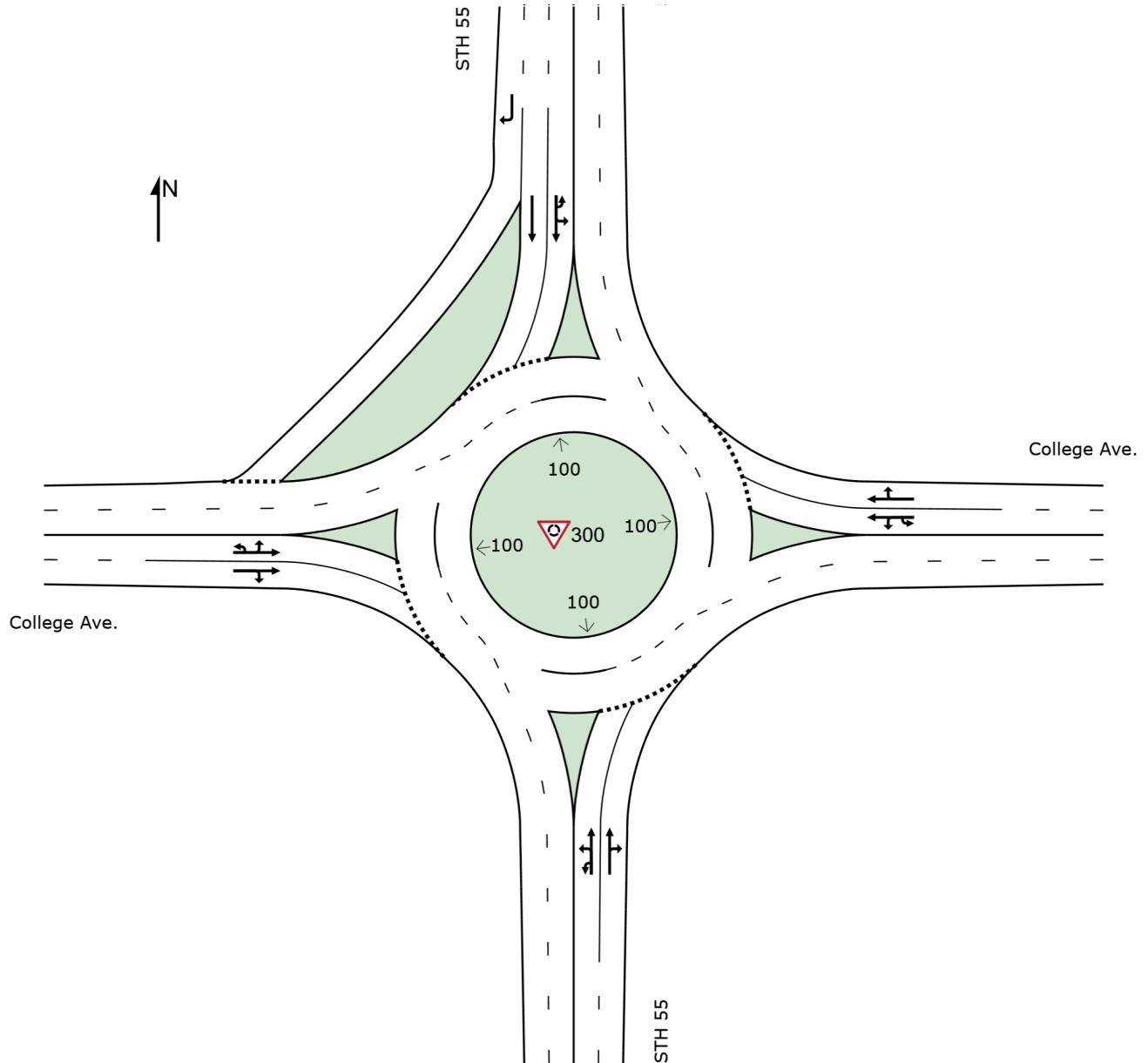
Total Traffic - AM Peak Hour (7:15 - 8:15 AM) Improved

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: [300] STH 55 & CTH CE/College Ave. (Folder1)**

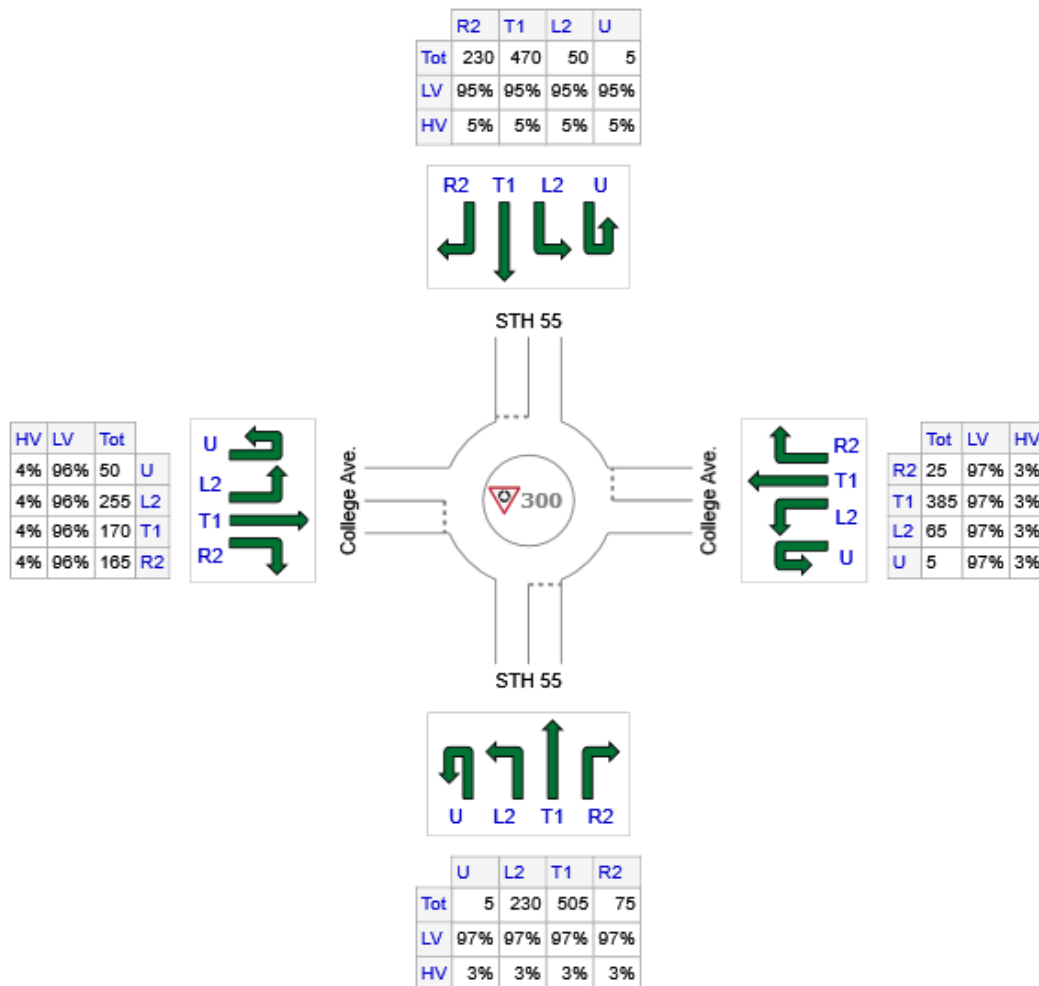
Total Traffic - AM Peak Hour (7:15 - 8:15 AM) Improved

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	815	791	24
E: College Ave.	480	466	14
N: STH 55	755	717	38
W: College Ave.	640	614	26
Total	2690	2588	102

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MOVEMENT SUMMARY

 Site: [300] STH 55 & CTH CE/College Ave. (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - AM Peak Hour (7:15 - 8:15 AM) Improved

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]	ft			mph
South: STH 55															
3u	U	All MCs	6	3.0	6	3.0	0.758	23.4	LOS C	7.3	187.0	0.87	1.08	1.76	25.5
3	L2	All MCs	299	3.0	299	3.0	0.758	23.5	LOS C	7.3	187.0	0.87	1.08	1.76	25.5
8	T1	All MCs	656	3.0	656	3.0	0.758	22.6	LOS C	7.3	187.0	0.86	1.07	1.76	26.5
18	R2	All MCs	97	3.0	97	3.0	0.758	22.5	LOS C	7.3	186.9	0.86	1.07	1.75	26.7
Approach			1058	3.0	1058	3.0	0.758	22.8	LOS C	7.3	187.0	0.86	1.07	1.76	26.2
East: College Ave.															
1u	U	All MCs	6	3.0	6	3.0	0.831	48.2	LOS E	5.1	130.0	0.93	1.23	2.06	20.5
1	L2	All MCs	84	3.0	84	3.0	0.831	48.2	LOS E	5.1	130.0	0.93	1.23	2.06	20.5
6	T1	All MCs	500	3.0	500	3.0	0.831	45.5	LOS E	5.1	130.0	0.93	1.23	2.06	21.0
16	R2	All MCs	32	3.0	32	3.0	0.831	45.3	LOS E	5.1	129.9	0.93	1.23	2.06	21.1
Approach			623	3.0	623	3.0	0.831	45.8	LOS E	5.1	130.0	0.93	1.23	2.06	21.0
North: STH 55															
7u	U	All MCs	6	5.0	6	5.0	0.646	22.5	LOS C	3.6	94.7	0.80	0.97	1.39	26.4
7	L2	All MCs	65	5.0	65	5.0	0.646	22.5	LOS C	3.6	94.7	0.80	0.97	1.39	26.4
4	T1	All MCs	610	5.0	610	5.0	0.646	21.3	LOS C	3.6	94.7	0.79	0.96	1.39	27.1
14	R2	All MCs	299	5.0	299	5.0	0.511	14.9	LOS B	2.5	64.8	0.72	0.81	1.09	29.2
Approach			981	5.0	981	5.0	0.646	19.4	LOS C	3.6	94.7	0.77	0.92	1.30	27.6
West: College Ave.															
5u	U	All MCs	65	4.0	65	4.0	0.668	20.2	LOS C	4.7	121.9	0.82	0.97	1.46	25.7
5	L2	All MCs	331	4.0	331	4.0	0.668	20.2	LOS C	4.7	121.9	0.82	0.97	1.46	25.7
2	T1	All MCs	221	4.0	221	4.0	0.668	19.3	LOS C	4.7	121.9	0.80	0.95	1.44	27.8
12	R2	All MCs	214	4.0	214	4.0	0.668	19.3	LOS C	4.6	119.7	0.80	0.95	1.43	27.6
Approach			831	4.0	831	4.0	0.668	19.8	LOS C	4.7	121.9	0.81	0.96	1.44	26.7
All Vehicles			3494	3.8	3494	3.8	0.831	25.3	LOS D	7.3	187.0	0.84	1.03	1.61	25.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300] STH 55 & CTH CE/College Ave. (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - AM Peak Hour (7:15 - 8:15 AM) Improved

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows Arrival Flows				Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	519	3.0	519	3.0	685	0.758	100	23.2	LOS C	7.3	187.0	Full	1600	0.0	0.0
Lane 2 ^d	539	3.0	539	3.0	711	0.758	100	22.5	LOS C	7.3	186.9	Full	1600	0.0	0.0
Approach	1058	3.0	1058	3.0		0.758		22.8	LOS C	7.3	187.0				
East: College Ave.															
Lane 1	307	3.0	307	3.0	369	0.831	100	46.4	LOS E	5.1	130.0	Full	1600	0.0	0.0
Lane 2 ^d	317	3.0	317	3.0	381	0.831	100	45.3	LOS E	5.1	129.9	Full	1600	0.0	0.0
Approach	623	3.0	623	3.0		0.831		45.8	LOS E	5.1	130.0				
North: STH 55															
Lane 1	338	5.0	338	5.0	524	0.646	100	21.6	LOS C	3.6	94.7	Full	1600	0.0	0.0
Lane 2 ^d	343	5.0	343	5.0	531	0.646	100	21.3	LOS C	3.6	94.2	Full	1600	0.0	0.0
Lane 3	299	5.0	299	5.0	584	0.511	100	14.9	LOS B	2.5	64.8	Full	500	0.0	0.0
Approach	981	5.0	981	5.0		0.646		19.4	LOS C	3.6	94.7				
West: College Ave.															
Lane 1	403	4.0	403	4.0	604	0.668	100	20.2	LOS C	4.7	121.9	Full	1600	0.0	0.0
Lane 2 ^d	428	4.0	428	4.0	640	0.668	100	19.3	LOS C	4.6	119.7	Full	1600	0.0	0.0
Approach	831	4.0	831	4.0		0.668		19.8	LOS C	4.7	121.9				
All Vehicles	3494	3.8	3494	3.8		0.831		25.3	LOS D	7.3	187.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)															
South: STH 55															

Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	S	W	N	E			veh/h	v/c	%	%	No.
Lane 1	6	299	214	-	519	3.0	685	0.758	100	NA	NA
Lane 2	-	-	442	97	539	3.0	711	0.758	100	NA	NA
Approach	6	299	656	97	1058	3.0		0.758			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From E							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	6	84	216	-	307	3.0	369	0.831	100	NA	NA
Lane 2	-	-	284	32	317	3.0	381	0.831	100	NA	NA
Approach	6	84	500	32	623	3.0		0.831			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.
Lane 1	6	65	267	-	338	5.0	524	0.646	100	NA	NA
Lane 2	-	-	343	-	343	5.0	531	0.646	100	NA	NA
Lane 3	-	-	-	299	299	5.0	584	0.511	100	NA	NA
Approach	6	65	610	299	981	5.0		0.646			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	W	N	E	S			veh/h	v/c	%	%	No.
Lane 1	65	331	7	-	403	4.0	604	0.668	100	NA	NA
Lane 2	-	-	214	214	428	4.0	640	0.668	100	NA	NA
Approach	65	331	221	214	831	4.0		0.668			
Total %HV Deg.Satn (v/c)											
All Vehicles	3494	3.8		0.831							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit	Short	Percent	Opposing	Critical	Follow-up	Lane Capacity	Deg.	Min.	Merge	Merge Queue
Lane	Lane	Opng in	Flow Rate	Gap	Headway	Flow	Satn	Delay	Delay	[Veh Dist]
Number	Length	Lane				Rate				
	ft		% veh/h	pcu/h	sec	sec veh/h	veh/h	v/c	sec	sec
										ft

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

Initial	Residual	Time for	Duration
Queued	Queued	Residual	of
Demand	Demand	Demand	Oversatn
veh	veh	to Clear	
		sec	sec
South: STH 55			

Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300-1 (2)] STH 55 & CTH CE/College Ave. (Folder1)**

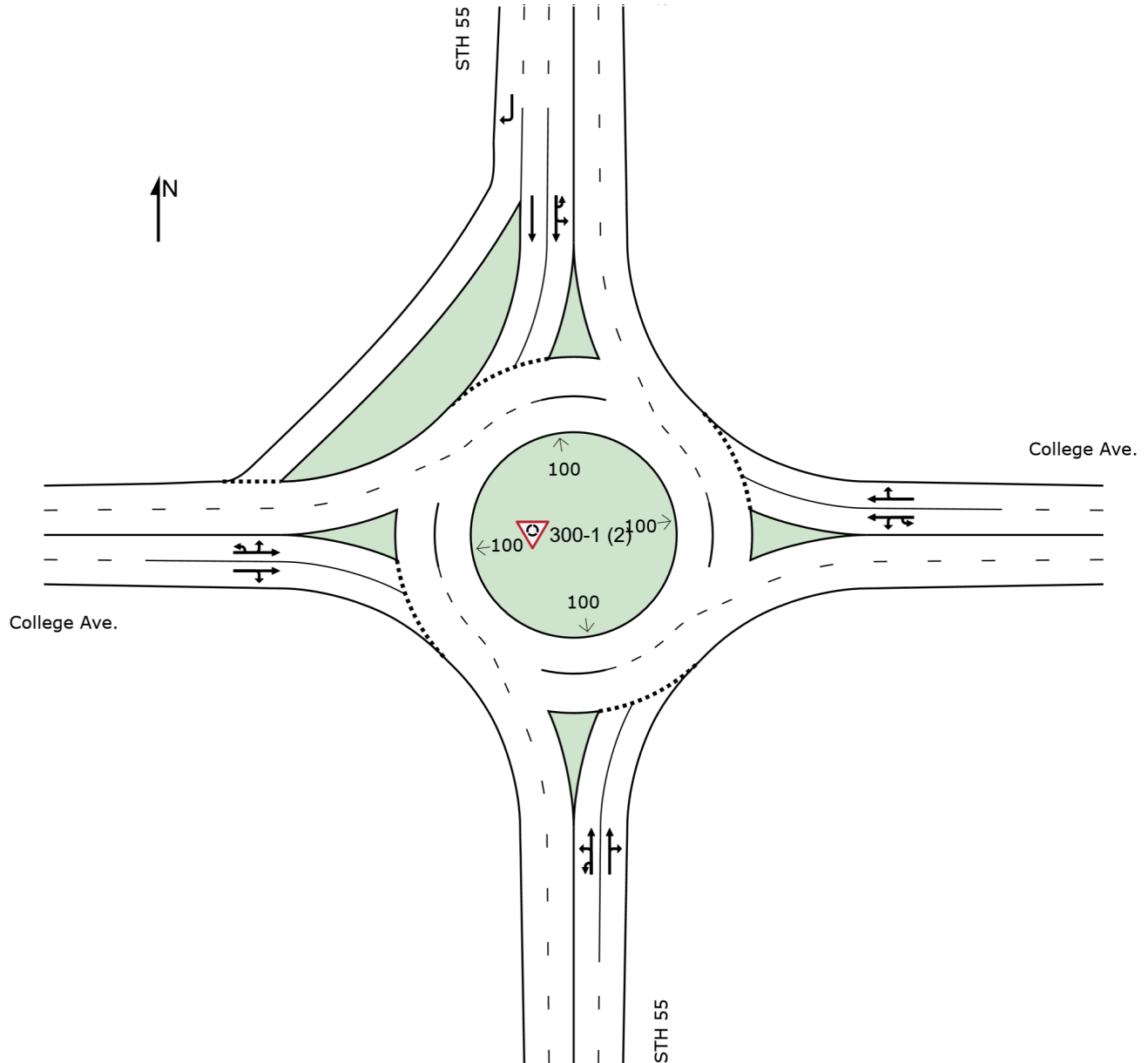
Total Traffic - PM Peak Hour (3:15 - 4:15 PM) - Improved Geometry

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 **Site: [300-1 (2)] STH 55 & CTH CE/College Ave. (Folder1)**

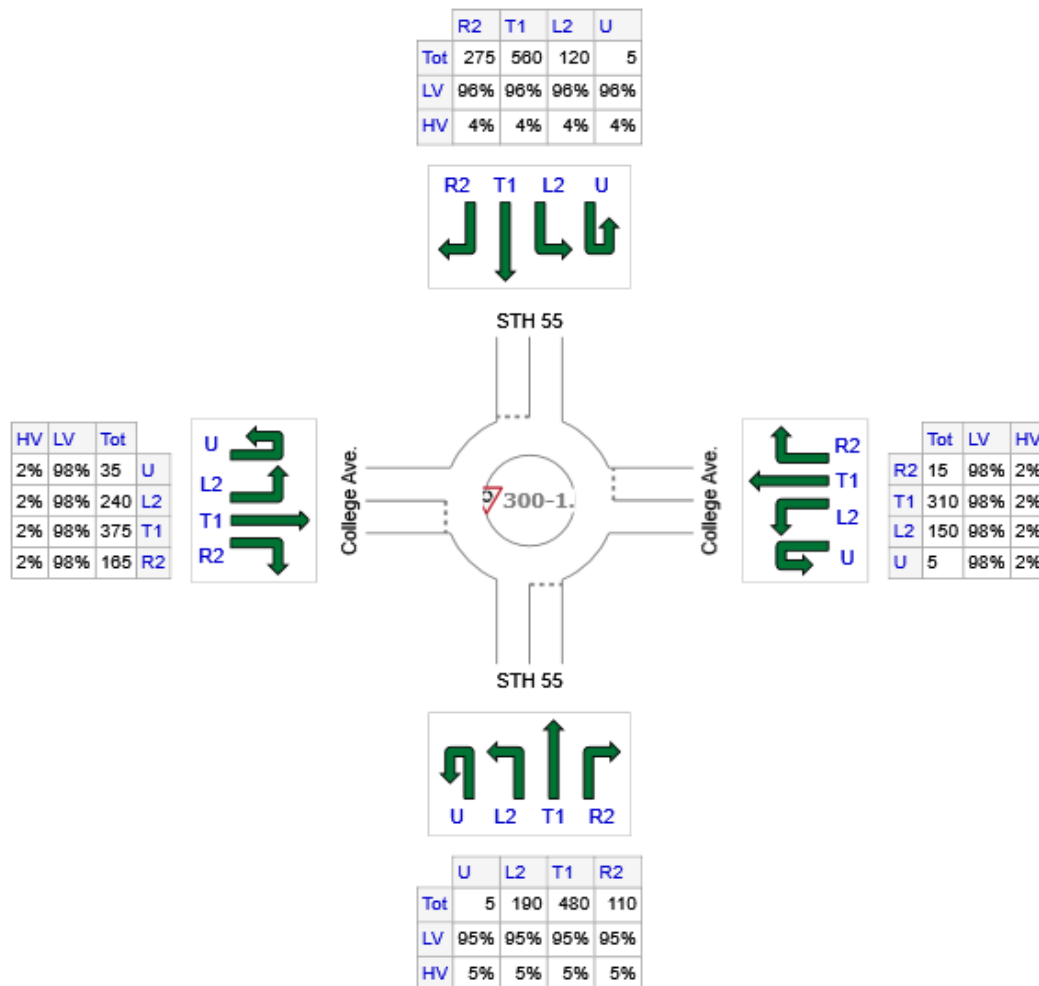
Total Traffic - PM Peak Hour (3:15 - 4:15 PM) - Improved Geometry

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	785	746	39
E: College Ave.	480	470	10
N: STH 55	960	922	38
W: College Ave.	815	799	16
Total	3040	2936	104

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MOVEMENT SUMMARY

 **Site: [300-1 (2)] STH 55 & CTH CE/College Ave. (Folder1)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - PM Peak Hour (3:15 - 4:15 PM) - Improved Geometry

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh. veh	Dist] ft				mph
			veh/h	%	veh/h	%	v/c	sec							
South: STH 55															
3u	U	All MCs	6	5.0	6	5.0	0.757	27.3	LOS D	5.8	150.8	0.86	1.10	1.74	24.5
3	L2	All MCs	211	5.0	211	5.0	0.757	27.5	LOS D	5.8	150.8	0.86	1.10	1.74	24.5
8	T1	All MCs	533	5.0	533	5.0	0.757	26.2	LOS D	5.8	150.8	0.86	1.10	1.74	25.4
18	R2	All MCs	122	5.0	122	5.0	0.757	26.2	LOS D	5.8	150.4	0.85	1.09	1.74	25.6
Approach			872	5.0	872	5.0	0.757	26.5	LOS D	5.8	150.8	0.86	1.10	1.74	25.2
East: College Ave.															
1u	U	All MCs	6	2.0	6	2.0	0.529	18.3	LOS C	2.5	64.5	0.78	0.89	1.16	27.0
1	L2	All MCs	167	2.0	167	2.0	0.529	18.3	LOS C	2.5	64.5	0.78	0.89	1.16	27.0
6	T1	All MCs	344	2.0	344	2.0	0.529	16.9	LOS C	2.5	64.5	0.77	0.88	1.15	28.4
16	R2	All MCs	17	2.0	17	2.0	0.529	17.0	LOS C	2.5	63.3	0.76	0.87	1.14	28.6
Approach			533	2.0	533	2.0	0.529	17.4	LOS C	2.5	64.5	0.77	0.88	1.15	27.9
North: STH 55															
7u	U	All MCs	6	4.0	6	4.0	0.589	16.7	LOS C	3.6	94.1	0.76	0.86	1.25	27.9
7	L2	All MCs	133	4.0	133	4.0	0.589	16.7	LOS C	3.6	94.1	0.76	0.86	1.25	27.9
4	T1	All MCs	622	4.0	622	4.0	0.589	15.9	LOS C	3.6	94.1	0.75	0.86	1.24	28.9
14	R2	All MCs	306	4.0	306	4.0	0.396	9.6	LOS A	1.8	47.5	0.61	0.57	0.75	31.3
Approach			1067	4.0	1067	4.0	0.589	14.2	LOS B	3.6	94.1	0.71	0.78	1.10	29.4
West: College Ave.															
5u	U	All MCs	39	2.0	39	2.0	0.797	31.2	LOS D	6.7	171.2	0.88	1.19	1.93	23.4
5	L2	All MCs	267	2.0	267	2.0	0.797	31.2	LOS D	6.7	171.2	0.88	1.19	1.93	23.4
2	T1	All MCs	417	2.0	417	2.0	0.797	29.7	LOS D	6.7	171.2	0.88	1.18	1.93	24.4
12	R2	All MCs	183	2.0	183	2.0	0.797	29.6	LOS D	6.7	171.2	0.87	1.18	1.93	24.6
Approach			906	2.0	906	2.0	0.797	30.2	LOS D	6.7	171.2	0.88	1.18	1.93	24.1
All Vehicles			3378	3.4	3378	3.4	0.797	22.2	LOS C	6.7	171.2	0.80	0.98	1.50	26.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY



Site: [300-1 (2)] STH 55 & CTH CE/College Ave. (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - PM Peak Hour (3:15 - 4:15 PM) - Improved Geometry

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows Arrival Flows				Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	428	5.0	428	5.0	566	0.757	100	26.9	LOS D	5.8	150.8	Full	1600	0.0	0.0
Lane 2 ^d	444	5.0	444	5.0	586	0.757	100	26.2	LOS D	5.8	150.4	Full	1600	0.0	0.0
Approach	872	5.0	872	5.0		0.757		26.5	LOS D	5.8	150.8				
East: College Ave.															
Lane 1	259	2.0	259	2.0	490	0.529	100	17.8	LOS C	2.5	64.5	Full	1600	0.0	0.0
Lane 2 ^d	274	2.0	274	2.0	519	0.529	100	17.0	LOS C	2.5	63.3	Full	1600	0.0	0.0
Approach	533	2.0	533	2.0		0.529		17.4	LOS C	2.5	64.5				
North: STH 55															
Lane 1	376	4.0	376	4.0	639	0.589	100	16.2	LOS C	3.6	94.1	Full	1600	0.0	0.0
Lane 2 ^d	385	4.0	385	4.0	653	0.589	100	15.9	LOS C	3.6	93.1	Full	1600	0.0	0.0
Lane 3	306	4.0	306	4.0	771	0.396	100	9.6	LOS A	1.8	47.5	Full	500	0.0	0.0
Approach	1067	4.0	1067	4.0		0.589		14.2	LOS B	3.6	94.1				
West: College Ave.															
Lane 1	441	2.0	441	2.0	553	0.797	100	30.8	LOS D	6.7	171.2	Full	1600	0.0	0.0
Lane 2 ^d	465	2.0	465	2.0	583	0.797	100	29.6	LOS D	6.7	171.2	Full	1600	0.0	0.0
Approach	906	2.0	906	2.0		0.797		30.2	LOS D	6.7	171.2				
All Vehicles	3378	3.4	3378	3.4		0.797		22.2	LOS C	6.7	171.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)															
South: STH 55															

Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	S	W	N	E			veh/h	v/c	%	%	No.
Lane 1	6	211	212	-	428	5.0	566	0.757	100	NA	NA
Lane 2	-	-	322	122	444	5.0	586	0.757	100	NA	NA
Approach	6	211	533	122	872	5.0		0.757			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From E							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	6	167	87	-	259	2.0	490	0.529	100	NA	NA
Lane 2	-	-	258	17	274	2.0	519	0.529	100	NA	NA
Approach	6	167	344	17	533	2.0		0.529			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.
Lane 1	6	133	237	-	376	4.0	639	0.589	100	NA	NA
Lane 2	-	-	385	-	385	4.0	653	0.589	100	NA	NA
Lane 3	-	-	-	306	306	4.0	771	0.396	100	NA	NA
Approach	6	133	622	306	1067	4.0		0.589			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	W	N	E	S			veh/h	v/c	%	%	No.
Lane 1	39	267	135	-	441	2.0	553	0.797	100	NA	NA
Lane 2	-	-	281	183	465	2.0	583	0.797	100	NA	NA
Approach	39	267	417	183	906	2.0		0.797			
Total %HV Deg.Satn (v/c)											
All Vehicles	3378	3.4						0.797			

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

Exit	Short	Percent	Opposing	Critical	Follow-up	Lane Capacity	Deg.	Min.	Merge	Merge Queue
Lane	Lane	Opng in	Flow Rate	Gap	Headway	Flow	Satn	Delay	Delay	[Veh
Number	Length	Lane				Rate				Dist]
	ft		% veh/h	pcu/h	sec	sec veh/h	veh/h	v/c	sec	sec
										ft

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

Initial	Residual	Time for	Duration
Queued	Queued	Residual	of
Demand	Demand	Demand	Oversatn
veh	veh	to Clear	
		sec	sec
South: STH 55			

Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300 (7)] STH 55 & CTH CE/College Ave. - Total Traffic SB, EB & NB Slip Ramps (Folder1)**

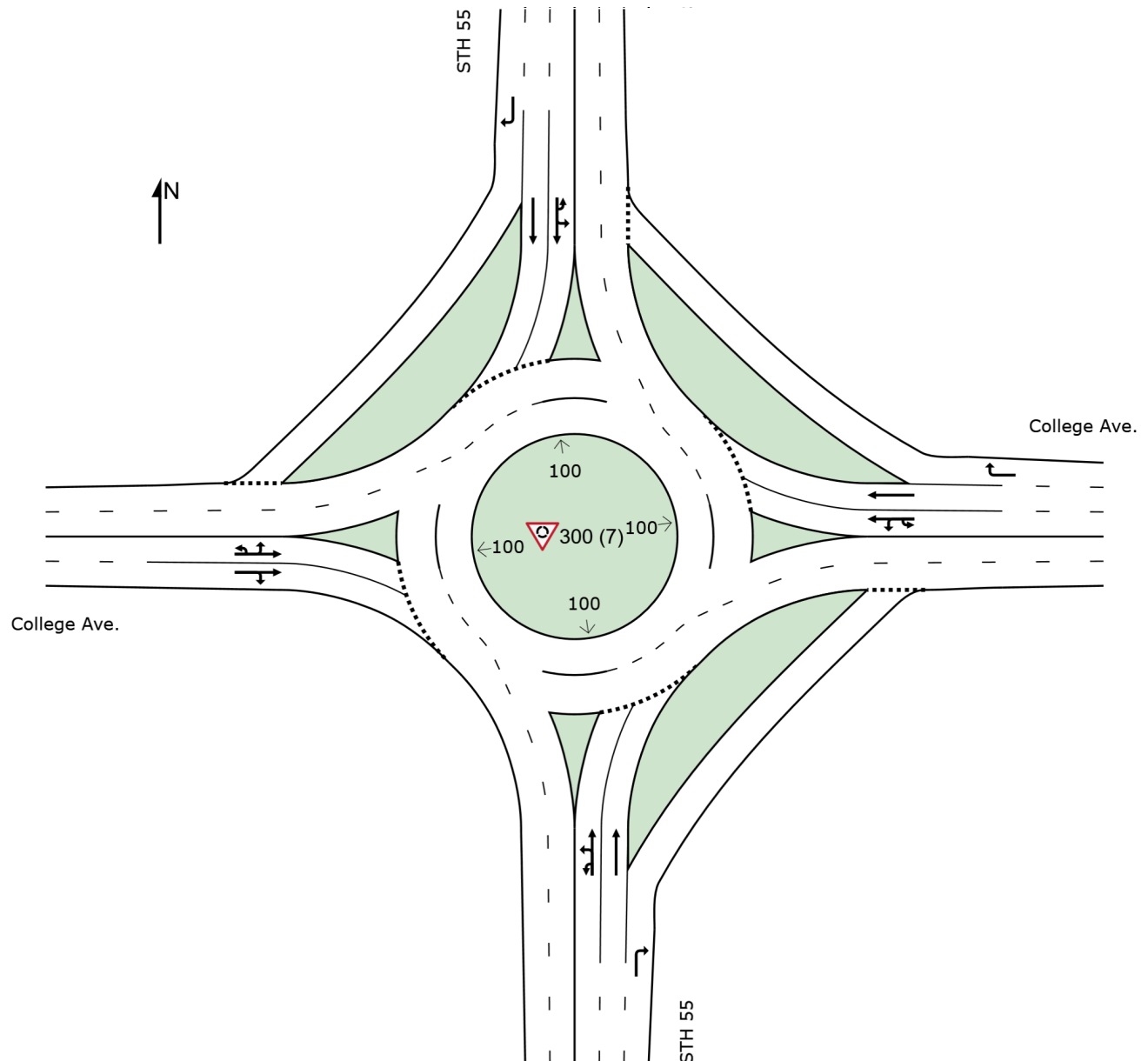
Total Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: [300 (7)] STH 55 & CTH CE/College Ave. - Total Traffic SB, EB & NB Slip Ramps (Folder1)

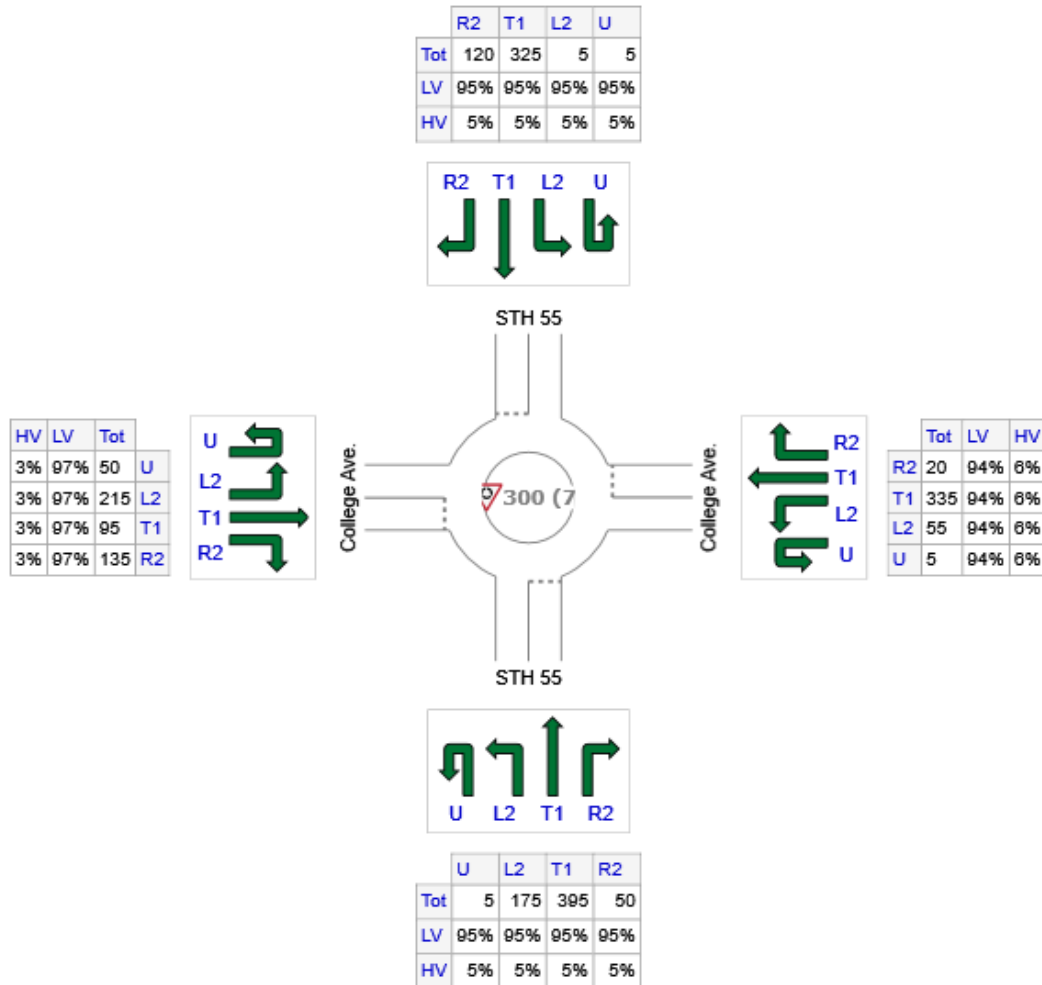
Total Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	625	594	31
E: College Ave.	415	390	25
N: STH 55	455	432	23
W: College Ave.	495	480	15
Total	1990	1896	94

MOVEMENT SUMMARY

 **Site: [300 (7)] STH 55 & CTH CE/College Ave. - Total Traffic SB, EB & NB Slip Ramps (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]											
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] ft				mph
South: STH 55															
3u	U	All MCs	7	5.0	7	5.0	0.557	13.3	LOS B	3.8	99.0	0.72	0.74	1.10	28.4
3	L2	All MCs	261	5.0	261	5.0	0.557	13.4	LOS B	3.8	99.0	0.72	0.74	1.10	28.4
8	T1	All MCs	590	5.0	590	5.0	0.557	12.9	LOS B	3.8	99.0	0.70	0.73	1.08	30.0
18	R2	All MCs	75	5.0	75	5.0	0.065	3.7	LOS A	0.2	5.8	0.25	0.13	0.25	34.2
Approach			933	5.0	933	5.0	0.557	12.3	LOS B	3.8	99.0	0.67	0.68	1.02	29.8
East: College Ave.															
1u	U	All MCs	7	6.0	7	6.0	0.793	43.3	LOS E	4.4	115.9	0.91	1.20	1.94	21.3
1	L2	All MCs	82	6.0	82	6.0	0.793	43.3	LOS E	4.4	115.9	0.91	1.20	1.94	21.3
6	T1	All MCs	500	6.0	500	6.0	0.793	41.1	LOS E	4.4	115.9	0.91	1.19	1.94	21.9
16	R2	All MCs	30	6.0	30	6.0	0.056	7.4	LOS A	0.2	4.1	0.57	0.56	0.57	32.3
Approach			619	6.0	619	6.0	0.793	39.8	LOS E	4.4	115.9	0.89	1.16	1.88	22.1
North: STH 55															
7u	U	All MCs	7	5.0	7	5.0	0.468	15.9	LOS C	2.0	52.7	0.71	0.80	1.03	28.9
7	L2	All MCs	7	5.0	7	5.0	0.468	15.9	LOS C	2.0	52.7	0.71	0.80	1.03	28.9
4	T1	All MCs	485	5.0	485	5.0	0.468	14.8	LOS B	2.0	52.7	0.71	0.80	1.03	29.5
14	R2	All MCs	179	5.0	179	5.0	0.304	10.2	LOS B	1.1	27.9	0.64	0.63	0.71	31.0
Approach			679	5.0	679	5.0	0.468	13.6	LOS B	2.0	52.7	0.69	0.76	0.94	29.9
West: College Ave.															
5u	U	All MCs	75	3.0	75	3.0	0.536	12.9	LOS B	3.5	90.3	0.73	0.75	1.08	27.9
5	L2	All MCs	321	3.0	321	3.0	0.536	12.9	LOS B	3.5	90.3	0.73	0.75	1.08	27.9
2	T1	All MCs	142	3.0	142	3.0	0.443	10.4	LOS B	2.3	59.0	0.64	0.63	0.85	31.3
12	R2	All MCs	201	3.0	201	3.0	0.443	10.4	LOS B	2.3	59.0	0.64	0.63	0.85	31.0
Approach			739	3.0	739	3.0	0.536	11.8	LOS B	3.5	90.3	0.69	0.69	0.98	29.2
All Vehicles			2970	4.7	2970	4.7	0.793	18.2	LOS C	4.4	115.9	0.73	0.80	1.17	27.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300 (7)] STH 55 & CTH CE/College Ave. - Total Traffic SB, EB & NB Slip Ramps (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - AM Peak Hour (6:30 - 7:30 AM)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	422	5.0	422	5.0	758	0.557	100	13.2	LOS B	3.8	99.0	Full	1600	0.0	0.0
Lane 2 ^d	436	5.0	436	5.0	783	0.557	100	12.9	LOS B	3.7	97.4	Full	1600	0.0	0.0
Lane 3	75	5.0	75	5.0	1144	0.065	100	3.7	LOS A	0.2	5.8	Full	500	0.0	0.0
Approach	933	5.0	933	5.0		0.557		12.3	LOS B	3.8	99.0				
East: College Ave.															
Lane 1	291	6.0	291	6.0	367	0.793	100	41.9	LOS E	4.4	115.9	Full	1600	0.0	0.0
Lane 2 ^d	299	6.0	299	6.0	377	0.793	100	41.1	LOS E	4.4	115.3	Full	1600	0.0	0.0
Lane 3	30	6.0	30	6.0	536	0.056	100	7.4	LOS A	0.2	4.1	Full	500	0.0	0.0
Approach	619	6.0	619	6.0		0.793		39.8	LOS E	4.4	115.9				
North: STH 55															
Lane 1	249	5.0	249	5.0	533	0.468	100	14.8	LOS B	2.0	52.7	Full	1600	0.0	0.0
Lane 2 ^d	251	5.0	251	5.0	535	0.468	100	14.8	LOS B	2.0	52.5	Full	1600	0.0	0.0
Lane 3	179	5.0	179	5.0	589	0.304	100	10.2	LOS B	1.1	27.9	Full	500	0.0	0.0
Approach	679	5.0	679	5.0		0.468		13.6	LOS B	2.0	52.7				
West: College Ave.															
Lane 1 ^d	396	3.0	396	3.0	738	0.536	100	12.9	LOS B	3.5	90.3	Full	1600	0.0	0.0
Lane 2	343	3.0	343	3.0	775	0.443	83 ⁵	10.4	LOS B	2.3	59.0	Full	1600	0.0	0.0
Approach	739	3.0	739	3.0		0.536		11.8	LOS B	3.5	90.3				
All Vehicles	2970	4.7	2970	4.7		0.793		18.2	LOS C	4.4	115.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

⁵ Lane under-utilisation found by the program

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	S	W	N	E			veh/h	v/c	%	%	No.
Lane 1	7	261	154	-	422	5.0	758	0.557	100	NA	NA
Lane 2	-	-	436	-	436	5.0	783	0.557	100	NA	NA
Lane 3	-	-	-	75	75	5.0	1144	0.065	100	NA	NA
Approach	7	261	590	75	933	5.0		0.557			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From E							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	7	82	201	-	291	6.0	367	0.793	100	NA	NA
Lane 2	-	-	299	-	299	6.0	377	0.793	100	NA	NA
Lane 3	-	-	-	30	30	6.0	536	0.056	100	NA	NA
Approach	7	82	500	30	619	6.0		0.793			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.
Lane 1	7	7	235	-	249	5.0	533	0.468	100	NA	NA
Lane 2	-	-	251	-	251	5.0	535	0.468	100	NA	NA
Lane 3	-	-	-	179	179	5.0	589	0.304	100	NA	NA
Approach	7	7	485	179	679	5.0		0.468			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	W	N	E	S			veh/h	v/c	%	%	No.
Lane 1	75	321	-	-	396	3.0	738	0.536	100	NA	NA
Lane 2	-	-	142	201	343	3.0	775	0.443	83 ⁵	NA	NA
Approach	75	321	142	201	739	3.0		0.536			
Total %HV Deg.Satn (v/c)											
All Vehicles	2970	4.7						0.793			

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

Merge Analysis											
	Exit	Short	Percent	Opposing	Critical	Follow-up	Lane Capacity	Deg.	Min.	Merge	Merge Queue
	Lane	Lane	Opng in	Flow Rate	Gap	Headway	Flow	Satn	Delay	Delay	[Veh Dist]
	Number	Length	Lane	% veh/h	pcu/h	sec	sec veh/h	veh/h	v/c	sec	sec
		ft									ft
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis				
	Initial	Residual	Time for	Duration

	Queued Demand veh	Queued Demand veh	Residual Demand to Clear sec	of Oversatn sec
South: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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SITE LAYOUT

 **Site: [300-1- (2)] STH 55 & CTH CE/College Ave. - Total PM SB,
NB & EB Slip Ramps (Folder1)**

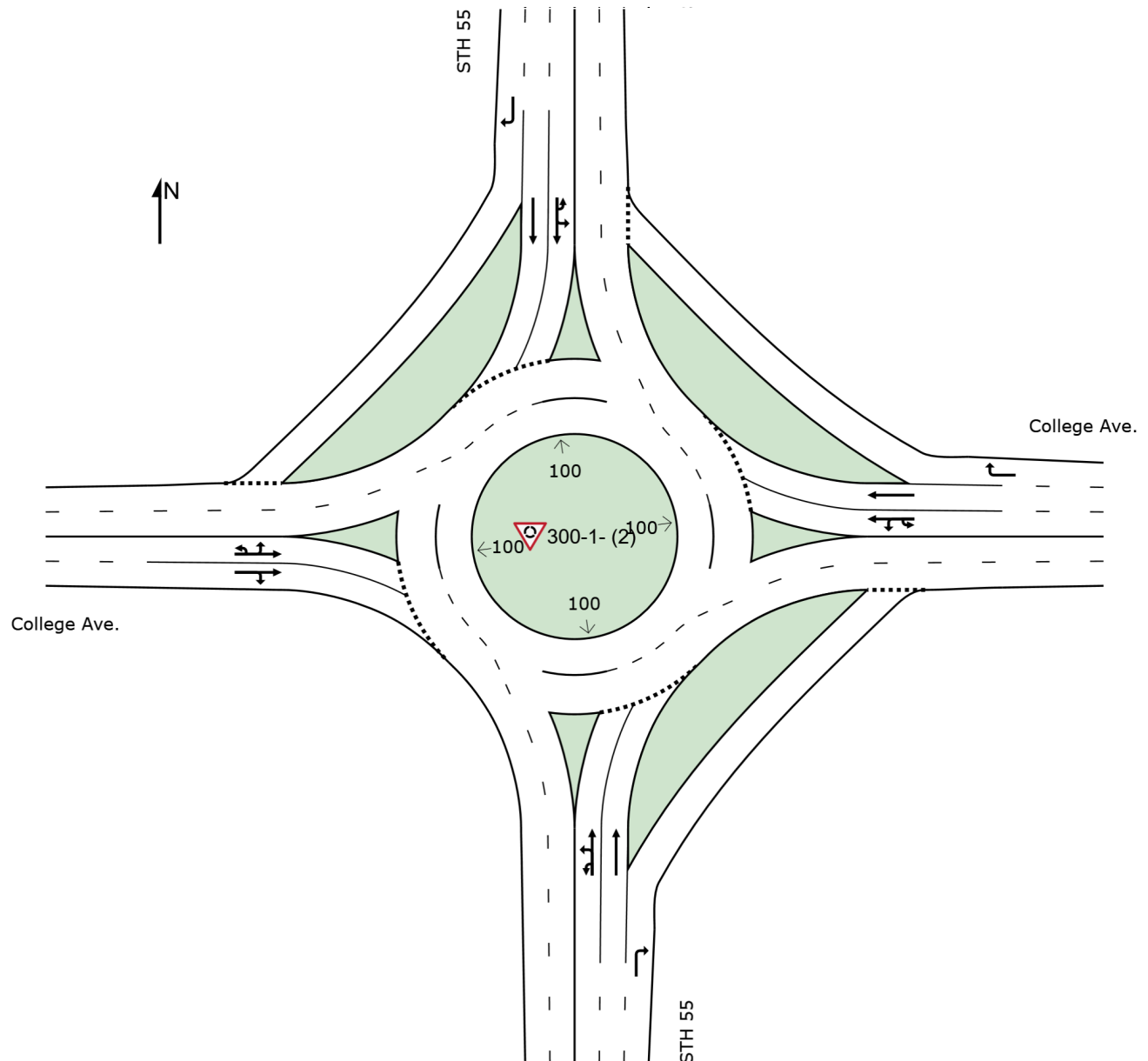
Total Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: [300-1- (2)] STH 55 & CTH CE/College Ave. - Total PM SB,
NB & EB Slip Ramps (Folder1)

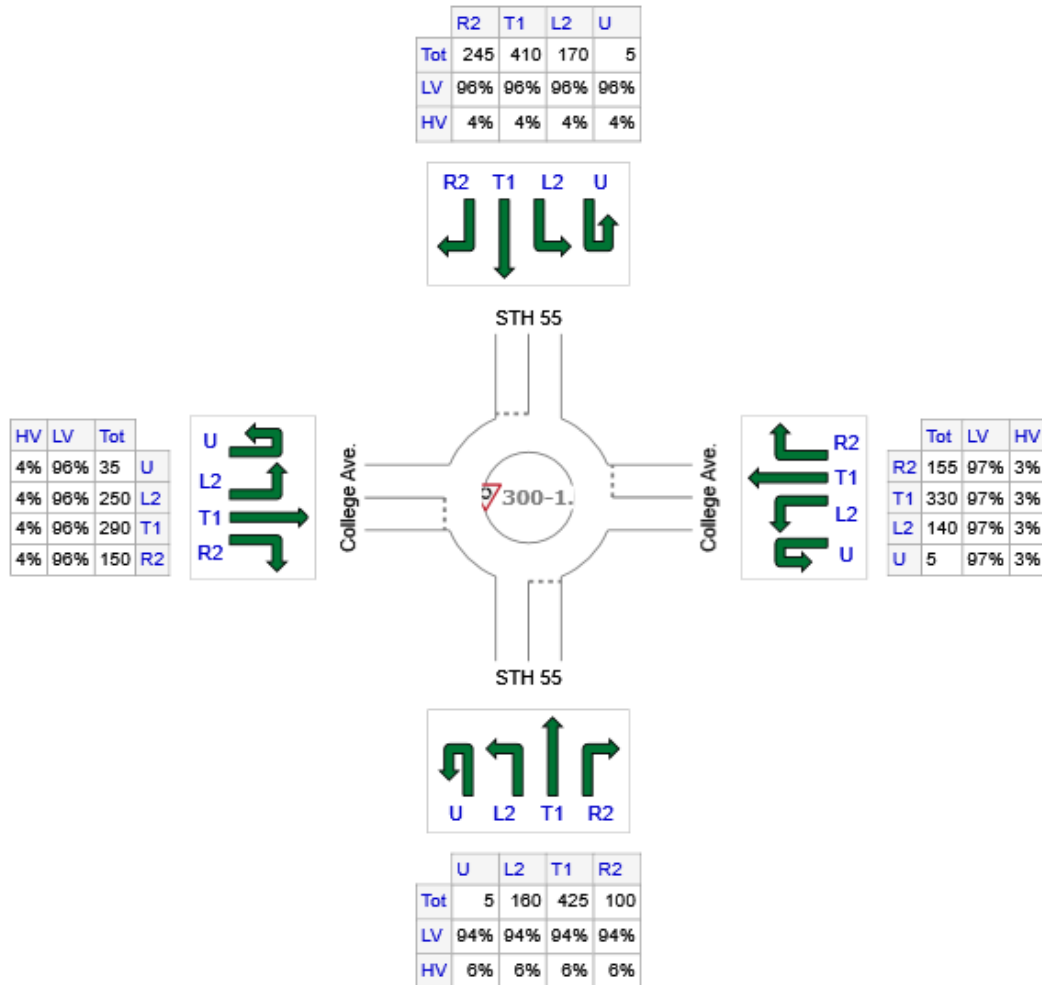
Total Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Volume Display Method: Total and %



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: STH 55	690	649	41
E: College Ave.	630	611	19
N: STH 55	830	797	33
W: College Ave.	725	696	29
Total	2875	2752	122

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MOVEMENT SUMMARY

 **Site: [300-1- (2)] STH 55 & CTH CE/College Ave. - Total PM SB, NB & EB Slip Ramps (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh. veh	Dist]				mph
			veh/h	%	veh/h	%	v/c	sec			ft				
South: STH 55															
3u	U	All MCs	6	6.0	6	6.0	0.720	27.2	LOS D	4.5	118.8	0.84	1.06	1.60	24.5
3	L2	All MCs	200	6.0	200	6.0	0.720	27.3	LOS D	4.5	118.8	0.84	1.06	1.60	24.5
8	T1	All MCs	531	6.0	531	6.0	0.720	25.9	LOS D	4.5	118.8	0.83	1.05	1.59	25.6
18	R2	All MCs	125	6.0	125	6.0	0.167	6.6	LOS A	0.5	14.3	0.52	0.44	0.52	32.7
Approach			862	6.0	862	6.0	0.720	23.4	LOS C	4.5	118.8	0.79	0.96	1.44	26.1
East: College Ave.															
1u	U	All MCs	6	3.0	6	3.0	0.636	24.3	LOS C	3.3	84.9	0.83	0.99	1.39	25.3
1	L2	All MCs	175	3.0	175	3.0	0.636	24.3	LOS C	3.3	84.9	0.83	0.99	1.39	25.3
6	T1	All MCs	412	3.0	412	3.0	0.636	22.6	LOS C	3.3	84.9	0.82	0.98	1.39	26.5
16	R2	All MCs	194	3.0	194	3.0	0.318	10.2	LOS B	1.2	30.5	0.64	0.65	0.73	31.1
Approach			788	3.0	788	3.0	0.636	19.9	LOS C	3.3	84.9	0.78	0.90	1.23	27.2
North: STH 55															
7u	U	All MCs	6	4.0	6	4.0	0.615	18.8	LOS C	3.7	96.5	0.79	0.92	1.32	26.8
7	L2	All MCs	212	4.0	212	4.0	0.615	18.8	LOS C	3.7	96.5	0.79	0.92	1.32	26.8
4	T1	All MCs	512	4.0	512	4.0	0.615	17.9	LOS C	3.7	96.5	0.77	0.91	1.31	28.1
14	R2	All MCs	306	4.0	306	4.0	0.423	10.6	LOS B	2.0	52.5	0.64	0.64	0.85	30.9
Approach			1038	4.0	1038	4.0	0.615	15.9	LOS C	3.7	96.5	0.74	0.83	1.18	28.6
West: College Ave.															
5u	U	All MCs	44	4.0	44	4.0	0.826	34.9	LOS D	7.3	189.0	0.90	1.25	2.10	22.4
5	L2	All MCs	312	4.0	312	4.0	0.826	34.9	LOS D	7.3	189.0	0.90	1.25	2.10	22.4
2	T1	All MCs	362	4.0	362	4.0	0.826	33.4	LOS D	7.3	189.0	0.89	1.24	2.10	23.5
12	R2	All MCs	188	4.0	188	4.0	0.826	33.3	LOS D	7.3	188.7	0.89	1.24	2.10	23.6
Approach			906	4.0	906	4.0	0.826	34.0	LOS D	7.3	189.0	0.90	1.25	2.10	23.1
All Vehicles			3594	4.3	3594	4.3	0.826	23.2	LOS C	7.3	189.0	0.80	0.98	1.48	26.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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LANE SUMMARY

 **Site: [300-1- (2)] STH 55 & CTH CE/College Ave. - Total PM SB, NB & EB Slip Ramps (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Total Traffic - PM Peak Hour (2:45 - 3:45 pm)

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total	HV]	[Total	HV]						[Veh	Dist]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: STH 55															
Lane 1	361	6.0	361	6.0	502	0.720	100	26.7	LOS D	4.5	118.8	Full	1600	0.0	0.0
Lane 2 ^d	376	6.0	376	6.0	523	0.720	100	25.9	LOS D	4.5	117.9	Full	500	0.0	0.0
Lane 3	125	6.0	125	6.0	750	0.167	100	6.6	LOS A	0.5	14.3	Full	500	0.0	0.0
Approach	862	6.0	862	6.0		0.720		23.4	LOS C	4.5	118.8				
East: College Ave.															
Lane 1	289	3.0	289	3.0	454	0.636	100	23.7	LOS C	3.3	84.9	Full	1600	0.0	0.0
Lane 2 ^d	305	3.0	305	3.0	480	0.636	100	22.6	LOS C	3.3	83.8	Full	1600	0.0	0.0
Lane 3	194	3.0	194	3.0	610	0.318	100	10.2	LOS B	1.2	30.5	Full	500	0.0	0.0
Approach	788	3.0	788	3.0		0.636		19.9	LOS C	3.3	84.9				
North: STH 55															
Lane 1	358	4.0	358	4.0	583	0.615	100	18.4	LOS C	3.7	96.5	Full	1600	0.0	0.0
Lane 2 ^d	373	4.0	373	4.0	606	0.615	100	17.9	LOS C	3.7	95.0	Full	1600	0.0	0.0
Lane 3	306	4.0	306	4.0	724	0.423	100	10.6	LOS B	2.0	52.5	Full	500	0.0	0.0
Approach	1038	4.0	1038	4.0		0.615		15.9	LOS C	3.7	96.5				
West: College Ave.															
Lane 1	440	4.0	440	4.0	533	0.826	100	34.7	LOS D	7.3	189.0	Full	1600	0.0	0.0
Lane 2 ^d	466	4.0	466	4.0	564	0.826	100	33.3	LOS D	7.3	188.7	Full	1600	0.0	0.0
Approach	906	4.0	906	4.0		0.826		34.0	LOS D	7.3	189.0				
All Vehicles	3594	4.3	3594	4.3		0.826		23.2	LOS C	7.3	189.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From S							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	S	W	N	E			veh/h	v/c	%	%	No.
Lane 1	6	200	155	-	361	6.0	502	0.720	100	NA	NA
Lane 2	-	-	376	-	376	6.0	523	0.720	100	NA	NA
Lane 3	-	-	-	125	125	6.0	750	0.167	100	NA	NA
Approach	6	200	531	125	862	6.0		0.720			
East: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From E							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	E	S	W	N			veh/h	v/c	%	%	No.
Lane 1	6	175	108	-	289	3.0	454	0.636	100	NA	NA
Lane 2	-	-	305	-	305	3.0	480	0.636	100	NA	NA
Lane 3	-	-	-	194	194	3.0	610	0.318	100	NA	NA
Approach	6	175	412	194	788	3.0		0.636			
North: STH 55											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From N							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	N	E	S	W			veh/h	v/c	%	%	No.
Lane 1	6	212	140	-	358	4.0	583	0.615	100	NA	NA
Lane 2	-	-	373	-	373	4.0	606	0.615	100	NA	NA
Lane 3	-	-	-	306	306	4.0	724	0.423	100	NA	NA
Approach	6	212	512	306	1038	4.0		0.615			
West: College Ave.											
Mov.	U	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.
From W							Cap.	Satn	Util.	SL Ov.	Lane
To Exit:	W	N	E	S			veh/h	v/c	%	%	No.
Lane 1	44	312	84	-	440	4.0	533	0.826	100	NA	NA
Lane 2	-	-	278	188	466	4.0	564	0.826	100	NA	NA
Approach	44	312	362	188	906	4.0		0.826			
Total %HV Deg.Satn (v/c)											
All Vehicles	3594	4.3		0.826							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis											
Exit Lane Number	Short Lane Length	Percent Opng in Lane	Opposing Flow Rate	Critical Gap	Follow-up Headway	Lane Capacity Flow Rate	Deg. Satn	Min. Delay	Merge Delay	Merge Queue [Veh]	Queue Dist]
	ft	% veh/h	pcu/h	sec	sec	veh/h	v/c	sec	sec		ft
There are no Exit Short Lanes for Merge Analysis at this Site.											

Variable Demand Analysis			
Initial Queued	Residual Queued	Time for Residual	Duration of

	Demand veh	Demand veh	Demand to Clear sec	Oversatn sec
South: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
East: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
North: STH 55				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
Lane 3	0.0	0.0	0.0	0.0
West: College Ave.				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

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Kaukauna Middle School Development Traffic Impact Analysis

City of Kaukauna
Outagamie County, Wisconsin

June 19, 2025



TRAFFIC IMPACT STUDY FOR:

KAUKAUNA MIDDLE SCHOOL

CITY OF KAUKAUNA, OUTAGAMIE COUNTY, WISCONSIN

DATE SUBMITTED: June 19, 2025

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Kaukauna Middle School Traffic Impact Analysis Table of Contents

LIST OF EXHIBITS	ii
LIST OF APPENDICES	iv
CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY	1
Part A – Purpose of Report and Study Objectives	1
Part B – Executive Summary	1
CHAPTER II – PROPOSED DEVELOPMENT	10
Part A – Development Site	10
Part B – Study Area	11
Part C – Off-Site Land Use and Development	11
Part D – Site Accessibility	12
CHAPTER III – ANALYSIS OF EXISTING CONDITIONS	14
Part A – Physical Characteristics	14
Part B – Traffic Volumes	14
Part C – Capacity Level of Service	14
Part D – Sources of Data	16
CHAPTER IV – FORECASTED TRAFFIC	17
Part A – Traffic Forecasting	17
Part B – Background, Full Build & Total Traffic	20
CHAPTER V – TRAFFIC AND IMPROVEMENT ANALYSIS	22
Part A – Site Access	22
Part B – Capacity Level of Service Analysis	22
Part C – Queueing Analysis	26
Part D – Warrant Analysis	26
Part E – Traffic Control Comparison	27
CHAPTER VI – RECOMMENDATIONS AND CONCLUSION	29
Part A – Recommendations	29
Part B – Conclusion	34

LIST OF EXHIBITS

Exhibit 1-1	Project Overview Map
Exhibit 1-2A.....	Conceptual Site Plan – Proposed School Area
Exhibit 1-2B.....	Conceptual Site Plan – Off-site Development Area
Exhibit 1-3	Recommended Modifications
Exhibit 2-1	Project Overview Map
Exhibit 2-2A.....	Conceptual Site Plan – Proposed School Area
Exhibit 2-2B.....	Conceptual Site Plan – Off-site Development Area
Exhibit 3-1	Existing Transportation Detail
Exhibit 3-2A.....	Existing Traffic Volumes – Existing Middle School Site
Exhibit 3-2B.....	Existing Traffic Volumes – Proposed Middle School Site (Raw Data)
Exhibit 3-2C.....	Existing Traffic Volumes – Proposed Middle School Site (Balanced)
Exhibit 3-2D.....	Background Traffic Volumes – Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail
Exhibit 3-2E	Redistributed Trips – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Exhibit 3-2F	Redistributed Trips –Left-in/Right-in/Right-out at Ann Street
Exhibit 3-2G.....	Redistributed Trips –Left-in/Right-in/Right-out at Konkapot Trail Road
Exhibit 3-2H.....	Redistributed Trips – No Exit at High School West Driveway (During Afternoon Peak Hour)
Exhibit 3-3	Existing Traffic Operations
Exhibit 4-3A.....	On-Site (Proposed Middle School) Trip Generation & Distribution Tables
Exhibit 4-3B.....	Off-Site Trip Generation & Distribution Tables
Exhibit 4-4	Trip Distribution Diagram
Exhibit 4-5A.....	On-Site New Trips – Access Scenario 1 (Full Access at Fieldcrest Drive)
Exhibit 4-5B.....	On-Site New Trips – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Exhibit 4-9A.....	Off-Site New Trips – Access Scenario 1 (Full Access at Fieldcrest Drive)
Exhibit 4-9B.....	Off-Site New Trips – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Exhibit 4-11A....	Full Build Traffic Volumes – Access Scenario 1 (Full Access at Fieldcrest Drive)
Exhibit 4-11B....	Full Build Traffic Volumes – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)

Exhibit 4-11C....Full Build Traffic Volumes – Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, Full Access at High School West Driveway

Exhibit 4-11D....Full Build Traffic Volumes – Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, No Exit at High School West Driveway

Exhibit 4-14A....Total Traffic Volumes – Access Scenario 1 (Full Access at Fieldcrest Drive)

Exhibit 4-14B....Total Traffic Volumes – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)

Exhibit 4-14C....Total Traffic Volumes – Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, Full Access at High School West Driveway

Exhibit 4-14D....Total Traffic Volumes – Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, No Exit at High School West Driveway

Exhibit 5-3A.....Full Build (Access Scenario 1) Traffic Operations – No Modifications

Exhibit 5-3B.....Full Build (Access Scenario 2) Traffic Operations – No Modifications

Exhibit 5-6A.....Total (Access Scenario 1) Traffic Operations – No Modifications

Exhibit 5-6B.....Total (Access Scenario 2) Traffic Operations – No Modifications

Exhibit 5-9Existing/Background Traffic Operations – With Modifications

Exhibit 5-12A....Full Build (Access Scenario 2, Full Access at High School West Driveway) Traffic Operations – With Modifications

Exhibit 5-12B....Full Build (Access Scenario 2, No Exit at High School West Driveway) Traffic Operations – With Modifications

Exhibit 5-15A....Total (Access Scenario 2, Full Access at High School West Driveway) Traffic Operations – With Modifications

Exhibit 5-15B....Total (Access Scenario 2, No Exit at High School West Driveway) Traffic Operations – With Modifications

Exhibit 5-16A....Full Build Traffic Operations Comparison Table

Exhibit 5-16B....Total Traffic Operations Comparison Table

Exhibit 5-18Existing Traffic – Maximum Queue Lengths

Exhibit 5-19Background Traffic – Maximum Queue Lengths

Exhibit 5-21A....Full Build ((Access Scenario 2, Full Access at High School West Driveway) Traffic – Maximum Queue Lengths

Exhibit 5-21B....Full Build (Access Scenario 2, No Exit at High School West Driveway) Traffic – Maximum Queue Lengths

Exhibit 5-24A....Total ((Access Scenario 2, Full Access at High School West Driveway) Traffic – Maximum Queue Lengths

Exhibit 5-24B....Total (Access Scenario 2, No Exit at High School West Driveway) Traffic – Maximum Queue Lengths

LIST OF APPENDICES

Appendix A.....Traffic

PHF & Truck Percentage Summary Table
Existing Turning Movement Counts
Traffic Signal Plans and Timings
Saturation Flow Rate Calculations
Trip Generation Calculation & Comparison Tables
Special Event Peak Hour Volume Calculations
Linked Trip Calculations
Middle School Boundary Limits

Appendix B...Peak Hour Analysis Outputs

Existing Traffic
Full Build Traffic – Access Scenario 1 (Full Access at Fieldcrest Drive)
Full Build Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Total Traffic – Access Scenario 1 (Full Access at Fieldcrest Drive)
Total Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)

Appendix C...Peak Hour Improvement Analysis Outputs

Existing/Background Traffic – With Modifications
Full Build Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, Full Access at High School West Driveway) – With Modifications
Full Build Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, No Exit at High School West Driveway) – With Modifications
Total Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, Full Access at High School West Driveway) – With Modifications
Total Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, No Exit at High School West Driveway) – With Modifications

Appendix D...Traffic Signal Warrant Analysis

STH 55 & Morningside Drive/Proposed West Access Drive - Full Build Traffic
STH 55 & Morningside Drive/Proposed West Access Drive - Total Traffic

Appendix E...Intersection Control Evaluation (ICE)

STH 55 & Morningside Drive/Proposed West Access Drive

CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY

PART A – PURPOSE OF REPORT AND STUDY OBJECTIVES

The Kaukauna Area School District is planning to construct a new Middle School to be located on a vacant parcel of land east of State Trunk Highway (STH) 55, south of County Trunk Highway (CTH) CE and southwest of the current high school in the City of Kaukauna and the Town of Buchanan, Outagamie County, Wisconsin. A new middle school with two outlots for potential future development, which are expected to include commercial and residential land uses along with a connection roadway to the Kaukauna High School, are being proposed for the development site.

As part of the proposed middle school plans, WisDOT, Outagamie County and the City of Kaukauna have requested a traffic impact analysis be conducted to determine the additional traffic expected to be generated by the proposed middle school and to identify roadway modifications, if any, attributed to the new school for the Build traffic volume scenario. Traffic volumes from the identified offsite developments, located within the western portion of the site along STH 55, were also included in the Total traffic volume scenario used in this study.

This report documents the procedures, findings, and conclusions of the traffic impact analysis. The analysis identifies recommended modifications based on existing intersection geometrics, existing traffic volumes and additional traffic expected to be generated by the anticipated middle school and potential off-site developments located within the limits of the study area.

PART B – EXECUTIVE SUMMARY

The executive summary includes a description of the study area, descriptions of the proposed middle school and potential off-site developments and conclusions based on the findings of the TIA.

B1. Location of Study Site with Respect to Area Roadway Network

A street map illustrating the location of the existing and proposed schools is shown in [Exhibit 1-1](#). A copy of the conceptual site plan for the proposed middle school is illustrated in [Exhibit 1-2A](#) and a conceptual site plan showing the potential off-site development areas is provided in [Exhibit 1-2B](#). As identified by the study team, the study area for the proposed middle school includes the following intersections:

- STH 55/Crooks Avenue with Ann Street (two-way stop control)
- STH 55/Crooks Avenue with CTH CE/College Avenue (roundabout control)
- STH 55/Crooks Avenue with Morningside Drive/Proposed West Access Drive (current one-way stop control)
- STH 55/Crooks Avenue with Ridgecrest Lane (one-way stop control)
- STH 55/Crooks Avenue with CTH KK/Calumet Street (roundabout control)
- CTH CE/College Avenue with Fieldcrest Drive (two-way stop control)
- CTH CE/College Avenue with Konkapot Trail Road/Forefront Dermatology Access Driveway (two-way stop control)
- CTH CE/College Avenue with the High School West (and future Middle School) Access Driveway (one-way stop control)
- Loderbauer Road with CTH CE/College Avenue (traffic signal control)

- Loderbauer Road with the High School northern (and future Middle School) Access Driveway (traffic signal control)
- Loderbauer Road with the High School middle (and future Middle School) Access Driveway (one-way stop control)
- Loderbauer Road with the Proposed South Access Driveway (one-way stop control)

B2. On-Site Development Description

As shown on the conceptual site plan in [Exhibit 1-2A](#), the middle school is proposed within the southeast portion of the overall site with parking lots proposed on the west and south sides of the middle school. Sports fields are proposed to the south of the school building. The following land uses are assumed for the proposed middle school site:

- Middle School – 1,200 students

The numbers of students shown are the anticipated maximum population at the proposed middle school. A map showing the limits of the student population for the Kaukauna School District is provided in the appendix.

It is anticipated that construction of the school will occur over a two-year period starting in the year 2026. Therefore, full build out of the development site is expected by the start of the fall semester in the year 2028. Therefore, traffic volumes from the proposed middle school were included in the Full Build traffic volumes.

B3. Off-site Development Description

As shown on the conceptual site plan in [Exhibit 1-2B](#), two off-site development areas were identified within the limits of the development site; specifically, two outlots located immediately east of STH 55 and west of the proposed middle school. There are no known plans for the development of these two 30-acre parcels; however, for planning purposes, the following land uses were assumed on the parcels:

West Parcel

- Shopping Plaza (40-150k - Supermarket - No), ITE LU821 – 100,000 square feet (sf)
- Strip Retail Plaza (<40k), ITE LU822 – 20,000 sf
- General Office Building – ITE LU710 – 15,000 sf

East Parcel

- Multifamily Housing (Low-Rise/Not Close to Rail Transit), ITE LU220 – 200 units

As stated above, the timing for the build out of these two parcels is unknown at this time. For purposes of this study, it was assumed that the parcels would be fully built out within the next ten years. Therefore, traffic volumes from these developments were included in the Total traffic volumes.

B4. Site Generated Traffic

The traffic volumes expected to be generated by the proposed middle schools were calculated based on the trip rates for a middle school (LU522) as published in the *Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition*.

Under full build (highest student population) conditions and based on data provided by the school district, the proposed middle school development is expected to generate 2,270 weekday

daily trips: with 780 new trips in the AM peak hour, 380 new trips in the PM peak hour and 210 during a typical weekday sporting event at the middle school. See [Exhibit 4-3A](#) for calculations.

The potential off-site development area is expected to generate 6,750 weekday daily trips: with 290 new trips in the AM peak hour, 565 new trips in the PM peak hour and 565 during a typical weekday sporting event at the middle school. See [Exhibit 4-3B](#) for calculations.

B5. Proposed Access

As shown in [Exhibit 1-2A](#), two access connections are proposed for the school development site. The main access is proposed as a full access driveway onto a new roadway connection to Crooks Avenue/STH 55 directly across from the existing three-legged, one-way stop sign controlled STH 55 intersection with Morningside Drive. A second driveway is proposed to connect to the high school site located northeast of the proposed middle school site with further existing connections from the high school onto CTH CE/College Avenue and Loderbauer Road. An additional driveway is proposed along Loderbauer Road, immediately south of the high school. Finally, even though not proposed as this time, a future connection via a new north/south connection onto CTH CE to the north and Speedway Lane to the southwest is also planned for at some point in the future.

B6. Recommended Modifications

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 7th Edition. Intersection operation is defined by “level of service.” Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A,’ to very poor, represented by LOS ‘F.’ For the purpose of this study, LOS D or better was used to define acceptable peak hour operating conditions.

Modifications to address traffic impacts are shown in [Exhibit 1-3](#) for the following traffic volume scenarios:

- ““Background Traffic” – These modifications are expected to be necessary to accommodate the Existing/Background traffic volumes.
- “Full Build Traffic” – These modifications are expected to be necessary to accommodate the Full Build traffic volumes which includes full build out of the proposed Middle School but does not include the identified off-site development areas.
- “Total Traffic” – These modifications are expected to be necessary to accommodate the Total traffic volumes which includes full build out of the proposed Middle School as well as the identified off-site development areas.

The analysis was conducted using existing intersection geometrics and traffic control and the existing traffic signal timings. The following modifications, as shown in [Exhibit 1-3](#), are recommended to accommodate the Existing/Background, Full Build, and Total traffic volumes, respectively. *Modifications are for jurisdictional consideration and are not legally binding. WisDOT, Outagamie County and the City of Kaukauna reserve the right to determine alternative solutions.*

Node 100: STH 55/Crooks Avenue with Ann Street

- *Background Traffic:*
 - Reconstruct the median to restrict through and left-turn exiting movements from the east and west approaches, thereby allowing left-in/right-in/right-out access at this intersection. The restricted movements would either

divert to other intersections or make a right-turn movement and then traverse the adjacent roundabout to continue to their ultimate destination.

- Maintain stop control on the east and west approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 200: CTH CE/College Avenue with Fieldcrest Drive

- *Background Traffic:*
 - Reconstruct the median to restrict through and left-turn exiting movements from the north and south approaches, thereby allowing left-in/right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent roundabout to continue to their ultimate destination.
 - Maintain stop control on the north and south approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 300: STH 55/Crooks Avenue with CTH CE/College Avenue

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Consider roundabout modification to provide a right-turn bypass lane on the north, south and east approaches.
- *Total Traffic:*
 - Depending on the build out plans for the off-site development area, consider reconstructing the roundabout to provide a multi-lane roundabout with three lane approaches on the north and south approaches, a two-lane approach with a bypass lane on the west approach and a three-lane approach with a bypass lane on the east approach. A future traffic study should be completed for this intersection as development plans move forward in the future to determine the optimal modifications for this intersection.

Node 400: CTH CE/College Avenue with Konkapot Trail Road/Forefront Dermatology Access Driveway

- *Background Traffic:*
 - Construct a raised median through the limits of the intersection to allow only right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent intersection to continue to their ultimate destination.
 - Maintain stop control on the north and south approaches.
- *Full Build Traffic:* No additional modifications.

- *Total Traffic:* No additional modifications.

Node 500: CTH CE/College Avenue with High School West Driveway

- *Background Traffic:*
 - Consider restricting all exiting northbound movements at this intersection during the weekday afternoon peak period (see discussion below). Diverted traffic would be expected to utilize the signalized intersections at Loderbauer Road.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 600: Loderbauer Road with CTH CE/College Avenue

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Consider updating traffic signal timings to provide optimized operations.
- *Total Traffic:*
 - Consider updating traffic signal timings to provide optimized operations.

Node 700: STH 55/Crooks Avenue with Morningside Drive/Proposed West Access Drive

- *Background Traffic:* No modifications.
- *Full Build Traffic.* Two modification options are recommended for consideration (see discussion below):
 - Option 1 – Two-way stop control.
 - No modifications recommended on the west approach.
 - Provide a shared through /left-turn lane and a dedicated right-turn lane on the east approach.
 - Provide a dedicated left-turn lane, a through lane and right-turn taper on the north and south approaches (two lanes plus taper on each approach).
 - Depending on the location of the pedestrian tunnel under STH 55, consider providing pedestrian crosswalk pavement markings along all approaches of the intersection.
 - Option 2 - Construct a single lane roundabout with single entrance lanes on all approaches.
- *Total Traffic:* Two modification options are recommended for consideration (see discussion below):
 - Option 1 – Two-way stop control.
 - No modifications recommended on the west approach.
 - Provide a shared through /left-turn lane and a dedicated right-turn lane on the east approach.

- Provide a dedicated left-turn lane, a through lane and right-turn taper on the north and south approaches (two lanes plus taper on each approach).
- Depending on the location of the pedestrian tunnel under STH 55, consider providing pedestrian crosswalk pavement markings along all approaches of the intersection
- Option 2 – Modify roundabout to provide an additional northbound lane (two lanes) on the south approach with two northbound lanes through the roundabout. All other approaches to remain as single lane approaches.
 - Even though not needed from an operations perspective, consideration could be given to providing two southbound lanes through the roundabout to match the existing two southbound lanes along STH 55 to the north.

Node 800: STH 55/Crooks Avenue with Ridgecrest Lane

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 900: STH 55/Crooks Avenue with CTH KK/Calumet Street

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 1000: Loderbauer Road with High School North Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Consider updating traffic signal timings to provide optimized operations.
- *Total Traffic:*
 - Consider updating traffic signal timings to provide optimized operations.

Node 1100: Loderbauer Road with High School Middle Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 1200: Loderbauer Road with Proposed South Access Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Construct a full access driveway with stop sign control on the west approach.
- *Total Traffic:* No additional modifications.

Higher delays (LOS F) are expected for several movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) even with the recommended geometry listed above under two-way stop control and under Full Build traffic volume conditions. Specifically, higher delays (LOS F) are expected during the weekday morning and afternoon peak periods and LOS E during the special event peak hour for all eastbound movements and the westbound through/left-turn movements at the intersection. However, as with most school sites, higher delays are only expected during about a 20 to 30 minute “surge” during the morning arrival and afternoon dismissal peak periods which can be considered typical for a school location. In addition, to alleviate some of the higher delays and queueing expected for the westbound through and left turn movements exiting the school during the typical weekday, exploration of an internal site connection to Speedway Lane to the south is expected to provide for another access alternative for vehicles to/from the south of the proposed school.

In addition, very high delays (LOS F/gridlock conditions) and very long queues are expected for several movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700), under Total traffic volume conditions, even with the recommended geometry listed above under two-way stop control. To provide for safe overall operations as well as realistic queue lengths under the off-site build-out assumptions, a higher level of traffic control should be considered under Total traffic volume conditions as future development moves forward.

A traffic signal warrant analysis was completed for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) under Full Build and Total traffic volume conditions. Based on the warrant analysis, neither Warrant 1 (8-Hour) nor Warrant 2 (4-Hour) are expected to be met at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build traffic conditions. Specifically, only 1 hour of the required 8 hours under Warrant 1 (8-Hour) and only 1 hour of the required 4 hours under Warrant 2 (4-Hour) are expected to be met. In addition, even though close to being met under the Total traffic volume condition, Warrant 1 (8-Hour) and Warrant 2 (4-Hour) are also not expected to be met under the Total traffic volume condition. Specifically, only 7 hours of the required 8 hours under Warrant 1 (8-Hour) and only 3 hours of the required 4 hours under Warrant 2 (4-Hour) are met. Therefore, unless the build out assumptions for the off-site development are more intense than assumed in this study, traffic signal control should not be considered at this intersection under the Build (with proposed school only) traffic volume conditions nor with Total (with proposed school plus off-site) traffic volume conditions.

Per the WisDOT Facilities Development Manual (FDM), if an intersection warrants traffic signal control, a modern roundabout should also be evaluated. As stated above, traffic signals are not expected to be warranted, even under the Total traffic volume conditions which includes full build out of both the on-site and off-site assumptions used in this study. However, since higher delays are expected under the Total traffic volume condition under two-way stop control, and to provide for acceptable delays and queues and overall safe operations, roundabout control was also considered at the proposed intersection under Total traffic volume conditions. Based on the ICE analysis, roundabout control provides the only viable option under the Total traffic conditions to provide for acceptable delays with reasonable queueing and is therefore recommended for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive. Under the Build (with proposed school only) traffic volume conditions, two-way stop control with lane modifications is recommended at the intersection.

Higher delays (LOS E/F) are expected for several movements at the STH 55/Crooks Avenue intersection with CTH CE/College Avenue (node 300) under the current dual lane roundabout controlled intersection under Full Build and Total traffic volume conditions. The recommended bypass lane additions under the Full Build traffic volume conditions and the recommended reconstruction to a 3-lane roundabout with bypass lanes under the Total traffic volume conditions are expected to provide acceptable operation for most movements; however, higher delays (LOS E) are still expected for some movements during the typical weekday morning peak period noting that the delays are only slightly higher than acceptable (about 6 seconds) and the reported queueing is expected to be reasonable (all less than 225 feet). Without the bypass lanes recommended under the Full Build traffic conditions, higher delays (about 60 seconds) are expected for several movements during the weekday morning peak school peak hour with maximum queues of about 400 feet (16 vehicles) or less. As with many schools, the morning peak period “surge” last about 20 to 30 minutes. However, acceptable delays are expected during all other hours of the typical weekday, including the typical school afternoon school discharge and weekday evening commuter peak hours. Since development plans for the off-site development area are unknown at this time and the build out assumptions were used for planning purposes only and with this study showing the need for a three lane roundabout at the STH 55/Crooks Avenue intersection with CTH CE/College Avenue, which is not typically acceptable by WisDOT, a future traffic study should be completed in the future as development plans move forward for the off-site area.

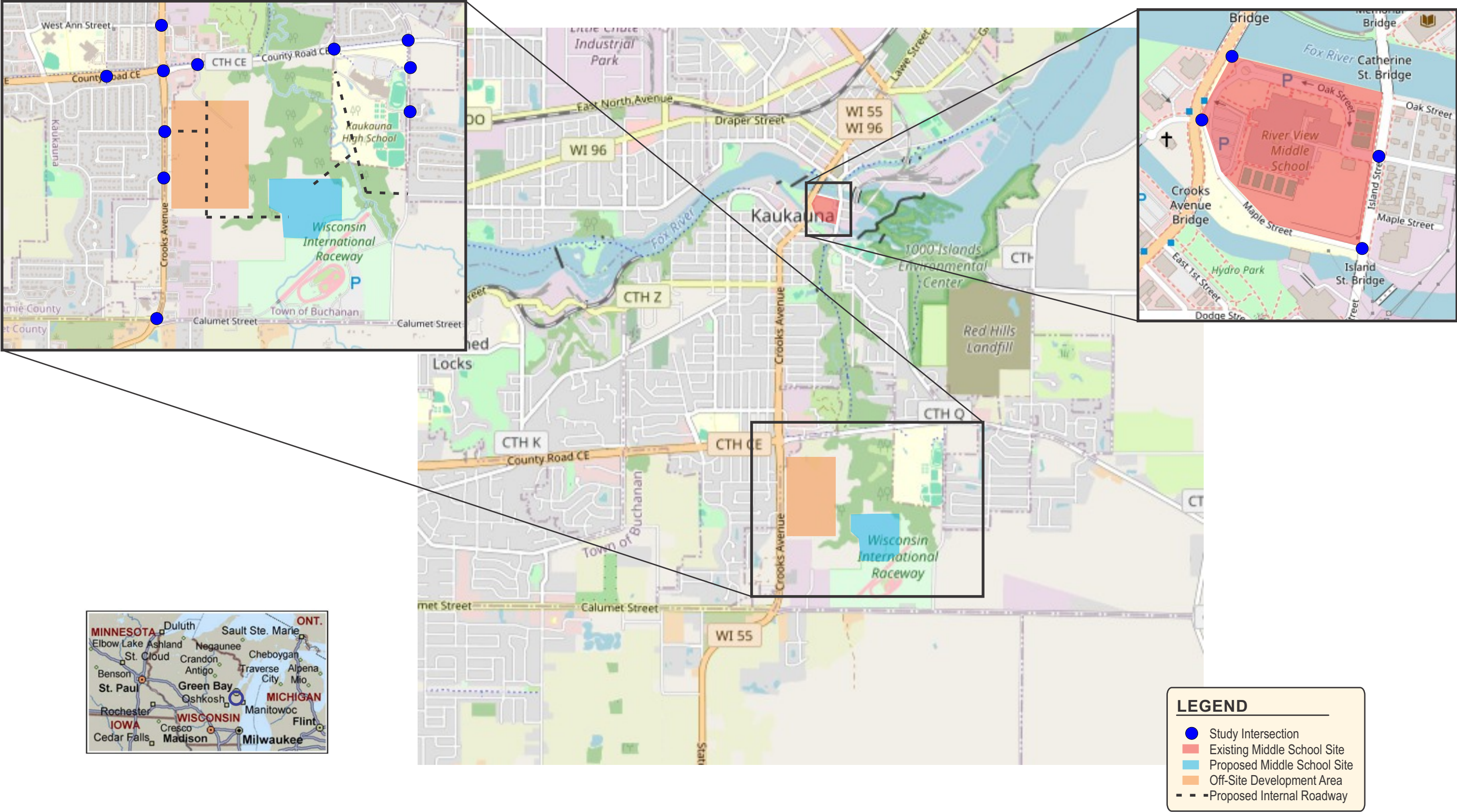
Higher delays (LOS F) are also expected at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) under Existing, Full Build and Total traffic conditions during the typical weekday afternoon peak period. Since the higher delays are only currently being experienced during the typical weekday afternoon peak and are expected to increase during this evening peak period, restricting these movements during this weekday afternoon peak period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow this and all adjacent study area intersections to operate acceptably under all peak periods. Restrictions could include signage, gating and/or the use of temporary cones placed daily by school staff to restrict exiting traffic during the weekday afternoon discharge peak period. A separate analysis was completed for this scenario (with restricted/diverted traffic) that shows that the existing traffic signals at the College Avenue/CTH CE intersection with Loderbauer Road and the existing traffic signals at the Loderbauer Road intersection with the High School North Driveway are expected to operate acceptably with acceptable delays and queueing during the typical weekday afternoon peak period even with the diverted traffic from the High School West Driveway.

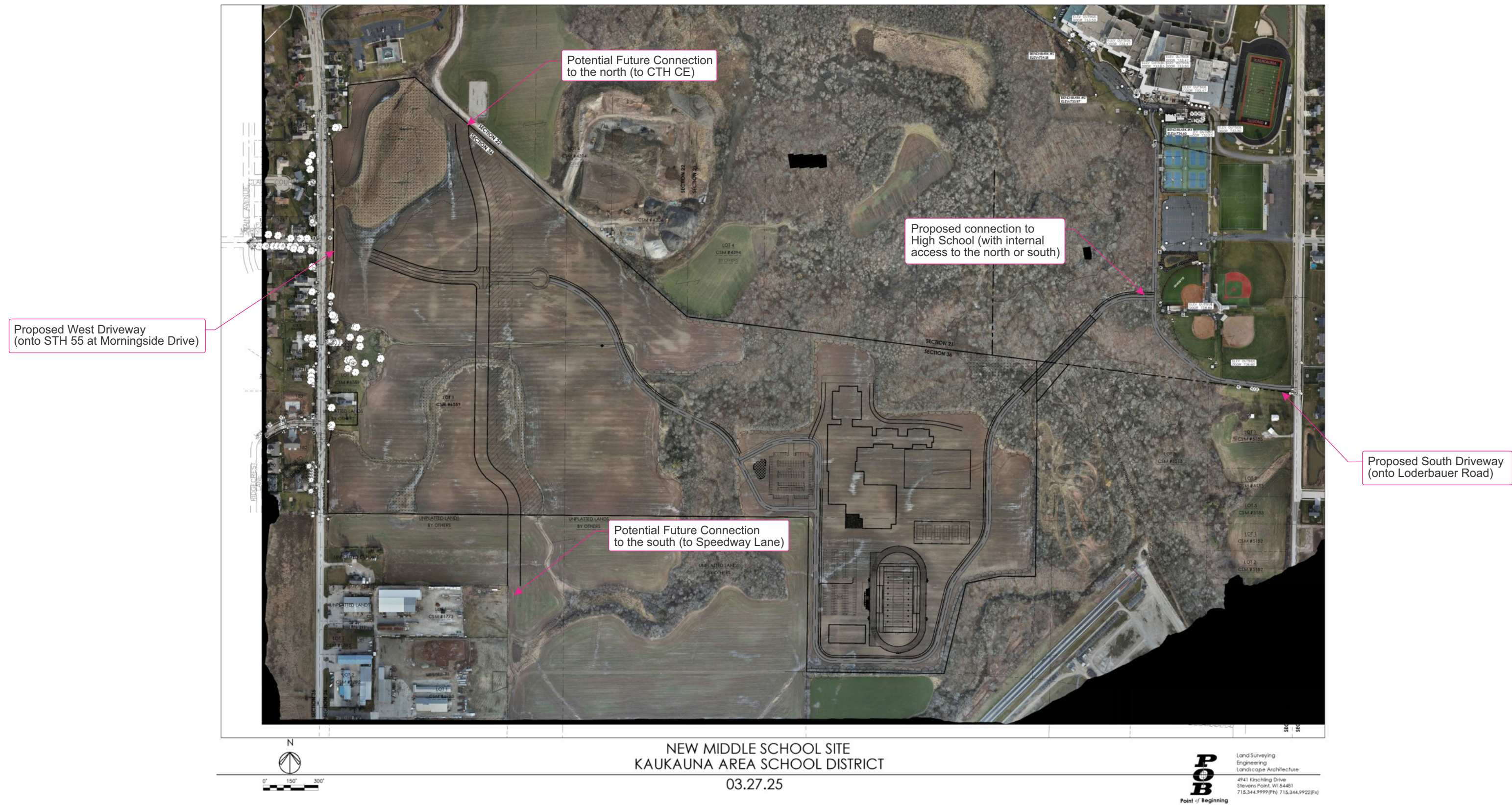
Even though the existing traffic signal timings at the College Avenue/CTH CE intersection with Loderbauer Road and the existing traffic signals at the Loderbauer Road intersection with the High School North Driveway are expected to provide acceptable operations and queueing under both Full Build and Total traffic volume conditions, optimized traffic signal timings and offsets were implemented as part of the analysis as provided in the outputs provided in the appendix of this report.

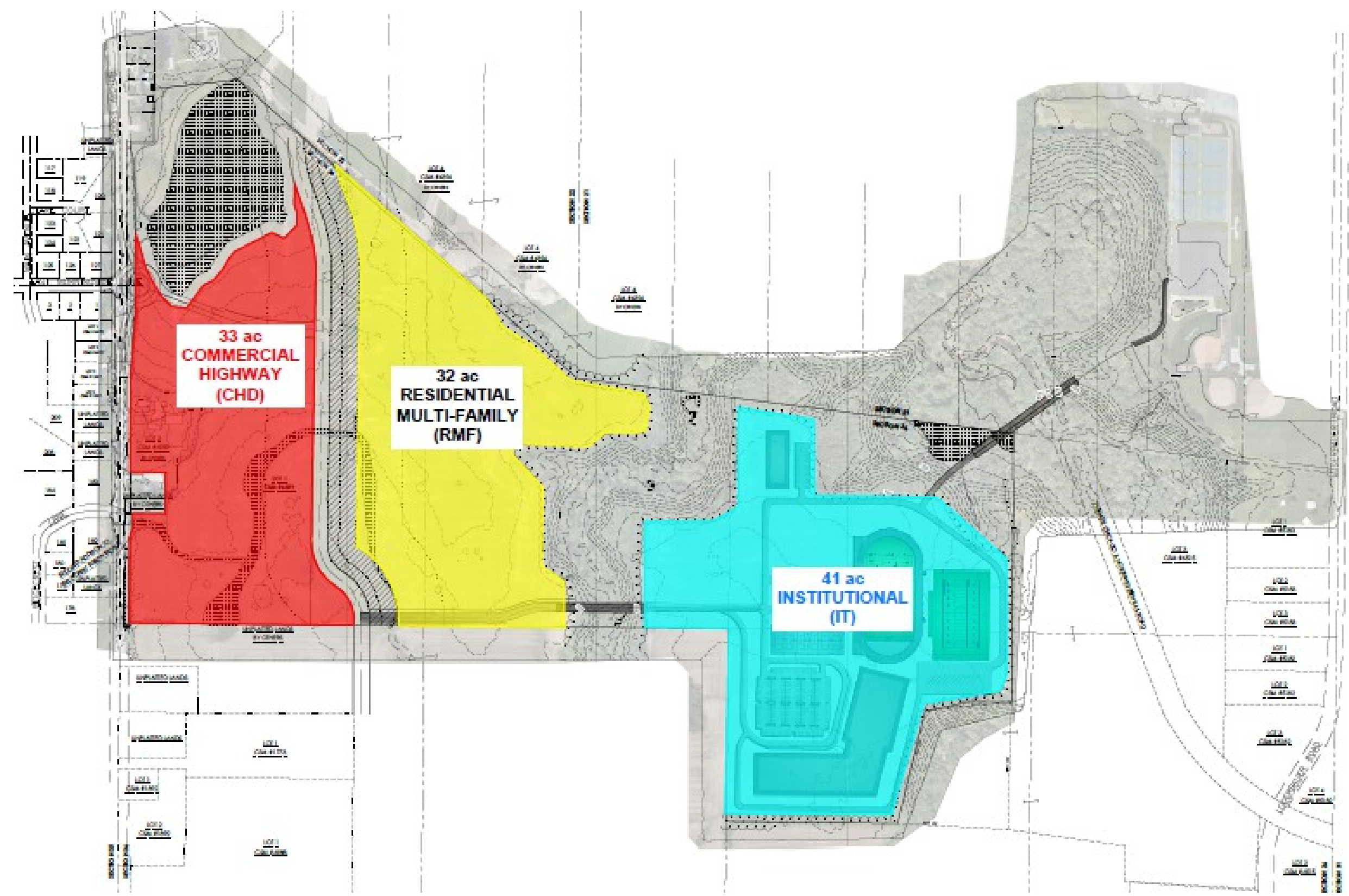
B7. Conclusion

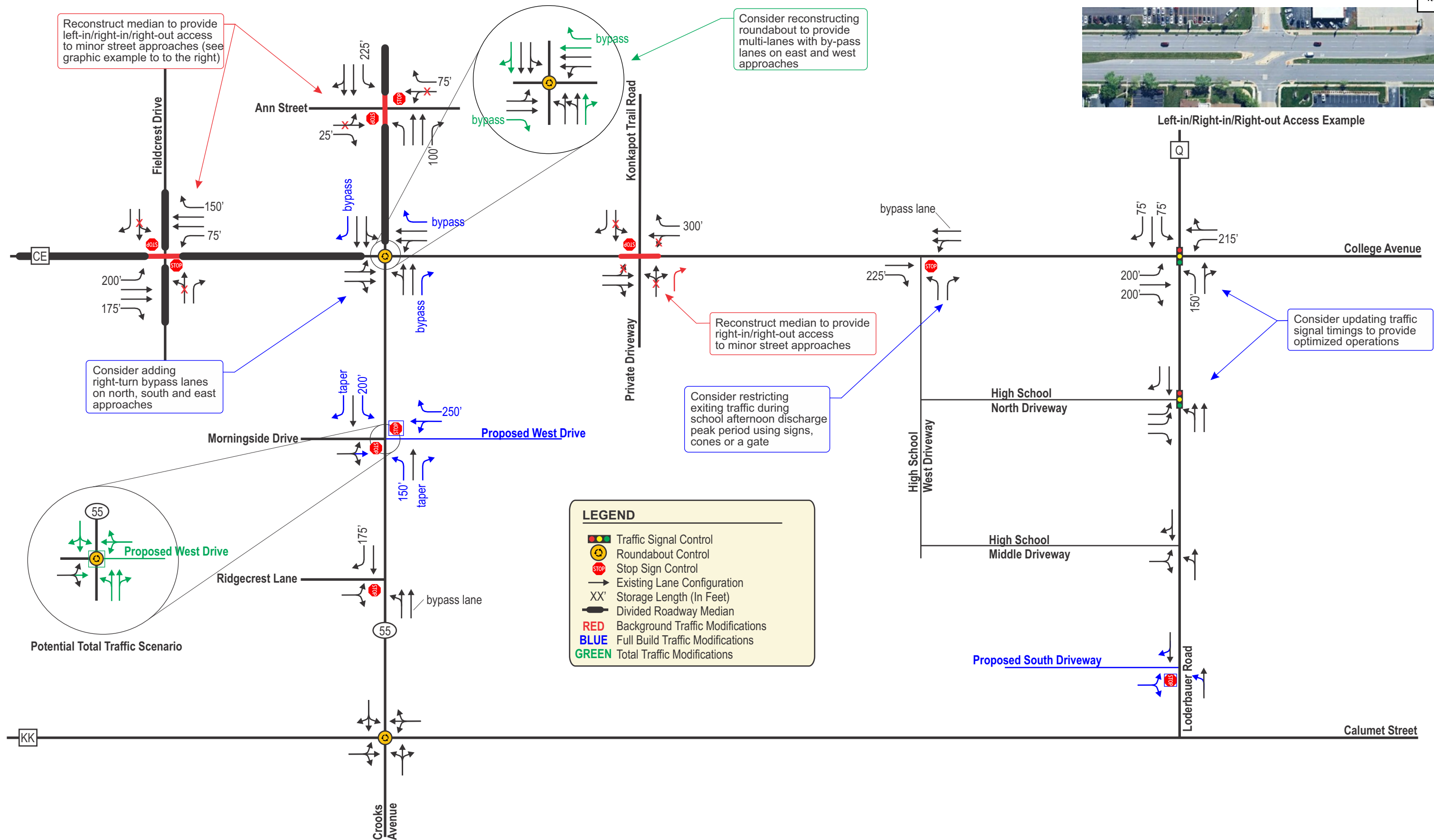
To accommodate the full build out of the proposed middle school, recommended modifications are expected to be necessary to the transportation network. Except as noted, all movements at the study area intersections are expected to operate safely and efficiently with the modifications identified in this TIA with the proposed middle school site and identified off-site development areas. Since development plans for the off-site development area are unknown at this time and

the build-out assumptions were used for planning purposes only, a future traffic study should be completed in the future as development plans move forward for the off-site area.









CHAPTER II – PROPOSED DEVELOPMENT

PART A – DEVELOPMENT SITE

A1. Development Description and Site Location

The Kaukauna Area School District is planning to construct a new Middle School to be located on a vacant parcel of land east of State Trunk Highway (STH) 55, south of County Trunk Highway (CTH) CE and southwest of the current high school in the City of Kaukauna and the Town of Buchana, Outagamie County, Wisconsin. A new middle school with two outlots for potential future development, which are expected to include commercial and residential land uses along with a connection roadway to the Kaukauna High School, are being proposed for the development site. A street map illustrating the locations of the existing and proposed schools is shown in [Exhibit 2-1](#).

A2. Land Use and Intensity

The proposed middle school site is currently being utilized for agricultural uses with several large, wooded areas located throughout. A river also runs through the site. The overall site is bordered by residential uses to the east, west and north with a few additional residential houses immediately to the south along the south side of CTH KK. The Kaukauna High School is located immediately to the northeast. Commercial uses currently exist adjacent to the site, to the north (along both sides of CTH CE) and to the southwest along STH 55. Light industrial land uses also exists to the southwest along STH 55. The Wisconsin International Raceway is located immediately to the southeast, adjacent to the site.

A3. Site Plan

A copy of the conceptual site plan for the proposed middle school is illustrated in [Exhibit 2-2A](#). The middle school is proposed within the southeast portion of the overall site with parking lots proposed on the west and south sides of the middle school. Sports fields are proposed to the south of the school building. Two access connections are proposed for the school development site. The main access is proposed as a full access driveway onto a new roadway connection to Crooks Avenue/STH 55 directly across from the existing three-legged, one-way stop sign controlled STH 55 intersection with Morningside Drive. A second driveway is proposed to connect to the high school site located northeast of the proposed middle school site with further existing connections from the high school onto CTH CE/College Avenue and Loderbauer Road. An additional driveway is proposed along Loderbauer Road, immediately south of the high school. Finally, even though not proposed as this time, a future connection via a new north/south connection onto CTH CE to the north and Speedway Lane to the southwest is also planned for at some point in the future.

A4. Development Phasing and Timing

The following land uses are assumed for the proposed middle school site:

- Middle School – 1,200 students

The numbers of students shown are the anticipated maximum population at the proposed middle school. A map showing the limits of the student population for the Kaukauna School District is provided in the appendix.

It is anticipated that construction of the school will occur over a two-year period starting in the year 2026. Therefore, full build out of the development site is expected by the start of the fall semester in the year 2028. Therefore, traffic volumes from the proposed middle school were included in the Full Build traffic volumes.

PART B – STUDY AREA

B1. Influence Area

Based on the type of proposed land uses and the location of the site, the proposed middle school development is expected to draw from a local and regional customer base. Therefore, the areas of significant influence include the City of Kaukauna and other surrounding cities, villages, and towns that are part of the Kaukauna Area School District. A map showing the limits of the school district in relation to the proposed middle school site is provided in the appendix.

B2. Area of Significant Traffic Impact

As identified by the study team, the study area for the proposed middle school includes the following intersections:

- STH 55/Crooks Avenue with Ann Street (two-way stop control)
- STH 55/Crooks Avenue with CTH CE/College Avenue (roundabout control)
- STH 55/Crooks Avenue with Morningside Drive/Proposed West Access Drive (current one-way stop control)
- STH 55/Crooks Avenue with Ridgecrest Lane (one-way stop control)
- STH 55/Crooks Avenue with CTH KK/Calumet Street (roundabout control)
- CTH CE/College Avenue with Fieldcrest Drive (two-way stop control)
- CTH CE/College Avenue with Konkapot Trail Road/Forefront Dermatology Access Driveway (two-way stop control)
- CTH CE/College Avenue with the High School West (and future Middle School) Access Driveway (one-way stop control)
- Loderbauer Road with CTH CE/College Avenue (traffic signal control)
- Loderbauer Road with the High School northern (and future Middle School) Access Driveway (traffic signal control)
- Loderbauer Road with the High School middle (and future Middle School) Access Driveway (one-way stop control)
- Loderbauer Road with the Proposed South Access Driveway (one-way stop control)

PART C – OFF-SITE LAND USE AND DEVELOPMENT

As shown on the conceptual site plan in [Exhibit 1-2B](#), two off-site development areas were identified within the limits of the development site; specifically, two outlots located immediately east of STH 55 and west of the proposed middle school. There are no known plans for the development of these two 30-acre parcels; however, for planning purposes, the following land uses were assumed on the parcels:

West Parcel

- Shopping Plaza (40-150k - Supermarket - No), ITE LU821 – 100,000 square feet (sf)
- Strip Retail Plaza (<40k), ITE LU822 – 20,000 sf
- General Office Building – ITE LU710 – 15,000 sf

East Parcel

- Multifamily Housing (Low-Rise/Not Close to Rail Transit), ITE LU220 – 200 units

As stated above, the timing for the build out of these two parcels is unknown at this time. For purposes of this study, it was assumed that the parcels would be fully built out within the next ten years. Therefore, traffic volumes from these developments were included in the Total traffic volumes.

PART D – SITE ACCESSIBILITY**D1. Study Area Roadways**

The study area roadways for the proposed site include the following:

Crooks Avenue (STH 55) is a four-lane divided north/south principal arterial highway north of CTH KK and an undivided minor arterial to the south. The highway widens to provide a raised median section from immediately north of Ann Street to a point immediately south of the roundabout at CTH CE. The highway also transitions to a two-lane undivided cross section to the south of Morningside Drive. The posted speed limit on STH 55 is 25-mph north of CTH CE, 35-mph south of CTH CE, 45-mph between Morningside Drive and CTH KK and 55-mph to the south, starting at a point about ¼-mile south of CTH KK. According to the Wisconsin Department of Transportation (WisDOT), the Year 2023 average annual daily traffic volumes (AADT's) on STH 55 were approximately 14,700 vehicles per day (vpd) north of 16th Street, 14,100-vpd to the north of CTH CE, 10,700-vpd to the south of Ridgecrest Lane, and 4,800-vpd (2016 count) to the south of CTH KK. Sidewalks are provided along both sides of STH 55 to the north of CTH CE and exist only for a short distance to the south, up through the Forefront Dermatology driveway.

College Avenue (CTH CE) is a four-lane divided east/west principal arterial highway to the west of STH 55 and a two-lane undivided minor arterial to the east of STH 55. The posted speed limit on CTH CE is 45-mph to the west of STH 55 and to the east of a point about 850 feet east of Konkapot Trail Road. For the short section of highway between STH 55 and this point, the speed limit on CTH CE is 35-mph. The Year 2023 WisDOT AADT volumes on CTH CE were approximately 15,800-vpd west of Fieldcrest Drive, 14,200-vpd to the west of STH 55, 9,300-vpd to the west of Loderbauer Road, and 4,800-vpd (2019 count) to the east. The CE multi-use trail currently exists along the north side CTH CE within the study limits. The CE Trail is a 5.8-mile paved trail that runs between Appleton and Kaukauna.

Calumet Street (CTH KK) is a two-lane undivided east/west minor arterial highway to the west of STH 55 and a major collector to the east of STH 55. The posted speed limit on CTH KK is 45-mph to the west of STH 55 and 55-mph to the east. The Year 2023 WisDOT AADT volumes on CTH KK were approximately 7,200 vpd west of STH 55 and 5,600-vpd (2019 count) to the east. Sidewalks are not currently provided along either side of CTH KK within the study limits.

Hillcrest Drive (CTH Q) is a two-lane undivided north/south minor arterial north of CTH CE with a posted speed limit of 25-mph within the study area. South of CTH CE the roadway is designated as Loderbauer Road. The Year 2016 WisDOT AADT volumes on Hillcrest Drive were approximately 2,800 vpd north of CTH CE. Sidewalks are provided along the west side of Hillcrest Drive within the study limits.

Loderbauer Road is a four-lane undivided north/south local street immediately south of CTH CE that transitions to a two-lane undivided cross section to the south of the high school's north driveway. The roadway also changes from an urban cross section to the north of Bear Paw Trail

(adjacent neighborhood street) to a rural cross section to the south. North of CTH CE the roadway is designated as Hillcrest Drive. The posted speed limit on Loderbauer Road is 35-mph within the study area. No AADT's are currently available for Loderbauer Road. Sidewalks are provided along the west side of Loderbauer Road within the limits of the high school property (from CTH CE down to a point near Bear Paw Trail) and along the east side of Loderbauer Road from the residential properties north of Andrea Michelle Court down to White Dove Lane.

Ann Street is a two-lane undivided east/west major collector with a posted speed limit of 25-mph within the study area. The Year 2019 WisDOT AADT volumes on Ann Street were approximately 1,600 vpd west of STH 55. Sidewalks are provided along both sides of Ann Street, west of STH 55 and along the south side of Ann Street to the east.

Konkapot Trail Road is a two-lane undivided north/south local street with a posted speed limit of 25-mph within the study area. No AADT's are currently available for Konkapot Trail Road. Sidewalks are provided along both sides of Konkapot Trail Road within the study limits.

Fieldcrest Drive is a two-lane undivided north/south major collector with a posted speed limit of 25-mph within the study area. The Year 2019 WisDOT AADT volumes on Fieldcrest Drive were approximately 2,500 vpd north of CTH CE. Sidewalks are provided along both sides of Fieldcrest Drive to the north of CTH CE; however, sidewalks are not currently provided on either side to the south.

Morningside Drive is a two-lane undivided east/west local residential street with a posted speed limit of 25-mph within the study area. No AADT's are currently available for Morningside Drive. Sidewalks are provided along both sides of Morningside Drive within the study limits.

Ridgecrest Lane is a two-lane undivided east/west local residential street with a posted speed limit of 25-mph within the study area. No AADT's are currently available for Ridgecrest Lane. Sidewalks are provided along both sides of Ridgecrest Lane within the study limits.

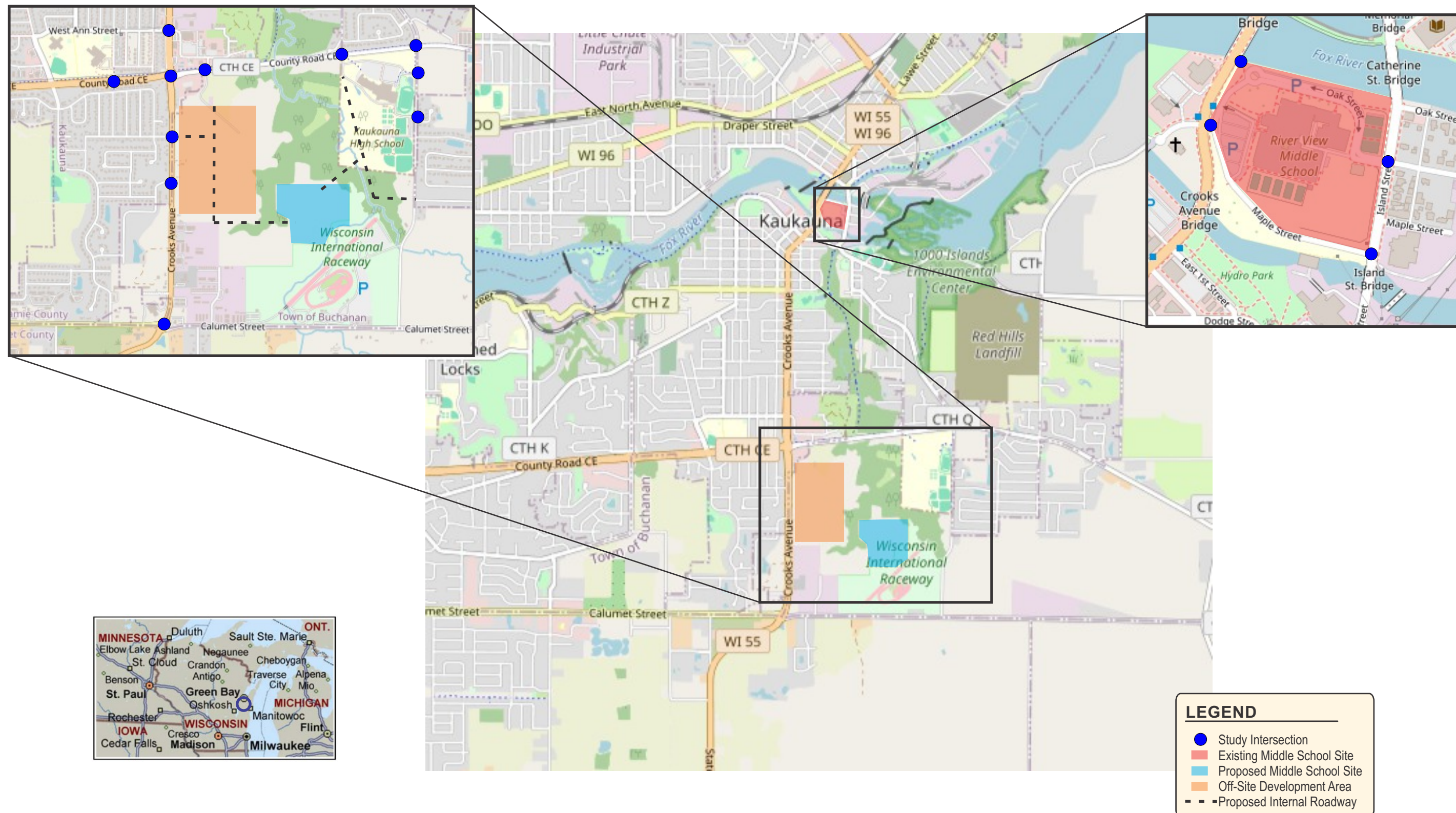
D2. Anticipated Infrastructure Projects

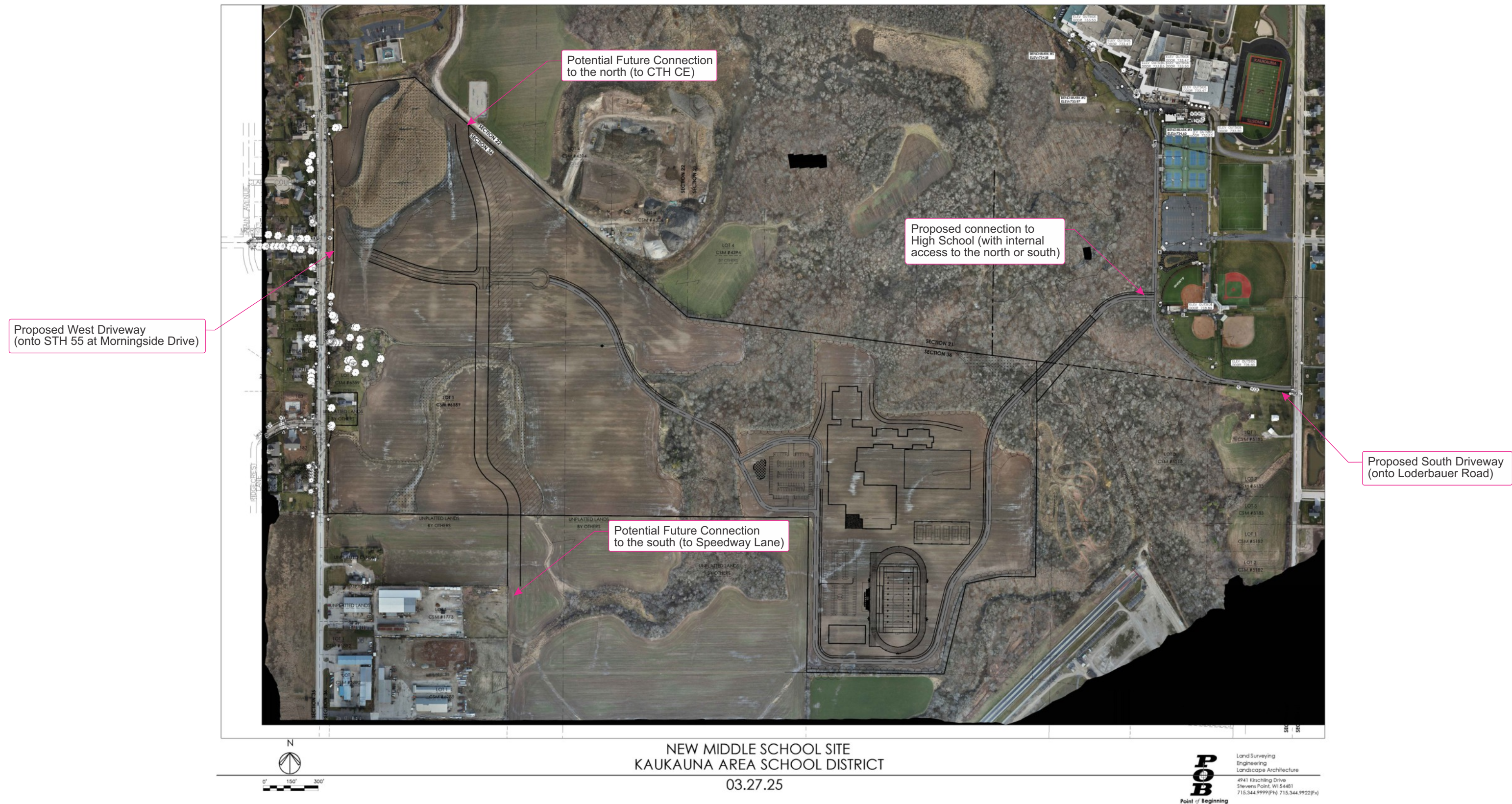
Based on information provided by WisDOT, NE Region, and Outagamie County, two improvement projects were identified within the general study area. A mill/overlay project (WisDOT ID 4050-21-71) is planned along STH 55 between USH 10 and Ridgecrest Road during the year 2028 construction season. A Highway Safety Improvement Project (HSIP) under WisDOT ID 4160-07-00/70 is planned to provide a modified RCUT intersection at the CTH CE intersection with Fieldcrest Drive. Construction for this project will likely start in the spring of 2028.

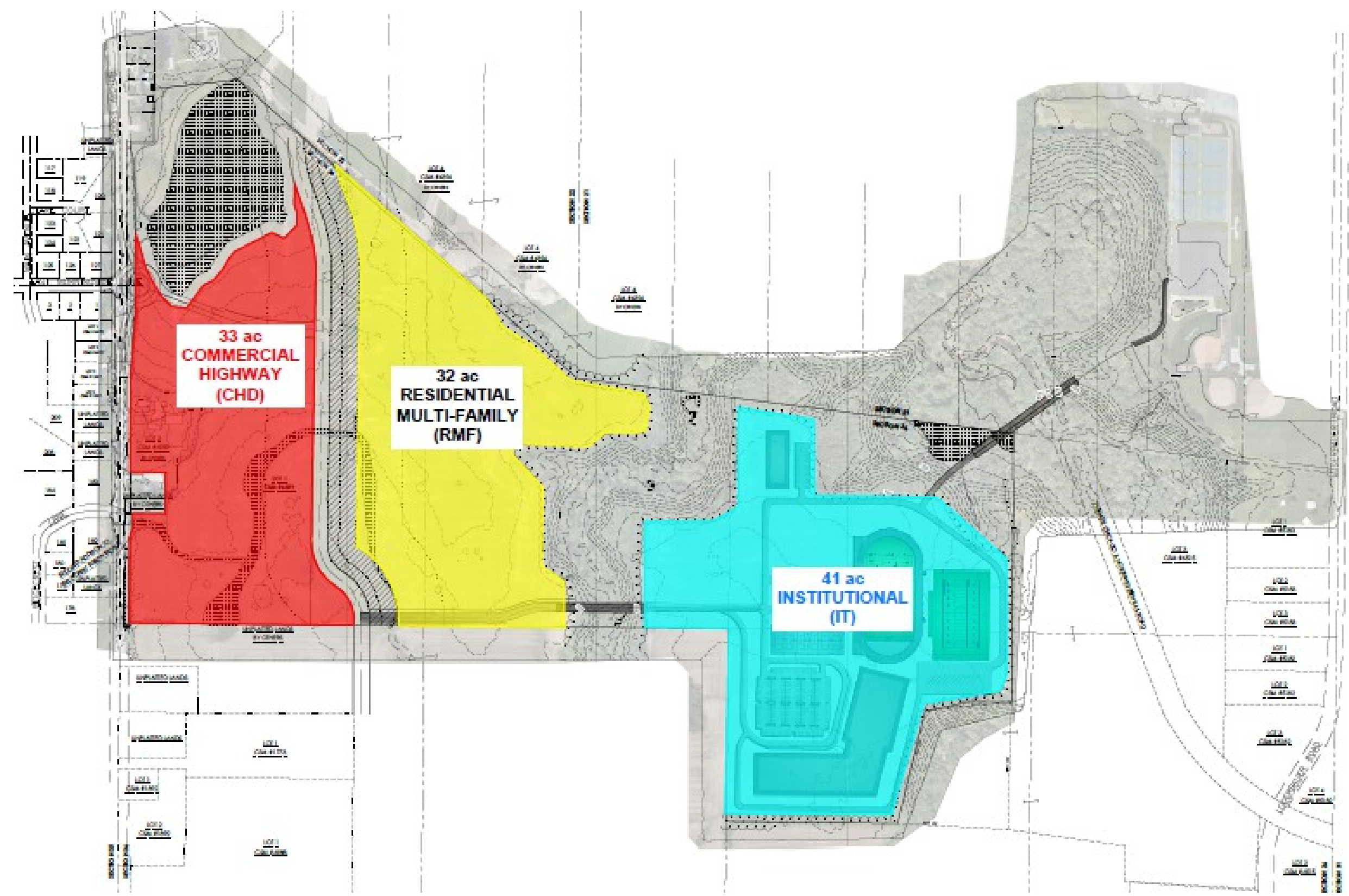
D3. Alternative Modes of Transportation

As described above, sidewalks and a multi-use trail (CE Trail) are currently provided along many of the roadways within the study area. No designated on-street bicycle facilities were identified.

Due to the location of the proposed school in relation to the residential neighborhoods within the Kaukauna area, and with sidewalks and the CE Trail currently provided near the school, it was assumed that a fair number of students will walk or ride bikes to/from the school on a daily basis. See trip generation discussion in *Chapter IV* for further assumptions concerning students walking to school.







CHAPTER III – ANALYSIS OF EXISTING CONDITIONS

PART A – PHYSICAL CHARACTERISTICS

[Exhibit 3-1](#) shows the existing transportation detail for the study area intersections. More specifically, the exhibit illustrates intersection lane configurations, intersection traffic controls, distances between intersections, and posted speed limits within the study area.

PART B – TRAFFIC VOLUMES

The weekday morning and weekday evening peak hours are expected to drive the improvements needed to adequately accommodate the proposed middle school development, as they represent the highest trip generation for the site and the highest volumes along the adjacent highways. TADI conducted weekday morning (6:30 – 8:30am) and weekday evening (2:30 – 6:00pm) peak hour turning movement traffic counts at the existing study area intersections in mid-February of 2025.

In addition, to calculate local middle school trip generation rates for this study, TADI conducted weekday morning (6:30 – 8:30am) and weekday evening (2:30 – 6:00pm) peak hour turning movement traffic and pedestrian counts at the existing intersections/locations adjacent to the existing Riverview Middle School located along the Fox River in early-February of 2025. Specifically, counts were conducted at the following intersections/locations noting that the westerly entrance to the school off of STH 55 was blocked to vehicular traffic by bollards with all traffic accessing the site along Island Street to the east:

- Island Street with Maple Street School Access
- Island Street with Elm Street School Access
- STH 55/Crooks Avenue with pedestrian access tunnel (pedestrian count only)
- STH 55/Crooks Avenue with pedestrian access to the parking lot (pedestrian count only)

The existing peak hour traffic volumes (including pedestrian volumes) at these four intersections/locations adjacent to the existing Riverview Middle School are shown in [Exhibit 3-2A](#).

Based on the turning movement counts and the expected school bell schedule, the weekday morning and weekday afternoon peak hours were identified as being 7:00 to 8:00 am and 3:15 to 4:15 pm; respectively. These peak hours coincide with the expected school start and end times of 7:55 am and 3:20 pm, respectively. A separate weekday evening special event peak hour, identified as 4:30 to 5:30 pm, was also evaluated as part of the study. This peak hour is expected to coincide with a boy's middle school basketball game. Details and calculations for this peak hour are provided in the [appendix](#) of this study. The existing peak hour traffic volumes at the study area intersections, raw data/unbalanced, are shown in [Exhibit 3-2B](#). The existing peak hour traffic volumes at the study area intersections, balanced along the study area corridors, are shown in [Exhibit 3-2C](#). The traffic counts used to determine peak hour factors and truck percentages have been included in the [appendix](#) of this study.

PART C – CAPACITY LEVEL OF SERVICE

C1. Level of Service Definitions

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM), 7th Edition. Intersection operation is defined by “level of service.” Level of service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A,’ to very poor, represented by LOS ‘F.’ For the purpose of this study, LOS D was used to define acceptable peak hour operating

conditions. Peak hour factors (PHF's) in the modeling software were adjusted down slightly to calibrate the models to actual queues observed during data collection. The same PHF's at the existing middle school intersection were utilized at the intersections adjacent to the new middle school to allow for a more accurate build condition. Descriptions of the various levels of service are as follows:

LOS A is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized and unsignalized intersections, average delays are less than 10 seconds.

LOS B represents stable operation. At signalized intersections, average vehicle delays are 10 to 20 seconds. At unsignalized intersections, average delays are 10 to 15 seconds.

LOS C still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At signalized intersections, average vehicle delays are 20 to 35 seconds. At unsignalized intersections, average delays are 15 to 25 seconds.

LOS D represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are 35 to 55 seconds. At unsignalized intersections, average delays are 25 to 35 seconds.

LOS E represents the capacity of the intersection. At signalized intersections, average vehicle delays are 55 to 80 seconds. At unsignalized intersections, average delays are 35 to 50 seconds.

LOS F represents jammed conditions where the intersection is over capacity and acceptable gaps for unsignalized intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed 80 seconds. At unsignalized intersections, average delays exceed 50 seconds.

C2. Existing Traffic Operations

[Exhibit 3-3](#) shows the existing traffic peak hour operating conditions at the study area intersections at the proposed school location. The existing traffic analysis was conducted using the existing lane configurations shown in [Exhibit 3-1](#), the existing traffic signal timings and the existing traffic volumes shown in [Exhibit 3-2C](#).

As shown in [Exhibit 3-3](#), all movements are currently operating acceptably at LOS D or better at the study area intersections under the existing traffic volumes conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street (node 100) which are currently operating at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The northbound through/left-turn movements at the College Avenue/CTH CE intersection with Fieldcrest Drive (node 200) which are currently operating at LOS E during the typical weekday morning peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road (node 400) which are currently operating at LOS E/F during the typical weekday morning and afternoon peak periods.

- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) which is currently operating at LOS F during the typical weekday afternoon peak period.

PART D – SOURCES OF DATA

The following sources of data were obtained for use in conducting this traffic study:

- Turning movement traffic counts – TADI
- Existing transportation details – TADI along with Google Earth
- Existing Traffic Signal Timings – City of Kaukauna
- On-Site Development information – Point of Beginning and the Kaukauna Area School District
- Off-Site Development information – City of Kaukauna

LEGEND

Traffic Signal Control

Stop Sign Control

Roundabout Control

Existing Lane Configuration

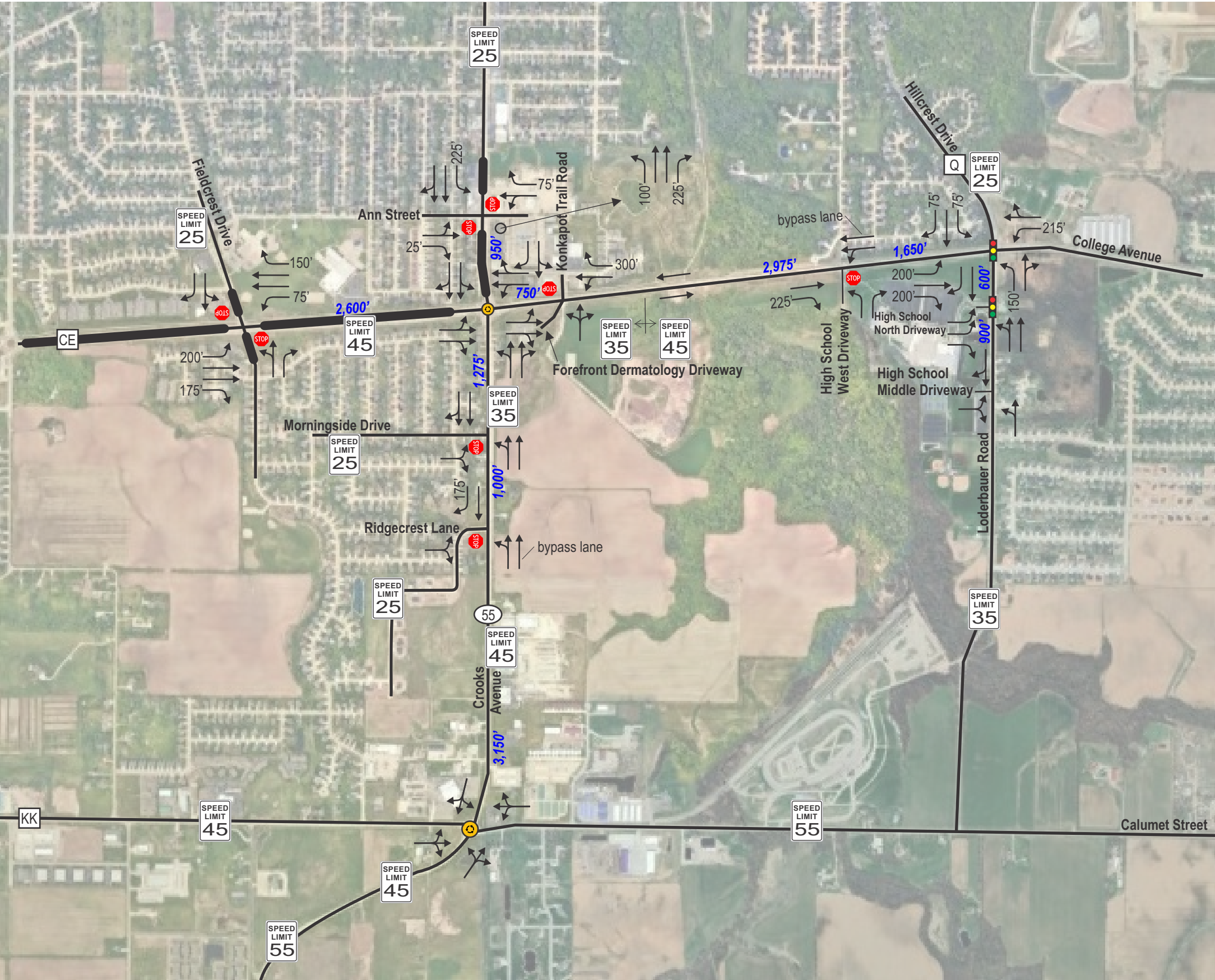
XX'

Existing Storage Length (in Feet)

XX'

Distance Between Roadways (in Feet)

Divided Roadway Median



LEGEND

XX

AM Peak Hour Volumes (7:00-8:00 AM)

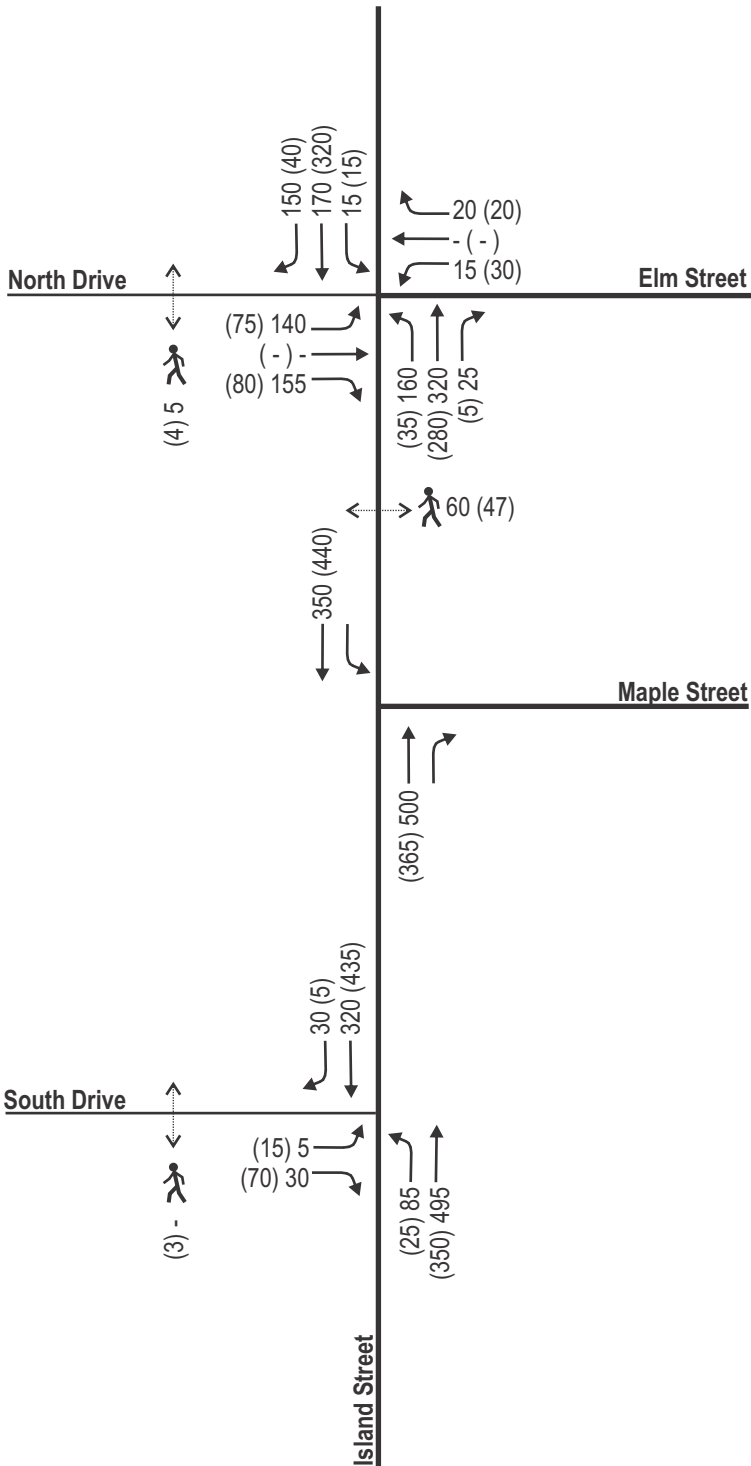
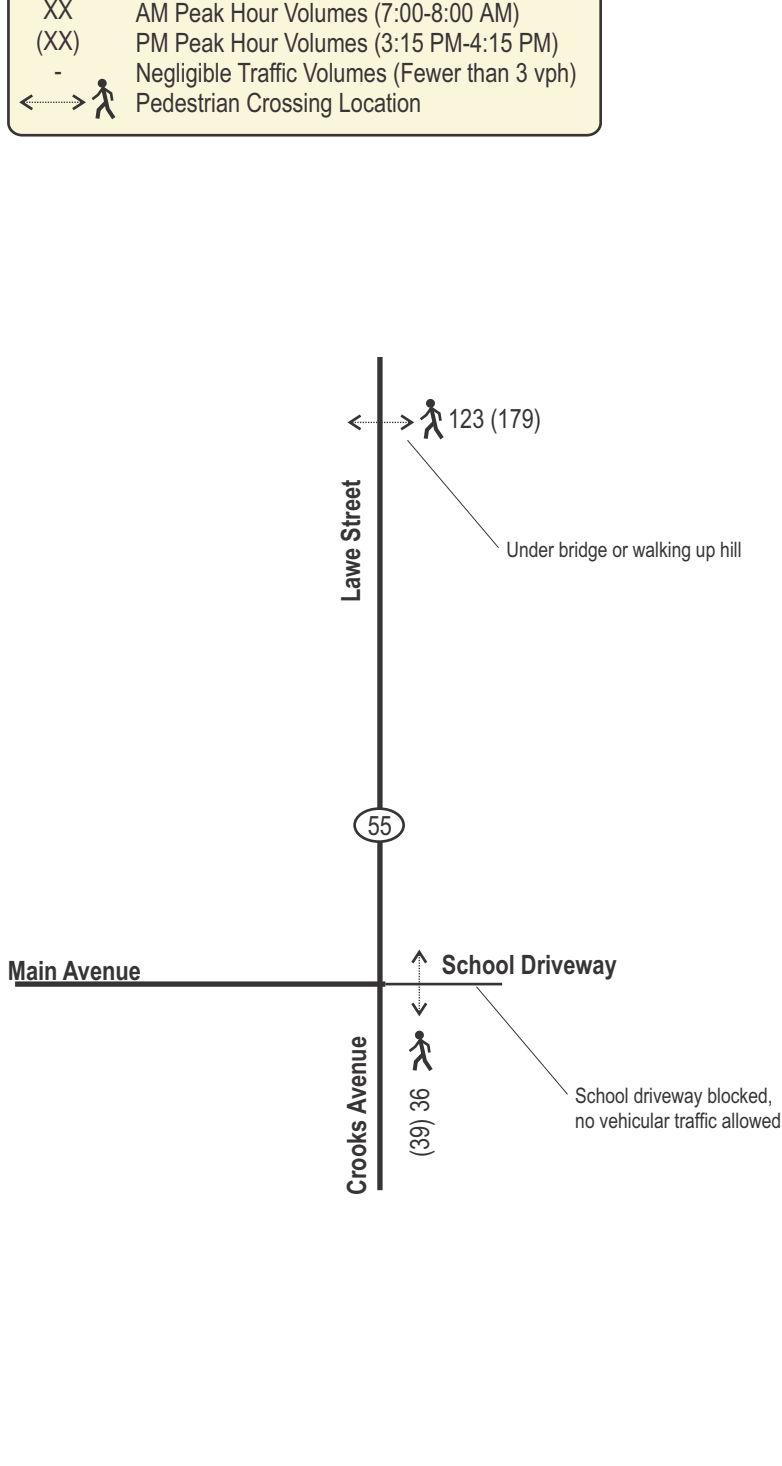
(XX)

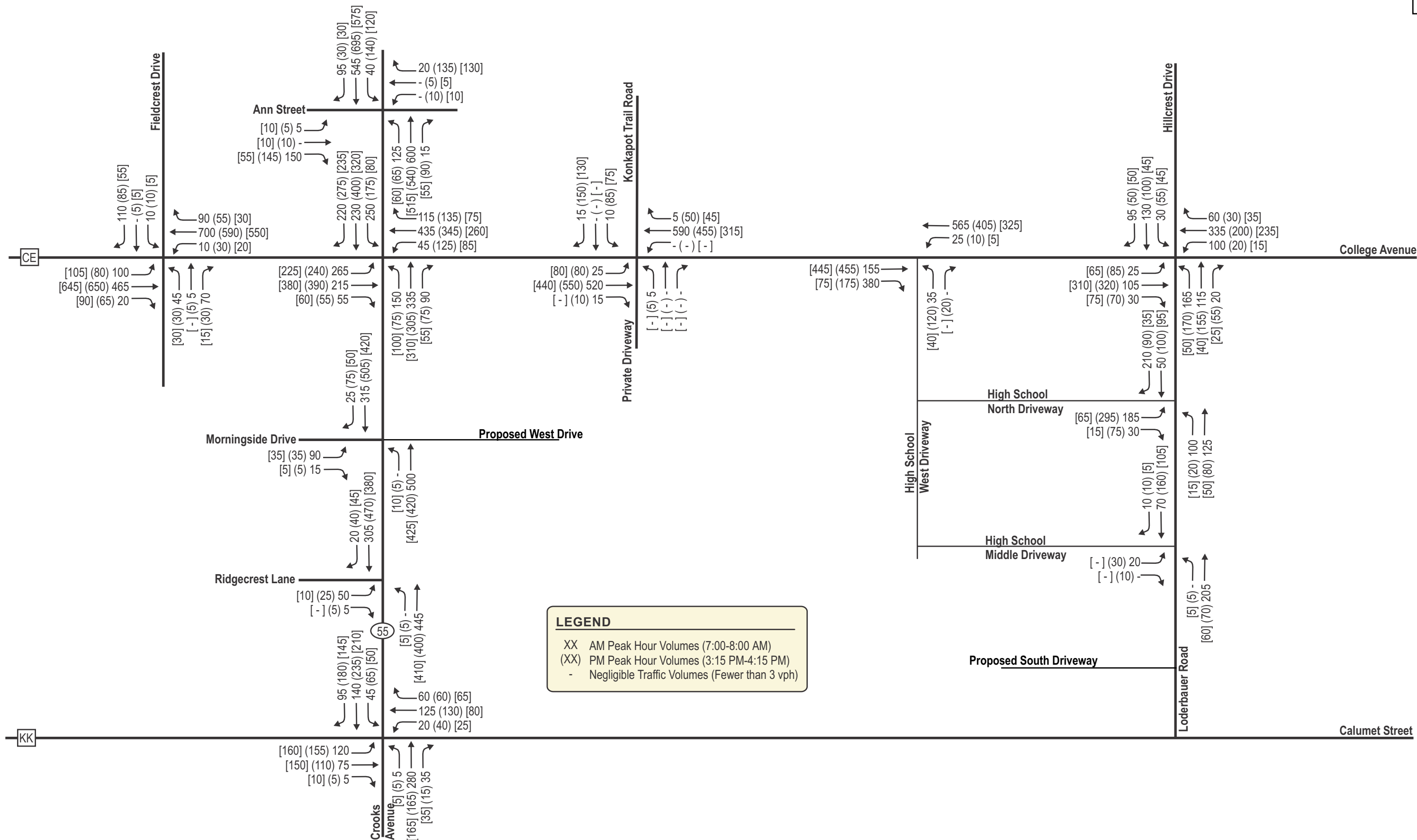
PM Peak Hour Volumes (3:15 PM-4:15 PM)

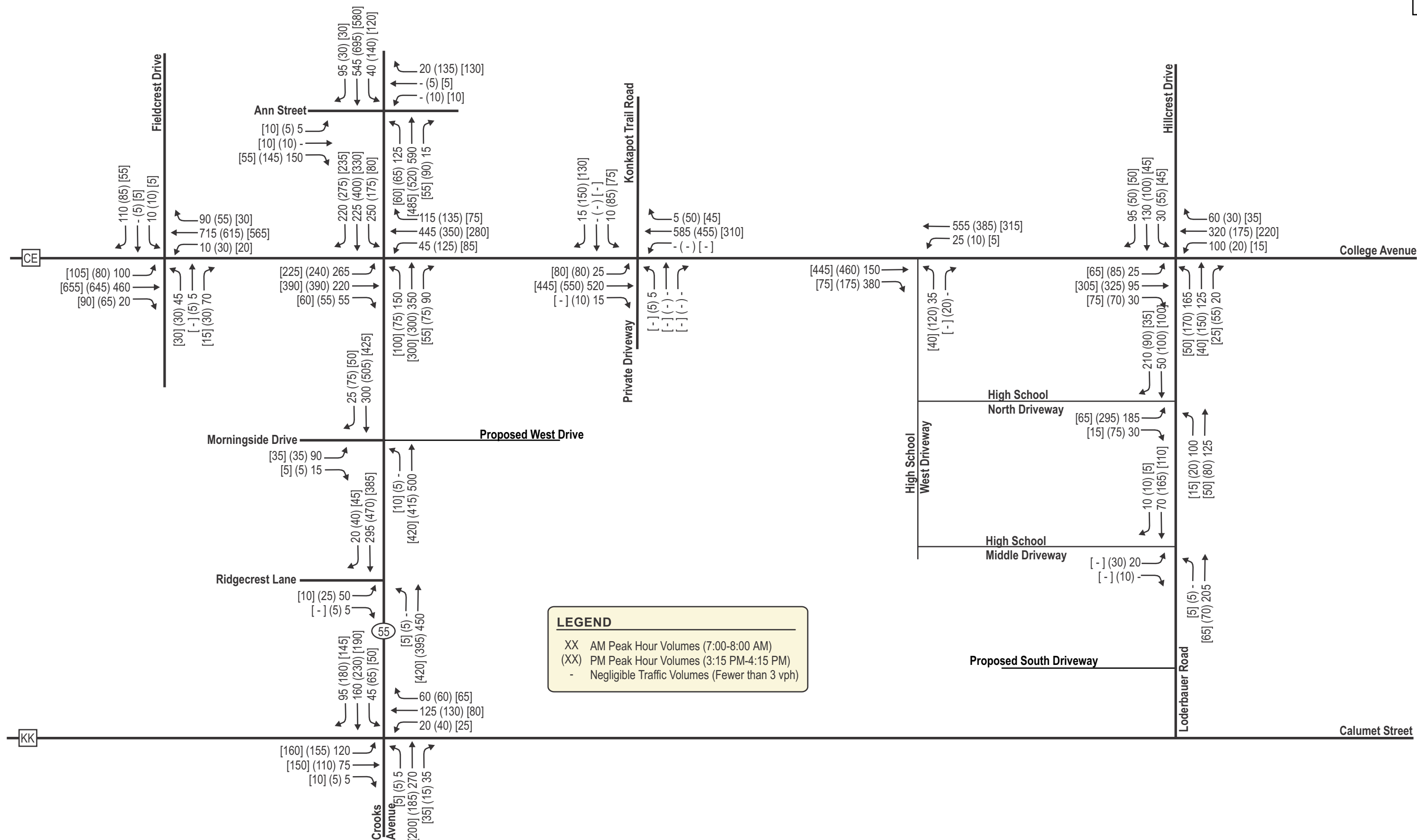
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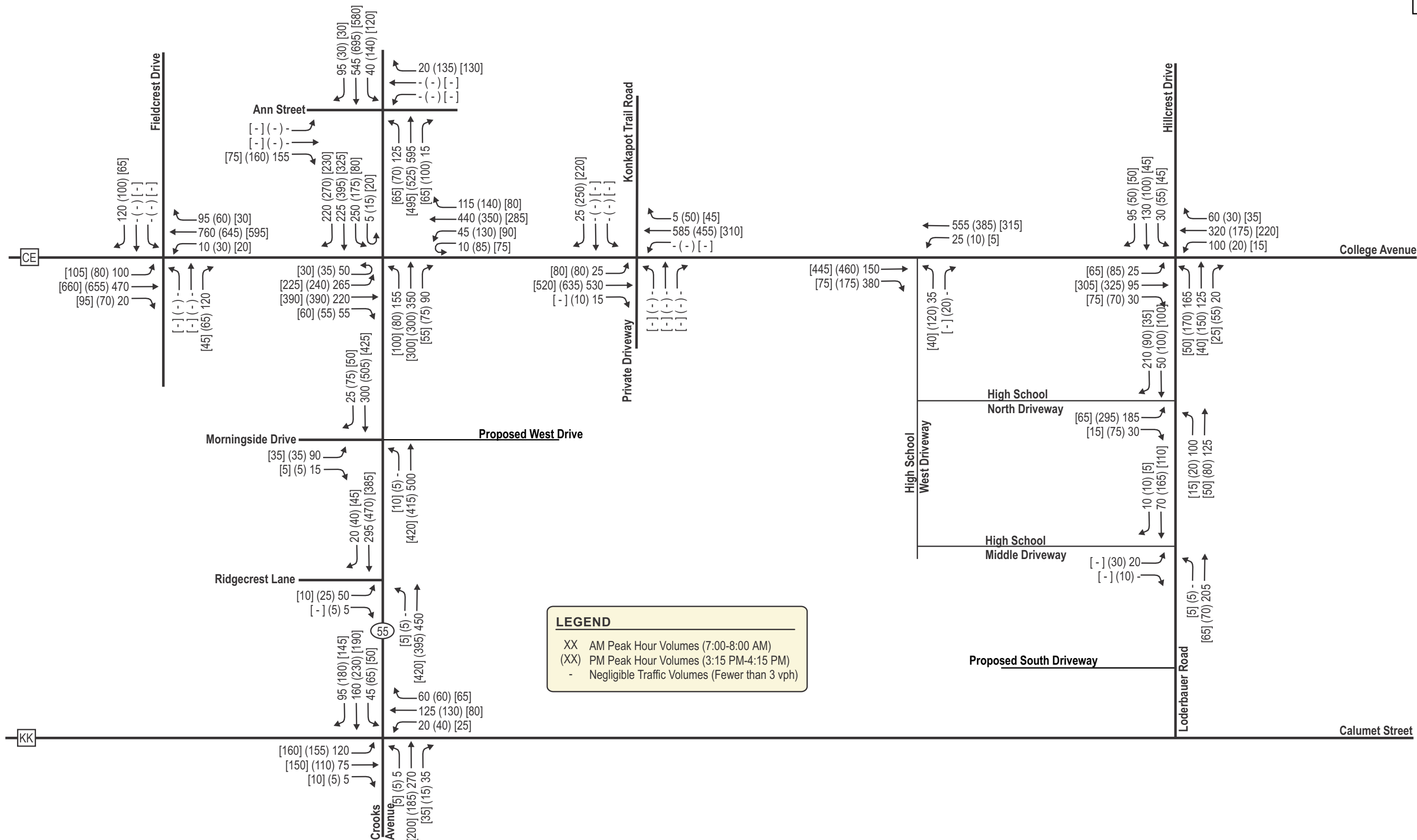
Negligible Traffic Volumes (Fewer than 3 vph)

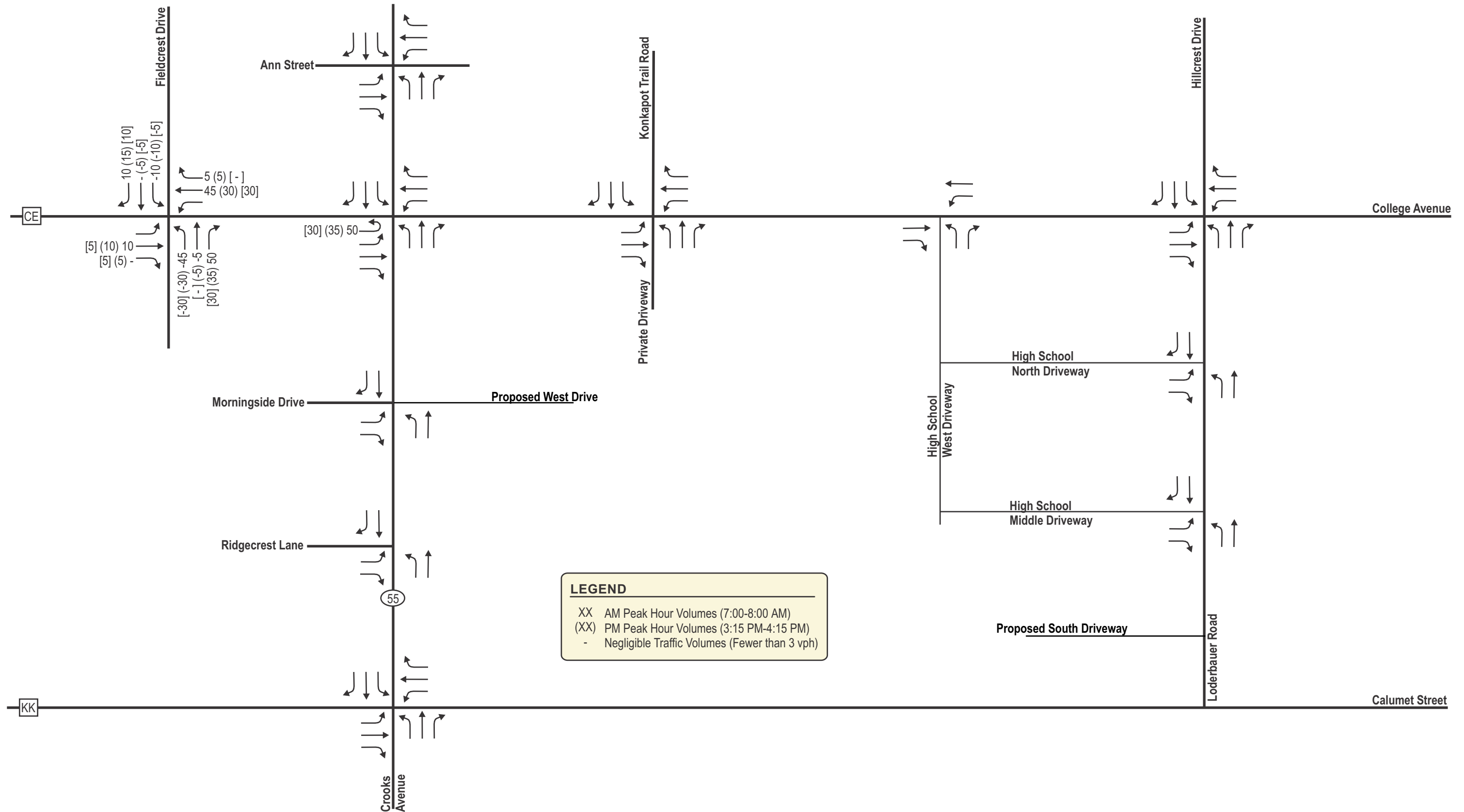
Pedestrian Crossing Location

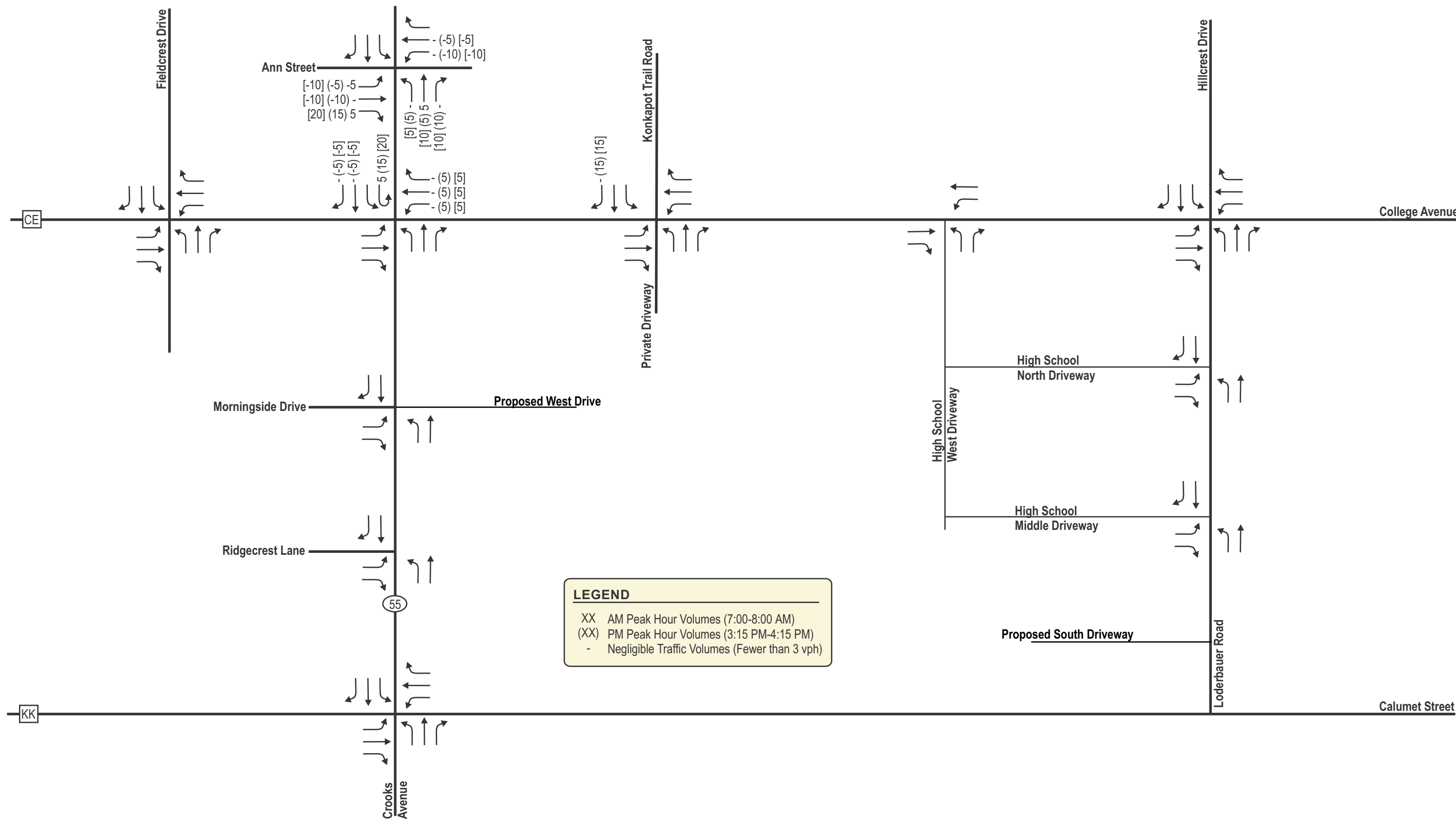


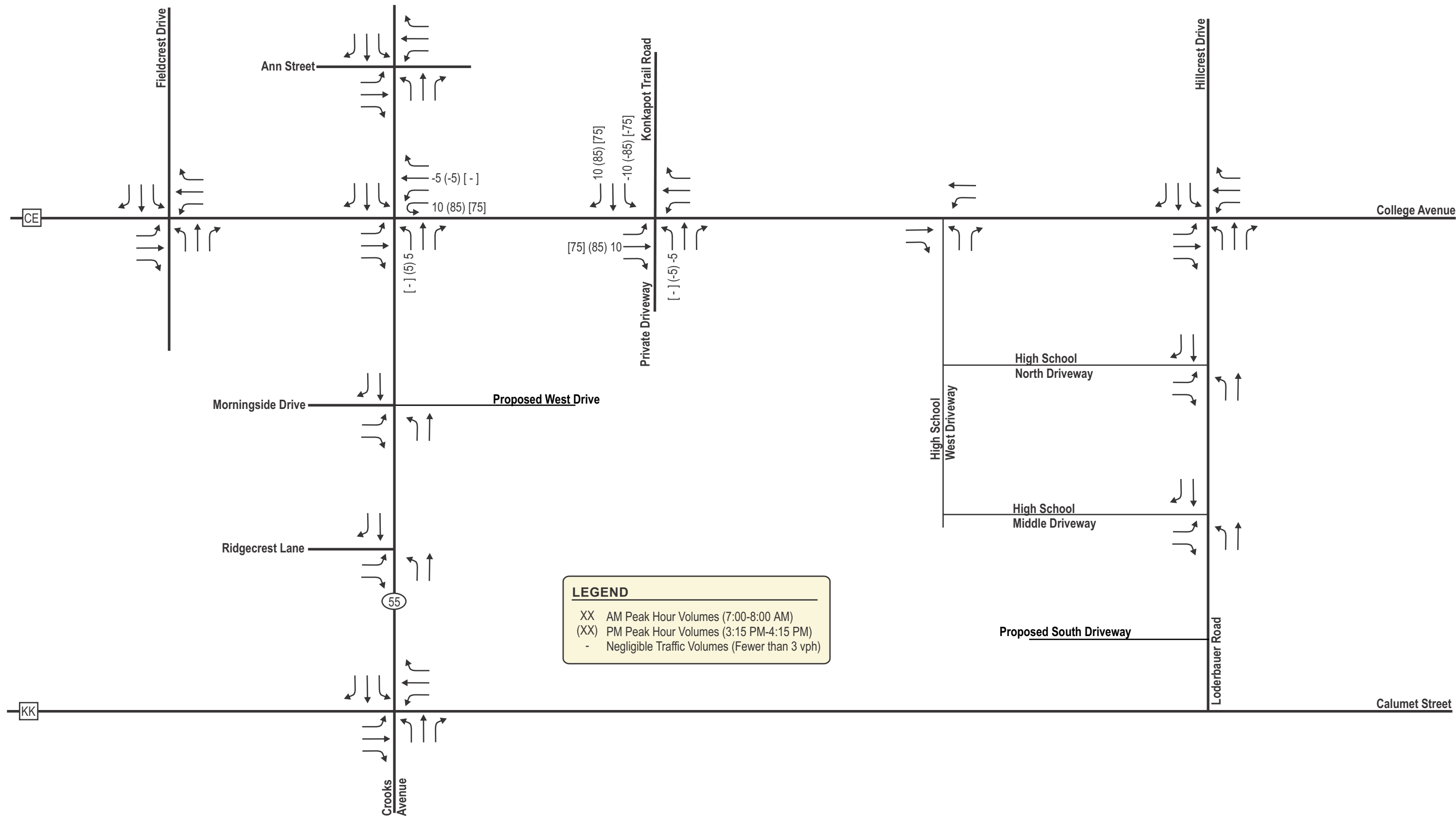












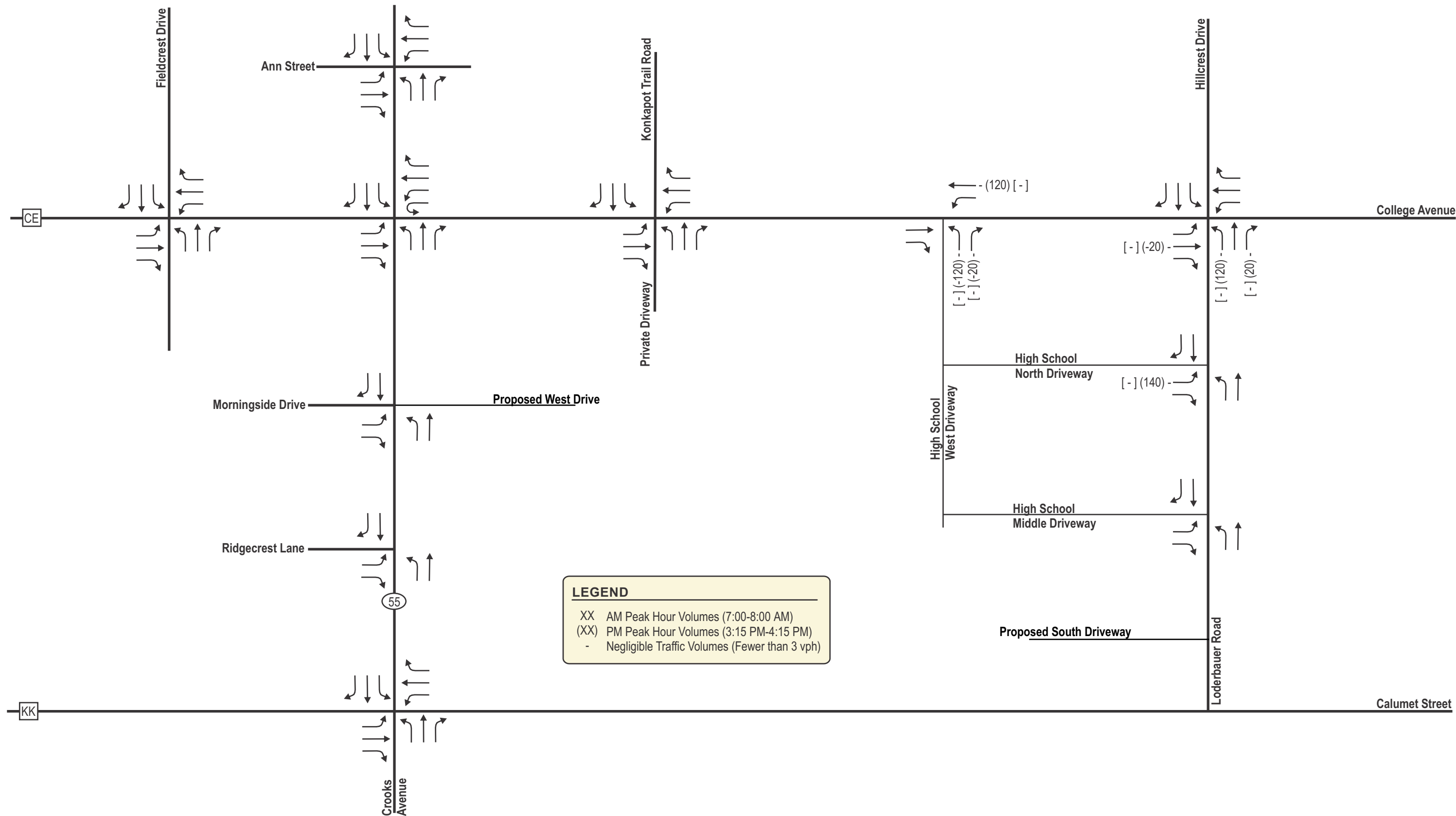


Exhibit 3-3 Existing Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control												
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach									
			Eastbound		Westbound		Northbound		Southbound		I/S LOS & Delay	
			↗	→	↖	←	↗	↑	↘	↓		
Node 100: STH 55/Crooks Avenue & Ann Street Two-Way Stop Control	AM	Lanes->	1	1	1	1	1	2	1	2		
		LOS	F	B	F	B	B	*	A	*		
		Delay	94.4	14.4	111.1	11.4	10.8	*	9.7	*		
		v/c	0.16	-	0.07	-	-	-	-	-		
	PM	Queue	25'	40'	25'	25'	25'	*	25'	*		
		LOS	F	B	F	B	A	*	A	*		
		Delay	125.0	13.5	120.9	11.5	9.9	*	9.8	*		
		v/c	0.37	-	0.36	-	-	-	-	-		
	PMSE	Queue	35'	30'	35'	25'	25'	*	25'	*		
		LOS	F	B	F	B	A	*	A	*		
		Delay	63.5	10.9	52.2	11.0	9.2	*	9.2	*		
		v/c	0.26	-	0.17	-	-	-	-	-		
Node 200: CTH CE/College Avenue & Fieldcrest Drive Two-Way Stop Control	AM	Lanes->	1	2	1	2	1	1	1	1		
		LOS	B	*	A	*	E	B	D	B		
		Delay	11.6	*	8.8	*	44.6	10.9	28.1	13.5		
		v/c	-	*	-	*	0.41	-	-	-		
	PM	Queue	25'	*	25'	*	45'	25'	25'	25'		
		LOS	A	*	A	*	D	B	C	B		
		Delay	9.5	*	9.4	*	27.8	10.8	23.0	11.2		
		Queue	25'	*	25'	*	25'	25'	25'	25'		
	PMSE	LOS	A	*	A	*	D	B	C	B		
		Delay	9.4	*	9.6	*	29.6	10.8	24.4	10.8		
		Queue	25'	*	25'	*	25'	25'	25'	25'		
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** Roundabout Control	AM	Lanes->	1	1	1	1	1	1	1	1		
		LOS	B	B	C	C	C	C	C	C		
		Delay	11.0	11.1	21.6	21.5	19.3	19.2	19.3	19.9		
		Queue	60'	65'	120'	135'	105'	120'	125'	140'		
	PM	LOS	C	C	B	B	B	B	B	C		
		Delay	15.0	15.2	11.5	11.6	12.8	12.5	14.6	15.4		
		Queue	85'	95'	60'	65'	50'	55'	105'	120'		
		LOS	A	A	A	A	A	A	A	A		
	PMSE	Delay	9.5	9.8	8.7	8.6	9.9	9.7	8.7	9.0		
		Queue	55'	60'	35'	35'	40'	45'	45'	55'		
Node 400: CTH CE/College Avenue & Konkapot Trail Road Two-Way Stop Control	AM	Lanes->	1	1	1	1	1	1	1	1		
		LOS	A	*	A	*	F	E	C			
		Delay	9.8	*	9.3	*	72.0	41.9	15.8			
		v/c	-	-	-	-	0.16	0.14	-			
	PM	Queue	25'	*	25'	*	25'	25'	25'			
		LOS	A	-	A	-	F	F	C			
		Delay	9.2	-	9.0	-	73.6	71.1	15.5			
		v/c	-	-	-	-	0.14	0.70	-			
	PMSE	Queue	25'	-	25'	-	25'	105'	40'			
		LOS	A	-	A	-	C	C	B			
		Delay	8.3	-	8.3	-	20.4	23.1	11.4			
Node 500: CTH CE/College Avenue & High School West D/W One-Way Stop Control	AM	Lanes->	-	1	1	-	1	-	1	-		
		LOS	-	*	A	-	D	-	A	-		
		Delay	-	*	9.4	-	25.0	-	9.4	-		
		Queue	-	*	25'	-	25'	-	25'	-		
	PM	LOS	-	*	A	-	F	-	B	-		
		Delay	-	*	9.8	-	70.5	-	13.0	-		
		v/c	-	-	-	-	0.81	-	-	-		
		Queue	-	*	25'	-	145'	-	25'	-		
	PMSE	LOS	-	*	A	-	C	-	B	-		
		Delay	-	*	8.6	-	17.9	-	11.4	-		
		Queue	-	*	25'	-	25'	-	25'	-		
Node 600: Loderbauer Road & CTH CE/College Avenue Traffic Signal Control	AM	Lanes->	1	1	1	1	1	1	1	1		
		LOS	B	A	A	B	B	B	B	C	B	14.5
		Delay	17.6	9.4	8.6	11.5	14.6	13.7	11.7	18.5	21.6	19.6
		Queue	25'	65'	25'	70'	260'	105'	95'	40'	125'	65'
	PM	LOS	B	B	A	B	B	B	C	C	C	B
		Delay	16.2	14.8	9.5	18.1	11.9	14.5	13.5	21.7	23.0	20.4
		Queue	65'	215'	35'	25'	130'	105'	125'	65'	100'	40'
		LOS	B	B	A	B	A	B	B	B	B	B
	PMSE	Delay	11.7	10.1	7.6	11.4	9.7	10.6	9.8	14.6	14.5	14.4
		Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'

Exhibit 3-3 Existing Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control												
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach									
			Eastbound		Westbound		Northbound		Southbound		I/S LOS & Delay	
			↗	→	↖	←	↗	↑	↘	↓		
Node 700: STH 55/Crooks Avenue & Morningside Drive One-Way Stop Control	AM	Lanes->	1	-	-	-	2	-	-	2		
		LOS	C	-	-	-	A	-	-	*		
		Delay	19.1	-	-	-	8.1	-	-	*		
		Queue	35'	-	-	-	25'	-	-	*		
	PM	LOS	C	-	-	-	A	-	-	*		
		Delay	20.5	-	-	-	9.0	-	-	*		
		Queue	25'	-	-	-	25'	-	-	*		
	PMSE	LOS	C	-	-	-	A	-	-	*		
		Delay	18.7	-	-	-	8.6	-	-	*		
		Queue	25'	-	-	-	25'	-	-	*		
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Lanes->	1	-	-	-	2	-	-	1	1	
		LOS	B	-	-	-	A	-	-	-	-	
		Delay	13.9	-	-	-	8.1	-	-	-	-	
		Queue	25'	-	-	-	25'	-	-	-	-	
	PM	LOS	C	-	-	-	A	-	-	-	-	
		Delay	16.2	-	-	-	8.7	-	-	-	-	
		Queue	25'	-	-	-	25'	-	-	-	-	
	PMSE	LOS	B	-	-	-	A	-	-	-	-	
		Delay	14.1	-	-	-	8.4	-	-	-	-	
		Queue	25'	-	-	-	25'	-	-	-	-	
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1	1	1	1	1	1	1	1		
		LOS	A	A	A	A	A	A	A	A		
		Delay	5.5	7.0	7.0	6.2	40'	35'				
		Queue	25'	30'	40'	35'						
	PM	LOS	A	A	A	A	A	A	A	A		
		Delay	7.0	6.7	6.7	8.4	25'	65'				
		Queue	35'	30'	25'	65'						
	PMSE	LOS	A	A	A	A	A	A	A	A		
		Delay	7.1	6.0	7.2	6.4	40'	40'				
		Queue	40'	25'	35'	40'						
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	Lanes->	2	-	1	-	2	-	-	1	1	
		LOS	A	-	A	-	A	-	-	A	A	8.6
		Delay	9.7	-	8.8	-	8.7	-	-	6.8	8.2	
		Queue	30'	-	25'	-	30'	-	-	25'	40'	
	PM	LOS	B	-	A	-	A	-	-	A	A	A
		Delay	11.0	-	9.1	-	8.0	-	-	8.5	8.0	9.6
		Queue	45'	-	25'	-	25'	-	-	40'	25'	
	PMSE	LOS	A	-	A	-	A	-	-	A	A	A
		Delay	9.7	-	9.4	-	5.6	-	-	6.3	5.5	7.0
		Queue	25'	-	25'	-	25'	-	-	25'	25'	
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1	-	-	-	1	-	-	1	-	
		LOS	B	-	-	-	A	-	-	*	-	
		Delay	13.5	-	-	-	7.5	-	-	*	-	
		Queue	25'	-	-	-	25'	-	-	*	-	
	PM	LOS	B	-	-	-	A	-	-	*	-	
		Delay	12.5	-	-	-	8.0	-	-	*	-	
		Queue	25'	-	-	-	25'	-	-	*	-	
	PMSE	LOS	A	-	-	-	A	-	-	*	-	
		Delay	9.4	-	-	-	7.5	-	-	*	-	
		Queue	25'	-	-	-	25'	-	-	*	-	

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.
** node 300 dual lane roundabout, left values in table per approach are inside shared lanes and right values are outside shared lanes

Exhibit 4-3A
On-Site Trip Generation Table¹

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak			PM Peak			Special Event Peak ³		
				In	Out	Total	In	Out	Total	In	Out	Total
Middle School/Junior High School (Maximum Expected Student Population)	522	1200 Students	2,520 (2.10)	445 (56%)	345 (44%)	790 (0.66)	110 (30%)	250 (70%)	360 (0.30)	105 (50%)	105 (50%)	210 TADI
Total Trips			2,520	445	345	790	110	250	360	105	105	210
Minus Linked Trips ²			(522)	(250)	(45)	(35)	(80)	(10)	(25)	(35)	0	0
Total New Trips			2,270	400	310	710	100	225	325	105	105	210

¹ ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition; note rates including a variety of walking/busing sites in US
² Peak hour of generator rates used for expected school traffic to account for worst case (highest volume) traffic scenario.
³ Linked trips expected between Middle School and High School due to multiple children in single family and/or carpooling
³ Special Event peak hour assumes middle school high school basketball game. See appendix for detailed calculations.

TRIP DISTRIBUTION (New Trips)												
West on College Avenue/CTH CE	8%	180	30	25	10	20	10	10				
East on College Avenue/CTH CE	9%	205	35	30	10	20	10	20				
North on Crooks Avenue/STH 55	47%	1065	190	145	45	105	50	50				
South on Crooks Avenue/STH 55	12%	265	50	35	10	25	10	10				
West on Calumet Street/CTH KK	3%	70	10	10	5	5	5	5				
East on Calumet Street/CTH KK	3%	70	10	10	5	5	5	5				
North on Hillcrest Drive	5%	115	20	15	5	10	5	5				
West on Morningside Drive	5%	115	20	15	5	10	5	5				
West on Ridgecrest Lane	1%	25	5	0	0	0	0	0				
West on Ann Street	1%	25	5	5	0	5	0	0				
North on Fieldcrest Drive	6%	135	25	20	5	20	5	5				
	100%	2270	400	310	100	225	105	105				

Exhibit 4-3B
Off-Site Trip Generation Table¹

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak			PM Peak			Special Event Peak ²		
				In	Out	Total	In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) (Not Close to Rail Transit)	220	200 Units	1,360 FCE	20 (24%)	65 (76%)	85 FCE	65 (63%)	40 (37%)	105 FCE	65 (63%)	40 (37%)	105 FCE
Shopping Plaza (40-150k) - Supermarket - No	821	100,000 x 1,000 SF	6,750 (67.52)	110 (62%)	65 (38%)	175 (1.73)	255 (49%)	265 (51%)	520 (5.19)	255 (49%)	265 (51%)	520 (5.19)
Strip Retail Plaza (<40k)	822	20,000 x 1,000 SF	1,090 (54.45)	25 (60%)	20 (40%)	45 (2.36)	65 (50%)	60 (50%)	125 FCE	65 (50%)	60 (50%)	125 FCE
General Office Building	710	15,000 x 1,000 SF	220 FCE	30 (88%)	5 (12%)	35 FCE	5 (17%)	30 (83%)	35 FCE	5 (17%)	30 (83%)	35 FCE
Total Trips			9,420	185	155	340	390	395	785	390	395	785
Minus Linked Trips			(220)	0	0	0	-10	-5	-15	-10	-5	-15
Minus Linked Trips			(821)	0	0	0	-35	-35	-70	-35	-35	-70
Minus Linked Trips			(822)	0	0	0	-10	-10	-20	-10	-10	-20
Minus Linked Trips			(710)	0	0	0	0	-5	-5	0	-5	-5
Total Linked Trip Reduction			-1,320	0	0	0	-55	-55	-110	-55	-55	-110
Total Driveway Trips			8,100	185	155	340	335	340	675	335	340	675
Wkday: AM (PM) Pass-by Trips			(220)	0	0	0	0	0	0	0	0	0
Wkday: AM (PM) Pass-by Trips			(821)	-1,160	-20	-40	-45	-45	-90	-45	-45	-90
Wkday: AM (PM) Pass-by Trips			(822)	-190	-5	-10	-10	-10	-20	-10	-10	-20
Wkday: AM (PM) Pass-by Trips			(710)	0	0	0	0	0	0	0	0	0
Total Pass-by Trip Reduction			-1,350	-25	-25	-50	-55	-55	-110	-55	-55	-110
Total New Trips			6,750	160	130	290	280	285	565	280	285	565

¹ ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition
² For off-site development trip generation, even though school dismissal peak hour expected to be less than peak hour of adjacent street traffic, school dismissal peak hour assumed same as special event peak hour as worst case (highest traffic volume) condition, also see special event peak hour note in Exhibit 4-3A.

TRIP DISTRIBUTION (New Trips)												
West on College Avenue/CTH CE	25%	1685	40	30	70	70	70	70				
East on College Avenue/CTH CE	9%	605	15	10	25	25	25	25				
North on Crooks Avenue/STH 55	23%	1550	35	30	65	65	65	65				
South on Crooks Avenue/STH 55	8%	540	10	10	20	25	20	25				
West on Calumet Street/CTH KK	12%	810	20	15	35	35	35	35				
East on Calumet Street/CTH KK	5%	340	10	5	15	15	15	15				
North on Hillcrest Drive	6%	405	10	10	15	15	15	15				
West on Morningside Drive	1%	70	0	0	5	5	5	5				
West on Ridgecrest Lane	2%	135	5	5	5	5	5	5				
West on Ann Street	3%	205	5	5	10	10	10	10				
North on Fieldcrest Drive	6%	405	10	10	15	15	15	15				
	100%	6750	160	130	280	285	280	285				

CHAPTER IV – FORECASTED TRAFFIC

PART A – TRAFFIC FORECASTING

To address any potential future traffic impacts along study area roadways and at the intersections adjacent to the proposed middle schools, it is necessary to identify the hourly and daily volume of traffic generated by the projected school's student population. The traffic volumes expected to be generated by the proposed middle schools were calculated two ways. The first method calculated the rates based on the vehicle and pedestrian counts that were conducted at the existing Riverview Middle School located about 2 miles north of the proposed new school site. To provide a comparison, the rates were also calculated based on the trip rates for a middle school (LU522) as published in the *Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition*. For both methods, the trip rates were calculated based the expected student population for the peak hour of generator instead of the peak hour of adjacent street traffic to account for the worst-case (highest volume) school traffic conditions.

As shown in [Appendix A](#), using the current student population of 1,150 students, a weekday morning trip generation rate of 0.66 trips per student and a weekday afternoon trip generation rate of 0.30 trips per student were calculated based on traffic counts conducted on a typical weekday in early-February at the access driveways to the existing school. [Appendix A](#) also shows a comparison of the local rates when compared to the national ITE rates. As shown, the ITE rate weekday morning trips are calculated as being about 11-percent higher than the local trip volumes and the ITE weekday afternoon trips are calculated as being about 19-percent higher than the local trip volumes. Since the ITE calculations were similar but slightly higher, it is recommended to use the ITE rate calculations for this study as a worst-case (highest volume) traffic condition. The number of students that are currently walking or riding to school is also included in the calculations. As shown, about 225 students were counted walking to school during a typical weekday morning in early February of 2025. In addition, about 270 students were counted walking home from school during a typical weekday afternoon in early February of 2025. With both the existing middle school and the proposed middle school being located in close proximity to a high density of residential neighborhoods, it was felt that a similar percentage of students will walk to the new school site as previously walked to the existing Riverview Middle School site.

The Special Event peak hour is expected to coincide with a boy's middle school basketball game. A boy's middle school basketball game was chosen for the special event peak hour since it is the highest regularly scheduled event expected at the school. Vehicle trips for this peak hour were calculated based on the expected attendance and expected number of teams/players. Details and calculations for this peak hour are provided in the [appendix](#) of this study.

A1. Trip Generation

The proposed middle school development trip generation and distribution tables are shown in [Exhibit 4-3A](#). As shown, using ITE trip generation rates as described above under full build out and after linked trip reductions, the proposed middle school development is expected to generate 2,270 weekday daily trips; with 780 new trips in the AM peak hour, 380 new trips in the PM peak hour and 210 during a typical weekday sporting event at the middle school.

The potential off-site development area trip generation and distribution tables are shown in [Exhibit 4-3B](#). As shown, under full build out and after linked and pass-by trip reductions, the potential off-site development area is expected to generate 6,750 weekday daily trips; with 290 new trips in the AM peak hour, 565 new trips in the PM peak hour and 565 during a typical weekday sporting event at the middle school. It is noted that the evening peak hour volumes for

the potential off-site development area were based on peak hour of adjacent street traffic, which more closely aligns with the special event peak hour. Since the school discharge PM peak hour is earlier than the adjacent street traffic peak hour, the new trips for the school discharge peak hour can be considered a worst case (highest volume) condition.

A2. Mode Split

Pedestrians and bicyclists are expected to continue to use their respective modes to access the proposed middle school.

Due to the proximity of the proposed middle school to the existing high school located adjacent to the site, the school development site is expected to include linked trips. A linked trip occurs when a patron of one school visits the second school prior to exiting the site (e.g., students from one family or car poolers from several families who attend both schools). It is estimated that approximately 10 percent of the new school trips are expected to be linked trips. Due to the proposed school land use, pass-by trips are not expected for the site. Pass-by trips occur when motorists already on the highway system stop at a development site prior to continuing on their intended route (e.g., an existing motorist northbound on STH 55 stops at the school prior to continuing northbound on STH 55).

The off-site development site is expected to include both linked trips and pass-by trips. Using NCHRP 684 and based on calculations provided in the [appendix](#) of this study, it is estimated that approximately 2 percent of the weekday morning new trips and 14 percent of the weekday evening new trips are expected to be linked trips. In addition, approximately 20 percent of the potential retail driveway trips are expected to be pass-by trips. No pass-by trip reduction was included for the apartment or office land uses.

A3. Trip Distribution

The trip distribution for the proposed middle school development, listed below and shown in table format in [Exhibit 4-3A](#) and graphically in [Exhibit 4-4](#) was determined based on the existing traffic patterns at the adjacent study area intersections, the school's location in proximity to the adjacent highways and the overall location of the Kaukauna Area School District school populations which are expected to feed the proposed middle schools. Utilizing the boundary limits for the school district, population density clusters were identified, and percentages were distributed onto the adjacent highways. A map showing the limits of the Kaukauna Area School District boundary is included in the [appendix](#) of this report. The trip distribution for the proposed middle school is as follows:

- 8% to/from the west on CTH CE
- 9% to/from the east on CTH CE
- 47% to/from the north on STH 55
- 12% to/from the south on STH 55
- 3% to/from the west on CTH KK
- 3% to/from the east on CTH KK
- 5% to/from the north on Hillcrest Drive
- 5% to/from the west on Morningside Drive
- 1% to/from the west on Ridgecrest Drive
- 1% to/from the west on Ann Street
- 6% to/from the north on Fieldcrest Drive

The trip distribution for the potential future off-site development areas, listed below and shown in table format in [Exhibit 4-3B](#) and graphically in [Exhibit 4-4](#) was determined based on the

existing traffic patterns at the adjacent study area intersections, the development site in proximity to the adjacent highways and the population areas within the overall area. The trip distribution for the potential future off-site development areas is as follows:

- 25% to/from the west on CTH CE
- 9% to/from the east on CTH CE
- 23% to/from the north on STH 55
- 8% to/from the south on STH 55
- 12% to/from the west on CTH KK
- 5% to/from the east on CTH KK
- 6% to/from the north on Hillcrest Drive
- 1% to/from the west on Morningside Drive
- 2% to/from the west on Ridgecrest Drive
- 3% to/from the west on Ann Street
- 6% to/from the north on Fieldcrest Drive

A4. Trip Assignment

New trips expected to be generated proposed middle school development, and the potential future off-site development areas were assigned based on the trip distribution shown in tabular format in [Exhibits 4-3A&B](#) and graphically in [Exhibit 4-4](#). As shown in the table at the bottom of the trip generation exhibits, new trips were assigned to the study corridors for the typical school day. The new trips for the proposed middle school development are shown graphically in [Exhibit 4-5A&B](#).

Due to existing operational concerns at the CTH CE/College Avenue intersection with Fieldcrest Drive, two access scenarios were evaluated as part of this study to look at the operation of the Fieldcrest Drive under restricted movement assumptions. The following scenarios were evaluated:

Scenario 1 – Fieldcrest Drive intersection approaches operating with full access movements; that is, no restrictions to movements. New Trips for the proposed middle school under this scenario are shown in [Exhibit 4-5A](#). New Trips for the potential future off-site development areas under this scenario are shown in [Exhibit 4-9A](#).

Scenario 2 – Fieldcrest Drive intersection approaches operating under left-in/right-in/right-out access movements; that is no northbound or southbound through or left-turn movements allowed from Fieldcrest Drive. Vehicles wanting to make a northbound or southbound through or left-turn movement would either make a right-turn movement and then utilize/traverse the roundabouts located to the east or west to continue their route; or would divert within the neighborhoods to an adjacent intersection. New Trips for the proposed middle school under this scenario are shown in [Exhibit 4-5B](#). New Trips for the potential future off-site development areas under this scenario are shown in [Exhibit 4-9B](#). In addition, Redistributed Trips, existing movements that would need to divert based on the restricted movements at the Fieldcrest Drive intersection, are shown in [Exhibit 3-2E](#).

In addition, due to existing operational concerns at the STH 55/Crooks Avenue intersection with Ann Street and the CTH CE/College Avenue intersection with Konkapot Trail Road/Forefront Dermatology Access Driveway, restricted movement assumptions were also considered at these two intersections under the improvement/modification scenarios analyzed as part of this study. Redistributed Trips at the Ann Street intersection are shown in [Exhibit 3-2F](#) and Redistributed Trips at the Konkapot Trail Road intersection are shown in [Exhibit 3-2G](#).

Finally, due to existing and future operational concerns at the STH 55/Crooks Ave CTH CE/College Avenue intersection with the High School West Driveway during the typical school afternoon discharge peak hour, restricted movement assumptions were also considered at this intersection under the improvement/modification scenarios analyzed as part of this study. Redistributed Trips at the High School West Driveway intersection during the typical school afternoon discharge peak hour are shown in [Exhibit 3-2H](#).

PART B – BACKGROUND, FULL BUILD & TOTAL TRAFFIC

B1. Background Traffic

The Existing traffic volumes, [Exhibit 3-2C](#), were added to the redistributed (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) trips shown in [Exhibit 3-2E](#), the redistributed (Left-in/Right-in/Right-out at Ann Street) trips shown in [Exhibit 3-2F](#), and the redistributed (Left-in/Right-in/Right-out at Konkapot Trail Road) trips shown in [Exhibit 3-2G](#), to determine the Background (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail) traffic volumes ([Exhibit 3-2D](#)).

B2. Full Build Traffic

The Existing traffic volumes, [Exhibit 3-2C](#), were added to the on-site (Access Scenario 1 - Full Access at Fieldcrest Drive) new trips shown in [Exhibit 4-5A](#), to determine the Full Build (Access Scenario 1 - Full Access at Fieldcrest Drive) traffic volumes ([Exhibit 4-11A](#)).

The Existing traffic volumes, [Exhibit 3-2C](#), were added to the on-site (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) new trips shown in [Exhibit 4-5B](#), and the redistributed (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) trips shown in [Exhibit 3-2E](#), to determine the Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes ([Exhibit 4-11B](#)).

Under the recommended modifications scenario, the Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes, [Exhibit 4-11B](#), the redistributed (Left-in/Right-in/Right-out at Ann Street) trips shown in [Exhibit 3-2F](#), and the redistributed (Left-in/Right-in/Right-out at Konkapot Trail Road) trips shown in [Exhibit 3-2G](#), to determine the Full Build (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, Full Access at High School West Driveway) traffic volumes ([Exhibit 4-11C](#)).

Under the recommended modifications scenario with additional access restrictions at the west high school driveway, the Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes, [Exhibit 4-11B](#), the redistributed (Left-in/Right-in/Right-out at Ann Street) trips shown in [Exhibit 3-2F](#), the redistributed (Left-in/Right-in/Right-out at Konkapot Trail Road) trips shown in [Exhibit 3-2G](#), and the redistributed (No exit at High School West Driveway) trips shown in [Exhibit 3-2H](#) to determine the Full Build (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, No exit at High School West Driveway) traffic volumes ([Exhibit 4-11D](#)).

B3. Total Traffic

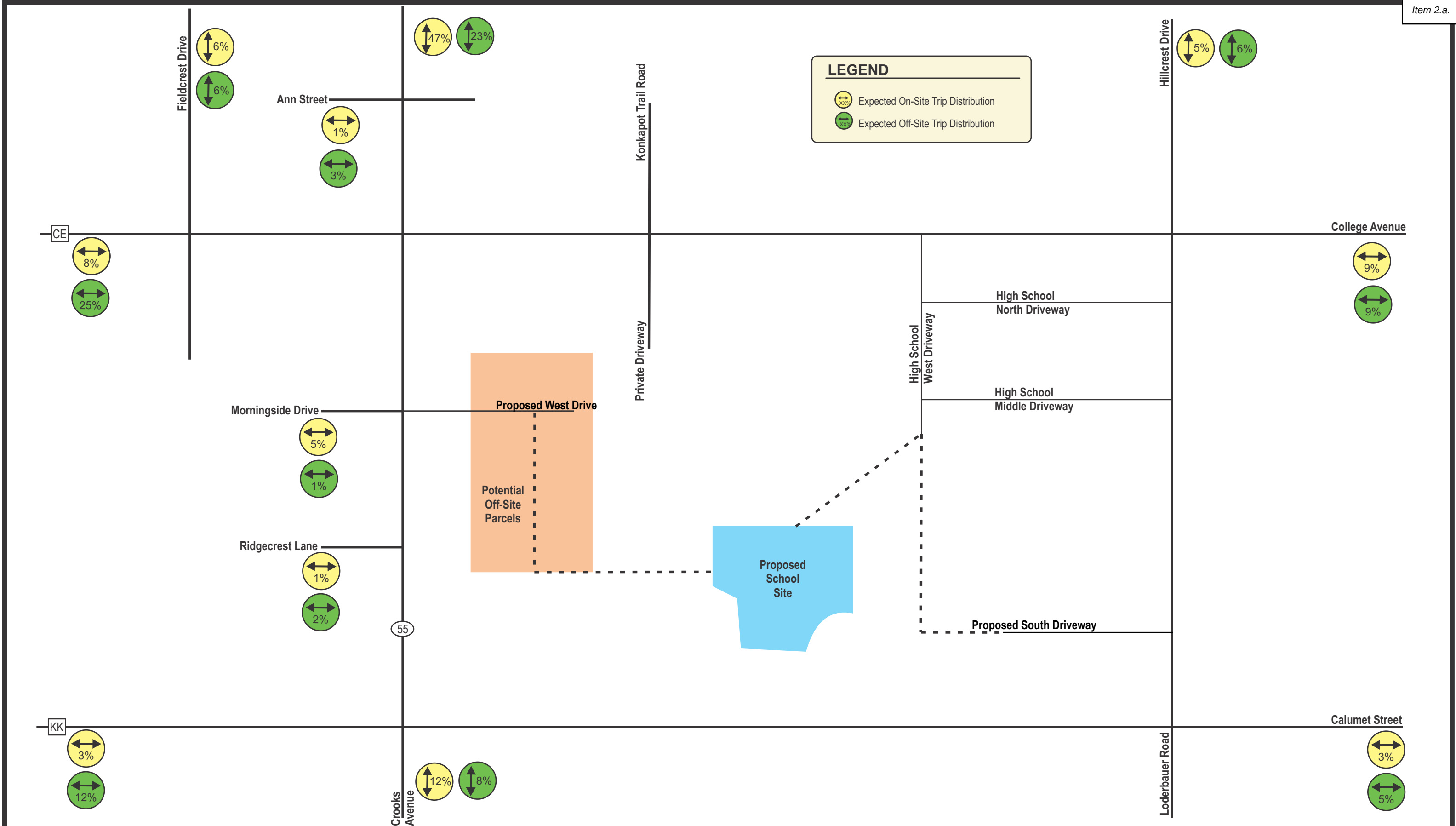
The Full Build (Access Scenario 1 - Full Access at Fieldcrest Drive) traffic volumes, [Exhibit 4-11A](#), were added to the off-site (Access Scenario 1 - Full Access at Fieldcrest Drive) new trips shown in [Exhibit 4-9A](#), to determine the Total (Access Scenario 1 - Full Access at Fieldcrest Drive) traffic volumes ([Exhibit 4-14A](#)).

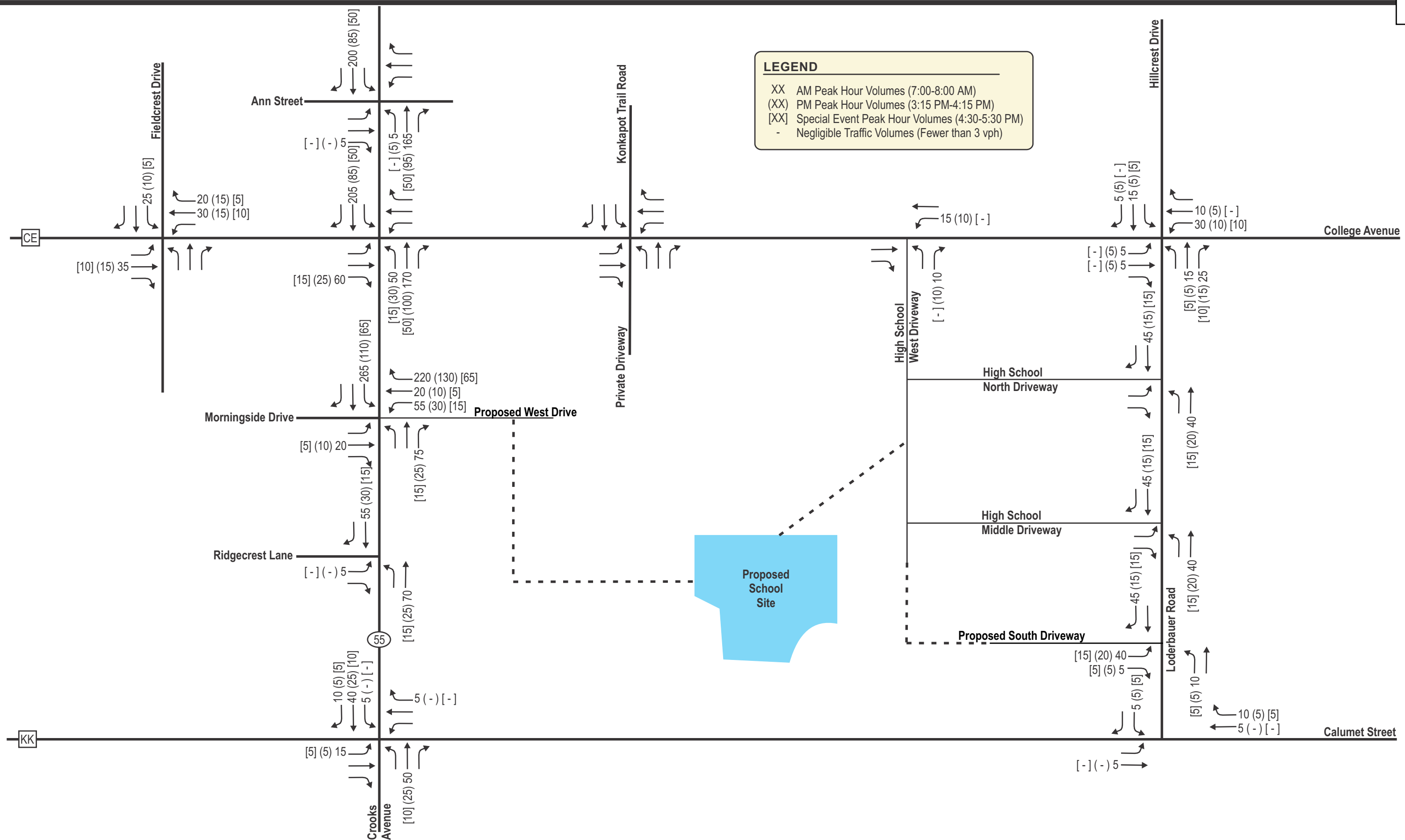
The Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes, [Exhibit 4-11B](#) were added to the off-site (Access Scenario 2 - Left-in/Right-in/Right-out

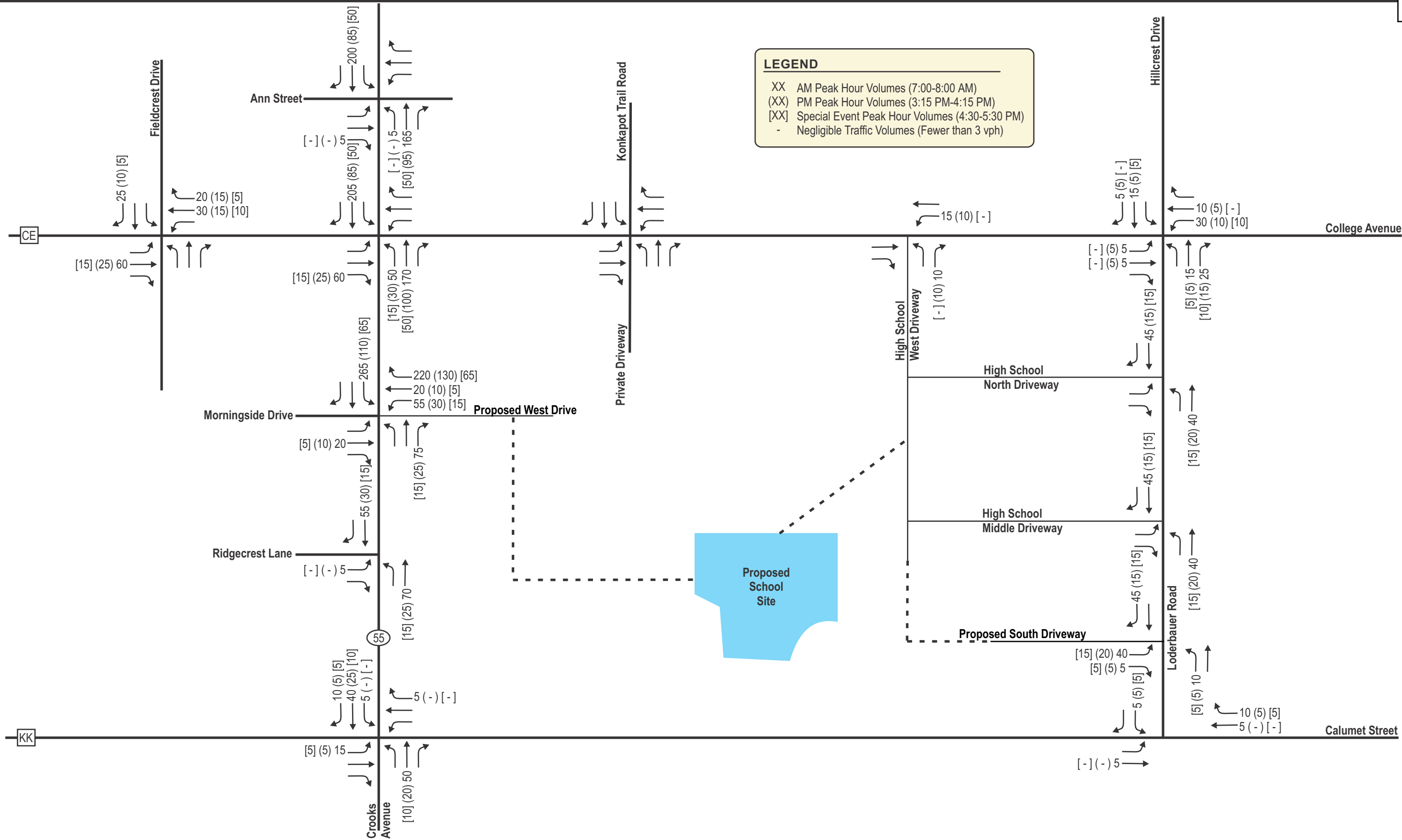
at Fieldcrest Drive) new trips shown in [Exhibit 4-9B](#), to determine the Total (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes ([Exhibit 4-14B](#)).

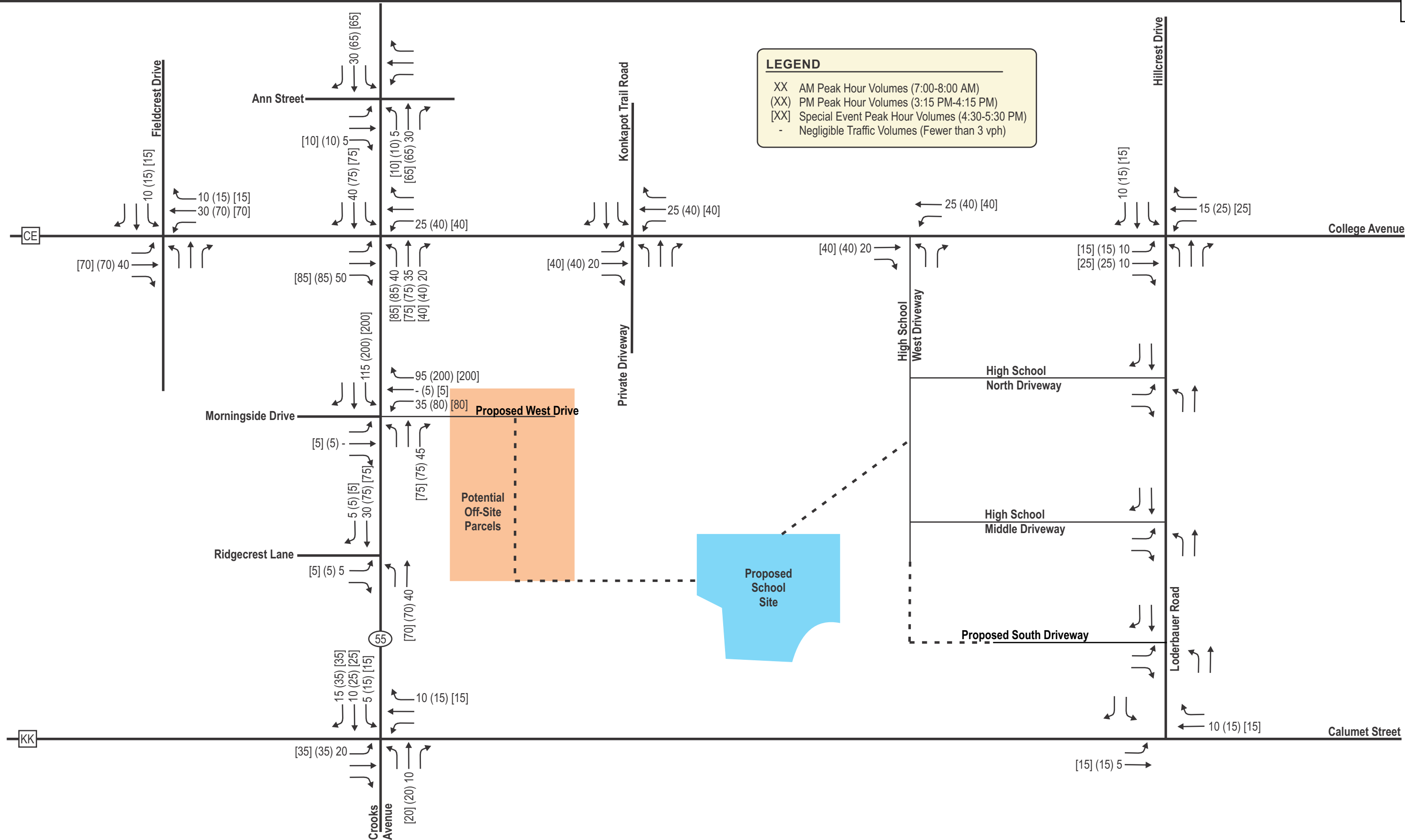
Under the recommended modifications scenario, the Total (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes, [Exhibit 4-14B](#), the redistributed (Left-in/Right-in/Right-out at Ann Street) trips shown in [Exhibit 3-2F](#), and the redistributed (Left-in/Right-in/Right-out at Konkapot Trail Road) trips shown in [Exhibit 3-2G](#), to determine the Total (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, Full Access at High School West Driveway) traffic volumes ([Exhibit 4-14C](#)).

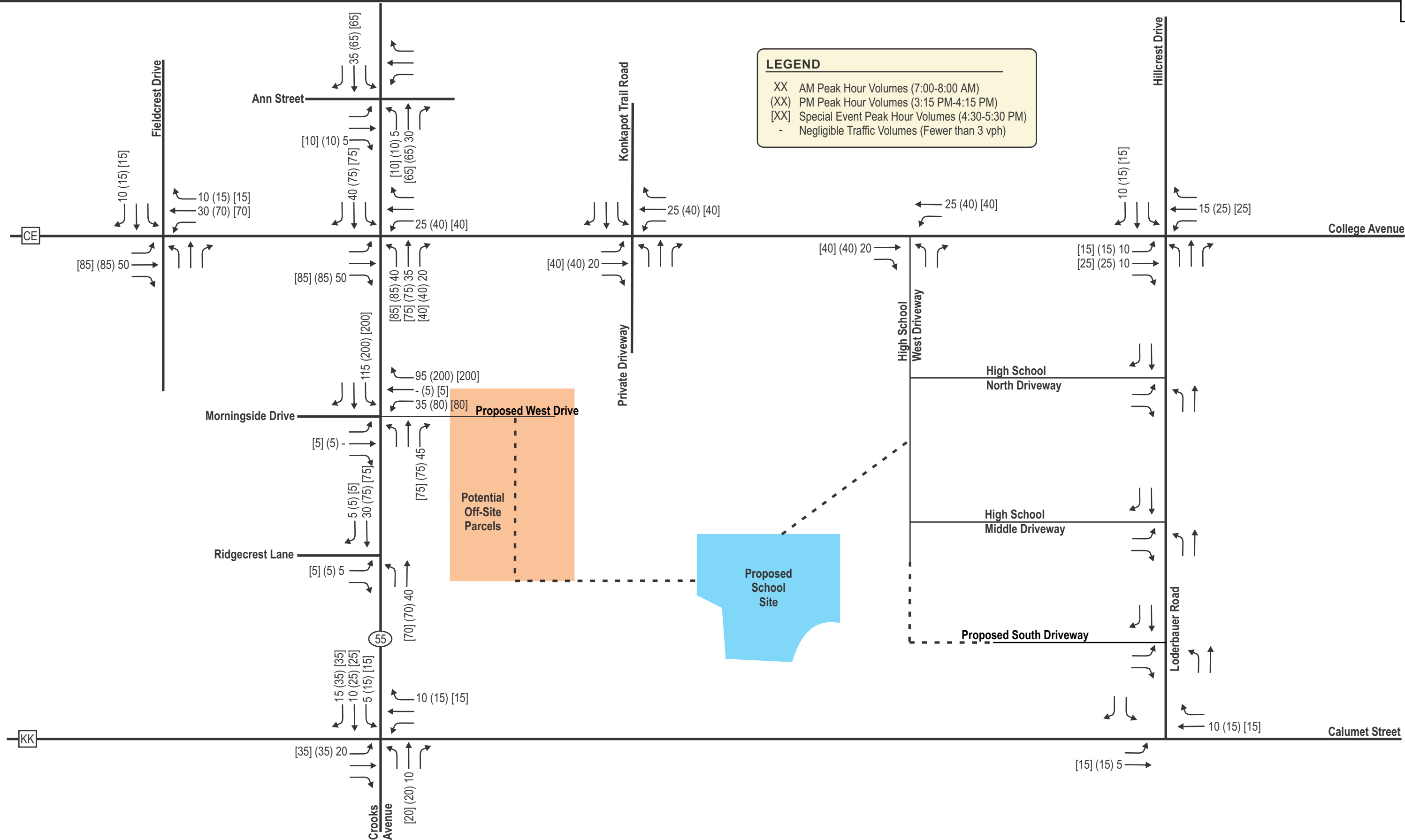
Under the recommended modifications scenario with additional access restrictions at the west high school driveway, the Total (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes, [Exhibit 4-14B](#), the redistributed (Left-in/Right-in/Right-out at Ann Street) trips shown in [Exhibit 3-2F](#), and the redistributed (Left-in/Right-in/Right-out at Konkapot Trail Road) trips shown in [Exhibit 3-2G](#), and the redistributed (No exit at High School West Driveway) trips shown in [Exhibit 3-2H](#) to determine the Total (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail, No exit at High School West Driveway) traffic volumes ([Exhibit 4-14D](#)).

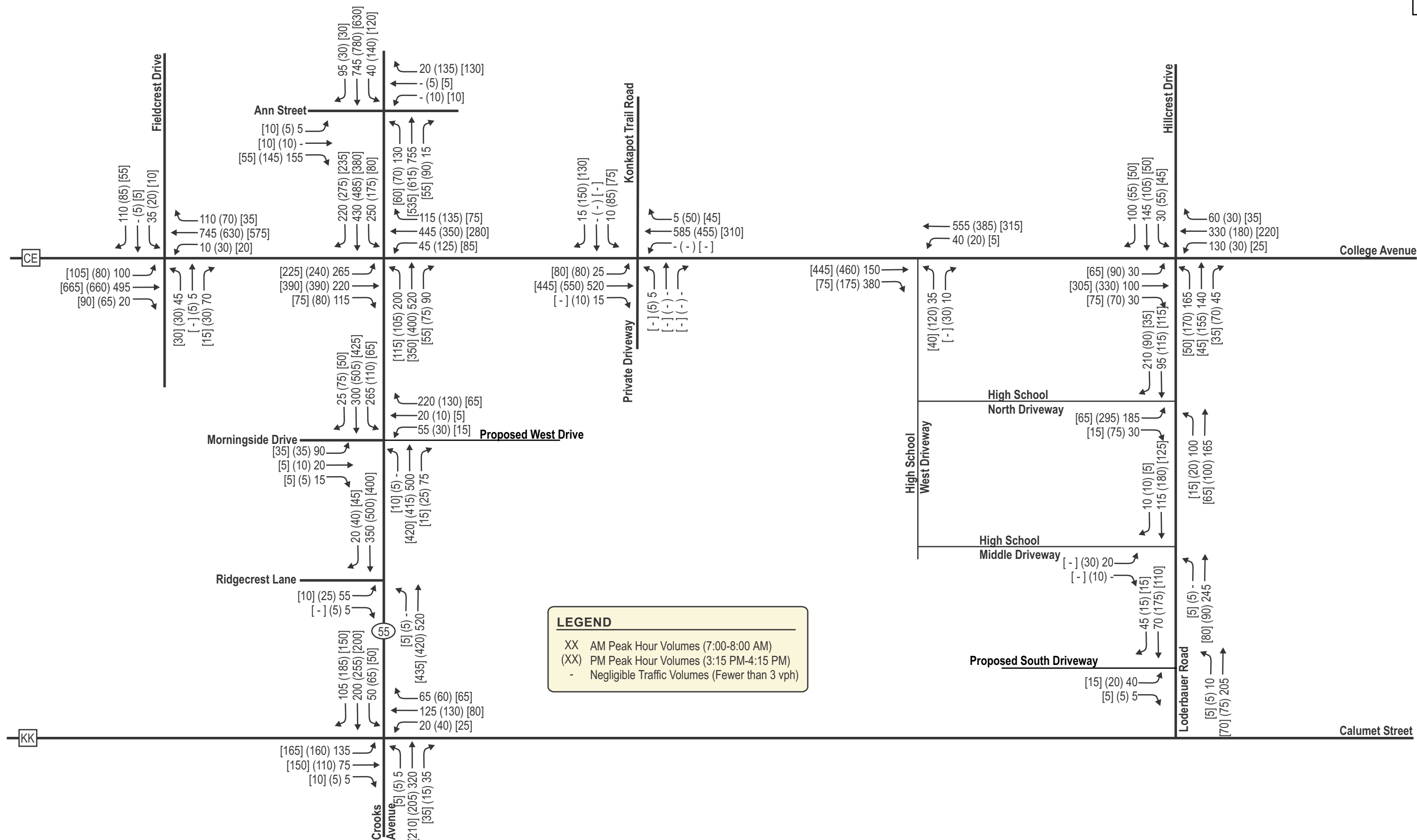


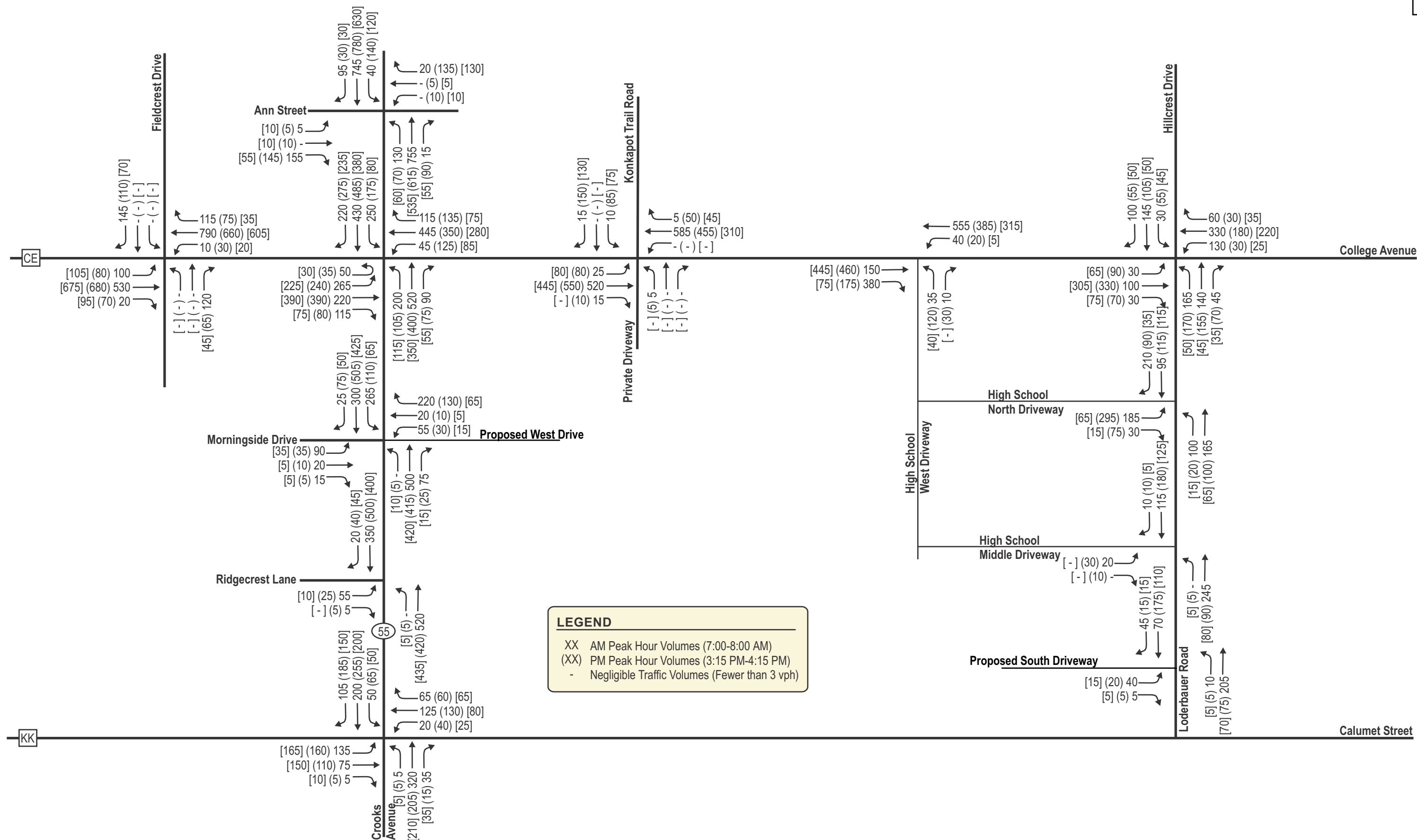


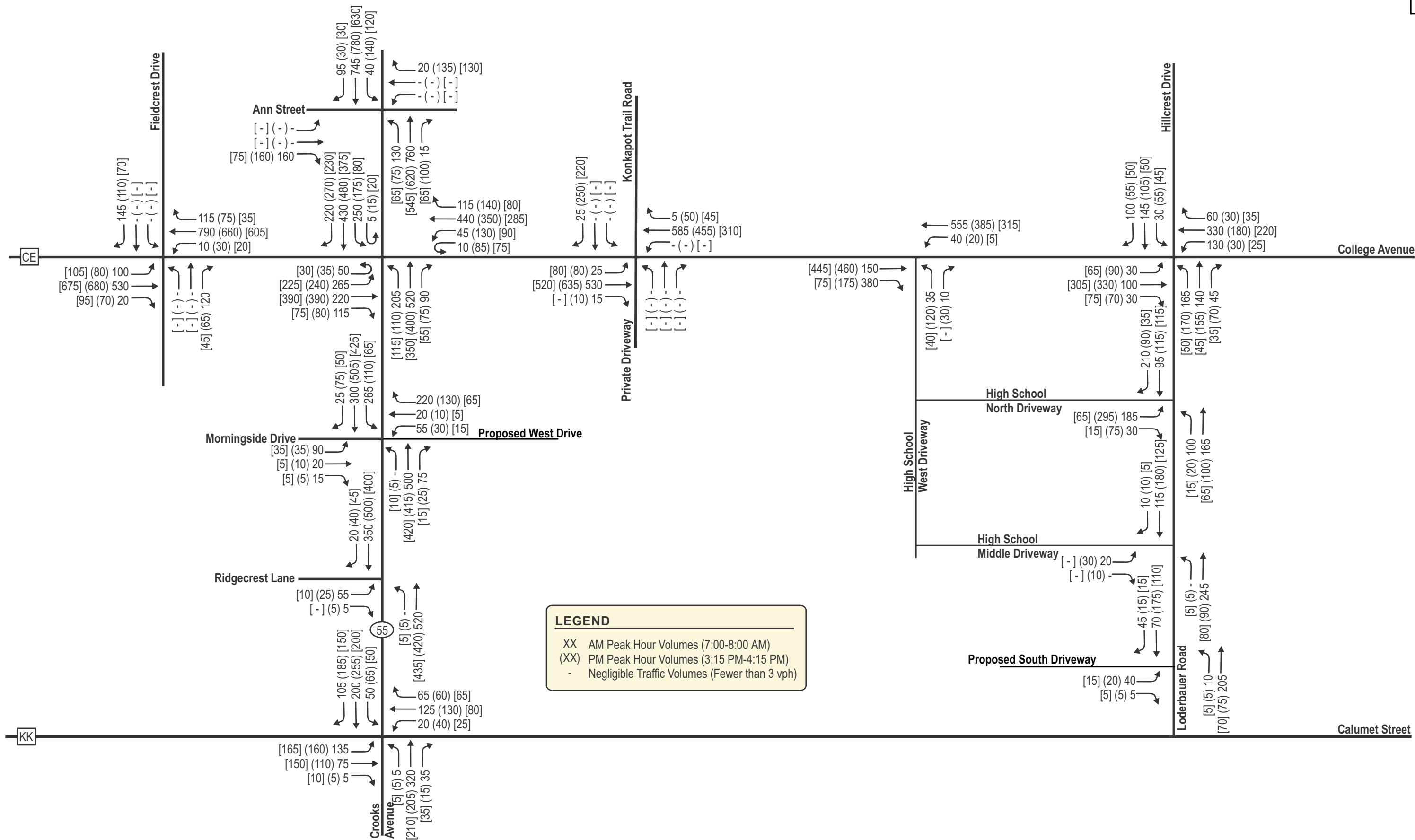


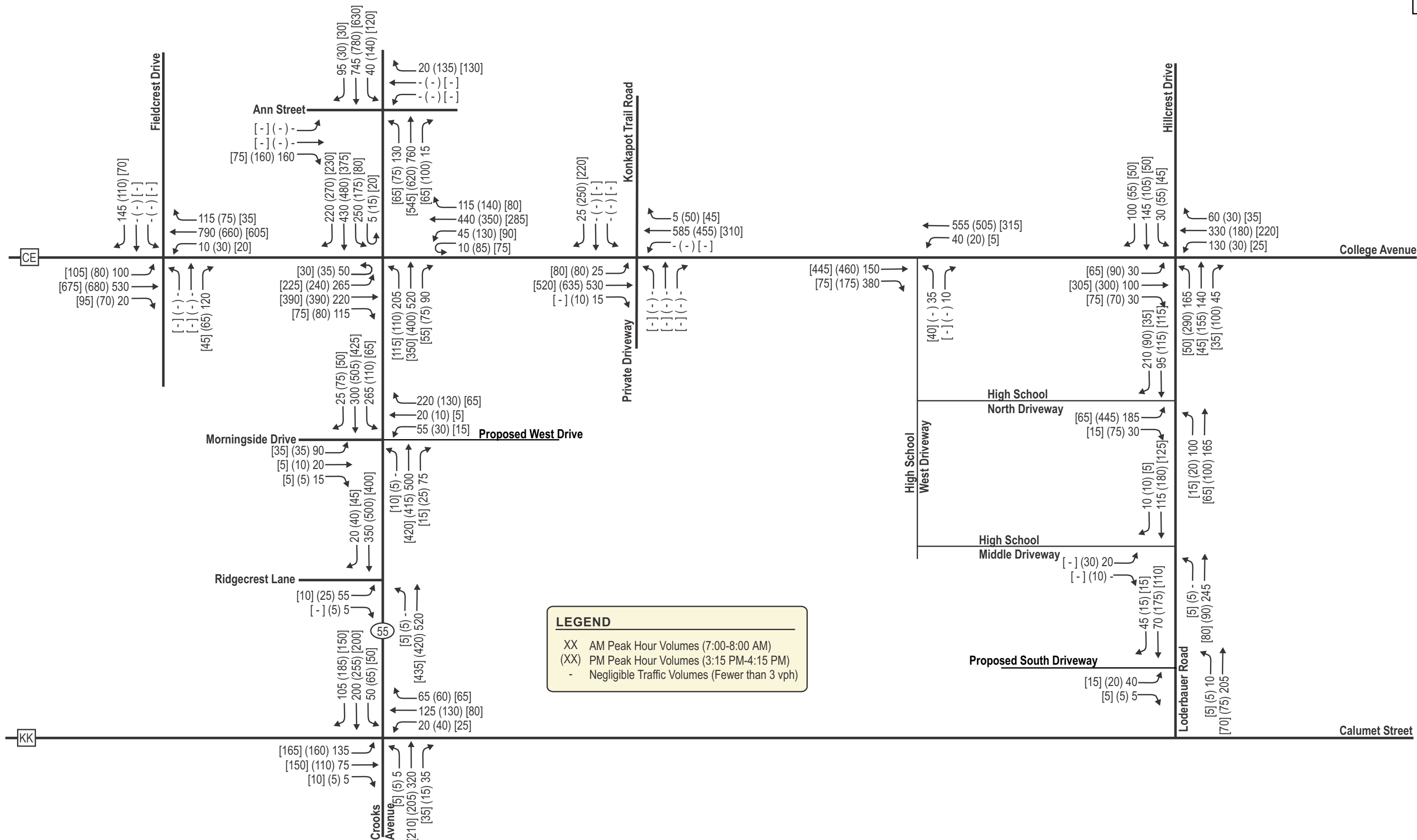


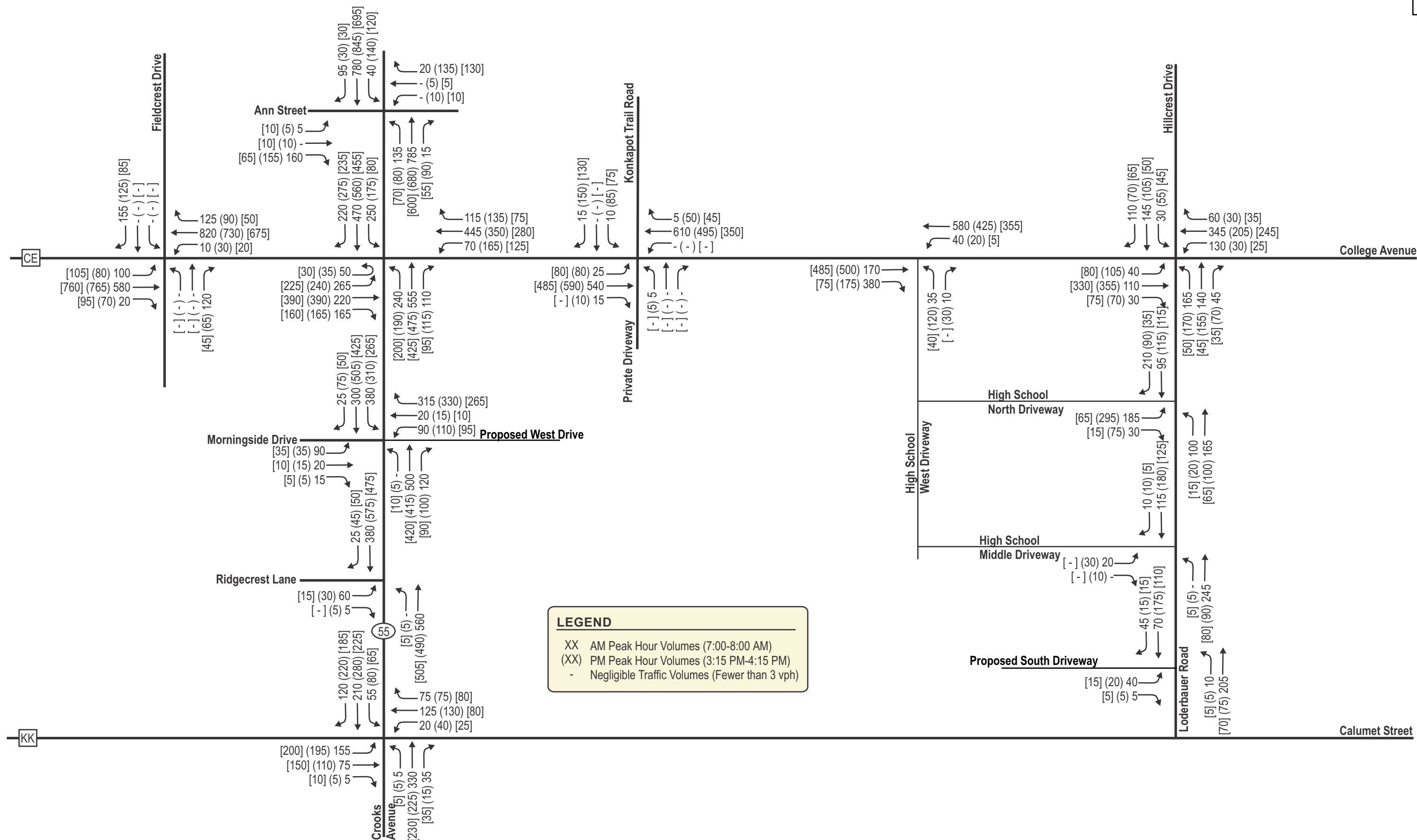


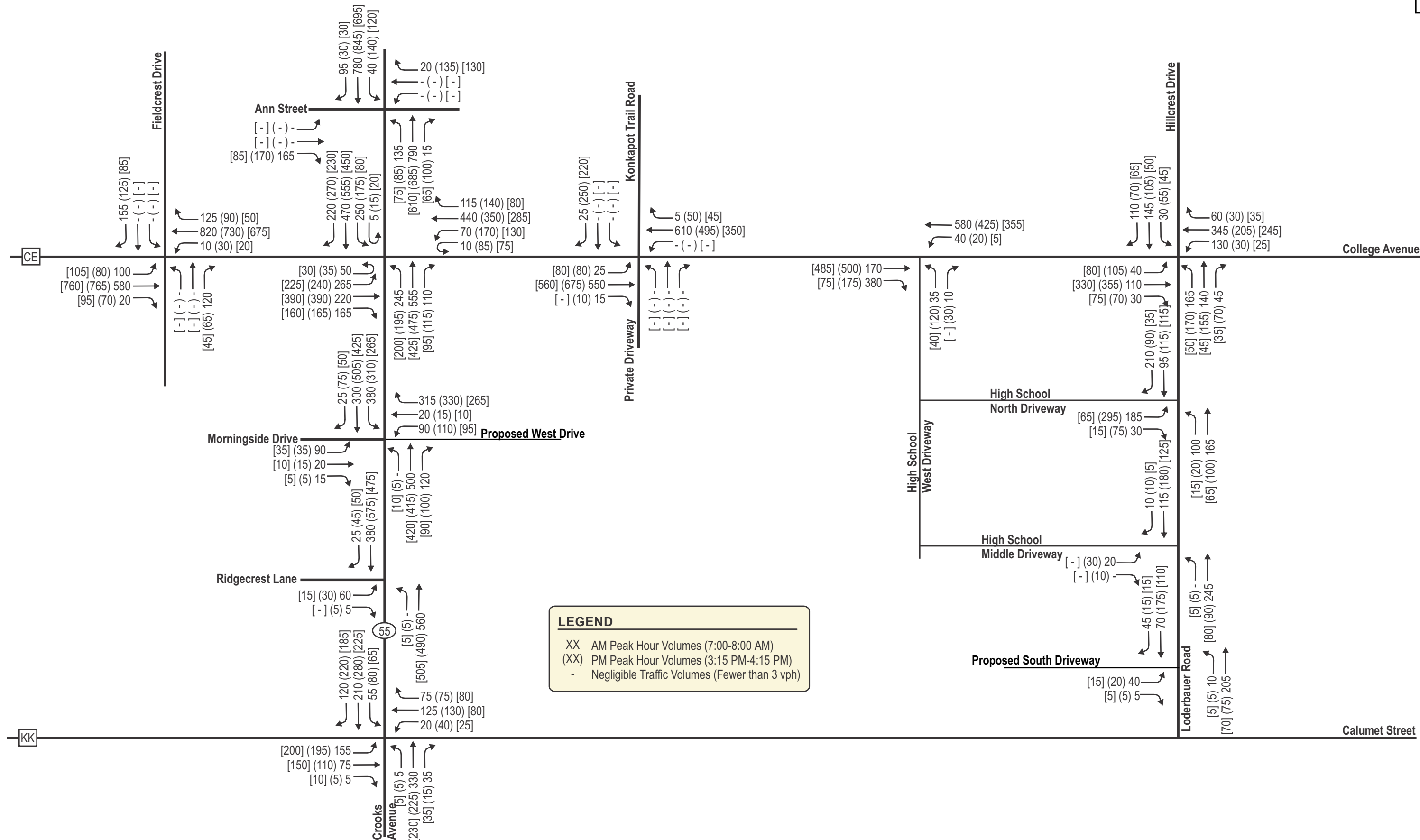


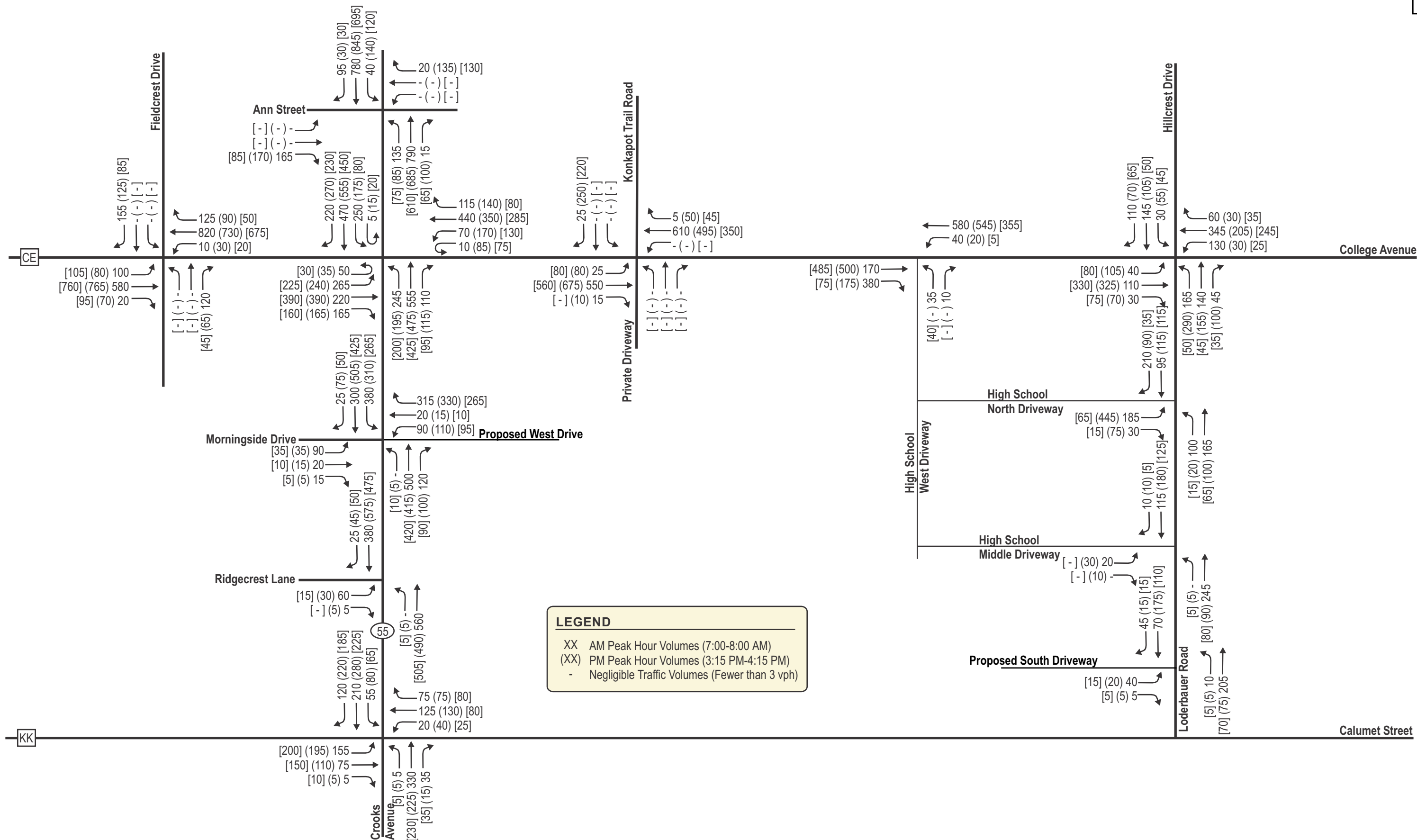












CHAPTER V – TRAFFIC AND IMPROVEMENT ANALYSIS

PART A – SITE ACCESS

Two access connections are proposed for the school development site. The main access is proposed as a full access driveway onto a new roadway connection to Crooks Avenue/STH 55 directly across from the existing three-legged, one-way stop sign controlled STH 55 intersection with Morningside Drive. A second driveway is proposed to connect to the high school site located northeast of the proposed middle school site with further existing connections from the high school onto CTH CE/College Avenue and Loderbauer Road. An additional driveway is proposed along Loderbauer Road, immediately south of the high school. Finally, even though not proposed as this time, a future connection via a new north/south connection onto CTH CE to the north and Speedway Lane to the southwest is also planned for at some point in the future.

PART B – CAPACITY LEVEL OF SERVICE ANALYSIS

B1. Full Build Traffic Operating Conditions – No Modifications

[Exhibits 5-3A&B](#) show the Full Build traffic peak hour operating conditions at the study area intersections under the two access scenarios as previously described. The Full Build traffic analysis was conducted using existing intersection configurations except with the addition of the new access drives to the site and the access restrictions as previously described for the two respective access options.

As shown in [Exhibit 5-3A](#), under Access Scenario 1 with full access at Fieldcrest Drive, all movements are expected to continue to operate at LOS D or better conditions at the study area intersections under the Full Build traffic volume conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street (node 100) which are expected to continue to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Fieldcrest Drive (node 200) which are expected to continue to operate at LOS E/F during the typical weekday morning peak period.
- The westbound, northbound, and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS E during the typical weekday morning peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road (node 400) which are expected to continue to operate at LOS E/F during the typical weekday morning and afternoon peak periods.
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) which is expected to continue to operate at LOS F during the typical weekday afternoon peak period.
- The eastbound and westbound movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) which are expected to operate at LOS F during the typical weekday morning and afternoon peak periods.

As shown in [Exhibit 5-3B](#), under Access Scenario 2 with Left-in/Right-in/Right-out at Fieldcrest Drive, all movements are expected to continue to operate at LOS D or better conditions at the study area intersections under the Full Build traffic volume conditions during the weekday

morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street (node 100) which are expected to continue to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The westbound, northbound, and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS E/F during the typical weekday morning peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road (node 400) which are expected to continue to operate at LOS E/F during the typical weekday morning and afternoon peak periods.
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) which is expected to continue to operate at LOS F during the typical weekday afternoon peak period.
- The eastbound and westbound movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) which are expected to operate at LOS F during the typical weekday morning and afternoon and peak periods.

B2. Total Traffic Operating Conditions – No Modifications

[Exhibits 5-6A&B](#) show the Total traffic peak hour operating conditions at the study area intersections under the two trip generation assumptions as previously described. The Total traffic analysis was conducted using existing intersection configurations except with the addition of the new access drives to the site and the access restrictions as previously described for the two respective access options.

As shown in [Exhibit 5-6A](#), all movements are expected to continue to operate at LOS D or better conditions at the study area intersections under the Total traffic volume conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street (node 100) which are expected to continue to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Fieldcrest Drive (node 200) which are expected to continue to operate at LOS E/F during the typical weekday morning peak period.
- The westbound, northbound, and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS F during the typical weekday morning peak period.
- The southbound movement at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which is expected to operate at LOS E during the typical weekday afternoon peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road (node 400) which are expected to continue to operate at LOS E/F during the typical weekday morning and afternoon peak periods.

- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) which is expected to continue to operate at LOS F during the typical weekday afternoon peak period.
- The eastbound and westbound movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) which are expected to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.

As shown in [Exhibit 5-6B](#) under Access Scenario 2 with Left-in/Right-in/Right-out at Fieldcrest Drive, all movements are expected to continue to operate at LOS D or better conditions at the study area intersections under the Total traffic volume conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street (node 100) which are expected to continue to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The westbound, northbound, and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS F during the typical weekday morning peak period.
- The eastbound and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS E during the typical weekday afternoon peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road (node 400) which are expected to continue to operate at LOS E/F during the typical weekday morning and afternoon peak periods.
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) which is expected to continue to operate at LOS F during the typical weekday afternoon peak period.
- The eastbound and westbound movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) which are expected to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.

B3. Existing Traffic Operating Conditions – With Modifications

Modifications to the existing transportation system to accommodate the Existing traffic conditions are recommended at the existing study area intersections. Recommended modifications are summarized in *Chapter VI – Recommendations and Conclusion*.

As shown in [Exhibit 5-9](#), all movements are expected to operate at LOS D or better conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods under the Existing traffic volume conditions with modifications except the northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is expected to continue to operate at LOS F during the typical weekday afternoon peak period. Restricting this movement during this time period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow all intersections to operate acceptably under all peak periods.

B4. Full Build Traffic Operating Conditions – With Modifications

Modifications to the existing transportation system to accommodate the Full Build traffic conditions are recommended at the existing study area intersections. Recommended modifications are summarized in *Chapter VI – Recommendations and Conclusion*.

As shown in [Exhibit 5-12A](#), all movements are expected to improve to operate at LOS D or better conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods under the full build traffic volume conditions with modifications except:

- The westbound and northbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS E during the typical weekday morning peak period. It is noted that the delays are only slightly higher than acceptable (about 6 seconds), and the reported queueing is expected to be reasonable (all less than 225 feet).
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) which is expected to continue to operate at LOS F during the typical weekday afternoon peak period. Restricting this movement during this time period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow all intersections to operate acceptably under all peak periods.
- The eastbound movements and the westbound through and left-turn movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) which are expected to continue to operate at LOS F during the typical weekday morning and afternoon peak periods and the eastbound movements operating at LOS E during the weekday evening special event peak period.

As shown in [Exhibit 5-12B](#), which includes additional restricted movements at the STH 55/Crooks Ave CTH CE/College Avenue intersection with the High School West Driveway during the typical school afternoon discharge peak hour, all movements are expected to improve to operate at LOS D or better conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods under the full build traffic volume conditions with modifications except:

- The westbound and northbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS E during the typical weekday morning peak period. It is noted that the delays are only slightly higher than acceptable (about 6 seconds), and the reported queueing is expected to be reasonable (all less than 225 feet).
- The eastbound movements and the westbound through and left-turn movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) which are expected to continue to operate at LOS F during the typical weekday morning and afternoon peak periods and the eastbound movements operating at LOS E during the weekday evening special event peak period.

B5. Total Traffic Operating Conditions – With Modifications

Modifications to the existing transportation system to accommodate the Total traffic conditions, including traffic signals at the STH 42 intersection with Mill Road and at the 21st Street/Mill Road intersection with Eisner Avenue, are recommended at the existing study area intersections. Recommended modifications are summarized in *Chapter VI – Recommendations and Conclusion*.

As shown in [Exhibit 5-15A](#), all movements are expected to improve to operate at LOS D or better conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods under the full build traffic volume conditions with modifications except:

- The westbound and southbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS E during the typical weekday morning peak period. It is noted that the delays are only slightly higher than acceptable (about 5 seconds), and the reported queueing is expected to be reasonable (all less than 200 feet).
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) which is expected to continue to operate at LOS F during the typical weekday afternoon peak period. Restricting this movement during this time period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow all intersections to operate acceptably under all peak periods.

As shown in [Exhibit 5-15B](#), which includes additional restricted movements at the STH 55/Crooks Ave CTH CE/College Avenue intersection with the High School West Driveway during the typical school afternoon discharge peak hour, all movements are expected to improve to operate at LOS D or better conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods under the full build traffic volume conditions with modifications except:

- The westbound and southbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE (node 300) which are expected to operate at LOS E during the typical weekday morning peak period. It is noted that the delays are only slightly higher than acceptable (about 5 seconds), and the reported queueing is expected to be reasonable (all less than 200 feet).

PART C – QUEUEING ANALYSIS

To estimate storage length requirements for turn bays at the study area intersections with modifications, a queueing analysis has been conducted. Note that the 95th percentile probable queue lengths were used for the design of turn bay storage at stop sign and traffic signal-controlled intersections. The following is a list of where the results of the queueing analysis can be found.

- Existing Traffic Expected Maximum Queues – [Exhibit 5-9 & 5-18](#)
- Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive, Full Access at High School West Driveway) Traffic Expected Maximum Queues – [Exhibits 5-12A & 5-21A](#)
- Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive, No Exit at High School West Driveway) Traffic Expected Maximum Queues – [Exhibits 5-12B & 5-21B](#)
- Total (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive, Full Access at High School West Driveway) Traffic Expected Maximum Queues – [Exhibits 5-15A & 5-24A](#)
- Total (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive, No Exit at High School West Driveway) Traffic Expected Maximum Queues – [Exhibits 5-15B & 5-24B](#)

PART D – WARRANT ANALYSIS

Warrants should be viewed as guidelines to help decide whether traffic signal controls may be installed. Meeting warrants does not translate to a legal requirement for their installation.

Completed warrant analysis worksheets are included in the appendix of this report. Even though the Peak Hour warrant is a typical warrant considered by many agencies as it is typically used for proposed facilities that have peak discharge characteristics such as schools or factories with high volume shift changes, Warrant 3 (Peak Hour) was not considered for this intersection per WisDOT policy on their highway facilities. Therefore, Warrant 1 (8 Hour) and Warrant 2 (4-Hour) were evaluated for the Build and Total traffic scenarios.

Traffic signal warrants were investigated at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build and Total traffic volumes in accordance with the *MUTCD 11th Edition*. Crooks Avenue/STH 55 was analyzed as a major street with two lanes on each approach and Morningside Drive/Proposed West Access Drive was analyzed as a minor street with one lane. Even though the proposed geometry on the north and south approaches on the major street include only one through lane (with additional dedicated left-turn and right-turn taper lanes), per the MUTCD the high-volume southbound left-turn volume (more than half the through volume for several peak periods) indicates that two lanes should be utilized for the major street approach calculations. The posted speed limit is 35-mph along the Crooks Avenue/STH 55 corridor at this location and therefore urban warrant thresholds were utilized.

The warrant analysis was conducted based on the weekday peak hour turning movement counts collected as part of this study at the intersection in mid-February of 2025. Based on the warrant analysis, neither Warrant 1 (8-Hour) nor Warrant 2 (4-Hour) are expected to be met at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build traffic conditions. Specifically, only 1 hour of the required 8 hours under Warrant 1 (8-Hour) and only 1 hour of the required 4 hours under Warrant 2 (4-Hour) are expected to be met. It is noted that 0-percent of the minor street right-turn volumes were included in the calculations due to the dedicated right-turn lane proposed on this approach. In addition, even though close to being met under the Total traffic volume condition, Warrant 1 (8-Hour) and Warrant 2 (4-Hour) are also not expected to be met under the Total traffic volume condition. Specifically, only 7 hours of the required 8 hours under Warrant 1 (8-Hour) and only 3 hours of the required 4 hours under Warrant 2 (4-Hour) are met.

Therefore, unless the build out assumptions for the off-site development are more intense than assumed in this study, traffic signal control should not be considered at this intersection under the Build (with proposed school only) traffic volume conditions nor with full build out of both the on-site and off-site developments.

PART E – TRAFFIC CONTROL COMPARISON

Because operational deficiencies are expected to remain at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build and Total traffic volumes conditions under the proposed two-way stop control conditions with no geometric modifications other than the new east approach driveway, alternate control conditions were considered.

Under the Build (with proposed school only) traffic volume conditions, two possible modification scenarios were considered: specifically, two-way stop control with additional lanes and roundabout control with single entrance lanes for all approaches.

Under the Total (with on-site and off-site developments) traffic volume conditions, two possible modification scenarios were considered: specifically, two-way stop control with additional lanes and roundabout control with two-lane approaches and circulating lanes for the south approach and single lane approaches and circulating lanes for all other approaches.

Operations and queueing comparison tables have been provided to show the operation at the subject intersection under the two modification scenarios. As shown in [Exhibits 5-16A & 5-21B](#), under two-way stop control the eastbound and westbound movements are expected to operate with higher delays (LOS F) during the weekday morning and afternoon peak periods and LOS E during the special event peak hour for all eastbound movements and the westbound through/left-turn movements at the intersection. However, as with most school sites, higher delays are only expected during about a 20 to 30 minute “surge” during the morning arrival and afternoon dismissal peak periods which can be considered typical for a school location. Even though not warranted, roundabout control was also evaluated. Under roundabout control, all movements are expected to operate at LOS C or better during all three peak periods under Full Build traffic conditions with reasonable queue lengths (all less than 225 feet).

In addition, and as shown in [Exhibits 5-16B & 5-24B](#), under roundabout, all movements are expected to operate at LOS C or better during all three peak periods under Total traffic conditions with reasonable queue lengths (all less than 325 feet). Under two-way stop control, very high delays (LOS F/gridlock conditions) and very long queues are expected for all eastbound movements and the westbound through/left-turn movements at the intersection.

A Phase I Intersection Control Evaluation (ICE) comparing the two modification scenarios has been included in the appendix of this report. Per request from WisDOT, an additional IHSDM evaluation was also completed and is included along with the ICE analysis provided in the [appendix](#) of this report.

Based on the ICE analysis, under the Build (with proposed school only) traffic volume conditions, since two-way stop control with additional lanes provides reasonable operations, two-way stop control is recommended for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive. However, since traffic signal control is not warranted under the Total (with on-site and off-site developments) traffic volume conditions, roundabout control with two-lane approaches and circulating lanes for the south approach and single lane approaches and circulating lanes for all other approaches is the only viable alternative under this build out scenario and is therefore recommended for the intersection if off-site development moves forward. Under the recommended traffic control, all queue lengths are expected to fit within the proposed turn-bay lengths recommended in this study and are not expected to impede on any adjacent intersections.

It is also noted that since development plans for the off-site development area are unknown at this time and the build out assumptions were used for planning purposes only, a future traffic study should be completed in the future as development plans move forward for the off-site area to determine if traffic signals would be warranted thereby allowing traffic signals to be a potential viable option as well.

Exhibit 5-3A
Full Build (Scenario 1 - Full Access) Traffic Peak Hour Operating Conditions
With Existing Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay						
			Eastbound			Westbound			Northbound			Southbound									
			↗	→	↘	↙	←	↖	↗	↑	↘	↙	↓	↖							
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>	AM	Lanes->	1		1		1		1		2		1		2						
		LOS	F		C		F		B		B		*		B		*				
		Delay	249.8		18.2		283.1		12.5		12.9		*		*		10.8		*		
		√c	0.37		-		0.17		-		-		-		-		-				
	PM	Queue	30'		55'		25'		30'		25'		*		*		25'		*		
		LOS	F		B		F		B		B		*		*		B		*		
		Delay	207.1		14.4		219.4		12.1		10.5		*		*		10.4		*		
		√c	0.53		-		0.55		-		-		-		-		-		-		
	PMSE	Queue	45'		30'		45'		25'		25'		*		*		25'		*		
		LOS	F		B		F		B		A		*		*		A		*		
		Delay	77.8		11.1		62.8		11.3		9.4		*		*		9.4		*		
		√c	0.31		-		0.21		-		-		-		-		-		-		
Queue	30'		25'		25'		25'		25'		*		*		25'		*				
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>	AM	Lanes->	1		2		1		2		1		1		1		1				
		LOS	B		*		*		A		*		*		F		B		E		B
		Delay	12.1		*		*		8.9		*		*		50.3		11.1		36.4		13.8
		√c	-		*		*		-		*		*		0.45		-		0.28		-
	PM	Queue	25'		*		*		25'		*		*		45'		25'		25'		25'
		LOS	A		*		*		A		*		*		D		B		C		B
		Delay	9.7		*		*		9.4		*		*		28.7		10.9		24.1		11.3
		Queue	25'		*		*		25'		*		*		25'		25'		25'		25'
	PMSE	LOS	A		*		*		A		*		*		D		B		C		B
		Delay	9.5		*		*		9.6		*		*		30.2		10.9		24.4		10.8
		Queue	25'		*		*		25'		*		*		25'		25'		25'		25'
		Queue	25'		*		*		25'		*		*		25'		25'		25'		25'
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** <i>Roundabout Control</i>	AM	Lanes->	1		1		1		1		1		1		1		1		1		
		LOS	C		C		E		E		E		E		E		E		E		E
		Delay	19.5		19.4		45.6		43.9		36.7		39.4		42.8		48.3				
		Queue	110'		120'		215'		225'		235'		270'		280'		335'				
	PM	LOS	C		C		B		B		C		C		C		C		C		C
		Delay	19.0		19.1		14.6		14.5		16.0		15.8		18.0		19.4				
		Queue	110'		125'		75'		85'		81'		90'		135'		160'				
		Queue	110'		125'		75'		85'		81'		90'		135'		160'				
	PMSE	LOS	B		B		A		A		B		B		A		A		A		A
		Delay	10.4		10.6		9.6		9.4		10.8		10.7		9.5		9.7				
		Queue	60'		65'		35'		40'		50'		55'		55'		60'				
		Queue	60'		65'		35'		40'		50'		55'		55'		60'				
Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>	AM	Lanes->	1		1		1		1		1		1		1		1		1		
		LOS	A		*		*		A		*		*		F		E		C		
		Delay	9.8		*		*		9.3		*		*		72.0		41.9		15.8		
		√c	-		-		-		-		-		-		0.16		0.14		-		
	PM	Queue	25'		*		*		25'		*		*		25'		25'		25'		25'
		LOS	A		*		*		A		*		*		F		F		C		
		Delay	9.2		-		-		9.0		-		-		73.6		71.1		15.5		
		√c	-		-		-		-		-		-		0.14		0.70		-		
	PMSE	Queue	25'		-		-		25'		-		-		25'		105'		40'		
		LOS	A		*		*		A		*		*		C		C		B		
		Delay	8.3		-		-		8.3		-		-		20.4		23.1		11.4		
		Queue	25'		-		-		25'		-		-		25'		30'		25'		
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>	AM	Lanes->	-		1		1		1		-		1		-		1		-		
		LOS	-		*		*		A		-		D		-		A		-		
		Delay	-		*		*		9.6		-		27.9		-		9.6		-		
		Queue	-		*		*		25'		-		25'		-		25'		-		
	PM	Queue	-		*		*		25'		-		160'		-		25'		-		
		LOS	-		*		*		A		-		F		-		B		-		
		Delay	-		*		*		9.9		-		83.7		-		13.2		-		
		√c	-		-		-		-		-		0.86		-		-		-		
	PMSE	Queue	-		*		*		25'		-		160'		-		25'		-		
		LOS	-		*		*		A		-		C		-		B		-		
		Delay	-		*		*		8.6		-		17.9		-		11.4		-		
		Queue	-		*		*		25'		-		25'		-		25'		-		
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>	AM	Lanes->	1		1		1		1		1		1		1		1		1		
		LOS	B		A		A		B		B		B		B		C		C		B
		Delay	18.2		9.4		8.6		12.2		14.7		14.4		12.8		19.2		23.2		20.3
		Queue	30'		70'		25'		95'		275'		105'		120'		40'		135'		65'
	PM	LOS	B		B		A		B		B		B		B		C		C		C
		Delay	16.5		14.7		9.5		18.7		11.9		15.4		14.5		22.3		23.9		21.1
		Queue	70'		220'		35'		30'		135'		105'		140'		65'		100'		40'
		Queue	70'		220'		35'		30'		135'		105'		140'		65'		100'		40'
	PMSE	LOS	B		B		A		B		A		B		A		B		B		B
		Delay	11.8		10.2		7.7		11.8		9.8		10.6		9.9		14.5		14.5		14.3
		Queue	35'		130'		25'		25'		110'		30'		40'		40'		40'		30'
		Queue	35'		130'		25'		25'		110'		30'		40'		40'		40'		30'

Exhibit 5-3A
Full Build (Scenario 1 - Full Access) Traffic Peak Hour Operating Conditions
With Existing Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↗	↑	↖	↘	↓	↙	
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive <i>Two-Way Stop Control</i>	AM	Lanes->	1			1			2			2			
		LOS	F			F			A			B			
		Delay	1495.8			742.2			8.1			11.4			
		Queue	425'			760'			25'			40'			
	PM	LOS	F			C			A			A			
		Delay	57.8			24.2			9.0			8.9			
		Queue	50'			70'			25'			25'			
	PMSE	LOS	D			C			A			A			
		Delay	30.1			15.3			8.6			8.6			
		Queue	25'			25'			25'			25'			
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane <i>One-Way Stop Control</i>	AM	Lanes->	1			-			2		-	-	1	1	
		LOS	C			-			A		-	-	-	-	
		Delay	15.7			-			8.2		-	-	-	-	
		Queue	25'			-			25'		-	-	-	-	
	PM	LOS	C			-			A		-	-	-	-	
		Delay	17.1			-			8.8		-	-	-	-	
		Queue	25'			-			25'		-	-	-	-	
	PMSE	LOS	B			-			A		-	-	-	-	
		Delay	14.5			-			8.4		-	-	-	-	
		Queue	25'			-			25'		-	-	-	-	
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street <i>Roundabout Control</i>	AM	Lanes->	1			1			1			1			
		LOS	A			A			A			A			
		Delay	6.0			7.7			8.0			6.9			
		Queue	25'			30'			50'			45'			
	PM	LOS	A			A			A			A			
		Delay	7.4			6.9			7.0			8.9			
		Queue	35'			30'			30'			75'			
	PMSE	LOS	A			A			A			A			
		Delay	7.3			6.1			7.4			6.6			
		Queue	40'			25'			35'			45'			
Node 1000: Loderbauer Road & High School North Access D/W <i>Traffic Signal Control</i>	AM	Lanes->	2	-	1	-			2		-	-	1	1	A 8.7
		LOS	A	-	A	-			A		-	-	A	A	
		Delay	9.7	-	8.8	-			9.4		-	-	7.2	8.2	
		Queue	35'	-	25'	-			35'		-	-	30'	40'	
	PM	LOS	B	-	A	-			A		-	-	A	A	A 9.6
		Delay	11.0	-	9.1	-			8.2		-	-	8.9	8.0	
		Queue	55'	-	25'	-			25'		-	-	45'	25'	
	PMSE	LOS	A	-	A	-			A		-	-	A	A	A 7.0
		Delay	9.7	-	9.4	-			5.7		-	-	6.5	5.5	
		Queue	25'	-	25'	-			25'		-	-	30'	25'	
Node 1100: Loderbauer Road & High School Middle Access D/W <i>One-Way Stop Control</i>	AM	Lanes->	1			-			1		-	-	1		
		LOS	C			-			A		-	-	*		
		Delay	15.5			-			7.6		-	-	*		
		Queue	25'			-			25'		-	-	*		
	PM	LOS	B			-			A		-	-	*		
		Delay	13.2			-			8.0		-	-	*		
		Queue	25'			-			25'		-	-	*		
	PMSE	LOS	A			-			A		-	-	*		
		Delay	9.6			-			7.6		-	-	*		
		Queue	25'			-			25'		-	-	*		
Node 1200: Loderbauer Road & New South D/W <i>One-Way Stop Control</i>	AM	Lanes->	1			-			1		-	-	1		
		LOS	B			-			A		-	-	*		
		Delay	12.6			-			7.6		-	-	*		
		Queue	25'			-			25'		-	-	*		
	PM	LOS	B			-			A		-	-	*		
		Delay	11.6			-			8.0		-	-	*		
		Queue	25'			-			25'		-	-	*		
	PMSE	LOS	A			-			A		-	-	*		
		Delay	9.9			-			7.6		-	-	*		
		Queue	25'			-			25'		-	-	*		

Exhibit 5-3B Full Build (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control														
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										LOS & Delay	I/S
			Eastbound		Westbound		Northbound		Southbound					
			↗	→	↘	↖	←	↗	↑	↘	↖	↓		
Node 100: STH 55/Crooks Avenue & Ann Street Two-Way Stop Control	AM	Lanes->	1		1	1	1	1	2	1		2		
		LOS	F		C	F	B	B	*	*	B	*		
		Delay	249.8		18.2	283.1	12.5	12.9	*	*	10.8	*		
		v/c	0.37		-	0.17	-	-	-	-	-	-		
		Queue	30'		55'	25'	30'	25'	*	*	25'	*		
		Queue	30'		55'	25'	30'	25'	*	*	25'	*		
	PM	LOS	F		B	F	B	B	*	*	B	*		
		Delay	207.1		14.4	219.4	12.1	10.5	*	*	10.4	*		
		v/c	0.53		-	0.55	-	-	-	-	-	-		
		Queue	45'		30'	45'	25'	25'	*	*	25'	*		
		Queue	45'		30'	45'	25'	25'	*	*	25'	*		
		Queue	45'		30'	45'	25'	25'	*	*	25'	*		
PMSE	LOS	F		B	F	B	A	*	*	A	*			
	Delay	77.8		11.1	62.8	11.3	9.4	*	*	9.4	*			
	v/c	0.31		-	0.21	-	-	-	-	-	-			
	Queue	30'		25'	25'	25'	25'	*	*	25'	*			
	Queue	30'		25'	25'	25'	25'	*	*	25'	*			
	Queue	30'		25'	25'	25'	25'	*	*	25'	*			
Node 200: CTH CE/College Avenue & Fieldcrest Drive Two-Way Stop Control	AM	Lanes->	1	2	1	1	2	1	-	1	1	1		
		LOS	B	*	*	A	*	*	-	B	-	C		
		Delay	12.6	*	*	9.1	*	*	-	12.1	-	15.5		
		Queue	25'	*	*	25'	*	*	-	25'	-	40'		
		Queue	25'	*	*	25'	*	*	-	25'	-	40'		
		Queue	25'	*	*	25'	*	*	-	25'	-	40'		
	PM	LOS	A	*	*	A	*	*	-	B	-	B		
		Delay	9.8	*	*	9.5	*	*	-	11.4	-	11.8		
		Queue	25'	*	*	25'	*	*	-	25'	-	25'		
		Queue	25'	*	*	25'	*	*	-	25'	-	25'		
		Queue	25'	*	*	25'	*	*	-	25'	-	25'		
		Queue	25'	*	*	25'	*	*	-	25'	-	25'		
PMSE	LOS	A	*	*	A	*	*	-	B	-	B			
	Delay	9.6	*	*	9.7	*	*	-	11.2	-	11.1			
	Queue	25'	*	*	25'	*	*	-	25'	-	25'			
	Queue	25'	*	*	25'	*	*	-	25'	-	25'			
	Queue	25'	*	*	25'	*	*	-	25'	-	25'			
	Queue	25'	*	*	25'	*	*	-	25'	-	25'			
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** Roundabout Control	AM	Lanes->	1		1	1	1	1	1	1	1	1		
		LOS	C		C	F	F	E	E	F	F	F		
		Delay	21.9		22.1	55.9	53.3	45.8	49.0	54.7	61.3	61.3		
		Queue	130'		145'	240'	255'	265'	305'	325'	380'	380'		
		Queue	130'		145'	240'	255'	265'	305'	325'	380'	380'		
		Queue	130'		145'	240'	255'	265'	305'	325'	380'	380'		
	PM	LOS	C		C	C	C	C	C	C	C	C		
		Delay	20.4		20.6	15.6	15.4	17.2	16.9	19.7	21.3	21.3		
		Queue	125'		135'	80'	90'	90'	95'	145'	175'	175'		
		Queue	125'		135'	80'	90'	90'	95'	145'	175'	175'		
		Queue	125'		135'	80'	90'	90'	95'	145'	175'	175'		
		Queue	125'		135'	80'	90'	90'	95'	145'	175'	175'		
PMSE	LOS	B		B	B	A	B	B	A	B	B			
	Delay	10.8		11.1	10.0	9.7	11.3	11.1	9.9	10.2	10.2			
	Queue	65'		70'	40'	40'	50'	55'	55'	65'	65'			
	Queue	65'		70'	40'	40'	50'	55'	55'	65'	65'			
	Queue	65'		70'	40'	40'	50'	55'	55'	65'	65'			
	Queue	65'		70'	40'	40'	50'	55'	55'	65'	65'			
Node 400: CTH CE/College Avenue & Konkapot Trail Road Two-Way Stop Control	AM	Lanes->	1		1	1	1	1	1	1	1	1		
		LOS	A		*	A	*	F	E	E	C	C		
		Delay	9.8		*	9.3	*	72.0	41.9	15.8	15.8	15.8		
		v/c	-		-	-	-	0.16	0.14	-	-	-		
		Queue	25'		*	25'	*	25'	25'	25'	25'	25'		
		Queue	25'		*	25'	*	25'	25'	25'	25'	25'		
	PM	LOS	A		-	A	-	F	F	F	C	C		
		Delay	9.2		-	9.0	-	73.6	71.1	15.5	15.5	15.5		
		v/c	-		-	-	-	0.14	0.70	-	-	-		
		Queue	25'		-	25'	-	25'	105'	40'	40'	40'		
		Queue	25'		-	25'	-	25'	105'	40'	40'	40'		
		Queue	25'		-	25'	-	25'	105'	40'	40'	40'		
PMSE	LOS	A		-	A	-	C	C	C	B	B			
	Delay	8.3		-	8.3	-	20.4	23.1	11.4	11.4	11.4			
	Queue	25'		-	25'	-	25'	30'	25'	25'	25'			
	Queue	25'		-	25'	-	25'	30'	25'	25'	25'			
	Queue	25'		-	25'	-	25'	30'	25'	25'	25'			
	Queue	25'		-	25'	-	25'	30'	25'	25'	25'			
Node 500: CTH CE/College Avenue & High School West D/W One-Way Stop Control	AM	Lanes->	-	1	1	1	-	1	-	1	-	-		
		LOS	-	*	*	A	-	D	-	A	-	-		
		Delay	-	*	*	9.6	-	27.9	-	9.6	-	-		
		Queue	-	*	*	25'	-	25'	-	25'	-	-		
		Queue	-	*	*	25'	-	25'	-	25'	-	-		
		Queue	-	*	*	25'	-	25'	-	25'	-	-		
	PM	LOS	-	*	*	A	-	F	-	B	-	-		
		Delay	-	*	*	9.9	-	83.7	-	13.2	-	-		
		v/c	-	-	-	-	-	0.86	-	-	-	-		
		Queue	-	*	*	25'	-	160'	-	25'	-	-		
		Queue	-	*	*	25'	-	160'	-	25'	-	-		
		Queue	-	*	*	25'	-	160'	-	25'	-	-		
PMSE	LOS	-	*	*	A	-	C	-	B	-	-			
	Delay	-	*	*	8.6	-	17.9	-	11.4	-	-			
	Queue	-	*	*	25'	-	25'	-	25'	-	-			
	Queue	-	*	*	25'	-	25'	-	25'	-	-			
	Queue	-	*	*	25'	-	25'	-	25'	-	-			
	Queue	-	*	*	25'	-	25'	-	25'	-	-			
Node 600: Loderbauer Road & CTH CE/College Avenue Traffic Signal Control	AM	Lanes->	1	1	1	1	1	1	1	1	1	1		
		LOS	B	A	A	B	B	B	B	B	C	C	B	
		Delay	18.2	9.4	8.6	12.2	14.7	14.4	12.8	19.2	23.2	20.3	15.1	
		Queue	30'	70'	25'	95'	275'	105'	120'	40'	135'	65'		
		Queue	30'	70'	25'	95'	275'	105'	120'	40'	135'	65'		
		Queue	30'	70'	25'	95'	275'	105'	120'	40'	135'	65'		
	PM	LOS	B	B	A	B	B	B	B	C	C	C	B	
		Delay	16.5	14.7	9.5	18.7	11.9	15.4	14.5	22.3	23.9	21.1	15.5	
		Queue	70'	220'	35'	30'	135'	105'	140'	65'	100'	40'		
		Queue	70'	220'	35'	30'	135'	105'	140'	65'	100'	40'		
		Queue	70'	220'	35'	30'	135'	105'	140'	65'	100'	40'		
		Queue	70'	220'	35'	30'	135'	105'	140'	65'	100'	40'		
PMSE	LOS	B	B	A	B	A	B	A	B	B	B	B		
	Delay	11.8	10.2	7.7	11.8	9.8	10.6	9.9	14.5	14.5	14.3	10.7		
	Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'			
	Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'			
	Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'			
	Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'			

Exhibit 5-6A Total (Scenario 1 - Full Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control														
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay	
			Eastbound		Westbound		Northbound		Southbound					
			↗	→	↖	←	↗	↑	↘	↓	↖			
Node 100: STH 55/Crooks Avenue & Ann Street Two-Way Stop Control		Lanes->	1	1	1	1	1	2	1	1	2			
	AM	LOS	F	C	F	B	B	*	*	B	*			
		Delay	317.0	19.3	358.8	12.8	13.5	*	*	11.0	*			
		v/c	0.44	-	0.21	-	-	-	-	-	-			
		Queue	30'	60'	25'	25'	30'	*	*	25'	*			
	PM	LOS	F	C	F	B	B	*	*	B	*			
		Delay	324.0	15.5	405.7	12.7	11.0	*	*	10.8	*			
		v/c	0.71	-	0.83	-	-	-	-	-	-			
		Queue	55'	40'	60'	25'	25'	*	*	25'	*			
	PMSE	LOS	F	B	F	B	A	*	*	A	*			
		Delay	110.8	11.6	88.4	11.7	9.8	*	*	9.7	*			
		v/c	0.40	-	0.27	-	-	-	-	-	-			
Queue		40'	25'	25'	25'	25'	*	*	25'	*				
Node 200: CTH CE/College Avenue & Fieldcrest Drive Two-Way Stop Control		Lanes->	1	2	1	1	2	1	1	1	1			
	AM	LOS	B	*	*	A	*	*	F	B	E	B		
		Delay	12.5	*	*	9.1	*	*	57.4	11.4	43.7	14.2		
		v/c	-	*	*	-	*	*	0.49	-	0.39	-		
		Queue	25'	*	*	25'	*	*	45'	25'	25'	25'		
	PM	LOS	B	*	*	A	*	*	D	B	D	B		
		Delay	10.1	*	*	9.7	*	*	32.6	11.3	28.5	11.7		
		Queue	25'	*	*	25'	*	*	25'	25'	25'	25'		
		LOS	A	*	*	A	*	*	D	B	D	B		
	PMSE	Delay	9.9	*	*	9.9	*	*	34.6	11.2	28.1	11.2		
		Queue	25'	*	*	25'	*	*	25'	25'	25'	25'		
		Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** Roundabout Control		Lanes->	1	1	1	1	1	1	1	1	1	
AM			LOS	D	D	F	F	F	F	F	F	F		
	Delay		26.9	27.0	70.9	67.7	53.0	59.4	70.0	78.6				
	Queue		155'	170'	280'	300'	315'	370'	385'	450'				
	PM		LOS	D	D	C	C	C	C	D	D	E		
Delay			32.3	33.0	22.5	22.4	24.4	25.1	31.7	35.5				
Queue			190'	210'	120'	135'	155'	175'	230'	275'				
LOS			B	B	B	B	B	B	B	B	B			
PMSE	Delay		14.3	14.7	12.9	12.5	14.4	14.6	12.9	13.2				
	Queue		90'	100'	55'	60'	85'	95'	80'	90'				
	Node 400: CTH CE/College Avenue & Konkapot Trail Road Two-Way Stop Control			Lanes->	1	1	1	1	1	1	1	1	1	
			AM	LOS	B	*	A	*	F		E	C		
Delay		10.0		*	9.4	*	81.8		46.0	16.4				
v/c		-		-	-	-	0.18		0.15	-				
Queue		25'		*	25'	*	25'		25'	25'				
PM		LOS	A	-	A	-	F		F	C				
		Delay	9.4	-	9.2	-	92.7		95.8	16.6				
		v/c	-	-	-	-	0.18		0.80	-				
		Queue	25'	-	25'	-	25'		125'	45'				
PMSE		LOS	A	-	A	-	C		D	B				
		Delay	8.4	-	8.5	-	22.7		26.2	11.9				
		Queue	25'	-	25'	-	25'		35'	25'				
	Node 500: CTH CE/College Avenue & High School West D/W One-Way Stop Control		Lanes->	-	1	1	1	-	1	-	1	-		
AM		LOS	-	*	*	A	-	D	-	A	-			
		Delay	-	*	*	9.7	-	31.0	-	9.6	-			
		Queue	-	*	*	25'	-	25'	-	25'	-			
		PM	LOS	-	*	*	B	-	F	-	B	-		
Delay			-	*	*	10.1	-	129.1	-	13.9	-			
v/c			-	-	-	-	-	1.01	-	-	-			
Queue			-	*	*	25'	-	200'	-	25'	-			
PMSE		LOS	-	*	*	A	-	C	-	B	-			
		Delay	-	*	*	8.8	-	19.9	-	11.7	-			
		Queue	-	*	*	25'	-	25'	-	25'	-			
		Node 600: Loderbauer Road & CTH CE/College Avenue Traffic Signal Control		Lanes->	1	1	1	1	1	1	1	1	1	
AM	LOS		B	A	A	B	B	B	B	C	C	C	B	
	Delay		19.3	9.5	8.6	12.4	14.0	14.9	13.3	19.8	23.9	21.2	15.5	
	Queue		40'	75'	25'	95'	290'	105'	120'	40'	135'	70'		
	PM		LOS	B	B	A	B	B	B	B	C	C	C	B
Delay			17.8	14.7	9.2	19.5	12.0	16.8	16.3	24.6	26.7	23.8	16.5	
Queue			80'	240'	35'	30'	155'	105'	140'	65'	100'	50'		
LOS			B	B	A	B	B	B	B	B	B	B	B	
PMSE	Delay		12.7	10.6	7.6	12.2	10.1	10.7	10.0	14.7	14.6	14.6	11.0	
	Queue		40'	140'	25'	25'	120'	35'	50'	40'	45'	40'		

Exhibit 5-6A Total (Scenario 1 - Full Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control														
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach								I/S LOS & Delay			
			Eastbound			Westbound		Northbound		Southbound				
			↗	→	↘	↙	←	↖	↖	↑		↗	↘	↓
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Two-Way Stop Control	AM	Lanes->	1			1		2		2				
		LOS	F			F		A		B				
		Delay	2191.0			10609.0		8.1		14.1				
		Queue	515'			1620'		25'		40'				
	PM	LOS	F			F		A		B				
		Delay	1274.0			1708.0		9.0		10.7				
		Queue	200'			1330'		25'		40'				
	PMSE	LOS	F			F		A		B				
		Delay	451.0			793.0		8.6		10.2				
Queue		145'			920'		25'		35'					
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Lanes->	1			-		2		-	-	1	1	
		LOS	C			-		A		-	-	-	-	
		Delay	17.0			-		8.3		-	-	-	-	
		Queue	25'			-		25'		-	-	-	-	
	PM	LOS	C			-		A		-	-	-	-	
		Delay	20.3			-		9.1		-	-	-	-	
		Queue	25'			-		25'		-	-	-	-	
	PMSE	LOS	C			-		A		-	-	-	-	
		Delay	16.7			-		8.7		-	-	-	-	
Queue		25'			-		25'		-	-	-	-		
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1			1		1		1				
		LOS	A			A		A		A				
		Delay	6.4			8.3		8.5		7.3				
		Queue	30'			35'		55'		50'				
	PM	LOS	A			A		A		B				
		Delay	8.4			7.8		7.9		10.3				
		Queue	45'			35'		40'		95'				
	PMSE	LOS	A			A		A		A				
		Delay	8.4			6.8		8.4		7.5				
Queue		55'			25'		40'		60'					
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	Lanes->	2	-	1	-		2	-	-	-	1	1	
		LOS	A	-	A	-		A	-	-	-	A	A	8.7
		Delay	9.7	-	8.8	-		9.4	-	-	-	7.2	8.2	
		Queue	35'	-	25'	-		35'	-	-	-	30'	40'	
	PM	LOS	B	-	A	-		A	-	-	-	A	A	9.6
		Delay	11.0	-	9.1	-		8.2	-	-	-	8.9	8.0	
		Queue	55'	-	25'	-		25'	-	-	-	45'	25'	
	PMSE	LOS	A	-	A	-		A	-	-	-	A	A	7.0
		Delay	9.7	-	9.4	-		5.7	-	-	-	6.5	5.5	
Queue		25'	-	25'	-		25'	-	-	-	30'	25'		
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-		1		-	-	-	1	
		LOS	C			-		A		-	-	-	*	
		Delay	15.5			-		7.6		-	-	-	*	
		Queue	25'			-		25'		-	-	-	*	
	PM	LOS	B			-		A		-	-	-	*	
		Delay	13.2			-		8.0		-	-	-	*	
		Queue	25'			-		25'		-	-	-	*	
	PMSE	LOS	A			-		A		-	-	-	*	
		Delay	9.6			-		7.6		-	-	-	*	
Queue		25'			-		25'		-	-	-	*		
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	AM	Lanes->	1			-		1		-	-	-	1	
		LOS	B			-		A		-	-	-	*	
		Delay	12.6			-		7.6		-	-	-	*	
		Queue	25'			-		25'		-	-	-	*	
	PM	LOS	B			-		A		-	-	-	*	
		Delay	11.6			-		8.0		-	-	-	*	
		Queue	25'			-		25'		-	-	-	*	
	PMSE	LOS	A			-		A		-	-	-	*	
		Delay	9.9			-		7.6		-	-	-	*	
Queue		25'			-		25'		-	-	-	*		

Exhibit 5-6B Total (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay		
			Eastbound			Westbound			Northbound		Southbound				
			↗	→	↘	↖	←	↗	↖	↑	↗	↘			↓
Node 100: STH 55/Crooks Avenue & Ann Street Two-Way Stop Control	AM	Lanes->	1	1	1	1	1	1	2	1	1	2			
		LOS	F	C	F	B	B	*	*	B	*				
		Delay	317.0	19.3	358.8	12.8	13.5	*	*	11.0	*				
		v/c	0.44	-	0.21	-	-	-	-	-	-				
	PM	Queue	30'	60'	25'	25'	30'	*	*	25'	*				
		LOS	F	C	F	B	B	*	*	B	*				
		Delay	324.0	15.5	405.7	12.7	11.0	*	*	10.8	*				
		v/c	0.71	-	0.83	-	-	-	-	-	-				
	PMSE	Queue	55'	40'	60'	25'	25'	*	*	25'	*				
		LOS	F	B	F	B	A	*	*	A	*				
		Delay	110.8	11.6	88.4	11.7	9.8	*	*	9.7	*				
		v/c	0.40	-	0.27	-	-	-	-	-	-				
Queue	40'	25'	25'	25'	25'	*	*	25'	*						
Node 200: CTH CE/College Avenue & Fieldcrest Drive Two-Way Stop Control	AM	Lanes->	1	2	1	1	2	1	-	1	1	1			
		LOS	B	*	*	A	*	*	-	B	-	C			
		Delay	13.0	*	*	9.3	*	*	-	12.6	-	16.4			
		v/c	-	*	*	-	*	*	-	-	-	-			
	PM	Queue	25'	*	*	25'	*	*	-	25'	-	45'			
		LOS	B	*	*	A	*	*	-	B	-	B			
		Delay	10.3	*	*	9.9	*	*	-	11.9	-	12.5			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
	PMSE	LOS	B	*	*	B	*	*	-	B	-	B			
		Delay	10.1	*	*	10.1	*	*	-	11.7	-	11.8			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
		Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** Roundabout Control	AM	Lanes->	1	1	1	1	1	1	1	1	1	1	
LOS	D			D	F	F	F	F	F	F	F	F			
Delay	31.5			32.1	88.1	83.3	68.2	75.2	89.5	98.6					
Queue	185'			205'	315'	340'	365'	420'	440'	510'					
PM	LOS		E	E	C	C	D	D	E	E	E	E			
	Delay		36.0	37.2	24.6	24.0	27.0	27.7	36.2	40.7					
	Queue		210'	235'	130'	140'	165'	190'	255'	300'					
	LOS		C	C	B	B	C	C	B	B	B	B			
PMSE	Delay		15.0	15.5	13.5	13.0	15.2	15.4	13.6	13.9					
	Queue		95'	110'	55'	60'	90'	100'	85'	95'					
	Node 400: CTH CE/College Avenue & Konkapot Trail Road Two-Way Stop Control		AM	Lanes->	1	1	1	1	1	1	1	1	1	1	
				LOS	B	*	*	A	*	F	E	C			
Delay		10.0		*	*	9.4	*	81.8	46.0	16.4					
v/c		-		-	-	-	-	0.18	0.15	-					
PM		Queue	25'	*	*	25'	*	25'	25'	25'					
		LOS	A	-	A	-	F	F	C	C					
		Delay	9.4	-	9.2	-	92.7	95.8	16.6						
		v/c	-	-	-	-	-	0.18	0.80	-					
PMSE		Queue	25'	-	25'	-	25'	125'	45'						
		LOS	A	-	A	-	C	D	B						
		Delay	8.4	-	8.5	-	22.7	26.2	11.9						
		Queue	25'	-	25'	-	25'	35'	25'						
Node 500: CTH CE/College Avenue & High School West D/W One-Way Stop Control	AM	Lanes->	-	1	1	1	-	1	-	1	-	-			
		LOS	-	*	*	A	-	D	-	A	-				
		Delay	-	*	*	9.7	-	31.0	-	9.6	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
	PM	LOS	-	*	*	B	-	F	-	B	-				
		Delay	-	*	*	10.1	-	129.1	-	13.9	-				
		v/c	-	-	-	-	-	1.01	-	-	-				
		Queue	-	*	*	25'	-	200'	-	25'	-				
	PMSE	LOS	-	*	*	A	-	C	-	B	-				
		Delay	-	*	*	8.8	-	19.9	-	11.7	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
		Node 600: Loderbauer Road & CTH CE/College Avenue Traffic Signal Control	AM	Lanes->	1	1	1	1	1	1	1	1	1	1	
LOS	B			A	A	B	B	B	B	C	C	C	B		
Delay	19.3			9.5	8.6	12.4	14.0	14.9	13.3	19.8	23.9	21.2	15.5		
Queue	40'			75'	25'	95'	290'	105'	120'	40'	135'	70'			
PM	LOS		B	B	A	B	B	B	B	C	C	C	B		
	Delay		17.8	14.7	9.2	19.5	12.0	16.8	16.3	24.6	26.7	23.8	16.5		
	Queue		80'	240'	35'	30'	155'	105'	140'	65'	100'	50'			
	LOS		B	B	A	B	B	B	B	B	B	B	B		
PMSE	Delay		12.7	10.6	7.6	12.2	10.1	10.7	10.0	14.7	14.6	14.6	11.0		
	Queue		40'	140'	25'	25'	120'	35'	50'	40'	45'	40'			

Exhibit 5-6B Total (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control														
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay	
			Eastbound			Westbound			Northbound		Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘		
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Two-Way Stop Control	AM	Lanes->	1			1			2					
		LOS	F			F			A			B		
		Delay	2191.0			10609.0			8.1			14.1		
	PM	Queue	515'			1620'			25'			40'		
		LOS	F			F			A			B		
		Delay	1274.0			1708.0			9.0			10.7		
	PMSE	Queue	200'			1330'			25'			40'		
		LOS	F			F			A			B		
		Delay	451.0			793.0			8.6			10.2		
		Queue	145'			920'			25'			35'		
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Lanes->	1			-			2	-	-	1	1	
		LOS	C			-			A	-	-	-	-	
		Delay	17.0			-			8.3	-	-	-	-	
		Queue	25'			-			25'	-	-	-	-	
	PM	LOS	C			-			A	-	-	-	-	
		Delay	20.3			-			9.1	-	-	-	-	
		Queue	25'			-			25'	-	-	-	-	
	PMSE	LOS	C			-			A	-	-	-	-	
		Delay	16.7			-			8.7	-	-	-	-	
		Queue	25'			-			25'	-	-	-	-	
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1			1			1			1		
		LOS	A			A			A			A		
		Delay	6.4			8.3			8.5			7.3		
		Queue	30'			35'			55'			50'		
	PM	LOS	A			A			A			B		
		Delay	8.4			7.8			7.9			10.3		
		Queue	45'			35'			40'			95'		
	PMSE	LOS	A			A			A			A		
		Delay	8.4			6.8			8.4			7.5		
		Queue	55'			25'			40'			60'		
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	Lanes->	2	-	1	-			2	-	-	1	1	
		LOS	A	-	A	-			A	-	-	A	A	A
		Delay	9.7	-	8.8	-			9.4	-	-	7.2	8.2	8.7
	PM	Queue	35'	-	25'	-			35'	-	-	30'	40'	
		LOS	B	-	A	-			A	-	-	A	A	A
		Delay	11.0	-	9.1	-			8.2	-	-	8.9	8.0	9.6
	PMSE	Queue	55'	-	25'	-			25'	-	-	45'	25'	
		LOS	A	-	A	-			A	-	-	A	A	A
		Delay	9.7	-	9.4	-			5.7	-	-	6.5	5.5	7.0
	Queue	25'	-	25'	-			25'	-	-	30'	25'		
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-			1	-	-	1		
		LOS	C			-			A	-	-	*		
		Delay	15.5			-			7.6	-	-	*		
		Queue	25'			-			25'	-	-	*		
	PM	LOS	B			-			A	-	-	*		
		Delay	13.2			-			8.0	-	-	*		
		Queue	25'			-			25'	-	-	*		
	PMSE	LOS	A			-			A	-	-	*		
		Delay	9.6			-			7.6	-	-	*		
		Queue	25'			-			25'	-	-	*		
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	AM	Lanes->	1			-			1	-	-	1		
		LOS	B			-			A	-	-	*		
		Delay	12.6			-			7.6	-	-	*		
	PM	Queue	25'			-			25'	-	-	*		
		LOS	B			-			A	-	-	*		
		Delay	11.6			-			8.0	-	-	*		
	PMSE	Queue	25'			-			25'	-	-	*		
		LOS	A			-			A	-	-	*		
Delay	9.9			-			7.6	-	-	*				
Queue	25'			-			25'	-	-	*				

Exhibit 5-9 Existing/Background Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>	Lanes->		-	1	1	1	1	1	2	1	1	1	2		
		LOS	-	B	-	B	B	*	*	A	*				
		Delay	-	14.6	-	11.4	10.8	*	*	9.7	*				
	AM	Queue	-	25'	-	40'	25'	*	*	25'	*				
		LOS	-	B	-	B	B	*	*	A	*				
		Delay	-	13.9	-	11.5	10.0	*	*	9.9	*				
	PM	Queue	-	35'	-	25'	25'	*	*	25'	*				
		LOS	-	B	-	B	A	*	*	A	*				
		Delay	-	11.1	-	11.0	9.2	*	*	9.2	*				
PMSE	Queue	-	25'	-	25'	*	*	25'	*						
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>	Lanes->		1	2	1	1	2	1	-	1	1	1			
		LOS	B	*	*	A	*	*	-	B	-	B			
		Delay	12.1	*	*	8.8	*	*	-	11.6	-	14.3			
	AM	Queue	25'	*	*	25'	*	*	-	25'	-	30'			
		LOS	A	*	*	A	*	*	-	B	-	B			
		Delay	9.7	*	*	9.4	*	*	-	11.3	-	11.5			
	PM	Queue	25'	*	*	25'	*	*	-	25'	-	25'			
		LOS	A	*	*	A	*	*	-	B	-	B			
		Delay	9.5	*	*	9.6	*	*	-	11.2	-	11.0			
PMSE	Queue	25'	*	*	25'	*	*	-	25'	-	25'				
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** <i>Roundabout Control</i>	Lanes->		1	1	1	1	1	1	1	1	1	1			
		LOS	B	B	C	C	C	C	C	C	C	C			
		Delay	11.0	11.1	21.6	21.5	19.3	19.2	19.3	19.9					
	AM	Queue	60'	65'	120'	135'	105'	120'	125'	140'					
		LOS	C	C	B	B	B	B	B	C	C				
		Delay	15.0	15.2	11.5	11.6	12.8	12.5	14.6	15.4					
	PM	Queue	85'	95'	60'	65'	50'	55'	105'	120'					
		LOS	A	A	A	A	A	A	A	A	A				
		Delay	9.5	9.8	8.7	8.6	9.9	9.7	8.7	9.0					
PMSE	Queue	55'	60'	35'	35'	40'	45'	45'	55'						
Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>	Lanes->		1	1	1	1	1	-	1	1	1	1			
		LOS	A	*	A	*	-	B	-	C					
		Delay	9.8	*	9.3	*	-	11.4	-	16.3					
	AM	Queue	25'	*	25'	*	-	25'	-	25'					
		LOS	A	-	A	-	-	B	-	C					
		Delay	9.2	-	9.4	-	-	11.5	-	21.1					
	PM	Queue	25'	-	25'	-	-	25'	-	95'					
		LOS	A	-	A	-	-	B	-	B					
		Delay	8.3	-	8.6	-	-	10.1	-	12.7					
PMSE	Queue	25'	-	25'	-	-	25'	-	40'						
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>	Lanes->		-	1	1	1	-	1	-	1	-				
		LOS	-	*	*	A	-	D	-	A	-				
		Delay	-	*	*	9.4	-	25.0	-	9.4	-				
	AM	Queue	-	*	*	25'	-	25'	-	25'	-				
		LOS	-	*	*	A	-	F	-	B	-				
		Delay	-	*	*	9.8	-	70.5	-	13.0	-				
	PM	v/c	-	-	-	-	-	0.81	-	-	-				
		Queue	-	*	*	25'	-	145'	-	25'	-				
		LOS	-	*	*	A	-	C	-	B	-				
PMSE	Delay	-	*	*	8.6	-	17.9	-	11.4	-					
	Queue	-	*	*	25'	-	25'	-	25'	-					
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>	Lanes->		1	1	1	1	1	1	1	1	1	1			
		LOS	B	A	A	B	B	B	B	B	C	C	B		
		Delay	17.6	9.4	8.6	11.5	14.6	13.7	11.7	18.5	21.6	19.6	14.5		
	AM	Queue	25'	65'	25'	70'	260'	105'	95'	40'	125'	65'			
		LOS	B	B	A	B	B	B	B	C	C	C	B		
		Delay	16.2	14.8	9.5	18.1	11.9	14.5	13.5	21.7	23.0	20.4	15.1		
	PM	Queue	65'	215'	35'	25'	130'	105'	125'	65'	100'	40'			
		LOS	B	B	A	B	A	B	A	B	B	B	B		
		Delay	11.7	10.1	7.6	11.4	9.7	10.6	9.8	14.6	14.5	14.4	10.6		
PMSE	Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'				

Exhibit 5-9 Existing/Background Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control																		
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay			
			Eastbound			Westbound			Northbound			Southbound						
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙				
Node 700: STH 55/Crooks Avenue & Morningside Drive <i>One-Way Stop Control</i>	AM	Lanes->	1			-			2			-			2			
		LOS	C			-			A			-			*			
		Delay	19.1			-			8.1			-			*			
	PM	Queue	35'			-			25'			-			*			
		LOS	C			-			A			-			*			
		Delay	20.5			-			9.0			-			*			
	PMSE	Queue	25'			-			25'			-			*			
		LOS	C			-			A			-			*			
		Delay	18.7			-			8.6			-			*			
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane <i>One-Way Stop Control</i>	AM	Lanes->	1			-			2			-			1		1	
		LOS	B			-			A			-			-			
		Delay	13.9			-			8.1			-			-			
	PM	Queue	25'			-			25'			-			-		-	
		LOS	C			-			A			-			-			
		Delay	16.2			-			8.7			-			-			
	PMSE	Queue	25'			-			25'			-			-		-	
		LOS	B			-			A			-			-			
		Delay	14.1			-			8.4			-			-			
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street <i>Roundabout Control</i>	AM	Lanes->	1			1			1			1						
		LOS	A			A			A			A						
		Delay	5.5			7.0			7.0			6.2			6.2			
	PM	Queue	25'			30'			40'			35'						
		LOS	A			A			A			A						
		Delay	7.0			6.7			6.7			8.4			8.4			
	PMSE	Queue	35'			30'			25'			65'						
		LOS	A			A			A			A						
		Delay	7.1			6.0			7.2			6.4			6.4			
Node 1000: Loderbauer Road & High School North Access D/W <i>Traffic Signal Control</i>	AM	Lanes->	2	-	1	-			2			-			1	1	A	
		LOS	A	-	A	-			A			-			A	A		
		Delay	9.7	-	8.8	-			8.7			-			6.8	8.2		
	PM	Queue	30'	-	25'	-			30'			-			25'	40'	A	
		LOS	B	-	A	-			A			-			A	A		
		Delay	11.0	-	9.1	-			8.0			-			8.5	8.0		
	PMSE	Queue	45'	-	25'	-			25'			-			40'	25'	A	
		LOS	A	-	A	-			A			-			A	A		
		Delay	9.7	-	9.4	-			5.6			-			6.3	5.5		
Node 1100: Loderbauer Road & High School Middle Access D/W <i>One-Way Stop Control</i>	AM	Lanes->	1			-			1			-			1			
		LOS	B			-			A			-			*			
		Delay	13.5			-			7.5			-			*			
	PM	Queue	25'			-			25'			-			*			
		LOS	B			-			A			-			*			
		Delay	12.5			-			8.0			-			*			
	PMSE	Queue	25'			-			25'			-			*			
		LOS	A			-			A			-			*			
		Delay	9.4			-			7.5			-			*			

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.
** node 300 dual lane roundabout, left values in table per approach are inside shared lanes and right values are outside shared lanes

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>	AM	Lanes->	-	1	1	1	1	2	1	1	2	1	2		
		LOS	-	C	-	B	B	*	*	B	*	*			
		Delay	-	18.5	-	12.6	12.9	*	*	10.8	*	*			
		Queue	-	55'	-	25'	30'	*	*	25'	*	*			
	PM	LOS	-	B	-	B	B	*	*	B	*	*			
		Delay	-	14.8	-	12.2	10.5	*	*	10.5	*	*			
		Queue	-	35'	-	25'	25'	*	*	25'	*	*			
	PMSE	LOS	-	B	-	B	A	*	*	A	*	*			
		Delay	-	11.4	-	11.3	9.4	*	*	9.5	*	*			
		Queue	-	25'	-	25'	25'	*	*	25'	*	*			
	Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>	AM	Lanes->	1	2	1	1	2	1	-	1	1	1		
			LOS	B	*	*	A	*	*	-	B	-	C		
Delay			12.6	*	*	9.1	*	*	-	12.1	-	15.5			
Queue			25'	*	*	25'	*	*	-	25'	-	40'			
PM		LOS	A	*	*	A	*	*	-	B	-	B			
		Delay	9.8	*	*	9.5	*	*	-	11.4	-	11.8			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
PMSE		LOS	A	*	*	A	*	*	-	B	-	B			
		Delay	9.6	*	*	9.7	*	*	-	11.2	-	11.1			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue <i>Roundabout Control</i>		AM	Lanes->	1	1	2	1	2	1	2	1	2	1		
			LOS	D	C	E	B	E	A	D	C				
	Delay		26.7	24.7	39.4	12.8	41.2	7.1	31.4	17.5					
	v/c		-	-	0.78	-	0.86	-	-	-					
	PM	Queue	135'	130'	115'	30'	210'	25'	160'	70'					
		LOS	D	D	C	A	C	A	C	B					
		Delay	29.1	27.5	15.9	9.2	21.3	7.8	16.8	10.7					
	PMSE	Queue	145'	145'	75'	25'	75'	25'	95'	55'					
		LOS	B	B	B	A	B	A	A	A					
		Delay	13.2	12.6	10.7	6.7	12.7	6.0	9.0	7.9					
	PMSE	Queue	85'	85'	40'	25'	50'	25'	35'	35'					
		Queue	85'	85'	40'	25'	50'	25'	35'	35'					
Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>		AM	Lanes->	1	1	1	1	-	1	1	1	1			
	LOS		A	*	A	*	-	B	-	C					
	Delay		9.8	*	9.3	*	-	11.4	-	16.3					
	Queue		25'	*	25'	*	-	25'	-	25'					
	PM	LOS	A	-	A	-	-	B	-	C					
		Delay	9.2	-	9.4	-	-	11.5	-	21.1					
		Queue	25'	-	25'	-	-	25'	-	95'					
	PMSE	LOS	A	-	A	-	-	B	-	B					
		Delay	8.3	-	8.6	-	-	10.1	-	12.7					
		Queue	25'	-	25'	-	-	25'	-	40'					
	Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>	AM	Lanes->	-	1	1	1	-	1	-	1	-	-		
			LOS	-	*	*	A	-	D	-	A	-	-		
Delay			-	*	*	9.6	-	27.9	-	9.6	-	-			
Queue			-	*	*	25'	-	25'	-	25'	-	-			
PM		LOS	-	*	*	A	-	F	-	B	-	-			
		Delay	-	*	*	9.9	-	83.7	-	13.2	-	-			
		v/c	-	-	-	-	-	0.86	-	-	-	-			
PMSE		Queue	-	*	*	25'	-	160'	-	25'	-	-			
		LOS	-	*	*	A	-	C	-	B	-	-			
		Delay	-	*	*	8.6	-	17.9	-	11.4	-	-			
PMSE		Queue	-	*	*	25'	-	25'	-	25'	-	-			
		Queue	-	*	*	25'	-	25'	-	25'	-	-			
	Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>	AM	Lanes->	1	1	1	1	1	1	1	1	1	1		
LOS			B	A	A	B	B	B	B	C	C	C	B		
Delay			18.2	9.4	8.6	12.2	14.7	14.4	12.8	19.2	23.2	20.3	15.1		
Queue			30'	70'	25'	95'	275'	105'	120'	40'	135'	65'			
PM		LOS	B	B	A	B	B	B	B	C	C	C	B		
		Delay	16.5	14.7	9.5	18.7	11.9	15.4	14.5	22.3	23.9	21.1	15.5		
		Queue	70'	220'	35'	30'	135'	105'	140'	65'	100'	40'			
PMSE		LOS	B	B	A	B	A	B	A	B	B	B	B		
		Delay	11.8	10.2	7.7	11.8	9.8	10.6	9.9	14.5	14.5	14.3	10.7		
		Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'			

Exhibit 5-12A

Full Build (Scenario 2 - Left-in/Right-in/Right-out Access, Full Access at HS West D/W) Traffic Peak Hour Operating Conditions
With Modified Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay		
			Eastbound			Westbound			Northbound			Southbound					
			↗	→	↘	↙	←	↖	↗	↑	↖	↘	↓	↙			
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Two-Way Stop Control	AM	Lanes->	1			1		1	1	1	1	1	1				
		LOS	F			F		C	A	*	*	B	*	*			
		Delay	71.6			636.3		19.3	8.1	*	*	11.2	*	*			
		v/c	0.45			1.95		-	-	*	*	-	*	*			
		Queue	50'			225'		75'	25'	*	*	40'	*	*			
	PM	LOS	F			F		B	A	*	*	A	*	*			
		Delay	73.9			53.1		12.9	9.0	*	*	8.9	*	*			
		v/c	0.54			0.38		-	-	*	*	-	*	*			
	PMSE	Queue	65'			40'		25'	25'	*	*	25'	*	*			
		LOS	E			D		B	A	*	*	A	*	*			
		Delay	38.4			30.9		12.0	8.6	*	*	8.6	*	*			
		v/c	0.32			-		-	-	*	*	-	*	*			
	Queue	35'			25'		25'	25'	*	*	25'	*	*				
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Lanes->	1			-			2		-	-	1	1			
		LOS	C			-			A		-	-	-	-			
		Delay	15.7			-			8.2		-	-	-	-			
		Queue	25'			-			25'		-	-	-	-			
	PM	LOS	C			-			A		-	-	-	-			
		Delay	17.1			-			8.8		-	-	-	-			
		Queue	25'			-			25'		-	-	-	-			
	PMSE	LOS	C			-			A		-	-	-	-			
		Delay	16.7			-			8.7		-	-	-	-			
		Queue	25'			-			25'		-	-	-	-			
	Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1			1			1			1				
LOS			A			A			A			A					
Delay			6.0			7.7			8.0			6.9					
PM		Queue	25'			30'			50'			45'					
		LOS	A			A			A			A					
		Delay	7.4			6.9			7.0			8.9					
PMSE		Queue	35'			30'			30'			75'					
		LOS	A			A			A			A					
		Delay	7.3			6.1			7.4			6.6					
		Queue	40'			25'			35'			45'					
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control		AM	Lanes->	2	-	1	-			2		-	-	1	1		
			LOS	A	-	A	-			A		-	-	A	A		A
	Delay		9.7	-	8.8	-			9.4		-	-	7.2	8.2		8.7	
	PM	Queue	35'	-	25'	-			35'		-	-	30'	40'			
		LOS	B	-	A	-			A		-	-	A	A		A	
		Delay	11.0	-	9.1	-			8.2		-	-	8.9	8.0		9.6	
	PMSE	Queue	55'	-	25'	-			25'		-	-	45'	25'			
		LOS	A	-	A	-			A		-	-	A	A		A	
		Delay	9.7	-	9.4	-			5.7		-	-	6.5	5.5		7.0	
		Queue	25'	-	25'	-			25'		-	-	30'	25'			
	Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-			1		-	-	1			
			LOS	C			-			A		-	-	*			
Delay			15.5			-			7.6		-	-	*				
PM		Queue	25'			-			25'		-	-	*				
		LOS	B			-			A		-	-	*				
		Delay	13.2			-			8.0		-	-	*				
PMSE		Queue	25'			-			25'		-	-	*				
		LOS	A			-			A		-	-	*				
		Delay	9.6			-			7.6		-	-	*				
		Queue	25'			-			25'		-	-	*				
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control		AM	Lanes->	1			-			1		-	-	1			
			LOS	B			-			A		-	-	*			
	Delay		12.6			-			7.6		-	-	*				
	PM	Queue	25'			-			25'		-	-	*				
		LOS	B			-			A		-	-	*				
		Delay	11.6			-			8.0		-	-	*				
	PMSE	Queue	25'			-			25'		-	-	*				
		LOS	A			-			A		-	-	*				
		Delay	9.9			-			7.6		-	-	*				
		Queue	25'			-			25'		-	-	*				

Exhibit 5-12B															
Full Build (Scenario 2 - Left-in/Right-in/Right-out Access, No Exit at HS West D/W) Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											I/S LOS Delay	
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓		↙
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>	AM	Lanes->	-	1	1	1	1	1	2	1	1	2			
		LOS	-	C	-	B	B	*	*	B	*				
		Delay	-	18.5	-	12.6	12.9	*	*	10.8	*				
		Queue	-	55'	-	25'	30'	*	*	25'	*				
	PM	LOS	-	B	-	B	B	*	*	B	*				
		Delay	-	14.8	-	12.2	10.5	*	*	10.5	*				
		Queue	-	35'	-	25'	25'	*	*	25'	*				
		LOS	-	B	-	B	A	*	*	A	*				
	PMSE	Delay	-	11.4	-	11.3	9.4	*	*	9.5	*				
		Queue	-	25'	-	25'	25'	*	*	25'	*				
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>	AM	Lanes->	1	2	1	1	2	1	-	1	1	1			
		LOS	B	*	*	A	*	*	-	B	-	C			
		Delay	12.6	*	*	9.1	*	*	-	12.1	-	15.5			
		Queue	25'	*	*	25'	*	*	-	25'	-	40'			
	PM	LOS	A	*	*	A	*	*	-	B	-	B			
		Delay	9.8	*	*	9.5	*	*	-	11.4	-	11.8			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
		LOS	A	*	*	A	*	*	-	B	-	B			
	PMSE	Delay	9.6	*	*	9.7	*	*	-	11.2	-	11.1			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue <i>Roundabout Control</i>	AM	Lanes->	1	1	2	1	2	1	2	1	2	1			
		LOS	D	C	E	B	E	A	D	C					
		Delay	26.7	24.7	39.4	12.8	41.2	7.1	31.4	17.5					
		v/c	-	-	0.78	-	0.86	-	-	-					
	PM	Queue	135'	130'	115'	30'	210'	25'	160'	70'					
		LOS	D	D	C	A	C	A	C	B					
		Delay	29.1	27.5	15.9	9.2	21.3	7.8	16.8	10.7					
		Queue	145'	145'	75'	25'	75'	25'	95'	55'					
	PMSE	LOS	B	B	B	A	B	A	A	A					
		Delay	13.2	12.6	10.7	6.7	12.7	6.0	9.0	7.9					
Queue	85'	85'	40'	25'	50'	25'	35'	35'							
Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>	AM	Lanes->	1	1	1	1	1	-	1	1	1				
		LOS	A	*	A	*	-	B	-	C					
		Delay	9.8	*	9.3	*	-	11.4	-	16.3					
		Queue	25'	*	25'	*	-	25'	-	25'					
	PM	LOS	A	-	A	-	-	B	-	C					
		Delay	9.2	-	9.4	-	-	11.5	-	21.1					
		Queue	25'	-	25'	-	-	25'	-	95'					
		LOS	A	-	A	-	-	B	-	B					
	PMSE	Delay	8.3	-	8.6	-	-	10.1	-	12.7					
		Queue	25'	-	25'	-	-	25'	-	40'					
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>	AM	Lanes->	-	1	1	1	-	1	-	1	-				
		LOS	-	*	*	A	-	D	-	A	-				
		Delay	-	*	*	9.6	-	27.9	-	9.6	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
	PM	LOS	-	*	*	A	-	-	-	-	-				
		Delay	-	*	*	9.8	-	-	-	-	-				
		Queue	-	*	*	25'	-	-	-	-	-				
		LOS	-	*	*	A	-	C	-	B	-				
	PMSE	Delay	-	*	*	8.6	-	17.9	-	11.4	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>	AM	Lanes->	1	1	1	1	1	1	1	1	1	1			
		LOS	B	A	A	B	B	B	B	C	C	C	B		
		Delay	17.9	9.2	8.5	12.0	14.1	15.6	13.9	20.5	24.8	21.6	15.4		
		Queue	30'	75'	25'	100'	295'	120'	135'	45'	155'	75'			
	PM	LOS	C	B	B	C	B	B	B	C	C	C	B		
		Delay	22.1	18.5	12.8	23.6	15.9	17.9	14.8	28.9	31.5	27.1	19.1		
		Queue	95'	275'	50'	40'	185'	205'	185'	80'	135'	55'			
		LOS	B	B	A	B	A	B	A	B	B	B	B		
	PMSE	Delay	11.8	10.2	7.7	11.8	9.8	10.6	9.9	14.5	14.5	14.3	10.7		
		Queue	35'	125'	25'	25'	105'	30'	45'	40'	45'	30'			

Exhibit 5-12B														
Full Build (Scenario 2 - Left-in/Right-in/Right-out Access, No Exit at HS West D/W) Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control														
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay	
			Eastbound			Westbound		Northbound		Southbound				
			↗	→	↘	↙	←	↖	↑	↗	↘	↓		↙
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Two-Way Stop Control	AM	Lanes->	1			1		1	1	1	1	1	1	
		LOS	F			F		C	A	*	*	B	*	*
		Delay	71.6			636.3		19.3	8.1	*	*	11.2	*	*
		v/c	0.45			1.95		-	-	*	*	-	*	*
		Queue	50'			225'		75'	25'	*	*	40'	*	*
	PM	LOS	F			F		B	A	*	*	A	*	*
		Delay	73.9			53.1		12.9	9.0	*	*	8.9	*	*
		v/c	0.54			0.38		-	-	*	*	-	*	*
		Queue	65'			40'		25'	25'	*	*	25'	*	*
	PMSE	LOS	E			D		B	A	*	*	A	*	*
		Delay	38.4			30.9		12.0	8.6	*	*	8.6	*	*
		v/c	0.32			-		-	-	*	*	-	*	*
Queue	35'			25'		25'	25'	*	*	25'	*	*		
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Lanes->	1			-			2		-	-	1	1
		LOS	C			-			A		-	-	-	-
		Delay	15.7			-			8.2		-	-	-	-
		Queue	25'			-			25'		-	-	-	-
	PM	LOS	C			-			A		-	-	-	-
		Delay	17.1			-			8.8		-	-	-	-
		Queue	25'			-			25'		-	-	-	-
	PMSE	LOS	C			-			A		-	-	-	-
		Delay	16.7			-			8.7		-	-	-	-
		Queue	25'			-			25'		-	-	-	-
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1			1			1			1		
		LOS	A			A			A			A		
		Delay	6.0			7.7			8.0			6.9		
		Queue	25'			30'			50'			45'		
	PM	LOS	A			A			A			A		
		Delay	7.4			6.9			7.0			8.9		
		Queue	35'			30'			30'			75'		
	PMSE	LOS	A			A			A			A		
Delay		7.3			6.1			7.4			6.6			
Queue		40'			25'			35'			45'			
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	Lanes->	2	-	1	-			2	-	-	1	1	
		LOS	B	-	A	-			A	-	-	A	A	
		Delay	10.6	-	9.7	-			9.0	-	-	6.9	7.7	
		Queue	35'	-	25'	-			35'	-	-	30'	40'	
	PM	LOS	B	-	A	-			B	-	-	B	B	
		Delay	10.8	-	7.6	-			11.5	-	-	12.5	11.2	
		Queue	75'	-	25'	-			30'	-	-	60'	35'	
	PMSE	LOS	A	-	A	-			A	-	-	A	A	
		Delay	9.7	-	9.4	-			5.7	-	-	6.5	5.5	
		Queue	25'	-	25'	-			25'	-	-	30'	25'	
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-			1	-	-	1		
		LOS	C			-			A	-	-	*		
		Delay	15.5			-			7.6	-	-	*		
		Queue	25'			-			25'	-	-	*		
	PM	LOS	B			-			A	-	-	*		
		Delay	13.2			-			8.0	-	-	*		
		Queue	25'			-			25'	-	-	*		
	PMSE	LOS	A			-			A	-	-	*		
		Delay	9.6			-			7.6	-	-	*		
		Queue	25'			-			25'	-	-	*		
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	AM	Lanes->	1			-			1	-	-	1		
		LOS	B			-			A	-	-	*		
		Delay	12.6			-			7.6	-	-	*		
		Queue	25'			-			25'	-	-	*		
	PM	LOS	B			-			A	-	-	*		
		Delay	11.6			-			8.0	-	-	*		
		Queue	25'			-			25'	-	-	*		
	PMSE	LOS	A			-			A	-	-	*		
Delay		9.9			-			7.6	-	-	*			
Queue		25'			-			25'	-	-	*			

Exhibit 5-15A

Total (Scenario 2 - Left-in/Right-in/Right-out Access, Full Access at HS West D/W) Traffic Peak Hour Operating Conditions
With Modified Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↖	←	↗	↖	↑	↗	↘	↓	↖	
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>	AM	Lanes->	-	1	1	1	1	1	2	1	1	2			
		LOS	-	C	-	B	B	*	*	B	*				
		Delay	-	19.7	-	12.8	13.5	*	*	11.0	*				
		Queue	-	65'	-	25'	30'	*	*	25'	*				
	PM	LOS	-	C	-	B	B	*	*	B	*				
		Delay	-	16.0	-	12.7	11.0	*	*	10.9	*				
		Queue	-	45'	-	25'	25'	*	*	25'	*				
	PMSE	LOS	-	B	-	B	A	*	*	A	*				
		Delay	-	11.9	-	11.8	9.8	*	*	9.8	*				
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>	AM	Lanes->	1	2	1	1	2	1	-	1	1	1			
		LOS	B	*	*	A	*	*	-	B	-	C			
		Delay	13.0	*	*	9.3	*	*	-	12.6	-	16.4			
		Queue	25'	*	*	25'	*	*	-	25'	-	45'			
	PM	LOS	B	*	*	A	*	*	-	B	-	B			
		Delay	10.3	*	*	9.9	*	*	-	11.9	-	12.5			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
	PMSE	LOS	B	*	*	B	*	*	-	B	-	B			
		Delay	10.1	*	*	10.1	*	*	-	11.7	-	11.8			
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue <i>Roundabout Control</i>	AM	Lanes->	2	1	3	1	2	1	2	1	2	1			
		LOS	D	B	E	B	D	D	E	E					
		Delay	34.1	10.1	36.6	13.6	28.3	29.7	36.8	38.5					
		v/c	-	-	0.75	-	-	-	0.84	0.84					
	PM	Queue	155'	35'	100'	30'	85'	150'	190'	190'					
		LOS	D	B	C	B	C	C	D	D					
		Delay	33.0	11.0	20.1	10.3	23.2	24.5	31.2	32.7					
	PMSE	Queue	130'	35'	80'	25'	100'	100'	190'	185'					
		LOS	B	A	B	A	B	B	B	B					
Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>	AM	Lanes->	1	1	1	1	1	-	1	1	1				
		LOS	B	*	A	*	-	B	-	C					
		Delay	10.0	*	9.5	*	-	11.5	-	16.9					
		Queue	25'	*	25'	*	-	25'	-	25'					
	PM	LOS	A	-	A	-	-	B	-	C					
		Delay	9.4	-	9.6	-	-	11.7	-	23.8					
		Queue	25'	-	25'	-	-	25'	-	105'					
	PMSE	LOS	A	-	A	-	-	B	-	B					
		Delay	8.4	-	8.7	-	-	10.2	-	13.4					
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>	AM	Lanes->	-	1	1	1	-	1	-	1	-				
		LOS	-	*	*	A	-	D	-	A	-				
		Delay	-	*	*	9.7	-	31.0	-	9.6	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
	PM	LOS	-	*	*	B	-	F	-	B	-				
		Delay	-	*	*	10.1	-	129.1	-	13.9	-				
		v/c	-	-	-	-	-	1.01	-	-	-				
	PMSE	Queue	-	*	*	25'	-	200'	-	25'	-				
		LOS	-	*	*	A	-	C	-	B	-				
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>	AM	Lanes->	1	1	1	1	1	1	1	1	1	1			
		LOS	B	A	A	B	B	B	B	B	C	C		B	
		Delay	19.3	9.5	8.6	12.4	14.0	14.9	13.3	19.8	23.9	21.2		15.5	
		Queue	40'	75'	25'	95'	290'	105'	120'	40'	135'	70'			
	PM	LOS	B	B	A	B	B	B	B	C	C	C		B	
		Delay	17.8	14.7	9.2	19.5	12.0	16.8	16.3	24.6	26.7	23.8		16.5	
		Queue	80'	240'	35'	30'	155'	105'	140'	65'	100'	50'			
	PMSE	LOS	B	B	A	B	B	B	B	B	B	B		B	
		Delay	12.7	10.6	7.6	12.2	10.1	10.7	10.0	14.7	14.6	14.6		11.0	
Queue	40'	140'	25'	25'	120'	35'	50'	40'	45'	40'					

Exhibit 5-15A

Total (Scenario 2 - Left-in/Right-in/Right-out Access, Full Access at HS West D/W) Traffic Peak Hour Operating Conditions
With Modified Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↖	←	↗	↖	↑	↗	↘	↓	↖	
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Roundabout Control	AM	Lanes->	1			1			2			1			
		LOS	B			C			B			B			C
		Delay	10.3			23.1			10.8			14.8			15.0
	PM	Queue	25'			170'			65'			180'			
		LOS	A			C			A			C			C
		Delay	9.0			15.0			7.4			23.6			16.7
	PMSE	Queue	25'			115'			35'			315'			
		LOS	A			B			A			B			B
		Delay	7.3			12.1			6.6			13.1			10.7
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Queue	25'			80'			35'			155'			
		Lanes->	1			-			2	-	-	1	1		
		LOS	C			-			C	-	-	-	-		
	PM	Delay	17.0			-			18.3	-	-	-	-		
		Queue	25'			-			25'	-	-	-	-		
		LOS	C			-			A	-	-	-	-		
	PMSE	Delay	20.3			-			9.1	-	-	-	-		
		Queue	25'			-			25'	-	-	-	-		
		LOS	C			-			A	-	-	-	-		
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Delay	16.7			-			8.7	-	-	-	-		
		Queue	25'			-			25'	-	-	-	-		
		Lanes->	1			1			1			1			
	PM	LOS	A			A			A			A			
		Delay	6.4			8.3			8.5			7.3			
		Queue	30'			35'			55'			50'			
	PMSE	LOS	A			A			A			B			
		Delay	8.4			7.8			7.9			10.3			
		Queue	45'			35'			40'			95'			
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	LOS	A			A			A			A			A
		Delay	9.7	-	8.8			9.4	-	-	7.2	8.2			8.7
		Queue	35'	-	25'			35'	-	-	30'	40'			
	PM	LOS	B		A			A			A	A			A
		Delay	11.0	-	9.1			8.2	-	-	8.9	8.0			9.6
		Queue	55'	-	25'			25'	-	-	45'	25'			
	PMSE	LOS	A		A			A			A	A			A
		Delay	9.7	-	9.4			5.7	-	-	6.5	5.5			7.0
		Queue	25'	-	25'			25'	-	-	30'	25'			
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-			1			1			
		LOS	C			-			A		-	*			
		Delay	15.5			-			7.6		-	*			
	PM	Queue	25'			-			25'		-	*			
		LOS	B			-			A		-	*			
		Delay	13.2			-			8.0		-	*			
	PMSE	Queue	25'			-			25'		-	*			
		LOS	A			-			A		-	*			
		Delay	9.6			-			7.6		-	*			
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	AM	Queue	25'			-			25'		-	*			
		Lanes->	1			-			1			1			
		LOS	B			-			A		-	*			
	PM	Delay	12.6			-			7.6		-	*			
		Queue	25'			-			25'		-	*			
		LOS	B			-			A		-	*			
	PMSE	Delay	11.6			-			8.0		-	*			
		Queue	25'			-			25'		-	*			
		LOS	A			-			A		-	*			

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

Exhibit 5-15B
Total (Scenario 2 - Left-in/Right-in/Right-out Access, No Exit at HS West D/W) Traffic Peak Hour Operating Conditions
With Modified Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay		
			Eastbound			Westbound			Northbound			Southbound					
			↗	→	↘	↖	←	↗	↖	↑	↗	↘	↓	↖			
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>		Lanes->	-		1		1		1	1	2	1	1	2			
	AM	LOS	-		C	-		B	B	*	*	B		*			
		Delay	-		19.7	-		12.8	13.5	*	*	11.0		*			
		Queue	-		65'	-		25'	30'	*	*	25'		*			
	PM	LOS	-		C	-		B	B	*	*	B		*			
		Delay	-		16.0	-		12.7	11.0	*	*	10.9		*			
		Queue	-		45'	-		25'	25'	*	*	25'		*			
	PMSE	LOS	-		B	-		B	A	*	*	A		*			
		Delay	-		11.9	-		11.8	9.8	*	*	9.8		*			
Queue		-		25'	-		25'	25'	*	*	25'		*				
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>		Lanes->	1	2	1	1	2	1	-		1		1	1			
	AM	LOS	B	*	*	A	*	*	-		B	-		C			
		Delay	13.0	*	*	9.3	*	*	-		12.6	-		16.4			
		Queue	25'	*	*	25'	*	*	-		25'	-		45'			
	PM	LOS	B	*	*	A	*	*	-		B	-		B			
		Delay	10.3	*	*	9.9	*	*	-		11.9	-		12.5			
		Queue	25'	*	*	25'	*	*	-		25'	-		25'			
	PMSE	LOS	B	*	*	B	*	*	-		B	-		B			
		Delay	10.1	*	*	10.1	*	*	-		11.7	-		11.8			
Queue		25'	*	*	25'	*	*	-		25'	-		25'				
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue <i>Roundabout Control</i>		Lanes->	2		1	3		1	2		1	2		1			
	AM	LOS	D		B	E		B	D		D	E		E			
		Delay	34.1		10.1	36.6		13.6	28.3		29.7	36.8		38.5			
		v/c	-		-	0.75		-	-		-	0.84		0.84			
		Queue	155'		35'	100'		30'	85'		150'	190'		190'			
	PM	LOS	D		B	C		B	C		C	D		D			
		Delay	33.0		11.0	20.1		10.3	23.2		24.5	31.2		32.7			
	PMSE	Queue	130'		35'	80'		25'	100'		100'	190'		185'			
		LOS	B		A	B		A	B		B	B		B			
Delay		14.5		8.1	12.7		7.3	12.2		13.2	12.8		13.6				
Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>		Lanes->	-		1		1		-		1		1	1			
	AM	LOS	-		*		A		*		B	-		C			
		Delay	-		*		9.5		*		11.5	-		16.9			
		Queue	-		*		25'		*		25'	-		25'			
	PM	LOS	-		*		A		-		B	-		C			
		Delay	-		*		9.6		-		11.7	-		23.8			
	PMSE	Queue	-		*		25'		-		25'	-		105'			
		LOS	-		*		A		-		B	-		B			
		Delay	-		*		8.7		-		10.2	-		13.4			
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>		Lanes->	-		1		1		-		1		-				
	AM	LOS	-		*		A		-		D	-		A	-		
		Delay	-		*		9.7		-		31.0	-		9.6	-		
		Queue	-		*		25'		-		25'	-		25'	-		
	PM	LOS	-		*		*		B		-	-		-	-		
		Delay	-		*		*		10.0		-	-		-	-		
	PMSE	Queue	-		*		*		25'		-	-		-	-		
		LOS	-		*		*		A		-	C	-	B	-		
		Delay	-		*		*		8.8		-	19.9	-	11.7	-		
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>		Lanes->	1		1		1		1		1		1	1			
	AM	LOS	B		A	B	A		B		B		C	C	C	B	
		Delay	18.9		9.3	8.5	12.2		14.3		16.3		14.6	21.2	25.7	22.7	15.9
		Queue	40'		80'	25'	100'		310'		125'		140'	45'	160'	85'	
	PM	LOS	C		B	B	C		B		C		B	C	D	C	C
		Delay	25.0		19.2	13.0	25.5		16.6		20.7		17.2	32.9	35.8	31.2	21.1
	PMSE	Queue	110'		300'	45'	40'		205'		210'		180'	85'	135'	60'	
		LOS	B		B	A	B		A		B		B	B	B	B	B
		Delay	12.4		10.2	7.5	12.0		9.8		11.3		10.6	15.3	15.3	15.3	10.9
		Queue	40'		140'	25'	25'		120'		35'		50'	40'	45'	40'	

Exhibit 5-15B
Total (Scenario 2 - Left-in/Right-in/Right-out Access, No Exit at HS West D/W) Traffic Peak Hour Operating Conditions
With Modified Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												LOS & Delay		
			Eastbound			Westbound			Northbound			Southbound					
			↗	→	↘	↖	←	↗	↖	↑	↗	↘	↓	↖			
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Roundabout Control	Lanes->		1			1			2			1					
		AM	LOS	B			C			B			B			15.0	
			Delay	10.3			23.1			10.8			14.8				
	Queue		25'			170'			65'			180'					
	PM	LOS	A			C			A			C			16.7		
		Delay	9.0			15.0			7.4			23.6					
		Queue	25'			115'			35'			315'					
	PMSE	LOS	A			B			A			B			10.7		
		Delay	7.3			12.1			6.6			13.1					
Queue		25'			80'			35'			155'						
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	Lanes->		1			-			2			-	-	1	1		
		AM	LOS	C			-			C			-	-	-	-	
			Delay	17.0			-			18.3			-	-	-	-	
	PM		Queue	25'			-			25'			-	-	-	-	
		LOS	C			-			A			-	-	-	-		
		Delay	20.3			-			9.1			-	-	-	-		
	PMSE	Queue	25'			-			25'			-	-	-	-		
		LOS	C			-			A			-	-	-	-		
		Delay	16.7			-			8.7			-	-	-	-		
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	Lanes->		1			1			1			1					
		AM	LOS	A			A			A			A				
			Delay	6.4			8.3			8.5			7.3				
	PM		Queue	30'			35'			55'			50'				
		LOS	A			A			A			B					
		Delay	8.4			7.8			7.9			10.3					
	PMSE	Queue	45'			35'			40'			95'					
		LOS	A			A			A			A					
		Delay	8.4			6.8			8.4			7.5					
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	Lanes->		2	-	1	-			2			-	-	1	1		
		AM	LOS	B	-	A	-			A			-	-	A	A	8.7
			Delay	10.6	-	9.7	-			9.0			-	-	6.9	7.7	
	Queue		35'	-	25'	-			35'			-	-	30'	40'		
	PM	LOS	B	-	A	-			B			-	-	B	B	11.0	
		Delay	10.8	-	7.6	-			11.5			-	-	12.5	11.2		
		Queue	75'	-	25'	-			30'			-	-	60'	35'		
	PMSE	LOS	A	-	A	-			A			-	-	A	A	7.0	
		Delay	9.7	-	9.4	-			5.7			-	-	6.5	5.5		
Queue		25'	-	25'	-			25'			-	-	30'	25'			
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	Lanes->		1			-			1			-	-	-	1		
		AM	LOS	C			-			A			-	-	*		
			Delay	15.5			-			7.6			-	-	*		
	PM		Queue	25'			-			25'			-	-	*		
		LOS	B			-			A			-	-	*			
		Delay	13.2			-			8.0			-	-	*			
	PMSE	Queue	25'			-			25'			-	-	*			
		LOS	A			-			A			-	-	*			
		Delay	9.6			-			7.6			-	-	*			
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	Lanes->		1			-			1			-	-	-	1		
		AM	LOS	B			-			A			-	-	*		
			Delay	12.6			-			7.6			-	-	*		
	PM		Queue	25'			-			25'			-	-	*		
		LOS	B			-			A			-	-	*			
		Delay	11.6			-			8.0			-	-	*			
	PMSE	Queue	25'			-			25'			-	-	*			
		LOS	A			-			A			-	-	*			
		Delay	9.9			-			7.6			-	-	*			
			25'			-			25'			-	-	*			

Exhibit 5-16A
STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive
Full Build Traffic Peak Hour Operating Conditions Comparison Table

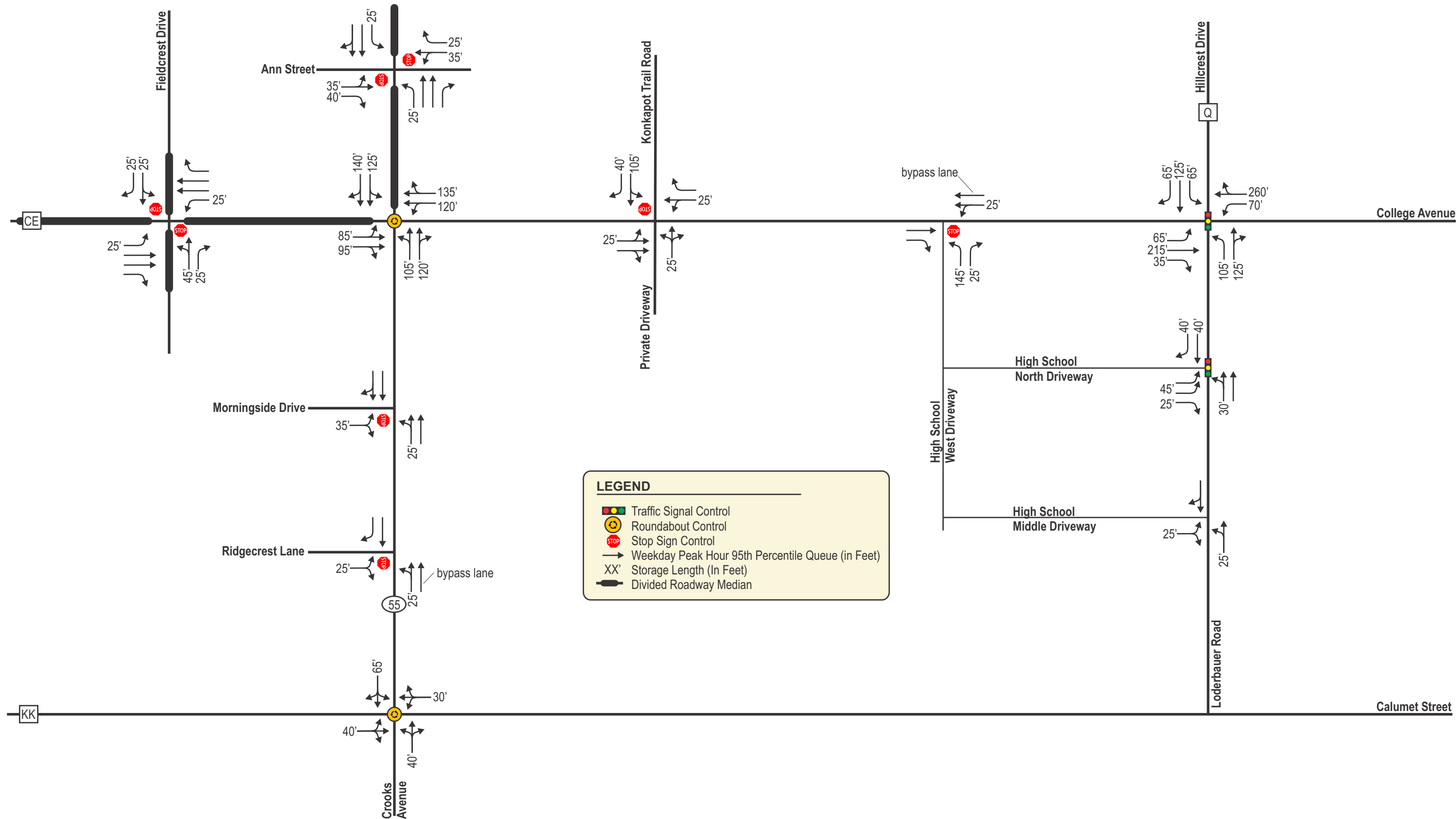
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S							
			Eastbound			Westbound			Northbound		Southbound			LOS & Delay						
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓		↙					
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Roundabout Control		Lanes->	1			1			1		1									
	AM	LOS	A			B			C		B			B 14.9						
		Delay	8.2			13.1			22.2		10.2									
		Queue	25'			75'			215'		105'									
	PM	LOS	A			A			A		B			A 9.1						
		Delay	6.3			6.9			8.3		10.4									
		Queue	25'			25'			65'		115'									
	PMSE	LOS	A			A			A		A			A 7.1						
		Delay	5.2			5.6			7.3		7.4									
Queue		25'			25'			55'		65'										
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Two-Way Stop Control		Lanes->	1			1			1		1		1							
	AM	LOS	F			F			C		A		*		B		-		-	
		Delay	71.6			636.3			19.3		8.1		*		*		11.2		-	
		v/c	0.45			1.95			-		-		*		*		-		-	
		Queue	50'			225'			75'		25'		*		*		40'		-	
	PM	LOS	F			F			B		A		*		*		A		-	
		Delay	73.9			53.1			12.9		9.0		*		*		8.9		-	
		v/c	0.54			0.38			-		-		*		*		-		-	
	PMSE	Queue	65'			40'			25'		25'		*		*		25'		-	
		LOS	E			D			B		A		*		*		A		-	
		Delay	38.4			30.9			12.0		8.6		*		*		8.6		-	
		v/c	0.32			-			-		-		-		-		-		-	
		Queue	35'			25'			25'		25'		*		*		25'		-	

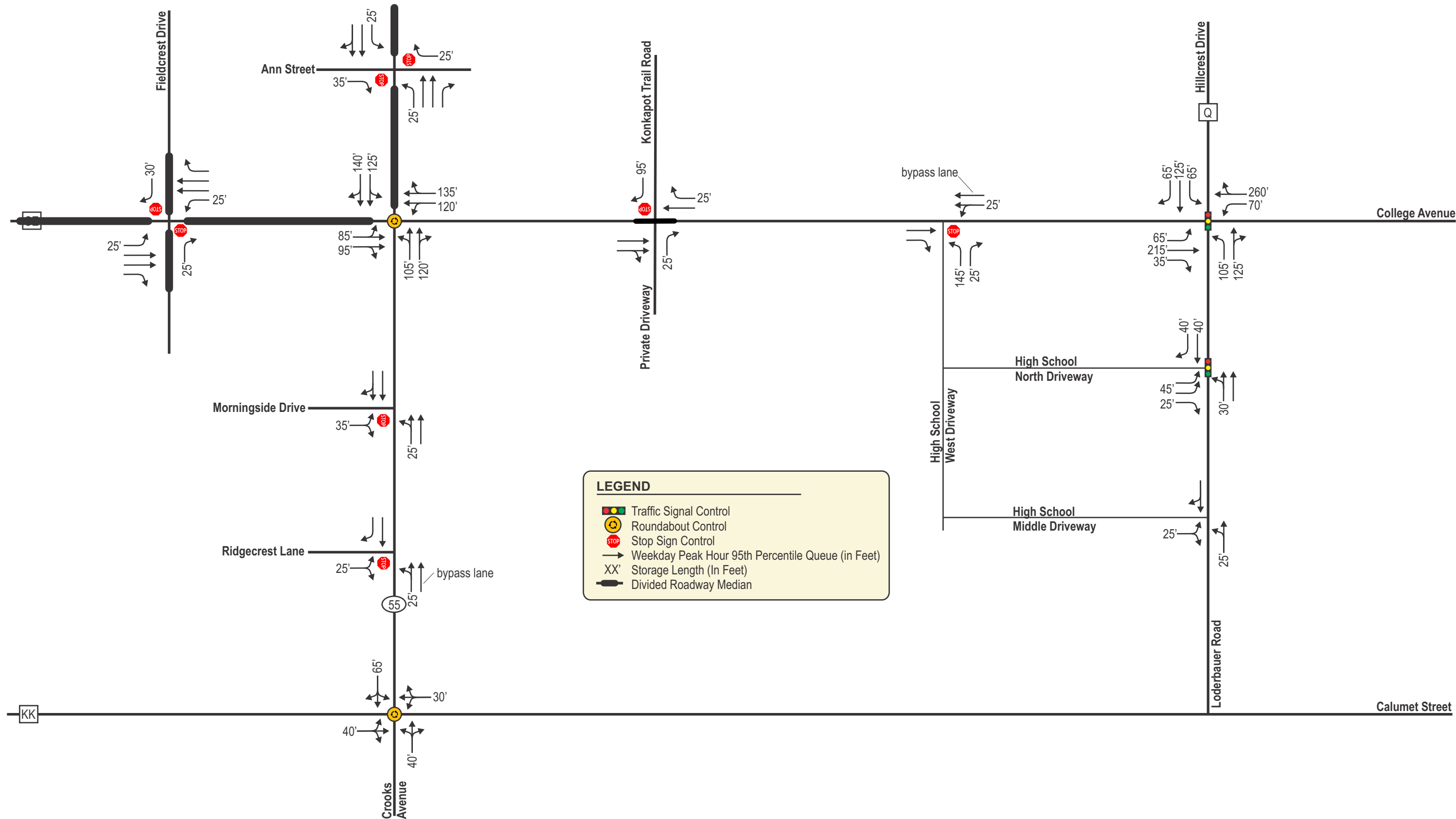
(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

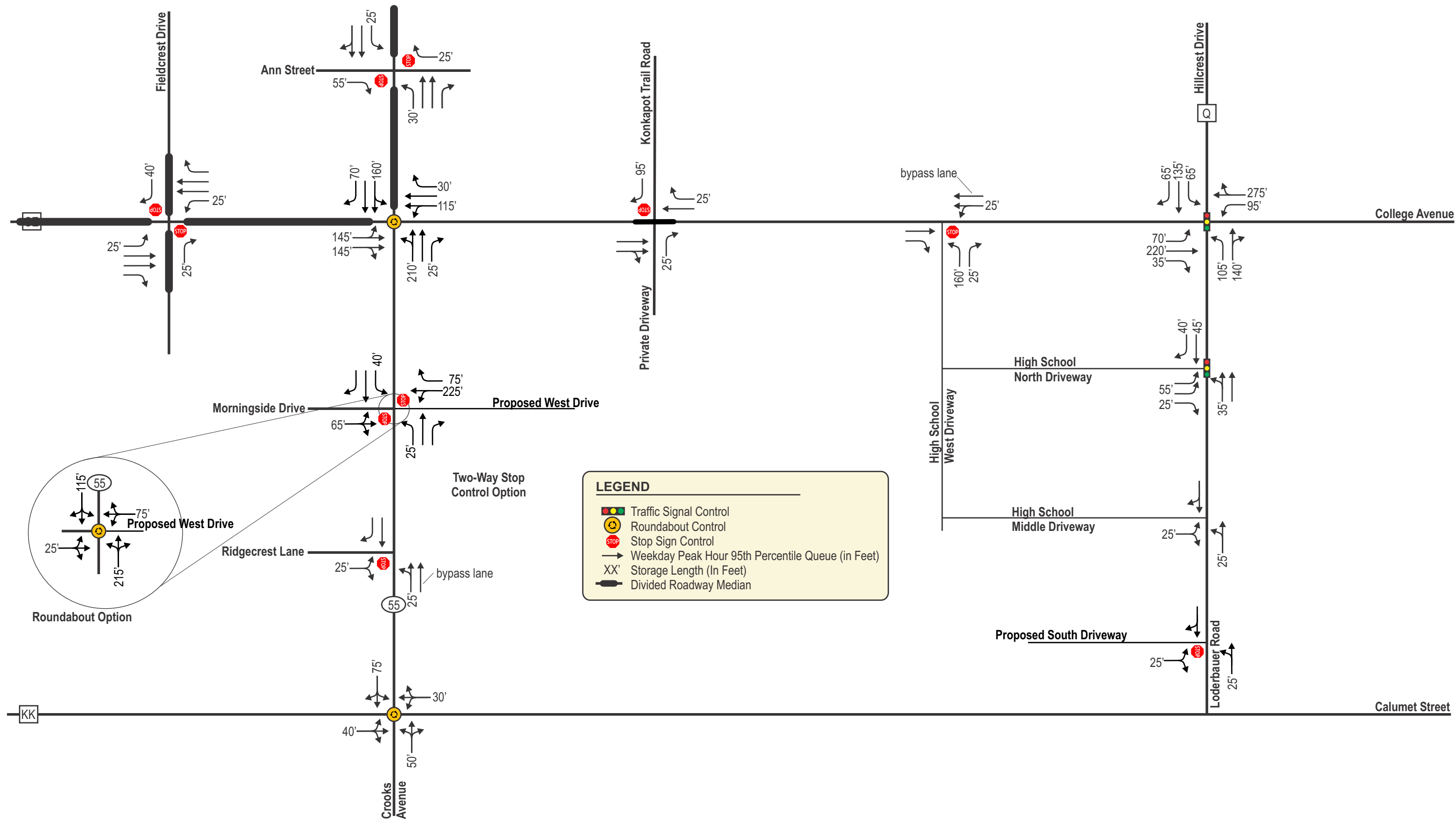
Exhibit 5-16B
Total (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions
Total Traffic Peak Hour Operating Conditions Comparison Table

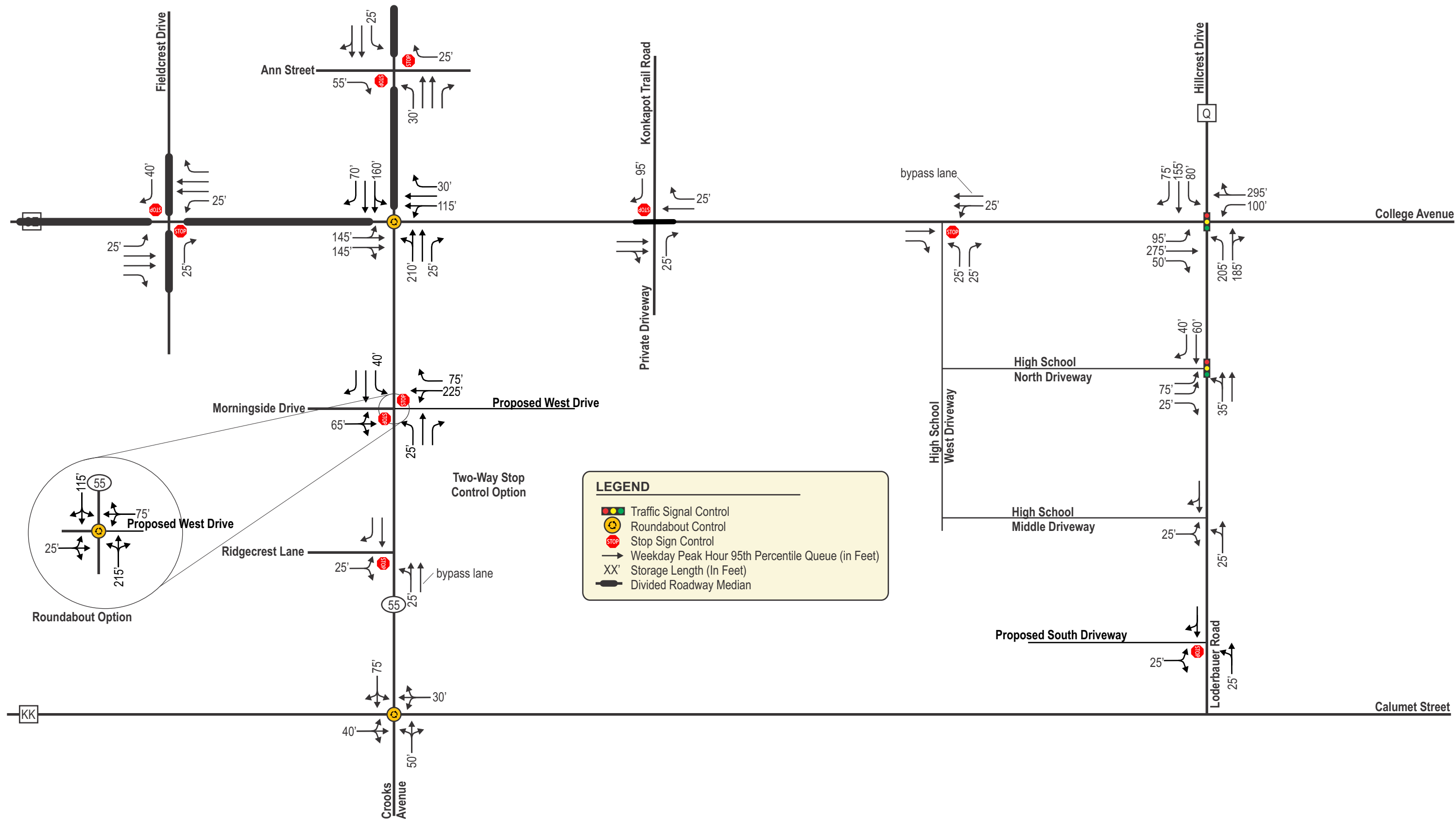
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S								
			Eastbound			Westbound			Northbound		Southbound			LOS & Delay							
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓		↙						
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Roundabout Control		Lanes->	1			1			2		1										
	AM	LOS	B			C			B		B			C 15.0							
		Delay	10.3			23.1			10.8		14.8										
		Queue	25'			170'			65'		180'										
	PM	LOS	A			C			A		C			C 16.7							
		Delay	9.0			15.0			7.4		23.6										
		Queue	25'			115'			35'		315'										
	PMSE	LOS	A			B			A		B			B 10.7							
		Delay	7.3			12.1			6.6		13.1										
		Queue	25'			80'			35'		155'										
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Two-Way Stop Control		Lanes->	1			1			1		1		1								
	AM	LOS	F			F			D		A		*		B		-	-			
		Delay	14844.0			5905.0			29.1		8.1		*		*		13.8		-	-	
		v/c	30.67			12.55			-		-		*		*		-		-	-	
		Queue	515'			440'			150'		25'		*		*		80'		-	-	
	PM	LOS	F			F			C		A		*		*		B		-	-	
		Delay	1465.0			1597.0			20.1		9.0		*		*		10.6		-	-	
		v/c	3.31			4.02			-		-		*		*		-		-	-	
		Queue	205'			410'			105'		25'		*		*		40'		-	-	
	PMSE	LOS	F			F			C		A		*		*		B		-	-	
		Delay	620.0			746.0			17.5		8.6		*		*		10.2		-	-	
		v/c	1.74			2.27			-		-		-		-		-		-	-	
		Queue	160'			3'			75'		25'		*		*		35'		-	-	

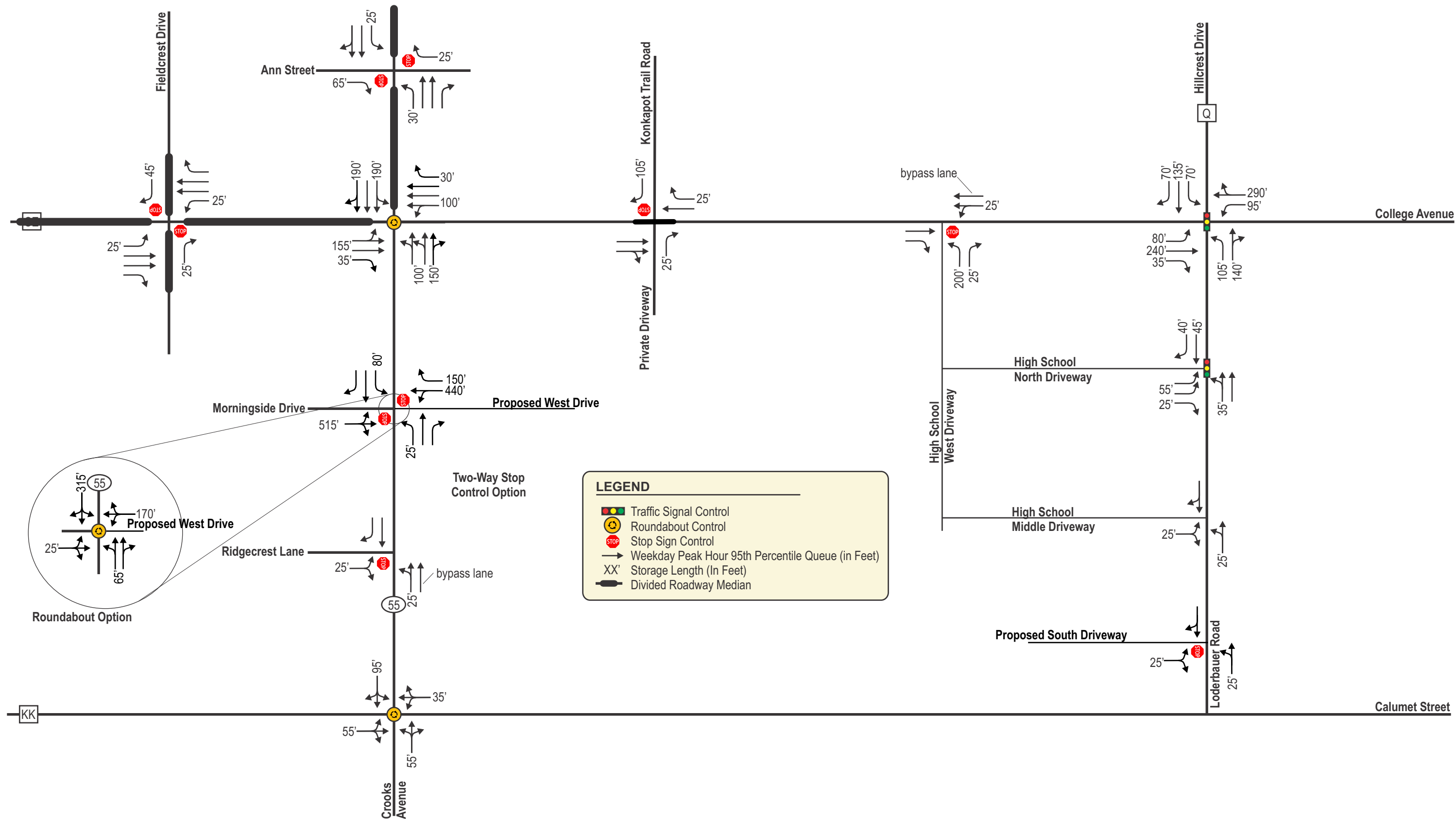
(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

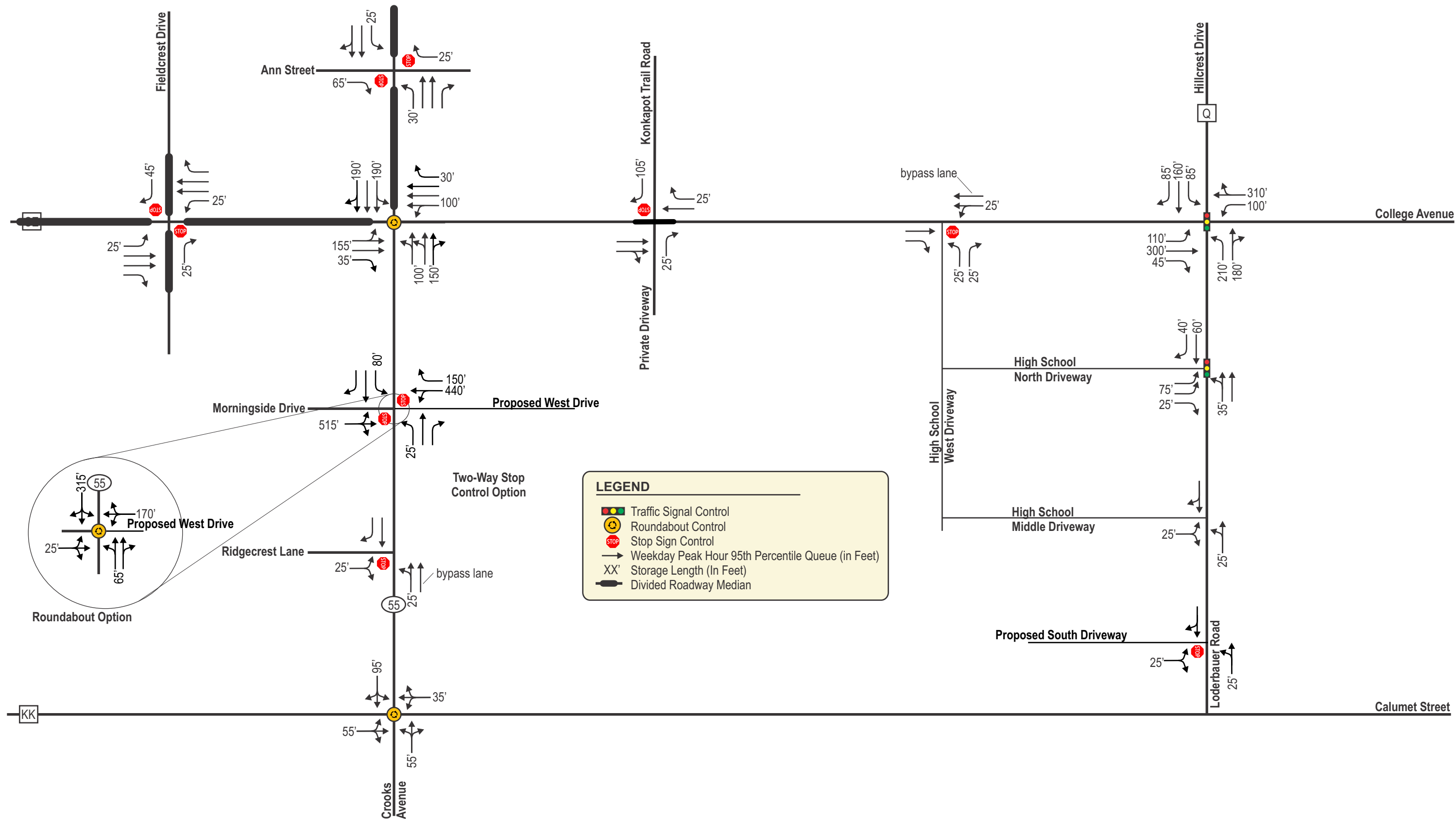












CHAPTER VI – RECOMMENDATIONS AND CONCLUSION

PART A – RECOMMENDATIONS

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 7th Edition. Intersection operation is defined by “level of service.” Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A,’ to very poor, represented by LOS ‘F.’ For the purpose of this study, LOS D or better was used to define acceptable peak hour operating conditions.

Modifications to address traffic impacts are shown in [Exhibit 1-3](#) for the following traffic volume scenarios:

- ““Background Traffic” – These modifications are expected to be necessary to accommodate the Existing/Background traffic volumes.
- “Full Build Traffic” – These modifications are expected to be necessary to accommodate the Full Build traffic volumes which includes full build out of the proposed Middle School but does not include the identified off-site development areas.
- “Total Traffic” – These modifications are expected to be necessary to accommodate the Total traffic volumes which includes full build out of the proposed Middle School as well as the identified off-site development areas.

The analysis was conducted using existing intersection geometrics and traffic control and the existing traffic signal timings. The following modifications, as shown in [Exhibit 1-3](#), are recommended to accommodate the Existing/Background, Full Build, and Total traffic volumes, respectively. *Modifications are for jurisdictional consideration and are not legally binding. WisDOT, Outagamie County and the City of Kaukauna reserve the right to determine alternative solutions.*

Node 100: STH 55/Crooks Avenue with Ann Street

- *Background Traffic:*
 - Reconstruct the median to restrict through and left-turn exiting movements from the east and west approaches, thereby allowing left-in/right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent roundabout to continue to their ultimate destination.
 - Maintain stop control on the east and west approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 200: CTH CE/College Avenue with Fieldcrest Drive

- *Background Traffic:*
 - Reconstruct the median to restrict through and left-turn exiting movements from the north and south approaches, thereby allowing left-in/right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent roundabout to continue to their ultimate destination.

- Maintain stop control on the north and south approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 300: STH 55/Crooks Avenue with CTH CE/College Avenue

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Consider roundabout modification to provide a right-turn bypass lane on the north, south and east approaches.
- *Total Traffic:*
 - Depending on the build out plans for the off-site development area, consider reconstructing the roundabout to provide a multi-lane roundabout with three lane approaches on the north and south approaches, a two-lane approach with a bypass lane on the west approach and a three-lane approach with a bypass lane on the east approach. A future traffic study should be completed for this intersection as development plans move forward in the future to determine the optimal modifications for this intersection.

Node 400: CTH CE/College Avenue with Konkapot Trail Road/Forefront Dermatology Access Driveway

- *Background Traffic:*
 - Construct a raised median through the limits of the intersection to allow only right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent intersection to continue to their ultimate destination.
 - Maintain stop control on the north and south approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 500: CTH CE/College Avenue with High School West Driveway

- *Background Traffic:*
 - Consider restricting all exiting northbound movements at this intersection during the weekday afternoon peak period (see discussion below). Diverted traffic would be expected to utilize the signalized intersections at Loderbauer Road.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 600: Loderbauer Road with CTH CE/College Avenue

- *Background Traffic:* No modifications.
- *Full Build Traffic:*

- Consider updating traffic signal timings to provide optimized operations.
- *Total Traffic:*
 - Consider updating traffic signal timings to provide optimized operations.

Node 700: STH 55/Crooks Avenue with Morningside Drive/Proposed West Access Drive

- *Background Traffic:* No modifications.
- *Full Build Traffic:* Two modification options are recommended for consideration (see discussion below):
 - Option 1 – Two-way stop control.
 - No modifications recommended on the west approach.
 - Provide a shared through /left-turn lane and a dedicated right-turn lane on the east approach.
 - Provide a dedicated left-turn lane, a through lane and right-turn taper on the north and south approaches (two lanes plus taper on each approach).
 - Depending on the location of the pedestrian tunnel under STH 55, consider providing pedestrian crosswalk pavement markings along all approaches of the intersection.
 - Option 2 - Construct a single lane roundabout with single entrance lanes on all approaches.
- *Total Traffic:* Two modification options are recommended for consideration (see discussion below):
 - Option 1 – Two-way stop control.
 - No modifications recommended on the west approach.
 - Provide a shared through /left-turn lane and a dedicated right-turn lane on the east approach.
 - Provide a dedicated left-turn lane, a through lane and right-turn taper on the north and south approaches (two lanes plus taper on each approach).
 - Depending on the location of the pedestrian tunnel under STH 55, consider providing pedestrian crosswalk pavement markings along all approaches of the intersection
 - Option 2 – Modify roundabout to provide an additional northbound lane (two lanes) on the south approach with two northbound lanes through the roundabout. All other approaches to remain as single lane approaches.
 - Even though not needed from an operations perspective, consideration could be given to providing two southbound lanes through the roundabout to match the existing two southbound lanes along STH 55 to the north.

Node 800: STH 55/Crooks Avenue with Ridgecrest Lane

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 900: STH 55/Crooks Avenue with CTH KK/Calumet Street

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 1000: Loderbauer Road with High School North Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Consider updating traffic signal timings to provide optimized operations.
- *Total Traffic:*
 - Consider updating traffic signal timings to provide optimized operations.

Node 1100: Loderbauer Road with High School Middle Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 1200: Loderbauer Road with Proposed South Access Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Construct a full access driveway with stop sign control on the west approach.
- *Total Traffic:* No additional modifications.

Higher delays (LOS F) are expected for several movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) even with the recommended geometry listed above under two-way stop control and under Full Build traffic volume conditions. Specifically, higher delays (LOS F) are expected during the weekday morning and afternoon peak periods and LOS E during the special event peak hour for all eastbound movements and the westbound through/left-turn movements at the intersection. However, as with most school sites, higher delays are only expected during about a 20 to 30 minute “surge” during the morning arrival and afternoon dismissal peak periods which can be considered typical for a school location. In addition, to alleviate some of the higher delays and queueing expected for the westbound through and left turn movements exiting the school during the typical weekday, exploration of an internal site connection to Speedway Lane to the south is expected to provide for another access alternative for vehicles to/from the south of the proposed school.

In addition, very high delays (LOS F/gridlock conditions) and very long queues are expected for several movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700), under Total traffic volume conditions, even with the recommended geometry listed above under two-way stop control. To provide for safe overall operations as well as realistic queue lengths under the off-site build-out assumptions, a higher level of traffic control should be considered under Total traffic volume conditions as future development moves forward.

A traffic signal warrant analysis was completed for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive (node 700) under Full Build and Total traffic volume conditions. Based on the warrant analysis, neither Warrant 1 (8-Hour) nor Warrant 2 (4-Hour) are expected to be met at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build traffic conditions. Specifically, only 1 hour of the required 8 hours under Warrant 1 (8-Hour) and only 1 hour of the required 4 hours under Warrant 2 (4-Hour) are expected to be met. In addition, even though close to being met under the Total traffic volume condition, Warrant 1 (8-Hour) and Warrant 2 (4-Hour) are also not expected to be met under the Total traffic volume condition. Specifically, only 7 hours of the required 8 hours under Warrant 1 (8-Hour) and only 3 hours of the required 4 hours under Warrant 2 (4-Hour) are met. Therefore, unless the build out assumptions for the off-site development are more intense than assumed in this study, traffic signal control should not be considered at this intersection under the Build (with proposed school only) traffic volume conditions nor with Total (with proposed school plus off-site) traffic volume conditions.

Per the WisDOT Facilities Development Manual (FDM), if an intersection warrants traffic signal control, a modern roundabout should also be evaluated. As stated above, traffic signals are not expected to be warranted, even under the Total traffic volume conditions which includes full build out of both the on-site and off-site assumptions used in this study. However, since higher delays are expected under the Total traffic volume condition under two-way stop control, and to provide for acceptable delays and queues and overall safe operations, roundabout control was also considered at the proposed intersection under Total traffic volume conditions. Based on the ICE analysis, roundabout control provides the only viable option under the Total traffic conditions to provide for acceptable delays with reasonable queuing and is therefore recommended for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive. Under the Build (with proposed school only) traffic volume conditions, two-way stop control with lane modifications is recommended at the intersection.

Higher delays (LOS E/F) are expected for several movements at the STH 55/Crooks Avenue intersection with CTH CE/College Avenue (node 300) under the current dual lane roundabout controlled intersection under Full Build and Total traffic volume conditions. The recommended bypass lane additions under the Full Build traffic volume conditions and the recommended reconstruction to a 3-lane roundabout with bypass lanes under the Total traffic volume conditions are expected to provide acceptable operation for most movements; however, higher delays (LOS E) are still expected for some movements during the typical weekday morning peak period noting that the delays are only slightly higher than acceptable (about 6 seconds) and the reported queuing is expected to be reasonable (all less than 225 feet). Without the bypass lanes recommended under the Full Build traffic conditions, higher delays (about 60 seconds) are expected for several movements during the weekday morning peak school peak hour with maximum queues of about 400 feet (16 vehicles) or less. As with many schools, the morning peak period “surge” last about 20 to 30 minutes. However, acceptable delays are expected during all other hours of the typical weekday, including the typical school afternoon school discharge and weekday evening commuter peak hours. Since development plans for the off-site

development area are unknown at this time and the build out assumptions were used for planning purposes only and with this study showing the need for a three lane roundabout at the STH 55/Crooks Avenue intersection with CTH CE/College Avenue, which is not typically acceptable by WisDOT, a future traffic study should be completed in the future as development plans move forward for the off-site area.

Higher delays (LOS F) are also expected at the College Avenue/CTH CE intersection with the High School West Driveway (node 500) under Existing, Full Build and Total traffic conditions during the typical weekday afternoon peak period. Since the higher delays are only currently being experienced during the typical weekday afternoon peak and are expected to increase during this evening peak period, restricting these movements during this weekday afternoon peak period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow this and all adjacent study area intersections to operate acceptably under all peak periods. Restrictions could include signage, gating and/or the use of temporary cones placed daily by school staff to restrict exiting traffic during the weekday afternoon discharge peak period. A separate analysis was completed for this scenario (with restricted/diverted traffic) that shows that the existing traffic signals at the College Avenue/CTH CE intersection with Loderbauer Road and the existing traffic signals at the

Loderbauer Road intersection with the High School North Driveway are expected to operate acceptably with acceptable delays and queueing during the typical weekday afternoon peak period even with the diverted traffic from the High School West Driveway.

Even though the existing traffic signal timings at the College Avenue/CTH CE intersection with Loderbauer Road and the existing traffic signals at the Loderbauer Road intersection with the High School North Driveway are expected to provide acceptable operations and queueing under both Full Build and Total traffic volume conditions, optimized traffic signal timings and offsets were implemented as part of the analysis as provided in the outputs provided in the appendix of this report.

PART B – CONCLUSION

To accommodate the full build out of the proposed middle school, recommended modifications are expected to be necessary to the transportation network. Except as noted, all movements at the study area intersections are expected to operate safely and efficiently with the modifications identified in this TIA with the proposed middle school site and identified off-site development areas. Since development plans for the off-site development area are unknown at this time and the build-out assumptions were used for planning purposes only, a future traffic study should be completed in the future as development plans move forward for the off-site area.

Kaukauna Middle School Development Traffic Impact Analysis

City of Kaukauna
Outagamie County, Wisconsin

April 28, 2025



TRAFFIC IMPACT STUDY FOR:

KAUKAUNA MIDDLE SCHOOL

CITY OF KAUKAUNA, OUTAGAMIE COUNTY, WISCONSIN

DATE SUBMITTED: April 28, 2025

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"I certify that this Traffic Impact Analysis has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering."

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Kaukauna Middle School Traffic Impact Analysis Table of Contents

LIST OF EXHIBITS	ii
LIST OF APPENDICES	iv
CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY	1
Part A – Purpose of Report and Study Objectives	1
Part B – Executive Summary	1
CHAPTER II – PROPOSED DEVELOPMENT	8
Part A – Development Site	8
Part B – Study Area	9
Part C – Off-Site Land Use and Development	9
Part D – Site Accessibility	10
CHAPTER III – ANALYSIS OF EXISTING CONDITIONS	12
Part A – Physical Characteristics	12
Part B – Traffic Volumes	12
Part C – Capacity Level of Service	12
Part D – Sources of Data	14
CHAPTER IV – FORECASTED TRAFFIC	15
Part A – Traffic Forecasting	15
Part B – Background, Full Build & Total Traffic	18
CHAPTER V – TRAFFIC AND IMPROVEMENT ANALYSIS	19
Part A – Site Access	19
Part B – Capacity Level of Service Analysis	19
Part C – Queueing Analysis	22
Part D – Warrant Analysis	22
Part E – Traffic Control Comparison	23
CHAPTER VI – RECOMMENDATIONS AND CONCLUSION	25
Part A – Recommendations	25
Part B – Conclusion	29

LIST OF EXHIBITS

Exhibit 1-1	Project Overview Map
Exhibit 1-2A.....	Conceptual Site Plan – Proposed School Area
Exhibit 1-2B.....	Conceptual Site Plan – Off-site Development Area
Exhibit 1-3	Recommended Modifications
Exhibit 2-1	Project Overview Map
Exhibit 2-2A.....	Conceptual Site Plan – Proposed School Area
Exhibit 2-2B.....	Conceptual Site Plan – Off-site Development Area
Exhibit 3-1	Existing Transportation Detail
Exhibit 3-2A.....	Existing Traffic Volumes – Existing Middle School Site
Exhibit 3-2B.....	Existing Traffic Volumes – Proposed Middle School Site (Raw Data)
Exhibit 3-2C.....	Existing Traffic Volumes – Proposed Middle School Site (Balanced)
Exhibit 3-2D.....	Background Traffic Volumes – Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail
Exhibit 3-2E	Redistributed Trips – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Exhibit 3-2F	Redistributed Trips –Left-in/Right-in/Right-out at Ann Street
Exhibit 3-2G.....	Redistributed Trips –Left-in/Right-in/Right-out at Konkapot Trail Road
Exhibit 3-3	Existing Traffic Operations
Exhibit 4-3A.....	On-Site (Proposed Middle School) Trip Generation & Distribution Tables
Exhibit 4-3B.....	Off-Site Trip Generation & Distribution Tables
Exhibit 4-4	Trip Distribution Diagram
Exhibit 4-5A.....	On-Site New Trips – Access Scenario 1 (Full Access at Fieldcrest Drive)
Exhibit 4-5B.....	On-Site New Trips – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Exhibit 4-9A.....	Off-Site New Trips – Access Scenario 1 (Full Access at Fieldcrest Drive)
Exhibit 4-9B.....	Off-Site New Trips – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Exhibit 4-11A....	Full Build Traffic Volumes – Access Scenario 1 (Full Access at Fieldcrest Drive)
Exhibit 4-11B....	Full Build Traffic Volumes – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Exhibit 4-11C....	Full Build Traffic Volumes – Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail

Exhibit 4-14A....Total Traffic Volumes – Access Scenario 1 (Full Access at Fieldcrest Drive)

Exhibit 4-14B....Total Traffic Volumes – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)

Exhibit 4-14C....Total Traffic Volumes – Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail

Exhibit 5-3A.....Full Build (Access Scenario 1) Traffic Operations – No Modifications

Exhibit 5-3B.....Full Build (Access Scenario 2) Traffic Operations – No Modifications

Exhibit 5-6A.....Total (Access Scenario 1) Traffic Operations – No Modifications

Exhibit 5-6B.....Total (Access Scenario 2) Traffic Operations – No Modifications

Exhibit 5-9Existing/Background Traffic Operations – With Modifications

Exhibit 5-12Full Build (Access Scenario 2) Traffic Operations – With Modifications

Exhibit 5-15Total (Access Scenario 2) Traffic Operations – With Modifications

Exhibit 5-16A....Full Build Traffic Operations Comparison Table

Exhibit 5-16B....Total Traffic Operations Comparison Table

Exhibit 5-18Existing Traffic – Maximum Queue Lengths

Exhibit 5-19Background Traffic – Maximum Queue Lengths

Exhibit 5-21Full Build (Access Scenario 2) Traffic – Maximum Queue Lengths

Exhibit 5-24Total (Access Scenario 2) Traffic – Maximum Queue Lengths

LIST OF APPENDICES

Appendix A.....Traffic

PHF & Truck Percentage Summary Table
Existing Turning Movement Counts
Traffic Signal Plans and Timings
Saturation Flow Rate Calculations
Trip Generation Calculation & Comparison Tables
Special Event Peak Hour Volume Calculations
Linked Trip Calculations
Middle School Boundary Limits

Appendix B...Peak Hour Analysis Outputs

Existing Traffic
Full Build Traffic – Access Scenario 1 (Full Access at Fieldcrest Drive)
Full Build Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)
Total Traffic – Access Scenario 1 (Full Access at Fieldcrest Drive)
Total Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive)

Appendix C...Peak Hour Improvement Analysis Outputs

Existing/Background Traffic – With Modifications
Full Build Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive) – With Modifications
Total Traffic – Access Scenario 2 (Left-in/Right-in/Right-out at Fieldcrest Drive) – With Modifications

Appendix D...Traffic Signal Warrant Analysis

STH 55 & Morningside Drive/Proposed West Access Drive

Appendix E ...Intersection Control Evaluation (ICE)

STH 55 & Morningside Drive/Proposed West Access Drive

CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY

PART A – PURPOSE OF REPORT AND STUDY OBJECTIVES

The Kaukauna Area School District is planning to construct a new Middle School to be located on a vacant parcel of land east of State Trunk Highway (STH) 55, south of County Trunk Highway (CTH) CE and southwest of the current high school in the City of Kaukauna, Outagamie County, Wisconsin. A new middle school with two outlots for potential future development, which are expected to include commercial and residential land uses along with a connection roadway to the Kaukauna High School, are being proposed for the development site.

As part of the proposed middle school plans, WisDOT, Outagamie County and the City of Kaukauna have requested a traffic impact analysis be conducted to determine the additional traffic expected to be generated by the proposed middle school and to identify roadway modifications, if any, attributed to the new school for the Build traffic volume scenario. Traffic volumes from the identified offsite developments, located within the western portion of the site along STH 55, were also included in the Total traffic volume scenario used in this study.

This report documents the procedures, findings, and conclusions of the traffic impact analysis. The analysis identifies recommended modifications based on existing intersection geometrics, existing traffic volumes and additional traffic expected to be generated by the anticipated middle school and potential off-site developments located within the limits of the study area.

PART B – EXECUTIVE SUMMARY

The executive summary includes a description of the study area, descriptions of the proposed middle school and potential off-site developments and conclusions based on the findings of the TIA.

B1. Location of Study Site with Respect to Area Roadway Network

A street map illustrating the location of the existing and proposed schools is shown in [Exhibit 1-1](#). A copy of the conceptual site plan for the proposed middle school is illustrated in [Exhibit 1-2A](#) and a conceptual site plan showing the potential off-site development areas is provided in [Exhibit 1-2B](#). As identified by the study team, the study area for the proposed middle school includes the following intersections:

- STH 55/Crooks Avenue with Ann Street (two-way stop control)
- STH 55/Crooks Avenue with CTH CE/College Avenue (roundabout control)
- STH 55/Crooks Avenue with Morningside Drive/Proposed West Access Drive (current one-way stop control)
- STH 55/Crooks Avenue with Ridgecrest Lane (one-way stop control)
- STH 55/Crooks Avenue with CTH KK/Calumet Street (roundabout control)
- CTH CE/College Avenue with Fieldcrest Drive (two-way stop control)
- CTH CE/College Avenue with Konkapot Trail Road/Forefront Dermatology Access Driveway (two-way stop control)
- CTH CE/College Avenue with the High School West (and future Middle School) Access Driveway (one-way stop control)
- Loderbauer Road with CTH CE/College Avenue (traffic signal control)

- Loderbauer Road with the High School northern (and future Middle School) Access Driveway (traffic signal control)
- Loderbauer Road with the High School middle (and future Middle School) Access Driveway (one-way stop control)
- Loderbauer Road with the Proposed South Access Driveway (one-way stop control)

B2. On-Site Development Description

As shown on the conceptual site plan in [Exhibit 1-2A](#), the middle school is proposed within the southeast portion of the overall site with parking lots proposed on the west and south sides of the middle school. Sports fields are proposed to the south of the school building. The following land uses are assumed for the proposed middle school site:

- Middle School – 1,200 students

The numbers of students shown are the anticipated maximum population at the proposed middle school. A map showing the limits of the student population for the Kaukauna School District is provided in the appendix.

It is anticipated that construction of the school will occur over a two-year period starting in the year 2026. Therefore, full build out of the development site is expected by the start of the fall semester in the year 2028. Therefore, traffic volumes from the proposed middle school were included in the Full Build traffic volumes.

B3. Off-site Development Description

As shown on the conceptual site plan in [Exhibit 1-2B](#), two off-site development areas were identified within the limits of the development site; specifically, two outlots located immediately east of STH 55 and west of the proposed middle school. There are no known plans for the development of these two 30-acre parcels; however, for planning purposes, the following land uses were assumed on the parcels:

West Parcel

- Shopping Plaza (40-150k - Supermarket - No), ITE LU821 – 100,000 square feet (sf)
- Strip Retail Plaza (<40k), ITE LU822 – 20,000 sf
- General Office Building – ITE LU710 – 15,000 sf

East Parcel

- Multifamily Housing (Low-Rise/Not Close to Rail Transit), ITE LU220 – 200 units

As stated above, the timing for the build out of these two parcels is unknown at this time. For purposes of this study, it was assumed that the parcels would be fully built out within the next ten years. Therefore, traffic volumes from these developments were included in the Total traffic volumes.

B4. Site Generated Traffic

The traffic volumes expected to be generated by the proposed middle schools were calculated based on the trip rates for a middle school (LU522) as published in the *Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition*.

Under full build (highest student population) conditions and based on data provided by the school district, the proposed middle school development is expected to generate 2,270 weekday

daily trips: with 780 new trips in the AM peak hour, 380 new trips in the PM peak hour and 210 during a typical weekday sporting event at the middle school.

The potential off-site development area is expected to generate 6,750 weekday daily trips: with 290 new trips in the AM peak hour, 565 new trips in the PM peak hour and 565 during a typical weekday sporting event at the middle school.

B5. Proposed Access

As shown in [Exhibit 1-2A](#), two access connections are proposed for the school development site. The main access is proposed as a full access driveway onto a new roadway connection to Crooks Avenue/STH 55 directly across from the existing three-legged, one-way stop sign controlled STH 55 intersection with Morningside Drive. A second driveway is proposed to connect to the high school site located northeast of the proposed middle school site with further existing connections from the high school onto CTH CE/College Avenue and Loderbauer Road. An additional driveway is proposed along Loderbauer Road, immediately south of the high school. Finally, even though not proposed as this time, a future connection via a new north/south connection onto CTH CE to the north and Speedway Lane to the southwest is also planned for at some point in the future.

B6. Recommended Modifications

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 7th Edition. Intersection operation is defined by “level of service.” Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A,’ to very poor, represented by LOS ‘F.’ For the purpose of this study, LOS D or better was used to define acceptable peak hour operating conditions.

Modifications to address traffic impacts are shown in [Exhibit 1-3](#) for the following traffic volume scenarios:

- ““Background Traffic” – These modifications are expected to be necessary to accommodate the Existing/Background traffic volumes.
- “Full Build Traffic” – These modifications are expected to be necessary to accommodate the Full Build traffic volumes which includes full build out of the proposed Middle School but does not include the identified off-site development areas.
- “Total Traffic” – These modifications are expected to be necessary to accommodate the Total traffic volumes which includes full build out of the proposed Middle School as well as the identified off-site development areas.

The analysis was conducted using existing intersection geometrics and traffic control and the existing traffic signal timings. The following modifications, as shown in [Exhibit 1-3](#), are recommended to accommodate the Existing/Background, Full Build, and Total traffic volumes, respectively. *Modifications are for jurisdictional consideration and are not legally binding. WisDOT, Outagamie County and the City of Kaukauna reserve the right to determine alternative solutions.*

Node 100: STH 55/Crooks Avenue with Ann Street

- *Background Traffic:*
 - Reconstruct the median to restrict through and left-turn exiting movements from the east and west approaches, thereby allowing left-in/right-in/right-out access at this intersection. The restricted movements would either

divert to other intersections or make a right-turn movement and then traverse the adjacent roundabout to continue to their ultimate destination.

- Maintain stop control on the east and west approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 200: CTH CE/College Avenue with Fieldcrest Drive

- *Background Traffic:*
 - Reconstruct the median to restrict through and left-turn exiting movements from the north and south approaches, thereby allowing left-in/right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent roundabout to continue to their ultimate destination.
 - Maintain stop control on the north and south approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 300: STH 55/Crooks Avenue with CTH CE/College Avenue

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Consider reconstructing roundabout to provide a right-turn bypass lane on the north, south and east approaches.
- *Total Traffic:*
 - Reconstruct the roundabout to provide a multi-lane roundabout with three lane approaches on the north and south approaches, a two-lane approach with a bypass lane on the west approach and a three-lane approach with a bypass lane on the east approach.

Node 400: CTH CE/College Avenue with Konkapot Trail Road/Forefront Dermatology Access Driveway

- *Background Traffic:*
 - Construct a raised median through the limits of the intersection to allow only right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent intersection to continue to their ultimate destination.
 - Maintain stop control on the north and south approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 500: CTH CE/College Avenue with High School West Driveway

- *Background Traffic:*
 - Consider restricting all exiting northbound movements at this intersection during the weekday afternoon peak period. Diverted traffic would be expected to utilize the signalized intersection at Loderbauer Road.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 600: Loderbauer Road with CTH CE/College Avenue

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 700: STH 55/Crooks Avenue with Morningside Drive/Proposed West Access Drive

- *Background Traffic:* No modifications.
- *Full Build Traffic.* Two modification options are recommended for consideration (see discussion below):
 - Option 1 – Provide fully actuated traffic signal control.
 - Provide southbound left-turn arrow with protected/permitted left-turn phasing.
 - No modifications recommended on the west approach.
 - Provide a shared through /left-turn lane and a dedicated right-turn lane on the east approach.
 - Provide a dedicated left-turn lane, through lane and right-turn lane on the north and south approaches (three lanes each).
 - Provide pedestrian crosswalk pavement markings along all approaches of the intersection.
 - Option 2 - Construct a single lane roundabout with single entrance lanes on all approaches.
- *Total Traffic:* Two modification options are recommended for consideration (see discussion below):
 - Option 1 – Provide fully actuated traffic signal control.
 - Provide westbound right-turn arrow with permitted/overlap right-turn phasing.
 - Option 2 – Modify roundabout to provide an additional northbound lane (two lanes) on the south approach with two northbound lanes through the roundabout. All other approaches to remain as single lane approaches.

Node 800: STH 55/Crooks Avenue with Ridgecrest Lane

- *Background Traffic:* No modifications.

- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 900: STH 55/Crooks Avenue with CTH KK/Calumet Street

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 1000: Loderbauer Road with High School North Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 1100: Loderbauer Road with High School Middle Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 1200: Loderbauer Road with Proposed South Access Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Construct a full access driveway with stop sign control on the west approach.
- *Total Traffic:* No additional modifications.

A traffic signal warrant analysis was completed for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build and Total traffic volume conditions. The peak hour warrant is expected to be met for the Full Build traffic volume condition and the 8-Hour and 4-Hour warrants are expected to be met for the Total traffic volume condition. Per the WisDOT Facilities Development Manual (FDM), if an intersection warrants traffic signal control, a modern roundabout should also be evaluated. Therefore, roundabout control was also considered at the proposed intersection. Based on intersection operations and the analysis completed for this study, both traffic signal control and roundabout control are viable alternatives at the intersection. The decision to provide traffic signal or roundabout control is best made by the local communities and regulating agencies. However, based on the ICE analysis, even though both traffic control options provide acceptable operations from a delay perspective, traffic signal control is recommended for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive due to less disruption to the traveling public and the significant difference in initial cost of the roundabout alternative. It is also noted that, in general, the typical cost of a single-lane roundabout in comparison to a signalized intersection is about two times the cost of a new signalized intersection with geometric modifications, dependent on right-of-way needs and complexity of the designs. In addition, since the proposed development is for a middle school and a large residential neighborhood is located immediately west of the site, a relatively high number of students are expected to cross STH 55 every weekday during the morning peak period and the afternoon peak

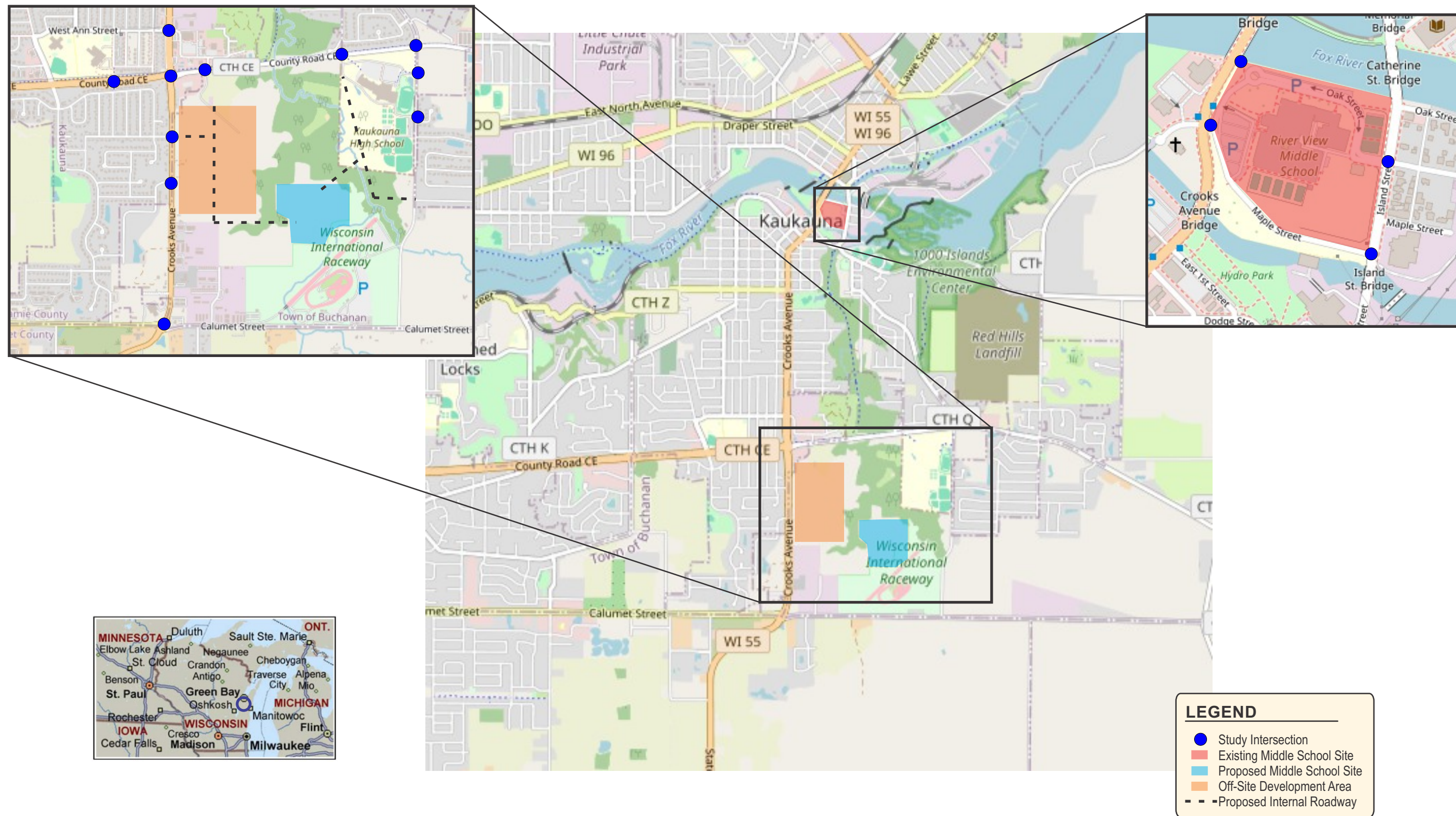
period. Traffic signal control would allow for a controlled (marked pedestrian crossings with push buttons and pedestrian countdown timers) crossing for the anticipated students, which could allow for a potentially safer pedestrian crossing situation and could remove the need for the proposed pedestrian tunnel under STH 55. Based on all of these factors, traffic signal control is recommended.

Higher delays (LOS E/F) are expected for several movements at the STH 55/Crooks Avenue intersection with CTH CE/College Avenue under the current dual lane roundabout controlled intersection under Full Build and Total traffic volume conditions. The recommended bypass lane additions under the Full Build traffic volume conditions and the recommended reconstruction to a 3-lane roundabout with bypass lanes under the Total traffic volume conditions are expected to provide acceptable operation for most movements; however, higher delays (LOS E) are still expected for some movements during the typical weekday morning peak period noting that the delays are only slightly higher than acceptable (about 6 seconds) and the reported queueing is expected to be reasonable (all less than 225 feet). Without the bypass lanes recommended under the Full Build traffic conditions, higher delays (about 60 seconds) are expected for several movements during the weekday morning peak school peak hour with maximum queues of about 400 feet (16 vehicles) or less. As with many schools, the morning peak period “surge” last about 20 to 30 minutes. However, acceptable delays are expected during all other hours of the typical weekday, including the typical school afternoon school discharge and weekday evening commuter peak hours.

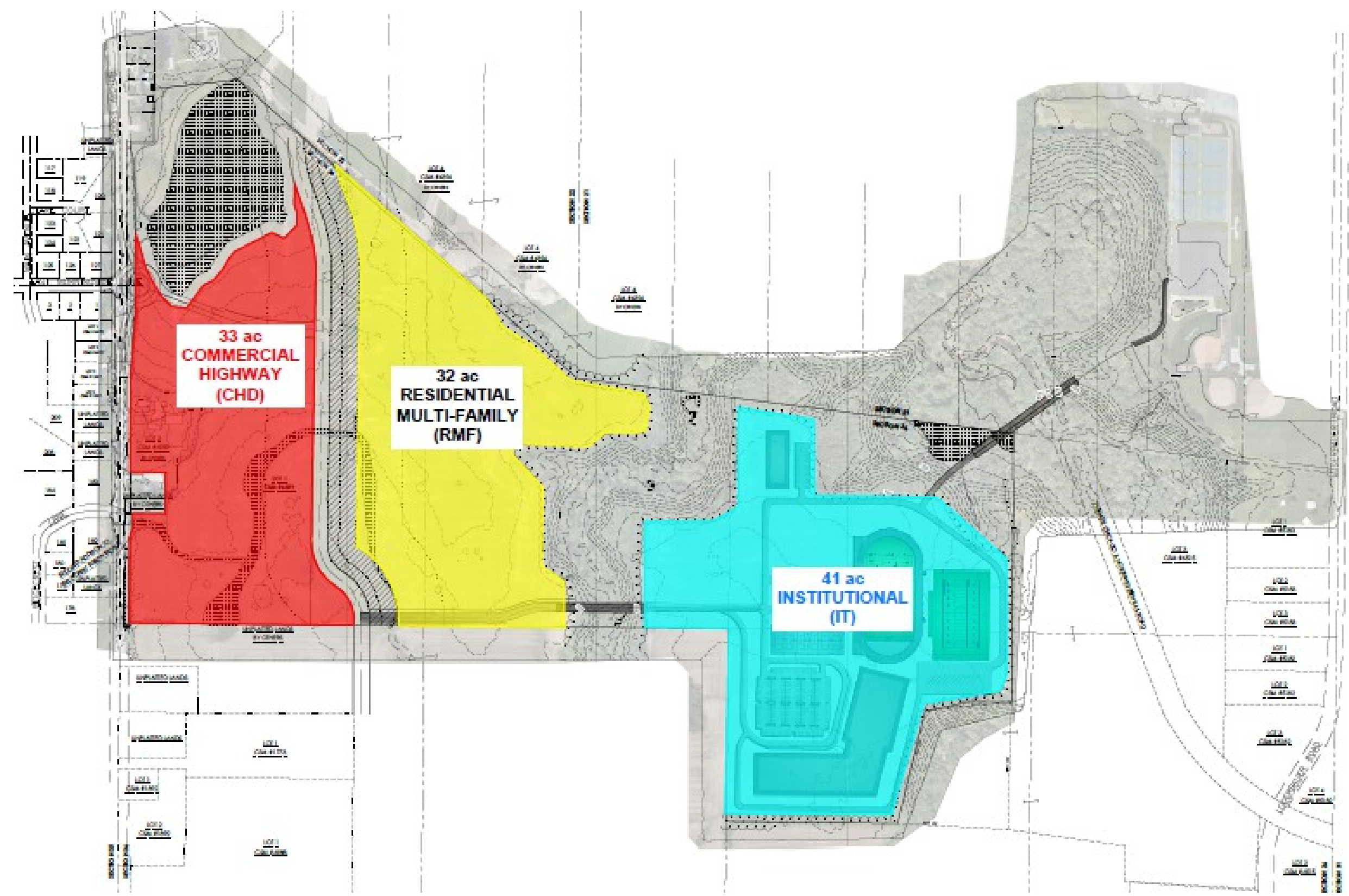
Higher delays (LOS F) are also expected at the College Avenue/CTH CE intersection with the High School West Driveway under Existing, Full Build and Total traffic conditions during the typical weekday afternoon peak period. Restricting these movements during this time period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow this and all study area intersections to operate acceptably under all peak periods.

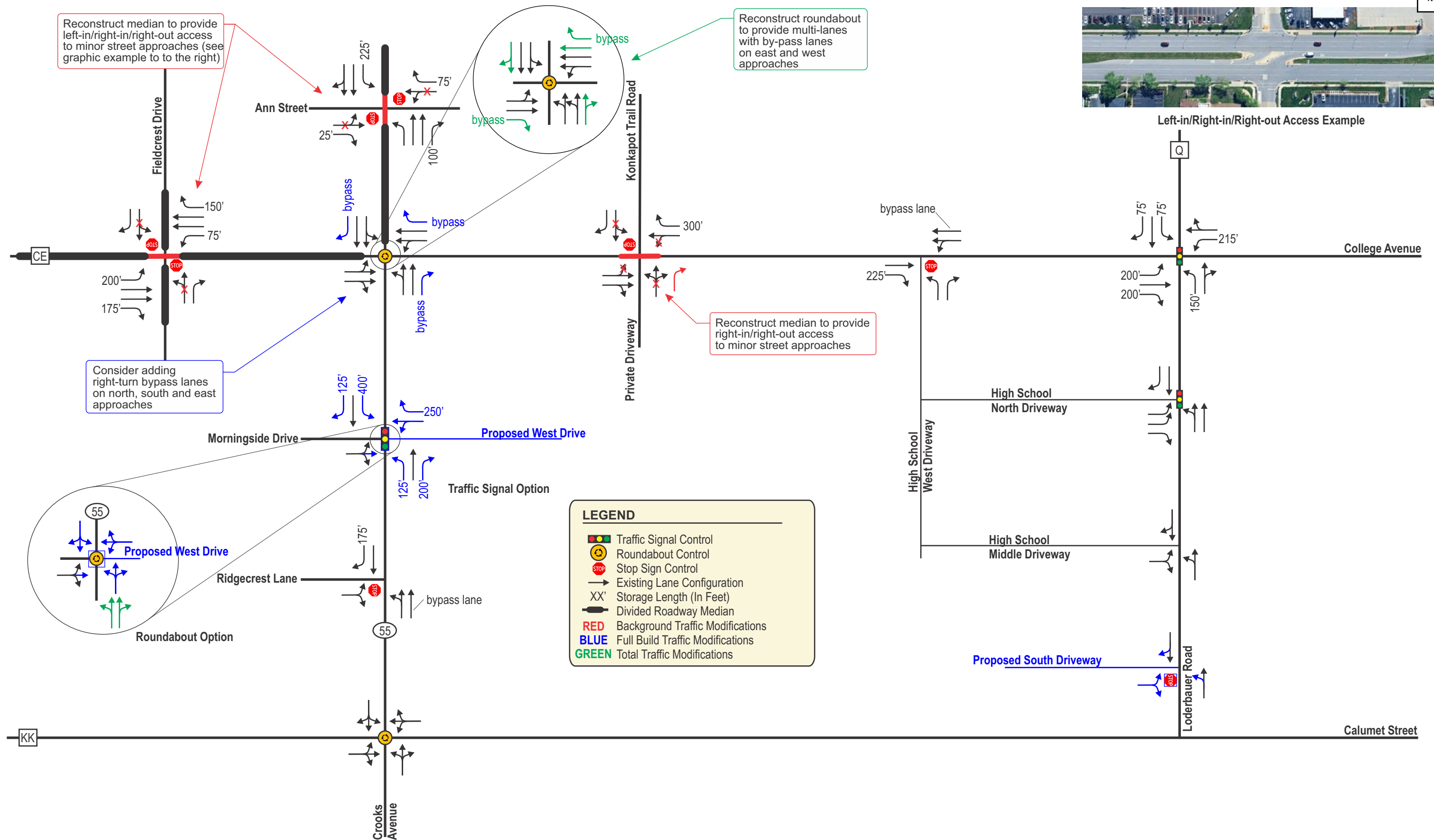
B8. Conclusion

To accommodate the full build out of the proposed middle school, recommended modifications are expected to be necessary to the transportation network. Except as noted, all movements at the study area intersections are expected to operate safely and efficiently with the modifications identified in this TIA with the proposed middle school site and identified off-site development areas.









CHAPTER II – PROPOSED DEVELOPMENT

PART A – DEVELOPMENT SITE

A1. Development Description and Site Location

The Kaukauna Area School District is planning to construct a new Middle School to be located on a vacant parcel of land east of State Trunk Highway (STH) 55, south of County Trunk Highway (CTH) CE and southwest of the current high school in the City of Kaukauna, Outagamie County, Wisconsin. A new middle school with two outlots for potential future development, which are expected to include commercial and residential land uses along with a connection roadway to the Kaukauna High School, are being proposed for the development site. A street map illustrating the locations of the existing and proposed schools is shown in [Exhibit 2-1](#).

A2. Land Use and Intensity

The proposed middle school site is currently being utilized for agricultural uses with several large, wooded areas located throughout. A river also runs through the site. The overall site is bordered by residential uses to the east, west and north with a few additional residential houses immediately to the south along the south side of CTH KK. The Kaukauna High School is located immediately to the northeast. Commercial uses currently exist adjacent to the site, to the north (along both sides of CTH CE) and to the southwest along STH 55. Light industrial land uses also exist to the southwest along STH 55. The Wisconsin International Raceway is located immediately to the southeast, adjacent to the site.

A3. Site Plan

A copy of the conceptual site plan for the proposed middle school is illustrated in [Exhibit 2-2A](#). The middle school is proposed within the southeast portion of the overall site with parking lots proposed on the west and south sides of the middle school. Sports fields are proposed to the south of the school building. Two access connections are proposed for the school development site. The main access is proposed as a full access driveway onto a new roadway connection to Crooks Avenue/STH 55 directly across from the existing three-legged, one-way stop sign controlled STH 55 intersection with Morningside Drive. A second driveway is proposed to connect to the high school site located northeast of the proposed middle school site with further existing connections from the high school onto CTH CE/College Avenue and Loderbauer Road. An additional driveway is proposed along Loderbauer Road, immediately south of the high school. Finally, even though not proposed as this time, a future connection via a new north/south connection onto CTH CE to the north and Speedway Lane to the southwest is also planned for at some point in the future.

A4. Development Phasing and Timing

The following land uses are assumed for the proposed middle school site:

- Middle School – 1,200 students

The numbers of students shown are the anticipated maximum population at the proposed middle school. A map showing the limits of the student population for the Kaukauna School District is provided in the appendix.

It is anticipated that construction of the school will occur over a two-year period starting in the year 2026. Therefore, full build out of the development site is expected by the start of the fall semester in the year 2028. Therefore, traffic volumes from the proposed middle school were included in the Full Build traffic volumes.

PART B – STUDY AREA

B1. Influence Area

Based on the type of proposed land uses and the location of the site, the proposed middle school development is expected to draw from a local and regional customer base. Therefore, the areas of significant influence include the City of Kaukauna and other surrounding cities, villages, and towns that are part of the Kaukauna Area School District. A map showing the limits of the school district in relation to the proposed middle school site is provided in the appendix.

B2. Area of Significant Traffic Impact

As identified by the study team, the study area for the proposed middle school includes the following intersections:

- STH 55/Crooks Avenue with Ann Street (two-way stop control)
- STH 55/Crooks Avenue with CTH CE/College Avenue (roundabout control)
- STH 55/Crooks Avenue with Morningside Drive/Proposed West Access Drive (current one-way stop control)
- STH 55/Crooks Avenue with Ridgecrest Lane (one-way stop control)
- STH 55/Crooks Avenue with CTH KK/Calumet Street (roundabout control)
- CTH CE/College Avenue with Fieldcrest Drive (two-way stop control)
- CTH CE/College Avenue with Konkapot Trail Road/Forefront Dermatology Access Driveway (two-way stop control)
- CTH CE/College Avenue with the High School West (and future Middle School) Access Driveway (one-way stop control)
- Loderbauer Road with CTH CE/College Avenue (traffic signal control)
- Loderbauer Road with the High School northern (and future Middle School) Access Driveway (traffic signal control)
- Loderbauer Road with the High School middle (and future Middle School) Access Driveway (one-way stop control)
- Loderbauer Road with the Proposed South Access Driveway (one-way stop control)

PART C – OFF-SITE LAND USE AND DEVELOPMENT

As shown on the conceptual site plan in [Exhibit 1-2B](#), two off-site development areas were identified within the limits of the development site; specifically, two outlots located immediately east of STH 55 and west of the proposed middle school. There are no known plans for the development of these two 30-acre parcels; however, for planning purposes, the following land uses were assumed on the parcels:

West Parcel

- Shopping Plaza (40-150k - Supermarket - No), ITE LU821 – 100,000 square feet (sf)
- Strip Retail Plaza (<40k), ITE LU822 – 20,000 sf
- General Office Building – ITE LU710 – 15,000 sf

East Parcel

- Multifamily Housing (Low-Rise/Not Close to Rail Transit), ITE LU220 – 200 units

As stated above, the timing for the build out of these two parcels is unknown at this time. For purposes of this study, it was assumed that the parcels would be fully built out within the next ten years. Therefore, traffic volumes from these developments were included in the Total traffic volumes.

PART D – SITE ACCESSIBILITY**D1. Study Area Roadways**

The study area roadways for the proposed site include the following:

Crooks Avenue (STH 55) is a four-lane divided north/south principal arterial highway north of CTH KK and an undivided minor arterial to the south. The highway widens to provide a raised median section from immediately north of Ann Street to a point immediately south of the roundabout at CTH CE. The highway also transitions to a two-lane undivided cross section to the south of Morningside Drive. The posted speed limit on STH 55 is 25-mph north of CTH CE, 35-mph south of CTH CE, 45-mph between Morningside Drive and CTH KK and 55-mph to the south, starting at a point about ¼-mile south of CTH KK. According to the Wisconsin Department of Transportation (WisDOT), the Year 2023 average annual daily traffic volumes (AADT's) on STH 55 were approximately 14,700 vehicles per day (vpd) north of 16th Street, 14,100-vpd to the north of CTH CE, 10,700-vpd to the south of Ridgecrest Lane, and 4,800-vpd (2016 count) to the south of CTH KK. Sidewalks are provided along both sides of STH 55 to the north of CTH CE and exist only for a short distance to the south, up through the Forefront Dermatology driveway.

College Avenue (CTH CE) is a four-lane divided east/west principal arterial highway to the west of STH 55 and a two-lane undivided minor arterial to the east of STH 55. The posted speed limit on CTH CE is 45-mph to the west of STH 55 and changes to 35-mph to the east at a point about 850 feet east of Konkapot Trail Road. The Year 2023 WisDOT AADT volumes on CTH CE were approximately 15,800-vpd west of Fieldcrest Drive, 14,200-vpd to the west of STH 55, 9,300-vpd to the west of Loderbauer Road, and 4,800-vpd (2019 count) to the east. The CE multi-use trail currently exists along the north side CTH CE within the study limits. The CE Trail is a 5.8-mile paved trail that runs between Appleton and Kaukauna.

Calumet Street (CTH KK) is a two-lane undivided east/west minor arterial highway to the west of STH 55 and a major collector to the east of STH 55. The posted speed limit on CTH KK is 45-mph to the west of STH 55 and 55-mph to the east. The Year 2023 WisDOT AADT volumes on CTH KK were approximately 7,200 vpd west of STH 55 and 5,600-vpd (2019 count) to the east. Sidewalks are not currently provided along either side of CTH KK within the study limits.

Hillcrest Drive (CTH Q) is a two-lane undivided north/south minor arterial north of CTH CE with a posted speed limit of 25-mph within the study area. South of CTH CE the roadway is designated as Loderbauer Road. The Year 2016 WisDOT AADT volumes on Hillcrest Drive were approximately 2,800 vpd north of CTH CE. Sidewalks are provided along the west side of Hillcrest Drive within the study limits.

Loderbauer Road is a four-lane undivided north/south local street immediately south of CTH CE that transitions to a two-lane undivided cross section to the south of the high school's north driveway. The roadway also changes from an urban cross section to the north of Bear Paw Trail (adjacent neighborhood street) to a rural cross section to the south. North of CTH CE the

roadway is designated as Hillcrest Drive. The posted speed limit on Loderbauer Road is 35-mph within the study area. No AADT's are currently available for Loderbauer Road. Sidewalks are provided along the west side of Loderbauer Road within the limits of the high school property (from CTH CE down to a point near Bear Paw Trail) and along the east side of Loderbauer Road from the residential properties north of Andrea Michelle Court down to White Dove Lane.

Ann Street is a two-lane undivided east/west major collector with a posted speed limit of 25-mph within the study area. The Year 2019 WisDOT AADT volumes on Ann Street were approximately 1,600 vpd west of STH 55. Sidewalks are provided along both sides of Ann Street, west of STH 55 and along the south side of Ann Street to the east.

Konkapot Trail Road is a two-lane undivided north/south local street with a posted speed limit of 25-mph within the study area. No AADT's are currently available for Konkapot Trail Road. Sidewalks are provided along both sides of Konkapot Trail Road within the study limits.

Fieldcrest Drive is a two-lane undivided north/south major collector with a posted speed limit of 25-mph within the study area. The Year 2019 WisDOT AADT volumes on Fieldcrest Drive were approximately 2,500 vpd north of CTH CE. Sidewalks are provided along both sides of Fieldcrest Drive to the north of CTH CE; however, sidewalks are not currently provided on either side to the south.

Morningside Drive is a two-lane undivided east/west local residential street with a posted speed limit of 25-mph within the study area. No AADT's are currently available for Morningside Drive. Sidewalks are provided along both sides of Morningside Drive within the study limits.

Ridgecrest Lane is a two-lane undivided east/west local residential street with a posted speed limit of 25-mph within the study area. No AADT's are currently available for Ridgecrest Lane. Sidewalks are provided along both sides of Ridgecrest Lane within the study limits.

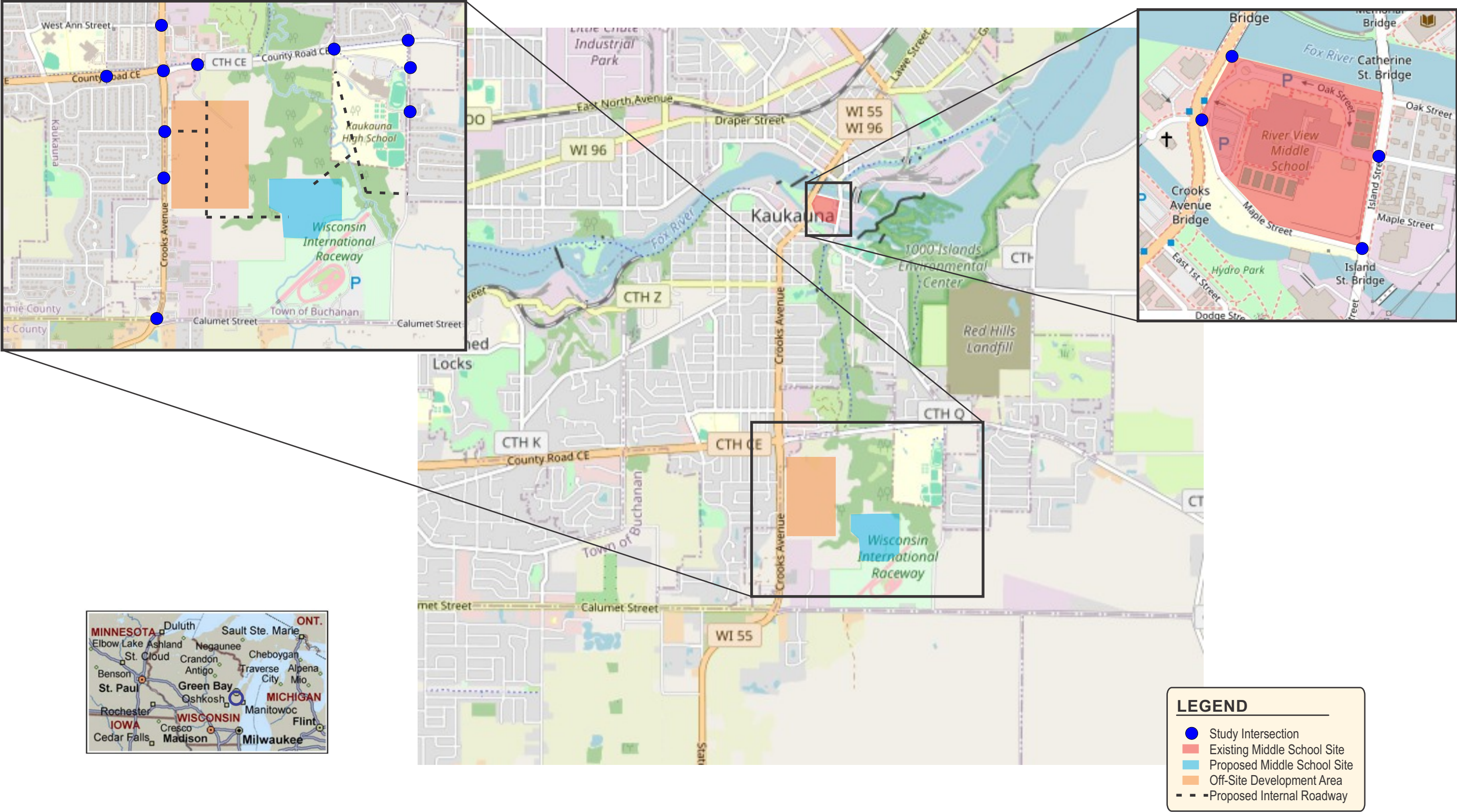
D2. Anticipated Infrastructure Projects

Based on information provided by WisDOT, NE Region, one improvement project was identified within the general study area. A mill/overlay project (WisDOT ID 4050-21-71) is planned along STH 55 between USH 10 and Ridgecrest Road during the year 2028 construction season.

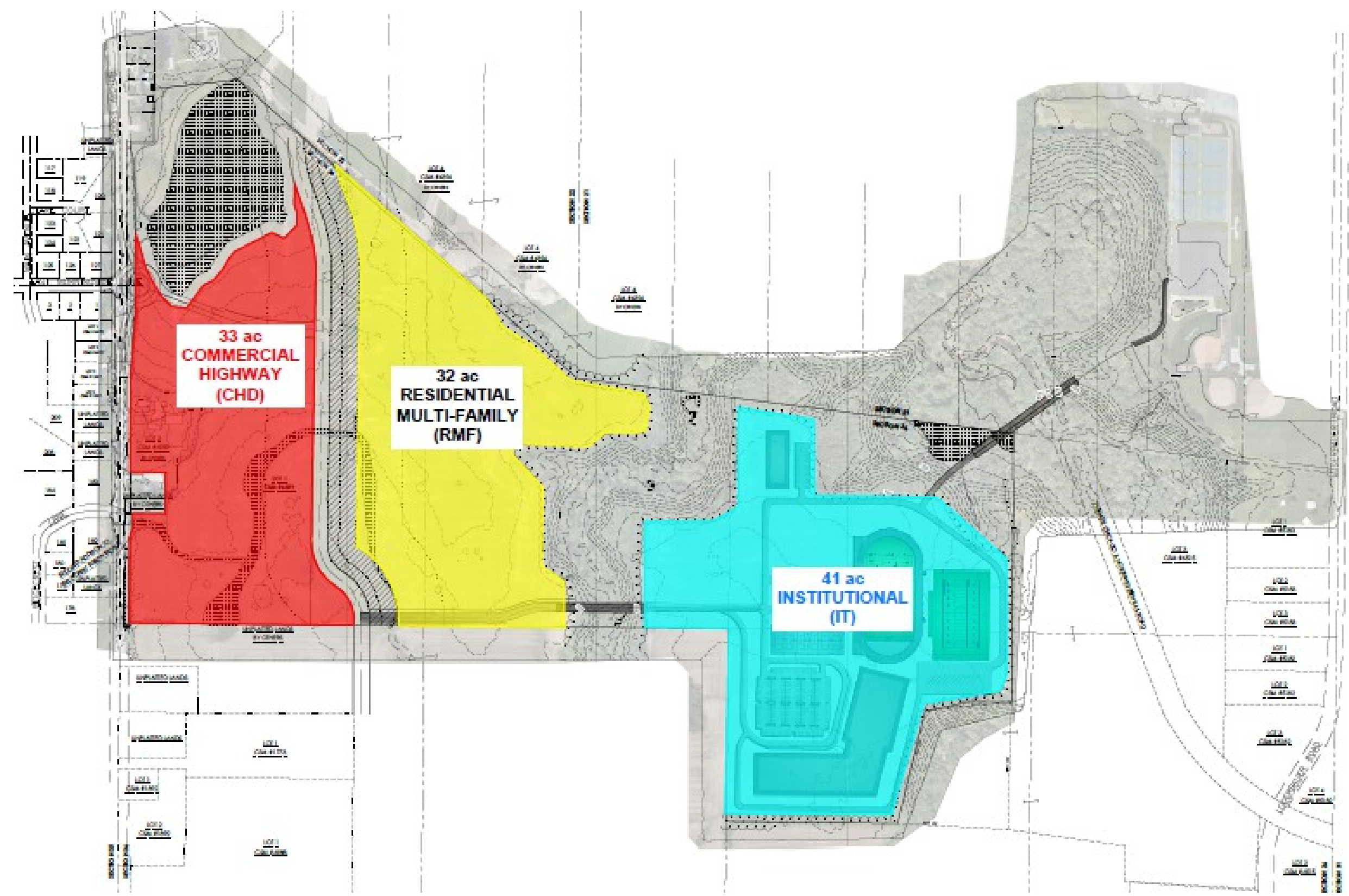
D3. Alternative Modes of Transportation

As described above, sidewalks and a multi-use trail (CE Trail) are currently provided along many of the roadways within the study area. No designated on-street bicycle facilities were identified.

Due to the location of the proposed school in relation to the residential neighborhoods within the Kaukauna area, and with sidewalks and the CE Trail currently provided near the school, it was assumed that a fair number of students will walk or ride bikes to/from the school on a daily basis. See trip generation discussion in *Chapter IV* for further assumptions concerning students walking to school.







CHAPTER III – ANALYSIS OF EXISTING CONDITIONS

PART A – PHYSICAL CHARACTERISTICS

[Exhibit 3-1](#) shows the existing transportation detail for the study area intersections. More specifically, the exhibit illustrates intersection lane configurations, intersection traffic controls, distances between intersections, and posted speed limits within the study area.

PART B – TRAFFIC VOLUMES

The weekday morning and weekday evening peak hours are expected to drive the improvements needed to adequately accommodate the proposed middle school development, as they represent the highest trip generation for the site and the highest volumes along the adjacent highways. TADI conducted weekday morning (6:30 – 8:30am) and weekday evening (2:30 – 6:00pm) peak hour turning movement traffic counts at the existing study area intersections in mid-February of 2025.

Based on the turning movement counts and the expected school bell schedule, the weekday morning and weekday afternoon peak hours were identified as being 7:00 to 8:00 am and 3:15 to 4:15 pm; respectively. These peak hours coincide with the expected school start and end times of 7:55 am and 3:20 pm, respectively. A separate weekday evening special event peak hour, identified as 4:30 to 5:30 pm, was also evaluated as part of the study. This peak hour is expected to coincide with a boy's middle school basketball game. Details and calculations for this peak hour are provided in the [appendix](#) of this study. The existing peak hour traffic volumes at the study area intersections, raw data/unbalanced, are shown in [Exhibit 3-2B](#). The existing peak hour traffic volumes at the study area intersections, balanced along the study area corridors, are shown in [Exhibit 3-2C](#). The traffic counts used to determine peak hour factors and truck percentages have been included in the [appendix](#) of this study.

In addition, to calculate local middle school trip generation rates for this study, TADI conducted weekday morning (6:30 – 8:30am) and weekday evening (2:30 – 6:00pm) peak hour turning movement traffic and pedestrian counts at the existing intersections/locations adjacent to the existing Riverview Middle School located along the Fox River in early-February of 2025. Specifically, counts were conducted at the following intersections/locations noting that the westerly entrance to the school off of STH 55 was blocked to vehicular traffic by bollards with all traffic accessing the site along Island Street to the east:

- Island Street with Maple Street School Access
- Island Street with Elm Street School Access
- STH 55/Crooks Avenue with pedestrian access tunnel (pedestrian count only)
- STH 55/Crooks Avenue with pedestrian access to the parking lot (pedestrian count only)

The existing peak hour traffic volumes (including pedestrian volumes) at these four intersections/locations adjacent to the existing Riverview Middle School are shown in [Exhibit 3-2A](#).

PART C – CAPACITY LEVEL OF SERVICE

C1. Level of Service Definitions

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM), 7th Edition. Intersection operation is defined by “level of service.” Level of service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A,’ to very poor, represented by LOS ‘F.’ For the purpose of this study, LOS D was used to define acceptable peak hour operating

conditions. Peak hour factors (PHF's) in the modeling software were adjusted down slightly to calibrate the models to actual queues observed during data collection. The same PHF's at the existing middle school intersection were utilized at the intersections adjacent to the new middle school to allow for a more accurate build condition. Descriptions of the various levels of service are as follows:

LOS A is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized and unsignalized intersections, average delays are less than 10 seconds.

LOS B represents stable operation. At signalized intersections, average vehicle delays are 10 to 20 seconds. At unsignalized intersections, average delays are 10 to 15 seconds.

LOS C still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At signalized intersections, average vehicle delays are 20 to 35 seconds. At unsignalized intersections, average delays are 15 to 25 seconds.

LOS D represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are 35 to 55 seconds. At unsignalized intersections, average delays are 25 to 35 seconds.

LOS E represents the capacity of the intersection. At signalized intersections, average vehicle delays are 55 to 80 seconds. At unsignalized intersections, average delays are 35 to 50 seconds.

LOS F represents jammed conditions where the intersection is over capacity and acceptable gaps for unsignalized intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed 80 seconds. At unsignalized intersections, average delays exceed 50 seconds.

C2. Existing Traffic Operations

[Exhibit 3-3](#) shows the existing traffic peak hour operating conditions at the study area intersections at the proposed school location. The existing traffic analysis was conducted using the existing lane configurations shown in [Exhibit 3-1](#), the existing traffic signal timings and the existing traffic volumes shown in [Exhibit 3-2C](#).

As shown in [Exhibit 3-3](#), all movements are currently operating acceptably at LOS D or better at the study area intersections under the existing traffic volumes conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street which are currently operating at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The northbound through/left-turn movements at the College Avenue/CTH CE intersection with Fieldcrest Drive which are currently operating at LOS E during the typical weekday morning peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road which are currently operating at LOS E/F during the typical weekday morning and afternoon peak periods.

- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is currently operating at LOS F during the typical weekday afternoon peak period.

PART D – SOURCES OF DATA

The following sources of data were obtained for use in conducting this traffic study:

- Turning movement traffic counts – TADI
- Existing transportation details – TADI along with Google Earth
- Existing Traffic Signal Timings – City of Kaukauna
- On-Site Development information – Point of Beginning and the Kaukauna Area School District
- Off-Site Development information – City of Kaukauna

LEGEND

 Traffic Signal Control

 Stop Sign Control

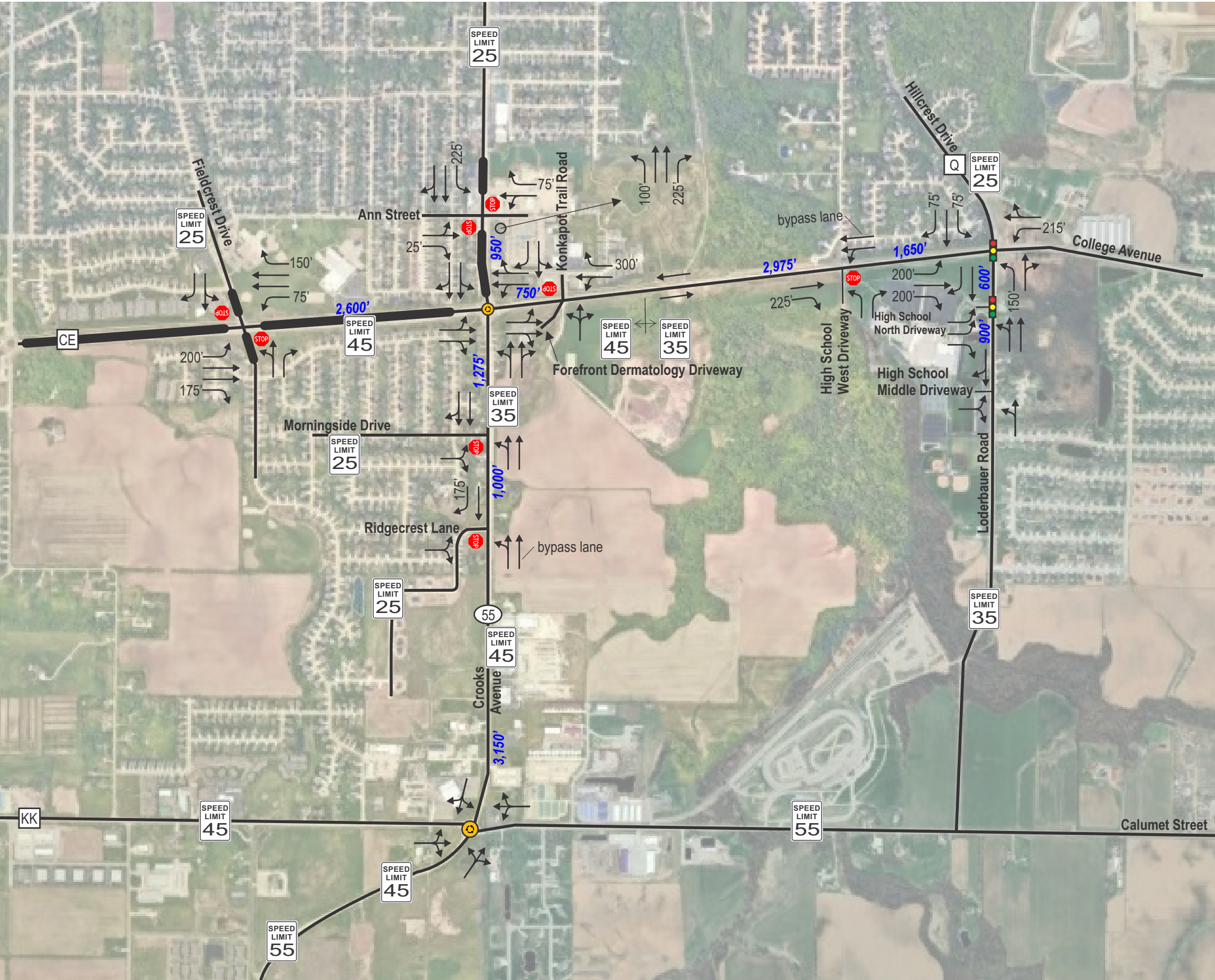
 Roundabout Control

 Existing Lane Configuration

 XX' Existing Storage Length (in Feet)

 XX' Distance Between Roadways (in Feet)

 Divided Roadway Median



LEGEND

XX

AM Peak Hour Volumes (7:00-8:00 AM)

(XX)

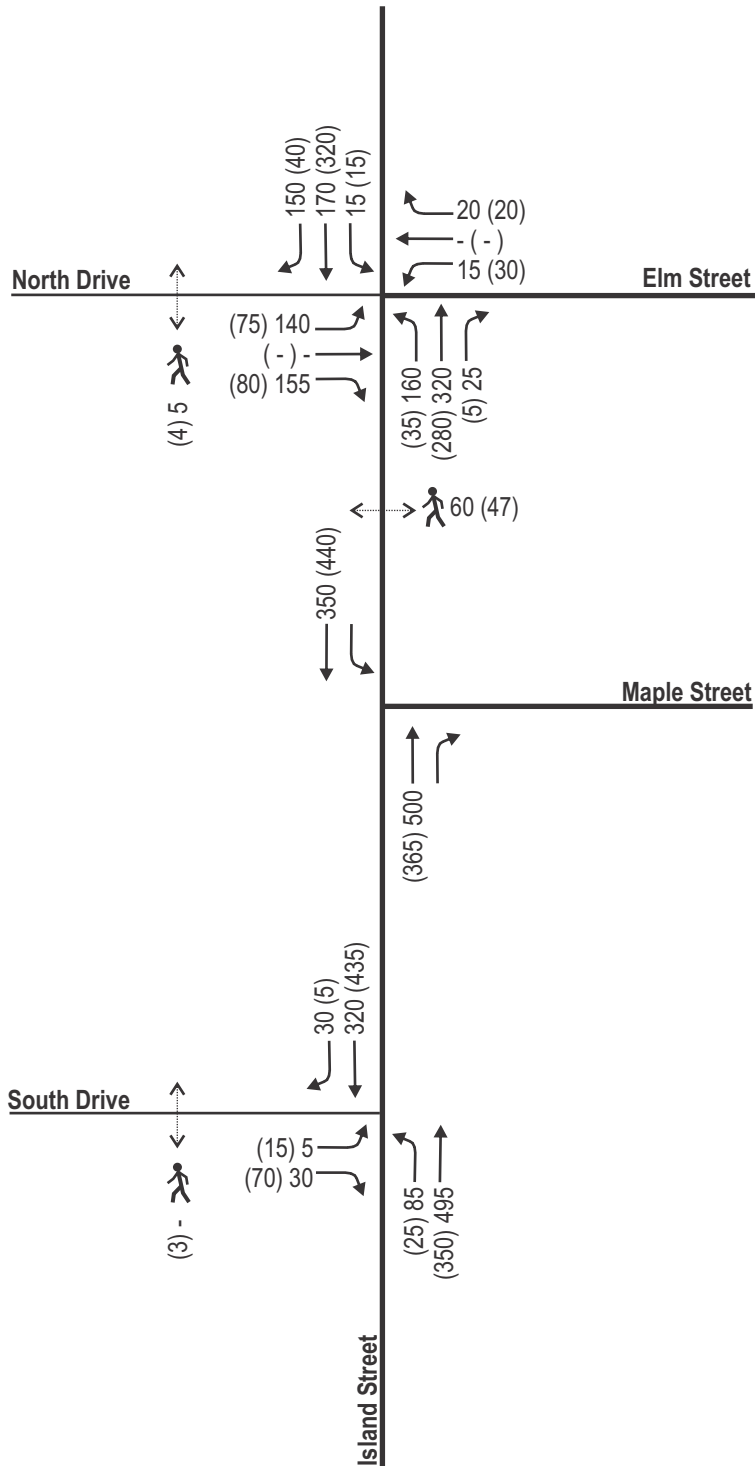
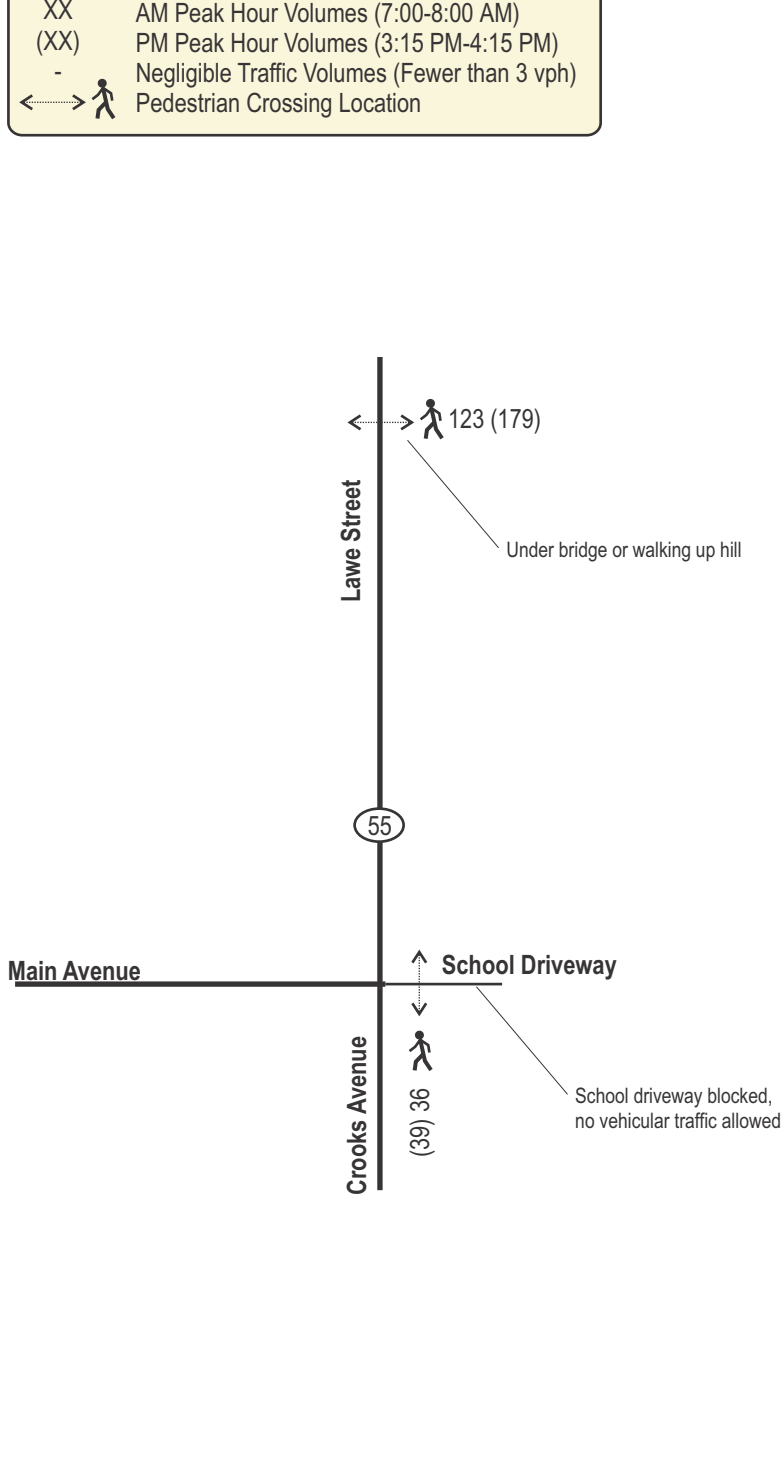
PM Peak Hour Volumes (3:15 PM-4:15 PM)

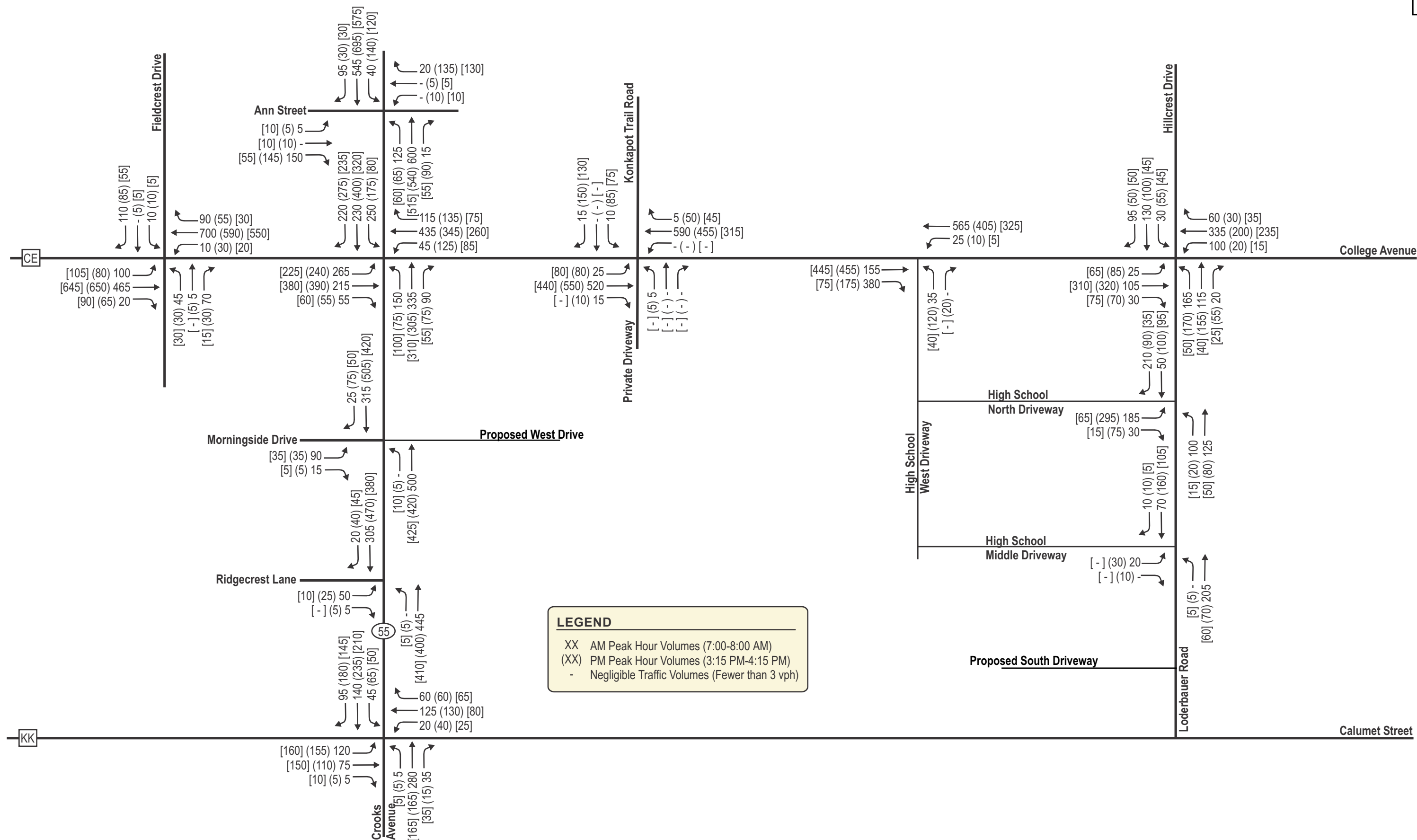
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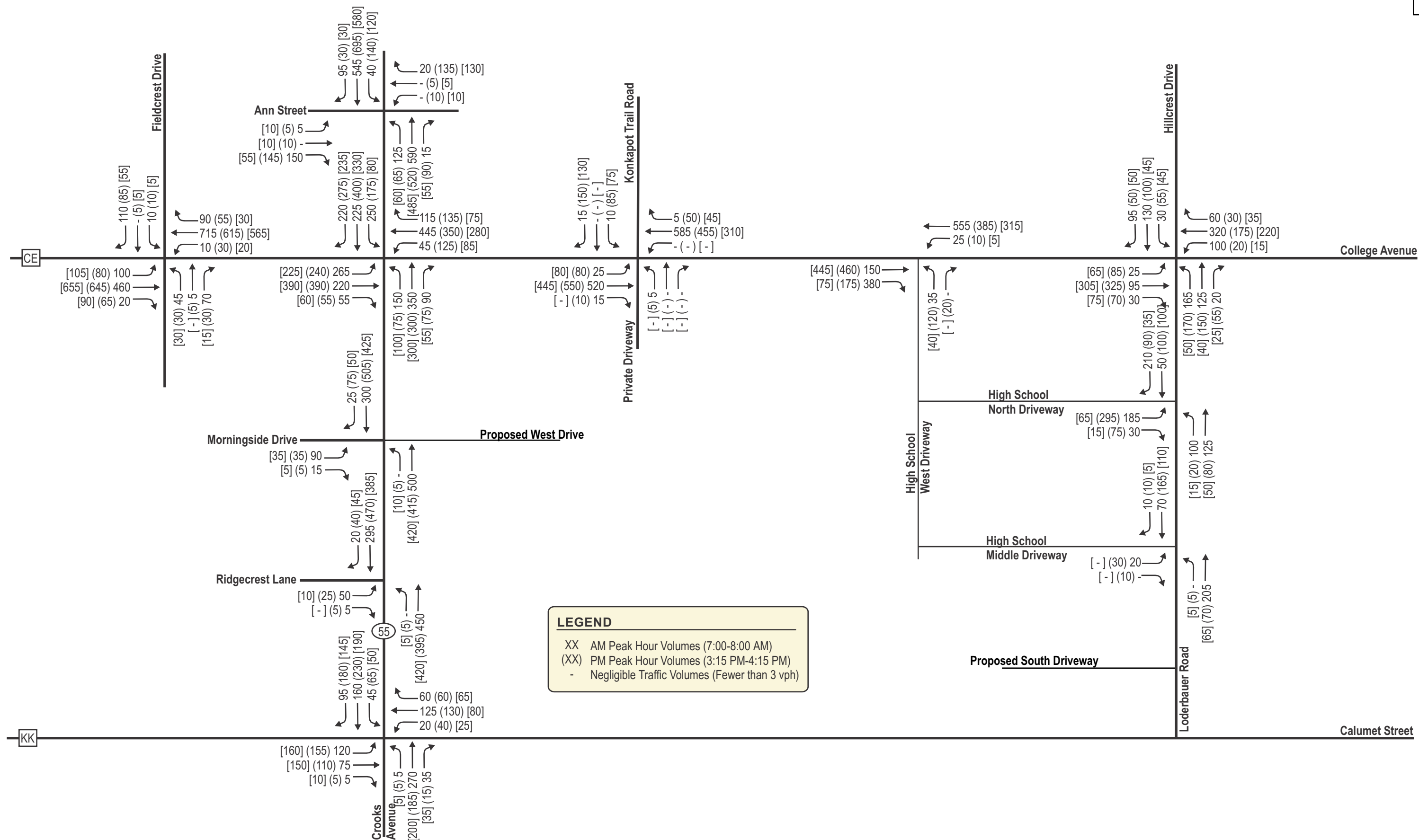
Negligible Traffic Volumes (Fewer than 3 vph)

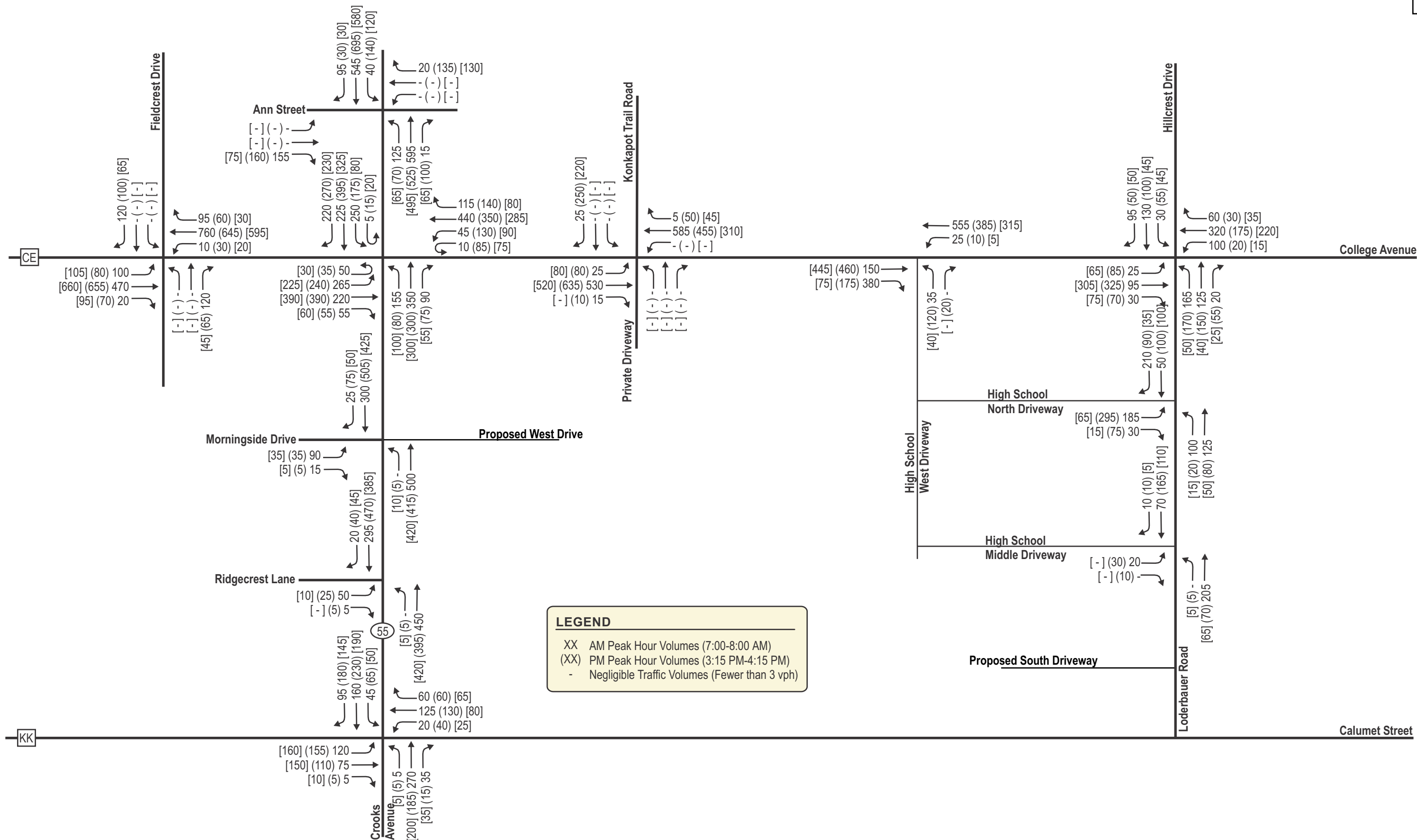
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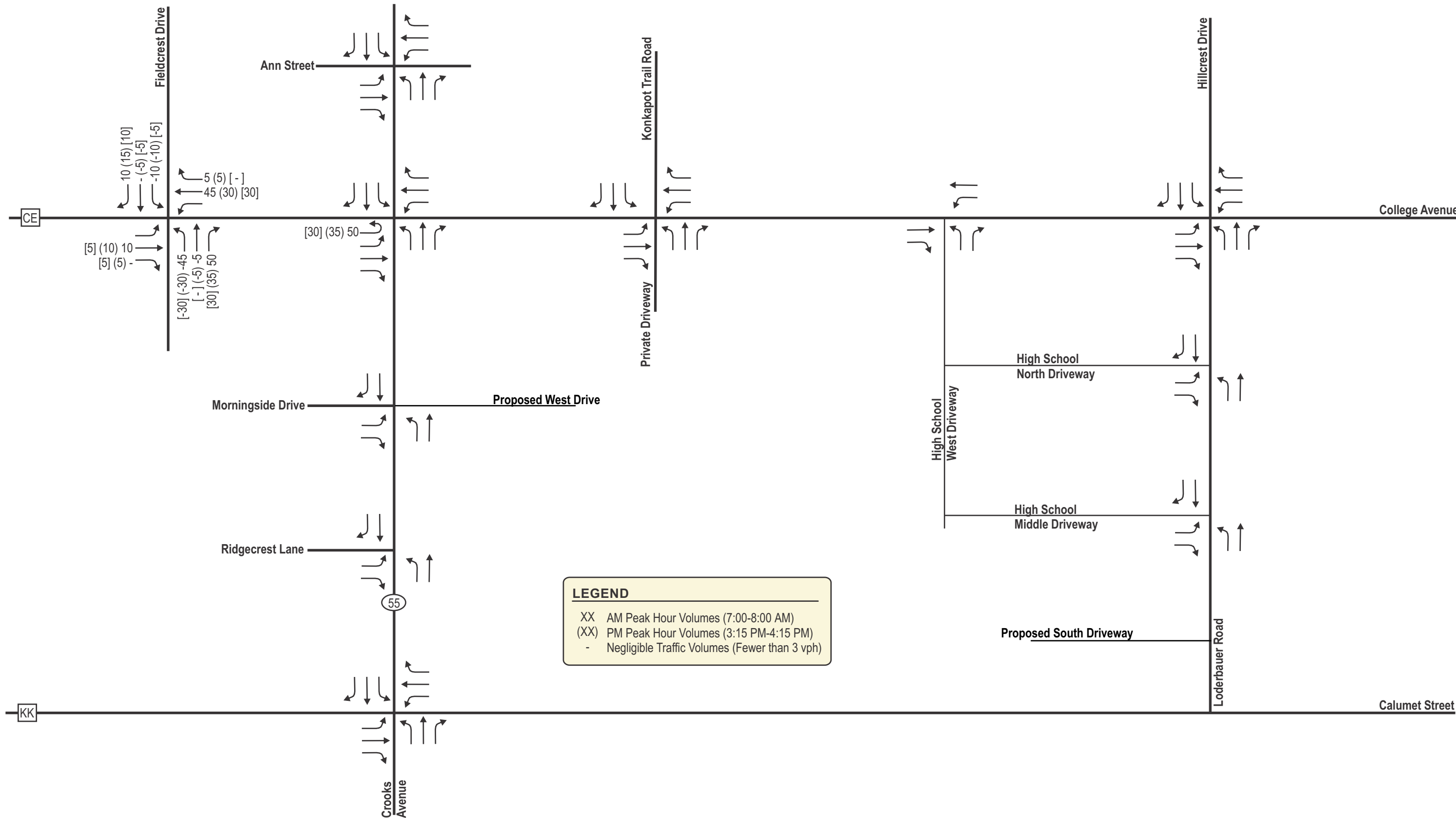
Pedestrian Crossing Location

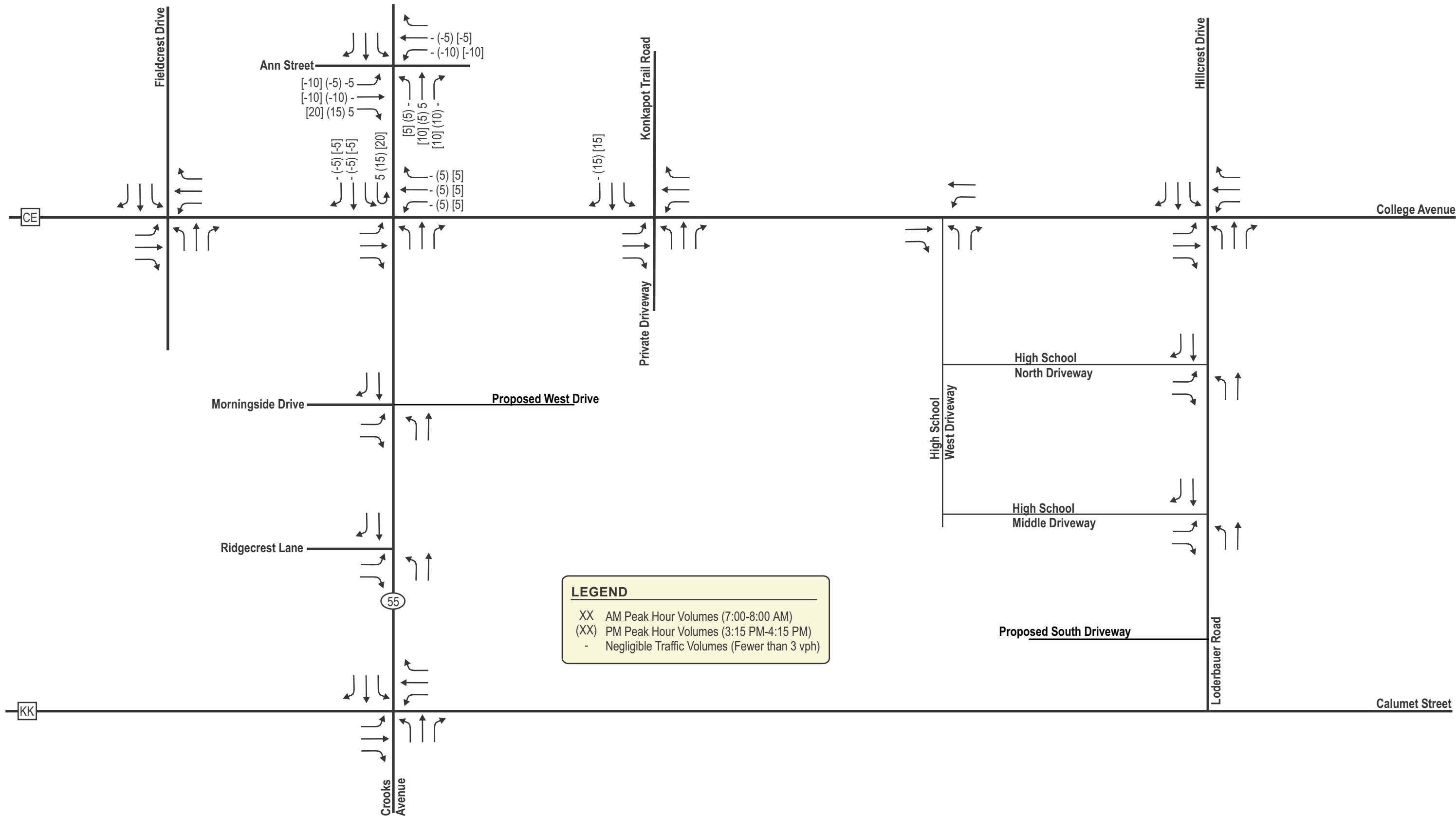












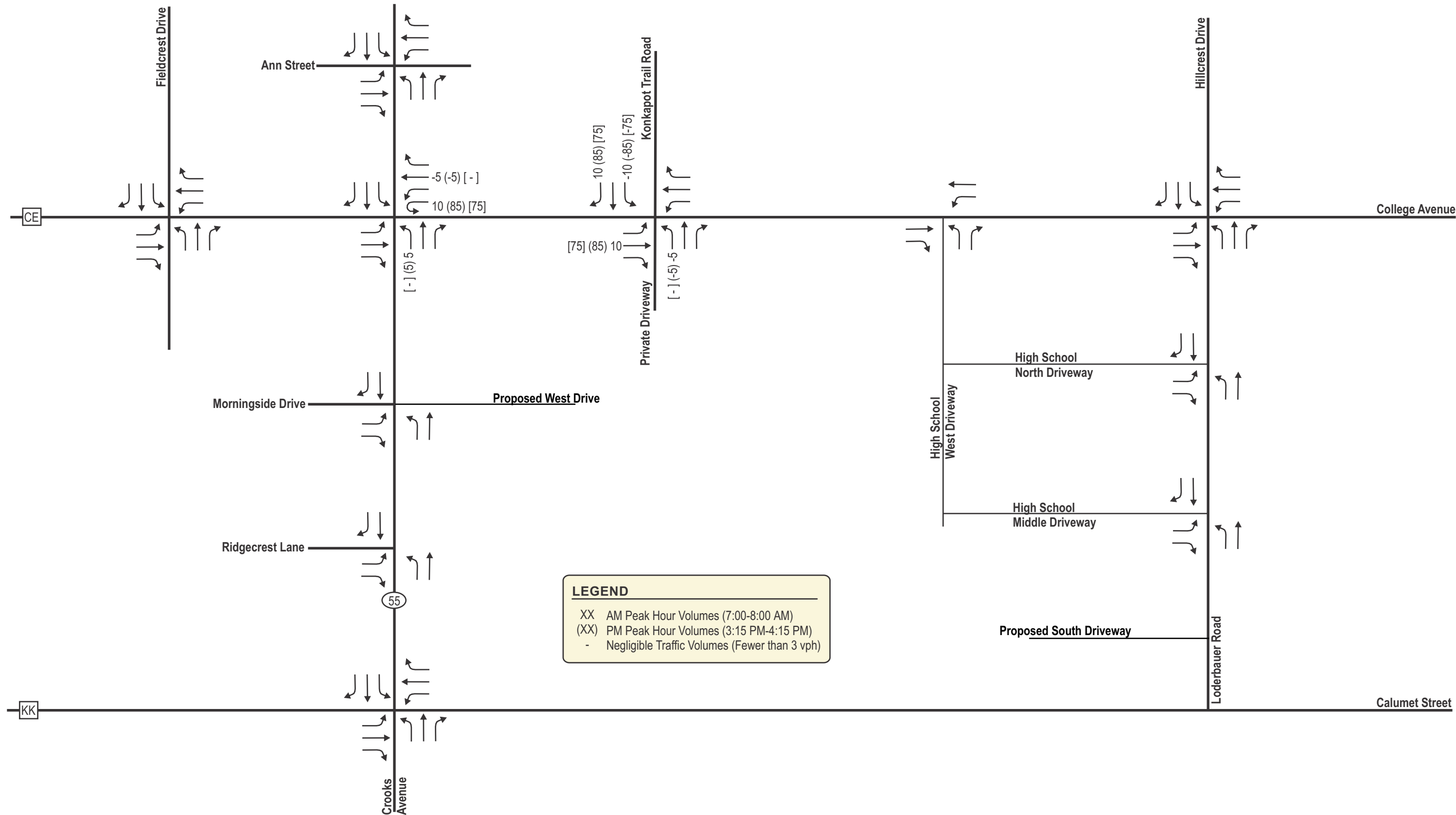


Exhibit 3-3
Existing Traffic Peak Hour Operating Conditions
With Existing Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay			
			Eastbound			Westbound			Northbound			Southbound				
			↗	→	↘	↙	←	↖	↖	↑	↗	↘		↓	↙	
Node 100: STH 55/Crooks Avenue & Ann Street Two-Way Stop Control	AM	Lanes->	1			1			1	1	2	1	1		2	
		LOS	F	B		F	B	B	*	*		A	*			
		Delay	94.4	14.4		111.1	11.4	10.8	*	*		9.7	*			
		v/c	0.16	-		0.07	-	-	-	-	-	-	-	-		
	PM	Queue	25'	40'		25'	25'	25'	*	*		25'	*			
		LOS	F	B		F	B	A	*	*		A	*			
		Delay	125.0	13.5		120.9	11.5	9.9	*	*		9.8	*			
		v/c	0.37	-		0.36	-	-	-	-	-	-	-	-		
	PMSE	Queue	35'	30'		35'	25'	25'	*	*		25'	*			
		LOS	F	B		F	B	A	*	*		A	*			
		Delay	63.5	10.9		52.2	11.0	9.2	*	*		9.2	*			
		v/c	0.26	-		0.17	-	-	-	-	-	-	-	-		
	Queue	25'		25'		25'	25'	*	*		25'	*				
Node 200: CTH CE/College Avenue & Fieldcrest Drive Two-Way Stop Control	AM	Lanes->	1	2	1	1	2	1	1	1	1	1	1			
		LOS	B	*	*	A	*	*	E	B		D	B			
		Delay	11.6	*	*	8.8	*	*	44.6	10.9		28.1	13.5			
		v/c	-	*	*	-	*	*	0.41	-		-	-			
	PM	Queue	25'	*	*	25'	*	*	45'	25'		25'	25'	25'		
		LOS	A	*	*	A	*	*	D	B		C	B			
		Delay	9.5	*	*	9.4	*	*	27.8	10.8		23.0	11.2			
		Queue	25'	*	*	25'	*	*	25'	25'		25'	25'			
	PMSE	LOS	A	*	*	A	*	*	D	B		C	B			
		Delay	9.4	*	*	9.6	*	*	29.6	10.8		24.4	10.8			
		Queue	25'	*	*	25'	*	*	25'	25'		25'	25'			
			Lanes->	1		1		1	1	1	1	1	1	1		
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** Roundabout Control	AM	LOS	B		B		C		C		C		C			
		Delay	11.0		11.1		21.6	21.5	19.3	19.2		19.3	19.9			
		Queue	60'		65'		120'	135'	105'	120'		125'	140'			
		LOS	C		C		B		B		B		B		C	
	PM	Delay	15.0		15.2		11.5	11.6	12.8	12.5		14.6	15.4			
		Queue	85'		95'		60'	65'	50'	55'		105'	120'			
		LOS	A		A		A		A		A		A		A	
		Delay	9.5		9.8		8.7	8.6	9.9	9.7		8.7	9.0			
	PMSE	Queue	55'		60'		35'	35'	40'	45'		45'	55'			
			Lanes->	1		1		1	1	1	1	1	1	1		
		AM	LOS	A		*		A	*	F		E		C		
			Delay	9.8		*		9.3	*	72.0		41.9		15.8		
v/c	-			-		-	-	0.16		0.14		-				
Queue	25'			*		25'	*	25'		25'		25'	25'			
PM	LOS	A		-		A	-	F		F		C				
	Delay	9.2		-		9.0	-	73.6		71.1		15.5				
	v/c	-		-		-	-	0.14		0.70		-				
	Queue	25'		-		25'	-	25'		105'		40'				
PMSE	LOS	A		-		A	-	C		C		B				
	Delay	8.3		*		8.3	-	20.4		23.1		11.4				
	Queue	25'		-		25'	-	25'		30'		25'				
		Lanes->	-	1	1		1	-	1	-	1		-			
Node 400: CTH CE/College Avenue & Konkapot Trail Road Two-Way Stop Control	AM	LOS	A		*		A	*	F		E		C			
		Delay	9.8		*		9.3	*	72.0		41.9		15.8			
		v/c	-		-		-	-	0.16		0.14		-			
		Queue	25'		*		25'	*	25'		25'		25'	25'		
	PM	LOS	A		-		A	-	F		F		C			
		Delay	9.2		-		9.0	-	73.6		71.1		15.5			
		v/c	-		-		-	-	0.14		0.70		-			
		Queue	25'		-		25'	-	25'		105'		40'			
	PMSE	LOS	A		-		A	-	C		C		B			
		Delay	8.3		*		8.3	-	20.4		23.1		11.4			
		Queue	25'		-		25'	-	25'		30'		25'			
			Lanes->	-	1	1		1	-	1	-	1		-		
Node 500: CTH CE/College Avenue & High School West D/W One-Way Stop Control	AM	LOS	-	*	*		A	-	D	-	A		-			
		Delay	-	*	*		9.4	-	25.0	-	9.4		-			
		Queue	-	*	*		25'	-	25'	-	25'		-			
		LOS	-	*	*		A	-	F	-	B		-			
	PM	Delay	-	*	*		9.8	-	70.5	-	13.0		-			
		v/c	-	*	-		-	-	0.81	-	-		-			
		Queue	-	*	*		25'	-	145'	-	25'		-			
		LOS	-	*	*		A	-	C	-	B		-			
	PMSE	Delay	-	*	*		8.6	-	17.9	-	11.4		-			
		Queue	-	*	*		25'	-	25'	-	25'		-			
			Lanes->	1	1	1	1	1		1	1	1	1	1		
		Node 600: Loderbauer Road & CTH CE/College Avenue Traffic Signal Control	AM	LOS	B	A	A	A	B	B	B	B	B	C	B	
Delay	17.6			9.4	8.6		11.5	14.6	13.7	11.7		18.5	21.6	19.6		14.5
Queue	25'			65'	25'		70'	260'	105'	95'		40'	125'	65'		
LOS	B			B	A	A	B	B	B	B		C	C	C		B
PM	Delay		16.2	14.8	9.5		18.1	11.9	14.5	13.5		21.7	23.0	20.4		15.1
	Queue		65'	215'	35'		25'	130'	105'	125'		65'	100'	40'		
	LOS		B	B	A	A	B	A	B	A		B	B	B		B
	Delay		11.7	10.1	7.6		11.4	9.7	10.6	9.8		14.6	14.5	14.4		10.6
PMSE	Queue		35'	130'	25'		25'	110'	30'	40'		40'	40'	30'		

Exhibit 3-3
Existing Traffic Peak Hour Operating Conditions
With Existing Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay				
			Eastbound			Westbound			Northbound		Southbound						
			↗	→	↘	↙	←	↖	↖	↑	↗	↘		↓	↙		
Node 700: STH 55/Crooks Avenue & Morningside Drive One-Way Stop Control		Lanes->	1			-			2		-		-		2		
	AM	LOS	C			-			A		-		-		*		
		Delay	19.1			-			8.1		-		-		*		
		Queue	35'			-			25'		-		-		*		
	PM	LOS	C			-			A		-		-		*		
		Delay	20.5			-			9.0		-		-		*		
		Queue	25'			-			25'		-		-		*		
	PMSE	LOS	C			-			A		-		-		*		
		Delay	18.7			-			8.6		-		-		*		
Queue		25'			-			25'		-		-		*			
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control		Lanes->	1			-			2		-		1		1		
	AM	LOS	B			-			A		-		-		-		
		Delay	13.9			-			8.1		-		-		-		
		Queue	25'			-			25'		-		-		-		
	PM	LOS	C			-			A		-		-		-		
		Delay	16.2			-			8.7		-		-		-		
		Queue	25'			-			25'		-		-		-		
	PMSE	LOS	B			-			A		-		-		-		
		Delay	14.1			-			8.4		-		-		-		
Queue		25'			-			25'		-		-		-			
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control		Lanes->	1			1			1		-		1		-		
	AM	LOS	A			A			A		-		A		-		
		Delay	5.5			7.0			7.0		-		6.2		-		
		Queue	25'			30'			40'		-		35'		-		
	PM	LOS	A			A			A		-		A		-		
		Delay	7.0			6.7			6.7		-		8.4		-		
		Queue	35'			30'			25'		-		65'		-		
	PMSE	LOS	A			A			A		-		A		-		
		Delay	7.1			6.0			7.2		-		6.4		-		
Queue		40'			25'			35'		-		40'		-			
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control		Lanes->	2	-	1	-			2	-	-	-	1	1			
	AM	LOS	A	-	A	-			A	-	-	-	A	A	A		
		Delay	9.7	-	8.8	-			8.7	-	-	-	6.8	8.2			
		Queue	30'	-	25'	-			30'	-	-	-	25'	40'			
	PM	LOS	B	-	A	-			A	-	-	-	A	A	A		
		Delay	11.0	-	9.1	-			8.0	-	-	-	8.5	8.0			
		Queue	45'	-	25'	-			25'	-	-	-	40'	25'			
	PMSE	LOS	A	-	A	-			A	-	-	-	A	A	A		
		Delay	9.7	-	9.4	-			5.6	-	-	-	6.3	5.5			
Queue		25'	-	25'	-			25'	-	-	-	25'	25'				
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control		Lanes->	1			-			1	-	-	-	1				
	AM	LOS	B			-			A	-	-	-	*				
		Delay	13.5			-			7.5	-	-	-	*				
		Queue	25'			-			25'	-	-	-	*				
	PM	LOS	B			-			A	-	-	-	*				
		Delay	12.5			-			8.0	-	-	-	*				
		Queue	25'			-			25'	-	-	-	*				
	PMSE	LOS	A			-			A	-	-	-	*				
		Delay	9.4			-			7.5	-	-	-	*				
Queue		25'			-			25'	-	-	-	*					

CHAPTER IV – FORECASTED TRAFFIC

PART A – TRAFFIC FORECASTING

To address any potential future traffic impacts along study area roadways and at the intersections adjacent to the proposed middle schools, it is necessary to identify the hourly and daily volume of traffic generated by the projected school's student population. The traffic volumes expected to be generated by the proposed middle schools were calculated two ways. The first method calculated the rates based on the vehicle and pedestrian counts that were conducted at the existing Riverview Middle School located about 2 miles north of the proposed new school site. To provide a comparison, the rates were also calculated based on the trip rates for a middle school (LU522) as published in the *Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition*. For both methods, the trip rates were calculated based the expected student population for the peak hour of generator instead of the peak hour of adjacent street traffic to account for the worst-case (highest volume) school traffic conditions.

As shown in [Appendix A](#), using the current student population of 1,150 students, a weekday morning trip generation rate of 0.66 trips per student and a weekday afternoon trip generation rate of 0.30 trips per student were calculated based on traffic counts conducted on a typical weekday in early-February at the access driveways to the existing school. [Appendix A](#) also shows a comparison of the local rates when compared to the national ITE rates. As shown, the ITE rate weekday morning trips are calculated as being about 11-percent higher than the local trip volumes and the ITE weekday afternoon trips are calculated as being about 19-percent higher than the local trip volumes. Since the ITE calculations were similar but slightly higher, it is recommended to use the ITE rate calculations for this study as a worst-case (highest volume) traffic condition. The number of students that are currently walking or riding to school is also included in the calculations. As shown, about 225 students were counted walking to school during a typical weekday morning in early February of 2025. In addition, about 270 students were counted walking home from school during a typical weekday afternoon in early February of 2025. With both the existing middle school and the proposed middle school being located in close proximity to a high density of residential neighborhoods, it was felt that a similar percentage of students will walk to the new school site as previously walked to the existing Riverview Middle School site.

The Special Event peak hour is expected to coincide with a boy's middle school basketball game. Vehicle trips for this peak hour were calculated based on the expected attendance and expected number of teams/players. Details and calculations for this peak hour are provided in the [appendix](#) of this study.

A1. Trip Generation

The proposed middle school development trip generation and distribution tables are shown in [Exhibit 4-3A](#). As shown, using ITE trip generation rates as described above under full build out and after linked trip reductions, the proposed middle school development is expected to generate 2,270 weekday daily trips; with 780 new trips in the AM peak hour, 380 new trips in the PM peak hour and 210 during a typical weekday sporting event at the middle school.

The potential off-site development area trip generation and distribution tables are shown in [Exhibit 4-3B](#). As shown, under full build out and after linked and pass-by trip reductions, the potential off-site development area is expected to generate 6,750 weekday daily trips; with 290 new trips in the AM peak hour, 565 new trips in the PM peak hour and 565 during a typical weekday sporting event at the middle school.

A2. Mode Split

Pedestrians and bicyclists are expected to continue to use their respective modes to access the proposed middle school.

Due to the proximity of the proposed middle school to the existing high school located adjacent to the site, the school development site is expected to include linked trips. A linked trip occurs when a patron of one school visits the second school prior to exiting the site (e.g., students from one family or car poolers from several families who attend both schools). It is estimated that approximately 10 percent of the new school trips are expected to be linked trips. Due to the proposed school land use, pass-by trips are not expected for the site. Pass-by trips occur when motorists already on the highway system stop at a development site prior to continuing on their intended route (e.g., an existing motorist northbound on STH 55 stops at the school prior to continuing northbound on STH 55).

The off-site development site is expected to include both linked trips and pass-by trips. Using NCHRP 684 and based on calculations provided in the [appendix](#) of this study, it is estimated that approximately 2 percent of the weekday morning new trips and 14 percent of the weekday evening new trips are expected to be linked trips. In addition, approximately 20 percent of the potential retail driveway trips are expected to be pass-by trips. No pass-by trip reduction was included for the apartment or office land uses.

A3. Trip Distribution

The trip distribution for the proposed middle school development, listed below and shown in table format in [Exhibit 4-3A](#) and graphically in [Exhibit 4-4](#) was determined based on the existing traffic patterns at the adjacent study area intersections, the school's location in proximity to the adjacent highways and the overall location of the Kaukauna Area School District school populations which are expected to feed the proposed middle schools. Utilizing the boundary limits for the school district, population density clusters were identified, and percentages were distributed onto the adjacent highways. A map showing the limits of the Kaukauna Area School District boundary is included in the [appendix](#) of this report. The trip distribution for the proposed middle school is as follows:

- 8% to/from the west on CTH CE
- 9% to/from the east on CTH CE
- 47% to/from the north on STH 55
- 12% to/from the south on STH 55
- 3% to/from the west on CTH KK
- 3% to/from the east on CTH KK
- 5% to/from the north on Hillcrest Drive
- 5% to/from the west on Morningside Drive
- 1% to/from the west on Ridgecrest Drive
- 1% to/from the west on Ann Street
- 6% to/from the north on Fieldcrest Drive

The trip distribution for the potential future off-site development areas, listed below and shown in table format in [Exhibit 4-3B](#) and graphically in [Exhibit 4-4](#) was determined based on the existing traffic patterns at the adjacent study area intersections, the development site in proximity to the adjacent highways and the population areas within the overall area. The trip distribution for the potential future off-site development areas is as follows:

- 25% to/from the west on CTH CE
- 9% to/from the east on CTH CE
- 23% to/from the north on STH 55
- 8% to/from the south on STH 55
- 12% to/from the west on CTH KK
- 5% to/from the east on CTH KK
- 6% to/from the north on Hillcrest Drive
- 1% to/from the west on Morningside Drive
- 2% to/from the west on Ridgecrest Drive
- 3% to/from the west on Ann Street
- 6% to/from the north on Fieldcrest Drive

A4. Trip Assignment

New trips expected to be generated proposed middle school development, and the potential future off-site development areas were assigned based on the trip distribution shown in tabular format in [Exhibits 4-3A&B](#) and graphically in [Exhibit 4-4](#). As shown in the table at the bottom of the trip generation exhibits, new trips were assigned to the study corridors for the typical school day. The new trips for the proposed middle school development are shown graphically in [Exhibit 4-5A&B](#).

Due to existing operational concerns at the CTH CE/College Avenue intersection with Fieldcrest Drive, two access scenarios were evaluated as part of this study to look at the operation of the Fieldcrest Drive under restricted movement assumptions. The following scenarios were evaluated:

Scenario 1 – Fieldcrest Drive intersection approaches operating with full access movements; that is, no restrictions to movements. New Trips for the proposed middle school under this scenario are shown in [Exhibit 4-5A](#). New Trips for the potential future off-site development areas under this scenario are shown in [Exhibit 4-9A](#).

Scenario 2 – Fieldcrest Drive intersection approaches operating under left-in/right-in/right-out access movements; that is no northbound or southbound through or left-turn movements allowed from Fieldcrest Drive. Vehicles wanting to make a northbound or southbound through or left-turn movement would either make a right-turn movement and then utilize/traverse the roundabouts located to the east or west to continue their route; or would divert within the neighborhoods to an adjacent intersection. New Trips for the proposed middle school under this scenario are shown in [Exhibit 4-5B](#). New Trips for the potential future off-site development areas under this scenario are shown in [Exhibit 4-9B](#). In addition, Redistributed Trips, existing movements that would need to divert based on the restricted movements at the Fieldcrest Drive intersection, are shown in [Exhibit 3-2E](#).

In addition, due to existing operational concerns at the STH 55/Crooks Avenue intersection with Ann Street and the CTH CE/College Avenue intersection with Konkapot Trail Road/Forefront Dermatology Access Driveway, restricted movement assumptions were also considered at these two intersections under the improvement/modification scenarios analyzed as part of this study. Redistributed Trips at the Ann Street intersection are shown in [Exhibit 3-2F](#) and Redistributed Trips at the Konkapot Trail Road intersection are shown in [Exhibit 3-2G](#).

PART B – BACKGROUND, FULL BUILD & TOTAL TRAFFIC**B1. Background Traffic**

The Existing traffic volumes, [Exhibit 3-2C](#), were added to the redistributed (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) trips shown in [Exhibit 3-2E](#), the redistributed (Left-in/Right-in/Right-out at Ann Street) trips shown in [Exhibit 3-2F](#), and the redistributed (Left-in/Right-in/Right-out at Konkapot Trail Road) trips shown in [Exhibit 3-2G](#), to determine the Background (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail) traffic volumes ([Exhibit 3-2D](#)).

B2. Full Build Traffic

The Existing traffic volumes, [Exhibit 3-2C](#), were added to the on-site (Access Scenario 1 - Full Access at Fieldcrest Drive) new trips shown in [Exhibit 4-5A](#), to determine the Full Build (Access Scenario 1 - Full Access at Fieldcrest Drive) traffic volumes ([Exhibit 4-11A](#)).

The Existing traffic volumes, [Exhibit 3-2C](#), were added to the on-site (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) new trips shown in [Exhibit 4-5B](#), and the redistributed (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) trips shown in [Exhibit 3-2E](#), to determine the Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes ([Exhibit 4-11B](#)).

Under the recommended modifications scenario, the Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes, [Exhibit 4-11B](#), the redistributed (Left-in/Right-in/Right-out at Ann Street) trips shown in [Exhibit 3-2F](#), and the redistributed (Left-in/Right-in/Right-out at Konkapot Trail Road) trips shown in [Exhibit 3-2G](#), to determine the Full Build (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail) traffic volumes ([Exhibit 4-11C](#)).

B3. Total Traffic

The Full Build (Access Scenario 1 - Full Access at Fieldcrest Drive) traffic volumes, [Exhibit 4-11A](#), were added to the off-site (Access Scenario 1 - Full Access at Fieldcrest Drive) new trips shown in [Exhibit 4-9A](#), to determine the Total (Access Scenario 1 - Full Access at Fieldcrest Drive) traffic volumes ([Exhibit 4-14A](#)).

The Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes, [Exhibit 4-11B](#) were added to the off-site (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) new trips shown in [Exhibit 4-9B](#), to determine the Total (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes ([Exhibit 4-14B](#)).

Under the recommended modifications scenario, the Total (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) traffic volumes, [Exhibit 4-14B](#), the redistributed (Left-in/Right-in/Right-out at Ann Street) trips shown in [Exhibit 3-2F](#), and the redistributed (Left-in/Right-in/Right-out at Konkapot Trail Road) trips shown in [Exhibit 3-2G](#), to determine the Total (Left-in/Right-in/Right-out at Fieldcrest Drive, Ann Street and Konkapot Trail) traffic volumes ([Exhibit 4-14C](#)).

Exhibit 4-3A
On-Site Trip Generation Table ¹

	ITE Code	Proposed Size	Weekday Daily	AM Peak			PM Peak			Special Event Peak ³		
Land Use				In	Out	Total	In	Out	Total	In	Out	Total
Middle School/Junior High School (Maximum Expected Student Population)	522	1200 Students	2,520 (2.10)	480 (55%)	390 (45%)	870 FCE	195 (46%)	230 (54%)	425 (0.36)	105 (50%)	105 (50%)	210 TADI
Total Trips			2,520	480	390	870	195	230	425	105	105	210
Minus Linked Trips ² (522)		10%	-250	-50	-40	-90	-20	-25	-45	0	0	0
Total New Trips			2,270	430	350	780	175	205	380	105	105	210

¹ ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition; note rates including a variety of walking/b using sites in US
Peak hour of generator rates used for expected school traffic to account for worst case (highest volume) traffic scenario.
² Linked trips expected between Middle School and High School due to multiple children in single family and/or carpooling
³ Special Event peak hour assumes middle school high school basketball game. See appendix for detailed calculations.

TRIP DISTRIBUTION (New Trips)

West on College Avenue/CTH CE	8%	180	35	30	15	15	10	10
East on College Avenue/CTH CE	9%	205	40	30	15	20	10	10
North on Crooks Avenue/STH 55	47%	1065	200	165	85	95	50	50
South on Crooks Avenue/STH 55	12%	265	50	40	20	25	10	10
West on Calumet Street/CTH KK	3%	70	15	10	5	5	5	5
East on Calumet Street/CTH KK	3%	70	15	10	5	5	5	5
North on Hillcrest Drive	5%	115	20	20	10	10	5	5
West on Morningside Drive	5%	115	20	20	10	10	5	5
West on Ridgecrest Lane	1%	25	5	0	0	0	0	0
West on Ann Street	1%	25	5	5	0	5	0	0
North on Fieldcrest Drive	6%	135	25	20	10	15	5	5
	100%	2270	430	350	175	205	105	105

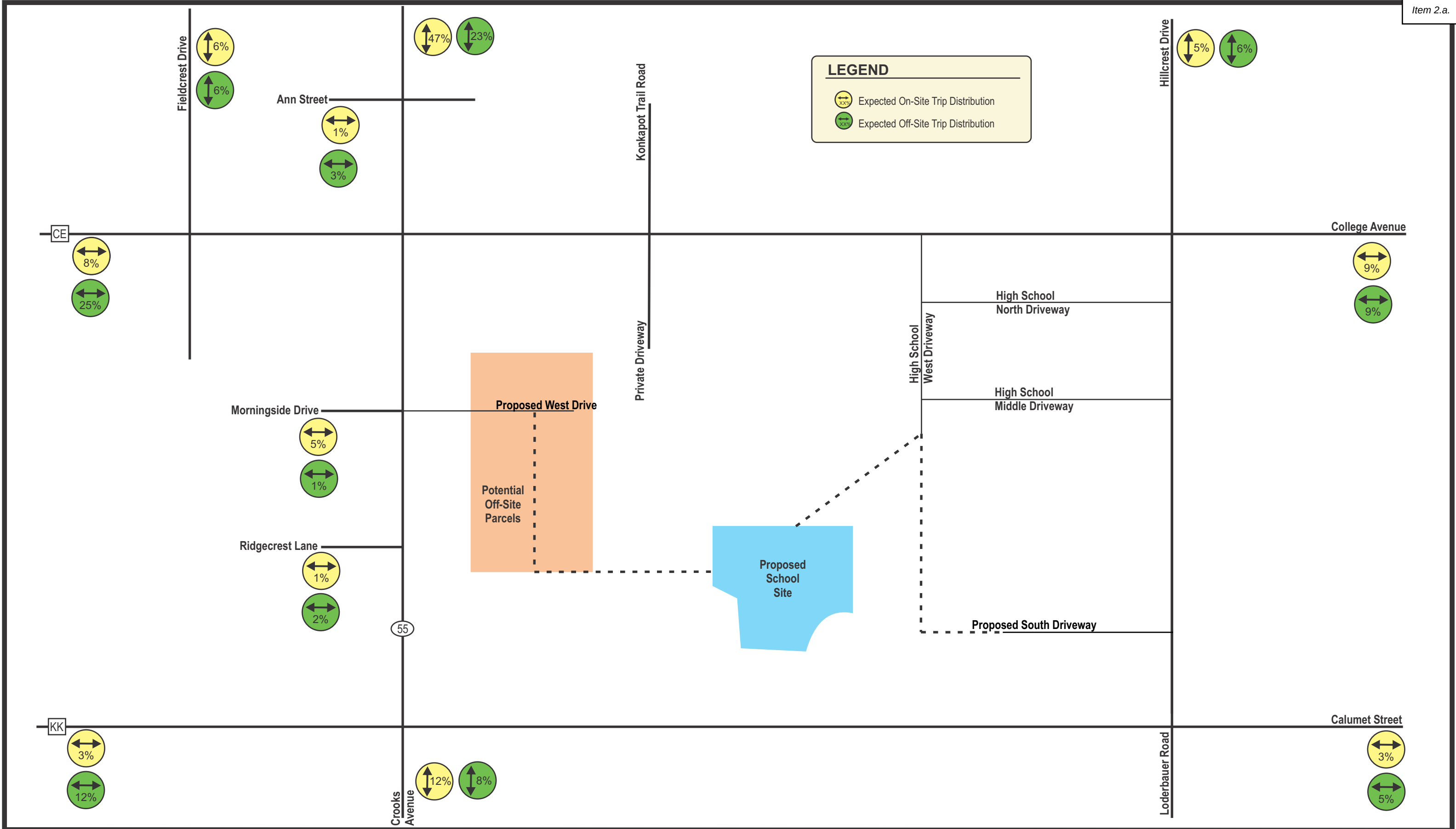
Exhibit 4-3B
Off-Site Trip Generation Table¹

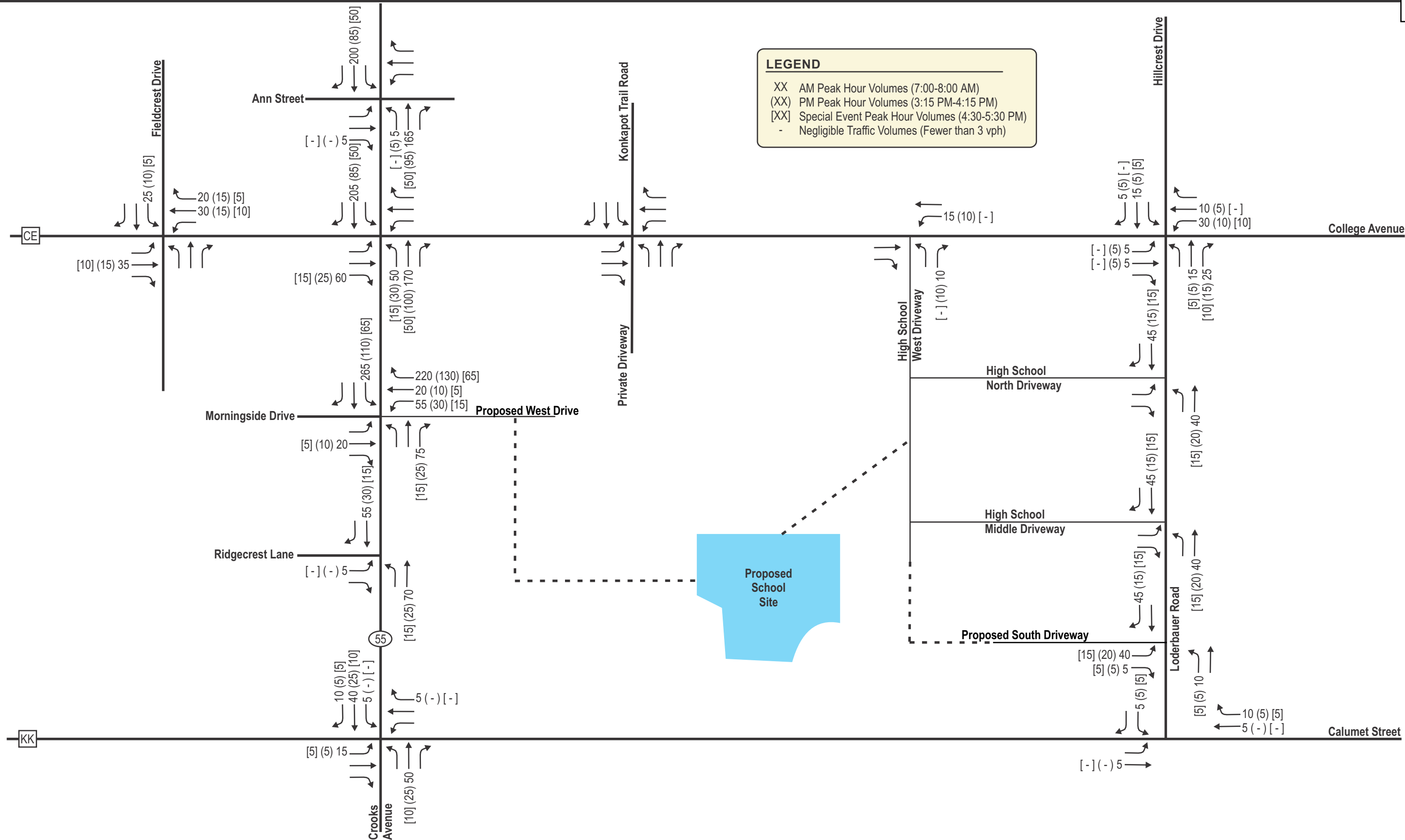
Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak			PM Peak			Special Event Peak ²		
				In	Out	Total	In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) (Not Close to Rail Transit)	220	200 Units	1,360 FCE	20 (24%)	65 (76%)	85 FCE	65 (63%)	40 (37%)	105 FCE	65 (63%)	40 (37%)	105 FCE
Shopping Plaza (40-150k) - Supermarket No	821	100.000 x 1,000 SF	6,750 (67.52)	110 (62%)	65 (38%)	175 (1.73)	255 (49%)	265 (51%)	520 (5.19)	255 (49%)	265 (51%)	520 (5.19)
Strip Retail Plaza (<40k)	822	20.000 x 1,000 SF	1,090 (54.45)	25 (60%)	20 (40%)	45 (2.36)	65 (50%)	60 (50%)	125 FCE	65 (50%)	60 (50%)	125 FCE
General Office Building	710	15.000 x 1,000 SF	220 FCE	30 (88%)	5 (12%)	35 FCE	5 (17%)	30 (83%)	35 FCE	5 (17%)	30 (83%)	35 FCE
Total Trips			9,420	185	155	340	390	395	785	390	395	785
Minus Linked Trips (220)			2%: 14% (14%)	-190	0	0	-10	-5	-15	-10	-5	-15
Minus Linked Trips (821)			2%: 14% (14%)	-950	0	0	-35	-35	-70	-35	-35	-70
Minus Linked Trips (822)			2%: 14% (14%)	-150	0	0	-10	-10	-20	-10	-10	-20
Minus Linked Trips (710)			2%: 14% (14%)	-30	0	0	0	-5	-5	0	-5	-5
Total Linked Trip Reduction			-1,320	0	0	0	-55	-55	-110	-55	-55	-110
Total Driveway Trips			8,100	185	155	340	335	340	675	335	340	675
Wkday: AM (PM) Pass-by Trips (220)			0%: 0% (0%)	0	0	0	0	0	0	0	0	0
Wkday: AM (PM) Pass-by Trips (821)			20%: 20% (20%)	-1,160	-20	-20	-45	-45	-90	-45	-45	-90
Wkday: AM (PM) Pass-by Trips (822)			20%: 20% (20%)	-190	-5	-5	-10	-10	-20	-10	-10	-20
Wkday: AM (PM) Pass-by Trips (710)			0%: 0% (0%)	0	0	0	0	0	0	0	0	0
Total Pass-by Trip Reduction			-1,350	-25	-25	-50	-55	-55	-110	-55	-55	-110
Total New Trips			6,750	160	130	290	280	285	565	280	285	565

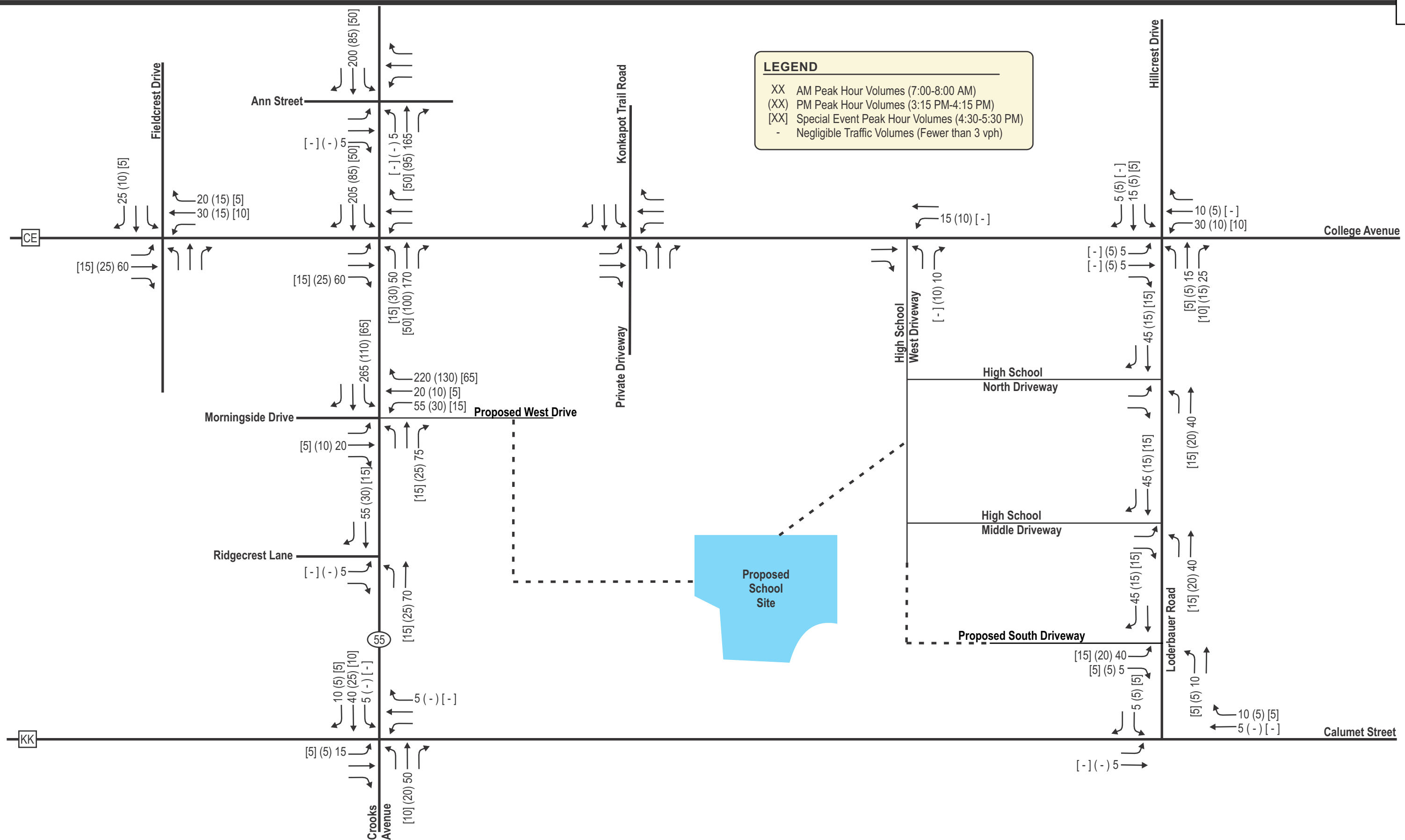
¹ ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition
² For off-site development trip generation, special event peak hour assumed same as school dismissal peak hour, also see special event peak hour note in Exhibit 4-3.

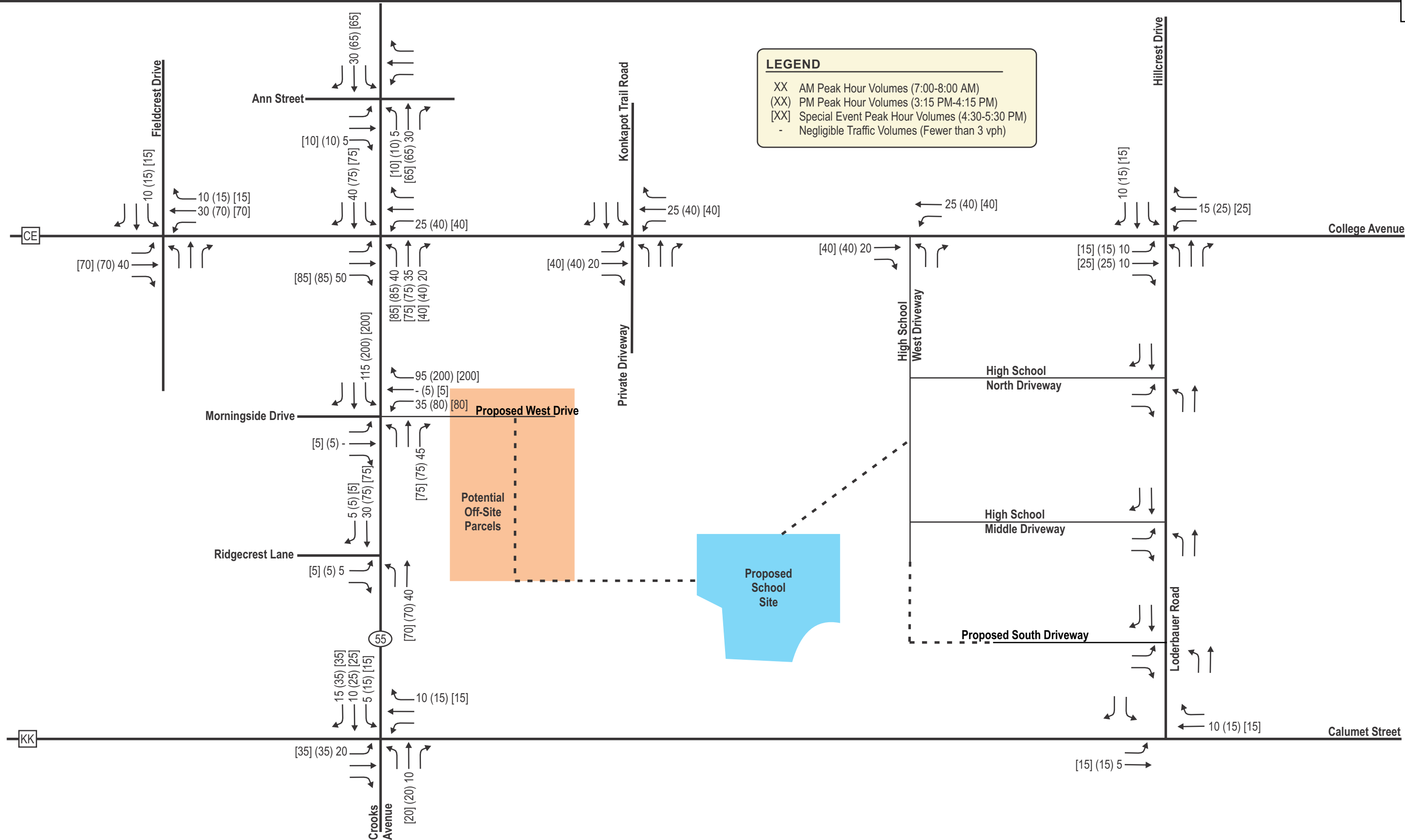
TRIP DISTRIBUTION (New Trips)

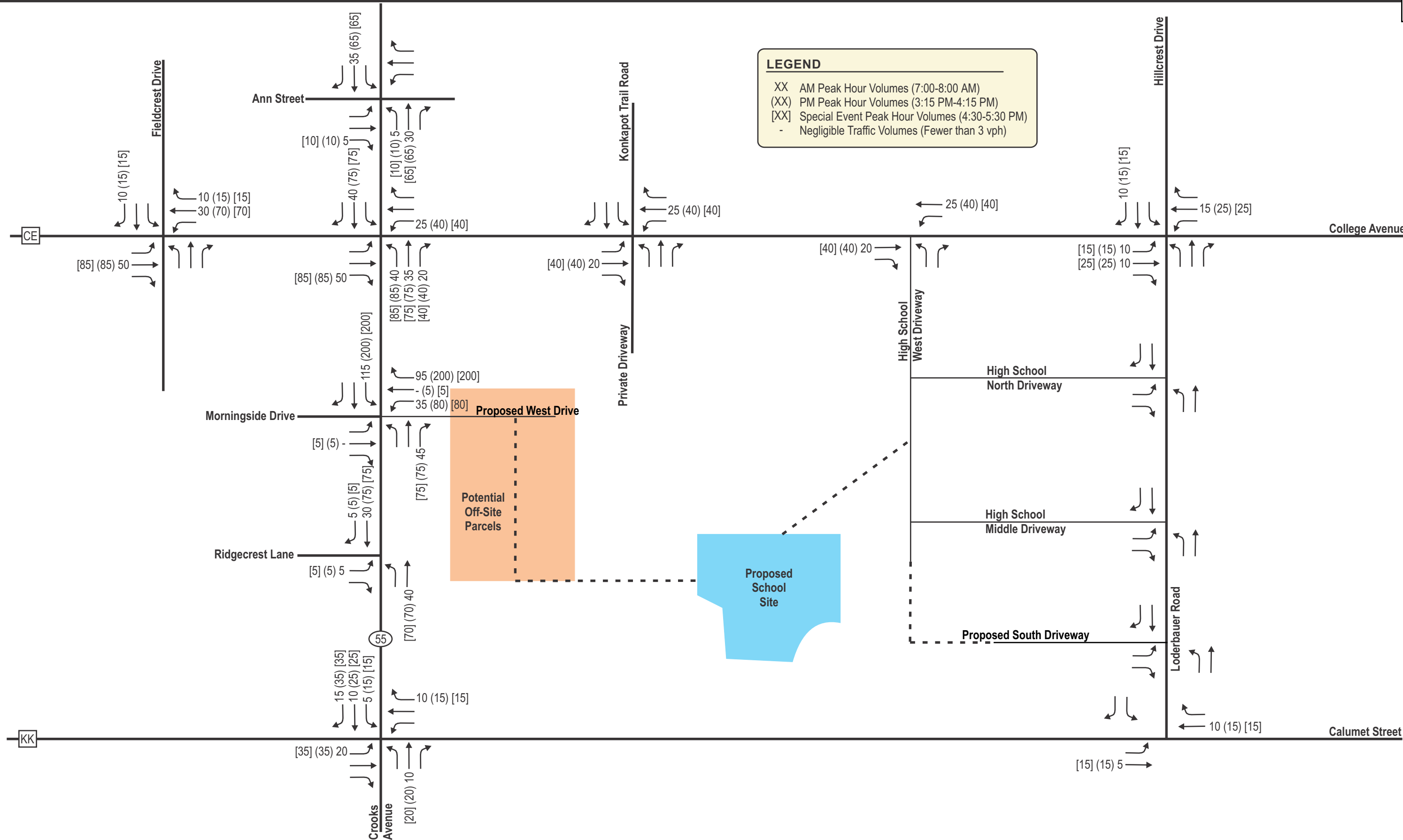
West on College Avenue/CTH CE	25%	1685	40	30	70	70	70	70
East on College Avenue/CTH CE	9%	605	15	10	25	25	25	25
North on Crooks Avenue/STH 55	23%	1550	35	30	65	65	65	65
South on Crooks Avenue/STH 55	8%	540	10	10	20	25	20	25
West on Calumet Street/CTH KK	12%	810	20	15	35	35	35	35
East on Calumet Street/CTH KK	5%	340	10	5	15	15	15	15
North on Hillcrest Drive	6%	405	10	10	15	15	15	15
West on Morningside Drive	1%	70	0	0	5	5	5	5
West on Ridgecrest Lane	2%	135	5	5	5	5	5	5
West on Ann Street	3%	205	5	5	10	10	10	10
North on Fieldcrest Drive	6%	405	10	10	15	15	15	15
	100%	6750	160	130	280	285	280	285

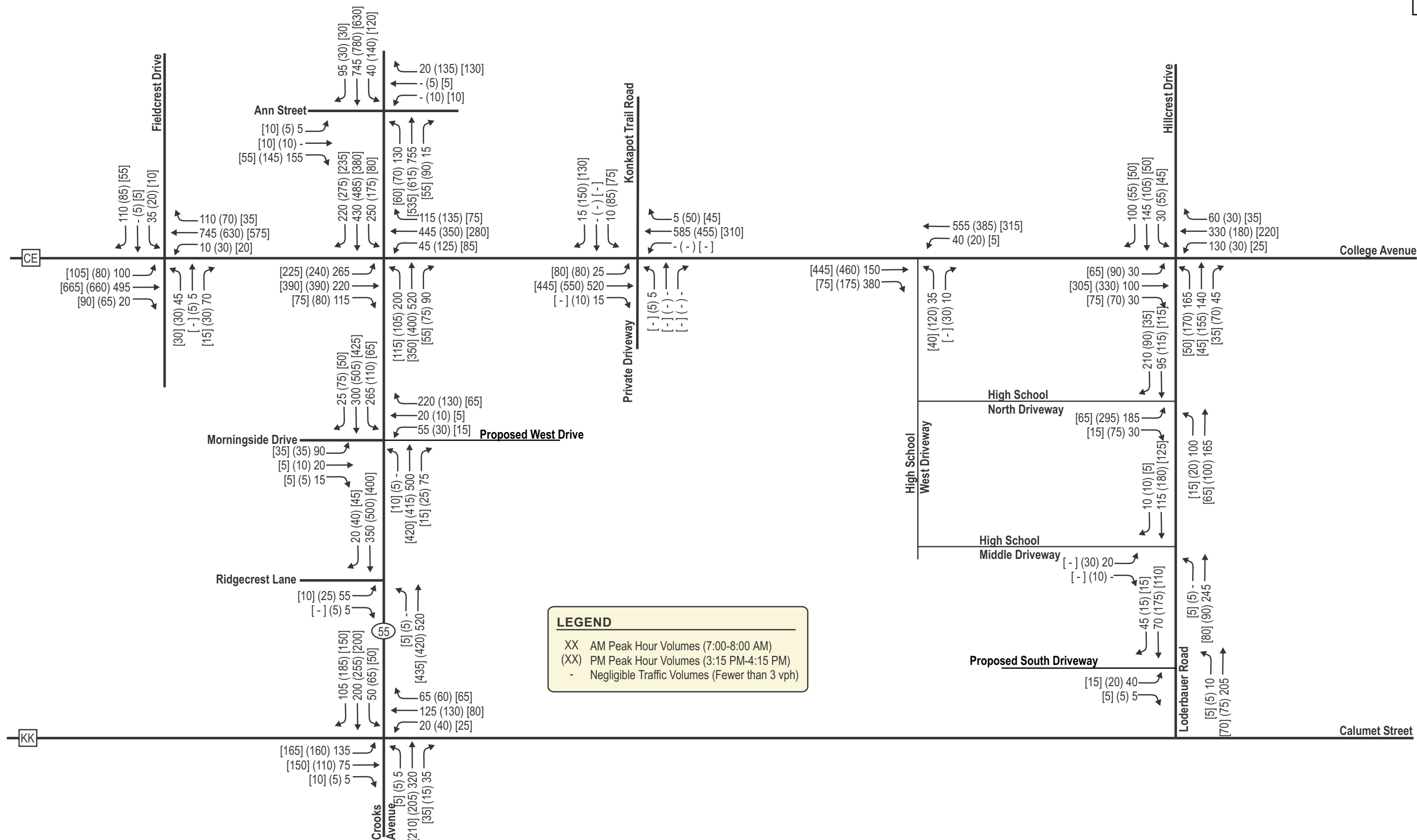


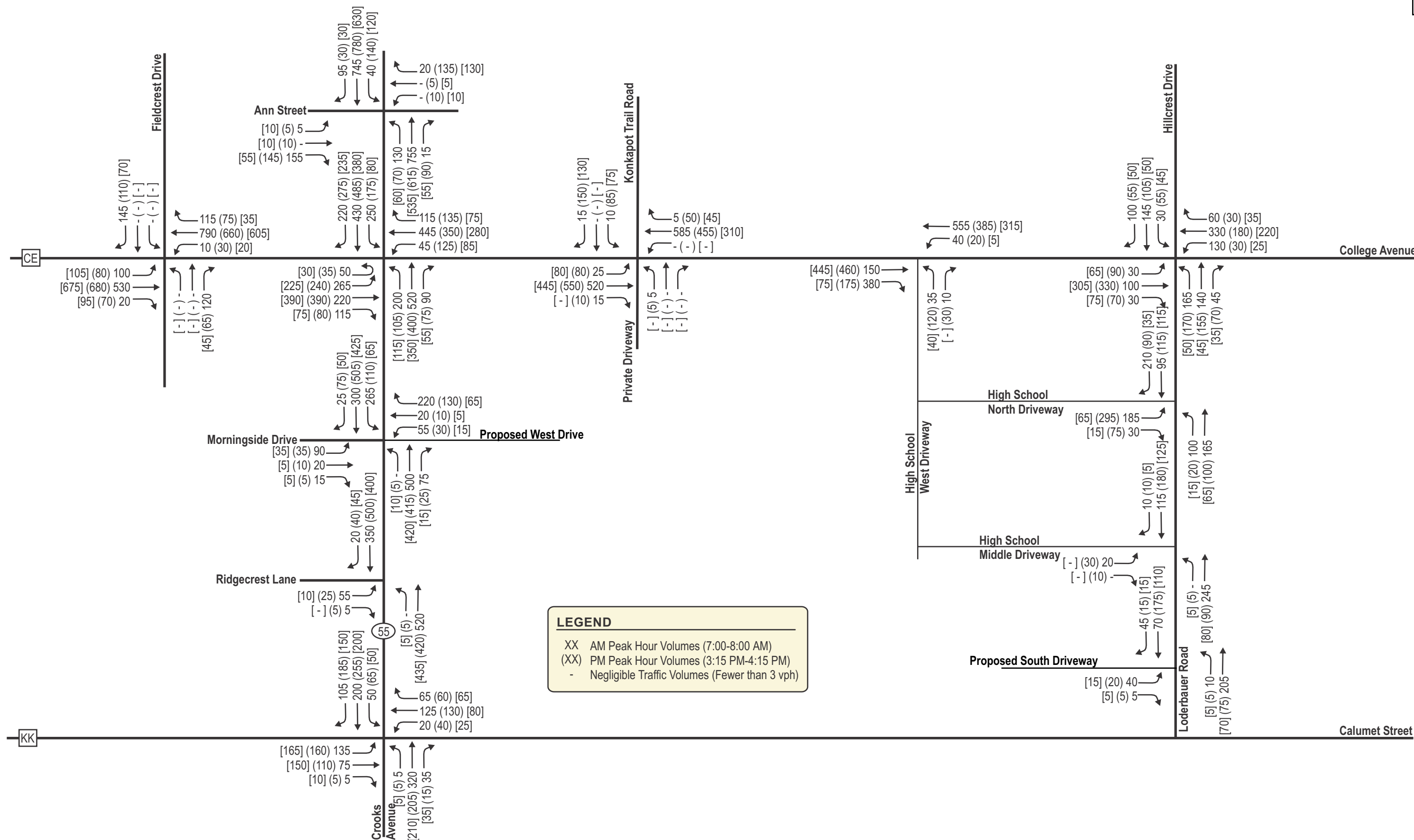


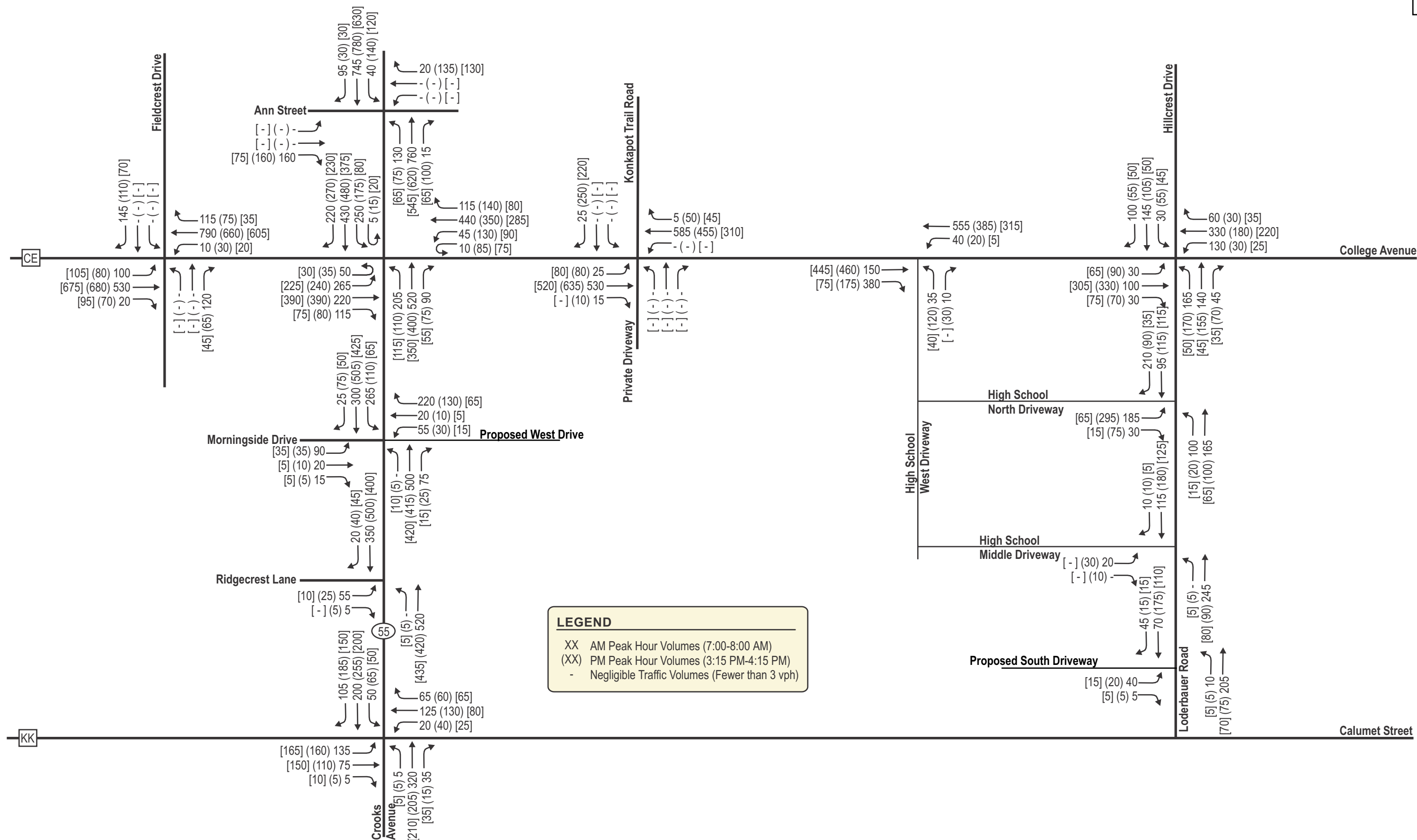


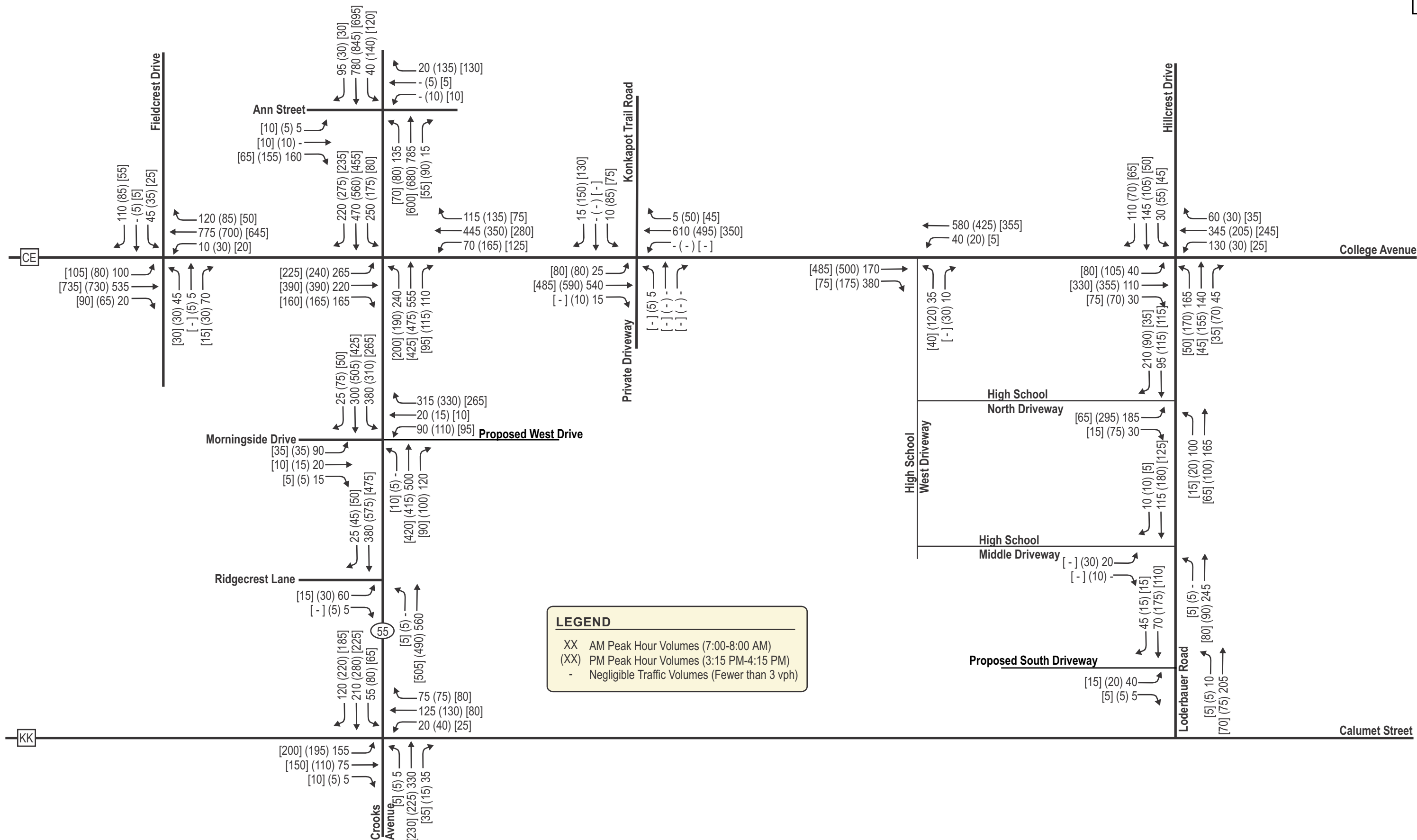


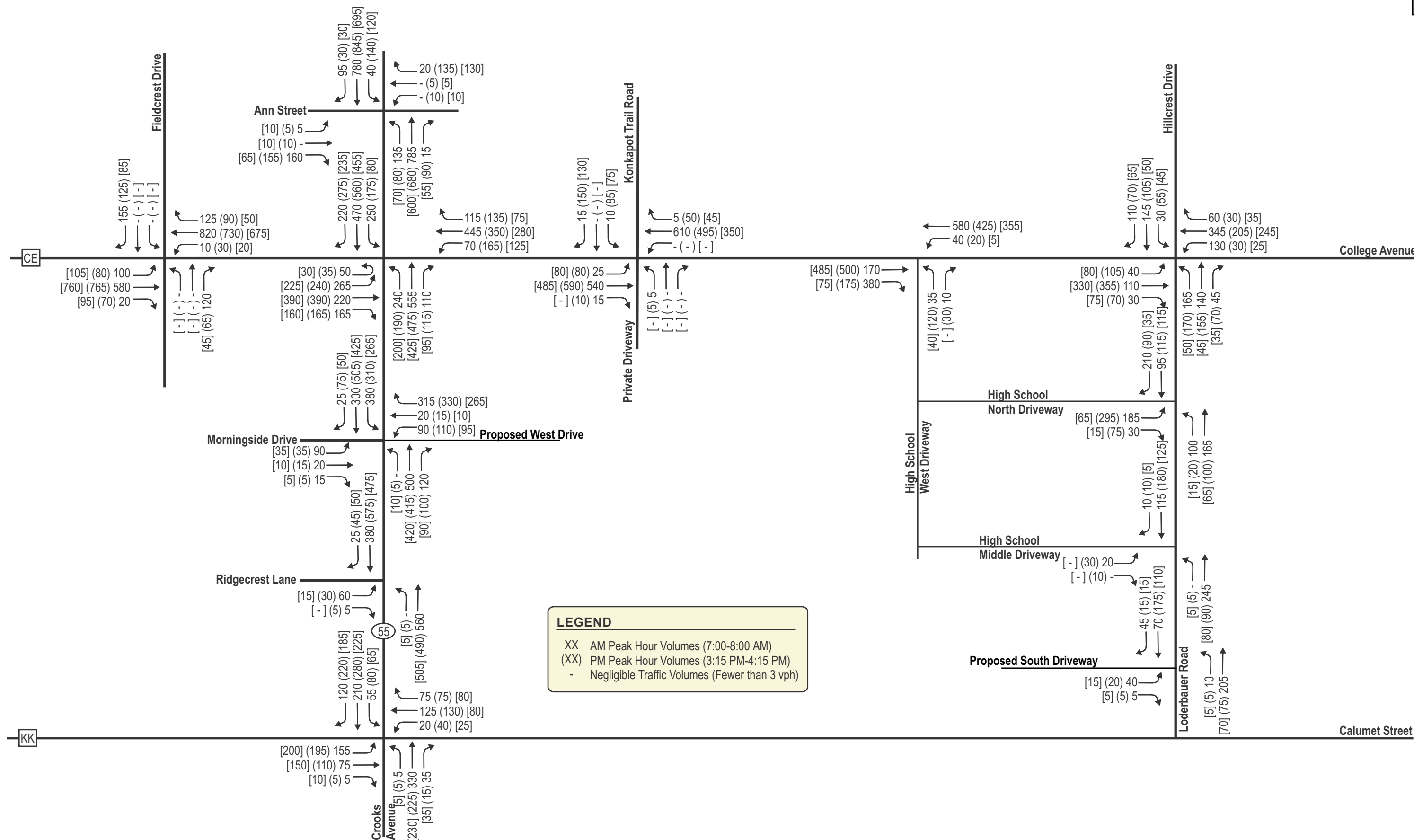












CHAPTER V – TRAFFIC AND IMPROVEMENT ANALYSIS

PART A – SITE ACCESS

Two access connections are proposed for the school development site. The main access is proposed as a full access driveway onto a new roadway connection to Crooks Avenue/STH 55 directly across from the existing three-legged, one-way stop sign controlled STH 55 intersection with Morningside Drive. A second driveway is proposed to connect to the high school site located northeast of the proposed middle school site with further existing connections from the high school onto CTH CE/College Avenue and Loderbauer Road. An additional driveway is proposed along Loderbauer Road, immediately south of the high school. Finally, even though not proposed as this time, a future connection via a new north/south connection onto CTH CE to the north and Speedway Lane to the southwest is also planned for at some point in the future.

PART B – CAPACITY LEVEL OF SERVICE ANALYSIS

B1. Full Build Traffic Operating Conditions – No Modifications

[Exhibits 5-3A&B](#) show the Full Build traffic peak hour operating conditions at the study area intersections under the two access scenarios as previously described. The Full Build traffic analysis was conducted using existing intersection configurations except with the addition of the new access drives to the site and the access restrictions as previously described for the two respective access options.

As shown in [Exhibit 5-3A](#), under Access Scenario 1 with full access at Fieldcrest Drive, all movements are expected to continue to operate at LOS D or better conditions at the study area intersections under the Full Build traffic volume conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street which are expected to continue to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Fieldcrest Drive which are expected to continue to operate at LOS E/F during the typical weekday morning peak period.
- The westbound, northbound, and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE which are expected to operate at LOS E during the typical weekday morning peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road which are expected to continue to operate at LOS E/F during the typical weekday morning and afternoon peak periods.
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is expected to continue to operate at LOS F during the typical weekday afternoon peak period.
- The eastbound and westbound movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive which are expected to operate at LOS F during the typical weekday morning and afternoon peak periods.

As shown in [Exhibit 5-3B](#), under Access Scenario 2 with Left-in/Right-in/Right-out at Fieldcrest Drive, all movements are expected to continue to operate at LOS D or better conditions at the study area intersections under the Full Build traffic volume conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street which are expected to continue to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The westbound, northbound, and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE which are expected to operate at LOS E/F during the typical weekday morning peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road which are expected to continue to operate at LOS E/F during the typical weekday morning and afternoon peak periods.
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is expected to continue to operate at LOS F during the typical weekday afternoon peak period.
- The eastbound and westbound movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive which are expected to operate at LOS F during the typical weekday morning and afternoon and peak periods.

B2. Total Traffic Operating Conditions – No Modifications

[Exhibits 5-6A&B](#) show the Total traffic peak hour operating conditions at the study area intersections under the two trip generation assumptions as previously described. The Total traffic analysis was conducted using existing intersection configurations except with the addition of the new access drives to the site and the access restrictions as previously described for the two respective access options.

As shown in [Exhibit 5-6A](#), all movements are expected to continue to operate at LOS D or better conditions at the study area intersections under the Total traffic volume conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street which are expected to continue to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Fieldcrest Drive which are expected to continue to operate at LOS E/F during the typical weekday morning peak period.
- The westbound, northbound, and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE which are expected to operate at LOS F during the typical weekday morning peak period.
- The southbound movement at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE which is expected to operate at LOS E during the typical weekday afternoon peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road which are expected to continue to operate at LOS E/F during the typical weekday morning and afternoon peak periods.
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is expected to continue to operate at LOS F during the typical weekday afternoon peak period.
- The eastbound and westbound movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive which are expected to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.

As shown in [Exhibit 5-6B](#) under Access Scenario 2 with Left-in/Right-in/Right-out at Fieldcrest Drive, all movements are expected to continue to operate at LOS D or better conditions at the study area intersections under the Total traffic volume conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods except the following:

- The eastbound and westbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with Ann Street which are expected to continue to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.
- The westbound, northbound, and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE which are expected to operate at LOS F during the typical weekday morning peak period.
- The eastbound and southbound movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE which are expected to operate at LOS E during the typical weekday afternoon peak period.
- The northbound and southbound through/left-turn movements at the College Avenue/CTH CE intersection with Konkapot Trail Road which are expected to continue to operate at LOS E/F during the typical weekday morning and afternoon peak periods.
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is expected to continue to operate at LOS F during the typical weekday afternoon peak period.
- The eastbound and westbound movements at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive which are expected to operate at LOS F during the typical weekday morning, afternoon, and evening special event peak periods.

B3. Existing Traffic Operating Conditions – With Modifications

Modifications to the existing transportation system to accommodate the Existing traffic conditions are recommended at the existing study area intersections. Recommended modifications are summarized in *Chapter VI – Recommendations and Conclusion*.

As shown in [Exhibit 5-9](#), all movements are expected to operate at LOS D or better conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods under the Existing traffic volume conditions with modifications except the northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is expected to continue to operate at LOS F during the typical weekday afternoon peak period. Restricting this movement during this time period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow all intersections to operate acceptably under all peak periods.

B4. Full Build Traffic Operating Conditions – With Modifications

Modifications to the existing transportation system to accommodate the Full Build traffic conditions, including traffic signals at the STH 42 intersection with Mill Road and at the 21st Street/Mill Road intersection with Eisner Avenue, are recommended at the existing study area intersections. Recommended modifications are summarized in *Chapter VI – Recommendations and Conclusion*.

As shown in [Exhibit 5-12](#), all movements are expected to improve to operate at LOS D or better conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods under the full build traffic volume conditions with modifications except:

- The westbound and northbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE which are expected to operate at LOS E during the typical weekday morning peak period. It is noted that the delays are only

slightly higher than acceptable (about 6 seconds), and the reported queueing is expected to be reasonable (all less than 225 feet).

- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is expected to continue to operate at LOS F during the typical weekday afternoon peak period. Restricting this movement during this time period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow all intersections to operate acceptably under all peak periods.

B5. Total Traffic Operating Conditions – With Modifications

Modifications to the existing transportation system to accommodate the Total traffic conditions, including traffic signals at the STH 42 intersection with Mill Road and at the 21st Street/Mill Road intersection with Eisner Avenue, are recommended at the existing study area intersections. Recommended modifications are summarized in *Chapter VI – Recommendations and Conclusion*.

As shown in [Exhibit 5-15](#), all movements are expected to improve to operate at LOS D or better conditions during the weekday morning, weekday afternoon and weekday evening special event peak periods under the full build traffic volume conditions with modifications except:

- The westbound and southbound through/left-turn movements at the Crooks Avenue/STH 55 intersection with College Avenue/CTH CE which are expected to operate at LOS E during the typical weekday morning peak period. It is noted that the delays are only slightly higher than acceptable (about 5 seconds), and the reported queueing is expected to be reasonable (all less than 200 feet).
- The northbound left-turn movement at the College Avenue/CTH CE intersection with the High School West Driveway which is expected to continue to operate at LOS F during the typical weekday afternoon peak period. Restricting this movement during this time period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow all intersections to operate acceptably under all peak periods.

PART C – QUEUEING ANALYSIS

To estimate storage length requirements for turn bays at the study area intersections with modifications, a queuing analysis has been conducted. Note that the 95th percentile probable queue lengths were used for the design of turn bay storage at stop sign and traffic signal-controlled intersections. The following is a list of where the results of the queuing analysis can be found.

- Existing Traffic Expected Maximum Queues – [Exhibit 5-9 & 5-18](#)
- Full Build (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) Traffic Expected Maximum Queues – [Exhibits 5-12 & 5-21](#)
- Total (Access Scenario 2 - Left-in/Right-in/Right-out at Fieldcrest Drive) Traffic Expected Maximum Queues – [Exhibits 5-15 & 5-24](#)

PART D – WARRANT ANALYSIS

Warrants should be viewed as guidelines to help decide whether traffic signal controls may be installed. Meeting warrants does not translate to a legal requirement for their installation.

Completed warrant analysis worksheets are included in the appendix of this report. Due to the type of development for the site development; specifically, a middle school, only Warrant 3 (Peak Hour) was evaluated for the Full Build traffic scenario as a part of this study. The Peak Hour warrant was considered as it is typically used for proposed facilities that have peak discharge characteristics such as schools or factories with high volume shift changes. Warrant 1

(8 Hour) and Warrant 2 (4-Hour) were evaluated for the Total traffic scenario since they also include residential, retail, and other commercial land uses.

Traffic signal warrants were investigated at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build and Total traffic volumes in accordance with the *MUTCD 11th Edition*. Crooks Avenue/STH 55 was analyzed as a major street with one lane on each approach and Morningside Drive/Proposed West Access Drive was analyzed as a minor street with one lane. The posted speed limit is 35-mph along the Crooks Avenue/STH 55 corridor at this location and therefore urban warrant thresholds were utilized.

The warrant analysis was conducted based on the weekday peak hour turning movement counts collected as part of this study at the intersection in mid-February of 2025. Based on the warrant analysis, the Warrant 3 (Peak Hour) warrant is expected to be met at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build traffic conditions. Specifically, the weekday morning peak hour is met for Warrant 3. It is noted 50-percent of the minor street right-turn volumes were included in the calculations due to the high delay expected for this movement. In addition, Warrant 1 (8-Hour) and Warrant 2 (4-Hour) are also expected to be met under the Total traffic volume condition.

Therefore, traffic signal control could be considered at this intersection with the proposed development.

PART E – TRAFFIC CONTROL COMPARISON

Because operational deficiencies are expected to remain at the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build and Total traffic volumes conditions under the existing stop control conditions, alternate control conditions were considered.

Two possible modification scenarios were considered: specifically, traffic signal control with additional lanes and roundabout control with two-lane approaches and circulating lanes for the south approach and single lane approaches and circulating lanes for all other approaches.

Operations and queueing comparison tables have been provided to show the operation at the subject intersection under the two modification scenarios. As shown in [Exhibits 5-16A & 5-21](#), under traffic signal and roundabout control, all movements are expected to operate at LOS C or better during all three peak periods under Full Build traffic conditions with reasonable queue lengths (all less than 375 feet). In addition, and as shown in [Exhibits 5-16B & 5-24](#), all movements are expected to operate at LOS C or better during all three peak periods under Total traffic conditions with reasonable queue lengths (all less than 400 feet).

A Phase I Intersection Control Evaluation (ICE) comparing the two modification scenarios has been included in the appendix of this report. Per request from WisDOT, an additional IHSDM evaluation was also completed and is included along with the ICE analysis provided in the [appendix](#) of this report.

Based on the ICE analysis, even though both traffic control options provide acceptable operations from a delay perspective, traffic signal control is recommended for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive due to less disruption to the traveling public and the significant difference in initial cost of the roundabout alternative. It is also noted that, in general, the typical cost of a single-lane roundabout in comparison to a signalized intersection is about two times the cost of a new signalized intersection with geometric modifications, dependent on right-of-way needs and complexity of the designs. In addition, since the proposed development is for a middle school and a large

residential neighborhood is located immediately west of the site, a relatively high number of students are expected to cross STH 55 every weekday during the morning peak period and the afternoon peak period. Traffic signal control would allow for a controlled (marked pedestrian crossings with push buttons and pedestrian countdown timers) crossing for the anticipated students, which could allow for a potentially safer pedestrian crossing situation and could remove the need for the proposed pedestrian tunnel under STH 55. Based on all of these factors, traffic signal control is recommended.

Exhibit 5-3A
Full Build (Scenario 1 - Full Access) Traffic Peak Hour Operating Conditions
With Existing Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay	
			Eastbound			Westbound			Northbound			Southbound				
			↗	→	↘	↙	←	↖	↗	↑	↘	↘	↓	↖		
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>	AM	Lanes->	1		1		1		1		2	1		2		
		LOS	F	C	F	B	B	*	*	B	*					
		Delay	249.8	18.2	283.1	12.5	12.9	*	*	10.8	*					
		v/c	0.37	-	0.17	-	-	-	-	-	-	-	-	-	-	-
		Queue	30'	55'	25'	30'	25'	*	*	25'	*					
		LOS	F	B	F	B	B	*	*	B	*					
	PM	Delay	207.1	14.4	219.4	12.1	10.5	*	*	10.4	*					
		v/c	0.53	-	0.55	-	-	-	-	-	-	-	-	-	-	-
		Queue	45'	30'	45'	25'	25'	*	*	25'	*					
	PMSE	LOS	F	B	F	B	A	*	*	A	*					
		Delay	77.8	11.1	62.8	11.3	9.4	*	*	9.4	*					
		v/c	0.31	-	0.21	-	-	-	-	-	-	-	-	-	-	-
Queue	30'	25'	25'	25'	25'	*	*	25'	*							
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>	AM	Lanes->	1	2	1	1	2	1		1		1	1	1		
		LOS	B	*	*	A	*	*		F	B	E	B			
		Delay	12.1	*	*	8.9	*	*		50.3	11.1	36.4	13.8			
		v/c	-	*	*	-	*	*		0.45	-	0.28	-			
		Queue	25'	*	*	25'	*	*		45'	25'	25'	25'			
		LOS	A	*	*	A	*	*		D	B	C	B			
	PM	Delay	9.7	*	*	9.4	*	*		28.7	10.9	24.1	11.3			
		Queue	25'	*	*	25'	*	*		25'	25'	25'	25'			
		LOS	A	*	*	A	*	*		D	B	C	B			
	PMSE	Delay	9.5	*	*	9.6	*	*		30.2	10.9	24.4	10.8			
		Queue	25'	*	*	25'	*	*		25'	25'	25'	25'			
		Lanes->	1		1		1		1		1		1	1		
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** <i>Roundabout Control</i>	AM	LOS	C	C	E	E	E	E	E	E	E	E				
		Delay	19.5	19.4	45.6	43.9	36.7	39.4	42.8	48.3						
		Queue	110'	120'	215'	225'	235'	270'	280'	335'						
		LOS	C	C	B	B	C	C	C	C						
		Delay	19.0	19.1	14.6	14.5	16.0	15.8	18.0	19.4						
		Queue	110'	125'	75'	85'	81'	90'	135'	160'						
	PM	LOS	B	B	A	A	B	B	A	A						
		Delay	10.4	10.6	9.6	9.4	10.8	10.7	9.5	9.7						
		Queue	60'	65'	35'	40'	50'	55'	55'	60'						
	Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>	AM	Lanes->	1		1		1		1		1		1		
			LOS	A	*	A	*		F		E	C				
			Delay	9.8	*	9.3	*		72.0		41.9	15.8				
v/c			-	-	-	-		0.16		0.14	-					
Queue			25'	*	25'	*		25'		25'	25'					
LOS			A	-	A	-		F		F	C					
PM		Delay	9.2	-	9.0	-		73.6		71.1	15.5					
		v/c	-	-	-	-		0.14		0.70	-					
		Queue	25'	-	25'	-		25'		105'	40'					
PMSE		LOS	A	-	A	-		C		C	B					
		Delay	8.3	-	8.3	-		20.4		23.1	11.4					
		Queue	25'	-	25'	-		25'		30'	25'					
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>	AM	Lanes->	-	1	1		1		-		1		-			
		LOS	-	*	*	A	-	D	-	A	-					
		Delay	-	*	*	9.6	-	27.9	-	9.6	-					
		Queue	-	*	*	25'	-	25'	-	25'	-					
		LOS	-	*	*	A	-	F	-	B	-					
		Delay	-	*	*	9.9	-	83.7	-	13.2	-					
	PM	v/c	-	-	-	-	-	0.86	-	-	-					
		Queue	-	*	*	25'	-	160'	-	25'	-					
		LOS	-	*	*	A	-	C	-	B	-					
	PMSE	Delay	-	*	*	8.6	-	17.9	-	11.4	-					
		Queue	-	*	*	25'	-	25'	-	25'	-					
		Lanes->	1	1	1	1	1	1	1	1	1	1	1			
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>	AM	LOS	B	A	A	B	B	B	B	B	C	C		B		
		Delay	18.2	9.4	8.6	12.2	14.7	14.4	12.8	19.2	23.2	20.3		15.1		
		Queue	30'	70'	25'	95'	275'	105'	120'	40'	135'	65'				
		LOS	B	B	A	B	B	B	B	C	C	C	C	B		
		Delay	16.5	14.7	9.5	18.7	11.9	15.4	14.5	22.3	23.9	21.1		15.5		
		Queue	70'	220'	35'	30'	135'	105'	140'	65'	100'	40'				
	PM	LOS	B	B	A	B	A	B	A	B	B	B	B	B		
		Delay	11.8	10.2	7.7	11.8	9.8	10.6	9.9	14.5	14.5	14.3		10.7		
		Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'				

Exhibit 5-3A
Full Build (Scenario 1 - Full Access) Traffic Peak Hour Operating Conditions
With Existing Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay	
			Eastbound			Westbound			Northbound			Southbound				
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↖		
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Two-Way Stop Control	AM	Lanes->	1			1			2			2				
		LOS	F			F			A			B				
		Delay	1495.8			742.2			8.1			11.4				
		Queue	425'			760'			25'			40'				
	PM	LOS	F			C			A			A				
		Delay	57.8			24.2			9.0			8.9				
		Queue	50'			70'			25'			25'				
	PMSE	LOS	D			C			A			A				
		Delay	30.1			15.3			8.6			8.6				
		Queue	25'			25'			25'			25'				
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Lanes->	1			-			2			-	-	1	1	
		LOS	C			-			A			-	-	-	-	
		Delay	15.7			-			8.2			-	-	-	-	
		Queue	25'			-			25'			-	-	-	-	
	PM	LOS	C			-			A			-	-	-	-	
		Delay	17.1			-			8.8			-	-	-	-	
		Queue	25'			-			25'			-	-	-	-	
	PMSE	LOS	B			-			A			-	-	-	-	
		Delay	14.5			-			8.4			-	-	-	-	
		Queue	25'			-			25'			-	-	-	-	
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1			1			1			1				
		LOS	A			A			A			A				
		Delay	6.0			7.7			8.0			6.9				
		Queue	25'			30'			50'			45'				
	PM	LOS	A			A			A			A				
		Delay	7.4			6.9			7.0			8.9				
		Queue	35'			30'			30'			75'				
	PMSE	LOS	A			A			A			A				
		Delay	7.3			6.1			7.4			6.6				
		Queue	40'			25'			35'			45'				
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	Lanes->	2	-	1	-			2			-	-	1	1	A 8.7
		LOS	A	-	A	-			A			-	-	A	A	
		Delay	9.7	-	8.8	-			9.4			-	-	7.2	8.2	
		Queue	35'	-	25'	-			35'			-	-	30'	40'	
	PM	LOS	B	-	A	-			A			-	-	A	A	A 9.6
		Delay	11.0	-	9.1	-			8.2			-	-	8.9	8.0	
		Queue	55'	-	25'	-			25'			-	-	45'	25'	
	PMSE	LOS	A	-	A	-			A			-	-	A	A	A 7.0
		Delay	9.7	-	9.4	-			5.7			-	-	6.5	5.5	
		Queue	25'	-	25'	-			25'			-	-	30'	25'	
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-			1			-	-	1		
		LOS	C			-			A			-	-	*		
		Delay	15.5			-			7.6			-	-	*		
		Queue	25'			-			25'			-	-	*		
	PM	LOS	B			-			A			-	-	*		
		Delay	13.2			-			8.0			-	-	*		
		Queue	25'			-			25'			-	-	*		
	PMSE	LOS	A			-			A			-	-	*		
		Delay	9.6			-			7.6			-	-	*		
		Queue	25'			-			25'			-	-	*		
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	AM	Lanes->	1			-			1			-	-	1		
		LOS	B			-			A			-	-	*		
		Delay	12.6			-			7.6			-	-	*		
		Queue	25'			-			25'			-	-	*		
	PM	LOS	B			-			A			-	-	*		
		Delay	11.6			-			8.0			-	-	*		
		Queue	25'			-			25'			-	-	*		
	PMSE	LOS	A			-			A			-	-	*		
		Delay	9.9			-			7.6			-	-	*		
		Queue	25'			-			25'			-	-	*		

Exhibit 5-3B Full Build (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↖	←	↗	↑	↘	↖	↓	↖		
Node 100: STH 55/Crooks Avenue & Ann Street Two-Way Stop Control		Lanes->	1	1	1	1	1	1	2	1	1	2			
	AM	LOS	F	C	F	B	B	*	*	B	*				
		Delay	249.8	18.2	283.1	12.5	12.9	*	*	10.8	*				
		v/c	0.37	-	0.17	-	-	-	-	-	-	-			
		Queue	30'	55'	25'	30'	25'	*	*	25'	*				
	PM	LOS	F	B	F	B	B	*	*	B	*				
		Delay	207.1	14.4	219.4	12.1	10.5	*	*	10.4	*				
		v/c	0.53	-	0.55	-	-	-	-	-	-	-			
		Queue	45'	30'	45'	25'	25'	*	*	25'	*				
	PMSE	LOS	F	B	F	B	A	*	*	A	*				
		Delay	77.8	11.1	62.8	11.3	9.4	*	*	9.4	*				
		v/c	0.31	-	0.21	-	-	-	-	-	-	-			
Queue		30'	25'	25'	25'	25'	*	*	25'	*					
Node 200: CTH CE/College Avenue & Fieldcrest Drive Two-Way Stop Control		Lanes->	1	2	1	1	2	1	-	1	1	1			
	AM	LOS	B	*	*	A	*	*	-	B	-	C			
		Delay	12.6	*	*	9.1	*	*	-	12.1	-	15.5			
		Queue	25'	*	*	25'	*	*	-	25'	-	40'			
		LOS	A	*	*	A	*	*	-	B	-	B			
	PM	Delay	9.8	*	*	9.5	*	*	-	11.4	-	11.8			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
		LOS	A	*	*	A	*	*	-	B	-	B			
		Delay	9.6	*	*	9.7	*	*	-	11.2	-	11.1			
	PMSE	Queue	25'	*	*	25'	*	*	-	25'	-	25'			
		Lanes->	1	1	1	1	1	1	1	1	1	1			
		AM	LOS	C	C	F	F	E	E	F	F				
Delay			21.9	22.1	55.9	53.3	45.8	49.0	54.7	61.3					
Queue	130'		145'	240'	255'	265'	305'	325'	380'						
LOS	C		C	C	C	C	C	C	C						
PM	Delay	20.4	20.6	15.6	15.4	17.2	16.9	19.7	21.3						
	Queue	125'	135'	80'	90'	90'	95'	145'	175'						
	LOS	B	B	B	A	B	B	A	B						
	Delay	10.8	11.1	10.0	9.7	11.3	11.1	9.9	10.2						
PMSE	Queue	65'	70'	40'	40'	50'	55'	55'	65'						
	Lanes->	1	1	1	1	1	1	1	1						
	AM	LOS	A	*	A	*	F	E	C						
		Delay	9.8	*	9.3	*	72.0	41.9	15.8						
v/c		-	-	-	-	0.16	0.14	-							
Queue		25'	*	25'	*	25'	25'	25'							
PM	LOS	A	-	A	-	F	F	C							
	Delay	9.2	-	9.0	-	73.6	71.1	15.5							
	v/c	-	-	-	-	0.14	0.70	-							
	Queue	25'	-	25'	-	25'	105'	40'							
PMSE	LOS	A	-	A	-	C	C	B							
	Delay	8.3	-	8.3	-	20.4	23.1	11.4							
	Queue	25'	-	25'	-	25'	30'	25'							
	Node 500: CTH CE/College Avenue & High School West D/W One-Way Stop Control		Lanes->	-	1	1	1	-	1	-	1	-			
AM		LOS	-	*	*	A	-	D	-	A	-				
		Delay	-	*	*	9.6	-	27.9	-	9.6	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
		PM	LOS	-	*	*	A	-	F	-	B	-			
Delay			-	*	*	9.9	-	83.7	-	13.2	-				
v/c			-	-	-	-	-	0.86	-	-	-				
Queue			-	*	*	25'	-	160'	-	25'	-				
PMSE		LOS	-	*	*	A	-	C	-	B	-				
		Delay	-	*	*	8.6	-	17.9	-	11.4	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
		Node 600: Loderbauer Road & CTH CE/College Avenue Traffic Signal Control		Lanes->	1	1	1	1	1	1	1	1	1		
AM	LOS		B	A	A	B	B	B	B	C	C		B		
	Delay		18.2	9.4	8.6	12.2	14.7	14.4	12.8	19.2	23.2	20.3		15.1	
	Queue		30'	70'	25'	95'	275'	105'	120'	40'	135'	65'			
	PM		LOS	B	B	A	B	B	B	B	C	C		B	
Delay			16.5	14.7	9.5	18.7	11.9	15.4	14.5	22.3	23.9	21.1		15.5	
Queue			70'	220'	35'	30'	135'	105'	140'	65'	100'	40'			
PMSE			LOS	B	B	A	B	A	B	A	B	B		B	
	Delay		11.8	10.2	7.7	11.8	9.8	10.6	9.9	14.5	14.5	14.3		10.7	
	Queue		35'	130'	25'	25'	110'	30'	40'	40'	40'	30'			

Exhibit 5-6A Total (Scenario 1 - Full Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control														
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay	
			Eastbound		Westbound		Northbound		Southbound					
			↗	→	↖	←	↗	↑	↘	↓	↖			
Node 100: STH 55/Crooks Avenue & Ann Street Two-Way Stop Control		Lanes->	1	1	1	1	1	2	1	1	2			
	AM	LOS	F	C	F	B	B	*	*	B	*			
		Delay	317.0	19.3	358.8	12.8	13.5	*	*	11.0	*			
		v/c	0.44	-	0.21	-	-	-	-	-	-			
		Queue	30'	60'	25'	25'	30'	*	*	25'	*			
	PM	LOS	F	C	F	B	B	*	*	B	*			
		Delay	324.0	15.5	405.7	12.7	11.0	*	*	10.8	*			
		v/c	0.71	-	0.83	-	-	-	-	-	-			
		Queue	55'	40'	60'	25'	25'	*	*	25'	*			
	PMSE	LOS	F	B	F	B	A	*	*	A	*			
		Delay	110.8	11.6	88.4	11.7	9.8	*	*	9.7	*			
v/c		0.40	-	0.27	-	-	-	-	-	-				
Queue	40'	25'	25'	25'	25'	*	*	25'	*					
Node 200: CTH CE/College Avenue & Fieldcrest Drive Two-Way Stop Control		Lanes->	1	2	1	1	2	1	1	1	1			
	AM	LOS	B	*	*	A	*	*	F	B	E	B		
		Delay	12.5	*	*	9.1	*	*	57.4	11.4	43.7	14.2		
		v/c	-	*	*	-	*	*	0.49	-	0.39	-		
		Queue	25'	*	*	25'	*	*	45'	25'	25'	25'		
	PM	LOS	B	*	*	A	*	*	D	B	D	B		
		Delay	10.1	*	*	9.7	*	*	32.6	11.3	28.5	11.7		
		Queue	25'	*	*	25'	*	*	25'	25'	25'	25'		
		Queue	25'	*	*	25'	*	*	25'	25'	25'	25'		
	PMSE	LOS	A	*	*	A	*	*	D	B	D	B		
		Delay	9.9	*	*	9.9	*	*	34.6	11.2	28.1	11.2		
Queue		25'	*	*	25'	*	*	25'	25'	25'	25'			
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** Roundabout Control		Lanes->	1		1		1		1		1			
	AM	LOS	D		D	F	F	F	F	F	F	F		
		Delay	26.9		27.0	70.9	67.7	53.0	59.4	70.0	78.6			
		Queue	155'		170'	280'	300'	315'	370'	385'	450'			
		LOS	D		D	C	C	C	D	D	E			
	PM	Delay	32.3		33.0	22.5	22.4	24.4	25.1	31.7	35.5			
		Queue	190'		210'	120'	135'	155'	175'	230'	275'			
		LOS	B		B	B	B	B	B	B	B			
		Delay	14.3		14.7	12.9	12.5	14.4	14.6	12.9	13.2			
	PMSE	Queue	90'		100'	55'	60'	85'	95'	80'	90'			
		AM	Lanes->	1		1		1		1		1		
LOS			B		*	A	*	F		E	C			
Delay	10.0			*	9.4	*	81.8		46.0	16.4				
v/c	-			-	-	-	0.18		0.15	-				
PM	Queue	25'		*	25'	*	25'		25'	25'				
	LOS	A		-	A	-	F		F	C				
	Delay	9.4		-	9.2	-	92.7		95.8	16.6				
	v/c	-		-	-	-	0.18		0.80	-				
PMSE	Queue	25'		-	25'	-	25'		125'	45'				
	LOS	A		-	A	-	C		D	B				
	Delay	8.4		-	8.5	-	22.7		26.2	11.9				
	Queue	25'		-	25'	-	25'		35'	25'				
Node 500: CTH CE/College Avenue & High School West D/W One-Way Stop Control		Lanes->	-	1	1		1		1		-			
	AM	LOS	-	*	*	A	-	D	-	A		-		
		Delay	-	*	*	9.7	-	31.0	-	9.6		-		
		Queue	-	*	*	25'	-	25'	-	25'		-		
		LOS	-	*	*	B	-	F	-	B		-		
	PM	Delay	-	*	*	10.1	-	129.1	-	13.9		-		
		v/c	-	-	-	-	-	1.01	-	-		-		
		Queue	-	*	*	25'	-	200'	-	25'		-		
		Queue	-	*	*	25'	-	200'	-	25'		-		
	PMSE	LOS	-	*	*	A	-	C	-	B		-		
		Delay	-	*	*	8.8	-	19.9	-	11.7		-		
Queue		-	*	*	25'	-	25'	-	25'		-			
Node 600: Loderbauer Road & CTH CE/College Avenue Traffic Signal Control		Lanes->	1	1	1	1	1	1	1	1	1			
	AM	LOS	B	A	A	B	B	B	B	B	C	C	B	
		Delay	19.3	9.5	8.6	12.4	14.0	14.9	13.3	19.8	23.9	21.2	15.5	
		Queue	40'	75'	25'	95'	290'	105'	120'	40'	135'	70'		
		LOS	B	B	A	B	B	B	B	C	C	C	B	
	PM	Delay	17.8	14.7	9.2	19.5	12.0	16.8	16.3	24.6	26.7	23.8	16.5	
		Queue	80'	240'	35'	30'	155'	105'	140'	65'	100'	50'		
		LOS	B	B	A	B	B	B	B	B	B	B	B	
		Delay	12.7	10.6	7.6	12.2	10.1	10.7	10.0	14.7	14.6	14.6	11.0	
	Queue	40'	140'	25'	25'	120'	35'	50'	40'	45'	40'			

Exhibit 5-6A Total (Scenario 1 - Full Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control														
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach								I/S LOS & Delay			
			Eastbound			Westbound		Northbound		Southbound				
			↗	→	↘	↙	←	↖	↖	↑		↗	↘	↓
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Two-Way Stop Control	AM	Lanes->	1			1		2		2				
		LOS	F			F		A		B				
		Delay	2191.0			10609.0		8.1		14.1				
		Queue	515'			1620'		25'		40'				
	PM	LOS	F			F		A		B				
		Delay	1274.0			1708.0		9.0		10.7				
		Queue	200'			1330'		25'		40'				
		Queue	200'			1330'		25'		40'				
	PMSE	LOS	F			F		A		B				
Delay		451.0			793.0		8.6		10.2					
Queue		145'			920'		25'		35'					
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Lanes->	1			-		2		-	-	1	1	
		LOS	C			-		A		-	-	-	-	
		Delay	17.0			-		8.3		-	-	-	-	
		Queue	25'			-		25'		-	-	-	-	
	PM	LOS	C			-		A		-	-	-	-	
		Delay	20.3			-		9.1		-	-	-	-	
		Queue	25'			-		25'		-	-	-	-	
		Queue	25'			-		25'		-	-	-	-	
	PMSE	LOS	C			-		A		-	-	-	-	
Delay		16.7			-		8.7		-	-	-	-		
Queue		25'			-		25'		-	-	-	-		
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1			1		1		1				
		LOS	A			A		A		A				
		Delay	6.4			8.3		8.5		7.3				
		Queue	30'			35'		55'		50'				
	PM	LOS	A			A		A		B				
		Delay	8.4			7.8		7.9		10.3				
		Queue	45'			35'		40'		95'				
		Queue	45'			35'		40'		95'				
	PMSE	LOS	A			A		A		A				
Delay		8.4			6.8		8.4		7.5					
Queue		55'			25'		40'		60'					
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	Lanes->	2	-	1	-		2		-	-	1	1	
		LOS	A	-	A	-		A		-	-	A	A	A
		Delay	9.7	-	8.8	-		9.4		-	-	7.2	8.2	8.7
		Queue	35'	-	25'	-		35'		-	-	30'	40'	
	PM	LOS	B	-	A	-		A		-	-	A	A	A
		Delay	11.0	-	9.1	-		8.2		-	-	8.9	8.0	9.6
		Queue	55'	-	25'	-		25'		-	-	45'	25'	
		Queue	55'	-	25'	-		25'		-	-	45'	25'	
	PMSE	LOS	A	-	A	-		A		-	-	A	A	A
Delay		9.7	-	9.4	-		5.7		-	-	6.5	5.5	7.0	
Queue		25'	-	25'	-		25'		-	-	30'	25'		
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-		1		-	-	1		
		LOS	C			-		A		-	-	*		
		Delay	15.5			-		7.6		-	-	*		
		Queue	25'			-		25'		-	-	*		
	PM	LOS	B			-		A		-	-	*		
		Delay	13.2			-		8.0		-	-	*		
		Queue	25'			-		25'		-	-	*		
		Queue	25'			-		25'		-	-	*		
	PMSE	LOS	A			-		A		-	-	*		
Delay		9.6			-		7.6		-	-	*			
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	AM	Lanes->	1			-		1		-	-	1		
		LOS	B			-		A		-	-	*		
		Delay	12.6			-		7.6		-	-	*		
		Queue	25'			-		25'		-	-	*		
	PM	LOS	B			-		A		-	-	*		
		Delay	11.6			-		8.0		-	-	*		
		Queue	25'			-		25'		-	-	*		
		Queue	25'			-		25'		-	-	*		
	PMSE	LOS	A			-		A		-	-	*		
Delay		9.9			-		7.6		-	-	*			
Queue	25'			-		25'		-	-	*				

Exhibit 5-6B Total (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay		
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↖	←	↗	↖	↑	↘	↖		↓	↗
Node 100: STH 55/Crooks Avenue & Ann Street Two-Way Stop Control	AM	Lanes->	1		1		1		1		2	1		2	
		LOS	F	C	F	B	B	*	*	B	*				
		Delay	317.0	19.3	358.8	12.8	13.5	*	*	11.0	*				
		v/c	0.44	-	0.21	-	-	-	-	-	-	-	-	-	
	PM	Queue	30'	60'	25'	25'	30'	*	*	25'	*				
		LOS	F	C	F	B	B	*	*	B	*				
		Delay	324.0	15.5	405.7	12.7	11.0	*	*	10.8	*				
		v/c	0.71	-	0.83	-	-	-	-	-	-	-	-	-	
	PMSE	Queue	55'	40'	60'	25'	25'	*	*	25'	*				
		LOS	F	B	F	B	A	*	*	A	*				
		Delay	110.8	11.6	88.4	11.7	9.8	*	*	9.7	*				
		v/c	0.40	-	0.27	-	-	-	-	-	-	-	-	-	
Queue	40'	25'	25'	25'	25'	*	*	25'	*						
Node 200: CTH CE/College Avenue & Fieldcrest Drive Two-Way Stop Control	AM	Lanes->	1	2	1	1	2	1	-	1	1	1	1		
		LOS	B	*	*	A	*	*	-	B	-	C			
		Delay	13.0	*	*	9.3	*	*	-	12.6	-	16.4			
		v/c	-	*	*	-	*	*	-	-	-	-	-	-	
	PM	Queue	25'	*	*	25'	*	*	-	25'	-	45'			
		LOS	B	*	*	A	*	*	-	B	-	B			
		Delay	10.3	*	*	9.9	*	*	-	11.9	-	12.5			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
	PMSE	LOS	B	*	*	B	*	*	-	B	-	B			
		Delay	10.1	*	*	10.1	*	*	-	11.7	-	11.8			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
		Queue	25'	*	*	25'	*	*	-	25'	-	25'			
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** Roundabout Control	AM	Lanes->	1		1	1	1	1	1	1	1	1	1		
		LOS	D	D	F	F	F	F	F	F	F	F			
		Delay	31.5	32.1	88.1	83.3	68.2	75.2	89.5	98.6					
		Queue	185'	205'	315'	340'	365'	420'	440'	510'					
	PM	LOS	E	E	C	C	D	D	E	E	E				
		Delay	36.0	37.2	24.6	24.0	27.0	27.7	36.2	40.7					
		Queue	210'	235'	130'	140'	165'	190'	255'	300'					
		Queue	210'	235'	130'	140'	165'	190'	255'	300'					
	PMSE	LOS	C	C	B	B	C	C	B	B					
		Delay	15.0	15.5	13.5	13.0	15.2	15.4	13.6	13.9					
		Queue	95'	110'	55'	60'	90'	100'	85'	95'					
		Queue	95'	110'	55'	60'	90'	100'	85'	95'					
Node 400: CTH CE/College Avenue & Konkpot Trail Road Two-Way Stop Control	AM	Lanes->	1		1	1	1	1	1	1	1	1	1		
		LOS	B	*	*	A	*	F	E	C					
		Delay	10.0	*	*	9.4	*	81.8	46.0	16.4					
		v/c	-	-	-	-	-	0.18	0.15	-					
	PM	Queue	25'	*	25'	*	25'	25'	25'	25'					
		LOS	A	-	A	-	F	F	C						
		Delay	9.4	-	9.2	-	92.7	95.8	16.6						
		v/c	-	-	-	-	0.18	0.80	-						
	PMSE	Queue	25'	-	25'	-	25'	125'	45'						
		LOS	A	-	A	-	C	D	B						
		Delay	8.4	-	8.5	-	22.7	26.2	11.9						
		Queue	25'	-	25'	-	25'	35'	25'						
Node 500: CTH CE/College Avenue & High School West D/W One-Way Stop Control	AM	Lanes->	-	1	1	1	-	1	-	1	-	-	-		
		LOS	-	*	*	A	-	D	-	A	-				
		Delay	-	*	*	9.7	-	31.0	-	9.6	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
	PM	LOS	-	*	*	B	-	F	-	B	-				
		Delay	-	*	*	10.1	-	129.1	-	13.9	-				
		v/c	-	-	-	-	-	1.01	-	-	-				
		Queue	-	*	*	25'	-	200'	-	25'	-				
	PMSE	LOS	-	*	*	A	-	C	-	B	-				
		Delay	-	*	*	8.8	-	19.9	-	11.7	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
Node 600: Loderbauer Road & CTH CE/College Avenue Traffic Signal Control	AM	Lanes->	1	1	1	1	1	1	1	1	1	1	1		
		LOS	B	A	A	B	B	B	B	C	C	C	B		
		Delay	19.3	9.5	8.6	12.4	14.0	14.9	13.3	19.8	23.9	21.2	15.5		
		Queue	40'	75'	25'	95'	290'	105'	120'	40'	135'	70'			
	PM	LOS	B	B	A	B	B	B	B	C	C	C	B		
		Delay	17.8	14.7	9.2	19.5	12.0	16.8	16.3	24.6	26.7	23.8	16.5		
		Queue	80'	240'	35'	30'	155'	105'	140'	65'	100'	50'			
		Queue	80'	240'	35'	30'	155'	105'	140'	65'	100'	50'			
	PMSE	LOS	B	B	A	B	B	B	B	B	B	B	B		
		Delay	12.7	10.6	7.6	12.2	10.1	10.7	10.0	14.7	14.6	14.6	11.0		
		Queue	40'	140'	25'	25'	120'	35'	50'	40'	45'	40'			
		Queue	40'	140'	25'	25'	120'	35'	50'	40'	45'	40'			

Exhibit 5-6B Total (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Existing Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach										I/S LOS & Delay		
			Eastbound			Westbound			Northbound		Southbound				
			↗	→	↘	↙	←	↖	↖	↑	↗	↘			↓
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive <i>Two-Way Stop Control</i>	AM	Lanes->	1			1			2						
		LOS	F			F			A			B			
		Delay	2191.0			10609.0			8.1			14.1			
	PM	Queue	515'			1620'			25'			40'			
		LOS	F			F			A			B			
		Delay	1274.0			1708.0			9.0			10.7			
	PMSE	Queue	200'			1330'			25'			40'			
		LOS	F			F			A			B			
		Delay	451.0			793.0			8.6			10.2			
		Queue	145'			920'			25'			35'			
		AM	Lanes->	1			-			2	-	-	1	1	
			LOS	C			-			A	-	-	-	-	
Delay	17.0				-			8.3	-	-	-	-			
Queue	25'				-			25'	-	-	-	-			
PM	LOS	C			-			A	-	-	-	-			
	Delay	20.3			-			9.1	-	-	-	-			
	Queue	25'			-			25'	-	-	-	-			
	Queue	25'			-			25'	-	-	-	-			
PMSE	LOS	C			-			A	-	-	-	-			
	Delay	16.7			-			8.7	-	-	-	-			
	Queue	25'			-			25'	-	-	-	-			
	Queue	25'			-			25'	-	-	-	-			
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street <i>Roundabout Control</i>	AM	Lanes->	1			1			1			1			
		LOS	A			A			A			A			
		Delay	6.4			8.3			8.5			7.3			
		Queue	30'			35'			55'			50'			
	PM	LOS	A			A			A			B			
		Delay	8.4			7.8			7.9			10.3			
		Queue	45'			35'			40'			95'			
		Queue	45'			35'			40'			95'			
	PMSE	LOS	A			A			A			A			
		Delay	8.4			6.8			8.4			7.5			
		Queue	55'			25'			40'			60'			
		Queue	55'			25'			40'			60'			
Node 1000: Loderbauer Road & High School North Access D/W <i>Traffic Signal Control</i>	AM	Lanes->	2	-	1	-			2	-	-	1	1		
		LOS	A	-	A	-			A	-	-	A	A		
		Delay	9.7	-	8.8	-			9.4	-	-	7.2	8.2		
		Queue	35'	-	25'	-			35'	-	-	30'	40'		
	PM	LOS	B	-	A	-			A	-	-	A	A		
		Delay	11.0	-	9.1	-			8.2	-	-	8.9	8.0		
		Queue	55'	-	25'	-			25'	-	-	45'	25'		
		Queue	55'	-	25'	-			25'	-	-	45'	25'		
	PMSE	LOS	A	-	A	-			A	-	-	A	A		
		Delay	9.7	-	9.4	-			5.7	-	-	6.5	5.5		
		Queue	25'	-	25'	-			25'	-	-	30'	25'		
		Queue	25'	-	25'	-			25'	-	-	30'	25'		
Node 1100: Loderbauer Road & High School Middle Access D/W <i>One-Way Stop Control</i>	AM	Lanes->	1			-			1	-	-	1			
		LOS	C			-			A	-	-	*			
		Delay	15.5			-			7.6	-	-	*			
		Queue	25'			-			25'	-	-	*			
	PM	LOS	B			-			A	-	-	*			
		Delay	13.2			-			8.0	-	-	*			
		Queue	25'			-			25'	-	-	*			
		Queue	25'			-			25'	-	-	*			
	PMSE	LOS	A			-			A	-	-	*			
		Delay	9.6			-			7.6	-	-	*			
		Queue	25'			-			25'	-	-	*			
		Queue	25'			-			25'	-	-	*			
Node 1200: Loderbauer Road & New South D/W <i>One-Way Stop Control</i>	AM	Lanes->	1			-			1	-	-	1			
		LOS	B			-			A	-	-	*			
		Delay	12.6			-			7.6	-	-	*			
		Queue	25'			-			25'	-	-	*			
	PM	LOS	B			-			A	-	-	*			
		Delay	11.6			-			8.0	-	-	*			
		Queue	25'			-			25'	-	-	*			
		Queue	25'			-			25'	-	-	*			
	PMSE	LOS	A			-			A	-	-	*			
		Delay	9.9			-			7.6	-	-	*			
		Queue	25'			-			25'	-	-	*			
		Queue	25'			-			25'	-	-	*			

Exhibit 5-9 Existing/Background Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>	Lanes->		-	1	-	1	1	1	2	1	1	1	2		
		LOS	-	B	-	B	B	*	*	A	*				
		Delay	-	14.6	-	11.4	10.8	*	*	9.7	*				
	AM	Queue	-	25'	-	40'	25'	*	*	25'	*				
		LOS	-	B	-	B	B	*	*	A	*				
		Delay	-	13.9	-	11.5	10.0	*	*	9.9	*				
	PM	Queue	-	35'	-	25'	25'	*	*	25'	*				
		LOS	-	B	-	B	A	*	*	A	*				
		Delay	-	11.1	-	11.0	9.2	*	*	9.2	*				
PMSE	Queue	-	25'	-	25'	25'	*	*	25'	*					
	LOS	-	B	-	B	A	*	*	A	*					
	Delay	-	11.1	-	11.0	9.2	*	*	9.2	*					
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>	Lanes->		1	2	1	1	2	1	-	1	1	1			
		LOS	B	*	*	A	*	*	-	B	-	B			
		Delay	12.1	*	*	8.8	*	*	-	11.6	-	14.3			
	AM	Queue	25'	*	*	25'	*	*	-	25'	-	30'			
		LOS	A	*	*	A	*	*	-	B	-	B			
		Delay	9.7	*	*	9.4	*	*	-	11.3	-	11.5			
	PM	Queue	25'	*	*	25'	*	*	-	25'	-	25'			
		LOS	A	*	*	A	*	*	-	B	-	B			
		Delay	9.5	*	*	9.6	*	*	-	11.2	-	11.0			
PMSE	Queue	25'	*	*	25'	*	*	-	25'	-	25'				
	LOS	A	*	*	A	*	*	-	B	-	B				
	Delay	9.5	*	*	9.6	*	*	-	11.2	-	11.0				
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue** <i>Roundabout Control</i>	Lanes->		1	1	1	1	1	1	1	1	1	1			
		LOS	B	B	C	C	C	C	C	C	C	C			
		Delay	11.0	11.1	21.6	21.5	19.3	19.2	19.3	19.3	19.9	19.9			
	AM	Queue	60'	65'	120'	135'	105'	120'	125'	140'	140'	140'			
		LOS	C	C	B	B	B	B	B	B	C	C			
		Delay	15.0	15.2	11.5	11.6	12.8	12.5	14.6	15.4	15.4	15.4			
	PM	Queue	85'	95'	60'	65'	50'	55'	105'	120'	120'	120'			
		LOS	A	A	A	A	A	A	A	A	A	A			
		Delay	9.5	9.8	8.7	8.6	9.9	9.7	8.7	9.0	9.0	9.0			
PMSE	Queue	55'	60'	35'	35'	40'	45'	45'	55'	55'	55'				
	LOS	A	A	A	A	A	A	A	A	A	A				
	Delay	9.5	9.8	8.7	8.6	9.9	9.7	8.7	9.0	9.0	9.0				
Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>	Lanes->		1	1	1	1	1	-	1	1	1	1			
		LOS	A	*	A	*	-	B	-	C	-	C			
		Delay	9.8	*	9.3	*	-	11.4	-	16.3	-	16.3			
	AM	Queue	25'	*	25'	*	-	25'	-	25'	-	25'			
		LOS	A	-	A	-	-	B	-	C	-	C			
		Delay	9.2	-	9.4	-	-	11.5	-	21.1	-	21.1			
	PM	Queue	25'	-	25'	-	-	25'	-	95'	-	95'			
		LOS	A	-	A	-	-	B	-	B	-	B			
		Delay	8.3	-	8.6	-	-	10.1	-	12.7	-	12.7			
PMSE	Queue	25'	-	25'	-	-	25'	-	40'	-	40'				
	LOS	A	-	A	-	-	B	-	B	-	B				
	Delay	8.3	-	8.6	-	-	10.1	-	12.7	-	12.7				
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>	Lanes->		-	1	1	1	-	1	-	1	-	-			
		LOS	-	*	*	A	-	D	-	A	-	-			
		Delay	-	*	*	9.4	-	25.0	-	9.4	-	-			
	AM	Queue	-	*	*	25'	-	25'	-	25'	-	-			
		LOS	-	*	*	A	-	F	-	B	-	-			
		Delay	-	*	*	9.8	-	70.5	-	13.0	-	-			
	PM	v/c	-	-	-	-	-	0.81	-	-	-	-			
		Queue	-	*	*	25'	-	145'	-	25'	-	-			
		LOS	-	*	*	A	-	C	-	B	-	-			
PMSE	Delay	-	*	*	8.6	-	17.9	-	11.4	-	-				
	Queue	-	*	*	25'	-	25'	-	25'	-	-				
	LOS	-	*	*	A	-	C	-	B	-	-				
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>	Lanes->		1	1	1	1	1	1	1	1	1	1			
		LOS	B	A	A	B	B	B	B	B	C	B	B		
		Delay	17.6	9.4	8.6	11.5	14.6	13.7	11.7	18.5	21.6	19.6	14.5		
	AM	Queue	25'	65'	25'	70'	260'	105'	95'	40'	125'	65'			
		LOS	B	B	A	B	B	B	B	C	C	C	B		
		Delay	16.2	14.8	9.5	18.1	11.9	14.5	13.5	21.7	23.0	20.4	15.1		
	PM	Queue	65'	215'	35'	25'	130'	105'	125'	65'	100'	40'			
		LOS	B	B	A	B	A	B	A	B	B	B	B		
		Delay	11.7	10.1	7.6	11.4	9.7	10.6	9.8	14.6	14.5	14.4	10.6		
PMSE	Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'				
	LOS	B	B	A	B	A	B	A	B	B	B	B			
	Delay	11.7	10.1	7.6	11.4	9.7	10.6	9.8	14.6	14.5	14.4	10.6			

Exhibit 5-9 Existing/Background Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control																
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											LOS & Delay		
			Eastbound			Westbound			Northbound			Southbound				
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓		↙	
Node 700: STH 55/Crooks Avenue & Morningside Drive One-Way Stop Control		Lanes->	1						2			2				
	AM	LOS	C						A			*				
		Delay	19.1						8.1							
		Queue	35'						25'							
	PM	LOS	C						A			*				
		Delay	20.5						9.0							
		Queue	25'						25'							
	PMSE	LOS	C						A			*				
		Delay	18.7						8.6							
Queue		25'						25'								
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control		Lanes->	1			1			2			1			1	
	AM	LOS	B						A			-			-	
		Delay	13.9						8.1			-			-	
		PM	Queue	25'						25'			-			-
	LOS		C						A			-			-	
	Delay		16.2						8.7			-			-	
	PMSE	Queue	25'						25'			-			-	
		LOS	B						A			-			-	
		Delay	14.1						8.4			-			-	
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control		Lanes->	1			1			1			1				
	AM	LOS	A			A			A			A				
		Delay	5.5			7.0			7.0			6.2				
		PM	Queue	25'			30'			40'			35'			
	LOS		A			A			A			A				
	Delay		7.0			6.7			6.7			8.4				
	PMSE	Queue	35'			30'			25'			65'				
		LOS	A			A			A			A				
		Delay	7.1			6.0			7.2			6.4				
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control		Lanes->	2	-	1	-			2			-	-	1	1	
	AM	LOS	A	-	A	-			A			-	-	A	A	A
		Delay	9.7	-	8.8	-			8.7			-	-	6.8	8.2	8.6
		PM	Queue	30'	-	25'	-			30'			-	-	25'	40'
	LOS		B	-	A	-			A			-	-	A	A	A
	Delay		11.0	-	9.1	-			8.0			-	-	8.5	8.0	9.6
	PMSE	Queue	45'	-	25'	-			25'			-	-	40'	25'	
		LOS	A	-	A	-			A			-	-	A	A	A
		Delay	9.7	-	9.4	-			5.6			-	-	6.3	5.5	7.0
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control		Lanes->	1			-			1			-	-	-	1	
	AM	LOS	B			-			A			-			-	*
		Delay	13.5			-			7.5			-			-	*
		Queue	25'			-			25'			-			-	*
	PM	LOS	B			-			A			-			-	*
		Delay	12.5			-			8.0			-			-	*
		Queue	25'			-			25'			-			-	*
	PMSE	LOS	A			-			A			-			-	*
		Delay	9.4			-			7.5			-			-	*
Queue		25'			-			25'			-			-	*	

Exhibit 5-12															
Full Build (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions															
With Modified Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											I/S LOS & Delay	
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓		↙
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>	AM	Lanes->	-	1	1	1	1	1	2	1	1	1	2		
		LOS	-	C	-	-	B	B	*	*	B	*	*		
		Delay	-	18.5	-	-	12.6	12.9	*	*	10.8	*	*		
	PM	Queue	-	55'	-	-	25'	30'	*	*	25'	*	*		
		LOS	-	B	-	-	B	B	*	*	B	*	*		
		Delay	-	14.8	-	-	12.2	10.5	*	*	10.5	*	*		
	PMSE	Queue	-	35'	-	-	25'	25'	*	*	25'	*	*		
		LOS	-	B	-	-	B	A	*	*	A	*	*		
		Delay	-	11.4	-	-	11.3	9.4	*	*	9.5	*	*		
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>	AM	Lanes->	1	2	1	1	2	1	-	1	1	1	1		
		LOS	B	*	*	A	*	*	-	B	-	-	C		
		Delay	12.6	*	*	9.1	*	*	-	12.1	-	-	15.5		
	PM	Queue	25'	*	*	25'	*	*	-	25'	-	-	40'		
		LOS	A	*	*	A	*	*	-	B	-	-	B		
		Delay	9.8	*	*	9.5	*	*	-	11.4	-	-	11.8		
	PMSE	Queue	25'	*	*	25'	*	*	-	25'	-	-	25'		
		LOS	A	*	*	A	*	*	-	B	-	-	B		
		Delay	9.6	*	*	9.7	*	*	-	11.2	-	-	11.1		
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue <i>Roundabout Control</i>	AM	Lanes->	1	1	2	1	2	1	2	1	2	1	1		
		LOS	D	C	E	B	E	A	D	A	D	C			
		Delay	26.7	24.7	39.4	12.8	41.2	7.1	31.4	17.5					
	PM	v/c	-	-	0.78	-	0.86	-	-	-	-	-	-		
		Queue	135'	130'	115'	30'	210'	25'	160'	70'					
		LOS	D	D	C	A	C	A	C	B					
	PMSE	Delay	29.1	27.5	15.9	9.2	21.3	7.8	16.8	10.7					
		Queue	145'	145'	75'	25'	75'	25'	95'	55'					
		LOS	B	B	B	A	B	A	A	A					
Node 400: CTH CE/College Avenue & Konkapot Trail Road <i>Two-Way Stop Control</i>	AM	Lanes->	1	1	1	1	-	1	1	1	1	1	1		
		LOS	A	*	A	*	-	B	-	C					
		Delay	9.8	*	9.3	*	-	11.4	-	16.3					
	PM	Queue	25'	*	25'	*	-	25'	-	25'					
		LOS	A	-	A	-	-	B	-	C					
		Delay	9.2	-	9.4	-	-	11.5	-	21.1					
	PMSE	Queue	25'	-	25'	-	-	25'	-	95'					
		LOS	A	-	A	-	-	B	-	B					
		Delay	8.3	-	8.6	-	-	10.1	-	12.7					
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>	AM	Lanes->	-	1	1	1	-	1	-	1	-	-	-		
		LOS	-	*	*	A	-	D	-	A	-	-	-		
		Delay	-	*	*	9.6	-	27.9	-	9.6	-	-	-		
	PM	Queue	-	*	*	25'	-	25'	-	25'	-	-	-		
		LOS	-	*	*	A	-	F	-	B	-	-	-		
		Delay	-	*	*	9.9	-	83.7	-	13.2	-	-	-		
	PMSE	v/c	-	-	-	-	-	0.86	-	-	-	-	-		
		Queue	-	*	*	25'	-	160'	-	25'	-	-	-		
		LOS	-	*	*	A	-	C	-	B	-	-	-		
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>	AM	Lanes->	1	1	1	1	1	1	1	1	1	1	1		
		LOS	B	A	A	B	B	B	B	C	C	C	B		
		Delay	18.2	9.4	8.6	12.2	14.7	14.4	12.8	19.2	23.2	20.3			
	PM	Queue	30'	70'	25'	95'	275'	105'	120'	40'	135'	65'			
		LOS	B	B	A	B	B	B	B	C	C	C	B		
		Delay	16.5	14.7	9.5	18.7	11.9	15.4	14.5	22.3	23.9	21.1			
	PMSE	Queue	70'	220'	35'	30'	135'	105'	140'	65'	100'	40'			
		LOS	B	B	A	B	A	B	A	B	B	B	B		
		Delay	11.8	10.2	7.7	11.8	9.8	10.6	9.9	14.5	14.5	14.3			
	Queue	35'	130'	25'	25'	110'	30'	40'	40'	40'	30'				

Exhibit 5-12 Full Build (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Traffic Signal Control	AM	Lanes->	1			1		1	1	1	1	1	1	1	
		LOS	B			C		C	B	B	B	A	A	A	B
		Delay	19.9			20.6		28.2	11.6	19.5	12.4	14.9	6.3	5.0	16.8
	PM	Queue	45'			80'		#225'	25'	365'	55'	140'	115'	25'	
		LOS	B			B		B	B	B	B	A	A	A	B
		Delay	16.0			15.8		17.9	10.6	16.1	10.8	8.9	7.5	5.2	11.8
	PMSE	Queue	50'			45'		110'	25'	245'	25'	40'	200'	30'	
		LOS	B			B		B	A	B	A	A	A	A	B
		Delay	15.2			14.9		15.8	9.7	14.5	9.6	8.1	6.6	4.9	10.7
	Queue	45'			25'		60'	25'	205'	25'	25'	125'	25'		
Node 800: STH 55/Crooks Avenue & Ridgecrest Lane One-Way Stop Control	AM	Lanes->	1			-		2	-	-	-	1	1		
		LOS	C			-		A	-	-	-	-	-		
		Delay	15.7			-		8.2	-	-	-	-	-		
	PM	Queue	25'			-		25'	-	-	-	-	-		
		LOS	C			-		A	-	-	-	-	-		
		Delay	17.1			-		8.8	-	-	-	-	-		
	PMSE	Queue	25'			-		25'	-	-	-	-	-		
		LOS	C			-		A	-	-	-	-	-		
		Delay	16.7			-		8.7	-	-	-	-	-		
	Queue	25'			-		25'	-	-	-	-	-			
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1			1		1			1				
		LOS	A			A		A			A				
		Delay	6.0			7.7		8.0			6.9				
	PM	Queue	25'			30'		50'			45'				
		LOS	A			A		A			A				
		Delay	7.4			6.9		7.0			8.9				
	PMSE	Queue	35'			30'		30'			75'				
		LOS	A			A		A			A				
		Delay	7.3			6.1		7.4			6.6				
	Queue	40'			25'		35'			45'					
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	Lanes->	2	-	1	-		2	-	-	-	1	1		
		LOS	A	-	A	-		A	-	-	-	A	A	A	
		Delay	9.7	-	8.8	-		9.4	-	-	-	7.2	8.2	8.7	
	PM	Queue	35'	-	25'	-		35'	-	-	-	30'	40'		
		LOS	B	-	A	-		A	-	-	-	A	A	A	
		Delay	11.0	-	9.1	-		8.2	-	-	-	8.9	8.0	9.6	
	PMSE	Queue	55'	-	25'	-		25'	-	-	-	45'	25'		
		LOS	A	-	A	-		A	-	-	-	A	A	A	
		Delay	9.7	-	9.4	-		5.7	-	-	-	6.5	5.5	7.0	
	Queue	25'	-	25'	-		25'	-	-	-	30'	25'			
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-		1	-	-	-	1			
		LOS	C			-		A	-	-	-	*			
		Delay	15.5			-		7.6	-	-	-	*			
	PM	Queue	25'			-		25'	-	-	-	*			
		LOS	B			-		A	-	-	-	*			
		Delay	13.2			-		8.0	-	-	-	*			
	PMSE	Queue	25'			-		25'	-	-	-	*			
		LOS	A			-		A	-	-	-	*			
		Delay	9.6			-		7.6	-	-	-	*			
	Queue	25'			-		25'	-	-	-	*				
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	AM	Lanes->	1			-		1	-	-	-	1			
		LOS	B			-		A	-	-	-	*			
		Delay	12.6			-		7.6	-	-	-	*			
	PM	Queue	25'			-		25'	-	-	-	*			
		LOS	B			-		A	-	-	-	*			
		Delay	11.6			-		8.0	-	-	-	*			
	PMSE	Queue	25'			-		25'	-	-	-	*			
		LOS	A			-		A	-	-	-	*			
		Delay	9.9			-		7.6	-	-	-	*			
	Queue	25'			-		25'	-	-	-	*				

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeway movement.
Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

Exhibit 5-15 Total (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
Node 100: STH 55/Crooks Avenue & Ann Street <i>Two-Way Stop Control</i>		Lanes->	-	1	1	1	1	1	2	1	1	2			
	AM	LOS	-	C	-	-	B	B	*	*	B	*	*		
		Delay	-	19.7	-	-	12.8	13.5	*	*	11.0	*	*		
		Queue	-	65'	-	-	25'	30'	*	*	25'	*	*		
	PM	LOS	-	C	-	-	B	B	*	*	B	*	*		
		Delay	-	16.0	-	-	12.7	11.0	*	*	10.9	*	*		
		Queue	-	45'	-	-	25'	25'	*	*	25'	*	*		
	PMSE	LOS	-	B	-	-	B	A	*	*	A	*	*		
		Delay	-	11.9	-	-	11.8	9.8	*	*	9.8	*	*		
		Queue	-	25'	-	-	25'	25'	*	*	25'	*	*		
Node 200: CTH CE/College Avenue & Fieldcrest Drive <i>Two-Way Stop Control</i>		Lanes->	1	2	1	1	2	1	-	1	1	1			
	AM	LOS	B	*	*	A	*	*	-	B	-	-	C		
		Delay	13.0	*	*	9.3	*	*	-	12.6	-	-	16.4		
		Queue	25'	*	*	25'	*	*	-	25'	-	-	45'		
	PM	LOS	B	*	*	A	*	*	-	B	-	-	B		
		Delay	10.3	*	*	9.9	*	*	-	11.9	-	-	12.5		
		Queue	25'	*	*	25'	*	*	-	25'	-	-	25'		
	PMSE	LOS	B	*	*	B	*	*	-	B	-	-	B		
		Delay	10.1	*	*	10.1	*	*	-	11.7	-	-	11.8		
		Queue	25'	*	*	25'	*	*	-	25'	-	-	25'		
Node 300: STH 55/Crooks Avenue & CTH CE/ College Avenue <i>Roundabout Control</i>		Lanes->	2	1	3	1	2	1	2	1	2	1			
	AM	LOS	D	B	E	B	D	D	E	E	E	E			
		Delay	34.1	10.1	36.6	13.6	28.3	29.7	36.8	38.5					
		v/c	-	-	0.75	-	-	-	0.84	0.84					
		Queue	155'	35'	100'	30'	85'	150'	190'	190'					
	PM	LOS	D	B	C	B	C	C	D	D					
		Delay	33.0	11.0	20.1	10.3	23.2	24.5	31.2	32.7					
		Queue	130'	35'	80'	25'	100'	100'	190'	185'					
	PMSE	LOS	B	A	B	A	B	B	B	B					
		Delay	14.5	8.1	12.7	7.3	12.2	13.2	12.8	13.6					
Queue		80'	25'	45'	25'	60'	60'	85'	80'						
Node 400: CTH CE/College Avenue & Konkpot Trail Road <i>Two-Way Stop Control</i>		Lanes->	1	1	1	1	1	-	1	1	1	1			
	AM	LOS	B	*	A	*	-	B	-	-	C				
		Delay	10.0	*	9.5	*	-	11.5	-	16.9					
		Queue	25'	*	25'	*	-	25'	-	25'					
	PM	LOS	A	-	A	-	-	B	-	-	C				
		Delay	9.4	-	9.6	-	-	11.7	-	23.8					
		Queue	25'	-	25'	-	-	25'	-	105'					
	PMSE	LOS	A	-	A	-	-	B	-	-	B				
		Delay	8.4	-	8.7	-	-	10.2	-	13.4					
		Queue	25'	-	25'	-	-	25'	-	40'					
Node 500: CTH CE/College Avenue & High School West D/W <i>One-Way Stop Control</i>		Lanes->	-	1	1	1	-	1	-	1	-				
	AM	LOS	-	*	*	A	-	D	-	A	-				
		Delay	-	*	*	9.7	-	31.0	-	9.6	-				
		Queue	-	*	*	25'	-	25'	-	25'	-				
	PM	LOS	-	*	*	B	-	F	-	B	-				
		Delay	-	*	*	10.1	-	129.1	-	13.9	-				
		v/c	-	-	-	-	-	1.01	-	-	-				
	PMSE	Queue	-	*	*	25'	-	200'	-	25'	-				
		LOS	-	*	*	A	-	C	-	B	-				
		Delay	-	*	*	8.8	-	19.9	-	11.7	-				
Queue	-	*	*	25'	-	25'	-	25'	-						
Node 600: Loderbauer Road & CTH CE/College Avenue <i>Traffic Signal Control</i>		Lanes->	1	1	1	1	1	1	1	1	1	1			
	AM	LOS	B	A	A	B	B	B	B	B	C	C	B	15.5	
		Delay	19.3	9.5	8.6	12.4	14.0	14.9	13.3	19.8	23.9	21.2			
		Queue	40'	75'	25'	95'	290'	105'	120'	40'	135'	70'			
	PM	LOS	B	B	A	B	B	B	B	C	C	C	B	16.5	
		Delay	17.8	14.7	9.2	19.5	12.0	16.8	16.3	24.6	26.7	23.8			
		Queue	80'	240'	35'	30'	155'	105'	140'	65'	100'	50'			
	PMSE	LOS	B	B	A	B	B	B	B	B	B	B	B		
		Delay	12.7	10.6	7.6	12.2	10.1	10.7	10.0	14.7	14.6	14.6		11.0	
		Queue	40'	140'	25'	25'	120'	35'	50'	40'	45'	40'			

Exhibit 5-15 Total (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions With Modified Geometrics and Traffic Control															
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Traffic Signal Control	AM	Lanes->	1			1	1	1	1	1	1	1	1	1	
		LOS	C			C	B	B	C	B	C	A	A	C	
		Delay	34.7			26.2	18.4	14.6	27.9	16.3	29.0	6.3	5.0	22.4	
		Queue	#150'			120'	200'	25'	385'	85'	#265'	90'	25'		
	PM	LOS	B			B	B	B	C	B	B	A	A	B	
		Delay	18.9			19.3	14.9	13.7	20.9	14.9	13.6	8.6	6.0	14.4	
		Queue	65'			130'	215'	25'	305'	75'	100'	195'	30'		
		LOS	B			B	B	B	B	B	B	A	A	B	
	PMSE	Delay	18.1			18.1	14.5	11.9	17.8	12.7	11.5	7.0	5.2	12.9	
		Queue	55'			105'	165'	25'	270'	60'	75'	140'	25'		
Node 800: STH 55/Crooks Avenue & Ridgcrest Lane One-Way Stop Control	AM	Lanes->	1			-			2	-	-	1	1		
		LOS	C			-			C	-	-	-	-		
		Delay	17.0			-			18.3	-	-	-	-		
		Queue	25'			-			25'	-	-	-	-		
	PM	LOS	C			-			A	-	-	-	-		
		Delay	20.3			-			9.1	-	-	-	-		
		Queue	25'			-			25'	-	-	-	-		
		LOS	C			-			A	-	-	-	-		
	PMSE	Delay	16.7			-			8.7	-	-	-	-		
		Queue	25'			-			25'	-	-	-	-		
Node 900: STH 55/Crooks Road with CTH KK/Calumet Street Roundabout Control	AM	Lanes->	1			1			1			1			
		LOS	A			A			A			A			
		Delay	6.4			8.3			8.5			7.3			
		Queue	30'			35'			55'			50'			
	PM	LOS	A			A			A			B			
		Delay	8.4			7.8			7.9			10.3			
		Queue	45'			35'			40'			95'			
		LOS	A			A			A			A			
	PMSE	Delay	8.4			6.8			8.4			7.5			
		Queue	55'			25'			40'			60'			
Node 1000: Loderbauer Road & High School North Access D/W Traffic Signal Control	AM	Lanes->	2	-	1	-			2	-	-	1	1		
		LOS	A	-	A	-			A	-	-	A	A	A	
		Delay	9.7	-	8.8	-			9.4	-	-	7.2	8.2	8.7	
		Queue	35'	-	25'	-			35'	-	-	30'	40'		
	PM	LOS	B	-	A	-			A	-	-	A	A	A	
		Delay	11.0	-	9.1	-			8.2	-	-	8.9	8.0	9.6	
		Queue	55'	-	25'	-			25'	-	-	45'	25'		
		LOS	A	-	A	-			A	-	-	A	A	A	
	PMSE	Delay	9.7	-	9.4	-			5.7	-	-	6.5	5.5	7.0	
		Queue	25'	-	25'	-			25'	-	-	30'	25'		
Node 1100: Loderbauer Road & High School Middle Access D/W One-Way Stop Control	AM	Lanes->	1			-			1	-	-	1			
		LOS	C			-			A	-	-	*			
		Delay	15.5			-			7.6	-	-	*			
		Queue	25'			-			25'	-	-	*			
	PM	LOS	B			-			A	-	-	*			
		Delay	13.2			-			8.0	-	-	*			
		Queue	25'			-			25'	-	-	*			
		LOS	A			-			A	-	-	*			
	PMSE	Delay	9.6			-			7.6	-	-	*			
		Queue	25'			-			25'	-	-	*			
Node 1200: Loderbauer Road & New South D/W One-Way Stop Control	AM	Lanes->	1			-			1	-	-	1			
		LOS	B			-			A	-	-	*			
		Delay	12.6			-			7.6	-	-	*			
		Queue	25'			-			25'	-	-	*			
	PM	LOS	B			-			A	-	-	*			
		Delay	11.6			-			8.0	-	-	*			
		Queue	25'			-			25'	-	-	*			
		LOS	A			-			A	-	-	*			
	PMSE	Delay	9.9			-			7.6	-	-	*			
		Queue	25'			-			25'	-	-	*			

Exhibit 5-16A
STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive
Full Build Traffic Peak Hour Operating Conditions Comparison Table

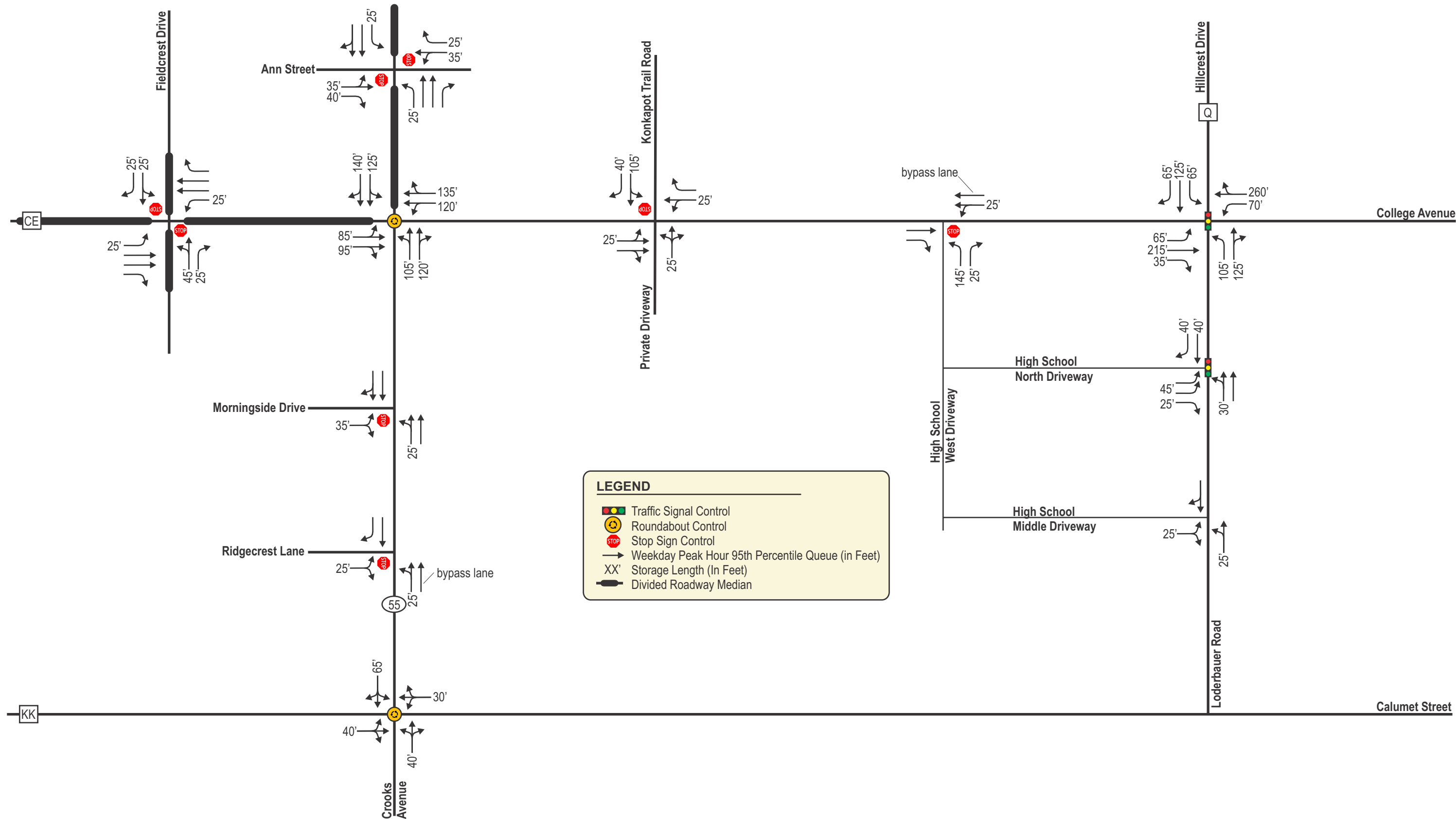
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S	
			Eastbound			Westbound			Northbound			Southbound			LOS & Delay	
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙		
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Roundabout Control		Lanes->	1			1			1			1				
	AM	LOS	A			B			C			B			B 14.9	
		Delay	8.2			13.1			22.2			10.2				
		Queue	25'			75'			215'			105'				
	PM	LOS	A			A			A			B			A 9.1	
		Delay	6.3			6.9			8.3			10.4				
		Queue	25'			25'			65'			115'				
	PMSE	LOS	A			A			A			A			A 7.1	
		Delay	5.2			5.6			7.3			7.4				
Queue		25'			25'			55'			65'					
		Lanes->	1			1			1			1				
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Traffic Signal Control	AM	LOS	B			C			C	B	B	B	A	A	B 16.8	
		Delay	19.9			20.6			28.2	11.6	19.5	12.4	14.9	6.3		5.0
		Queue	45'			80'			#225'	25'	365'	55'	140'	115'		25'
	PM	LOS	B			B			B	B	B	A	A	A	B 11.8	
		Delay	16.0			15.8			17.9	10.6	16.1	10.8	8.9	7.5		5.2
		Queue	50'			45'			110'	25'	245'	25'	40'	200'		30'
	PMSE	LOS	B			B			B	A	B	A	A	A	B 10.7	
		Delay	15.2			14.9			15.8	9.7	14.5	9.6	8.1	6.6		4.9
		Queue	45'			25'			60'	25'	205'	25'	25'	125'		25'

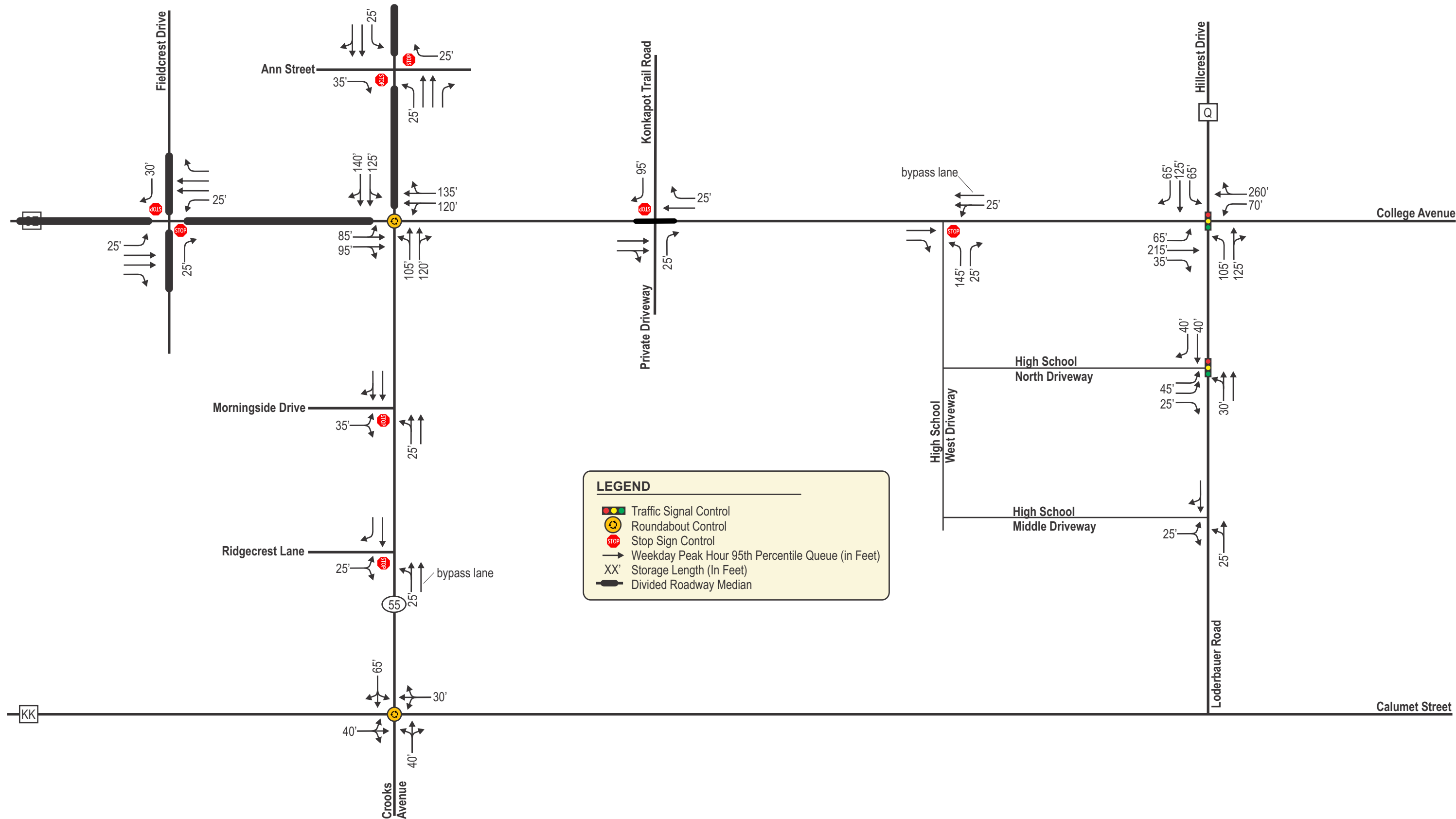
(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

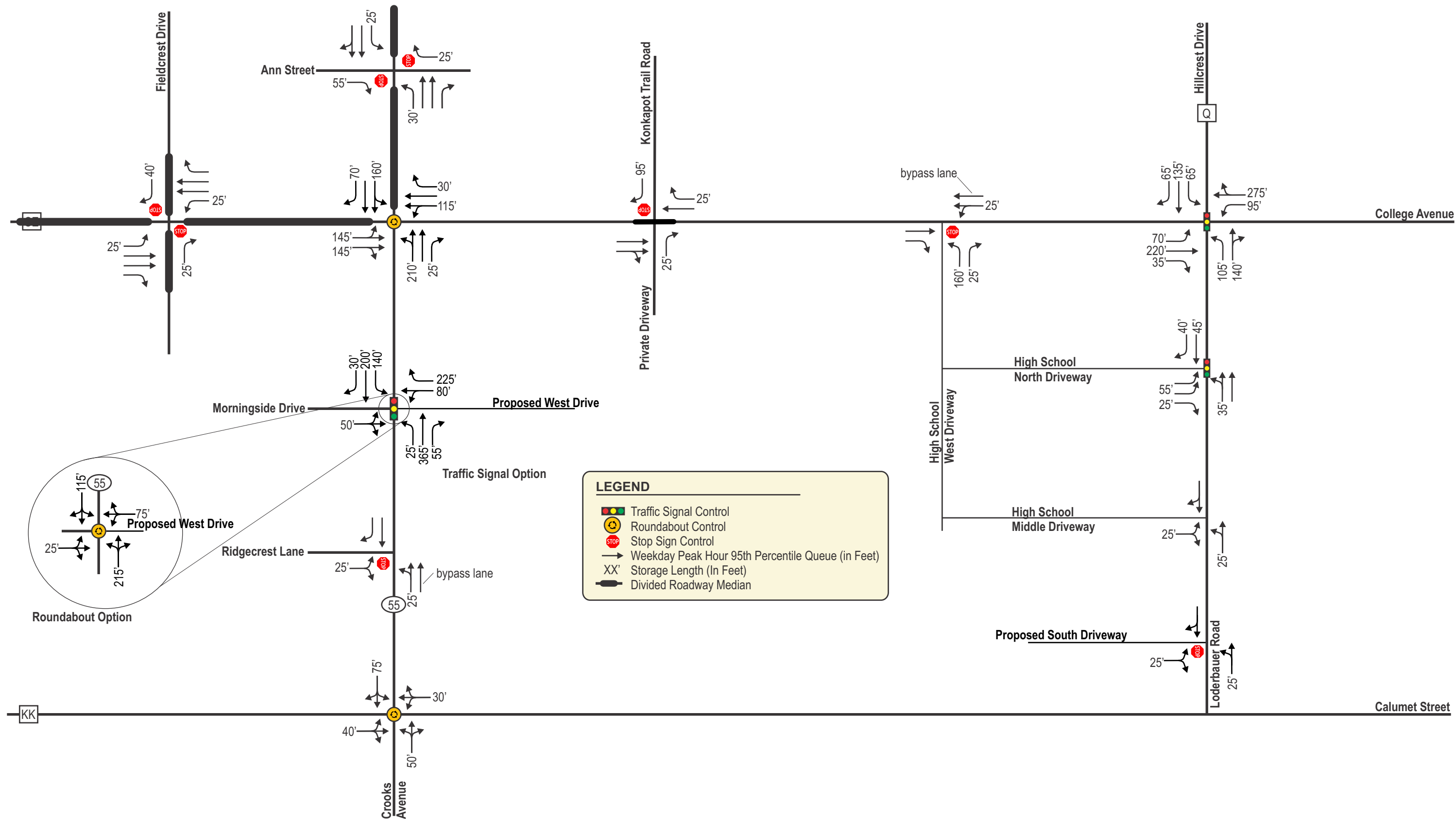
Exhibit 5-16B
Total (Scenario 2 - Left-in/Right-in/Right-out Access) Traffic Peak Hour Operating Conditions
Total Traffic Peak Hour Operating Conditions Comparison Table

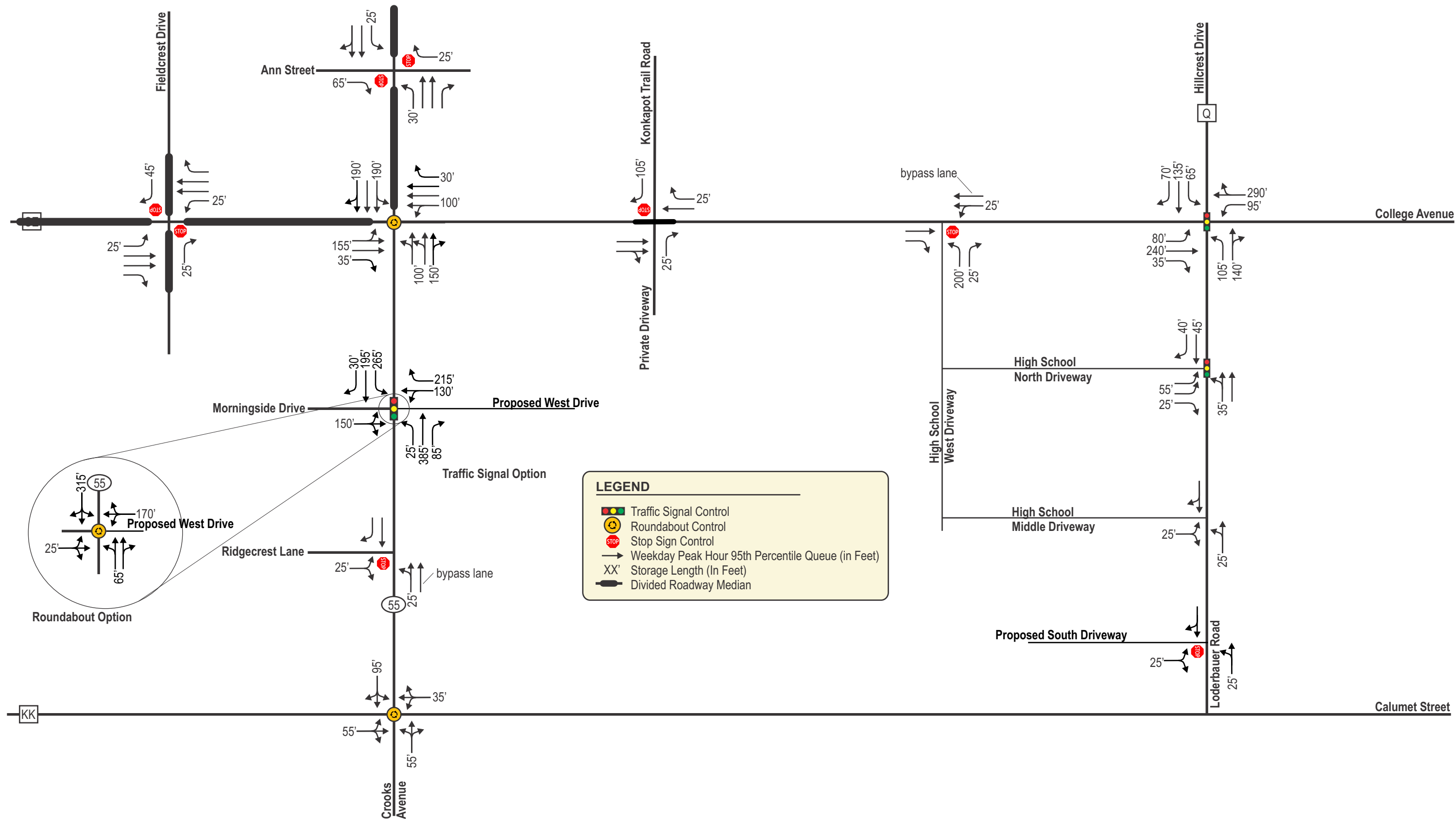
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S			
			Eastbound			Westbound			Northbound			Southbound			LOS & Delay			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙				
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Roundabout Control		Lanes->	1			1			2			1						
	AM	LOS	B			C			B			B			C 15.0			
		Delay	10.3			23.1			10.8			14.8						
		Queue	25'			170'			65'			180'						
	PM	LOS	A			C			A			C			C 16.7			
		Delay	9.0			15.0			7.4			23.6						
		Queue	25'			115'			35'			315'						
	PMSE	LOS	A			B			A			B			B 10.7			
		Delay	7.3			12.1			6.6			13.1						
Queue		25'			80'			35'			155'							
Node 700: STH 55/Crooks Avenue & Morningside Drive/Proposed West Access Drive Traffic Signal Control		Lanes->	1			1			1			1			1			
	AM	LOS	C			C			B			B			C			C 22.4
		Delay	34.7			26.2			18.4			14.6			27.9			
		Queue	#150'			120'			200'			25'			385'			
	PM	LOS	B			B			B			C			B			B 14.4
		Delay	18.9			19.3			14.9			13.7			20.9			
		Queue	65'			130'			215'			25'			305'			
	PMSE	LOS	B			B			B			B			B			B 12.9
		Delay	18.1			18.1			14.5			11.9			17.8			
Queue		55'			105'			165'			25'			270'				

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.









CHAPTER VI – RECOMMENDATIONS AND CONCLUSION

PART A – RECOMMENDATIONS

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual* (HCM) 7th Edition. Intersection operation is defined by “level of service.” Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A,’ to very poor, represented by LOS ‘F.’ For the purpose of this study, LOS D or better was used to define acceptable peak hour operating conditions.

Modifications to address traffic impacts are shown in [Exhibit 1-3](#) for the following traffic volume scenarios:

- “Background Traffic” – These modifications are expected to be necessary to accommodate the Existing/Background traffic volumes.
- “Full Build Traffic” – These modifications are expected to be necessary to accommodate the Full Build traffic volumes which includes full build out of the proposed Middle School but does not include the identified off-site development areas.
- “Total Traffic” – These modifications are expected to be necessary to accommodate the Total traffic volumes which includes full build out of the proposed Middle School as well as the identified off-site development areas.

The analysis was conducted using existing intersection geometrics and traffic control and the existing traffic signal timings. The following modifications, as shown in [Exhibit 1-3](#), are recommended to accommodate the Existing/Background, Full Build, and Total traffic volumes, respectively. *Modifications are for jurisdictional consideration and are not legally binding. WisDOT, Outagamie County and the City of Kaukauna reserve the right to determine alternative solutions.*

Node 100: STH 55/Crooks Avenue with Ann Street

- *Background Traffic:*
 - Reconstruct the median to restrict through and left-turn exiting movements from the east and west approaches, thereby allowing left-in/right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent roundabout to continue to their ultimate destination.
 - Maintain stop control on the east and west approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 200: CTH CE/College Avenue with Fieldcrest Drive

- *Background Traffic:*
 - Reconstruct the median to restrict through and left-turn exiting movements from the north and south approaches, thereby allowing left-in/right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent roundabout to continue to their ultimate destination.

- Maintain stop control on the north and south approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 300: STH 55/Crooks Avenue with CTH CE/College Avenue

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Consider reconstructing roundabout to provide a right-turn bypass lane on the north, south and east approaches.
- *Total Traffic:*
 - Reconstruct the roundabout to provide a multi-lane roundabout with three lane approaches on the north and south approaches, a two-lane approach with a bypass lane on the west approach and a three-lane approach with a bypass lane on the east approach.

Node 400: CTH CE/College Avenue with Konkapot Trail Road/Forefront Dermatology Access Driveway

- *Background Traffic:*
 - Construct a raised median through the limits of the intersection to allow only right-in/right-out access at this intersection. The restricted movements would either divert to other intersections or make a right-turn movement and then traverse the adjacent intersection to continue to their ultimate destination.
 - Maintain stop control on the north and south approaches.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 500: CTH CE/College Avenue with High School West Driveway

- *Background Traffic:*
 - Consider restricting all exiting northbound movements at this intersection during the weekday afternoon peak period. Diverted traffic would be expected to utilize the signalized intersection at Loderbauer Road.
- *Full Build Traffic:* No additional modifications.
- *Total Traffic:* No additional modifications.

Node 600: Loderbauer Road with CTH CE/College Avenue

- *Background Traffic:* No modifications.
- *Full Build Traffic:* No modifications.
- *Total Traffic:* No modifications.

Node 700: STH 55/Crooks Avenue with Morningside Drive/Proposed West Access Drive

- *Background Traffic:* No modifications.

- *Full Build Traffic*. Two modification options are recommended for consideration (see discussion below):
 - Option 1 – Provide fully actuated traffic signal control.
 - Provide southbound left-turn arrow with protected/permitted left-turn phasing.
 - No modifications recommended on the west approach.
 - Provide a shared through /left-turn lane and a dedicated right-turn lane on the east approach.
 - Provide a dedicated left-turn lane, through lane and right-turn lane on the north and south approaches (three lanes each).
 - Provide pedestrian crosswalk pavement markings along all approaches of the intersection.
 - Option 2 - Construct a single lane roundabout with single entrance lanes on all approaches.
- *Total Traffic*: Two modification options are recommended for consideration (see discussion below):
 - Option 1 – Provide fully actuated traffic signal control.
 - Provide westbound right-turn arrow with permitted/overlap right-turn phasing.
 - Option 2 – Modify roundabout to provide an additional northbound lane (two lanes) on the south approach with two northbound lanes through the roundabout. All other approaches to remain as single lane approaches.

Node 800: STH 55/Crooks Avenue with Ridgecrest Lane

- *Background Traffic*: No modifications.
- *Full Build Traffic*: No modifications.
- *Total Traffic*: No modifications.

Node 900: STH 55/Crooks Avenue with CTH KK/Calumet Street

- *Background Traffic*: No modifications.
- *Full Build Traffic*: No modifications.
- *Total Traffic*: No modifications.

Node 1000: Loderbauer Road with High School North Driveway

- *Background Traffic*: No modifications.
- *Full Build Traffic*: No modifications.
- *Total Traffic*: No modifications.

Node 1100: Loderbauer Road with High School Middle Driveway

- *Background Traffic*: No modifications.
- *Full Build Traffic*: No modifications.

- *Total Traffic:* No modifications.

Node 1200: Loderbauer Road with Proposed South Access Driveway

- *Background Traffic:* No modifications.
- *Full Build Traffic:*
 - Construct a full access driveway with stop sign control on the west approach.
- *Total Traffic:* No additional modifications.

A traffic signal warrant analysis was completed for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive under Full Build and Total traffic volume conditions. The peak hour warrant is expected to be met for the Full Build traffic volume condition and the 8-Hour and 4-Hour warrants are expected to be met for the Total traffic volume condition. Per the WisDOT Facilities Development Manual (FDM), if an intersection warrants traffic signal control, a modern roundabout should also be evaluated. Therefore, roundabout control was also considered at the proposed intersection. Based on intersection operations and the analysis completed for this study, both traffic signal control and roundabout control are viable alternatives at the intersection. The decision to provide traffic signal or roundabout control is best made by the local communities and regulating agencies. However, based on the ICE analysis, even though both traffic control options provide acceptable operations from a delay perspective, traffic signal control is recommended for the Crooks Avenue/STH 55 intersection with Morningside Drive/Proposed West Access Drive due to less disruption to the traveling public and the significant difference in initial cost of the roundabout alternative. It is also noted that, in general, the typical cost of a single-lane roundabout in comparison to a signalized intersection is about two times the cost of a new signalized intersection with geometric modifications, dependent on right-of-way needs and complexity of the designs. In addition, since the proposed development is for a middle school and a large residential neighborhood is located immediately west of the site, a relatively high number of students are expected to cross STH 55 every weekday during the morning peak period and the afternoon peak period. Traffic signal control would allow for a controlled (marked pedestrian crossings with push buttons and pedestrian countdown timers) crossing for the anticipated students, which could allow for a potentially safer pedestrian crossing situation and could remove the need for the proposed pedestrian tunnel under STH 55. Based on all of these factors, traffic signal control is recommended.

Higher delays (LOS E/F) are expected for several movements at the STH 55/Crooks Avenue intersection with CTH CE/College Avenue under the current dual lane roundabout controlled intersection under Full Build and Total traffic volume conditions. The recommended bypass lane additions under the Full Build traffic volume conditions and the recommended reconstruction to a 3-lane roundabout with bypass lanes under the Total traffic volume conditions are expected to provide acceptable operation for most movements; however, higher delays (LOS E) are still expected for some movements during the typical weekday morning peak period noting that the delays are only slightly higher than acceptable (about 6 seconds) and the reported queueing is expected to be reasonable (all less than 225 feet). Without the bypass lanes recommended under the Full Build traffic conditions, higher delays (about 60 seconds) are expected for several movements during the weekday morning peak school peak hour with maximum queues of about 400 feet (16 vehicles) or less. As with many schools, the morning peak period “surge” last about 20 to 30 minutes. However, acceptable delays are expected during all other hours of the typical

weekday, including the typical school afternoon school discharge and weekday evening commuter peak hours.

Higher delays (LOS F) are also expected at the College Avenue/CTH CE intersection with the High School West Driveway under Existing, Full Build and Total traffic conditions during the typical weekday afternoon peak period. Restricting these movements during this time period, with diverted traffic utilizing the signalized intersection at Loderbauer Road, would allow this and all study area intersections to operate acceptably under all peak periods.

PART B – CONCLUSION

To accommodate the full build out of the proposed middle school, recommended modifications are expected to be necessary to the transportation network. Except as noted, all movements at the study area intersections are expected to operate safely and efficiently with the modifications identified in this TIA with the proposed middle school site and identified off-site development areas.

PRELIMINARY CSM EXHIBIT

Surveyor's Certificate:

I, Jordan G. Brost, Professional Land Surveyor, hereby certify:

Being all of Lots 1 and 2 of Outagamie County Certified Survey Map No. 6559 as recorded in Volume 39 of Certified Survey Maps, Page 6559, as Document No. 1906502, and being part of Government Lots 2 and 3, all located in part of the Northwest 1/4 of Section 36, Township 21 North, Range 18 East, City of Kaukauna, Outagamie County, Wisconsin, described as follows:

Commencing at the West 1/4 corner of Section 36, Township 21 North, Range 18 East;
Thence S 89°31'20" E along the South line of the Northwest 1/4 of said Section 36, 40.84 feet to the southwest corner of Government Lot 3 of said Section 36 and being on the East right-of-way line of S.T.H. "55", said point also being the Southwest corner of Lot 1 of Certified Survey Map No. 6559 and the Point of Beginning (P.O.B.) of the parcel to be described;
Thence N 00°20'39" E along the West line of said Government Lot 3, said line also being the West line of said Lot 1 and the East right-of-way line of said S.T.H. "55", 374.92 feet;
Thence N 15°43'14" E along the South line of said Lot 1 and along said East right-of-way line of S.T.H. "55", 51.86 feet;
Thence N 00°20'39" E along said West line of Lot 1 and along said East right-of-way line of S.T.H. "55", 30.00 feet;
Thence N 62°40'32" W along said West line of Lot 1 and along said East right-of-way line of S.T.H. "55", 15.43 feet;
Thence S 89°18'42" E along said West line of Lot 1, 156.60 feet;
Thence N 00°20'39" E along said West line of Lot 1, 94.75 feet to the South line of Lot 2 of Certified Survey Map No. 6559;
Thence N 00°15'04" E along said South line of Lot 2, 84.29 feet;
Thence N 89°32'00" W along said South line of Lot 2, 156.45 feet to the Southwest corner thereof, said point also being on the East right-of-way line of S.T.H. "55";
Thence N 00°20'39" E along the West line of said Lot 2 and along said East right-of-way line of S.T.H. "55", 138.10 feet;
Thence N 00°08'35" E along said West line of Lot 2 and along said East right-of-way line of S.T.H. "55", 273.55 feet to the Northwest corner of said Lot 2;
Thence N 03°29'08" E along the West line of Lot 1 of Certified Survey Map No. 6559 and along said East right-of-way line of S.T.H. "55", 150.25 feet;
Thence N 05°51'09" E along the West line of said Lot 1 and along said East right-of-way line of S.T.H. "55", 131.10 feet;
Thence N 00°08'50" E along the West line of said Lot 1 and along said East right-of-way line of S.T.H. "55", 400.00 feet;
Thence N 02°08'40" W along the West line of said Lot 1 and along said East right-of-way line of S.T.H. "55", 250.28 feet;
Thence N 16°42'40" W along the West line of said Lot 1 and along said East right-of-way line of S.T.H. "55", 52.55 feet;
Thence northeasterly 30.68 feet along the arc of a curve, along the West line of said Lot 1 and along said East right-of-way line of S.T.H. "55", concave southeasterly having a radius of 7680.69 feet and whose long chord bears N 01°57'48" W, 30.68 feet;
Thence S 89°32'00" E along the West line of said Lot 1, 103.19 feet;
Thence N 00°07'10" E along the West line of said Lot 1, 233.52 feet to the Northwest corner thereof;
Thence N 83°18'52" E along the North line of said Lot 1, 367.75 feet to the North line of Government Lot 3 of said Section 36;
Thence S 84°40'26" E along the North line of said Lot 1, the North line of said Government Lot 3 and the North line of Government Lot 2 of said Section 36, 1978.59 feet;
Thence S 82°48'39" E along the North line of said Government Lot 2 and along the North line of Government Lot 1 of said Section 36, 1921.10 feet to the Northeast corner of said Government Lot 1;
Thence S 00°17'15" E, 320.58 feet;
Thence S 00°30'45" W, 856.40 feet;
Thence N 89°33'15" W, 189.70 feet;
Thence S 78°12'45" W, 193.00 feet;
Thence S 13°41'45" W, 506.70 feet;
Thence N 89°18'06" W, 749.91 feet to the West line of the Southeast 1/4 of said Section 36;
Thence N 00°41'24" E along the West line of said Southeast 1/4, 844.30 feet to the Center 1/4 corner of said Section 36;
Thence N 89°31'20" W along the North line of the Southwest 1/4 of said Section 36, 2621.35 feet to the point of beginning.

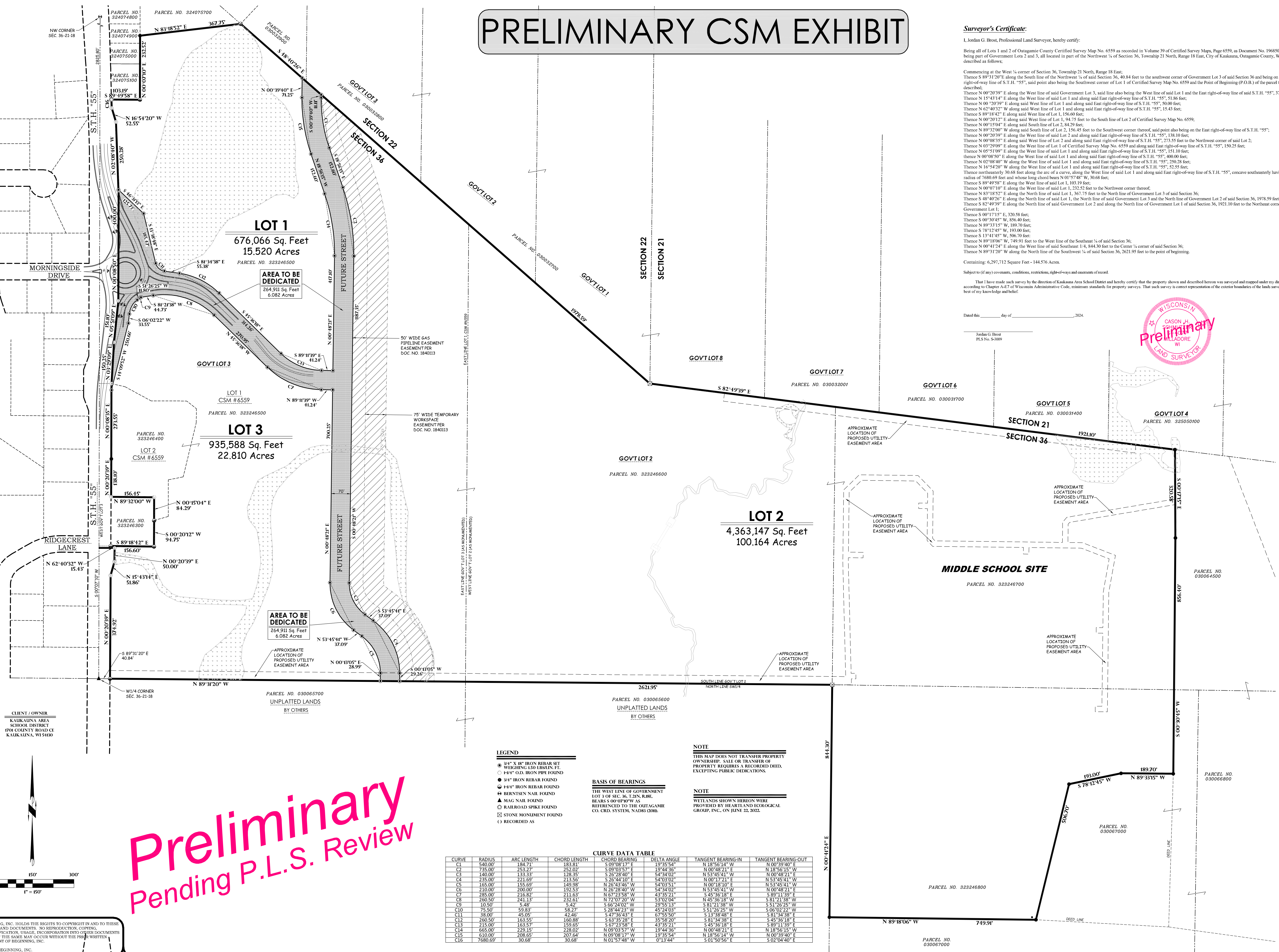
Containing: 6,297,712 Square Feet - 144.576 Acres.

Subject to (if any) covenants, conditions, restrictions, right-of-ways and easements of record.

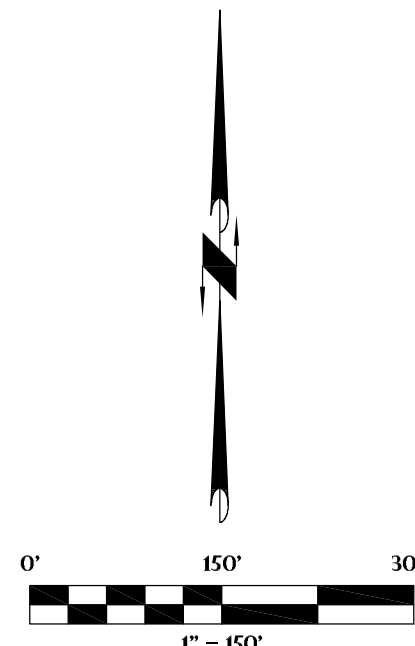
That I have made such survey by the direction of Kaukauna Area School District and hereby certify that the property shown and described hereon was surveyed and mapped under my direction according to Chapter A-17 of Wisconsin Administrative Code, minimum standards for property surveys. That such survey is correct representation of the exterior boundaries of the lands surveyed to the best of my knowledge and belief.

Dated this _____ day of _____, 2024.

Jordan G. Brost
P.L.S. No. S-1009



CLIENT / OWNER
KAUKAUNA AREA
SCHOOL DISTRICT
1701 COUNTY ROAD CE
KAUKAUNA, WI 54900



Preliminary
Pending P.L.S. Review

- LEGEND**
- 3/4" X 8" IRON REBAR SET
WEIGHING 150 LB/IN. FT.
 - 1/4" O.D. IRON PIPE FOUND
 - 3/4" IRON REBAR FOUND
 - 1/4" IRON REBAR FOUND
 - BURNSTEN NAIL FOUND
 - MAG NAIL FOUND
 - RAILROAD SPIKE FOUND
 - STONE MONUMENT FOUND
 - RECORDED AS

BASIS OF BEARINGS
THE WEST LINE OF GOVERNMENT
LOT 3 OF SEC. 36, T.21N, R.18E,
BEARS S 00°07'00" W AS
REFERENCED TO THE OUTAGAMIE
CO. CRD. SYSTEM, NAD83 (2011).

NOTE
THIS MAP DOES NOT TRANSFER PROPERTY
OWNERSHIP, SALE OR TRANSFER OF
PROPERTY REQUIRES A RECORDED DEED,
EXCEPTING PUBLIC DEDICATIONS.

NOTE
WETLANDS SHOWN HEREON WERE
PROVIDED BY HEARTLAND ECOLOGICAL
GROUP, INC. ON JUNE 22, 2022.

CURVE DATA TABLE							
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT BEARING-IN	TANGENT BEARING-OUT
C1	540.00'	184.71'	183.81'	S 09°08'17" E	19°35'54"	N 18°56'14" W	N 00°39'40" E
C2	735.00'	253.77'	252.00'	S 09°03'57" E	19°44'36"	N 00°48'11" E	N 18°56'15" W
C3	140.00'	133.33'	128.35'	S 26°28'40" E	54°34'02"	N 53°45'41" W	N 00°48'21" E
C4	235.00'	224.69'	213.56'	S 26°44'10" E	54°03'02"	N 00°17'21" E	N 53°45'41" W
C5	165.00'	155.69'	149.98'	N 26°43'46" W	54°03'11"	N 00°18'10" E	N 53°45'41" W
C6	210.00'	200.00'	192.53'	N 26°28'40" W	54°34'02"	N 53°45'41" W	N 00°48'21" E
C7	285.00'	244.93'	211.63'	N 67°23'58" W	43°35'21"	S 45°36'18" E	S 89°11'39" E
C8	260.50'	241.13'	224.61'	N 72°07'20" W	53°02'04"	N 45°36'18" E	S 81°21'38" W
C9	10.50'	5.48'	5.42'	S 66°24'02" W	29°55'13"	S 81°21'38" W	S 51°26'25" W
C10	75.50'	59.83'	58.27'	S 28°44'23" W	45°24'03"	S 51°26'25" W	S 06°02'22" W
C11	38.00'	45.05'	42.46'	S 47°36'43" E	67°55'50"	S 81°34'38" E	S 81°34'38" E
C12	260.50'	163.55'	160.88'	S 63°35'28" E	35°58'20"	S 81°34'38" E	S 45°36'18" E
C13	215.00'	163.57'	159.65'	S 67°23'58" E	43°35'21"	S 45°36'18" E	S 89°11'39" E
C14	665.00'	229.15'	228.02'	N 09°03'57" W	19°44'36"	N 00°48'21" E	N 18°56'15" W
C15	610.00'	208.65'	207.64'	N 09°08'17" W	19°35'54"	N 18°56'14" W	N 00°39'40" E
C16	7680.69'	30.68'	30.68'	N 01°57'48" W	01°13'44"	S 01°50'56" E	S 02°04'40" E

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Item 2.a.

REVISIONS

CHECKED: JORDAN G. BROST
DRAWN: TRAVIS PLANTICO
DATE: 09-04-25
PROJECT NO.: 24-4040-S

PRELIMINARY
CERTIFIED SURVEY MAP EXHIBIT

KASD
NEW MIDDLE SCHOOL SITE
CITY OF KAUKAUNA
OUTAGAMIE COUNTY, WI

Civil Engineering
Land Surveying
Landscape Architecture
4941 Kirschling Court
Stevens Point, WI 54481
7.15.344.9999 (PH) 7.15.344.9922

P.O.B.
Point of Beginning

SHEET 1 OF 1

299

Red Hills Landfill Update

October 2025

General Overview

Started placing waste in Phase 6, Seq 2B in 2025.



Phase 6 Sequence 1 – Vegetation – Limited Standing Leachate





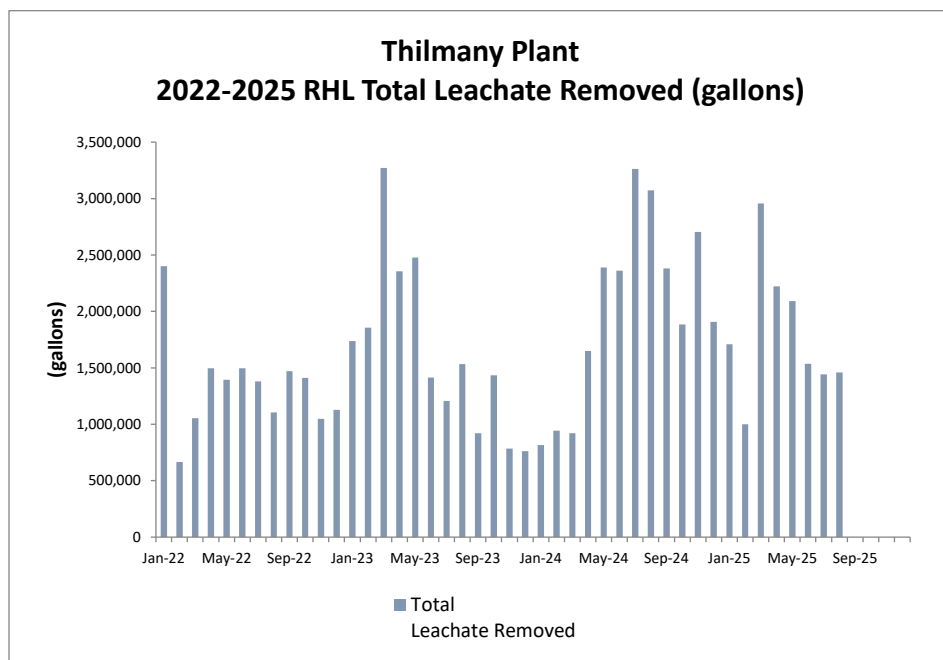
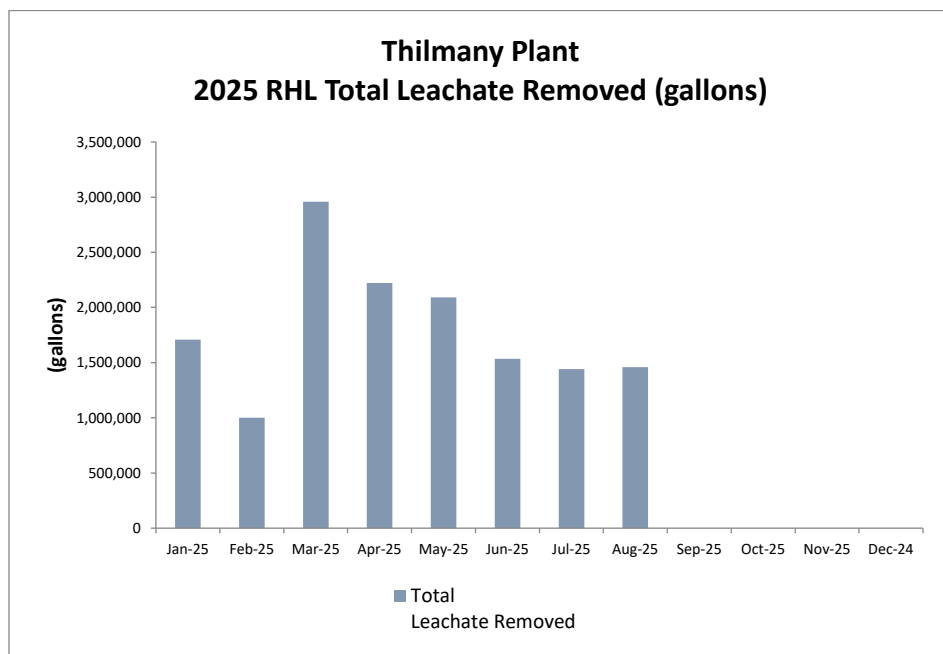


Phase 5

Bark to Phase 5 to help displace standing leachate towards the pumps for removal.



Leachate Management – Ahlstrom trucked Leachate for treatment to help control odor



Dust

Ahlstrom identified and corrected a mechanical issue within our lime kiln. During this time, we mixed the lime with dense materials to mitigate dust during transport. In addition, we also revisited training with team members on the established processes and expectations required during loading and transport.

Noise A faulty valve on the paper machine roof, that would release pressure intermittently was found. A person would need to be on the roof at the right time to identify it. It was a safety relief valve for one of our PMs, 80# header. It was repaired during September outage.

Request to Update – Agreement Between Expera Specialty Solutions LLC and the City of Kaukauna Regarding Red Hills Landfill

Update Company Name on agreement to Ahlstrom NA Specialty Solutions LLC - Thilmany.

Ahlstrom is requesting to update the agreement in order to allow a sister site to bring fiber, on a limited basis and as a last resort, to Red Hills. The fiber from Rhinelander would not fall under a beneficial use for the landfill, hence, requesting approval from the Board.

Spring into Summer is difficult to land spread, road limits affect the fields they can get to.

They lost 2 sources of landfills due to closure.

They have expanded land base to more options (outside of the original 20 miles), more land since onset of the proposal.



MEMO

Engineering Department

To: Board of Public Works

From: Taylor Conger

Date: October 6th, 2025

Re: **Agenda Item #2c:** Reject all bids for Project #8-25 and Authorization to seek bids for Project #8-25R – Sanitary and Storm Sewer CIPP Installation

Background information:

The Engineering Department has reviewed and analyzed the bid received from Visu-Sewer on September 9th, 2025 at 4:00pm for the 8-25 Sanitary and Storm Sewer CIPP Installation Project. The Engineering Department only received the one bid and compared it against the Engineer's estimate that was put together prior to bid opening. The Engineer's estimate is compiled utilizing previous years' prices and adjusted for inflation and changes in work descriptions. The received bid was \$2,092,499.50 for the work, a number much higher than anticipated. The Engineer's estimate for the project was \$1,386,397.00. This high bid is due to some very extensive work that would have been required for one of the main items on the project, along with some deadlines that the contractor did not feel comfortable meeting. The Engineering Department will be making alterations to the project scope, and plans to rebid the project to receive more competitive pricing.

Strategic Plan:

N/A

Budget:

Funds needed determined from the 2025 Capital Improvements Plan. Spending in various locations are to be allocated to different projects. City spending and project cost estimated to be near \$1,200,000

Staff Recommended Action:

Motion to reject all bids for Project #8-25, Sanitary and Storm Sewer CIPP Installation, and authorize the Engineering Department to seek bids for Project #8-25R, Sanitary and Storm Sewer CIPP Installation.



MEMO

DEPARTMENT OF PUBLIC WORKS

To: Board of Public Works
From: Jake Van Gompel, Street Superintendent
Date: October 6, 2025
Re: Agenda Item 2d, Recommendations for Disposal Site

Background information:

The continued concern about staff safety and non-compliant dumping at the Municipal Disposal Site has brought staff and board members to consider operational changes. Providing an alternative disposal for Disposal Site users if refuse and recycling services were removed was a direction from this board.

With the winter holidays being the highest producer of residential waste, providing a drop-off option of household garbage and recyclables for Disposal Site users seems to be the best fit. The city can also provide the same drop-off option in the spring before large and irregular collections resume in April. Drop-off dates would be Tuesday January 6th from 7:15am-6pm and Tuesday March 3rd from 7:15am-6pm. These dates would be slightly adjusted each year and advertised in the city calendar along with Facebook and website efforts.

Residents can always bring excess garbage and recycling to the Outagamie County Recycling & Solid Waste Drop-off Site Monday-Friday 7am-3:30pm and Saturday 7am-12pm. Attached is the 2025 Outagamie County Recycling & Solid Waste materials rate sheet. Household recycling is not listed on this rate sheet but is free to Outagamie County residents.

With the removal of the garbage and recycling containers from the Disposal Site the city can provide compost for free to residents that have valid access to the site. This material would be managed and available to residents in the same manner as the wood chips offered at the site. Material would be available when the processing is completed.

Strategic Plan:

To continue providing a high quality of life through services staff looks at ways to continue collection services while being financially responsible.

Budget:

Disposal costs are budgeted in the refuse disposal operating budget.

Recommended action:

Direct staff to remove the garbage and recycling services from the Municipal Disposal Site on January 2, 2026, advertise the service changes, provide, and advertise the two drop off dates, and update waste ordinance 11.11 to reflect the changes to the Municipal Disposal Site.

2025 Rates

Outagamie County Recycling & Solid Waste

Item 2.d.

Material	Rate	Unit
Garbage (household, commercial, business)	\$ 57.00	Per Ton
Garbage – Out of County Rate (does not apply to waste from Brown, Outagamie or Winnebago Counties)	\$ 59.00	Per Ton
Construction & Demolition Waste <i>Landfill Disposal</i> (drywall, toilets/sinks, vinyl siding, windows, treated/stained/painted wood)	\$ 57.00	Per Ton
Construction & Demolition Waste <i>Transfer Station Disposal</i> *dump trailers less than 10yds* (drywall, toilets/sinks, vinyl siding, windows, treated/stained/painted wood)	\$ 87.00	Per Ton
Clean Asphalt Shingles, Drywall, Vinyl Siding <i>No cedar shake, wood, metal, trash, or household garbage</i>	\$ 35.00	Per Ton
Yard Waste (leaves, garden/grass clippings, straw/hay, brush & tree limbs < 6" diameter)	\$ 36.00	Per Ton
Aggregate (asphalt, brick & base, concrete, granite, gravel, pavers, stone/rock)	\$ 5.00	Per Ton
Non-Freon Appliances (dryer, microwave, stove, washer, water heater)	\$ 20.00	Each
Freon Appliances (A/C, dehumidifier, bubbler, freezer, refrigerator, water cooler)	\$ 20.00	Each
All Mattresses and Box Springs	\$ 5.00	Each
Tires - All sizes	\$ 12.00	Each
Tires - 5 or more	\$ 425.00	Per Ton
Fluorescent Bulbs - All sizes (Households Only)	\$ 2.00	Each
Ballasts – All sizes (Households Only)	\$ 4.00	Each
Television/Monitor - All sizes	\$ 30.00	Each
Computer Tower, Laptop, Game Console, Printer/Scanner/Fax Machine	\$ 5.00	Each
DVD/VCR, Cable Box, Keyboard/Speakers/Cords, Cell Phones	Free of Charge	-
Propane Tank - 20lb. (empty)	\$ 5.00	Each
Propane Tank - 1lb. (empty)	Free of Charge	-
Waste Oil/Filters / Cooking Oil (General Public Only / 10 Gal Maximum)	Free of Charge	-
Batteries - (rechargeable, vehicle) (Alkaline or single use batteries may be disposed of in trash).	Free of Charge	-
Soil/Dirt	\$ 57.00	Per Ton
Sod	\$ 57.00	Per Ton
Contaminated Soil, Auto Shredder Fluff, Foundry Sand, Grits/Screenings, Incinerator Ash, Pit Waste, Septic Tank *pending approval*	TBD	Per Ton
Call (920) 832-2031 for disposal instructions and rates		
Non-Friable Asbestos	\$ 70.00	Per Ton
Call (920) 832-2031 for disposal instructions	\$ 30.00	min. charge
Friable Asbestos	\$ 370.00	Per Ton
Call (920) 832-2031 for disposal instructions	\$ 30.00	min. charge

All weighed vehicles over 700 lbs. are prorated at \$57/Ton with a \$20.00 minimum charge

**DEPARTMENT OF THE ARMY
RIGHT OF ENTRY FOR CONSTRUCTION**

Kaukauna Parcel J Remediation (Project, Installation, or Activity)	320 (Tract Number or Other Property Identification)
---	---

The undersigned, hereinafter called the “Owner,” hereby grants to the UNITED STATES OF AMERICA, hereinafter called the “Government,” a right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government, its agents, and assigns an irrevocable right to enter upon the lands hereinafter described at any time from October 1st, 2025 through December 31st, 2027, in order to perform construction work of any nature.
2. This right-of-entry includes the right of ingress and egress on other lands of the Owner not described below, provided that such ingress and egress is necessary and not otherwise conveniently available to the Government.
3. All tools, equipment, buildings, improvements, and other property taken upon or placed upon the land by the Government shall remain the property of the Government and may be removed by the Government at any time within a reasonable period after the expiration of this right-of-entry.
4. In the event that the Government does not acquire title or other necessary interest in said land prior to the expiration of this permit or right-of-entry, or other renewal thereof, the parties agree that, if any action of the Government’s employees or agents in the exercise of this right-of-entry results in damage to the real property, the Government will, at its option, either repair such damage or make an appropriate settlement with the Owner. In no event shall such repair or settlement exceed the fair market value of the fee interest of the real property at the time immediately preceding such damage. The Government’s liability under this clause may not exceed appropriations available for such payment and nothing contained in this agreement may be considered as implying that Congress will at a later date appropriate funds sufficient to meet deficiencies. The provisions of this clause are without prejudice to any rights the Owner may have to make a claim under applicable laws for any other damages than provided herein. If the Government does acquire such title or other necessary interest, damages would be limited to the decrease in the fair market value of the owner’s remainder caused by such damage.

The land affected by this right-of-entry is located in the State of Wisconsin, County of Outagamie, and is described in “Exhibit A”, which is attached and made a permanent part thereof.

WITNESSES MY HAND AND SEAL this ____ day of _____, 2025.

CITY OF KAUKAUNA

Print Name

Title

Phone Number

Email Address

Signature

UNITED STATES OF AMERICA

By: _____
MICHAEL B. ROHDE
Chief, Real Estate Division
Real Estate Contracting Officer

Exhibit A
Real Estate Map

NOTE: THE CERTIFICATE OF AUTHORITY must be executed by an individual other than by the person who signed the agreement. The individual must certify that the official who signed the agreement was authorized to act in that capacity.

CERTIFICATE OF AUTHORITY

I, _____, do hereby certify that I am the
 _____ of **City of Kaukauna** and that
 _____, who signed the agreement on behalf of **City of
 Kaukauna** was at the time of signature its _____, and
 that the person who executed the agreement on behalf of _____ acted within his/her statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this _____ day
 of _____, 2024.

 (Name)

 (Title)



MEMO

PLANNING AND COMMUNITY DEVELOPMENT

To: Board of Public Works
From: Dave Kittel, Director of Planning and Community Development
Date: 10/02/2025
Re: Easements-Riverside Park, Pool Hill for Water Filtration Plant

Background information:

The City and Kaukauna Utilities are moving towards the final steps to facilitate the expansion of the water treatment facility at Riverside Park and the new plant on the top of Pool Hill. The Site plans have been reviewed, the needed CSM has been reviewed with the next step being to finalize the needed easements. These easements are necessary to facilitate access, construction, and long-term maintenance of the upgraded filtration systems. Attached to this memo are the easement documents detailing the scope, location, and terms of each proposed easement. These have been reviewed in coordination with the Engineering Department and legal counsel to ensure alignment with city ordinances and standards.

Strategic Plan:

This is not directly related to the strategic Plan but aligns with the mission and vision of the strategic plan.

Budget:

Not Applicable

Recommendation:

To approve the easements as presented and direct the mayor to sign the required documents to record the easements.

UTILITY AND INGRESS/EGRESS EASEMENT

This Utility and Ingress/Egress Easement (“**Easement**”) is made by and between the City of Kaukauna, a Wisconsin municipal corporation (“**Grantor**”) and Kaukauna Utilities, an enterprise fund of the City of Kaukauna (“**Grantee**”).

RECITALS:

- A. Grantor is the fee simple owner of a parcel of land located in the City of Kaukauna, Outagamie County, Wisconsin which are legally described on Exhibit A attached hereto (“**Grantor Parcel**”).
- B. Grantee is a municipal public utility providing electric and water service. Grantee currently maintains certain buildings and other facilities on the Grantor Parcel, including a well and water treatment equipment, which Grantee intends to modify and improve.
- C. Grantor and Grantee entered into an agreement dated February 7, 2025 and recorded with the Outagamie County Register of Deeds on February 18, 2025 as Document No. 2332143 (“**Riverside Agreement**”) which, among other things, required Grantor to convey this Easement to Grantee exchange for the consideration set out in the Riverside Agreement.

RETURN TO:

Kaukauna Utilities
Attn: Michael Avanzi
P.O. Box 1777
Kaukauna, WI 54130

P.I.N.

(See attached Exhibit A)

NOW, THEREFORE, in consideration of the foregoing recitals, where are hereby incorporated into this Agreement, the consideration set out in the Riverside Agreement, the execution of this Easement, the mutual covenants and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Grantor and Grantee agree as follows:

1. *Grant of Easement.*
 - a. *Utility Easement.* Grantor hereby grants to Grantee and its employees, contractors, agents, invitees, successors, and assigns a perpetual easement to construct, install, maintain, operate, repair, inspect, replace, upgrade, add, relocate, and remove utility facilities and appurtenant equipment and structures (including, without limitation, water, sewer, electrical, natural gas, and communication lines, conduit, cables, conductors, wires, poles, footings, foundations, controls, switches, relays, circuit breakers, telemetry and monitoring devices, anchors, transformers, generators, pedestals, wells, well houses, water treatment facilities, utility buildings, and public restrooms) (collectively, “**Utility Facilities**”) below, upon, in, over, through, and across the portion of the Grantor Parcel described and depicted on Exhibit B attached hereto (“**Utility Easement Area**”).

- b. *Ingress/Egress Easement.* Grantor hereby grants to Grantee and its employees, contractors, agents, invitees, successors, and assigns a perpetual easement for pedestrian and vehicular ingress, egress, and parking upon, over, through, and across the portion of the Grantor Parcel described and depicted on Exhibit C attached hereto (“**Access Easement Area**”).
 - c. *Easement Area.* The Utility Easement Area and the Access Easement are collectively referred to as the “**Easement Area.**”
- 2. *Limitations on Grantor.* Grantor agrees that Grantor shall not (a) change the grade of the Easement Area without the prior written consent of Grantee; (b) construct or install any building, fence, or structure of any kind upon the Easement Area; (c) plant any tree or bush within the Easement Area; (d) store any flammable materials within the Easement Area; or (e) damage or interfere with any Utility Facilities within the Easement Area. In no event shall the installation of paving, concrete, or other hard surface material on the Easement Area be considered a violation of the restrictions on Grantor set forth in this Section 2.
- 3. *Access; Vegetation Control; Temporary Use of Adjacent Land.* Grantee and its employees, contractors, agents, and invitees shall have the right of reasonable ingress and egress to and from the Easement Area upon, over, through, and across the Grantor Parcel for the purpose of exercising the rights granted to Grantee hereunder and shall have the right to control all trees, bushes, and brush that may interfere with the Utility Facilities by cutting, trimming, chemically treating, or any other legal means without replacement or compensation. Grantee and its employees, contractors, agents, and invitees shall have the right make temporary use of portions of the Grantor Parcel adjacent to the Easement Area as reasonably necessary or convenient to facilitate the demolition of the existing Grantee facilities on the Grantor Parcel and the construction, installation, maintenance, repair, replacement, upgrade, addition, relocation, or removal of the Utility Facilities.
- 4. *Restoration.* Grantee shall repair any damage to the Easement Area (including any paving, concrete, or other hard surface material) caused by the construction, maintenance, or removal of the Utility Facilities to substantially the same condition as before the damage occurred. Notwithstanding the foregoing, Grantee shall not be obligated to restore or pay damages for any tree nor for any building, fence, structure, or bush installed within the Easement Area after the date of this Easement.
- 5. *Maintenance; Snow and Ice.* Grantor shall be responsible for maintenance and repair of any paving, concrete, or other hard surface material within the Easement Area except as set out in Section 4 above. Either Grantor or Grantee may clear the Easement Area of snow and ice, but neither is obligated to do so.
- 6. *Reservation of Use by Grantor.* Grantor reserves the right to use and enjoy the Easement Area in any manner that does not interfere or conflict with the rights conveyed to Grantee in this Easement.

7. *Binding Effect.* This Easement is binding upon Grantor and Grantee and their heirs, successors, and assigns and shall run with the land described in Exhibit A.
8. *Severability.* If any term or condition of this Easement, or the application of this Easement to any person or circumstance, shall be deemed invalid or unenforceable, the remainder of the Easement or the application of the term or condition to persons or circumstances other than those to which it is held invalid or unenforceable shall not be affected thereby, and each term and condition shall be valid and enforceable to the fullest extent permitted by law.
9. *Non-Use; Waiver.* Non-use or limited use of the rights granted in this Easement shall not prevent a party from later use of such rights to the fullest extent authorized in this Easement. No delay or omission by either party in exercising any right or power arising out of any default under this Easement shall be construed to be a waiver of the right or power. A waiver by either party of any of the obligations of the other party shall not be construed to be a waiver of a breach of any other terms or conditions of this Easement.
10. *Governing Law.* This Easement shall be construed and enforced in accordance with the laws of the state of Wisconsin.
11. *Entire Agreement.* This Easement constitutes the entire understanding of Grantor and Grantee with respect to its subject matter and may not be changed except by a written document executed and acknowledged by Kaukauna Utilities or its successor and the owner(s) of the Grantor Parcel and duly recorded in the office of the Register of Deeds of Outagamie County, Wisconsin.
12. *Municipal Status.* Nothing in this Easement is intended to be a waiver or estoppel of either party to rely upon the limitations, defenses, and immunities contained in Wisconsin law, including without limitation those contained in Wis. Stat. §§ 893.80, 895.52, and 345.06.

[Signature pages follow]

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals as of the dates noted below.

CITY OF KAUKAUNA

By: _____
Anthony J. Penterman, Mayor

Date: _____

STATE OF WISCONSIN)
) ss.
COUNTY OF OUTAGAMIE)

Personally came before me this _____ day of _____, 2025, the above-named Anthony J. Penterman, Mayor of the City of Kaukauna, to me known to be the person who executed the foregoing instrument and acknowledged the same.

Print name: _____
Notary Public, State of Wisconsin
My Commission _____
(SEAL)

KAUKAUNA UTILITIES

By: _____
Michael Avanzi, General Manager

Date: _____

STATE OF WISCONSIN)
) ss.
COUNTY OF OUTAGAMIE)

Personally came before me this _____ day of _____, 2025, the above-named Michael Avanzi, General Manager of Kaukauna Utilities, to me known to be the person who executed the foregoing instrument and acknowledged the same.

Print Name: _____
Notary Public, State of Wisconsin
My Commission _____
(SEAL)

- Exhibits:**
- Exhibit A:* Legal Description of Grantor Parcel
 - Exhibit B:* Utility Easement Area
 - Exhibit C:* Access Easement Area

This instrument drafted by:
Julia K. Potter
Boardman & Clark LLP
P.O. Box 927
Madison, WI 53701-0927

EXHIBIT A
Legal Description of Grantor Parcel

Commencing at the intersection of the east right-of-way line of Riverside Drive and the south right-of-way line of Wisconsin Avenue also the point of beginning; thence easterly along the south right-of-way line of Wisconsin Avenue N89°24'45"E 512.05 feet; thence S0°43'3"E 122.53 feet; thence N89°16'57"E 5.00 feet; thence S00°43'3"E 60.00 feet; thence N89°16'57"E 190 feet to the east right-of-way line of River Street; thence southerly along said east right-of-way line of River Street to the point of intersection with the west line of lot 3 CSM 4707; thence S09°45'36"W 130.35 feet; thence S60°14'23"E 122.00 feet; thence S08°08'37"W 123.74 feet; thence S08°08'37"W 27 feet +/- to the north bank of the Fox River; thence along the north bank of the Fox River to the point of intersection with the east line of Lot 2 CSM 5830; thence along the east lines of Lot 2 and Lot 1 of CSM 5830 to the east right-of-way line of Riverside Drive; thence along the east right-of-way line of Riverside Drive to the point of beginning.

PINs: 321002900 and 321056400

EXHIBIT B
Utility Easement Area

Exhibit B

Legal Description

A **permanent utility easement** located in part of Lots 4-8, 12 and 13, Block 3, A.C. Black's Addition, and part of Gov. Lot 2, Section 23, T21N, R18E, City of Kaukauna, Outagamie County, Wisconsin, being more particularly described as follows:

Commencing at the North Quarter corner of said Section 23, T21N, R18E; Thence S00°01'43"W, along the west line of said Gov Lot 2 of Section 23, a distance of 1011.21 feet; Thence S89°58'17"E, 860.18 feet, to the point of beginning; Thence N57°22'55"E, 204.72 feet; Thence N88°55'40"E, 123.86 feet to the westerly right-of-way line of River St; Thence S01°04'20"E, along said westerly right-of-way line of River St, a distance of 144.82 feet; Thence S57°22'24"W, 245.66 feet; Thence N29°13'52"W, 188.59 feet, to the point of beginning.

Said **permanent utility easement** contains 1.18 acres, more or less.

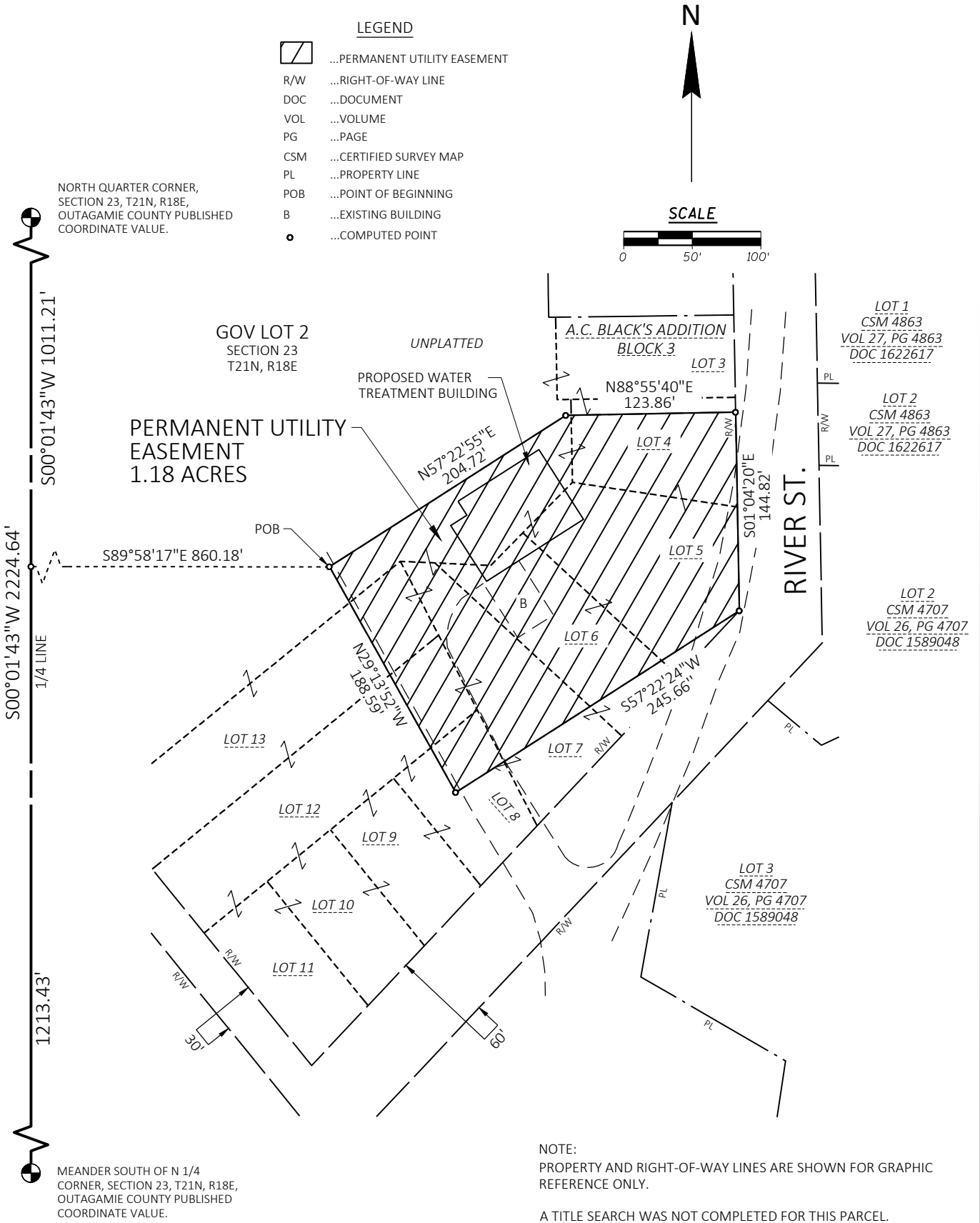


EXHIBIT C
Access Easement Area

Exhibit C

Legal Description

A **permanent access easement** part of Lots 4-8, 12 and 13, Block 3, A.C. Black's Addition and part of Gov. Lot 2, located in Section 23, T21N, R18E, City of Kaukauna, Outagamie County, Wisconsin, being more particularly described as follows:

Beginning at the North Quarter corner of Section 23, T21N, R18E;
Thence S00°01'43"W, along the west line of the Gov Lot 2 of said Section 23, a distance of 1011.21 feet;
Thence S89°58'17"E, 860.18 feet to the point of beginning;
Thence N57°22'55"E, a distance of 204.72 feet;
Thence S32°37'05"E, a distance of 150.00 feet;
Thence S57°22'55"W, a distance of 125.00 feet;
Thence S14°12'47"W, a distance of 55.91 feet;
Thence S29°13'52"E, a distance of 50.00 feet to the westerly right of way of River St;
Thence S43°15'40"W, along said westerly right of way of River St, a distance of 52.43 feet;
Thence N29°13'52"W, a distance of 251.39 feet to the point of beginning.

Said **permanent access easement** contains 0.85 acres, more or less.

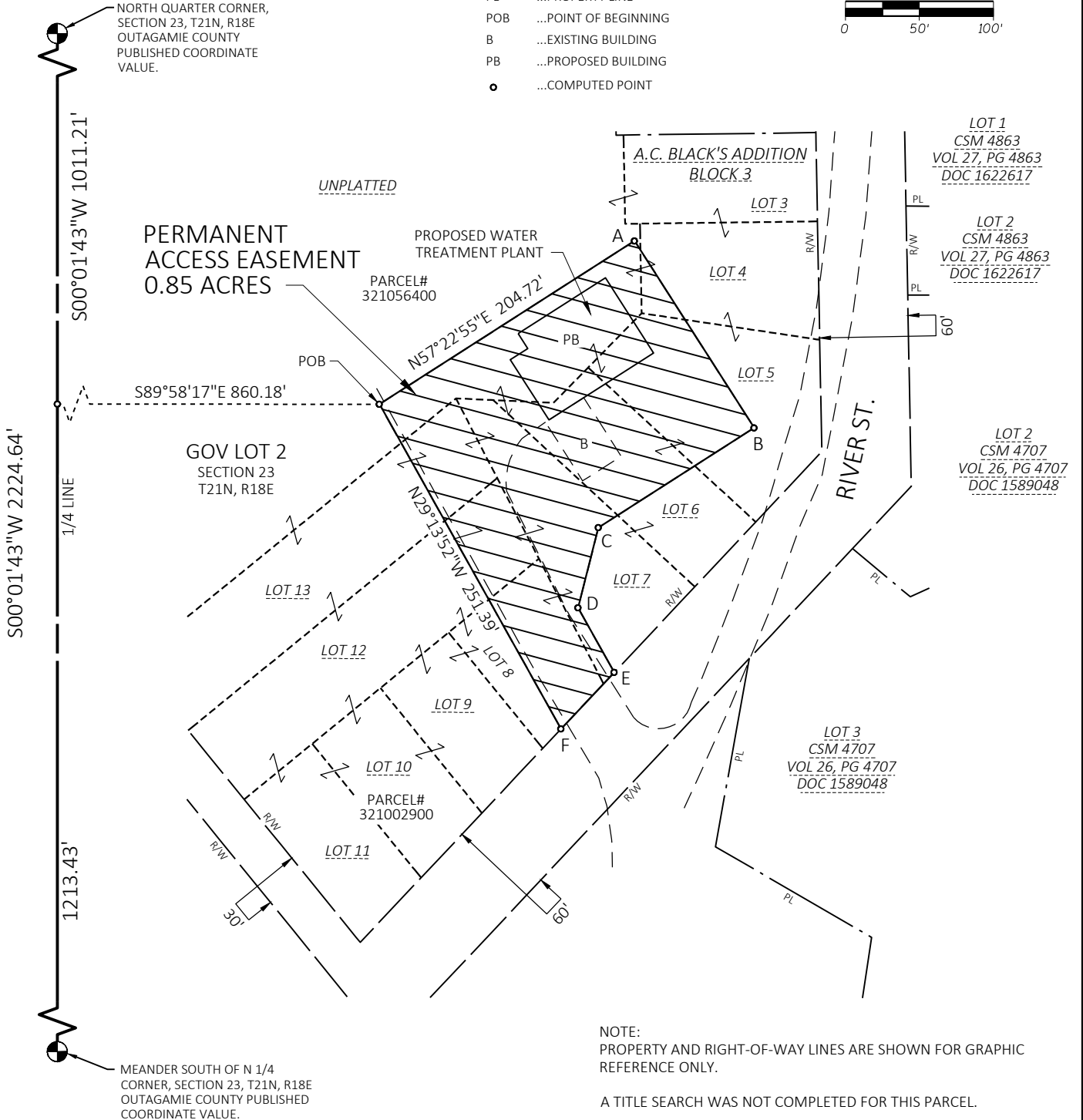
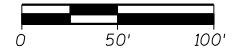
COURSE TABLE - EASEMENT		
POINTS	DIRECTION	DISTANCE
A - B	S32°37'05"E	150.00'
B - C	S57°22'55"W	125.00'
C - D	S14°12'47"W	55.91'
D - E	S29°13'52"E	50.00'
E - F	S43°15'40"W	52.43'

LEGEND

-  ...PERMANENT ACCESS EASEMENT
- R/W ...RIGHT-OF-WAY LINE
- DOC ...DOCUMENT
- VOL ...VOLUME
- PG ...PAGE
- CSM ...CERTIFIED SURVEY MAP
- PL ...PROPERTY LINE
- POB ...POINT OF BEGINNING
- B ...EXISTING BUILDING
- PB ...PROPOSED BUILDING
- ...COMPUTED POINT



SCALE



UTILITY AND INGRESS/EGRESS EASEMENT

This Utility and Ingress/Egress Easement (“**Easement**”) is made by and between the City of Kaukauna, a Wisconsin municipal corporation (“**Grantor**”) and Kaukauna Utilities, an enterprise fund of the City of Kaukauna (“**Grantee**”).

RECITALS:

- A. Grantor is the fee simple owner of two parcels of land located in the City of Kaukauna, Outagamie County, Wisconsin which are legally described on Exhibit A attached hereto (“**Grantor Parcel**”).
- B. Grantee is the fee simple owner of a parcel of land adjacent to the Grantor Parcel located in the City of Kaukauna, Outagamie County, Wisconsin, which is legally described on Exhibit B attached hereto (“**Grantee Parcel**”). Grantee intends to construct a water treatment plant on the Grantee Parcel.
- C. Grantor and Grantee entered into an agreement dated February 7, 2025 (“**Pool Hill Agreement**”) which, among other things, required Grantor to convey the Grantee Parcel and this Easement to Grantee exchange for the consideration set out in the Pool Hill Agreement.

RETURN TO:
 Kaukauna Utilities
 Attn: Michael Avanzi
 P.O. Box 1777
 Kaukauna, WI 54130
 P.I.N.
 (See attached Exhibit A)

NOW, THEREFORE, in consideration of the foregoing recitals, where are hereby incorporated into this Agreement, the consideration set out in the Pool Hill Agreement, the execution of this Easement, the mutual covenants and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Grantor and Grantee agree as follows:

1. *Grant of Easement.*
 - a. *Utility Easement.* Grantor hereby grants to Grantee and its employees, contractors, agents, invitees, successors, and assigns a perpetual easement to construct, install, maintain, operate, repair, inspect, replace, upgrade, add, relocate, and remove utility facilities and appurtenant equipment and structures (including, without limitation, water, sewer, electrical, natural gas, and communication lines, conduit, cables, conductors, wires, poles, footings, foundations, controls, switches, relays, circuit breakers, telemetry and monitoring devices, anchors, transformers, pedestals, wells, and well houses) (collectively, “**Utility Facilities**”) below, upon, in, over, through, and across the portion of the Grantor Parcel described and depicted on Exhibit C attached hereto (“**Utility Easement Area**”).

- b. *Ingress/Egress Easement.* Grantor hereby grants to Grantee and its employees, contractors, agents, invitees, successors, and assigns a perpetual easement for pedestrian and vehicular ingress, egress, and parking upon, over, through, and across the portion of the Grantor Parcel described and depicted on Exhibit D attached hereto (“**Access Easement Area**”).
 - c. *Easement Area.* The Utility Easement Area and the Access Easement are collectively referred to as the “**Easement Area.**”
- 2. *Limitations on Grantor.* Grantor agrees that Grantor shall not (a) change the grade of the Easement Area without the prior written consent of Grantee; (b) construct or install any building, fence, or structure of any kind upon the Easement Area; (c) plant any tree or bush within the Easement Area; (d) store any flammable materials within the Easement Area; or (e) damage or interfere with any Utility Facilities within the Easement Area. In no event shall the installation of paving, concrete, or other hard surface material on the Easement Area be considered a violation of the restrictions on Grantor set forth in this Section 2.
- 3. *Access; Vegetation Control.* Grantee and its employees, contractors, agents, and invitees shall have the right of reasonable ingress and egress to and from the Easement Area upon, over, through, and across the Grantor Parcel for the purpose of exercising the rights granted to Grantee hereunder and shall have the right to control all trees, bushes, and brush that may interfere with the Utility Facilities by cutting, trimming, chemically treating, or any other legal means without replacement or compensation.
- 4. *Restoration.* Grantee shall repair any damage to the Easement Area (including any paving, concrete, or other hard surface material) caused by the construction, maintenance, or removal of the Utility Facilities to substantially the same condition as before the damage occurred. Notwithstanding the foregoing, Grantee shall not be obligated to restore or pay damages for any building, fence, structure, tree, or bush installed within the Easement Area after the date of this Easement.
- 5. *Maintenance; Snow and Ice.* Grantor shall be responsible for maintenance and repair of any paving, concrete, or other hard surface material within the Easement Area except as set out in Section 4 above. Either Grantor or Grantee may clear the Easement Area of snow and ice, but neither is obligated to do so.
- 6. *Reservation of Use by Grantor.* Grantor reserves the right to use and enjoy the Easement Area in any manner that does not interfere or conflict with the rights conveyed to Grantee in this Easement.
- 7. *Binding Effect.* This Easement is binding upon Grantor and Grantee and their heirs, successors, and assigns. All benefits and burdens of this Easement are appurtenant to the Grantee Parcel and the Grantor Parcel, respectively, and shall run with the land. Notwithstanding the foregoing, Kaukauna Utilities and its assigns shall have the right to use the Utility Easement Area for the purposes set out in this Easement even if Kaukauna Utilities no longer owns the Grantee Parcel.

8. *Severability.* If any term or condition of this Easement, or the application of this Easement to any person or circumstance, shall be deemed invalid or unenforceable, the remainder of the Easement or the application of the term or condition to persons or circumstances other than those to which it is held invalid or unenforceable shall not be affected thereby, and each term and condition shall be valid and enforceable to the fullest extent permitted by law.
9. *Non-Use; Waiver.* Non-use or limited use of the rights granted in this Easement shall not prevent a party from later use of such rights to the fullest extent authorized in this Easement. No delay or omission by either party in exercising any right or power arising out of any default under this Easement shall be construed to be a waiver of the right or power. A waiver by either party of any of the obligations of the other party shall not be construed to be a waiver of a breach of any other terms or conditions of this Easement.
10. *Governing Law.* This Easement shall be construed and enforced in accordance with the laws of the state of Wisconsin.
11. *Entire Agreement.* This Easement constitutes the entire understanding of Grantor and Grantee with respect to its subject matter and may not be changed except by a written document executed and acknowledged by Kaukauna Utilities or its successor and the owners of the Grantor Parcel and Grantee Parcel and duly recorded in the office of the Register of Deeds of Outagamie County, Wisconsin.
12. *Municipal Status.* Nothing in this Easement is intended to be a waiver or estoppel of either party to rely upon the limitations, defenses, and immunities contained in Wisconsin law, including without limitation those contained in Wis. Stat. §§ 893.80, 895.52, and 345.06.

[Signature pages follow]

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals as of the dates noted below.

CITY OF KAUKAUNA

By: _____
Anthony J. Penterman, Mayor

Date: _____

STATE OF WISCONSIN)
) ss.
COUNTY OF OUTAGAMIE)

Personally came before me this _____ day of _____, 2025, the above-named Anthony J. Penterman, Mayor of the City of Kaukauna, to me known to be the person who executed the foregoing instrument and acknowledged the same.

Print name: _____
Notary Public, State of Wisconsin
My Commission _____
(SEAL)

KAUKAUNA UTILITIES

By: _____
 Michael Avanzi, General Manager

Date: _____

STATE OF WISCONSIN)
) ss.
 COUNTY OF OUTAGAMIE)

Personally came before me this _____ day of _____, 2025, the above-named Michael Avanzi, General Manager of Kaukauna Utilities, to me known to be the person who executed the foregoing instrument and acknowledged the same.

 Print Name: _____

Notary Public, State of Wisconsin

My Commission _____

(SEAL)

Exhibits:

Exhibit A: Legal Description of Grantor Parcel
Exhibit B: Legal Description of Grantee Parcel
Exhibit C: Utility Easement Area
Exhibit D: Access Easement Area

This instrument drafted by:

Julia K. Potter
 Boardman & Clark LLP
 P.O. Box 927
 Madison, WI 53701-0927

EXHIBIT A
Legal Description of Grantor Parcel

Lots 1 and 3 of Outagamie County Certified Survey Map No. _____, recorded in Volume _____ of Certified Survey Maps, Pages _____, as Document No. _____, part of Lot B, Gov. Lot 1 and part of Lot B, Gov. Lot 2, located in Section 22, T21N, R18E, City of Kaukauna, Outagamie County, Wisconsin.

PIN: _____

EXHIBIT B

Legal Description of Grantee Parcel

Lot 2 of Outagamie County Certified Survey Map No. _____, recorded in Volume _____ of Certified Survey Maps, Pages _____, as Document No. _____, part of Lot B, Gov. Lot 1 and part of Lot B, Gov. Lot 2, located in Section 22, T21N, R18E, City of Kaukauna, Outagamie County, Wisconsin.

PIN: _____

EXHIBIT C
Utility Easement Area

Exhibit C

Legal Description

A **utility and ingress/egress easement** being part of Lot B, Gov Lot 1 and part of Lot B, Gov Lot 2, located in Section 22, T21N, R18E, City of Kaukauna, Outagamie County, Wisconsin, being more particularly described as follows:

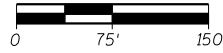
Beginning at the Southeast corner of Section 24, T21N, R18E; Thence N00°57'48"E, along the west line of the SW 1/4 of said Section 24, a distance of 273.89 feet; Thence N89°02'12"W, 3,417.02 feet to the westerly right-of-way line of CTH Q/Boyd Ave; Thence N89°55'31"W, along the north line of lot 1, Deming Subdivision Plat, a distance of 701.42 feet to the easterly right-of-way of the Kankapot Trail (formerly railroad property); Thence N10°19'49"E, a distance of 304.87 feet, along the said easterly right-of-way line of the Kankapot Trail (formerly railroad property), to the point of beginning; Thence S89°55'31"E, 180.24 feet; Thence S09°23'12"E, 101.38 feet; Thence S89°55'31"E, 45.62 feet; Thence N09°23'12"W, 353.93 feet; Thence N27°39'12"E, 344.44 feet to the southerly right-of-way of CTH Z/Dodge St; Thence N58°17'29"W, along the said southerly right-of-way line of CTH Z/Dodge St, a distance of 148.37 feet, to said easterly right-of-way line of the Kankapot Trail (formerly railroad property); Thence S52°59'01"W, along said easterly right-of-way line of Kankapot Trail (formerly railroad property), a distance of 85.80 feet; Thence S27°05'12"W, continuing along said easterly right-of-way line of Kankapot Trail (formerly railroad property), a distance of 107.45 feet; Thence S12°54'31"W, continuing along said easterly right-of-way line of Kankapot Trail (formerly railroad property), a distance of 30.93 feet; Thence S62°20'48"E, 130.78 feet; Thence S27°39'12"W, 155.11 feet; Thence S09°23'12"E, 214.51 feet; Thence N89°55'31"W, 164.60 feet to said easterly right-of-way line of Kankapot Trail (formerly railroad property); Thence S10°19'49"W, along said easterly right-of-way of Kankapot Trail (formerly railroad property), a distance of 45.73 feet, to the point of beginning.

LEGEND

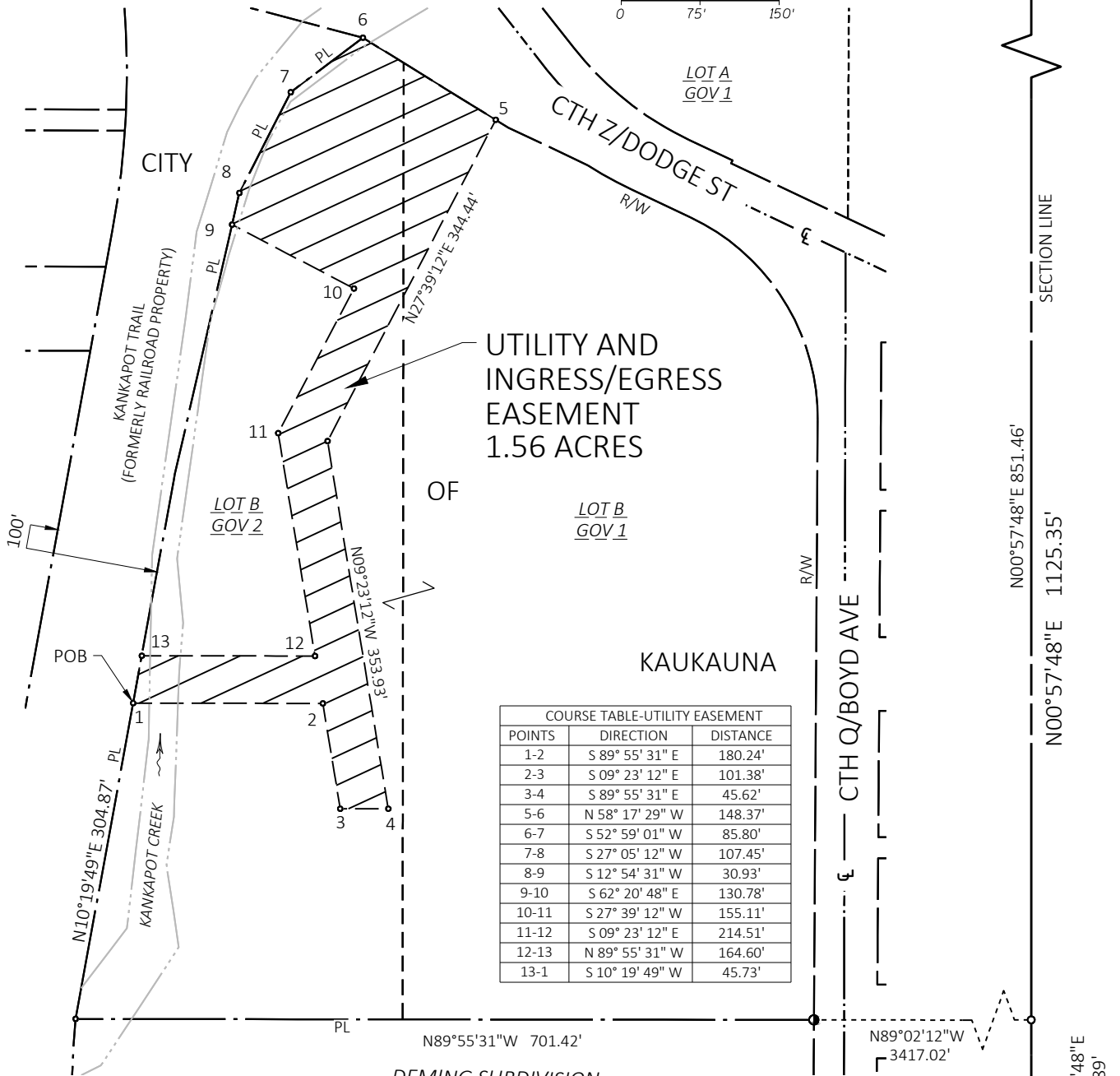
-  ...UTILITY AND INGRESS/EGRESS EASEMENT
- R/W ...RIGHT-OF-WAY LINE
- PL ...PROPERTY LINE
- POB ...POINT OF BEGINNING
-  ...CENTER LINE
-  ...COMPUTED POINT



SCALE 1"=150'



EAST 1/4 MEANDER CORNER,
SECTION 24, T21N, R18E,
FOUND BERNTSEN NAIL,
CORNER FIELD VERIFIED
WITH TIE SHEET 42119190640



NOTE:

PROPERTY AND RIGHT-OF-WAY LINES ARE SHOWN FOR GRAPHIC REFERENCE ONLY.

A TITLE SEARCH WAS NOT COMPLETED FOR THIS PARCEL.

SOUTHEAST CORNER,
SECTION 24, T21N, R18E,
FOUND 7" X 7" STONE,
CORNER FIELD VERIFIED
WITH TIE SHEET 42119190040



UTILITY AND INGRESS/EGRESS EASEMENT MAP

CITY OF KAUKAUNA

EXHIBIT

C

EXHIBIT D
Access Easement Area

Exhibit D

Legal Description

An **ingress/egress easement** being part of Lot B, Gov Lot 1 and part of Lot B, Gov Lot 2, located in Section 22, T21N, R18E, City of Kaukauna, Outagamie County, Wisconsin, being more particularly described as follows:

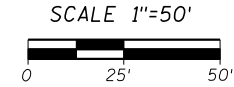
Beginning at the Southeast corner of Section 24, T21N, R18E; Thence N00°57'48"E, along the east line of the SE 1/4 of said Section 24, a distance of 273.89 feet; Thence N89°02'12"W, 3,417.02 feet to the westerly right-of-way line of Boyd Ave, being the point of beginning; Thence N89°55'31"W, along the north line of Lot 1, Deming Subdivision Plat, a distance of 200.00 feet; Thence N00°21'29"E, a distance of 33.00 feet; Thence S89°55'31"E, a distance of 200.00 feet to said westerly right-of-way line of Boyd Ave; Thence S00°21'29"W, along said westerly right-of-way line of Boyd Ave, a distance of 33.00 feet, to said north line of Lot 1, Deming Subdivision Plat, and the point of beginning.

Said **ingress/egress easement** contains 0.15 acres, more or less.

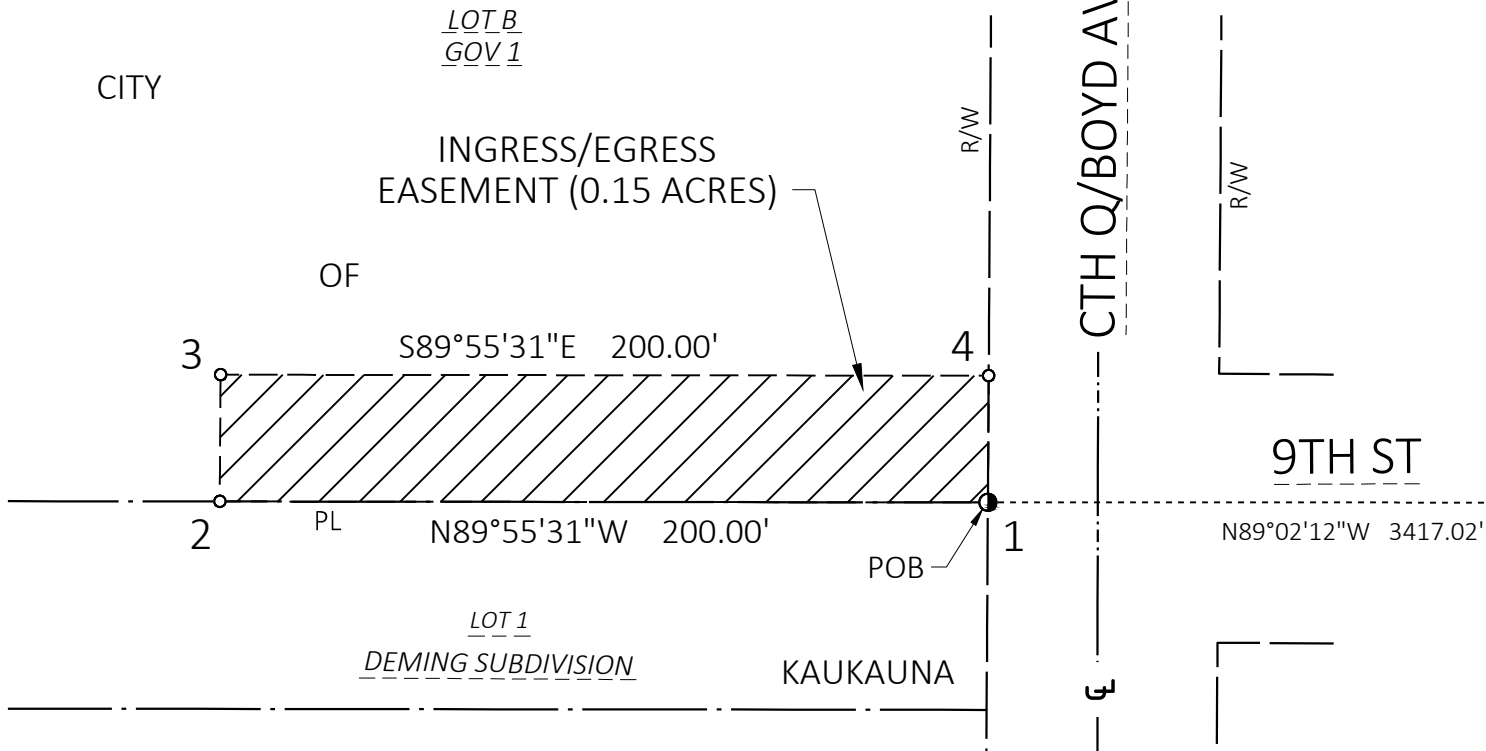
LEGEND

-  INGRESS/EGRESS
...EASEMENT
- R/W ...RIGHT-OF-WAY LINE
- PL ...PROPERTY LINE
- POB ...POINT OF BEGINNING
-  ...CENTER LINE
-  ...COMPUTED POINT

COURSE TABLE		
POINTS	DIRECTION	DISTANCE
2-3	N 00° 21' 29" E	33.00'
4-1	S 00° 21' 29" W	33.00'



EAST 1/4 MEANDER CORNER,
SECTION 24, T21N, R18E,
FOUND BERNTSEN NAIL,
CORNER FIELD VERIFIED WITH
TIE SHEET 42119190640



SOUTHEAST CORNER,
SECTION 24, T21N, R18E,
FOUND 7" X 7" STONE,
CORNER FIELD VERIFIED
WITH TIE SHEET 42119190040

NOTE:

PROPERTY AND RIGHT-OF-WAY LINES ARE SHOWN FOR
GRAPHIC REFERENCE ONLY.

A TITLE SEARCH WAS NOT COMPLETED FOR THIS PARCEL.



**INGRESS/EGRESS
EASEMENT MAP**

CITY OF KAUKAUNA

EXHIBIT

D