

Appendix

Approved MOU



Town of Stallings TIA Memorandum of Understanding

Date: February 25, 2019

Project Information

Project Name: Chestnut Farm UPDATE
Project Location: West of Matthews-Weddington/Chestnut
Project Owner: Terwilliger Pappas

Applicant Information

Applicant Name: Terwilliger Pappas
Applicant Telephone: Jeffrey Smith, (704) 716-3906
Applicant Email: jsmith@terwilligerpappas.com

Application Request: Rezoning (Small Area Plan)
(eg. Rezoning, preliminary or final plat, special use permit, site plan, etc.)

Existing

Existing Zoning: SFR-1
Existing Land Use: Undeveloped
Parcel Size: ± 30.55 acres

Proposed Development

Proposed Zoning: TBD
Proposed Land Use: Residential
Proposed Size/Density: 325 apartments
Proposed Build-Out Year: 2021

Scenarios to be Analyzed:

- ☒ 2018 Existing Conditions
☒ 2021 Background Conditions
☒ 2021 Build Conditions
☒ 2026 Build Conditions + 5 years
☐ Other: _____

Background Growth Rate: 3.5% (based on study area ADTs)

Count Times: ☒ 6:00–9:00 AM, 4:00–7:00 PM ☐ Other: _____

Future Offsite Developments: (Name of Development, Location, Land Use, Density, TIA info. if applicable):

Development	Land Use/Intensity	% Build-out	TIA Included?	Required Improvements
Union Day School Expansion*	TBD	0%	TBD	TBD

* Union Day School Expansion traffic volumes and planned improvements to be coordinated with NCDOT

Funded TIP/CIP projects (Name of Project, Location, Improvements, Schedule):

- Weddington-Matthews Road and Chestnut Lane Roundabout (U-6091)
 - o Installation of a roundabout
 - o Right-of-way in FY 2019
 - o Construction in FY 2020
 - o State match with Spot Safety funds
- Weddington-Matthews Road and Tilley Morris Road (U-6090)
 - o Installation of a roundabout
 - o Right-of-way in FY 2019
 - o Construction in FY 2020
 - o State match with Spot Safety funds

Projects identified in adopted Transportation Plans (Name of Project, Location, Improvements, Schedule):

- Enhanced Intersection at Potter Road and Chestnut Lane (C-6)
 - o Provide safe pedestrian crossing opportunities at the center of the Chestnut Node.
 - o Coordinate improvements with development of the Grove and neighboring parcels.
- Crossing at Antioch Church Road on Weddington-Matthews Road (C-10)
 - o Provide a safe pedestrian crossing at the center of the Antioch Node.
 - o Improvements at proposed intersection are to be concurrent with realignment of Antioch Church Road.
- Crossing at Weddington Road and Chestnut Lane (C-16)
 - o Provide a safe pedestrian crossing at a prominent intersection of the Antioch Node.
 - o Coordinate crosswalk improvements with other intersection improvements.
- Weddington Road Sidewalks (S-6) – 2,700' sidewalk facilities
 - o Connect Antioch Node to the Francis Beatty Park entrance, the Strawberry community, and Twelve-Mile Creek Trail (project T-1).
 - o Provide pedestrian link along Matthews-Weddington Rd. from proposed realignment of Antioch Church Rd. (at project C-10), to crosswalk at Chestnut Ln. (project C-16), and connect to existing sidewalk on Matthews-Weddington Rd.
 - o Provide additional sidewalk connection along Chestnut Ln. to meet existing sidewalk.

- o Coordinate project with Town of Weddington, and Union County in unincorporated areas.
- Potter/Chestnut Sidewalks (S-12) – 1,100' sidewalk facilities
 - o Continue existing Potters Rd. sidewalk around to Chestnut Ln. to connect to Twelve-Mile Creek Trail (project T-1), serve the Chestnut Node, and connect to adjacent community.
- Francis Beatty Trail (T-5) – 1.2 miles of trail facilities
 - o Provide connections within the Antioch Node to existing Francis Beatty Park trails and proposed Matthews-Weddington Rd. sidewalk (project C-16), thereby linking the Antioch Node to the Chestnut Node and the Downtown Node. Begin trail at proposed realigned intersection of Antioch Church Rd. and Weddington-Matthews Rd. (project C-10) in Town of Weddington. Follow creek northwestward into Stallings to edge of Francis Beatty Park. Follow creek along park edge and southeastward to crosswalk at Chestnut Ln. (project C-16). Loop trail back along west side of Matthews-Weddington Rd. to starting point.

Trip Generation Table (ITE 10th Edition):

Trip Generation								
Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Multifamily Housing Mid-Rise - (Condos/Apartments)	325 DU	1,770	109	28	81	137	84	53
Net New External Trips		1,770	109	28	81	137	84	53

Proposed Access:

- Driveway #1 – proposed roundabout at Chestnut Lane and Matthews-Weddington Road
 - o Will be analyzed as the fourth leg of the Chestnut Lane and Matthews-Weddington Road intersection
- Driveway #2 – proposed right-in/right-out on Matthews-Weddington Road (south of Chestnut Lane)
- Driveway #3 – proposed right-in/right-out on Matthews-Weddington Road (north of Chestnut Lane)

Intersections to be Studied:

Intersection	Type of Analysis	
	Signalized	Unsignalized
1. Chestnut Lane/Driveway #1 and Matthews-Weddington Road ¹	☐	☒
2. Antioch Church Road and Matthews-Weddington Road	☒	☐
3. Tilley Morris Road and Matthews-Weddington Road ²	☐	☒
4. McKee Road and Weddington Road	☒	☐
5. Chestnut Lane and Potter Road	☒	☐
6. Matthews-Weddington Road and Driveway #2	☐	☒
7. Matthews-Weddington Road and Driveway #3	☐	☒

¹ Proposed future roundabout (U-6091)

² Proposed future roundabout (U-6090)

☒ **Other Considerations (i.e. pedestrian, transit, other scenarios):**

- Pedestrian LOS analysis at study area intersections using Highway Capacity Manual (HCM) 6th Edition methodologies
- Bicycle LOS analysis at study area intersections using CDOT's *Bicycle Level of Service* worksheet
- Turn lanes and storage lengths for the major street (uncontrolled) approaches at unsignalized intersections will be identified using NCDOT's *Policy on Street and Driveway Access to North Carolina Highways*

☐ **Traffic Signal Warrants:** _____

☒ **Crash Analysis Required:**

- At existing study intersections, based on most recent 3 years available

☒ **Additional Traffic Analysis (i.e. Synchro, VISSIM, SIDRA, etc.):**

- SIDRA analysis at proposed roundabout at Intersection #1 & #3 under background and build-out conditions

Agreement by all Parties

The undersigned agree to the contents and methodology described in this Memorandum of Understanding (MOU) for completing the required TIA supportive of the development application identified herein. Any changes to the above methodology contemplated by the applicant or transportation consultant must be submitted to the Town in writing and a revised MOU executed before such changes will be accepted for the TIA report. The applicant must provide payment in full to the Town for preparation of the TIA prior to commencement of the work. Any additional services incurred by the transportation consultant in addition to the MOU must be approved by the Town, and agreed to and paid for by the applicant, prior to performance of the additional work.

(Applicant & Date)

Aurora N Reid 2/25/19
(Transportation Consultant & Date)

Approved by: _____
(Town Engineer & Date)

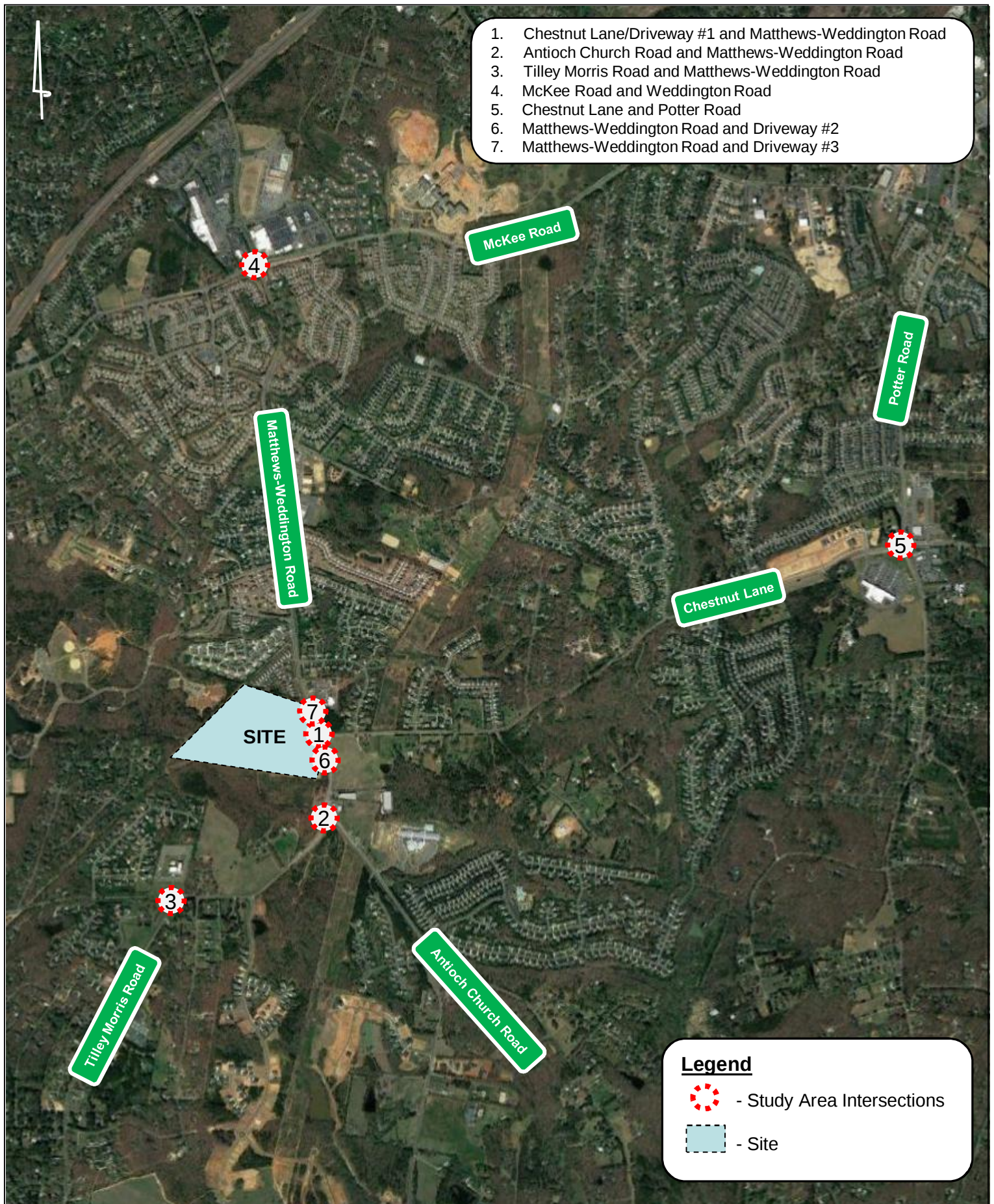
NCDOT Involvement Needed? ☒ Yes ☐ No If Yes, contact NCDOT at (704) 218-5100 for requirements.

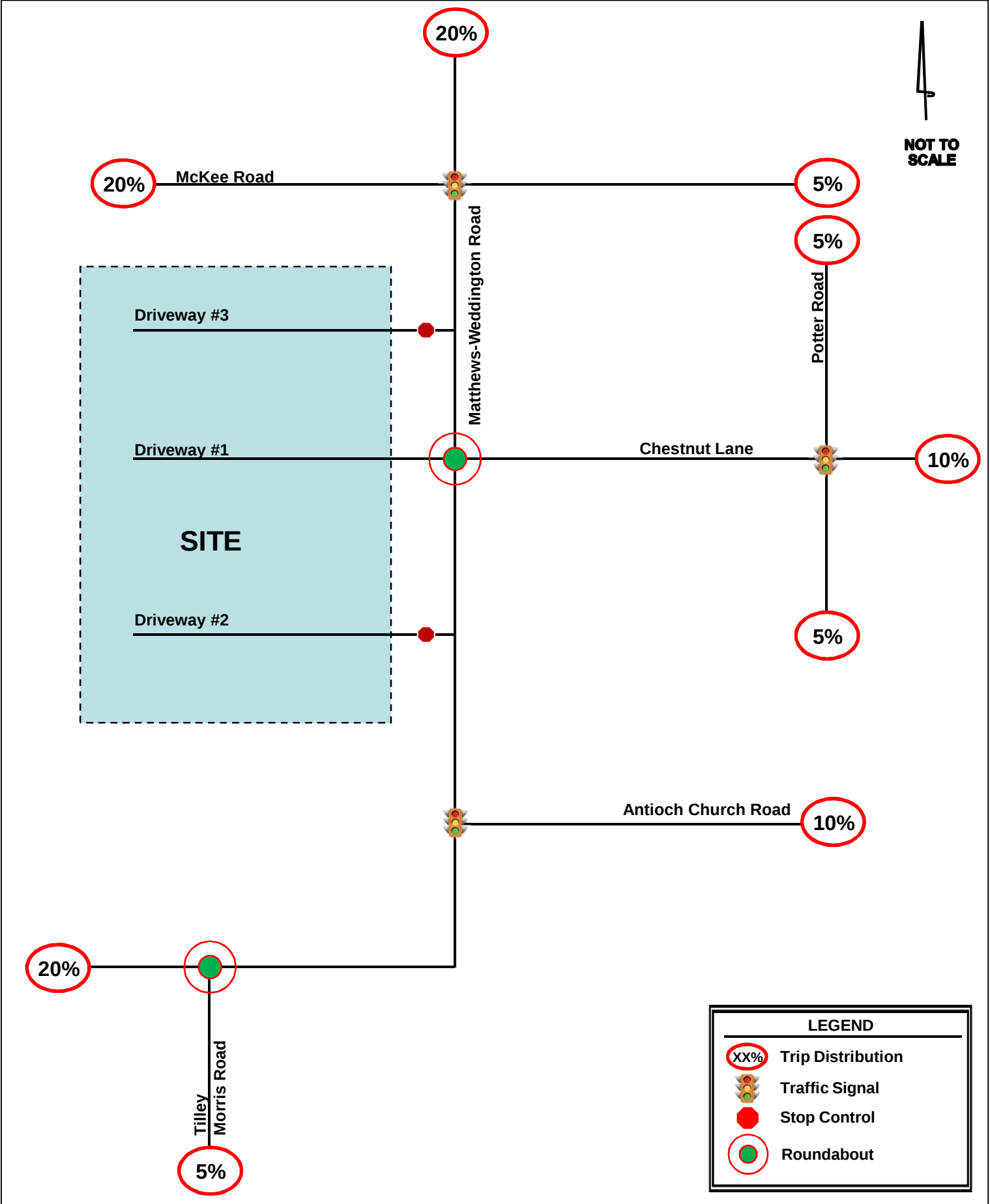
NCDOT Required Scoping

(NCDOT & Date, if Applicable)

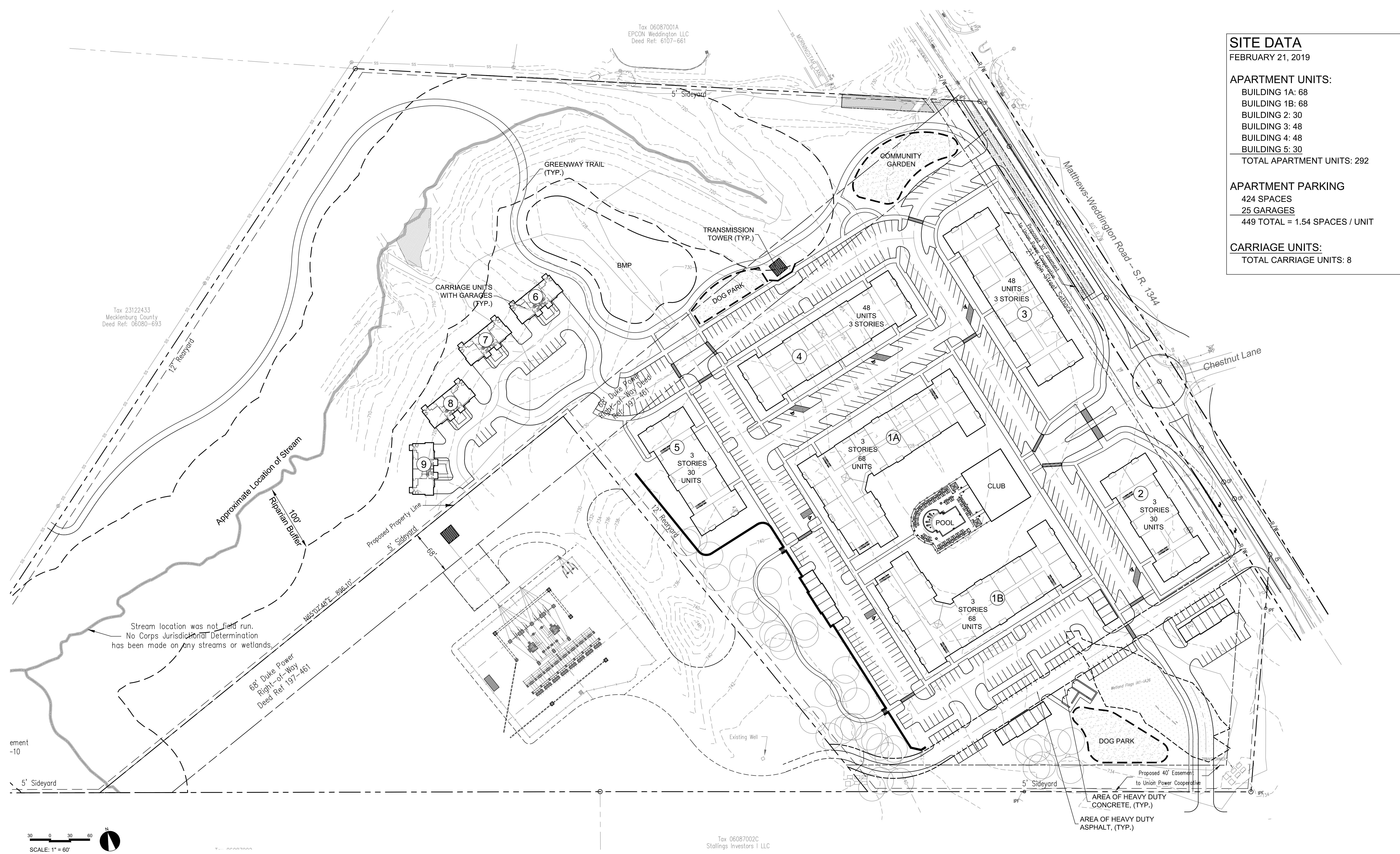
Attachments:

1. Proposed Site Plan
2. Location Map
3. Proposed Site Trip Distribution





Full Sized Site Plan



SITE DATA

FEBRUARY 21, 2019

APARTMENT UNITS:

BUILDING 1A: 68
BUILDING 1B: 68
BUILDING 2: 30
BUILDING 3: 48
BUILDING 4: 48
BUILDING 5: 30
TOTAL APARTMENT UNITS: 292

APARTMENT PARKING

424 SPACES
25 GARAGES
449 TOTAL = 1.54 SPACES / UNIT

CARRIAGE UNITS:

TOTAL CARRIAGE UNITS: 8

SOLIS CHESTNUT FARM

STALLINGS, NORTH CAROLINA



Field Inventory

Project Description:

Intersection: Weddington Rd & McKee Rd

Date: _____

Main Street: _____

Visited By: _____

NB Approach: Weddington Rd

Posted Speed: 45 mph

SB Approach: Weddington Rd

Posted Speed: 45 mph

EB Approach: McKee Rd

Posted Speed: 45 mph

WB Approach: McKee Rd

Posted Speed: 45 mph

Other: _____

Posted Speed: _____

Approach	Head Types (L to R)	LT Phase Type	RT Overlap?	Ped Heads	Push Buttons?	X-walk?	On-Street Parking?	Pre-emption?
NB	1 J J	Prot Perm (P+P) Split	Y (N)	L	(Y) N	(Y) N	Y (N)	RR EMS
SB	1 J H	Prot Perm (P+P) Split	(Y) N	L	(Y) N	(Y) N	Y (N)	RR EMS
EB	1 J J	Prot Perm (P+P) Split	Y (N)	L	(Y) N	(Y) N	Y (N)	RR EMS
WB	1 J H	Prot Perm (P+P) Split	(Y) N	L	(Y) N	(Y) N	Y (N)	RR EMS
		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS

Approach	Laneage (L to R)	# of Receiving Lanes	LT Storage Length	RT Storage Length	Signal Support
NB	← ↑	1	100/100	—	MA (SW)
SB	← ↑ →	1	375/100	125/100	MA (SW)
EB	← ↑	1	135/70	—	MA (SW)
WB	← ↑ →	1	175/150	175/150	MA (SW)
					MA SW

Photos:

- 1)
- 2)
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)

Prot = Protected Left Turn (green arrow)

Perm = Permitted Left Turn (green ball)

P+P = Protected/Permitted Left Turn (green arrow to green ball)

Split = Split Phase (all lanes on the approach simultaneous)

MA = Mast Arms

SW = Span Wire

L = Left Turn Only Lane

LT = Left/Thru Lane

T = Thru Lane

TR = Thru/Right Lane

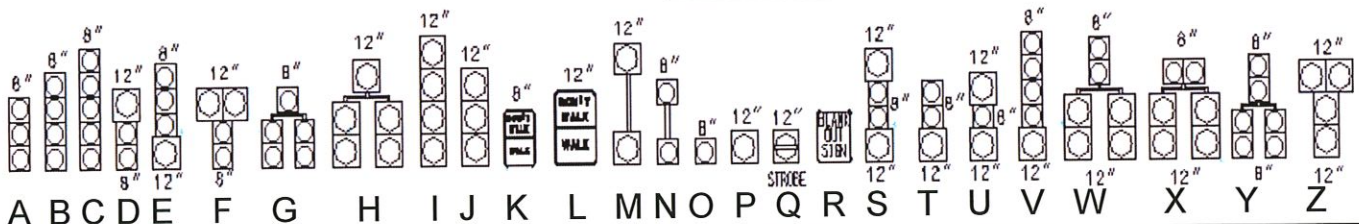
LTR = Left/Thru/Right Lane

R = Right Turn Only Lane

Notes:

cycle length ~120 sec

Signal Inventory ID #:



Project Description:

Intersection: Weddington Rd & McKee Rd Date : _____

SKETCH OF INTERSECTION

NORTH



PUB-IX



Include on sketch or copy of signal plan:

- | | |
|--|--|
| ☐ Laneage/Xwalks | ☐ Sight Dist Obstructions |
| ☐ Turn Lanes | ☐ Controller Location |
| ☐ Street Names | ☐ Signal Pole Locations |
| ☐ Signing | ☐ Signal Inventory ID # |
| ☐ Medians/Islands | ☐ North Arrow |

Signal Inventory ID #:

Drawn By: _____

Notes:

Project Description:

Intersection: Chestnut Lane & Potter Rd
 Main Street: _____
 NB Approach: Potter Rd
 SB Approach: Potter Rd
 EB Approach: Chestnut Lane
 WB Approach: Chestnut Lane
 Other: _____

Date: _____
 Visited By: _____
 Posted Speed: 35 mph
 Posted Speed: 35 mph
 Posted Speed: 35 mph
 Posted Speed: 35 mph
 Posted Speed: _____

Approach	Head Types (L to R)	LT Phase Type	RT Overlap?	Ped Heads	Push Buttons?	X-walk?	On-Street Parking?	Pre-emption?
NB	J J	Prot (Perm) P+P Split	Y (N)	L	(Y) N	(Y) N	Y (N)	RR EMS
SB	J J	Prot (Perm) P+P Split	Y (N)	L	(Y) N	(Y) N	Y (N)	RR EMS
EB	J J	Prot (Perm) P+P Split	Y (N)	L	(Y) N	(Y) N	Y (N)	RR EMS
WB	J J	Prot (Perm) P+P Split	Y (N)	L	(Y) N	(Y) N	Y (N)	RR EMS
		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS

Approach	Laneage (L to R)	# of Receiving Lanes	LT Storage Length	RT Storage Length	Signal Support
NB	← ↑	1	150/65	—	(MA) SW
SB	← ↑	1	150/50 TWLTL	—	(MA) SW
EB	← ↑	1	135/50 TWLTL	—	(MA) SW
WB	← ↑	1	150/150	—	(MA) SW
					MA SW

Photos:

- 1)
- 2)
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)

Prot = Protected Left Turn (green arrow)
 Perm = Permitted Left Turn (green ball)
 P+P = Protected/Permitted Left Turn (green arrow to green ball)
 Split = Split Phase (all lanes on the approach simultaneous)

MA = Mast Arms

SW = Span Wire

L = Left Turn Only Lane

LT = Left/Thru Lane

T = Thru Lane

TR = Thru/Right Lane

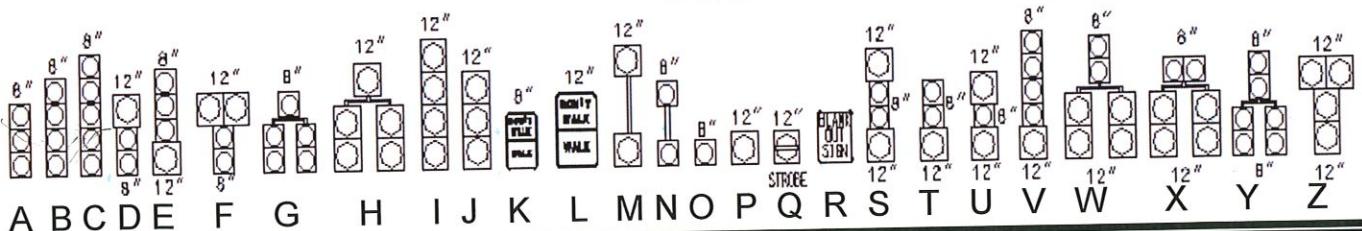
LTR = Left/Thru/Right Lane

R = Right Turn Only Lane

Notes:

CL ~45 s

Signal Inventory ID #:

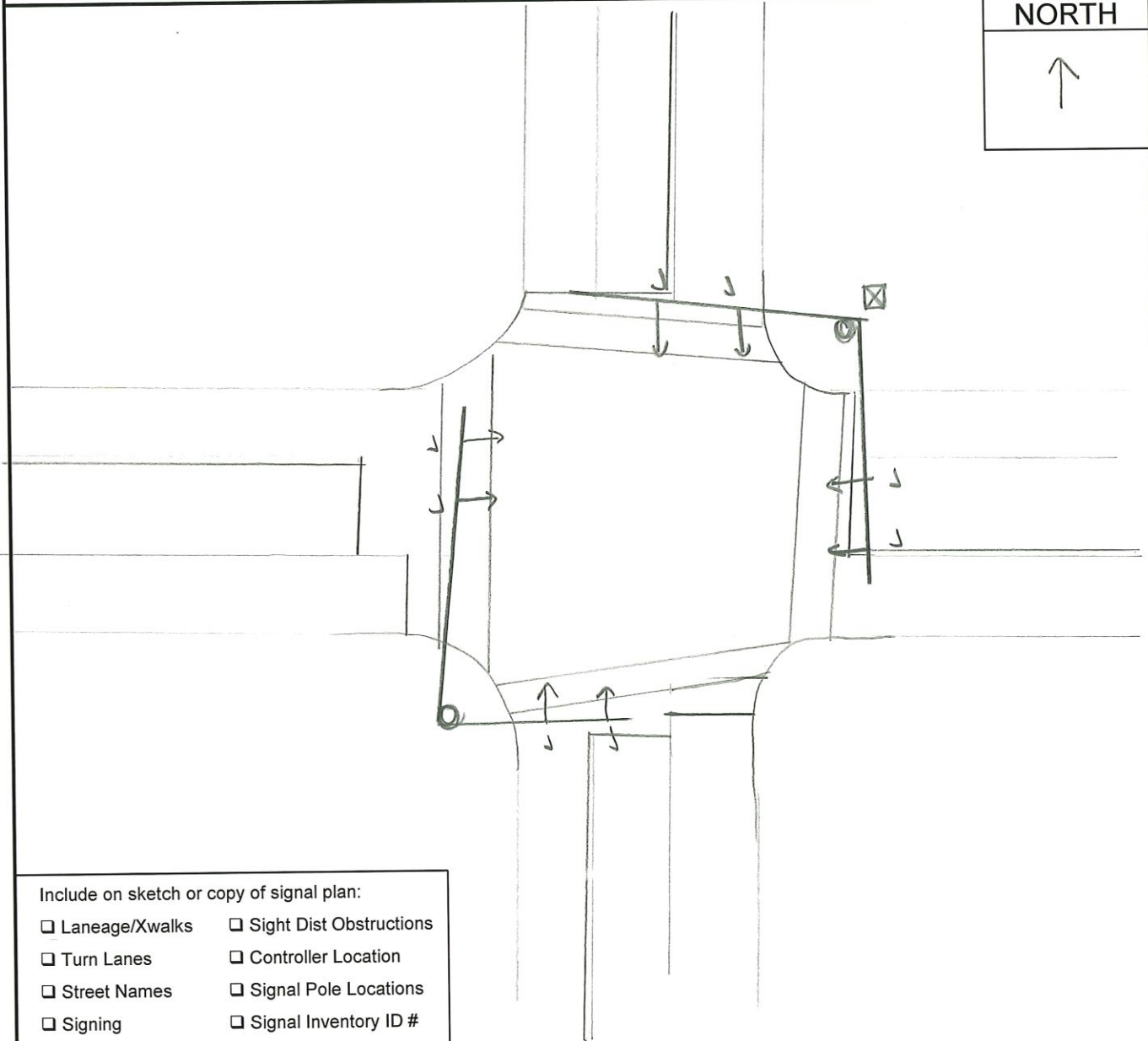


Project Description:

Intersection: Chestnut Lane & Potter Rd Date: _____

SKETCH OF INTERSECTION

NORTH



Include on sketch or copy of signal plan:

- | | |
|--|--|
| ☐ Laneage/Xwalks | ☐ Sight Dist Obstructions |
| ☐ Turn Lanes | ☐ Controller Location |
| ☐ Street Names | ☐ Signal Pole Locations |
| ☐ Signing | ☐ Signal Inventory ID # |
| ☐ Medians/Islands | ☐ North Arrow |

Signal Inventory ID #: _____

Drawn By: _____

Notes:

Project Description:

Intersection: Antioch Church Rd & Matthews-Weddington Rd
 Main Street: Weddington Rd
 NB Approach: Matthews - Weddington Rd
 SB Approach: Matthews - Weddington Rd
 EB Approach: Driveway stub
 WB Approach: Antioch Church Rd
 Other: _____

Date: _____
 Visited By: _____
 Posted Speed: 45 mph
 Posted Speed: 45 mph
 Posted Speed: _____
 Posted Speed: 45 mph
 Posted Speed: _____

Approach	Head Types (L to R)	LT Phase Type	RT Overlap?	Ped Heads	Push Buttons?	X-walk?	On-Street Parking?	Pre-emption?
NB	J J	Prot (Perm) P+P Split	Y (N)	—	Y (N)	Y (N)	Y (N)	RR EMS
SB	H J	Prot Perm (P+P) Split	Y (N)	—	Y (N)	Y (N)	Y (N)	RR EMS
EB	—	Prot Perm P+P Split	Y N	—	Y (N)	Y (N)	Y (N)	RR EMS
WB	J J	Prot (Perm) P+P Split	Y (N)	—	Y (N)	Y (N)	Y (N)	RR EMS
		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS

Approach	Laneage (L to R)	# of Receiving Lanes	LT Storage Length	RT Storage Length	Signal Support
NB	← ↑ →	1	—	—	MA (SW)
SB	← ↑ →	1	100'/*	—	MA (SW)
EB	—	—	—	—	MA SW
WB	← ↑ →	1	100' / 150'	—	MA (SW)
			TWLT		MA SW

Photos:

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- 2)
- 3)
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- 8)

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 Split = Split Phase (all lanes on the approach simultaneous)

MA = Mast Arms

SW = Span Wire

L = Left Turn Only Lane

LT = Left/Thru Lane

T = Thru Lane

TR = Thru/Right Lane

LTR = Left/Thru/Right Lane

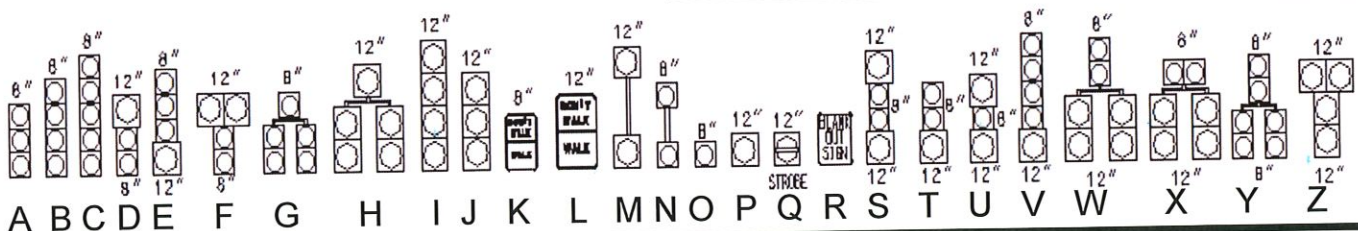
R = Right Turn Only Lane

Notes:

CL ~ 75 s

* LT lane ends at gas station opening

Signal Inventory ID #:

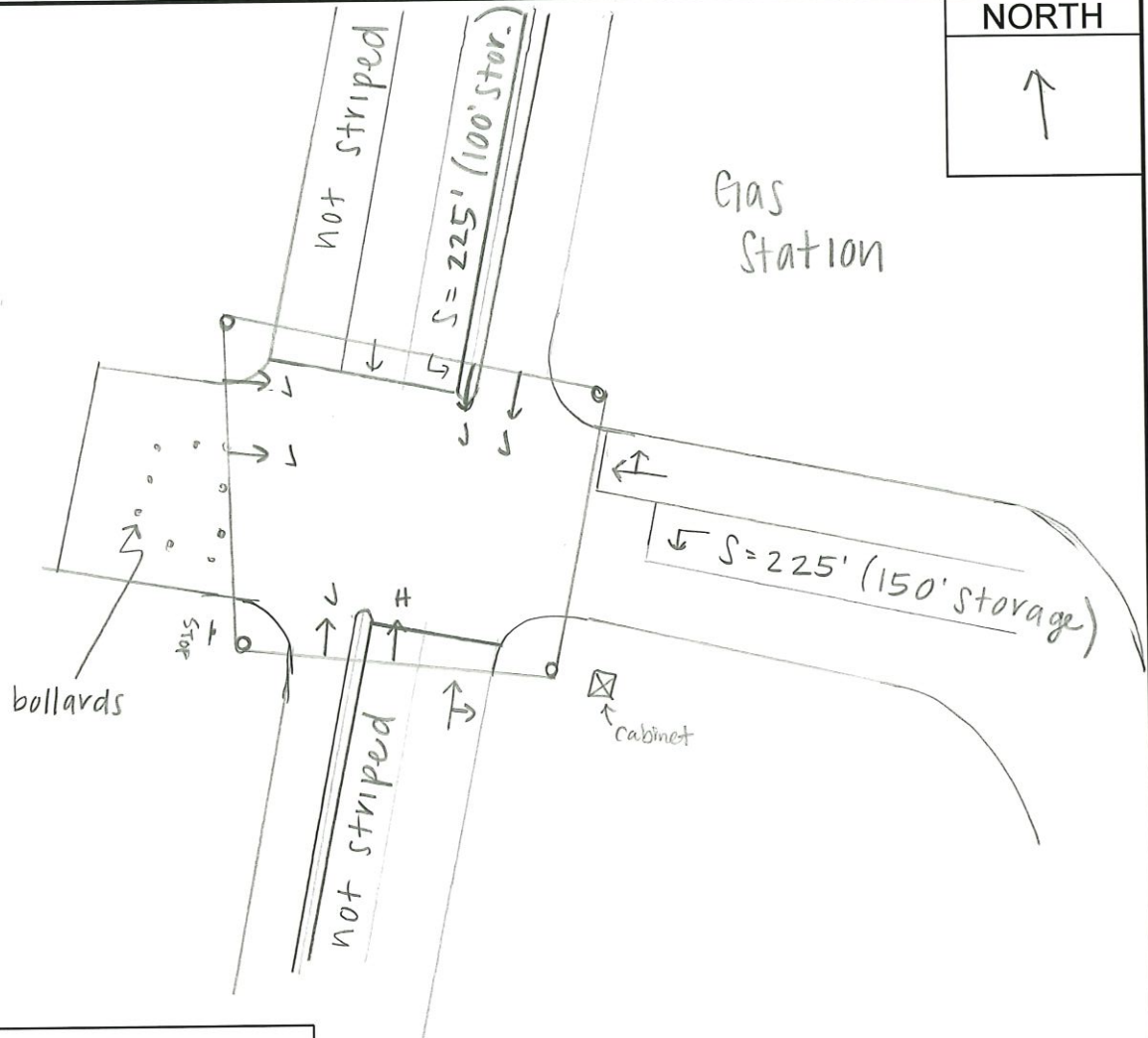


Project Description:

Intersection: Antioch Church Rd & Matthews - Date : _____
Weddington Rd

SKETCH OF INTERSECTION

NORTH



Include on sketch or copy of signal plan:

- | | |
|--|--|
| ☐ Laneage/Xwalks | ☐ Sight Dist Obstructions |
| ☐ Turn Lanes | ☐ Controller Location |
| ☐ Street Names | ☐ Signal Pole Locations |
| ☐ Signing | ☐ Signal Inventory ID # |
| ☐ Medians/Islands | ☐ North Arrow |

Signal Inventory ID #:

Drawn By: _____

Notes:

Project Description:

Intersection: Chestnut Lane & Matthews-Wed Date: _____

Main Street: _____ Visited By: _____

NB Approach: Matthews-Weddington Rd Posted Speed: 45 mph

SB Approach: Matthews-Weddington Rd Posted Speed: 45 mph

EB Approach: — (FUTURE DRIVEWAY) Posted Speed: _____

WB Approach: Chestnut Lane Posted Speed: 45 mph

Other: _____ Posted Speed: _____

Approach	Head Types (L to R)	LT Phase Type	RT Overlap?	Ped Heads	Push Buttons?	X-walk?	On-Street Parking?	Pre-emption?
NB		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS
SB		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS
EB		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS
WB		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS
		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS

Approach	Laneage (L to R)	# of Receiving Lanes	LT Storage Length	RT Storage Length	Signal Support
NB	↑	1	—	—	MA SW
SB	↓	1	—	—	MA SW
EB	—	—	—	—	MA SW
WB	↑	1	—	—	MA SW
					MA SW

Photos:

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- 2)
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LT = Left/Thru Lane

T = Thru Lane

TR = Thru/Right Lane

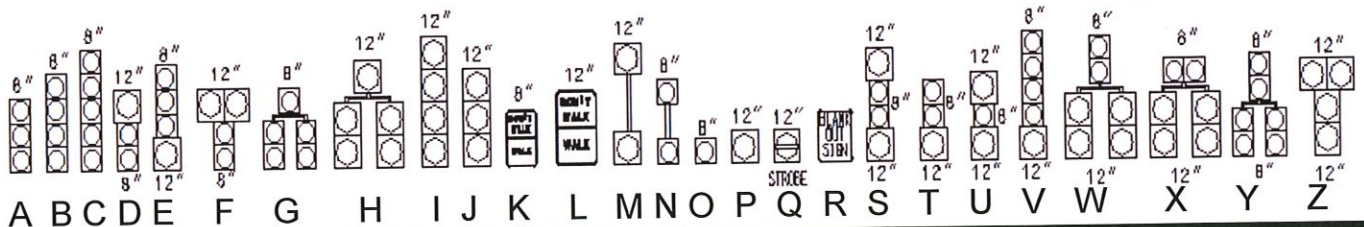
LTR = Left/Thru/Right Lane

R = Right Turn Only Lane

Notes:

Future Roundabout

Signal Inventory ID #:

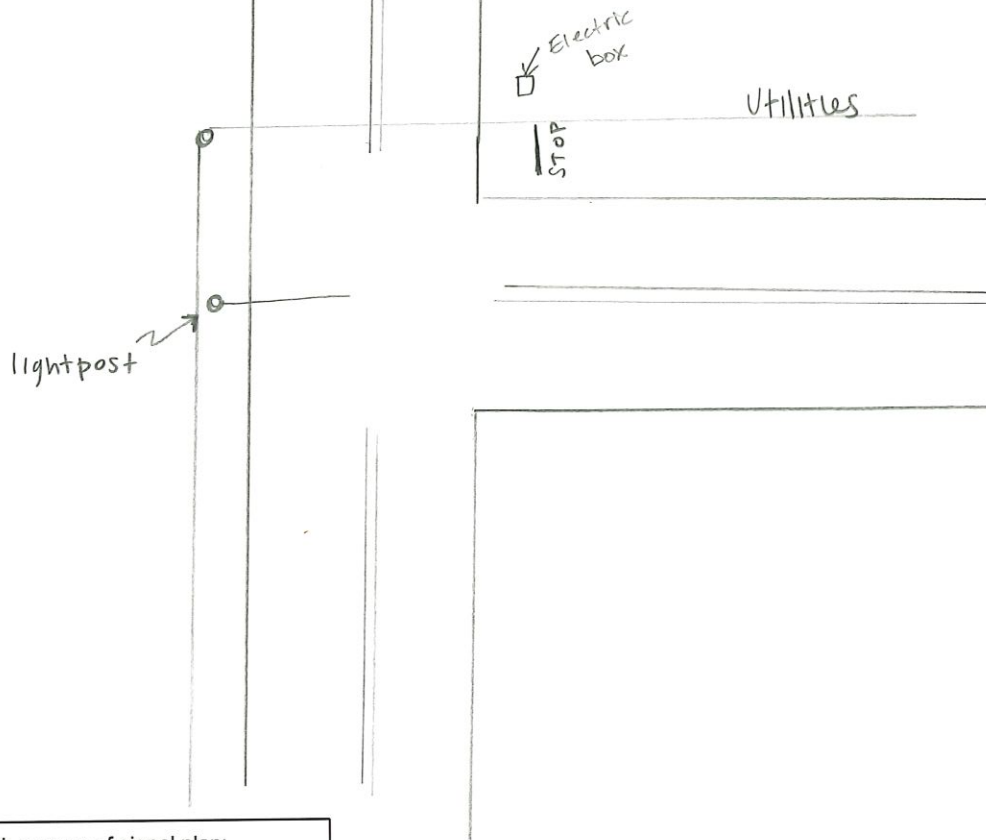


Project Description:

Intersection: Chestnut Lane & Matthews- Date : _____
Widdington

SKETCH OF INTERSECTION

NORTH



Include on sketch or copy of signal plan:

- | | |
|--|--|
| ☐ Laneage/Xwalks | ☐ Sight Dist Obstructions |
| ☐ Turn Lanes | ☐ Controller Location |
| ☐ Street Names | ☐ Signal Pole Locations |
| ☐ Signing | ☐ Signal Inventory ID # |
| ☐ Medians/Islands | ☐ North Arrow |

Signal Inventory ID #:

Drawn By: _____

Notes:

FIELD SURVEY NOTES (1 of 2)

Project Description:

Intersection: Matthews-Weddington Rd &
 Main Street: Tilley Morris Rd
 NB Approach: Weddington-Matthews Rd
 SB Approach: Union Day School D/W
 EB Approach: Tilley Morris Rd
 WB Approach: Tilley Morris Rd
 Other: _____

Date: _____
 Visited By: _____
 Posted Speed: 45 mph
 Posted Speed: NP
 Posted Speed: 45 mph
 Posted Speed: 45 mph
 Posted Speed: _____

Approach	Head Types (L to R)	LT Phase Type	RT Overlap?	Ped Heads	Push Buttons?	X-walk?	On-Street Parking?	Pre-emption?
NB	_____	Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS
SB	_____	Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS
EB	_____	Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS
WB	_____	Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS
		Prot Perm P+P Split	Y N		Y N	Y N	Y N	RR EMS

Approach	Laneage (L to R)	# of Receiving Lanes	LT Storage Length	RT Storage Length	Signal Support
NB	↑ P	1	—	150/150 Chan.	MA SW
SB	↕	1	—	—	MA SW
EB	↕	1	—	—	MA SW
WB	↑ P	1	—	50/125	MA SW
					MA SW

Photos:

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- 8)

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LT = Left/Thru Lane

T = Thru Lane

TR = Thru/Right Lane

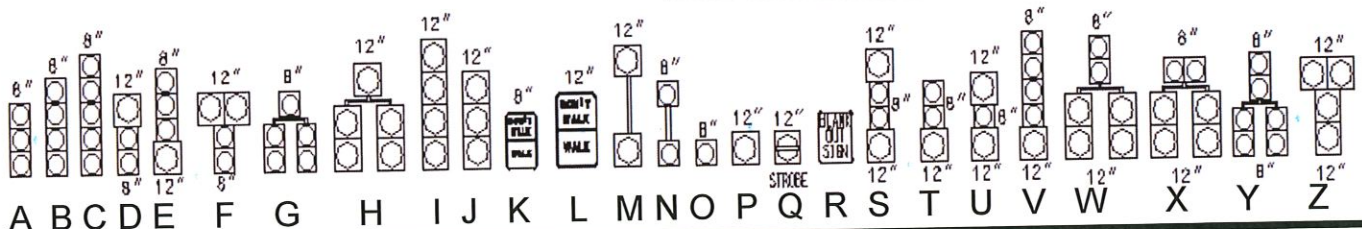
LTR = Left/Thru/Right Lane

R = Right Turn Only Lane

Notes:

Future Roundabout

Signal Inventory ID #:



FIELD SURVEY NOTES (2 of 2)

Project Description:

Intersection: Matthews - Weddington Rd & Tilley Morris Rd Date: _____

SKETCH OF INTERSECTION

NORTH



STOP

↑ S=50' (125' storage)

STOP yield

S=150' (50' stor.)

YIELD

Include on sketch or copy of signal plan:

- | | |
|--|--|
| ☐ Laneage/Xwalks | ☐ Sight Dist Obstructions |
| ☐ Turn Lanes | ☐ Controller Location |
| ☐ Street Names | ☐ Signal Pole Locations |
| ☐ Signing | ☐ Signal Inventory ID # |
| ☐ Medians/Islands | ☐ North Arrow |

Signal Inventory ID #:

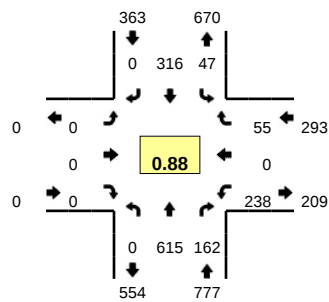
Drawn By: _____

Notes:

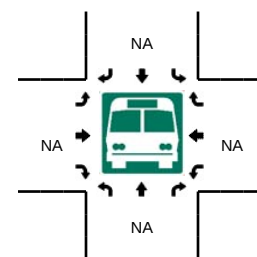
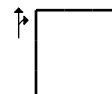
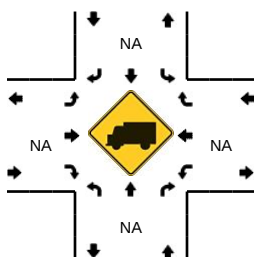
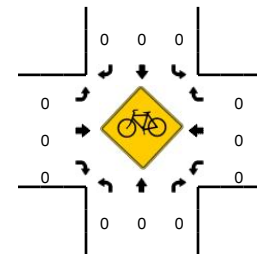
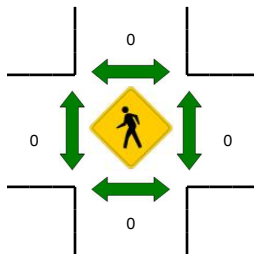
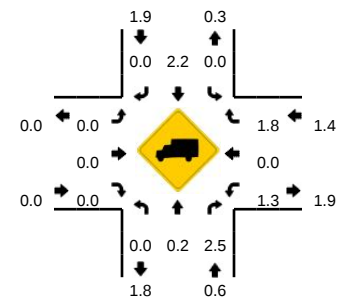
Turning Movement Counts

LOCATION: Matthews Weddington Rd -- Chestnut Ln
CITY/STATE: Stallings, NC

QC JOB #: 14837101
DATE: Thu, Nov 15 2018



Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

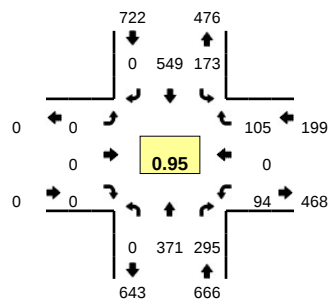


15-Min Count Period Beginning At	Matthews Weddington Rd (Northbound)				Matthews Weddington Rd (Southbound)				Chestnut Ln (Eastbound)				Chestnut Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	24	1	0	3	9	0	0	0	0	0	0	11	0	7	0	55	
6:15 AM	0	53	11	0	1	13	0	0	0	0	0	0	28	0	14	0	120	
6:30 AM	0	55	10	0	6	33	0	0	0	0	0	0	65	0	18	0	187	
6:45 AM	0	118	19	0	7	49	0	0	0	0	0	0	67	0	19	0	279	641
7:00 AM	0	119	45	0	5	63	0	0	0	0	0	0	94	0	9	0	335	921
7:15 AM	0	133	44	0	15	78	0	0	0	0	0	0	68	0	9	0	347	1148
7:30 AM	0	211	47	0	5	84	0	0	0	0	0	0	38	0	21	0	406	1367
7:45 AM	0	152	26	0	22	91	0	0	0	0	0	0	38	0	16	0	345	1433
8:00 AM	0	107	39	0	31	91	0	0	0	0	0	0	47	0	15	0	330	1428
8:15 AM	0	100	25	0	7	90	0	0	0	0	0	0	58	0	20	0	300	1381
8:30 AM	0	147	24	0	12	68	0	0	0	0	0	0	59	0	13	0	323	1298
8:45 AM	0	134	19	0	11	72	0	0	0	0	0	0	53	0	13	0	302	1255
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	844	188	0	20	336	0	0	0	0	0	0	152	0	84	0	1624	
Heavy Trucks	0	4	4		0	16	0		0	0	0		0	0	0		24	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

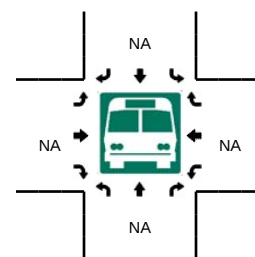
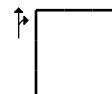
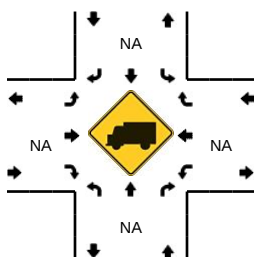
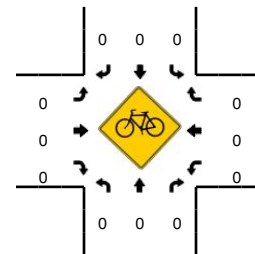
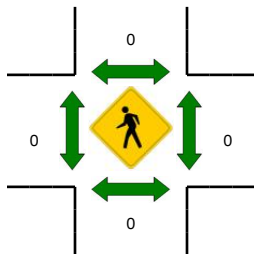
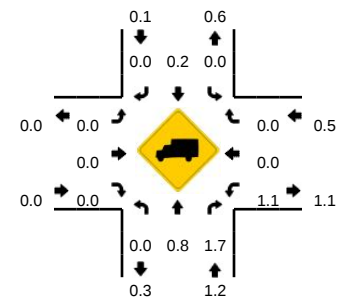
Comments:

LOCATION: Matthews Weddington Rd -- Chestnut Ln
CITY/STATE: Stallings, NC

QC JOB #: 14837102
DATE: Thu, Nov 15 2018



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

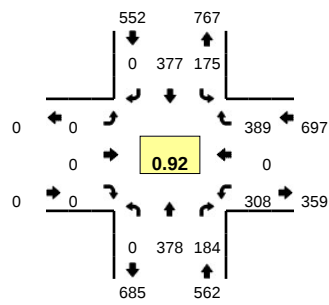


15-Min Count Period Beginning At	Matthews Weddington Rd (Northbound)				Matthews Weddington Rd (Southbound)				Chestnut Ln (Eastbound)				Chestnut Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	65	67	0	28	158	0	0	0	0	0	0	22	0	17	0	357	
4:15 PM	0	101	49	0	45	109	0	0	0	0	0	0	23	0	18	0	345	
4:30 PM	0	76	61	0	51	134	0	0	0	0	0	0	25	0	15	0	362	
4:45 PM	0	84	69	0	40	141	0	0	0	0	0	0	30	0	26	0	390	1454
5:00 PM	0	96	75	0	41	154	0	0	0	0	0	0	19	0	33	0	418	1515
5:15 PM	0	99	81	0	43	141	0	0	0	0	0	0	20	0	29	0	413	1583
5:30 PM	0	92	70	0	49	113	0	0	0	0	0	0	25	0	17	0	366	1587
5:45 PM	0	108	72	0	38	99	0	0	0	0	0	0	27	0	23	0	367	1564
6:00 PM	0	86	53	0	49	117	0	0	0	0	0	0	22	0	20	0	347	1493
6:15 PM	0	74	61	0	38	112	0	0	0	0	0	0	17	0	24	0	326	1406
6:30 PM	0	66	54	0	33	121	0	0	0	0	0	0	32	0	21	0	327	1367
6:45 PM	0	48	41	0	34	101	0	0	0	0	0	0	19	0	19	0	262	1262
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	384	300	0	164	616	0	0	0	0	0	0	76	0	132	0	1672	
Heavy Trucks	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

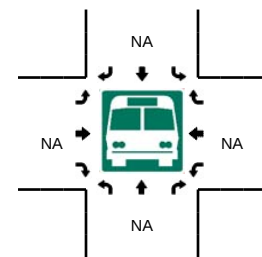
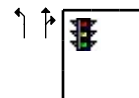
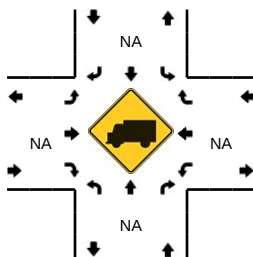
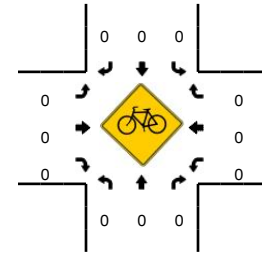
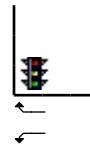
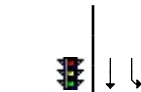
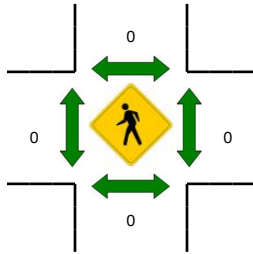
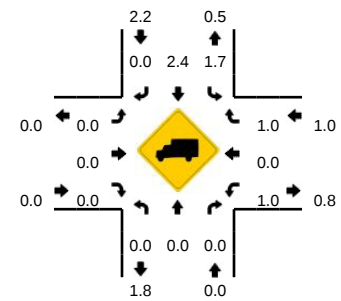
Comments:

LOCATION: Matthews Weddington Rd -- Antioch Church Rd
CITY/STATE: Matthews, NC

QC JOB #: 14837103
DATE: Thu, Nov 15 2018



Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

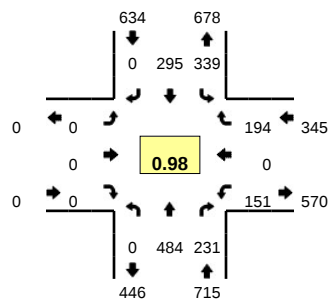


15-Min Count Period Beginning At	Matthews Weddington Rd (Northbound)				Matthews Weddington Rd (Southbound)				Antioch Church Rd (Eastbound)				Antioch Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	11	2	0	2	17	0	0	0	0	0	0	20	0	12	0	64	808
6:15 AM	0	24	8	0	5	35	0	0	0	0	0	0	46	0	37	0	155	
6:30 AM	0	18	14	0	22	66	0	0	0	0	0	0	87	0	48	0	255	
6:45 AM	0	56	35	0	26	82	0	0	0	0	0	0	58	0	77	0	334	
7:00 AM	0	91	77	0	40	110	0	0	0	0	0	0	70	0	82	0	470	
7:15 AM	0	101	66	0	45	106	0	0	0	0	0	0	101	0	73	0	492	1551
7:30 AM	0	101	22	0	29	88	0	0	0	0	0	0	104	0	146	0	490	1786
7:45 AM	0	85	19	0	61	73	0	0	0	0	0	0	33	0	88	0	359	1811
8:00 AM	0	79	20	0	55	74	0	0	0	0	0	0	44	0	66	0	338	1679
8:15 AM	0	59	22	0	33	120	0	0	0	0	0	0	62	0	65	0	361	1548
8:30 AM	0	69	16	0	27	98	0	0	0	0	0	0	59	0	92	0	361	1419
8:45 AM	0	72	12	0	23	103	0	0	0	0	0	0	42	0	77	0	329	1389
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	404	264	0	180	424	0	0	0	0	0	0	404	0	292	0	1968	
Heavy Trucks	0	0	0	0	0	8	0	0	0	0	0	0	0	0	4	0	12	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

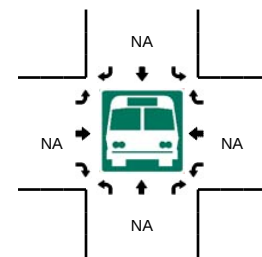
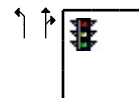
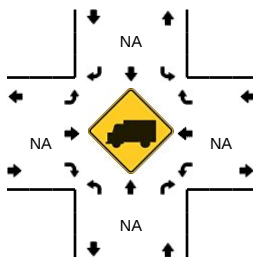
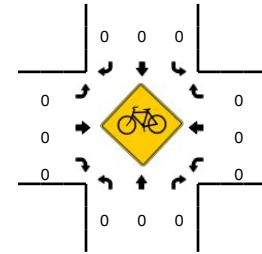
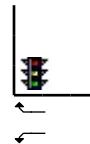
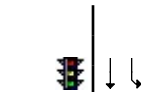
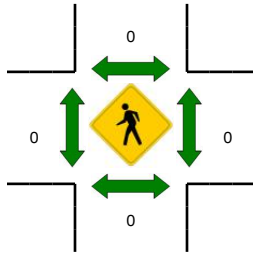
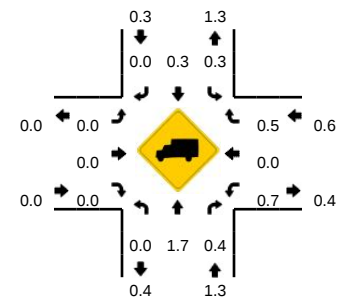
Comments:

LOCATION: Matthews Weddington Rd -- Antioch Church Rd
CITY/STATE: Matthews, NC

QC JOB #: 14837104
DATE: Thu, Nov 15 2018



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

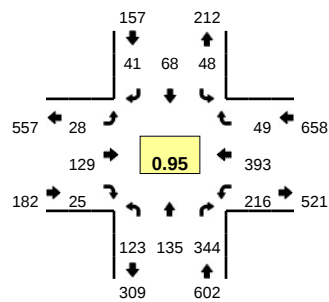


15-Min Count Period Beginning At	Matthews Weddington Rd (Northbound)				Matthews Weddington Rd (Southbound)				Antioch Church Rd (Eastbound)				Antioch Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	97	41	0	99	76	0	0	0	0	0	0	34	0	33	0	380	
4:15 PM	0	94	35	0	64	76	0	0	0	0	0	0	22	0	51	0	342	
4:30 PM	0	108	52	0	70	85	0	0	0	0	0	0	37	0	41	0	393	
4:45 PM	0	107	59	0	87	82	0	0	0	0	0	0	37	0	50	0	422	1537
5:00 PM	0	123	55	0	97	73	0	0	0	0	0	0	28	0	50	0	426	1583
5:15 PM	0	133	56	0	79	74	0	0	0	0	0	0	42	0	50	0	434	1675
5:30 PM	0	121	61	0	76	66	0	0	0	0	0	0	44	0	44	0	412	1694
5:45 PM	0	128	53	0	53	71	0	0	0	0	0	0	36	0	48	0	389	1661
6:00 PM	0	101	52	0	47	88	0	0	0	0	0	0	32	0	34	0	354	1589
6:15 PM	0	104	44	0	68	69	0	0	0	0	0	0	20	0	34	0	339	1494
6:30 PM	0	83	48	0	71	81	0	0	0	0	0	0	25	0	38	0	346	1428
6:45 PM	0	53	37	0	65	58	0	0	0	0	0	0	21	0	32	0	266	1305
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	532	224	0	316	296	0	0	0	0	0	0	168	0	200	0	1736	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

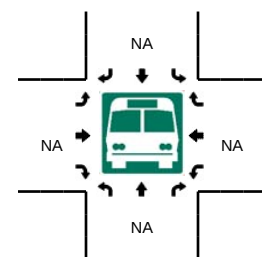
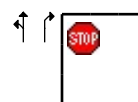
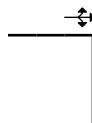
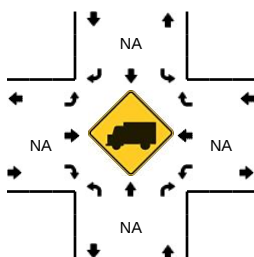
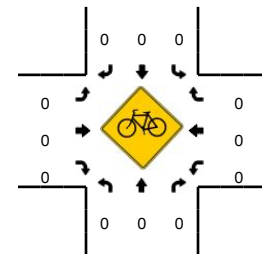
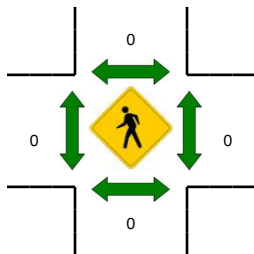
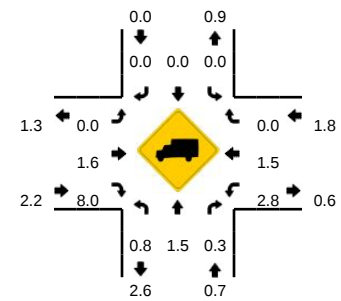
Comments:

LOCATION: Weddington Matthews Rd -- Tilley Morris Rd
CITY/STATE: Matthews, NC

QC JOB #: 14837105
DATE: Thu, Nov 15 2018



Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

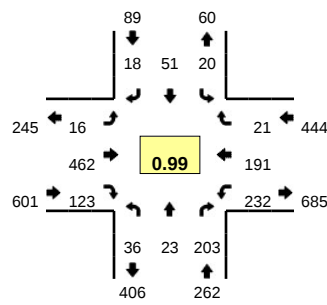


15-Min Count Period Beginning At	Weddington Matthews Rd (Northbound)				Weddington Matthews Rd (Southbound)				Tilley Morris Rd (Eastbound)				Tilley Morris Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	12	1	11	0	1	0	0	0	0	1	2	0	7	27	1	0	63	
6:15 AM	22	0	19	0	0	1	0	0	0	13	3	0	12	69	0	0	139	
6:30 AM	22	0	23	0	0	0	0	0	1	17	0	0	22	127	1	0	213	
6:45 AM	39	1	67	0	0	0	0	0	2	16	1	0	16	140	0	0	282	697
7:00 AM	26	18	121	0	4	5	6	0	6	35	3	0	47	135	8	0	414	1048
7:15 AM	41	21	114	0	3	1	10	0	4	29	9	0	73	109	8	0	422	1331
7:30 AM	31	42	73	0	14	28	9	0	9	39	9	0	56	70	9	0	389	1507
7:45 AM	25	54	36	0	27	34	16	0	9	26	4	0	40	79	24	0	374	1599
8:00 AM	22	39	47	0	15	37	24	0	12	27	5	0	34	76	12	0	350	1535
8:15 AM	18	1	43	0	2	6	6	0	2	35	11	0	81	134	2	0	341	1454
8:30 AM	25	4	54	0	1	3	0	0	1	33	5	0	64	91	0	0	281	1346
8:45 AM	17	2	47	0	0	0	0	0	0	34	6	0	67	84	0	0	257	1229
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	164	84	456	0	12	4	40	0	16	116	36	0	292	436	32	0	1688	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

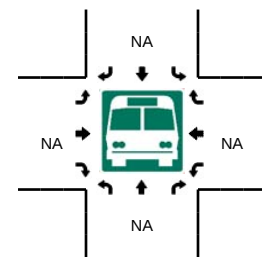
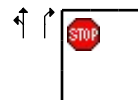
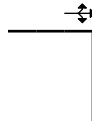
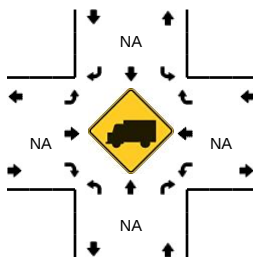
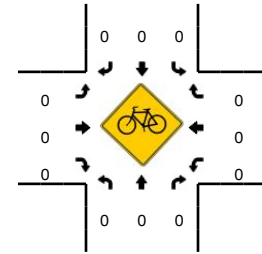
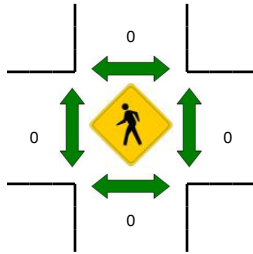
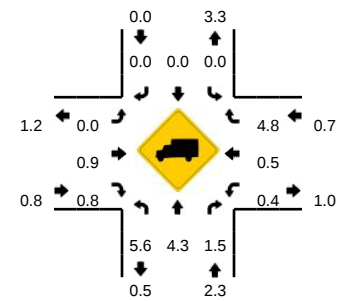
Comments:

LOCATION: Weddington Matthews Rd -- Tilley Morris Rd
CITY/STATE: Matthews, NC

QC JOB #: 14837106
DATE: Thu, Nov 15 2018



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



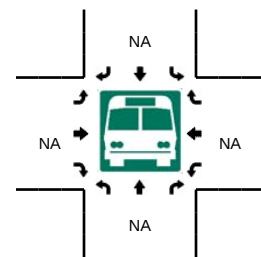
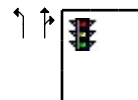
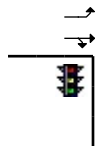
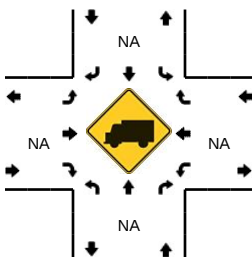
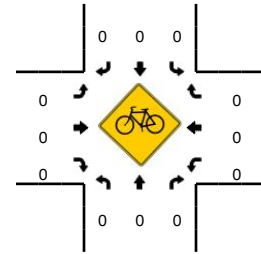
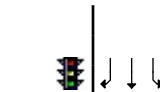
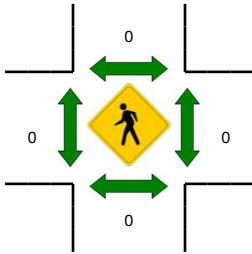
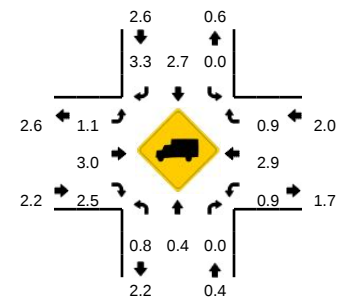
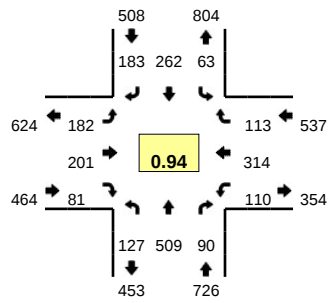
15-Min Count Period Beginning At	Weddington Matthews Rd (Northbound)				Weddington Matthews Rd (Southbound)				Tilley Morris Rd (Eastbound)				Tilley Morris Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	13	2	44	0	3	7	8	0	2	92	11	0	51	39	1	0	273	
4:15 PM	5	6	51	1	6	3	1	0	9	73	25	0	45	48	3	0	276	
4:30 PM	6	8	47	0	7	17	7	0	7	111	30	0	51	50	6	0	347	
4:45 PM	10	12	51	0	4	15	4	0	4	102	33	0	53	51	9	0	348	1244
5:00 PM	14	2	52	0	7	8	6	0	2	122	35	0	61	36	3	0	348	1319
5:15 PM	6	1	53	0	2	11	1	0	3	127	25	0	67	54	3	0	353	1396
5:30 PM	5	0	69	0	2	4	1	0	6	118	34	0	59	44	3	0	345	1394
5:45 PM	8	2	74	0	2	3	2	0	3	110	27	0	53	59	1	0	344	1390
6:00 PM	9	1	44	0	0	3	0	0	1	96	27	0	55	49	3	0	288	1330
6:15 PM	7	0	52	0	0	0	0	0	1	99	34	0	51	42	0	0	286	1263
6:30 PM	16	0	35	0	0	2	2	0	0	102	28	0	47	49	0	0	281	1199
6:45 PM	6	1	25	0	0	0	0	0	0	67	22	0	33	48	0	0	202	1057
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	4	212	0	8	44	4	0	12	508	100	0	268	216	12	0	1412	
Heavy Trucks	0	0	4		0	0	0		0	0	0		4	0	0		8	
Pedestrians	0	0			0	0			0	0			0	0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Weddington Rd -- McKee Rd
CITY/STATE: Matthews, NC

QC JOB #: 14837107
DATE: Thu, Nov 15 2018

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

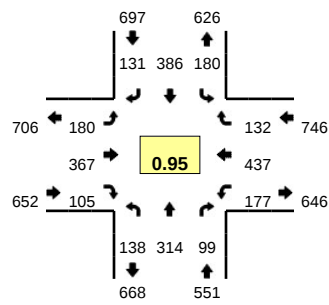


15-Min Count Period Beginning At	Weddington Rd (Northbound)				Weddington Rd (Southbound)				McKee Rd (Eastbound)				McKee Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	17	34	2	0	2	5	17	0	18	8	3	0	2	30	3	0	141	1164
6:15 AM	24	54	4	0	3	12	29	0	14	13	1	0	4	43	15	0	216	
6:30 AM	32	74	6	0	9	29	34	0	32	28	4	0	8	71	24	0	351	
6:45 AM	34	135	7	0	12	25	37	0	24	27	2	0	14	110	29	0	456	
7:00 AM	50	138	7	0	15	31	47	0	32	36	8	0	9	131	15	0	519	
7:15 AM	34	144	13	0	10	46	25	0	35	26	10	0	26	92	43	0	504	
7:30 AM	24	129	22	0	18	64	35	0	40	34	21	0	29	69	28	0	513	1992
7:45 AM	37	142	28	0	16	77	35	0	47	58	28	0	32	63	32	0	595	2131
8:00 AM	39	113	20	0	15	63	48	0	52	67	22	0	32	84	26	0	581	2193
8:15 AM	27	125	20	0	14	58	65	0	43	42	10	0	17	98	27	0	546	2235
8:30 AM	30	121	11	0	21	58	50	0	26	37	12	0	15	121	4	0	506	2228
8:45 AM	33	128	15	0	18	47	53	0	43	53	14	0	22	121	18	0	565	2198
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	148	568	112	0	64	308	140	0	188	232	112	0	128	252	128	0	2380	
Heavy Trucks	0	0	0	0	0	12	4	0	0	4	0	0	4	8	0	0	32	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

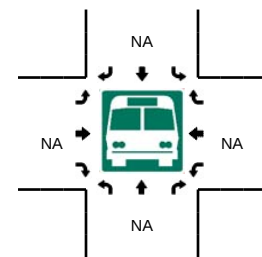
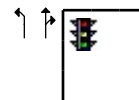
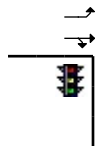
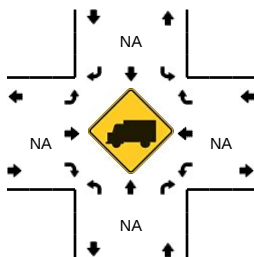
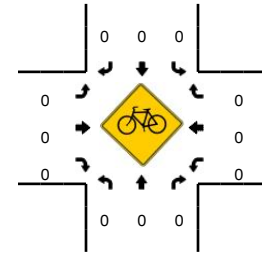
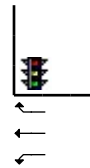
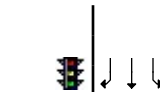
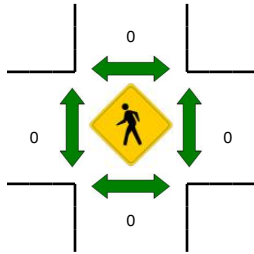
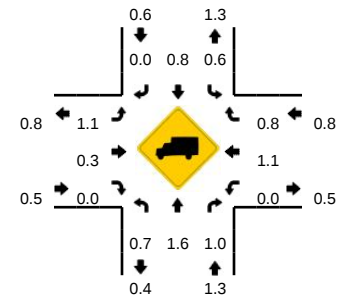
Comments:

LOCATION: Weddington Rd -- McKee Rd
CITY/STATE: Matthews, NC

QC JOB #: 14837108
DATE: Thu, Nov 15 2018



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:30 PM -- 5:45 PM



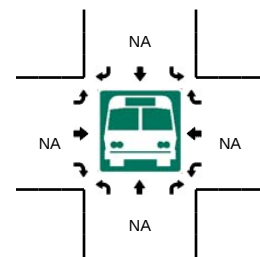
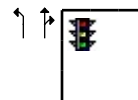
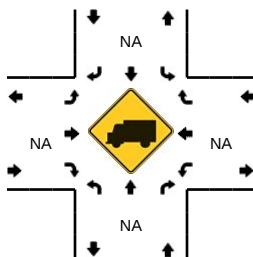
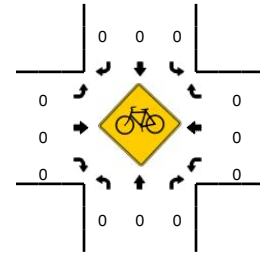
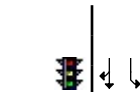
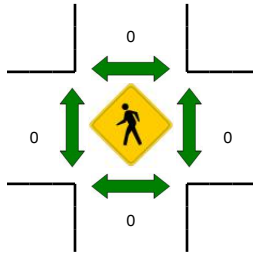
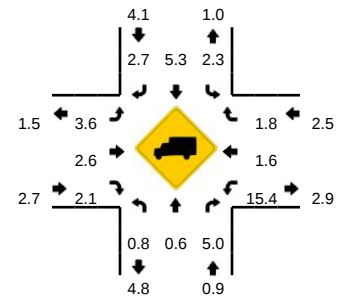
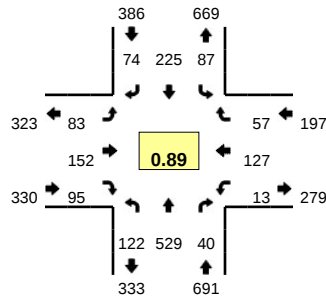
15-Min Count Period Beginning At	Weddington Rd (Northbound)				Weddington Rd (Southbound)				McKee Rd (Eastbound)				McKee Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	32	90	34	0	47	64	18	0	32	90	34	0	36	66	13	0	556	
4:15 PM	29	64	32	0	46	74	17	0	28	65	30	0	31	53	20	0	489	
4:30 PM	16	80	24	0	39	72	34	0	16	80	23	0	32	65	19	0	500	
4:45 PM	19	74	21	0	39	96	29	0	20	74	22	0	29	85	16	0	524	2069
5:00 PM	32	76	28	0	49	79	26	0	32	77	26	0	46	82	28	0	581	2094
5:15 PM	33	82	26	0	46	107	32	0	26	85	19	0	47	154	31	0	688	2293
5:30 PM	38	76	29	0	47	101	41	0	53	96	30	0	46	102	40	0	699	2492
5:45 PM	35	80	16	0	38	99	32	0	69	109	30	0	38	99	33	0	678	2646
6:00 PM	29	78	24	0	35	73	12	0	35	112	49	0	35	73	22	0	577	2642
6:15 PM	19	66	20	0	33	74	5	0	39	113	41	0	36	62	7	0	515	2469
6:30 PM	20	70	15	0	37	71	7	0	35	120	41	0	37	69	15	0	537	2307
6:45 PM	19	42	13	0	25	71	25	0	24	98	39	0	22	72	22	0	472	2101
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	152	304	116	0	188	404	164	0	212	384	120	0	184	408	160	0	2796	
Heavy Trucks	0	8	0	0	0	8	0	0	0	0	0	0	0	8	0	0	24	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Potter Rd -- Chestnut Ln
CITY/STATE: Stallings, NC

QC JOB #: 14837109
DATE: Thu, Nov 15 2018

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:15 AM -- 7:30 AM



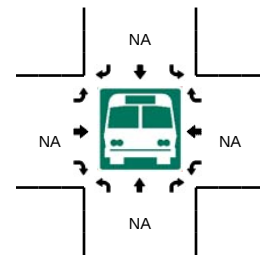
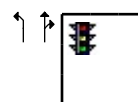
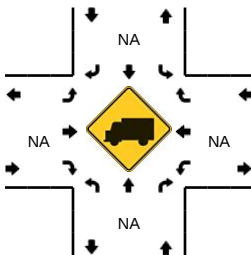
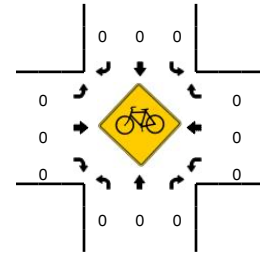
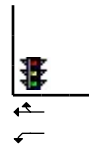
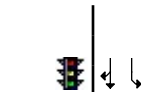
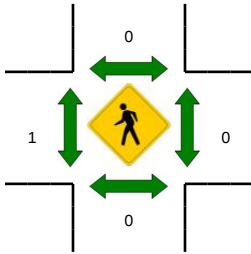
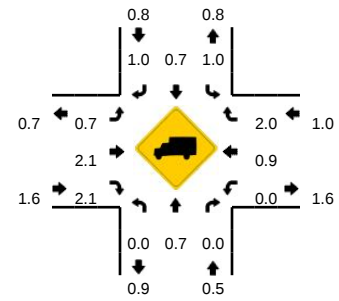
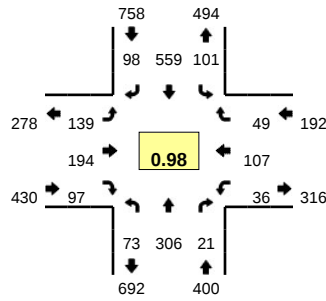
15-Min Count Period Beginning At	Potter Rd (Northbound)				Potter Rd (Southbound)				Chestnut Ln (Eastbound)				Chestnut Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	3	58	0	0	2	14	4	0	4	7	3	0	1	8	9	0	113	854
6:15 AM	9	94	5	0	2	15	5	0	12	5	1	0	1	14	10	0	173	
6:30 AM	25	120	1	0	6	23	12	0	14	17	5	0	1	28	8	0	260	
6:45 AM	19	122	1	0	18	36	12	0	17	26	7	0	2	41	7	0	308	
7:00 AM	36	138	13	0	32	38	14	0	27	32	23	0	3	44	6	0	406	1147
7:15 AM	35	136	12	0	29	66	21	0	18	46	39	0	7	24	19	0	452	1426
7:30 AM	20	124	12	0	15	72	20	0	21	40	21	0	3	39	18	0	405	1571
7:45 AM	31	131	3	0	11	49	19	0	17	34	12	0	0	20	14	0	341	1604
8:00 AM	15	127	8	0	13	81	21	0	17	26	17	0	6	24	12	0	367	1565
8:15 AM	16	114	2	0	15	71	28	0	32	27	10	0	6	32	2	0	355	1468
8:30 AM	14	108	5	0	8	42	23	0	16	17	9	0	5	23	8	0	278	1341
8:45 AM	13	99	6	0	10	57	22	0	11	20	9	0	4	27	11	0	289	1289
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	140	544	48	0	116	264	84	0	72	184	156	0	28	96	76	0	1808	
Heavy Trucks	0	4	0	0	0	12	0	0	0	4	4	0	4	0	0	0	28	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Potter Rd -- Chestnut Ln
CITY/STATE: Stallings, NC

QC JOB #: 14837110
DATE: Thu, Nov 15 2018

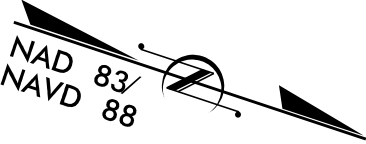
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



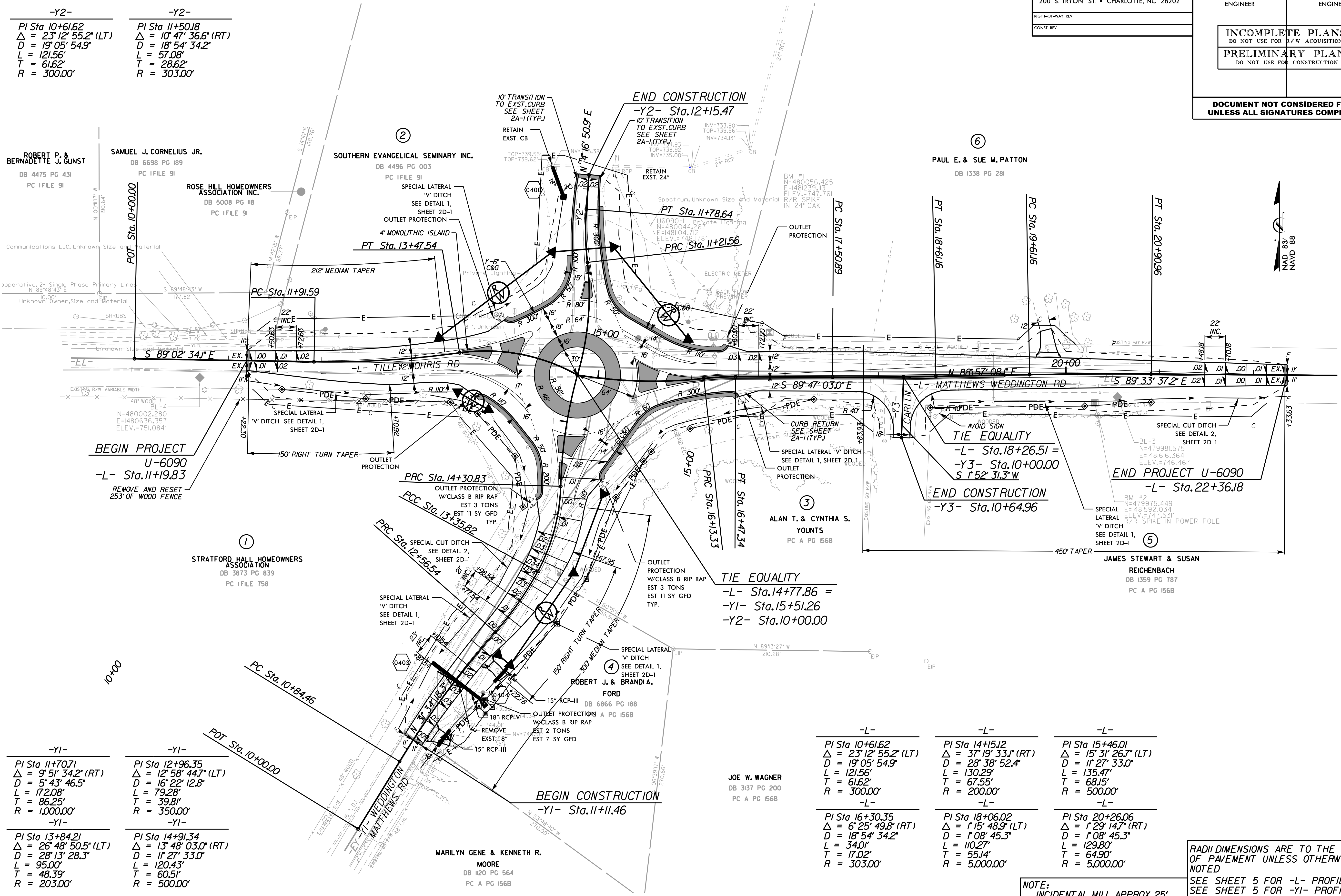
15-Min Count Period Beginning At	Potter Rd (Northbound)				Potter Rd (Southbound)				Chestnut Ln (Eastbound)				Chestnut Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	55	5	0	21	100	20	0	29	44	18	0	6	17	10	1	337	
4:15 PM	17	78	4	0	22	122	11	0	27	45	17	0	14	21	11	0	389	
4:30 PM	16	90	10	0	16	129	28	0	39	34	19	0	13	21	8	0	423	
4:45 PM	17	73	4	0	28	147	25	0	34	45	22	0	8	25	14	0	442	1591
5:00 PM	18	83	6	0	23	142	28	0	32	55	18	0	10	25	14	0	454	1708
5:15 PM	14	70	9	0	25	134	27	0	33	59	23	0	9	31	12	0	446	1765
5:30 PM	24	80	2	0	25	136	18	0	40	35	34	0	9	26	9	0	438	1780
5:45 PM	7	77	2	0	21	136	22	0	29	37	20	0	4	22	13	0	390	1728
6:00 PM	16	69	1	0	14	114	24	0	25	40	29	0	10	16	10	0	368	1642
6:15 PM	16	80	5	0	16	112	29	0	20	33	17	0	7	17	4	0	356	1552
6:30 PM	15	61	2	0	12	107	27	0	21	31	11	0	8	29	11	0	335	1449
6:45 PM	7	52	3	0	12	101	18	0	24	29	14	0	5	27	11	0	303	1362
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	72	332	24	0	92	568	112	0	128	220	72	0	40	100	56	0	1816	
Heavy Trucks	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

TIP Projects



NOTE:
INCIDENTAL MILL APPROX. 25' AT EACH
TIE IN TO PROVIDE A SMOOTH TRANSITION
TO THE EXISTING ASPHALT PAVEMENT.



-Y1-
PI Sta 11+70.71
$\Delta = 9' 51'' 34.2''$ (RT)
$D = 5' 43'' 46.5''$
$L = 172.08'$
$T = 86.25'$
$R = 1,000.00'$
-Y1-
PI Sta 13+84.21
$\Delta = 26' 48'' 50.5''$ (LT)
$D = 28' 13'' 28.3''$
$L = 95.00'$
$T = 48.39'$
$R = 203.00'$

-Y1-
PI Sta 12+96.35
$\Delta = 12' 58'' 44.7''$ (LT)
$D = 16' 22'' 12.8''$
$L = 79.28'$
$T = 39.81'$
$R = 350.00'$
-Y1-
PI Sta 14+91.34
$\Delta = 13' 48'' 03.0''$ (RT)
$D = 11' 27'' 33.0''$
$L = 120.43'$
$T = 60.51'$
$R = 500.00'$

-L-
PI Sta 10+61.62
$\Delta = 23' 12'' 55.2''$ (LT)
$D = 19' 05'' 54.9''$
$L = 121.56'$
$T = 61.62'$
$R = 300.00'$
-L-
PI Sta 16+30.35
$\Delta = 6' 25'' 49.8''$ (RT)
$D = 18' 54'' 34.2''$
$L = 34.01'$
$T = 17.02'$
$R = 303.00'$

-L-
PI Sta 14+15.12
$\Delta = 37' 19'' 33.1''$ (RT)
$D = 28' 38'' 52.4''$
$L = 130.29'$
$T = 67.55'$
$R = 200.00'$
-L-
PI Sta 18+06.02
$\Delta = 1' 15'' 48.9''$ (LT)
$D = 1' 08'' 45.3''$
$L = 110.27'$
$T = 55.14'$
$R = 5,000.00'$

-L-
PI Sta 15+46.01
$\Delta = 15' 31'' 26.7''$ (LT)
$D = 11' 27'' 33.0''$
$L = 135.47'$
$T = 68.15'$
$R = 500.00'$
-L-
PI Sta 20+26.06
$\Delta = 1' 29'' 14.7''$ (RT)
$D = 1' 08'' 45.3''$
$L = 129.80'$
$T = 64.90'$
$R = 5,000.00'$

NOTE:
INCIDENTAL MILL APPROX. 25'
AT EACH TIE IN TO PROVIDE
A SMOOTH TRANSITION TO THE
EXISTING ASPHALT PAVEMENT

RADII DIMENSIONS ARE TO THE EDGE
OF PAVEMENT UNLESS OTHERWISE
NOTED
SEE SHEET 5 FOR -L- PROFILE
SEE SHEET 5 FOR -Y1- PROFILE
SEE SHEET 5 FOR -Y2- PROFILE
SEE SHEET 6 FOR -RDBT- PROFILE
SEE SHEET 2B-1 FOR
PAVEMENT REMOVAL

REVISIONS

11/13/2017

Intersection Volume Development

INTERSECTION VOLUME DEVELOPMENT

Matthews-Weddington Road and Driveway #1/Chestnut Lane AM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			Driveway #1 <u>Eastbound</u>			Chestnut Lane <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	615	162	47	316	0	0	0	0	238	0	55
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	615	162	47	316	0	0	0	0	238	0	55
2018 PHF	0.90	0.73	0.86	0.53	0.87	0.90	0.90	0.90	0.90	0.63	0.90	0.66
2021 Background PHF	0.90	0.72	0.84	0.53	0.85	0.90	0.90	0.90	0.90	0.62	0.90	0.66
2021 Build PHF	0.90	0.72	0.84	0.53	0.85	0.90	0.90	0.90	0.90	0.62	0.90	0.66
2026 Build PHF	0.90	0.72	0.84	0.53	0.86	0.90	0.90	0.90	0.90	0.63	0.90	0.66
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	0	682	180	52	350	0	0	0	0	264	0	61
Union Day School Expansion Approved Development Trips	0	41	11	0	17	0	0	0	0	12	0	0
Approved Development Trips	0	41	11	0	17	0	0	0	0	12	0	0
2021 Background Traffic	0	723	191	52	367	0	0	0	0	276	0	61
Percent Inbound Assignment	35%	0%	0%	0%	10%	20%	0%	0%	0%	0%	20%	0%
Percent Outbound Assignment	0%	0%	0%	0%	10%	0%	45%	20%	15%	0%	0%	0%
Residential Project Trips	10	0	0	0	11	6	36	17	12	0	5	0
Project Trips (Total)	10	0	0	0	11	6	36	17	12	0	5	0
2021 Buildout Total	10	723	191	52	378	6	36	17	12	276	5	61
2026 Buildout Total	10	851	224	62	444	6	36	17	12	325	5	72

PM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			Driveway #1 <u>Eastbound</u>			Chestnut Lane <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	371	295	173	549	0	0	0	0	94	0	105
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	371	295	173	549	0	0	0	0	94	0	105
2018 PHF	0.90	0.94	0.91	0.88	0.89	0.90	0.90	0.90	0.90	0.78	0.90	0.80
2021 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	0	411	327	192	609	0	0	0	0	104	0	116
Union Day School Expansion Approved Development Trips	0	2	1	0	8	0	0	0	0	1	0	0
Approved Development Trips	0	2	1	0	8	0	0	0	0	1	0	0
2021 Background Traffic	0	413	328	192	617	0	0	0	0	105	0	116
Percent Inbound Assignment	35%	0%	0%	0%	10%	20%	0%	0%	0%	0%	20%	0%
Percent Outbound Assignment	0%	0%	0%	0%	10%	0%	45%	20%	15%	0%	0%	0%
Residential Project Trips	29	0	0	0	13	17	24	11	8	0	17	0
Project Trips (Total)	29	0	0	0	13	17	24	11	8	0	17	0
2021 Buildout Total	29	413	328	192	630	17	24	11	8	105	17	116
2026 Buildout Total	29	491	389	228	744	17	24	11	8	125	17	138

INTERSECTION VOLUME DEVELOPMENT

Matthews-Weddington Road and Antioch Church Road AM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			- <u>Eastbound</u>			Antioch Church Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	378	184	175	377	0	0	0	0	308	0	389
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	378	184	175	377	0	0	0	0	308	0	389
2018 PHF	0.90	0.94	0.60	0.72	0.86	0.90	0.90	0.90	0.90	0.74	0.90	0.67
2021 Background PHF	0.90	0.89	0.59	0.72	0.84	0.90	0.90	0.90	0.90	0.72	0.90	0.67
2021 Build PHF	0.90	0.89	0.59	0.73	0.84	0.90	0.90	0.90	0.90	0.72	0.90	0.67
2026 Build PHF	0.90	0.90	0.59	0.73	0.84	0.90	0.90	0.90	0.90	0.73	0.90	0.67
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	0	419	204	194	418	0	0	0	0	341	0	431
Union Day School Expansion Approved Development Trips	0	52	25	0	29	0	0	0	0	24	0	0
Approved Development Trips	0	52	25	0	29	0	0	0	0	24	0	0
2021 Background Traffic	0	471	229	194	447	0	0	0	0	365	0	431
Percent Inbound Assignment	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%
Percent Outbound Assignment	0%	0%	0%	10%	25%	0%	0%	0%	0%	0%	0%	0%
Residential Project Trips	0	7	0	8	20	0	0	0	0	0	0	3
Project Trips (Total)	0	7	0	8	20	0	0	0	0	0	0	3
2021 Buildout Total	0	478	229	202	467	0	0	0	0	365	0	434
2026 Buildout Total	0	557	267	238	545	0	0	0	0	430	0	515

PM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			- <u>Eastbound</u>			Antioch Church Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	484	231	339	295	0	0	0	0	151	0	194
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	484	231	339	295	0	0	0	0	151	0	194
2018 PHF	0.90	0.91	0.95	0.87	0.90	0.90	0.90	0.90	0.90	0.86	0.90	0.97
2021 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	0	537	256	376	327	0	0	0	0	167	0	215
Union Day School Expansion Approved Development Trips	0	3	2	0	9	0	0	0	0	5	0	0
Approved Development Trips	0	3	2	0	9	0	0	0	0	5	0	0
2021 Background Traffic	0	540	258	376	336	0	0	0	0	172	0	215
Percent Inbound Assignment	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%
Percent Outbound Assignment	0%	0%	0%	10%	25%	0%	0%	0%	0%	0%	0%	0%
Residential Project Trips	0	21	0	5	13	0	0	0	0	0	0	8
Project Trips (Total)	0	21	0	5	13	0	0	0	0	0	0	8
2021 Buildout Total	0	561	258	381	349	0	0	0	0	172	0	223
2026 Buildout Total	0	661	306	451	410	0	0	0	0	204	0	263

INTERSECTION VOLUME DEVELOPMENT

Matthews-Weddington Road/Union Day School Driveway and Tilley Morris Road AM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Union Day School Driveway <u>Southbound</u>			Tilley Morris Road <u>Eastbound</u>			Tilley Morris Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	123	135	344	48	68	41	28	129	25	216	393	49
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	123	135	344	48	68	41	28	129	25	216	393	49
2018 PHF	0.75	0.63	0.71	0.44	0.50	0.64	0.78	0.83	0.69	0.74	0.73	0.51
2021 Background PHF	0.75	0.57	0.71	0.48	0.50	0.56	0.64	0.83	0.69	0.74	0.73	0.51
2021 Build PHF	0.75	0.57	0.71	0.48	0.50	0.56	0.64	0.83	0.69	0.74	0.74	0.51
2026 Build PHF	0.75	0.57	0.71	0.47	0.50	0.56	0.65	0.83	0.69	0.74	0.74	0.51
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	8%	3%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	136	150	381	53	75	45	31	143	28	239	436	54
Union Day School Expansion Approved Development Trips	0	148	0	77	107	65	30	0	0	0	0	53
Approved Development Trips	0	148	0	77	107	65	30	0	0	0	0	53
2021 Background Traffic	136	298	381	130	182	110	61	143	28	239	436	107
Percent Inbound Assignment	0%	0%	5%	0%	0%	0%	0%	20%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	20%	0%
Residential Project Trips	0	0	1	0	0	0	0	6	0	4	16	0
Project Trips (Total)	0	0	1	0	0	0	0	6	0	4	16	0
2021 Buildout Total	136	298	382	130	182	110	61	149	28	243	452	107
2026 Buildout Total	162	326	454	140	197	119	67	176	33	288	534	118

PM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Union Day School Driveway <u>Southbound</u>			Tilley Morris Road <u>Eastbound</u>			Tilley Morris Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	36	23	203	20	51	18	16	462	123	232	191	21
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	36	23	203	20	51	18	16	462	123	232	191	21
2018 PHF	0.64	0.48	0.96	0.71	0.75	0.64	0.57	0.91	0.88	0.87	0.88	0.58
2021 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	6%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	40	26	225	22	57	20	18	512	136	257	212	23
Union Day School Expansion Approved Development Trips	0	15	0	5	13	5	10	0	0	0	0	14
Approved Development Trips	0	15	0	5	13	5	10	0	0	0	0	14
2021 Background Traffic	40	41	225	27	70	25	28	512	136	257	212	37
Percent Inbound Assignment	0%	0%	5%	0%	0%	0%	0%	20%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	20%	0%
Residential Project Trips	0	0	4	0	0	0	0	17	0	3	10	0
Project Trips (Total)	0	0	4	0	0	0	0	17	0	3	10	0
2021 Buildout Total	40	41	229	27	70	25	28	529	136	260	222	37
2026 Buildout Total	47	45	271	31	80	29	31	625	162	308	262	42

INTERSECTION VOLUME DEVELOPMENT

Matthews-Weddington Road and McKee Road AM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			McKee Road <u>Eastbound</u>			McKee Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	127	509	90	63	262	183	182	201	81	110	314	113
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	127	509	90	63	262	183	182	201	81	110	314	113
2018 PHF	0.81	0.90	0.80	0.88	0.85	0.70	0.88	0.75	0.72	0.86	0.80	0.88
2021 Background PHF	0.80	0.88	0.79	0.88	0.84	0.70	0.88	0.75	0.71	0.85	0.80	0.88
2021 Build PHF	0.81	0.88	0.79	0.88	0.84	0.70	0.88	0.75	0.72	0.85	0.80	0.88
2026 Build PHF	0.81	0.88	0.79	0.88	0.84	0.70	0.88	0.75	0.72	0.85	0.80	0.88
Heavy Vehicle %	2%	2%	2%	2%	3%	3%	2%	3%	2%	2%	3%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	141	564	100	70	290	203	202	223	90	122	348	125
Union Day School Expansion Approved Development Trips	7	29	5	0	10	0	0	0	3	4	0	0
Approved Development Trips	7	29	5	0	10	0	0	0	3	4	0	0
2021 Background Traffic	148	593	105	70	300	203	202	223	93	126	348	125
Percent Inbound Assignment	0%	0%	0%	0%	20%	0%	0%	0%	20%	5%	0%	0%
Percent Outbound Assignment	20%	20%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Residential Project Trips	16	16	4	0	6	0	0	0	6	1	0	0
Project Trips (Total)	16	16	4	0	6	0	0	0	6	1	0	0
2021 Buildout Total	164	609	109	70	306	203	202	223	99	127	348	125
2026 Buildout Total	190	715	128	83	361	241	240	265	116	150	413	149

PM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			McKee Road <u>Eastbound</u>			McKee Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	138	314	99	180	386	131	180	367	105	177	437	132
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	138	314	99	180	386	131	180	367	105	177	437	132
2018 PHF	0.91	0.96	0.85	0.92	0.90	0.80	0.65	0.84	0.88	0.94	0.71	0.83
2021 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	153	348	110	200	428	145	200	407	116	196	485	146
Union Day School Expansion Approved Development Trips	1	1	0	0	5	0	0	0	1	2	0	0
Approved Development Trips	1	1	0	0	5	0	0	0	1	2	0	0
2021 Background Traffic	154	349	110	200	433	145	200	407	117	198	485	146
Percent Inbound Assignment	0%	0%	0%	0%	20%	0%	0%	0%	20%	5%	0%	0%
Percent Outbound Assignment	20%	20%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Residential Project Trips	10	11	3	0	17	0	0	0	17	4	0	0
Project Trips (Total)	10	11	3	0	17	0	0	0	17	4	0	0
2021 Buildout Total	164	360	113	200	450	145	200	407	134	202	485	146
2026 Buildout Total	193	425	133	237	530	173	237	483	156	239	575	174

INTERSECTION VOLUME DEVELOPMENT

Potter Road and Chestnut Lane AM PEAK HOUR

Description	Potter Road <u>Northbound</u>			Potter Road <u>Southbound</u>			Chestnut Lane <u>Eastbound</u>			Chestnut Lane <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	122	529	40	87	225	74	83	152	95	13	127	57
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	122	529	40	87	225	74	83	152	95	13	127	57
2018 PHF	0.85	0.96	0.77	0.68	0.78	0.88	0.77	0.83	0.61	0.46	0.72	0.75
2021 Background PHF	0.84	0.96	0.77	0.68	0.78	0.87	0.76	0.82	0.61	0.46	0.71	0.75
2021 Build PHF	0.84	0.96	0.77	0.68	0.78	0.87	0.77	0.82	0.62	0.46	0.72	0.75
2026 Build PHF	0.84	0.96	0.77	0.68	0.78	0.87	0.77	0.83	0.62	0.46	0.72	0.75
Heavy Vehicle %	2%	2%	5%	2%	5%	3%	4%	3%	2%	15%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	135	587	44	96	249	82	92	169	105	14	141	63
Union Day School Expansion Approved Development Trips	5	0	0	0	0	2	3	5	3	0	5	0
Approved Development Trips	5	0	0	0	0	2	3	5	3	0	5	0
2021 Background Traffic	140	587	44	96	249	84	95	174	108	14	146	63
Percent Inbound Assignment	5%	0%	0%	0%	0%	5%	0%	0%	0%	0%	10%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	5%	10%	5%	0%	0%	0%
Residential Project Trips	1	0	0	0	0	1	4	9	4	0	3	0
Project Trips (Total)	1	0	0	0	0	1	4	9	4	0	3	0
2021 Buildout Total	141	587	44	96	249	85	99	183	112	14	149	63
2026 Buildout Total	167	697	53	115	296	100	116	214	132	17	175	75

PM PEAK HOUR

Description	Potter Road <u>Northbound</u>			Potter Road <u>Southbound</u>			Chestnut Lane <u>Eastbound</u>			Chestnut Lane <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	73	306	21	101	559	98	139	194	97	36	107	49
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	73	306	21	101	559	98	139	194	97	36	107	49
2018 PHF	0.76	0.92	0.58	0.90	0.95	0.88	0.87	0.82	0.71	0.90	0.86	0.88
2021 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	81	339	23	112	620	109	154	215	108	40	119	54
Union Day School Expansion Approved Development Trips	0	0	0	0	0	0	0	1	0	0	1	0
Approved Development Trips	0	0	0	0	0	0	0	1	0	0	1	0
2021 Background Traffic	81	339	23	112	620	109	154	216	108	40	120	54
Percent Inbound Assignment	5%	0%	0%	0%	0%	5%	0%	0%	0%	0%	10%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	5%	10%	5%	0%	0%	0%
Residential Project Trips	4	0	0	0	0	4	3	5	3	0	9	0
Project Trips (Total)	4	0	0	0	0	4	3	5	3	0	9	0
2021 Buildout Total	85	339	23	112	620	113	157	221	111	40	129	54
2026 Buildout Total	100	403	28	133	736	133	186	261	131	47	151	65

INTERSECTION VOLUME DEVELOPMENT

Matthews-Weddington Road and Driveway #2 AM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			Driveway #2 <u>Eastbound</u>			- <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	777	0	0	554	0	0	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	777	0	0	554	0	0	0	0	0	0	0
2018 PHF	0.90	0.75	0.90	0.90	0.88	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Background PHF	0.90	0.74	0.90	0.90	0.86	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Build PHF	0.90	0.74	0.90	0.90	0.86	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2026 Build PHF	0.90	0.74	0.90	0.90	0.87	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	0	861	0	0	614	0	0	0	0	0	0	0
Union Day School Expansion Approved Development Trips	0	52	0	0	29	0	0	0	0	0	0	0
Approved Development Trips	0	52	0	0	29	0	0	0	0	0	0	0
2021 Background Traffic	0	913	0	0	643	0	0	0	0	0	0	0
Percent Inbound Assignment	0%	35%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	25%	0%	0%	0%	10%	0%	0%	0%
Residential Project Trips	0	10	0	0	20	3	0	0	8	0	0	0
Project Trips (Total)	0	10	0	0	20	3	0	0	8	0	0	0
2021 Buildout Total	0	923	0	0	663	3	0	0	8	0	0	0
2026 Buildout Total	0	1,085	0	0	779	3	0	0	8	0	0	0

PM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			Driveway #2 <u>Eastbound</u>			- <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	666	0	0	643	0	0	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	666	0	0	643	0	0	0	0	0	0	0
2018 PHF	0.90	0.93	0.90	0.90	0.93	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2021 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	0	738	0	0	713	0	0	0	0	0	0	0
Union Day School Expansion Approved Development Trips	0	3	0	0	9	0	0	0	0	0	0	0
Approved Development Trips	0	3	0	0	9	0	0	0	0	0	0	0
2021 Background Traffic	0	741	0	0	722	0	0	0	0	0	0	0
Percent Inbound Assignment	0%	35%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	25%	0%	0%	0%	10%	0%	0%	0%
Residential Project Trips	0	29	0	0	13	8	0	0	5	0	0	0
Project Trips (Total)	0	29	0	0	13	8	0	0	5	0	0	0
2021 Buildout Total	0	770	0	0	735	8	0	0	5	0	0	0
2026 Buildout Total	0	909	0	0	869	8	0	0	5	0	0	0

INTERSECTION VOLUME DEVELOPMENT

Matthews-Weddington Road and Driveway #3 AM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			Driveway #3 <u>Eastbound</u>			- <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	664	0	0	417	0	0	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	664	0	0	417	0	0	0	0	0	0	0
2021 Build PHF	0.90	0.72	0.90	0.90	0.85	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2026 Build PHF	0.90	0.72	0.90	0.90	0.85	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	0	736	0	0	462	0	0	0	0	0	0	0
Union Day School Expansion Approved	0	41	0	0	17	0	0	0	0	0	0	0
Approved Development Trips	0	41	0	0	17	0	0	0	0	0	0	0
2021 Background Traffic	0	777	0	0	479	0	0	0	0	0	0	0
Percent Inbound Assignment	0%	0%	0%	0%	30%	15%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	45%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%
Residential Project Trips	0	36	0	0	9	4	0	0	8	0	0	0
Project Trips (Total)	0	36	0	0	9	4	0	0	8	0	0	0
2021 Buildout Total	0	813	0	0	488	4	0	0	8	0	0	0
2026 Buildout Total	0	951	0	0	575	4	0	0	8	0	0	0

PM PEAK HOUR

Description	Matthews-Weddington Road <u>Northbound</u>			Matthews-Weddington Road <u>Southbound</u>			Driveway #3 <u>Eastbound</u>			- <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	458	0	0	745	0	0	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	458	0	0	745	0	0	0	0	0	0	0
2021 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
2021 Background Traffic (No AD)	0	508	0	0	826	0	0	0	0	0	0	0
Union Day School Expansion Approved	0	2	0	0	8	0	0	0	0	0	0	0
Approved Development Trips	0	2	0	0	8	0	0	0	0	0	0	0
2021 Background Traffic	0	510	0	0	834	0	0	0	0	0	0	0
Percent Inbound Assignment	0%	0%	0%	0%	30%	15%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	45%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%
Residential Project Trips	0	24	0	0	25	13	0	0	5	0	0	0
Project Trips (Total)	0	24	0	0	25	13	0	0	5	0	0	0
2021 Buildout Total	0	534	0	0	859	13	0	0	5	0	0	0
2026 Buildout Total	0	629	0	0	1,014	13	0	0	5	0	0	0

Intersection Capacity Analysis

2018 Existing Conditions

Lanes, Volumes, Timings
1: Matthews-Weddington Road & Chestnut Lane

Chestnut Farm
2018 Existing AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	238	55	615	162	47	316
Future Volume (vph)	238	55	615	162	47	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.976		0.975			
Flt Protected	0.961					0.990
Satd. Flow (prot)	1747	0	1816	0	0	1844
Flt Permitted	0.961					0.990
Satd. Flow (perm)	1747	0	1816	0	0	1844
Link Speed (mph)	45		45			45
Link Distance (ft)	8484		359			6981
Travel Time (s)	128.5		5.4			105.8
Peak Hour Factor	0.63	0.66	0.73	0.86	0.53	0.87
Adj. Flow (vph)	378	83	842	188	89	363
Shared Lane Traffic (%)						
Lane Group Flow (vph)	461	0	1030	0	0	452
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	79.5%			ICU Level of Service D		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: Matthews-Weddington Road & Chestnut Lane

Chestnut Farm
2018 Existing AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	238	55	615	162	47	316
Future Volume (Veh/h)	238	55	615	162	47	316
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.66	0.73	0.86	0.53	0.87
Hourly flow rate (vph)	378	83	842	188	89	363
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			1156			
pX, platoon unblocked	0.88	0.88			0.88	
vC, conflicting volume	1477	936			1030	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1474	861			968	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	74			86	
cM capacity (veh/h)	106	313			629	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	461	1030	452			
Volume Left	378	0	89			
Volume Right	83	188	0			
cSH	120	1700	629			
Volume to Capacity	3.84	0.61	0.14			
Queue Length 95th (ft)	Err	0	12			
Control Delay (s)	Err	0.0	4.0			
Lane LOS	F		A			
Approach Delay (s)	Err	0.0	4.0			
Approach LOS	F					
Intersection Summary						
Average Delay		2373.3				
Intersection Capacity Utilization		79.5%		ICU Level of Service		D
Analysis Period (min)		15				

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2018 Existing AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	308	389	378	184	175	377
Future Volume (vph)	308	389	378	184	175	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.942			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1781	0	1761	1853
Flt Permitted	0.950				0.102	
Satd. Flow (perm)	1752	1567	1781	0	189	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.74	0.67	0.94	0.60	0.72	0.86
Adj. Flow (vph)	416	581	402	307	243	438
Shared Lane Traffic (%)						
Lane Group Flow (vph)	416	581	709	0	243	438
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	37.0	37.0	40.0		13.0	53.0
Total Split (%)	41.1%	41.1%	44.4%		14.4%	58.9%
Maximum Green (s)	31.6	31.6	34.0		7.6	47.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	32.0	32.0	35.0		48.0	48.0
Actuated g/C Ratio	0.36	0.36	0.39		0.53	0.53
v/c Ratio	0.67	1.04	1.02		1.01	0.44
Control Delay	30.9	80.4	69.7		83.7	14.6
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings

2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2018 Existing AM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	30.9	80.4	69.7		83.7	14.6
LOS	C	F	E		F	B
Approach Delay	59.7		69.7			39.3
Approach LOS	E		E			D
Queue Length 50th (ft)	197	~362	~417		~90	144
Queue Length 95th (ft)	229	312	#646		#154	203
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	622	557	692		240	988
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.67	1.04	1.02		1.01	0.44

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 56.9

Intersection LOS: E

Intersection Capacity Utilization 70.4%

ICU Level of Service C

Analysis Period (min) 15

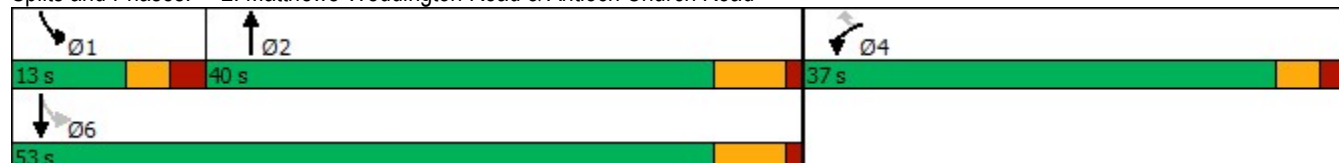
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road



Lanes, Volumes, Timings

Chestnut Farm

3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road 2018 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	129	25	216	393	49	123	135	344	48	68	41
Future Volume (vph)	28	129	25	216	393	49	123	135	344	48	68	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		150	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979				0.850			0.850		0.972	
Flt Protected		0.992			0.983			0.979			0.983	
Satd. Flow (prot)	0	1792	0	0	1825	1583	0	1824	1583	0	1780	0
Flt Permitted		0.992			0.983			0.979			0.983	
Satd. Flow (perm)	0	1792	0	0	1825	1583	0	1824	1583	0	1780	0
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1109			1123			1017			1000	
Travel Time (s)		16.8			17.0			15.4			27.3	
Peak Hour Factor	0.78	0.83	0.69	0.74	0.73	0.51	0.75	0.63	0.71	0.44	0.50	0.64
Heavy Vehicles (%)	2%	2%	8%	3%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	36	155	36	292	538	96	164	214	485	109	136	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	227	0	0	830	96	0	378	485	0	309	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 78.5% ICU Level of Service D

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

Chestnut Farm

3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road 2018 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	129	25	216	393	49	123	135	344	48	68	41
Future Volume (Veh/h)	28	129	25	216	393	49	123	135	344	48	68	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.83	0.69	0.74	0.73	0.51	0.75	0.63	0.71	0.44	0.50	0.64
Hourly flow rate (vph)	36	155	36	292	538	96	164	214	485	109	136	64
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)											6	
Median type	None				None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	634			191			1499	1463	173	1474	1385	538
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	634			191			1499	1463	173	1474	1385	538
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			79			0	0	44	0	0	88
cM capacity (veh/h)	949			1377			0	97	871	0	109	543
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total	227	830	96	863	309							
Volume Left	36	292	0	164	109							
Volume Right	36	0	96	485	64							
cSH	949	1377	1700	3	0							
Volume to Capacity	0.04	0.21	0.06	334.73	Err							
Queue Length 95th (ft)	3	20	0	Err	Err							
Control Delay (s)	1.7	4.6	0.0	Err	Err							
Lane LOS	A	A		F	F							
Approach Delay (s)	1.7	4.1		Err	Err							
Approach LOS				F	F							
Intersection Summary												
Average Delay				Err								
Intersection Capacity Utilization				78.5%	ICU Level of Service				D			
Analysis Period (min)				15								

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2018 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	201	81	110	314	113	127	509	90	63	262	183
Future Volume (vph)	182	201	81	110	314	113	127	509	90	63	262	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.956				0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1751	0	1761	1835	1575	1778	1825	0	1761	1835	1560
Flt Permitted	0.149			0.285			0.458			0.089		
Satd. Flow (perm)	275	1751	0	528	1835	1575	857	1825	0	165	1835	1560
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6981			1082	
Travel Time (s)		17.3			27.5			105.8			16.4	
Peak Hour Factor	0.88	0.75	0.72	0.86	0.80	0.88	0.81	0.90	0.80	0.88	0.85	0.70
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	3%	3%
Adj. Flow (vph)	207	268	113	128	393	128	157	566	113	72	308	261
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	381	0	128	393	128	157	679	0	72	308	261
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	17.0	38.0		13.0	34.0	13.0	13.0	56.0		13.0	56.0	17.0
Total Split (%)	14.2%	31.7%		10.8%	28.3%	10.8%	10.8%	46.7%		10.8%	46.7%	14.2%
Maximum Green (s)	11.6	32.3		7.9	28.3	7.1	7.4	49.8		7.1	49.8	11.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	43.7	31.9		35.8	28.0	41.0	53.3	45.4		53.4	45.4	62.2

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2018 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.39	0.28		0.32	0.25	0.36	0.47	0.40		0.47	0.40	0.55
v/c Ratio	0.80	0.77		0.51	0.87	0.22	0.34	0.93		0.38	0.42	0.30
Control Delay	48.7	50.5		32.3	62.4	27.9	16.9	52.9		20.0	26.4	14.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.7	50.5		32.3	62.4	27.9	16.9	52.9		20.0	26.4	14.9
LOS	D	D		C	E	C	B	D		B	C	B
Approach Delay		49.9			49.7			46.2			21.0	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	110	272		65	293	69	60	473		26	162	100
Queue Length 95th (ft)	#215	309		105	#381	116	87	#701		49	221	112
Internal Link Dist (ft)		1059			1733			6901			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	264	513		255	473	571	469	827		191	832	861
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.78	0.74		0.50	0.83	0.22	0.33	0.82		0.38	0.37	0.30

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 113.3

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 41.8

Intersection LOS: D

Intersection Capacity Utilization 81.4%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
13 s	56 s	13 s	38 s
 Ø5	 Ø6	 Ø7	 Ø8
13 s	56 s	17 s	34 s

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2018 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	152	95	13	127	57	122	529	40	87	225	74
Future Volume (vph)	83	152	95	13	127	57	122	529	40	87	225	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			3%	
Storage Length (ft)	135		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			150			65			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.931			0.955			0.987			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1727	1716	0	1593	1806	0	1761	1825	0	1743	1729	0
Flt Permitted	0.603			0.474			0.511			0.289		
Satd. Flow (perm)	1096	1716	0	795	1806	0	947	1825	0	530	1729	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		569			1080			1141			1098	
Travel Time (s)		11.1			21.0			22.2			21.4	
Peak Hour Factor	0.77	0.83	0.61	0.46	0.72	0.75	0.85	0.96	0.77	0.68	0.78	0.88
Heavy Vehicles (%)	4%	3%	2%	15%	2%	2%	2%	2%	5%	2%	5%	3%
Adj. Flow (vph)	108	183	156	28	176	76	144	551	52	128	288	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	339	0	28	252	0	144	603	0	128	372	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	21.8	21.8		19.0	19.0		23.9	23.9		19.8	19.8	
Total Split (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%		58.3%	58.3%		58.3%	58.3%	
Maximum Green (s)	19.2	19.2		19.0	19.0		29.1	29.1		29.2	29.2	
Yellow Time (s)	3.8	3.8		4.1	4.1		3.8	3.8		3.7	3.7	
All-Red Time (s)	2.0	2.0		1.9	1.9		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	-0.8	-0.8		-1.0	-1.0		-0.9	-0.9		-0.8	-0.8	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		8.0	8.0		13.0	13.0		9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.5	13.5		13.5	13.5		20.2	20.2		20.2	20.2	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.45	0.45		0.45	0.45	
v/c Ratio	0.33	0.65		0.12	0.46		0.33	0.73		0.53	0.47	
Control Delay	16.8	21.4		14.5	16.9		10.8	16.1		18.9	11.0	

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2018 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.8	21.4		14.5	16.9		10.8	16.1		18.9	11.0	
LOS	B	C		B	B		B	B		B	B	
Approach Delay		20.3			16.7			15.1			13.0	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	21	72		5	50		20	108		20	57	
Queue Length 95th (ft)	53	156		11	94		57	250		47	111	
Internal Link Dist (ft)		489			1000			1061			1018	
Turn Bay Length (ft)	135			150			150			150		
Base Capacity (vph)	529	829		384	873		680	1311		381	1242	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.41		0.07	0.29		0.21	0.46		0.34	0.30	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 44.4

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 16.0

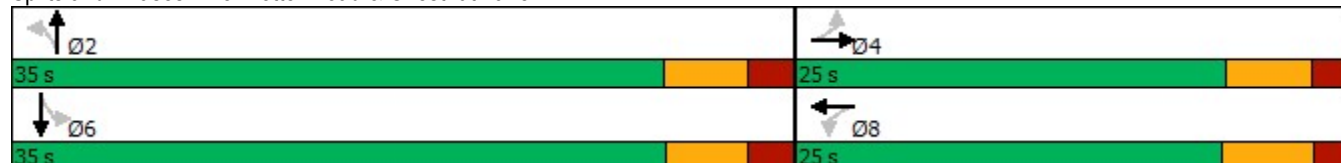
Intersection LOS: B

Intersection Capacity Utilization 74.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Potter Road & Chestnut Lane



Lanes, Volumes, Timings
1: Matthews-Weddington Road & Chestnut Lane

Chestnut Farm
2018 Existing PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	105	371	295	173	549
Future Volume (vph)	94	105	371	295	173	549
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.930		0.939			
Flt Protected	0.977					0.988
Satd. Flow (prot)	1693	0	1749	0	0	1840
Flt Permitted	0.977					0.988
Satd. Flow (perm)	1693	0	1749	0	0	1840
Link Speed (mph)	45		45			45
Link Distance (ft)	8484		359			6981
Travel Time (s)	128.5		5.4			105.8
Peak Hour Factor	0.78	0.80	0.94	0.91	0.88	0.89
Adj. Flow (vph)	121	131	395	324	197	617
Shared Lane Traffic (%)						
Lane Group Flow (vph)	252	0	719	0	0	814
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	97.7%			ICU Level of Service F		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: Matthews-Weddington Road & Chestnut Lane

Chestnut Farm
2018 Existing PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	94	105	371	295	173	549
Future Volume (Veh/h)	94	105	371	295	173	549
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.78	0.80	0.94	0.91	0.88	0.89
Hourly flow rate (vph)	121	131	395	324	197	617
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			1156			
pX, platoon unblocked	0.72	0.72			0.72	
vC, conflicting volume	1568	557			719	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1594	196			420	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	79			76	
cM capacity (veh/h)	65	611			824	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	252	719	814			
Volume Left	121	0	197			
Volume Right	131	324	0			
cSH	121	1700	824			
Volume to Capacity	2.08	0.42	0.24			
Queue Length 95th (ft)	522	0	23			
Control Delay (s)	573.8	0.0	5.7			
Lane LOS	F		A			
Approach Delay (s)	573.8	0.0	5.7			
Approach LOS	F					
Intersection Summary						
Average Delay		83.6				
Intersection Capacity Utilization		97.7%		ICU Level of Service		F
Analysis Period (min)		15				

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2018 Existing PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	151	194	484	231	339	295
Future Volume (vph)	151	194	484	231	339	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.958			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1811	0	1761	1853
Flt Permitted	0.950				0.093	
Satd. Flow (perm)	1752	1567	1811	0	172	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.86	0.97	0.91	0.95	0.87	0.90
Adj. Flow (vph)	176	200	532	243	390	328
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	200	775	0	390	328
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	19.0	19.0	50.0		21.0	71.0
Total Split (%)	21.1%	21.1%	55.6%		23.3%	78.9%
Maximum Green (s)	13.6	13.6	44.0		15.6	65.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	13.2	13.2	38.4		58.6	58.6
Actuated g/C Ratio	0.16	0.16	0.47		0.71	0.71
v/c Ratio	0.63	0.80	0.91		0.94	0.25
Control Delay	45.4	59.8	37.2		55.3	4.5
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2018 Existing PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	45.4	59.8	37.2		55.3	4.5
LOS	D	E	D		E	A
Approach Delay	53.0		37.2			32.1
Approach LOS	D		D			C
Queue Length 50th (ft)	93	109	367		157	50
Queue Length 95th (ft)	155	#227	#605		#318	78
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	305	273	1016		440	1492
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.58	0.73	0.76		0.89	0.22

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 38.4

Intersection LOS: D

Intersection Capacity Utilization 79.2%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road

 Ø1	 Ø2	 Ø4
21 s	50 s	19 s
 Ø6		
71 s		

Lanes, Volumes, Timings

Chestnut Farm

3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road 2018 Existing PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	462	123	232	191	21	36	23	203	20	51	18
Future Volume (vph)	16	462	123	232	191	21	36	23	203	20	51	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		150	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972				0.850			0.850		0.970	
Flt Protected		0.998			0.973			0.974			0.989	
Satd. Flow (prot)	0	1807	0	0	1812	1538	0	1761	1583	0	1787	0
Flt Permitted		0.998			0.973			0.974			0.989	
Satd. Flow (perm)	0	1807	0	0	1812	1538	0	1761	1583	0	1787	0
Link Speed (mph)		45			45			45			25	
Link Distance (ft)		1109			1123			1017			1000	
Travel Time (s)		16.8			17.0			15.4			27.3	
Peak Hour Factor	0.57	0.91	0.88	0.87	0.88	0.58	0.64	0.48	0.96	0.71	0.75	0.64
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%	6%	4%	2%	2%	2%	2%
Adj. Flow (vph)	28	508	140	267	217	36	56	48	211	28	68	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	676	0	0	484	36	0	104	211	0	124	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 77.1% ICU Level of Service D

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

Chestnut Farm

3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road 2018 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	462	123	232	191	21	36	23	203	20	51	18
Future Volume (Veh/h)	16	462	123	232	191	21	36	23	203	20	51	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.57	0.91	0.88	0.87	0.88	0.58	0.64	0.48	0.96	0.71	0.75	0.64
Hourly flow rate (vph)	28	508	140	267	217	36	56	48	211	28	68	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)											6	
Median type	None				None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	253			648			1447	1421	578	1409	1455	217
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	253			648			1447	1421	578	1409	1455	217
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			72			0	49	59	14	25	97
cM capacity (veh/h)	1312			938			32	94	516	32	91	823
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total	676	484	36	315	124							
Volume Left	28	267	0	56	28							
Volume Right	140	0	36	211	28							
cSH	1312	938	1700	145	75							
Volume to Capacity	0.02	0.28	0.02	2.17	1.64							
Queue Length 95th (ft)	2	29	0	646	263							
Control Delay (s)	0.6	7.2	0.0	600.0	435.2							
Lane LOS	A	A		F	F							
Approach Delay (s)	0.6	6.7		600.0	435.2							
Approach LOS				F	F							
Intersection Summary												
Average Delay			151.0									
Intersection Capacity Utilization			77.1%	ICU Level of Service					D			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2018 Existing PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	367	105	177	437	132	138	314	99	180	386	131
Future Volume (vph)	180	367	105	177	437	132	138	314	99	180	386	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968				0.850		0.961				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1785	0	1761	1853	1575	1778	1799	0	1761	1853	1575
Flt Permitted	0.086			0.237			0.174			0.131		
Satd. Flow (perm)	159	1785	0	439	1853	1575	326	1799	0	243	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6981			1082	
Travel Time (s)		17.3			27.5			105.8			16.4	
Peak Hour Factor	0.65	0.84	0.88	0.94	0.71	0.83	0.91	0.96	0.85	0.92	0.90	0.80
Adj. Flow (vph)	277	437	119	188	615	159	152	327	116	196	429	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	277	556	0	188	615	159	152	443	0	196	429	164
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	20.0	53.0		14.0	47.0	14.0	13.0	39.0		14.0	40.0	20.0
Total Split (%)	16.7%	44.2%		11.7%	39.2%	11.7%	10.8%	32.5%		11.7%	33.3%	16.7%
Maximum Green (s)	14.6	47.3		8.9	41.3	8.1	7.4	32.8		8.1	33.8	14.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	61.6	47.9		50.2	41.6	55.6	39.6	31.6		41.6	32.6	52.6
Actuated g/C Ratio	0.53	0.41		0.43	0.35	0.47	0.34	0.27		0.35	0.28	0.45

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2018 Existing PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.97	0.76		0.66	0.94	0.21	0.73	0.92		0.97	0.83	0.23
Control Delay	76.9	38.6		29.1	60.2	19.5	46.5	66.6		85.2	55.0	20.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	76.9	38.6		29.1	60.2	19.5	46.5	66.6		85.2	55.0	20.9
LOS	E	D		C	E	B	D	E		F	E	C
Approach Delay		51.3			47.4			61.4			55.4	
Approach LOS		D			D			E			E	
Queue Length 50th (ft)	165	370		76	461	71	76	327		101	306	75
Queue Length 95th (ft)	166	463		121	438	107	#135	#508		#247	#457	107
Internal Link Dist (ft)		1059			1733			6901			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	287	732		290	664	747	209	522		202	554	706
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.97	0.76		0.65	0.93	0.21	0.73	0.85		0.97	0.77	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 117.2

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 53.0

Intersection LOS: D

Intersection Capacity Utilization 84.7%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
14 s	39 s	14 s	53 s
 Ø5	 Ø6	 Ø7	 Ø8
13 s	40 s	20 s	47 s

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2018 Existing PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	194	97	36	107	49	73	306	21	101	559	98
Future Volume (vph)	139	194	97	36	107	49	73	306	21	101	559	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			3%	
Storage Length (ft)	135		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			150			65			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00				1.00	
Frt		0.945			0.953			0.985			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1751	0	1796	1802	0	1761	1826	0	1743	1784	0
Flt Permitted	0.644			0.387			0.229			0.515		
Satd. Flow (perm)	1194	1751	0	732	1802	0	424	1826	0	945	1784	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		569			1080			1141			1098	
Travel Time (s)		11.1			21.0			22.2			21.4	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.87	0.82	0.71	0.90	0.86	0.88	0.76	0.92	0.58	0.90	0.95	0.88
Adj. Flow (vph)	160	237	137	40	124	56	96	333	36	112	588	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	374	0	40	180	0	96	369	0	112	699	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	21.8	21.8		19.0	19.0		23.9	23.9		19.8	19.8	
Total Split (s)	23.0	23.0		23.0	23.0		37.0	37.0		37.0	37.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		61.7%	61.7%		61.7%	61.7%	
Maximum Green (s)	17.2	17.2		17.0	17.0		31.1	31.1		31.2	31.2	
Yellow Time (s)	3.8	3.8		4.1	4.1		3.8	3.8		3.7	3.7	
All-Red Time (s)	2.0	2.0		1.9	1.9		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	-0.8	-0.8		-1.0	-1.0		-0.9	-0.9		-0.8	-0.8	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		8.0	8.0		13.0	13.0		9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	14.1	14.1		14.1	14.1		24.3	24.3		24.3	24.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.50	0.50		0.50	0.50	
v/c Ratio	0.47	0.74		0.19	0.35		0.46	0.41		0.24	0.79	

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2018 Existing PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	21.3	27.9		17.9	17.6		17.0	9.6		9.0	18.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.3	27.9		17.9	17.6		17.0	9.6		9.0	18.4	
LOS	C	C		B	B		B	A		A	B	
Approach Delay		26.0			17.6			11.1			17.1	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	39	100		9	42		17	63		17	157	
Queue Length 95th (ft)	91	179		32	91		43	121		44	299	
Internal Link Dist (ft)		489			1000			1061			1018	
Turn Bay Length (ft)	135			150			150			150		
Base Capacity (vph)	466	683		285	703		292	1257		651	1229	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.55		0.14	0.26		0.33	0.29		0.17	0.57	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 49

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 18.1

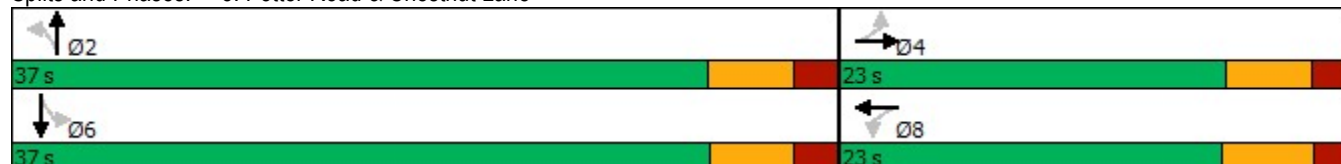
Intersection LOS: B

Intersection Capacity Utilization 82.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: Potter Road & Chestnut Lane



2021 Background Conditions

LANE SUMMARY

 **Site: 101 [Matthews-Weddington Road and Chestnut Lane 2021 Background AM]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Matthews-Weddington Road NB													
Lane 1 ^d	1004	2.0	1243	0.808	100	5.9	LOS A	10.3	261.2	Full	1600	0.0	0.0
Lane 2	227	2.0	780	0.291	100	5.8	LOS A	1.3	34.2	Short	150	0.0	NA
Approach	1232	2.0		0.808		5.9	LOS A	10.3	261.2				
East: Chestnut Lane WB													
Lane 1 ^d	445	2.0	617	0.722	100	29.0	LOS C	9.7	246.6	Full	1600	0.0	0.0
Lane 2	92	2.0	409	0.226	100	13.7	LOS B	1.4	36.3	Short	150	0.0	NA
Approach	538	2.0		0.722		26.4	LOS C	9.7	246.6				
North: Matthews-Weddington Road SB													
Lane 1	98	2.0	682	0.144	100	13.4	LOS B	0.8	19.8	Short	250	0.0	NA
Lane 2 ^d	432	2.0	1065	0.405	100	6.9	LOS A	3.1	78.0	Full	1600	0.0	0.0
Approach	530	2.0		0.405		8.1	LOS A	3.1	78.0				
Intersection	2299	2.0		0.808		11.2	LOS B	10.3	261.2				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Friday, February 8, 2019 11:05:27 AM

Project: X:\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\2021 Background AM.sip8

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Background AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	365	431	471	229	194	447
Future Volume (vph)	365	431	471	229	194	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.943			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1783	0	1761	1853
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1567	1783	0	1761	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.72	0.67	0.89	0.59	0.72	0.84
Adj. Flow (vph)	507	643	529	388	269	532
Shared Lane Traffic (%)						
Lane Group Flow (vph)	507	643	917	0	269	532
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	32.0	32.0	42.0		16.0	58.0
Total Split (%)	35.6%	35.6%	46.7%		17.8%	64.4%
Maximum Green (s)	26.6	26.6	36.0		10.6	52.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	27.0	27.0	37.0		11.0	53.0
Actuated g/C Ratio	0.30	0.30	0.41		0.12	0.59
v/c Ratio	0.97	1.37	1.25		1.25	0.49
Control Delay	64.6	207.6	150.8		181.1	12.6
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings

2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Background AM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	64.6	207.6	150.8		181.1	12.6
LOS	E	F	F		F	B
Approach Delay	144.5		150.8			69.2
Approach LOS	F		F			E
Queue Length 50th (ft)	283	~488	~658		~193	161
Queue Length 95th (ft)	#311	#446	#872		#250	214
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	525	470	733		215	1091
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.97	1.37	1.25		1.25	0.49

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.37

Intersection Signal Delay: 125.5

Intersection LOS: F

Intersection Capacity Utilization 82.2%

ICU Level of Service E

Analysis Period (min) 15

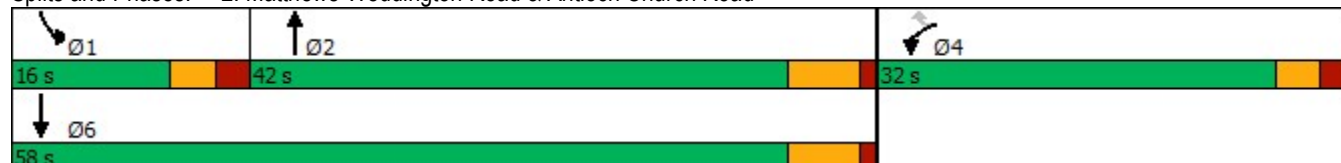
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road



LANE SUMMARY

 **Site: 101 [Weddington-Matthews Road and Tilley Morris Road 2021 Background AM]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Weddington-Matthews Road NB													
Lane 1 ^d	704	2.0	1147	0.614	100	9.8	LOS A	5.7	145.7	Full	1600	0.0	0.0
Lane 2	537	2.0	961	0.559	100	8.7	LOS A	4.5	114.8	Short	150	0.0	NA
Approach	1241	2.0		0.614		9.3	LOS A	5.7	145.7				
East: Weddington-Matthews Road WB													
Lane 1	323	3.0	562	0.575	100	20.6	LOS C	5.0	127.7	Short	250	0.0	NA
Lane 2 ^d	807	2.0	785	1.028	100	53.8	LOS F	35.6	903.7	Full	1600	0.0	0.0
Approach	1130	2.3		1.028		44.3	LOS D	35.6	903.7				
North: Union Day School Drive SB													
Lane 1 ^d	831	2.0	523	1.590	100	275.5	LOS F	108.3	2750.4	Full	1600	0.0	24.4
Approach	831	2.0		1.590		275.5	LOS F	108.3	2750.4				
West: Tilley Morris Road EB													
Lane 1 ^d	268	2.0	671	0.399	100	11.1	LOS B	2.2	57.0	Full	1600	0.0	0.0
Lane 2	41	8.0	340	0.119	100	11.4	LOS B	0.4	11.5	Short	150	0.0	NA
Approach	308	2.8		0.399		11.2	LOS B	2.2	57.0				
Intersection	3510	2.2		1.590		83.8	LOS F	108.3	2750.4				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Friday, February 8, 2019 11:05:30 AM

Project: X:\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\2021 Background AM.sip8

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	223	93	126	348	125	148	593	105	70	300	203
Future Volume (vph)	202	223	93	126	348	125	148	593	105	70	300	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.954				0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1747	0	1761	1835	1575	1778	1825	0	1761	1835	1560
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1747	0	1761	1835	1575	1778	1825	0	1761	1835	1560
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6981			1082	
Travel Time (s)		17.3			27.5			105.8			16.4	
Peak Hour Factor	0.88	0.75	0.71	0.85	0.80	0.88	0.80	0.88	0.79	0.88	0.84	0.70
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	3%	3%
Adj. Flow (vph)	230	297	131	148	435	142	185	674	133	80	357	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	428	0	148	435	142	185	807	0	80	357	290
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	20.0	36.0		16.0	32.0	13.0	26.0	55.0		13.0	42.0	20.0
Total Split (%)	16.7%	30.0%		13.3%	26.7%	10.8%	21.7%	45.8%		10.8%	35.0%	16.7%
Maximum Green (s)	14.6	30.3		10.9	26.3	7.1	20.4	48.8		7.1	35.8	14.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	15.0	31.0		11.0	27.0	40.0	16.8	50.0		8.0	41.2	61.2

Lanes, Volumes, Timings

4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.12	0.26		0.09	0.22	0.33	0.14	0.42		0.07	0.34	0.51
v/c Ratio	1.05	0.95		0.92	1.06	0.27	0.74	1.06		0.68	0.57	0.36
Control Delay	125.3	75.7		106.8	104.6	31.1	67.1	84.8		83.4	37.4	20.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	125.3	75.7		106.8	104.6	31.1	67.1	84.8		83.4	37.4	20.2
LOS	F	E		F	F	C	E	F		F	D	C
Approach Delay	93.0			90.7			81.5			35.6		
Approach LOS	F			F			F			D		
Queue Length 50th (ft)	~194	327		116	~368	80	139	~688		62	226	132
Queue Length 95th (ft)	#344	#379		#223	#470	131	184	#894		#134	312	153
Internal Link Dist (ft)	1059			1733			6901			1002		
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	219	451		161	412	525	311	760		117	629	795
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.05	0.95		0.92	1.06	0.27	0.59	1.06		0.68	0.57	0.36

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 135

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 75.3

Intersection LOS: E

Intersection Capacity Utilization 89.6%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
13 s	55 s	16 s	36 s
 Ø5	 Ø6	 Ø7	 Ø8
26 s	42 s	20 s	32 s

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2021 Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	174	108	14	146	63	140	587	44	96	249	84
Future Volume (vph)	95	174	108	14	146	63	140	587	44	96	249	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			3%	
Storage Length (ft)	135		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			150			65			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.957			0.987			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1727	1718	0	1593	1809	0	1761	1825	0	1743	1728	0
Flt Permitted	0.531			0.387			0.463			0.237		
Satd. Flow (perm)	965	1718	0	649	1809	0	858	1825	0	435	1728	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		569			1080			1141			1098	
Travel Time (s)		11.1			21.0			22.2			21.4	
Peak Hour Factor	0.76	0.82	0.61	0.46	0.71	0.75	0.84	0.96	0.77	0.68	0.78	0.87
Heavy Vehicles (%)	4%	3%	2%	15%	2%	2%	2%	2%	5%	2%	5%	3%
Adj. Flow (vph)	125	212	177	30	206	84	167	611	57	141	319	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	389	0	30	290	0	167	668	0	141	416	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	21.8	21.8		19.0	19.0		23.9	23.9		19.8	19.8	
Total Split (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%		58.3%	58.3%		58.3%	58.3%	
Maximum Green (s)	19.2	19.2		19.0	19.0		29.1	29.1		29.2	29.2	
Yellow Time (s)	3.8	3.8		4.1	4.1		3.8	3.8		3.7	3.7	
All-Red Time (s)	2.0	2.0		1.9	1.9		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	-0.8	-0.8		-1.0	-1.0		-0.9	-0.9		-0.8	-0.8	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		8.0	8.0		13.0	13.0		9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.9	14.9		14.9	14.9		22.8	22.8		22.8	22.8	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.47	0.47		0.47	0.47	
v/c Ratio	0.42	0.74		0.15	0.52		0.41	0.78		0.69	0.51	
Control Delay	19.9	25.7		16.0	18.7		12.8	18.6		32.5	11.9	

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2021 Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.9	25.7		16.0	18.7		12.8	18.6		32.5	11.9	
LOS	B	C		B	B		B	B		C	B	
Approach Delay		24.3			18.5			17.4			17.1	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	28	99		6	68		29	146		29	76	
Queue Length 95th (ft)	61	179		12	106		69	294		61	126	
Internal Link Dist (ft)		489			1000			1061			1018	
Turn Bay Length (ft)	135			150			150			150		
Base Capacity (vph)	425	757		286	797		567	1207		287	1143	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.29	0.51		0.10	0.36		0.29	0.55		0.49	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 48.4

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 19.1

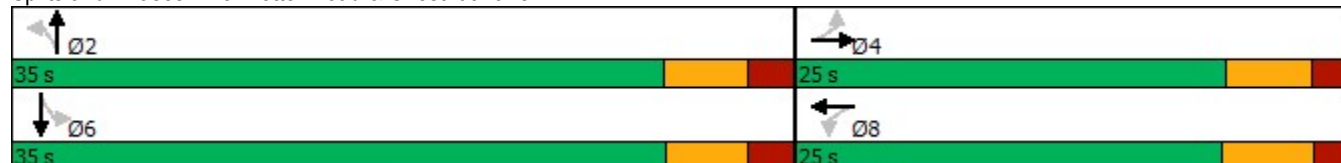
Intersection LOS: B

Intersection Capacity Utilization 80.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Potter Road & Chestnut Lane



LANE SUMMARY

 **Site: 101 [Matthews-Weddington Road and Chestnut Lane 2021 Background PM]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Matthews-Weddington Road NB													
Lane 1 ^d	459	2.0	1171	0.392	100	5.8	LOS A	2.0	51.3	Full	1600	0.0	0.0
Lane 2	364	2.0	1099	0.332	100	5.9	LOS A	1.6	40.2	Short	150	0.0	NA
Approach	823	2.0		0.392		5.8	LOS A	2.0	51.3				
East: Chestnut Lane WB													
Lane 1	117	2.0	980	0.119	100	12.6	LOS B	0.6	15.8	Full	1600	0.0	0.0
Lane 2 ^d	129	2.0	1148	0.112	100	6.6	LOS A	0.6	15.6	Short	150	0.0	NA
Approach	246	2.0		0.119		9.5	LOS A	0.6	15.8				
North: Matthews-Weddington Road SB													
Lane 1	213	2.0	1021	0.209	100	11.4	LOS B	1.1	28.0	Short	250	0.0	NA
Lane 2 ^d	686	2.0	1425	0.481	100	5.4	LOS A	3.7	93.2	Full	1600	0.0	0.0
Approach	899	2.0		0.481		6.9	LOS A	3.7	93.2				
Intersection	1968	2.0		0.481		6.8	LOS A	3.7	93.2				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Project: X:\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\2021 Background AM.sip8

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Background PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	172	215	540	258	376	336
Future Volume (vph)	172	215	540	258	376	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.956			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1807	0	1761	1853
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1567	1807	0	1761	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	191	239	600	287	418	373
Shared Lane Traffic (%)						
Lane Group Flow (vph)	191	239	887	0	418	373
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	18.0	18.0	47.0		25.0	72.0
Total Split (%)	20.0%	20.0%	52.2%		27.8%	80.0%
Maximum Green (s)	12.6	12.6	41.0		19.6	66.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	13.0	13.0	42.0		20.0	67.0
Actuated g/C Ratio	0.14	0.14	0.47		0.22	0.74
v/c Ratio	0.75	1.06	1.05		1.07	0.27
Control Delay	57.2	115.5	71.3		100.8	4.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Background PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	57.2	115.5	71.3		100.8	4.3
LOS	E	F	E		F	A
Approach Delay	89.6		71.3			55.3
Approach LOS	F		E			E
Queue Length 50th (ft)	106	~150	~556		~266	55
Queue Length 95th (ft)	#210	#295	#783		#445	85
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	253	226	843		391	1379
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.75	1.06	1.05		1.07	0.27

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 69.0

Intersection LOS: E

Intersection Capacity Utilization 87.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road

 Ø1	 Ø2	 Ø4
25 s	47 s	18 s
 Ø6		
72 s		

LANE SUMMARY

 **Site: 101 [Weddington-Matthews Road and Tilley Morris Road 2021 Background PM]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Weddington-Matthews Road NB													
Lane 1	90	5.0	661	0.136	100	11.6	LOS B	0.7	19.4	Full	1600	0.0	0.0
Lane 2 ^d	250	2.0	966	0.259	100	7.9	LOS A	1.8	44.5	Short	150	0.0	NA
Approach	340	2.8		0.259		8.8	LOS A	1.8	44.5				
East: Weddington-Matthews Road WB													
Lane 1 ^d	286	2.0	1417	0.201	100	11.1	LOS B	1.1	28.2	Short	250	0.0	NA
Lane 2	277	2.4	1281	0.216	100	5.4	LOS A	1.2	30.2	Full	1600	0.0	0.0
Approach	562	2.2		0.216		8.3	LOS A	1.2	30.2				
North: Union Day School Drive SB													
Lane 1 ^d	136	2.0	843	0.161	100	3.4	LOS A	0.5	13.9	Full	1600	0.0	0.0
Approach	136	2.0		0.161		3.4	LOS A	0.5	13.9				
West: Tilley Morris Road EB													
Lane 1 ^d	600	2.0	930	0.645	100	8.8	LOS A	4.7	118.9	Full	1600	0.0	0.0
Lane 2	151	2.0	527	0.287	100	8.4	LOS A	1.0	25.9	Short	150	0.0	NA
Approach	751	2.0		0.645		8.7	LOS A	4.7	118.9				
Intersection	1789	2.2		0.645		8.2	LOS A	4.7	118.9				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Project: X:\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\2021 Background AM.sip8

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	407	117	198	485	146	154	349	110	200	433	145
Future Volume (vph)	200	407	117	198	485	146	154	349	110	200	433	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966				0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1781	0	1761	1853	1575	1778	1805	0	1761	1853	1575
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1781	0	1761	1853	1575	1778	1805	0	1761	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6981			1082	
Travel Time (s)		17.3			27.5			105.8			16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	222	452	130	220	539	162	171	388	122	222	481	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	582	0	220	539	162	171	510	0	222	481	161
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	21.0	42.0		20.0	41.0	20.0	18.0	38.0		20.0	40.0	21.0
Total Split (%)	17.5%	35.0%		16.7%	34.2%	16.7%	15.0%	31.7%		16.7%	33.3%	17.5%
Maximum Green (s)	15.6	36.3		14.9	35.3	14.1	12.4	31.8		14.1	33.8	15.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	16.0	37.0		15.0	36.0	56.0	12.9	33.0		15.0	35.1	56.1
Actuated g/C Ratio	0.13	0.31		0.12	0.30	0.47	0.11	0.28		0.12	0.29	0.47

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.95	1.06		1.00	0.97	0.22	0.90	1.03		1.01	0.89	0.22
Control Delay	100.0	95.7		113.6	73.7	20.0	96.0	90.9		115.5	60.5	20.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	100.0	95.7		113.6	73.7	20.0	96.0	90.9		115.5	60.5	20.0
LOS	F	F		F	E	C	F	F		F	E	B
Approach Delay		96.9			73.8			92.2			67.1	
Approach LOS		F			E			F			E	
Queue Length 50th (ft)	173	~496		173	412	73	133	~422		~176	356	72
Queue Length 95th (ft)	#328	#716		#337	#637	119	#264	#635		#338	#549	119
Internal Link Dist (ft)		1059			1733			6901			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	233	549		220	555	735	192	496		220	541	736
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.95	1.06		1.00	0.97	0.22	0.89	1.03		1.01	0.89	0.22

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 135

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 81.5

Intersection LOS: F

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
20 s	38 s	20 s	42 s
 Ø5	 Ø6	 Ø7	 Ø8
18 s	40 s	21 s	41 s

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2021 Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	216	108	40	120	54	81	339	23	112	620	109
Future Volume (vph)	154	216	108	40	120	54	81	339	23	112	620	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			3%	
Storage Length (ft)	135		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			150			65			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor											1.00	
Frt		0.950			0.953			0.990			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1761	0	1796	1802	0	1761	1835	0	1743	1789	0
Flt Permitted	0.636			0.379			0.166			0.487		
Satd. Flow (perm)	1179	1761	0	717	1802	0	308	1835	0	894	1789	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		569			1080			1141			1098	
Travel Time (s)		11.1			21.0			22.2			21.4	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	171	240	120	44	133	60	90	377	26	124	689	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	360	0	44	193	0	90	403	0	124	810	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	21.8	21.8		19.0	19.0		23.9	23.9		19.8	19.8	
Total Split (s)	23.0	23.0		23.0	23.0		37.0	37.0		37.0	37.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		61.7%	61.7%		61.7%	61.7%	
Maximum Green (s)	17.2	17.2		17.0	17.0		31.1	31.1		31.2	31.2	
Yellow Time (s)	3.8	3.8		4.1	4.1		3.8	3.8		3.7	3.7	
All-Red Time (s)	2.0	2.0		1.9	1.9		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	-0.8	-0.8		-1.0	-1.0		-0.9	-0.9		-0.8	-0.8	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		8.0	8.0		13.0	13.0		9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.3	14.3		14.3	14.3		27.4	27.4		27.4	27.4	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.53	0.53		0.53	0.53	
v/c Ratio	0.53	0.75		0.22	0.39		0.56	0.42		0.26	0.86	

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2021 Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	24.1	29.2		19.2	19.1		26.5	9.5		9.2	23.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.1	29.2		19.2	19.1		26.5	9.5		9.2	23.2	
LOS	C	C		B	B		C	A		A	C	
Approach Delay		27.6			19.1			12.6			21.4	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	50	113		12	54		18	72		20	207	
Queue Length 95th (ft)	103	#203		35	102		#84	134		50	#451	
Internal Link Dist (ft)		489			1000			1061			1018	
Turn Bay Length (ft)	135			150			150			150		
Base Capacity (vph)	425	635		258	650		197	1177		573	1148	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.40	0.57		0.17	0.30		0.46	0.34		0.22	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 52.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 88.0%

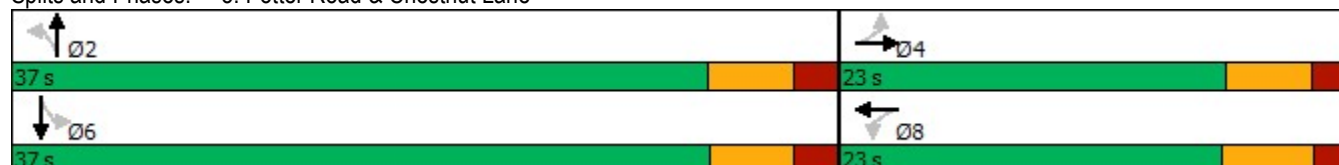
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Potter Road & Chestnut Lane



2021 Build-out Conditions

LANE SUMMARY



Site: 101 [Matthews-Weddington Road and Chestnut Lane 2021 Build AM]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Matthews-Weddington Road NB													
Lane 1 ^d	1015	2.0	1205	0.843	100	7.8	LOS A	11.9	301.2	Full	1600	0.0	0.0
Lane 2	227	2.0	746	0.305	100	6.3	LOS A	1.3	34.0	Short	150	0.0	NA
Approach	1243	2.0		0.843		7.5	LOS A	11.9	301.2				
East: Chestnut Lane WB													
Lane 1 ^d	451	2.0	543	0.830	100	40.7	LOS D	13.8	350.6	Full	1600	0.0	0.0
Lane 2	92	2.0	363	0.255	100	14.7	LOS B	1.7	42.6	Short	150	0.0	NA
Approach	543	2.0		0.830		36.3	LOS D	13.8	350.6				
North: Matthews-Weddington Road SB													
Lane 1	98	2.0	673	0.146	100	13.5	LOS B	0.8	20.1	Short	250	0.0	NA
Lane 2 ^d	451	2.0	1052	0.429	100	7.0	LOS A	3.3	83.9	Full	1600	0.0	0.0
Approach	549	2.0		0.429		8.2	LOS A	3.3	83.9				
West: Driveway #1													
Lane 1 ^d	72	2.0	419	0.172	100	13.9	LOS B	0.8	19.8	Full	1600	0.0	0.0
Approach	72	2.0		0.172		13.9	LOS B	0.8	19.8				
Intersection	2408	2.0		0.843		14.4	LOS B	13.8	350.6				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Monday, March 18, 2019 4:38:26 PM

Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Build AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	365	434	478	229	202	467
Future Volume (vph)	365	434	478	229	202	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.943			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1783	0	1761	1853
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1567	1783	0	1761	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.72	0.67	0.89	0.59	0.73	0.84
Adj. Flow (vph)	507	648	537	388	277	556
Shared Lane Traffic (%)						
Lane Group Flow (vph)	507	648	925	0	277	556
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	32.0	32.0	42.0		16.0	58.0
Total Split (%)	35.6%	35.6%	46.7%		17.8%	64.4%
Maximum Green (s)	26.6	26.6	36.0		10.6	52.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	27.0	27.0	37.0		11.0	53.0
Actuated g/C Ratio	0.30	0.30	0.41		0.12	0.59
v/c Ratio	0.97	1.38	1.26		1.29	0.51
Control Delay	64.6	212.0	155.4		195.0	12.9
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Build AM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	64.6	212.0	155.4		195.0	12.9
LOS	E	F	F		F	B
Approach Delay	147.3		155.4			73.5
Approach LOS	F		F			E
Queue Length 50th (ft)	283	~494	~667		~202	171
Queue Length 95th (ft)	#311	#451	#881		#265	228
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	525	470	733		215	1091
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.97	1.38	1.26		1.29	0.51

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.38

Intersection Signal Delay: 128.7

Intersection LOS: F

Intersection Capacity Utilization 83.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road

 Ø1	 Ø2	 Ø4
16 s	42 s	32 s
 Ø6		
58 s		

LANE SUMMARY



Site: 101 [Weddington-Matthews Road and Tilley Morris Road 2021 Build AM]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Weddington-Matthews Road NB													
Lane 1 ^d	704	2.0	1142	0.617	100	9.9	LOS A	5.8	148.1	Full	1600	0.0	0.0
Lane 2	538	2.0	955	0.563	100	8.8	LOS A	4.6	117.2	Short	150	0.0	NA
Approach	1242	2.0		0.617		9.4	LOS A	5.8	148.1				
East: Weddington-Matthews Road WB													
Lane 1	328	3.0	560	0.586	100	20.8	LOS C	5.2	132.1	Short	250	0.0	NA
Lane 2 ^d	821	2.0	783	1.047	100	59.4	LOS F	38.9	989.3	Full	1600	0.0	0.0
Approach	1149	2.3		1.047		48.4	LOS D	38.9	989.3				
North: Union Day School Drive SB													
Lane 1 ^d	831	2.0	519	1.601	100	280.3	LOS F	109.4	2778.2	Full	1600	0.0	24.9
Approach	831	2.0		1.601		280.3	LOS F	109.4	2778.2				
West: Tilley Morris Road EB													
Lane 1 ^d	275	2.0	671	0.410	100	11.2	LOS B	2.3	59.5	Full	1600	0.0	0.0
Lane 2	41	8.0	340	0.119	100	11.4	LOS B	0.4	11.5	Short	150	0.0	NA
Approach	315	2.8		0.410		11.2	LOS B	2.3	59.5				
Intersection	3538	2.2		1.601		85.9	LOS F	109.4	2778.2				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	223	99	127	348	125	164	609	109	70	306	203
Future Volume (vph)	202	223	99	127	348	125	164	609	109	70	306	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.952				0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1744	0	1761	1835	1575	1778	1825	0	1761	1835	1560
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1744	0	1761	1835	1575	1778	1825	0	1761	1835	1560
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6394			1082	
Travel Time (s)		17.3			27.5			96.9			16.4	
Peak Hour Factor	0.88	0.75	0.72	0.85	0.80	0.88	0.81	0.88	0.79	0.88	0.84	0.70
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	3%	3%
Adj. Flow (vph)	230	297	138	149	435	142	202	692	138	80	364	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	435	0	149	435	142	202	830	0	80	364	290
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	20.0	36.0		16.0	32.0	13.0	26.0	55.0		13.0	42.0	20.0
Total Split (%)	16.7%	30.0%		13.3%	26.7%	10.8%	21.7%	45.8%		10.8%	35.0%	16.7%
Maximum Green (s)	14.6	30.3		10.9	26.3	7.1	20.4	48.8		7.1	35.8	14.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	15.0	31.0		11.0	27.0	40.0	17.6	50.0		8.0	40.4	60.4

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.12	0.26		0.09	0.22	0.33	0.15	0.42		0.07	0.34	0.50
v/c Ratio	1.05	0.97		0.93	1.06	0.27	0.77	1.09		0.68	0.59	0.37
Control Delay	125.3	79.4		108.1	104.6	31.1	68.7	94.7		83.4	38.6	20.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	125.3	79.4		108.1	104.6	31.1	68.7	94.7		83.4	38.6	20.7
LOS	F	E		F	F	C	E	F		F	D	C
Approach Delay		95.3			91.0			89.6			36.4	
Approach LOS		F			F			F			D	
Queue Length 50th (ft)	~194	334		116	~368	80	151	~725		62	235	135
Queue Length 95th (ft)	#344	#390		#225	#470	131	203	#933		#134	319	153
Internal Link Dist (ft)		1059			1733			6314			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	219	450		161	412	525	311	760		117	617	785
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.05	0.97		0.93	1.06	0.27	0.65	1.09		0.68	0.59	0.37

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 78.7

Intersection LOS: E

Intersection Capacity Utilization 90.7%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

			
Ø1	Ø2	Ø3	Ø4
13 s	55 s	16 s	36 s
			
Ø5	Ø6	Ø7	Ø8
26 s	42 s	20 s	32 s

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2021 Build AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	183	112	14	149	63	141	587	44	96	249	85
Future Volume (vph)	99	183	112	14	149	63	141	587	44	96	249	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			3%	
Storage Length (ft)	135		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			150			65			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.957			0.987			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1727	1720	0	1593	1809	0	1761	1825	0	1743	1728	0
Flt Permitted	0.530			0.368			0.460			0.235		
Satd. Flow (perm)	963	1720	0	617	1809	0	853	1825	0	431	1728	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		569			1080			1141			1098	
Travel Time (s)		11.1			21.0			22.2			21.4	
Peak Hour Factor	0.77	0.82	0.62	0.46	0.72	0.75	0.84	0.96	0.77	0.68	0.78	0.87
Heavy Vehicles (%)	4%	3%	2%	15%	2%	2%	2%	2%	5%	2%	5%	3%
Adj. Flow (vph)	129	223	181	30	207	84	168	611	57	141	319	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	404	0	30	291	0	168	668	0	141	417	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	21.8	21.8		19.0	19.0		23.9	23.9		19.8	19.8	
Total Split (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%		58.3%	58.3%		58.3%	58.3%	
Maximum Green (s)	19.2	19.2		19.0	19.0		29.1	29.1		29.2	29.2	
Yellow Time (s)	3.8	3.8		4.1	4.1		3.8	3.8		3.7	3.7	
All-Red Time (s)	2.0	2.0		1.9	1.9		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	-0.8	-0.8		-1.0	-1.0		-0.9	-0.9		-0.8	-0.8	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		8.0	8.0		13.0	13.0		9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	15.3	15.3		15.3	15.3		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.47	0.47		0.47	0.47	
v/c Ratio	0.43	0.75		0.16	0.52		0.42	0.78		0.70	0.51	
Control Delay	20.1	26.7		16.2	18.6		13.0	18.8		33.6	12.0	

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2021 Build AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.1	26.7		16.2	18.6		13.0	18.8		33.6	12.0	
LOS	C	C		B	B		B	B		C	B	
Approach Delay		25.1			18.4			17.7			17.5	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)	30	106		6	70		30	152		30	79	
Queue Length 95th (ft)	64	187		12	108		70	294		62	127	
Internal Link Dist (ft)		489			1000			1061			1018	
Turn Bay Length (ft)	135			150			150			150		
Base Capacity (vph)	419	748		268	787		556	1190		281	1127	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.54		0.11	0.37		0.30	0.56		0.50	0.37	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 48.9

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 80.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Potter Road & Chestnut Lane

 Ø2	 Ø4
35 s	25 s
 Ø6	 Ø8
35 s	25 s

Lanes, Volumes, Timings
6: Matthews-Weddington Road & Driveway #2

Chestnut Farm
2021 Build AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	923	663	3
Future Volume (vph)	0	8	0	923	663	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.999	
Flt Protected						
Satd. Flow (prot)	0	1611	0	1863	1861	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1861	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1051			797	359	
Travel Time (s)	28.7			12.1	5.4	
Peak Hour Factor	0.90	0.90	0.90	0.74	0.86	0.90
Adj. Flow (vph)	0	9	0	1247	771	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	0	1247	774	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.9% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

6: Matthews-Weddington Road & Driveway #2

Chestnut Farm
2021 Build AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖	↖	↗
Traffic Volume (veh/h)	0	8	0	923	663	3
Future Volume (Veh/h)	0	8	0	923	663	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.74	0.86	0.90
Hourly flow rate (vph)	0	9	0	1247	771	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				797		
pX, platoon unblocked	0.64					
vC, conflicting volume	2020	772	774			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2311	772	774			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	27	399	842			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	9	1247	774			
Volume Left	0	0	0			
Volume Right	9	0	3			
cSH	399	1700	1700			
Volume to Capacity	0.02	0.73	0.46			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	14.2	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	14.2	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			51.9%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
7: Matthews-Weddington Road & Driveway #3

Chestnut Farm
2021 Build AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	813	488	4
Future Volume (vph)	0	8	0	813	488	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.999	
Flt Protected						
Satd. Flow (prot)	0	1611	0	1872	1861	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1872	1861	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1041			423	6394	
Travel Time (s)	28.4			6.4	96.9	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.85	0.90
Adj. Flow (vph)	0	9	0	1129	574	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	0	1129	578	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 46.1% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

7: Matthews-Weddington Road & Driveway #3

Chestnut Farm
2021 Build AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗	↗	
Traffic Volume (veh/h)	0	8	0	813	488	4
Future Volume (Veh/h)	0	8	0	813	488	4
Sign Control	Stop			Free	Free	
Grade	0%			-1%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.85	0.90
Hourly flow rate (vph)	0	9	0	1129	574	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1705	576	578			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1705	576	578			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	101	517	996			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	9	1129	578			
Volume Left	0	0	0			
Volume Right	9	0	4			
cSH	517	1700	1700			
Volume to Capacity	0.02	0.66	0.34			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	12.1	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	12.1	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization		46.1%		ICU Level of Service		A
Analysis Period (min)		15				

LANE SUMMARY



Site: 101 [Matthews-Weddington Road and Chestnut Lane 2021 Build PM]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Matthews-Weddington Road NB													
Lane 1 ^d	491	2.0	1143	0.430	100	6.3	LOS A	2.3	58.8	Full	1600	0.0	0.0
Lane 2	364	2.0	1052	0.347	100	6.1	LOS A	1.7	42.6	Short	150	0.0	NA
Approach	856	2.0		0.430		6.2	LOS A	2.3	58.8				
East: Chestnut Lane WB													
Lane 1 ^d	136	2.0	1093	0.124	100	11.7	LOS B	0.7	17.9	Full	1600	0.0	0.0
Lane 2	129	2.0	930	0.139	100	7.3	LOS A	0.8	19.1	Short	150	0.0	NA
Approach	264	2.0		0.139		9.6	LOS A	0.8	19.1				
North: Matthews-Weddington Road SB													
Lane 1	213	2.0	963	0.222	100	11.7	LOS B	1.1	29.2	Short	250	0.0	NA
Lane 2 ^d	719	2.0	1378	0.522	100	5.7	LOS A	4.0	102.0	Full	1600	0.0	0.0
Approach	932	2.0		0.522		7.1	LOS A	4.0	102.0				
West: Driveway #1													
Lane 1 ^d	48	2.0	441	0.108	100	13.2	LOS B	0.5	11.4	Full	1600	0.0	0.0
Approach	48	2.0		0.108		13.2	LOS B	0.5	11.4				
Intersection	2100	2.0		0.522		7.2	LOS A	4.0	102.0				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Build PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	172	223	561	258	381	349
Future Volume (vph)	172	223	561	258	381	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.957			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1809	0	1761	1853
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1567	1809	0	1761	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	191	248	623	287	423	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	191	248	910	0	423	388
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Detector Phase	4	4	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	18.0	18.0	47.0		25.0	72.0
Total Split (%)	20.0%	20.0%	52.2%		27.8%	80.0%
Maximum Green (s)	12.6	12.6	41.0		19.6	66.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	13.0	13.0	42.0		20.0	67.0
Actuated g/C Ratio	0.14	0.14	0.47		0.22	0.74
v/c Ratio	0.75	1.10	1.08		1.08	0.28
Control Delay	57.2	126.9	79.8		104.7	4.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Build PM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	57.2	126.9	79.8		104.7	4.3
LOS	E	F	E		F	A
Approach Delay	96.6		79.8			56.7
Approach LOS	F		E			E
Queue Length 50th (ft)	106	~161	~583		~272	58
Queue Length 95th (ft)	#210	#308	#813		#451	89
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	253	226	844		391	1379
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.75	1.10	1.08		1.08	0.28

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 74.5

Intersection LOS: E

Intersection Capacity Utilization 88.4%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road

 Ø1	 Ø2	 Ø4
25 s	47 s	18 s
 Ø6		
72 s		

LANE SUMMARY



Site: 101 [Weddington-Matthews Road and Tilley Morris Road 2021 Build PM]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Weddington-Matthews Road NB													
Lane 1	90	5.0	644	0.140	100	11.8	LOS B	0.8	20.2	Full	1600	0.0	0.0
Lane 2 ^d	254	2.0	945	0.269	100	8.0	LOS A	1.9	47.2	Short	150	0.0	NA
Approach	344	2.8		0.269		9.0	LOS A	1.9	47.2				
East: Weddington-Matthews Road WB													
Lane 1 ^d	289	2.0	1417	0.204	100	11.1	LOS B	1.1	28.7	Short	250	0.0	NA
Lane 2	288	2.4	1285	0.224	100	5.4	LOS A	1.2	31.7	Full	1600	0.0	0.0
Approach	577	2.2		0.224		8.2	LOS A	1.2	31.7				
North: Union Day School Drive SB													
Lane 1 ^d	136	2.0	838	0.162	100	3.5	LOS A	0.6	14.0	Full	1600	0.0	0.0
Approach	136	2.0		0.162		3.5	LOS A	0.6	14.0				
West: Tilley Morris Road EB													
Lane 1 ^d	619	2.0	928	0.667	100	9.0	LOS A	5.1	129.4	Full	1600	0.0	0.0
Lane 2	151	2.0	523	0.289	100	8.5	LOS A	1.0	26.2	Short	150	0.0	NA
Approach	770	2.0		0.667		8.9	LOS A	5.1	129.4				
Intersection	1827	2.2		0.667		8.3	LOS A	5.1	129.4				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	407	134	202	485	146	164	360	113	200	450	145
Future Volume (vph)	200	407	134	202	485	146	164	360	113	200	450	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963				0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1776	0	1761	1853	1575	1778	1805	0	1761	1853	1575
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1776	0	1761	1853	1575	1778	1805	0	1761	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6392			1082	
Travel Time (s)		17.3			27.5			96.8			16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	222	452	149	224	539	162	182	400	126	222	500	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	601	0	224	539	162	182	526	0	222	500	161
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	21.0	42.0		20.0	41.0	20.0	18.0	38.0		20.0	40.0	21.0
Total Split (%)	17.5%	35.0%		16.7%	34.2%	16.7%	15.0%	31.7%		16.7%	33.3%	17.5%
Maximum Green (s)	15.6	36.3		14.9	35.3	14.1	12.4	31.8		14.1	33.8	15.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	16.0	37.0		15.0	36.0	56.0	13.0	33.0		15.0	35.0	56.0
Actuated g/C Ratio	0.13	0.31		0.12	0.30	0.47	0.11	0.28		0.12	0.29	0.47

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.95	1.10		1.02	0.97	0.22	0.95	1.06		1.01	0.93	0.22
Control Delay	100.0	107.7		117.5	73.7	20.0	106.2	99.5		115.5	66.1	20.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	100.0	107.7		117.5	73.7	20.0	106.2	99.5		115.5	66.1	20.0
LOS	F	F		F	E	C	F	F		F	E	C
Approach Delay		105.6			74.9			101.3			70.1	
Approach LOS		F			E			F			E	
Queue Length 50th (ft)	173	~527		~180	412	73	142	~448		~176	376	72
Queue Length 95th (ft)	#328	#751		#343	#637	119	#286	#664		#338	#581	119
Internal Link Dist (ft)		1059			1733			6312			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	233	547		220	555	735	192	496		220	540	735
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.95	1.10		1.02	0.97	0.22	0.95	1.06		1.01	0.93	0.22

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 135

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 86.8

Intersection LOS: F

Intersection Capacity Utilization 94.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
20 s	38 s	20 s	42 s
 Ø5	 Ø6	 Ø7	 Ø8
18 s	40 s	21 s	41 s

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2021 Build PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	221	111	40	129	54	85	339	23	112	620	113
Future Volume (vph)	157	221	111	40	129	54	85	339	23	112	620	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			3%	
Storage Length (ft)	135		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			150			65			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor											1.00	
Frt		0.950			0.956			0.990			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1761	0	1796	1807	0	1761	1835	0	1743	1786	0
Flt Permitted	0.630			0.365			0.161			0.486		
Satd. Flow (perm)	1168	1761	0	690	1807	0	298	1835	0	892	1786	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		569			1080			1141			1098	
Travel Time (s)		11.1			21.0			22.2			21.4	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	174	246	123	44	143	60	94	377	26	124	689	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	369	0	44	203	0	94	403	0	124	815	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	21.8	21.8		19.0	19.0		23.9	23.9		19.8	19.8	
Total Split (s)	23.0	23.0		23.0	23.0		37.0	37.0		37.0	37.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		61.7%	61.7%		61.7%	61.7%	
Maximum Green (s)	17.2	17.2		17.0	17.0		31.1	31.1		31.2	31.2	
Yellow Time (s)	3.8	3.8		4.1	4.1		3.8	3.8		3.7	3.7	
All-Red Time (s)	2.0	2.0		1.9	1.9		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	-0.8	-0.8		-1.0	-1.0		-0.9	-0.9		-0.8	-0.8	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		8.0	8.0		13.0	13.0		9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.6	14.6		14.6	14.6		27.7	27.7		27.7	27.7	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.53	0.53		0.53	0.53	
v/c Ratio	0.54	0.76		0.23	0.41		0.60	0.42		0.26	0.87	

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2021 Build PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	24.4	30.0		19.4	19.3		30.7	9.5		9.3	23.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.4	30.0		19.4	19.3		30.7	9.5		9.3	23.9	
LOS	C	C		B	B		C	A		A	C	
Approach Delay		28.2			19.3			13.5			22.0	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	51	117		12	57		20	74		21	215	
Queue Length 95th (ft)	105	#225		35	107		#91	134		50	#455	
Internal Link Dist (ft)		489			1000			1061			1018	
Turn Bay Length (ft)	135			150			150			150		
Base Capacity (vph)	415	626		245	642		188	1159		563	1128	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.42	0.59		0.18	0.32		0.50	0.35		0.22	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 52.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 21.3

Intersection LOS: C

Intersection Capacity Utilization 88.7%

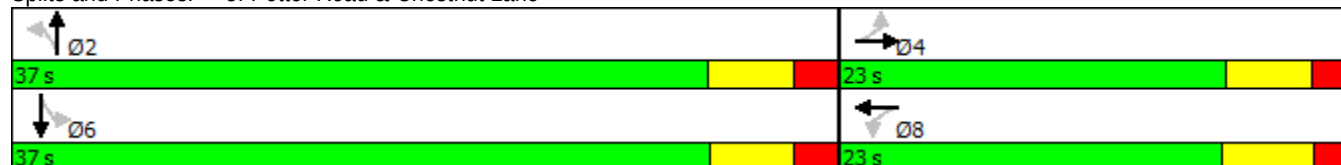
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Potter Road & Chestnut Lane



Lanes, Volumes, Timings
6: Matthews-Weddington Road & Driveway #2

Chestnut Farm
2021 Build PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	770	735	8
Future Volume (vph)	0	5	0	770	735	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.999	
Flt Protected						
Satd. Flow (prot)	0	1611	0	1863	1861	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1861	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1094			797	359	
Travel Time (s)	29.8			12.1	5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	6	0	856	817	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	6	0	856	826	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 49.2% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

6: Matthews-Weddington Road & Driveway #2

Chestnut Farm
2021 Build PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖	↖	↗
Traffic Volume (veh/h)	0	5	0	770	735	8
Future Volume (Veh/h)	0	5	0	770	735	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	6	0	856	817	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				797		
pX, platoon unblocked	0.58					
vC, conflicting volume	1678	822	826			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1804	822	826			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	51	374	805			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	856	826			
Volume Left	0	0	0			
Volume Right	6	0	9			
cSH	374	1700	1700			
Volume to Capacity	0.02	0.50	0.49			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	14.8	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	14.8	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			49.2%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
7: Matthews-Weddington Road & Driveway #3

Chestnut Farm
2021 Build PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	534	859	13
Future Volume (vph)	0	5	0	534	859	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.998	
Flt Protected						
Satd. Flow (prot)	0	1611	0	1872	1859	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1872	1859	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1035			426	6392	
Travel Time (s)	28.2			6.5	96.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	6	0	593	954	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	6	0	593	968	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

7: Matthews-Weddington Road & Driveway #3

Chestnut Farm
2021 Build PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖	↖	↗
Traffic Volume (veh/h)	0	5	0	534	859	13
Future Volume (Veh/h)	0	5	0	534	859	13
Sign Control	Stop			Free	Free	
Grade	0%			-1%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	6	0	593	954	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1554	961	968			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1554	961	968			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	125	311	712			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	593	968			
Volume Left	0	0	0			
Volume Right	6	0	14			
cSH	311	1700	1700			
Volume to Capacity	0.02	0.35	0.57			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	16.8	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	16.8	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			56.0%	ICU Level of Service		B
Analysis Period (min)			15			

2021 Build-out Conditions
Improved

LANE SUMMARY



Site: 101 [Matthews-Weddington Road and Chestnut Lane 2021 Build AM - Improved]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Matthews-Weddington Road NB													
Lane 1 ^d	1015	2.0	1207	0.841	100	7.8	LOS A	11.7	296.5	Full	1600	0.0	0.0
Lane 2	227	2.0	747	0.304	100	6.3	LOS A	1.3	33.6	Short	150	0.0	NA
Approach	1243	2.0		0.841		7.5	LOS A	11.7	296.5				
East: Chestnut Lane WB													
Lane 1 ^d	445	2.0	546	0.815	100	39.2	LOS D	13.1	333.4	Full	1600	0.0	0.0
Lane 2	98	2.0	365	0.268	100	14.8	LOS B	1.8	45.0	Short	150	0.0	NA
Approach	543	2.0		0.815		34.8	LOS C	13.1	333.4				
North: Matthews-Weddington Road SB													
Lane 1	98	2.0	555	0.177	100	13.6	LOS B	0.8	19.1	Short	250	0.0	NA
Lane 2 ^d	451	2.0	940	0.480	100	7.0	LOS A	3.2	80.0	Full	1600	0.0	0.0
Approach	549	2.0		0.480		8.2	LOS A	3.2	80.0				
West: Driveway #1													
Lane 1 ^d	72	2.0	419	0.172	100	13.9	LOS B	0.8	19.8	Full	1600	0.0	0.0
Approach	72	2.0		0.172		13.9	LOS B	0.8	19.8				
Intersection	2408	2.0		0.841		14.0	LOS B	13.1	333.4				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Tuesday, March 19, 2019 9:26:39 AM

Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Build IMP AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	365	434	478	229	202	467
Future Volume (vph)	365	434	478	229	202	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.943			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1783	0	1761	1853
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1567	1783	0	1761	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.72	0.67	0.89	0.59	0.73	0.84
Adj. Flow (vph)	507	648	537	388	277	556
Shared Lane Traffic (%)						
Lane Group Flow (vph)	507	648	925	0	277	556
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	4	1	2		1	6
Permitted Phases		4				
Detector Phase	4	1	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	26.0	18.0	46.0		18.0	64.0
Total Split (%)	28.9%	20.0%	51.1%		20.0%	71.1%
Maximum Green (s)	20.6	12.6	40.0		12.6	58.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	21.0	39.0	41.0		13.0	59.0
Actuated g/C Ratio	0.23	0.43	0.46		0.14	0.66
v/c Ratio	1.24	0.95	1.14		1.09	0.46
Control Delay	160.6	51.5	103.1		121.4	9.1
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings 2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Build IMP AM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	160.6	51.5	103.1		121.4	9.1
LOS	F	D	F		F	A
Approach Delay	99.4		103.1			46.4
Approach LOS	F		F			D
Queue Length 50th (ft)	~362	345	~620		~179	138
Queue Length 95th (ft)	#394	314	#834		#241	183
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	408	679	812		254	1214
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	1.24	0.95	1.14		1.09	0.46

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 85.4

Intersection LOS: F

Intersection Capacity Utilization 83.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road

 Ø1	 Ø2	 Ø4
18 s	46 s	26 s
 Ø6		
64 s		

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	223	99	127	348	125	164	609	109	70	306	203
Future Volume (vph)	202	223	99	127	348	125	164	609	109	70	306	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1826	1567	1761	1835	1575	1778	1825	0	1761	1835	1560
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1826	1567	1761	1835	1575	1778	1825	0	1761	1835	1560
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6394			1082	
Travel Time (s)		17.3			27.5			96.9			16.4	
Peak Hour Factor	0.88	0.75	0.72	0.85	0.80	0.88	0.81	0.88	0.79	0.88	0.84	0.70
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	3%	3%
Adj. Flow (vph)	230	297	138	149	435	142	202	692	138	80	364	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	297	138	149	435	142	202	830	0	80	364	290
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Detector Phase	7	4	5	3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7	12.6	12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	20.0	33.0	22.0	19.0	32.0	13.0	22.0	55.0		13.0	46.0	20.0
Total Split (%)	16.7%	27.5%	18.3%	15.8%	26.7%	10.8%	18.3%	45.8%		10.8%	38.3%	16.7%
Maximum Green (s)	14.6	27.3	16.4	13.9	26.3	7.1	16.4	48.8		7.1	39.8	14.6
Yellow Time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3	2.6	2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7	-0.6	-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	2.0	2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0	2.0	3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	15.0	29.2	50.3	12.8	27.0	40.0	16.1	50.0		8.0	41.9	61.9

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.12	0.24	0.42	0.11	0.22	0.33	0.13	0.42		0.07	0.35	0.52
v/c Ratio	1.05	0.67	0.21	0.80	1.06	0.27	0.85	1.09		0.68	0.57	0.36
Control Delay	125.3	50.0	23.4	80.9	104.6	31.1	80.7	94.7		83.4	36.3	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	125.3	50.0	23.4	80.9	104.6	31.1	80.7	94.7		83.4	36.3	19.2
LOS	F	D	C	F	F	C	F	F		F	D	B
Approach Delay	70.5			85.4			92.0			34.7		
Approach LOS	E			F			F			C		
Queue Length 50th (ft)	~194	212	67	113	~368	80	154	~725		62	230	131
Queue Length 95th (ft)	#344	249	88	#189	#470	131	#227	#933		#134	302	142
Internal Link Dist (ft)	1059			1733			6314			1002		
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	219	444	668	205	412	525	251	760		117	640	804
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.05	0.67	0.21	0.73	1.06	0.27	0.80	1.09		0.68	0.57	0.36

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 135

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 72.6

Intersection LOS: E

Intersection Capacity Utilization 90.7%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
13 s	55 s	19 s	33 s
 Ø5	 Ø6	 Ø7	 Ø8
22 s	46 s	20 s	32 s

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	223	99	127	348	125	164	609	109	70	306	203
Future Volume (vph)	202	223	99	127	348	125	164	609	109	70	306	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.952				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1744	0	1761	1835	1575	1778	1872	1591	1761	1835	1560
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1744	0	1761	1835	1575	1778	1872	1591	1761	1835	1560
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6394			1082	
Travel Time (s)		17.3			27.5			96.9			16.4	
Peak Hour Factor	0.88	0.75	0.72	0.85	0.80	0.88	0.81	0.88	0.79	0.88	0.84	0.70
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	3%	3%
Adj. Flow (vph)	230	297	138	149	435	142	202	692	138	80	364	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	435	0	149	435	142	202	692	138	80	364	290
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2	12.1	12.9	31.2	12.4
Total Split (s)	22.0	40.0		16.0	34.0	13.0	23.0	51.0	16.0	13.0	41.0	22.0
Total Split (%)	18.3%	33.3%		13.3%	28.3%	10.8%	19.2%	42.5%	13.3%	10.8%	34.2%	18.3%
Maximum Green (s)	16.6	34.3		10.9	28.3	7.1	17.4	44.8	10.9	7.1	34.8	16.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6	3.0	3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6	2.1	2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2	-0.1	-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0	3.0	2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	0.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0	30.0	0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min	None	None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	16.8	34.8		11.0	29.0	42.0	16.5	45.2	61.2	8.0	36.7	58.5

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.14	0.29		0.09	0.24	0.35	0.14	0.38	0.51	0.07	0.31	0.49
v/c Ratio	0.93	0.85		0.92	0.97	0.26	0.82	0.97	0.17	0.68	0.64	0.38
Control Delay	92.6	57.0		106.0	81.8	29.3	75.9	65.0	16.1	82.7	42.2	21.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.6	57.0		106.0	81.8	29.3	75.9	65.0	16.1	82.7	42.2	21.1
LOS	F	E		F	F	C	E	E	B	F	D	C
Approach Delay		69.4			76.5			60.6			38.3	
Approach LOS		E			E			E			D	
Queue Length 50th (ft)	178	318		116	337	78	152	518	55	62	246	139
Queue Length 95th (ft)	#321	350		#225	#445	127	#210	#740	79	#134	323	150
Internal Link Dist (ft)		1059			1733			6314			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	250	512		162	447	556	268	723	818	118	565	769
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.85		0.92	0.97	0.26	0.75	0.96	0.17	0.68	0.64	0.38

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 119

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 60.9

Intersection LOS: E

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
13 s	51 s	16 s	40 s
 Ø5	 Ø6	 Ø7	 Ø8
23 s	41 s	22 s	34 s

LANE SUMMARY

 **Site: 101 [Matthews-Weddington Road and Chestnut Lane 2021 Build PM - Improved]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Matthews-Weddington Road NB													
Lane 1 ^d	491	2.0	1145	0.429	100	6.3	LOS A	2.3	58.1	Full	1600	0.0	0.0
Lane 2	364	2.0	1053	0.346	100	6.1	LOS A	1.7	42.1	Short	150	0.0	NA
Approach	856	2.0		0.429		6.2	LOS A	2.3	58.1				
East: Chestnut Lane WB													
Lane 1	117	2.0	910	0.128	100	13.1	LOS B	0.7	17.4	Full	1600	0.0	0.0
Lane 2 ^d	148	2.0	1094	0.135	100	6.8	LOS A	0.8	19.6	Short	150	0.0	NA
Approach	264	2.0		0.135		9.6	LOS A	0.8	19.6				
North: Matthews-Weddington Road SB													
Lane 1	213	2.0	806	0.265	100	11.7	LOS B	1.1	27.8	Short	250	0.0	NA
Lane 2 ^d	719	2.0	1200	0.599	100	5.8	LOS A	4.0	101.9	Full	1600	0.0	0.0
Approach	932	2.0		0.599		7.1	LOS A	4.0	101.9				
West: Driveway #1													
Lane 1 ^d	48	2.0	444	0.108	100	13.2	LOS B	0.4	11.3	Full	1600	0.0	0.0
Approach	48	2.0		0.108		13.2	LOS B	0.4	11.3				
Intersection	2100	2.0		0.599		7.2	LOS A	4.0	101.9				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Tuesday, March 19, 2019 9:30:04 AM

Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Build IMP PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	172	223	561	258	381	349
Future Volume (vph)	172	223	561	258	381	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.957			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1809	0	1761	1853
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1567	1809	0	1761	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	191	248	623	287	423	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	191	248	910	0	423	388
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	4	1	2		1	6
Permitted Phases		4				
Detector Phase	4	1	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	15.0	26.0	49.0		26.0	75.0
Total Split (%)	16.7%	28.9%	54.4%		28.9%	83.3%
Maximum Green (s)	9.6	20.6	43.0		20.6	69.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	10.0	36.0	44.0		21.0	70.0
Actuated g/C Ratio	0.11	0.40	0.49		0.23	0.78
v/c Ratio	0.98	0.40	1.03		1.03	0.27
Control Delay	103.4	21.6	62.8		88.8	3.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2021 Build IMP PM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	103.4	21.6	62.8		88.8	3.3
LOS	F	C	E		F	A
Approach Delay	57.2		62.8			47.9
Approach LOS	E		E			D
Queue Length 50th (ft)	110	98	~559		~260	48
Queue Length 95th (ft)	#245	162	#789		#439	73
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	194	626	884		410	1441
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.98	0.40	1.03		1.03	0.27

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 56.1

Intersection LOS: E

Intersection Capacity Utilization 88.4%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road

 Ø1	 Ø2	 Ø4
26 s	49 s	15 s
 Ø6		
75 s		

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	407	134	202	485	146	164	360	113	200	450	145
Future Volume (vph)	200	407	134	202	485	146	164	360	113	200	450	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1844	1567	1761	1853	1575	1778	1805	0	1761	1853	1575
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1844	1567	1761	1853	1575	1778	1805	0	1761	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6392			1082	
Travel Time (s)		17.3			27.5			96.8			16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	222	452	149	224	539	162	182	400	126	222	500	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	452	149	224	539	162	182	526	0	222	500	161
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Detector Phase	7	4	5	3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7	12.6	12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	21.0	38.0	18.0	22.0	39.0	20.0	18.0	40.0		20.0	42.0	21.0
Total Split (%)	17.5%	31.7%	15.0%	18.3%	32.5%	16.7%	15.0%	33.3%		16.7%	35.0%	17.5%
Maximum Green (s)	15.6	32.3	12.4	16.9	33.3	14.1	12.4	33.8		14.1	35.8	15.6
Yellow Time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3	2.6	2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7	-0.6	-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	2.0	2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0	2.0	3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	16.0	33.4	51.4	16.6	34.0	54.0	13.0	35.0		15.0	37.0	58.0
Actuated g/C Ratio	0.13	0.28	0.43	0.14	0.28	0.45	0.11	0.29		0.12	0.31	0.48

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.95	0.88	0.22	0.92	1.03	0.23	0.95	1.00		1.01	0.88	0.21
Control Delay	100.0	61.4	23.0	91.9	88.9	21.3	106.2	82.2		115.5	57.1	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	100.0	61.4	23.0	91.9	88.9	21.3	106.2	82.2		115.5	57.1	18.8
LOS	F	E	C	F	F	C	F	F		F	E	B
Approach Delay		64.9			77.8			88.4			64.8	
Approach LOS		E			E			F			E	
Queue Length 50th (ft)	173	337	72	173	~446	75	142	407		~176	366	70
Queue Length 95th (ft)	#328	#526	120	#320	#662	123	#286	#640		#338	#557	114
Internal Link Dist (ft)		1059			1733			6312			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	233	513	670	249	525	708	192	526		220	571	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.95	0.88	0.22	0.90	1.03	0.23	0.95	1.00		1.01	0.88	0.21

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 125

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 73.4

Intersection LOS: E

Intersection Capacity Utilization 90.2%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
20 s	40 s	22 s	38 s
 Ø5	 Ø6	 Ø7	 Ø8
18 s	42 s	21 s	39 s

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	407	134	202	485	146	164	360	113	200	450	145
Future Volume (vph)	200	407	134	202	485	146	164	360	113	200	450	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1776	0	1761	1853	1575	1778	1872	1591	1761	1853	1575
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1776	0	1761	1853	1575	1778	1872	1591	1761	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6392			1082	
Travel Time (s)		17.3			27.5			96.8			16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	222	452	149	224	539	162	182	400	126	222	500	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	601	0	224	539	162	182	400	126	222	500	161
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2	12.1	12.9	31.2	12.4
Total Split (s)	21.0	45.0		20.0	44.0	21.0	17.0	34.0	20.0	21.0	38.0	21.0
Total Split (%)	17.5%	37.5%		16.7%	36.7%	17.5%	14.2%	28.3%	16.7%	17.5%	31.7%	17.5%
Maximum Green (s)	15.6	39.3		14.9	38.3	15.1	11.4	27.8	14.9	15.1	31.8	15.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6	3.0	3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6	2.1	2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2	-0.1	-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0	3.0	2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	0.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0	30.0	0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min	None	None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	16.0	40.0		15.0	39.0	60.0	12.0	29.0	49.0	16.0	33.0	54.0
Actuated g/C Ratio	0.13	0.33		0.12	0.32	0.50	0.10	0.24	0.41	0.13	0.28	0.45

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.95	1.02		1.02	0.90	0.21	1.03	0.88	0.19	0.95	0.98	0.23
Control Delay	100.0	81.0		117.5	57.7	17.6	128.2	66.2	23.9	99.0	79.5	21.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.0	81.0		117.5	57.7	17.6	128.2	66.2	23.9	99.0	79.5	21.3
LOS	F	F		F	E	B	F	E	C	F	E	C
Approach Delay		86.1			65.2			74.6			73.8	
Approach LOS		F			E			E			E	
Queue Length 50th (ft)	173	~478		~180	396	68	~150	300	62	173	385	75
Queue Length 95th (ft)	#328	#716		#343	#599	111	#298	#477	106	#327	#606	123
Internal Link Dist (ft)		1059			1733			6312			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	233	592		220	602	787	177	452	649	234	509	708
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.02		1.02	0.90	0.21	1.03	0.88	0.19	0.95	0.98	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 125

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 74.6

Intersection LOS: E

Intersection Capacity Utilization 90.2%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
21 s	34 s	20 s	45 s
 Ø5	 Ø6	 Ø7	 Ø8
17 s	38 s	21 s	44 s

2026 Build-out +5 Conditions

LANE SUMMARY

 **Site: 101 [Matthews-Weddington Road and Chestnut Lane 2026 Build AM]**

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Matthews-Weddington Road NB													
Lane 1 ^d	1193	2.0	1143 ¹	1.044	100	35.7	LOS F	48.7	1236.1	Full	1600	0.0	0.0
Lane 2	267	2.0	734	0.364	100	6.6	LOS A	1.7	42.8	Short	150	0.0	NA
Approach	1460	2.0		1.044		30.4	LOS C	48.7	1236.1				
East: Chestnut Lane WB													
Lane 1 ^d	521	2.0	369	1.412	100	233.5	LOS F	66.9	1700.5	Full	1600	0.0	6.8
Lane 2	109	2.0	252	0.434	100	23.5	LOS C	3.3	84.5	Short	150	0.0	NA
Approach	631	2.0		1.412		197.2	LOS F	66.9	1700.5				
North: Matthews-Weddington Road SB													
Lane 1	117	2.0	720	0.162	100	13.1	LOS B	0.9	22.0	Short	250	0.0	NA
Lane 2 ^d	523	2.0	1122	0.466	100	6.7	LOS A	3.6	91.6	Full	1600	0.0	0.0
Approach	640	2.0		0.466		7.9	LOS A	3.6	91.6				
West: Driveway #1													
Lane 1 ^d	72	2.0	419	0.172	100	13.8	LOS B	0.8	19.3	Full	1600	0.0	0.0
Approach	72	2.0		0.172		13.8	LOS B	0.8	19.3				
Intersection	2802	2.0		1.412		62.3	LOS E	66.9	1700.5				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Monday, April 8, 2019 6:15:24 PM

Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2026 Build AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	430	515	557	267	238	545
Future Volume (vph)	430	515	557	267	238	545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.943			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1783	0	1761	1853
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1567	1783	0	1761	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.73	0.67	0.90	0.59	0.73	0.84
Adj. Flow (vph)	589	769	619	453	326	649
Shared Lane Traffic (%)						
Lane Group Flow (vph)	589	769	1072	0	326	649
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	4	1	2		1	6
Permitted Phases		4				
Detector Phase	4	1	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	26.0	18.0	46.0		18.0	64.0
Total Split (%)	28.9%	20.0%	51.1%		20.0%	71.1%
Maximum Green (s)	20.6	12.6	40.0		12.6	58.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	21.0	39.0	41.0		13.0	59.0
Actuated g/C Ratio	0.23	0.43	0.46		0.14	0.66
v/c Ratio	1.44	1.13	1.32		1.28	0.53
Control Delay	242.4	103.9	177.8		188.4	10.2
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2026 Build AM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	242.4	103.9	177.8		188.4	10.2
LOS	F	F	F		F	B
Approach Delay	164.0		177.8			69.8
Approach LOS	F		F			E
Queue Length 50th (ft)	~460	~513	~796		~238	174
Queue Length 95th (ft)	#490	#442	#1035		#296	228
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	408	679	812		254	1214
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	1.44	1.13	1.32		1.28	0.53

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.44

Intersection Signal Delay: 141.4

Intersection LOS: F

Intersection Capacity Utilization 95.1%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road

 Ø1	 Ø2	 Ø4
18 s	46 s	26 s
 Ø6		
64 s		

LANE SUMMARY



Site: 101 [Weddington-Matthews Road and Tilley Morris Road 2026 Build AM]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Weddington-Matthews Road NB													
Lane 1 ^d	788	2.0	1101	0.716	100	12.0	LOS B	8.6	219.5	Full	1600	0.0	0.0
Lane 2	639	2.0	923	0.693	100	11.2	LOS B	7.5	191.6	Short	150	0.0	NA
Approach	1427	2.0		0.716		11.7	LOS B	8.6	219.5				
East: Weddington-Matthews Road WB													
Lane 1	389	3.0	482	0.808	100	33.5	LOS C	10.3	263.5	Short	250	0.0	NA
Lane 2 ^d	953	2.0	673	1.415	100	208.2	LOS F	108.3	2752.0	Full	1600	0.0	24.5
Approach	1342	2.3		1.415		157.5	LOS F	108.3	2752.0				
North: Union Day School Drive SB													
Lane 1 ^d	904	2.0	515	1.757	100	349.2	LOS F	133.8	3399.5	Full	1600	0.0	36.2
Approach	904	2.0		1.757		349.2	LOS F	133.8	3399.5				
West: Tilley Morris Road EB													
Lane 1 ^d	315	2.0	640	0.492	100	12.8	LOS B	3.2	82.0	Full	1600	0.0	0.0
Lane 2	48	8.0	323	0.148	100	12.3	LOS B	0.6	14.7	Short	150	0.0	NA
Approach	363	2.8		0.492		12.7	LOS B	3.2	82.0				
Intersection	4037	2.2		1.757		135.9	LOS F	133.8	3399.5				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Thursday, March 14, 2019 1:08:58 PM

Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2026 Build AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	265	116	150	413	149	190	715	128	83	361	241
Future Volume (vph)	240	265	116	150	413	149	190	715	128	83	361	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1826	1567	1761	1835	1575	1778	1825	0	1761	1835	1560
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1826	1567	1761	1835	1575	1778	1825	0	1761	1835	1560
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6394			1082	
Travel Time (s)		17.3			27.5			96.9			16.4	
Peak Hour Factor	0.88	0.75	0.72	0.85	0.80	0.88	0.81	0.88	0.79	0.88	0.84	0.70
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	3%	3%
Adj. Flow (vph)	273	353	161	176	516	169	235	813	162	94	430	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	273	353	161	176	516	169	235	975	0	94	430	344
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Detector Phase	7	4	5	3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7	12.6	12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	20.0	33.0	22.0	19.0	32.0	13.0	22.0	55.0		13.0	46.0	20.0
Total Split (%)	16.7%	27.5%	18.3%	15.8%	26.7%	10.8%	18.3%	45.8%		10.8%	38.3%	16.7%
Maximum Green (s)	14.6	27.3	16.4	13.9	26.3	7.1	16.4	48.8		7.1	39.8	14.6
Yellow Time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3	2.6	2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7	-0.6	-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	2.0	2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0	2.0	3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	15.0	28.4	50.4	13.6	27.0	40.0	17.0	50.0		8.0	41.0	61.0

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2026 Build AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.12	0.24	0.42	0.11	0.22	0.33	0.14	0.42		0.07	0.34	0.51
v/c Ratio	1.25	0.82	0.24	0.88	1.25	0.32	0.94	1.28		0.80	0.69	0.43
Control Delay	186.6	59.8	23.9	92.6	171.5	32.0	93.9	168.8		98.3	40.7	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	186.6	59.8	23.9	92.6	171.5	32.0	93.9	168.8		98.3	40.7	20.8
LOS	F	E	C	F	F	C	F	F		F	D	C
Approach Delay	96.4			128.0			154.3			39.1		
Approach LOS	F			F			F			D		
Queue Length 50th (ft)	~264	261	80	136	~499	97	182	~959		73	285	162
Queue Length 95th (ft)	#422	298	101	#241	#597	154	#284	#1168		#162	366	171
Internal Link Dist (ft)	1059			1733			6314			1002		
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	219	433	658	205	412	525	251	760		117	626	793
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.25	0.82	0.24	0.86	1.25	0.32	0.94	1.28		0.80	0.69	0.43

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.28

Intersection Signal Delay: 109.1

Intersection LOS: F

Intersection Capacity Utilization 102.9%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

			
Ø1	Ø2	Ø3	Ø4
13 s	55 s	19 s	33 s
			
Ø5	Ø6	Ø7	Ø8
22 s	46 s	20 s	32 s

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2026 Build AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	214	132	17	175	75	167	697	53	115	296	100
Future Volume (vph)	116	214	132	17	175	75	167	697	53	115	296	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			3%	
Storage Length (ft)	135		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			150			65			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.956			0.987			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1727	1718	0	1593	1807	0	1761	1825	0	1743	1728	0
Flt Permitted	0.419			0.244			0.392			0.155		
Satd. Flow (perm)	762	1718	0	409	1807	0	727	1825	0	284	1728	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		569			1080			1141			1098	
Travel Time (s)		11.1			21.0			22.2			21.4	
Peak Hour Factor	0.77	0.83	0.62	0.46	0.72	0.75	0.84	0.96	0.77	0.68	0.78	0.87
Heavy Vehicles (%)	4%	3%	2%	15%	2%	2%	2%	2%	5%	2%	5%	3%
Adj. Flow (vph)	151	258	213	37	243	100	199	726	69	169	379	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	471	0	37	343	0	199	795	0	169	494	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	21.8	21.8		19.0	19.0		23.9	23.9		19.8	19.8	
Total Split (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Total Split (%)	41.7%	41.7%		41.7%	41.7%		58.3%	58.3%		58.3%	58.3%	
Maximum Green (s)	19.2	19.2		19.0	19.0		29.1	29.1		29.2	29.2	
Yellow Time (s)	3.8	3.8		4.1	4.1		3.8	3.8		3.7	3.7	
All-Red Time (s)	2.0	2.0		1.9	1.9		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	-0.8	-0.8		-1.0	-1.0		-0.9	-0.9		-0.8	-0.8	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		8.0	8.0		13.0	13.0		9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	18.2	18.2		18.2	18.2		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.52	0.52		0.52	0.52	
v/c Ratio	0.63	0.88		0.29	0.61		0.53	0.84		1.16	0.55	
Control Delay	31.4	39.2		21.9	22.2		16.7	24.0		146.4	13.1	

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2026 Build AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.4	39.2		21.9	22.2		16.7	24.0		146.4	13.1	
LOS	C	D		C	C		B	C		F	B	
Approach Delay		37.3			22.1			22.5			47.1	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	45	154		10	100		46	235		~76	115	
Queue Length 95th (ft)	81	#261		14	128		94	#454		#122	156	
Internal Link Dist (ft)		489			1000			1061			1018	
Turn Bay Length (ft)	135			150			150			150		
Base Capacity (vph)	262	590		140	621		374	941		146	891	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.58	0.80		0.26	0.55		0.53	0.84		1.16	0.55	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 32.0

Intersection LOS: C

Intersection Capacity Utilization 90.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Potter Road & Chestnut Lane

 Ø2	 Ø4
35 s	25 s
 Ø6	 Ø8
35 s	25 s

Lanes, Volumes, Timings
6: Matthews-Weddington Road & Driveway #2

Chestnut Farm
2026 Build AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	1085	779	3
Future Volume (vph)	0	8	0	1085	779	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	0	1863	1863	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1863	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1051			797	359	
Travel Time (s)	28.7			12.1	5.4	
Peak Hour Factor	0.90	0.90	0.90	0.74	0.87	0.90
Adj. Flow (vph)	0	9	0	1466	895	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	0	1466	898	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	

HCM Unsignalized Intersection Capacity Analysis

6: Matthews-Weddington Road & Driveway #2

Chestnut Farm
2026 Build AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗	↗	
Traffic Volume (veh/h)	0	8	0	1085	779	3
Future Volume (Veh/h)	0	8	0	1085	779	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.74	0.87	0.90
Hourly flow rate (vph)	0	9	0	1466	895	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				797		
pX, platoon unblocked	0.59					
vC, conflicting volume	2362	896	898			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2964	896	898			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	100			
cM capacity (veh/h)	9	339	756			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	9	1466	898			
Volume Left	0	0	0			
Volume Right	9	0	3			
cSH	339	1700	1700			
Volume to Capacity	0.03	0.86	0.53			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	15.9	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	15.9	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			60.4%	ICU Level of Service		B
Analysis Period (min)			15			

Lanes, Volumes, Timings
7: Matthews-Weddington Road & Driveway #3

Chestnut Farm
2026 Build AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	951	575	4
Future Volume (vph)	0	8	0	951	575	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.999	
Flt Protected						
Satd. Flow (prot)	0	1611	0	1872	1861	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1872	1861	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1041			423	6394	
Travel Time (s)	28.4			6.4	96.9	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.85	0.90
Adj. Flow (vph)	0	9	0	1321	676	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	0	1321	680	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.4% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

7: Matthews-Weddington Road & Driveway #3

Chestnut Farm
2026 Build AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖	↖	↗
Traffic Volume (veh/h)	0	8	0	951	575	4
Future Volume (Veh/h)	0	8	0	951	575	4
Sign Control	Stop			Free	Free	
Grade	0%			-1%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.72	0.85	0.90
Hourly flow rate (vph)	0	9	0	1321	676	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1999	678	680			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1999	678	680			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	66	452	912			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	9	1321	680			
Volume Left	0	0	0			
Volume Right	9	0	4			
cSH	452	1700	1700			
Volume to Capacity	0.02	0.78	0.40			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	13.1	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	13.1	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			53.4%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2026 Build AM - NBR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	265	116	150	413	149	190	715	128	83	361	241
Future Volume (vph)	240	265	116	150	413	149	190	715	128	83	361	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.953				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1746	0	1761	1835	1575	1778	1872	1591	1761	1835	1560
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1746	0	1761	1835	1575	1778	1872	1591	1761	1835	1560
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6394			1082	
Travel Time (s)		17.3			27.5			96.9			16.4	
Peak Hour Factor	0.88	0.75	0.72	0.85	0.80	0.88	0.81	0.88	0.79	0.88	0.84	0.70
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	3%	3%
Adj. Flow (vph)	273	353	161	176	516	169	235	813	162	94	430	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	273	514	0	176	516	169	235	813	162	94	430	344
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2	12.1	12.9	31.2	12.4
Total Split (s)	22.0	40.0		16.0	34.0	13.0	23.0	51.0	16.0	13.0	41.0	22.0
Total Split (%)	18.3%	33.3%		13.3%	28.3%	10.8%	19.2%	42.5%	13.3%	10.8%	34.2%	18.3%
Maximum Green (s)	16.6	34.3		10.9	28.3	7.1	17.4	44.8	10.9	7.1	34.8	16.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6	3.0	3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6	2.1	2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2	-0.1	-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0	3.0	2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	0.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0	30.0	0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min	None	None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	17.0	35.0		11.0	29.0	42.0	17.5	46.0	62.0	8.0	36.5	58.5

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2026 Build AM - NBR

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.14	0.29		0.09	0.24	0.35	0.15	0.38	0.52	0.07	0.30	0.49
v/c Ratio	1.10	1.01		1.09	1.16	0.31	0.91	1.13	0.20	0.80	0.77	0.45
Control Delay	134.5	85.0		148.5	137.2	30.3	87.5	112.0	16.4	98.3	48.9	22.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.5	85.0		148.5	137.2	30.3	87.5	112.0	16.4	98.3	48.9	22.8
LOS	F	F		F	F	C	F	F	B	F	D	C
Approach Delay	102.2			118.5			94.5			43.9		
Approach LOS	F			F			F			D		
Queue Length 50th (ft)	~240	~405		~154	~474	95	181	~732	65	73	304	172
Queue Length 95th (ft)	#398	#458		#276	#573	150	#272	#940	92	#162	391	181
Internal Link Dist (ft)	1059			1733			6314			1002		
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	248	509		161	443	551	266	717	822	117	558	760
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	1.01		1.09	1.16	0.31	0.88	1.13	0.20	0.80	0.77	0.45

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 89.9

Intersection LOS: F

Intersection Capacity Utilization 95.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
13 s	51 s	16 s	40 s
 Ø5	 Ø6	 Ø7	 Ø8
23 s	41 s	22 s	34 s

LANE SUMMARY



Site: 101 [Matthews-Weddington Road and Chestnut Lane 2026 Build PM]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Matthews-Weddington Road NB													
Lane 1 ^d	578	2.0	1111	0.520	100	6.6	LOS A	3.1	79.9	Full	1600	0.0	0.0
Lane 2	432	2.0	1020	0.424	100	6.5	LOS A	2.2	57.1	Short	150	0.0	NA
Approach	1010	2.0		0.520		6.6	LOS A	3.1	79.9				
East: Chestnut Lane WB													
Lane 1 ^d	158	2.0	1003	0.157	100	12.3	LOS B	1.0	24.6	Full	1600	0.0	0.0
Lane 2	153	2.0	843	0.182	100	8.0	LOS A	1.1	26.9	Short	150	0.0	NA
Approach	311	2.0		0.182		10.2	LOS B	1.1	26.9				
North: Matthews-Weddington Road SB													
Lane 1	253	2.0	944	0.268	100	11.9	LOS B	1.5	37.3	Short	250	0.0	NA
Lane 2 ^d	846	2.0	1351	0.626	100	6.1	LOS A	5.6	142.5	Full	1600	0.0	0.0
Approach	1099	2.0		0.626		7.4	LOS A	5.6	142.5				
West: Driveway #1													
Lane 1 ^d	48	2.0	367	0.130	100	14.9	LOS B	0.6	14.3	Full	1600	0.0	0.0
Approach	48	2.0		0.130		14.9	LOS B	0.6	14.3				
Intersection	2468	2.0		0.626		7.6	LOS A	5.6	142.5				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Monday, April 8, 2019 6:16:01 PM

Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2026 Build PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	204	263	661	306	451	410
Future Volume (vph)	204	263	661	306	451	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		-3%			1%
Storage Length (ft)	100	0		0	225	
Storage Lanes	1	1		0	1	
Taper Length (ft)	150				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.957			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1567	1809	0	1761	1853
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1567	1809	0	1761	1853
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	1141		1607			797
Travel Time (s)	17.3		24.3			12.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	227	292	734	340	501	456
Shared Lane Traffic (%)						
Lane Group Flow (vph)	227	292	1074	0	501	456
Turn Type	Prot	pm+ov	NA		Prot	NA
Protected Phases	4	1	2		1	6
Permitted Phases		4				
Detector Phase	4	1	2		1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0
Minimum Split (s)	12.4	12.4	18.0		12.4	18.0
Total Split (s)	15.0	26.0	49.0		26.0	75.0
Total Split (%)	16.7%	28.9%	54.4%		28.9%	83.3%
Maximum Green (s)	9.6	20.6	43.0		20.6	69.0
Yellow Time (s)	3.0	3.0	4.8		3.0	4.8
All-Red Time (s)	2.4	2.4	1.2		2.4	1.2
Lost Time Adjust (s)	-0.4	-0.4	-1.0		-0.4	-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0		2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0		2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0		0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0		0.0	30.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	10.0	36.0	44.0		21.0	70.0
Actuated g/C Ratio	0.11	0.40	0.49		0.23	0.78
v/c Ratio	1.17	0.47	1.21		1.22	0.32
Control Delay	156.0	23.0	131.6		152.5	3.6
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lanes, Volumes, Timings
2: Matthews-Weddington Road & Antioch Church Road

Chestnut Farm
2026 Build PM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	156.0	23.0	131.6		152.5	3.6
LOS	F	C	F		F	A
Approach Delay	81.1		131.6			81.6
Approach LOS	F		F			F
Queue Length 50th (ft)	~155	120	~755		~353	59
Queue Length 95th (ft)	#297	193	#994		#545	89
Internal Link Dist (ft)	1061		1527			717
Turn Bay Length (ft)	100				225	
Base Capacity (vph)	194	626	884		410	1441
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	1.17	0.47	1.21		1.22	0.32

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 102.6
Intersection LOS: F
Intersection Capacity Utilization 102.2%
ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Matthews-Weddington Road & Antioch Church Road

 Ø1	 Ø2	 Ø4
26 s	49 s	15 s
 Ø6		
75 s		

LANE SUMMARY



Site: 101 [Weddington-Matthews Road and Tilley Morris Road 2026 Build PM]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Weddington-Matthews Road NB													
Lane 1	102	5.0	529	0.193	100	13.1	LOS B	1.2	30.7	Full	1600	0.0	0.0
Lane 2 ^d	301	2.0	787	0.383	100	9.1	LOS A	3.0	76.9	Short	150	0.0	NA
Approach	403	2.8		0.383		10.1	LOS B	3.0	76.9				
East: Weddington-Matthews Road WB													
Lane 1 ^d	342	2.0	1396	0.245	100	11.1	LOS B	1.4	36.7	Short	250	0.0	NA
Lane 2	338	2.4	1261	0.268	100	5.5	LOS A	1.6	40.2	Full	1600	0.0	0.0
Approach	680	2.2		0.268		8.3	LOS A	1.6	40.2				
North: Union Day School Drive SB													
Lane 1 ^d	156	2.0	796	0.196	100	3.8	LOS A	0.7	17.4	Full	1600	0.0	0.0
Approach	156	2.0		0.196		3.8	LOS A	0.7	17.4				
West: Tilley Morris Road EB													
Lane 1 ^d	729	2.0	886	0.822	100	13.0	LOS B	9.7	245.3	Full	1600	0.0	0.0
Lane 2	180	2.0	495	0.364	100	9.5	LOS A	1.4	36.5	Short	150	0.0	NA
Approach	909	2.0		0.822		12.3	LOS B	9.7	245.3				
Intersection	2148	2.2		0.822		10.0	LOS B	9.7	245.3				

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

Roundabout LOS Method: Same as Signalised Intersections.

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: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

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

^d Dominant lane on roundabout approach

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Organisation: KIMLEY-HORN & ASSOCIATES INC | Processed: Thursday, March 14, 2019 1:09:50 PM

Project: K:\CHL_PRJ\018273 Stallings\006 Chestnut and Weddington Matthews TIA\08_SYNCHRO\SIDRA\Chestnut Farm RABs.sip8

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2026 Build PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	483	156	239	575	174	193	425	133	237	530	173
Future Volume (vph)	237	483	156	239	575	174	193	425	133	237	530	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1844	1567	1761	1853	1575	1778	1805	0	1761	1853	1575
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1844	1567	1761	1853	1575	1778	1805	0	1761	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6392			1082	
Travel Time (s)		17.3			27.5			96.8			16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	263	537	173	266	639	193	214	472	148	263	589	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	537	173	266	639	193	214	620	0	263	589	192
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Detector Phase	7	4	5	3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	12.0		7.0	12.0	7.0
Minimum Split (s)	12.4	28.7	12.6	12.1	22.7	12.9	12.6	29.2		12.9	31.2	12.4
Total Split (s)	21.0	38.0	18.0	22.0	39.0	20.0	18.0	40.0		20.0	42.0	21.0
Total Split (%)	17.5%	31.7%	15.0%	18.3%	32.5%	16.7%	15.0%	33.3%		16.7%	35.0%	17.5%
Maximum Green (s)	15.6	32.3	12.4	16.9	33.3	14.1	12.4	33.8		14.1	35.8	15.6
Yellow Time (s)	3.0	4.4	3.0	3.0	4.4	3.0	3.0	4.6		3.0	4.6	3.0
All-Red Time (s)	2.4	1.3	2.6	2.1	1.3	2.9	2.6	1.6		2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7	-0.6	-0.1	-0.7	-0.9	-0.6	-1.2		-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	2.0	2.0	6.0	2.0	2.0	6.0		2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0	2.0	3.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0		0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0		0.0	30.0	0.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	16.0	33.0	51.0	17.0	34.0	54.0	13.0	35.0		15.0	37.0	58.0
Actuated g/C Ratio	0.13	0.28	0.42	0.14	0.28	0.45	0.11	0.29		0.12	0.31	0.48

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2026 Build PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	1.13	1.06	0.26	1.07	1.22	0.27	1.11	1.18		1.20	1.03	0.25
Control Delay	145.0	98.7	23.7	125.2	152.0	22.0	147.8	137.2		168.6	87.1	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	145.0	98.7	23.7	125.2	152.0	22.0	147.8	137.2		168.6	87.1	19.4
LOS	F	F	C	F	F	C	F	F		F	F	B
Approach Delay		97.9			122.7			139.9			95.2	
Approach LOS		F			F			F			F	
Queue Length 50th (ft)	~236	~457	85	~228	~607	92	~190	~575		~247	~489	85
Queue Length 95th (ft)	#405	#673	138	#399	#834	146	#346	#801		#416	#711	135
Internal Link Dist (ft)		1059			1733			6312			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	233	507	665	249	525	708	192	526		220	571	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.13	1.06	0.26	1.07	1.22	0.27	1.11	1.18		1.20	1.03	0.25

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.22

Intersection Signal Delay: 112.9

Intersection LOS: F

Intersection Capacity Utilization 103.6%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
20 s	40 s	22 s	38 s
 Ø5	 Ø6	 Ø7	 Ø8
18 s	42 s	21 s	39 s

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2026 Build PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	261	131	47	151	65	100	403	28	133	736	133
Future Volume (vph)	186	261	131	47	151	65	100	403	28	133	736	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			3%	
Storage Length (ft)	135		0	150		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	50			150			65			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor											1.00	
Frt		0.950			0.955			0.990			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1761	0	1796	1806	0	1761	1835	0	1743	1787	0
Flt Permitted	0.556			0.251			0.125			0.418		
Satd. Flow (perm)	1031	1761	0	475	1806	0	232	1835	0	767	1787	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		569			1080			1141			1098	
Travel Time (s)		11.1			21.0			22.2			21.4	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	207	290	146	52	168	72	111	448	31	148	818	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	436	0	52	240	0	111	479	0	148	966	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	21.8	21.8		19.0	19.0		23.9	23.9		19.8	19.8	
Total Split (s)	23.0	23.0		23.0	23.0		37.0	37.0		37.0	37.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		61.7%	61.7%		61.7%	61.7%	
Maximum Green (s)	17.2	17.2		17.0	17.0		31.1	31.1		31.2	31.2	
Yellow Time (s)	3.8	3.8		4.1	4.1		3.8	3.8		3.7	3.7	
All-Red Time (s)	2.0	2.0		1.9	1.9		2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	-0.8	-0.8		-1.0	-1.0		-0.9	-0.9		-0.8	-0.8	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0	1.0		1.0	1.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		8.0	8.0		13.0	13.0		9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	16.6	16.6		16.6	16.6		32.0	32.0		32.0	32.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.55	0.55		0.55	0.55	
v/c Ratio	0.71	0.87		0.39	0.47		0.88	0.48		0.35	0.99	

Lanes, Volumes, Timings
5: Potter Road & Chestnut Lane

Chestnut Farm
2026 Build PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	34.6	40.9		26.5	20.7		76.5	10.6		11.1	43.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.6	40.9		26.5	20.7		76.5	10.6		11.1	43.8	
LOS	C	D		C	C		E	B		B	D	
Approach Delay		38.9			21.8			23.0			39.5	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	65	145		15	69		33	99		28	~331	
Queue Length 95th (ft)	#153	#286		45	125		#124	166		65	#583	
Internal Link Dist (ft)		489			1000			1061			1018	
Turn Bay Length (ft)	135			150			150			150		
Base Capacity (vph)	316	540		145	554		126	1001		419	975	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.66	0.81		0.36	0.43		0.88	0.48		0.35	0.99	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 33.7

Intersection LOS: C

Intersection Capacity Utilization 99.4%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Potter Road & Chestnut Lane

					
Ø2			Ø4		
37 s			23 s		
					
Ø6			Ø8		
37 s			23 s		

Lanes, Volumes, Timings
6: Matthews-Weddington Road & Driveway #2

Chestnut Farm
2026 Build PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	909	869	8
Future Volume (vph)	0	5	0	909	869	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.999	
Flt Protected						
Satd. Flow (prot)	0	1611	0	1863	1861	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1863	1861	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1094			797	359	
Travel Time (s)	29.8			12.1	5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	6	0	1010	966	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	6	0	1010	975	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization 56.2%	ICU Level of Service B
Analysis Period (min) 15	

HCM Unsignalized Intersection Capacity Analysis

6: Matthews-Weddington Road & Driveway #2

Chestnut Farm
2026 Build PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	0	909	869	8
Future Volume (Veh/h)	0	5	0	909	869	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	6	0	1010	966	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				797		
pX, platoon unblocked	0.54					
vC, conflicting volume	1980	970	975			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2384	970	975			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	20	307	707			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	1010	975			
Volume Left	0	0	0			
Volume Right	6	0	9			
cSH	307	1700	1700			
Volume to Capacity	0.02	0.59	0.57			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	17.0	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	17.0	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			56.2%	ICU Level of Service		B
Analysis Period (min)			15			

Lanes, Volumes, Timings
7: Matthews-Weddington Road & Driveway #3

Chestnut Farm
2026 Build PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	629	1014	13
Future Volume (vph)	0	5	0	629	1014	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.998	
Flt Protected						
Satd. Flow (prot)	0	1611	0	1872	1859	0
Flt Permitted						
Satd. Flow (perm)	0	1611	0	1872	1859	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1035			426	6392	
Travel Time (s)	28.2			6.5	96.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	6	0	699	1127	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	6	0	699	1141	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 64.2% ICU Level of Service C
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

7: Matthews-Weddington Road & Driveway #3

Chestnut Farm
2026 Build PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗	↗	
Traffic Volume (veh/h)	0	5	0	629	1014	13
Future Volume (Veh/h)	0	5	0	629	1014	13
Sign Control	Stop			Free	Free	
Grade	0%			-1%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	6	0	699	1127	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1833	1134	1141			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1833	1134	1141			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	84	247	612			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	699	1141			
Volume Left	0	0	0			
Volume Right	6	0	14			
cSH	247	1700	1700			
Volume to Capacity	0.02	0.41	0.67			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	20.0	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	20.0	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization		64.2%		ICU Level of Service		C
Analysis Period (min)		15				

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	483	156	239	575	174	193	425	133	237	530	173
Future Volume (vph)	237	483	156	239	575	174	193	425	133	237	530	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			1%	
Storage Length (ft)	135		0	175		175	100		0	375		125
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	70			150			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1776	0	1761	1853	1575	1778	1872	1591	1761	1853	1575
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1776	0	1761	1853	1575	1778	1872	1591	1761	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1139			1813			6392			1082	
Travel Time (s)		17.3			27.5			96.8			16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	263	537	173	266	639	193	214	472	148	263	589	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	710	0	266	639	193	214	472	148	263	589	192
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	12.4	28.7		12.1	22.7	12.9	12.6	29.2	12.1	12.9	31.2	12.4
Total Split (s)	21.0	45.0		20.0	44.0	21.0	17.0	34.0	20.0	21.0	38.0	21.0
Total Split (%)	17.5%	37.5%		16.7%	36.7%	17.5%	14.2%	28.3%	16.7%	17.5%	31.7%	17.5%
Maximum Green (s)	15.6	39.3		14.9	38.3	15.1	11.4	27.8	14.9	15.1	31.8	15.6
Yellow Time (s)	3.0	4.4		3.0	4.4	3.0	3.0	4.6	3.0	3.0	4.6	3.0
All-Red Time (s)	2.4	1.3		2.1	1.3	2.9	2.6	1.6	2.1	2.9	1.6	2.4
Lost Time Adjust (s)	-0.4	-0.7		-0.1	-0.7	-0.9	-0.6	-1.2	-0.1	-0.9	-1.2	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0		2.0	6.0	2.0	2.0	6.0	2.0	2.0	6.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0	2.0	2.0	3.0	3.0	2.0	3.0	2.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	0.0	0.0	15.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0	0.0	0.0	30.0	30.0	0.0	30.0	0.0
Recall Mode	None	None		None	None	None	None	Min	None	None	Min	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			10.0			16.0			18.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	16.0	40.0		15.0	39.0	60.0	12.0	29.0	49.0	16.0	33.0	54.0
Actuated g/C Ratio	0.13	0.33		0.12	0.32	0.50	0.10	0.24	0.41	0.13	0.28	0.45

Lanes, Volumes, Timings
4: Matthews-Weddington Road & McKee Road

Chestnut Farm
2021 Build IMP PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	1.13	1.20		1.21	1.06	0.25	1.21	1.04	0.23	1.12	1.16	0.27
Control Delay	145.0	141.5		173.3	93.5	18.1	180.7	98.8	24.4	143.4	130.6	22.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	145.0	141.5		173.3	93.5	18.1	180.7	98.8	24.4	143.4	130.6	22.0
LOS	F	F		F	F	B	F	F	C	F	F	C
Approach Delay		142.4			99.6			106.6			113.8	
Approach LOS		F			F			F			F	
Queue Length 50th (ft)	~236	~667		~251	~545	83	~202	~396	74	~235	~539	91
Queue Length 95th (ft)	#405	#901		#422	#772	131	#358	#604	123	#404	#761	145
Internal Link Dist (ft)		1059			1733			6312			1002	
Turn Bay Length (ft)	135			175		175	100			375		125
Base Capacity (vph)	233	592		220	602	787	177	452	649	234	509	708
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	1.20		1.21	1.06	0.25	1.21	1.04	0.23	1.12	1.16	0.27

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 115.4

Intersection LOS: F

Intersection Capacity Utilization 103.4%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Matthews-Weddington Road & McKee Road

 Ø1	 Ø2	 Ø3	 Ø4
21 s	34 s	20 s	45 s
 Ø5	 Ø6	 Ø7	 Ø8
17 s	38 s	21 s	44 s

Queuing and Blocking Reports

2018 Existing Conditions

Queuing and Blocking Report
2018 Existing AM

02/06/2019

Intersection: 1: Matthews-Weddington Road & Chestnut Lane

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	1967	36	223
Average Queue (ft)	717	2	57
95th Queue (ft)	1973	15	166
Link Distance (ft)	8417	289	6918
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	249	505	876	171	216
Average Queue (ft)	108	174	313	76	99
95th Queue (ft)	214	366	655	134	171
Link Distance (ft)		1089	1554		720
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			225	
Storage Blk Time (%)	8	21		0	0
Queuing Penalty (veh)	38	70		0	0

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	LT	R	LTR
Maximum Queue (ft)	57	105	21	1022	200	647
Average Queue (ft)	12	36	1	419	91	164
95th Queue (ft)	40	85	10	1111	255	518
Link Distance (ft)	1080	1074		988		958
Upstream Blk Time (%)				25		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)			50		150	
Storage Blk Time (%)		2	0	40	1	
Queuing Penalty (veh)		1	0	153	1	

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	204	353	164	304	153	200	616	90	223	195
Average Queue (ft)	97	131	54	146	49	112	371	37	112	64
95th Queue (ft)	185	266	114	258	114	238	572	77	199	144
Link Distance (ft)		1093		1770			6918		1037	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	135		175		175	100		375		125
Storage Blk Time (%)	2	8		7		2	51		7	1
Queuing Penalty (veh)	8	15		15		14	65		20	3

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	125	219	56	143	171	248	145	170
Average Queue (ft)	45	93	9	56	49	127	54	73
95th Queue (ft)	96	172	34	112	109	213	112	135
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	0	3		0		4	1	0
Queuing Penalty (veh)	0	3		0		5	2	0

Network Summary

Network wide Queuing Penalty: 416

Intersection: 1: Matthews-Weddington Road & Chestnut Lane

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	1471	46	456
Average Queue (ft)	597	9	194
95th Queue (ft)	1425	31	401
Link Distance (ft)	8417	289	6918
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	158	235	756	298	249
Average Queue (ft)	72	112	390	157	60
95th Queue (ft)	131	201	699	267	157
Link Distance (ft)		1089	1554		720
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			225	
Storage Blk Time (%)	4	14		5	0
Queuing Penalty (veh)	8	22		14	0

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	LT	R	LTR
Maximum Queue (ft)	78	218	35	204	156	206
Average Queue (ft)	11	85	1	56	19	60
95th Queue (ft)	44	163	25	154	111	155
Link Distance (ft)	1080	1074		988		958
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50		150	
Storage Blk Time (%)		14		6	2	
Queuing Penalty (veh)		3		12	2	

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	786	322	672	325	200	683	248	427	225
Average Queue (ft)	126	309	138	257	82	147	376	118	231	99
95th Queue (ft)	243	671	289	531	243	261	630	215	387	238
Link Distance (ft)		1093		1770			6918		1037	
Upstream Blk Time (%)		0								
Queuing Penalty (veh)		0								
Storage Bay Dist (ft)	135		175		175	100		375		125
Storage Blk Time (%)	11	27	12	18		15	62		29	0
Queuing Penalty (veh)	59	52	74	59		60	86		92	1

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	185	263	75	120	132	179	179	311
Average Queue (ft)	77	120	22	47	43	77	56	159
95th Queue (ft)	153	213	52	96	99	138	136	257
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	1	6		0	1	0		7
Queuing Penalty (veh)	3	9		0	2	0		7

Network Summary

Network wide Queuing Penalty: 565

2021 Background Conditions

Intersection: 1: Matthews-Weddington Road & Chestnut Lane

Movement	WB	WB	NB	NB	B7	SB	SB
Directions Served	L	R	T	R	T	L	T
Maximum Queue (ft)	298	153	366	276	240	96	138
Average Queue (ft)	92	30	139	82	36	15	50
95th Queue (ft)	235	120	354	260	183	61	113
Link Distance (ft)	8404		276		720		6886
Upstream Blk Time (%)			14	1			
Queuing Penalty (veh)			119	0			
Storage Bay Dist (ft)		150		150		250	
Storage Blk Time (%)	8		28	0			
Queuing Penalty (veh)	5		56	0			

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	B14	SB	SB	B7
Directions Served	L	R	TR	T	L	T	T
Maximum Queue (ft)	250	1139	1472	109	324	552	70
Average Queue (ft)	189	590	662	2	157	186	4
95th Queue (ft)	304	1336	1210	36	299	453	55
Link Distance (ft)		1089	1545	1041		720	276
Upstream Blk Time (%)		33	2			1	0
Queuing Penalty (veh)		0	8			6	1
Storage Bay Dist (ft)	100				225		
Storage Blk Time (%)	34	46			11	6	
Queuing Penalty (veh)	150	178			49	10	

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	EB	WB	WB	B14	NB	NB	SB
Directions Served	LT	R	L	TR	T	LT	R	LTR
Maximum Queue (ft)	146	68	450	1124	1551	995	300	982
Average Queue (ft)	45	13	214	485	382	444	142	400
95th Queue (ft)	103	46	528	1273	1395	1170	379	1058
Link Distance (ft)	1057			1041	1545	955		946
Upstream Blk Time (%)				33	2	32		23
Queuing Penalty (veh)				269	13	0		0
Storage Bay Dist (ft)		150	250				150	
Storage Blk Time (%)	0		5	42		46		
Queuing Penalty (veh)	0		24	107		196		

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	567	324	578	325	200	982	155	421	225
Average Queue (ft)	161	258	130	249	90	137	584	64	153	88
95th Queue (ft)	243	510	259	507	244	236	935	128	288	199
Link Distance (ft)		1093		1770			6886		1037	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	135		175		175	100		375		125
Storage Blk Time (%)	32	22	5	26	0	18	55		13	2
Queuing Penalty (veh)	110	45	24	67	1	127	82		40	8

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	150	233	45	196	193	331	161	252
Average Queue (ft)	57	106	7	69	67	154	60	94
95th Queue (ft)	115	184	28	142	152	261	129	216
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	1	4		1	1	7	3	1
Queuing Penalty (veh)	2	4		0	5	9	14	1

Network Summary

Network wide Queuing Penalty: 1730

Intersection: 1: Matthews-Weddington Road & Chestnut Lane

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	55	62	113	94	115	215
Average Queue (ft)	25	21	44	36	41	96
95th Queue (ft)	55	53	93	78	93	189
Link Distance (ft)	8404		276			6886
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150		150	250	
Storage Blk Time (%)			0			0
Queuing Penalty (veh)			0			0

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	B14	SB	SB	B7
Directions Served	L	R	TR	T	L	T	T
Maximum Queue (ft)	241	415	1586	491	324	569	53
Average Queue (ft)	117	169	1022	89	244	219	7
95th Queue (ft)	218	333	1743	491	363	626	60
Link Distance (ft)		1089	1545	1041		720	276
Upstream Blk Time (%)			18	1		3	0
Queuing Penalty (veh)			136	9		20	0
Storage Bay Dist (ft)	100				225		
Storage Blk Time (%)	14	34			29	0	
Queuing Penalty (veh)	30	60			99	0	

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	L	TR	LT	R	LTR
Maximum Queue (ft)	315	164	96	57	55	24	77
Average Queue (ft)	130	33	29	17	19	2	25
95th Queue (ft)	272	115	70	45	47	14	60
Link Distance (ft)	1057			1041	955		946
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		150	250			150	
Storage Blk Time (%)	13						
Queuing Penalty (veh)	18						

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	1139	324	656	325	200	1228	474	654	225
Average Queue (ft)	179	940	206	322	101	168	744	213	312	131
95th Queue (ft)	255	1428	347	633	278	251	1528	397	559	283
Link Distance (ft)		1093		1770			6886		1037	
Upstream Blk Time (%)		50								
Queuing Penalty (veh)		0								
Storage Bay Dist (ft)	135		175		175	100		375		125
Storage Blk Time (%)	32	59	20	30		30	67	1	41	1
Queuing Penalty (veh)	169	117	124	104		139	104	6	143	3

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	184	293	58	132	188	391	200	473
Average Queue (ft)	85	133	22	63	75	123	80	219
95th Queue (ft)	156	234	49	117	168	401	192	394
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)						1		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	3	7		0	9	1		17
Queuing Penalty (veh)	10	11		0	35	1		19

Network Summary

Network wide Queuing Penalty: 1356

2021 Build-out Conditions

Intersection: 1: Matthews-Weddington Road & Driveway #1/Chestnut Lane

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	100	300	112	280	271	129	205
Average Queue (ft)	24	78	24	109	65	21	61
95th Queue (ft)	84	235	101	286	229	111	183
Link Distance (ft)	972	8402		275			339
Upstream Blk Time (%)				3	0	0	2
Queuing Penalty (veh)				29	0	0	10
Storage Bay Dist (ft)			150		150	250	
Storage Blk Time (%)		4		26	0		4
Queuing Penalty (veh)		3		51	3		1

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	B14	SB	SB
Directions Served	L	R	TR	T	L	T
Maximum Queue (ft)	250	1138	1523	144	314	499
Average Queue (ft)	178	517	604	5	158	193
95th Queue (ft)	302	1243	1245	62	309	522
Link Distance (ft)		1089	1545	1041		721
Upstream Blk Time (%)		27	3			3
Queuing Penalty (veh)		0	16			21
Storage Bay Dist (ft)	100				225	
Storage Blk Time (%)	28	44			16	3
Queuing Penalty (veh)	129	166			74	5

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	EB	WB	WB	B14	NB	NB	SB
Directions Served	LT	R	L	TR	T	LT	R	LTR
Maximum Queue (ft)	125	68	450	1124	1324	1004	300	986
Average Queue (ft)	41	10	183	435	271	377	122	359
95th Queue (ft)	96	38	502	1193	1109	1078	354	1022
Link Distance (ft)	1057			1041	1545	955		946
Upstream Blk Time (%)				27	1	26		22
Queuing Penalty (veh)				225	6	0		0
Storage Bay Dist (ft)		150	250				150	
Storage Blk Time (%)	0		2	39		38		
Queuing Penalty (veh)	0		14	102		161		

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	794	325	697	325	200	1049	152	350	225
Average Queue (ft)	158	305	129	285	99	144	516	60	152	79
95th Queue (ft)	239	741	276	663	258	255	908	118	264	177
Link Distance (ft)		1094		1781			6324		1037	
Upstream Blk Time (%)		3								
Queuing Penalty (veh)		0								
Storage Bay Dist (ft)	135		175		175	100		375		125
Storage Blk Time (%)	28	25	1	26	0	21	51		15	2
Queuing Penalty (veh)	92	52	7	68	2	150	83		43	9

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	184	304	56	183	214	350	179	417
Average Queue (ft)	60	105	10	65	62	157	72	125
95th Queue (ft)	135	202	35	130	148	279	153	414
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	1	4		0	1	7	8	1
Queuing Penalty (veh)	3	4		0	5	11	27	1

Intersection: 6: Matthews-Weddington Road & Driveway #2

Movement	EB	NB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	34	476	134
Average Queue (ft)	7	98	22
95th Queue (ft)	28	440	152
Link Distance (ft)	1022	721	275
Upstream Blk Time (%)		0	4
Queuing Penalty (veh)		1	22
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Matthews-Weddington Road & Driveway #3

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	34	201
Average Queue (ft)	5	33
95th Queue (ft)	24	306
Link Distance (ft)	1003	6324
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1596

Intersection: 1: Matthews-Weddington Road & Driveway #1/Chestnut Lane

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	58	87	64	122	93	193	281
Average Queue (ft)	16	26	19	43	35	53	126
95th Queue (ft)	44	64	51	91	74	168	278
Link Distance (ft)	970	8402		274			347
Upstream Blk Time (%)						0	1
Queuing Penalty (veh)						0	7
Storage Bay Dist (ft)			150		150	250	
Storage Blk Time (%)		0		0			8
Queuing Penalty (veh)		0		0			15

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	B14	SB	SB
Directions Served	L	R	TR	T	L	T
Maximum Queue (ft)	250	380	1638	781	324	511
Average Queue (ft)	115	179	977	128	225	174
95th Queue (ft)	228	342	1795	614	367	518
Link Distance (ft)		1089	1545	1041		721
Upstream Blk Time (%)			21	2		2
Queuing Penalty (veh)			166	16		12
Storage Bay Dist (ft)	100				225	
Storage Blk Time (%)	14	44			25	0
Queuing Penalty (veh)	31	75			88	1

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	L	TR	LT	R	LTR
Maximum Queue (ft)	513	221	78	64	66	41	64
Average Queue (ft)	145	46	23	18	18	3	25
95th Queue (ft)	427	172	58	48	48	20	60
Link Distance (ft)	1057			1041	955		946
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		150	250			150	
Storage Blk Time (%)	18	0					
Queuing Penalty (veh)	24	2					

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	1139	325	906	325	200	1277	474	752	225
Average Queue (ft)	179	841	213	394	137	149	657	245	367	129
95th Queue (ft)	252	1400	368	790	338	253	1245	479	728	281
Link Distance (ft)		1094		1781			6321		1037	
Upstream Blk Time (%)		38							2	
Queuing Penalty (veh)		0							0	
Storage Bay Dist (ft)	135		175		175	100		375		125
Storage Blk Time (%)	30	56	18	35	0	25	63	9	41	1
Queuing Penalty (veh)	165	111	117	124	3	121	104	54	143	4

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	184	306	74	152	197	512	200	514
Average Queue (ft)	92	137	26	63	88	140	78	216
95th Queue (ft)	184	263	58	120	190	435	174	386
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	6	9		0	16	1	0	16
Queuing Penalty (veh)	20	14		0	59	1	0	18

Intersection: 6: Matthews-Weddington Road & Driveway #2

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	28	65
Average Queue (ft)	4	14
95th Queue (ft)	19	119
Link Distance (ft)	1063	274
Upstream Blk Time (%)		2
Queuing Penalty (veh)		11
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Matthews-Weddington Road & Driveway #3

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	25	221
Average Queue (ft)	3	29
95th Queue (ft)	19	210
Link Distance (ft)	1001	6321
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1506

2021 Build-out Conditions
Improved

Intersection: 1: Matthews-Weddington Road & Driveway #1/Chestnut Lane

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	62	262	105	290	275	120	205
Average Queue (ft)	20	72	19	120	86	14	55
95th Queue (ft)	53	176	78	314	273	66	156
Link Distance (ft)	972	8402		275			339
Upstream Blk Time (%)				4	0	0	1
Queuing Penalty (veh)				38	0	0	3
Storage Bay Dist (ft)			150		150	250	
Storage Blk Time (%)		4		33	0		1
Queuing Penalty (veh)		3		66	1		1

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	250	1131	1320	296	494
Average Queue (ft)	176	463	485	140	141
95th Queue (ft)	293	1202	1022	286	406
Link Distance (ft)		1089	1545		721
Upstream Blk Time (%)		23			1
Queuing Penalty (veh)		0			9
Storage Bay Dist (ft)	100			225	
Storage Blk Time (%)	40	26		9	3
Queuing Penalty (veh)	186	99		44	5

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	EB	WB	WB	B14	NB	NB	SB
Directions Served	LT	R	L	TR	T	LT	R	LTR
Maximum Queue (ft)	121	66	450	1123	1502	1004	300	986
Average Queue (ft)	34	10	194	446	308	377	120	362
95th Queue (ft)	81	37	512	1212	1224	1084	352	1027
Link Distance (ft)	1057			1041	1545	955		946
Upstream Blk Time (%)				29	1	25		22
Queuing Penalty (veh)				243	7	0		0
Storage Bay Dist (ft)		150	250				150	
Storage Blk Time (%)	0		1	38		38		
Queuing Penalty (veh)	0		6	100		162		

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	540	323	295	727	325	200	1074	150	361	225
Average Queue (ft)	148	193	57	121	271	98	139	554	60	153	80
95th Queue (ft)	231	484	200	258	610	252	247	990	113	272	185
Link Distance (ft)		1093	1093		1781			6312		1037	
Upstream Blk Time (%)		0	0								
Queuing Penalty (veh)		0	0								
Storage Bay Dist (ft)	135			175		175	100		375		125
Storage Blk Time (%)	26	8		1	24	0	23	51		15	2
Queuing Penalty (veh)	61	17		6	64	1	163	83		44	9

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	172	245	64	178	200	340	183	426
Average Queue (ft)	55	106	11	67	63	157	72	131
95th Queue (ft)	124	192	39	128	152	276	159	450
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)								1
Queuing Penalty (veh)								0
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	0	4		1	1	7	8	1
Queuing Penalty (veh)	1	4		0	4	10	31	2

Intersection: 6: Matthews-Weddington Road & Driveway #2

Movement	EB	NB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	30	628	122
Average Queue (ft)	7	166	11
95th Queue (ft)	28	625	102
Link Distance (ft)	1022	721	275
Upstream Blk Time (%)		1	1
Queuing Penalty (veh)		7	8
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Matthews-Weddington Road & Driveway #3

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	30	36
Average Queue (ft)	5	2
95th Queue (ft)	23	31
Link Distance (ft)	1003	6312
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1486

Intersection: 1: Matthews-Weddington Road & Driveway #1/Chestnut Lane

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	53	76	62	112	89	199	314
Average Queue (ft)	17	27	20	45	34	51	126
95th Queue (ft)	45	61	51	90	72	155	285
Link Distance (ft)	970	8402		274			347
Upstream Blk Time (%)						0	1
Queuing Penalty (veh)						0	5
Storage Bay Dist (ft)			150		150	250	
Storage Blk Time (%)				0			7
Queuing Penalty (veh)				0			13

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	B14	SB	SB
Directions Served	L	R	TR	T	L	T
Maximum Queue (ft)	226	346	1551	268	317	466
Average Queue (ft)	109	113	813	31	207	136
95th Queue (ft)	199	255	1555	192	346	442
Link Distance (ft)		1089	1545	1041		721
Upstream Blk Time (%)			11			1
Queuing Penalty (veh)			83			8
Storage Bay Dist (ft)	100				225	
Storage Blk Time (%)	24	5			18	0
Queuing Penalty (veh)	54	9			60	1

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	L	TR	LT	R	LTR
Maximum Queue (ft)	572	266	85	82	70	42	62
Average Queue (ft)	160	52	26	18	19	4	24
95th Queue (ft)	483	193	62	52	48	23	55
Link Distance (ft)	1057			1041	955		946
Upstream Blk Time (%)	0						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)		150	250			150	
Storage Blk Time (%)	19						
Queuing Penalty (veh)	26						

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	833	478	325	1275	325	200	1170	474	688	225
Average Queue (ft)	169	354	69	215	535	144	156	608	220	317	116
95th Queue (ft)	242	687	217	377	1162	355	255	1137	424	613	266
Link Distance (ft)		1093	1093		1781			6308		1037	
Upstream Blk Time (%)		0	0		1					1	
Queuing Penalty (veh)		0	0		0					0	
Storage Bay Dist (ft)	135			175		175	100		375		125
Storage Blk Time (%)	30	35		15	44	0	27	63	7	37	0
Queuing Penalty (veh)	122	70		93	153	2	128	103	45	129	2

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	184	323	95	153	191	206	200	544
Average Queue (ft)	91	133	26	64	77	93	80	223
95th Queue (ft)	178	258	64	119	160	175	182	399
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	3	9	0	0	8	1		16
Queuing Penalty (veh)	10	14	0	0	31	1		18

Intersection: 6: Matthews-Weddington Road & Driveway #2

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	28	64
Average Queue (ft)	4	10
95th Queue (ft)	19	91
Link Distance (ft)	1063	274
Upstream Blk Time (%)		1
Queuing Penalty (veh)		5
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Matthews-Weddington Road & Driveway #3

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	29	120
Average Queue (ft)	4	15
95th Queue (ft)	20	108
Link Distance (ft)	1001	6308
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1183

2026 Build-out +5 Conditions

Intersection: 1: Matthews-Weddington Road & Driveway #1/Chestnut Lane

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	72	320	158	295	275	116	261
Average Queue (ft)	24	89	30	228	179	15	76
95th Queue (ft)	58	221	116	383	374	45	194
Link Distance (ft)	972	8402		275			339
Upstream Blk Time (%)				8	1		1
Queuing Penalty (veh)				95	0		4
Storage Bay Dist (ft)			150		150	250	
Storage Blk Time (%)		7		75	1		2
Queuing Penalty (veh)		6		169	9		1

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	B14	SB	SB
Directions Served	L	R	TR	T	L	T
Maximum Queue (ft)	250	1131	1625	364	324	699
Average Queue (ft)	217	572	744	29	172	220
95th Queue (ft)	299	1294	1459	209	342	604
Link Distance (ft)		1089	1545	1041		721
Upstream Blk Time (%)		33	9			3
Queuing Penalty (veh)		0	57			26
Storage Bay Dist (ft)	100				225	
Storage Blk Time (%)	50	38			18	8
Queuing Penalty (veh)	255	171			104	18

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	EB	WB	WB	B14	NB	NB	SB
Directions Served	LT	R	L	TR	T	LT	R	LTR
Maximum Queue (ft)	174	52	450	1122	1521	1006	300	981
Average Queue (ft)	48	9	295	643	385	417	130	373
95th Queue (ft)	117	32	602	1353	1366	1142	363	1036
Link Distance (ft)	1057			1041	1545	955		946
Upstream Blk Time (%)				36	1	33		24
Queuing Penalty (veh)				359	13	0		0
Storage Bay Dist (ft)		150	250				150	
Storage Blk Time (%)	2		3	65		41		
Queuing Penalty (veh)	1		17	191		209		

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	1125	1121	325	1637	325	200	3096	204	437	225
Average Queue (ft)	189	627	315	209	797	185	145	1905	78	177	108
95th Queue (ft)	240	1248	1048	393	1674	404	247	3434	184	322	228
Link Distance (ft)		1093	1093		1781			6312		1037	
Upstream Blk Time (%)		20	9		3						
Queuing Penalty (veh)		0	0		0						
Storage Bay Dist (ft)	135			175		175	100		375		125
Storage Blk Time (%)	64	25		6	60	1	24	54	0	19	4
Queuing Penalty (veh)	170	61		35	179	5	199	102	1	62	17

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	185	291	78	178	214	609	200	1111
Average Queue (ft)	67	118	12	80	113	240	112	396
95th Queue (ft)	134	219	45	145	238	533	227	1118
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)						1		20
Queuing Penalty (veh)						0		0
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	1	6		1	4	16	34	5
Queuing Penalty (veh)	4	7		0	26	29	145	5

Intersection: 6: Matthews-Weddington Road & Driveway #2

Movement	EB	NB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	38	729	210
Average Queue (ft)	9	338	28
95th Queue (ft)	33	817	165
Link Distance (ft)	1022	721	275
Upstream Blk Time (%)		2	3
Queuing Penalty (veh)		19	23
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Matthews-Weddington Road & Driveway #1/Chestnut Lane

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	53	71	57	112	102	296	342
Average Queue (ft)	18	26	21	46	40	76	200
95th Queue (ft)	47	59	51	98	81	224	391
Link Distance (ft)	970	8402		274			347
Upstream Blk Time (%)						0	3
Queuing Penalty (veh)						0	27
Storage Bay Dist (ft)			150		150	250	
Storage Blk Time (%)				0	0		23
Queuing Penalty (veh)				0	0		52

Intersection: 2: Matthews-Weddington Road & Antioch Church Road

Movement	WB	WB	NB	B14	SB	SB
Directions Served	L	R	TR	T	L	T
Maximum Queue (ft)	250	720	1652	1115	324	654
Average Queue (ft)	170	268	1325	459	268	382
95th Queue (ft)	287	715	2094	1247	406	894
Link Distance (ft)		1089	1545	1041		721
Upstream Blk Time (%)		4	56	19		11
Queuing Penalty (veh)		0	525	175		94
Storage Bay Dist (ft)	100				225	
Storage Blk Time (%)	54	9			46	0
Queuing Penalty (veh)	142	18			190	0

Intersection: 3: Weddington-Matthews Road/Union Day School Driveway & Tilley Morris Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	L	TR	LT	R	LTR
Maximum Queue (ft)	1106	300	83	83	82	62	85
Average Queue (ft)	609	198	28	22	29	12	33
95th Queue (ft)	1288	415	68	57	65	46	70
Link Distance (ft)	1057			1041	955		946
Upstream Blk Time (%)	33						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)		150	250			150	
Storage Blk Time (%)	74	0					
Queuing Penalty (veh)	121	2					

Intersection: 4: Matthews-Weddington Road & McKee Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	205	1144	1133	325	1835	325	200	2206	475	1041	225
Average Queue (ft)	188	857	627	262	1431	224	157	1025	363	701	137
95th Queue (ft)	248	1401	1474	411	2374	441	254	2238	598	1260	297
Link Distance (ft)		1093	1093		1781			6308		1037	
Upstream Blk Time (%)		46	27		49					24	
Queuing Penalty (veh)		0	0		0					0	
Storage Bay Dist (ft)	135			175		175	100		375		125
Storage Blk Time (%)	46	48		15	59	0	28	61	34	53	0
Queuing Penalty (veh)	220	113		110	244	0	158	117	242	216	2

Intersection: 5: Potter Road & Chestnut Lane

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	185	364	72	159	215	1069	200	1001
Average Queue (ft)	106	163	29	69	148	551	123	581
95th Queue (ft)	203	311	64	128	275	1297	247	1228
Link Distance (ft)		510		1027		1088		1065
Upstream Blk Time (%)		0				30		21
Queuing Penalty (veh)		0				0		0
Storage Bay Dist (ft)	135		150		150		150	
Storage Blk Time (%)	5	14		0	59	4	1	33
Queuing Penalty (veh)	20	26		0	258	4	9	43

Intersection: 6: Matthews-Weddington Road & Driveway #2

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	33	267
Average Queue (ft)	5	94
95th Queue (ft)	22	314
Link Distance (ft)	1063	274
Upstream Blk Time (%)		8
Queuing Penalty (veh)		66
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Matthews-Weddington Road & Driveway #3

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	36	791
Average Queue (ft)	5	153
95th Queue (ft)	25	737
Link Distance (ft)	1001	6308
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3195

Intersection: 7: Matthews-Weddington Road & Driveway #3

Movement	EB	SB
Directions Served	R	TR
Maximum Queue (ft)	30	67
Average Queue (ft)	6	5
95th Queue (ft)	26	61
Link Distance (ft)	1003	6312
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

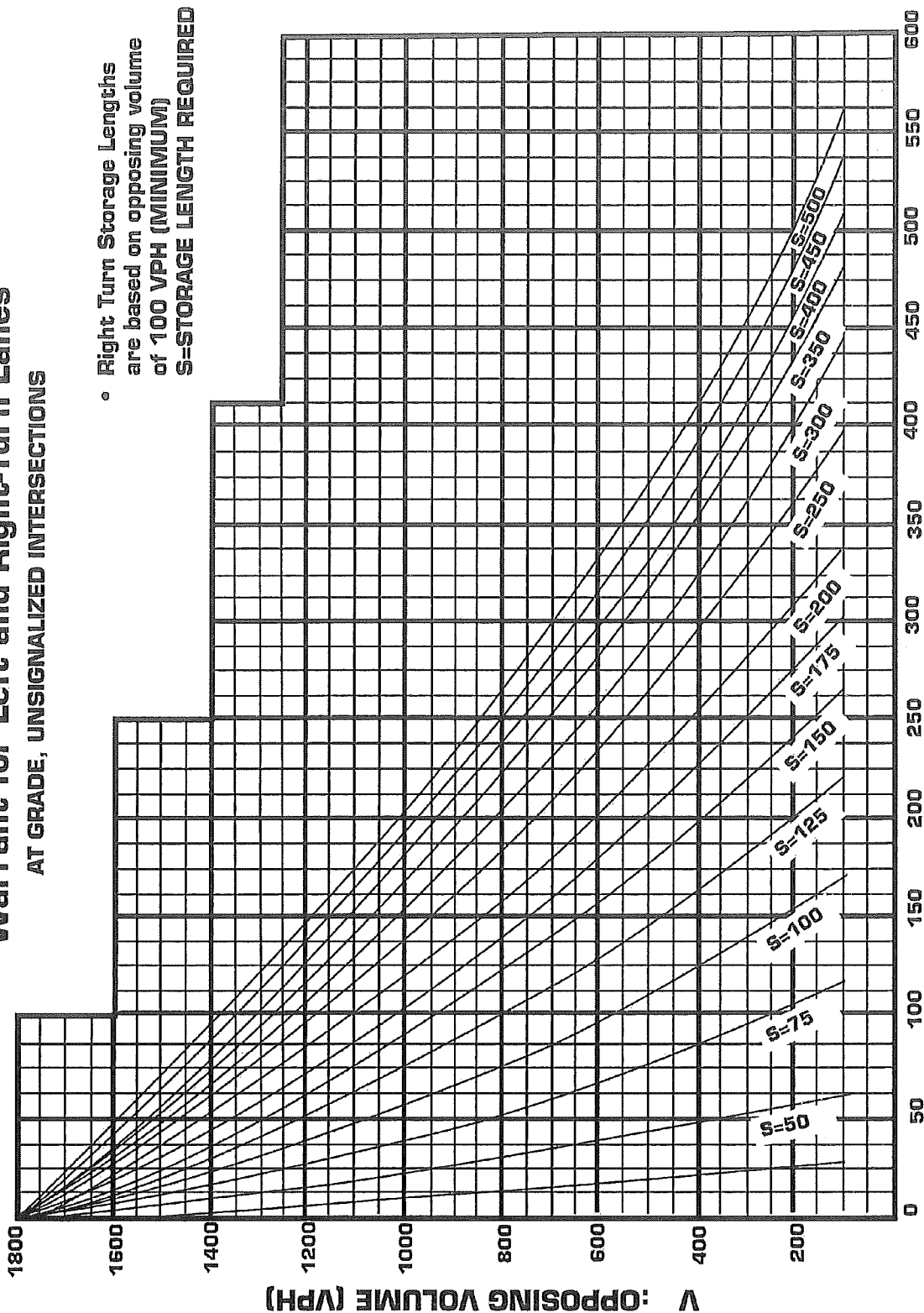
Network Summary

Network wide Queuing Penalty: 2795

Turn Lane Warrants

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS

• Right Turn Storage Lengths
are based on opposing volume
of 100 VPH (MINIMUM)
S-STORAGE LENGTH REQUIRED



Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

V_L: LEFT TURNING VOLUME (VPH)
V_R: RIGHT TURNING VOLUME (VPH)

DRIVEWAY #2-

AM

V_R=3

S=0

PM

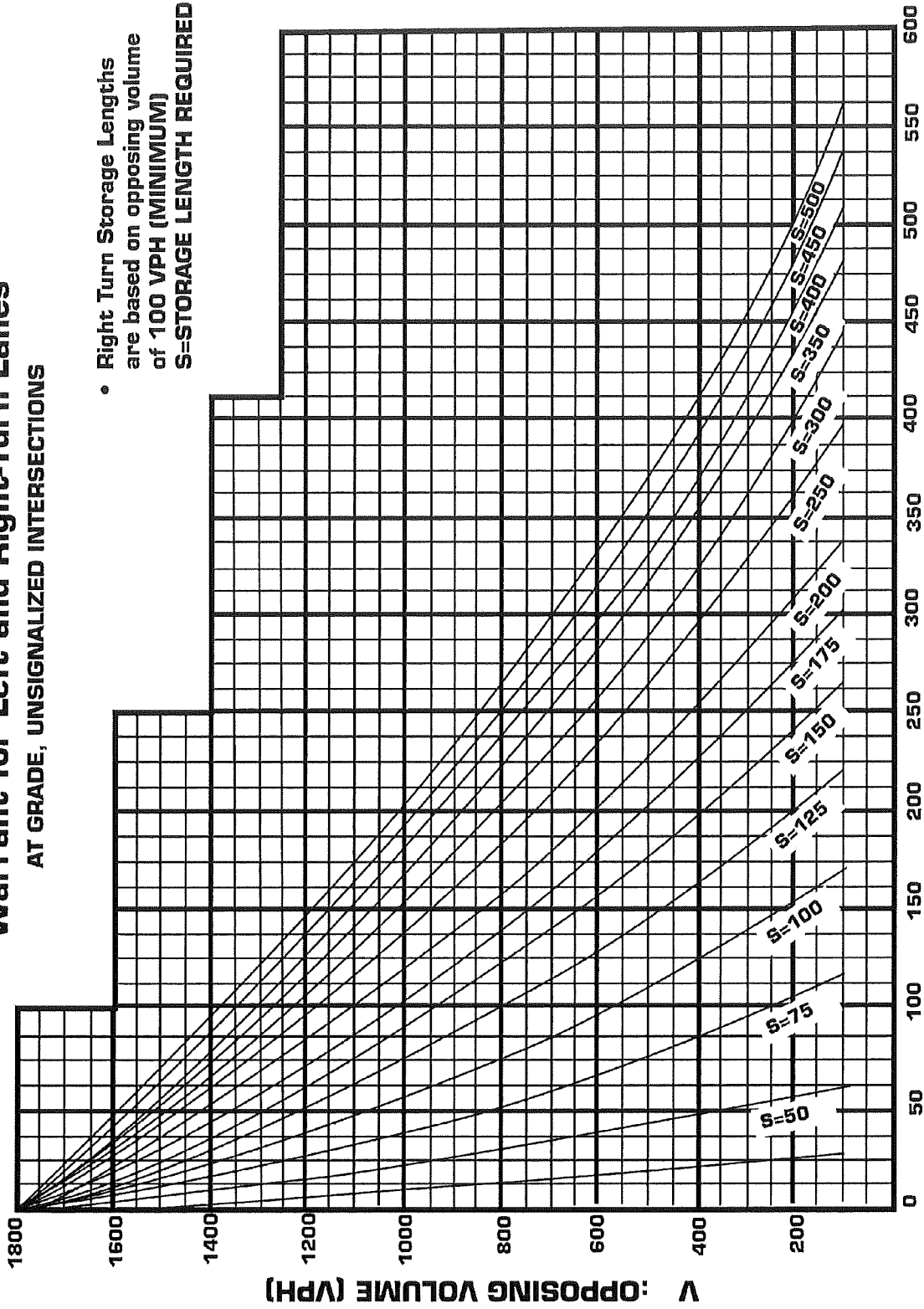
V_R=8

S=0

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS

- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED



Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

V: LEFT TURNING VOLUME (VPH)
V_R: RIGHT TURNING VOLUME (VPH)

Driveway #3

AM

V_R = 4
S = 0

PM

V_R = 13
S = 0

Pedestrian LOS Worksheets

Matthews-Weddington Road and Driveway #2 AM PEAK HOUR			
		Crossing NB Approach	Crossing SB Approach
Major Street (Free Flow)		Y	Y
Crosswalk Length (ft)	L	23	23
Walking Speed (ft/sec)	S _p	3.5	3.5
Start Up Time	t _s	3	3
Critical Headway	t _c	9.57	9.57
2 Stage Crossing? (Median = Y or N)		N	N
Yielding Vehicles? (Signage = Y or N)		N	N
2021 Build-out			
Probability of Blocked Lane	P _b	88%	88%
Probability of Delayed Crossing	P _d	99%	99%
Average Gap Delay	d _g	142.08	142.08
Non-zero Delay	d _{gd}	144.16	144.16
2026 Build-out +5			
Probability of Blocked Lane	P _b	92%	92%
Probability of Delayed Crossing	P _d	99%	99%
Average Gap Delay	d _g	262.76	262.76
Non-zero Delay	d _{gd}	264.45	264.45
Results			
2021 Build-out	Delay	142.1	142.1
	LOS	F	F
2026 Build-out +5	Delay	262.8	262.8
	LOS	F	F

		2021 Build-out		2026 Build-out +5	
		NB	SB	NB	SB
Volume	1 Stage	1,586	1,586	1,864	1,864
	2 Stage	-	-	-	-
Conflicting veh flow rate (veh/sec) (v)	1 Stage	0.44	0.44	0.52	0.52
	2 Stage	-	-	-	-
No. of lanes crossed		2	2	2	2

LOS	Control Delay (sec/pec)	Comments	From HCM 6
A	5	Usually no conflicting traffic	
B	10	Occasionally some delay due to conflicting traffic	
C	20	Delay noticeable to pedestrians, but not inconveniencing	
D	30	Delay noticeable and irritating, increased likelihood of risk taking	
E	45	Delay approaches tolerance level, risk-taking behavior likely	
F	> 45	Delay exceeds tolerance level, high likelihood of pedestrian risk taking	

Matthews-Weddington Road and Driveway #2 PM PEAK HOUR			
		Crossing NB Approach	Crossing SB Approach
Major Street (Free Flow)		Y	Y
Crosswalk Length (ft)	L	23	23
Walking Speed (ft/sec)	S _p	3.5	3.5
Start Up Time	t _s	3	3
Critical Headway	t _c	9.57	9.57
2 Stage Crossing? (Median = Y or N)		N	N
Yielding Vehicles? (Signage = Y or N)		N	N
2021 Build-out			
Probability of Blocked Lane	P _b	86%	86%
Probability of Delayed Crossing	P _d	98%	98%
Average Gap Delay	d _g	118.82	118.82
Non-zero Delay	d _{gd}	121.20	121.20
2026 Build-out +5			
Probability of Blocked Lane	P _b	91%	91%
Probability of Delayed Crossing	P _d	99%	99%
Average Gap Delay	d _g	217.16	217.16
Non-zero Delay	d _{gd}	218.93	218.93
Results			
2021 Build-out	Delay	118.8	118.8
	LOS	F	F
2026 Build-out +5	Delay	217.2	217.2
	LOS	F	F

		2021 Build-out		2026 Build-out +5	
		NB	SB	NB	SB
Volume	1 Stage	1,505	1,505	1,778	1,778
	2 Stage	-	-	-	-
Conflicting veh flow rate (veh/sec) (v)	1 Stage	0.42	0.42	0.49	0.49
	2 Stage	-	-	-	-
No. of lanes crossed		2	2	2	2

LOS	Control Delay (sec/pec)	Comments	From HCM 6
A	5	Usually no conflicting traffic	
B	10	Occasionally some delay due to conflicting traffic	
C	20	Delay noticeable to pedestrians, but not inconveniencing	
D	30	Delay noticeable and irritating, increased likelihood of risk taking	
E	45	Delay approaches tolerance level, risk-taking behavior likely	
F	> 45	Delay exceeds tolerance level, high likelihood of pedestrian risk taking	

Matthews-Weddington Road and Driveway #3 AM PEAK HOUR			
		Crossing NB Approach	Crossing SB Approach
Major Street (Free Flow)		Y	Y
Crosswalk Length (ft)	L	23	23
Walking Speed (ft/sec)	S _p	3.5	3.5
Start Up Time	t _s	3	3
Critical Headway	t _c	9.57	9.57
2 Stage Crossing? (Median = Y or N)		N	N
Yielding Vehicles? (Signage = Y or N)		N	N
2021 Build-out			
Probability of Blocked Lane	P _b	82%	82%
Probability of Delayed Crossing	P _d	97%	97%
Average Gap Delay	d _g	75.61	75.61
Non-zero Delay	d _{gd}	78.14	78.14
2026 Build-out +5			
Probability of Blocked Lane	P _b	87%	87%
Probability of Delayed Crossing	P _d	98%	98%
Average Gap Delay	d _g	124.46	124.46
Non-zero Delay	d _{gd}	126.60	126.60
Results			
2021 Build-out	Delay	75.6	75.6
	LOS	F	F
2026 Build-out +5	Delay	124.5	124.5
	LOS	F	F

		2021 Build-out		2026 Build-out +5	
		NB	SB	NB	SB
Volume	1 Stage	1,301	1,301	1,526	1,526
	2 Stage	-	-	-	-
Conflicting veh flow rate (veh/sec) (v)	1 Stage	0.36	0.36	0.42	0.42
	2 Stage	-	-	-	-
No. of lanes crossed		2	2	2	2

LOS	Control Delay (sec/pec)	Comments	From HCM 6
A	5	Usually no conflicting traffic	
B	10	Occasionally some delay due to conflicting traffic	
C	20	Delay noticeable to pedestrians, but not inconveniencing	
D	30	Delay noticeable and irritating, increased likelihood of risk taking	
E	45	Delay approaches tolerance level, risk-taking behavior likely	
F	> 45	Delay exceeds tolerance level, high likelihood of pedestrian risk taking	

Matthews-Weddington Road and Driveway #3 PM PEAK HOUR			
		Crossing NB Approach	Crossing SB Approach
Major Street (Free Flow)		Y	Y
Crosswalk Length (ft)	L	23	23
Walking Speed (ft/sec)	S _p	3.5	3.5
Start Up Time	t _s	3	3
Critical Headway	t _c	9.57	9.57
2 Stage Crossing? (Median = Y or N)		N	N
Yielding Vehicles? (Signage = Y or N)		N	N
2021 Build-out			
Probability of Blocked Lane	P _b	84%	84%
Probability of Delayed Crossing	P _d	97%	97%
Average Gap Delay	d _g	92.75	92.75
Non-zero Delay	d _{gd}	95.19	95.19
2026 Build-out +5			
Probability of Blocked Lane	P _b	89%	89%
Probability of Delayed Crossing	P _d	99%	99%
Average Gap Delay	d _g	161.14	161.14
Non-zero Delay	d _{gd}	163.11	163.11
Results			
2021 Build-out	Delay	92.8	92.8
	LOS	F	F
2026 Build-out +5	Delay	161.1	161.1
	LOS	F	F

		2021 Build-out		2026 Build-out +5	
		NB	SB	NB	SB
Volume	1 Stage	1,393	1,393	1,643	1,643
	2 Stage	-	-	-	-
Conflicting veh flow rate (veh/sec) (v)	1 Stage	0.39	0.39	0.46	0.46
	2 Stage	-	-	-	-
No. of lanes crossed		2	2	2	2

LOS	Control Delay (sec/pec)	Comments	From HCM 6
A	5	Usually no conflicting traffic	
B	10	Occasionally some delay due to conflicting traffic	
C	20	Delay noticeable to pedestrians, but not inconveniencing	
D	30	Delay noticeable and irritating, increased likelihood of risk taking	
E	45	Delay approaches tolerance level, risk-taking behavior likely	
F	> 45	Delay exceeds tolerance level, high likelihood of pedestrian risk taking	

Matthews-Weddington Road and Antioch Church Road					
AM PEAK HOUR					
		Crossing NB Approach	Crossing SB Approach	Crossing EB Approach	Crossing WB Approach
		Major	Major	Minor	Minor
Ped Phase		N	N	N	N
Speed Limit (85 th Percentile Speed)	S _{85,mj}	45	45	0	45
Cycle Length (sec)	C	90			
Duration of phase for through movement	D _{0,through}	37	37	0	40
Yellow time for through movement	Y _{through}	3.0	3.0	0.0	4.8
Red time for through movement	R _{C,through}	2.4	2.4	0.0	1.2
Walk Time	Walk _{ped}	0	0	0	0
Crosswalk Length	L _d	50	50	0	53
Number of lanes crossed	N _d	3	4	0	3
Number of right-turn channelizing islands	N _{ch,i,d}	0	0	0	0
Walking Speed (ft/sec)	S _p	3.5			

flow rate of peds arriving at the corner after crossing minor street (ped/hr)	V _{ci}	0	0	0	0
flow rate of peds arriving at the corner to cross minor street (ped/hr)	V _{co}	0	0	0	0
flow rate of peds arriving at the corner after crossing major street (ped/hr)	V _{di}	0	0	0	0
flow rate of peds arriving at the corner to cross major street (ped/hr)	V _{do}	0	0	0	0
flow rate of peds traveling through the corner from Sidewalk A to Sidewalk B or vice versa	V _{ab}	0	0	0	0
Count of vehicles traveling on major/minor street during 15 min period - Existing	Π _{15,mj}	103.92	82.44	#DIV/0!	88.00
Count of vehicles traveling on major/minor street during 15 min period - 2021 Background	Π _{15,mj}	126.00	96.44	#DIV/0!	101.58
Count of vehicles traveling on major/minor street during 15 min period - 2021 Build-out	Π _{15,mj}	128.25	98.81	#DIV/0!	102.50
Count of vehicles traveling on major/minor street during 15 min period - 2026 Build-out +5	Π _{15,mj}	149.92	115.94	#DIV/0!	120.83
Effective walk time for through movement	g _{walk,mj,mj}	31.6	31.6	0	34

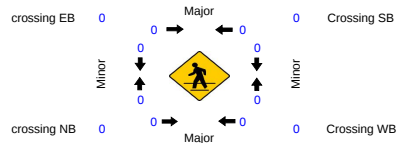
Adjustment Factors					
Pedestrian delay (sec/ped)	d _p	18.95	18.95	45.00	17.42
Cross section adjustment factor	F _w	1.1978	1.3887	0.0000	1.1978
Motorized vehicle volume adjustment factor - Existing	F _v	0.4381	0	#DIV/0!	0.2489
Motorized vehicle volume adjustment factor - 2021 Background	F _v	0.5192	0	#DIV/0!	0.276
Motorized vehicle volume adjustment factor - 2021 Build-out	F _v	0.5192	0	#DIV/0!	0.2873
Motorized vehicle volume adjustment factor - 2026 Build-out +5	F _v	0.612	0.0000	#DIV/0!	0.3386
Motorized vehicle speed adjustment factor - Existing	F _s	0.61	0.48	#DIV/0!	0.51
Motorized vehicle speed adjustment factor - 2021 Background	F _s	0.74	0.56	#DIV/0!	0.59
Motorized vehicle speed adjustment factor - 2021 Build-out	F _s	0.75	0.58	#DIV/0!	0.6
Motorized vehicle speed adjustment factor - 2026 Build-out +5	F _s	0.88	0.68	#DIV/0!	0.71
Pedestrian delay adjustment factor	F _d	0.12	0.12	0.15	0.11

Results					
Pedestrian LOS score for intersection - Existing	L _{p,int}	2.97	2.59	#DIV/0!	2.67
	LOS	C	C	#DIV/0!	C
Pedestrian LOS score for intersection - 2021 Background	L _{p,int}	3.18	2.67	#DIV/0!	2.77
	LOS	C	C	#DIV/0!	C
Pedestrian LOS score for intersection - 2021 Build-out	L _{p,int}	3.19	2.69	#DIV/0!	2.79
	LOS	C	C	#DIV/0!	C
Pedestrian LOS score for intersection - 2026 Build-out +5	L _{p,int}	3.41	2.79	#DIV/0!	2.96
	LOS	C	C	#DIV/0!	C

	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU
2018 Existing	0	378	184	0	175	377	0	0	0	0	0	0	308	0	389	0
2021 Background	0	471	229	0	194	447	0	0	0	0	0	0	365	0	431	0
2021 Build-out	0	478	229	0	202	467	0	0	0	0	0	0	365	0	434	0
2026 Build-out +5	0	557	267	0	238	545	0	0	0	0	0	0	430	0	515	0

LOS	LOS Score	From HCM 6
A	1.50	
B	2.50	
C	3.50	
D	4.50	
E	5.50	
F	> 5.50	

Assume RTOR vol = 0



Matthews-Weddington Road and Antioch Church Road					
PM PEAK HOUR					
		Crossing NB Approach	Crossing SB Approach	Crossing EB Approach	Crossing WB Approach
		Major	Major	Minor	Minor
Ped Phase		N	N	N	N
Speed Limit (85 th Percentile Speed)	S _{85,mj}	45	45	0	45
Cycle Length (sec)	C	90			
Duration of phase for through movement	D _{0,through}	19	19	0	50
Yellow time for minor-street through movement	Y _{minor}	3.0	3.0	0.0	4.8
Red time for minor-street through movement	R _{C,minor}	2.4	2.4	0.0	1.2
Walk Time	Walk _{ped}	0	0	0	0
Crosswalk Length	L _d	50	50	0	53
Number of lanes crossed	N _d	3	4	0	3
Number of right-turn channelizing islands	N _{ch,i,d}	0	0	0	0
Walking Speed (ft/sec)	S _p	3.5			

flow rate of peds arriving at the corner after crossing minor street (ped/hr)	V _{ci}	0	0	0	0
flow rate of peds arriving at the corner to cross minor street (ped/hr)	V _{co}	0	0	0	0
flow rate of peds arriving at the corner after crossing major street (ped/hr)	V _{di}	0	0	0	0
flow rate of peds arriving at the corner to cross major street (ped/hr)	V _{do}	0	0	0	0
flow rate of peds traveling through the corner from Sidewalk A to Sidewalk B or vice versa	V _{ab}	0	0	0	0
Count of vehicles traveling on major/minor street during 15 min period - Existing	Π _{15,mj}	96.75	82.00	#DIV/0!	76.25
Count of vehicles traveling on major/minor street during 15 min period - 2021 Background	Π _{15,mj}	108.83	91.69	#DIV/0!	85.08
Count of vehicles traveling on major/minor street during 15 min period - 2021 Build-out	Π _{15,mj}	111.67	94.63	#DIV/0!	86.17
Count of vehicles traveling on major/minor street during 15 min period - 2026 Build-out +5	Π _{15,mj}	131.75	111.56	#DIV/0!	102.00
Effective walk time for through movement	g _{walk,mj,mj}	13.6	13.6	0	44

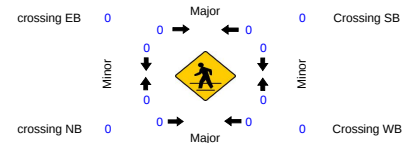
Adjustment Factors					
Pedestrian delay (sec/ped)	d _p	32.43	32.43	45.00	11.76
Cross section adjustment factor	F _w	1.1978	1.3887	0.0000	1.1978
Motorized vehicle volume adjustment factor - Existing	F _v	0.2148	0	#DIV/0!	0.4822
Motorized vehicle volume adjustment factor - 2021 Background	F _v	0.2447	0	#DIV/0!	0.5349
Motorized vehicle volume adjustment factor - 2021 Build-out	F _v	0.2447	0	#DIV/0!	0.542
Motorized vehicle volume adjustment factor - 2026 Build-out +5	F _v	0.290	0.0000	#DIV/0!	0.6415
Motorized vehicle speed adjustment factor - Existing	F _s	0.57	0.48	#DIV/0!	0.45
Motorized vehicle speed adjustment factor - 2021 Background	F _s	0.64	0.54	#DIV/0!	0.5
Motorized vehicle speed adjustment factor - 2021 Build-out	F _s	0.65	0.55	#DIV/0!	0.5
Motorized vehicle speed adjustment factor - 2026 Build-out +5	F _s	0.77	0.65	#DIV/0!	0.6
Pedestrian delay adjustment factor	F _d	0.14	0.14	0.15	0.1

Results					
Pedestrian LOS score for intersection - Existing	L _{p,int}	2.72	2.61	#DIV/0!	2.83
	LOS	C	C	#DIV/0!	C
Pedestrian LOS score for intersection - 2021 Background	L _{p,int}	2.82	2.67	#DIV/0!	2.93
	LOS	C	C	#DIV/0!	C
Pedestrian LOS score for intersection - 2021 Build-out	L _{p,int}	2.83	2.68	#DIV/0!	2.94
	LOS	C	C	#DIV/0!	C
Pedestrian LOS score for intersection - 2026 Build-out +5	L _{p,int}	3.00	2.78	#DIV/0!	3.14
	LOS	C	C	#DIV/0!	C

	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU
2018 Existing	0	484	231	0	339	295	0	0	0	0	0	0	151	0	194	0
2021 Background	0	540	258	0	376	336	0	0	0	0	0	0	172	0	215	0
2021 Build-out	0	561	258	0	381	349	0	0	0	0	0	0	172	0	223	0
2026 Build-out +5	0	661	306	0	451	410	0	0	0	0	0	0	204	0	263	0

LOS	LOS Score	From HCM 6
A	1.50	
B	2.50	
C	3.50	
D	4.50	
E	5.50	
F	> 5.50	

Assume RTOR vol = 0



Matthews-Weddington Road and McKee Road					
AM PEAK HOUR					
		Crossing NB Approach	Crossing SB Approach	Crossing EB Approach	Crossing WB Approach
		Major	Major	Minor	Minor
Ped Phase		Y	Y	Y	Y
Speed Limit (85 th Percentile Speed)	S _{85,mj}	45	45	45	45
Cycle Length (sec)	C	120			
Duration of phase for through movement	D _{0,m/mj}	38	34	56	56
Yellow time for through movement	Y _{m/mj}	4.4	4.4	4.6	4.6
Red time for through movement	R _{C,m/mj}	1.3	1.3	1.6	1.6
Walk Time	Walk _{ped}	7	7	7	7
Crosswalk Length	L _d	67	51	80	66
Number of lanes crossed	N _d	3	4	3	4
Number of right-turn channelizing islands	N _{RCI,d}	0	0	0	0
Walking Speed (ft/sec)	S _p	3.5			

flow rate of peds arriving at the corner after crossing minor street (ped/hr)	V _{ci}	0	0	0	0
flow rate of peds arriving at the corner to cross minor street (ped/hr)	V _{co}	0	0	0	0
flow rate of peds arriving at the corner after crossing major street (ped/hr)	V _{di}	0	0	0	0
flow rate of peds arriving at the corner to cross major street (ped/hr)	V _{do}	0	0	0	0
flow rate of peds traveling through the corner from Sidewalk A to Sidewalk B or vice versa	V _{ab}	0	0	0	0
Count of vehicles traveling on major/minor street during 15 min period - Existing	P _{15,mj}	98.25	82.00	90.67	55.69
Count of vehicles traveling on major/minor street during 15 min period - 2021 Background	P _{15,mj}	113.75	93.31	101.42	62.31
Count of vehicles traveling on major/minor street during 15 min period - 2021 Build-out	P _{15,mj}	117.83	94.69	103.25	62.63
Count of vehicles traveling on major/minor street during 15 min period - 2026 Build-out +5	P _{15,mj}	138.33	111.81	122.08	74.25
Effective walk time for through movement	g _{walk,mj,mj}	11	11	11	11

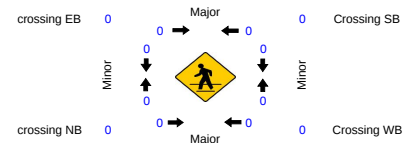
Adjustment Factors					
Pedestrian delay (sec/ped)	d _p	49.50	49.50	49.50	49.50
Cross section adjustment factor	F _w	1.1978	1.3887	1.1978	1.3887
Motorized vehicle volume adjustment factor - Existing	F _v	0.1565	0.2589	0.1807	0.0896
Motorized vehicle volume adjustment factor - 2021 Background	F _v	0.1792	0.2873	0.2105	0.0996
Motorized vehicle volume adjustment factor - 2021 Build-out	F _v	0.1807	0.2873	0.2333	0.0996
Motorized vehicle volume adjustment factor - 2026 Build-out +5	F _v	0.213	0.3414	0.2703	0.1181
Motorized vehicle speed adjustment factor - Existing	F _s	0.57	0.48	0.53	0.33
Motorized vehicle speed adjustment factor - 2021 Background	F _s	0.67	0.55	0.59	0.36
Motorized vehicle speed adjustment factor - 2021 Build-out	F _s	0.69	0.55	0.6	0.37
Motorized vehicle speed adjustment factor - 2026 Build-out +5	F _s	0.81	0.65	0.71	0.43
Pedestrian delay adjustment factor	F _d	0.16	0.16	0.16	0.16

Results					
Pedestrian LOS score for intersection - Existing	L _{p,int}	2.68	2.89	2.67	2.57
	LOS	C	C	C	C
Pedestrian LOS score for intersection - 2021 Background	L _{p,int}	2.81	2.99	2.76	2.61
	LOS	C	C	C	C
Pedestrian LOS score for intersection - 2021 Build-out	L _{p,int}	2.83	2.99	2.79	2.62
	LOS	C	C	C	C
Pedestrian LOS score for intersection - 2026 Build-out +5	L _{p,int}	2.98	3.14	2.94	2.70
	LOS	C	C	C	C

	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU
2018 Existing	127	509	90	0	63	262	183	0	182	201	81	0	110	314	113	0
2021 Background	148	593	105	0	70	300	203	0	202	223	93	0	126	348	125	0
2021 Build-out	164	609	109	0	70	306	203	0	202	223	99	0	127	348	125	0
2026 Build-out +5	190	715	128	0	83	361	241	0	240	265	116	0	150	413	149	0

LOS	LOS Score	From HCM 6
A	1.50	
B	2.50	
C	3.50	
D	4.50	
E	5.50	
F	> 5.50	

Assume RTOR vol = 0



Matthews-Weddington Road and McKee Road					
PM PEAK HOUR					
		Crossing NB Approach	Crossing SB Approach	Crossing EB Approach	Crossing WB Approach
		Minor	Minor	Major	Major
Ped Phase		Y	Y	Y	Y
Speed Limit (85 th Percentile Speed)	S _{85,mj}	45	45	45	45
Cycle Length (sec)	C	120			
Duration of phase for through movement	D _{0,m/mj}	53	47	40	39
Yellow time for minor-street through movement	Y _{m/mj}	4.4	4.4	4.6	4.6
Red time for minor-street through movement	R _{C,m/mj}	1.3	1.3	1.6	1.6
Walk Time	Walk _{ped}	7	7	7	7
Crosswalk Length	L _d	67	51	80	66
Number of lanes crossed	N _d	3	4	3	4
Number of right-turn channelizing islands	N _{RCI,d}	0	0	0	0
Walking Speed (ft/sec)	S _p	3.5			

flow rate of peds arriving at the corner after crossing minor street (ped/hr)	V _{ci}	0	0	0	0
flow rate of peds arriving at the corner to cross minor street (ped/hr)	V _{co}	0	0	0	0
flow rate of peds arriving at the corner after crossing major street (ped/hr)	V _{di}	0	0	0	0
flow rate of peds arriving at the corner to cross major street (ped/hr)	V _{do}	0	0	0	0
flow rate of peds traveling through the corner from Sidewalk A to Sidewalk B or vice versa	V _{ab}	0	0	0	0
Count of vehicles traveling on major/minor street during 15 min period - Existing	P _{15,mj}	101.58	82.69	113.17	87.00
Count of vehicles traveling on major/minor street during 15 min period - 2021 Background	P _{15,mj}	113.42	92.06	125.67	96.63
Count of vehicles traveling on major/minor street during 15 min period - 2021 Build-out	P _{15,mj}	118.58	93.81	127.92	97.06
Count of vehicles traveling on major/minor street during 15 min period - 2026 Build-out +5	P _{15,mj}	139.67	111.00	151.42	115.06

Effective walk time for through movement	g _{walk,mj,mj}	11	11	11	11
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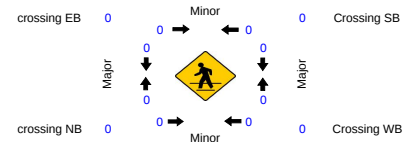
Adjustment Factors					
Pedestrian delay (sec/ped)	d _p	49.50	49.50	49.50	49.50
Cross section adjustment factor	F _w	1.1978	1.3887	1.1978	1.3887
Motorized vehicle volume adjustment factor - Existing	F _v	0.2518	0.2561	0.1963	0.2561
Motorized vehicle volume adjustment factor - 2021 Background	F _v	0.2817	0.2845	0.2191	0.2845
Motorized vehicle volume adjustment factor - 2021 Build-out	F _v	0.2873	0.2845	0.2333	0.2845
Motorized vehicle volume adjustment factor - 2026 Build-out +5	F _v	0.340	0.3371	0.2745	0.3371
Motorized vehicle speed adjustment factor - Existing	F _s	0.59	0.48	0.66	0.51
Motorized vehicle speed adjustment factor - 2021 Background	F _s	0.66	0.54	0.74	0.57
Motorized vehicle speed adjustment factor - 2021 Build-out	F _s	0.69	0.55	0.75	0.57
Motorized vehicle speed adjustment factor - 2026 Build-out +5	F _s	0.82	0.65	0.89	0.67
Pedestrian delay adjustment factor	F _d	0.16	0.16	0.16	0.16

Results					
Pedestrian LOS score for intersection - Existing	L _{p,int}	2.80	2.88	2.81	2.91
	LOS	C	C	C	C
Pedestrian LOS score for intersection - 2021 Background	L _{p,int}	2.90	2.97	2.92	3.00
	LOS	C	C	C	C
Pedestrian LOS score for intersection - 2021 Build-out	L _{p,int}	2.93	2.98	2.94	3.00
	LOS	C	C	C	C
Pedestrian LOS score for intersection - 2026 Build-out +5	L _{p,int}	3.12	3.14	3.12	3.16
	LOS	C	C	C	C

	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU
2018 Existing	138	314	99	0	180	386	131	0	180	367	105	0	177	437	132	0
2021 Background	154	349	110	0	200	433	145	0	200	407	117	0	198	485	146	0
2021 Build-out	164	360	113	0	200	450	145	0	200	407	134	0	202	485	146	0
2026 Build-out +5	193	425	133	0	237	530	173	0	237	483	156	0	239	575	174	0

LOS	LOS Score	From HCM 6
A	1.50	
B	2.50	
C	3.50	
D	4.50	
E	5.50	
F	> 5.50	

Assume RTOR vol = 0



Potter Road and Chestnut Lane					
AM PEAK HOUR					
		Crossing NB Approach	Crossing SB Approach	Crossing EB Approach	Crossing WB Approach
		Major	Major	Minor	Minor
Ped Phase		N	N	N	N
Speed Limit (85 th Percentile Speed)	S _{85,mj}	35	35	35	35
Cycle Length (sec)	C	60			
Duration of phase for through movement	D _{0,through}	25	25	35	35
Yellow time for through movement	Y _{through}	3.8	4.1	3.7	3.8
Red time for through movement	R _{C,through}	2.0	1.9	2.1	2.1
Walk Time	Walk _{ped}	5	5	5	5
Crosswalk Length	L _d	60	50	50	68
Number of lanes crossed	N _d	3	3	3	3
Number of right-turn channelizing islands	N _{RCI,d}	0	0	0	0
Walking Speed (ft/sec)	S _p	3.5			

flow rate of peds arriving at the corner after crossing minor street (ped/hr)	V _{ci}	0	0	0	0
flow rate of peds arriving at the corner to cross minor street (ped/hr)	V _{co}	0	0	0	0
flow rate of peds arriving at the corner after crossing major street (ped/hr)	V _{di}	0	0	0	0
flow rate of peds arriving at the corner to cross major street (ped/hr)	V _{do}	0	0	0	0
flow rate of peds traveling through the corner from Sidewalk A to Sidewalk B or vice versa	V _{ab}	0	0	0	0
Count of vehicles traveling on major/minor street during 15 min period - Existing	P _{15,mj}	85.33	87.92	54.42	39.67
Count of vehicles traveling on major/minor street during 15 min period - 2021 Background	P _{15,mj}	95.17	97.83	62.25	44.75
Count of vehicles traveling on major/minor street during 15 min period - 2021 Build-out	P _{15,mj}	95.58	98.25	64.08	45.75
Count of vehicles traveling on major/minor street during 15 min period - 2026 Build-out +5	P _{15,mj}	113.50	116.58	75.33	54.08

Effective walk time for through movement	g _{walk,mj,mj}	19.2	19	29.2	29.1
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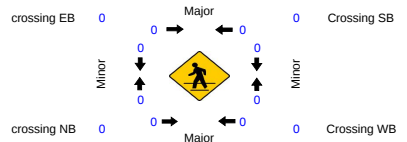
Adjustment Factors					
Pedestrian delay (sec/ped)	d _p	13.87	14.01	7.91	7.96
Cross section adjustment factor	F _w	1.1978	1.1978	1.1978	1.1978
Motorized vehicle volume adjustment factor - Existing	F _v	0.0185	0.1181	0.1735	0.1238
Motorized vehicle volume adjustment factor - 2021 Background	F _v	0.0199	0.1351	0.1992	0.1366
Motorized vehicle volume adjustment factor - 2021 Build-out	F _v	0.0199	0.1408	0.2006	0.1366
Motorized vehicle volume adjustment factor - 2026 Build-out +5	F _v	0.024	0.1650	0.2376	0.1636
Motorized vehicle speed adjustment factor - Existing	F _s	0.39	0.4	0.25	0.18
Motorized vehicle speed adjustment factor - 2021 Background	F _s	0.43	0.45	0.28	0.2
Motorized vehicle speed adjustment factor - 2021 Build-out	F _s	0.43	0.45	0.29	0.21
Motorized vehicle speed adjustment factor - 2026 Build-out +5	F _s	0.52	0.53	0.34	0.25
Pedestrian delay adjustment factor	F _d	0.11	0.11	0.08	0.08

Results					
Pedestrian LOS score for intersection - Existing	L _{p,int}	2.32	2.43	2.30	2.18
	LOS	B	B	B	B
Pedestrian LOS score for intersection - 2021 Background	L _{p,int}	2.36	2.49	2.36	2.21
	LOS	B	B	B	B
Pedestrian LOS score for intersection - 2021 Build-out	L _{p,int}	2.36	2.50	2.37	2.22
	LOS	B	C	B	B
Pedestrian LOS score for intersection - 2026 Build-out +5	L _{p,int}	2.45	2.60	2.46	2.29
	LOS	B	C	B	B

	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU
2018 Existing	122	529	40	0	87	225	74	0	83	152	95	0	13	127	57	0
2021 Background	140	587	44	0	96	249	84	0	95	174	108	0	14	146	63	0
2021 Build-out	141	587	44	0	96	249	85	0	99	183	112	0	14	149	63	0
2026 Build-out +5	167	697	53	0	115	296	100	0	116	214	132	0	17	175	75	0

LOS	LOS Score	From HCM 6
A	1.50	
B	2.50	
C	3.50	
D	4.50	
E	5.50	
F	> 5.50	

Assume RTOR vol = 0



Potter Road and Chestnut Lane					
PM PEAK HOUR					
		Crossing NB Approach	Crossing SB Approach	Crossing EB Approach	Crossing WB Approach
		Major	Major	Minor	Minor
Ped Phase		N	N	N	N
Speed Limit (85 th Percentile Speed)	S _{85,mj}	35	35	35	35
Cycle Length (sec)	C	60			
Duration of phase for through movement	D _{0,m/mj}	23	23	37	37
Yellow time for minor-street through movement	Y _{m/mj}	3.8	4.1	3.7	3.8
Red time for minor-street through movement	R _{C,m/mj}	2.0	1.9	2.1	2.1
Walk Time	Walk _{ped}	5	5	5	5
Crosswalk Length	L _d	60	50	50	68
Number of lanes crossed	N _d	3	3	3	3
Number of right-turn channelizing islands	N _{RCI,d}	0	0	0	0
Walking Speed (ft/sec)	S _p	3.5			

flow rate of peds arriving at the corner after crossing minor street (ped/hr)	V _{ci}	1	0	0	0
flow rate of peds arriving at the corner to cross minor street (ped/hr)	V _{co}	0	0	1	0
flow rate of peds arriving at the corner after crossing major street (ped/hr)	V _{di}	0	0	0	0
flow rate of peds arriving at the corner to cross major street (ped/hr)	V _{do}	0	0	0	0
flow rate of peds traveling through the corner from Sidewalk A to Sidewalk B or vice versa	V _{ab}	1	0	1	0
Count of vehicles traveling on major/minor street during 15 min period - Existing	P _{15,mj}	91.00	104.33	59.00	42.33
Count of vehicles traveling on major/minor street during 15 min period - 2021 Background	P _{15,mj}	100.92	115.67	65.67	47.08
Count of vehicles traveling on major/minor street during 15 min period - 2021 Build-out	P _{15,mj}	101.50	116.25	68.00	48.25
Count of vehicles traveling on major/minor street during 15 min period - 2026 Build-out +5	P _{15,mj}	120.42	138.00	80.17	57.08

Effective walk time for through movement	g _{walk,mj,mj}	17.2	17	31.2	31.1
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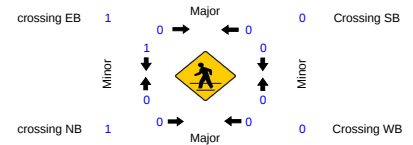
Adjustment Factors					
Pedestrian delay (sec/ped)	d _p	15.27	15.41	6.91	6.96
Cross section adjustment factor	F _w	1.1978	1.1978	1.1978	1.1978
Motorized vehicle volume adjustment factor - Existing	F _v	0.0512	0.1977	0.1038	0.1437
Motorized vehicle volume adjustment factor - 2021 Background	F _v	0.0569	0.2191	0.1152	0.1593
Motorized vehicle volume adjustment factor - 2021 Build-out	F _v	0.0569	0.2233	0.1209	0.1593
Motorized vehicle volume adjustment factor - 2026 Build-out +5	F _v	0.067	0.2646	0.1423	0.1892
Motorized vehicle speed adjustment factor - Existing	F _s	0.41	0.47	0.27	0.19
Motorized vehicle speed adjustment factor - 2021 Background	F _s	0.46	0.53	0.3	0.21
Motorized vehicle speed adjustment factor - 2021 Build-out	F _s	0.46	0.53	0.31	0.22
Motorized vehicle speed adjustment factor - 2026 Build-out +5	F _s	0.55	0.63	0.36	0.26
Pedestrian delay adjustment factor	F _d	0.11	0.11	0.08	0.08

Results					
Pedestrian LOS score for intersection - Existing	L _{p,int}	2.37	2.58	2.25	2.21
	LOS	B	C	B	B
Pedestrian LOS score for intersection - 2021 Background	L _{p,int}	2.42	2.66	2.29	2.25
	LOS	B	C	B	B
Pedestrian LOS score for intersection - 2021 Build-out	L _{p,int}	2.42	2.66	2.31	2.26
	LOS	B	C	B	B
Pedestrian LOS score for intersection - 2026 Build-out +5	L _{p,int}	2.52	2.80	2.38	2.33
	LOS	C	C	B	B

	NBL	NBT	NBR	NBU	SBL	SBT	SBR	SBU	EBL	EBT	EBR	EBU	WBL	WBT	WBR	WBU
2018 Existing	73	306	21	0	101	559	98	0	139	194	97	0	36	107	49	0
2021 Background	81	339	23	0	112	620	109	0	154	216	108	0	40	120	54	0
2021 Build-out	85	339	23	0	112	620	113	0	157	221	111	0	40	129	54	0
2026 Build-out +5	100	403	28	0	133	736	133	0	186	261	131	0	47	151	65	0

LOS	LOS Score	From HCM 6
A	1.50	
B	2.50	
C	3.50	
D	4.50	
E	5.50	
F	> 5.50	

Assume RTOR vol = 0



Bicycle LOS Worksheets

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Matthew-Waddington Road and Chestnut Lane**
Date: **2/8/2023**

Select points from Tables 1-4 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIK & LOS and overall intersection BIKE LOS.

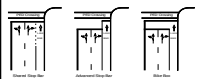
Table 1.	NB Approach	SB Approach	EB Approach	WB Approach
SIGNAL FEATURES	Matthew-Waddington Roadfrom Waddington Road			
A. Auto Left Turn Phase (opposing cyclists)	Chestnut Lane			
				
• Made on Green Ball only • Made on Leading Green Arrow/Green Ball • Made on Green Arrow Only • No Left Turn Conflict	0 5 15	0	0	15
Table 1A - POINTS	0	0	0	15
B. STOP BAR LOCATION				
				
• Shared stop bar for bikes & autos • Advanced stop bar for bikes or bike box	0 10	0	0	0
Table 1B - POINTS	0	0	0	0
Table 1 - POINTS	0	0	0	15

Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
				
Bike Travels in Approach/Departure Lane				
• Shared Auto Lane to Shared Auto Lane (lane < 12' wide) • Shared Auto Lane (lane < 12' wide) to Wide Curb Lane (12' to 14' wide) • Shared Auto Lane (lane < 12' wide) to Bike Lane • Shared Wide Curb Lane (12' to 14' wide) to Shared Auto Lane (lane < 12' wide) • Shared Wide Curb Lane (lane 12' to 14' wide) to Wide Curb Lane (lane 12' to 14' wide) • Shared Wide Curb Lane (lane 12' to 14' wide) to Bike Lane • Bike Lane to Shared Auto Lane (lane < 12' wide) • Bike Lane to Wide Curb Lane (12' to 14' wide) • Bike Lane to Bike Lane	0-40 mph 30 to 35 mph < 30 mph	5 30 50	5 30 50	5 30 50
Table 2A - POINTS	5	5	5	5

Table 3.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn Conflicts				
				
• No Conflict with Right Turning Motorist (e.g., "T" intersection, one-way street) • Bike in Shared Thru-Right Lane • Bike Lane Right of Shared Thru-Right Lane • Separate Right Turn Lane Provided (see Figure below) • Condition A in Figure below • Condition B in Figure below • Condition C in Figure below • Condition D in Figure below • Condition E in Figure below	15 0 -5 0 10 0 0 0 0 -20	15	0	0
Table 3A - POINTS	15	15	0	0

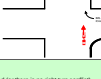
Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
				
• Allowed • Prohibited (or there is no right turn conflict)	0 5	0	5	5
Table 5 - POINTS	0	0	5	5

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for Obstruction				
• < 3 motor vehicle travel lanes • 4 to 5 motor vehicle travel lanes • > 5 motor vehicle travel lanes	0 -5 -10	0	0	0
Table 6 - POINTS	0	0	0	0

	NB Approach	SB Approach	EB Approach	WB Approach
Approach Total Approach LOS	5 F	15 C	0 F	15 D
Intersection Average Intersection LOS	14 F			

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Matthews-Wedding Road and Chestnut Lane**
Date: **2/8/2015**

Select points from Tables 1-4 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIK & LOS and overall intersection BIKE LOS.

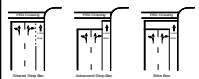
Table 1.	NB Approach	SB Approach	EB Approach	WB Approach
SIGNAL FEATURES	Matthews-Wedding Road/Wedding Road Chestnut Lane			
A. Auto Left Turn Phase (opposing cyclists)				
				
• Made on Green Ball only	0	0	0	0
• Made on Leading Green Arrow/Green Ball	5			
• Made on Green Arrow Only	15			
• No Left Turn Conflict	15			
Table 1A - POINTS	0	0	0	0
B. STOP BAR LOCATION				
				
• Shared stop bar for bikes & autos	0	0	0	0
• Advanced stop bar for bikes or bike box	10			
Table 1B - POINTS	0	0	0	0
Table 1 - POINTS	0	0	0	0

Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
				
Bike Travels in Approach/Departure Lane				
• Shared Auto Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	5	5	5
• Shared Auto Lane (lane < 12' wide) to Wide Curb Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	20	40	55
• Shared Auto Lane (lane < 12' wide) to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	35	50	60
• Shared Wide Curb Lane (12' to 14' wide) to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	15	25	50
• Shared Wide Curb Lane (lane 12' to 14' wide) to Wide Curb Lane (lane 12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	30	50	60
• Shared Wide Curb Lane (12' to 14' wide) to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	45	60	70
• Bike Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30	45	55
• Bike Lane to Wide Curb Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	40	55	65
• Bike Lane to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	60	70	80
Table 2 - POINTS	5	5	5	5

Table 3.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn Conflicts				
				
• No Conflict with Right Turning Motorist (i.e., "T" intersection, one-way street)	15	15		
• Bike in Shared Thru-Right Lane	0			
• Bike Lane Right of Shared Thru-Right Lane	0			
→ Bike lane drops prior to intersection	-5			
→ Bike lane extends to intersection	0			
• Separate Right Turn Lane Provided (see Figure below)	10			
→ Condition A in Figure below	0			
→ Curb lane becomes right turn lane, bike lane left of	0			
→ Condition B in Figure below	0			
→ No bike lane	0			
→ Condition C in Figure below	0			
→ Curb lane becomes right turn lane, no bike lane	0			
→ Figure D in PED & BIKE LOS Methodology	0			
→ Bike lane right of right turn lane	-20			
→ Figure E in PED & BIKE LOS Methodology	0			
Table 3 - POINTS	0	15	0	0

Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
				
• Allowed	0	0	0	0
• Prohibited (or there is no right turn conflict)	5	5	5	5
Table 5 - POINTS	0	5	5	5

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for Obstruction				
• < 3 motor vehicle travel lanes	0	0	0	0
• 4 to 5 motor vehicle travel lanes	-5			
• > 5 motor vehicle travel lanes	-10			
Table 6 - POINTS	0	0	0	0

	NB Approach	SB Approach	EB Approach	WB Approach
Approach Total Approach LOS	5	25	0	5
	F	F	F	F
Intersection Average Intersection LOS	5			
	F			

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Matthew-Woodington Road and Chestnut Lane/Driveway #1**
Date: **2/8/2023**

Select points from Tables 1-4 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIKEL and overall intersection BIKEL LOS.

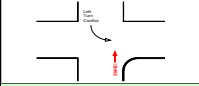
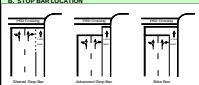
Table 1.	NB Approach	SB Approach	EB Approach	WB Approach
SIGNAL FEATURES	Matthew-Woodington Road/Driveway #1	Woodington Road	Chestnut Lane	Chestnut Lane
A. Auto Left Turn Phase (opposing cycles)				
				
• Made on Green Ball only	0	0	0	0
• Made on Leading Green Arrow/Green Ball	5			
• Made on Green Arrow Only	15			
• No Left Turn Conflict	15			
Table 1A - POINTS	0	0	0	0
B. STOP BAR LOCATION				
				
• Shared stop bar for bikes & autos	0	0	0	0
• Advanced stop bar for bikes or bike box	10			
Table 1B - POINTS	0	0	0	0
Table 1 - POINTS	0	0	0	0

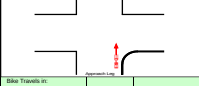
Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
				
Bike Travels in Approach/Departure Lane				
• Shared Auto Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	5	5	5
• Shared Auto Lane to Wide Curb Lane (lane < 12' wide) to Wide Curb Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	20	40	55
• Shared Auto Lane to Bike Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	35	50	60
• Shared Wide Curb Lane to Wide Curb Lane (lane < 12' wide) to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	15	25	50
• Shared Wide Curb Lane to Wide Curb Lane (lane 12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	30	50	60
• Shared Wide Curb Lane to Bike Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	45	60	70
• Bike Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30	45	55
• Bike Lane to Wide Curb Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	40	55	65
• Bike Lane to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	60	70	80
Table 2 - POINTS	5	5	50	5

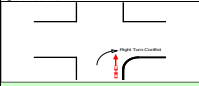
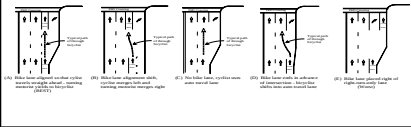
Table 3.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn Conflicts				
				
• No Conflict with Right Turning Motorist (i.e., "T" intersection, one-way street)	15			
• Bike in Shared Thru-Right Lane	0			
• Bike Lane Right of Shared Thru-Right Lane	0			
→ Bike lane drops prior to intersection	-5			
→ Bike lane extends to intersection	0			
• Separate Right Turn Lane Provided (see Figure below)	10			
→ Condition A in Figure below	0			
→ Curb lane becomes right turn lane, bike lane left of curb lane	0			
→ Condition B in Figure below	0			
→ Curb lane becomes right turn lane, no bike lane	0			
→ Figure C in PED & BIKEL LOS Methodology	0			
→ Bike lane right of right turn lane	-20			
→ Figure D in PED & BIKEL LOS Methodology	0			
Bike Turnouts in a Right Turn Lane				
				
Table 3 - POINTS	0	0	0	0

Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
				
• Allowed	0	0	0	0
• Prohibited (or there is no right turn conflict)	5			
Table 5 - POINTS	0	0	0	0

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for the approach				
• < 3 motor vehicle travel lanes	0	0	0	0
• 4 to 5 motor vehicle travel lanes	-5			
• > 5 motor vehicle travel lanes	-10			
Table 6 - POINTS	0	0	0	0
Approach Total Approach LOS	5	5	50	5
Intersection Average Intersection LOS	5	5	0	5

Select points from Tables 1-6 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach leg BIKE LOS and overall intersection BIKE LOS.

	NB Approach	SB Approach	EB Approach	WB Approach
Approach Total:	5	5	45	5
Approach LOS:	F	F	D	F
Intersection Average:	15			
Intersection LOS:	E			

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Matthews-Wedding Road and Antioch Church Road**
Date: **2/8/2023**

Select points from Tables 1-4 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIKELOS and overall intersection BIKELOS.

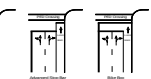
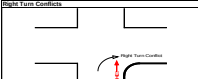
Signal Features		NB Approach	SB Approach	EB Approach	WB Approach
Matthews-Wedding Road/Wedding Road					
Antech Church Road					
A. Auto Left Turn Phase (opposing cyclists)					
					
• Made on Green Ball only	0				
• Made on Leading Green Arrow/Green Ball	5				
• Made on Green Arrow Only	15				
• No Left Turn Conflict	15				
Table 1A - POINTS					
		5	15	5	15
B. STOP BAR LOCATION					
					
• Shared stop bar for bikes & autos	0	0	0	0	0
• Advanced stop bar for bikes or bike box	10				
Table 1B - POINTS					
		0	0	0	0
Table 1 - POINTS					
		5	15	5	15

Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
Bike Transitions in Approach/Departure Lanes				
• Shared Auto Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	5	5	5
• Shared Auto Lane (lane < 12' wide) to Wide Curb Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	20		40
• Shared Auto Lane (lane < 12' wide) to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	35		50
• Shared Wide Curb Lane (12' to 14' wide) to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	15		25
• Shared Wide Curb Lane (lane 12' to 14' wide) to Wide Curb Lane (lane 12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	30		60
• Shared Wide Curb Lane (12' to 14' wide) to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	45		60
• Bike Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30		45
• Bike Lane to Wide Curb Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	40		55
• Bike Lane to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	60		70
Table 2 - POINTS				
	5	5	5	5

Right Turn Conflicts	NB Approach	SB Approach	EB Approach	WB Approach
				
• No Conflict with Right Turning Motorist (e.g., "T" intersection, one-way street)	15	15		
• Bike in Shared Thru-Right Lane	0	0		
• Bike Lane Right of Shared Thru-Right Lane				
→ Bike lane drops prior to intersection	-5			
→ Bike lane extends to intersection	0			
• Separate Right Turn Lane Provided (see Figure below)				
→ Bike lane is left of right turn lane (Condition A in Figure below)	10			
→ Curb lane becomes right turn lane, bike lane left of (Condition B in Figure below)	5			
→ No bike lane (Condition C in Figure below)	0			0
→ Curb lane becomes right turn lane, no bike lane (Figure D in PED & BIKELOS Methodology)	0			
→ Bike lane right of right turn lane (Figure E in PED & BIKELOS Methodology)	-20			

Bike Encroachment at a Right Turn Lane

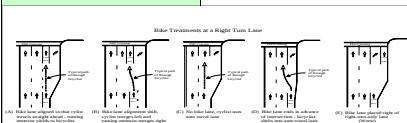


Table 3 - POINTS	0	15	5	0
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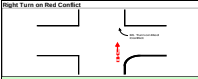
Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
• Allowed				
• Prohibited (or there is no right turn conflict)	5	5		
Table 5 - POINTS	0	5	0	0

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for Obstacles				
• < 3 motor vehicle travel lanes	0	0		
• 4 to 5 motor vehicle travel lanes	-5			-5
• > 5 motor vehicle travel lanes	-10			
Table 6 - POINTS				
	0	0	0	-5

	NB Approach	SB Approach	EB Approach	WB Approach
Approach Total:	10	40	0	15
Approach LOS:	F	C	F	F
Intersection Average:	SB			
Intersection LOS:	F			

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Matthew-Woodington Road and Union City School Drive/Tilly Morris Road**
Date: **2/8/2023**

Select points from Tables 1-4 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIKELOS and overall intersection BIKELOS.

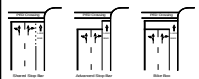
Table 1.	NB Approach	SB Approach	EB Approach	WB Approach
SIGNAL FEATURES	Matthew-Woodington Road/Union City School Drive Tilly Morris Road Matthew-Woodington Road			
A. Auto Left Turn Phase (opposing cyclists)				
				
• Made on Green Ball only	0	0	0	0
• Made on Leading Green Arrow/Green Ball	5			
• Made on Green Arrow Only	15			
• No Left Turn Conflict	15			
Table 1A - POINTS	0	0	0	0
B. STOP BAR LOCATION				
				
• Shared stop bar for bikes & autos	0	0	0	0
• Advanced stop bar for bikes or bike box	10			
Table 1B - POINTS	0	0	0	0
Table 1 - POINTS	0	0	0	0

Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
				
Bike Travels in Approach/Departure Lane				
• Shared Auto Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	5 30 50	5 30 50	5 30 50
• Shared Auto Lane (lane < 12' wide) to Wide Curb Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	20 40 55	20 40 55	20 40 55
• Shared Auto Lane (lane < 12' wide) to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	35 50 60	35 50 60	35 50 60
• Shared Wide Curb Lane (12' to 14' wide) to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	15 25 50	15 25 50	15 25 50
• Shared Wide Curb Lane (lane 12' to 14' wide) to Wide Curb Lane (lane 12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	30 50 60	30 50 60	30 50 60
• Shared Wide Curb Lane (12' to 14' wide) to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	45 60 70	45 60 70	45 60 70
• Bike Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30 45 55	30 45 55	30 45 55
• Bike Lane to Wide Curb Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	40 55 65	40 55 65	40 55 65
• Bike Lane to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	60 70 80	60 70 80	60 70 80
Table 2 - POINTS	5	50	5	5

Table 3.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn Conflicts				
				
• No Conflict with Right Turning Motorist (e.g., "T" intersection, one-way street)	15			
• Bike in Shared Thru-Right Lane	0	0	0	0
• Bike Lane Right of Shared Thru-Right Lane	0	0	0	0
• Bike Lane drops prior to intersection	-5			
• Bike lane extends to intersection	0			
• Separate Right Turn Lane Provided (see Figure below)	10			
• Condition A in Figure below	0			
• Condition B in Figure below	0			
• Condition C in Figure below	0			
• Condition D in Figure below	0			
• Condition E in Figure below	0			
• Condition F in Figure below	0			
• Condition G in Figure below	0			
• Condition H in Figure below	0			
• Condition I in Figure below	0			
• Condition J in Figure below	0			
• Condition K in Figure below	0			
• Condition L in Figure below	0			
• Condition M in Figure below	0			
• Condition N in Figure below	0			
• Condition O in Figure below	0			
• Condition P in Figure below	0			
• Condition Q in Figure below	0			
• Condition R in Figure below	0			
• Condition S in Figure below	0			
• Condition T in Figure below	0			
• Condition U in Figure below	0			
• Condition V in Figure below	0			
• Condition W in Figure below	0			
• Condition X in Figure below	0			
• Condition Y in Figure below	0			
• Condition Z in Figure below	0			
Table 3 - POINTS	0	0	0	0

Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
				
• Allowed	0	0	0	0
• Prohibited (or there is no right turn conflict)	5			
Table 5 - POINTS	0	0	0	0

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for Boulevards				
• < 3 motor vehicle travel lanes	0	0	0	0
• 4 to 5 motor vehicle travel lanes	-5			
• > 5 motor vehicle travel lanes	-10			
Table 6 - POINTS	0	0	0	0

	NB Approach	SB Approach	EB Approach	WB Approach
Approach Total Approach LOS	5	50	5	5
Approach Average Approach LOS	F	F	F	F
Intersection Average Intersection LOS	B	B	B	B

Select points from Tables 1-6 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach leg BIKE LOS and overall intersection BIKE LOS.

	NS Approach	SB Approach	EB Approach	WB Approach
Approach Total:	5	50	5	5
Approach LOS:	F	D	F	F
Intersection Average:	16			
Intersection LOS:	F			

Intersection: Matthews-Weddington Road and McKee Road
Date: 2/8/2019

Intersection: Matthews-Weddington Road and McKee Road
Date: 2/8/2019

Select points from Tables 1-6 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach leg BIKE LOS and overall intersection BIKE LOS.

Table 1.	SR Approach	SR Approach	EB Approach	WB Approach
SIGNAL FEATURES	Marathon Washington Road/Roadway Washington Blvd	Marathon Road	Marathon Road	Marathon Road
A. Auto Left Turn Phase (opposing cycles)				
				
• Made on Green Ball only • Made on Leading Green Arrow/Green Ball • Made on Green Arrow Only • No Left Turn Conflict	0 5 5 15	5 5 5 5	5 5 5 5	
Table 1A. POINTS	5	5	5	5
B. STOP BAR LOCATION				
				
• Stopped stop bar for bikes & autos • Advanced stop bar for bikes or bike box	0 10	0 0	0 0	0 0
Table 1B. POINTS	0	0	0	0
Table 1C. POINTS	5	5	5	5

Bicycle Travel Way		SB Approach	EB Approach	WB Approach
Bike Travels in: Approach (Shoulder Lane)				
Shared Auto Lane to Shared Auto Lane (lane 5'12" wide)	≥ 40 mph 30 to 35 mph < 30 mph	5 30 50	5 30 50	5 30 50
Shared Auto Lane (lane 5'12" wide) to Wide Curb Lane (13' to 14' wide)	≥ 40 mph 30 to 35 mph < 30 mph	20 40 50		
Shared Auto Lane (lane 5'12" wide) to Bike Lane	≥ 40 mph 30 to 35 mph < 30 mph	25 50 60		
Shared Wide Curb Lane (13' to 14' wide) to Shared Auto Lane (lane 5'12" wide)	≥ 40 mph 30 to 35 mph < 30 mph	15 20 50		
Shared Wide Curb Lane to Wide Curb Lane (lans 13' to 14' wide)	≥ 40 mph 30 to 35 mph < 30 mph	30 50 60		
Shared Wide Curb Lane (13' to 14' wide) to Bike Lane	≥ 40 mph 30 to 35 mph < 30 mph	45 60 70		
Bike Lane to Shared Auto Lane (lane 5'12" wide)	≥ 40 mph 30 to 35 mph < 30 mph	30 45 55		
Bike Lane to to Wide Curb Lane (13' to 14' wide)	≥ 40 mph 30 to 35 mph < 30 mph	40 55 65		
Bike Lane to Bike Lane	≥ 40 mph 30 to 35 mph < 30 mph	60 70 80		
Line 2 Points		3	3	3

Table 3			NB Approach	EB Approach	WB Approach	NB Approach
Right Turn Conflicts						
						
No Conflict with Right Turning Motorists (e.g., "T" intersection, one-way street)	15					
Blue in Shaded Thru-Right Lane	0		0	0		
- Blue Lane Right of Shaded Thru/Right Lane - Blue lane drops prior to intersection - Blue lane extends to intersection	-6					
- Separate Right Turn Lane Provided (see Figure below) - Blue lane is left of right turn lane	10					
(Condition A in Figure below) - Curb lane becomes right turn lane, blue lane is left of right turn lane	-5					
- No Blue Lane (Condition C in Figure below) - Curb lane becomes right turn lane, no blue lane	0		0			0
(Figure D in PED & BIKE LOS Methodology) - Blue lane right of right turn lane (Figure E in PED & BIKE LOS Methodology)	-20					

Blue Transmissions at a Right Turn Lane



(A) Blue lane becomes right turn lane, blue lane is left of right turn lane
(Pedestrians and bikes in blue lane)



(B) Blue lane becomes right turn lane, no blue lane
(Pedestrians and bikes in blue lane)



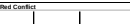
(C) Blue lane is left of right turn lane
(Pedestrians and bikes in blue lane)



(D) Blue lane is right of right turn lane
(Pedestrians and bikes in blue lane)



(E) Blue lane is right of right turn lane
(Pedestrians and bikes in blue lane)

Right Turn on Red Conflict	NB Approach	SB Approach	EB Approach	WB Approach
				
Allowed	0	0	0	0
Prohibited (or there is no right turn conflict)	5			

Intersection Crossing Distance (for this cycle)	NB Approach	SB Approach	EB Approach	WB Approach
• 5.3 motor vehicle travel lanes	0	0	0	
• 4 to 5 motor vehicle travel lanes	-5			-5
• 2.6 motor vehicle travel lanes	-10			
• 3rd & 4th motor vehicle travel lanes	0	0	0	0

	NB Approach	SB Approach	EB Approach	WB Approach
Approach Total:	5	10	10	5
Approach LOS:	F	F	F	F
Intersection Average:	B			
Intersection LOS:	C			

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Matthew-Woodington Road and McKee Road**
Date: **2/8/2023**

Select points from Tables 1-6 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIKELOS and overall intersection BIKELOS.

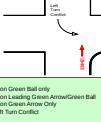
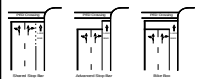
Table 1.	NB Approach	SB Approach	EB Approach	WB Approach
SIGNAL FEATURES	Matthew-Woodington Road/From Woodington Road	McKee Road	McKee Road	McKee Road
A. Auto Left Turn Phase (opposing cyclists)				
				
- Made on Green Ball only - Made on Leading Green Arrow/Green Ball - Made on Green Arrow Only - No Left Turn Conflict	0 5 15	5 5 5	5 5 5	5 5 5
Table 1A - POINTS	5	5	5	5
B. STOP BAR LOCATION				
				
- Shared stop bar for bikes & autos - Advanced stop bar for bikes or bike box	0 10	0 0	0 0	0 0
Table 1B - POINTS	0	0	0	0
Table 1 - POINTS	5	5	5	5

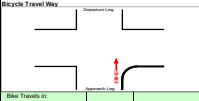
Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
				
Bike Travels in Approach/Departure Lane				
Shared Auto Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	5 30 50	5 30 50	5 30 50
Shared Auto Lane (lane < 12' wide) to Wide Curb Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	20 40 55	20 40 55	20 40 55
Shared Auto Lane (lane < 12' wide) to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	35 50 60	35 50 60	35 50 60
Shared Wide Curb Lane (12' to 14' wide) to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	15 25 50	15 25 50	15 25 50
Shared Wide Curb Lane (lane 12' to 14' wide) to Wide Curb Lane (lane 12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	30 50 60	30 50 60	30 50 60
Shared Wide Curb Lane (12' to 14' wide) to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	45 60 70	45 60 70	45 60 70
Bike Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30 45 55	30 45 55	30 45 55
Bike Lane to Wide Curb Lane (12' to 14' wide)	2-40 mph 30 to 35 mph < 30 mph	40 55 65	40 55 65	40 55 65
Bike Lane to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	60 70 80	60 70 80	60 70 80
Table 2 - POINTS	5	5	5	5

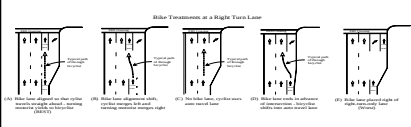
Table 3.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn Conflicts				
				
- No Conflict with Right Turning Motorist (i.e., "T" intersection, one-way street) - Bike in Shared Thru-Right Lane - Bike lane drops prior to intersection - Bike lane extends to intersection - Separate Right Turn Lane Provided (see Figure below) - Bike lane is left of right turn lane - Condition A in Figure below - Curb lane becomes right turn lane, bike lane left of condition A in Figure below - No bike lane - Condition C in Figure below - Curb lane becomes right turn lane, no bike lane - Figure D in PED & BIKELOS Methodology - Bike lane right of right turn lane - Figure E in PED & BIKELOS Methodology	15 0 -5 0 10 0 0 0 0 -20	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Bike Transitions in a Right Turn Lane				
				
Table 3 - POINTS	0	0	0	0

Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
				
- Allowed - Prohibited (or there is no right turn conflict)	0 5	0 0	0 0	0 0
Table 5 - POINTS	0	0	0	0

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for the approach				
< 3 motor vehicle travel lanes 4 to 5 motor vehicle travel lanes > 5 motor vehicle travel lanes	0 -5 -10	0 -5 -10	0 0 -5	0 -5 -10
Table 6 - POINTS	0	0	0	0

	NB Approach	SB Approach	EB Approach	WB Approach
Approach Total Approach LOS	5 F	5 F	5 F	5 F
Intersection Average Intersection LOS	5 F			

Intersection: Matthews-Weddington Road and McKee Road
Date: 2/8/2019

Intersection: Matthews-Wedding Road and McKee Road
Date: 2/8/2019

Select points from Tables 1-6 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach leg BIKE LOS and overall intersection BIKE LOS.

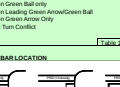
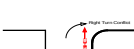
Table 1.	VB Approach	SR Approach	EB Approach	WB Approach
SIGNAL FEATURES	Marathon Washington Road/Lehigh Washington Road	Marathon Road	Marathon Road	Marathon Road
A. Auto Left Turn Phase (opposing cycles)				
				
• Made on Green Ball only • Made on Leading Green Arrow/Green Ball • Made on Green Arrow Only • No Left Turn Conflict	0 5 5 15	5 5 5 5	5 5 5 5	5 5 5 5
Table 1A. POINTS	5	5	5	5
B. STOP BAR LOCATION				
				
• Advanced stop bar for bikes & autos	0 10	0 0	0 0	0 0
Table 1B. POINTS	0	0	0	0
Table 1C. POINTS	5	5	5	5

Table 2	MB Approach	EB Approach	WB Approach
Recycle Trail Way			
Bike Travels In: Approach (Directional Lane) Speed Limit			
• Shared Auto Lane to Shared Auto Lane (lane < 12' wide) ≥ 40 mph 30 to 35 mph < 30 mph	5 30 50	5 30 50	5 30 50
• Shared Auto Lane (lane < 12' wide) to White Curb Lane (12' to 14' wide) ≥ 40 mph 30 to 35 mph < 30 mph	20 40 50	20 40 50	20 40 50
• Shared Auto Lane (lane < 12' wide) to Bike Lane ≥ 40 mph 30 to 35 mph < 30 mph	25 50 60	25 50 60	25 50 60
• Shared Wide Curb Lane (12' to 14' wide) to Shared Auto Lane (lane < 12' wide) ≥ 40 mph 30 to 35 mph < 30 mph	15 20 50	15 20 50	15 20 50
• Shared Wide Curb Lane to White Curb Lane (lane 12' to 14' wide) ≥ 40 mph 30 to 35 mph < 30 mph	30 50 60	30 50 60	30 50 60
• Shared Wide Curb Lane (12' to 14' wide) to Bike Lane ≥ 40 mph 30 to 35 mph < 30 mph	45 60 70	45 60 70	45 60 70
• Bike Lane to Shared Auto Lane (lane < 12' wide) ≥ 40 mph 30 to 35 mph < 30 mph	45 55	45 55	45 55
• Bike Lane to White Curb Lane (12' to 14' wide) ≥ 40 mph 30 to 35 mph < 30 mph	40 55 65	40 55 65	40 55 65
• Bike Lane to Bike Lane ≥ 40 mph 30 to 35 mph < 30 mph	60 70 80	60 70 80	60 70 80

Signal Type	MB Approach	EB Approach	WB Approach
			
No Conflict with Right Turning Motorists (e.g., "T" intersection, one-way street)	15		
Blue in Shaded Thru-Right Lane	0	0	
- Blue Lane Right of Shaded Thru-Right Lane - Blue lane design prior to intersection - Blue lane extends to intersection	-6		
- Separate Right Turn Lane Provided (see Figure below) - Blue lane is left of right turn lane (Condition A in Figure below) - Curb lane becomes right turn lane, blue lane left of curb lane (Condition C in Figure below) - Curb lane becomes right turn lane, no blue lane (Figure D in PED & BIKE LOG Methodology) - Blue lane right of right turn lane (Figure E in PED & BIKE LOG Methodology)	10	0	0
	-20		

Blue Transitions at a Right Turn Lane

(A) Blue lane to the left of right turn lane (Condition A in PED & BIKE LOG Methodology)

(B) Blue lane to the right of right turn lane (Condition B in PED & BIKE LOG Methodology)

(C) Blue lane to the left of right turn lane (Condition C in PED & BIKE LOG Methodology)

(D) Blue lane to the right of right turn lane (Condition D in PED & BIKE LOG Methodology)

(E) Blue lane to the right of right turn lane (Condition E in PED & BIKE LOG Methodology)

Table 5 Right Turn on Red Conflict		SB Approach	SB Approach	SB Approach	WB Approach
• Allowed	0	0	0	0	0
• Prohibited (or there is no right turn conflict)	5				
Table 5 - Legend		0	0	0	0

Intersection Crossing Distance (for thru-cycle)	NB Approach	SB Approach	EB Approach	WB Approach
• ≤ 3 motor vehicle travel lanes	0	0		
• 4 to 5 motor vehicle travel lanes	-5		-5	-5
• ≥ 6 motor vehicle travel lanes	-10			
• Unknown approach	0	0	0	0

	NB Approach	SB Approach	EB Approach	WB Approach
Approach Total:	5	10	5	5
Approach LOS:	F	F	F	F
Intersection Average:	6			
Intersection LOS:	E			

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Chestnut Lane and Foster Road**
Date: **2/26/2015**

Select points from Tables 1-6 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIKELOS and overall intersection BIKELOS.

Table 1.	NB Approach	SB Approach	EB Approach	WB Approach
SIGNAL FEATURES	Chestnut Lane	Chestnut Lane	Foster Road	Foster Road
A. Auto Left Turn Phase (opposing cyclists)				
- Made on Green Ball only - Made on Leading Green Arrow/Green Ball - Made on Green Arrow Only - No Left Turn Conflict	0 5 15 15	0 0 0 0	0 0 0 0	0 0 0 0
Table 1A - POINTS	0	0	0	0
B. STOP BAR LOCATION				
- Shared stop bar for bikes & autos - Advanced stop bar for bikes or bike box	0 10	0 0	0 0	0 0
Table 1B - POINTS	0	0	0	0
Table 1 - POINTS	0	0	0	0

Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
Bike Transitions in Approach/Departure Lanes				
- Shared Auto Lane to Shared Auto Lane (lane < 12' wide) - Shared Auto Lane (lane < 12' wide) to Wide Curb Lane (lane < 12' wide) - Shared Auto Lane (lane < 12' wide) to Bike Lane - Shared Wide Curb Lane (lane < 12' wide) to Shared Auto Lane (lane < 12' wide) - Shared Wide Curb Lane (lane < 12' wide) to Wide Curb Lane (lane < 12' wide) - Shared Wide Curb Lane (lane < 12' wide) to Bike Lane - Bike Lane to Shared Auto Lane (lane < 12' wide) - Bike Lane to Wide Curb Lane (lane < 12' wide) - Bike Lane to Bike Lane	0-40 mph 30 to 35 mph < 30 mph	5 30 50	30 30 30	30 30 30
Table 2 - POINTS	30	30	30	30

Table 3.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn Conflicts				
- No Conflict with Right Turning Motorist (e.g., "T" intersection, one-way street) - Bike in Shared Thru-Right Lane - Bike Lane Right of Shared Thru-Right Lane - Separate Right Turn Lane Provided (see Figure below) - Curb lane becomes right turn lane, bike lane left of curb lane - Curb lane becomes right turn lane, no bike lane - Curb lane becomes right turn lane, no bike lane (Figure 2 in PED & BIKELOS Methodology) - Curb lane becomes right turn lane, no bike lane (Figure 4 in PED & BIKELOS Methodology)	15 0 -5 0 10 0 0 0 0 0 -20	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0
Bike Transitions in a Right Turn Lane				
Table 3 - POINTS	0	0	0	0

Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
- Allowed - Prohibited (or there is no right turn conflict)	0 5	0 0	0 0	0 0
Table 5 - POINTS	0	0	0	0

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for the approach				
< 3 motor vehicle travel lanes 4 to 5 motor vehicle travel lanes > 5 motor vehicle travel lanes	0 -5 -10	0 0 0	0 0 0	0 0 0
Table 6 - POINTS	0	0	0	0
Approach Total	30	30	30	30
Approach LOS	E	E	E	E
Intersection Average	30			
Intersection LOS	E			

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Matthew-Woodington Road and Driveway #2**
Date: **2/8/2023**

Select points from Tables 1-6 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIKELOS and overall intersection BIKELOS.

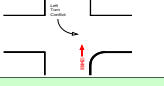
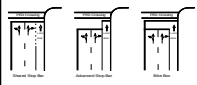
Table 1.	NB Approach	SB Approach	EB Approach	WB Approach
SIGNAL FEATURES	Matthew-Woodington Roadfrom Woodington Road Driveway #2			
A. Auto Left Turn Phase (opposing cyclists)				
				
• Made on Green Ball only • Made on Leading Green Arrow/Green Ball • Made on Green Arrow Only • No Left Turn Conflict	0 5 15 15	15	15	15
Table 1A - POINTS	15	15	15	0
B. STOP BAR LOCATION				
				
• Shared stop bar for bikes & autos • Advanced stop bar for bikes or bike box	0 10	0	0	0
Table 1B - POINTS	0	0	0	0
Table 1 - POINTS	15	15	15	0

Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
				
Bike Travels in Approach/Departure Lane				
• Shared Auto Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	5 30 50	5	50
• Shared Auto Lane to Wide Curb Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	20 40 55		
• Shared Auto Lane to Bike Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	35 50 60		
• Shared Wide Curb Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	15 25 50		
• Shared Wide Curb Lane to Wide Curb Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30 50 60		
• Shared Wide Curb Lane to Bike Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	45 60 70		
• Bike Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30 45 55		
• Bike Lane to Wide Curb Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	40 55 65		
• Bike Lane to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	60 70 80		
Table 2 - POINTS	5	5	50	0

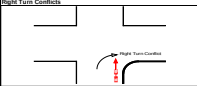
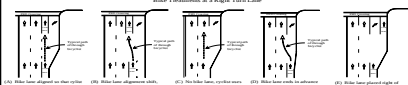
Table 3.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn Conflicts				
				
• No Conflict with Right Turning Motorist (e.g., "T" intersection, one-way street) • Bike in Shared Thru-Right Lane → Bike lane drops prior to intersection → Bike lane extends to intersection • Separate Right Turn Lane Provided (see Figure 1a-f) → Bike lane is left of right turn lane → Condition A in Figure 1a-f → Curb lane becomes right turn lane, bike lane left of Condition A in Figure 1a-f → No bike lane → Condition C in Figure 1a-f → Curb lane becomes right turn lane, no bike lane → Figure D in PED & BIKELOS Methodology → Bike lane right of right turn lane → Figure E in PED & BIKELOS Methodology	15 0 -5 0 10 0 0 0 0	15	0	0
Bike Travels in a Right Turn Lane				
				
Table 3 - POINTS	15	0	0	0

Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
				
• Allowed • Prohibited (or there is no right turn conflict)	0 5	0	5	0
Table 5 - POINTS	0	0	5	0

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for the approach				
• < 3 motor vehicle travel lanes • 4 to 5 motor vehicle travel lanes • > 5 motor vehicle travel lanes	0 -5 -10	0	0	0
Table 6 - POINTS	0	0	0	0
Approach Total Approach LOS	0 D E	0 C C	0 C C	0 F F
Intersection Average Intersection LOS	E			

BICYCLE LEVEL OF SERVICE Worksheet
(to be used for Signalized Intersections)

Intersection: **Mathews-Woodington Road and Driveway #3**
Date: **3/29/2019**

Select points from Tables 1-6 on the left hand side of spreadsheet and enter the numerical value into the appropriate YELLOW highlighted cells on the right. Spreadsheet calculates approach by BIKELOS and overall intersection BIKELOS.

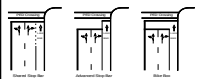
Table 1.	NB Approach	SB Approach	EB Approach	WB Approach
SIGNAL FEATURES	Mathews-Woodington Road/From Woodington Road Driveway #3			
A. Auto Left Turn Phase (opposing cyclists)				
				
• Made on Green Ball only • Made on Leading Green Arrow/Green Ball • Made on Green Arrow Only • No Left Turn Conflict	0 5 15 15	15	15	15
Table 1A - POINTS	15	15	15	0
B. STOP BAR LOCATION				
				
• Shared stop bar for bikes & autos • Advanced stop bar for bikes or bike box	0 10	0	0	0
Table 1B - POINTS	0	0	0	0
Table 1 - POINTS	15	15	15	0

Table 2.	NB Approach	SB Approach	EB Approach	WB Approach
Bicycle Travel Way				
				
Bike Travels in Approach/Departure Lane				
• Shared Auto Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	5 30 50	5	50
• Shared Auto Lane to Wide Curb Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	20 40 55		
• Shared Auto Lane to Bike Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	35 50 60		
• Shared Wide Curb Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	15 25 50		
• Shared Wide Curb Lane to Wide Curb Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30 50 60		
• Shared Wide Curb Lane to Bike Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	45 60 70		
• Bike Lane to Shared Auto Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	30 45 55		
• Bike Lane to Wide Curb Lane (lane < 12' wide)	2-40 mph 30 to 35 mph < 30 mph	40 55 65		
• Bike Lane to Bike Lane	2-40 mph 30 to 35 mph < 30 mph	60 70 80		
Table 2 - POINTS	5	5	50	0

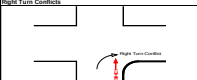
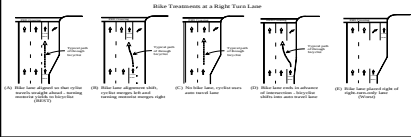
Table 3.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn Conflicts				
				
• No Conflict with Right Turning Motorist (i.e., "T" intersection, one-way street) • Bike in Shared Thru-Right Lane → Bike lane drops prior to intersection → Bike lane extends to intersection • Separate Right Turn Lane Provided (see Figure below) → Condition A in Figure below → Curb lane becomes right turn lane, bike lane left of Condition A in Figure below → No bike lane → Condition C in Figure below → Curb lane becomes right turn lane, no bike lane → Figure D in PED & BIKELOS Methodology → Bike lane right of right turn lane → Figure E in PED & BIKELOS Methodology	15 0 -5 0 10 0 0 0 0 -20	15	0	0
Bike Travels in a Right Turn Lane				
				
Table 3 - POINTS	15	0	0	0

Table 5.	NB Approach	SB Approach	EB Approach	WB Approach
Right Turn on Red Conflict				
				
• Allowed • Prohibited (or there is no right turn conflict)	0 5	0	5	0
Table 5 - POINTS	0	0	5	0

Table 6.	NB Approach	SB Approach	EB Approach	WB Approach
Intersection Crossing Distance for the approach				
• < 3 motor vehicle travel lanes • 4 to 5 motor vehicle travel lanes • > 5 motor vehicle travel lanes	0 -5 -10	0	0	0
Table 6 - POINTS	0	0	0	0
Approach Total Approach LOS	0 C D	0 C D	0 C D	0 F
Intersection Average Intersection LOS	D E			

Crash Data

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: UNION **City:** All and Rural
Date: 12/1/2015 to 11/30/2018 **Study:** 41000054958
Location: SR 1362 (Chestnut Lane) at SR 1357 (Potter Road)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	104589024	12/14/2015 17:12	LEFT TURN, SAME ROADWAY	\$ 13000	0	0	1	0	2	4	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
2	104615247	01/17/2016 13:58	REAR END, SLOW OR STOP	\$ 2600	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	3 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn: 1		Obj Strk:									
3	104715589	04/23/2016 15:13	LEFT TURN, SAME ROADWAY	\$ 7000	0	0	0	3	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
4	104847034	09/13/2016 18:28	REAR END, SLOW OR STOP	\$ 5500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1		Obj Strk:									
5	104904911	11/01/2016 13:24	REAR END, SLOW OR STOP	\$ 5500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	3 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									
6	104922897	11/22/2016 17:18	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
7	105001556	02/07/2017 21:34	ANGLE	\$ 11500	0	0	0	1	2	5	3	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									

01/22/2019

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**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
8	105124468	06/05/2017 19:17	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 32	Alchl/Drgs: 7	Speed: 31 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
9	105185900	08/09/2017 10:00	BACKING UP	\$ 2000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:				10	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:				1	Obj Strk:						
10	105223097	09/18/2017 09:32	LEFT TURN, SAME ROADWAY	\$ 10000	0	0	1	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: S	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
11	105288913	11/15/2017 10:19	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	2	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:				1	Obj Strk:						
12	105406496	03/08/2018 09:07	FIXED OBJECT	\$ 3000	0	0	0	1	1	1	1	1	0	13	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk: 64						
13	105461675	04/27/2018 16:00	REAR END, SLOW OR STOP	\$ 15000	0	0	0	0	1	1	1	1	0	13	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:				11	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
Unit	3 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						
14	105513209	06/14/2018 12:00	LEFT TURN, DIFFERENT ROADWAYS	\$ 23000	0	0	0	2	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: SE	Veh Mnvr / Ped Actn:				8	Obj Strk:						
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:				4	Obj Strk:						
15	105516010	06/18/2018 17:55	REAR END, SLOW OR STOP	\$ 150	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn:				4	Obj Strk:						
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn:				1	Obj Strk:						

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op

Legend for
Report Details:
 Acc No - Accident Number
 Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
 Condition: R - Road Surface, L - Ambient Light, W - Weather
 Rd Ch - Road Character
 Rd Ci - Roadway Contributing Circumstances
 Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
 Alchl/Drgs - Alcohol Drugs Suspected
 Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
 Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	15	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	6	40.00
Total Injury Crashes	6	40.00
Property Damage Only Crashes	9	60.00
Night Crashes	2	13.33
Wet Crashes	2	13.33
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	15	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	2	13.33
Class C Crashes	4	26.67
Property Damage Only Crashes	9	60.00

Vehicle Exposure Statistics

Annual ADT = 18600

Total Vehicle Exposure = 20.39 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	73.58
Fatal Crash Rate	0.00
Non Fatal Crash Rate	29.43
Night Crash Rate	9.81
Wet Crash Rate	9.81
EPDO Rate	291.38

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.96
EPDO Crash Index =	59.40
Estimated Property Damage Total = \$	105750.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	1	6.67
BACKING UP	1	6.67
FIXED OBJECT	1	6.67
LEFT TURN, DIFFERENT ROADWAYS	1	6.67
LEFT TURN, SAME ROADWAY	3	20.00
REAR END, SLOW OR STOP	8	53.33

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	2	20.00
Class C Injuries	8	80.00
Total Non-Fatal Injuries	10	100.00
Total Injuries	10	100.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	6.67
Feb	1	6.67
Mar	1	6.67
Apr	2	13.33
May	0	0.00
Jun	3	20.00
Jul	0	0.00
Aug	1	6.67
Sep	2	13.33
Oct	0	0.00
Nov	3	20.00
Dec	1	6.67

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	4	26.67
Tue	4	26.67
Wed	2	13.33
Thu	2	13.33
Fri	1	6.67
Sat	1	6.67
Sun	1	6.67

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	2	13.33
1000-1059	2	13.33
1100-1159	0	0.00
1200-1259	1	6.67
1300-1359	2	13.33
1400-1459	0	0.00
1500-1559	1	6.67
1600-1659	1	6.67
1700-1759	3	20.00
1800-1859	1	6.67
1900-1959	1	6.67
2000-2059	0	0.00
2100-2159	1	6.67
2200-2259	0	0.00
2300-2359	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	13	0	0	13
Dark	0	2	0	2
Other	0	0	0	0
Total	13	2	0	15

Object Struck Summary

Object Type	Times Struck	Percent of Total
OTHER FIXED OBJECT	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	3.03
PASSENGER CAR	16	48.48
PICKUP	4	12.12
SPORT UTILITY	11	33.33
UNKNOWN	1	3.03

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2015	1	0	1	0
2016	5	0	1	4
2017	5	0	2	3
2018	4	0	2	2
Total	15	0	6	9

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2015	0	1
2016	0	3
2017	0	3
2018	0	3
Total	0	10

Miscellaneous Totals

Year	Property Damage	EPDO Index
2015	\$ 13000	8.40
2016	\$ 25100	12.40
2017	\$ 26500	19.80
2018	\$ 41150	18.80
Total	\$ 105750	59.40

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2015	1	0	0	0	0	0	0
2016	1	0	4	0	0	0	0
2017	1	0	2	0	1	0	1
2018	1	0	2	1	0	0	0
Total	4	0	8	1	1	0	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: UNION **City:** All and Rural
Date: 12/01/2015 to 11/30/2018 **Study:** 41000055604REV
Location: SR 1362 (Chestnut Lane) at SR 1344 (Matthews Weddington Road)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	104603854	01/04/2016 07:26	ANGLE	\$ 15000	0	0	0	2	1	1	1	1	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: SW	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
2	104705411	04/18/2016 08:16	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 20 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1		Obj Strk:									
3	104727489	05/09/2016 17:45	REAR END, SLOW OR STOP	\$ 350	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
4	104741513	05/20/2016 19:00	HEAD ON	\$ 12000	0	0	6	0	2	1	3	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 5	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
5	104743888	05/24/2016 09:03	LEFT TURN, DIFFERENT ROADWAYS	\$ 6000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 30 MPH Dir: S	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
6	104831769	08/26/2016 13:15	ANGLE	\$ 5500	0	0	0	0	1	1	1	3	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: SW	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
7	104879733	10/13/2016 08:49	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn: 7		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 7	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 8		Obj Strk:									
8	104976278	01/16/2017 02:05	RAN OFF ROAD - STRAIGHT	\$ 3000	0	0	0	0	1	4	1	1	0	1	1
Unit	1 : 2	Alchl/Drgs: 1	Speed: 60 MPH Dir: SW	Veh Mnvr / Ped Actn: 4		Obj Strk: 58									

01/28/2019

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**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	105010895	02/16/2017 13:35	REAR END, SLOW OR STOP	\$ 2500	0	0	0	0	1	1	1	2	0	1	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
10	105094140	05/09/2017 22:56	RAN OFF ROAD - STRAIGHT	\$ 1000	0	0	0	0	1	4	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
11	105101921	05/17/2017 17:27	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	1	0	13	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
12	105106888	05/21/2017 17:58	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	2	1	3	3	0	13	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1				Obj Strk:							
13	105121525	06/04/2017 19:05	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	2	1	3	1	0	13	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1				Obj Strk:							
14	105122589	06/06/2017 17:40	ANGLE	\$ 4500	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: SW	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
15	105207518	09/01/2017 15:16	ANGLE	\$ 1500	0	0	0	0	2	1	2	1	0	1	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:			58				
16	105236340	09/30/2017 16:14	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1				Obj Strk:							
17	105258071	10/18/2017 08:41	LEFT TURN, DIFFERENT ROADWAYS	\$ 5000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	105274996	11/02/2017 17:51	ANGLE	\$ 5000	0	0	0	1	1	2	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
19	105368178	01/25/2018 18:00	ANGLE	\$ 12000	0	0	0	3	1	2	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
20	105368528	02/01/2018 17:33	ANGLE	\$ 10500	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: S	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
21	105409543	03/14/2018 08:36	REAR END, SLOW OR STOP	\$ 2500	0	0	0	0	2	1	2	1	0	13	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
22	105428441	03/28/2018 08:27	LEFT TURN, DIFFERENT ROADWAYS	\$ 8000	0	0	0	2	1	1	1	1	0	3	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 15 MPH Dir: SW	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
23	105476957	05/10/2018 07:39	BACKING UP	\$ 1100	0	0	0	0	1	1	1	3	0	13	1
Unit	1 : 11	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 10				Obj Strk:							
Unit	2 : 2	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 1				Obj Strk:							
24	105526731	06/29/2018 17:15	LEFT TURN, DIFFERENT ROADWAYS	\$ 8000	0	0	2	2	1	1	1	1	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: NE	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 5	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
25	105544449	07/18/2018 08:02	ANGLE	\$ 4500	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 10	Alchl/Drgs: 0	Speed: 30 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
26	105606565	09/18/2018 18:20	REAR END, SLOW OR STOP	\$ 3300	0	0	0	0	1	1	1	1	0	13	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op

Legend for
Report Details:
 Acc No - Accident Number
 Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
 Condition: R - Road Surface, L - Ambient Light, W - Weather
 Rd Ch - Road Character
 Rd Ci - Roadway Contributing Circumstances
 Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
 Alchl/Drgs - Alcohol Drugs Suspected
 Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
 Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	26	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	6	23.08
Total Injury Crashes	6	23.08
Property Damage Only Crashes	20	76.92
Night Crashes	2	7.69
Wet Crashes	5	19.23
Alcohol/Drugs Involvement Crashes	1	3.85

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	26	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	2	7.69
Class C Crashes	4	15.38
Property Damage Only Crashes	20	76.92

Vehicle Exposure Statistics

Annual ADT = 15900

Total Vehicle Exposure = 17.43 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	149.20
Fatal Crash Rate	0.00
Non Fatal Crash Rate	34.43
Night Crash Rate	11.48
Wet Crash Rate	28.69
EPDO Rate	403.98

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	2.71
EPDO Crash Index =	70.40
Estimated Property Damage Total = \$	126250.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	8	30.77
BACKING UP	1	3.85
HEAD ON	1	3.85
LEFT TURN, DIFFERENT ROADWAYS	4	15.38
RAN OFF ROAD - STRAIGHT	2	7.69
REAR END, SLOW OR STOP	10	38.46

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	8	44.44
Class C Injuries	10	55.56
Total Non-Fatal Injuries	18	100.00
Total Injuries	18	100.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	3	11.54
Feb	2	7.69
Mar	2	7.69
Apr	1	3.85
May	7	26.92
Jun	3	11.54
Jul	1	3.85
Aug	1	3.85
Sep	3	11.54
Oct	2	7.69
Nov	1	3.85
Dec	0	0.00

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	4	15.38
Tue	4	15.38
Wed	5	19.23
Thu	6	23.08
Fri	4	15.38
Sat	1	3.85
Sun	2	7.69

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	1	3.85
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	2	7.69
0800-0859	6	23.08
0900-0959	1	3.85
1000-1059	0	0.00
1100-1159	0	0.00
1200-1259	0	0.00
1300-1359	2	7.69
1400-1459	0	0.00
1500-1559	1	3.85
1600-1659	1	3.85
1700-1759	7	26.92
1800-1859	2	7.69
1900-1959	2	7.69
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	1	3.85
2300-2359	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	17	5	0	22
Dark	2	0	0	2
Other	2	0	0	2
Total	21	5	0	26

Object Struck Summary

Object Type	Times Struck	Percent of Total
DITCH	2	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	21	42.00
PICKUP	6	12.00
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	3	6.00
SINGLE UNIT TRUCK (3 OR MORE AXLES)	1	2.00
SPORT UTILITY	14	28.00
VAN	5	10.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2015	0	0	0	0
2016	7	0	2	5
2017	11	0	1	10
2018	8	0	3	5
Total	26	0	6	20

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2015	0	0
2016	0	8
2017	0	1
2018	0	9
Total	0	18

Miscellaneous Totals

Year	Property Damage	EPDO Index
2015	\$ 0	0.00
2016	\$ 44350	21.80
2017	\$ 32000	18.40
2018	\$ 49900	30.20
Total	\$ 126250	70.40

Type of Accident Totals

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2015	0	0	0	0	0	0	0
2016	1	0	3	0	2	0	1
2017	1	0	5	2	3	0	0
2018	2	0	2	0	3	0	1
Total	4	0	10	2	8	0	2

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: UNION **City:** All and Rural
Date: 12/01/2015 to 11/30/2018 **Study:** 41000055605
Location: SR 1344 (Matthews Weddington Road) at SR 1338 (Antioch Church Road)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	104601364	12/30/2015 08:24	LEFT TURN, SAME ROADWAY	\$ 2500	0	0	0	0	2	1	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
2	104613687	01/12/2016 13:01	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 3 MPH Dir: NW	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: NW	Veh Mnvr / Ped Actn: 1		Obj Strk:									
3	104967458	01/05/2017 17:53	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	4	1	1	0	3	1
Unit	1 : 32	Alchl/Drgs: 7	Speed: 40 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
4	105013624	02/14/2017 12:36	SIDESWIPE, SAME DIRECTION	\$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 14	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 7		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
5	105073613	04/19/2017 17:45	ANGLE	\$ 15000	0	0	0	0	1	1	2	1	0	3	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
6	105397939	03/03/2018 09:06	REAR END, SLOW OR STOP	\$ 700	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 7		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1		Obj Strk:									
7	105627489	10/06/2018 11:19	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: S	Veh Mnvr / Ped Actn: 1		Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
8	105650588	10/27/2018 11:39	ANGLE	\$ 4000	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 2				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn: 4				Obj Strk:							

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	8	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	0	0.00
Total Injury Crashes	0	0.00
Property Damage Only Crashes	8	100.00
Night Crashes	1	12.50
Wet Crashes	1	12.50
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	8	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	0	0.00
Property Damage Only Crashes	8	100.00

Vehicle Exposure Statistics

Annual ADT = 15800

Total Vehicle Exposure = 17.32 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	46.20
Fatal Crash Rate	0.00
Non Fatal Crash Rate	0.00
Night Crash Rate	5.77
Wet Crash Rate	5.77
EPDO Rate	46.20

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	1.00
EPDO Crash Index =	8.00
Estimated Property Damage Total = \$	32200.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	2	25.00
LEFT TURN, SAME ROADWAY	1	12.50
REAR END, SLOW OR STOP	4	50.00
SIDESWIPE, SAME DIRECTION	1	12.50

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	0	0.00
Total Non-Fatal Injuries	0	0.00
Total Injuries	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	2	25.00
Feb	1	12.50
Mar	1	12.50
Apr	1	12.50
May	0	0.00
Jun	0	0.00
Jul	0	0.00
Aug	0	0.00
Sep	0	0.00
Oct	2	25.00
Nov	0	0.00
Dec	1	12.50

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	0	0.00
Tue	2	25.00
Wed	2	25.00
Thu	1	12.50
Fri	0	0.00
Sat	3	37.50
Sun	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	1	12.50
0900-0959	1	12.50
1000-1059	0	0.00
1100-1159	2	25.00
1200-1259	1	12.50
1300-1359	1	12.50
1400-1459	0	0.00
1500-1559	0	0.00
1600-1659	0	0.00
1700-1759	2	25.00
1800-1859	0	0.00
1900-1959	0	0.00
2000-2059	0	0.00
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	6	1	0	7
Dark	1	0	0	1
Other	0	0	0	0
Total	7	1	0	8

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
PASSENGER CAR	10	58.82
PICKUP	1	5.88
SPORT UTILITY	4	23.53
TRACTOR/SEMI-TRAILER	1	5.88
UNKNOWN	1	5.88

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2015	1	0	0	1
2016	1	0	0	1
2017	3	0	0	3
2018	3	0	0	3
Total	8	0	0	8

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2015	0	0
2016	0	0
2017	0	0
2018	0	0
Total	0	0

Miscellaneous Totals

Year	Property Damage	EPDO Index
2015	\$ 2500	1.00
2016	\$ 1500	1.00
2017	\$ 22000	3.00
2018	\$ 6200	3.00
Total	\$ 32200	8.00

Type of Accident Totals

Year	Left Turn	Right Turn	Rear End	Run Off Road & Fixed Object	Angle	Side Swipe	Other
2015	1	0	0	0	0	0	0
2016	0	0	1	0	0	0	0
2017	0	0	1	0	1	1	0
2018	0	0	2	0	1	0	0
Total	1	0	4	0	2	1	0

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: UNION **City:** All and Rural
Date: 12/01/2015 to 11/30/2018 **Study:** 41000055606
Location: SR 1345 (Tilley Morris Road) at SR 1344 (Matthews Weddington Road)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	104581351	12/10/2015 18:01	REAR END, SLOW OR STOP	\$ 150	0	0	0	1	1	4	1	1	0	2	1
Unit	1 : 5	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn: 11		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									
2	104659876	02/20/2016 12:35	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
3	104754156	05/27/2016 18:03	REAR END, SLOW OR STOP	\$ 6000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn: 11		Obj Strk:									
4	104869565	10/05/2016 18:35	REAR END, SLOW OR STOP	\$ 4400	0	0	0	0	1	1	2	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									
5	104907765	11/04/2016 07:50	SIDESWIPE, OPPOSITE DIRECTION	\$ 15500	0	0	0	3	1	1	1	1	0	13	1
Unit	1 : 10	Alchl/Drgs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 40 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
6	104910085	11/09/2016 11:59	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
7	104947438	12/13/2016 15:58	REAR END, SLOW OR STOP	\$ 5500	0	0	0	0	2	1	2	1	0	1	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 8		Obj Strk:									
8	104982657	01/21/2017 14:57	SIDESWIPE, SAME DIRECTION	\$ 550	0	0	0	0	1	1	2	1	0	13	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 6 MPH Dir: W	Veh Mnvr / Ped Actn: 5		Obj Strk:									

01/29/2019

All data presented in this report comes explicitly from the Traffic Engineering Accident Analysis System based upon various input criteria provided by the report's creator. The onus is strictly upon the user of this report to exercise due diligence in interpreting and further representing this data.

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North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
9	105089403	04/28/2017 07:36	REAR END, SLOW OR STOP	\$ 12000	0	0	0	0	1	1	1	1	0	13	1
Unit	1 : 2	Alchl/Drugs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 5	Alchl/Drugs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
10	105080142	04/30/2017 15:56	REAR END, SLOW OR STOP	\$ 2250	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drugs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
11	105101410	05/16/2017 18:58	REAR END, SLOW OR STOP	\$ 2000	0	0	0	2	1	1	1	1	0	2	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:	1	Obj Strk:									
12	105161354	07/11/2017 08:58	REAR END, SLOW OR STOP	\$ 6000	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:	1	Obj Strk:									
13	105174668	07/25/2017 08:11	LEFT TURN, DIFFERENT ROADWAYS	\$ 12000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 5 MPH Dir: NW	Veh Mnvr / Ped Actn:	8	Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
14	105243175	09/27/2017 08:58	REAR END, SLOW OR STOP	\$ 3000	0	0	0	1	1	1	1	1	0	2	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:	1	Obj Strk:									
15	105315715	12/01/2017 16:49	REAR END, SLOW OR STOP	\$ 700	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 5 MPH Dir: NE	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 5 MPH Dir: NE	Veh Mnvr / Ped Actn:	11	Obj Strk:									
16	105331291	12/18/2017 18:02	BACKING UP	\$ 3700	0	0	0	2	1	4	1	1	0	2	1
Unit	1 : 10	Alchl/Drugs: 7	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn:	10	Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:	1	Obj Strk:									
17	105337304	12/29/2017 12:15	LEFT TURN, DIFFERENT ROADWAYS	\$ 5000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 2	Alchl/Drugs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:	8	Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn:	8	Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	105370373	02/04/2018 15:36	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	2	1	2	1	0	2	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
19	105476959	05/10/2018 09:18	REAR END, SLOW OR STOP	\$ 2000	0	0	0	1	1	1	1	3	0	2	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							
20	105496277	05/23/2018 11:51	LEFT TURN, SAME ROADWAY	\$ 8000	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs: 0	Speed: 40 MPH Dir: W	Veh Mnvr / Ped Actn: 8				Obj Strk:							
Unit	2 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:							
21	105547465	07/18/2018 17:37	REAR END, SLOW OR STOP	\$ 1300	0	0	0	2	1	1	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 5	Alchl/Drgs: 0	Speed: 5 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
22	105559601	07/29/2018 20:29	LEFT TURN, SAME ROADWAY	\$ 3000	0	0	0	0	2	2	2	1	0	13	1
Unit	1 : 20	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 8				Obj Strk:							
23	105569098	08/08/2018 14:44	SIDESWIPE, SAME DIRECTION	\$ 1400	0	0	0	0	1	1	1	1	0	2	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 25 MPH Dir: N	Veh Mnvr / Ped Actn: 5				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn: 4				Obj Strk:							
24	105631406	10/08/2018 14:47	REAR END, SLOW OR STOP	\$ 4500	0	0	0	0	1	1	1	5	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 2	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
25	105658159	10/26/2018 12:08	REAR END, TURN	\$ 2500	0	0	0	0	2	1	3	1	0	2	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: N	Veh Mnvr / Ped Actn: 7				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: N	Veh Mnvr / Ped Actn: 11				Obj Strk:							
26	105669802	10/31/2018 17:34	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 4				Obj Strk:							
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1				Obj Strk:							

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
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Acc No	Crash ID	Date	Accident Type					Total Damage	Injuries				Condition			Road		Trfc Ctl	
									F	A	B	C	R	L	W	Ch	Ci	Dv	Op
27	105684557	11/20/2018 19:05	REAR END, SLOW OR STOP					\$ 1050	0	0	0	0	1	5	1	1	0	2	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 5 MPH	Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 0	Speed: 5 MPH	Dir: E	Veh Mnvr / Ped Actn: 11				Obj Strk:										

28	105702385	11/30/2018 18:56	REAR END, SLOW OR STOP					\$ 1400	0	0	0	0	1	2	1	1	0	2	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH	Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:										
Unit	2 : 1	Alchl/Drgs: 7	Speed: 15 MPH	Dir: E	Veh Mnvr / Ped Actn: 4				Obj Strk:										

Legend for Report Details:

- Acc No - Accident Number
- Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
- Condition: R - Road Surface, L - Ambient Light, W - Weather
- Rd Ch - Road Character
- Rd Ci - Roadway Contributing Circumstances
- Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
- Alchl/Drgs - Alcohol Drugs Suspected
- Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
- Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	28	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	8	28.57
Total Injury Crashes	8	28.57
Property Damage Only Crashes	20	71.43
Night Crashes	3	10.71
Wet Crashes	4	14.29
Alcohol/Drugs Involvement Crashes	0	0.00

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	28	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	0	0.00
Class C Crashes	8	28.57
Property Damage Only Crashes	20	71.43

Vehicle Exposure Statistics

Annual ADT = 14700

Total Vehicle Exposure = 16.11 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	173.79
Fatal Crash Rate	0.00
Non Fatal Crash Rate	49.65
Night Crash Rate	18.62
Wet Crash Rate	24.83
EPDO Rate	541.24

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.11
EPDO Crash Index =	87.20
Estimated Property Damage Total = \$	114900.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
BACKING UP	1	3.57
LEFT TURN, DIFFERENT ROADWAYS	2	7.14
LEFT TURN, SAME ROADWAY	2	7.14
REAR END, SLOW OR STOP	19	67.86
REAR END, TURN	1	3.57
SIDESWIPE, OPPOSITE DIRECTION	1	3.57
SIDESWIPE, SAME DIRECTION	2	7.14

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	0	0.00
Class C Injuries	13	100.00
Total Non-Fatal Injuries	13	100.00
Total Injuries	13	100.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	1	3.57
Feb	2	7.14
Mar	0	0.00
Apr	2	7.14
May	4	14.29
Jun	0	0.00
Jul	4	14.29
Aug	1	3.57
Sep	1	3.57
Oct	4	14.29
Nov	4	14.29
Dec	5	17.86

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	2	7.14
Tue	5	17.86
Wed	7	25.00
Thu	2	7.14
Fri	7	25.00
Sat	2	7.14
Sun	3	10.71

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	2	7.14
0800-0859	3	10.71
0900-0959	1	3.57
1000-1059	0	0.00
1100-1159	2	7.14
1200-1259	3	10.71
1300-1359	0	0.00
1400-1459	3	10.71
1500-1559	3	10.71
1600-1659	1	3.57
1700-1759	2	7.14
1800-1859	6	21.43
1900-1959	1	3.57
2000-2059	1	3.57
2100-2159	0	0.00
2200-2259	0	0.00
2300-2359	0	0.00

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	20	3	0	23
Dark	3	0	0	3
Other	1	1	0	2
Total	24	4	0	28

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
MOTORCYCLE	1	1.79
PASSENGER CAR	27	48.21
PICKUP	5	8.93
SINGLE UNIT TRUCK (2-AXLE, 6-TIRE)	2	3.57
SPORT UTILITY	18	32.14
VAN	3	5.36

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2015	1	0	1	0
2016	6	0	1	5
2017	10	0	3	7
2018	11	0	3	8
Total	28	0	8	20

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2015	0	1
2016	0	3
2017	0	5
2018	0	4
Total	0	13

Miscellaneous Totals

Year	Property Damage	EPDO Index
2015	\$ 150	8.40
2016	\$ 36400	13.40
2017	\$ 47200	32.20
2018	\$ 31150	33.20
Total	\$ 114900	87.20

Type of Accident Totals

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2015	0	0	1	0	0	0	0
2016	0	0	5	0	0	1	0
2017	2	0	6	0	0	1	1
2018	2	0	8	0	0	1	0
Total	4	0	20	0	0	3	1

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Study Criteria Summary

County: MECKLENBURG **City:** All and Rural
Date: 12/01/2015 to 11/30/2018 **Study:** 41000055607
Location: SR 3440 (McKee Road) at SR 3468 (Weddington Road)

Report Details

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	104574246	12/05/2015 18:42	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	1	1	1	1	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 30 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 30 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
2	104602095	01/04/2016 02:15	RAN OFF ROAD - LEFT	\$ 7000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs: 1	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk: 33									
3	104708847	04/21/2016 11:01	ANGLE	\$ 2000	0	0	0	0	1	1	1	1	11	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
4	104742977	05/24/2016 18:20	ANGLE	\$ 6000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
5	104768300	06/20/2016 10:10	ANGLE	\$ 18000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 40 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
6	104788340	07/12/2016 22:43	ANGLE	\$ 10000	0	0	1	0	1	4	1	1	0	3	1
Unit	1 : 3	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 45 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
7	104802349	07/27/2016 18:04	REAR END, SLOW OR STOP	\$ 3600	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 5 MPH Dir: W	Veh Mnvr / Ped Actn: 7		Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1		Obj Strk:									
8	104846832	09/13/2016 12:45	REAR END, SLOW OR STOP	\$ 800	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									
Unit	2 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn: 1		Obj Strk:									

01/30/2019

All data presented in this report comes explicitly from the Traffic Engineering Accident Analysis System based upon various input criteria provided by the report's creator. The onus is strictly upon the user of this report to exercise due diligence in interpreting and further representing this data.

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**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	3 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: N	Veh Mnvr / Ped Actn:	1	Obj Strk:									
9	105026599	03/05/2017 11:37	ANGLE	\$ 2000	0	0	0	0	1	1	1	1	0	3	2
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: N	Veh Mnvr / Ped Actn:	8	Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 45 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
10	105033629	03/11/2017 09:50	SIDESWIPE, OPPOSITE DIRECTION	\$ 10500	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 45 MPH Dir: S	Veh Mnvr / Ped Actn:	7	Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 25 MPH Dir: E	Veh Mnvr / Ped Actn:	11	Obj Strk:									
11	105039350	03/16/2017 18:42	REAR END, SLOW OR STOP	\$ 2000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 2	Alchl/Drgs: 0	Speed: 35 MPH Dir: S	Veh Mnvr / Ped Actn:	1	Obj Strk:									
12	105151073	07/05/2017 12:29	ANGLE	\$ 16000	0	0	1	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 10 MPH Dir: NW	Veh Mnvr / Ped Actn:	8	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									
13	105207665	09/01/2017 13:45	ANGLE	\$ 5000	0	0	0	1	1	1	2	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 25 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn:	4	Obj Strk:									
14	105311765	12/06/2017 19:50	REAR END, SLOW OR STOP	\$ 13000	0	0	0	0	2	4	3	1	0	3	1
Unit	1 : 1	Alchl/Drgs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn:	4	Obj Strk:									
Unit	2 : 3	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:	1	Obj Strk:									
Unit	3 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn:	1	Obj Strk:									
15	105361089	01/23/2018 15:43	REAR END, SLOW OR STOP	\$ 4300	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs: 0	Speed: 15 MPH Dir: E	Veh Mnvr / Ped Actn:	11	Obj Strk:									
Unit	2 : 1	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:	1	Obj Strk:									
Unit	3 : 4	Alchl/Drgs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn:	1	Obj Strk:									
16	105453053	04/22/2018 11:46	SIDESWIPE, SAME DIRECTION	\$ 2000	0	0	0	0	1	1	2	1	0	0	
Unit	1 : 1	Alchl/Drgs: 0	Speed: 2 MPH Dir: E	Veh Mnvr / Ped Actn:	5	Obj Strk:									
Unit	2 : 3	Alchl/Drgs: 0	Speed: 2 MPH Dir: E	Veh Mnvr / Ped Actn:	4	Obj Strk:									

North Carolina Department of Transportation
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Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op
17	105472001	05/08/2018 15:37	ANGLE	\$ 8000	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 20 MPH Dir: N	Veh Mnvr / Ped Actn: 8		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 35 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
18	105479146	05/14/2018 21:10	ANGLE	\$ 13000	0	0	1	1	1	4	1	1	0	3	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 50 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 45 MPH Dir: N	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	3 : 5	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1		Obj Strk:									
19	105516510	06/20/2018 09:52	REAR END, SLOW OR STOP	\$ 7000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drugs: 0	Speed: 35 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
20	105556073	07/30/2018 14:53	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: W	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: W	Veh Mnvr / Ped Actn: 1		Obj Strk:									
21	105555275	07/30/2018 18:09	REAR END, SLOW OR STOP	\$ 2000	0	0	0	2	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drugs: 0	Speed: 15 MPH Dir: S	Veh Mnvr / Ped Actn: 7		Obj Strk:									
Unit	2 : 3	Alchl/Drugs: 0	Speed: 10 MPH Dir: S	Veh Mnvr / Ped Actn: 7		Obj Strk:									
22	105556922	08/01/2018 17:14	REAR END, SLOW OR STOP	\$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 5	Alchl/Drugs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 5	Alchl/Drugs: 0	Speed: 20 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
23	105563307	08/06/2018 12:33	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	2	1	0	3	1
Unit	1 : 2	Alchl/Drugs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 1	Alchl/Drugs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									
24	105636532	10/15/2018 19:32	REAR END, SLOW OR STOP	\$ 1200	0	0	0	1	1	4	1	1	0	0	
Unit	1 : 1	Alchl/Drugs: 0	Speed: 10 MPH Dir: E	Veh Mnvr / Ped Actn: 4		Obj Strk:									
Unit	2 : 4	Alchl/Drugs: 0	Speed: 0 MPH Dir: E	Veh Mnvr / Ped Actn: 1		Obj Strk:									

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Acc No	Crash ID	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
					F	A	B	C	R	L	W	Ch	Ci	Dv	Op

Legend for
Report Details:
 Acc No - Accident Number
 Injuries: F - Fatal, A - Class A, B - Class B, C - Class C
 Condition: R - Road Surface, L - Ambient Light, W - Weather
 Rd Ch - Road Character
 Rd Ci - Roadway Contributing Circumstances
 Trfc Ctl - Traffic Control: Dv - Device, Op - Operating
 Alchl/Drgs - Alcohol Drugs Suspected
 Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action
 Obj Strk - Object Struck

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Summary Statistics

High Level Crash Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	24	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	8	33.33
Total Injury Crashes	8	33.33
Property Damage Only Crashes	16	66.67
Night Crashes	4	16.67
Wet Crashes	1	4.17
Alcohol/Drugs Involvement Crashes	1	4.17

Crash Severity Summary

Crash Type	Number of Crashes	Percent of Total
Total Crashes	24	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	3	12.50
Class C Crashes	5	20.83
Property Damage Only Crashes	16	66.67

Vehicle Exposure Statistics

Annual ADT = 29500

Total Vehicle Exposure = 32.33 (MEV)

Crash Rate	Crashes Per 100 Million Vehicles Entered
Total Crash Rate	74.23
Fatal Crash Rate	0.00
Non Fatal Crash Rate	24.74
Night Crash Rate	12.37
Wet Crash Rate	3.09
EPDO Rate	257.33

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Miscellaneous Statistics

Severity Index =	3.47
EPDO Crash Index =	83.20
Estimated Property Damage Total = \$	145900.00

Accident Type Summary

Accident Type	Number of Crashes	Percent of Total
ANGLE	9	37.50
RAN OFF ROAD - LEFT	1	4.17
REAR END, SLOW OR STOP	12	50.00
SIDESWIPE, OPPOSITE DIRECTION	1	4.17
SIDESWIPE, SAME DIRECTION	1	4.17

Injury Summary

Injury Type	Number of Injuries	Percent of Total
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	3	27.27
Class C Injuries	8	72.73
Total Non-Fatal Injuries	11	100.00
Total Injuries	11	100.00

**North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report**

Monthly Summary

Month	Number of Crashes	Percent of Total
Jan	2	8.33
Feb	0	0.00
Mar	3	12.50
Apr	2	8.33
May	3	12.50
Jun	2	8.33
Jul	5	20.83
Aug	2	8.33
Sep	2	8.33
Oct	1	4.17
Nov	0	0.00
Dec	2	8.33

Daily Summary

Day	Number of Crashes	Percent of Total
Mon	7	29.17
Tue	5	20.83
Wed	5	20.83
Thu	2	8.33
Fri	1	4.17
Sat	2	8.33
Sun	2	8.33

**North Carolina Department of Transportation
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Intersection Analysis Report**

Hourly Summary

Hour	Number of Crashes	Percent of Total
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	1	4.17
0300-0359	0	0.00
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	0	0.00
0800-0859	0	0.00
0900-0959	2	8.33
1000-1059	1	4.17
1100-1159	3	12.50
1200-1259	3	12.50
1300-1359	1	4.17
1400-1459	1	4.17
1500-1559	2	8.33
1600-1659	0	0.00
1700-1759	1	4.17
1800-1859	5	20.83
1900-1959	2	8.33
2000-2059	0	0.00
2100-2159	1	4.17
2200-2259	1	4.17
2300-2359	0	0.00

**North Carolina Department of Transportation
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Intersection Analysis Report**

Light and Road Conditions Summary

Condition	Dry	Wet	Other	Total
Day	20	0	0	20
Dark	3	1	0	4
Other	0	0	0	0
Total	23	1	0	24

Object Struck Summary

Object Type	Times Struck	Percent of Total
TREE	1	100.00

Vehicle Type Summary

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	4	7.84
PASSENGER CAR	25	49.02
PICKUP	6	11.76
SPORT UTILITY	13	25.49
VAN	3	5.88

North Carolina Department of Transportation
Traffic Engineering Accident Analysis System
Intersection Analysis Report

Yearly Totals Summary

Accident Totals

Year	Total Accidents	Fatal Accidents	Injury Accidents	Property Damage Only Accidents
2015	1	0	0	1
2016	7	0	2	5
2017	6	0	2	4
2018	10	0	4	6
Total	24	0	8	16

Injury Totals

Year	Fatal Injuries	Class A, B, or C Injuries
2015	0	0
2016	0	2
2017	0	3
2018	0	6
Total	0	11

Miscellaneous Totals

Year	Property Damage	EPDO Index
2015	\$ 3000	1.00
2016	\$ 47400	21.80
2017	\$ 48500	20.80
2018	\$ 47000	39.60
Total	\$ 145900	83.20

Type of Accident Totals

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2015	0	0	1	0	0	0	0
2016	0	0	2	1	4	0	0
2017	0	0	2	0	3	1	0
2018	0	0	7	0	2	1	0
Total	0	0	12	1	9	2	0