

# Appendix B3

2020 Baseline Conditions Operations Analysis Results

Node # - Intersection Approach	2020 Baseline Conditions Delay (sec/veh) and LOS											
	AM Peak						PM Peak					
<b>1 - Brodhead Road &amp; Old Brodhead Road</b>												
Overall Intersection	21.6			C			27.5			C		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Old Brodhead Road	NB	40.9	D	LR	40.9	D	NB	50.9	D	LR	50.9	D
Brodhead Road	EB	19.4	B	TR	19.4	B	EB	25.6	C	TR	25.6	C
Brodhead Road	WB	18.8	B	L	17.6	B	WB	23.5	C	L	28.3	C
				T	18.9	B				T	22.6	C
<b>2 - Brodhead Road &amp; Wagner Road *</b>												
Overall Intersection	17.6			C			79.9			F		
By Approach / Lane Group	Approach						Approach					
Wagner Road	SB	LR	17.6	C			SB	LR	79.9	F		
Brodhead Road	EB	LT	0.3	A			EB	LT	0.1	A		
Brodhead Road	WB	R	0.0	A			WB	R	0.0	A		
<b>3 - Brodhead Road &amp; Short Street / Milne Drive</b>												
Overall Intersection	46.5			D			56.1			E		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Milne Drive	NB	60.2	E	LT	59.6	E	NB	84.3	F	LT	65.3	E
				R	61.3	E				R	104.7	F
Short Street	SB	60.9	E	LT	58.6	E	SB	65.3	E	LT	63.5	E
				R	63.0	E				R	68.6	E
Brodhead Road	EB	43.2	D	L	57.3	E	EB	46.5	D	L	58.8	E
				T	42.3	D				T	44.7	D
				R	37.3	D				R	45.6	D
Brodhead Road	WB	41.9	D	L	58.3	E	WB	45.5	D	L	61.5	E
				T	38.8	D				T	40.0	D
				R	37.8	D				R	43.4	D
<b>4 - Brodhead Road &amp; Center Commons Boulevard</b>												
Overall Intersection	25.1			C			31.5			C		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Brodhead Road	NB	25.5	C	L	39.3	D	NB	30.3	C	L	41.1	D
				T	24.9	C				T	28.5	C
Brodhead Road	SB	24.1	C	T	24.4	C	SB	28.0	C	T	28.8	C
				R	20.7	C				R	22.0	C
Center Commons Boulevard	EB	39.1	D	L	39.0	D	EB	45.0	D	L	41.6	D
				R	39.2	D				R	48.2	D

Node # - Intersection Approach	2020 Baseline Conditions Delay (sec/veh) and LOS											
	AM Peak						PM Peak					
<b>5 - Brodhead Road &amp; Beaver Valley Mall Drive / Golfview Drive</b>												
Overall Intersection	35.1			D			49.1			D		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Brodhead Road	NB	34.8	C	L	44.3	D	NB	58.6	E	L	57.4	E
				TR	34.1	C				TR	58.8	E
Brodhead Road	SB	34.5	C	L	46.5	D	SB	38.2	D	L	44.1	D
				T	34.6	C				T	38.8	D
				R	32.0	C				R	34.4	C
Beaver Valley Mall Drive	EB	36.1	D	LT	35.5	D	EB	49.1	D	LT	46.6	D
				R	36.7	D				R	53.2	D
Golfview Drive	WB	46.4	D	LT	46.6	D	WB	63.8	E	LT	62.3	E
				R	46.1	D				R	65.3	E
<b>6 - Brodhead Road &amp; Frankfort Road / Old Brodhead Road</b>												
Overall Intersection	80.7			F			128.3			F		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Brodhead Road	NB	59.8	E	LT	59.9	E	NB	67.6	E	LT	70.5	E
				R	59.6	E				R	63.6	E
Brodhead Road	SB	83.5	F	LT	72.7	E	SB	143.4	F	LT	84.8	F
				R	94.3	F				R	219.2	F
Frankfort Road	EB	92.1	F	LT	89.7	F	EB	177.3	F	LT	198.4	F
				R	97.2	F				R	87.0	F
Old Brodhead Road	WB	70.7	E	LT	71.0	E	WB	74.6	E	LT	75.4	E
				R	66.9	E				R	71.3	E
<b>701 - Brodhead Road &amp; N Branch Road North *</b>												
Overall Intersection	18.4			C			40.7			E		
By Approach / Lane Group	Approach			Approach			Approach			Approach		
Brodhead Road	NB	TR	0.0	A	NB	TR	0.0	A				
Brodhead Road	SB	T	0.0	A	SB	T	0.0	A				
N Branch Road	WB	LR	18.4	C	WB	LR	40.7	E				
<b>702 - Brodhead Road &amp; N Branch Road South *</b>												
Overall Intersection	14.6			B			28.5			D		
By Approach / Lane Group	Approach			Approach			Approach			Approach		
Brodhead Road	NB	T	0.0	A	NB	T	0.0	A				
Brodhead Road	SB	LT	0.2	A	SB	LT	0.8	A				
N Branch Road	WB	LR	14.6	B	WB	LR	28.5	D				
<b>703 - N Branch Road &amp; Warwick Drive *</b>												
Overall Intersection	7.3			A			7.6			A		
By Approach / Lane Group	Approach			Approach			Approach			Approach		
N Branch Road	NB	TR	6.4	A	NB	TR	6.7	A				
N Branch Road	SB	LTR	7.0	A	SB	LTR	7.5	A				
N Branch Road	EB	LT	7.3	A	EB	LT	7.6	A				
Warwick Drive	WB	LTR	7.1	A	WB	LTR	7.2	A				

Node # - Intersection Approach	2020 Baseline Conditions Delay (sec/veh) and LOS											
	AM Peak						PM Peak					
	<b>8 - Brodhead Road &amp; Baker Road Ext *</b>											
Overall Intersection	18.2			C			85.5			F		
By Approach / Lane Group	Approach						Approach					
Brodhead Road	NB	TR	0.0	A			NB	TR	0.0	A		
Brodhead Road	SB	LT	1.5	A			SB	LT	1.5	A		
Baker Road Ext	WB	LR	18.2	C			WB	LR	85.5	F		
<b>9 - Brodhead Road &amp; Community College Drive</b>												
Overall Intersection	41.9			D			53.0			D		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Brodhead Road	NB	45.4	D	TR	45.4	D	NB	60.6	E	TR	60.6	E
Brodhead Road	SB	38.1	D	L	46.5	D	SB	47.0	D	L	42.4	D
				T	32.9	C				T	47.7	D
Community College Drive	WB	41.3	D	LR	41.3	D	WB	48.0	D	LR	48.0	D
<b>10 - Brodhead Road &amp; Sherwood Drive *</b>												
Overall Intersection	14.0			B			23.5			C		
By Approach / Lane Group	Approach						Approach					
Brodhead Road	NB	TR	0.0	A			NB	TR	0.0	A		
Brodhead Road	SB	LT	0.6	A			SB	LT	0.4	A		
Sherwood Drive	WB	LR	14.0	B			WB	LR	23.5	C		
<b>11 - Brodhead Road &amp; Center Grange Road *</b>												
Overall Intersection	16.5			C			89.8			F		
By Approach / Lane Group	Approach						Approach					
Brodhead Road	NB	TR	0.0	A			NB	TR	0.0	A		
Brodhead Road	SB	LT	2.4	A			SB	LT	3.1	A		
Center Grange Road	WB	LR	16.5	C			WB	LR	89.8	F		
<b>12 - Brodhead Road &amp; Main Street *</b>												
Overall Intersection	14.3			B			29.3			D		
By Approach / Lane Group	Approach						Approach					
Brodhead Road	NB	LT	0.2	A			NB	LT	0.3	A		
Brodhead Road	SB	TR	0.0	A			SB	TR	0.0	A		
Main Street	EB	LR	14.3	B			EB	LR	29.3	D		
<b>13 - Brodhead Road &amp; Shaffer Road *</b>												
Overall Intersection	15.2			C			39.9			E		
By Approach / Lane Group	Approach						Approach					
Brodhead Road	NB	LTR	0.0	A			NB	LTR	0.1	A		
Brodhead Road	SB	LTR	0.6	A			SB	LTR	0.9	A		
W Shaffer Road	EB	LTR	12.6	B			EB	LTR	37.0	E		
E Shaffer Road	WB	LTR	15.2	C			WB	LTR	39.9	E		

Node # - Intersection Approach	2020 Baseline Conditions Delay (sec/veh) and LOS											
	AM Peak						PM Peak					
	Approach			Lane Group			Approach			Lane Group		
<b>14 - Brodhead Road &amp; Pleasant Drive *</b>												
Overall Intersection	21.8			C			468.6			F		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Brodhead Road	NB	2.9	A	L	8.8	A	NB	2.9	A	L	9.9	A
				T	0.0	A				T	0.0	A
Brodhead Road	SB	0.0	A	T	0.0	A	SB	0.0	A	T	0.0	A
				R	0.0	A				R	0.0	A
Pleasant Drive	EB	21.8	C	L	32.2	D	EB	468.6	F	L	951.5	F
				R	9.6	A				R	17.4	C
<b>15 - Brodhead Road &amp; Chapel Road *</b>												
Overall Intersection	14.5			B			53.6			F		
By Approach / Lane Group	Approach			Approach			Approach			Approach		
Brodhead Road	NB	TR	0.0	A			NB	TR	0.0	A		
Brodhead Road	SB	LT	0.2	A			SB	LT	0.7	A		
Chapel Road	WB	LR	14.5	B			WB	LR	53.6	F		
<b>16 - Brodhead Road &amp; Mill Street / Kennedy Boulevard</b>												
Overall Intersection	54.7			D			83.8			F		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Brodhead Road	NB	80.6	F	L	57.1	E	NB	105.2	F	L	120.5	F
				TR	94.9	F				TR	92.2	F
Brodhead Road	SB	47.9	D	L	45.4	D	SB	102.7	F	L	50.3	D
				T	50.7	D				T	131.2	F
				R	44.9	D				R	41.4	D
Mill Street	EB	38.1	D	LTR	38.1	D	EB	73.4	E	LTR	73.4	E
Kennedy Boulevard	WB	39.1	D	LTR	39.1	D	WB	44.8	D	LTR	44.8	D
<b>17 - Brodhead Road &amp; Sheffield Road</b>												
Overall Intersection	41.9			D			125.9			F		
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Brodhead Road	NB	36.0	D	TR	36.0	D	NB	24.5	C	TR	24.5	C
Brodhead Road	SB	54.5	D	LTR	54.5	F	SB	222.5	F	LTR	222.5	F
Sheffield Road	EB	11.8	B	LTR	11.8	B	EB	34.1	C	LTR	34.1	C
Sheffield Road	WB	13.2	B	LTR	13.2	B	WB	40.5	D	LTR	40.5	D
<b>18 - Brodhead Road &amp; Kane Road *</b>												
Overall Intersection	17.6			C			32.9			D		
By Approach / Lane Group	Approach			Approach			Approach			Approach		
Kane Road	NB	LR	17.6	C			NB	LR	32.9	D		
Brodhead Road	EB	TR	0.0	A			EB	TR	0.0	A		
Brodhead Road	WB	LT	0.6	A			WB	LT	0.3	A		

Node # - Intersection Approach	2020 Baseline Conditions											
	Delay (sec/veh) and LOS											
	AM Peak						PM Peak					
<b>19 - Brodhead Road &amp; 20<sup>th</sup> Street *</b>												
Overall Intersection	16.5				C		33.7				D	
By Approach / Lane Group	Approach						Approach					
20 <sup>th</sup> Street	SB	LR	16.5	C		SB	LR	33.7	D			
Brodhead Road	EB	LT	0.1	A		EB	LT	0.3	A			
Brodhead Road	WB	TR	0.0	A		WB	TR	0.0	A			
<b>20 - Brodhead Road &amp; Laird Avenue *</b>												
Overall Intersection	14.2				B		35.2				E	
By Approach / Lane Group	Approach						Approach					
Brodhead Road	NB	LTR	0.1	A		NB	LTR	0.4	A			
Brodhead Road	SB	LTR	0.1	A		SB	LTR	0.3	A			
Laird Avenue	EB	LTR	14.2	B		EB	LTR	22.4	C			
Laird Avenue	WB	LTR	13.7	B		WB	LTR	35.2	E			
<b>21 - Brodhead Road &amp; Longvue Avenue *</b>												
Overall Intersection	41.2				E		894.6				F	
By Approach / Lane Group	Approach						Approach					
Brodhead Road	NB	TR	0.0	A		NB	TR	0.0	A			
Brodhead Road	SB	LT	1.3	A		SB	LT	3.7	A			
Longvue Avenue	WB	LR	41.2	E		WB	LR	894.6	F			
<b>22 - Brodhead Road &amp; Gringo Road / Laurel Road / Heights Road</b>												
Overall Intersection	129.8				F		183.1				F	
By Approach / Lane Group	Approach			Lane Group			Approach			Lane Group		
Brodhead Road	NB	38.8	D	LTR	38.8	D	NB	89.6	F	LTR	89.6	F
Brodhead Road	SB	205.9	F	LTR	205.9	F	SB	196.6	F	LTR	196.6	F
Gringo Road	EB	144.0	F	LT	76.4	E	EB	221.4	F	LT	281.2	F
				R	191.4	F				R	128.0	F
Heights Road	WB	56.2	E	LTR	56.2	E	WB	48.8	D	LTR	48.8	D
Laurel Road	NWB	65.0	E	LT	73.7	E	NWB	234.1	F	LT	190.8	F
				R	51.1	D				R	276.6	F

\* Unsignalized Intersection

## SR 18/3007 Brodhead Road, Beaver, PA

Vistro File: N:\...\WO#35141-001 Brodhead Rd -  
Baseline\_Rev 2.vistro

Scenario 1 2020 - AM Base

Report File: N:\...\2020 AM.pdf

4/9/2021

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 18 (Brodhead Rd) & Old Brodhead Rd	Signalized	HCM 2000	NB Right	0.348	21.6	C
2	SR 18 (Brodhead Rd) & Wagner Rd	Two-way stop	HCM 2000	SB Left	0.044	21.4	C
3	SR 18 (Brodhead Rd) & Short St/Milne Dr	Signalized	HCM 2000	SB Right	0.292	46.5	D
4	SR 18 (Brodhead Rd) & Center Commons Blvd	Signalized	HCM 2000	NB Left	0.187	25.1	C
5	SR 18 (Brodhead Rd) & Beaver Valley Mall/Golfview Dr	Signalized	HCM 2000	WB Left	0.252	35.1	D
6	SR 18/3007 (Brodhead Rd) & SR 18 (Frankfort Rd)/Old Brodhead Rd	Signalized	HCM 2000	EB Right	0.495	80.7	F
8	SR 3007 (Brodhead Rd) & Baker Rd Ext	Two-way stop	HCM 2000	WB Left	0.158	25.1	D
9	SR 3007 (Brodhead Rd) & Community College Dr	Signalized	HCM 2000	SB Left	0.453	41.9	D
10	SR 3007 (Brodhead Rd) & Sherwood Dr	Two-way stop	HCM 2000	WB Left	0.062	16.0	C
11	SR 3007 (Brodhead Rd) & Center-Grange Rd	Two-way stop	HCM 2000	WB Left	0.193	20.0	C
12	SR 3007 (Brodhead Rd) & Main St	Two-way stop	HCM 2000	EB Left	0.087	15.7	C
13	SR 3007 (Brodhead Rd) & Shaffer Rd	Two-way stop	HCM 2000	WB Thru	0.015	17.3	C
14	SR 3007 (Brodhead Rd) & Pleasant Dr	Two-way stop	HCM 2000	EB Left	0.508	32.2	D
15	SR 3007 (Brodhead Rd) & Chapel Rd	Two-way stop	HCM 2000	WB Thru	0.242	15.4	C
16	SR 3007 (Brodhead Rd) & SR 3016 (Mill St/Kennedy Blvd)	Signalized	HCM 2000	NB Thru	0.502	54.7	D
17	SR 3007 (Brodhead Rd) & Sheffield Rd	Signalized	HCM 2000	SB Thru	0.640	41.9	D

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18	SR 3007 (Brodhead Rd) & Kane Rd	Two-way stop	HCM 2000	NB Left	0.176	20.3	C
19	SR 3007 (Brodhead Rd) & 20th St	Two-way stop	HCM 2000	SB Thru	0.118	18.1	C
20	SR 3007 (Brodhead Rd) & Laird Ave	Two-way stop	HCM 2000	EB Left	0.022	18.9	C
21	SR 3007 (Brodhead Rd) & Longvue Ave	Two-way stop	HCM 2000	WB Left	0.614	44.2	E
22	SR 3007 (Brodhead Rd) & SR 151 (Gringo Rd)/ Laurel Rd / Heights Rd	Signalized	HCM 2000	SB Left	0.771	129.8	F
701	SR 3007 (Brodhead Rd) & North Branch Rd (South)	Two-way stop	HCM 2000	WB Thru	0.056	18.4	C
702	SR 3007 (Brodhead Rd) & North Branch Rd (North)	Two-way stop	HCM 2000	WB Left	0.056	18.4	C
703	North Branch Rd & Warwick Dr	All-way stop	HCM 2000	EB Left	0.040	7.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.



**Intersection Level Of Service Report**  
**Intersection 1: SR 18 (Brodhead Rd) & Old Brodhead Rd**

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

**Intersection Setup**

Name	Old Brodhead Rd		Brodhead Rd		Brodhead Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	200.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		40.00		35.00	
Grade [%]	-2.00		-7.00		-4.00	
Crosswalk	Yes		Yes		No	

**Volumes**

Name	Old Brodhead Rd		Brodhead Rd		Brodhead Rd	
Base Volume Input [veh/h]	35	115	505	30	80	515
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	6.00	10.00	3.00	9.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	115	505	30	80	515
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	31	134	8	21	137
Total Analysis Volume [veh/h]	37	122	537	32	85	548
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Permissive	Permissive	ProtPerm	Permissive
Signal Group	8	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	20	0	5	20
Maximum Green [s]	30	0	60	0	20	60
Amber [s]	4.0	0.0	5.0	0.0	5.0	5.0
All red [s]	2.0	0.0	2.0	0.0	2.0	2.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	2.0	0.0	2.0	0.0	2.0	2.0
Walk [s]	7	0	7	0	5	0
Pedestrian Clearance [s]	18	0	12	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No		Yes		No	Yes
Maximum Recall	No		No		No	No
Pedestrian Recall	No		Yes		No	No
Detector Location [ft]	-10.0	0.0	30.0	0.0	-10.0	30.0
Detector Length [ft]	75.0	0.0	200.0	0.0	125.0	200.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	C	L	C
C, Cycle Length [s]	130	130	130	130
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	36	67	67	67
g / C, Green / Cycle	0.28	0.52	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.11	0.18	0.09	0.17
Total Saturation Flow Adjustment	0.82	0.85	0.52	0.89
s, saturation flow rate [veh/h]	1469	3076	932	3218
c, Capacity [veh/h]	407	1585	481	1659
d1, Uniform Delay [s]	38.11	18.73	16.83	18.40
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.81	0.63	0.80	0.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

**Lane Group Results**

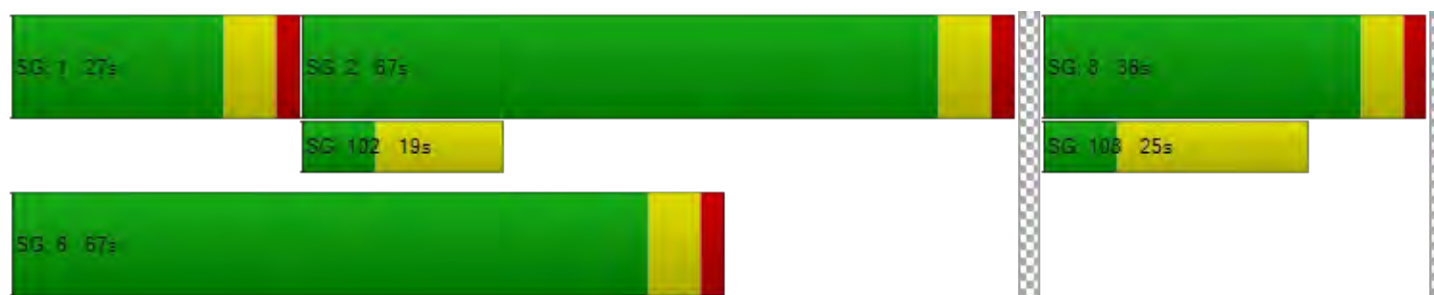
X, volume / capacity	0.39	0.36	0.18	0.33
d, Delay for Lane Group [s/veh]	40.92	19.36	17.64	18.93
Lane Group LOS	D	B	B	B
Critical Lane Group	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.15	7.14	1.83	6.73
50th-Percentile Queue Length [ft/ln]	128.82	178.42	45.65	168.16
95th-Percentile Queue Length [veh/ln]	10.08	13.13	4.19	12.51
95th-Percentile Queue Length [ft/ln]	252.07	328.28	104.73	312.86

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	40.92	40.92	19.36	19.36	17.64	18.93
Movement LOS	D	D	B	B	B	B
d_A, Approach Delay [s/veh]	40.92		19.36		18.76	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	21.60					
Intersection LOS	C					
Intersection V/C	0.348					

**Sequence**

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 2: SR 18 (Brodhead Rd) & Wagner Rd**

Control Type:	Two-way stop	Delay (sec / veh):	21.4
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

**Intersection Setup**

Name	Wagner Rd		Brodhead Rd		Brodhead Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	T		↑↑		↑↑	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	11.00	11.00	11.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	20.00		40.00		40.00	
Grade [%]	4.40		-3.00		3.20	
Crosswalk	No		No		No	

**Volumes**

Name	Wagner Rd		Brodhead Rd		Brodhead Rd	
Base Volume Input [veh/h]	10	5	15	525	535	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	32.00	35.00	10.00	4.00	31.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	5	15	525	535	10
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	4	137	139	3
Total Analysis Volume [veh/h]	10	5	16	547	557	10
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.04	0.01	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	21.35	10.20	8.76	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.05	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.93	3.93	1.25	0.63	0.00	0.00
d_A, Approach Delay [s/veh]	17.64		0.25		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.35					
Intersection LOS	C					

**Intersection Level Of Service Report**  
**Intersection 3: SR 18 (Brodhead Rd) & Short St/Milne Dr**

Control Type:	Signalized	Delay (sec / veh):	46.5
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.292

**Intersection Setup**

Name	Milne Dr			Short St			Brodhead Rd			Brodhead Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T O T			T O T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	12.00	12.00	12.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	2	0	1	2	0	2
Entry Pocket Length [ft]	100.00	100.00	75.00	100.00	100.00	150.00	450.00	100.00	400.00	350.00	100.00	400.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			40.00			40.00		
Grade [%]	2.00			2.00			-4.00			4.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Milne Dr			Short St			Brodhead Rd			Brodhead Rd		
Base Volume Input [veh/h]	80	20	60	50	20	75	55	425	70	90	370	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	5.00	5.00	13.00	5.00	7.00	2.00	12.00	2.00	1.00	6.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	20	60	50	20	75	55	425	70	90	370	80
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	5	16	14	5	21	15	117	19	25	102	22
Total Analysis Volume [veh/h]	88	22	66	55	22	82	60	467	77	99	407	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2021 (SP 0-2)

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	20	0	5	20	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	5.0	5.0	0.0	5.0	5.0	0.0
All red [s]	0.0	4.0	0.0	0.0	4.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	28	0	0	0	0	0	18	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	-4.0	0.0	0.0	-4.0	0.0	-4.0	30.0	0.0	-4.0	30.0	0.0
Detector Length [ft]	0.0	80.0	0.0	0.0	80.0	0.0	50.0	220.0	0.0	50.0	200.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	C	R	C	R	L	C	R	L	C	R
C, Cycle Length [s]	180	180	180	180	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	37	37	37	37	38	68	68	38	68	68
g / C, Green / Cycle	0.21	0.21	0.21	0.21	0.21	0.38	0.38	0.21	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.04	0.05	0.02	0.06	0.02	0.15	0.05	0.03	0.09	0.06
Total Saturation Flow Adjustment	0.83	0.80	0.87	0.76	0.89	0.84	0.82	0.87	0.81	0.80
s, saturation flow rate [veh/h]	3004	1443	3120	1368	3210	3017	1479	3115	4382	1435
c, Capacity [veh/h]	617	297	641	281	678	1140	559	658	1655	542
d1, Uniform Delay [s]	58.96	59.53	58.24	60.42	57.08	41.23	36.76	57.85	38.41	37.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.63	1.73	0.38	2.61	0.26	1.09	0.51	0.48	0.35	0.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.18	0.22	0.12	0.29	0.09	0.41	0.14	0.15	0.25	0.16
d, Delay for Lane Group [s/veh]	59.59	61.26	58.62	63.04	57.34	42.32	37.27	58.33	38.77	37.76
Lane Group LOS	E	E	E	E	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.56	2.97	1.76	3.78	1.33	9.91	2.72	2.23	5.55	3.15
50th-Percentile Queue Length [ft/ln]	64.10	74.31	44.12	94.38	33.20	247.74	68.10	55.76	138.70	78.75
95th-Percentile Queue Length [veh/ln]	5.64	6.40	4.06	7.81	3.14	17.22	5.94	5.00	10.71	6.72
95th-Percentile Queue Length [ft/ln]	140.94	159.91	101.60	195.36	78.57	430.53	148.45	124.90	267.65	167.94

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	59.59	59.59	61.26	58.62	58.62	63.04	57.34	42.32	37.27	58.33	38.77	37.76
Movement LOS	E	E	E	E	E	E	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	60.22			60.90			43.17			41.88		
Approach LOS	E			E			D			D		
d_I, Intersection Delay [s/veh]	46.46											
Intersection LOS	D											
Intersection V/C	0.292											

**Sequence**

Ring 1	1	2	8	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 4: SR 18 (Brodhead Rd) & Center Commons Blvd**

Control Type:	Signalized	Delay (sec / veh):	25.1
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.187

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Center Commons Blvd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	0	0	0	1
Entry Pocket Length [ft]	200.00	100.00	100.00	100.00	100.00	200.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	-5.40		5.40		1.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Center Commons Blvd	
Base Volume Input [veh/h]	25	540	480	45	10	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	16.00	8.00	6.00	2.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	540	480	45	10	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	147	130	12	3	3
Total Analysis Volume [veh/h]	27	587	522	49	11	11
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		1		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	20	20	0	5	0
Maximum Green [s]	30	60	60	0	30	0
Amber [s]	5.0	5.0	5.0	0.0	3.0	0.0
All red [s]	2.0	2.0	2.0	0.0	4.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	2.0	2.0	2.0	0.0	2.0	0.0
Walk [s]	0	7	7	0	7	0
Pedestrian Clearance [s]	0	27	27	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes	Yes		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	-10.0	10.0	5.0	0.0	-15.0	0.0
Detector Length [ft]	80.0	240.0	240.0	0.0	120.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	142	142	142	142	142	142
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	37	67	67	67	37	37
g / C, Green / Cycle	0.26	0.47	0.47	0.47	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.01	0.18	0.17	0.03	0.00	0.01
Total Saturation Flow Adjustment	0.79	0.91	0.87	0.81	0.92	0.85
s, saturation flow rate [veh/h]	2842	3259	3146	1459	3304	1522
c, Capacity [veh/h]	741	1538	1484	689	861	397
d1, Uniform Delay [s]	39.19	24.16	23.75	20.49	38.95	39.10
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.09	0.72	0.66	0.20	0.03	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

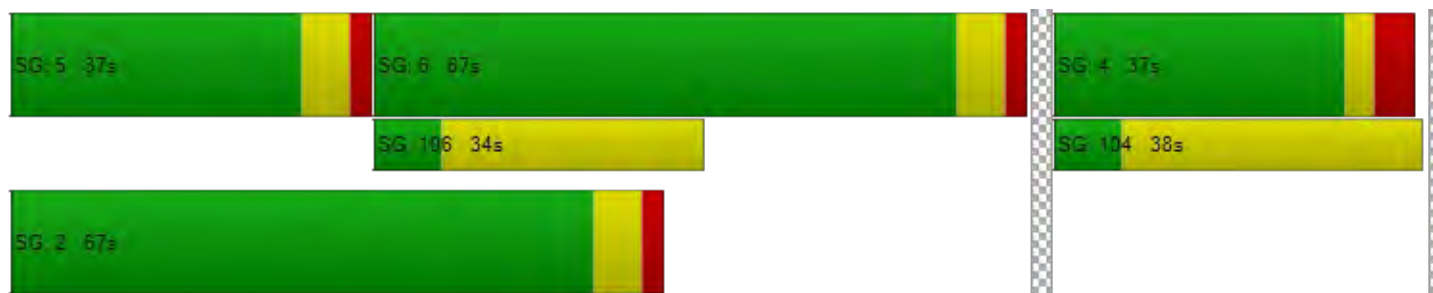
X, volume / capacity	0.04	0.38	0.35	0.07	0.01	0.03
d, Delay for Lane Group [s/veh]	39.28	24.88	24.40	20.69	38.98	39.23
Lane Group LOS	D	C	C	C	D	D
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.44	8.66	7.56	1.15	0.18	0.35
50th-Percentile Queue Length [ft/ln]	10.99	216.47	188.90	28.72	4.43	8.67
95th-Percentile Queue Length [veh/ln]	1.11	15.39	13.76	2.75	0.45	0.88
95th-Percentile Queue Length [ft/ln]	27.65	384.65	343.93	68.78	11.37	21.95

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	39.28	24.88	24.40	20.69	38.98	39.23
Movement LOS	D	C	C	C	D	D
d_A, Approach Delay [s/veh]	25.51		24.08		39.10	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	25.08					
Intersection LOS	C					
Intersection V/C	0.187					

**Sequence**

Ring 1	5	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 5: SR 18 (Brodhead Rd) & Beaver Valley Mall/Golfview Dr**

Control Type:	Signalized	Delay (sec / veh):	35.1
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.252

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Beaver Valley Mall			Golfview Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	1
Entry Pocket Length [ft]	475.00	100.00	100.00	115.00	100.00	370.00	100.00	100.00	100.00	100.00	100.00	125.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	180.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			15.00			25.00		
Grade [%]	1.50			-1.50			1.85			1.25		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Beaver Valley Mall			Golfview Dr		
Base Volume Input [veh/h]	40	520	10	15	385	85	35	5	40	10	10	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	7.00	8.00	10.00	19.00	6.00	4.00	14.00	0.00	10.00	0.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	520	10	15	385	85	35	5	40	10	10	10
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	140	3	4	103	23	9	1	11	3	3	3
Total Analysis Volume [veh/h]	43	559	11	16	414	91	38	5	43	11	11	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			2			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	20	0	5	20	0	0	5	0	0	5	0
Maximum Green [s]	30	60	0	30	60	0	0	30	0	0	30	0
Amber [s]	5.0	5.0	0.0	5.0	5.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0
Split [s]	22	43	0	18	39	0	0	31	0	0	18	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	15	0	0	15	0	0	22	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	-10.0	30.0	0.0	-10.0	30.0	0.0	0.0	-10.0	0.0	0.0	-15.0	0.0
Detector Length [ft]	75.0	175.0	0.0	70.0	175.0	0.0	0.0	50.0	0.0	0.0	85.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	L	C	L	C	R	C	R	C	R
C, Cycle Length [s]	124	124	124	124	124	124	124	124	124
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	22	43	18	39	39	31	31	18	18
g / C, Green / Cycle	0.18	0.35	0.15	0.31	0.31	0.25	0.25	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.18	0.01	0.13	0.06	0.01	0.03	0.01	0.01
Total Saturation Flow Adjustment	0.88	0.87	0.80	0.90	0.82	0.90	0.77	0.97	0.83
s, saturation flow rate [veh/h]	1586	3140	1448	3257	1482	3252	1378	1745	1501
c, Capacity [veh/h]	281	1089	210	1025	466	813	345	253	218
d1, Uniform Delay [s]	43.12	32.32	45.81	33.37	31.04	35.34	36.00	45.88	45.64
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.15	1.80	0.70	1.19	0.93	0.12	0.74	0.67	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.15	0.52	0.08	0.40	0.20	0.05	0.12	0.09	0.05
d, Delay for Lane Group [s/veh]	44.27	34.12	46.52	34.56	31.97	35.47	36.74	46.56	46.08
Lane Group LOS	D	C	D	C	C	D	D	D	D
Critical Lane Group	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.36	9.26	0.52	6.50	2.49	0.64	1.24	0.71	0.35
50th-Percentile Queue Length [ft/ln]	33.95	231.50	12.90	162.50	62.29	15.88	31.08	17.70	8.81
95th-Percentile Queue Length [veh/ln]	3.21	16.27	1.29	12.17	5.50	1.58	2.96	1.75	0.89
95th-Percentile Queue Length [ft/ln]	80.20	406.73	32.27	304.29	137.50	39.39	73.96	43.68	22.31

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	44.27	34.12	34.12	46.52	34.56	31.97	35.47	35.47	36.74	46.56	46.56	46.08
Movement LOS	D	C	C	D	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	34.83			34.48			36.10			46.40		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.08											
Intersection LOS	D											
Intersection V/C	0.252											

**Sequence**

Ring 1	1	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 6: SR 18/3007 (Brodhead Rd) & SR 18 (Frankfort Rd)/Old Brodhead Rd**

Control Type:	Signalized	Delay (sec / veh):	80.7
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.495

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Frankfort Rd			Old Brodhead Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	2	0	0	1	0	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	450.00	100.00	100.00	430.00	100.00	100.00	300.00	350.00	100.00	350.00
No. of Lanes in Exit Pocket	0	0	2	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	450.00
Speed [mph]	40.00			40.00			45.00			35.00		
Grade [%]	-2.00			2.00			3.00			-1.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Frankfort Rd			Old Brodhead Rd		
Base Volume Input [veh/h]	95	170	105	15	205	220	380	130	240	60	135	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	9.00	3.00	1.00	0.00	3.00	9.00	11.00	4.00	2.00	3.00	2.00	18.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	170	105	15	205	220	380	130	240	60	135	15
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	46	28	4	55	59	102	35	65	16	36	4
Total Analysis Volume [veh/h]	102	183	113	16	220	237	409	140	258	65	145	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	60	0	0	45	0	0	45	0	0	45	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	5.0	0.0
All red [s]	0.0	5.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	3.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	20	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.0	0.0	0.0	-5.0	0.0
Detector Length [ft]	0.0	140.0	0.0	0.0	120.0	0.0	0.0	125.0	0.0	0.0	120.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	R	C	R	C	R
C, Cycle Length [s]	225	225	225	225	225	225	225	225
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	69	69	52	52	51	51	53	53
g / C, Green / Cycle	0.31	0.31	0.23	0.23	0.23	0.23	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.09	0.07	0.07	0.17	0.18	0.17	0.06	0.01
Total Saturation Flow Adjustment	0.92	0.85	0.91	0.77	0.87	0.82	0.92	0.72
s, saturation flow rate [veh/h]	3302	1530	3283	1390	3129	1477	3325	1303
c, Capacity [veh/h]	1012	469	759	321	709	335	783	307
d1, Uniform Delay [s]	59.19	58.39	71.66	80.18	81.59	81.51	70.17	66.56
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.69	1.21	1.07	14.10	8.05	15.66	0.84	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

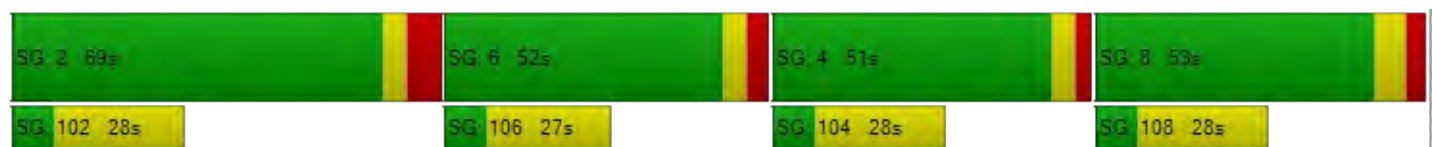
X, volume / capacity	0.28	0.24	0.31	0.74	0.77	0.77	0.27	0.05
d, Delay for Lane Group [s/veh]	59.88	59.61	72.73	94.28	89.65	97.17	71.01	66.88
Lane Group LOS	E	E	E	F	F	F	E	E
Critical Lane Group	Yes	No	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.64	5.69	6.92	16.00	19.82	17.76	6.05	0.83
50th-Percentile Queue Length [ft/ln]	190.98	142.22	173.12	400.00	495.40	444.01	151.17	20.65
95th-Percentile Queue Length [veh/ln]	13.88	10.93	12.81	26.25	32.08	28.93	11.48	2.02
95th-Percentile Queue Length [ft/ln]	347.01	273.13	320.32	656.30	802.05	723.14	286.98	50.55

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	59.88	59.88	59.61	72.73	72.73	94.28	89.65	89.65	97.17	71.01	71.01	66.88
Movement LOS	E	E	E	E	E	F	F	F	F	E	E	E
d_A, Approach Delay [s/veh]	59.81			83.53			92.05			70.72		
Approach LOS	E			F			F			E		
d_I, Intersection Delay [s/veh]	80.66											
Intersection LOS	F											
Intersection V/C	0.495											

**Sequence**

Ring 1	2	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 701: SR 3007 (Brodhead Rd) & North Branch Rd (South)**

Control Type:	Two-way stop	Delay (sec / veh):	18.4
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.056

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		North Branch Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↩		↑		↵	
Turning Movement	Thru	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	10.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	1.20		2.90		-3.40	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		North Branch Rd	
Base Volume Input [veh/h]	340	10	0	520	15	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	0.00	2.00	4.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	340	10	0	520	15	0
Peak Hour Factor	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	3	0	137	4	0
Total Analysis Volume [veh/h]	358	11	0	547	16	0
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.06	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	18.42	10.73
Movement LOS	A	A		A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.18	0.18
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	4.45	4.45
d_A, Approach Delay [s/veh]	0.00		0.00		18.42	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.32					
Intersection LOS	C					



**Intersection Level Of Service Report**

**Intersection 702: SR 3007 (Brodhead Rd) & North Branch Rd (North)**

Control Type:	Two-way stop	Delay (sec / veh):	18.4
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.056

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Westbound	
	Northbound		Southbound			
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↑		↖		↔	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	12.00	11.00	11.00	12.00	15.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	-2.90		2.90		-11.10	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Westbound	
	Northbound		Southbound			
Base Volume Input [veh/h]	335	0	10	500	15	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	2.00	8.00	4.00	0.00	14.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	0	10	500	15	15
Peak Hour Factor	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	88	0	3	132	4	4
Total Analysis Volume [veh/h]	353	0	11	526	16	16
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.01	0.06	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	9.01	0.00	18.44	10.66
Movement LOS	A		A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.04	0.25	0.25
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.92	0.92	6.33	6.33
d_A, Approach Delay [s/veh]	0.00		0.18		14.55	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.61					
Intersection LOS	C					

**Intersection Level Of Service Report**  
**Intersection 703: North Branch Rd & Warwick Dr**

Control Type:	All-way stop	Delay (sec / veh):	7.0
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

**Intersection Setup**

Name	North Branch Rd			North Branch Rd			Warwick Dr					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⤴			⤵			⤴			⤵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	10.00	10.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.80			-0.80			11.10			4.20		
Crosswalk	No			No			No			No		

**Volumes**

Name	North Branch Rd			North Branch Rd			Warwick Dr					
Base Volume Input [veh/h]	0	0	10	5	10	15	10	5	0	5	20	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	13.00	1.00	14.00	2.00	0.00	5.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	10	5	10	15	10	5	0	5	20	10
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	3	1	3	4	3	1	0	1	5	3
Total Analysis Volume [veh/h]	0	0	11	5	11	16	11	5	0	5	21	11
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

**Lanes**

Capacity per Entry Lane [veh/h]	1057	931	852	922
Degree of Utilization, x	0.01	0.03	0.02	0.04

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.03	0.11	0.06	0.13
95th-Percentile Queue Length [ft]	0.79	2.66	1.43	3.13
Approach Delay [s/veh]	6.44	7.00	7.31	7.07
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.01			
Intersection LOS	A			

**Intersection Level Of Service Report**  
**Intersection 8: SR 3007 (Brodhead Rd) & Baker Rd Ext**

Control Type:	Two-way stop	Delay (sec / veh):	25.1
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.158

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Baker Rd Ext	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↷		↶		↵	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	10.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		20.00	
Grade [%]	0.30		-0.20		5.40	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Baker Rd Ext	
Base Volume Input [veh/h]	295	110	75	430	30	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	36.00	7.00	3.00	0.00	16.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	295	110	75	430	30	40
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	30	20	117	8	11
Total Analysis Volume [veh/h]	321	120	82	467	33	43
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.10	0.00	0.16	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	9.71	0.00	25.09	12.97
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.32	0.32	0.82	0.82
95th-Percentile Queue Length [ft/ln]	0.00	0.00	8.01	8.01	20.49	20.49
d_A, Approach Delay [s/veh]	0.00		1.45		18.23	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.05					
Intersection LOS	D					

**Intersection Level Of Service Report**

**Intersection 9: SR 3007 (Brodhead Rd) & Community College Dr**

Control Type:	Signalized	Delay (sec / veh):	41.9
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.453

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Community College Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	6.60		3.90		1.00	
Crosswalk	No		Yes		Yes	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Community College Dr	
Base Volume Input [veh/h]	360	65	150	240	20	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	5.00	3.00	3.00	51.00	22.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	360	65	150	240	20	15
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	19	44	70	6	4
Total Analysis Volume [veh/h]	419	76	174	279	23	17
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	35	0	8	35	10	0
Maximum Green [s]	60	0	40	60	40	0
Amber [s]	4.0	0.0	3.0	4.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	2.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	7.0	0.0	3.0	7.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	7	0	0	7	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	Yes		No	Yes	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	275.0	0.0	-5.0	275.0	-5.0	0.0
Detector Length [ft]	6.0	0.0	40.0	6.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	C	L	C	C
C, Cycle Length [s]	156	156	156	156
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	66	45	66	45
g / C, Green / Cycle	0.42	0.29	0.42	0.29
(v / s)_i Volume / Saturation Flow Rate	0.32	0.11	0.17	0.03
Total Saturation Flow Adjustment	0.87	0.90	0.92	0.72
s, saturation flow rate [veh/h]	1569	1628	1656	1300
c, Capacity [veh/h]	664	470	701	375
d1, Uniform Delay [s]	37.92	44.22	31.22	40.74
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.46	2.24	1.69	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.75	0.37	0.40	0.11
d, Delay for Lane Group [s/veh]	45.38	46.46	32.91	41.32
Lane Group LOS	D	D	C	D
Critical Lane Group	Yes	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	21.28	6.58	9.24	1.37
50th-Percentile Queue Length [ft/ln]	532.09	164.51	231.00	34.33
95th-Percentile Queue Length [veh/ln]	34.36	12.29	16.24	3.24
95th-Percentile Queue Length [ft/ln]	858.88	307.33	405.99	81.01

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	45.38	45.38	46.46	32.91	41.32	41.32
Movement LOS	D	D	D	C	D	D
d_A, Approach Delay [s/veh]	45.38		38.11		41.32	
Approach LOS	D		D		D	
d_I, Intersection Delay [s/veh]	41.89					
Intersection LOS	D					
Intersection V/C	0.453					

**Sequence**

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 10: SR 3007 (Brodhead Rd) & Sherwood Dr**

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.062

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Sherwood Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↗		↖		↔	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	1.00		-0.50		2.00	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Sherwood Dr	
Base Volume Input [veh/h]	415	5	15	235	20	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	0.00	0.00	3.00	28.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	415	5	15	235	20	15
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	115	1	4	65	6	4
Total Analysis Volume [veh/h]	461	6	17	261	22	17
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.06	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	9.43	0.00	15.98	11.48
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.29	0.29
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.57	1.57	7.29	7.29
d_A, Approach Delay [s/veh]	0.00		0.58		14.02	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.90					
Intersection LOS	C					

**Intersection Level Of Service Report**  
**Intersection 11: SR 3007 (Brodhead Rd) & Center-Grange Rd**

Control Type:	Two-way stop	Delay (sec / veh):	20.0
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.193

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Center-Grange Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↷		↶		↵	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		35.00	
Grade [%]	1.00		-1.00		0.80	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Center-Grange Rd	
Base Volume Input [veh/h]	305	155	60	190	60	120
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	2.00	5.00	4.00	10.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	305	155	60	190	60	120
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	42	16	51	16	32
Total Analysis Volume [veh/h]	328	167	65	204	65	129
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.08	0.00	0.19	0.19
d_M, Delay for Movement [s/veh]	0.00	0.00	9.83	0.00	20.04	14.65
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.26	0.26	1.78	1.78
95th-Percentile Queue Length [ft/ln]	0.00	0.00	6.52	6.52	44.55	44.55
d_A, Approach Delay [s/veh]	0.00		2.37		16.46	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	4.00					
Intersection LOS	C					

**Intersection Level Of Service Report**  
**Intersection 12: SR 3007 (Brodhead Rd) & Main St**

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.087

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Main St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		→		↔	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	2.60		-1.60		-2.60	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Main St	
Base Volume Input [veh/h]	10	440	190	70	30	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	30.00	3.00	1.00	66.00	5.00	47.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	440	190	70	30	10
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	118	51	19	8	3
Total Analysis Volume [veh/h]	11	473	204	75	32	11
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.09	0.01
d_M, Delay for Movement [s/veh]	8.78	0.00	0.00	0.00	15.65	10.16
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.00	0.00	0.33	0.33
95th-Percentile Queue Length [ft/ln]	0.87	0.87	0.00	0.00	8.23	8.23
d_A, Approach Delay [s/veh]	0.20		0.00		14.25	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.88					
Intersection LOS	C					



**Intersection Level Of Service Report**  
**Intersection 13: SR 3007 (Brodhead Rd) & Shaffer Rd**

Control Type:	Two-way stop	Delay (sec / veh):	17.3
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			West Shaffer Rd			East Shaffer Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00	10.00	10.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			25.00			25.00		
Grade [%]	-9.40			-4.10			0.40			-2.30		
Crosswalk	No			No			No			No		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			West Shaffer Rd			East Shaffer Rd		
Base Volume Input [veh/h]	0	420	20	15	220	10	5	0	5	35	5	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	3.00	2.00	4.00	0.00	66.00	7.00	0.00	2.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	420	20	15	220	10	5	0	5	35	5	20
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	114	5	4	60	3	1	0	1	10	1	5
Total Analysis Volume [veh/h]	0	457	22	16	239	11	5	0	5	38	5	22
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.01	0.11	0.01	0.03
d_M, Delay for Movement [s/veh]	8.65	0.00	0.00	9.47	0.00	0.00	15.73	15.99	9.42	16.55	17.33	12.28
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.06	0.06	0.06	0.06	0.06	0.06	0.54	0.54	0.54
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	1.49	1.49	1.49	1.58	1.58	1.58	13.61	13.61	13.61
d_A, Approach Delay [s/veh]	0.00			0.57			12.57			15.17		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	1.54											
Intersection LOS	C											

**Intersection Level Of Service Report**  
**Intersection 14: SR 3007 (Brodhead Rd) & Pleasant Dr**

Control Type:	Two-way stop	Delay (sec / veh):	32.2
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.508

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Pleasant Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	330.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	-2.30		1.90		-2.50	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Pleasant Dr	
Base Volume Input [veh/h]	155	315	100	170	125	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	2.00	6.00	1.00	6.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	155	315	100	170	125	105
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	84	27	45	33	28
Total Analysis Volume [veh/h]	165	335	106	181	133	112
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.15	0.00	0.00	0.00	0.51	0.12
d_M, Delay for Movement [s/veh]	8.83	0.00	0.00	0.00	32.18	9.57
Movement LOS	A	A	A	A	D	A
95th-Percentile Queue Length [veh/ln]	0.52	0.00	0.00	0.00	2.66	0.42
95th-Percentile Queue Length [ft/ln]	13.11	0.00	0.00	0.00	66.55	10.62
d_A, Approach Delay [s/veh]	2.91		0.00		21.84	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	6.60					
Intersection LOS	D					

**Intersection Level Of Service Report**  
**Intersection 15: SR 3007 (Brodhead Rd) & Chapel Rd**

Control Type:	Two-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.242

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Chapel Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	5.10		-5.60		4.60	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Chapel Rd	
Base Volume Input [veh/h]	275	60	5	185	115	85
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	13.00	6.00	1.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	275	60	5	185	115	85
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	16	1	50	31	23
Total Analysis Volume [veh/h]	296	65	5	199	124	91
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.24	0.12
d_M, Delay for Movement [s/veh]	0.00	0.00	9.01	0.00	15.43	13.16
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.02	0.02	1.65	1.65
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.42	0.42	41.15	41.15
d_A, Approach Delay [s/veh]	0.00		0.22		14.47	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	4.04					
Intersection LOS	C					

**Intersection Level Of Service Report**

**Intersection 16: SR 3007 (Brodhead Rd) & SR 3016 (Mill St/Kennedy Blvd)**

Control Type:	Signalized	Delay (sec / veh):	54.7
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.502

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Mill St			Kennedy Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	10.00	11.00	11.00	12.00	12.00	16.00	12.00	12.00	16.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			40.00		
Grade [%]	-2.60			0.00			-1.10			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Mill St			Kennedy Blvd		
Base Volume Input [veh/h]	185	230	75	75	170	90	35	100	205	145	95	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	13.00	3.00	7.00	1.00	8.00	12.00	6.00	8.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	230	75	75	170	90	35	100	205	145	95	70
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	51	63	21	21	47	25	10	27	56	40	26	19
Total Analysis Volume [veh/h]	203	253	82	82	187	99	38	110	225	159	104	77
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	5	2	0	1	6	0	7	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	12	0	5	12	0	5	5	0	0	10	0
Maximum Green [s]	25	60	0	45	60	0	35	35	0	0	30	0
Amber [s]	4.0	4.0	0.0	4.0	4.0	0.0	4.0	3.0	0.0	0.0	3.0	0.0
All red [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	1.0	0.0	0.0	1.0	0.0
Split [s]	24	26	0	24	26	0	0	36	0	0	34	0
Vehicle Extension [s]	3.0	8.0	0.0	3.0	8.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	-10.0	0.0	0.0	-10.0	0.0	0.0	-5.0	-5.0	0.0	0.0	-5.0	0.0
Detector Length [ft]	75.0	0.0	0.0	75.0	0.0	0.0	75.0	75.0	0.0	0.0	75.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	L	C	L	C	R	C	C
C, Cycle Length [s]	125	125	125	125	125	125	125
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	24	26	24	26	26	36	34
g / C, Green / Cycle	0.19	0.21	0.19	0.21	0.21	0.29	0.27
(v / s)_i Volume / Saturation Flow Rate	0.13	0.21	0.05	0.11	0.07	0.13	0.12
Total Saturation Flow Adjustment	0.89	0.91	0.86	0.90	0.81	0.81	0.82
s, saturation flow rate [veh/h]	1610	1633	1550	1626	1464	2908	2938
c, Capacity [veh/h]	309	340	298	338	305	838	799
d1, Uniform Delay [s]	46.69	49.33	43.08	44.30	42.05	36.35	37.46
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.43	45.57	2.29	6.38	2.82	1.71	1.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

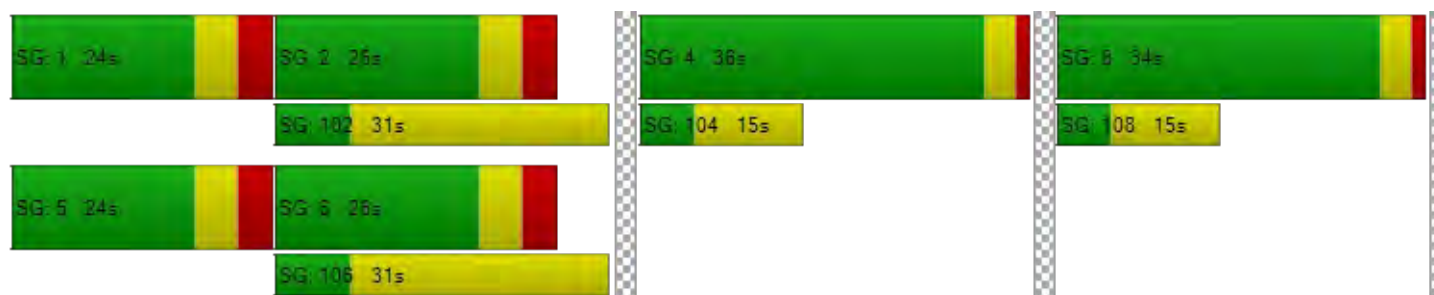
X, volume / capacity	0.66	0.99	0.28	0.55	0.33	0.45	0.43
d, Delay for Lane Group [s/veh]	57.12	94.89	45.37	50.68	44.87	38.06	39.12
Lane Group LOS	E	F	D	D	D	D	D
Critical Lane Group	No	Yes	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	7.63	16.63	2.66	6.61	3.22	6.19	5.67
50th-Percentile Queue Length [ft/ln]	190.80	415.72	66.53	165.23	80.44	154.80	141.84
95th-Percentile Queue Length [veh/ln]	13.87	27.20	5.82	12.34	6.84	11.70	10.90
95th-Percentile Queue Length [ft/ln]	346.74	680.09	145.52	308.42	170.97	292.55	272.54

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	57.12	94.89	94.89	45.37	50.68	44.87	38.06	38.06	38.06	39.12	39.12	39.12
Movement LOS	E	F	F	D	D	D	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	80.64			47.93			38.06			39.12		
Approach LOS	F			D			D			D		
d_I, Intersection Delay [s/veh]	54.68											
Intersection LOS	D											
Intersection V/C	0.502											

**Sequence**

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 17: SR 3007 (Brodhead Rd) & Sheffield Rd**

Control Type:	Signalized	Delay (sec / veh):	41.9
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Sheffield Rd			Sheffield Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	└─┬─┘			┬─┬─┬─┘			┬─┬─┬─┘			┬─┬─┬─┘		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	11.00	11.00	12.00	12.00	12.00	12.00	12.00	12.00	9.00	9.00	9.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	2.70			-2.70			-1.50			-1.50		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Sheffield Rd			Sheffield Rd		
Base Volume Input [veh/h]	0	425	80	115	395	5	5	5	15	25	5	65
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	5.00	4.00	5.00	7.00	2.00	0.00	0.00	0.00	0.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	425	80	115	395	5	5	5	15	25	5	65
Peak Hour Factor	1.0000	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	122	23	33	114	1	1	1	4	7	1	19
Total Analysis Volume [veh/h]	0	489	92	132	454	6	6	6	17	29	6	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	2			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	59.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Overla	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups				1,6								
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	12	0	5	12	0	0	5	0	0	5	0
Maximum Green [s]	0	60	0	30	60	0	0	25	0	0	25	0
Amber [s]	0.0	4.0	0.0	4.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Split [s]	0	24	0	13	37	0	0	23	0	0	23	0
Vehicle Extension [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	16	0	0	16	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.0	0.0	0.0	-5.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	C	C	C
C, Cycle Length [s]	60	60	60	60
L, Total Lost Time per Cycle [s]	0.00	2.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	24	34	23	23
g / C, Green / Cycle	0.40	0.57	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.36	0.58	0.02	0.08
Total Saturation Flow Adjustment	0.89	0.57	0.91	0.80
s, saturation flow rate [veh/h]	1600	1028	1643	1436
c, Capacity [veh/h]	640	582	630	551
d1, Uniform Delay [s]	16.96	13.00	11.61	12.35
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.01	41.47	0.14	0.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

**Lane Group Results**

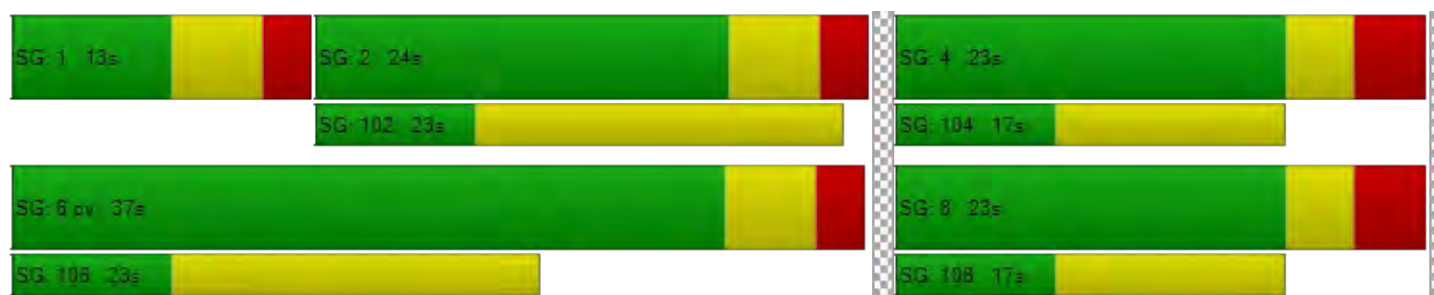
X, volume / capacity	0.91	1.02	0.05	0.20
d, Delay for Lane Group [s/veh]	35.97	54.47	11.75	13.17
Lane Group LOS	D	D	B	B
Critical Lane Group	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	13.14	17.09	0.33	1.37
50th-Percentile Queue Length [ft/ln]	328.45	427.32	8.34	34.13
95th-Percentile Queue Length [veh/ln]	21.97	27.91	0.85	3.22
95th-Percentile Queue Length [ft/ln]	549.25	697.71	21.13	80.59

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	35.97	35.97	54.47	54.47	54.47	11.75	11.75	11.75	13.17	13.17	13.17
Movement LOS		D	D	D	D	D	B	B	B	B	B	B
d_A, Approach Delay [s/veh]		35.97		54.47			11.75			13.17		
Approach LOS		D		D			B			B		
d_I, Intersection Delay [s/veh]		41.87										
Intersection LOS		D										
Intersection V/C		0.640										

**Sequence**

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 18: SR 3007 (Brodhead Rd) & Kane Rd**

Control Type:	Two-way stop	Delay (sec / veh):	20.3
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.176

**Intersection Setup**

Name	Kane Rd		Brodhead Rd		Brodhead Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	1.40		3.40		-7.70	
Crosswalk	No		No		No	

**Volumes**

Name	Kane Rd		Brodhead Rd		Brodhead Rd	
Base Volume Input [veh/h]	40	25	325	35	20	310
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	12.00	7.00	0.00	0.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	25	325	35	20	310
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	8	103	11	6	98
Total Analysis Volume [veh/h]	51	32	411	44	25	392
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**




V/C, Movement V/C Ratio	0.18	0.05	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	20.25	13.26	0.00	0.00	9.43	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.85	0.85	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	21.24	21.24	0.00	0.00	2.31	2.31
d_A, Approach Delay [s/veh]	17.56		0.00		0.57	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.77					
Intersection LOS	C					



**Intersection Level Of Service Report**  
**Intersection 19: SR 3007 (Brodhead Rd) & 20th St**

Control Type:	Two-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.118

**Intersection Setup**

Name	20th St		Brodhead Rd		Brodhead Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	3.50		6.60		-3.60	
Crosswalk	No		No		No	

**Volumes**

Name	20th St		Brodhead Rd		Brodhead Rd	
Base Volume Input [veh/h]	30	10	5	345	320	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	21.00	13.00	8.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	10	5	345	320	35
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	3	2	105	98	11
Total Analysis Volume [veh/h]	37	12	6	421	390	43
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.12	0.02	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	18.06	11.87	9.25	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.47	0.47	0.02	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	11.65	11.65	0.53	0.53	0.00	0.00
d_A, Approach Delay [s/veh]	16.54		0.13		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.95					
Intersection LOS	C					

**Intersection Level Of Service Report**  
**Intersection 20: SR 3007 (Brodhead Rd) & Laird Ave**

Control Type:	Two-way stop	Delay (sec / veh):	18.9
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Laird Ave			Laird Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	10.00	10.00	10.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			20.00			20.00		
Grade [%]	-0.70			-1.50			7.10			-2.40		
Crosswalk	No			No			No			No		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Laird Ave			Laird Ave		
Base Volume Input [veh/h]	5	365	5	5	360	20	5	5	15	5	5	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	3.00	3.00	15.00	7.00	5.00	6.00	0.00	1.00	6.00	62.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	365	5	5	360	20	5	5	15	5	5	20
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	106	1	1	105	6	1	1	4	1	1	6
Total Analysis Volume [veh/h]	6	424	6	6	419	23	6	6	17	6	6	23
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.02	0.02	0.03	0.02	0.02	0.03
d_M, Delay for Movement [s/veh]	9.29	0.00	0.00	9.24	0.00	0.00	18.86	18.45	11.07	18.71	18.64	11.09
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.02	0.02	0.02	0.22	0.22	0.22	0.25	0.25	0.25
95th-Percentile Queue Length [ft/ln]	0.54	0.54	0.54	0.53	0.53	0.53	5.54	5.54	5.54	6.31	6.31	6.31
d_A, Approach Delay [s/veh]	0.13			0.12			14.21			13.69		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.06											
Intersection LOS	C											

**Intersection Level Of Service Report**  
**Intersection 21: SR 3007 (Brodhead Rd) & Longvue Ave**

Control Type:	Two-way stop	Delay (sec / veh):	44.2
Analysis Method:	HCM 2000	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Longvue Ave	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		20.00	
Grade [%]	2.00		-5.20		-3.20	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Longvue Ave	
Base Volume Input [veh/h]	300	75	50	335	135	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	6.00	19.00	6.00	1.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	300	75	50	335	135	75
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	88	22	15	99	40	22
Total Analysis Volume [veh/h]	353	88	59	394	159	88
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.07	0.00	0.61	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	9.57	0.00	44.25	35.55
Movement LOS	A	A	A	A	E	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.22	0.22	5.64	5.64
95th-Percentile Queue Length [ft/ln]	0.00	0.00	5.60	5.60	140.88	140.88
d_A, Approach Delay [s/veh]	0.00		1.25		41.15	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	9.40					
Intersection LOS	E					

**Intersection Level Of Service Report**

**Intersection 22: SR 3007 (Brodhead Rd) & SR 151 (Gringo Rd) / Laurel Rd / Heights Rd**

Control Type:	Signalized	Delay (sec / veh):	129.8
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

**Intersection Setup**

Name	Brodhead Rd				Brodhead Rd				Gringo Rd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00				35.00				35.00			
Grade [%]	-0.50				-1.00				11.40			
Crosswalk	Yes				No				Yes			

**Volumes**

Name	Brodhead Rd				Brodhead Rd				Gringo Rd			
Base Volume Input [veh/h]	40	160	20	5	15	205	105	135	130	20	160	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	1.00	17.00	16.00	27.00	5.00	2.00	2.00	1.00	13.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	160	20	5	15	205	105	135	130	20	160	55
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	43	5	1	4	55	28	36	35	5	43	15
Total Analysis Volume [veh/h]	43	172	22	5	16	220	113	145	140	22	172	59
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Version 2021 (SP 0-2)

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	2	0	0	0	0	6	0	0	4	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	0	0	0	15	0	0	4	0	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.5	0.0	0.0
All red [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	4.5	0.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Walk [s]	0	7	0	0	0	0	7	0	0	7	0	0
Pedestrian Clearance [s]	0	20	0	0	0	0	20	0	0	8	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		Yes					Yes			No		
Maximum Recall		No					No			No		
Pedestrian Recall		No					No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.0	0.0	0.0
Detector Length [ft]	0.0	225.0	0.0	0.0	0.0	0.0	225.0	0.0	0.0	70.0	0.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	C	C	C	R
C, Cycle Length [s]	90	90	90	90
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	21	21	12	12
g / C, Green / Cycle	0.23	0.23	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.14	0.31	0.12	0.17
Total Saturation Flow Adjustment	0.94	0.89	0.78	0.77
s, saturation flow rate [veh/h]	1686	1608	1402	1378
c, Capacity [veh/h]	386	368	187	184
d1, Uniform Delay [s]	31.24	34.70	38.21	39.00
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.51	171.21	38.19	152.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00



**Lane Group Results**

X, volume / capacity	0.63	1.34	0.87	1.26
d, Delay for Lane Group [s/veh]	38.75	205.91	76.41	191.37
Lane Group LOS	D	F	E	F
Critical Lane Group	Yes	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	6.38	30.07	5.50	13.07
50th-Percentile Queue Length [ft/ln]	159.61	751.72	137.61	326.80
95th-Percentile Queue Length [veh/ln]	12.00	48.18	10.64	21.87
95th-Percentile Queue Length [ft/ln]	299.89	1204.59	265.94	546.80

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	38.75	38.75	38.75	38.75	205.91	205.91	205.91	205.91	76.41	76.41	191.37	191.37
Movement LOS	D	D	D	D	F	F	F	F	E	E	F	F
d_A, Approach Delay [s/veh]	38.75				205.91				143.98			
Approach LOS	D				F				F			
d_I, Intersection Delay [s/veh]	129.81											
Intersection LOS	F											
Intersection V/C	0.771											

**Intersection Setup**

Name	Heights Rd				Laurel Rd			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Right	Right2
Lane Width [ft]	10.00	10.00	10.00	10.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00				45.00			
Grade [%]	-2.50				3.10			
Crosswalk	Yes				Yes			

**Volumes**

Name	Heights Rd				Laurel Rd			
Base Volume Input [veh/h]	20	10	45	20	5	115	70	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	6.00	6.00	22.00	0.00	12.00	5.00	21.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	10	45	20	5	115	70	5
Peak Hour Factor	0.9300	0.9000	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	3	12	5	1	31	19	1
Total Analysis Volume [veh/h]	22	11	48	22	5	124	75	5
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	0	8	0	0	3	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	4	0	0	4	0	0
Maximum Green [s]	0	0	0	0	0	0	0	0
Amber [s]	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0
All red [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Split [s]	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	-10.0	0.0	0.0	-10.0	0.0	0.0
Detector Length [ft]	0.0	0.0	50.0	0.0	0.0	60.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	L	R
C, Cycle Length [s]	90	90	90
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00
g_i, Effective Green Time [s]	10	10	10
g / C, Green / Cycle	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.07	0.09	0.06
Total Saturation Flow Adjustment	0.85	0.84	0.79
s, saturation flow rate [veh/h]	1534	1509	1421
c, Capacity [veh/h]	162	159	150
d1, Uniform Delay [s]	38.59	39.37	38.15
k, delay calibration	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	17.56	34.31	12.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.64	0.81	0.53
d, Delay for Lane Group [s/veh]	56.15	73.68	51.07
Lane Group LOS	E	E	D
Critical Lane Group	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.99	4.21	2.23
50th-Percentile Queue Length [ft/ln]	74.76	105.14	55.72
95th-Percentile Queue Length [veh/ln]	6.43	8.54	4.99
95th-Percentile Queue Length [ft/ln]	160.72	213.57	124.83

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	56.15	56.15	56.15	56.15	73.68	73.68	51.07	51.07
Movement LOS	E	E	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	56.15				65.02			
Approach LOS	E				E			
d_I, Intersection Delay [s/veh]	129.81							
Intersection LOS	F							
Intersection V/C	0.771							

**Sequence**

Ring 1	2	6	3	4	8	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## SR 18/3007 Brodhead Road, Beaver, PA

Vistro File: N:\...WO#35141-001 Brodhead Rd -  
Baseline\_Rev 2.vistro

Scenario 1 2020 - AM Base

Report File: N:\...2020 AM.pdf

4/9/2021

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
1	SR 18 (Brodhead Rd) & Old Brodhead Rd	35	115	505	30	80	515	1280

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	SR 18 (Brodhead Rd) & Wagner Rd	10	5	15	525	535	10	1100

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	SR 18 (Brodhead Rd) & Short St/Milne Dr	80	20	60	50	20	75	55	425	70	90	370	80	1395

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
4	SR 18 (Brodhead Rd) & Center Commons Blvd	25	540	480	45	10	10	1110

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	SR 18 (Brodhead Rd) & Beaver Valley Mall/Golfview Dr	40	520	10	15	385	85	35	5	40	10	10	10	1165

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	SR 18/3007 (Brodhead Rd) & SR 18 (Frankfort Rd)/Old Brodhead Rd	95	170	105	15	205	220	380	130	240	60	135	15	1770

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ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
8	SR 3007 (Brodhead Rd) & Baker Rd Ext	295	110	75	430	30	40	980

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
9	SR 3007 (Brodhead Rd) & Community College Dr	360	65	150	240	20	15	850

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
10	SR 3007 (Brodhead Rd) & Sherwood Dr	415	5	15	235	20	15	705

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
11	SR 3007 (Brodhead Rd) & Center-Grange Rd	305	155	60	190	60	120	890

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
12	SR 3007 (Brodhead Rd) & Main St	10	440	190	70	30	10	750

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13	SR 3007 (Brodhead Rd) & Shaffer Rd	0	420	20	15	220	10	5	0	5	35	5	20	755

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
14	SR 3007 (Brodhead Rd) & Pleasant Dr	155	315	100	170	125	105	970



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ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Thru	Right	
15	SR 3007 (Brodhead Rd) & Chapel Rd	275	60	5	185	115	85	725

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16	SR 3007 (Brodhead Rd) & SR 3016 (Mill St/Kennedy Blvd)	185	230	75	75	170	90	35	100	205	145	95	70	1475

ID	Intersection Name	Northbound		Southbound			Eastbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17	SR 3007 (Brodhead Rd) & Sheffield Rd	425	80	115	395	5	5	5	15	25	5	65	1140

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
18	SR 3007 (Brodhead Rd) & Kane Rd	40	25	325	35	20	310	755

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Thru	Right	
19	SR 3007 (Brodhead Rd) & 20th St	30	10	5	345	320	35	745

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
20	SR 3007 (Brodhead Rd) & Laird Ave	5	365	5	5	360	20	5	5	15	5	5	20	815

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
21	SR 3007 (Brodhead Rd) & Longvue Ave	300	75	50	335	135	75	970

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ID	Intersection Name	Northbound				Southbound				Eastbound			
		Left	Thru	Right	2	2	Left	Thru	Right	Left	Thru	Right	2
22	SR 3007 (Brodhead Rd) & SR 151 (Gringo Rd)/ Laurel Rd / Heights Rd	40	160	20	5	15	205	105	135	130	20	160	55

Westbound				Northwestbound				Total Volume
2	Left	Thru	Right	2	Left	Right	2	
20	10	45	20	5	115	70	5	1340

ID	Intersection Name	Northbound		Southbound	Westbound		Total Volume
		Thru	Right	Thru	Thru	Right	
701	SR 3007 (Brodhead Rd) & North Branch Rd (South)	340	10	520	15	0	885

ID	Intersection Name	Northbound	Southbound		Westbound		Total Volume
		Thru	Left	Thru	Left	Right	
702	SR 3007 (Brodhead Rd) & North Branch Rd (North)	335	10	500	15	15	875

ID	Intersection Name	Northbound		Southbound			Eastbound		Westbound			Total Volume
		Thru	Right	Left	Thru	Right	Left	Thru	Left	Thru	Right	
703	North Branch Rd & Warwick Dr	0	10	5	10	15	10	5	5	20	10	90

SR 18/3007 Brodhead Road, Beaver, PA

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Scenario 1 2020 - AM Base

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4/9/2021

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	SR 18 (Brodhead Rd) & Old Brodhead Rd	Final Base	35	115	505	30	80	515	1280
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>35</b>	<b>115</b>	<b>505</b>	<b>30</b>	<b>80</b>	<b>515</b>	<b>1280</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	SR 18 (Brodhead Rd) & Wagner Rd	Final Base	10	5	15	525	535	10	1100
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>10</b>	<b>5</b>	<b>15</b>	<b>525</b>	<b>535</b>	<b>10</b>	<b>1100</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	SR 18 (Brodhead Rd) & Short St/Milne Dr	Final Base	80	20	60	50	20	75	55	425	70	90	370	80	1395
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>80</b>	<b>20</b>	<b>60</b>	<b>50</b>	<b>20</b>	<b>75</b>	<b>55</b>	<b>425</b>	<b>70</b>	<b>90</b>	<b>370</b>	<b>80</b>	<b>1395</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
4	SR 18 (Brodhead Rd) & Center Commons Blvd	Final Base	25	540	480	45	10	10	1110
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>25</b>	<b>540</b>	<b>480</b>	<b>45</b>	<b>10</b>	<b>10</b>	<b>1110</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	SR 18 (Brodhead Rd) & Beaver Valley Mall/Golfview Dr	Final Base	40	520	10	15	385	85	35	5	40	10	10	10	1165
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>40</b>	<b>520</b>	<b>10</b>	<b>15</b>	<b>385</b>	<b>85</b>	<b>35</b>	<b>5</b>	<b>40</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>1165</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	SR 18/3007 (Brodhead Rd) & SR 18 (Frankfort Rd) /Old Brodhead Rd	Final Base	95	170	105	15	205	220	380	130	240	60	135	15	1770
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>95</b>	<b>170</b>	<b>105</b>	<b>15</b>	<b>205</b>	<b>220</b>	<b>380</b>	<b>130</b>	<b>240</b>	<b>60</b>	<b>135</b>	<b>15</b>	<b>1770</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
8	SR 3007 (Brodhead Rd) & Baker Rd Ext	Final Base	295	110	75	430	30	40	980
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>295</b>	<b>110</b>	<b>75</b>	<b>430</b>	<b>30</b>	<b>40</b>	<b>980</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
9	SR 3007 (Brodhead Rd) & Community College Dr	Final Base	360	65	150	240	20	15	850
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>360</b>	<b>65</b>	<b>150</b>	<b>240</b>	<b>20</b>	<b>15</b>	<b>850</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
10	SR 3007 (Brodhead Rd) & Sherwood Dr	Final Base	415	5	15	235	20	15	705
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>415</b>	<b>5</b>	<b>15</b>	<b>235</b>	<b>20</b>	<b>15</b>	<b>705</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
11	SR 3007 (Brodhead Rd) & Center-Grange Rd	Final Base	305	155	60	190	60	120	890
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>305</b>	<b>155</b>	<b>60</b>	<b>190</b>	<b>60</b>	<b>120</b>	<b>890</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
12	SR 3007 (Brodhead Rd) & Main St	Final Base	10	440	190	70	30	10	750
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>10</b>	<b>440</b>	<b>190</b>	<b>70</b>	<b>30</b>	<b>10</b>	<b>750</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13	SR 3007 (Brodhead Rd) & Shaffer Rd	Final Base	0	420	20	15	220	10	5	0	5	35	5	20	755
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>420</b>	<b>20</b>	<b>15</b>	<b>220</b>	<b>10</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>35</b>	<b>5</b>	<b>20</b>	<b>755</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
14	SR 3007 (Brodhead Rd) & Pleasant Dr	Final Base	155	315	100	170	125	105	970
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>155</b>	<b>315</b>	<b>100</b>	<b>170</b>	<b>125</b>	<b>105</b>	<b>970</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Thru	Right	
15	SR 3007 (Brodhead Rd) & Chapel Rd	Final Base	275	60	5	185	115	85	725
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>275</b>	<b>60</b>	<b>5</b>	<b>185</b>	<b>115</b>	<b>85</b>	<b>725</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16	SR 3007 (Brodhead Rd) & SR 3016 (Mill St/Kennedy Blvd)	Final Base	185	230	75	75	170	90	35	100	205	145	95	70	1475
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>185</b>	<b>230</b>	<b>75</b>	<b>75</b>	<b>170</b>	<b>90</b>	<b>35</b>	<b>100</b>	<b>205</b>	<b>145</b>	<b>95</b>	<b>70</b>	<b>1475</b>

ID	Intersection Name	Volume Type	Northbound		Southbound			Eastbound			Westbound			Total Volume
			Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17	SR 3007 (Brodhead Rd) & Sheffield Rd	Final Base	425	80	115	395	5	5	5	15	25	5	65	1140
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>425</b>	<b>80</b>	<b>115</b>	<b>395</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>25</b>	<b>5</b>	<b>65</b>	<b>1140</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
18	SR 3007 (Brodhead Rd) & Kane Rd	Final Base	40	25	325	35	20	310	755
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>40</b>	<b>25</b>	<b>325</b>	<b>35</b>	<b>20</b>	<b>310</b>	<b>755</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Thru	Right	
19	SR 3007 (Brodhead Rd) & 20th St	Final Base	30	10	5	345	320	35	745
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>30</b>	<b>10</b>	<b>5</b>	<b>345</b>	<b>320</b>	<b>35</b>	<b>745</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
20	SR 3007 (Brodhead Rd) & Laird Ave	Final Base	5	365	5	5	360	20	5	5	15	5	5	20	815
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>365</b>	<b>5</b>	<b>5</b>	<b>360</b>	<b>20</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>5</b>	<b>5</b>	<b>20</b>	<b>815</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
21	SR 3007 (Brodhead Rd) & Longvue Ave	Final Base	300	75	50	335	135	75	970
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>300</b>	<b>75</b>	<b>50</b>	<b>335</b>	<b>135</b>	<b>75</b>	<b>970</b>

ID	Intersection Name	Volume Type	Northbound				Southbound				Eastbound			
			Left	Thru	Right	2	2	Left	Thru	Right	Left	Thru	Right	2
22	SR 3007 (Brodhead Rd) & SR 151 (Gringo Rd)/ Laurel Rd / Heights Rd	Final Base	40	160	20	5	15	205	105	135	130	20	160	55
		Growth 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
		In Process	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>40</b>	<b>160</b>	<b>20</b>	<b>5</b>	<b>15</b>	<b>205</b>	<b>105</b>	<b>135</b>	<b>130</b>	<b>20</b>	<b>160</b>	<b>55</b>

Westbound				Northwestbound				Total Volume
2	Left	Thru	Right	2	Left	Right	2	
20	10	45	20	5	115	70	5	1340
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
<b>20</b>	<b>10</b>	<b>45</b>	<b>20</b>	<b>5</b>	<b>115</b>	<b>70</b>	<b>5</b>	<b>1340</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Thru	Thru	Right		
701	SR 3007 (Brodhead Rd) & North Branch Rd (South)	Final Base	340	10	520	15	0	885	
		Growth Factor	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	
		Other	0	0	0	0	0	0	
		<b>Future Total</b>	<b>340</b>	<b>10</b>	<b>520</b>	<b>15</b>	<b>0</b>	<b>885</b>	

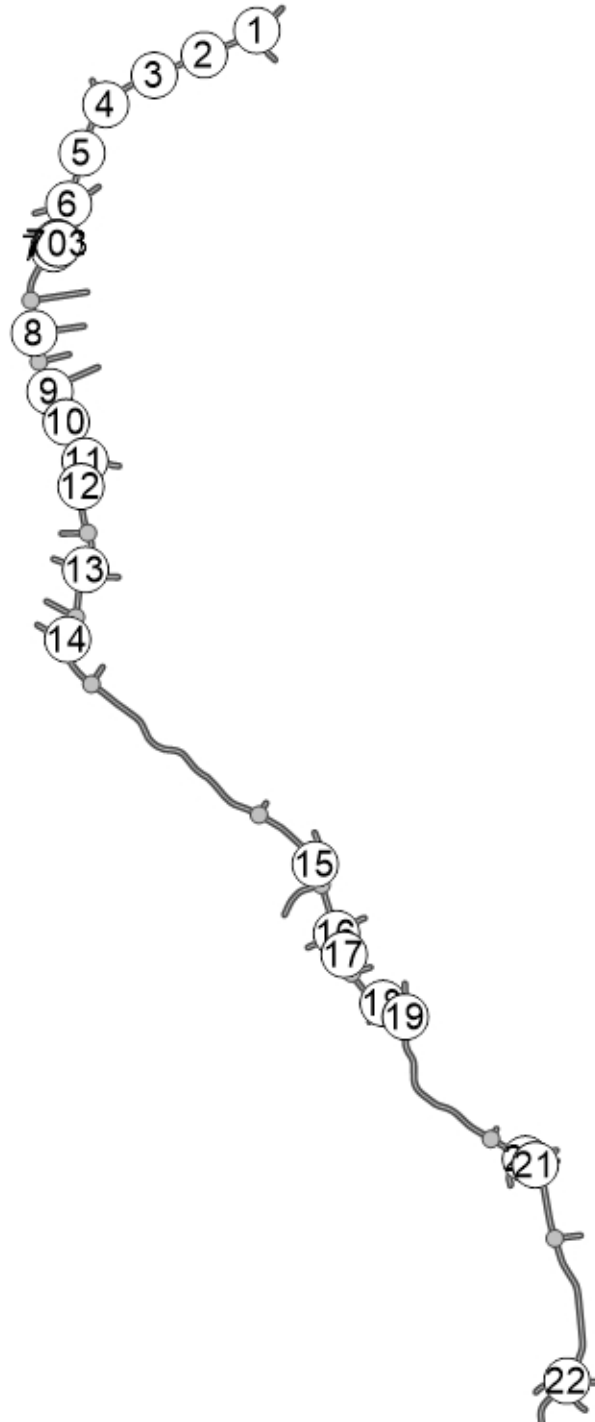
ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
702	SR 3007 (Brodhead Rd) & North Branch Rd (North)	Final Base	335	10	500	15	15	875	
		Growth Factor	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	
		Other	0	0	0	0	0	0	
		<b>Future Total</b>	<b>335</b>	<b>10</b>	<b>500</b>	<b>15</b>	<b>15</b>	<b>875</b>	

ID	Intersection Name	Volume Type	Northbound		Southbound			Eastbound		Westbound			Total Volume
			Thru	Right	Left	Thru	Right	Left	Thru	Left	Thru	Right	
703	North Branch Rd & Warwick Dr	Final Base	0	10	5	10	15	10	5	5	20	10	90
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>20</b>	<b>10</b>	<b>90</b>

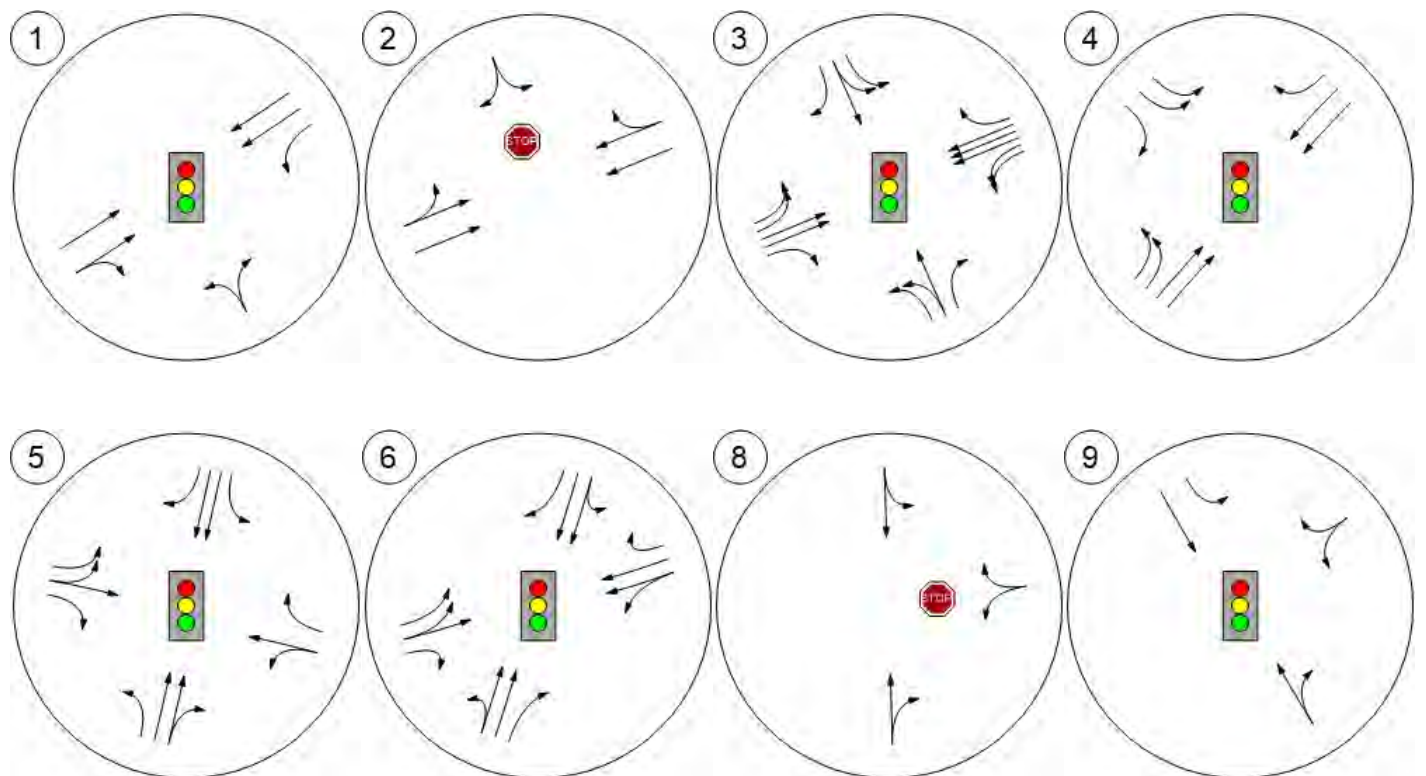
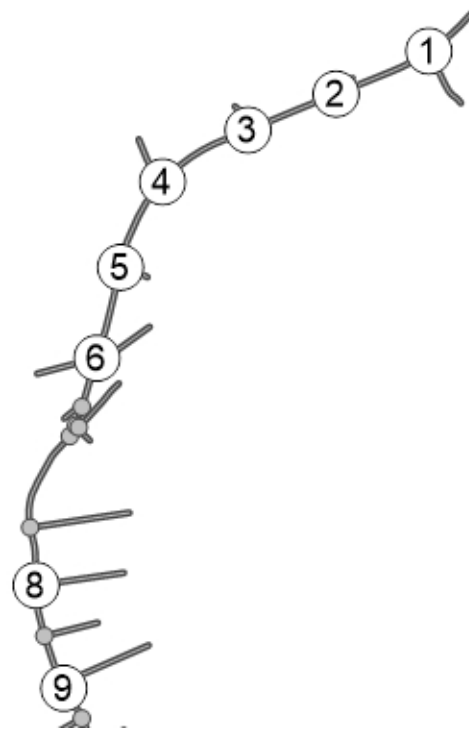


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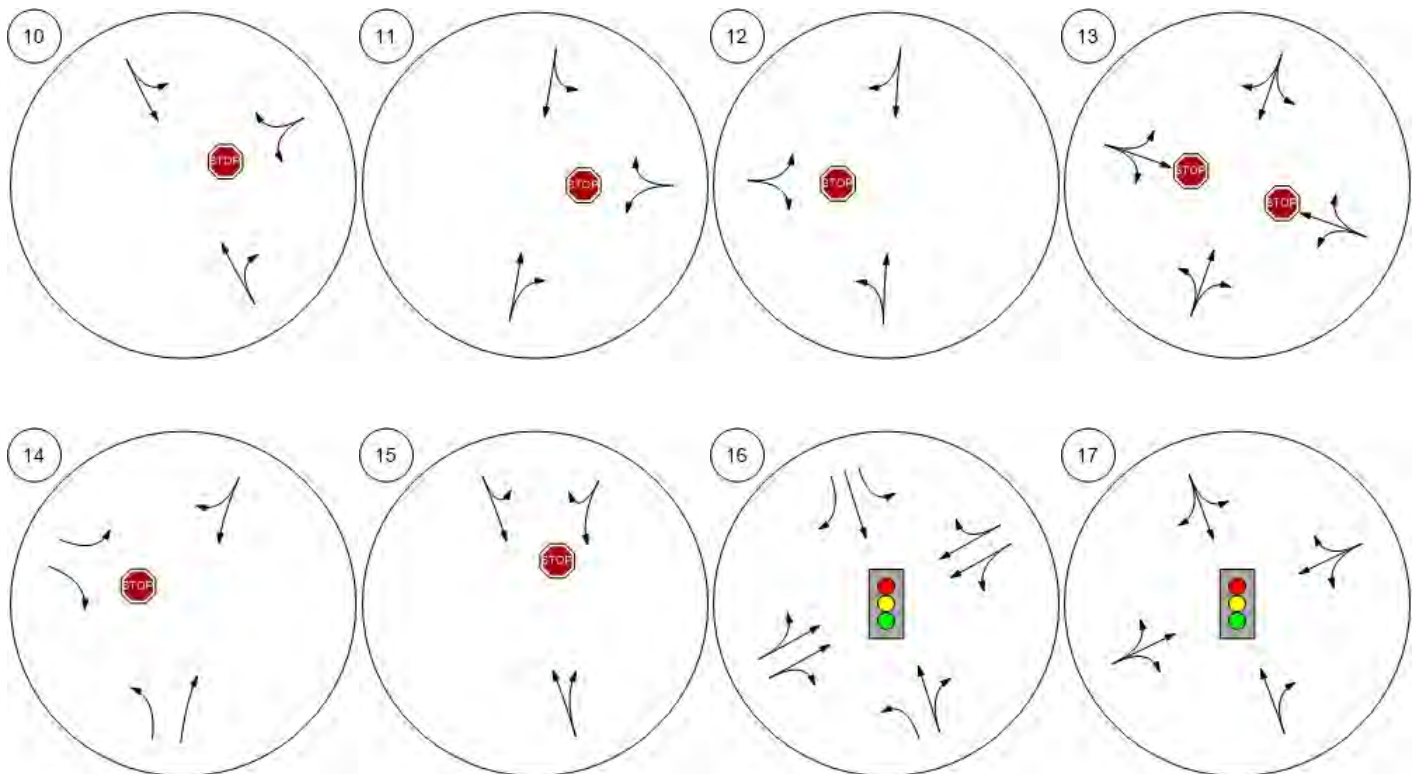
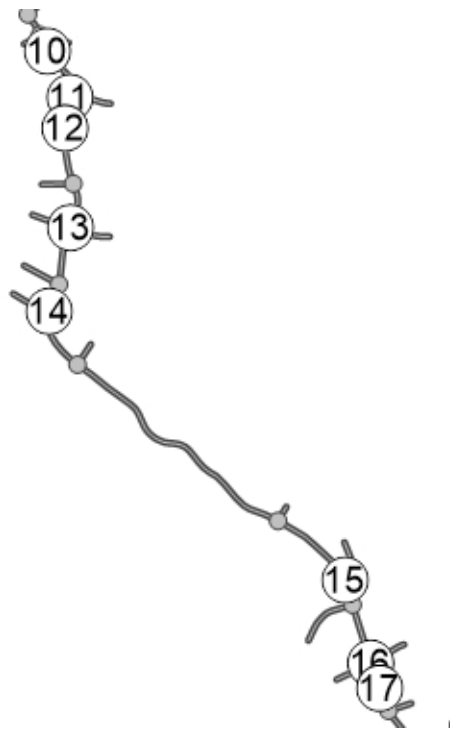
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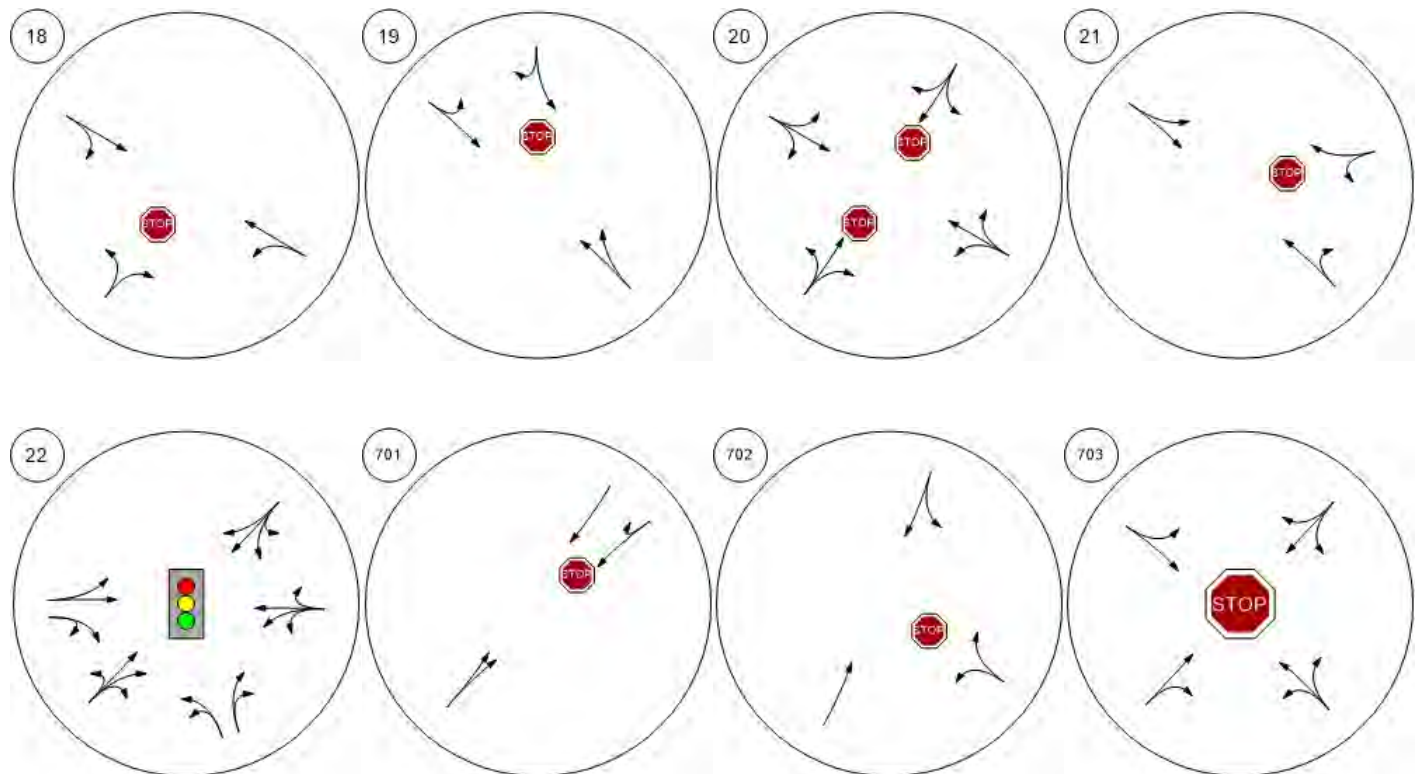
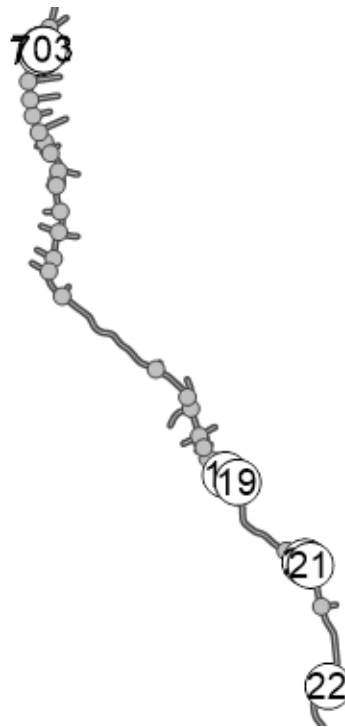
Lane Configuration and Traffic Control



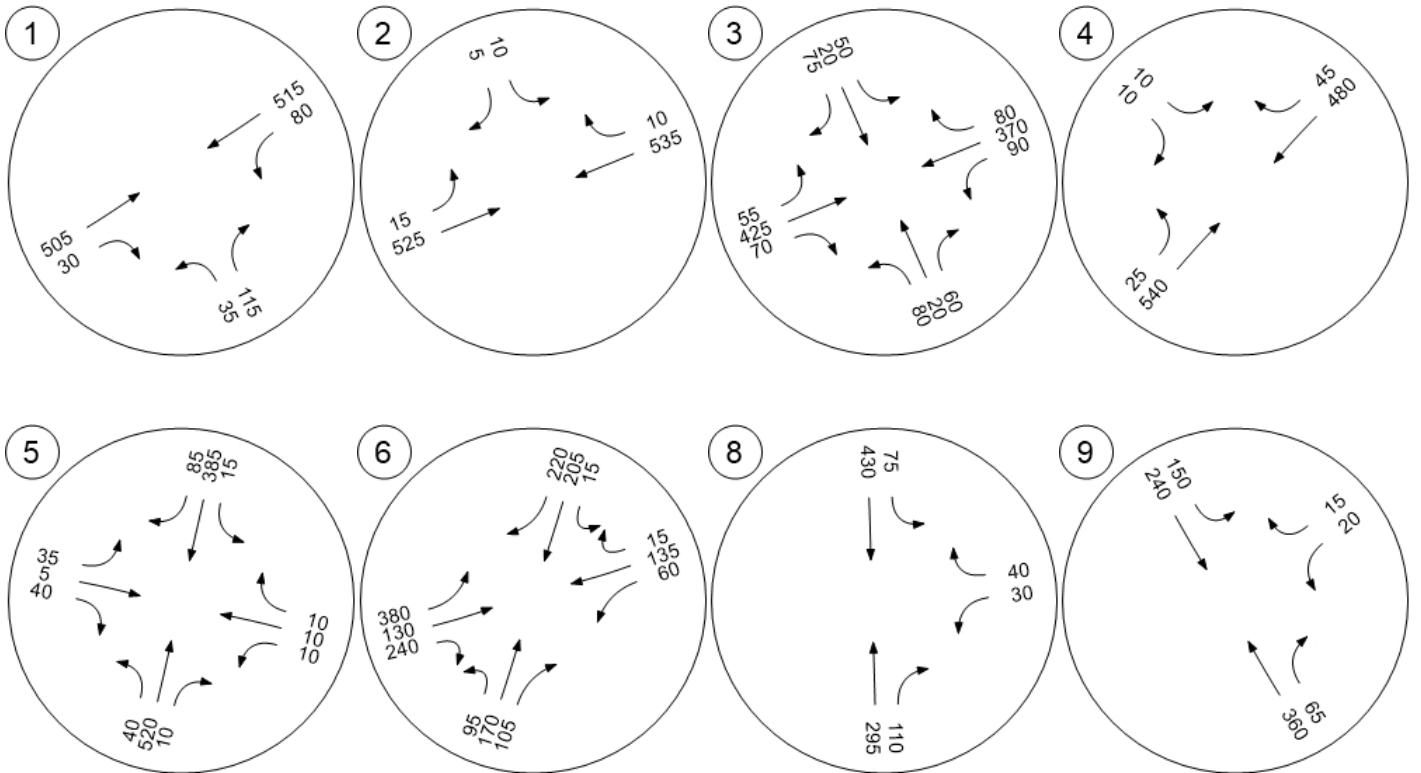
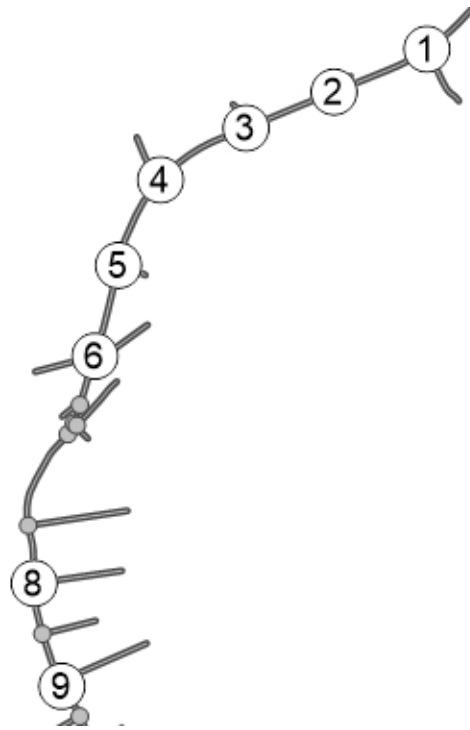
Lane Configuration and Traffic Control



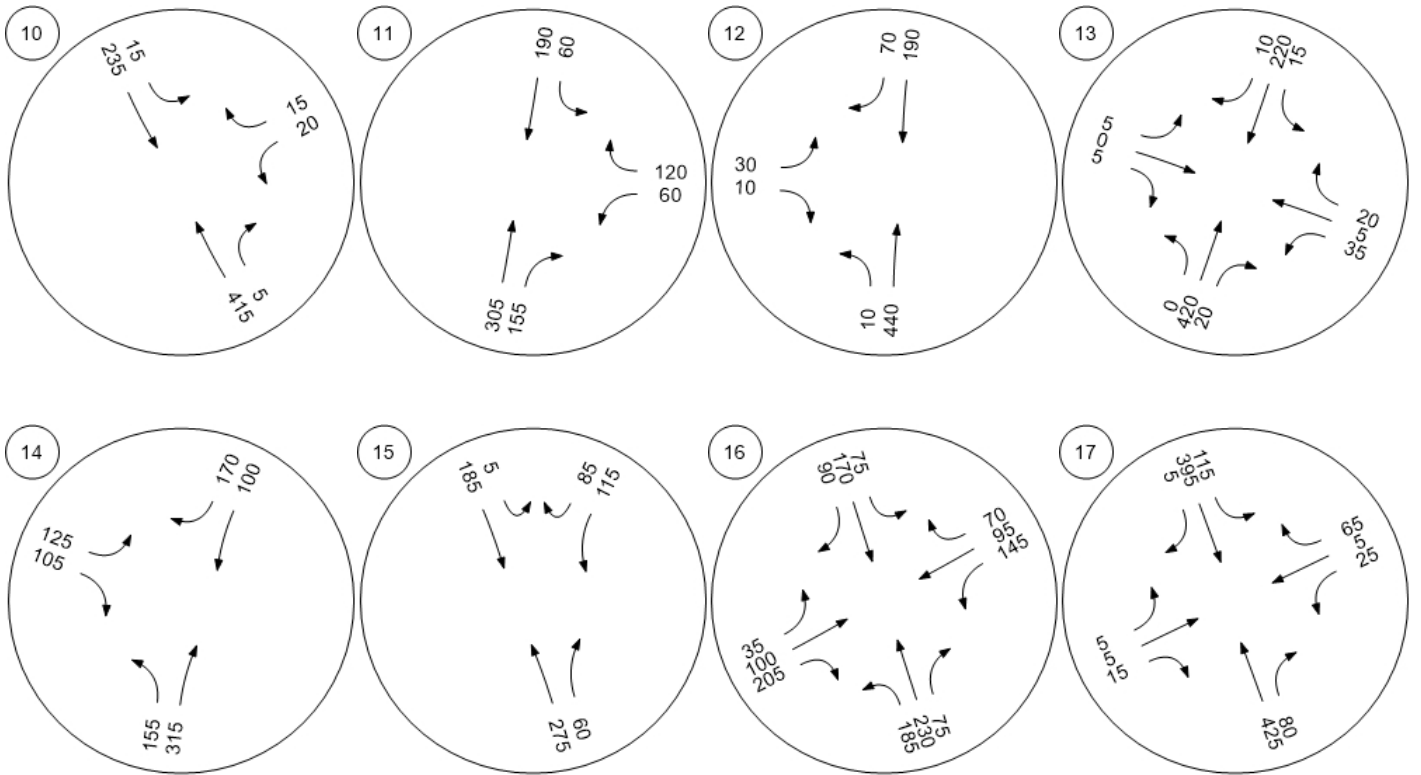
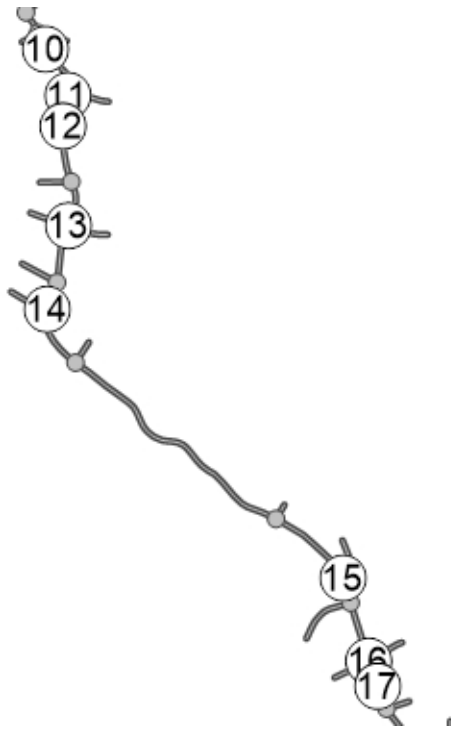
Lane Configuration and Traffic Control



Traffic Volume - Base Volume

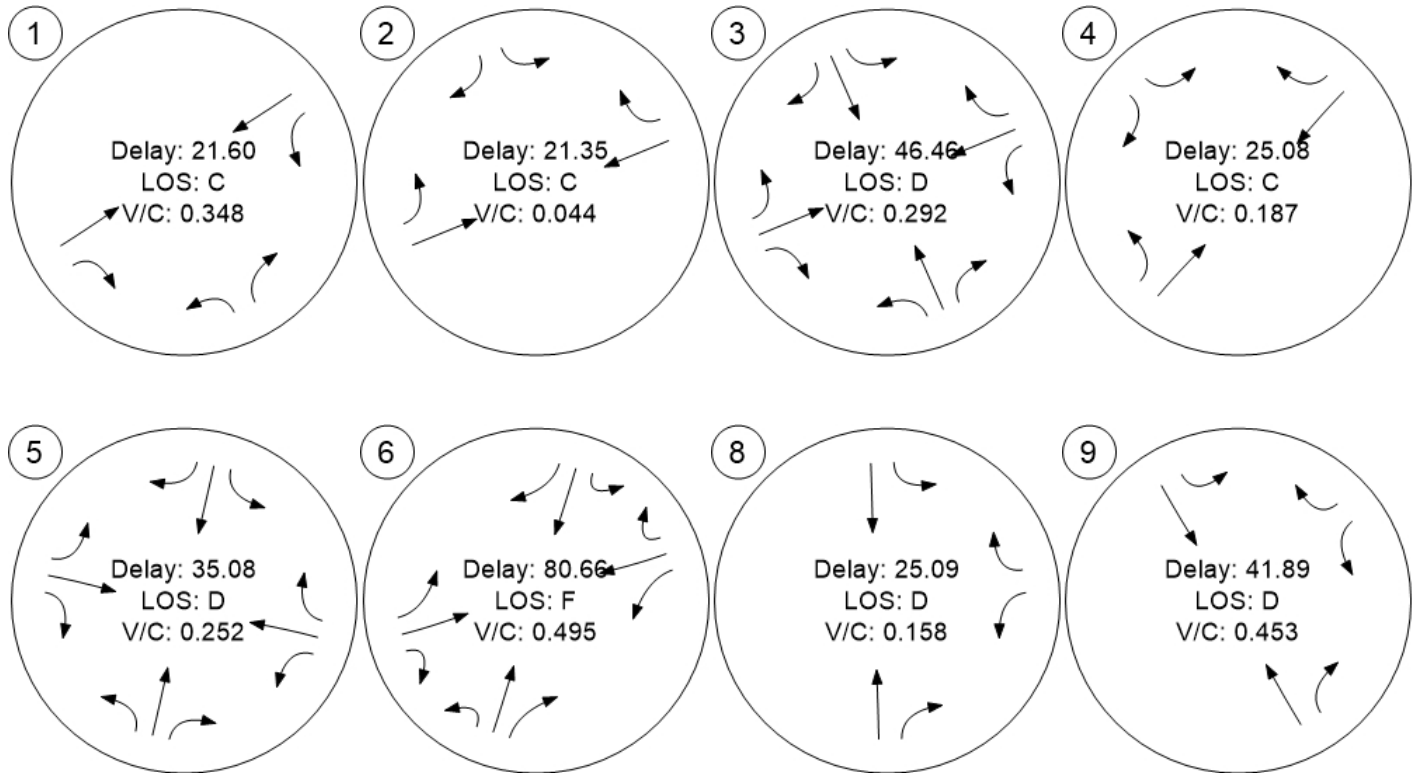
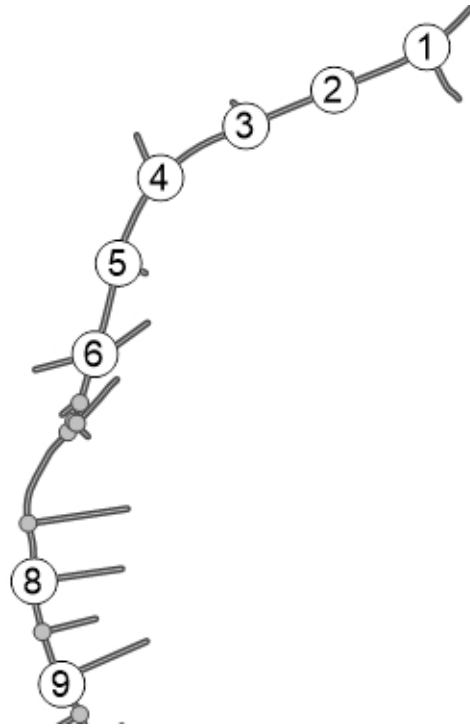


Traffic Volume - Base Volume



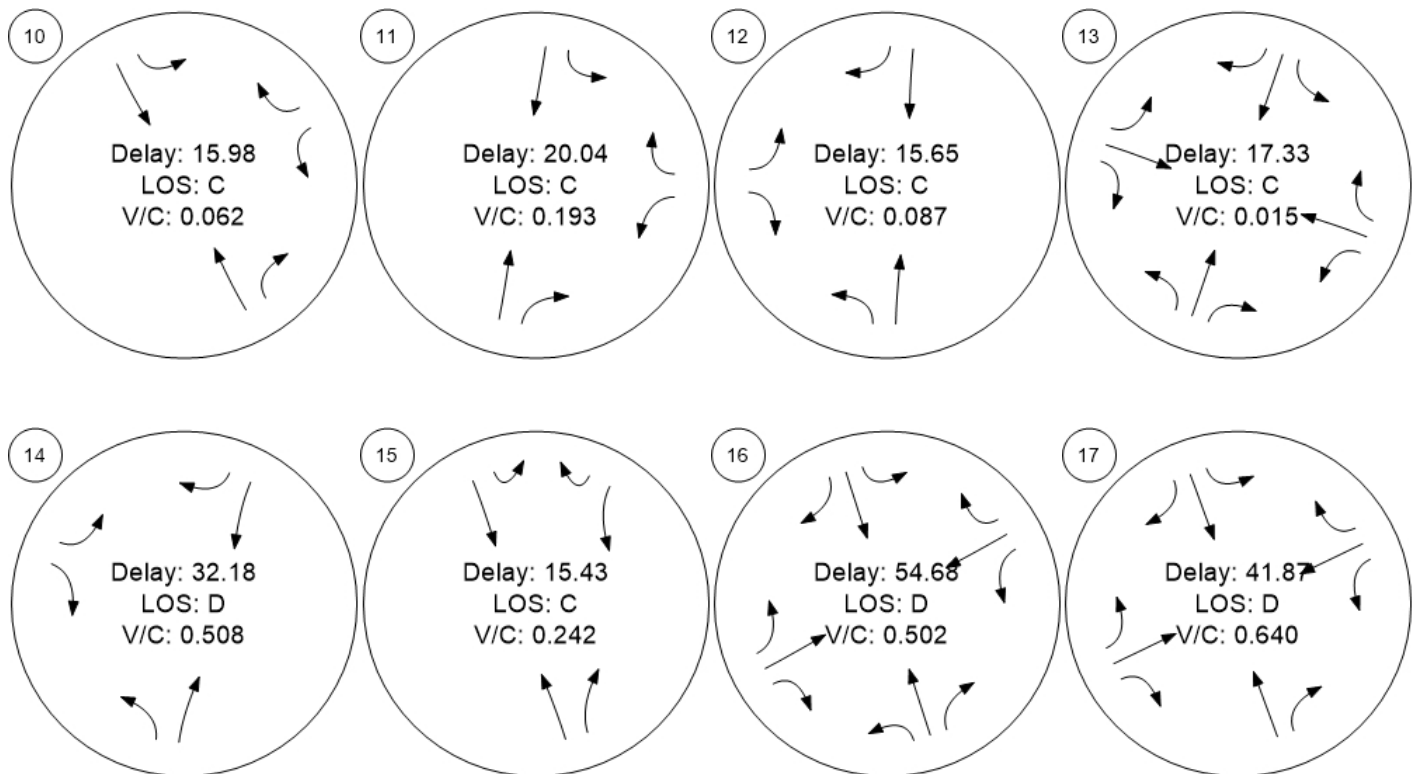
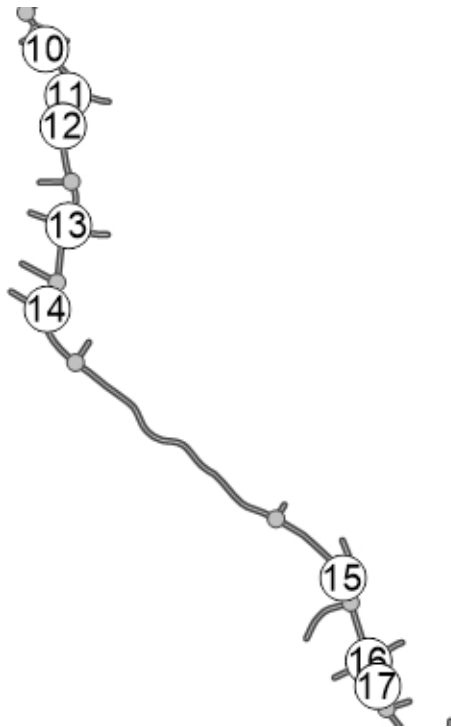


Traffic Conditions

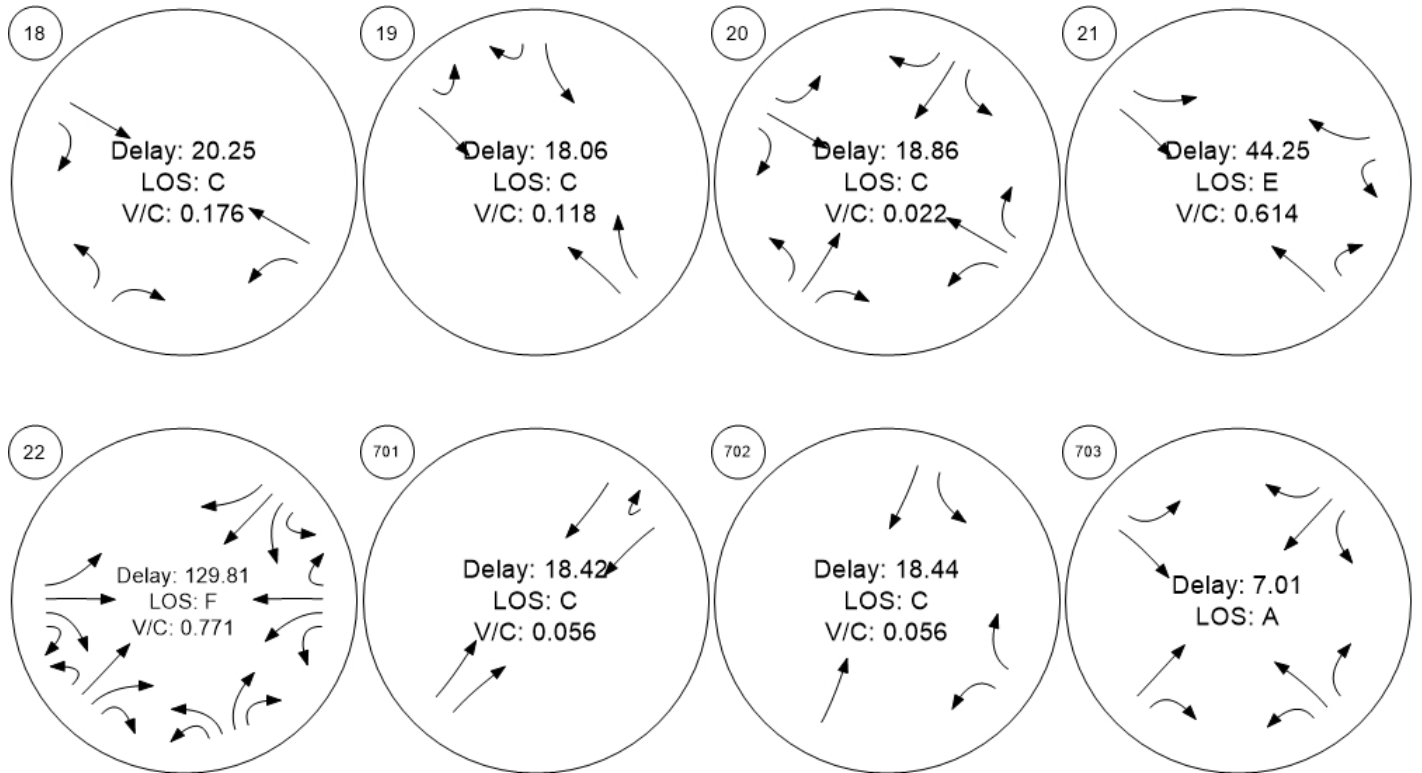
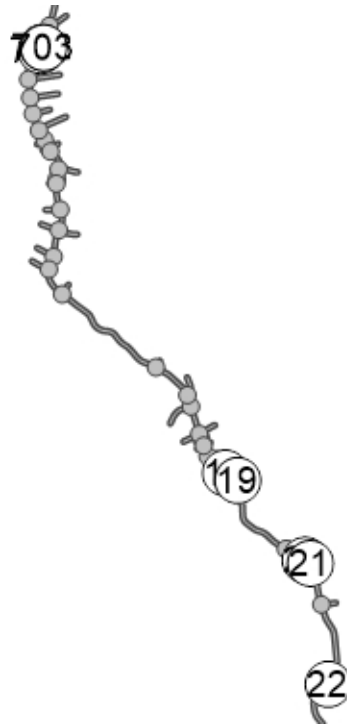




Traffic Conditions



Traffic Conditions



## SR 18/3007 Brodhead Road, Beaver, PA

Vistro File: N:\...\WO#35141-001 Brodhead Rd -  
Baseline\_Rev 2.vistro

Scenario 2 2020 - PM Base

Report File: N:\...\2020 PM.pdf

4/9/2021

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SR 18 (Brodhead Rd) & Old Brodhead Rd	Signalized	HCM 2000	NB Right	0.655	27.5	C
2	SR 18 (Brodhead Rd) & Wagner Rd	Two-way stop	HCM 2000	SB Left	0.299	94.4	F
3	SR 18 (Brodhead Rd) & Short St/Milne Dr	Signalized	HCM 2000	NB Right	0.551	56.1	E
4	SR 18 (Brodhead Rd) & Center Commons Blvd	Signalized	HCM 2000	EB Right	0.440	31.5	C
5	SR 18 (Brodhead Rd) & Beaver Valley Mall/Golfview Dr	Signalized	HCM 2000	WB Right	0.514	49.1	D
6	SR 18/3007 (Brodhead Rd) & SR 18 (Frankfort Rd)/Old Brodhead Rd	Signalized	HCM 2000	SB Right	0.850	128.2	F
8	SR 3007 (Brodhead Rd) & Baker Rd Ext	Two-way stop	HCM 2000	WB Left	0.674	102.2	F
9	SR 3007 (Brodhead Rd) & Community College Dr	Signalized	HCM 2000	NB Thru	0.557	53.0	D
10	SR 3007 (Brodhead Rd) & Sherwood Dr	Two-way stop	HCM 2000	WB Left	0.150	33.2	D
11	SR 3007 (Brodhead Rd) & Center-Grange Rd	Two-way stop	HCM 2000	WB Left	0.623	122.5	F
12	SR 3007 (Brodhead Rd) & Main St	Two-way stop	HCM 2000	EB Left	0.266	34.9	D
13	SR 3007 (Brodhead Rd) & Shaffer Rd	Two-way stop	HCM 2000	WB Left	0.259	46.6	E
14	SR 3007 (Brodhead Rd) & Pleasant Dr	Two-way stop	HCM 2000	EB Left	2.953	951.5	F
15	SR 3007 (Brodhead Rd) & Chapel Rd	Two-way stop	HCM 2000	WB Thru	0.629	58.1	F
16	SR 3007 (Brodhead Rd) & SR 3016 (Mill St/Kennedy Blvd)	Signalized	HCM 2000	SB Thru	0.936	83.8	F
17	SR 3007 (Brodhead Rd) & Sheffield Rd	Signalized	HCM 2000	SB Thru	0.680	125.9	F

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18	SR 3007 (Brodhead Rd) & Kane Rd	Two-way stop	HCM 2000	NB Left	0.337	35.7	E
19	SR 3007 (Brodhead Rd) & 20th St	Two-way stop	HCM 2000	SB Thru	0.411	35.0	E
20	SR 3007 (Brodhead Rd) & Laird Ave	Two-way stop	HCM 2000	WB Left	0.128	53.6	F
21	SR 3007 (Brodhead Rd) & Longvue Ave	Two-way stop	HCM 2000	WB Left	2.430	929.3	F
22	SR 3007 (Brodhead Rd) & SR 151 (Gringo Rd)/ Laurel Rd / Heights Rd	Signalized	HCM 2000	EB Left	0.943	183.0	F
701	SR 3007 (Brodhead Rd) & North Branch Rd (South)	Two-way stop	HCM 2000	WB Thru	0.137	40.7	E
702	SR 3007 (Brodhead Rd) & North Branch Rd (North)	Two-way stop	HCM 2000	WB Left	0.130	51.5	F
703	North Branch Rd & Warwick Dr	All-way stop	HCM 2000	EB Left	0.070	7.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**  
**Intersection 1: SR 18 (Brodhead Rd) & Old Brodhead Rd**

Control Type:	Signalized	Delay (sec / veh):	27.5
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.655

**Intersection Setup**

Name	Old Brodhead Rd		Brodhead Rd		Brodhead Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	200.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		40.00		35.00	
Grade [%]	-2.00		-7.00		-4.00	
Crosswalk	Yes		Yes		No	

**Volumes**

Name	Old Brodhead Rd		Brodhead Rd		Brodhead Rd	
Base Volume Input [veh/h]	90	190	955	140	185	910
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.00	1.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	90	190	955	140	185	910
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	50	251	37	49	239
Total Analysis Volume [veh/h]	95	200	1005	147	195	958
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Permissive	Permissive	ProtPerm	Permissive
Signal Group	8	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	20	0	5	20
Maximum Green [s]	30	0	60	0	20	60
Amber [s]	4.0	0.0	5.0	0.0	5.0	5.0
All red [s]	2.0	0.0	2.0	0.0	2.0	2.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	2.0	0.0	2.0	0.0	2.0	2.0
Walk [s]	7	0	7	0	5	0
Pedestrian Clearance [s]	18	0	12	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No		Yes		No	Yes
Maximum Recall	No		No		No	No
Pedestrian Recall	No		Yes		No	No
Detector Location [ft]	-10.0	0.0	30.0	0.0	-10.0	30.0
Detector Length [ft]	75.0	0.0	200.0	0.0	125.0	200.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	C	L	C
C, Cycle Length [s]	130	130	130	130
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	36	67	67	67
g / C, Green / Cycle	0.28	0.52	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.19	0.35	0.25	0.28
Total Saturation Flow Adjustment	0.86	0.92	0.44	0.94
s, saturation flow rate [veh/h]	1540	3314	785	3379
c, Capacity [veh/h]	427	1708	406	1742
d1, Uniform Delay [s]	42.03	23.40	24.26	21.31
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.89	2.15	4.04	1.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.69	0.67	0.48	0.55
d, Delay for Lane Group [s/veh]	50.92	25.55	28.30	22.56
Lane Group LOS	D	C	C	C
Critical Lane Group	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.18	18.88	5.24	13.93
50th-Percentile Queue Length [ft/ln]	279.62	471.90	131.10	348.34
95th-Percentile Queue Length [veh/ln]	19.09	30.63	10.23	23.15
95th-Percentile Queue Length [ft/ln]	477.25	765.86	255.70	578.81

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	50.92	50.92	25.55	25.55	28.30	22.56
Movement LOS	D	D	C	C	C	C
d_A, Approach Delay [s/veh]	50.92		25.55		23.53	
Approach LOS	D		C		C	
d_I, Intersection Delay [s/veh]	27.53					
Intersection LOS	C					
Intersection V/C	0.655					

**Sequence**

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





**Intersection Level Of Service Report**  
**Intersection 2: SR 18 (Brodhead Rd) & Wagner Rd**

Control Type:	Two-way stop	Delay (sec / veh):	94.4
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.299

**Intersection Setup**

Name	Wagner Rd		Brodhead Rd		Brodhead Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	T		↑↑		↑↑	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	11.00	11.00	11.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	20.00		40.00		40.00	
Grade [%]	4.40		-3.00		3.20	
Crosswalk	No		No		No	

**Volumes**

Name	Wagner Rd		Brodhead Rd		Brodhead Rd	
Base Volume Input [veh/h]	15	5	5	1080	950	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	15.00	4.00	1.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	5	5	1080	950	35
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	1	284	250	9
Total Analysis Volume [veh/h]	16	5	5	1137	1000	37
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.30	0.01	0.01	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	94.36	33.72	10.37	0.00	0.00	0.00
Movement LOS	F	D	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.12	1.12	0.02	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	28.10	28.10	0.56	0.28	0.00	0.00
d_A, Approach Delay [s/veh]	79.93		0.05		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.79					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 3: SR 18 (Brodhead Rd) & Short St/Milne Dr**

Control Type:	Signalized	Delay (sec / veh):	56.1
Analysis Method:	HCM 2000	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.551

**Intersection Setup**

Name	Milne Dr			Short St			Brodhead Rd			Brodhead Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐⇐			⇐⇐⇐⇐⇐			⇐⇐⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	12.00	12.00	12.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	2	0	1	2	0	2
Entry Pocket Length [ft]	100.00	100.00	75.00	100.00	100.00	150.00	450.00	100.00	400.00	350.00	100.00	400.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			40.00			40.00		
Grade [%]	2.00			2.00			-4.00			4.00		
Crosswalk	Yes			No			No			Yes		

**Volumes**

Name	Milne Dr			Short St			Brodhead Rd			Brodhead Rd		
Base Volume Input [veh/h]	230	65	275	190	60	140	115	620	265	210	530	215
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	1.00	1.00	2.00	1.00	3.00	2.00	1.00	1.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	230	65	275	190	60	140	115	620	265	210	530	215
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	17	71	49	15	36	30	160	68	54	137	55
Total Analysis Volume [veh/h]	237	67	284	196	62	144	119	639	273	216	546	222
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	5	20	0	5	20	0
Maximum Green [s]	0	30	0	0	30	0	30	60	0	30	60	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	5.0	5.0	0.0	5.0	5.0	0.0
All red [s]	0.0	4.0	0.0	0.0	4.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	0	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	28	0	0	0	0	0	18	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No		No	Yes		No	Yes	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	-4.0	0.0	0.0	-4.0	0.0	-4.0	30.0	0.0	-4.0	30.0	0.0
Detector Length [ft]	0.0	80.0	0.0	0.0	80.0	0.0	50.0	220.0	0.0	50.0	200.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	R	C	R	L	C	R	L	C	R
C, Cycle Length [s]	180	180	180	180	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	37	37	37	37	38	68	68	38	68	68
g / C, Green / Cycle	0.21	0.21	0.21	0.21	0.21	0.38	0.38	0.21	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.10	0.19	0.08	0.10	0.04	0.19	0.18	0.07	0.12	0.15
Total Saturation Flow Adjustment	0.88	0.83	0.89	0.81	0.88	0.92	0.83	0.87	0.85	0.81
s, saturation flow rate [veh/h]	3157	1500	3205	1450	3179	3313	1494	3115	4599	1449
c, Capacity [veh/h]	649	308	659	298	671	1252	564	658	1737	548
d1, Uniform Delay [s]	62.86	70.07	61.78	63.07	58.19	43.17	42.64	60.18	39.54	41.15
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.42	34.58	1.75	5.52	0.58	1.49	2.95	1.33	0.47	2.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.47	0.92	0.39	0.48	0.18	0.51	0.48	0.33	0.31	0.41
d, Delay for Lane Group [s/veh]	65.28	104.65	63.52	68.58	58.77	44.66	45.59	61.52	40.01	43.37
Lane Group LOS	E	F	E	E	E	D	D	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.76	17.99	6.41	7.07	2.70	14.33	11.52	5.13	7.69	8.97
50th-Percentile Queue Length [ft/ln]	194.08	449.64	160.26	176.69	67.50	358.27	288.07	128.33	192.25	224.24
95th-Percentile Queue Length [veh/ln]	14.06	29.27	12.04	13.03	5.89	23.75	19.59	10.05	13.96	15.84
95th-Percentile Queue Length [ft/ln]	351.62	731.74	300.88	325.69	147.34	593.63	489.67	251.30	348.89	396.08

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	65.28	65.28	104.65	63.52	63.52	68.58	58.77	44.66	45.59	61.52	40.01	43.37
Movement LOS	E	E	F	E	E	E	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	84.29			65.34			46.54			45.49		
Approach LOS	F			E			D			D		
d_I, Intersection Delay [s/veh]	56.10											
Intersection LOS	E											
Intersection V/C	0.551											

**Sequence**

Ring 1	1	2	8	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 4: SR 18 (Brodhead Rd) & Center Commons Blvd**

Control Type:	Signalized	Delay (sec / veh):	31.5
Analysis Method:	HCM 2000	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.440

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Center Commons Blvd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	0	0	0	1
Entry Pocket Length [ft]	200.00	100.00	100.00	100.00	100.00	200.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	-5.40		5.40		1.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Center Commons Blvd	
Base Volume Input [veh/h]	130	815	790	100	155	160
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.00	1.00	1.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	815	790	100	155	160
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	232	224	28	44	45
Total Analysis Volume [veh/h]	148	926	898	114	176	182
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	1	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	20	20	0	5	0
Maximum Green [s]	30	60	60	0	30	0
Amber [s]	5.0	5.0	5.0	0.0	3.0	0.0
All red [s]	2.0	2.0	2.0	0.0	4.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	2.0	2.0	2.0	0.0	2.0	0.0
Walk [s]	0	7	7	0	7	0
Pedestrian Clearance [s]	0	27	27	0	31	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes	Yes		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	-10.0	10.0	5.0	0.0	-15.0	0.0
Detector Length [ft]	80.0	240.0	240.0	0.0	120.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	L	C	C	R	L	R
C, Cycle Length [s]	142	142	142	142	142	142
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	37	67	67	67	37	37
g / C, Green / Cycle	0.26	0.47	0.47	0.47	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.05	0.27	0.27	0.08	0.05	0.12
Total Saturation Flow Adjustment	0.90	0.96	0.92	0.82	0.91	0.83
s, saturation flow rate [veh/h]	3232	3451	3302	1474	3272	1492
c, Capacity [veh/h]	842	1628	1558	695	852	389
d1, Uniform Delay [s]	40.68	27.07	27.21	21.47	41.03	44.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	1.45	1.56	0.51	0.55	4.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

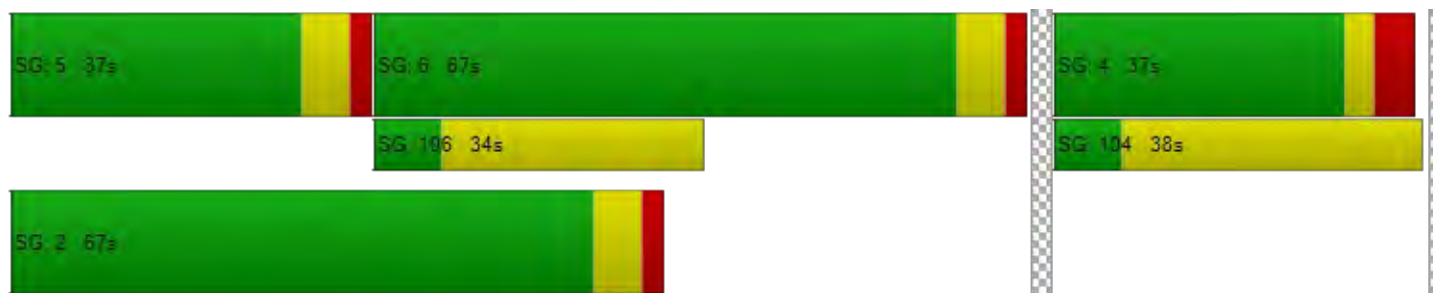
X, volume / capacity	0.18	0.57	0.58	0.16	0.21	0.47
d, Delay for Lane Group [s/veh]	41.14	28.52	28.77	21.97	41.58	48.22
Lane Group LOS	D	C	C	C	D	D
Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.52	15.64	15.28	2.81	3.02	6.74
50th-Percentile Queue Length [ft/ln]	62.88	390.92	382.05	70.31	75.56	168.52
95th-Percentile Queue Length [veh/ln]	5.55	25.70	25.17	6.10	6.49	12.54
95th-Percentile Queue Length [ft/ln]	138.64	642.60	629.25	152.55	162.17	313.39

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	41.14	28.52	28.77	21.97	41.58	48.22
Movement LOS	D	C	C	C	D	D
d_A, Approach Delay [s/veh]	30.26		28.00		44.95	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	31.48					
Intersection LOS	C					
Intersection V/C	0.440					

**Sequence**

Ring 1	5	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 5: SR 18 (Brodhead Rd) & Beaver Valley Mall/Golfview Dr**

Control Type:	Signalized	Delay (sec / veh):	49.1
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.514

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Beaver Valley Mall			Golfview Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	1
Entry Pocket Length [ft]	475.00	100.00	100.00	115.00	100.00	370.00	100.00	100.00	100.00	100.00	100.00	125.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	180.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			15.00			25.00		
Grade [%]	1.50			-1.50			1.85			1.25		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Beaver Valley Mall			Golfview Dr		
Base Volume Input [veh/h]	105	665	100	55	705	195	205	35	145	50	30	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	2.00	6.00	1.00	1.00	1.00	2.00	1.00	5.00	2.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	665	100	55	705	195	205	35	145	50	30	75
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	191	29	16	203	56	59	10	42	14	9	22
Total Analysis Volume [veh/h]	121	764	115	63	810	224	236	40	167	57	34	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			2			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	20	0	5	20	0	0	5	0	0	5	0
Maximum Green [s]	30	60	0	30	60	0	0	30	0	0	30	0
Amber [s]	5.0	5.0	0.0	5.0	5.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0
Split [s]	20	39	0	28	47	0	0	28	0	0	15	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	15	0	0	15	0	0	22	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	-10.0	30.0	0.0	-10.0	30.0	0.0	0.0	-10.0	0.0	0.0	-15.0	0.0
Detector Length [ft]	75.0	175.0	0.0	70.0	175.0	0.0	0.0	50.0	0.0	0.0	85.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	L	C	R	C	R	C	R
C, Cycle Length [s]	132	132	132	132	132	132	132	132	132
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	20	39	28	47	47	28	28	15	15
g / C, Green / Cycle	0.15	0.30	0.21	0.36	0.36	0.21	0.21	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.07	0.27	0.04	0.24	0.15	0.09	0.12	0.05	0.06
Total Saturation Flow Adjustment	0.93	0.91	0.82	0.95	0.85	0.90	0.80	0.96	0.83
s, saturation flow rate [veh/h]	1680	3269	1475	3419	1526	3224	1444	1734	1501
c, Capacity [veh/h]	255	966	313	1217	543	684	306	197	171
d1, Uniform Delay [s]	51.20	44.81	42.60	35.86	32.08	44.81	46.33	54.72	55.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.24	14.00	1.44	2.89	2.30	1.77	6.82	7.60	10.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

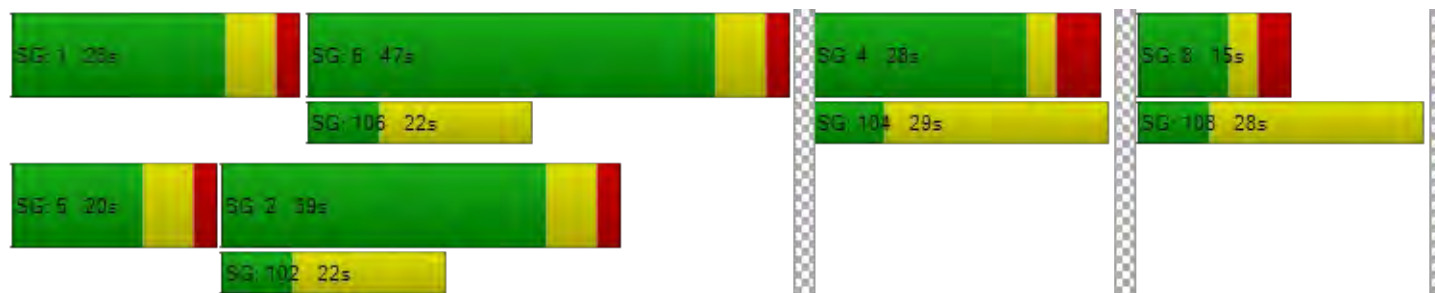
X, volume / capacity	0.48	0.91	0.20	0.67	0.41	0.40	0.55	0.46	0.50
d, Delay for Lane Group [s/veh]	57.44	58.81	44.05	38.75	34.38	46.57	53.15	62.32	65.26
Lane Group LOS	E	E	D	D	C	D	D	E	E
Critical Lane Group	Yes	Yes	No	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.56	21.32	2.07	15.18	6.87	5.06	6.21	3.52	3.39
50th-Percentile Queue Length [ft/ln]	114.01	532.88	51.68	379.56	171.77	126.61	155.14	88.01	84.71
95th-Percentile Queue Length [veh/ln]	9.13	34.40	4.67	25.02	12.73	9.94	11.72	7.37	7.14
95th-Percentile Queue Length [ft/ln]	228.21	860.11	116.86	625.52	318.30	248.56	293.07	184.33	178.54

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	57.44	58.81	58.81	44.05	38.75	34.38	46.57	46.57	53.15	62.32	62.32	65.26
Movement LOS	E	E	E	D	D	C	D	D	D	E	E	E
d_A, Approach Delay [s/veh]	58.64			38.16			49.05			63.75		
Approach LOS	E			D			D			E		
d_I, Intersection Delay [s/veh]	49.14											
Intersection LOS	D											
Intersection V/C	0.514											

**Sequence**

Ring 1	1	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 6: SR 18/3007 (Brodhead Rd) & SR 18 (Frankfort Rd)/Old Brodhead Rd**

Control Type:	Signalized	Delay (sec / veh):	128.2
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.850

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Frankfort Rd			Old Brodhead Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	2	0	0	1	0	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	450.00	100.00	100.00	430.00	100.00	100.00	300.00	350.00	100.00	350.00
No. of Lanes in Exit Pocket	0	0	2	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	450.00
Speed [mph]	40.00			40.00			45.00			35.00		
Grade [%]	-2.00			2.00			3.00			-1.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Frankfort Rd			Old Brodhead Rd		
Base Volume Input [veh/h]	235	295	165	75	430	390	500	335	195	125	205	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	2.00	0.00	1.00	4.00	2.00	1.00	2.00	2.00	1.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	235	295	165	75	430	390	500	335	195	125	205	80
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	79	44	20	116	105	134	90	52	34	55	22
Total Analysis Volume [veh/h]	253	317	177	81	462	419	538	360	210	134	220	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	60	0	0	45	0	0	45	0	0	45	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	5.0	0.0
All red [s]	0.0	5.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	3.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	20	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.0	0.0	0.0	-5.0	0.0
Detector Length [ft]	0.0	140.0	0.0	0.0	120.0	0.0	0.0	125.0	0.0	0.0	120.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	L	C	R	C	R	C	R	C	R
C, Cycle Length [s]	225	225	225	225	225	225	225	225	225
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	69	69	69	52	52	51	51	53	53
g / C, Green / Cycle	0.31	0.31	0.31	0.23	0.23	0.23	0.23	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.15	0.18	0.12	0.16	0.29	0.28	0.14	0.11	0.06
Total Saturation Flow Adjustment	0.94	0.98	0.84	0.93	0.81	0.90	0.82	0.93	0.85
s, saturation flow rate [veh/h]	1693	1765	1515	3334	1456	3245	1477	3347	1522
c, Capacity [veh/h]	519	541	465	771	337	736	335	788	359
d1, Uniform Delay [s]	63.58	65.92	61.23	79.45	86.50	87.00	78.43	73.52	69.68
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.25	4.59	2.36	5.36	132.73	111.43	8.60	1.85	1.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

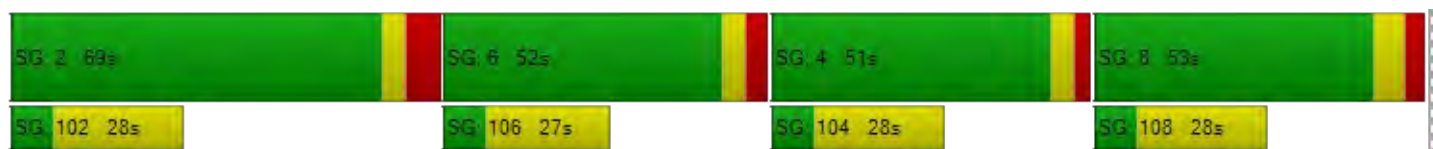
X, volume / capacity	0.49	0.59	0.38	0.70	1.24	1.22	0.63	0.45	0.24
d, Delay for Lane Group [s/veh]	66.83	70.51	63.60	84.80	219.23	198.43	87.02	75.37	71.25
Lane Group LOS	E	E	E	F	F	F	F	E	E
Critical Lane Group	No	Yes	No	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.14	18.61	9.45	18.74	40.26	44.51	13.37	10.86	4.69
50th-Percentile Queue Length [ft/ln]	353.62	465.35	236.23	468.55	1006.40	1112.81	334.37	271.44	117.14
95th-Percentile Queue Length [veh/ln]	23.47	30.23	16.55	30.43	64.42	71.23	22.32	18.61	9.33
95th-Percentile Queue Length [ft/ln]	586.68	755.81	413.65	760.71	1610.56	1780.64	558.04	465.24	233.31

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	66.83	70.51	63.60	84.80	84.80	219.23	198.43	198.43	87.02	75.37	75.37	71.25
Movement LOS	E	E	E	F	F	F	F	F	F	E	E	E
d_A, Approach Delay [s/veh]	67.62			143.35			177.32			74.56		
Approach LOS	E			F			F			E		
d_I, Intersection Delay [s/veh]	128.25											
Intersection LOS	F											
Intersection V/C	0.850											

**Sequence**

Ring 1	2	6	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 701: SR 3007 (Brodhead Rd) & North Branch Rd (South)**

Control Type:	Two-way stop	Delay (sec / veh):	40.7
Analysis Method:	HCM 2000	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.137

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		North Branch Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↩		↑		↵	
Turning Movement	Thru	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	10.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	1.20		2.90		-3.40	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		North Branch Rd	
Base Volume Input [veh/h]	655	25	0	690	15	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	2.00	1.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	655	25	0	690	15	0
Peak Hour Factor	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	7	0	185	4	0
Total Analysis Volume [veh/h]	704	27	0	742	16	0
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.14	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	40.72	17.81
Movement LOS	A	A		A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.46	0.46
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	11.51	11.51
d_A, Approach Delay [s/veh]	0.00		0.00		40.72	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	0.44					
Intersection LOS	E					

**Intersection Level Of Service Report**

**Intersection 702: SR 3007 (Brodhead Rd) & North Branch Rd (North)**

Control Type:	Two-way stop	Delay (sec / veh):	51.5
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.130

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Westbound	
	Northbound		Southbound			
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↑		↖		↔	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	12.00	11.00	11.00	12.00	15.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	-2.90		2.90		-11.10	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Westbound	
	Northbound		Southbound			
Base Volume Input [veh/h]	655	0	55	680	10	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	7.00	1.00	7.00	14.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	655	0	55	680	10	20
Peak Hour Factor	0.9300	1.0000	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	0	15	183	3	5
Total Analysis Volume [veh/h]	704	0	59	731	11	22
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.09	0.01	0.13	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	10.76	0.00	51.53	16.94
Movement LOS	A		B	A	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.28	0.28	0.63	0.63
95th-Percentile Queue Length [ft/ln]	0.00	0.00	7.05	7.05	15.65	15.65
d_A, Approach Delay [s/veh]	0.00		0.80		28.47	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.03					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 703: North Branch Rd & Warwick Dr**

Control Type:	All-way stop	Delay (sec / veh):	7.3
Analysis Method:	HCM 2000	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.070

**Intersection Setup**

Name	North Branch Rd			North Branch Rd			Warwick Dr			Warwick Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⤴			⤵			⤴			⤵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	10.00	10.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.80			-0.80			11.10			4.20		
Crosswalk	No			No			No			No		

**Volumes**

Name	North Branch Rd			North Branch Rd			Warwick Dr			Warwick Dr		
Base Volume Input [veh/h]	0	5	25	15	10	10	30	25	0	10	20	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	3.00	0.00	5.00	30.00	5.00	7.00	2.00	1.00	6.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	5	25	15	10	10	30	25	0	10	20	25
Peak Hour Factor	1.0000	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	1.0000	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	7	4	3	3	8	7	0	3	5	7
Total Analysis Volume [veh/h]	0	5	27	16	11	11	32	27	0	11	22	27
Pedestrian Volume [ped/h]	0			0			0			0		

Version 2021 (SP 0-2)

**Intersection Settings****Lanes**

Capacity per Entry Lane [veh/h]	1000	844	847	920
Degree of Utilization, x	0.03	0.05	0.07	0.07

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.10	0.14	0.22	0.21
95th-Percentile Queue Length [ft]	2.48	3.53	5.60	5.22
Approach Delay [s/veh]	6.72	7.47	7.57	7.19
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.28			
Intersection LOS	A			



**Intersection Level Of Service Report**  
**Intersection 8: SR 3007 (Brodhead Rd) & Baker Rd Ext**

Control Type:	Two-way stop	Delay (sec / veh):	102.2
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Baker Rd Ext	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↷		↶		↵	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	10.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		20.00	
Grade [%]	0.30		-0.20		5.40	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Baker Rd Ext	
Base Volume Input [veh/h]	590	45	85	540	60	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	13.00	8.00	1.00	7.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	590	45	85	540	60	75
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	160	12	23	147	16	20
Total Analysis Volume [veh/h]	641	49	92	587	65	82
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.13	0.01	0.67	0.17
d_M, Delay for Movement [s/veh]	0.00	0.00	11.00	0.00	102.19	72.30
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.46	0.46	5.90	5.90
95th-Percentile Queue Length [ft/ln]	0.00	0.00	11.43	11.43	147.62	147.62
d_A, Approach Delay [s/veh]	0.00		1.49		85.52	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	8.96					
Intersection LOS	F					

**Intersection Level Of Service Report**

**Intersection 9: SR 3007 (Brodhead Rd) & Community College Dr**

Control Type:	Signalized	Delay (sec / veh):	53.0
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Community College Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	12.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	250.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	6.60		3.90		1.00	
Crosswalk	No		Yes		Yes	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Community College Dr	
Base Volume Input [veh/h]	505	65	70	520	85	85
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	17.00	7.00	0.00	11.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	505	65	70	520	85	85
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	18	19	143	23	23
Total Analysis Volume [veh/h]	555	71	77	571	93	93
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	35	0	8	35	10	0
Maximum Green [s]	60	0	40	60	40	0
Amber [s]	4.0	0.0	3.0	4.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	2.0	0.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	7.0	0.0	3.0	7.0	3.0	0.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	7	0	0	7	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	Yes		No	Yes	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	
Detector Location [ft]	275.0	0.0	-5.0	275.0	-5.0	0.0
Detector Length [ft]	6.0	0.0	40.0	6.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	L	C	C
C, Cycle Length [s]	156	156	156	156
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	66	45	66	45
g / C, Green / Cycle	0.42	0.29	0.42	0.29
(v / s)_i Volume / Saturation Flow Rate	0.39	0.05	0.33	0.12
Total Saturation Flow Adjustment	0.90	0.87	0.95	0.84
s, saturation flow rate [veh/h]	1624	1567	1706	1514
c, Capacity [veh/h]	687	452	722	437
d1, Uniform Delay [s]	42.24	41.53	39.02	45.02
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.37	0.82	8.65	3.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.91	0.17	0.79	0.43
d, Delay for Lane Group [s/veh]	60.61	42.35	47.67	48.04
Lane Group LOS	E	D	D	D
Critical Lane Group	Yes	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	32.39	2.69	25.60	7.22
50th-Percentile Queue Length [ft/ln]	809.79	67.34	640.08	180.50
95th-Percentile Queue Length [veh/ln]	51.88	5.88	41.12	13.26
95th-Percentile Queue Length [ft/ln]	1296.91	147.04	1027.94	331.40

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	60.61	60.61	42.35	47.67	48.04	48.04
Movement LOS	E	E	D	D	D	D
d_A, Approach Delay [s/veh]	60.61		47.04		48.04	
Approach LOS	E		D		D	
d_I, Intersection Delay [s/veh]	52.98					
Intersection LOS	D					
Intersection V/C	0.557					

**Sequence**

Ring 1	1	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 10: SR 3007 (Brodhead Rd) & Sherwood Dr**

Control Type:	Two-way stop	Delay (sec / veh):	33.2
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.150

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Sherwood Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	1.00		-0.50		2.00	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Sherwood Dr	
Base Volume Input [veh/h]	545	20	25	575	20	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	1.00	1.00	12.00	14.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	545	20	25	575	20	25
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	148	5	7	156	5	7
Total Analysis Volume [veh/h]	592	22	27	625	22	27
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.15	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	10.08	0.00	33.21	15.51
Movement LOS	A	A	B	A	D	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.11	0.11	0.73	0.73
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.85	2.85	18.33	18.33
d_A, Approach Delay [s/veh]	0.00		0.42		23.46	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.08					
Intersection LOS	D					



**Intersection Level Of Service Report**  
**Intersection 11: SR 3007 (Brodhead Rd) & Center-Grange Rd**

Control Type:	Two-way stop	Delay (sec / veh):	122.5
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.623

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Center-Grange Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↗		↖		↔	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		35.00	
Grade [%]	1.00		-1.00		0.80	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Center-Grange Rd	
Base Volume Input [veh/h]	550	190	145	455	40	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	3.00	1.00	3.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	550	190	145	455	40	110
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	149	52	39	124	11	30
Total Analysis Volume [veh/h]	598	207	158	495	43	120
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.25	0.00	0.62	0.26
d_M, Delay for Movement [s/veh]	0.00	0.00	12.62	0.00	122.48	78.15
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.99	0.99	6.58	6.58
95th-Percentile Queue Length [ft/ln]	0.00	0.00	24.71	24.71	164.39	164.39
d_A, Approach Delay [s/veh]	0.00		3.05		89.84	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	10.26					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 12: SR 3007 (Brodhead Rd) & Main St**

Control Type:	Two-way stop	Delay (sec / veh):	34.9
Analysis Method:	HCM 2000	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.266

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Main St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	←		→		↔	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	2.60		-1.60		-2.60	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Main St	
Base Volume Input [veh/h]	20	695	415	65	40	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	4.00	6.00	7.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	695	415	65	40	20
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	183	109	17	11	5
Total Analysis Volume [veh/h]	21	732	437	68	42	21
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.00	0.27	0.03
d_M, Delay for Movement [s/veh]	9.60	0.00	0.00	0.00	34.95	17.89
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	1.20	1.20
95th-Percentile Queue Length [ft/ln]	2.01	2.01	0.00	0.00	30.09	30.09
d_A, Approach Delay [s/veh]	0.27		0.00		29.26	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.55					
Intersection LOS	D					

**Intersection Level Of Service Report**  
**Intersection 13: SR 3007 (Brodhead Rd) & Shaffer Rd**

Control Type:	Two-way stop	Delay (sec / veh):	46.6
Analysis Method:	HCM 2000	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.259

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			West Shaffer Rd			East Shaffer Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00	10.00	10.00	10.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			25.00			25.00		
Grade [%]	-9.40			-4.10			0.40			-2.30		
Crosswalk	No			No			No			No		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			West Shaffer Rd			East Shaffer Rd		
Base Volume Input [veh/h]	5	720	65	35	395	10	5	5	0	30	10	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	5.00	7.00	0.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	720	65	35	395	10	5	5	0	30	10	20
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	196	18	10	107	3	1	1	0	8	3	5
Total Analysis Volume [veh/h]	5	783	71	38	429	11	5	5	0	33	11	22
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.06	0.00	0.00	0.04	0.04	0.00	0.26	0.08	0.06
d_M, Delay for Movement [s/veh]	9.27	0.00	0.00	11.35	0.00	0.00	39.25	34.72	13.06	46.61	44.36	27.45
Movement LOS	A	A	A	B	A	A	E	D	B	E	E	D
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.20	0.20	0.20	0.26	0.26	0.26	1.72	1.72	1.72
95th-Percentile Queue Length [ft/ln]	0.45	0.45	0.45	5.01	5.01	5.01	6.54	6.54	6.54	42.99	42.99	42.99
d_A, Approach Delay [s/veh]	0.05			0.90			36.98			39.85		
Approach LOS	A			A			E			E		
d_I, Intersection Delay [s/veh]	2.46											
Intersection LOS	E											

**Intersection Level Of Service Report**  
**Intersection 14: SR 3007 (Brodhead Rd) & Pleasant Dr**

Control Type:	Two-way stop	Delay (sec / veh):	951.5
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.953

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Pleasant Dr	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	14.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	330.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		25.00	
Grade [%]	-2.30		1.90		-2.50	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Pleasant Dr	
Base Volume Input [veh/h]	175	430	295	125	350	375
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	2.00	2.00	2.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	175	430	295	125	350	375
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	118	81	34	96	103
Total Analysis Volume [veh/h]	192	473	324	137	385	412
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.21	0.00	0.00	0.00	2.95	0.59
d_M, Delay for Movement [s/veh]	9.88	0.00	0.00	0.00	951.49	17.39
Movement LOS	A	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.77	0.00	0.00	0.00	35.86	3.92
95th-Percentile Queue Length [ft/ln]	19.35	0.00	0.00	0.00	896.39	97.94
d_A, Approach Delay [s/veh]	2.85		0.00		468.61	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	195.21					
Intersection LOS	F					



**Intersection Level Of Service Report**  
**Intersection 15: SR 3007 (Brodhead Rd) & Chapel Rd**

Control Type:	Two-way stop	Delay (sec / veh):	58.1
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.629

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Chapel Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	↷		↶		↵	
Turning Movement	Thru	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	5.10		-5.60		4.60	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Chapel Rd	
Base Volume Input [veh/h]	445	150	35	510	105	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	1.00	7.00	3.00	1.00	17.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	445	150	35	510	105	50
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	117	39	9	134	28	13
Total Analysis Volume [veh/h]	468	158	37	537	111	53
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.05	0.01	0.63	0.09
d_M, Delay for Movement [s/veh]	0.00	0.00	10.20	0.00	58.10	44.04
Movement LOS	A	A	B	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.16	0.16	4.84	4.84
95th-Percentile Queue Length [ft/ln]	0.00	0.00	4.00	4.00	120.91	120.91
d_A, Approach Delay [s/veh]	0.00		0.66		53.55	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	6.72					
Intersection LOS	F					

**Intersection Level Of Service Report**

**Intersection 16: SR 3007 (Brodhead Rd) & SR 3016 (Mill St/Kennedy Blvd)**

Control Type:	Signalized	Delay (sec / veh):	83.8
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.936

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Mill St			Kennedy Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	10.00	11.00	11.00	12.00	12.00	16.00	12.00	12.00	16.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			35.00			40.00		
Grade [%]	-2.60			0.00			-1.10			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Mill St			Kennedy Blvd		
Base Volume Input [veh/h]	315	300	70	125	420	90	155	205	420	115	165	195
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	13.00	2.00	2.00	4.00	3.00	5.00	2.00	6.00	3.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	315	300	70	125	420	90	155	205	420	115	165	195
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	88	84	20	35	118	25	44	58	118	32	46	55
Total Analysis Volume [veh/h]	354	337	79	140	472	101	174	230	472	129	185	219
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	5	2	0	1	6	0	7	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	12	0	5	12	0	5	5	0	0	10	0
Maximum Green [s]	25	60	0	45	60	0	35	35	0	0	30	0
Amber [s]	4.0	4.0	0.0	4.0	4.0	0.0	4.0	3.0	0.0	0.0	3.0	0.0
All red [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	1.0	0.0	0.0	1.0	0.0
Split [s]	26	32	0	26	32	0	0	37	0	0	35	0
Vehicle Extension [s]	3.0	8.0	0.0	3.0	8.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	-10.0	0.0	0.0	-10.0	0.0	0.0	-5.0	-5.0	0.0	0.0	-5.0	0.0
Detector Length [ft]	75.0	0.0	0.0	75.0	0.0	0.0	75.0	75.0	0.0	0.0	75.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	L	C	R	C	C
C, Cycle Length [s]	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	26	32	26	32	32	37	35
g / C, Green / Cycle	0.20	0.25	0.20	0.25	0.25	0.28	0.27
(v / s)_i Volume / Saturation Flow Rate	0.21	0.25	0.09	0.28	0.07	0.28	0.17
Total Saturation Flow Adjustment	0.92	0.94	0.87	0.95	0.79	0.87	0.90
s, saturation flow rate [veh/h]	1658	1695	1565	1706	1422	3120	3222
c, Capacity [veh/h]	332	417	313	420	350	888	867
d1, Uniform Delay [s]	52.00	48.95	45.69	49.00	39.76	46.25	41.59
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	68.50	43.27	4.57	82.20	2.07	27.13	3.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

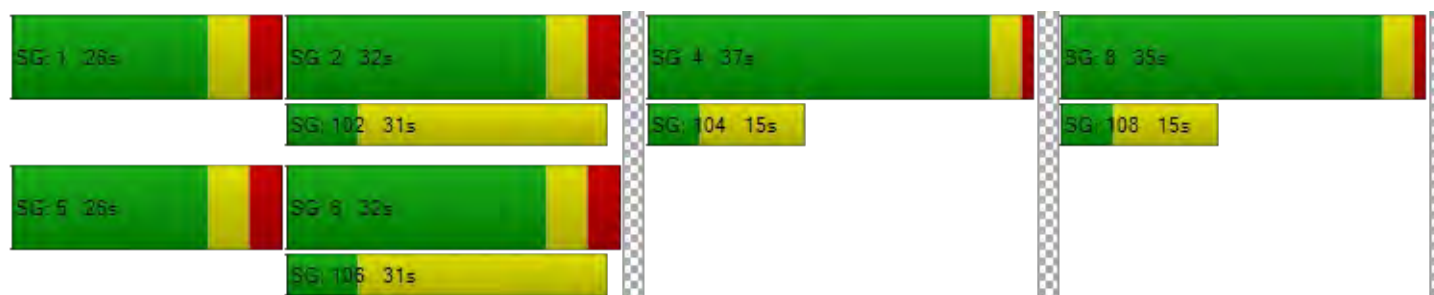
X, volume / capacity	1.07	1.00	0.45	1.12	0.29	0.99	0.61
d, Delay for Lane Group [s/veh]	120.50	92.21	50.26	131.20	41.83	73.38	44.84
Lane Group LOS	F	F	D	F	D	E	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	19.85	21.38	4.96	27.92	3.24	23.20	10.13
50th-Percentile Queue Length [ft/ln]	496.37	534.47	124.00	698.04	81.11	580.07	253.36
95th-Percentile Queue Length [veh/ln]	32.14	34.50	9.78	44.78	6.89	37.35	17.55
95th-Percentile Queue Length [ft/ln]	803.55	862.58	244.38	1119.4	172.17	933.71	438.76

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	120.50	92.21	92.21	50.26	131.20	41.83	73.38	73.38	73.38	44.84	44.84	44.84
Movement LOS	F	F	F	D	F	D	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	105.22			102.65			73.38			44.84		
Approach LOS	F			F			E			D		
d_I, Intersection Delay [s/veh]	83.81											
Intersection LOS	F											
Intersection V/C	0.936											

**Sequence**

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 17: SR 3007 (Brodhead Rd) & Sheffield Rd**

Control Type:	Signalized	Delay (sec / veh):	125.9
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.680

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Sheffield Rd			Sheffield Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	└─┬─┘			┬─┬─┬─┘			┬─┬─┬─┘			┬─┬─┬─┘		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	11.00	11.00	12.00	12.00	12.00	12.00	12.00	12.00	9.00	9.00	9.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	2.70			-2.70			-1.50			-1.50		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Sheffield Rd			Sheffield Rd		
Base Volume Input [veh/h]	0	600	80	105	830	20	10	35	45	70	25	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	1.00	0.00	1.00	2.00	4.00	6.00	3.00	0.00	1.00	4.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	600	80	105	830	20	10	35	45	70	25	80
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	163	22	29	226	5	3	10	12	19	7	22
Total Analysis Volume [veh/h]	0	652	87	114	902	22	11	38	49	76	27	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	2			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	49.0
Offset Reference	Beginning of First Yellow
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Overla	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups				1,6								
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	12	0	5	12	0	0	5	0	0	5	0
Maximum Green [s]	0	60	0	30	60	0	0	25	0	0	25	0
Amber [s]	0.0	4.0	0.0	4.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Split [s]	0	77	0	13	90	0	0	40	0	0	40	0
Vehicle Extension [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	16	0	0	16	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.0	0.0	0.0	-5.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	C	C	C	C
C, Cycle Length [s]	130	130	130	130
L, Total Lost Time per Cycle [s]	0.00	2.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	77	87	40	40
g / C, Green / Cycle	0.59	0.67	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.44	0.96	0.06	0.15
Total Saturation Flow Adjustment	0.93	0.60	0.89	0.72
s, saturation flow rate [veh/h]	1673	1085	1603	1299
c, Capacity [veh/h]	991	726	493	400
d1, Uniform Delay [s]	19.36	21.50	33.18	36.49
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.11	200.95	0.90	4.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.75	1.43	0.20	0.48
d, Delay for Lane Group [s/veh]	24.46	222.45	34.08	40.50
Lane Group LOS	C	F	C	D
Critical Lane Group	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	23.33	80.03	2.83	6.25
50th-Percentile Queue Length [ft/ln]	583.35	2000.83	70.80	156.26
95th-Percentile Queue Length [veh/ln]	37.55	128.05	6.14	11.79
95th-Percentile Queue Length [ft/ln]	938.85	3201.32	153.46	294.78

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	24.46	24.46	222.45	222.45	222.45	34.08	34.08	34.08	40.50	40.50	40.50
Movement LOS		C	C	F	F	F	C	C	C	D	D	D
d_A, Approach Delay [s/veh]		24.46		222.45			34.08			40.50		
Approach LOS		C		F			C			D		
d_I, Intersection Delay [s/veh]		125.91										
Intersection LOS		F										
Intersection V/C		0.680										

**Sequence**

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 18: SR 3007 (Brodhead Rd) & Kane Rd**

Control Type:	Two-way stop	Delay (sec / veh):	35.7
Analysis Method:	HCM 2000	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.337

**Intersection Setup**

Name	Kane Rd		Brodhead Rd		Brodhead Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	1.40		3.40		-7.70	
Crosswalk	No		No		No	

**Volumes**

Name	Kane Rd		Brodhead Rd		Brodhead Rd	
Base Volume Input [veh/h]	55	15	595	55	15	455
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	13.00	3.00	2.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	15	595	55	15	455
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	4	160	15	4	122
Total Analysis Volume [veh/h]	59	16	640	59	16	489
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0




**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.34	0.03	0.01	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	35.69	22.57	0.00	0.00	10.37	0.00
Movement LOS	E	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.60	1.60	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	40.10	40.10	0.00	0.00	1.79	1.79
d_A, Approach Delay [s/veh]	32.89		0.00		0.33	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	2.06					
Intersection LOS	E					

**Intersection Level Of Service Report**  
**Intersection 19: SR 3007 (Brodhead Rd) & 20th St**

Control Type:	Two-way stop	Delay (sec / veh):	35.0
Analysis Method:	HCM 2000	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.411

**Intersection Setup**

Name	20th St		Brodhead Rd		Brodhead Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	3.50		6.60		-3.60	
Crosswalk	No		No		No	

**Volumes**

Name	20th St		Brodhead Rd		Brodhead Rd	
Base Volume Input [veh/h]	80	10	15	560	455	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	9.00	4.00	3.00	1.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	10	15	560	455	70
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	3	4	144	117	18
Total Analysis Volume [veh/h]	82	10	15	577	469	72
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.41	0.02	0.02	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	35.02	22.97	9.70	0.00	0.00	0.00
Movement LOS	E	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.99	1.99	0.06	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	49.68	49.68	1.47	1.47	0.00	0.00
d_A, Approach Delay [s/veh]	33.71		0.25		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	2.65					
Intersection LOS	E					

**Intersection Level Of Service Report**  
**Intersection 20: SR 3007 (Brodhead Rd) & Laird Ave**

Control Type:	Two-way stop	Delay (sec / veh):	53.6
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.128

**Intersection Setup**

Name	Brodhead Rd			Brodhead Rd			Laird Ave			Laird Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	10.00	10.00	10.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			20.00			20.00		
Grade [%]	-0.70			-1.50			7.10			-2.40		
Crosswalk	No			No			No			No		

**Volumes**

Name	Brodhead Rd			Brodhead Rd			Laird Ave			Laird Ave		
Base Volume Input [veh/h]	25	655	15	15	565	15	5	5	35	10	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	1.00	10.00	2.00	3.00	15.00	3.00	0.00	1.00	2.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	655	15	15	565	15	5	5	35	10	5	15
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	186	4	4	161	4	1	1	10	3	1	4
Total Analysis Volume [veh/h]	28	744	17	17	642	17	6	6	40	11	6	17
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.03	0.01	0.00	0.07	0.05	0.08	0.13	0.05	0.04
d_M, Delay for Movement [s/veh]	10.28	0.00	0.00	10.66	0.00	0.00	47.92	41.41	15.76	53.62	44.54	19.96
Movement LOS	B	A	A	B	A	A	E	E	C	F	E	C
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.12	0.08	0.08	0.08	0.74	0.74	0.74	0.81	0.81	0.81
95th-Percentile Queue Length [ft/ln]	3.08	3.08	3.08	2.00	2.00	2.00	18.39	18.39	18.39	20.35	20.35	20.35
d_A, Approach Delay [s/veh]	0.36			0.27			22.43			35.19		
Approach LOS	A			A			C			E		
d_I, Intersection Delay [s/veh]	1.83											
Intersection LOS	F											



**Intersection Level Of Service Report**  
**Intersection 21: SR 3007 (Brodhead Rd) & Longvue Ave**

Control Type:	Two-way stop	Delay (sec / veh):	929.3
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.430

**Intersection Setup**

Name	Brodhead Rd		Brodhead Rd		Longvue Ave	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		20.00	
Grade [%]	2.00		-5.20		-3.20	
Crosswalk	No		No		No	

**Volumes**

Name	Brodhead Rd		Brodhead Rd		Longvue Ave	
Base Volume Input [veh/h]	555	160	170	440	110	140
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	2.00	3.00	2.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	555	160	170	440	110	140
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	158	45	48	125	31	40
Total Analysis Volume [veh/h]	631	182	193	500	125	159
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.31	0.01	2.43	0.35
d_M, Delay for Movement [s/veh]	0.00	0.00	13.30	0.00	929.29	867.31
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.31	1.31	26.73	26.73
95th-Percentile Queue Length [ft/ln]	0.00	0.00	32.67	32.67	668.26	668.26
d_A, Approach Delay [s/veh]	0.00		3.70		894.59	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	143.37					
Intersection LOS	F					

**Intersection Level Of Service Report**

**Intersection 22: SR 3007 (Brodhead Rd) & SR 151 (Gringo Rd) / Laurel Rd / Heights Rd**

Control Type:	Signalized	Delay (sec / veh):	183.0
Analysis Method:	HCM 2000	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.943

**Intersection Setup**

Name	Brodhead Rd				Brodhead Rd				Gringo Rd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00				35.00				35.00			
Grade [%]	-0.50				-1.00				11.40			
Crosswalk	Yes				No				Yes			

**Volumes**

Name	Brodhead Rd				Brodhead Rd				Gringo Rd			
Base Volume Input [veh/h]	70	260	20	20	30	80	120	215	245	45	115	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	9.00	1.00	8.00	2.00	22.00	1.00	2.00	3.00	1.00	1.00	2.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	260	20	20	30	80	120	215	245	45	115	70
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	70	5	5	8	22	32	58	66	12	31	19
Total Analysis Volume [veh/h]	75	280	22	22	32	86	129	231	263	48	124	75
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	2	0	0	0	0	6	0	0	4	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	0	0	0	15	0	0	4	0	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.5	0.0	0.0
All red [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	4.5	0.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Walk [s]	0	7	0	0	0	0	7	0	0	7	0	0
Pedestrian Clearance [s]	0	20	0	0	0	0	20	0	0	8	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		Yes					Yes			No		
Maximum Recall		No					No			No		
Pedestrian Recall		No					No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.0	0.0	0.0
Detector Length [ft]	0.0	225.0	0.0	0.0	0.0	0.0	225.0	0.0	0.0	70.0	0.0	0.0
I, Upstream Filtering 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

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	C	C	C	R
C, Cycle Length [s]	90	90	90	90
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	21	21	12	12
g / C, Green / Cycle	0.23	0.23	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.24	0.30	0.20	0.14
Total Saturation Flow Adjustment	0.94	0.88	0.87	0.77
s, saturation flow rate [veh/h]	1686	1583	1570	1383
c, Capacity [veh/h]	386	362	209	184
d1, Uniform Delay [s]	34.70	34.70	39.00	39.00
k, delay calibration	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	54.93	161.87	242.18	89.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00



**Lane Group Results**

X, volume / capacity	1.03	1.32	1.49	1.08
d, Delay for Lane Group [s/veh]	89.63	196.57	281.18	128.04
Lane Group LOS	F	F	F	F
Critical Lane Group	Yes	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	16.27	28.44	21.56	8.98
50th-Percentile Queue Length [ft/ln]	406.77	711.03	538.94	224.47
95th-Percentile Queue Length [veh/ln]	26.66	45.60	34.78	15.86
95th-Percentile Queue Length [ft/ln]	666.53	1140.06	869.53	396.42

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	89.63	89.63	89.63	89.63	196.57	196.57	196.57	196.57	281.18	281.18	128.04	128.04
Movement LOS	F	F	F	F	F	F	F	F	F	F	F	F
d_A, Approach Delay [s/veh]	89.63				196.57				221.42			
Approach LOS	F				F				F			
d_I, Intersection Delay [s/veh]	183.05											
Intersection LOS	F											
Intersection V/C	0.943											

**Intersection Setup**

Name	Heights Rd				Laurel Rd			
Approach	Westbound				Northwestbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left2	Left	Right	Right2
Lane Width [ft]	10.00	10.00	10.00	10.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00				45.00			
Grade [%]	-2.50				3.10			
Crosswalk	Yes				Yes			

**Volumes**

Name	Heights Rd				Laurel Rd			
Base Volume Input [veh/h]	10	10	35	20	20	180	165	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	13.00	6.00	5.00	3.00	0.00	3.00	3.00	13.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	35	20	20	180	165	40
Peak Hour Factor	0.9300	0.9000	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	9	5	5	48	44	11
Total Analysis Volume [veh/h]	11	11	38	22	22	194	177	43
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

**Intersection Settings**

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	0	8	0	0	3	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	4	0	0	4	0	0
Maximum Green [s]	0	0	0	0	0	0	0	0
Amber [s]	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0
All red [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Split [s]	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Walk [s]	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	-10.0	0.0	0.0	-10.0	0.0	0.0
Detector Length [ft]	0.0	0.0	50.0	0.0	0.0	60.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	C	L	R
C, Cycle Length [s]	90	90	90
L, Total Lost Time per Cycle [s]	0.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00
g_i, Effective Green Time [s]	10	10	10
g / C, Green / Cycle	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.05	0.13	0.15
Total Saturation Flow Adjustment	0.86	0.91	0.80
s, saturation flow rate [veh/h]	1541	1639	1435
c, Capacity [veh/h]	163	173	151
d1, Uniform Delay [s]	38.03	40.25	40.25
k, delay calibration	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00
d2, Incremental Delay [s]	10.74	150.54	236.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.50	1.25	1.45
d, Delay for Lane Group [s/veh]	48.77	190.79	276.61
Lane Group LOS	D	F	F
Critical Lane Group	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	2.25	12.12	14.95
50th-Percentile Queue Length [ft/ln]	56.31	302.88	373.76
95th-Percentile Queue Length [veh/ln]	5.04	20.46	24.67
95th-Percentile Queue Length [ft/ln]	125.99	511.46	616.82

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	48.77	48.77	48.77	48.77	190.79	190.79	276.61	276.61
Movement LOS	D	D	D	D	F	F	F	F
d_A, Approach Delay [s/veh]	48.77				234.09			
Approach LOS	D				F			
d_I, Intersection Delay [s/veh]	183.05							
Intersection LOS	F							
Intersection V/C	0.943							

**Sequence**

Ring 1	2	6	3	4	8	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



## SR 18/3007 Brodhead Road, Beaver, PA

Vistro File: N:\...\WO#35141-001 Brodhead Rd -  
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Scenario 2 2020 - PM Base

Report File: N:\...\2020 PM.pdf

4/9/2021

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
1	SR 18 (Brodhead Rd) & Old Brodhead Rd	90	190	955	140	185	910	2470

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	SR 18 (Brodhead Rd) & Wagner Rd	15	5	5	1080	950	35	2090

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	SR 18 (Brodhead Rd) & Short St/Milne Dr	230	65	275	190	60	140	115	620	265	210	530	215	2915

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
4	SR 18 (Brodhead Rd) & Center Commons Blvd	130	815	790	100	155	160	2150

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	SR 18 (Brodhead Rd) & Beaver Valley Mall/Golfview Dr	105	665	100	55	705	195	205	35	145	50	30	75	2365

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	SR 18/3007 (Brodhead Rd) & SR 18 (Frankfort Rd)/Old Brodhead Rd	235	295	165	75	430	390	500	335	195	125	205	80	3030

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ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
8	SR 3007 (Brodhead Rd) & Baker Rd Ext	590	45	85	540	60	75	1395

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
9	SR 3007 (Brodhead Rd) & Community College Dr	505	65	70	520	85	85	1330

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
10	SR 3007 (Brodhead Rd) & Sherwood Dr	545	20	25	575	20	25	1210

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
11	SR 3007 (Brodhead Rd) & Center-Grange Rd	550	190	145	455	40	110	1490

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
12	SR 3007 (Brodhead Rd) & Main St	20	695	415	65	40	20	1255

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13	SR 3007 (Brodhead Rd) & Shaffer Rd	5	720	65	35	395	10	5	5	0	30	10	20	1300

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
14	SR 3007 (Brodhead Rd) & Pleasant Dr	175	430	295	125	350	375	1750

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ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Thru	Right	
15	SR 3007 (Brodhead Rd) & Chapel Rd	445	150	35	510	105	50	1295

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16	SR 3007 (Brodhead Rd) & SR 3016 (Mill St/Kennedy Blvd)	315	300	70	125	420	90	155	205	420	115	165	195	2575

ID	Intersection Name	Northbound		Southbound			Eastbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17	SR 3007 (Brodhead Rd) & Sheffield Rd	600	80	105	830	20	10	35	45	70	25	80	1900

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
18	SR 3007 (Brodhead Rd) & Kane Rd	55	15	595	55	15	455	1190

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Thru	Right	
19	SR 3007 (Brodhead Rd) & 20th St	80	10	15	560	455	70	1190

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
20	SR 3007 (Brodhead Rd) & Laird Ave	25	655	15	15	565	15	5	5	35	10	5	15	1365

ID	Intersection Name	Northbound		Southbound		Westbound		Total Volume
		Thru	Right	Left	Thru	Left	Right	
21	SR 3007 (Brodhead Rd) & Longvue Ave	555	160	170	440	110	140	1575

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ID	Intersection Name	Northbound				Southbound				Eastbound			
		Left	Thru	Right	2	2	Left	Thru	Right	Left	Thru	Right	2
22	SR 3007 (Brodhead Rd) & SR 151 (Gringo Rd)/ Laurel Rd / Heights Rd	70	260	20	20	30	80	120	215	245	45	115	70

Westbound				Northwestbound				Total Volume
2	Left	Thru	Right	2	Left	Right	2	
10	10	35	20	20	180	165	40	1770

ID	Intersection Name	Northbound		Southbound	Westbound		Total Volume
		Thru	Right	Thru	Thru	Right	
701	SR 3007 (Brodhead Rd) & North Branch Rd (South)	655	25	690	15	0	1385

ID	Intersection Name	Northbound	Southbound		Westbound		Total Volume
		Thru	Left	Thru	Left	Right	
702	SR 3007 (Brodhead Rd) & North Branch Rd (North)	655	55	680	10	20	1420

ID	Intersection Name	Northbound		Southbound			Eastbound		Westbound			Total Volume
		Thru	Right	Left	Thru	Right	Left	Thru	Left	Thru	Right	
703	North Branch Rd & Warwick Dr	5	25	15	10	10	30	25	10	20	25	175

SR 18/3007 Brodhead Road, Beaver, PA

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Scenario 2 2020 - PM Base

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4/9/2021

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
1	SR 18 (Brodhead Rd) & Old Brodhead Rd	Final Base	90	190	955	140	185	910	2470
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>90</b>	<b>190</b>	<b>955</b>	<b>140</b>	<b>185</b>	<b>910</b>	<b>2470</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	SR 18 (Brodhead Rd) & Wagner Rd	Final Base	15	5	5	1080	950	35	2090
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>5</b>	<b>5</b>	<b>1080</b>	<b>950</b>	<b>35</b>	<b>2090</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	SR 18 (Brodhead Rd) & Short St/Milne Dr	Final Base	230	65	275	190	60	140	115	620	265	210	530	215	2915
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>230</b>	<b>65</b>	<b>275</b>	<b>190</b>	<b>60</b>	<b>140</b>	<b>115</b>	<b>620</b>	<b>265</b>	<b>210</b>	<b>530</b>	<b>215</b>	<b>2915</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
4	SR 18 (Brodhead Rd) & Center Commons Blvd	Final Base	130	815	790	100	155	160	2150
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>130</b>	<b>815</b>	<b>790</b>	<b>100</b>	<b>155</b>	<b>160</b>	<b>2150</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	SR 18 (Brodhead Rd) & Beaver Valley Mall/Golfview Dr	Final Base	105	665	100	55	705	195	205	35	145	50	30	75	2365
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>105</b>	<b>665</b>	<b>100</b>	<b>55</b>	<b>705</b>	<b>195</b>	<b>205</b>	<b>35</b>	<b>145</b>	<b>50</b>	<b>30</b>	<b>75</b>	<b>2365</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	SR 18/3007 (Brodhead Rd) & SR 18 (Frankfort Rd) /Old Brodhead Rd	Final Base	235	295	165	75	430	390	500	335	195	125	205	80	3030
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>235</b>	<b>295</b>	<b>165</b>	<b>75</b>	<b>430</b>	<b>390</b>	<b>500</b>	<b>335</b>	<b>195</b>	<b>125</b>	<b>205</b>	<b>80</b>	<b>3030</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
8	SR 3007 (Brodhead Rd) & Baker Rd Ext	Final Base	590	45	85	540	60	75	1395
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>590</b>	<b>45</b>	<b>85</b>	<b>540</b>	<b>60</b>	<b>75</b>	<b>1395</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
9	SR 3007 (Brodhead Rd) & Community College Dr	Final Base	505	65	70	520	85	85	1330
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>505</b>	<b>65</b>	<b>70</b>	<b>520</b>	<b>85</b>	<b>85</b>	<b>1330</b>



ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
10	SR 3007 (Brodhead Rd) & Sherwood Dr	Final Base	545	20	25	575	20	25	1210
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>545</b>	<b>20</b>	<b>25</b>	<b>575</b>	<b>20</b>	<b>25</b>	<b>1210</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
11	SR 3007 (Brodhead Rd) & Center-Grange Rd	Final Base	550	190	145	455	40	110	1490
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>550</b>	<b>190</b>	<b>145</b>	<b>455</b>	<b>40</b>	<b>110</b>	<b>1490</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
12	SR 3007 (Brodhead Rd) & Main St	Final Base	20	695	415	65	40	20	1255
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>20</b>	<b>695</b>	<b>415</b>	<b>65</b>	<b>40</b>	<b>20</b>	<b>1255</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13	SR 3007 (Brodhead Rd) & Shaffer Rd	Final Base	5	720	65	35	395	10	5	5	0	30	10	20	1300
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>720</b>	<b>65</b>	<b>35</b>	<b>395</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>30</b>	<b>10</b>	<b>20</b>	<b>1300</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
14	SR 3007 (Brodhead Rd) & Pleasant Dr	Final Base	175	430	295	125	350	375	1750
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>175</b>	<b>430</b>	<b>295</b>	<b>125</b>	<b>350</b>	<b>375</b>	<b>1750</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Thru	Right	
15	SR 3007 (Brodhead Rd) & Chapel Rd	Final Base	445	150	35	510	105	50	1295
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>445</b>	<b>150</b>	<b>35</b>	<b>510</b>	<b>105</b>	<b>50</b>	<b>1295</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16	SR 3007 (Brodhead Rd) & SR 3016 (Mill St/Kennedy Blvd)	Final Base	315	300	70	125	420	90	155	205	420	115	165	195	2575
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>315</b>	<b>300</b>	<b>70</b>	<b>125</b>	<b>420</b>	<b>90</b>	<b>155</b>	<b>205</b>	<b>420</b>	<b>115</b>	<b>165</b>	<b>195</b>	<b>2575</b>

ID	Intersection Name	Volume Type	Northbound		Southbound			Eastbound			Westbound			Total Volume
			Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17	SR 3007 (Brodhead Rd) & Sheffield Rd	Final Base	600	80	105	830	20	10	35	45	70	25	80	1900
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>600</b>	<b>80</b>	<b>105</b>	<b>830</b>	<b>20</b>	<b>10</b>	<b>35</b>	<b>45</b>	<b>70</b>	<b>25</b>	<b>80</b>	<b>1900</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
18	SR 3007 (Brodhead Rd) & Kane Rd	Final Base	55	15	595	55	15	455	1190
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>55</b>	<b>15</b>	<b>595</b>	<b>55</b>	<b>15</b>	<b>455</b>	<b>1190</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Thru	Right	
19	SR 3007 (Brodhead Rd) & 20th St	Final Base	80	10	15	560	455	70	1190
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>80</b>	<b>10</b>	<b>15</b>	<b>560</b>	<b>455</b>	<b>70</b>	<b>1190</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
20	SR 3007 (Brodhead Rd) & Laird Ave	Final Base	25	655	15	15	565	15	5	5	35	10	5	15	1365
		Growth 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	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>25</b>	<b>655</b>	<b>15</b>	<b>15</b>	<b>565</b>	<b>15</b>	<b>5</b>	<b>5</b>	<b>35</b>	<b>10</b>	<b>5</b>	<b>15</b>	<b>1365</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
21	SR 3007 (Brodhead Rd) & Longvue Ave	Final Base	555	160	170	440	110	140	1575
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>555</b>	<b>160</b>	<b>170</b>	<b>440</b>	<b>110</b>	<b>140</b>	<b>1575</b>

ID	Intersection Name	Volume Type	Northbound				Southbound				Eastbound			
			Left	Thru	Right	2	2	Left	Thru	Right	Left	Thru	Right	2
22	SR 3007 (Brodhead Rd) & SR 151 (Gringo Rd)/ Laurel Rd / Heights Rd	Final Base	70	260	20	20	30	80	120	215	245	45	115	70
		Growth 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
		In Process	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>70</b>	<b>260</b>	<b>20</b>	<b>20</b>	<b>30</b>	<b>80</b>	<b>120</b>	<b>215</b>	<b>245</b>	<b>45</b>	<b>115</b>	<b>70</b>

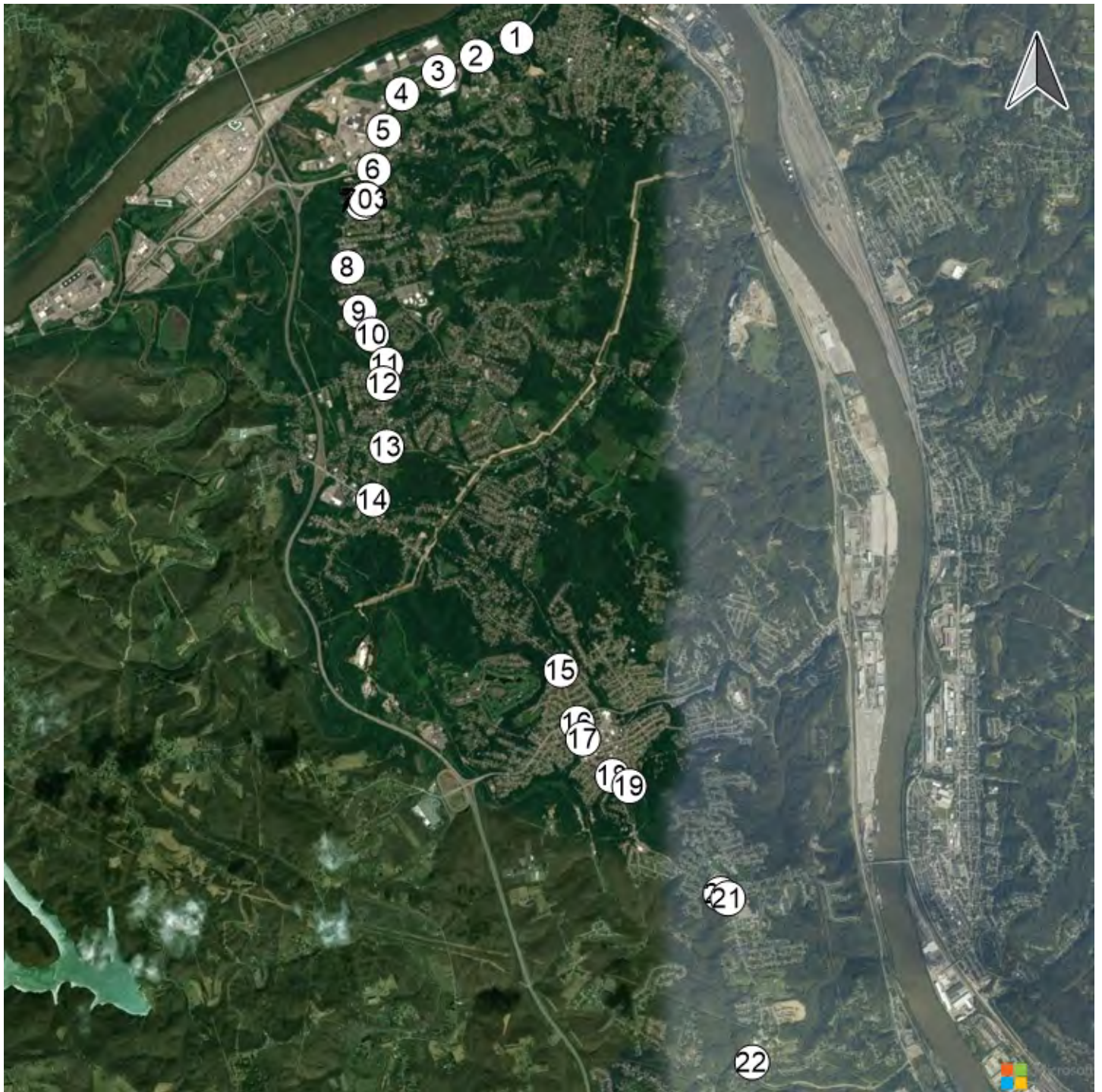
Westbound				Northwestbound				Total Volume
2	Left	Thru	Right	2	Left	Right	2	
10	10	35	20	20	180	165	40	1770
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
<b>10</b>	<b>10</b>	<b>35</b>	<b>20</b>	<b>20</b>	<b>180</b>	<b>165</b>	<b>40</b>	<b>1770</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Thru	Thru	Right		
701	SR 3007 (Brodhead Rd) & North Branch Rd (South)	Final Base	655	25	690	15	0	1385	
		Growth Factor	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	
		Other	0	0	0	0	0	0	
		<b>Future Total</b>	<b>655</b>	<b>25</b>	<b>690</b>	<b>15</b>	<b>0</b>	<b>1385</b>	

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound		Total Volume
			Thru	Right	Left	Thru	Left	Right	
702	SR 3007 (Brodhead Rd) & North Branch Rd (North)	Final Base	655	55	680	10	20	1420	
		Growth Factor	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	
		Net New Trips	0	0	0	0	0	0	
		Other	0	0	0	0	0	0	
		<b>Future Total</b>	<b>655</b>	<b>55</b>	<b>680</b>	<b>10</b>	<b>20</b>	<b>1420</b>	

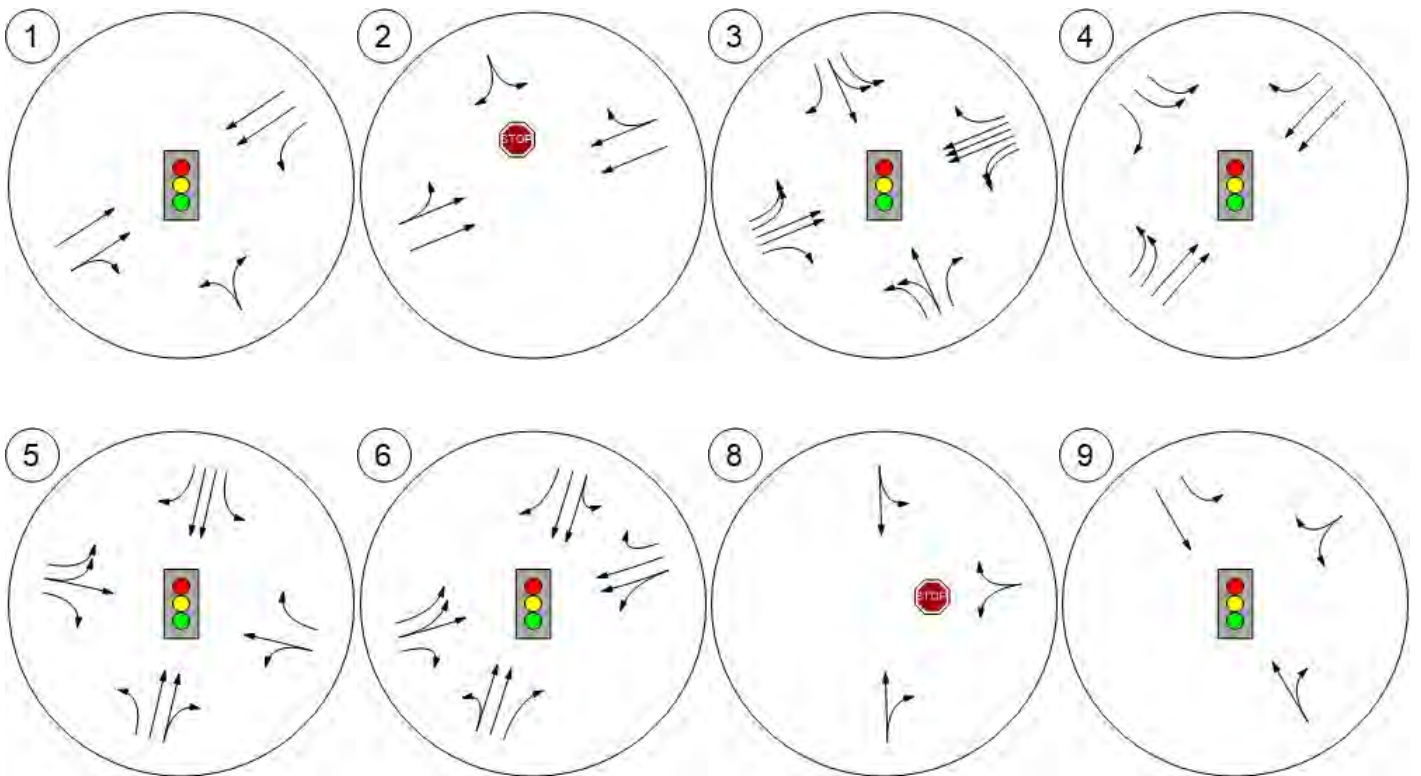
ID	Intersection Name	Volume Type	Northbound		Southbound			Eastbound		Westbound			Total Volume
			Thru	Right	Left	Thru	Right	Left	Thru	Left	Thru	Right	
703	North Branch Rd & Warwick Dr	Final Base	5	25	15	10	10	30	25	10	20	25	175
		Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>25</b>	<b>15</b>	<b>10</b>	<b>10</b>	<b>30</b>	<b>25</b>	<b>10</b>	<b>20</b>	<b>25</b>	<b>175</b>

Study Intersections

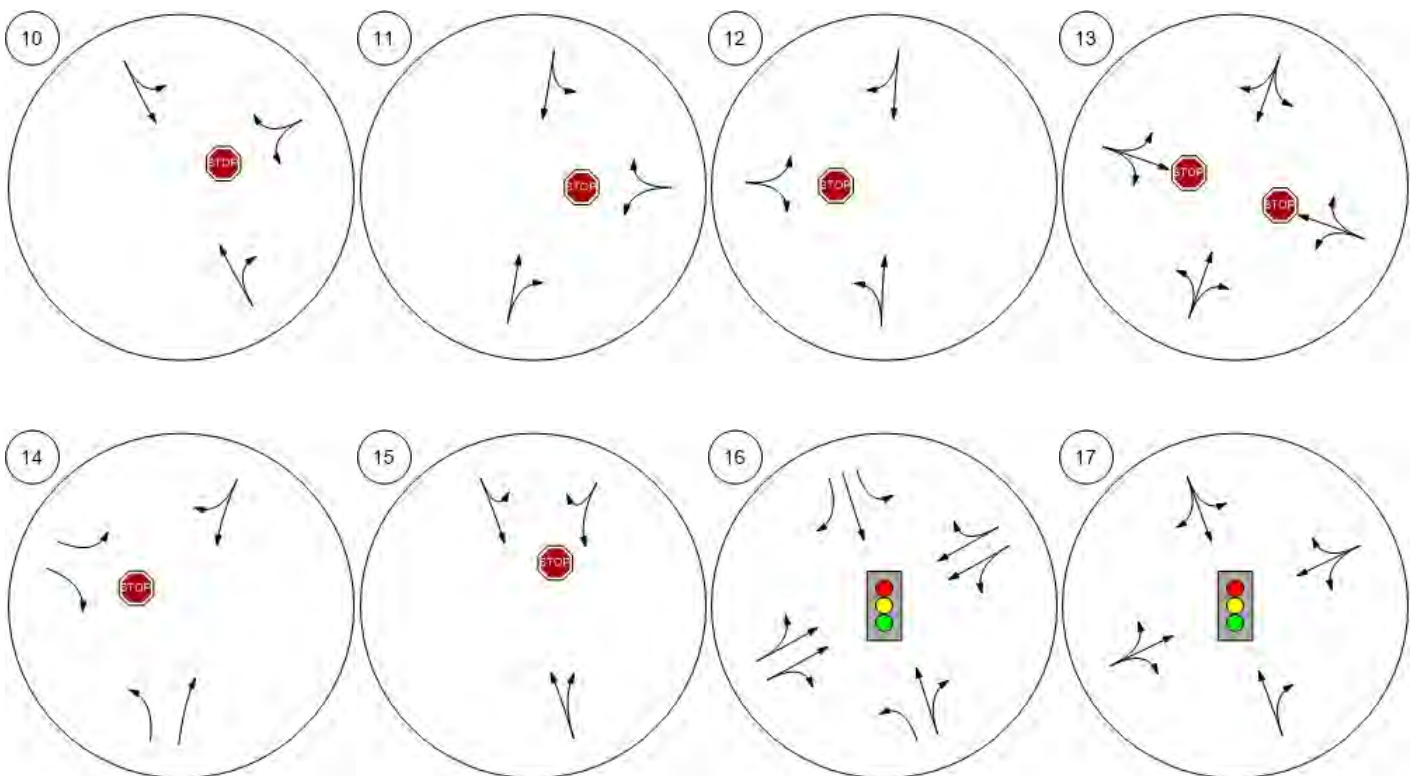




Lane Configuration and Traffic Control

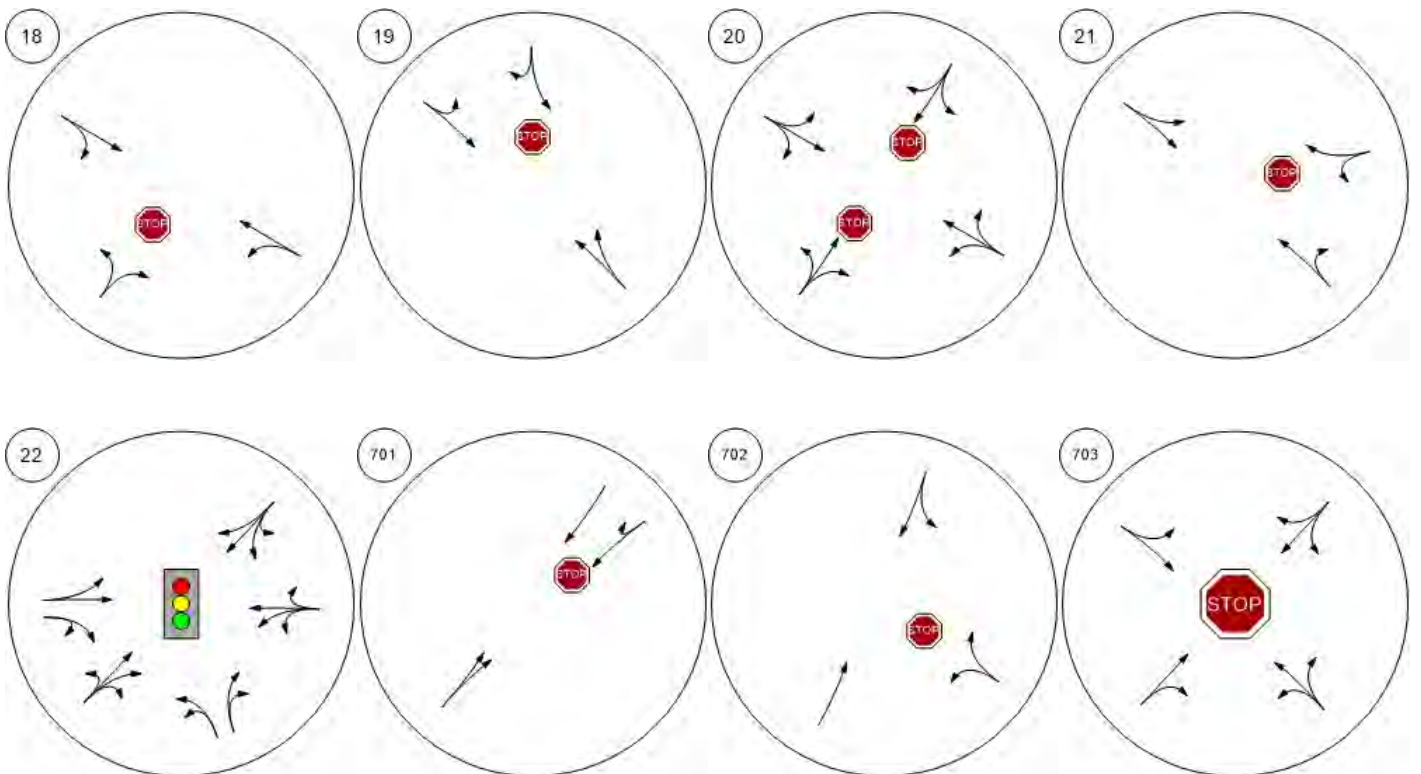


Lane Configuration and Traffic Control



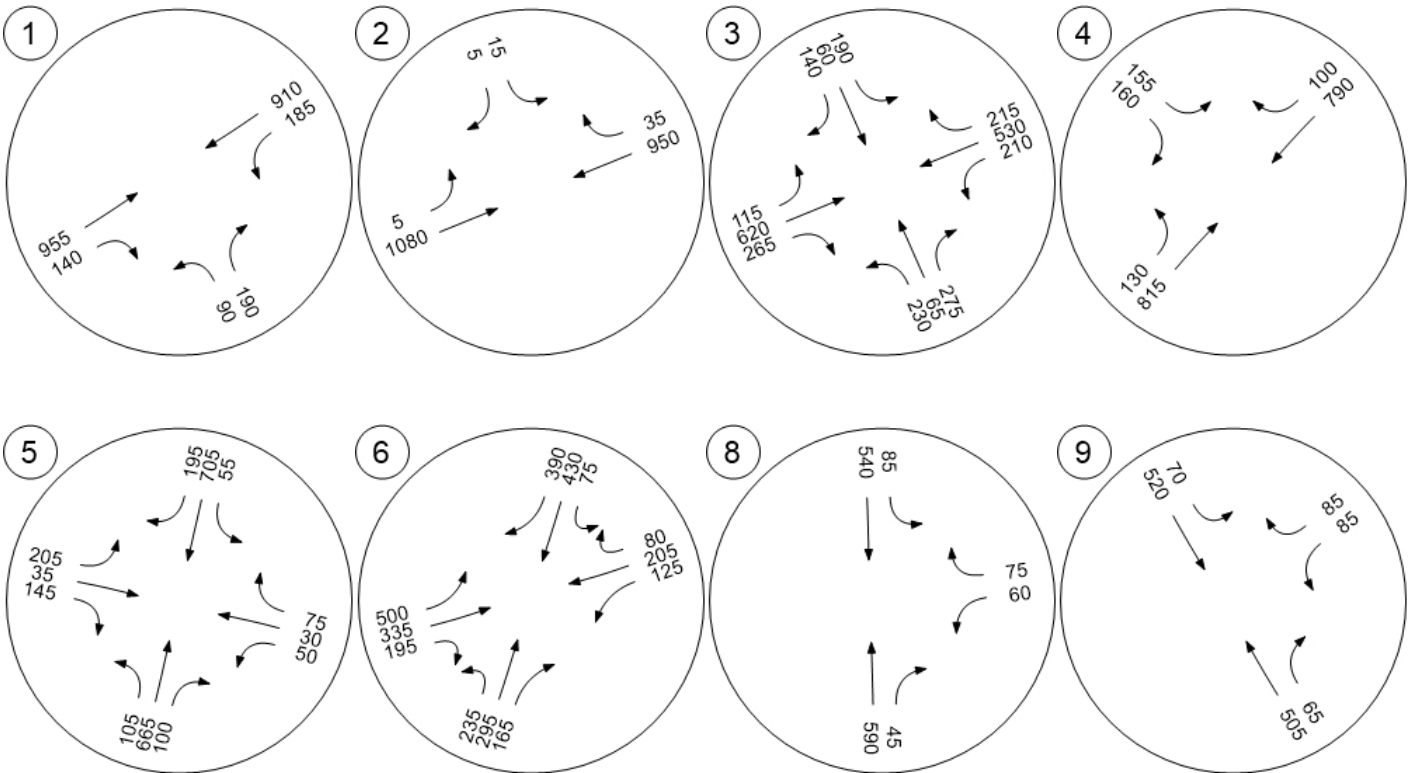


Lane Configuration and Traffic Control

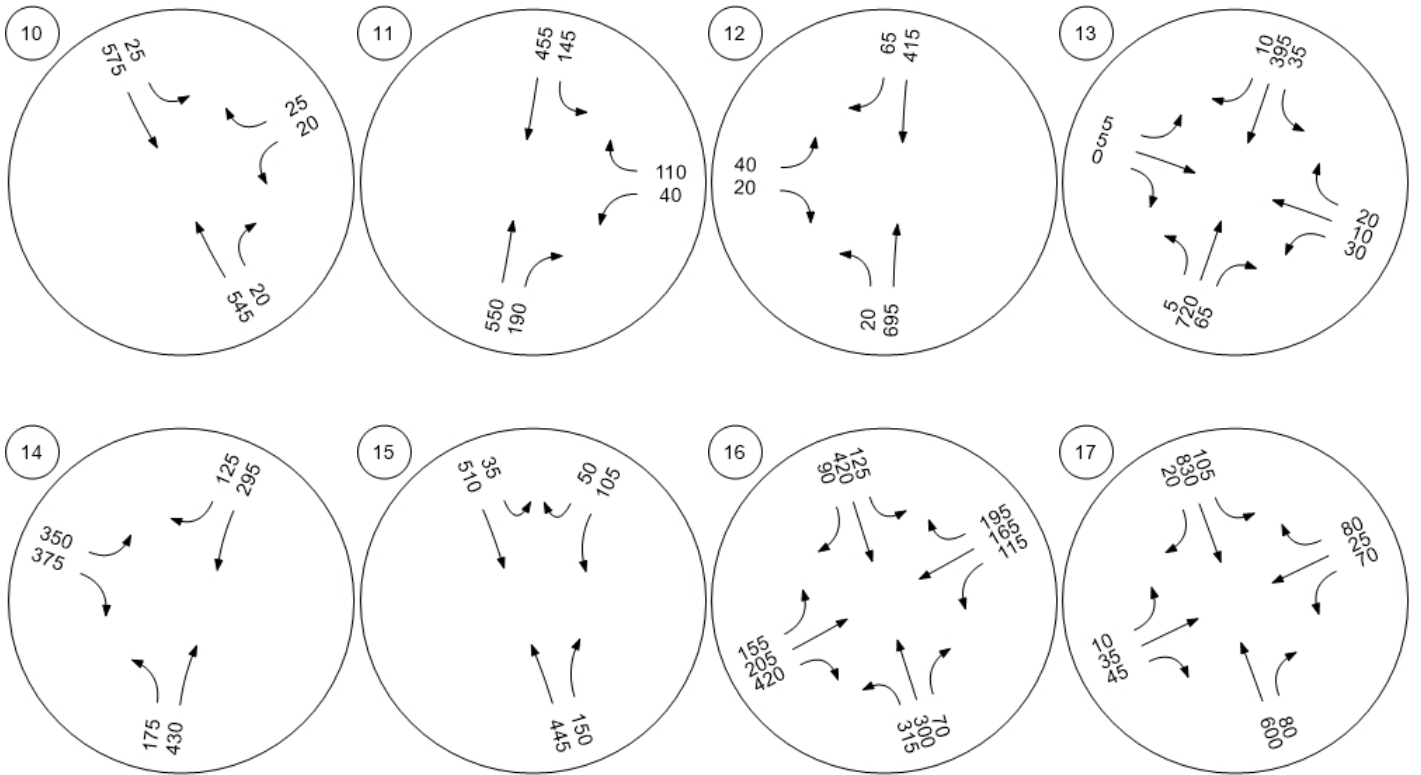




Traffic Volume - Base Volume



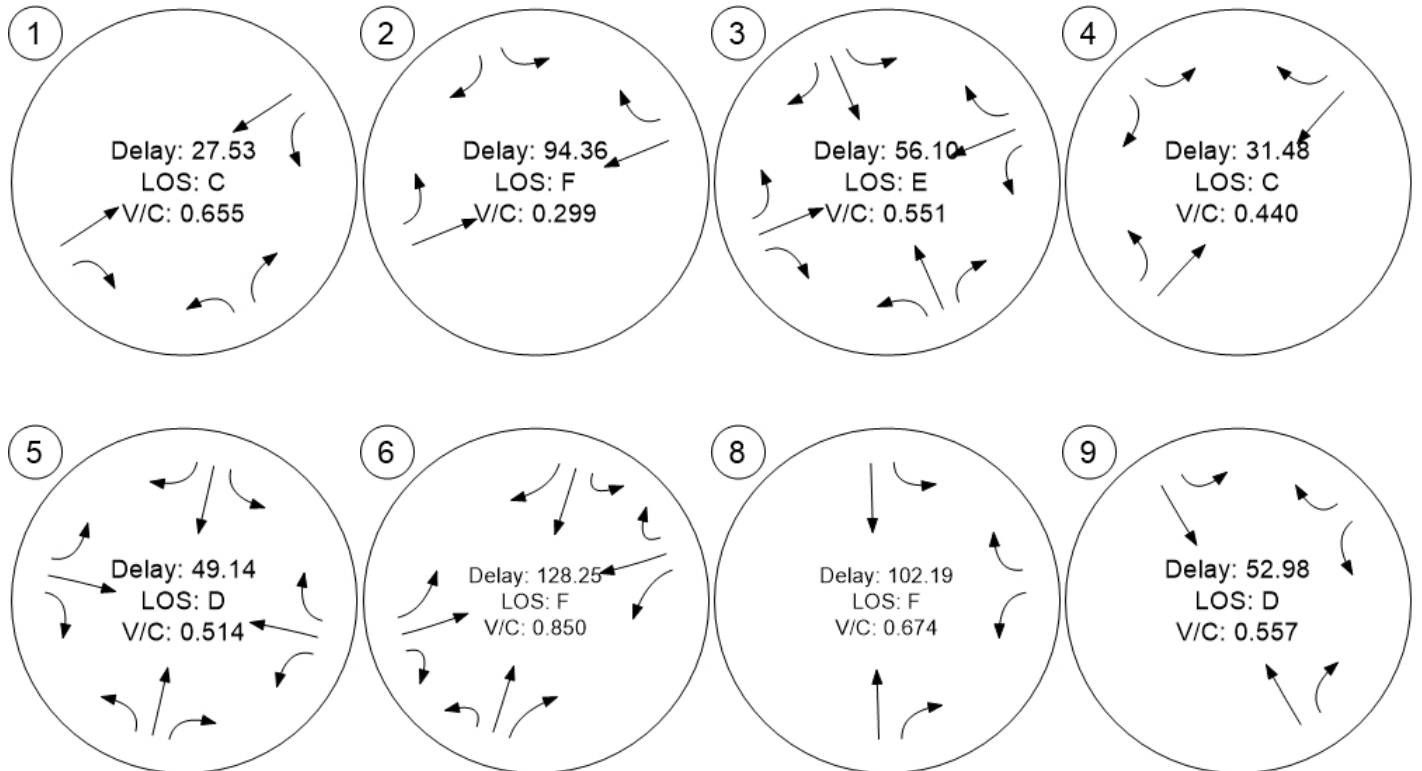
Traffic Volume - Base Volume





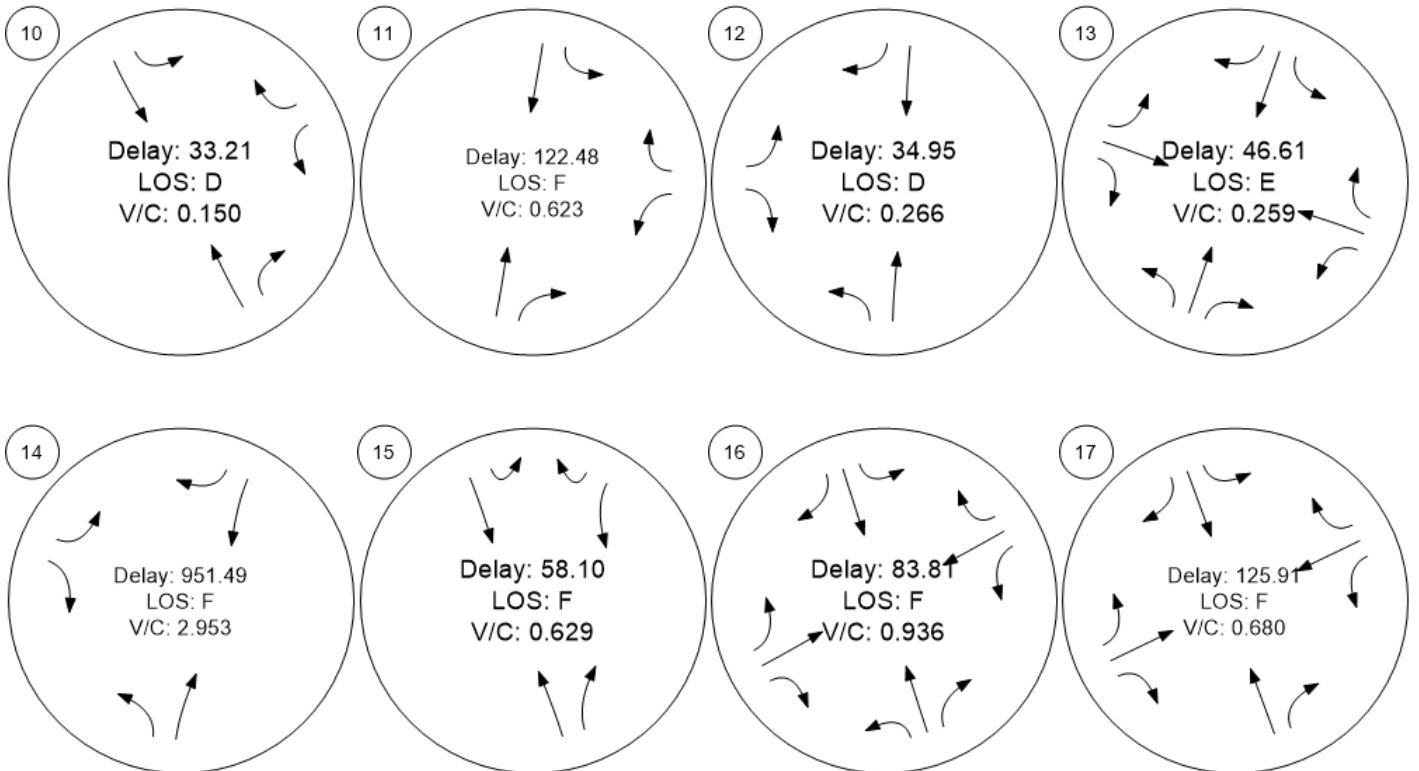


Traffic Conditions





Traffic Conditions



Traffic Conditions

