

**LEVEL OF SERVICE MEMORANDUM**

To: Gray & Osborne, Inc.  
From: Matthew Palmer, PE  
Project: Algona Traffic Operations, GTC #20-295  
Date: March 29, 2022

This memorandum summarizes the existing, future 2027 and future 2041 traffic level of service operations at 4 study intersections identified by the City of Algona.

**Data Collection**

PM peak-hour turning movement data was collected by IDAX at the 4 study intersections on Tuesday, September 28, 2021. The data included pedestrian and bicycles utilizing the intersections as well as vehicular traffic. The study intersections are:

1. Algona Blvd at Main Street
2. W Valley Hwy at 1<sup>st</sup> Avenue N
3. Algona Blvd at 1<sup>st</sup> Avenue N
4. Milwaukee Blvd at 1<sup>st</sup> Avenue N

The study intersections are shown in Figure 1 in the attachments.

**Methodology**

Traffic congestion is measured in terms of level-of-service (LOS). Peak-hour level-of-service was conducted and was determined using the methodology described in the Highway Capacity Manual (HCM) 6<sup>th</sup> Edition. In accordance with the Manual, road facilities or intersections are rated between LOS A and F, with LOS A being free flow and LOS F being forced flow or over-capacity conditions. A summary of the level-of-service criteria has been included in Table 1. The level-of-service at intersections is measured in terms of average delay per vehicle in seconds. For two-way stop controlled (TWSC) intersections, the level-of-service is determined by the worst case of all the calculated lane groups at the intersection. For signalized and all-way stop controlled (AWSC) intersections, the level-of-service is determined as an average delay for all the entering vehicles. The *Synchro 11* software was used to analyze the study intersections. The city adopted a level of service standard of D for arterials and LOS E for local access streets.

**Table 1: Level of Service Criteria for Intersections**

Level of <sup>1</sup> Service	Expected Delay	Intersection Control Delay (Seconds per Vehicle)	
		TWSC/AWSC Intersections	Signalized Intersections
A	Little/No Delay	≤10	≤10
B	Short Delays	>10 and ≤15	>10 and ≤20
C	Average Delays	>15 and ≤25	>20 and ≤35
D	Long Delays	>25 and ≤35	>35 and ≤55
E	Very Long Delays	>35 and ≤50	>55 and ≤80
F	Extreme Delays <sup>2</sup>	>50	>80

### Intersection Level of Service

PM peak-hour turning movement data was collected by IDAX at the 4 study intersections on Tuesday, September 28, 2021. The existing turning movement counts are included in Figure 2. All of the counts were conducted during the PM peak-hours from 4-6 PM and the level of service is reported for the highest peak-hour over the multiple hour count period. No adjustments were made for Covid as data collection was put on hold until the State of Washington had lifted restrictions.

2027 Future volumes were calculated based on data for the City of Algona based on the projected population growth which showed a 0.58% growth rate (population in 2021 is 3,217, population projected in 2027 is 3,330 and the projected population in 2041 is 3,611). The 2027 Future volumes were therefore projected using a 1% compounding growth rate at all of the intersections to be conservative. The 2027 future turning movement volumes are included in Figure 3. No additional pipeline developments were added to the growth in the city.

2041 Future volumes were also calculated using same conservative 1% compounding growth rate at all the intersections. The 2041 future turning movement volumes are included in Figure 4.

<sup>1</sup> Source: *Highway Capacity Manual*, 6<sup>th</sup> Edition.

LOS A: Free-flow traffic conditions, with minimal delay to stopped vehicles (no vehicle is delayed longer than one cycle at signalized intersection).

LOS B: Generally stable traffic flow conditions.

LOS C: Occasional back-ups may develop, but delay to vehicles is short term and still tolerable.

LOS D: During short periods of the peak hour, delays to approaching vehicles may be substantial but are tolerable during times of less demand (i.e. vehicles delayed one cycle or less at signal).

LOS E: Intersections operate at or near capacity, with long queues developing on all approaches and long delays.

LOS F: Jammed conditions on all approaches with excessively long delays and vehicles unable to move at times.

<sup>2</sup> When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

The level of service analysis for the existing, 2027 future and 2041 future conditions are summarized in Table 2. The study intersections will operate at acceptable level of service with the future anticipated growth. The volumes at Algona Boulevard/Broadway Boulevard were so minor that they were combined with the Algona Boulevard/Main Street volumes to determine the level of service for the intersection.

**Table 2: Intersection Level of Service Summary**

Intersections	Existing Conditions		Future Conditions			
	LOS (Critical Approach)	Delay	Future Year 2027		Future Year 2041	
			LOS/ (Critical Approach)	Delay	LOS (Critical Approach)	Delay
1. Algona Blvd at Main Street	C (EB)	15.2 sec	C (EB)	15.8 sec	C (EB)	18.0 sec
2. W Valley Hwy at 1 <sup>st</sup> Avenue N	A	7.6 sec	B	10.1 sec	B	16.7 sec
3. Algona Blvd at 1 <sup>st</sup> Avenue N	B	10.2 sec	B	10.5 sec	B	11.9 sec
4. Milwaukee Blvd at 1 <sup>st</sup> Avenue N	A	8.4 sec	A	8.5 sec	A	8.9 sec

### Collision Analysis

GTC has conducted a collision analysis at the study intersections for the latest complete 5-year reporting period from January 1, 2016, to December 31, 2020. Table 3 summarizes the data received by WSDOT.

**Table 3: 5-Year Collision Summary**

Intersection	Collision Type							Total Collisions	Collisions Per Year
	Rear-End	Entering at Angle	Opp. Dir.	Sideswipe	Same Dir.	Ped. / Cyclist	Fixed Object/ Other		
Algona Blvd at Main Street	0	0	0	0	0	0	0	0	0
W Valley Hwy at 1 <sup>st</sup> Avenue N	0	1	1	0	0	0	0	2	0.4
Algona Blvd at 1 <sup>st</sup> Avenue N	0	5	1	0	0	0	0	6	1.2
Milwaukee Blvd at 1 <sup>st</sup> Avenue N	1	2	0	0	0	0	0	3	0.6

The 5-year collision rate has been calculated using PM peak-hour volumes and a K-factor of 10 for conversion to average daily traffic. The 5-year collision rates are summarized in Table 4.

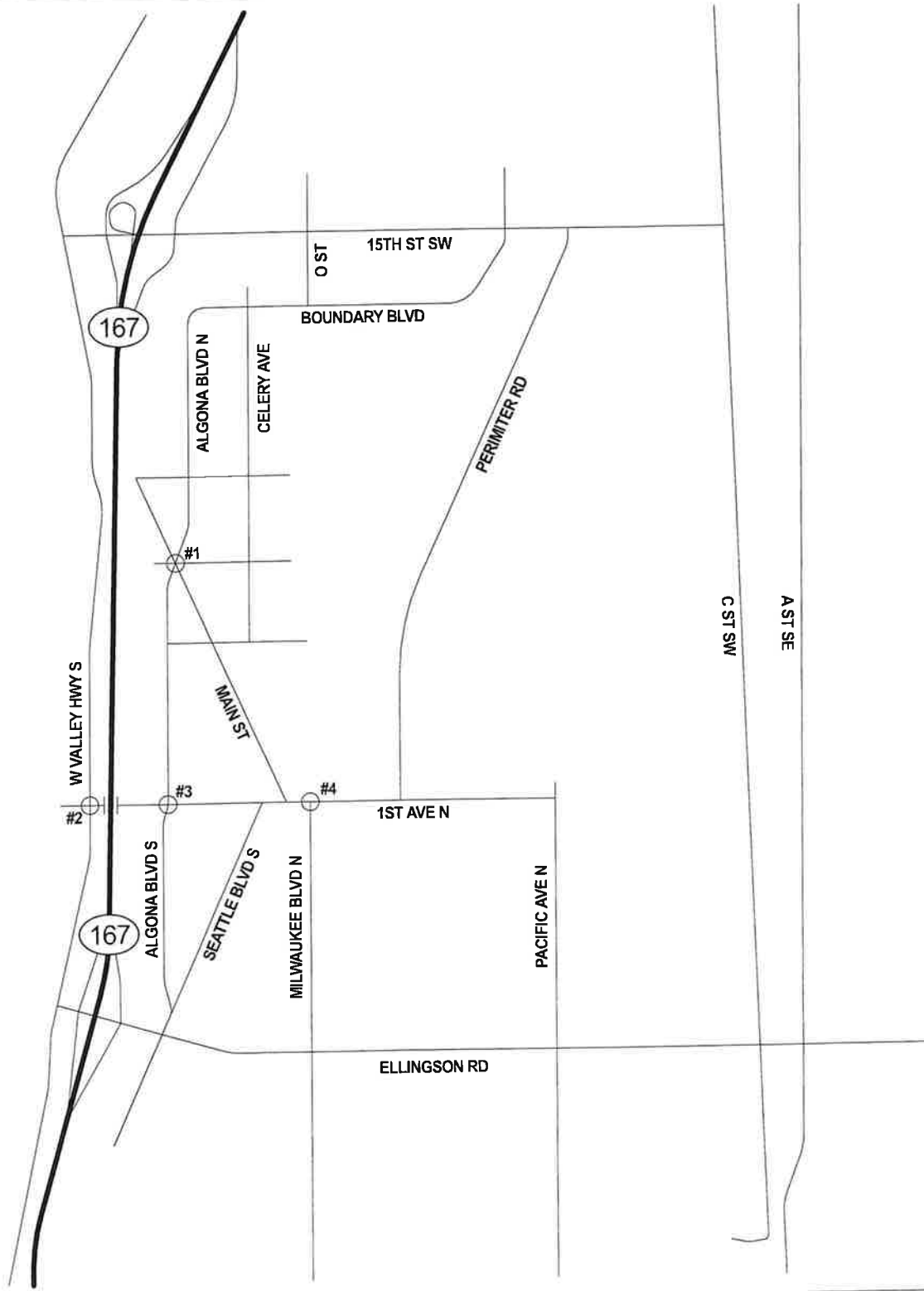
**Table 4: 5-Year Collision Rate Calculation**

Intersection	PM Peak-Hour Intersection Vol.	K-Factor	Total Collisions	Collision Rate <sup>[1]</sup>
Algona Blvd at Main Street	537	10	0	0.00
W Valley Hwy at 1 <sup>st</sup> Avenue N	1,385	10	2	0.08
Algona Blvd at 1 <sup>st</sup> Avenue N	567	10	6	0.58
Milwaukee Blvd at 1 <sup>st</sup> Avenue N	354	10	3	0.46

Typically, further safety analysis may be performed if intersection collision rates are higher than 1.0 collisions per million entering vehicles and/or collision frequencies are higher than 5 collisions per year for unsignalized intersections or 10 collisions per year for signalized intersections. None of the intersections have a collision rate greater than 1.0 and collision frequency higher than 5 collisions per year. None of the collisions resulted in an injury and none of the collisions involved a pedestrian or cyclist.

Figure 1 to Figure 4  
Attachments (A-1 to A-36)

<sup>[1]</sup> The collision rate is based on Million Entering Vehicles.



GIBSON TRAFFIC CONSULTANTS

TRAFFIC IMPACT STUDY  
GTC #20-295

CITY OF ALGONA

LEGEND

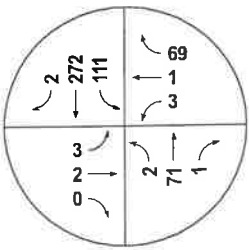


STUDY INTERSECTION

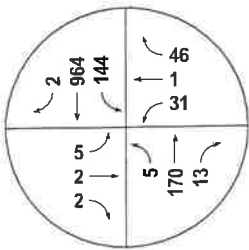
**FIGURE 1**  
**STUDY INTERSECTIONS**

CITY OF ALGONA

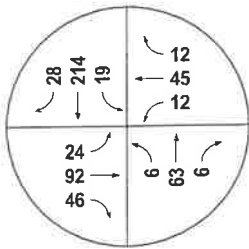
#1 ALGONA BLVD @ MAIN ST



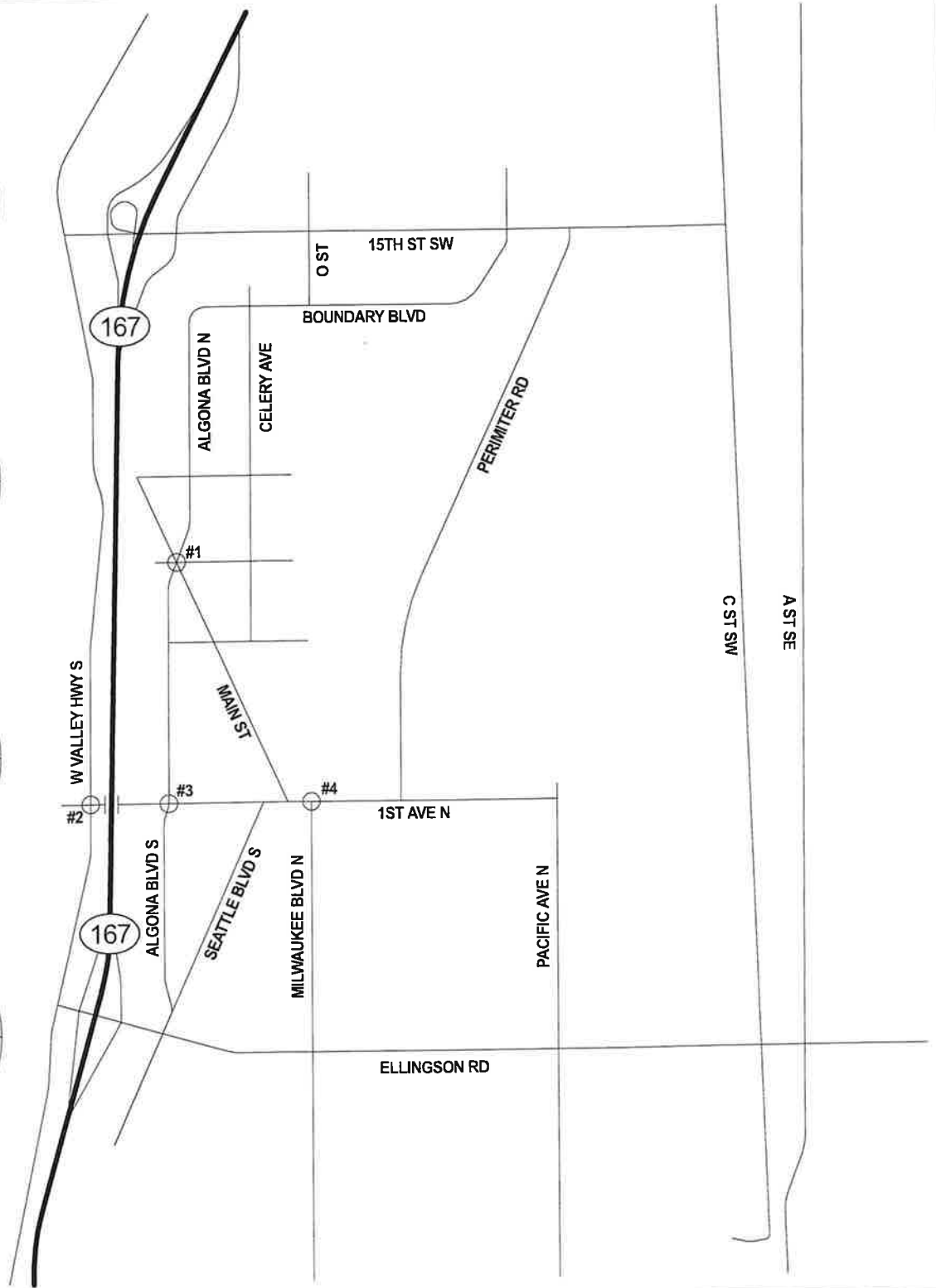
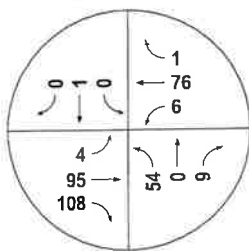
#2 W VALLEY HWY @ 1ST AVE N



#3 ALGONA BLVD @ 1ST AVE N



#4 MILWAUKEE BLVD @ 1ST AVE N



GIBSON TRAFFIC CONSULTANTS

TRAFFIC IMPACT STUDY  
GTC #20-295

CITY OF ALGONA

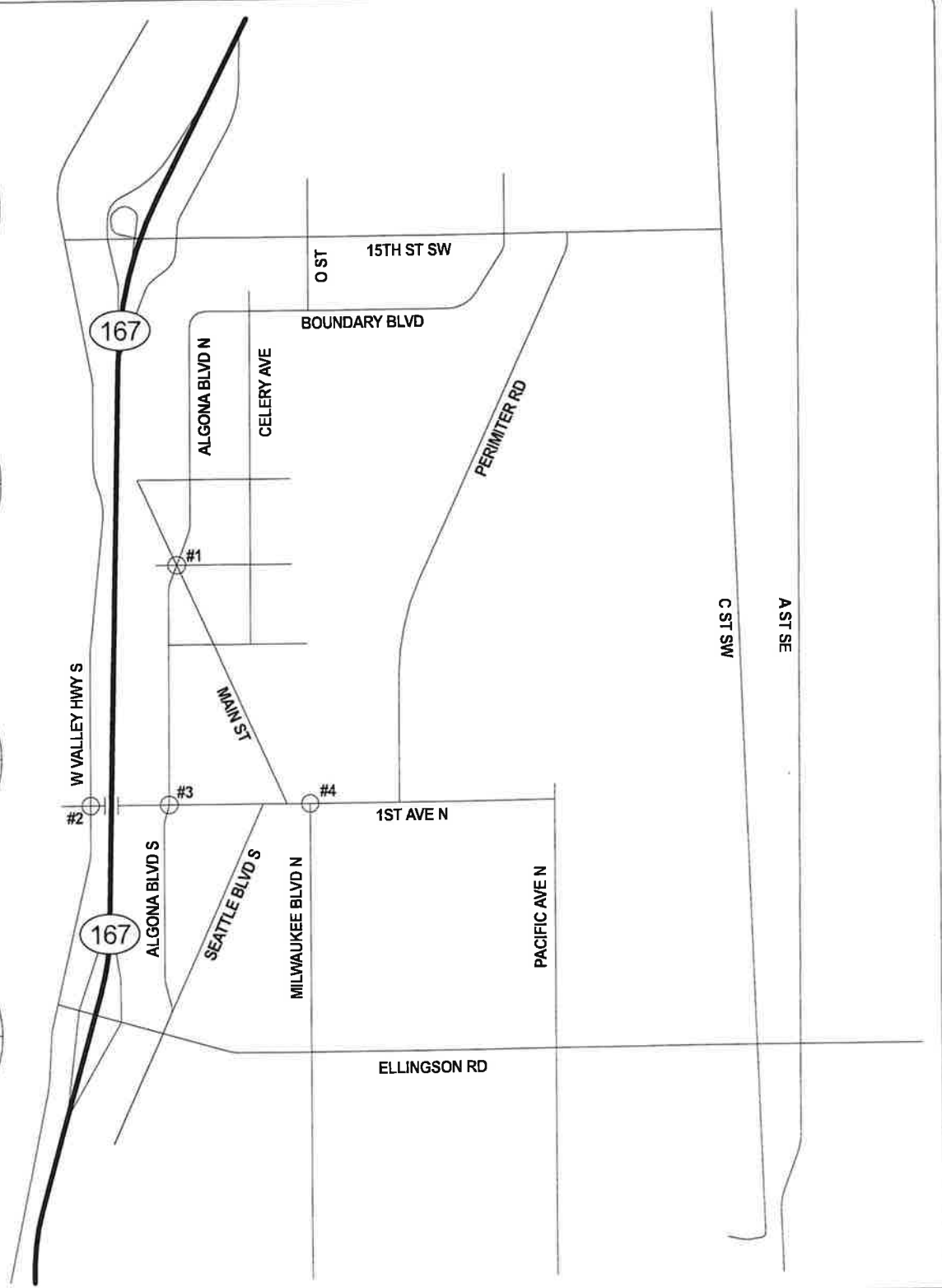
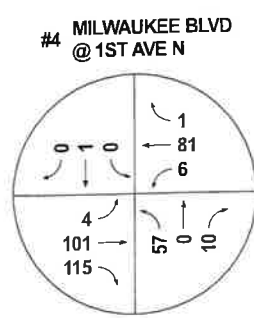
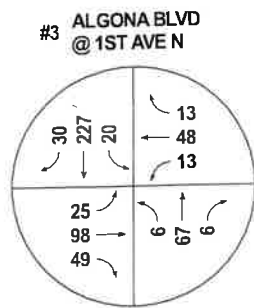
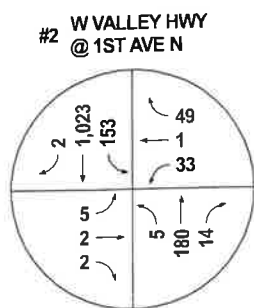
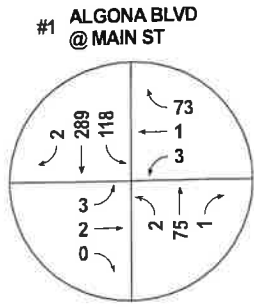
LEGEND

XX → PM PEAK HOUR  
TURNING MOVEMENTS

CITY OF ALGONA

**FIGURE 2**  
**EXISTING**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**





GIBSON TRAFFIC CONSULTANTS

TRAFFIC IMPACT STUDY  
GTC #20-295

CITY OF ALGONA

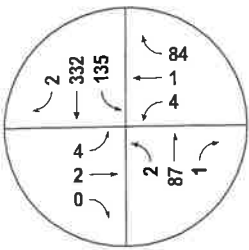
CITY OF ALGONA

LEGEND

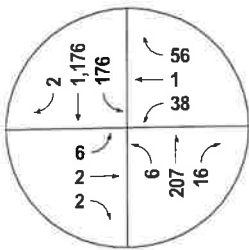
XX → PM PEAK HOUR  
TURNING MOVEMENTS

**FIGURE 3**  
**FUTURE YEAR 2027**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**

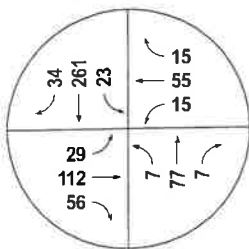
#1 ALGONA BLVD @ MAIN ST



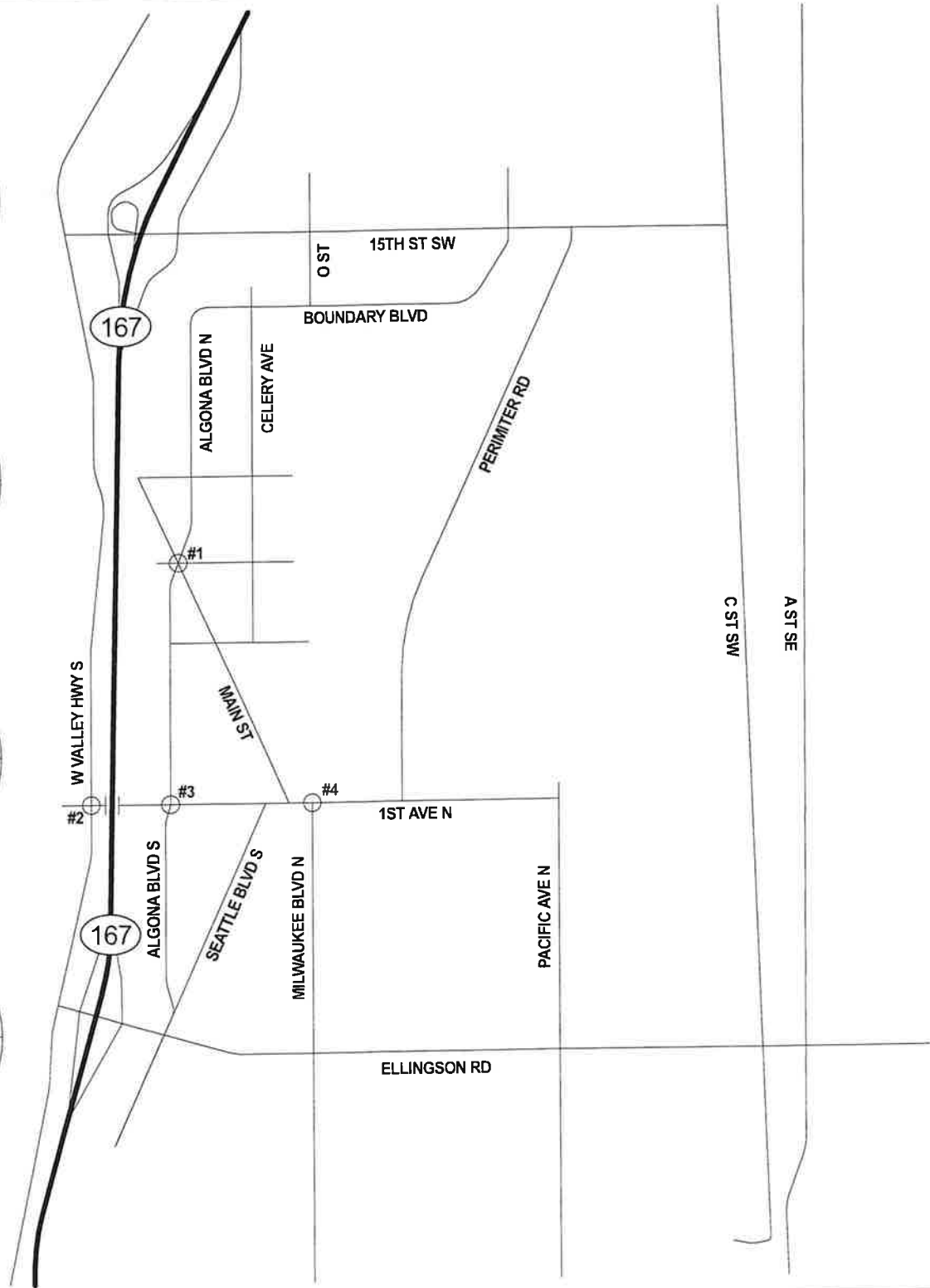
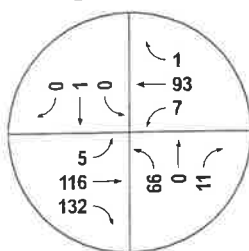
#2 W VALLEY HWY @ 1ST AVE N



#3 ALGONA BLVD @ 1ST AVE N



#4 MILWAUKEE BLVD @ 1ST AVE N



GIBSON TRAFFIC CONSULTANTS

TRAFFIC IMPACT STUDY  
GTC #20-295

CITY OF ALGONA

LEGEND

XX → PM PEAK HOUR  
TURNING MOVEMENTS

CITY OF ALGONA

**FIGURE 4**  
**FUTURE YEAR 2041**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**



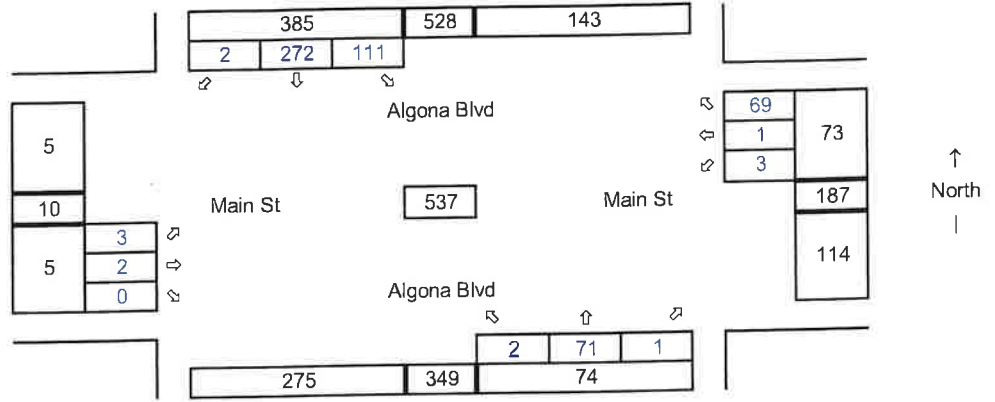
# 1 Algona Blvd at Main St

Synchro ID: 1

**Existing**  
Average Weekday  
PM Peak Hour

Year: 9/28/21

Data Source: IDAX



**Future Year 2027**

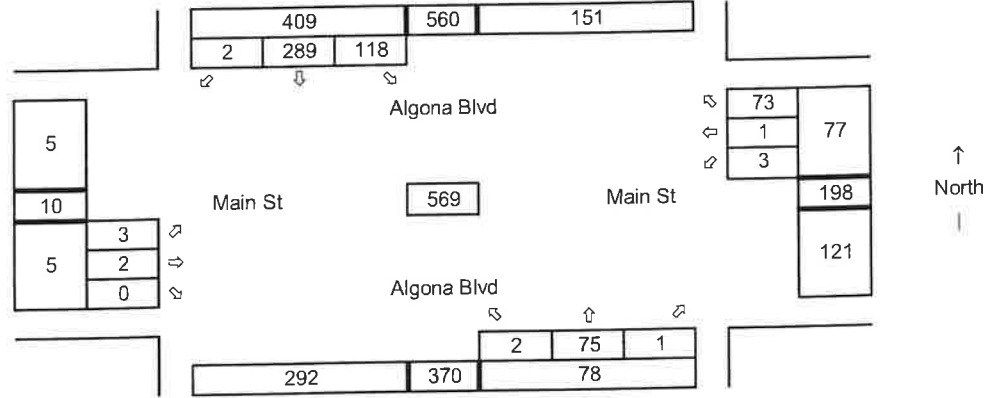
Average Weekday  
PM Peak Hour

Year: 2027

Growth Rate = 1.0%

Years of Growth = 6

Total Growth = 1.0615



**Future Year 2041**

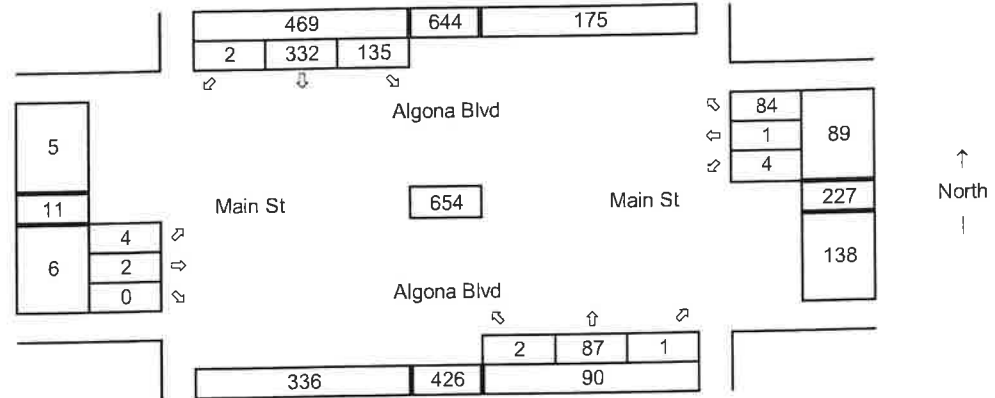
Average Weekday  
PM Peak Hour

Year: 2041

Growth Rate = 1.0%

Years of Growth = 20

Total Growth = 1.2202



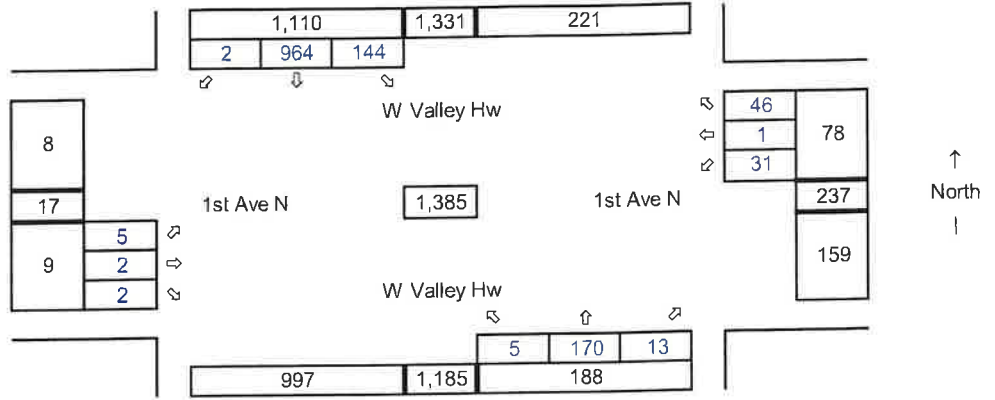
## 2 W Valley Hwy @ 1st Ave N

Synchro ID: 2

**Existing**  
Average Weekday  
PM Peak Hour

Year: 9/28/21

Data Source: IDAX



**Future Year 2027**

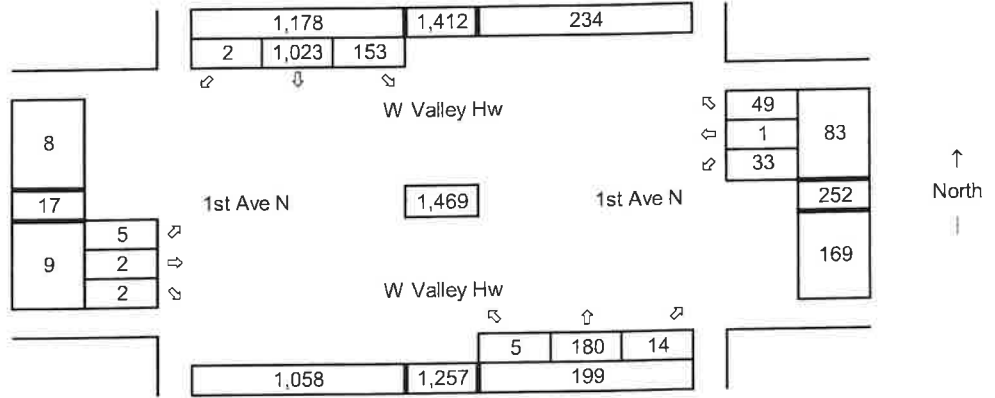
Average Weekday  
PM Peak Hour

Year: 2027

Growth Rate = 1.0%

Years of Growth = 6

Total Growth = 1.0615



**Future Year 2041**

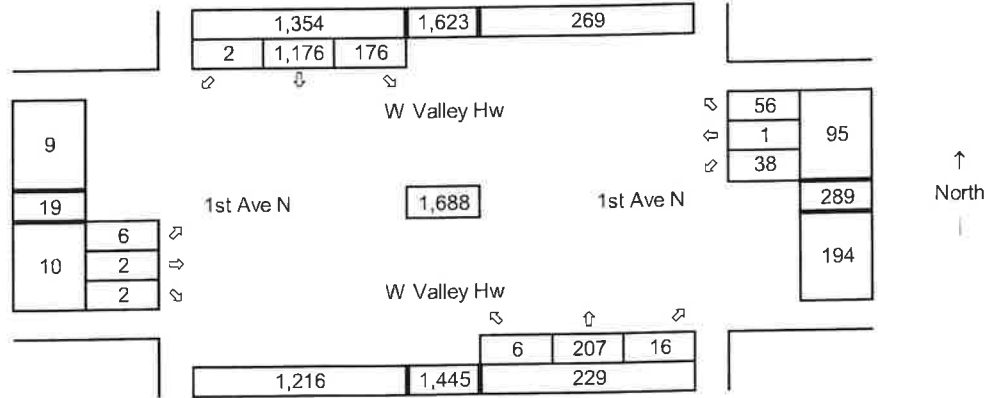
Average Weekday  
PM Peak Hour

Year: 2041

Growth Rate = 1.0%

Years of Growth = 20

Total Growth = 1.2202



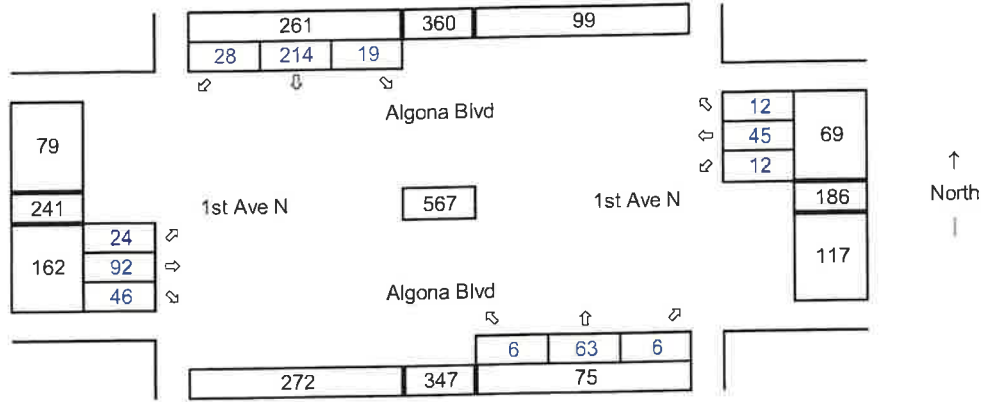
### 3 Algona Blvd @ 1st Ave N

Synchro ID: 3

**Existing**  
Average Weekday  
PM Peak Hour

Year: 9/28/21

Data Source: IDAX



**Future Year 2027**

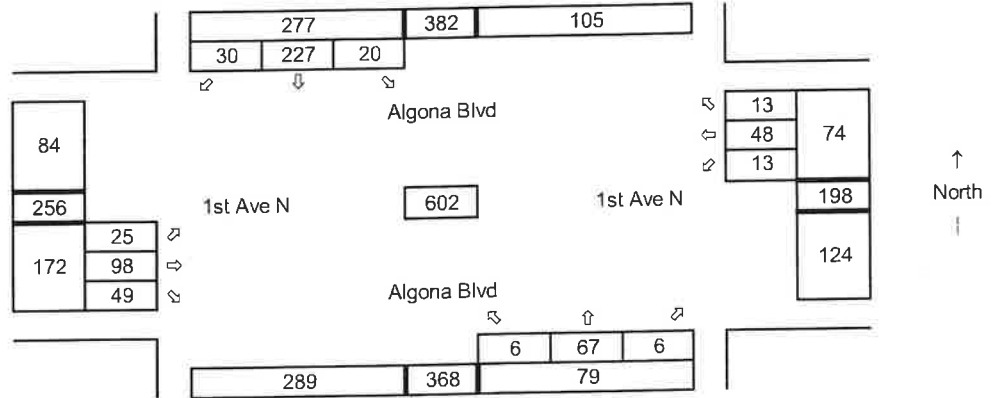
Average Weekday  
PM Peak Hour

Year: 2027

Growth Rate = 1.0%

Years of Growth = 6

Total Growth = 1.0615



**Future Year 2041**

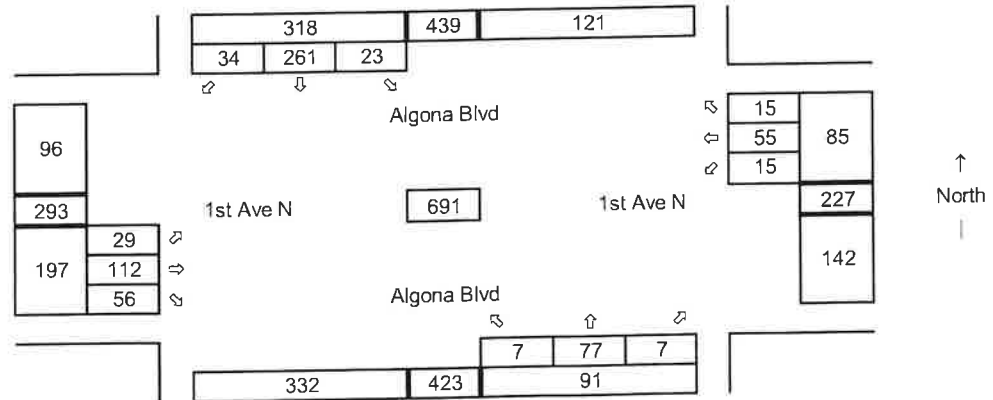
Average Weekday  
PM Peak Hour

Year: 2041

Growth Rate = 1.0%

Years of Growth = 20

Total Growth = 1.2202



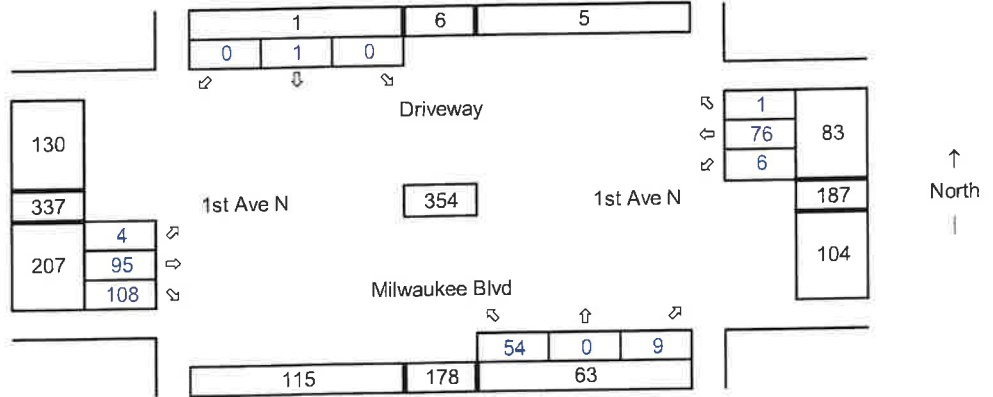
# 4 Milwaukee Blvd @ 1st Ave N

Synchro ID: 4

**Existing**  
Average Weekday  
PM Peak Hour

Year: 9/28/21

Data Source: IDAX



**Future Year 2027**

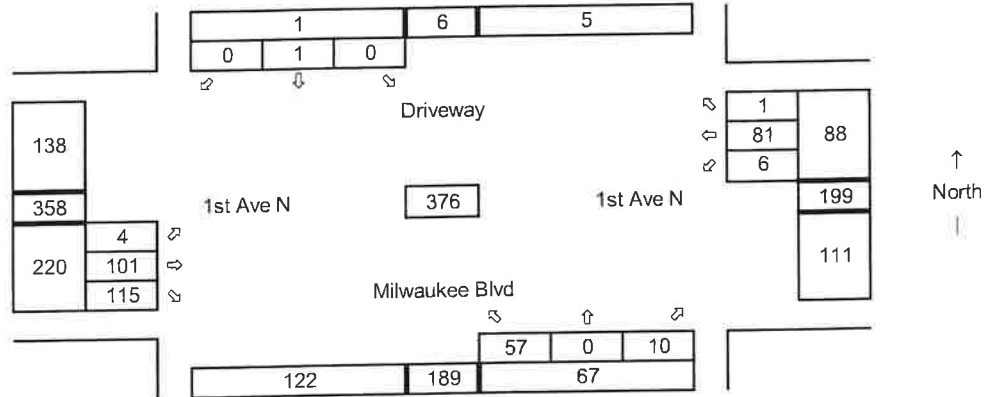
Average Weekday  
PM Peak Hour

Year: 2027

Growth Rate = 1.0%

Years of Growth = 6

Total Growth = 1.0615



**Future Year 2041**

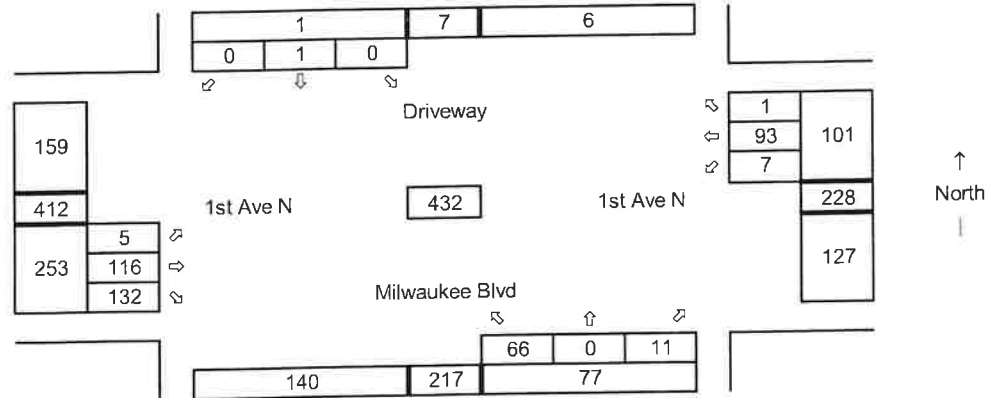
Average Weekday  
PM Peak Hour

Year: 2041

Growth Rate = 1.0%

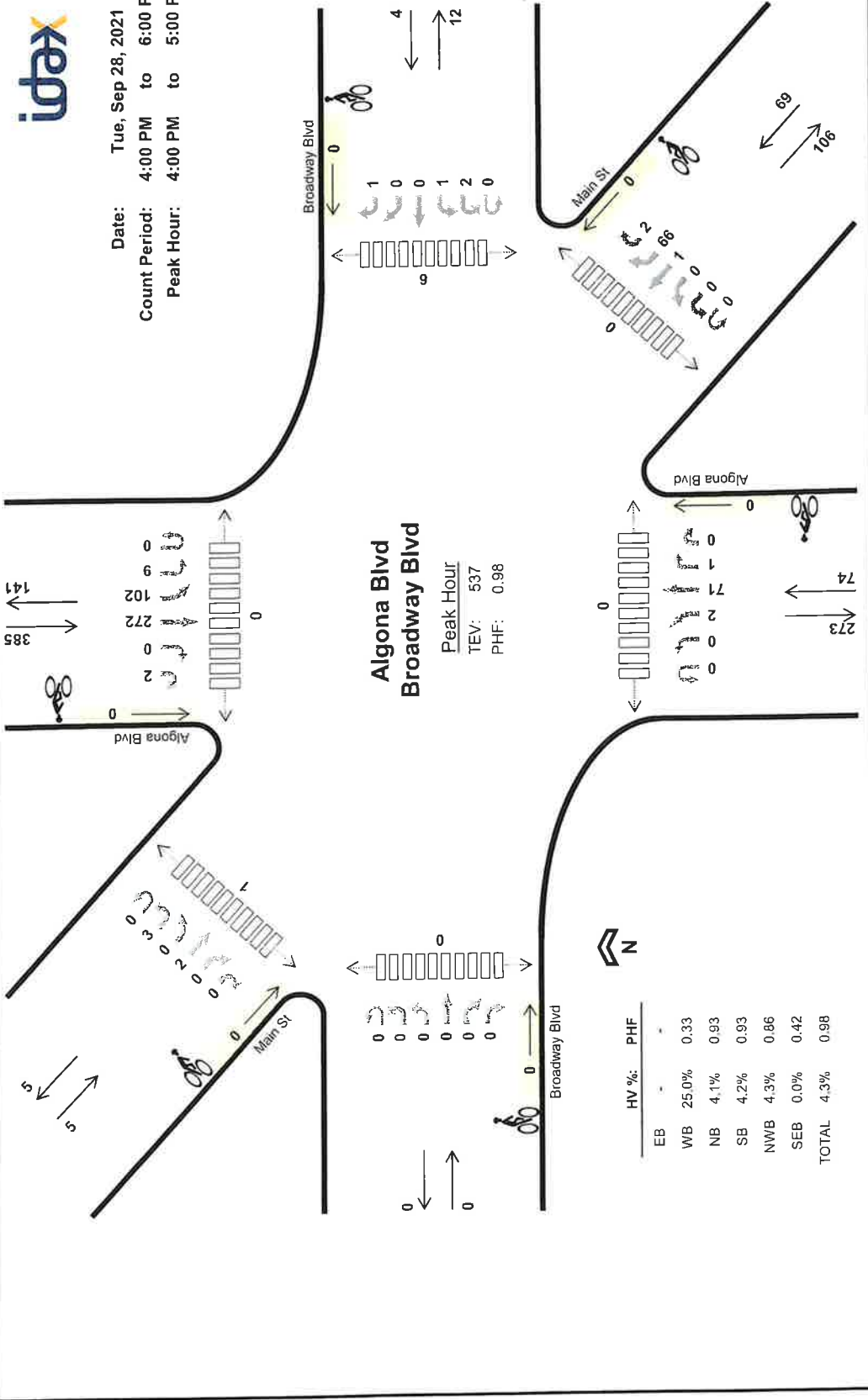
Years of Growth = 20

Total Growth = 1.2202





Date: Tue, Sep 28, 2021  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 4:00 PM to 5:00 PM



Two-Hour Count Summaries				Broadway Blvd				Algona Blvd				Algona Blvd				Main St				Main St				15-min		Rolling	
Interval Start	Eastbound		Westbound		Northbound		Southbound		Northbound		Southbound		Northwestbound		Southeastbound		Northwestbound		Southeastbound		Total	HR	Total	One Hour			
	UT	HL	LT	TH	BR	RT	UT	HL	LT	TH	BR	RT	UT	HL	BL	TH	BR	RT	UT	HL					BL	TH	BR
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rolling One Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count

Heavy Vehicle Totals				Bicycles				Pedestrians (Crossing Leg)																
Interval Start	EB	WB	NWB	SEB	Total	EB	WB	NWB	SEB	Total	North	South	East	West	North	South	East	West	North	South	East	West	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Two-Hour Count Summaries - Heavy Vehicles				Broadway Blvd				Algona Blvd				Algona Blvd				Main St				15-min		Rolling			
Interval Start	Eastbound		Westbound		Northbound		Southbound		Northbound		Southbound		Northwestbound		Southeastbound		Northwestbound		Southeastbound		Total	HR	Total	One Hour	
	UT	HL	LT	TH	BR	RT	UT	HL	LT	TH	BR	RT	UT	HL	BL	TH	BR	RT	UT	HL					BL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

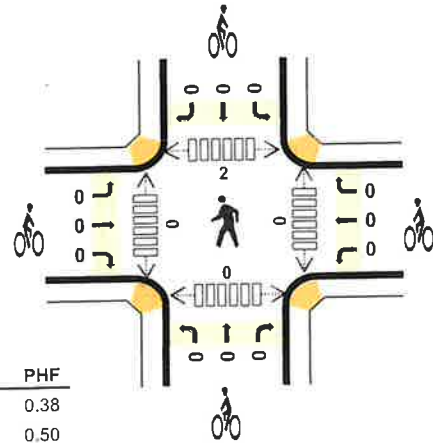
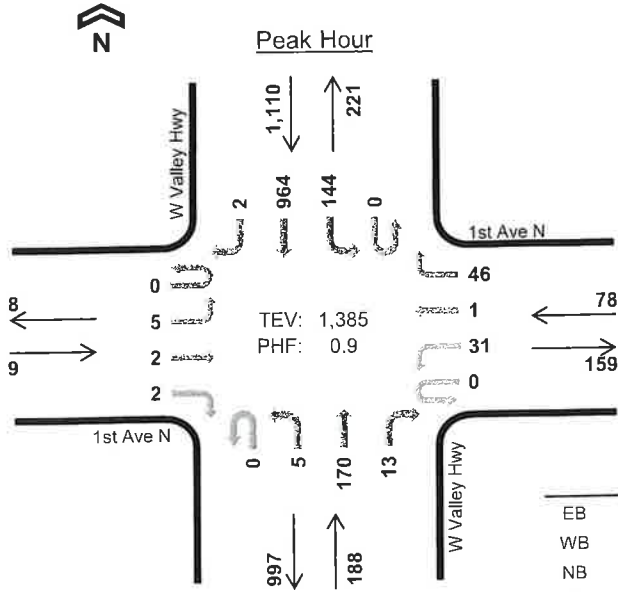
Two-Hour Count Summaries - Bikes				Broadway Blvd				Algona Blvd				Algona Blvd				Main St				15-min		Rolling			
Interval Start	Eastbound		Westbound		Northbound		Southbound		Northbound		Southbound		Northwestbound		Southeastbound		Northwestbound		Southeastbound		Total	HR	Total	One Hour	
	UT	HL	LT	TH	BR	RT	UT	HL	LT	TH	BR	RT	UT	HL	BL	TH	BR	RT	UT	HL					BL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



### W Valley Hwy 1st Ave N



Date: Tue, Sep 28, 2021  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	11.1%	0.38
WB	3.8%	0.50
NB	6.9%	0.71
SB	6.1%	0.92
TOTAL	6.1%	0.90

#### Two-Hour Count Summaries

Interval Start	1st Ave N Eastbound				1st Ave N Westbound				W Valley Hwy Northbound				W Valley Hwy Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	3	2	1	0	11	1	27	0	4	56	6	0	33	241	0	385	0	
4:15 PM	0	2	0	0	0	6	0	6	0	0	38	2	0	30	236	1	321	0	
4:30 PM	0	0	0	1	0	8	0	6	0	0	39	3	0	37	231	0	325	0	
4:45 PM	0	0	0	0	0	6	0	7	0	1	37	2	0	44	256	1	354	1,385	
5:00 PM	0	0	0	2	0	1	0	13	0	2	30	4	0	35	205	1	293	1,293	
5:15 PM	0	1	1	2	0	2	0	6	0	3	26	4	0	37	220	0	302	1,274	
5:30 PM	0	0	1	2	0	2	0	8	0	0	33	4	0	34	236	3	323	1,272	
5:45 PM	0	2	1	2	0	3	2	7	0	2	30	1	0	35	243	2	330	1,248	
Count Total	0	8	5	10	0	39	3	80	0	12	289	26	0	285	1,868	8	2,633	0	
Peak Hour	All	0	5	2	2	0	31	1	46	0	5	170	13	0	144	964	2	1,385	0
	HV	0	1	0	0	0	2	0	1	0	0	12	1	0	3	64	1	85	0
	HV%	-	20%	0%	0%	-	6%	0%	2%	-	0%	7%	8%	-	2%	7%	50%	6%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	6	11	18	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	3	15	20	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	1	2	25	28	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	2	17	19	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	2	1	14	17	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	10	11	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	13	14	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	8	8	0	0	0	0	0	0	0	2	0	2
Count Total	1	5	16	113	135	0	0	0	0	0	0	0	2	0	2
Peak Hour	1	3	13	68	85	0	0	0	0	0	0	0	2	0	2



<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	1st Ave N				1st Ave N				W Valley Hwy				W Valley Hwy				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	0	0	0	0	0	0	0	0	5	1	0	0	11	0	18	0
4:15 PM	0	0	0	0	0	1	0	1	0	0	3	0	0	2	13	0	20	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	2	0	0	1	24	0	28	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	16	1	19	85
5:00 PM	0	0	0	0	0	0	0	2	0	0	1	0	0	1	13	0	17	84
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	10	0	11	75
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	12	0	14	61
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	8	50
Count Total	0	1	0	0	0	2	0	3	0	0	15	1	0	6	106	1	135	0
Peak Hour	0	1	0	0	0	2	0	1	0	0	12	1	0	3	64	1	85	0

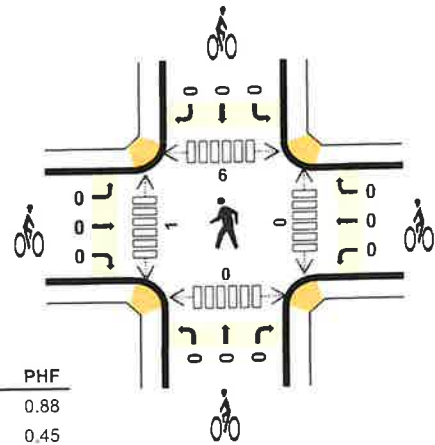
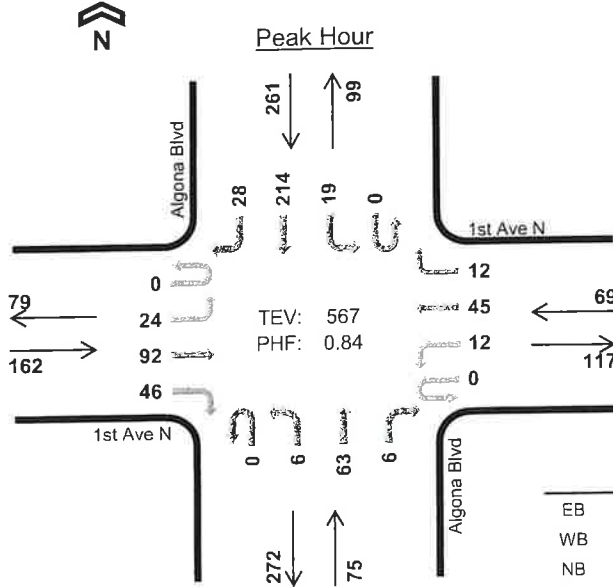
<b>Two-Hour Count Summaries - Bikes</b>																
Interval Start	1st Ave N			1st Ave N			W Valley Hwy			W Valley Hwy			15-min Total	Rolling One Hour		
	Eastbound			Westbound			Northbound			Southbound						
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT				
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

### Algona Blvd 1st Ave N



Date: Tue, Sep 28, 2021  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	2.5%	0.88
WB	0.0%	0.45
NB	4.0%	0.75
SB	4.6%	0.93
TOTAL	3.4%	0.84

#### Two-Hour Count Summaries

Interval Start	1st Ave N Eastbound				1st Ave N Westbound				Algona Blvd Northbound				Algona Blvd Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	9	24	7	0	6	28	4	0	3	20	2	0	5	52	9	169	0	
4:15 PM	0	3	18	14	0	2	5	5	0	1	13	3	0	5	50	7	126	0	
4:30 PM	0	4	21	16	0	3	6	2	0	0	16	1	0	5	59	6	139	0	
4:45 PM	0	8	29	9	0	1	6	1	0	2	14	0	0	4	53	6	133	567	
5:00 PM	0	8	23	9	0	2	7	2	0	5	12	3	0	3	39	3	116	514	
5:15 PM	0	8	29	6	0	1	6	0	0	1	10	1	0	2	34	2	100	488	
5:30 PM	0	11	17	8	0	2	5	0	0	2	10	1	0	3	29	1	89	438	
5:45 PM	0	6	22	9	0	3	8	2	0	2	10	0	0	3	30	2	97	402	
Count Total	0	57	183	78	0	20	71	16	0	16	105	11	0	30	346	36	969	0	
Peak Hour	All	0	24	92	46	0	12	45	12	0	6	63	6	0	19	214	28	567	0
	HV	0	1	2	1	0	0	0	0	0	0	3	0	0	0	9	3	19	0
	HV%	-	4%	2%	2%	-	0%	0%	0%	-	0%	5%	0%	-	0%	4%	11%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	2	1	4	0	0	0	0	0	0	0	0	0	0
4:15 PM	2	0	1	6	9	0	0	0	0	0	0	0	2	0	2
4:30 PM	1	0	0	3	4	0	0	0	0	0	0	1	3	0	4
4:45 PM	0	0	0	2	2	0	0	0	0	0	0	0	1	0	1
5:00 PM	1	1	0	2	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
5:30 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1
5:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Count Total	7	1	3	14	25	0	0	0	0	0	3	1	6	0	10
Peak Hour	4	0	3	12	19	0	0	0	0	0	0	1	6	0	7

Two-Hour Count Summaries - Heavy Vehicles														15-min Total	Rolling One Hour			
Interval Start	1st Ave N				1st Ave N				Algona Blvd				Algona Blvd					
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	0	0	0	0	0	0	0	0	2	0	0	0	1	0	4	0
4:15 PM	0	0	1	1	0	0	0	0	0	0	1	0	0	0	4	2	9	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	4	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	19
5:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	4	19
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	7
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	6
Count Total	0	2	2	3	0	0	1	0	0	0	3	0	0	0	10	4	25	0
Peak Hour	0	1	2	1	0	0	0	0	0	0	3	0	0	0	9	3	19	0

Two-Hour Count Summaries - Bikes														15-min Total	Rolling One Hour			
Interval Start	1st Ave N			1st Ave N			Algona Blvd			Algona Blvd								
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

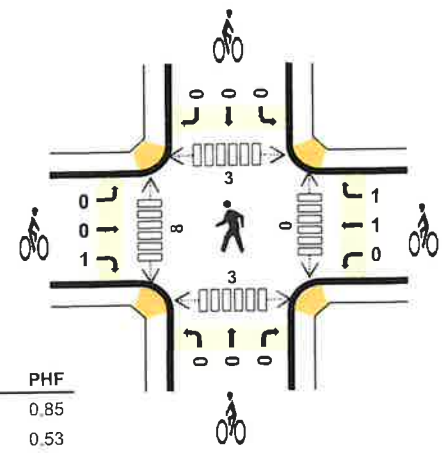
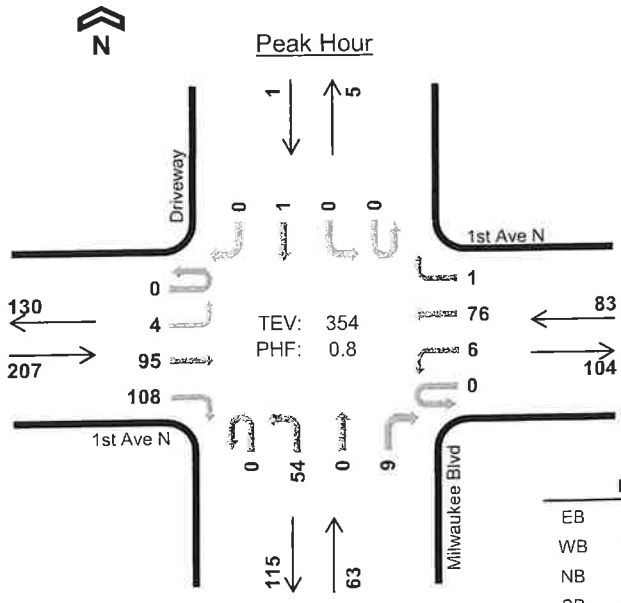


### Milwaukee Blvd 1st Ave N

Date: Tue, Sep 28, 2021

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	1.9%	0.85
WB	2.4%	0.53
NB	1.6%	0.61
SB	0.0%	0.25
TOTAL	2.0%	0.80

#### Two-Hour Count Summaries

Interval Start	1st Ave N Eastbound				1st Ave N Westbound				Milwaukee Blvd Northbound				Driveway Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	1	19	26	0	2	37	0	0	22	0	4	0	0	0	0	111	0	
4:15 PM	0	0	27	34	0	3	19	0	0	9	0	3	0	0	1	0	96	0	
4:30 PM	0	2	22	24	0	1	7	1	0	11	0	0	0	0	0	0	68	0	
4:45 PM	0	1	27	24	0	0	13	0	0	12	0	2	0	0	0	0	79	354	
5:00 PM	0	0	28	31	0	1	13	0	0	13	1	1	0	0	0	0	88	331	
5:15 PM	0	2	38	25	0	0	16	0	0	11	0	2	0	0	2	1	97	332	
5:30 PM	0	1	18	25	0	4	10	0	0	6	0	0	0	1	1	0	66	330	
5:45 PM	0	1	20	24	0	1	15	1	0	11	0	2	0	0	0	0	75	326	
Count Total	0	8	199	213	0	12	130	2	0	95	1	14	0	1	4	1	680	0	
Peak Hour	All	0	4	95	108	0	6	76	1	0	54	0	9	0	0	1	0	354	0
	HV	0	0	0	4	0	1	1	0	0	0	0	1	0	0	0	0	7	0
	HV%	-	0%	0%	4%	-	17%	1%	0%	-	0%	-	11%	-	-	0%	-	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	2	1	0	4	1	0	0	0	1	0	3	3	3	9
4:15 PM	2	0	0	0	2	0	2	0	0	2	0	4	0	0	4
4:30 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	1	0	2	0	0	1	0	1	0	2	0	1	3
5:15 PM	0	0	1	0	1	1	0	0	0	1	0	2	4	1	7
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:45 PM	1	0	0	0	1	0	0	0	0	0	0	2	4	0	6
Count Total	6	2	3	0	11	2	2	1	0	5	1	14	11	5	31
Peak Hour	4	2	1	0	7	1	2	0	0	3	0	8	3	3	14

Two-Hour Count Summaries - Heavy Vehicles														15-min Total	Rolling One Hour			
Interval Start	1st Ave N				1st Ave N				Milwaukee Blvd				Driveway					
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	1	0	1	1	0	0	0	0	1	0	0	0	0	4	0
4:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:00 PM	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	2	5
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	4
Count Total	0	0	0	6	0	1	1	0	0	2	0	1	0	0	0	0	11	0
Peak Hour	0	0	0	4	0	1	1	0	0	0	0	1	0	0	0	0	7	0

Two-Hour Count Summaries - Bikes														15-min Total	Rolling One Hour		
Interval Start	1st Ave N			1st Ave N			Milwaukee Blvd			Driveway							
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	3
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	2	0	1	1	1	0	0	0	0	0	0	0	0	5	0
Peak Hour	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	3	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

HCM 6th TWSC  
1: Algona Blvd & Main St

Algona (20-295)

Intersection

Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	3	2	0	3	1	69	2	71	1	111	272	2
Future Vol, veh/h	3	2	0	3	1	69	2	71	1	111	272	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	3	2	0	3	1	70	2	72	1	113	278	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	617	582	279	583	583	73	280	0	0	73	0	0
Stage 1	505	505	-	77	77	-	-	-	-	-	-	-
Stage 2	112	77	-	506	506	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3,536	4,036	3,336	3,536	4,036	3,336	2,236	-	-	2,236	-	-
Pot Cap-1 Maneuver	399	422	755	421	421	983	1271	-	-	1514	-	-
Stage 1	546	537	-	927	827	-	-	-	-	-	-	-
Stage 2	888	827	-	545	536	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	344	384	755	391	383	983	1271	-	-	1514	-	-
Mov Cap-2 Maneuver	344	384	-	391	383	-	-	-	-	-	-	-
Stage 1	545	490	-	925	825	-	-	-	-	-	-	-
Stage 2	822	825	-	495	489	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	15.2		9.3		0.2		2.2	
HCM LOS	C		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1271	-	-	359	907	1514	-	-
HCM Lane V/C Ratio	0.002	-	-	0.014	0.082	0.075	-	-
HCM Control Delay (s)	7.8	0	-	15.2	9.3	7.6	0	-
HCM Lane LOS	A	A	-	C	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.2	-	-

PM Peak

Existing PM  
GTC (MJP)



Lanes, Volumes, Timings  
2: W Valley Hwy S & 1st Ave N

Algona (20-295)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	2	31	1	46	5	170	13	144	964	2
Future Volume (vph)	5	2	2	31	1	46	5	170	13	144	964	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	90		0	0		0	90		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.97							
Frt		0.973			0.853			0.991				
Flt Protected		0.971		0.950				0.999		0.950		
Satd. Flow (prot)	0	1693	0	1703	1491	0	0	1775	0	1703	1792	0
Flt Permitted		0.786		0.851				0.979		0.627		
Satd. Flow (perm)	0	1367	0	1525	1491	0	0	1739	0	1124	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			51			5				
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		136			824			750			751	
Travel Time (s)		3.7			22.5			12.8			12.8	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	0	34	52	0	0	209	0	160	1073	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	46.0	46.0		46.0	46.0		44.0	44.0		44.0	44.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		48.9%	48.9%		48.9%	48.9%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)		7.0		7.1	7.1			51.8		51.8	51.8	
Actuated g/C Ratio		0.11		0.12	0.12			0.85		0.85	0.85	
v/c Ratio		0.06		0.19	0.24			0.14		0.17	0.71	
Control Delay		21.7		26.2	11.0			2.2		2.6	8.6	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		21.7		26.2	11.0			2.2		2.6	8.6	
LOS		C		C	B			A		A	A	
Approach Delay		21.7			17.0			2.2			7.8	
Approach LOS		C			B			A			A	

PM Peak

Existing PM  
GTC (MJP)



Lanes, Volumes, Timings  
2: W Valley Hwy S & 1st Ave N

Algona (20-295)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		3		14	0			15		12	170	
Queue Length 95th (ft)		13		31	25			33		29	#527	
Internal Link Dist (ft)		56			744			670			671	
Turn Bay Length (ft)				90						90		
Base Capacity (vph)		943		1051	1044			1473		951	1517	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.01		0.03	0.05			0.14		0.17	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 61.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 7.6

Intersection Capacity Utilization 75.7%

Analysis Period (min) 15

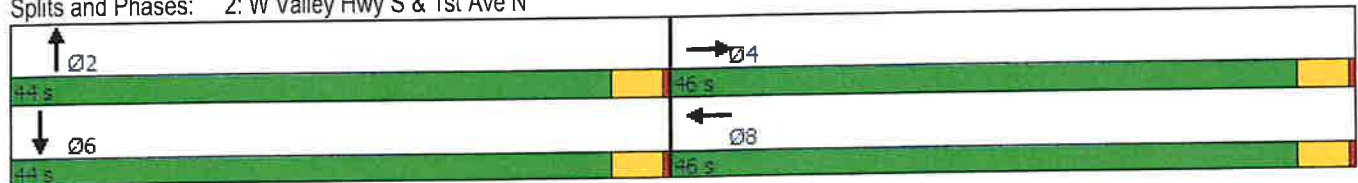
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Intersection LOS: A

ICU Level of Service D

Splits and Phases: 2: W Valley Hwy S & 1st Ave N



Existing PM  
GTC (MJP)

PM Peak

HCM 6th AWSC  
3: Algona Blvd N & 1st Ave N

Algona (20-295)

Intersection

Intersection Delay, s/veh 10.2  
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	92	46	12	45	12	6	63	6	19	214	28
Future Vol, veh/h	24	92	46	12	45	12	6	63	6	19	214	28
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	29	110	55	14	54	14	7	75	7	23	255	33
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	2			2			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			2			2		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			2			2		
HCM Control Delay	9.8			9.1			8.8			11.1		
HCM LOS	A			A			A			B		

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	8%	100%	0%	100%	0%	7%
Vol Thru, %	84%	0%	67%	0%	79%	82%
Vol Right, %	8%	0%	33%	0%	21%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	24	138	12	57	261
LT Vol	6	24	0	12	0	19
Through Vol	63	0	92	0	45	214
RT Vol	6	0	46	0	12	28
Lane Flow Rate	89	29	164	14	68	311
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.125	0.049	0.246	0.025	0.106	0.409
Departure Headway (Hd)	5.036	6.123	5.382	6.263	5.608	4.739
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	705	581	662	567	632	755
Service Time	3.116	3.904	3.162	4.056	3.4	2.797
HCM Lane V/C Ratio	0.126	0.05	0.248	0.025	0.108	0.412
HCM Control Delay	8.8	9.2	9.9	9.2	9.1	11.1
HCM Lane LOS	A	A	A	A	A	B
HCM 95th-tile Q	0.4	0.2	1	0.1	0.4	2

Existing PM  
GTC (MJP)

PM Peak

Intersection

Intersection Delay, s/veh 8.4  
 Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	95	108	6	76	1	54	0	9	0	1	0
Future Vol, veh/h	4	95	108	6	76	1	54	0	9	0	1	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	119	135	8	95	1	68	0	11	0	1	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	1			1			1				1	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	1			1			1				1	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	1			1			1				1	
HCM Control Delay	8.5			8			8.4				7.8	
HCM LOS	A			A			A				A	

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	86%	2%	7%	0%
Vol Thru, %	0%	46%	92%	100%
Vol Right, %	14%	52%	1%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	63	207	83	1
LT Vol	54	4	6	0
Through Vol	0	95	76	1
RT Vol	9	108	1	0
Lane Flow Rate	79	259	104	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.105	0.283	0.126	0.002
Departure Headway (Hd)	4.781	3.944	4.385	4.798
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	751	916	820	747
Service Time	2.8	1.944	2.4	2.821
HCM Lane V/C Ratio	0.105	0.283	0.127	0.001
HCM Control Delay	8.4	8.5	8	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	1.2	0.4	0

Existing PM  
 GTC (MJP)

PM Peak

HCM 6th TWSC  
1: Algona Blvd & Main St

Algona (20-295)

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	2	0	3	1	73	2	75	1	118	289	2
Future Vol, veh/h	3	2	0	3	1	73	2	75	1	118	289	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	3	2	0	3	1	74	2	77	1	120	295	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	655	618	296	619	619	78	297	0	0	78	0	0
Stage 1	536	536	-	82	82	-	-	-	-	-	-	-
Stage 2	119	82	-	537	537	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3,536	4,036	3,336	3,536	4,036	3,336	2,236	-	-	2,236	-	-
Pot Cap-1 Maneuver	377	402	739	398	402	977	1253	-	-	1508	-	-
Stage 1	525	520	-	921	823	-	-	-	-	-	-	-
Stage 2	881	823	-	524	520	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	322	363	739	367	363	977	1253	-	-	1508	-	-
Mov Cap-2 Maneuver	322	363	-	367	363	-	-	-	-	-	-	-
Stage 1	524	471	-	919	821	-	-	-	-	-	-	-
Stage 2	811	821	-	472	471	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	9.4	0.2	2.2
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1253	-	-	337	899	1508	-	-
HCM Lane V/C Ratio	0.002	-	-	0.015	0.087	0.08	-	-
HCM Control Delay (s)	7.9	0	-	15.8	9.4	7.6	0	-
HCM Lane LOS	A	A	-	C	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.3	-	-

Future 2027 PM  
GTC (MJP)

PM Peak

Lanes, Volumes, Timings  
2: W Valley Hwy S & 1st Ave N

Algona (20-295)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	2	33	1	49	5	180	14	153	1023	2
Future Volume (vph)	5	2	2	33	1	49	5	180	14	153	1023	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	90		0	0		0	90		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.97							
Frt		0.973			0.853			0.990				
Flt Protected		0.971		0.950				0.999		0.950		
Satd. Flow (prot)	0	1693	0	1703	1491	0	0	1773	0	1703	1792	0
Flt Permitted		0.818		0.751				0.978		0.620		
Satd. Flow (perm)	0	1422	0	1346	1491	0	0	1735	0	1111	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			54			6				
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		136			824			750			751	
Travel Time (s)		3.7			22.5			12.8			12.8	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	0	37	55	0	0	222	0	170	1139	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	46.0	46.0		46.0	46.0		44.0	44.0		44.0	44.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		48.9%	48.9%		48.9%	48.9%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)		7.2		7.2	7.2			50.5		50.5	50.5	
Actuated g/C Ratio		0.11		0.11	0.11			0.80		0.80	0.80	
v/c Ratio		0.06		0.24	0.25			0.16		0.19	0.79	
Control Delay		21.2		27.7	10.8			2.5		3.0	11.9	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		21.2		27.7	10.8			2.5		3.0	11.9	
LOS		C		C	B			A		A	B	
Approach Delay		21.2			17.6			2.5			10.7	
Approach LOS		C			B			A			B	

PM Peak

Future 2027 PM  
GTC (MJP)

Lanes, Volumes, Timings  
 2: W Valley Hwy S & 1st Ave N

Algona (20-295)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		3		15	0			16		13	202	
Queue Length 95th (ft)		13		33	26			36		32	#583	
Internal Link Dist (ft)		56			744			670			671	
Turn Bay Length (ft)				90						90		
Base Capacity (vph)		955		904	1019			1393		892	1438	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.01		0.04	0.05			0.16		0.19	0.79	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 62.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 10.1

Intersection Capacity Utilization 79.4%

Analysis Period (min) 15

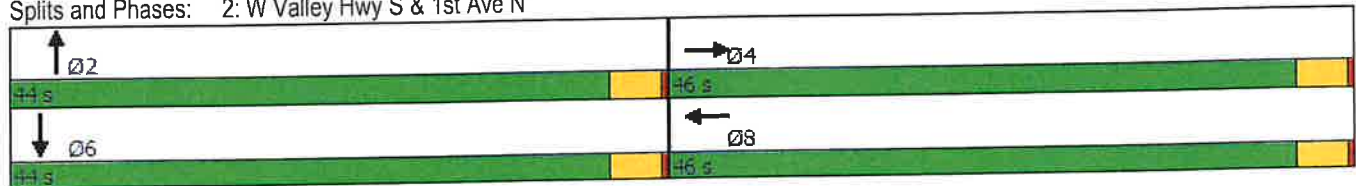
Intersection LOS: B

ICU Level of Service D

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: W Valley Hwy S & 1st Ave N



HCM 6th AWSC  
3: Algona Blvd N & 1st Ave N

Algona (20-295)

Intersection

Intersection Delay, s/veh 10.5  
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕			↕	
Traffic Vol, veh/h	25	98	49	13	48	13	6	67	6	20	227	30
Future Vol, veh/h	25	98	49	13	48	13	6	67	6	20	227	30
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	117	58	15	57	15	7	80	7	24	270	36
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	2			2			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			2			2		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			2			2		
HCM Control Delay	10.1			9.3						11.6		
HCM LOS	B			A			A			B		

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	8%	100%	0%	100%	0%	7%
Vol Thru, %	85%	0%	67%	0%	79%	82%
Vol Right, %	8%	0%	33%	0%	21%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	25	147	13	61	277
LT Vol	6	25	0	13	0	20
Through Vol	67	0	98	0	48	227
RT Vol	6	0	49	0	13	30
Lane Flow Rate	94	30	175	15	73	330
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.134	0.051	0.265	0.028	0.117	0.44
Departure Headway (Hd)	5.126	6.2	5.458	6.459	5.8	4.801
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	691	572	651	558	622	745
Service Time	3.219	3.996	3.253	4.159	3.5	2.868
HCM Lane V/C Ratio	0.136	0.052	0.269	0.027	0.117	0.443
HCM Control Delay	9	9.3	10.2	9.3	9.3	11.6
HCM Lane LOS	A	A	B	A	A	B
HCM 95th-tile Q	0.5	0.2	1.1	0.1	0.4	2.3

PM Peak

Future 2027 PM  
GTC (MJP)



HCM 6th AWSC  
4: Milwaukee Blvd S/Access & 1st Ave N

Algona (20-295)

Intersection

Intersection Delay, s/veh 8.5  
Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	101	115	6	81	1	57	0	10	0	1	0
Future Vol, veh/h	4	101	115	6	81	1	57	0	10	0	1	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	126	144	8	101	1	71	0	13	0	1	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	1			1			1				1	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	1			1			1				1	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	1			1			1				1	
HCM Control Delay	8.7			8.1			8.5				7.9	
HCM LOS	A			A			A				A	

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	85%	2%	7%	0%
Vol Thru, %	0%	46%	92%	100%
Vol Right, %	15%	52%	1%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	220	88	1
LT Vol	57	4	6	0
Through Vol	0	101	81	1
RT Vol	10	115	1	0
Lane Flow Rate	84	275	110	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.112	0.302	0.135	0.002
Departure Headway (Hd)	4.824	3.956	4.417	4.856
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	745	913	814	737
Service Time	2.846	1.966	2.431	2.882
HCM Lane V/C Ratio	0.113	0.301	0.135	0.001
HCM Control Delay	8.5	8.7	8.1	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	1.3	0.5	0

PM Peak

Future 2027 PM  
GTC (MJP)

HCM 6th TWSC  
1: Algona Blvd & Main St

Algona (20-295)

Intersection

Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	2	0	4	1	84	2	87	1	135	332	2
Future Vol, veh/h	4	2	0	4	1	84	2	87	1	135	332	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	4	2	0	4	1	86	2	89	1	138	339	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	753	710	340	711	711	90	341	0	0	90	0	0
Stage 1	616	616	-	94	94	-	-	-	-	-	-	-
Stage 2	137	94	-	617	617	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	6.24	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	324	356	698	345	356	962	1207	-	-	1493	-	-
Stage 1	475	479	-	908	813	-	-	-	-	-	-	-
Stage 2	861	813	-	474	478	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	268	315	698	313	315	962	1207	-	-	1493	-	-
Mov Cap-2 Maneuver	268	315	-	313	315	-	-	-	-	-	-	-
Stage 1	474	424	-	906	811	-	-	-	-	-	-	-
Stage 2	782	811	-	418	424	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	18		9.7		0.2		2.2	
HCM LOS	C		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1207	-	-	282	862	1493	-	-
HCM Lane V/C Ratio	0.002	-	-	0.022	0.105	0.092	-	-
HCM Control Delay (s)	8	0	-	18	9.7	7.7	0	-
HCM Lane LOS	A	A	-	C	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.3	-	-

Lanes, Volumes, Timings  
2: W Valley Hwy S & 1st Ave N

Algona (20-295)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	2	2	38	1	56	6	207	16	176	1176	2
Future Volume (vph)	6	2	2	38	1	56	6	207	16	176	1176	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	90		0	0		0	90		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.97							
Frt		0.975			0.852			0.990				
Flt Protected		0.969		0.950				0.999		0.950		
Satd. Flow (prot)	0	1693	0	1703	1489	0	0	1773	0	1703	1792	0
Flt Permitted		0.806		0.750				0.972		0.601		
Satd. Flow (perm)	0	1404	0	1344	1489	0	0	1725	0	1077	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			62			5				
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		136			824			750			751	
Travel Time (s)		3.7			22.5			12.8			12.8	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	42	63	0	0	255	0	196	1309	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	46.0	46.0		46.0	46.0		44.0	44.0		44.0	44.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		48.9%	48.9%		48.9%	48.9%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.0		4.0	4.0			4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)		7.4		7.4	7.4			49.6		49.6	49.6	
Actuated g/C Ratio		0.12		0.12	0.12			0.80		0.80	0.80	
v/c Ratio		0.07		0.26	0.27			0.19		0.23	0.92	
Control Delay		21.0		27.6	10.4			2.7		3.3	21.4	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		21.0		27.6	10.4			2.7		3.3	21.4	
LOS		C		C	B			A		A	C	
Approach Delay		21.0			17.3			2.7			19.1	
Approach LOS		C			B			A			B	

PM Peak

Future 2027 PM  
GTC (MJP)

Lanes, Volumes, Timings  
2: W Valley Hwy S & 1st Ave N

Algona (20-295)

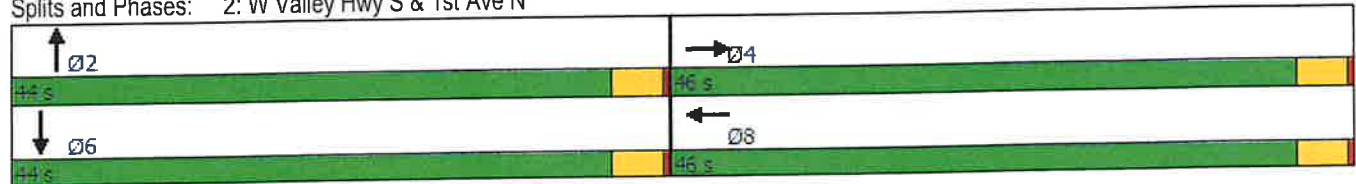
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		3		16	0			19		16	319	
Queue Length 95th (ft)		14		36	27			42		39	#724	
Internal Link Dist (ft)		56			744			670			671	
Turn Bay Length (ft)				90						90		
Base Capacity (vph)		954		912	1030			1376		858	1428	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.01		0.05	0.06			0.19		0.23	0.92	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 62.2  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 16.7  
 Intersection Capacity Utilization 89.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: B  
 ICU Level of Service E

Splits and Phases: 2: W Valley Hwy S & 1st Ave N



HCM 6th AWSC  
3: Algona Blvd N & 1st Ave N

Algona (20-295)

Intersection

Intersection Delay, s/veh 11.9  
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔			↔	
Traffic Vol, veh/h	29	112	56	15	55	15	7	77	7	23	261	34
Future Vol, veh/h	29	112	56	15	55	15	7	77	7	23	261	34
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	35	133	67	18	65	18	8	92	8	27	311	40
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	2			2			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			2			2		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			2			2		
HCM Control Delay	11.1			9.8			9.6			13.7		
HCM LOS	B			A			A			B		

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	8%	100%	0%	100%	0%	7%
Vol Thru, %	85%	0%	67%	0%	79%	82%
Vol Right, %	8%	0%	33%	0%	21%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	91	29	168	15	70	318
LT Vol	7	29	0	15	0	23
Through Vol	77	0	112	0	55	261
RT Vol	7	0	56	0	15	34
Lane Flow Rate	108	35	200	18	83	379
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.165	0.063	0.322	0.033	0.141	0.533
Departure Headway (Hd)	5.47	6.532	5.787	6.742	6.081	5.072
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	654	549	622	531	589	716
Service Time	3.511	4.267	3.522	4.486	3.824	3.072
HCM Lane V/C Ratio	0.165	0.064	0.322	0.034	0.141	0.529
HCM Control Delay	9.6	9.7	11.3	9.7	9.8	13.7
HCM Lane LOS	A	A	B	A	A	B
HCM 95th-tile Q	0.6	0.2	1.4	0.1	0.5	3.2

Future 2027 PM  
GTC (MJP)

PM Peak

Intersection

Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	116	132	7	93	1	66	0	11	0	1	0
Future Vol, veh/h	5	116	132	7	93	1	66	0	11	0	1	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	145	165	9	116	1	83	0	14	0	1	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	8.4	8.7	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	86%	2%	7%	0%
Vol Thru, %	0%	46%	92%	100%
Vol Right, %	14%	52%	1%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	253	101	1
LT Vol	66	5	7	0
Through Vol	0	116	93	1
RT Vol	11	132	1	0
Lane Flow Rate	96	316	126	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.133	0.353	0.158	0.002
Departure Headway (Hd)	4.957	4.015	4.501	5.009
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	724	898	798	714
Service Time	2.986	2.029	2.521	3.045
HCM Lane V/C Ratio	0.133	0.352	0.158	0.001
HCM Control Delay	8.7	9.2	8.4	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	1.6	0.6	0



9 X

Table of Contents



Layers

- T2020\_Collision
- T2019\_Collision
- T2018\_Collision
- T2017\_Collision
- T2016\_Collision
- State Collision Data
- FGTSWA
- WSDOT\_Roadway\_Data\_Access\_Con
- Basemap
- Basemap





CITY	PRIMARY TRAFFICWAY	INTERSECTING TRAFFICWAY/ REFERENCE POINT NAME	DIST FROM REF POINT	M1 or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	#				VEHICLE 1 TYPE	
											J	T	H	S		
Algona	1ST AVE N	MILWAUKEE BLVD S	123 F	E		MILWAUKEE BLVD S	E549040	2016-06-01 07:24		No Apparent Injury	0	0	2	0	0	Passenger Car
Algona	1ST AVE N	MILWAUKEE BLVD S	0				E777990	2018-03-09 7:05		No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
Algona	1ST AVE N	MILWAUKEE BLVD S	0				E507252	2016-01-01 23:39		No Apparent Injury	0	0	2	0	0	Passenger Car
Algona	1ST AVE N	ALGONA BLVD S	0				E752817	2017-12-28 21:35		No Apparent Injury	0	0	2	0	0	Passenger Car
Algona	1ST AVE N	ALGONA BLVD S	0				E644455	2017-02-18 14:40		No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
Algona	ALGONA BLVD N	1ST AVE N	0				E693953	2016-10-07 21:37		No Apparent Injury	0	0	2	0	0	Passenger Car
Algona	ALGONA BLVD N	1ST AVE N	0				EA24912	2020-02-19 5:18		No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
Algona	ALGONA BLVD N	1ST AVE N	0				E535061	2016-04-11 22:50		No Apparent Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb
Algona	ALGONA BLVD S	1ST AVE N	0				E917382	2019-04-16 13:49		No Apparent Injury	0	0	2	0	0	Passenger Car
Algona	W VALLEY HWY S	1ST AVE N	0				E955369	2019-08-02 14:00		No Apparent Injury	0	0	2	0	0	Truck, Tractor & Semi-Trailer
Algona	W VALLEY HWY S	1ST AVE N	0				E997994	2019-12-09 17:53		No Apparent Injury	0	0	2	0	0	Not Stated

VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION
Pickup,Panel Truck or Vanette under 10,000 lb	At Driveway	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Backing
Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Going Straight Ahead
Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry	Dark-Street Lights On	From same direction - both going straight - both moving - rear-end	Going Straight Ahead
Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining	Wet	Dark-Street Lights On	Entering at angle	Starting in Traffic Lane
Passenger Car	At Intersection and Related	Raining	Wet	Daylight	Entering at angle	Going Straight Ahead
Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining	Wet	Dark-No Street Lights	Entering at angle	Going Straight Ahead
Passenger Car	At Intersection and Related	Clear	Dry	Dark - Unknown Lightin	Entering at angle	Going Straight Ahead
Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry	Dark-Street Lights On	From opposite direction - one left turn - one straight	Going Straight Ahead
Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Starting in Traffic Lane
Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Going Straight Ahead
Passenger Car	At Driveway within Major Intersection	Clear	Dry	Dusk	From opposite direction - one left turn - one straight	Making Left Turn

VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)
Going Straight Ahead	Vehicle Backing	Vehicle Backing	East	West	Unknown Driver Distraction
Making Left Turn	West	East	South	West	Inattention
Going Straight Ahead	East	West	East	West	Inattention
Starting in Traffic Lane	North	South	West	East	Other
Going Straight Ahead	South	North	East	West	Did Not Grant RW to Vehicle
Going Straight Ahead	North	South	West	East	Unknown Driver Distraction
Going Straight Ahead	North	South	East	West	Unknown Distraction
Making Left Turn	North	South	West	North	None
Starting in Traffic Lane	West	East	North	South	Inattention
Going Straight Ahead	North	South	West	East	Driver Not Distracted
Going Straight Ahead	South	West	North	South	Other Contributing Circ Not Listed

MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD
None	Intersecting Trafficway	1206207.95	714392.02
None	Lane of Primary Trafficway	1206085.06	714394.31
None	Lane of Primary Trafficway	1206085.06	714394.31
Other	Lane of Primary Trafficway	1204600.26	714441.08
Did Not Grant RW to Vehicle	Lane of Primary Trafficway	1204600.26	714441.08
Unknown Driver Distraction	Lane of Primary Trafficway	1204600.29	714441.06
Did Not Grant RW to Vehicle	Lane of Primary Trafficway	1204600.26	714441.07
Improper Turn	Lane of Primary Trafficway	1204600.29	714441.06
None	Lane of Primary Trafficway	1204600.26	714441.08
Driver Not Distracted	Lane of Primary Trafficway	1203790.23	714474.04
None	Lane of Primary Trafficway	1203790.23	714474.06