

**Northridge Residential Subdivision**  
Metcalf Drive, Williston, VT



**Traffic Impact Assessment**  
November 20, 2017

DP 17-01

**Project Introduction**

This Project proposes to develop a 40 unit residential development on a parcel located northerly of the existing South Ridge residential development in the Town of Williston. The proposed development includes 18 multi-family units and 22 single-family units.

Access to the Project will be via Metcalf Drive located in Southridge. Metcalf Drive links with other local residential streets, notably Southridge Rd and Lawnwood Dr which access U.S. Route 2 (Williston Rd) and Old Stage Rd, respectively.

It is anticipated that this Project will be constructed in three phases extending over a five or more year period. The first phase will include the proposed multi-family homes and related infrastructure, which the second and third phases completing the single-family homes and their related infrastructure.

**Background Traffic**

Background traffic volumes were obtained from a weekday morning and afternoon peak period turning movement counts performed by this office at the Williston Rd/Southridge Rd and Old Stage Rd/Lawnwood Dr intersections on November 14 & 15, 2017. Copies of these counts are enclosed as **Appendix A**.

Daily traffic volumes on Williston Rd were last counted in 2014 by the Vermont Agency of Transportation (VTrans) in 2014 at Station D111 located between Southridge Rd and Talcott Rd. That count observed an annual average daily traffic volume (AADT) of 10,800 vehicles per day (vpd). VTrans has estimated that background traffic growth from 2014 to 2016 has increased that to 11,060 vpd.

The design hour volume (DHV) is the 30<sup>th</sup> highest hourly traffic volume that occurs in a given year, and is used in the design of highways and intersections to determine existing and future traffic congestion conditions. To adjust the observed peak hour volumes to a design hour (DHV) condition, the 2016 DHV at CTC D061 (US 2 in Williston) was compared to the am and pm peak hour volumes on the corresponding days of the above November 2017 turning movement counts. This comparison yielded a DHV adjustment factor of 1.098 for the pm peak hour. Because the observed am peak hour already exceeded the projected DHV, no DHV adjustment was applied to those volumes.

Current VTrans traffic data and projections indicate a 1% growth rate in background traffic volumes from 2016 to 2018, and a 4% growth rate 2016 to 2025 (the standard 5-year projection from anticipated project completion in 2020). Therefore, the observed pm peak hour volumes in the above turning movement count were increased by another 4% to estimate year 2025 design hour volumes. Figure 1 presents the estimated 2025 Base DHV turning movements at the Williston Rd/Southridge Rd intersection.



**Figure 3 - Project PM Peak Hour Trip Distribution**



**Traffic Congestion**

Levels of service (LOS) at intersections are determined by average control delay; measured in seconds per vehicle. The methodology for analyzing LOS is established by the *Highway Capacity Manual (HCM)*<sup>2</sup>. For the purpose of this TIA, intersection capacity analyses were performed only at the Williston Rd/Southridge Rd intersection. Table 2 summarizes the delay thresholds for each LOS at unsignalized intersections.

**Table 2 - Unsignalized Intersection Level of Service Criteria**

LOS	Avg. Delay*	LOS	Avg. Delay*
A	≤10	D	≤35
B	≤15	E	≤50
C	≤235	F	>50

\* seconds per vehicle

In Vermont, LOS D represents the desired design standard for unsignalized intersections<sup>3</sup>. Reduced levels of service are acceptable in densely settled areas where volume/capacity ratios remain below 1.0 and/or the improvements required to achieve a better LOS would create adverse environmental and cultural impacts. Transportation demand management (TDM) strategies can also be used to help mitigate levels of service at locations not meeting the above standards.

This Project’s impact on future levels of service and average delays was analyzed by performing both no-build and build capacity analyses, and comparing the results of the two sets of analyses. Figure 4 presents the projected year 2025 No-Build and Build PM peak hour volumes. All analyses were performed using existing geometric conditions. The results of those analyses, which are summarized in Table 3, indicate that this Project will have a negligible effect on existing and future traffic congestion conditions. Detailed analysis worksheets are enclosed in **Appendix C**.

<sup>2</sup> *Highway Capacity Manual*, Transportation Research Board, 2010

<sup>3</sup> Vermont Agency of Transportation Highway Design “Level of Service” Policy, May 31, 2007

Figure 1 - 2025 Build DHV

AM Peak Hour						PM Peak Hour					
Southridge Rd			Southridge Rd			Southridge Rd			Southridge Rd		
	110	26				39	8				
Williston	8 ↗	↘	↘	↖	8	Williston	107 ↗	↘	↘	12	Williston
Rd	361 →		←	839	Rd	Rd	711 →		←	419	Rd

Table 3 - Williston Rd/Southridge Rd Levels of Service

Approach & Lane Group	2025 AM Peak Hour						2025 PM Peak Hour					
	No-Build			Build			No-Build			Build		
	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
Williston Rd EB LT	A	9.5	0.01	A	9.6	0.01	A	8.4	0.08	A	8.5	0.09
Southridge Rd SB LT	D	25.3	0.12	D	25.8	0.13	D	28.4	0.04	D	30.0	0.05
Southridge Rd SB RT	C	18.4	0.27	C	19.0	0.30	B	11.0	0.05	B	11.1	0.06

The above results indicate that this Project will have minimal impact on future traffic congestion conditions on the adjacent roadway network.

**Construction Traffic**

As previously noted, it is anticipated that this project will be constructed in at least three discrete phases. Each phase will include an initial period road and utility construction, followed by longer period of less intensive building construction and final grading/landscaping. Construction traffic typically varies considerably, depending on the work being performed. The most concentrated periods of construction traffic will occur during road construction as new stone subbase and pavement are installed. These two work activities are separated in time, and their duration is typically measured in days rather than weeks.

Potential travel routes for construction vehicles were examined. The shortest route, and the one which will require construction vehicles to travel by the least number of existing homes, is the Southridge Rd-Metcalf Dr-Lawnwood Dr-Harte Cir-Metcalf Dr preferred route illustrated in **Appendix B**.

**Safety**

A review of the current VTrans High Crash Location Report<sup>4</sup> indicates that there are no high crash locations in the immediate vicinity of this Project. The nearest high crash location is the Taft Corners intersection.

The existing local streets located in the South Ridge residential subdivision are 30 ft wide curbed streets providing adequate sight distances and having a sidewalk along one side. They are posted with a 25 mph speed limit. The

<sup>4</sup> Vermont Agency of Transportation 2012-2016 High Crash Location Report, August 2017

proposed location of the new Project access onto Metcalf Dr also provides 280 ft of intersection sight distance in both directions, as recommended by AASHTO design standards<sup>5</sup> for a 25 mph roadway.

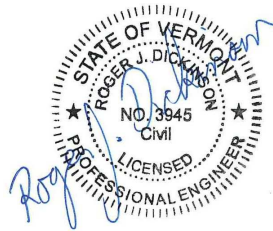
### **Multi-Modal Facilities**

This Project includes the construction of new sidewalks along its proposed new streets. Those sidewalks will link with the existing sidewalk network on existing local streets within the South Ridge residential subdivision. This Project will also provide a new connection to the Town's transportation path network.

GMTA provides local transit service during weekday peak periods along Williston Rd between Taft Corners and Williston village. However, there is no designated bus stop in the vicinity of the South Ridge subdivision.

### **Conclusion**

We conclude, based on the foregoing analyses, that the proposed Northridge residential subdivision will not create adverse traffic congestion or unsafe conditions on the surrounding roads and intersections. We also conclude that the multi-modal connections included in this Project will assist in minimizing additional vehicular travel on adjacent streets.



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<sup>5</sup> *A Policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials, 2011

**APPENDIX A**

**Turning Movement Counts**

# Lamoureux & Dickinson

14 Morse Drive  
Essex, VT 05452

**Consulting Engineers, Inc.**

Location: US Route 2 & Southridge Rd  
Town/City: Williston  
By: N. Smith  
Weather: sunny & cool

File Name : Southridge AM  
Site Code : 17116  
Start Date : 11/15/2017  
Page No : 1

## Groups Printed- All Vehicles

Start Time	Southridge Rd From North					US Route 2 From East					From South					US Route 2 From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:15 AM	5	0	18	0	23	0	154	2	0	156	0	0	0	0	0	3	66	0	0	69	248
07:30 AM	3	0	23	0	26	0	216	1	0	217	0	0	0	0	0	1	71	0	0	72	315
07:45 AM	6	0	32	0	38	0	243	2	0	245	0	0	0	0	0	1	120	0	0	121	404
Total	14	0	73	0	87	0	613	5	0	618	0	0	0	0	0	5	257	0	0	262	967
08:00 AM	8	0	21	0	29	0	194	2	0	196	0	0	0	0	0	2	90	0	0	92	317
08:15 AM	2	0	19	0	21	0	155	1	0	156	0	0	0	0	0	8	50	0	0	58	235
*** BREAK ***																					
Grand Total	24	0	113	0	137	0	962	8	0	970	0	0	0	0	0	15	397	0	0	412	1519
Apprch %	17.5	0	82.5	0		0	99.2	0.8	0		0	0	0	0		3.6	96.4	0	0		
Total %	1.6	0	7.4	0	9	0	63.3	0.5	0	63.9	0	0	0	0	0	1	26.1	0	0	27.1	

# Lamoureux & Dickinson

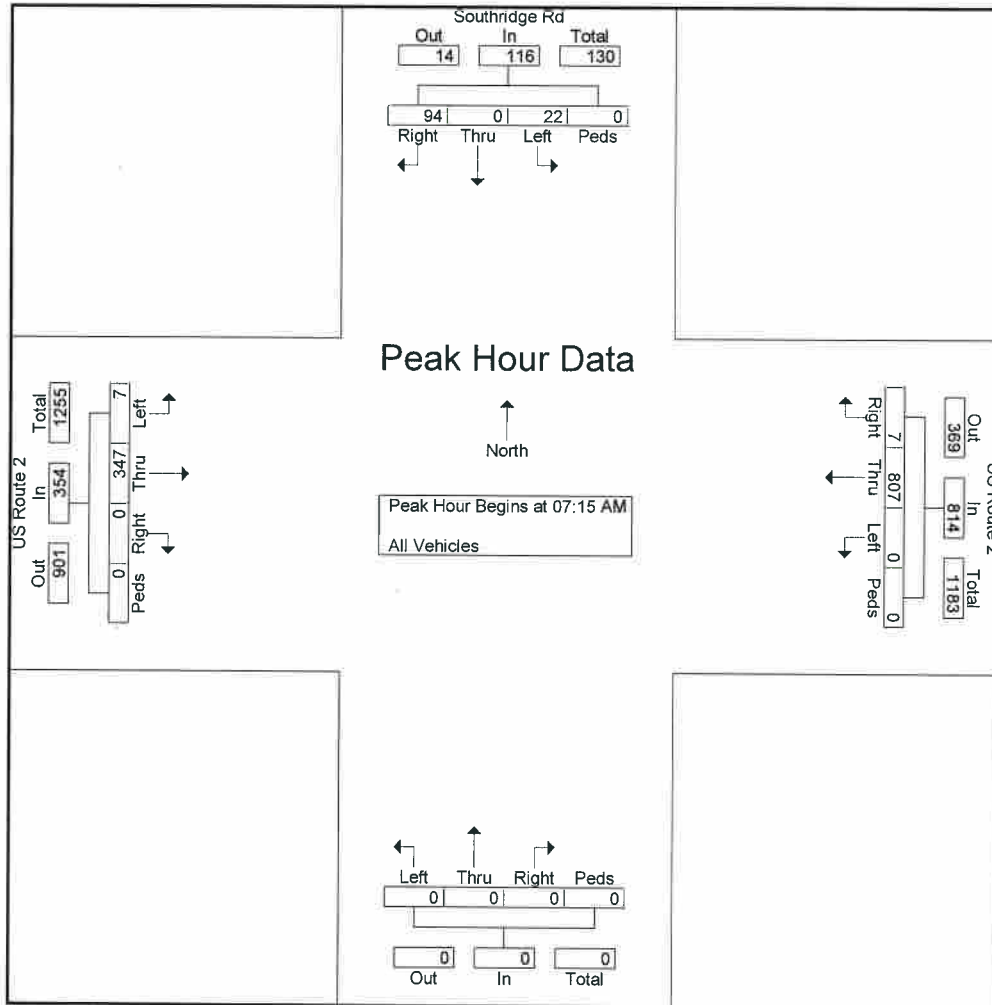
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	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
<b>Peak Hour Analysis From 07:15 AM to 08:30 AM - Peak 1 of 1</b>																					
<b>Peak Hour for Entire Intersection Begins at 07:15 AM</b>																					
07:15 AM	5	0	18	0	23	0	154	2	0	156	0	0	0	0	0	3	66	0	0	69	248
07:30 AM	3	0	23	0	26	0	216	1	0	217	0	0	0	0	0	1	71	0	0	72	315
07:45 AM	6	0	32	0	38	0	243	2	0	245	0	0	0	0	0	1	120	0	0	121	404
08:00 AM	8	0	21	0	29	0	194	2	0	196	0	0	0	0	0	2	90	0	0	92	317
Total Volume	22	0	94	0	116	0	807	7	0	814	0	0	0	0	0	7	347	0	0	354	1284
% App. Total	19	0	81	0		0	99.1	0.9	0		0	0	0	0		2	98	0	0		
PHF	.688	.000	.734	.000	.763	.000	.830	.875	.000	.831	.000	.000	.000	.000	.000	.583	.723	.000	.000	.731	.795



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Essex, VT 05452

*Consulting Engineers, Inc.*

Location: US Route 2 & Southridge Rd  
Town/City: Williston  
By: N. Smith  
Weather: cloudy, cool

File Name : Southridge PM  
Site Code : 17116  
Start Date : 11/14/2017  
Page No : 1

## Groups Printed- All Vehicles

Start Time	South Ridge From North					US Route 2 From East					From South					US Route 2 From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
04:30 PM	3	0	8	0	11	0	82	5	0	87	0	0	0	0	0	12	152	0	0	164	262
04:45 PM	1	0	7	0	8	0	91	2	0	93	0	0	0	0	0	17	153	0	0	170	271
Total	4	0	15	0	19	0	173	7	0	180	0	0	0	0	0	29	305	0	0	334	533
05:00 PM	0	0	6	0	6	0	100	1	0	101	0	0	0	0	0	27	163	0	0	190	297
05:15 PM	2	0	7	0	9	0	94	1	0	95	0	0	0	0	0	24	155	0	0	179	283
05:30 PM	2	0	12	0	14	0	62	5	0	67	0	0	0	0	0	22	152	0	0	174	255
05:45 PM	1	0	7	0	8	0	63	4	0	67	0	0	0	0	0	19	164	0	0	183	258
Total	5	0	32	0	37	0	319	11	0	330	0	0	0	0	0	92	634	0	0	726	1093
Grand Total	9	0	47	0	56	0	492	18	0	510	0	0	0	0	0	121	939	0	0	1060	1626
Apprch %	16.1	0	83.9	0		0	96.5	3.5	0		0	0	0	0		11.4	88.6	0	0		
Total %	0.6	0	2.9	0	3.4	0	30.3	1.1	0	31.4	0	0	0	0		7.4	57.7	0	0	65.2	

# Lamoureux & Dickinson

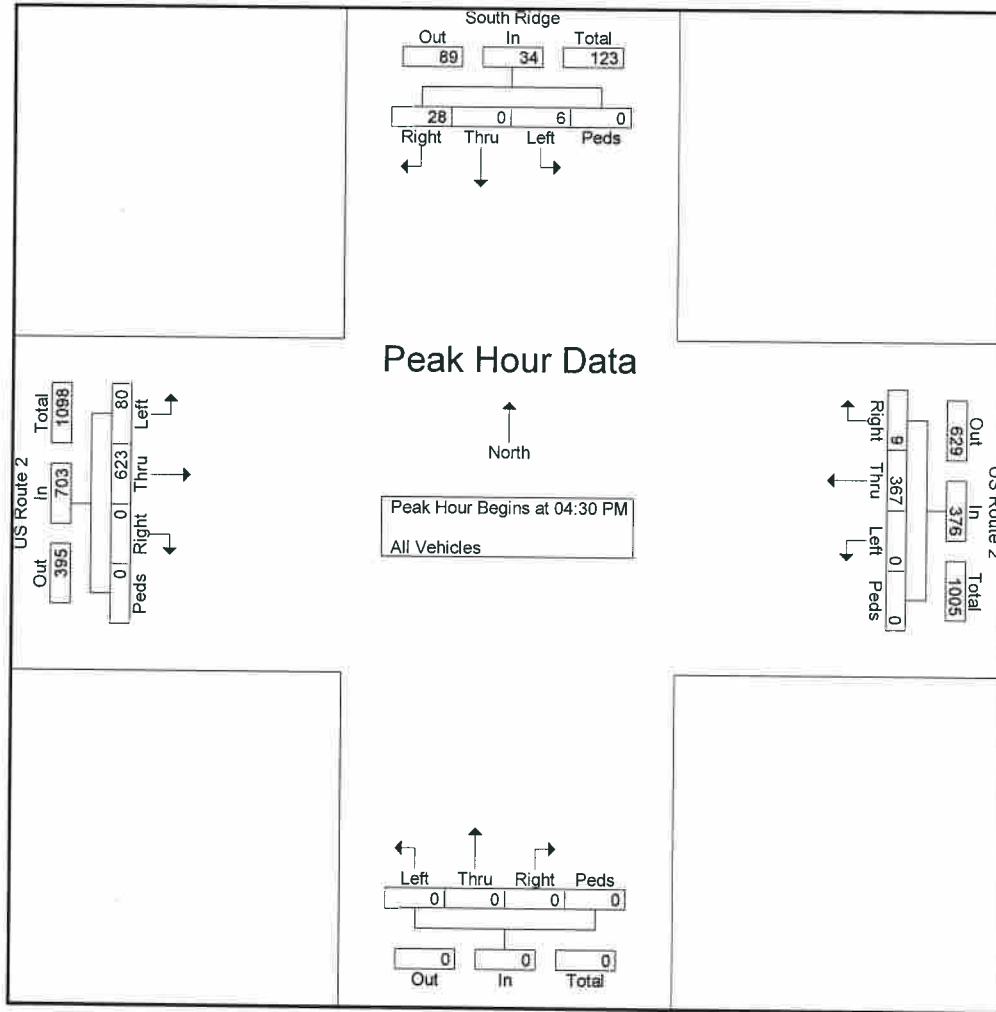
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<b>Peak Hour Analysis From 04:30 PM to 05:45 PM - Peak 1 of 1</b>																					
<b>Peak Hour for Entire Intersection Begins at 04:30 PM</b>																					
04:30 PM	3	0	8	0	11	0	82	5	0	87	0	0	0	0	0	12	152	0	0	164	262
04:45 PM	1	0	7	0	8	0	91	2	0	93	0	0	0	0	0	17	153	0	0	170	271
05:00 PM	0	0	6	0	6	0	100	1	0	101	0	0	0	0	0	27	163	0	0	190	297
05:15 PM	2	0	7	0	9	0	94	1	0	95	0	0	0	0	0	24	155	0	0	179	283
Total Volume	6	0	28	0	34	0	367	9	0	376	0	0	0	0	0	80	623	0	0	703	1113
% App. Total	17.6	0	82.4	0		0	97.6	2.4	0		0	0	0	0		11.4	88.6	0	0		
PHF	.500	.000	.875	.000	.773	.000	.918	.450	.000	.931	.000	.000	.000	.000	.000	.741	.956	.000	.000	.925	.937



# Lamoureux & Dickinson

14 Morse Drive  
Essex, VT 05452

*Consulting Engineers, Inc.*

Location: Old Stage Rd & Lawnwood Dr  
Town/City: Williston  
By: R. Dickinson  
Weather: cool & sunny

File Name : Lawnwood AM  
Site Code : 17116  
Start Date : 11/15/2017  
Page No : 1

## Groups Printed- Cars & Lt. Trucks - Trucks & Buses

Start Time	Old Stage Rd From North					From East					Old Stage Rd From South					Lawnwood Dr From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:30 AM	0	42	2	0	44	0	0	0	0	0	6	17	0	0	23	3	0	4	0	7	74
07:45 AM	0	60	3	0	63	0	0	0	0	0	1	11	0	0	12	5	0	2	0	7	82
<b>Total</b>	0	102	5	0	107	0	0	0	0	0	7	28	0	0	35	8	0	6	0	14	156
08:00 AM	0	37	0	0	37	0	0	0	0	0	2	29	0	0	31	5	0	4	0	9	77
08:15 AM	0	26	3	0	29	0	0	0	0	0	0	9	0	0	9	2	0	3	0	5	43
<b>Grand Total</b>	0	165	8	0	173	0	0	0	0	0	9	66	0	0	75	15	0	13	0	28	276
<b>Apprch %</b>	0	95.4	4.6	0		0	0	0	0		12	88	0	0		53.6	0	46.4	0		
<b>Total %</b>	0	59.8	2.9	0	62.7	0	0	0	0	0	3.3	23.9	0	0	27.2	5.4	0	4.7	0	10.1	
<b>Cars &amp; Lt. Trucks</b>	0	161	7	0	168	0	0	0	0	0	8	62	0	0	70	15	0	13	0	28	266
<b>% Cars &amp; Lt. Trucks</b>	0	97.6	87.5	0	97.1	0	0	0	0	0	88.9	93.9	0	0	93.3	100	0	100	0	100	96.4
<b>Trucks &amp; Buses</b>	0	4	1	0	5	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	10
<b>% Trucks &amp; Buses</b>	0	2.4	12.5	0	2.9	0	0	0	0	0	11.1	6.1	0	0	6.7	0	0	0	0	0	3.6

# Lamoureux & Dickinson

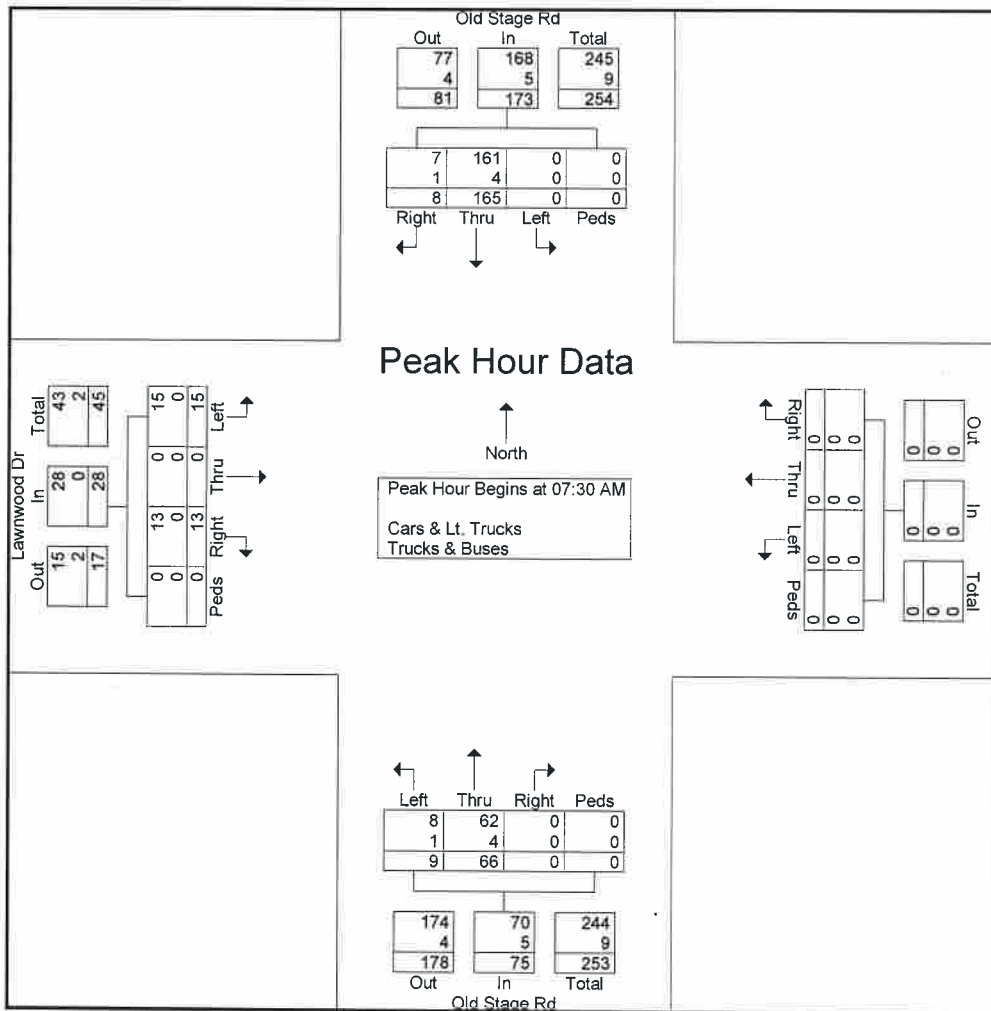
14 Morse Drive  
Essex, VT 05452

Consulting Engineers, Inc.

Location: Old Stage Rd & Lawnwood Dr  
Town/City: Williston  
By: R. Dickinson  
Weather: cool & sunny

File Name : Lawnwood AM  
Site Code : 17116  
Start Date : 11/15/2017  
Page No : 2

Start Time	Old Stage Rd From North					From East					Old Stage Rd From South					Lawnwood Dr From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
<b>Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1</b>																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	42	2	0	44	0	0	0	0	0	6	17	0	0	23	3	0	4	0	7	74
07:45 AM	0	60	3	0	63	0	0	0	0	0	1	11	0	0	12	5	0	2	0	7	82
08:00 AM	0	37	0	0	37	0	0	0	0	0	2	29	0	0	31	5	0	4	0	9	77
08:15 AM	0	26	3	0	29	0	0	0	0	0	0	9	0	0	9	2	0	3	0	5	43
Total Volume	0	165	8	0	173	0	0	0	0	0	9	66	0	0	75	15	0	13	0	28	276
% App. Total	0	95.4	4.6	0		0	0	0	0		12	88	0	0		53.6	0	46.4	0		
PHF	.000	.688	.667	.000	.687	.000	.000	.000	.000	.000	.375	.569	.000	.000	.605	.750	.000	.813	.000	.778	.841
Cars & Lt. Trucks	0	97.6	87.5	0	97.1	0	0	0	0	0	88.9	93.9	0	0	93.3	100	0	100	0	100	96.4
% Cars & Lt. Trucks	0	4	1	0	5	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	10
Trucks & Buses	0	2.4	12.5	0	2.9	0	0	0	0	0	11.1	6.1	0	0	6.7	0	0	0	0	0	3.6



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04:30 PM	0	18	1	0	19	0	0	0	0	0	1	32	0	0	33	4	0	1	0	5	57
04:45 PM	0	25	4	0	29	0	0	0	0	0	1	40	0	0	41	0	0	0	0	0	70
Total	0	43	5	0	48	0	0	0	0	0	2	72	0	0	74	4	0	1	0	5	127
05:00 PM	0	20	1	0	21	0	0	0	0	0	6	34	0	0	40	0	0	3	0	3	64
05:15 PM	0	17	3	0	20	0	0	0	0	0	1	46	0	0	47	1	0	2	0	3	70
05:30 PM	0	14	2	0	16	0	0	0	0	0	0	41	0	0	41	2	0	2	0	4	61
05:45 PM	0	16	6	0	22	0	0	0	0	0	1	32	0	0	33	5	0	2	0	7	62
Total	0	67	12	0	79	0	0	0	0	0	8	153	0	0	161	8	0	9	0	17	257
Grand Total	0	110	17	0	127	0	0	0	0	0	10	225	0	0	235	12	0	10	0	22	384
Apprch %	0	86.6	13.4	0		0	0	0	0		4.3	95.7	0	0		54.5	0	45.5	0		
Total %	0	28.6	4.4	0	33.1	0	0	0	0	0	2.6	58.6	0	0	61.2	3.1	0	2.6	0	5.7	
Cars & Lt. Trucks	0	109	17	0	126	0	0	0	0	0	10	224	0	0	234	12	0	10	0	22	382
% Cars & Lt. Trucks	0	99.1	100	0	99.2	0	0	0	0	0	100	99.6	0	0	99.6	100	0	100	0	100	99.5
Trucks & Buses	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Trucks & Buses	0	0.9	0	0	0.8	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.5

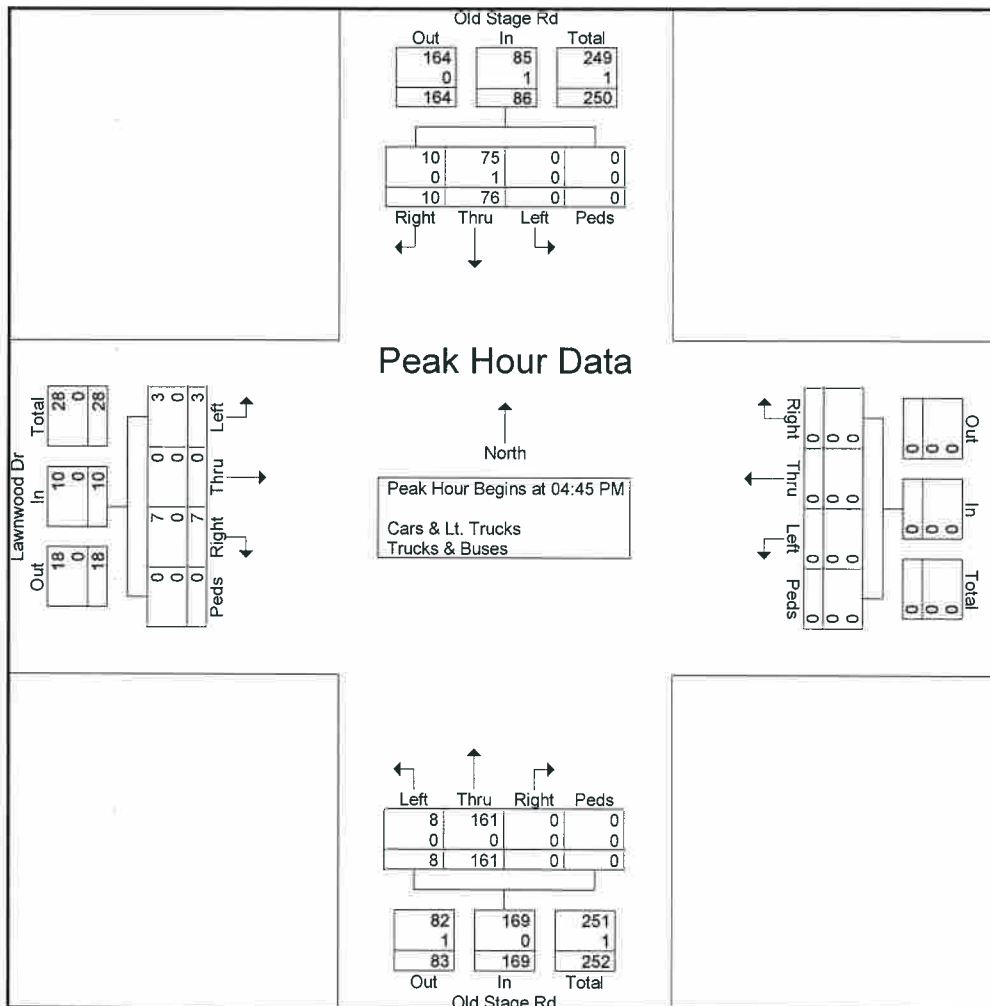
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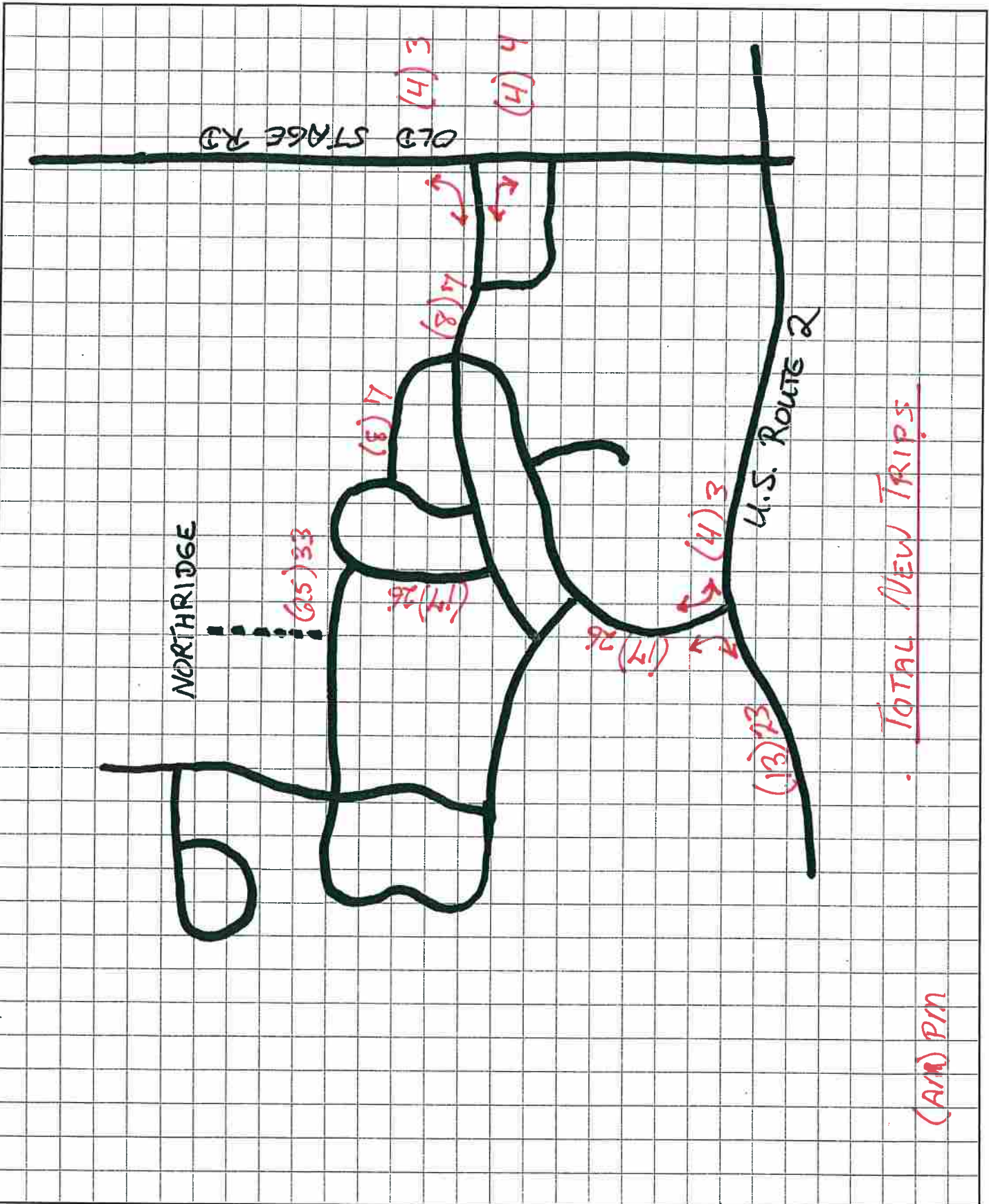
File Name : Lawnwood PM  
Site Code : 17116  
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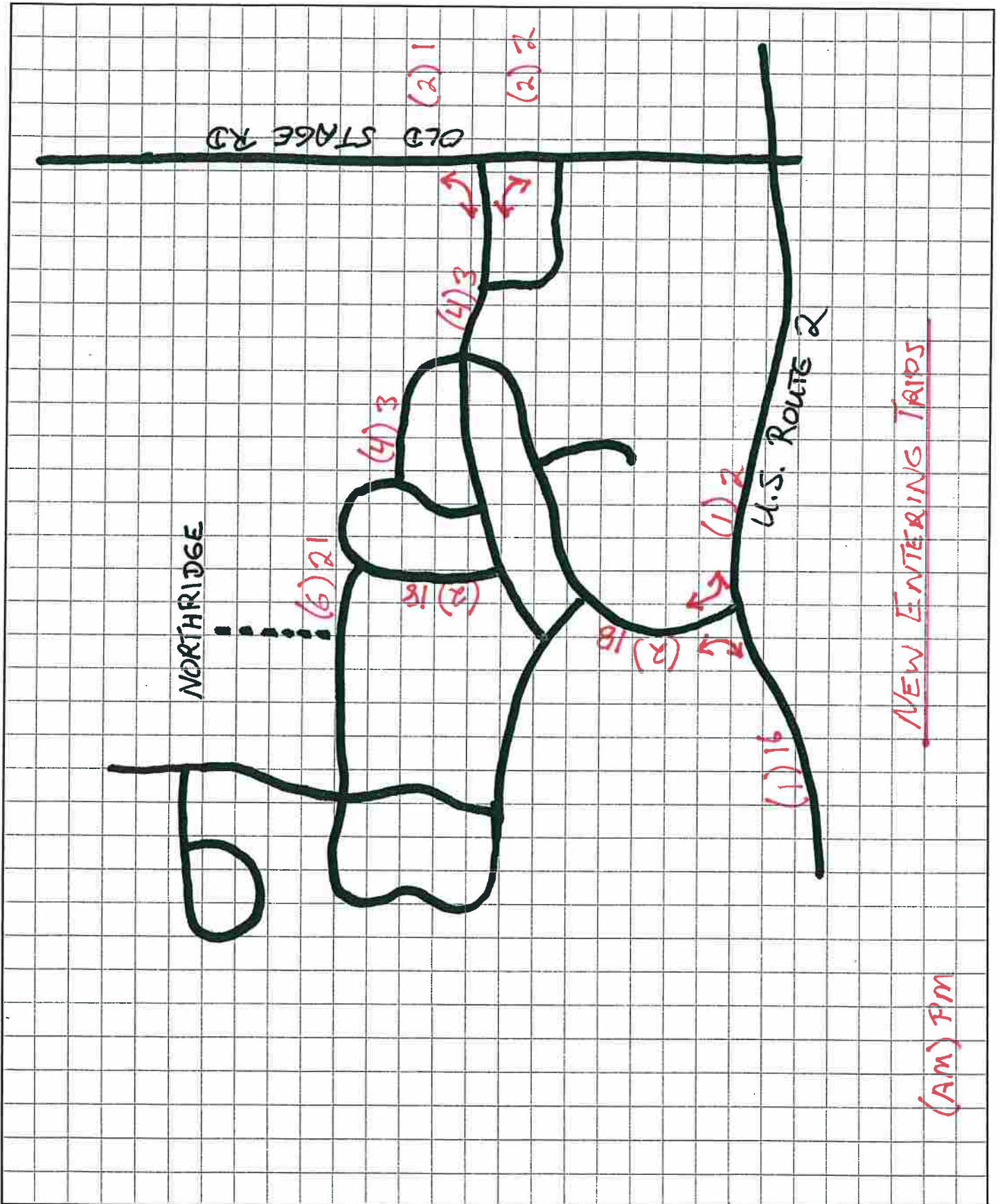
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<b>Peak Hour Analysis From 04:30 PM to 05:45 PM - Peak 1 of 1</b>																						
<b>Peak Hour for Entire Intersection Begins at 04:45 PM</b>																						
04:45 PM	0	25	4	0	29	0	0	0	0	0	1	40	0	0	41	0	0	0	0	0	0	70
05:00 PM	0	20	1	0	21	0	0	0	0	0	6	34	0	0	40	0	0	3	0	3	3	64
05:15 PM	0	17	3	0	20	0	0	0	0	0	1	46	0	0	47	1	0	2	0	3	70	
05:30 PM	0	14	2	0	16	0	0	0	0	0	0	41	0	0	41	2	0	2	0	4	61	
Total Volume	0	76	10	0	86	0	0	0	0	0	8	161	0	0	169	3	0	7	0	10	265	
% App. Total	0	88.4	11.6	0		0	0	0	0		4.7	95.3	0	0		30	0	70	0			
PHF	.000	.760	.625	.000	.741	.000	.000	.000	.000	.000	.333	.875	.000	.000	.899	.375	.000	.583	.000	.625	.946	
Cars & Lt. Trucks	0	98.7	100	0	98.8	0	0	0	0	0	100	100	0	0	100	100	0	100	0	100	99.6	
Trucks & Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
% Trucks & Buses	0	1.3	0	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	



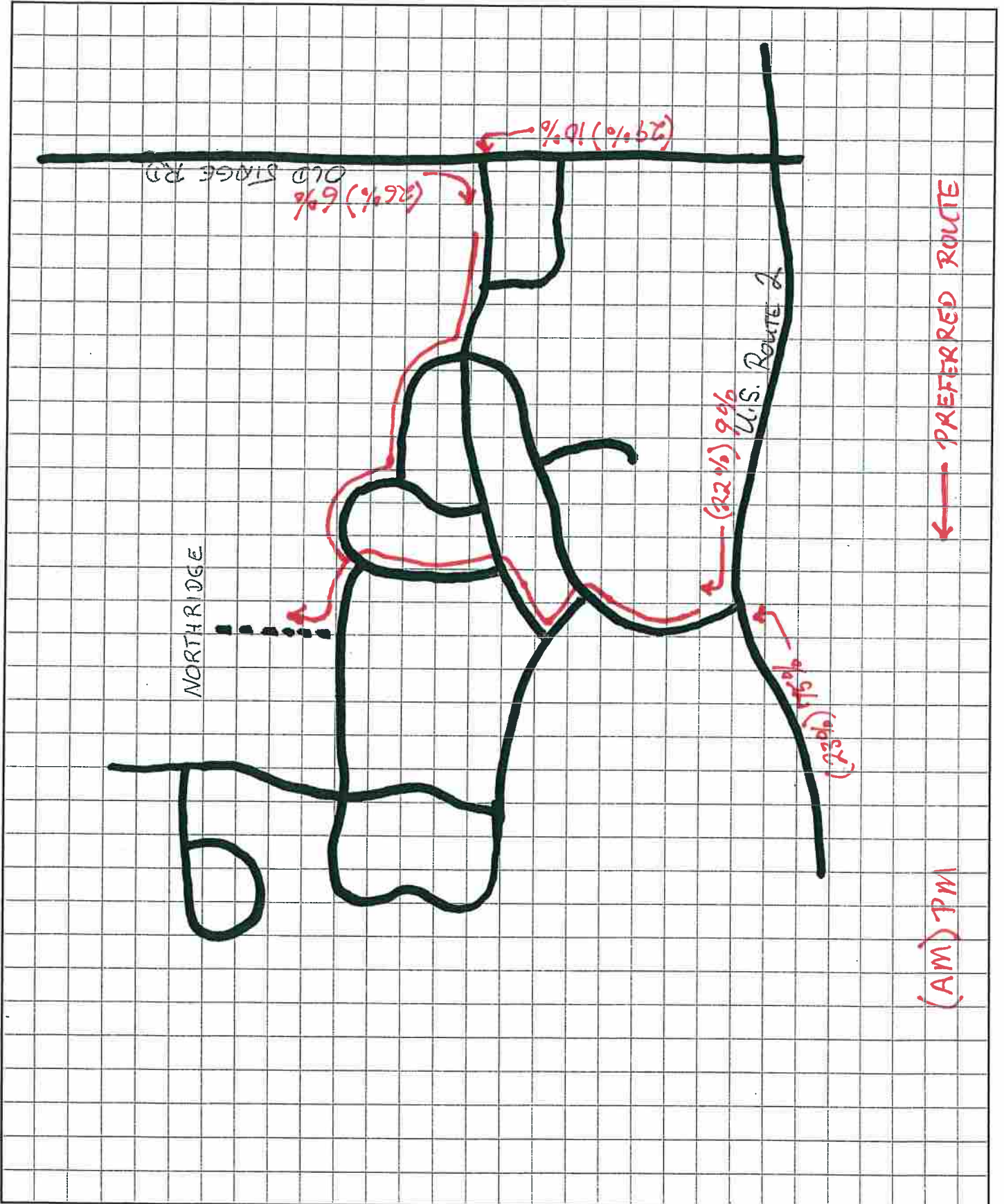
**APPENDIX B**

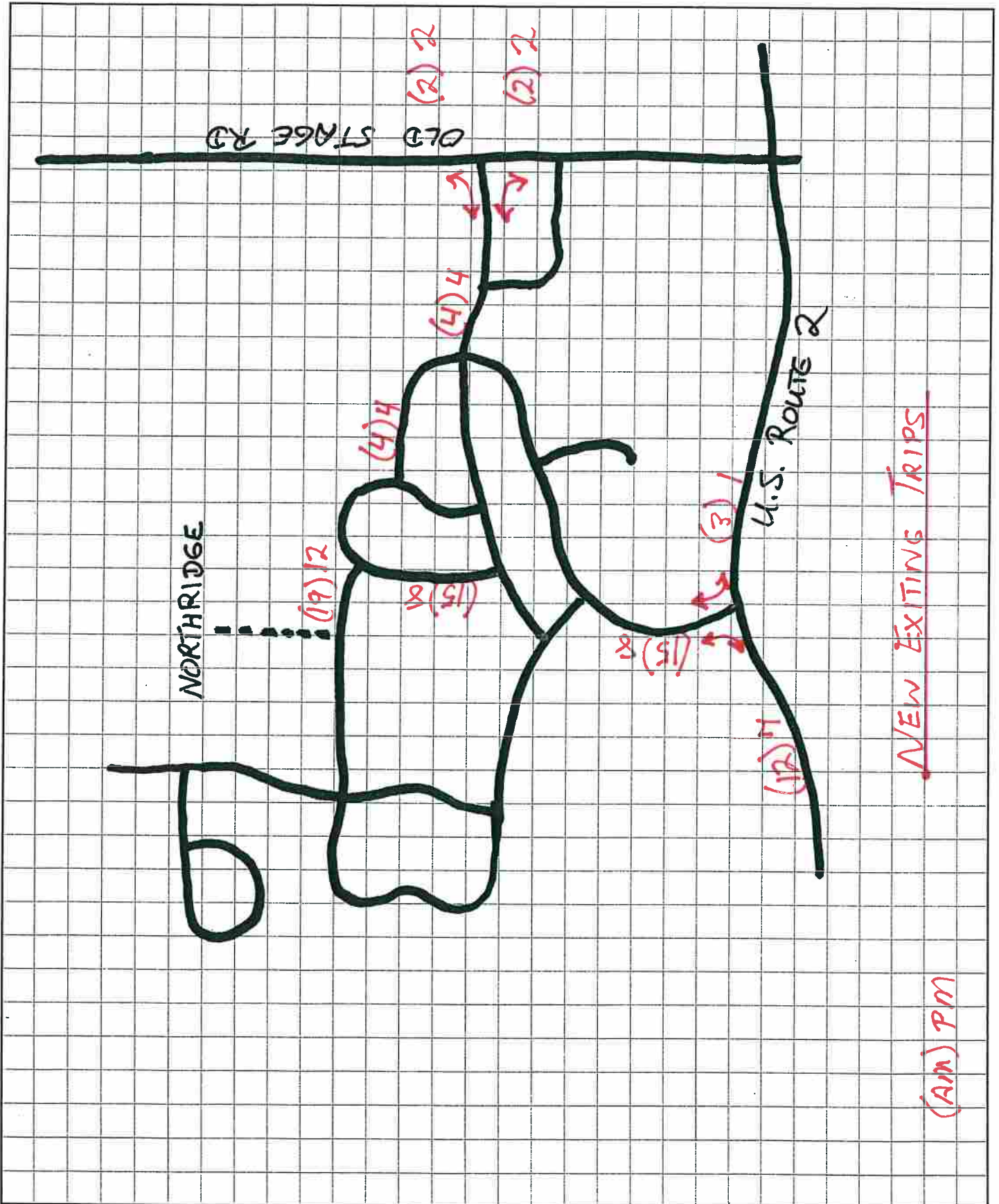
**Directional Calculations of  
Northridge Peak Hour Trips**

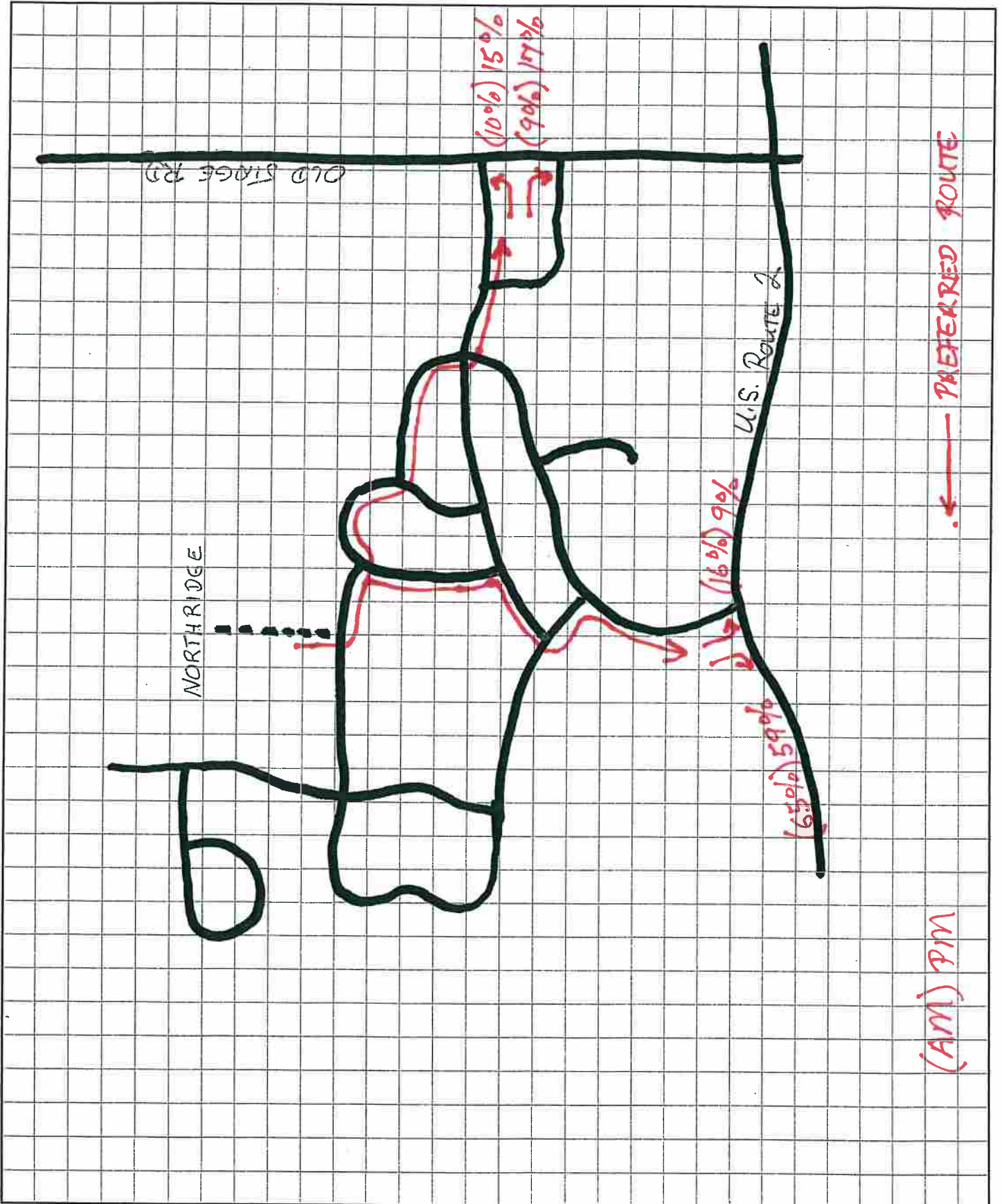




(AM) FM







**APPENDIX C**

**Intersection Capacity Analysis  
Worksheets**

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R. Dickinson			Intersection	US 2 & Southridge Rd			
Agency/Co.	Lamoureux & Dickinson			Jurisdiction	Williston			
Date Performed	11/20/2017			Analysis Year	2025 No-Build			
Analysis Time Period	AM							
Project Description 17116								
East/West Street: Williston Rd				North/South Street: Southridge Rd				
Intersection Orientation: East-West				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	7	361			839	7		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	7	361	0	0	839	7		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	0	1	0		
Configuration	L	T				TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				23		98		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	0	0	0	23	0	98		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	7					23		98
C (m) (veh/h)	800					200		367
v/c	0.01					0.12		0.27
95% queue length	0.03					0.39		1.08
Control Delay (s/veh)	9.5					25.3		18.4
LOS	A					D		C
Approach Delay (s/veh)	--	--					19.7	
Approach LOS	--	--					C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R. Dickinson			Intersection	US 2 & Southridge Rd			
Agency/Co.	Lamoureux & Dickinson			Jurisdiction	Williston			
Date Performed	11/20/2017			Analysis Year	2025 Build			
Analysis Time Period	AM							
Project Description 17116								
East/West Street: Williston Rd				North/South Street: Southridge Rd				
Intersection Orientation: East-West				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	8	361			839	8		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	8	361	0	0	839	8		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0					0
Lanes	1	1	0	0	1	0		
Configuration	L	T						TR
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				26		110		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	0	0	0	26	0	110		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0					0
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	8					26		110
C (m) (veh/h)	799					199		367
v/c	0.01					0.13		0.30
95% queue length	0.03					0.45		1.27
Control Delay (s/veh)	9.6					25.8		19.0
LOS	A					D		C
Approach Delay (s/veh)	--	--				20.3		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R. Dickinson			Intersection	US 2 & Southridge Rd			
Agency/Co.	Lamoureux & Dickinson			Jurisdiction	Williston			
Date Performed	11/20/2017			Analysis Year	2025 No-Build			
Analysis Time Period	PM							
Project Description 17116								
East/West Street: Williston Rd				North/South Street: Southridge Rd				
Intersection Orientation: East-West				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	91	711			419	10		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	91	711	0	0	419	10		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0					0
Lanes	1	1	0	0	1	0		
Configuration	L	T						TR
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				7		32		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	0	0	0	7	0	32		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0					0
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	91					7		32
C (m) (veh/h)	1141					161		634
v/c	0.08					0.04		0.05
95% queue length	0.26					0.14		0.16
Control Delay (s/veh)	8.4					28.4		11.0
LOS	A					D		B
Approach Delay (s/veh)	--	--				14.1		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R. Dickinson			Intersection	US 2 & Southridge Rd			
Agency/Co.	Lamoureux & Dickinson			Jurisdiction	Williston			
Date Performed	11/20/2017			Analysis Year	2025 Build			
Analysis Time Period	PM							
Project Description 17116								
East/West Street: Williston Rd				North/South Street: Southridge Rd				
Intersection Orientation: East-West				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	107	711			419	12		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	107	711	0	0	419	12		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	1	0	0	1	0		
Configuration	L	T				TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				8		39		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	0	0	0	8	0	39		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	107					8		39
C (m) (veh/h)	1139					152		634
v/c	0.09					0.05		0.06
95% queue length	0.31					0.17		0.20
Control Delay (s/veh)	8.5					30.0		11.1
LOS	A					D		B
Approach Delay (s/veh)	--	--				14.3		
Approach LOS	--	--				B		