

County State Aid Highway 30 (Diffley Road) and Dodd Road Intersection Study

**City of Eagan,
Dakota County, Minnesota**

Date: March 2012
Project No. 14957.000

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**County State Aid Highway 30 (Diffley Road) and
Dodd Road Intersection Study**

**City of Eagan,
Dakota County, Minnesota**

CERTIFICATION

I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.



Bryant J. Ficek, P.E.

License Number: 42802 Date: 15 Mar '12

County State Aid Highway 30 (Diffley Road) and Dodd Road Intersection Study

City of Eagan, Dakota County, Minnesota

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Traffic Analyses

County State Aid Highway 30 (Diffley Road) and Dodd Road Intersection Study

City of Eagan, Dakota County, Minnesota

A. Purpose

The Dakota County Transportation Department, along with the City of Eagan, has determined that the intersection of County State Aid Highway (CSAH) 30 (Diffley Road) and Dodd Road be assessed to determine the need and timeline of intersection traffic control and/or geometric improvement. The intersection's existing all-way stop control and high peak period volumes make it a candidate to be reviewed for proper control and capacity. Consistent with the goals and strategies of the Dakota County Transportation Plan, this study examines the intersection to determine:

- The existing and projected operations under the current characteristics and traffic control
- The need for improved geometry or traffic control, either now or in the future

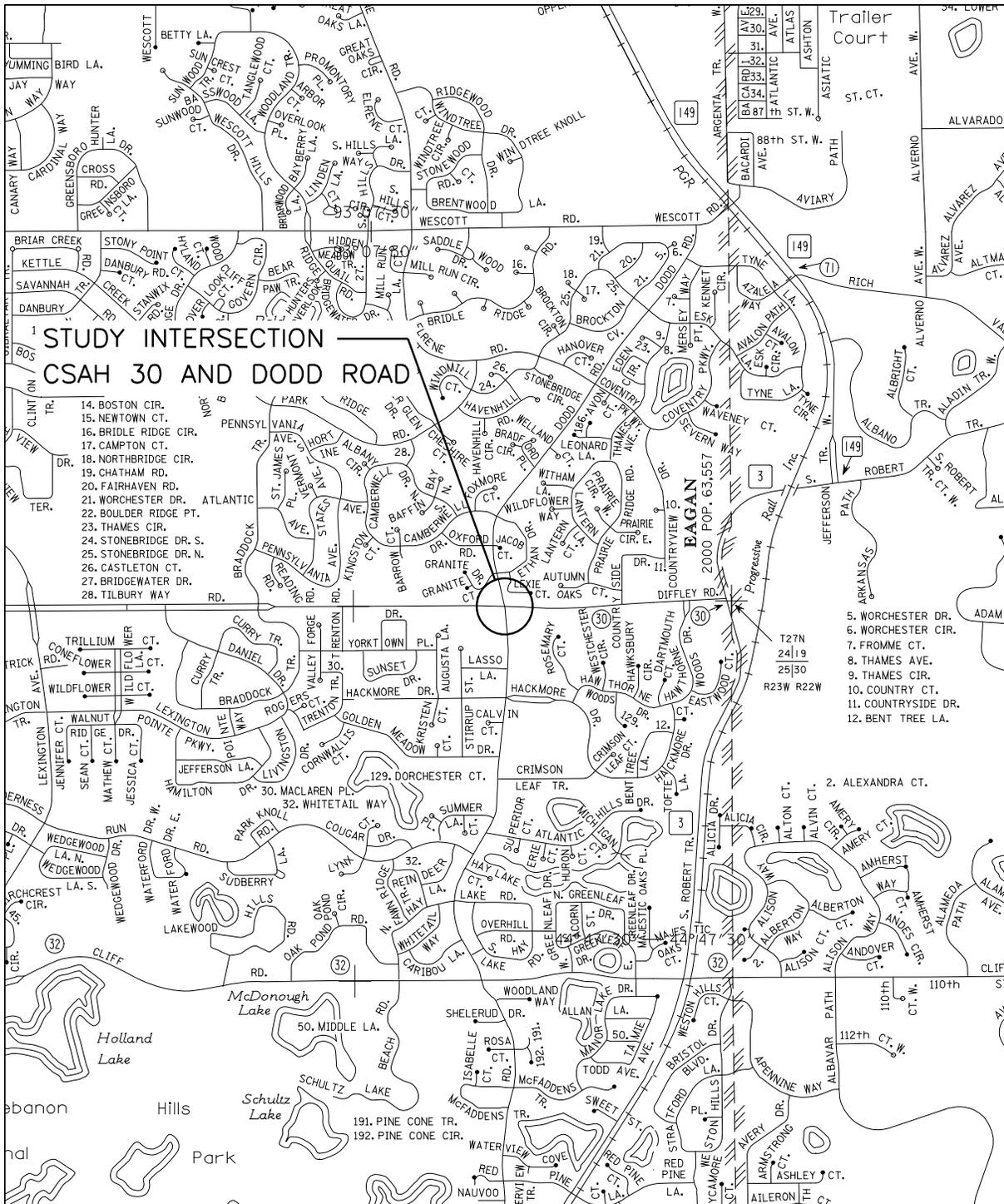
B. Description of Location

The intersection of CSAH 30 and Dodd Road is located in the City of Eagan, Dakota County. The intersection is approximately 1/2 mile west of the CSAH 30 and TH 3 intersection. Figure 1 shows the location of this intersection.

C. Traffic Volumes

Intersection turning movement counts and hourly approach counts were collected by the County in July 2011. The full data from each count is provided in the Appendix. See Figure 2 for the existing peak hour and daily counts for this study intersection.

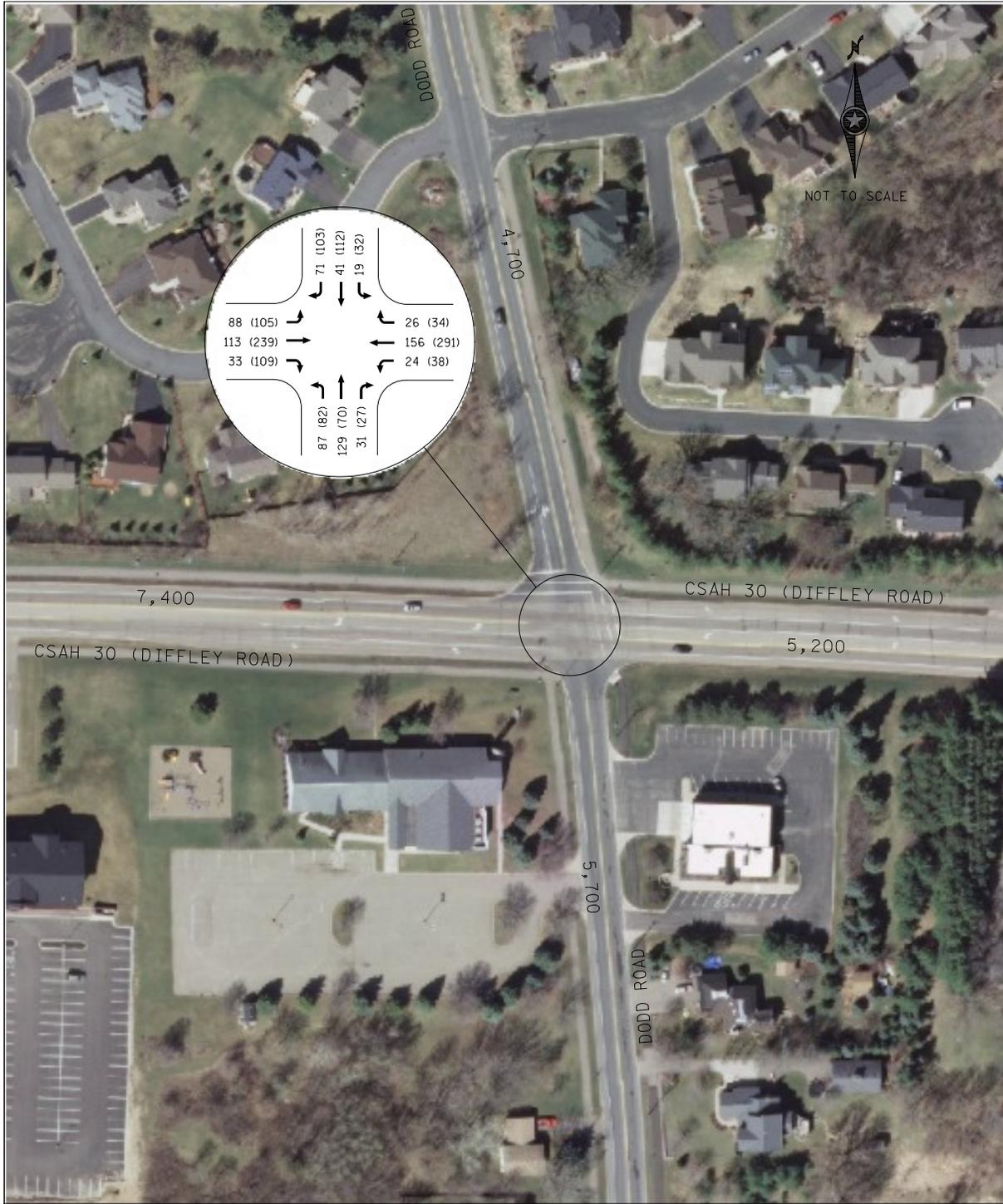
Projected daily traffic for the year 2030 was also provided by the County. Using the ratio of expected traffic increase from existing to 2030, the projected peak hour volumes for year 2030 were also determined. Figure 3 shows the projected 2030 volumes for this study intersection.



**FIGURE 1
PROJECT LOCATION**



**CITY OF EGAN
DAKOTA COUNTY**



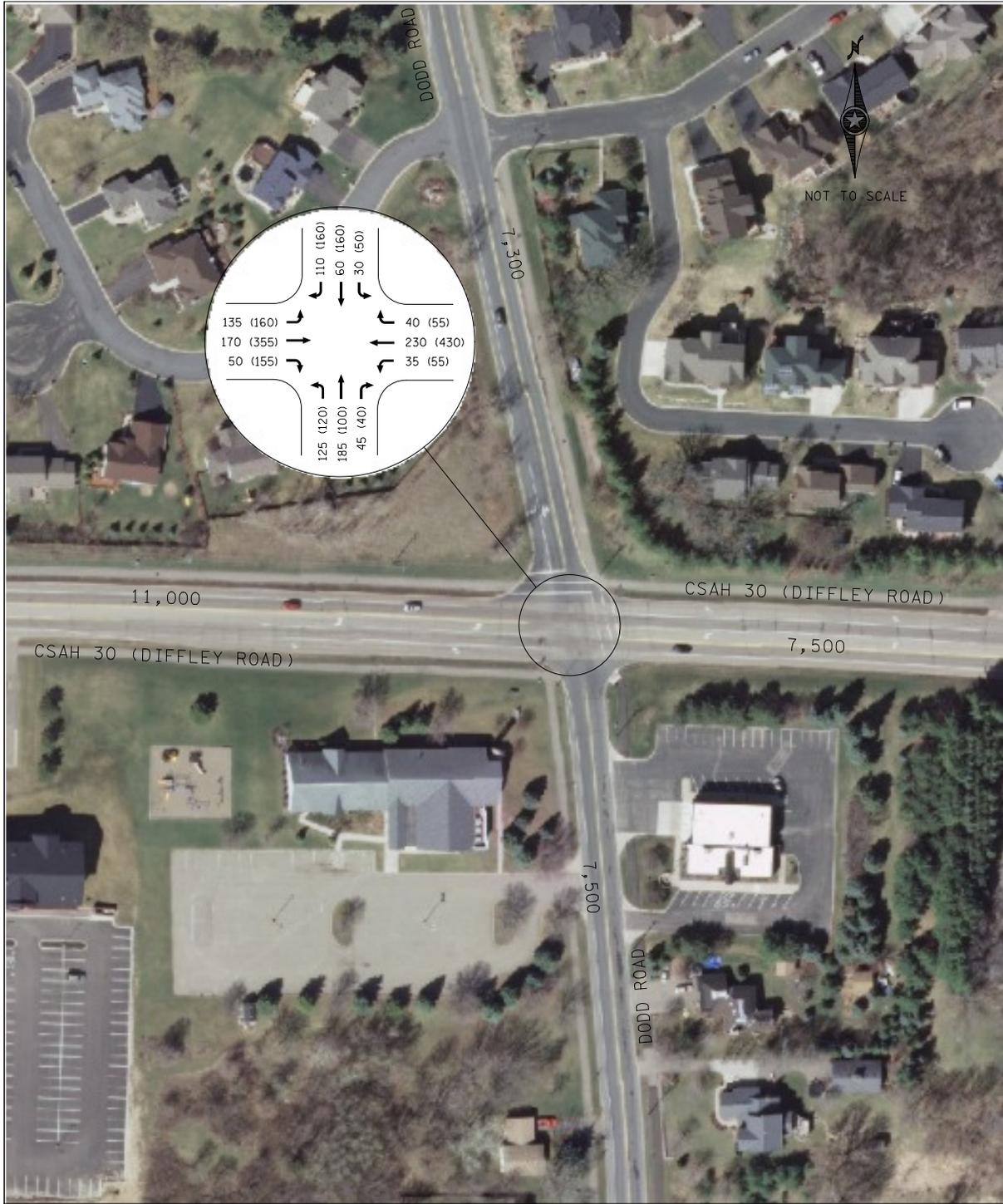
AM PEAK

 (PM PEAK)

 XX (XX)

 X,XXX - AVERAGE DAILY TRAFFIC

FIGURE 2
EXISTING TRAFFIC VOLUMES



AM PEAK
 (PM PEAK)
 XX (XX)
 X,XXX - AVERAGE DAILY TRAFFIC

NOTE: TURNING MOVEMENT VOLUMES HAVE BEEN ROUNDED.

FIGURE 3
2030 PROJECTED VOLUMES

D. Existing Conditions

CSAH 30 is an east-west, two-lane, undivided roadway designated as a B Minor Arterial. The posted speed limit is 45 mph. Dodd Road is a north-south, two-lane, undivided roadway. It is designated as a Minor Collector by the City. The posted speed limit is 45 mph to the north of CSAH 30 and 40 mph to the south of CSAH 30.

The intersection of these two roadways is under all-way stop sign control. Each approach on CSAH 30 to the intersection provides one exclusive left-turn lane, one through lane, and one exclusive right-turn lane. The southbound approach on Dodd Road provides one combined left-turn/through lane and one exclusive right-turn lane. The northbound approach on Dodd Road provides one lane for all movements.

A trail is provided on the east and west sides of Dodd Road to the south of CSAH 30 and on the east side to the north of CSAH 30. Trails are also provided on both sides of CSAH 30 to the west of Dodd Road and on the north side of CSAH 30 to the east of Dodd Road. Marked crossings are provided on all sides of the intersection. The intersection is primarily surrounded by residences, although two churches are nearby, to the southwest. City of Eagan Firehouse #4 is also located in the southeast quadrant of the intersection.

Operations at the intersection were observed on September 27, 2011, during evening peak period and on September 28, 2011, during the morning peak period. The key observations include:

- Traffic operations appeared generally acceptable without long delays or stacking of vehicles.
- Pedestrians and/or bicyclists were able to cross any direction relatively easily since all vehicles are required to stop at the intersection.
- Any vehicle stacking quickly dissipated and the maximum number of vehicles stacked at one time in any one lane was seven.

The complete intersection observations are provided in the Appendix.

In addition to observations of the intersection, the existing volumes, safety, and operations are reviewed below.

The review of volumes uses information from the *Minnesota Manual on Uniform Traffic Control Devices*, where thresholds are outlined for when it may be appropriate for a traffic control device at an intersection. The criteria, also called warrants, are applicable for all-way stop control and traffic signal control. Generally, one or more warrants must be satisfied before all-way stop or traffic signal control is considered, although meeting one or more warrants does not in itself require installation of a traffic control device.

For this analysis, the major roadway is CSAH 30 and the minor roadway is Dodd Road. Two or more lanes are assumed for every approach. Although the northbound approach on Dodd Road currently has one lane, it is likely the approach would be expanded if a traffic signal were to be installed. Therefore, two or more lanes of approach were assumed for this leg. The posted speed of 45 mph on CSAH 30 results in a 70 percent reduction in warrant volume thresholds. Dakota County uses the method of 100 percent reduction to right-turning volume from the side street, reflecting ease of this movement in

comparison with the through and left-turning movements. So, all right-turning volume on Dodd Road has been removed for the analysis.

The traffic signal warrants were first examined using existing traffic and the results are shown in Table 1. No volume warrants were satisfied under these conditions. The full warrant analysis is provided in the Appendix.

Table 1: CSAH 30 and Dodd Road Existing Warrant Analysis

Warrant	Existing Volumes
Warrant 1 – 8-Hour Volume	No (3 of 8 hrs)
Warrant 2 – 4-Hour Volume	No (2 of 4 hrs)
Warrant 3 – Peak Hour Volume	No (0 of 1 hr)

Note: Yes or No indicates whether the warrant is satisfied or not. The parentheses indicate how many of the required hours are met.

The crashes for the years 2008 to 2010 were provided by the County and examined. The crash diagram for the intersection is provided in the Appendix.

Thirteen State reported crashes occurred at this intersection during the three study years. Table 2 presents the existing crash rate for this intersection. The average all-way stop control intersection crash rates for Mn/DOT Metro District and the state are presented for comparison.

In addition to the average rates, the critical crash rate is presented. This is a statistically adjusted crash rate designed to account for the random nature of crashes. A crash rate above the calculated critical crash rate identifies the intersection as potentially hazardous, with a statistically significant higher rate of crashes. The critical crash rate shown is calculated to a 90 percent confidence level.

Table 2: CSAH 30 and Dodd Road Crash Rate Comparison

	Crash Rate
CSAH 30 and Dodd Road Intersection	1.03/MEV
Benchmarks	
Metro District	0.50/MEV
State	0.54/MEV
Critical Crash Rate	0.80/MEV

Note: MEV stands for Million Entering Vehicles

Finally, the study intersection was analyzed with the existing peak hour volumes and characteristics. The Synchro/SimTraffic software package was used for this analysis and provided results in terms of levels of service (LOS), delay times, and expected vehicle queues. LOS is a qualitative measurement designed as a report card assessment of traffic operations. LOS A represents the best operations with little to no delay, while LOS F represents the worst operations with excessive congestion. Generally, an intersection

LOS D is considered acceptable. Table 3 shows the results of the existing peak hour analysis.

Table 3: CSAH 30 and Dodd Road Existing Operations Analysis

	Overall Intersection Results		Worst Individual Movement				
	LOS	Delay (sec.)	App.	LOS	Delay (sec.)	Ave. Queue (ft)	95 %ile Queue (ft) ¹
Existing Volumes							
AM Peak Hour	A	8.9	EBT	B	10.5	30	55
PM Peak Hour	B	11.8	WBT	B	14.3	62	108

¹ 95 %ile Queue represents a distance that vehicle stacking is at or below 95 percent of the time.

The traffic model was calibrated to reflect actual observed conditions. As shown, the intersection currently operates at an acceptable level of service. It is important to note that the delay times are an average. Individual motorists will have delays above or below this time. The full results are provided in the Appendix.

E. Analysis of Alternatives

The analysis of alternatives takes into consideration several elements including traffic volumes, overall intersection operations, geometrics, and safety. Methods used to evaluate these include analysis of warrants, crash data, and vehicle delay.

Warrant Analysis

As mentioned, warrants are available for all-way stop control and traffic signal control. Currently, no warrants exist for the installation of roundabouts, which can be considered both a traffic control device and a roadway feature. However, the Minnesota Department of Transportation (Mn/DOT) states in its Intersection Control Evaluation procedures that roundabouts are considered warranted if traffic volumes meet the criteria for either all-way stop or traffic signal control.

Using an assumption of straight-line growth from existing to projected 2030 volumes, the warrants were reexamined to determine what year each volume warrant would be satisfied. Table 4 shows the results of these analyses along with the earlier results using the existing volumes for comparison.

Table 4: CSAH 30 and Dodd Road Warrant Analysis Summary

Warrant	Existing Volumes	Projected 2016 Volumes	Projected 2020 Volumes	Projected 2021 Volumes
Warrant 1 – 8-Hour Volume	No (3 of 8 hrs)	No (6 of 8 hrs)	Yes (8 of 8 hrs)	Yes (9 of 8 hrs)
Warrant 2 – 4-Hour Volume	No (2 of 4 hrs)	No (3 of 4 hrs)	No (3 of 4 hrs)	Yes (5 of 8 hrs)
Warrant 3 – Peak Hour Volume	No (0 of 1 hr)	Yes (1 of 1 hr)	Yes (1 of 1 hr)	Yes (2 of 1 hr)

Note: Yes or No indicates whether the warrant is satisfied or not. The parentheses indicate how many of the required hours are met.

Based on the above assumptions and analyses, the intersection of CSAH 30 and Dodd Road will not begin to meet the volume warrants until 2016, with the Eight Hour Warrant not satisfied until 2020.

Although not meeting warrants immediately does not necessarily exclude a change in traffic control, it does suggest that the current intersection control is adequate for the existing volumes. The full warrant analyses for projected years 2016, 2020, and 2021 are provided in the Appendix.

Safety Analysis

A safety analysis generally consists of examining past crash history and future crash potential. As mentioned, thirteen State reported crashes occurred at this intersection during the three study years. Table 2 previously presented the crash rate for this intersection and several benchmark comparisons. The table shows that the crash rate is higher than the expected average and the calculated critical crash rate for this type of intersection. This indicates a potential issue that could be correctable. Examining the crashes, the most common type of crash (eight of the 13 crashes) was a right-angle/left-turn crash between a northbound vehicle and an eastbound vehicle. All of these crashes occurred during clear weather and dry conditions. The crashes did not happen at a consistent time of the day. The majority of the crashes were the fault of the eastbound motorist. The review of detailed crash information did not identify a common theme or trend, except for the directions and type of crashes.

A further review of the sight distance at the intersection found it to be acceptable. Based upon site observations and the review of sight lines, no site characteristics that could lead to these crashes were found and, therefore, no engineering solutions are readily apparent. The crashes at the intersection should continue to be monitored to see if a particular trait becomes noticeable and could then be corrected.

The potential future crashes for different types of traffic control were examined using several different methods:

- The actual crash and severity rates from years 2008 to 2010, as presented earlier.
- The Mn/DOT State Aid “Green Sheets,” which present average crash and severity rates for different types of intersections within the Metro area.
- The Federal Highway Administration’s (FHWA) Reduction Factors as presented in “Desktop Reference for Crash Reduction Factors.”
- National Cooperative Highway Research Program (NCHRP) Report 572, which presents intersection-level safety prediction models for roundabouts.

Using these different methods, the projected crashes for each type of traffic control can be examined. Table 5 shows this information for the study intersection. As shown, a roundabout would be expected to have fewer and less severe crashes.

Table 5: Crash Expectations by Traffic Control Type for the CSAH 30 and Dodd Road Intersection

Scenario	Fatal	A Injury	B Injury	C Injury	Property Damage	Total	Crash Rate	Severity Rate
Existing*								
Existing Volumes	0	0	0 – 1	1	3	4 – 5	1.03	1.43
2030 Volumes	0	0	0 – 1	1 – 2	4	5 – 7	1.03	1.43
Mn/DOT Averages**								
2030 No Build (All-Way Stop)	0	0	0 – 1	1	2	3	0.50	0.70
2030 Signal Option	0	0	0 – 1	1	2 – 3	3 – 4	0.60	0.90
2030 Roundabout Option	0	0	0 – 1	1	1 – 2	2 – 3	0.37	0.54
FHWA Reduction Factors***								
2030 Signal Option (range)	0	0	0 – 1	1	2 – 4	3 – 5	0.57-0.83	0.79-1.14
NCHRP 572****								
2030 Roundabout Option		0 – 1			3	3 – 4	0.55	0.82

* Crash Rate and Severity Rate based on actual crash data from years 2008 to 2010.

** Mn/DOT Averages reflect the Mn/DOT Metro average Crash and Severity Rates.

*** FHWA Reduction Factors reflect changes in the existing crashes from the “Desktop Reference for Crash Reduction Factors.”

**** NCHRP Report 572, Intersection-level safety prediction models.

Operational Analysis

The study intersection analysis results using the existing peak hour volumes and characteristics were shown previously in this report. As shown, the intersection currently operates at an acceptable level of service.

Another analysis was then performed examining the existing geometry and traffic control with future volumes. Three timeframes were sought: the year an individual movement is expected to have a poor LOS, the year the intersection as a whole is expected to have a poor LOS, and the expected operations at year 2030. As with the warrant analysis, a straight-line growth from existing to 2030 projected volumes was assumed. Table 6 shows the results of these analyses with the existing results for comparison purposes.

Table 6: CSAH 30 and Dodd Road Operations Analyses with Existing Traffic Control

	Overall Intersection Results		Worst Individual Movement				
	LOS	Delay (sec.)	App.	LOS	Delay (sec.)	Ave. Queue (ft)	95 %ile Queue (ft) ¹
Existing Volumes							
AM Peak Hour	A	8.9	EBT	B	10.5	30	55
PM Peak Hour	B	11.8	WBT	B	14.3	62	108
Proj. 2026 Volumes							
AM Peak Hour	B	11.3	WBT	B	13.2	50	85
PM Peak Hour	C	23.0	WBT	E	42.6	171	338
Proj. 2029 Volumes							
AM Peak Hour	B	12.8	NBT	C	16.1	85	160
PM Peak Hour	E	40.7	WBT	F	111.0	401	818
Proj. 2030 Volumes							
AM Peak Hour	B	13.1	NBT	C	16.5	88	191
PM Peak Hour	F	54.0	WBT	F	159.9	578	1,062

¹ 95 %ile Queue represents a distance that vehicle stacking is at or below 95 percent of the time.

As shown, traffic operations are expected to be satisfactory until year 2026, when the through traffic on CSAH 30 begins to experience higher than desired delays. In projected year 2029, the poor operations are expected to cause the entire intersection to have a LOS E. Projected year 2030 is similar to 2029, except that the delays continue to increase. The full results of these analyses are provided in the Appendix.

A final analysis was undertaken examining appropriate different types of intersection traffic control and geometrics for the intersection. For this study, three different scenarios were reviewed:

- Improved geometry with all-way stop control assuming one left-turn lane, one through lane, and one through/right-turn lane on CSAH 30 and assuming one left-turn lane, one through lane, and one right-turn lane on Dodd Road
- Traffic signal control assuming three lanes on every approach: one left-turn lane, one through lane, and one right-turn lane
- Roundabout control assuming single lane entry, a circulating lane, and an exit lane for every direction

The all-way stop and traffic signal control scenario was examined using Synchro/SimTraffic for each peak hour analysis. For the roundabout scenario, the software RODEL was used. Table 7 shows the results of these analyses.

Table 7: CSAH 30 and Dodd Road Operations Analyses with Different Traffic Control

	Overall Intersection Results		Worst Individual Movement				
	LOS	Delay (sec.)	App.	LOS	Delay (sec.)	Ave. Queue (ft)	95 %ile Queue (ft) ¹
Existing Control							
Existing Volumes							
AM Peak Hour	A	8.9	EBT	B	10.5	30	55
PM Peak Hour	B	11.8	WBT	B	14.3	62	108
Proj. 2030 Volumes							
AM Peak Hour	B	13.1	NBT	C	16.5	88	191
PM Peak Hour	F	54.0	WBT	F	159.9	578	1,062
Imp. All-Way Stop							
Existing Volumes							
AM Peak Hour	A	7.7	NBL	B	10.0	32	48
PM Peak Hour	A	9.2	SBT	B	12.8	40	68
Proj. 2030 Volumes							
AM Peak Hour	A	9.5	NBL	B	11.7	40	66
PM Peak Hour	B	13.7	SBT	C	19.5	58	96
Traf. Signal Control							
Existing Volumes							
AM Peak Hour	B	12.6	SBT	C	21.7	21	49
PM Peak Hour	B	15.2	NBL	C	23.6	41	83
Proj. 2030 Volumes							
AM Peak Hour	B	15.5	SBT	C	24.7	29	66
PM Peak Hour	C	21.4	NBL	C	27.6	58	108
Roundabout Control							
Existing Volumes							
AM Peak Hour	A	3.9	NB	A	4.2		25
PM Peak Hour	A	4.8	EB	A	5.4		50
Proj. 2030 Volumes							
AM Peak Hour	A	4.7	WB	A	5.4		40
PM Peak Hour	A	7.4	EB	B	8.4		130

As shown, traffic operations would be expected to be better under any of the three improvement scenarios. In general, the roundabout does show slightly better results than the other options with either existing or projected future volumes.

It should be noted that multiple lanes with all-way stop control can be difficult for some motorists. Under the improvements assumed, a driver would have to monitor nine other approach lanes plus the two adjacent lanes to determine who has the right-of-way and the appropriate time to proceed.

F. Pedestrian/Bicycle Considerations

As detailed earlier, multiple trails are provided and crosswalks are striped on every side of the intersection. No matter which way a pedestrian or bicyclist is crossing, vehicles are under stop control and should stop for them to cross.

Of the traffic counts and observations of the intersection, up to 18 individual crossings were recorded in one hour. Crash data suggests that crossings occur relatively safely, with no pedestrian/bicycle and vehicle collisions in the three years examined. Observations confirmed that pedestrians and bicyclists using the crosswalks were generally able to cross CSAH 30 or Dodd Road easily, with minimal delays.

Based on today's conditions, additional crossing improvements do not appear warranted. However, it should be noted that the trail ramps to the intersection crossings should be reconstructed to the most current ADA design guidelines, including truncated domes, at the time of a road or trail improvement project.

If the intersection geometry is improved, but all-way stop control remains, pedestrians and bicyclists would have a similar crossing situation to today. East-west crossings would have a greater distance to cross. The experience with today's all-way stop control suggests that pedestrians and bicyclists would continue to have a satisfactory crossing experience.

If traffic control is changed in the future, both traffic signal and roundabout control offer benefits to pedestrian and bicycle crossings. Under traffic signal control, all crossings would have positive guidance as to when a pedestrian or bicyclist has the right-of-way to cross. Specific guidelines for the traffic signal timing would also allow for sufficient time for the crossing movement.

With using roundabout control for the intersection, crosswalks would be set back from the intersection, and pedestrians and bicyclists would need to wait for appropriate gaps in traffic. Roundabouts reduce driving speeds and pedestrians and bicyclists would be required to cross only one lane at a time. The location of the crosswalk farther back from the intersection and the presence of a refuge splitter island would allow pedestrians and bicyclists to focus on traffic from one direction only, further reducing vehicular exposure and improving safety.

G. Recommended Alternative

Present

Based on this analysis, presented in detail in this report, the existing traffic control at the intersection of CSAH 30 (Diffley Road) and Dodd Road is appropriate for today's traffic and into the near future with assumed traffic growth. Operations are acceptable during the peak travel time periods and no signal warrants are satisfied. Although the existing crash rate is higher than expected, no specific intersection design issues were identified by the crash data and site reviews.

Future

The intersection should continue to be reviewed, both crashes and operations. With traffic volume growth and/or safety issues as defined by the crash record, the traffic control may need to be changed in the future. The Eight Hour Vehicular Volume Warrant, the warrant most used to justify a traffic signal by Dakota County practices, is not expected to be met until at least year 2020. When it has been determined by the County that a change is needed, three alternatives for improvement should be considered: all-way stop control with improved geometry, roundabout control, or traffic signal control. Each would be expected to provide satisfactory traffic operations into the future and to maintain or improve the safety of the operations. Roundabout control would have less delay with fewer anticipated crashes as compared with the other two control options. Pedestrian/bicycle crossings at the intersection would be expected to remain about the same or even slightly improved depending upon the option selected. A reevaluation at the time of need could further explore the differences between options, including off-peak operations and benefit-cost analyses.

Trail ramps to the intersection crossings should be reconstructed to the most current ADA design guidelines with an associated trail or roadway improvement project.

APPENDIX

Intersection Observations

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Intersection Observations

Diffley Road (CSAH 30) and Dodd Road
Eagan, Dakota County, MN

Tuesday, September 27, 2011, 5:25 p.m. to 6:00 p.m.

Overcast with periodic light rain

All-way stop control

General –

Generally acceptable operations without long delays for any direction
Queues dissipated quickly
Eastbound movement had the heaviest volumes
Pedestrians/bicyclists able to cross easily

Maximum Queues –

Northbound – 3 vehicles

Southbound Left/Thru – 4 vehicles
Southbound Right – 3 vehicles

Eastbound Left – 3 vehicles
Eastbound Thru – 7 vehicles
Eastbound Right – 3 vehicles

Westbound Left – 2 vehicles
Westbound Thru – 6 vehicles
Westbound Right – 1 vehicle

Pedestrian/Bicycle Crossings –

3 peds on south crossing, west to east
3 peds on east crossing, south to north
Bicycle on east crossing, north to south
2 peds east to south, did not cross roadways
1 ped, east to south, did not cross roadways
Bicycle on west crossing, north to south

Intersection Observations

Diffley Road (CSAH 30) and Dodd Road
Eagan, Dakota County, MN

Wednesday, September 28, 2011, 7:50 a.m. to 8:30 a.m.

Sunny and clear

All-way stop control

General –

- Generally acceptable operations without long delays for any direction
- Lower overall volumes than PM peak hour
- Queues dissipated quickly
- Northbound movement had the heaviest volumes
- Pedestrians/bicyclists able to cross easily

Maximum Queues –

Northbound – 5 vehicles

Eastbound Left – 2 vehicles

Eastbound Thru – 4 vehicles

Eastbound Right – 1 vehicle

Southbound Left/Thru – 2 vehicles

Southbound Right – 2 vehicles

Westbound Left – 1 vehicle

Westbound Thru – 5 vehicles

Westbound Right – 2 vehicles

Pedestrian/Bicycle Crossings –

1 ped, west to south, did not cross roadways

Bicycle on west crossing, north to south

1 ped on north crossing, west to east

1 ped on east crossing, south to north

1 ped on north crossing, west to east

1 ped, west to south, did not cross roadways

1 ped on east crossing, north to south

1 ped, north to east, did not cross roadways

1 ped, west to south, did not cross roadways

1 ped on east crossing, north to south

APPENDIX

Traffic Counts

DAKOTA COUNTY TRANSPORTATION

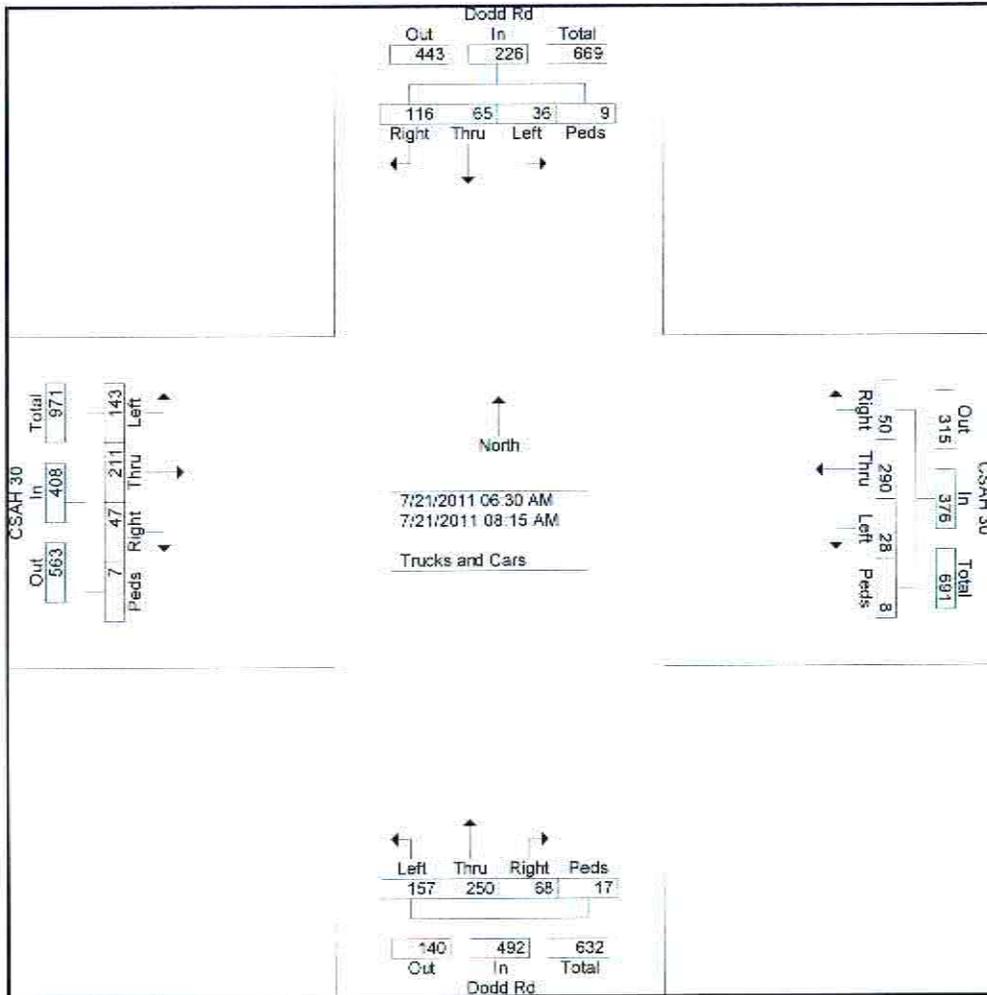
TMC TRAFFIC DATA

Location : CSAH 30 & Dodd Rd
 Date : July 21, 2011 Thursday
 Time : 6:30-8:30 AM
 Weather: Mostly Clear, 70 F

File Name : CSAH 30 and Dodd Rd AM
 Site Code : 07211101
 Start Date : 7/21/2011
 Page No : 1

Groups Printed- Trucks and Cars

Start Time	Dodd Rd Southbound					CSAH 30 Westbound					Dodd Rd Northbound					CSAH 30 Eastbound					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	
06:30 AM	0	5	7	2	14	0	38	2	0	40	10	29	10	5	54	9	18	2	0	29	137
06:45 AM	5	6	8	1	20	1	37	8	1	47	20	28	12	1	61	10	27	4	1	42	170
Total	5	11	15	3	34	1	75	10	1	87	30	57	22	6	115	19	45	6	1	71	307
07:00 AM	4	4	12	1	21	2	34	8	3	47	22	33	3	3	61	16	29	4	0	49	178
07:15 AM	8	9	18	0	35	1	25	6	1	33	18	31	12	2	63	20	24	4	2	50	181
07:30 AM	2	7	17	4	30	5	36	5	0	46	18	32	15	0	65	13	34	11	0	58	199
07:45 AM	10	7	14	0	31	4	35	4	0	43	21	41	5	1	68	22	29	6	0	57	199
Total	24	27	61	5	117	12	130	23	4	169	79	137	35	6	257	71	116	25	2	214	757
08:00 AM	5	11	17	1	34	12	38	11	2	63	26	28	5	2	61	27	22	10	1	60	218
08:15 AM	2	16	23	0	41	3	47	6	1	57	22	28	6	3	59	26	28	6	3	63	220
Grand Total	36	65	116	9	226	28	290	50	8	376	157	250	68	17	492	143	211	47	7	408	1502
Approch %	15.9	28.8	51.3	4		7.4	77.1	13.3	2.1		31.9	50.8	13.8	3.5		35	51.7	11.5	1.7		
Total %	2.4	4.3	7.7	0.6	15	1.9	19.3	3.3	0.5	25	10.5	16.6	4.5	1.1	32.8	9.5	14	3.1	0.5	27.2	

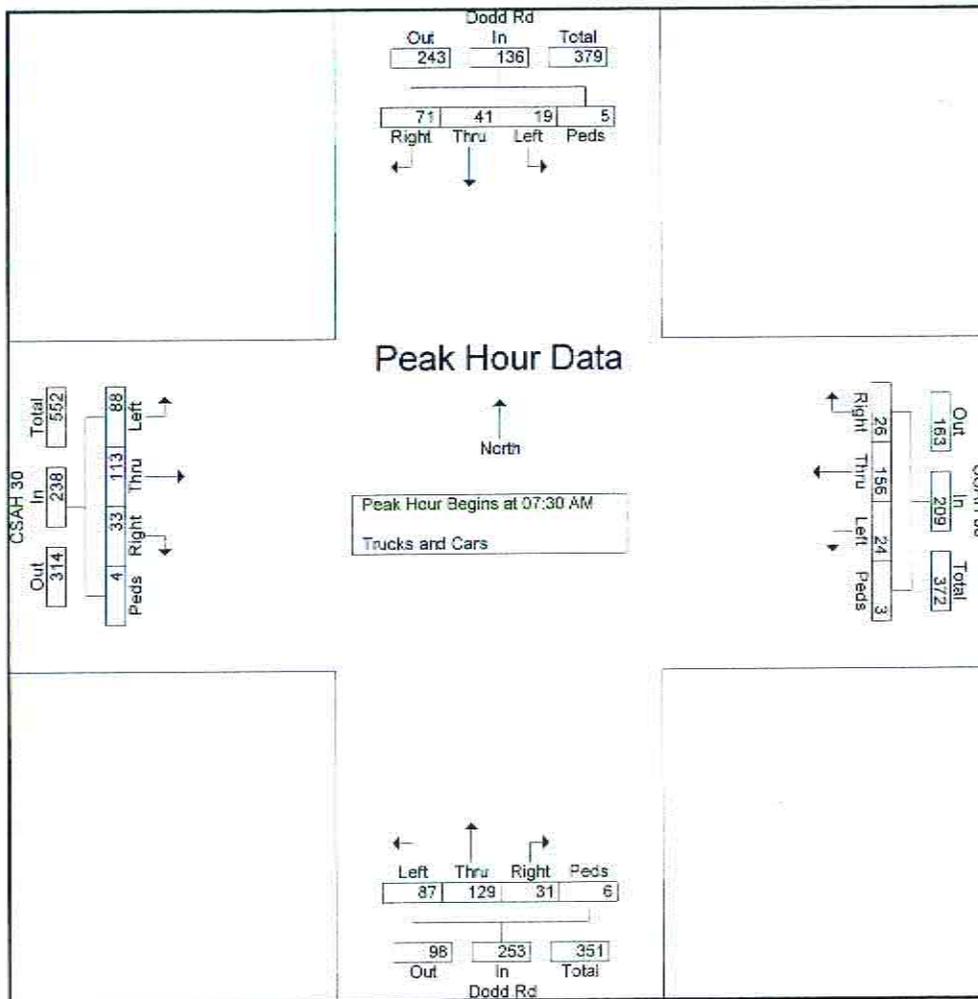


DAKOTA COUNTY TRANSPORTATION

TMC TRAFFIC DATA

File Name : CSAH 30 and Dodd Rd AM
 Site Code : 07211101
 Start Date : 7/21/2011
 Page No : 2

Start Time	Dodd Rd Southbound					CSAH 30 Westbound					Dodd Rd Northbound					CSAH 30 Eastbound					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	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	7	17	4	30	5	36	5	0	46	18	32	15	0	65	13	34	11	0	58	199
07:45 AM	10	7	14	0	31	4	35	4	0	43	21	41	5	1	68	22	29	6	0	57	199
08:00 AM	5	11	17	1	34	12	38	11	2	63	26	28	5	2	61	27	22	10	1	60	218
08:15 AM	2	16	23	0	41	3	47	6	1	57	22	28	6	3	59	26	28	6	3	63	220
Total Volume	19	41	71	5	136	24	156	26	3	209	87	129	31	6	253	88	113	33	4	238	836
% App. Total	14	30.1	52.2	3.7		11.5	74.6	12.4	1.4		34.4	51	12.3	2.4		37	47.5	13.9	1.7		
PHF	.475	.641	.772	.313	.829	.500	.830	.581	.375	.829	.837	.787	.517	.500	.930	.815	.831	.750	.333	.944	.950



DAKOTA COUNTY TRANSPORTATION

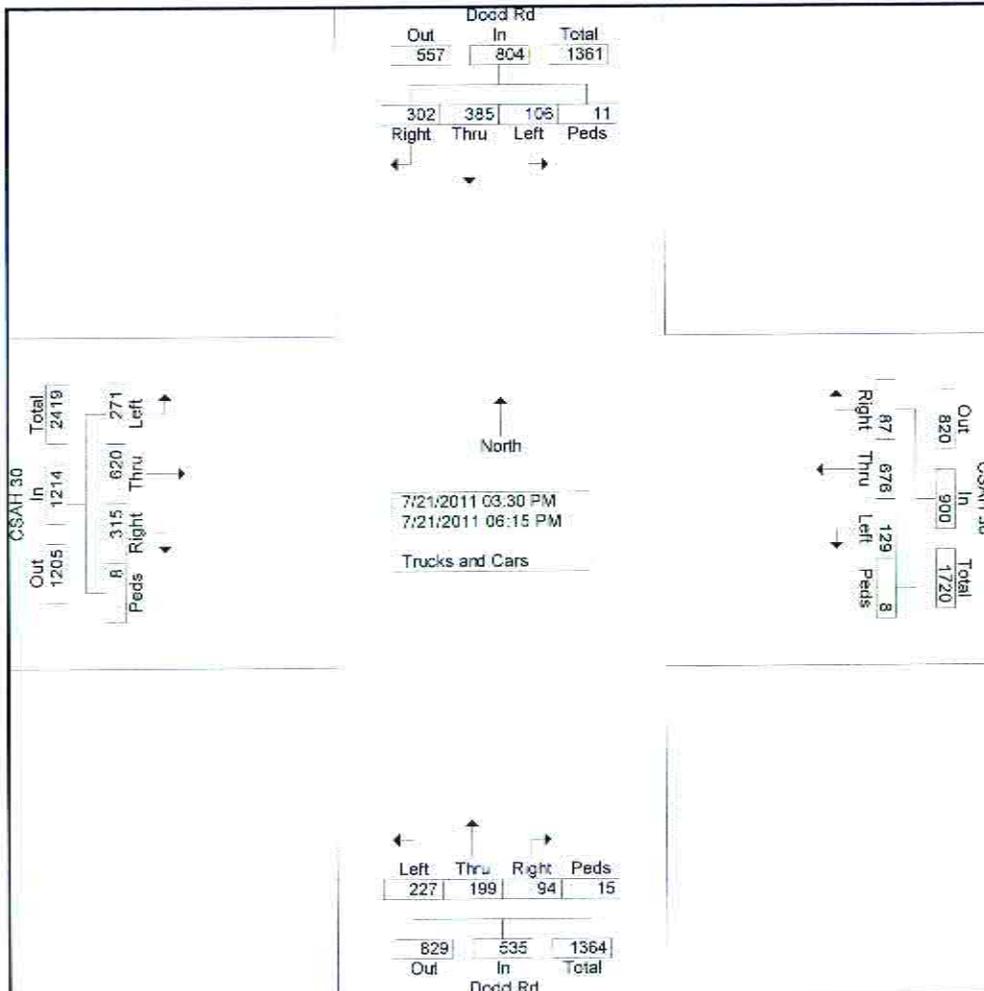
TMC TRAFFIC DATA

Location : CSAH 30 & Dodd Rd
 Date : July 21, 2011 Thursday
 Time : 3:30-6:30 PM
 Weather: Mostly Clear, 84 F

File Name : CSAH 30 and Dodd Rd PM
 Site Code : 07211103
 Start Date : 7/21/2011
 Page No : 1

Groups Printed- Trucks and Cars

Start Time	Dodd Rd Southbound					CSAH 30 Westbound					Dodd Rd Northbound					CSAH 30 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Inl. Total
03:30 PM	9	22	19	0	50	5	42	4	0	51	17	13	7	2	39	14	48	30	0	92	232
03:45 PM	8	29	21	3	61	7	45	6	1	59	19	22	10	3	54	18	44	20	0	82	256
Total	17	51	40	3	111	12	87	10	1	110	36	35	17	5	93	32	92	50	0	174	488
04:00 PM	4	33	17	0	54	15	38	5	0	58	15	18	9	3	45	27	56	33	2	118	275
04:15 PM	13	33	25	0	71	9	51	10	1	71	18	16	5	0	39	28	42	24	1	95	276
04:30 PM	3	38	28	3	72	12	38	8	0	58	20	10	12	1	43	16	58	22	2	98	271
04:45 PM	17	50	38	0	105	20	45	5	0	70	14	17	6	0	37	24	48	30	0	102	314
Total	37	154	108	3	302	56	172	28	1	257	67	61	32	4	164	95	204	109	5	413	1136
05:00 PM	14	37	31	1	83	13	66	8	0	87	24	14	9	0	47	18	47	25	0	90	307
05:15 PM	10	46	24	1	81	16	62	5	2	85	17	17	8	0	42	26	63	35	0	124	332
05:30 PM	8	28	29	1	66	5	66	10	0	81	17	20	9	2	48	19	61	22	1	103	298
05:45 PM	5	22	20	1	48	8	81	11	4	104	29	18	5	3	55	37	51	21	0	109	316
Total	37	133	104	4	278	42	275	34	6	357	87	69	31	5	192	100	222	103	1	426	1253
06:00 PM	9	16	30	0	55	9	82	8	0	99	19	15	5	0	39	23	64	31	2	120	313
06:15 PM	6	31	20	1	58	10	60	7	0	77	18	19	9	1	47	21	38	22	0	81	263
Grand Total	106	385	302	11	804	129	676	87	8	900	227	199	94	15	535	271	620	315	8	1214	3453
Apprch %	13.2	47.9	37.6	1.4		14.3	75.1	9.7	0.9		42.4	37.2	17.6	2.8		22.3	51.1	25.9	0.7		
Total %	3.1	11.1	8.7	0.3	23.3	3.7	19.6	2.5	0.2	26.1	6.6	5.8	2.7	0.4	15.5	7.8	18	9.1	0.2	35.2	

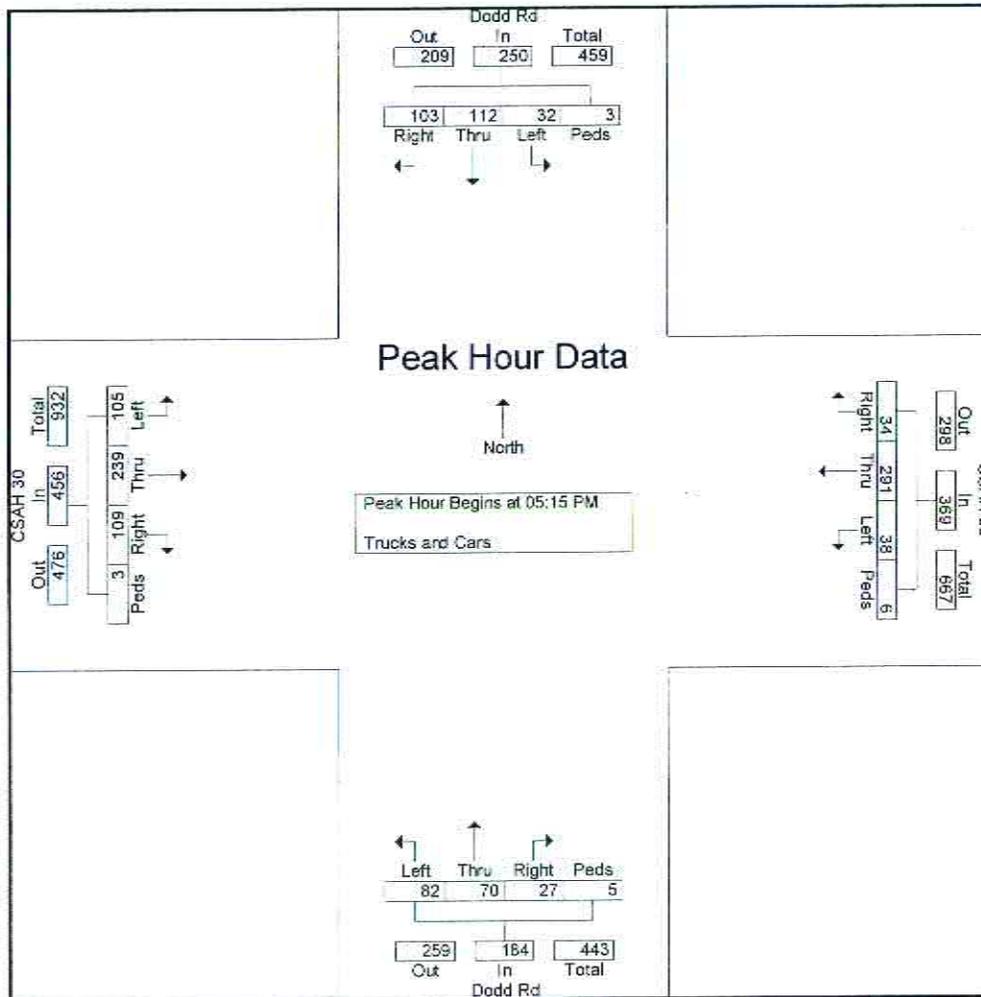


DAKOTA COUNTY TRANSPORTATION

TMC TRAFFIC DATA

File Name : CSAH 30 and Dodd Rd PM
 Site Code : 07211103
 Start Date : 7/21/2011
 Page No : 2

Start Time	Dodd Rd Southbound					CSAH 30 Westbound					Dodd Rd Northbound					CSAH 30 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	10	46	24	1	81	16	62	5	2	85	17	17	8	0	42	26	63	35	0	124	332
05:30 PM	8	28	29	1	66	5	66	10	0	81	17	20	9	2	48	19	61	22	1	103	298
05:45 PM	5	22	20	1	48	8	81	11	4	104	29	18	5	3	55	37	51	21	0	109	316
06:00 PM	9	16	30	0	55	9	82	8	0	99	19	15	5	0	39	23	64	31	2	120	313
Total Volume	32	112	103	3	250	38	291	34	6	369	82	70	27	5	184	105	239	109	3	456	1259
% App. Total	12.8	44.8	41.2	1.2		10.3	78.9	9.2	1.6		44.6	38	14.7	2.7		23	52.4	23.9	0.7		
PHF	.800	.609	.858	.750	.772	.594	.867	.773	.375	.887	.707	.675	.750	.417	.836	.709	.934	.779	.375	.919	.948



DAKOTA COUNTY TRANSPORTATION

TRAFFIC

TRAFFIC COUNT DATA

Road: : CSAH 30
 Location: : West of Dodd Rd EB
 Notes: : Approach

Site: 2011218
 Date: 07/18/11

Interval	Mon 18	Tue 19	Wed 20	Thu 21	Fri 22	Sat 23	Sun 24	Weekday Avg.								
Begin	EB															
12:AM	*	*	*	*	0	25	0	36	*	*	*	*	0	30		
01:00	*	*	*	*	0	14	0	23	*	*	*	*	0	18		
02:00	*	*	*	*	0	10	0	11	*	*	*	*	0	10		
03:00	*	*	*	*	0	3	0	6	*	*	*	*	0	4		
04:00	*	*	*	*	0	7	0	11	*	*	*	*	0	9		
05:00	*	*	*	*	0	28	0	36	*	*	*	*	0	32		
06:00	*	*	*	*	0	116	0	100	*	*	*	*	0	108		
07:00	*	*	*	*	0	212	0	209	*	*	*	*	0	210		
08:00	*	*	*	*	0	234	0	194	*	*	*	*	0	214		
09:00	*	*	*	*	0	216	0	208	*	*	*	*	0	212		
10:00	*	*	*	*	0	217	0	200	*	*	*	*	0	208		
11:00	*	*	*	*	0	276	0	284	*	*	*	*	0	280		
12:PM	*	*	*	*	0	270	0	338	*	*	*	*	0	304		
01:00	*	*	*	*	0	272	0	232	0	313	*	*	*	0	272	
02:00	*	*	*	*	0	238	0	266	*	*	*	*	0	252		
03:00	*	*	*	*	0	296	0	334	*	*	*	*	0	315		
04:00	*	*	*	*	0	408	0	402	*	*	*	*	0	405		
05:00	*	*	*	*	0	420	0	443	*	*	*	*	0	431		
06:00	*	*	*	*	0	366	0	366	*	*	*	*	0	366		
07:00	*	*	*	*	0	315	0	300	*	*	*	*	0	307		
08:00	*	*	*	*	0	341	0	322	*	*	*	*	0	331		
09:00	*	*	*	*	0	280	0	290	*	*	*	*	0	285		
10:00	*	*	*	*	0	118	0	169	*	*	*	*	0	143		
11:00	*	*	*	*	0	66	0	91	*	*	*	*	0	78		
Totals	0	0	0	0	0	3,120	0	4,843	0	1,969	0	0	0	0	4,824	
Combined	0	0	0	0	0	3,120	0	4,843	0	1,969	0	0	0	0	4,824	
Split %	0.0	0.0	0.0	0.0	0.0	100	0.0	100	0.0	100	0.0	0.0	0.0	0.0	100	
AM																
Peak Hr	*	*	*	*	*	-1:00	11:00	11:00	11:00	*	*	*	*	11:00	11:00	
Volume	*	*	*	*	*	0	276	0	284	*	*	*	*	0	280	
PM																
PeakHr	*	*	*	*	-1:00	05:00	05:00	05:00	05:00	12:00	*	*	*	*	12:00	05:00
Volume	*	*	*	*	0	420	0	443	0	338	*	*	*	*	0	431

DAKOTA COUNTY TRANSPORTATION

TRAFFIC TRAFFIC COUNT DATA

Road: : CSAH 30
 Location: : East of Dodd Rd WB
 Notes: : Approach

Site: 2011219
 Date: 07/18/11

Interval	Mon 18		Tue 19		Wed 20		Thu 21		Fri 22		Sat 23		Sun 24		Weekday Avg.	
Begin	WB		WB		WB		WB		WB		WB		WB		WB	
12:AM	*	*	*	*	*	*	0	22	0	26	*	*	*	*	0	24
01:00	*	*	*	*	*	*	0	14	0	18	*	*	*	*	0	16
02:00	*	*	*	*	*	*	0	4	0	8	*	*	*	*	0	6
03:00	*	*	*	*	*	*	0	4	0	3	*	*	*	*	0	3
04:00	*	*	*	*	*	*	0	14	0	6	*	*	*	*	0	10
05:00	*	*	*	*	*	*	0	32	0	29	*	*	*	*	0	30
06:00	*	*	*	*	*	*	0	118	0	104	*	*	*	*	0	111
07:00	*	*	*	*	*	*	0	168	0	160	*	*	*	*	0	164
08:00	*	*	*	*	*	*	0	229	0	192	*	*	*	*	0	210
09:00	*	*	*	*	*	*	0	176	0	188	*	*	*	*	0	182
10:00	*	*	*	*	*	*	0	170	0	182	*	*	*	*	0	176
11:00	*	*	*	*	*	*	0	200	0	198	*	*	*	*	0	199
12:PM	*	*	*	*	*	*	0	186	0	179	*	*	*	*	0	182
01:00	*	*	*	*	1	159	0	145	0	174	*	*	*	*	0	159
02:00	*	*	*	*	0	170	0	182	0	218	*	*	*	*	0	190
03:00	*	*	*	*	0	188	0	218	*	*	*	*	*	*	0	203
04:00	*	*	*	*	0	239	0	261	*	*	*	*	*	*	0	250
05:00	*	*	*	*	0	292	0	342	*	*	*	*	*	*	0	317
06:00	*	*	*	*	0	268	0	268	*	*	*	*	*	*	0	268
07:00	*	*	*	*	0	208	0	186	*	*	*	*	*	*	0	197
08:00	*	*	*	*	0	138	0	156	*	*	*	*	*	*	0	147
09:00	*	*	*	*	0	118	0	130	*	*	*	*	*	*	0	124
10:00	*	*	*	*	0	76	0	74	*	*	*	*	*	*	0	75
11:00	*	*	*	*	0	26	0	45	*	*	*	*	*	*	0	35
Totals	0	0	0	0	1	1,882	0	3,344	0	1,685	0	0	0	0	0	3,278
Combined	0		0		1,883		3,344		1,685		0		0		3,278	
Split %	0.0	.0	0.0	.0	0.1	99.9	0.0	100	0.0	100	0.0	.0	0.0	.0	0.0	100
AM																
Peak Hr	*	*	*	*	*	*	-1:00	08:00	08:00	11:00	*	*	*	*	11:00	08:00
Volume	*	*	*	*	*	*	0	229	0	198	*	*	*	*	0	210
PM																
PeakHr	*	*	*	*	01:00	05:00	05:00	05:00	05:00	02:00	*	*	*	*	02:00	05:00
Volume	*	*	*	*	1	292	0	342	0	218	*	*	*	*	0	317

DAKOTA COUNTY TRANSPORTATION

TRAFFIC

TRAFFIC COUNT DATA

Road: : Dodd Rd
 Location: : South of CSAH 30 NB
 Notes: : Approach

Site: 2011221
 Date: 07/18/11

Interval	Direction NB							Weekday	Week
Begin	Mon 7/18	Tue 7/19	Wed 7/20	Thu 7/21	Fri 7/22	Sat 7/23	Sun 7/24	Avg	Avg
12:AM	*	*	*	9	10	*	*	9	9
1:00	*	*	*	5	7	*	*	6	6
2:00	*	*	*	7	9	*	*	8	8
3:00	*	*	*	6	3	*	*	4	4
4:00	*	*	*	13	16	*	*	14	14
5:00	*	*	*	53	33	*	*	43	43
6:00	*	*	*	153	144	*	*	148	148
7:00	*	*	*	252	228	*	*	240	240
8:00	*	*	*	208	163	*	*	185	185
9:00	*	*	*	154	131	*	*	142	142
10:00	*	*	*	125	106	*	*	115	115
11:00	*	*	*	134	144	*	*	139	139
12:PM	*	*	*	162	118	*	*	140	140
1:00	*	*	120	107	134	*	*	120	120
2:00	*	*	115	130	*	*	*	122	122
3:00	*	*	137	170	*	*	*	153	153
4:00	*	*	158	155	*	*	*	156	156
5:00	*	*	174	183	*	*	*	178	178
6:00	*	*	148	186	*	*	*	167	167
7:00	*	*	138	126	*	*	*	132	132
8:00	*	*	129	141	*	*	*	135	135
9:00	*	*	88	83	*	*	*	85	85
10:00	*	*	62	62	*	*	*	62	62
11:00	*	*	39	36	*	*	*	37	37
Totals	0	0	1,308	2,660	1,246	0	0	2,540	2,540
AM Peak	*	*	*	7:00	7:00	*	*	7:00	7:00
Volume	*	*	*	252	228	*	*	240	240
PM Peak	*	*	5:00	6:00	1:00	*	*	5:00	5:00
Volume	*	*	174	186	134	*	*	178	178

DAKOTA COUNTY TRANSPORTATION

TRAFFIC

TRAFFIC COUNT DATA

Road: : Dodd Rd
 Location: : North of CSAH 30 SB
 Notes: : Approach

Site: 2011220
 Date: 07/18/11

Interval	Mon 18	Tue 19	Wed 20	Thu 21	Fri 22	Sat 23	Sun 24	Weekday Avg.								
Begin	SB	SB	SB	SB	SB	SB	SB	SB								
12:AM	*	*	*	*	0	22	0	36	*	*	*	*	0	29		
01:00	*	*	*	*	*	7	0	12	*	*	*	*	0	9		
02:00	*	*	*	*	*	8	0	9	*	*	*	*	0	8		
03:00	*	*	*	*	*	4	0	5	*	*	*	*	0	4		
04:00	*	*	*	*	*	4	0	6	*	*	*	*	0	5		
05:00	*	*	*	*	*	16	0	19	*	*	*	*	0	17		
06:00	*	*	*	*	*	54	0	47	*	*	*	*	0	50		
07:00	*	*	*	*	*	120	0	106	*	*	*	*	0	113		
08:00	*	*	*	*	*	156	0	117	*	*	*	*	0	136		
09:00	*	*	*	*	*	96	0	93	*	*	*	*	0	94		
10:00	*	*	*	*	*	114	0	108	*	*	*	*	0	111		
11:00	*	*	*	*	*	142	0	149	*	*	*	*	0	145		
12:PM	*	*	*	*	*	130	0	130	*	*	*	*	0	130		
01:00	*	*	*	*	0	142	0	134	0	150	*	*	*	0	142	
02:00	*	*	*	*	0	104	0	138	*	*	*	*	0	121		
03:00	*	*	*	*	0	160	0	196	*	*	*	*	0	178		
04:00	*	*	*	*	0	310	0	304	*	*	*	*	0	307		
05:00	*	*	*	*	0	310	0	296	*	*	*	*	0	303		
06:00	*	*	*	*	0	194	0	214	*	*	*	*	0	204		
07:00	*	*	*	*	0	143	0	148	*	*	*	*	0	145		
08:00	*	*	*	*	0	131	0	112	*	*	*	*	0	121		
09:00	*	*	*	*	0	88	0	94	*	*	*	*	0	91		
10:00	*	*	*	*	0	87	0	94	*	*	*	*	0	90		
11:00	*	*	*	*	0	40	0	65	*	*	*	*	0	52		
Totals	0	0	0	0	0	1,709	0	2,668	0	987	0	0	0	0	2,605	
Combined	0	0	1,709	2,668	987	0	0	2,605								
Split %	0.0	0	0.0	0.0	0.0	100	0.0	100	0.0	100	0.0	0	0.0	0	0.0	100
AM																
Peak Hr	*	*	*	*	*	*	-1:00	08:00	08:00	11:00	*	*	*	*	11:00	11:00
Volume	*	*	*	*	*	*	0	156	0	149	*	*	*	*	0	145
PM																
PeakHr	*	*	*	*	-1:00	04:00	04:00	04:00	04:00	01:00	*	*	*	*	01:00	04:00
Volume	*	*	*	*	0	310	0	304	0	150	*	*	*	*	0	307

DAKOTA COUNTY TRANSPORTATION

TRAFFIC

TRAFFIC COUNT DATA

Road: : CASH 30
 Location: : West of Dodd Blvd
 Notes: : 60602

Site: 2001147
 Date: 07/05/10

DirectorBoth

Interval	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Weekday	Week
Begin	7/5	7/6	7/7	7/8	7/9	7/10	7/11	Avg	Avg
12:AM	*	*	54	62	*	*	*	58	58
1:00	*	*	26	20	*	*	*	23	23
2:00	*	*	20	20	*	*	*	20	20
3:00	*	*	19	17	*	*	*	18	18
4:00	*	*	33	28	*	*	*	30	30
5:00	*	*	76	74	*	*	*	75	75
6:00	*	*	245	288	*	*	*	266	266
7:00	*	*	510	526	*	*	*	518	518
8:00	*	*	497	473	*	*	*	485	485
9:00	*	*	375	448	*	*	*	411	411
10:00	*	444	386	502	*	*	*	444	444
11:00	*	526	451	540	*	*	*	505	505
12:PM	*	525	458	*	*	*	*	491	491
1:00	*	446	405	*	*	*	*	425	425
2:00	*	422	486	*	*	*	*	454	454
3:00	*	550	516	*	*	*	*	533	533
4:00	*	665	734	*	*	*	*	699	699
5:00	*	814	800	*	*	*	*	807	807
6:00	*	715	682	*	*	*	*	698	698
7:00	*	580	534	*	*	*	*	557	557
8:00	*	564	520	*	*	*	*	542	542
9:00	*	391	359	*	*	*	*	375	375
10:00	*	278	218	*	*	*	*	248	248
11:00	*	120	131	*	*	*	*	125	125
Totals	0	7,040	8,535	2,998	0	0	0	8,807	8,807
AM Peak	*	11:00	7:00	11:00	*	*	*	7:00	7:00
Volume	*	526	510	540	*	*	*	518	518
PM Peak	*	5:00	5:00	*	*	*	*	5:00	5:00
Volume	*	814	800	*	*	*	*	807	807

Factor = 0.89

AADT = 7,838

DAKOTA COUNTY TRANSPORTATION

TRAFFIC

TRAFFIC COUNT DATA

Road: : CSAH 30
 Location: : West of MN 3
 Notes: : 40236

Site: 2011184
 Date: 07/11/11

DirectorBoth

Interval	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Weekday	Week
Begin	7/11	7/12	7/13	7/14	7/15	7/16	7/17	Avg	Avg
12:AM	*	*	*	40	48	*	*	44	44
1:00	*	*	*	15	35	*	*	25	25
2:00	*	*	*	12	58	*	*	35	35
3:00	*	*	*	14	26	*	*	20	20
4:00	*	*	*	15	13	*	*	14	14
5:00	*	*	*	49	48	*	*	48	48
6:00	*	*	*	202	198	*	*	200	200
7:00	*	*	*	370	342	*	*	356	356
8:00	*	*	355	374	337	*	*	355	355
9:00	*	*	318	301	285	*	*	301	301
10:00	*	*	248	270	248	*	*	255	255
11:00	*	*	353	286	272	*	*	303	303
12:PM	*	*	359	308	378	*	*	348	348
1:00	*	*	296	337	*	*	*	316	316
2:00	*	*	296	331	*	*	*	313	313
3:00	*	*	400	354	*	*	*	377	377
4:00	*	*	472	464	*	*	*	468	468
5:00	*	*	610	625	*	*	*	617	617
6:00	*	*	490	530	*	*	*	510	510
7:00	*	*	326	406	*	*	*	366	366
8:00	*	*	333	365	*	*	*	349	349
9:00	*	*	260	290	*	*	*	275	275
10:00	*	*	144	144	*	*	*	144	144
11:00	*	*	94	107	*	*	*	100	100
Totals	0	0	5,354	6,209	2,288	0	0	6,139	6,139
AM Peak	*	*	8:00	8:00	7:00	*	*	7:00	7:00
Volume	*	*	355	374	342	*	*	356	356
PM Peak	*	*	5:00	5:00	12:00	*	*	5:00	5:00
Volume	*	*	610	625	378	*	*	617	617

Factor = 0.88
 AADT = 5,402

APPENDIX

Warrant Analyses

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Count Date: July 2011

TKDA Project No.: 14957.000

Major Street Approaches:

Eastbound: Diffley Road (CSAH 30)
 Number of Lanes: 2+
 Approach Speed: 45
 Total App. Vehicles: 4,824
 Rt Turn Percentage: 100%

Westbound: Diffley Road (CSAH 30)
 Number of Lanes: 2+
 Approach Speed: 45
 Total App. Vehicles: 3,278
 Rt Turn Percentage: 100%

Minor Street Approaches:

Northbound: Dodd Road
 Number of Lanes: 2
 Approach Speed: 40
 Total App. Vehicles: 2,126
 Rt Turn Percentage: 0%

Southbound: Dodd Road
 Number of Lanes: 2
 Approach Speed: 45
 Total App. Vehicles: 1,527
 Rt Turn Percentage: 0%

Analysis of Warrant 1: 8-Hour Volumes

Hour Begin	Major (Total)	Minor Street Volume	Direction	Rank	Condition A Meets Criteria?	Condition B Meets Criteria?	Condition A+B Meets Criteria?
12 AM	54	17	SB	20			
1 AM	34	5	SB	23			
2 AM	16	7	NB	22			
3 AM	7	3	NB	24			
4 AM	19	12	NB	21			
5 AM	62	36	NB	18			
6 AM	219	124	NB	7		Minor St	
7 AM	374	201	NB	1	Minor St	Minor St	
8 AM	424	155	NB	4	---BOTH---	Minor St	
9 AM	394	119	NB	8		Minor St	
10 AM	384	96	NB	15		Minor St	
11 AM	479	116	NB	10	Major St	Minor St	
12 PM	486	117	NB	9	Major St	Minor St	
1 PM	431	100	NB	14	Major St	Minor St	
2 PM	442	102	NB	13	Major St	Minor St	
3 PM	518	128	NB	6	Major St	Minor St	
4 PM	655	180	SB	2	---BOTH---	---BOTH---	A ONLY
5 PM	748	178	SB	3	---BOTH---	---BOTH---	---A + B---
6 PM	634	140	NB	5	Major St	---BOTH---	
7 PM	504	111	NB	12	Major St	Minor St	
8 PM	478	113	NB	11	Major St	Minor St	
9 PM	409	71	NB	16		Minor St	
10 PM	218	53	SB	17			
11 PM	113	31	NB	19			

Condition A is the Minimum Vehicular Volume Warrant.

Condition B is the Interruption of Continuous Traffic Warrant.

Condition A+B is the combination of Conditions A and B at 80%.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Summary:

TKDA Project No.:

14957.000

Warrant 1 - Eight Hour Vehicular Volume

Condition A: **Not satisfied.** Required values reached for 3 hours. Eight hours required.

Criteria - Major Street 420 Minor Street 140

Condition B: **Not satisfied.** Required values reached for 3 hours. Eight hours required.

Criteria - Major Street 630 Minor Street 70

Condition A+B: **Not satisfied.** Required values reached for 1 hour. Requires volumes to meet 80 percent of requirement of A and of B for eight hours, not necessary the same eight hours.

Criteria - Major Street 480 720 Minor Street 160 80

Warrant 2 - Four Hour Vehicular Volume

Not satisfied. Required values reached for 2 hours. Four hours required.

See chart for criteria.

Warrant 3 - Peak Hour Vehicular Volume

Condition A: **Minor street delay requirement not met.**

Criteria - Total Approach Volume: 800

- Minor Street High Side Volume: 150

- Minor Street High Side Delay: 5 vehicle-hours

Condition B: **Not satisfied.** Required values reached for 0 hours. One hour required.

See chart for criteria.

Warrant 4 - Pedestrian Volume

Not examined.

Criteria - Pedestrian volume crossing the major street is at least 100 per hour for any 4 hours or at least 190 during any one hour.

Warrant 5 - School Crossing

Not examined.

Criteria - At least 20 students crossing during the highest crossing hour.

- Consider implementing other measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.

- Do not apply at locations where distance to nearest signal is less than 300 feet.

Warrant 6 - Coordinated Signal System

Not examined

Criteria - Adjacent traffic control signals do not provide the necessary degree of platooning.

- Proposed and adjacent traffic control signals will collectively provide a progressive operation.

- Warrant should not be used where resultant spacing of traffic control signals would be less than 1,000 feet.

**Traffic Signal Warrant Analysis -
Diffley Road (CSAH 30) and Dodd Road**

Traffic Signal Warrant Summary (cont.):

TKDA Project No.:

14957.000

Warrant 7 - Crash Experience

Crash requirements not met.

Criteria - 5 or more correctable crashes, and

- Vehicular volumes meeting 80 percent of Warrant 1 condition A or B, or.
- Pedestrian volumes meeting 80 percent of Warrant 4 conditions.

Warrant 8 - Roadway Network

Not examined.

Criteria - Total existing entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday.

- 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.
- Common intersection of two or more major routes.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Graphs:

TKDA Project No.: 14957.000

Figure 4C-2 Warrant 2 - Four-Hour Vehicular Volume

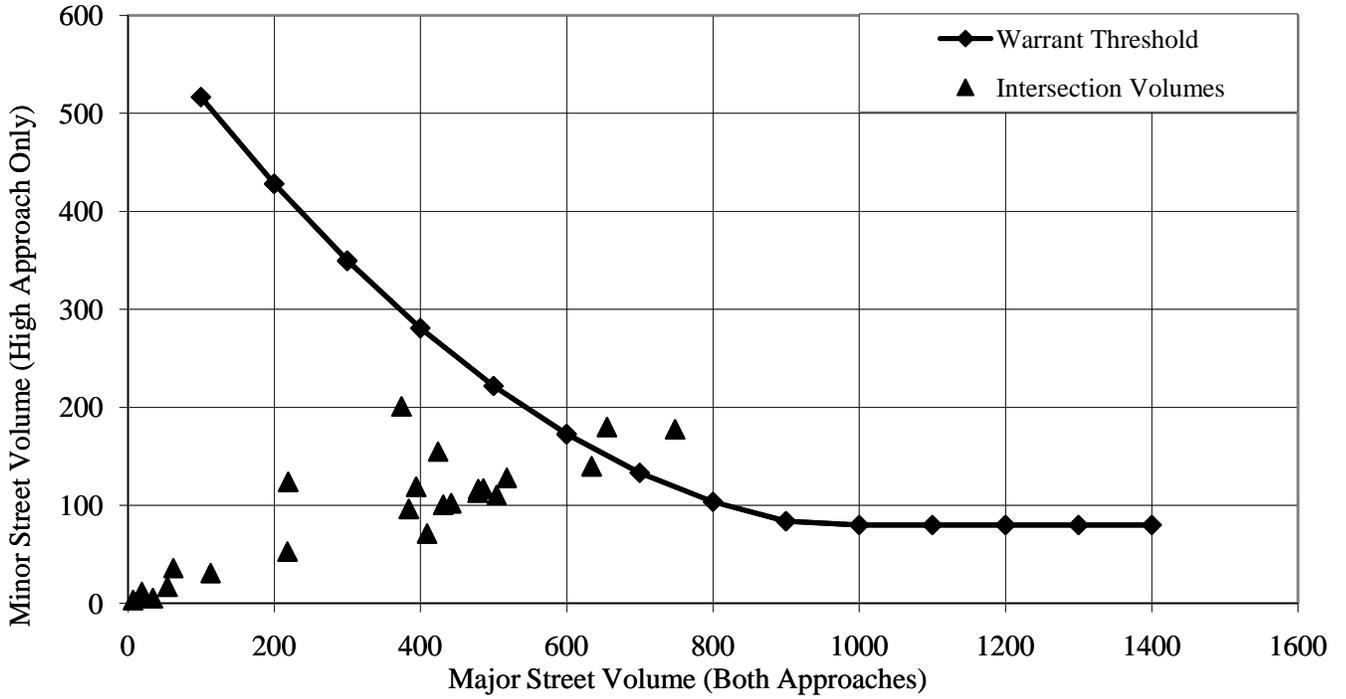
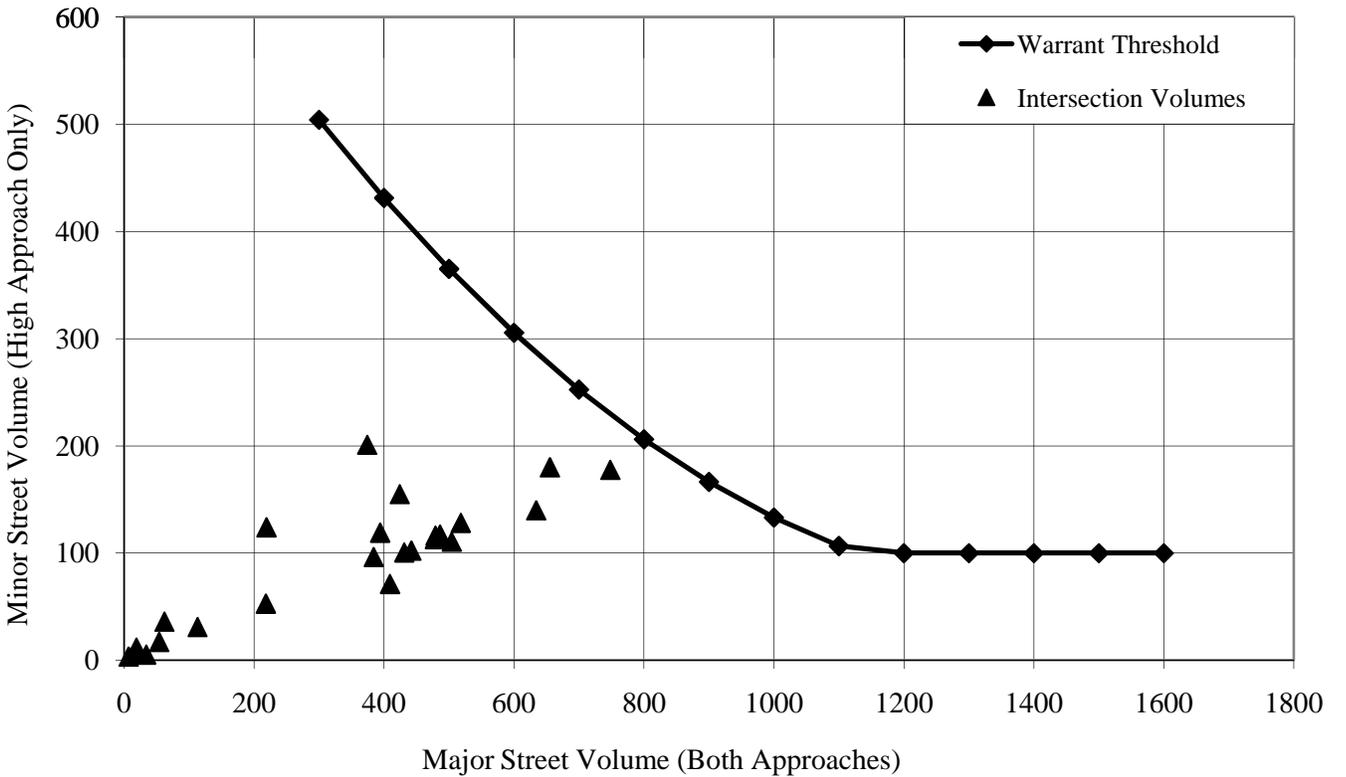


Figure 4C-4 Warrant 3 - Peak-Hour Vehicular Volume



Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

TKDA Project No.: 14957.000

Major Street Approaches:

Eastbound: Diffley Road (CSAH 30)

Number of Lanes: 2+
Approach Speed: 45
Total App. Vehicles: 5,505
Rt Turn Percentage: 100%

Westbound: Diffley Road (CSAH 30)

Number of Lanes: 2+
Approach Speed: 45
Total App. Vehicles: 3,705
Rt Turn Percentage: 100%

Minor Street Approaches:

Northbound: Dodd Road

Number of Lanes: 2
Approach Speed: 40
Total App. Vehicles: 2,446
Rt Turn Percentage: 0%

Southbound: Dodd Road

Number of Lanes: 2
Approach Speed: 45
Total App. Vehicles: 1,637
Rt Turn Percentage: 0%

Analysis of Warrant 1: 8-Hour Volumes

Hour Begin	Major (Total)	Minor Street			Condition A Meets Criteria?	Condition B Meets Criteria?	Condition A+B Meets Criteria?
		Volume	Direction	Rank			
12 AM	65	19	SB	20			
1 AM	45	9	NB	22			
2 AM	25	9	NB	22			
3 AM	10	4	NB	24			
4 AM	30	17	NB	21			
5 AM	75	43	NB	18			
6 AM	250	143	NB	7	Minor St	Minor St	
7 AM	425	229	NB	1	--BOTH--	Minor St	
8 AM	480	178	NB	4	--BOTH--	Minor St	A ONLY
9 AM	445	134	NB	8	Major St	Minor St	
10 AM	435	108	NB	15	Major St	Minor St	
11 AM	545	134	NB	8	Major St	Minor St	
12 PM	550	134	NB	8	Major St	Minor St	
1 PM	490	117	NB	13	Major St	Minor St	
2 PM	500	117	NB	13	Major St	Minor St	
3 PM	585	147	NB	6	--BOTH--	Minor St	
4 PM	740	191	SB	2	--BOTH--	--BOTH--	--A + B--
5 PM	845	189	SB	3	--BOTH--	--BOTH--	--A + B--
6 PM	715	160	NB	5	--BOTH--	--BOTH--	A ONLY
7 PM	570	126	NB	12	Major St	Minor St	
8 PM	540	130	NB	11	Major St	Minor St	
9 PM	465	82	NB	16	Major St	Minor St	
10 PM	250	61	NB	17			
11 PM	130	39	NB	19			

Condition A is the Minimum Vehicular Volume Warrant.

Condition B is the Interruption of Continuous Traffic Warrant.

Condition A+B is the combination of Conditions A and B at 80%.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Summary:

TKDA Project No.:

14957.000

Warrant 1 - Eight Hour Vehicular Volume

Condition A: **Not satisfied.** Required values reached for 6 hours. Eight hours required.

Criteria - Major Street 420 Minor Street 140

Condition B: **Not satisfied.** Required values reached for 3 hours. Eight hours required.

Criteria - Major Street 630 Minor Street 70

Condition A+B: **Not satisfied.** Required values reached for 2 hours. Requires volumes to meet 80 percent of requirement of A and of B for eight hours, not necessary the same eight hours.

Criteria - Major Street 480 720 Minor Street 160 80

Warrant 2 - Four Hour Vehicular Volume

Not satisfied. Required values reached for 3 hours. Four hours required.

See chart for criteria.

Warrant 3 - Peak Hour Vehicular Volume

Condition A: **Minor street delay requirement not met.**

Criteria - Total Approach Volume: 800

- Minor Street High Side Volume: 150

- Minor Street High Side Delay: 5 vehicle-hours

Condition B: **Satisfied.** Required values reached for 1 hour. One hour required.

See chart for criteria.

Warrant 4 - Pedestrian Volume

Not examined.

Criteria - Pedestrian volume crossing the major street is at least 100 per hour for any 4 hours or at least 190 during any one hour.

Warrant 5 - School Crossing

Not examined.

Criteria - At least 20 students crossing during the highest crossing hour.

- Consider implementing other measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.

- Do not apply at locations where distance to nearest signal is less than 300 feet.

Warrant 6 - Coordinated Signal System

Not examined

Criteria - Adjacent traffic control signals do not provide the necessary degree of platooning.

- Proposed and adjacent traffic control signals will collectively provide a progressive operation.

- Warrant should not be used where resultant spacing of traffic control signals would be less than 1,000 feet.

**Traffic Signal Warrant Analysis -
Diffley Road (CSAH 30) and Dodd Road**

Traffic Signal Warrant Summary (cont.):

TKDA Project No.:

14957.000

Warrant 7 - Crash Experience

Not examined.

Criteria - 5 or more correctable crashes, and

- Vehicular volumes meeting 80 percent of Warrant 1 condition A or B, or.
- Pedestrian volumes meeting 80 percent of Warrant 4 conditions.

Warrant 8 - Roadway Network

Not examined.

Criteria - Total existing entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday.

- 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.
- Common intersection of two or more major routes.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Graphs:

TKDA Project No.: 14957.000

Figure 4C-2 Warrant 2 - Four-Hour Vehicular Volume

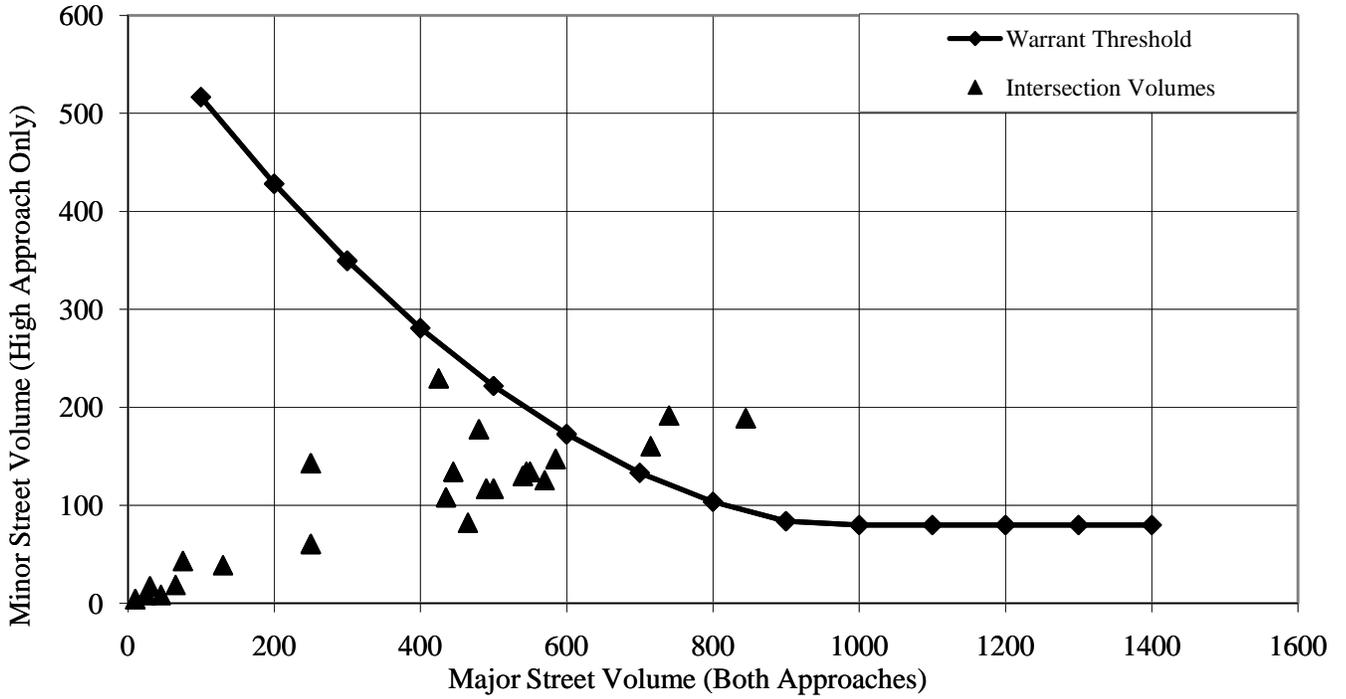
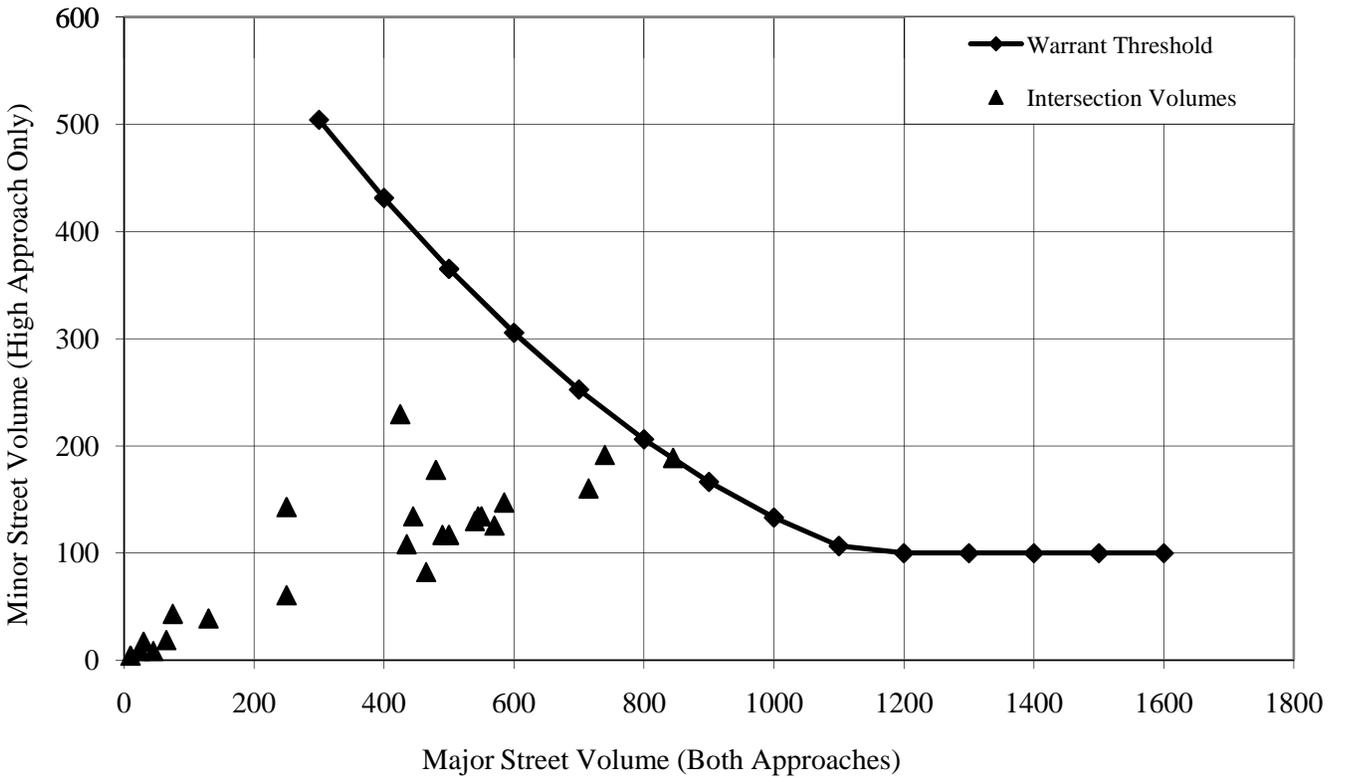


Figure 4C-4 Warrant 3 - Peak-Hour Vehicular Volume



Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

TKDA Project No.: 14957.000

Major Street Approaches:

Eastbound: Diffley Road (CSAH 30)

Number of Lanes: 2+
Approach Speed: 45
Total App. Vehicles: 5,945
Rt Turn Percentage: 100%

Westbound: Diffley Road (CSAH 30)

Number of Lanes: 2+
Approach Speed: 45
Total App. Vehicles: 4,000
Rt Turn Percentage: 100%

Minor Street Approaches:

Northbound: Dodd Road

Number of Lanes: 2
Approach Speed: 40
Total App. Vehicles: 2,542
Rt Turn Percentage: 0%

Southbound: Dodd Road

Number of Lanes: 2
Approach Speed: 45
Total App. Vehicles: 1,761
Rt Turn Percentage: 0%

Analysis of Warrant 1: 8-Hour Volumes

Hour Begin	Major (Total)	Minor Street			Condition A Meets Criteria?	Condition B Meets Criteria?	Condition A+B Meets Criteria?
		Volume	Direction	Rank			
12 AM	70	21	SB	20			
1 AM	45	9	NB	22			
2 AM	25	9	NB	22			
3 AM	10	4	NB	24			
4 AM	30	17	NB	21			
5 AM	80	43	NB	18			
6 AM	270	145	NB	7	Minor St	Minor St	
7 AM	460	240	NB	1	---BOTH---	Minor St	
8 AM	520	184	NB	4	---BOTH---	Minor St	A ONLY
9 AM	480	141	NB	8	---BOTH---	Minor St	
10 AM	470	116	NB	15	Major St	Minor St	
11 AM	585	137	NB	10	Major St	Minor St	
12 PM	595	141	NB	8	---BOTH---	Minor St	
1 PM	530	120	NB	13	Major St	Minor St	
2 PM	540	120	NB	13	Major St	Minor St	
3 PM	630	154	NB	6	---BOTH---	---BOTH---	
4 PM	800	205	SB	2	---BOTH---	---BOTH---	---A + B---
5 PM	915	202	SB	3	---BOTH---	---BOTH---	---A + B---
6 PM	775	167	NB	5	---BOTH---	---BOTH---	---A + B---
7 PM	615	133	NB	11	Major St	Minor St	
8 PM	585	133	NB	11	Major St	Minor St	
9 PM	500	86	NB	16	Major St	Minor St	
10 PM	270	64	NB	17			
11 PM	145	39	NB	19			

Condition A is the Minimum Vehicular Volume Warrant.

Condition B is the Interruption of Continuous Traffic Warrant.

Condition A+B is the combination of Conditions A and B at 80%.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Summary:

TKDA Project No.:

14957.000

Warrant 1 - Eight Hour Vehicular Volume

Condition A: **Satisfied.** Required values reached for 8 hours. Eight hours required.

Criteria - Major Street 420 Minor Street 140

Condition B: **Not satisfied.** Required values reached for 4 hours. Eight hours required.

Criteria - Major Street 630 Minor Street 70

Condition A+B: **Not satisfied.** Required values reached for 3 hours. Requires volumes to meet 80 percent of requirement of A and of B for eight hours, not necessary the same eight hours.

Criteria - Major Street 480 720 Minor Street 160 80

Warrant 2 - Four Hour Vehicular Volume

Not satisfied. Required values reached for 3 hours. Four hours required.

See chart for criteria.

Warrant 3 - Peak Hour Vehicular Volume

Condition A: **Minor street delay requirement not met.**

Criteria - Total Approach Volume: 800

- Minor Street High Side Volume: 150

- Minor Street High Side Delay: 5 vehicle-hours

Condition B: **Satisfied.** Required values reached for 1 hour. One hour required.

See chart for criteria.

Warrant 4 - Pedestrian Volume

Not examined.

Criteria - Pedestrian volume crossing the major street is at least 100 per hour for any 4 hours or at least 190 during any one hour.

Warrant 5 - School Crossing

Not examined.

Criteria - At least 20 students crossing during the highest crossing hour.

- Consider implementing other measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.

- Do not apply at locations where distance to nearest signal is less than 300 feet.

Warrant 6 - Coordinated Signal System

Not examined

Criteria - Adjacent traffic control signals do not provide the necessary degree of platooning.

- Proposed and adjacent traffic control signals will collectively provide a progressive operation.

- Warrant should not be used where resultant spacing of traffic control signals would be less than 1,000 feet.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Summary (cont.):

TKDA Project No.:

14957.000

Warrant 7 - Crash Experience

Not examined.

Criteria - 5 or more correctable crashes, and

- Vehicular volumes meeting 80 percent of Warrant 1 condition A or B, or.
- Pedestrian volumes meeting 80 percent of Warrant 4 conditions.

Warrant 8 - Roadway Network

Not examined.

Criteria - Total existing entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday.

- 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.
- Common intersection of two or more major routes.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Graphs:

TKDA Project No.: 14957.000

Figure 4C-2 Warrant 2 - Four-Hour Vehicular Volume

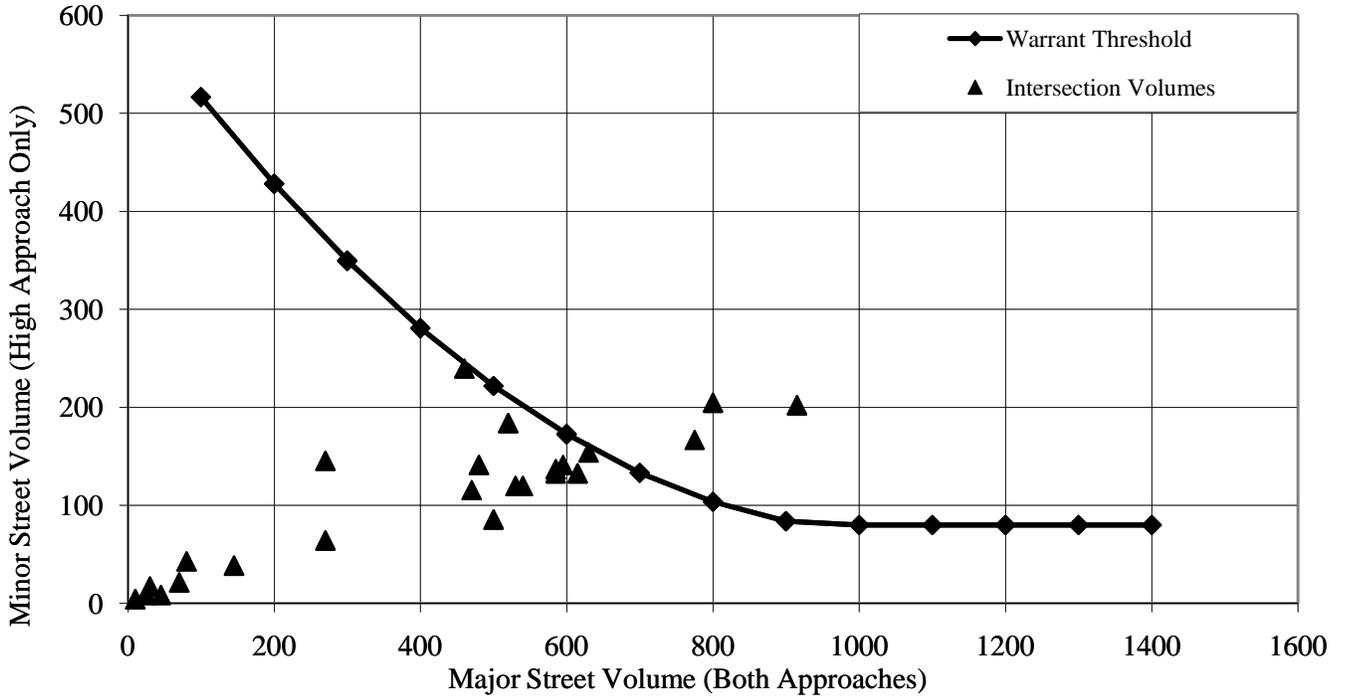
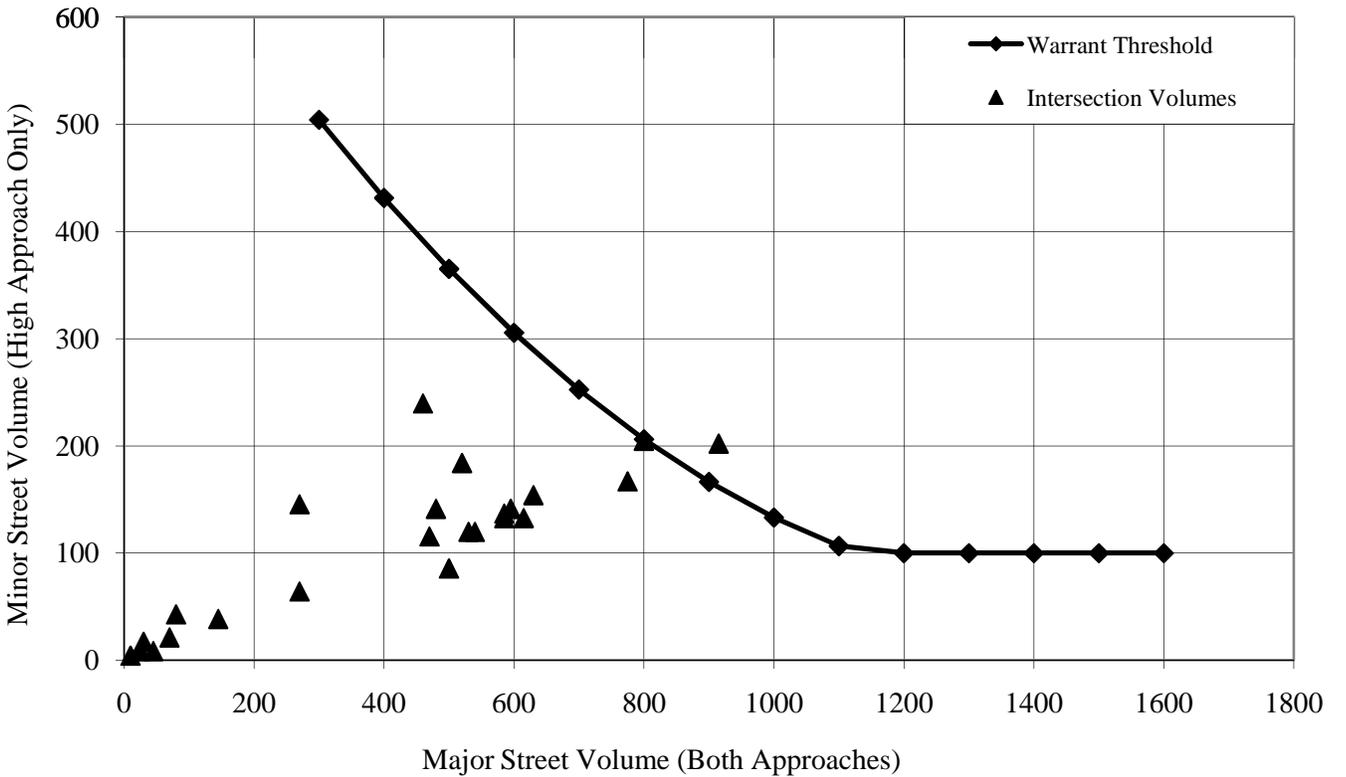


Figure 4C-4 Warrant 3 - Peak-Hour Vehicular Volume



Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

TKDA Project No.: 14957.000

Major Street Approaches:

Eastbound: Diffley Road (CSAH 30)

Number of Lanes: 2+
Approach Speed: 45
Total App. Vehicles: 6,055
Rt Turn Percentage: 100%

Westbound: Diffley Road (CSAH 30)

Number of Lanes: 2+
Approach Speed: 45
Total App. Vehicles: 4,070
Rt Turn Percentage: 100%

Minor Street Approaches:

Northbound: Dodd Road

Number of Lanes: 2
Approach Speed: 40
Total App. Vehicles: 2,584
Rt Turn Percentage: 0%

Southbound: Dodd Road

Number of Lanes: 2
Approach Speed: 45
Total App. Vehicles: 1,815
Rt Turn Percentage: 0%

Analysis of Warrant 1: 8-Hour Volumes

Hour Begin	Major (Total)	Minor Street			Condition A Meets Criteria?	Condition B Meets Criteria?	Condition A+B Meets Criteria?
		Volume	Direction	Rank			
12 AM	70	21	SB	20			
1 AM	45	9	NB	22			
2 AM	25	9	NB	22			
3 AM	10	5	SB	24			
4 AM	30	17	NB	21			
5 AM	80	43	NB	18			
6 AM	275	150	NB	7	Minor St	Minor St	
7 AM	470	240	NB	1	---BOTH---	Minor St	
8 AM	530	189	NB	4	---BOTH---	Minor St	A ONLY
9 AM	490	146	NB	8	---BOTH---	Minor St	
10 AM	480	116	NB	15	Major St	Minor St	
11 AM	595	142	NB	9	---BOTH---	Minor St	
12 PM	605	142	NB	9	---BOTH---	Minor St	
1 PM	535	120	NB	14	Major St	Minor St	
2 PM	550	124	NB	13	Major St	Minor St	
3 PM	645	155	NB	6	---BOTH---	---BOTH---	
4 PM	815	212	SB	2	---BOTH---	---BOTH---	---A + B---
5 PM	930	209	SB	3	---BOTH---	---BOTH---	---A + B---
6 PM	790	167	NB	5	---BOTH---	---BOTH---	---A + B---
7 PM	630	133	NB	12	Major St	---BOTH---	
8 PM	595	137	NB	11	Major St	Minor St	
9 PM	510	86	NB	16	Major St	Minor St	
10 PM	275	64	NB	17			
11 PM	145	39	NB	19			

Condition A is the Minimum Vehicular Volume Warrant.

Condition B is the Interruption of Continuous Traffic Warrant.

Condition A+B is the combination of Conditions A and B at 80%.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Summary:

TKDA Project No.:

14957.000

Warrant 1 - Eight Hour Vehicular Volume

Condition A: **Satisfied.** Required values reached for 9 hours. Eight hours required.

Criteria - Major Street 420 Minor Street 140

Condition B: **Not satisfied.** Required values reached for 5 hours. Eight hours required.

Criteria - Major Street 630 Minor Street 70

Condition A+B: **Not satisfied.** Required values reached for 3 hours. Requires volumes to meet 80 percent of requirement of A and of B for eight hours, not necessary the same eight hours.

Criteria - Major Street 480 720 Minor Street 160 80

Warrant 2 - Four Hour Vehicular Volume

Satisfied. Required values reached for 5 hours. Four hours required.

See chart for criteria.

Warrant 3 - Peak Hour Vehicular Volume

Condition A: **Minor street delay requirement not met.**

Criteria - Total Approach Volume: 800

- Minor Street High Side Volume: 150

- Minor Street High Side Delay: 5 vehicle-hours

Condition B: **Satisfied.** Required values reached for 2 hours. One hour required.

See chart for criteria.

Warrant 4 - Pedestrian Volume

Not examined.

Criteria - Pedestrian volume crossing the major street is at least 100 per hour for any 4 hours or at least 190 during any one hour.

Warrant 5 - School Crossing

Not examined.

Criteria - At least 20 students crossing during the highest crossing hour.

- Consider implementing other measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.

- Do not apply at locations where distance to nearest signal is less than 300 feet.

Warrant 6 - Coordinated Signal System

Not examined

Criteria - Adjacent traffic control signals do not provide the necessary degree of platooning.

- Proposed and adjacent traffic control signals will collectively provide a progressive operation.

- Warrant should not be used where resultant spacing of traffic control signals would be less than 1,000 feet.

**Traffic Signal Warrant Analysis -
Diffley Road (CSAH 30) and Dodd Road**

Traffic Signal Warrant Summary (cont.):

TKDA Project No.:

14957.000

Warrant 7 - Crash Experience

Not examined.

Criteria - 5 or more correctable crashes, and

- Vehicular volumes meeting 80 percent of Warrant 1 condition A or B, or.
- Pedestrian volumes meeting 80 percent of Warrant 4 conditions.

Warrant 8 - Roadway Network

Not examined.

Criteria - Total existing entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday.

- 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.
- Common intersection of two or more major routes.

Traffic Signal Warrant Analysis - Diffley Road (CSAH 30) and Dodd Road

Traffic Signal Warrant Graphs:

TKDA Project No.: 14957.000

Figure 4C-2 Warrant 2 - Four-Hour Vehicular Volume

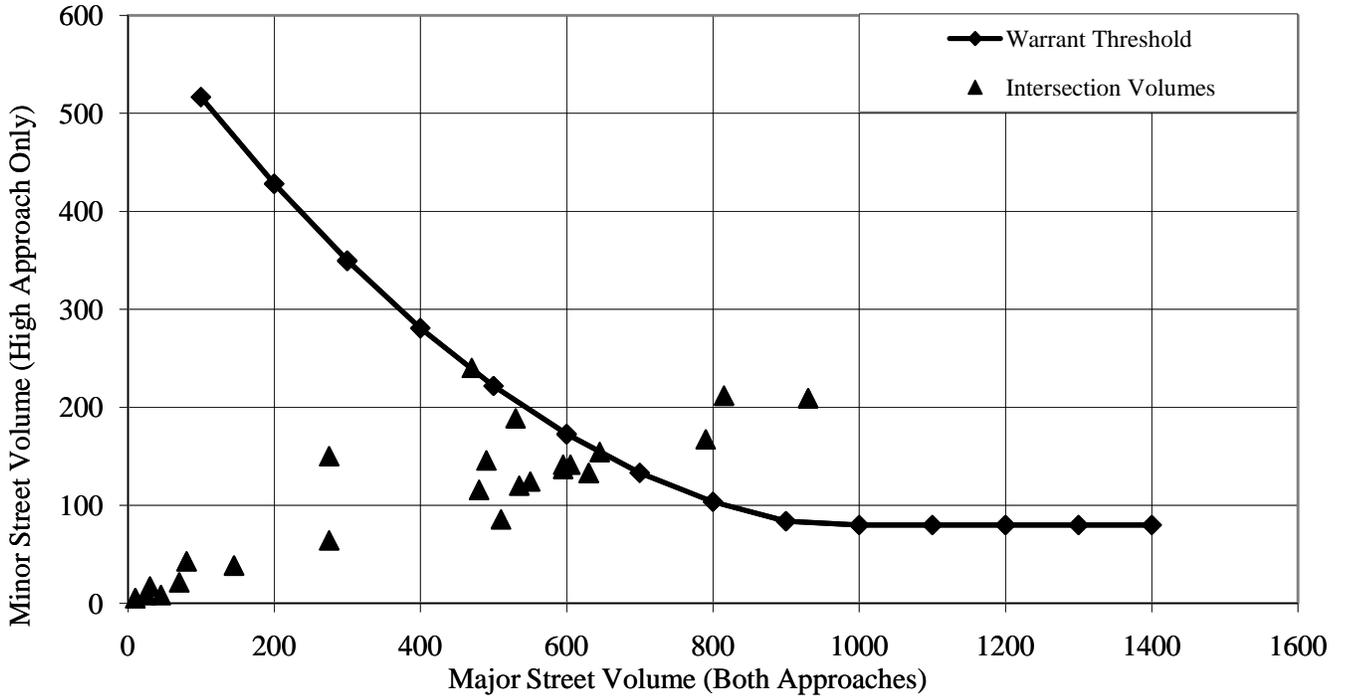
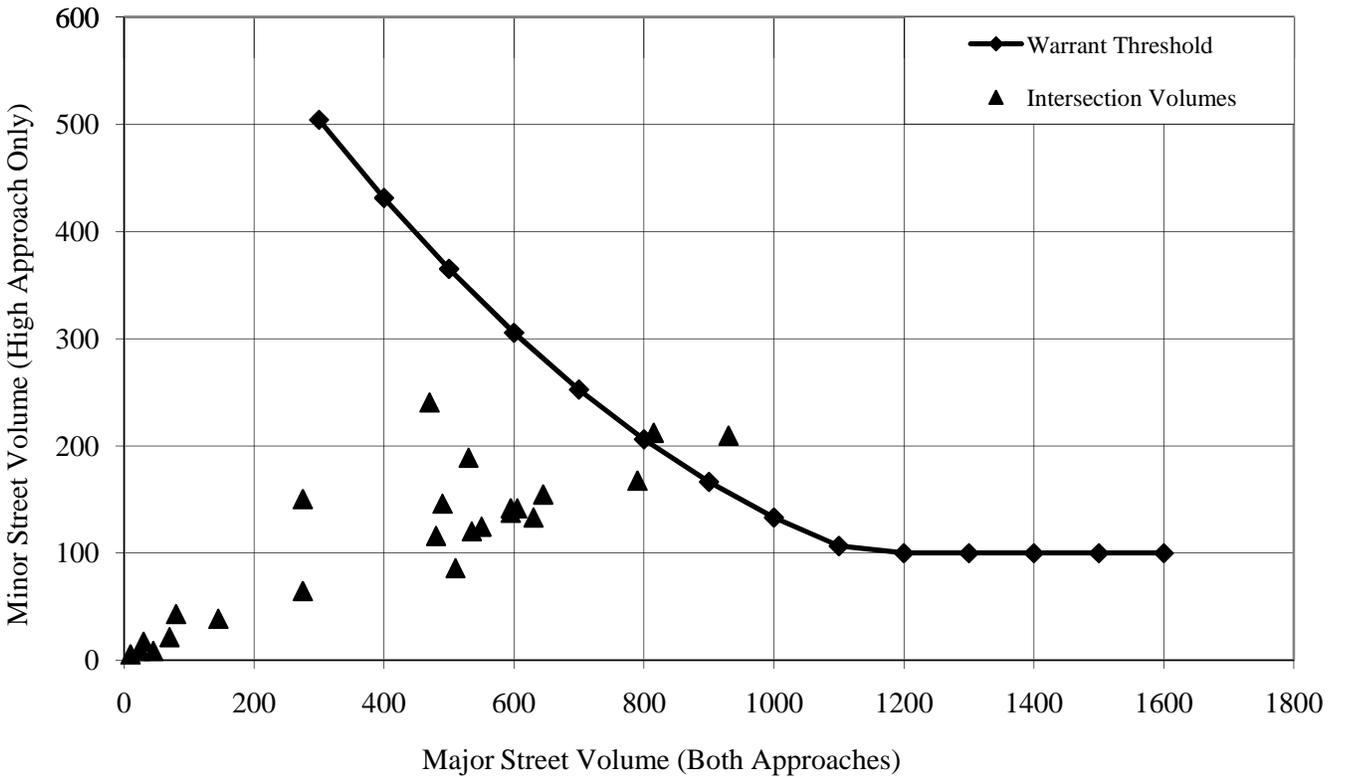


Figure 4C-4 Warrant 3 - Peak-Hour Vehicular Volume



APPENDIX

Collision Diagram

Dakota County Highway Department



MSAS 115
Dodd Rd
R.P.: 1.054

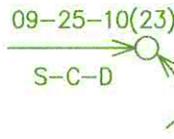
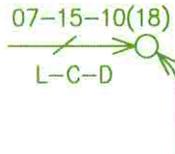
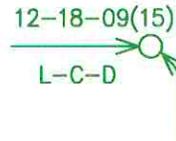
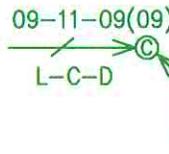
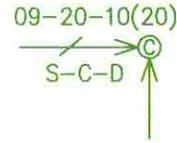
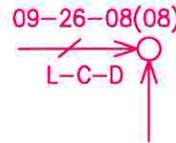
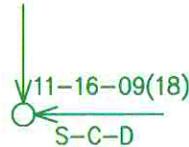
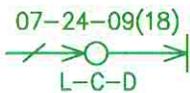
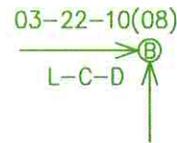
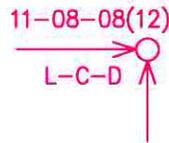
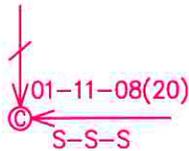
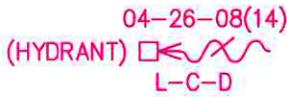
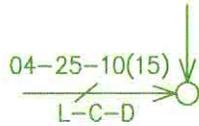
CSAH 30
Diffley Rd
R.P.: 5.533

Collision Diagram

ACCIDENT TOTALS

2008..... 4
2009..... 4
2010..... 5

DATE PREPARED: 09-30-11
PREPARED BY: PV



ACCIDENTS SUMMARY

13 ACCIDENTS . . . 3 YEARS
4 . . . PERSONAL INJURY
9 . . . PROPERTY DAMAGE

8 . . . NB	10 . . . EB	9 . . . DAY
3 . . . SB	4 . . . WB	4 . . . NIGHT

12 . . . CLEAR	12 . . . DRY
1 . . . SNOW	1 . . . SNOW

ACCIDENTS SUMMARY

11 . . . RIGHT ANGLE
1 . . . REAR END
1 . . . RAN OFF ROAD

Standard Symbols

	M V MOVING AHEAD		SCHOOL BUS		PEDESTRIAN		BICYCLE		MOTORCYCLE
	M V BACKING UP				PARKING		FIXED OBJECT		ANIMAL
	MOTOR VEHICLE STOPPED								
	PARTY AT FAULT								
	OUT OF CONTROL								
	OVERTURN		FATAL ACCIDENT						
	REAR END		PERSONAL INJURY						
	RIGHT ANGLE		PROPERTY DAMAGE						

LIGHT:	WEATHER:	SURFACE:
L = DAYLIGHT	C = CLEAR	D = DRY
D = DARK	R = RAINING	W = WET
S = DARK W/ STREET LIGHTS	S = SNOWING	S = SNOW
	F = FOG	I = ICE

INTERSECTION CSAH 30 & DODD RD
FROM 01-01-08 TO 12-31-10

IN EAGAN
SOURCE MNDOT PRINTOUT

APPENDIX

Traffic Analyses

SimTraffic Performance Report
Existing AM Peak

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	0.4	0.1	0.1	0.4	0.0	0.2	0.3	0.0	0.0	0.1	0.2
Delay / Veh (s)	9.4	10.5	6.1	8.5	10.5	7.0	7.8	9.0	5.3	5.2	9.6	7.9
Total Stops	90	122	30	25	151	25	97	131	30	19	43	78
Travel Time (hr)	0.9	1.1	0.3	0.2	1.4	0.2	0.9	1.1	0.3	0.1	0.3	0.6
Avg Speed (mph)	32	31	35	33	30	34	21	21	22	28	27	29
Vehicles Entered	90	123	30	25	151	24	97	131	31	19	43	78
Vehicles Exited	90	122	30	25	151	25	97	130	30	19	43	78
Hourly Exit Rate	90	122	30	25	151	25	97	130	30	19	43	78
Input Volume	88	113	33	24	156	26	87	129	31	19	41	71
% of Volume	102	108	91	104	97	96	111	101	97	100	105	110
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	1	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	2.1
Delay / Veh (s)	8.9
Total Stops	841
Travel Time (hr)	7.5
Avg Speed (mph)	28
Vehicles Entered	842
Vehicles Exited	840
Hourly Exit Rate	840
Input Volume	818
% of Volume	103
Denied Entry Before	0
Denied Entry After	1

Queuing and Blocking Report
Existing AM Peak

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	T	R	LTR	LT	R
Maximum Queue (ft)	53	78	32	35	74	37	116	58	52
Average Queue (ft)	25	30	9	13	39	13	51	24	22
95th Queue (ft)	44	55	23	36	61	34	90	43	39
Link Distance (ft)		1458			1469		952	954	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	300		300	400		400			100
Storage Blk Time (%)								0	
Queuing Penalty (veh)								0	

SimTraffic Performance Report
Existing PM Peak

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.3	0.9	0.2	0.1	1.2	0.1	0.2	0.2	0.0	0.1	0.4	0.3
Delay / Veh (s)	11.3	13.8	8.1	9.5	14.3	6.9	9.1	10.8	5.7	9.2	13.6	10.0
Total Stops	99	245	108	38	290	34	80	66	26	33	116	107
Travel Time (hr)	1.0	2.5	1.1	0.4	3.0	0.3	0.7	0.6	0.2	0.3	0.9	0.9
Avg Speed (mph)	31	28	32	32	27	33	20	20	21	24	23	26
Vehicles Entered	99	246	108	38	292	33	80	67	26	33	116	106
Vehicles Exited	99	245	108	38	290	34	81	66	26	33	116	107
Hourly Exit Rate	99	245	108	38	290	34	81	66	26	33	116	107
Input Volume	105	239	109	38	291	34	82	70	27	32	112	103
% of Volume	94	103	99	100	100	100	99	94	96	103	104	104
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	4.1
Delay / Veh (s)	11.8
Total Stops	1242
Travel Time (hr)	12.0
Avg Speed (mph)	27
Vehicles Entered	1244
Vehicles Exited	1243
Hourly Exit Rate	1243
Input Volume	1242
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
Existing PM Peak

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	T	R	LTR	LT	R
Maximum Queue (ft)	69	100	48	39	142	49	115	93	51
Average Queue (ft)	28	48	20	19	62	17	44	40	27
95th Queue (ft)	52	83	37	39	108	39	88	73	46
Link Distance (ft)		1458			1469		952	954	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	300		300	400		400			100
Storage Blk Time (%)								0	
Queuing Penalty (veh)								0	

SimTraffic Performance Report
 2026 AM Peak-No Improvements

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.4	0.5	0.1	0.1	0.8	0.1	0.4	0.7	0.1	0.0	0.2	0.3
Delay / Veh (s)	11.0	12.4	6.8	9.5	13.2	7.5	11.4	13.3	8.2	6.1	11.0	9.1
Total Stops	123	158	48	35	216	39	114	177	52	28	53	103
Travel Time (hr)	1.3	1.5	0.5	0.3	2.2	0.4	1.1	1.8	0.5	0.2	0.4	0.8
Avg Speed (mph)	30	29	34	32	28	33	19	19	20	27	26	27
Vehicles Entered	123	157	48	35	217	38	114	178	51	28	54	103
Vehicles Exited	123	158	48	35	217	39	114	177	52	28	53	103
Hourly Exit Rate	123	158	48	35	217	39	114	177	52	28	53	103
Input Volume	125	155	45	35	215	40	115	175	45	30	55	100
% of Volume	98	102	107	100	101	98	99	101	116	93	96	103
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	3.6
Delay / Veh (s)	11.3
Total Stops	1146
Travel Time (hr)	10.9
Avg Speed (mph)	26
Vehicles Entered	1146
Vehicles Exited	1147
Hourly Exit Rate	1147
Input Volume	1135
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 2026 AM Peak-No Improvements

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	T	R	LTR	LT	R
Maximum Queue (ft)	61	82	38	50	100	60	191	53	53
Average Queue (ft)	33	35	13	20	50	22	74	26	24
95th Queue (ft)	55	61	27	43	85	48	133	45	43
Link Distance (ft)		1458			1469		952	954	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	300		300	400		400			100
Storage Blk Time (%)									
Queuing Penalty (veh)									

SimTraffic Performance Report
 2026 PM Peak-No Improvements

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.7	2.2	0.4	0.2	4.6	0.1	0.5	0.5	0.1	0.1	0.8	0.5
Delay / Veh (s)	16.6	24.0	10.4	12.4	42.6	9.4	15.6	17.7	11.6	13.8	18.1	13.6
Total Stops	143	324	144	51	392	48	108	93	36	38	153	143
Travel Time (hr)	1.7	4.2	1.5	0.5	7.1	0.5	1.2	1.0	0.4	0.3	1.4	1.3
Avg Speed (mph)	26	23	30	29	15	31	17	17	18	20	20	23
Vehicles Entered	143	325	143	51	392	48	107	93	35	38	152	143
Vehicles Exited	142	323	144	51	387	48	107	93	36	38	153	144
Hourly Exit Rate	142	323	144	51	387	48	107	93	36	38	153	144
Input Volume	150	325	145	50	400	50	110	95	35	45	150	145
% of Volume	95	99	99	102	97	96	97	98	103	84	102	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	10.6
Delay / Veh (s)	23.0
Total Stops	1673
Travel Time (hr)	21.3
Avg Speed (mph)	20
Vehicles Entered	1670
Vehicles Exited	1666
Hourly Exit Rate	1666
Input Volume	1700
% of Volume	98
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 2026 PM Peak-No Improvements

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	T	R	LTR	LT	R
Maximum Queue (ft)	99	235	66	61	376	54	152	123	80
Average Queue (ft)	41	83	27	25	171	21	67	55	38
95th Queue (ft)	73	183	50	49	338	42	123	95	65
Link Distance (ft)		1458			1469		952	954	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	300		300	400		400			100
Storage Blk Time (%)		1			2		1	0	
Queuing Penalty (veh)		3			2		1	0	

SimTraffic Performance Report
 2029 AM Peak-No Improvements

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.4	0.6	0.1	0.1	0.9	0.1	0.5	0.8	0.1	0.1	0.2	0.3
Delay / Veh (s)	12.0	13.2	7.6	10.0	15.0	8.0	13.9	16.1	10.8	7.2	11.7	9.7
Total Stops	132	169	54	33	225	40	124	189	45	30	60	115
Travel Time (hr)	1.4	1.7	0.5	0.3	2.4	0.4	1.3	2.0	0.5	0.2	0.5	0.9
Avg Speed (mph)	30	29	33	31	27	33	17	17	18	26	25	26
Vehicles Entered	133	168	55	33	225	39	124	189	46	30	60	114
Vehicles Exited	132	169	54	33	225	40	124	189	46	30	60	115
Hourly Exit Rate	132	169	54	33	225	40	124	189	46	30	60	115
Input Volume	135	165	50	35	225	40	125	185	45	30	60	110
% of Volume	98	102	108	94	100	100	99	102	102	100	100	105
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	4.3
Delay / Veh (s)	12.8
Total Stops	1216
Travel Time (hr)	12.1
Avg Speed (mph)	25
Vehicles Entered	1216
Vehicles Exited	1217
Hourly Exit Rate	1217
Input Volume	1205
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 2029 AM Peak-No Improvements

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	T	R	LTR	LT	R
Maximum Queue (ft)	73	84	52	50	129	50	194	63	57
Average Queue (ft)	35	39	15	19	58	19	85	30	27
95th Queue (ft)	58	68	34	43	100	41	160	49	48
Link Distance (ft)	1458				1469		952	954	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	300		300	400	400		100		
Storage Blk Time (%)									
Queuing Penalty (veh)									

SimTraffic Performance Report
 2029 PM Peak-No Improvements

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.8	2.6	0.5	0.4	12.6	0.3	0.5	0.5	0.1	0.2	0.9	0.7
Delay / Veh (s)	18.6	26.8	11.5	24.4	111.0	21.5	18.2	19.1	13.2	16.6	20.4	14.7
Total Stops	160	348	150	71	477	63	107	102	40	49	164	159
Travel Time (hr)	2.0	4.8	1.7	0.8	15.3	0.7	1.3	1.2	0.4	0.5	1.6	1.5
Avg Speed (mph)	25	21	29	22	8	22	16	16	17	19	19	22
Vehicles Entered	162	349	152	55	414	48	107	101	39	48	163	158
Vehicles Exited	160	348	150	55	405	47	108	102	40	49	164	159
Hourly Exit Rate	160	348	150	55	405	47	108	102	40	49	164	159
Input Volume	160	345	155	55	420	50	115	100	40	50	160	155
% of Volume	100	101	97	100	96	94	94	102	100	98	102	103
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	1	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	20.3
Delay / Veh (s)	40.7
Total Stops	1890
Travel Time (hr)	31.7
Avg Speed (mph)	14
Vehicles Entered	1796
Vehicles Exited	1787
Hourly Exit Rate	1787
Input Volume	1805
% of Volume	99
Denied Entry Before	0
Denied Entry After	1

Queuing and Blocking Report
 2029 PM Peak-No Improvements

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	T	R	LTR	LT	R
Maximum Queue (ft)	100	223	74	474	811	479	154	129	94
Average Queue (ft)	47	98	30	140	401	104	73	64	41
95th Queue (ft)	81	180	58	513	818	433	129	109	72
Link Distance (ft)		1458			1469		952	954	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	300		300	400		400			100
Storage Blk Time (%)		0			30			2	0
Queuing Penalty (veh)		0			32			4	0

SimTraffic Performance Report
 2030 AM Peak-No Improvements

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.5	0.6	0.1	0.1	1.0	0.1	0.5	0.9	0.2	0.1	0.2	0.3
Delay / Veh (s)	11.9	12.8	7.6	9.6	15.4	7.8	14.8	16.5	12.7	7.5	12.0	9.6
Total Stops	135	171	48	32	238	42	119	190	48	29	54	114
Travel Time (hr)	1.4	1.7	0.5	0.3	2.5	0.4	1.3	2.0	0.5	0.2	0.4	0.9
Avg Speed (mph)	30	29	33	32	27	33	17	17	17	26	25	26
Vehicles Entered	137	170	49	32	239	42	119	189	47	29	55	114
Vehicles Exited	135	171	48	32	238	42	119	189	48	29	54	114
Hourly Exit Rate	135	171	48	32	238	42	119	189	48	29	54	114
Input Volume	135	170	50	35	230	40	125	185	45	30	60	110
% of Volume	100	101	96	91	103	105	95	102	107	97	90	104
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	4.4
Delay / Veh (s)	13.1
Total Stops	1220
Travel Time (hr)	12.2
Avg Speed (mph)	25
Vehicles Entered	1222
Vehicles Exited	1219
Hourly Exit Rate	1219
Input Volume	1215
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 2030 AM Peak-No Improvements

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	T	R	LTR	LT	R
Maximum Queue (ft)	77	75	41	53	136	53	265	59	57
Average Queue (ft)	36	39	14	18	60	19	88	31	27
95th Queue (ft)	60	65	32	42	107	41	191	53	47
Link Distance (ft)		1458			1469		952	954	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	300		300	400		400			100
Storage Blk Time (%)								0	
Queuing Penalty (veh)								0	

SimTraffic Performance Report
 2030 PM Peak-No Improvements

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.8	3.0	0.5	0.7	18.6	0.5	0.7	0.7	0.2	0.2	0.9	0.7
Delay / Veh (s)	18.3	29.6	11.7	40.5	159.9	36.0	22.8	23.0	17.5	16.3	20.3	14.8
Total Stops	155	365	153	100	565	86	113	108	43	48	153	160
Travel Time (hr)	1.9	5.3	1.7	1.1	21.4	0.9	1.5	1.4	0.5	0.5	1.5	1.6
Avg Speed (mph)	25	20	29	16	6	17	14	14	15	19	19	22
Vehicles Entered	156	366	154	62	426	54	113	108	42	47	152	160
Vehicles Exited	155	365	153	61	412	53	113	108	43	48	154	161
Hourly Exit Rate	155	365	153	61	412	53	113	108	43	48	154	161
Input Volume	160	355	155	55	430	55	120	100	40	50	160	160
% of Volume	97	103	99	111	96	96	94	108	108	96	96	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	27.5
Delay / Veh (s)	54.0
Total Stops	2049
Travel Time (hr)	39.3
Avg Speed (mph)	12
Vehicles Entered	1840
Vehicles Exited	1826
Hourly Exit Rate	1826
Input Volume	1840
% of Volume	99
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 2030 PM Peak-No Improvements

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	R	L	T	R	LTR	LT	R
Maximum Queue (ft)	97	261	74	580	1144	580	202	116	89
Average Queue (ft)	44	109	31	255	578	215	86	59	42
95th Queue (ft)	76	216	58	702	1062	656	167	99	70
Link Distance (ft)		1458			1469		952	954	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	300		300	400		400			100
Storage Blk Time (%)		0			57			1	0
Queuing Penalty (veh)		1			63			2	0

SimTraffic Performance Report
Existing AM Peak-2 Thru E-W, All-Way Stop

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.1	0.3	0.0	0.0	0.4	0.0	0.2	0.3	0.1	0.1	0.1	0.2
Delay / Veh (s)	4.8	8.8	1.7	3.5	8.9	2.5	10.0	8.3	7.6	8.6	9.3	7.3
Total Stops	84	123	34	23	156	22	86	128	31	21	39	75
Travel Time (hr)	0.5	0.7	0.2	0.1	0.9	0.1	0.8	1.1	0.3	0.2	0.3	0.5
Avg Speed (mph)	26	25	28	27	25	27	22	22	23	29	27	30
Vehicles Entered	84	124	34	23	155	22	85	127	31	21	39	75
Vehicles Exited	84	123	34	23	155	22	86	128	31	21	39	75
Hourly Exit Rate	84	123	34	23	155	22	86	128	31	21	39	75
Input Volume	88	113	33	24	156	26	87	129	31	19	41	71
% of Volume	95	109	103	96	99	85	99	99	100	111	95	106
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	1.7
Delay / Veh (s)	7.7
Total Stops	822
Travel Time (hr)	5.5
Avg Speed (mph)	25
Vehicles Entered	820
Vehicles Exited	821
Hourly Exit Rate	821
Input Volume	818
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 Existing AM Peak-2 Thru E-W, All-Way Stop

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R	
Maximum Queue (ft)	61	57	47	38	47	38	54	82	48	34	44	56	
Average Queue (ft)	24	23	19	10	23	15	32	41	19	11	21	27	
95th Queue (ft)	47	42	35	27	39	27	48	66	44	33	45	47	
Link Distance (ft)	674		672		953		952						
Upstream Blk Time (%)													
Queuing Penalty (veh)													
Storage Bay Dist (ft)	300	300		400	400		100	100		100	100		
Storage Blk Time (%)									0				
Queuing Penalty (veh)									0				

SimTraffic Performance Report
 Existing PM Peak-2 Thru E-W, All-Way Stop

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	0.7	0.1	0.1	0.8	0.0	0.3	0.2	0.1	0.1	0.4	0.2
Delay / Veh (s)	6.2	10.5	4.5	5.6	10.3	3.8	11.2	8.8	7.5	10.7	12.8	9.0
Total Stops	102	242	109	35	292	39	88	68	31	30	115	99
Travel Time (hr)	0.6	1.5	0.6	0.2	1.8	0.2	0.8	0.6	0.3	0.2	0.9	0.8
Avg Speed (mph)	24	23	24	24	23	25	21	22	23	27	24	27
Vehicles Entered	102	243	110	35	292	39	88	67	30	29	114	99
Vehicles Exited	102	242	109	35	292	39	88	68	31	30	115	99
Hourly Exit Rate	102	242	109	35	292	39	88	68	31	30	115	99
Input Volume	105	239	109	38	291	34	82	70	27	32	112	103
% of Volume	97	101	100	92	100	115	107	97	115	94	103	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	3.2
Delay / Veh (s)	9.2
Total Stops	1250
Travel Time (hr)	8.5
Avg Speed (mph)	24
Vehicles Entered	1248
Vehicles Exited	1250
Hourly Exit Rate	1250
Input Volume	1242
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 Existing PM Peak-2 Thru E-W, All-Way Stop

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R	
Maximum Queue (ft)	75	70	72	47	67	51	65	68	50	42	86	58	
Average Queue (ft)	28	33	32	14	32	24	34	33	18	18	40	32	
95th Queue (ft)	53	57	58	37	56	44	55	57	43	39	68	51	
Link Distance (ft)	674			672			953			952			
Upstream Blk Time (%)													
Queuing Penalty (veh)													
Storage Bay Dist (ft)	300	300		400	400		100	100		100	100		
Storage Blk Time (%)							0	0					
Queuing Penalty (veh)							0	0					

SimTraffic Performance Report
 2030 AM Peak-2 Thru E-W, All-Way Stop

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.3	0.5	0.0	0.0	0.7	0.1	0.4	0.6	0.1	0.1	0.2	0.2
Delay / Veh (s)	7.1	9.9	2.9	4.7	10.9	4.7	11.7	11.6	8.2	11.1	11.5	8.3
Total Stops	131	171	49	32	237	45	128	185	47	30	55	102
Travel Time (hr)	0.8	1.0	0.3	0.2	1.5	0.3	1.2	1.7	0.4	0.2	0.4	0.8
Avg Speed (mph)	23	24	26	26	23	24	21	20	23	26	25	28
Vehicles Entered	132	170	49	32	237	44	128	186	47	30	56	102
Vehicles Exited	131	170	49	32	237	45	128	185	47	30	55	102
Hourly Exit Rate	131	170	49	32	237	45	128	185	47	30	55	102
Input Volume	135	170	50	35	230	40	125	185	45	30	60	110
% of Volume	97	100	98	91	103	112	102	100	104	100	92	93
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	3.2
Delay / Veh (s)	9.5
Total Stops	1212
Travel Time (hr)	8.8
Avg Speed (mph)	23
Vehicles Entered	1213
Vehicles Exited	1211
Hourly Exit Rate	1211
Input Volume	1215
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 2030 AM Peak-2 Thru E-W, All-Way Stop

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R	
Maximum Queue (ft)	79	61	49	39	66	57	82	110	60	50	71	59	
Average Queue (ft)	33	27	22	14	31	25	40	56	25	17	27	30	
95th Queue (ft)	59	47	40	31	54	46	66	92	52	43	55	48	
Link Distance (ft)	674		672		953		952						
Upstream Blk Time (%)													
Queuing Penalty (veh)													
Storage Bay Dist (ft)	300	300		400	400		100	100		100	100		
Storage Blk Time (%)							0	1					
Queuing Penalty (veh)							0	1					

SimTraffic Performance Report
 2030 PM Peak-2 Thru E-W, All-Way Stop

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.5	1.4	0.3	0.1	2.0	0.1	0.5	0.3	0.1	0.2	0.9	0.6
Delay / Veh (s)	11.8	13.7	7.5	6.9	16.8	8.8	15.9	11.7	8.8	14.4	19.5	12.5
Total Stops	166	358	149	54	432	55	115	104	41	50	160	170
Travel Time (hr)	1.2	2.5	1.0	0.3	3.4	0.4	1.2	1.0	0.4	0.4	1.6	1.5
Avg Speed (mph)	19	20	21	23	18	19	19	20	22	24	19	24
Vehicles Entered	168	357	150	53	431	55	115	105	41	50	161	170
Vehicles Exited	166	358	149	54	431	55	114	104	41	49	160	170
Hourly Exit Rate	166	358	149	54	431	55	114	104	41	49	160	170
Input Volume	160	355	155	55	430	55	120	100	40	50	160	160
% of Volume	104	101	96	98	100	100	95	104	102	98	100	106
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	7.1
Delay / Veh (s)	13.7
Total Stops	1854
Travel Time (hr)	15.0
Avg Speed (mph)	20
Vehicles Entered	1856
Vehicles Exited	1851
Hourly Exit Rate	1851
Input Volume	1840
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 2030 PM Peak-2 Thru E-W, All-Way Stop

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB		
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R		
Maximum Queue (ft)	116	92	93	45	116	110	86	90	57	54	118	86		
Average Queue (ft)	46	49	48	19	59	46	43	42	25	25	58	45		
95th Queue (ft)	89	80	78	36	101	88	70	70	48	48	96	70		
Link Distance (ft)	674		672		953		952							
Upstream Blk Time (%)														
Queuing Penalty (veh)														
Storage Bay Dist (ft)	300	300		400	400		100	100		100	100			
Storage Blk Time (%)							0	0					1	0
Queuing Penalty (veh)							0	0					2	0

SimTraffic Performance Report
 Existing AM Peak-3 Approach Lanes, Traffic Signal

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.3	0.3	0.1	0.1	0.5	0.0	0.5	0.5	0.1	0.1	0.2	0.1
Delay / Veh (s)	13.9	8.6	5.4	12.6	11.4	5.9	18.4	16.0	7.5	19.9	21.7	7.8
Total Stops	56	44	16	14	69	12	66	85	23	13	31	59
Travel Time (hr)	1.0	1.0	0.3	0.2	1.5	0.2	1.1	1.3	0.3	0.2	0.4	0.5
Avg Speed (mph)	28	32	36	29	29	35	17	18	23	19	18	29
Vehicles Entered	87	116	34	22	155	23	90	123	31	15	41	69
Vehicles Exited	85	116	34	22	154	23	91	123	30	15	41	69
Hourly Exit Rate	85	116	34	22	154	23	91	123	30	15	41	69
Input Volume	88	113	33	24	156	26	87	129	31	19	41	71
% of Volume	97	103	103	92	99	88	105	95	97	79	100	97
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	1	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	2.8
Delay / Veh (s)	12.6
Total Stops	488
Travel Time (hr)	7.9
Avg Speed (mph)	25
Vehicles Entered	806
Vehicles Exited	803
Hourly Exit Rate	803
Input Volume	818
% of Volume	98
Denied Entry Before	0
Denied Entry After	1

Queuing and Blocking Report
 Existing AM Peak-3 Approach Lanes, Traffic Signal

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	76	95	18	48	109	20	78	100	36	38	59	58
Average Queue (ft)	29	26	6	9	36	4	38	44	9	10	21	19
95th Queue (ft)	63	64	18	30	83	15	71	83	25	32	49	41
Link Distance (ft)	1452				1450				953		954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300		300		400		400		100		100	
Storage Blk Time (%)							0		0			
Queuing Penalty (veh)							0		0			

SimTraffic Performance Report
 Existing PM Peak-3 Approach Lanes, Traffic Signal

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.5	0.9	0.2	0.2	1.3	0.1	0.5	0.4	0.1	0.2	0.7	0.3
Delay / Veh (s)	17.1	12.7	6.8	16.0	16.1	5.9	23.6	19.9	7.8	23.0	23.6	10.5
Total Stops	73	103	52	30	159	18	70	47	18	28	81	85
Travel Time (hr)	1.2	2.4	1.0	0.4	3.2	0.3	1.1	0.8	0.2	0.4	1.2	0.9
Avg Speed (mph)	26	29	34	26	26	35	15	16	23	18	17	26
Vehicles Entered	98	243	111	38	296	32	81	67	27	34	113	109
Vehicles Exited	98	244	112	38	295	33	82	67	27	34	113	110
Hourly Exit Rate	98	244	112	38	295	33	82	67	27	34	113	110
Input Volume	105	239	109	38	291	34	82	70	27	32	112	103
% of Volume	93	102	103	100	101	97	100	96	100	106	101	107
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	5.3
Delay / Veh (s)	15.2
Total Stops	764
Travel Time (hr)	13.2
Avg Speed (mph)	25
Vehicles Entered	1249
Vehicles Exited	1253
Hourly Exit Rate	1253
Input Volume	1242
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 Existing PM Peak-3 Approach Lanes, Traffic Signal

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	94	167	51	56	207	24	104	84	27	59	120	84
Average Queue (ft)	36	57	16	16	79	6	41	31	9	20	46	28
95th Queue (ft)	75	120	36	42	156	19	83	66	24	46	94	57
Link Distance (ft)	1452				1450				953		954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300		300		400		400		100		100	
Storage Blk Time (%)							1		0		0	
Queuing Penalty (veh)							1		0		0	

SimTraffic Performance Report
 2030 AM Peak-3 Approach Lanes, Traffic Signal

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.6	0.6	0.1	0.1	1.2	0.1	0.7	1.0	0.1	0.2	0.4	0.3
Delay / Veh (s)	17.0	11.7	6.3	15.1	17.5	7.0	19.8	18.7	7.7	22.6	24.7	9.5
Total Stops	103	73	26	25	141	27	87	132	29	25	40	93
Travel Time (hr)	1.6	1.6	0.4	0.4	2.7	0.4	1.4	2.1	0.4	0.3	0.6	0.9
Avg Speed (mph)	26	30	35	27	25	34	17	16	23	18	17	27
Vehicles Entered	137	170	49	32	239	42	119	189	47	29	55	114
Vehicles Exited	135	172	48	32	237	42	119	189	48	29	54	114
Hourly Exit Rate	135	172	48	32	237	42	119	189	48	29	54	114
Input Volume	135	170	50	35	230	40	125	185	45	30	60	110
% of Volume	100	101	96	91	103	105	95	102	107	97	90	104
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	5.2
Delay / Veh (s)	15.5
Total Stops	801
Travel Time (hr)	13.0
Avg Speed (mph)	24
Vehicles Entered	1222
Vehicles Exited	1219
Hourly Exit Rate	1219
Input Volume	1215
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

Queuing and Blocking Report
 2030 AM Peak-3 Approach Lanes, Traffic Signal

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	104	118	36	52	206	31	113	160	52	52	83	66
Average Queue (ft)	47	46	10	15	74	9	50	71	12	17	29	28
95th Queue (ft)	89	94	25	37	147	22	92	126	34	41	66	54
Link Distance (ft)	1452				1450				953		954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300		300		400		400		100		100	
Storage Blk Time (%)							1		3		0	
Queuing Penalty (veh)							2		4		0	

SimTraffic Performance Report
 2030 PM Peak-3 Approach Lanes, Traffic Signal

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	1.0	1.9	0.4	0.3	3.2	0.1	0.9	0.7	0.1	0.3	1.3	0.6
Delay / Veh (s)	24.0	19.2	8.5	20.2	26.9	7.3	27.6	23.4	10.2	26.3	30.1	14.3
Total Stops	132	189	78	53	305	35	101	77	30	39	117	125
Travel Time (hr)	2.2	4.2	1.5	0.8	5.9	0.5	1.6	1.4	0.4	0.6	1.9	1.5
Avg Speed (mph)	22	25	33	24	20	33	14	15	21	17	15	22
Vehicles Entered	156	366	154	62	426	54	113	108	42	47	152	161
Vehicles Exited	155	364	153	62	426	54	114	109	42	47	154	161
Hourly Exit Rate	155	364	153	62	426	54	114	109	42	47	154	161
Input Volume	160	355	155	55	430	55	120	100	40	50	160	160
% of Volume	97	103	99	113	99	98	95	109	105	94	96	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	1	0	0	0	0	0

100: Diffley Road (CSAH 30) & Dodd Road Performance by movement

Movement	All
Total Delay (hr)	11.0
Delay / Veh (s)	21.4
Total Stops	1281
Travel Time (hr)	22.6
Avg Speed (mph)	21
Vehicles Entered	1841
Vehicles Exited	1841
Hourly Exit Rate	1841
Input Volume	1840
% of Volume	100
Denied Entry Before	0
Denied Entry After	1

Queuing and Blocking Report
 2030 PM Peak-3 Approach Lanes, Traffic Signal

Intersection: 100: Diffley Road (CSAH 30) & Dodd Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	126	227	62	81	361	38	134	127	53	77	144	98
Average Queue (ft)	61	105	23	27	172	10	58	52	14	26	70	42
95th Queue (ft)	107	186	46	62	295	26	108	104	35	61	126	80
Link Distance (ft)	1452				1450				953		954	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300		300		400		400		100		100	
Storage Blk Time (%)	0				0		1		1		0	
Queuing Penalty (veh)	0				0		2		2		0	

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*****
*
*                               DIFF ROAD + EXISTING VOLS                               14
*
*****
*
* E      (m)      4.30   4.30   4.30   4.30      * TIME PERIOD      min      90  *
* L'     (m)     10.00  10.00  10.00  10.00     * TIME SLICE       min      15  *
* V      (m)      3.65   3.65   3.65   3.65     * RESULTS PERIOD   min     15 75 *
* RAD    (m)     20.00  20.00  20.00  20.00     * TIME COST        $/hr   15.00 *
* PHI    (d)     20.00  20.00  20.00  20.00     * FLOW PERIOD      min     15 75 *
* DIA    (m)     30.00  30.00  30.00  30.00     * FLOW TYPE        pcu/veh  VEH  *
* GRAD SEP      0      0      0      0          * FLOW PEAK        am/op/pm  AM  *
*****
* LEG NAME *PCU *VEH TURNS (1st exit, 2nd..U)*FLOF*CL* FLOW RATIO *FLOW TIME*
*          *   *
*NB DODD   *1.05*  031  129  087  0          *1.00*50*0.75 1.125 0.75*15 45 75 *
*WB DIFF   *1.05*  026  156  024  0          *1.00*50*0.75 1.125 0.75*15 45 75 *
*SB DODD   *1.05*  071  041  019  0          *1.00*50*0.75 1.125 0.75*15 45 75 *
*EB DIFF   *1.05*  033  113  088  0          *1.00*50*0.75 1.125 0.75*15 45 75 *
*****
*
* FLOW      veh      247   206   131   234          * AVEDEL    s      3.9  *
* CAPACITY  veh     1121  1071  1093  1201     * LOS      SIG      A  *
* AVE DELAY mins    0.07  0.07  0.06  0.06     * LOS UNSIG  A  *
* MAX DELAY mins    0.09  0.09  0.08  0.08          *
* AVE QUEUE  veh      0      0      0      0          * VEHIC HRS  0.9  *
* MAX QUEUE  veh      0      0      0      0          * COST      $      13  *
*****

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*****
*
*                               DIFF ROAD + EXISTING VOLS                               15
*
*****
*
* E      (m)      4.30   4.30   4.30   4.30      * TIME PERIOD      min      90  *
* L'     (m)     10.00  10.00  10.00  10.00     * TIME SLICE       min      15  *
* V      (m)      3.65   3.65   3.65   3.65     * RESULTS PERIOD   min     15 75 *
* RAD    (m)     20.00  20.00  20.00  20.00     * TIME COST        $/hr   15.00 *
* PHI    (d)     20.00  20.00  20.00  20.00     * FLOW PERIOD      min     15 75 *
* DIA    (m)     30.00  30.00  30.00  30.00     * FLOW TYPE        pcu/veh  VEH  *
* GRAD SEP      0      0      0      0          * FLOW PEAK        am/op/pm  PM  *
*****
* LEG NAME *PCU *VEH TURNS (1st exit, 2nd..U)*FLOF*CL* FLOW RATIO *FLOW TIME*
*          *   *
*NB DODD   *1.05*  027  070  082  0          *1.00*50*0.75 1.125 0.75*15 45 75 *
*WB DIFF   *1.05*  034  291  038  0          *1.00*50*0.75 1.125 0.75*15 45 75 *
*SB DODD   *1.05*  103  112  032  0          *1.00*50*0.75 1.125 0.75*15 45 75 *
*EB DIFF   *1.05*  109  239  105  0          *1.00*50*0.75 1.125 0.75*15 45 75 *
*****
*
* FLOW      veh      179   363   247   453          * AVEDEL    s      4.8  *
* CAPACITY  veh     1029  1099  1008  1143     * LOS      SIG      A  *
* AVE DELAY mins    0.07  0.08  0.08  0.09     * LOS UNSIG  A  *
* MAX DELAY mins    0.09  0.11  0.10  0.12          *
* AVE QUEUE  veh      0      0      0      1          * VEHIC HRS  1.7  *
* MAX QUEUE  veh      0      1      0      1          * COST      $      25  *
*****

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*****
*
*                               DIFF ROAD + PROJECTED 2030 VOLS                               13
*
*****
*
* E      (m)      4.30   4.30   4.30   4.30      * TIME PERIOD      min      90  *
* L'     (m)     10.00  10.00  10.00  10.00     * TIME SLICE       min      15  *
* V      (m)      3.65   3.65   3.65   3.65     * RESULTS PERIOD   min     15 75 *
* RAD    (m)     20.00  20.00  20.00  20.00     * TIME COST        $/hr   15.00 *
* PHI    (d)     20.00  20.00  20.00  20.00     * FLOW PERIOD      min     15 75 *
* DIA    (m)     30.00  30.00  30.00  30.00     * FLOW TYPE        pcu/veh  VEH  *
* GRAD SEP      0      0      0      0      * FLOW PEAK        am/op/pm  AM  *
*****
* LEG NAME *PCU *VEH TURNS (1st exit, 2nd..U)*FLOF*CL* FLOW RATIO *FLOW TIME*
*          *    *
*NB DODD   *1.05*  045  185  125  0      *1.00*50*0.75  1.125  0.75*15 45 75 *
*WB DIFF   *1.05*  040  230  035  0      *1.00*50*0.75  1.125  0.75*15 45 75 *
*SB DODD   *1.05*  110  060  030  0      *1.00*50*0.75  1.125  0.75*15 45 75 *
*EB DIFF   *1.05*  050  170  135  0      *1.00*50*0.75  1.125  0.75*15 45 75 *
*****
*
* FLOW      veh      355   305   200   355      * AVEDEL    s      4.7  *
* CAPACITY  veh     1053  988   1021  1177     * LOS      SIG      A  *
* AVE DELAY mins    0.08  0.09  0.07  0.07     * LOS UNSIG  A  *
* MAX DELAY mins    0.11  0.12  0.09  0.09     *
* AVE QUEUE  veh      1     0     0     0      * VEHIC HRS  1.6  *
* MAX QUEUE  veh      1     1     0     1      * COST      $      24  *
*****

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*****
*
*                               DIFF ROAD + PROJECTED 2030 VOLS                               14
*
*****
*
* E      (m)      4.30   4.30   4.30   4.30      * TIME PERIOD      min      90  *
* L'     (m)     10.00  10.00  10.00  10.00     * TIME SLICE       min      15  *
* V      (m)      3.65   3.65   3.65   3.65     * RESULTS PERIOD   min     15 75 *
* RAD    (m)     20.00  20.00  20.00  20.00     * TIME COST        $/hr   15.00 *
* PHI    (d)     20.00  20.00  20.00  20.00     * FLOW PERIOD      min     15 75 *
* DIA    (m)     30.00  30.00  30.00  30.00     * FLOW TYPE        pcu/veh  VEH  *
* GRAD SEP      0      0      0      0      * FLOW PEAK        am/op/pm  PM  *
*****
* LEG NAME *PCU *VEH TURNS (1st exit, 2nd..U)*FLOF*CL* FLOW RATIO *FLOW TIME*
*          *    *
*NB DODD   *1.05*  040  100  120  0      *1.00*50*0.75  1.125  0.75*15 45 75 *
*WB DIFF   *1.05*  055  430  055  0      *1.00*50*0.75  1.125  0.75*15 45 75 *
*SB DODD   *1.05*  160  160  050  0      *1.00*50*0.75  1.125  0.75*15 45 75 *
*EB DIFF   *1.05*  155  355  160  0      *1.00*50*0.75  1.125  0.75*15 45 75 *
*****
*
* FLOW      veh      260   540   370   670      * AVEDEL    s      7.4  *
* CAPACITY  veh     918  1027  894   1094     * LOS      SIG      A  *
* AVE DELAY mins    0.09  0.12  0.11  0.14     * LOS UNSIG  A  *
* MAX DELAY mins    0.12  0.18  0.16  0.21     *
* AVE QUEUE  veh      0     1     1     2      * VEHIC HRS  3.8  *
* MAX QUEUE  veh      0     1     1     2      * COST      $      57  *
*****

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