TRANSPORTATION PLANNERS AND ENGINEERS

Woodbend-Graminia Subdivision Traffic Impact Assessment

Final Report

Prepared for

Focus Corporation on behalf of 1285827 Alberta Ltd.

Date

May 7, 2012

Prepared by

Bunt & Associates

Project No.

3378.01

CORPORATE AUTHORIZATION

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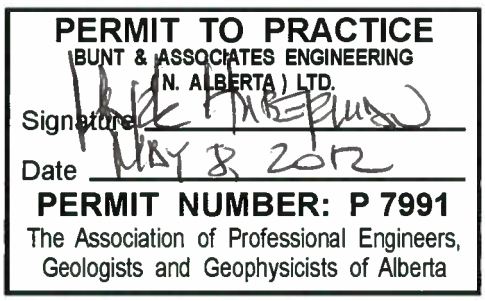

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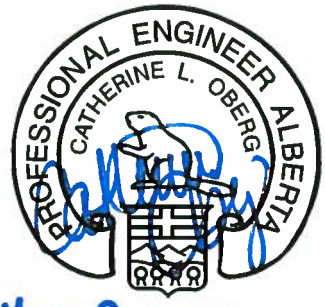

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EXHIBITS

TABLES

1. INTRODUCTION

Focus Corporation, on behalf of 1285827 Alberta Ltd., is currently preparing a subdivision application to create a country residential subdivision on the NW and SW ¼ SEC 25-51-26-W4M in Parkland County, Alberta. As part of the subdivision application process, a traffic impact assessment (TIA) was identified as being required to identify any potential impacts along the adjacent roadway network. Therefore, Focus Corporation, by direction of 1285827 Alberta Ltd., retained Bunt & Associates to complete a TIA on their behalf.

1.1 Study Purpose and Objectives

The traffic generated by the proposed subdivision has the potential to impact adjacent Parkland County and Alberta Transportation (AT) roadway facilities. To provide safe and efficient access capabilities to existing and future land uses, consideration must be given to the incremental increase in traffic anticipated to be generated by the plan area lands.

The primary purpose for completing the study was to ensure that the existing and future roadway network and key study area intersections are appropriately designed and constructed to accommodate all roadway users at safe and satisfactory levels of transportation service.

The primary objectives of the assignment were to:

- Identify anticipated trip generation characteristics of the proposed subdivision development;
- Assess the traffic impacts of the proposed development on the adjacent roadway network;
- Evaluate projected traffic activity along Highway 627, Twp. Rd. 514, and RR 261 including operations at the key intersection and access points; and,
- Identify roadway and intersection improvements required, if any, to accommodate background and site generated traffic.

1.2 Study Methodology

The assessment presented in the following sections reflects an understanding of the development site's locational attributes, site access requirements, and adjacent traffic accommodation issues and concerns. The assessment was completed using the following methodology:

- An examination of the development area with respect to existing conditions: land use, roadways, traffic conditions and traffic operations;
- Identification of the proposed future roadway network adjacent to and internal to the development area including access locations;

- An estimation of forecasted background traffic conditions;
- Identification of future vehicular trip patterns generated to and from the development site based on the number of residential lots proposed;
- Distribution and assignment of the projected vehicular demands on adjacent corridors based on the proposed roadway network, access strategy, and the relative location of trip origins and destinations;
- Completion of an overall analysis and assessment of the estimated roadway volumes within the study area to identify roadway lane requirements, to identify possible roadway capacity restrictions, and to assess the overall traffic impacts associated with the development area; and,
- Recommendation of roadway improvements and traffic control mitigation measures to ensure that safe and reasonable levels of traffic service are maintained.

1.3 Area of Significant Traffic Impact

It has been assumed that plan-area generated traffic will predominantly impact Highway 627, Twp. Rd. 514, and RR 261. Therefore, the study area selected for assessment purposes includes these three roadways.

2. SITE CONTEXT – AREA CONDITIONS

2.1 Site Location and Adjacent Land Uses

The proposed subdivision is located west of the City of Edmonton and south of Highway 627 in Parkland County, as shown in **Exhibit 2-1**. The site is currently zoned CR – Country Residential District under the Parkland County Land Use Bylaw 20-2009.

Lands adjacent to the proposed subdivision are primarily designated CR – Country Residential District. Sandy Ridge Estates, an existing subdivision accessed by Sandy Ridge Crescent, borders the west edge of the NW ¼ section of the proposed development.

2.2 Existing Conditions

2.2.1 Existing Roadway Network

The existing network in the vicinity of the proposed development site includes the following roadways as shown on **Exhibit 2-2**:

- ***Highway 627 (Twp. Rd. 520)*** is a paved, two-lane rural highway with a posted speed limit of 100 km/hr. Highway 627 provides a secondary east/west connection parallel to Highway 16 between the City of Edmonton to the east and Highway 759 to the west. Based on a review of AT's TIMS WebMap V2, Highway 627 is approximately 11.0 to 12.0 metres wide in the vicinity of the RR 261/Highway 627 intersection. The horizontal alignment in the vicinity of the study area includes a combination of simple and spiral curves and there is a slight vertical grade along Highway 627 in the vicinity of RR 261. Delineation lighting is currently provided along Highway 627 at the RR 261 intersection.

- ***Twp. Rd. 514 (Woodbend Road)*** is a paved, two-lane rural roadway with a posted speed limit of 80 km/hr in the vicinity of the study area. The existing alignment is relatively straight but there is a vertical curve west of RR 261 that may restrict sight distances at the intersection. No illumination is provided along this roadway in the vicinity of the study area.

- ***RR 261*** is a paved, two-lane rural roadway that runs north/south adjacent to the west boundary of the proposed subdivision. The roadway includes a 6.5 m wide paved surface with gravel shoulders and no significant horizontal or vertical curves. Illumination is not currently provided in the vicinity of the study area.

- ***Sandy Ridge Crescent*** is a paved, two-lane rural roadway with a posted speed limit of 50 km/hr. Sandy Ridge Crescent is a loop roadway west of RR 261, connecting to RR 261 in two locations: north and south. This roadway provides access to a developed country residential subdivision across from the proposed subdivision site. No illumination is provided along Sandy Ridge Crescent.

P:\3378.01 - Woodbend Garminia Residential Subdivision\CAD\Exhibit 2-1 Location Plan.dwg

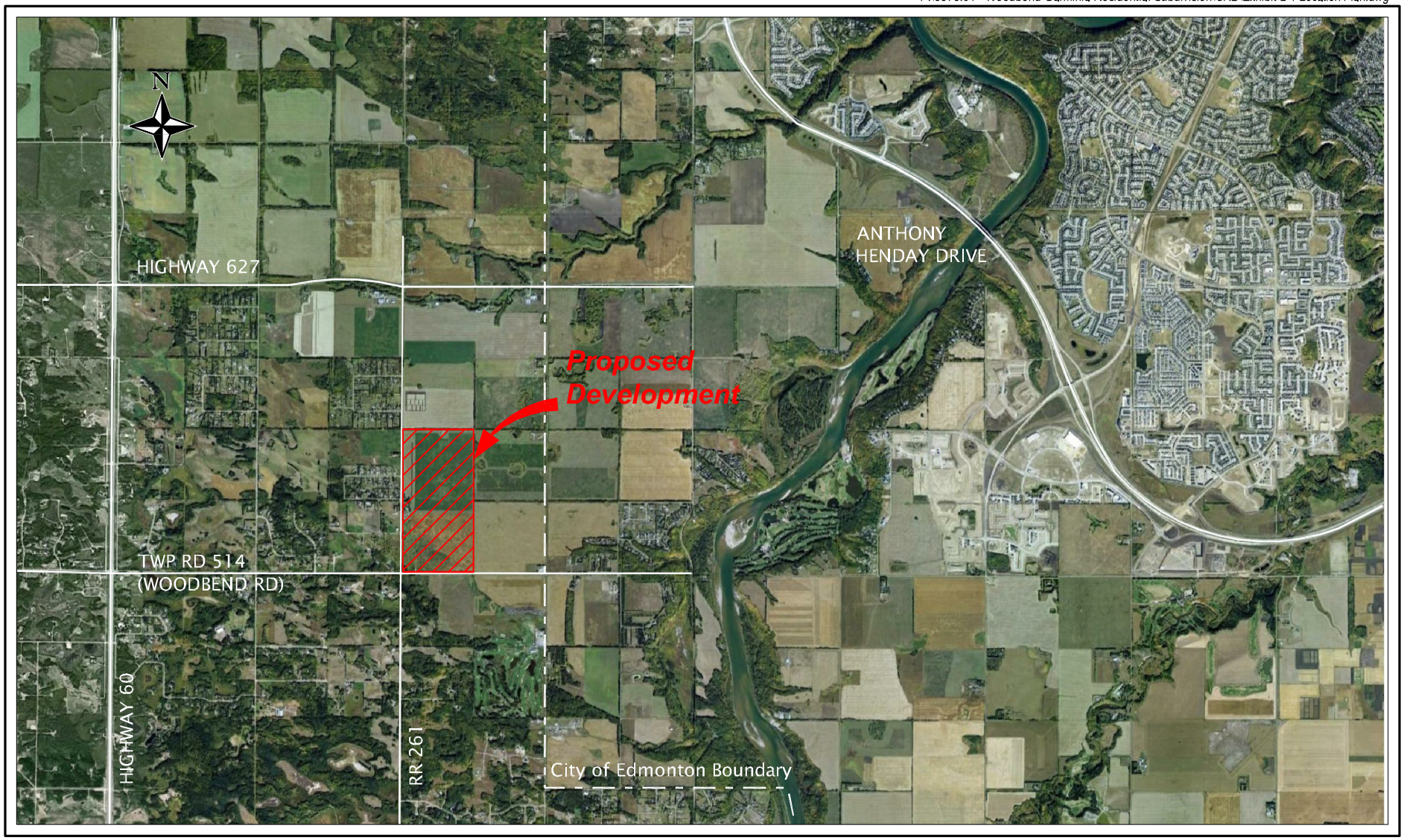

Exhibit 2-1

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Site Location Plan

P:\3378.01 - Woodbend Garminia Residential Subdivision\CAD\Exhibit 2-2 Existing Roadway Network.dwg

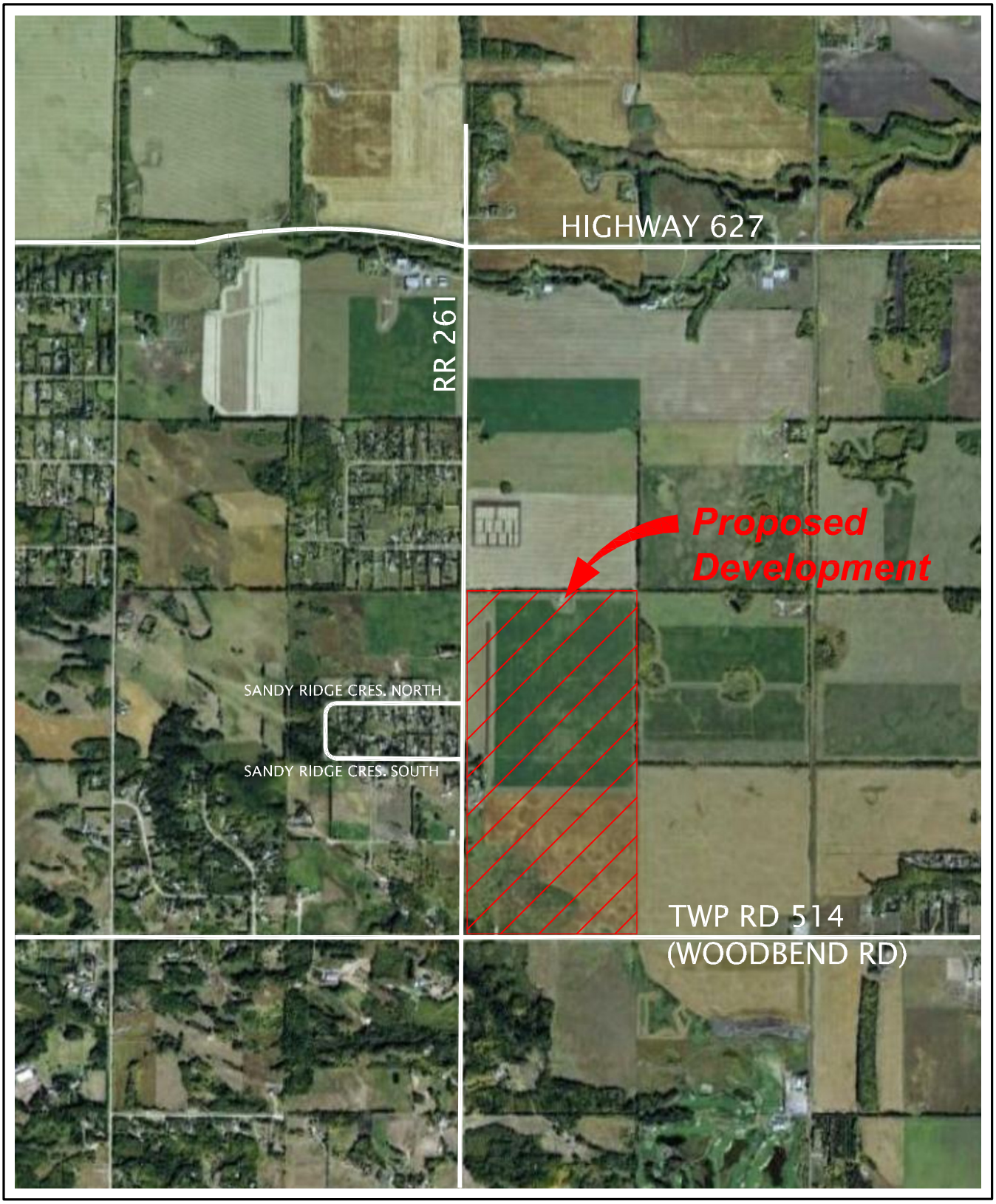

Exhibit 2-2

Scale NTS

Existing Roadway Network

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The intersection of ***Highway 627 and RR 261*** is a four-legged unsignalized intersection with stop control located on the north and south approaches. The intersection has been constructed to include a westbound left turn bay and an eastbound right turn bay. The south approach currently includes one shared left/through lane and one right turn bay, while the north approach provides one lane to accommodate all traffic movements. Based on a review of the AT Highway Geometric Design Guide the intersection is currently assumed to be constructed as a Type IVb intersection with an eastbound right turn bay.

The intersection of ***Twp. Rd. 514 and RR 261*** is a four-legged intersection with stop control located on the north and south approaches. One lane is provided to accommodate all traffic movements on each approach and no illumination is provided at the intersection.

The intersection of ***Sandy Ridge Crescent North and RR 261*** is a T-intersection with stop control on the west approach. No illumination is provided at the intersection.

The intersection of ***Sandy Ridge Crescent South and RR 261*** is a T-intersection with stop control on the west approach. No illumination is provided at the intersection.

2.2.2 Existing Traffic Characteristics

2011 AM and PM 100th highest hour and AADT intersection turning movement volumes for the Highway 627/RR 261 intersection were obtained from AT's traffic data website. In addition to this data, Bunt & Associates completed AM (7:00 AM to 9:00 AM), noon (11:30 AM to 1:30 PM), and PM (4:00 PM to 6:00 PM) intersection turning movement counts at the Twp. Rd. 514/RR 261 and Sandy Ridge Crescent/RR 261 intersections on February 1, and 2, 2012 respectively.

At the intersection of Twp. Rd. 514/RR 261, the AM peak hour occurred between 7:30 AM and 8:30 AM, while the PM peak hour occurred between 4:45 PM and 5:45 PM. The percentage of heavy vehicles observed during the AM and PM peak hours was 2%.

At the Sandy Ridge Crescent/RR 261 access intersections, the AM peak hour occurred between 7:15 AM and 8:15 AM, while the PM peak hour occurred between 5:00 PM and 6:00 PM. The percentage of heavy vehicles observed during the AM and PM peak hours at the intersections were 5% and 0% respectively.

Daily intersection turning movement volumes were estimated by applying a factor of 5.0 to the sum of the AM and PM peak hour traffic volumes. The factor of 5.0 was calculated based on a review of 2011 AM and PM 100th highest hour and AADT volumes on the south approach of the Highway 627/RR 261 intersection.

Exhibit 2-3 summarizes the existing AM and PM peak hour traffic volumes at the study area intersections, while **Exhibit 2-4** summarizes the existing AADT volumes at the study area intersections. Detailed traffic data summaries are included in **Appendix A**.

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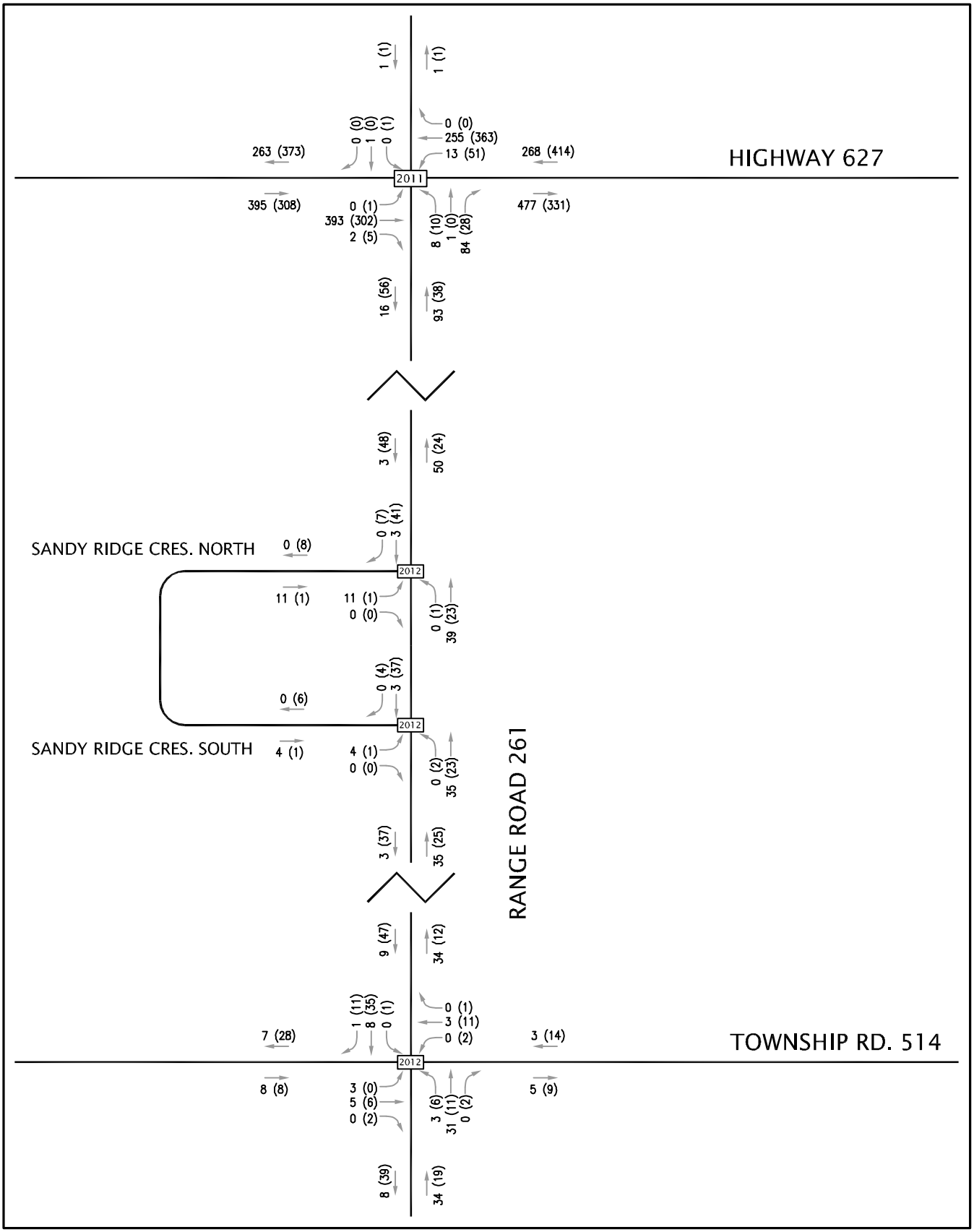

Exhibit 2-3

Scale NTS

Existing AM(PM) Peak Hour Volumes

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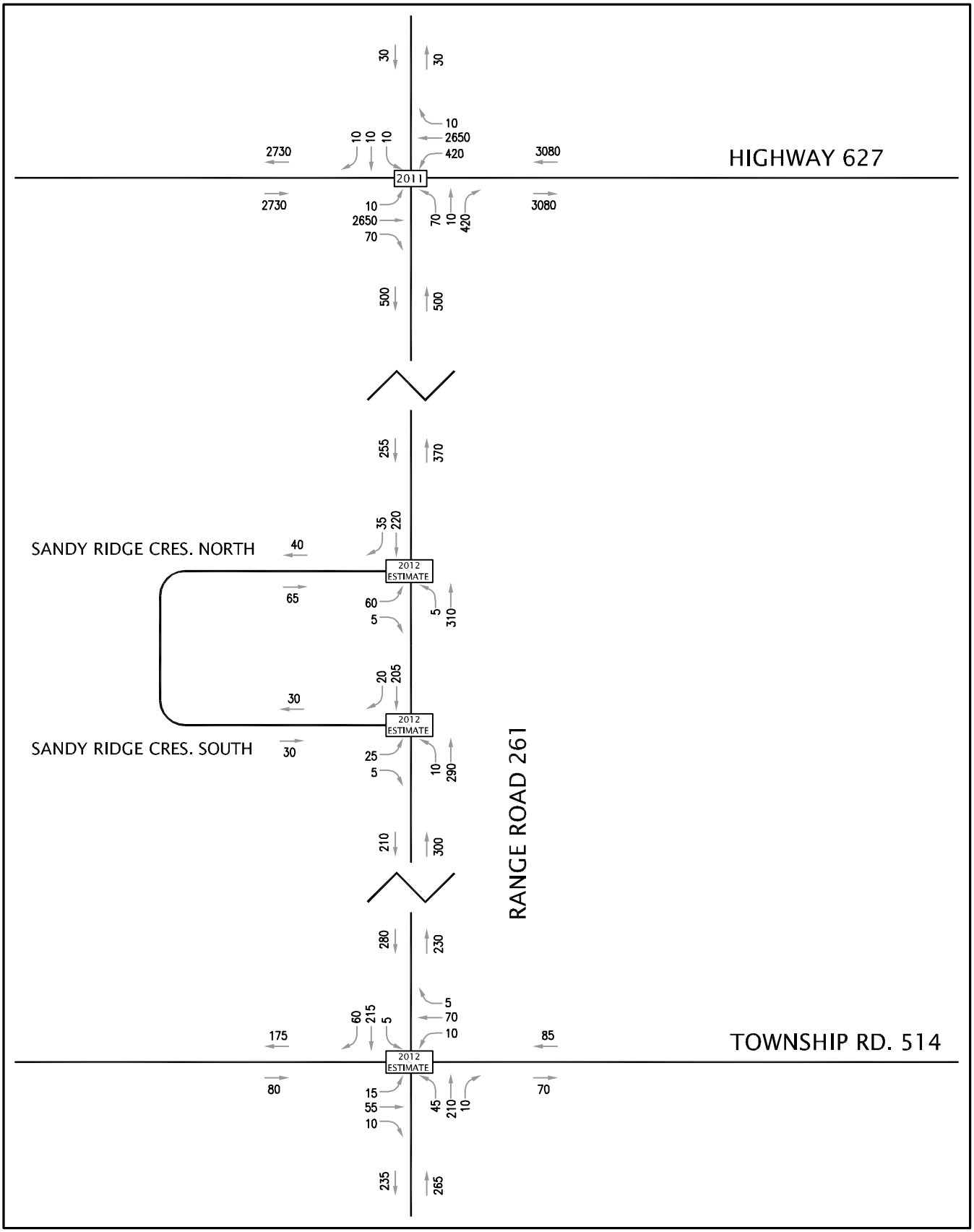

Exhibit 2-4

Scale NTS

Existing Daily Volume Estimates

2.3 Horizon Years

Construction of the proposed subdivision is anticipated to begin in 2012 and it is anticipated that it will take 10 years to build out the subdivision. Therefore, a 2022 horizon has been identified as the project build out year and a 2042 horizon has been included to ensure that any improvements identified are appropriate for 20 years, or the expected life of the improvements, as per AT's requirements.

2.4 Future Conditions

2.4.1 Future Roadway Network

Based on a review of AT's 2011 – 2014 Tentative Major Construction Projects 2011/12 – 2013/14 document, no roadway upgrades have been identified along Highway 627 in the three year horizon. It is assumed that the preservation/overlay on Highway 627 between Highway 779 and the City of Edmonton which was scheduled for 2011 has been completed.

Within the next 10 years, it is anticipated that the Highway 627 connection to the Cameron Heights/Anthony Henday Drive interchange in the City of Edmonton will be completed. While you can currently access Anthony Henday Drive from Highway 627 via existing rural roadways within the City of Edmonton, a direct connection to the Cameron Heights interchange is not currently provided.

2.4.2 Background Traffic Volumes

Background traffic is the component of traffic on the adjacent road system that would be present regardless of the proposed development proceeding. The existing volumes illustrated in Exhibits 2-3 and 2-4 were increased using liner growth rates to estimate 2022 and 2042 background traffic volumes.

The historic linear traffic growth rate along Highway 627 in the vicinity of the site as a percentage of the 2010 AADT is 1.536% for the long term, -0.181% for the ten year horizon, and -6.143% for the five year horizon. The provincial average growth rate is 2.0% per year, and as the five year, ten year, and long term horizon historic growth rates are below the provincial average, the provincial average growth rate was used in the assessment.

The 2.0% provincial average linear growth rate was applied to all movements at the Highway 627/RR 261 and Twp. Rd. 514/RR 261 intersections to generate background traffic volumes for the 2022 and 2042 horizon years. The 2% growth rate was also applied to through movements at the Sandy Ridge Crescent North/RR 261 intersection and the additional through volume was then carried through the Sandy Ridge Crescent South/RR 261 intersection. Sandy Ridge Crescent is a fully developed residential subdivision; therefore, no growth was applied to the turning movements at the Sandy Ridge Crescent access points as no future growth is anticipated within the subdivision.

Exhibits 2-5 and **2-6** illustrate the 2022 AM and PM peak hour and Daily traffic volume estimates, while **Exhibits 2-7** and **2-8** illustrate the 2042 AM and PM peak hour and Daily traffic volume estimates.

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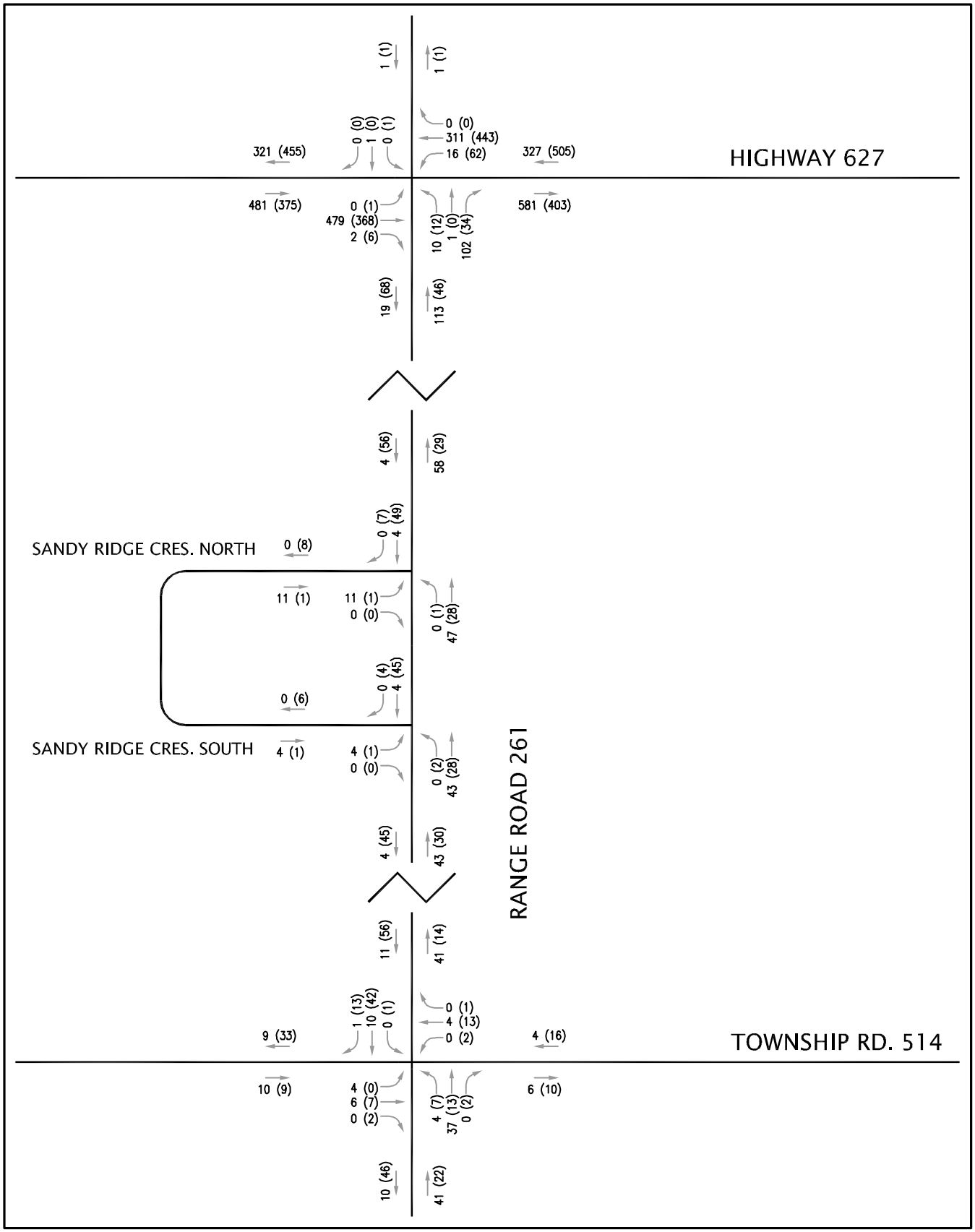

Exhibit 2-5

Scale NTS

2022 Background AM(PM) Peak Hour Volumes

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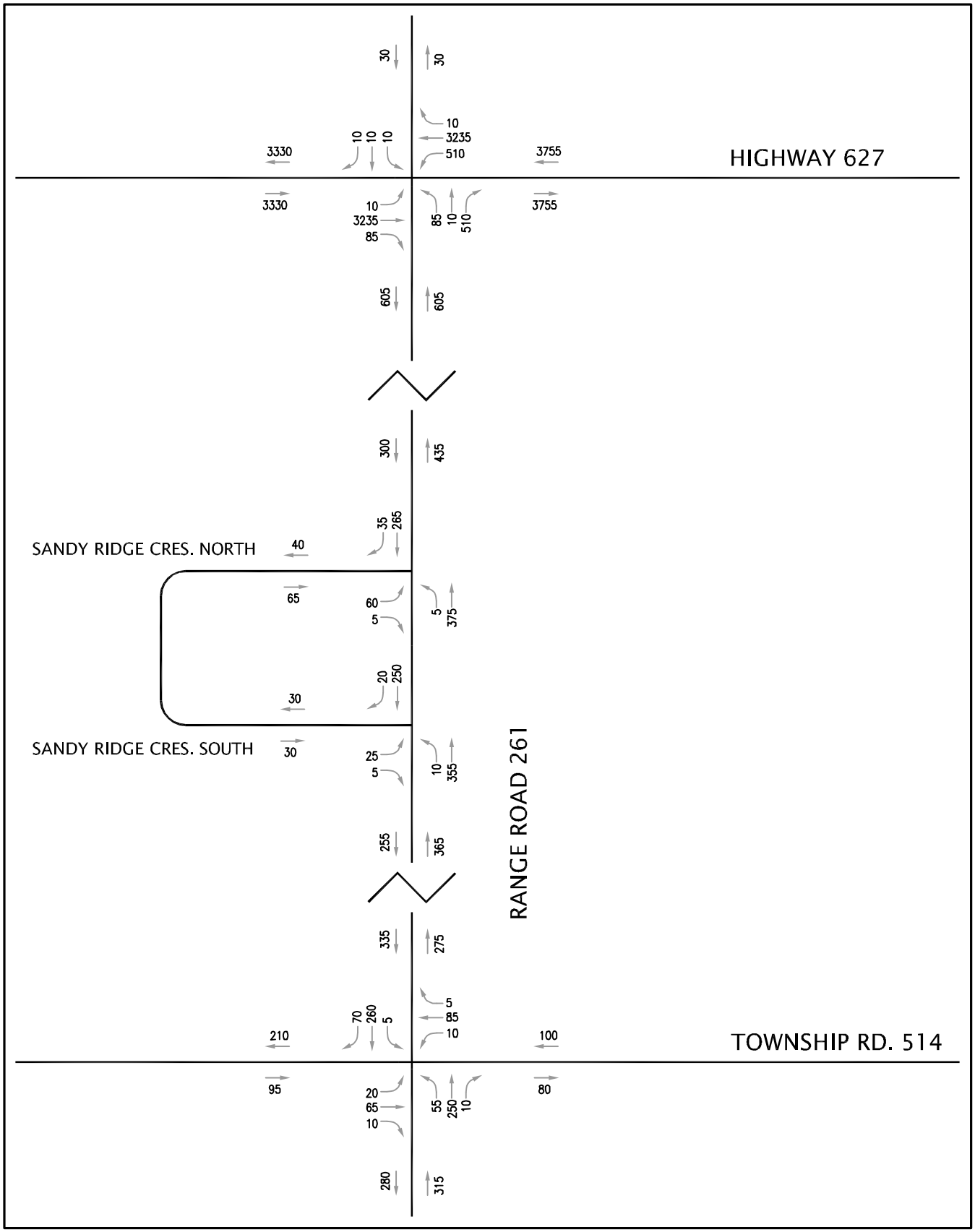

Exhibit 2-6

Scale NTS

2022 Daily Background Volume Estimates

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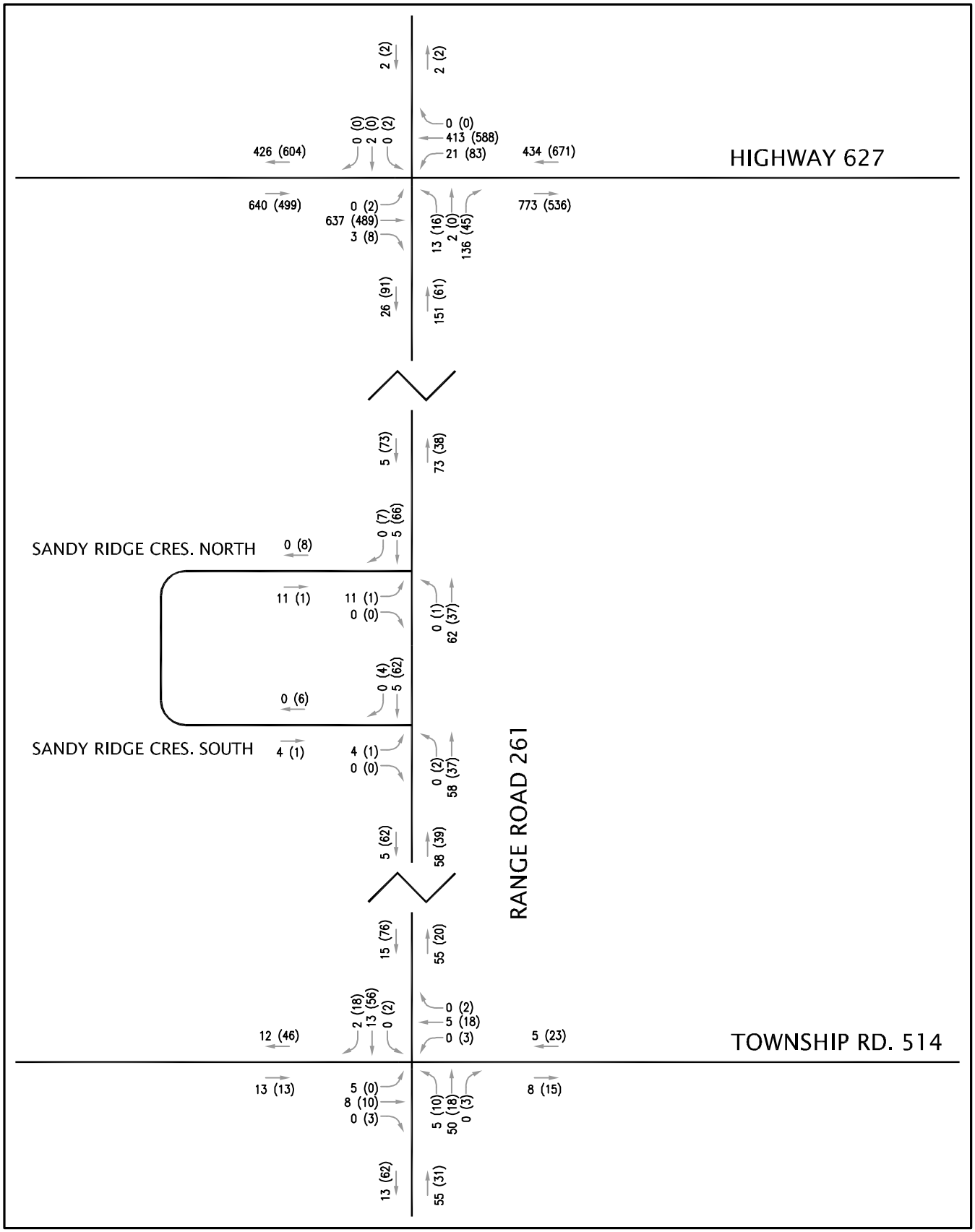

Exhibit 2-7

Scale NTS

2042 Background AM(PM) Peak Hour Volumes

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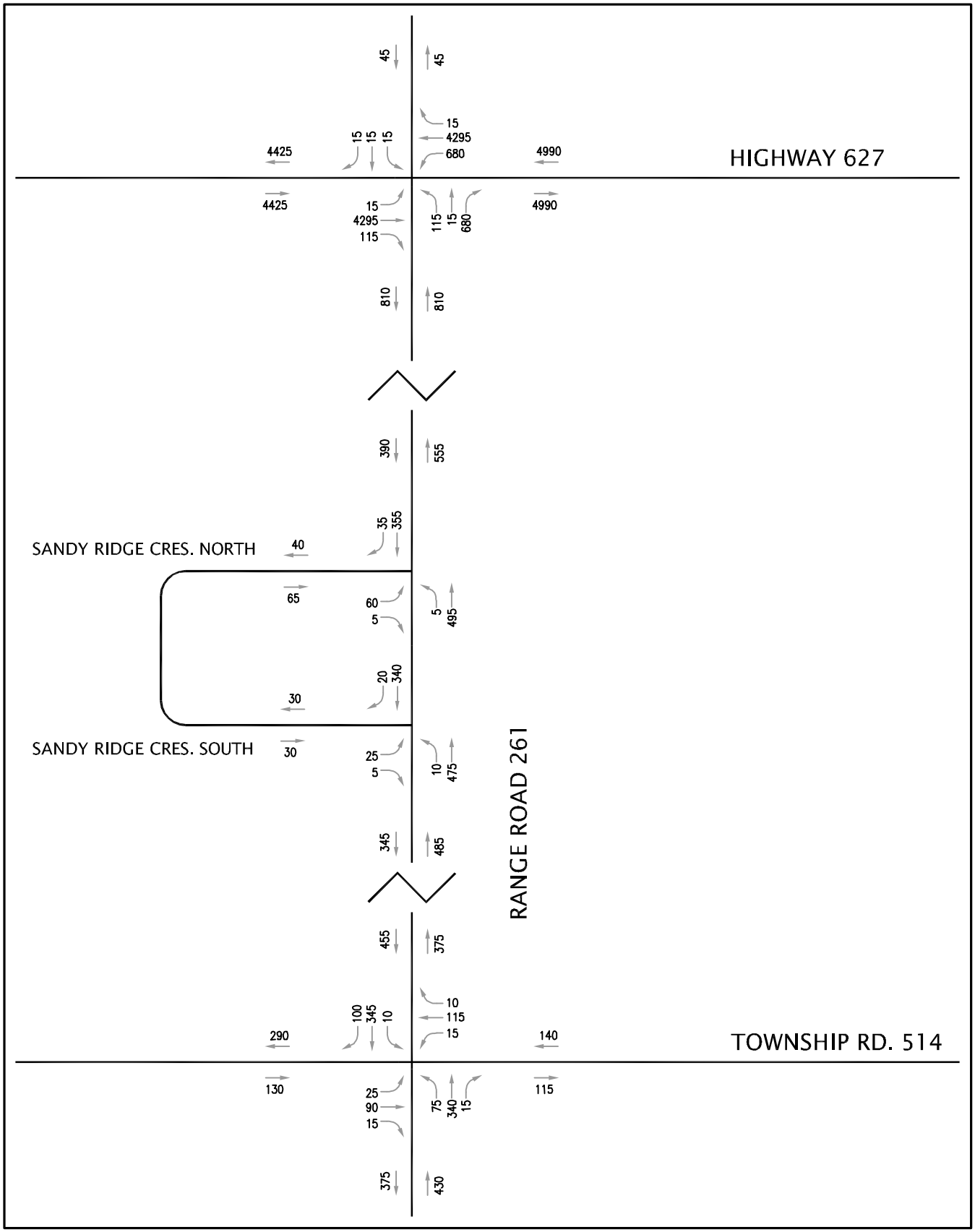

Exhibit 2-8

Scale NTS

2042 Daily Background Volume Estimates

3. PROPOSED DEVELOPMENT

3.1 Proposed Site Plan

The proposed country residential subdivision is located on the NW and SW ¼ SEC 25-51-26-W4M, east of RR 261 and north of Twp. Rd. 514. The development parcel is approximately 115.0 ha in size and is anticipated to include parks (9.8 ha), environmental reserve (13.5 ha), and storm water management facilities (2.2 ha) in addition to residential development.

As shown in **Exhibit 3-1**, the proposed development includes a total of 103 country residential lots, with 3.2 ha of residential land on-hold. It is anticipated that five lots could be developed on the residential reserve land, and that these lots would be the last lots developed within the 10 year horizon.

3.2 Internal Traffic Circulation and Access Strategy

The internal roadway system is anticipated include a series of rural two-lane local roadways within 30 m right-of-ways. The main internal roadway will connect to RR 261 as the fourth leg of the existing Sandy Ridge Crescent North/RR 261 intersection and extend east and then south to connect to Twp. Rd. 514 at a new T-intersection approximately 380 m east of RR 261. In addition to the main roadway, a loop roadway is proposed in the north portion of the plan area and a cul-de-sac is proposed in the west portion of the plan area. All roads internal to the development are anticipated to be constructed as paved local roads with a posted speed limit of 50km/hr.

P:\3378.01 - Woodbend Garminia Residential Subdivision\CAD\Exhibit 3-1 Proposed Site Plan.dwg

Exhibit 3-1 Scale NTS

Proposed Site Plan

4. SITE TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Trip generation rates were determined based on a review of ITE Trip Generation, 8th Edition. Rates published in ITE for Land Use Code (LUC) 210 – Single Family Detached Housing were used in the assessment, and are summarized in **Table 4-1**.

Table 4-1: Summary of Assumed Trip Generation Rates

ITE LUC	Time Interval	Trip Rate
210 – Single Family Detached Housing	AM Peak Hour	0.75 trips /unit
	PM Peak Hour	1.01 trips /unit
	Daily	9.57 trips /unit

Table 4-2 presents a summary of the projected traffic characteristics associated with full development of the subdivision.

Table 4-2: Summary of Projected Traffic

Land Use	Units	AM Peak Hour			PM Peak Hour			Daily	
		Rate	In (25%)	Out (75%)	Rate	In (63%)	Out (37%)	Rate	Total
Residential	103	0.75	19	58	1.01	66	38	9.57	986
Residential Reserve	5	0.75	1	3	1.01	3	2	9.57	48
Total Trips			**20**	**61**		**69**	**40**	**1,034**	
			81			**109**			

As presented in Table 4-2, the fully developed country residential subdivision is expected to generate in the order of 81 two-way trips during a typical weekday AM peak hour, 109 two-way trips during a typical weekday PM peak hour, and about 1,034 two-way trips during a typical weekday.

4.2 Trip Distribution and Assignment

Based on a review of potential surrounding destinations and existing turning movement volumes, the traffic anticipated to be generated by the proposed subdivision is assumed to be distributed to the adjacent roadways as follows:

- 75% to/from Highway 627 east of RR 261;
- 5% to/from Highway 627 west of RR 261; and,
- 20% to/from Twp. Rd. 514 west of RR 261.

Site generated trips were assigned to the adjacent roadway network based on the location of access in relation to the location of lots within the subdivision and the overall distribution summarized above.

Trip assignment was completed for the AM and PM peak hours, as well as for a typical weekday. The AM and PM peak hour trips anticipated to be generated by the proposed development are illustrated in **Exhibit 4 -1**, while the anticipated daily site generated trips are illustrated in **Exhibit 4- 2**

4.3 Total Traffic

The estimated site generated traffic was superimposed on background traffic volumes for the 2022 and 2042 horizons to produce anticipated total traffic volumes for use in the assessment. **Exhibits 4-3** and **4-4** illustrate the 2022 total AM and PM peak hour traffic volumes and 2022 daily volumes respectively while **Exhibits 4-5** and **4-6** summarize the 2042 total AM and PM peak hour traffic volumes and 2042 daily traffic volumes respectively.

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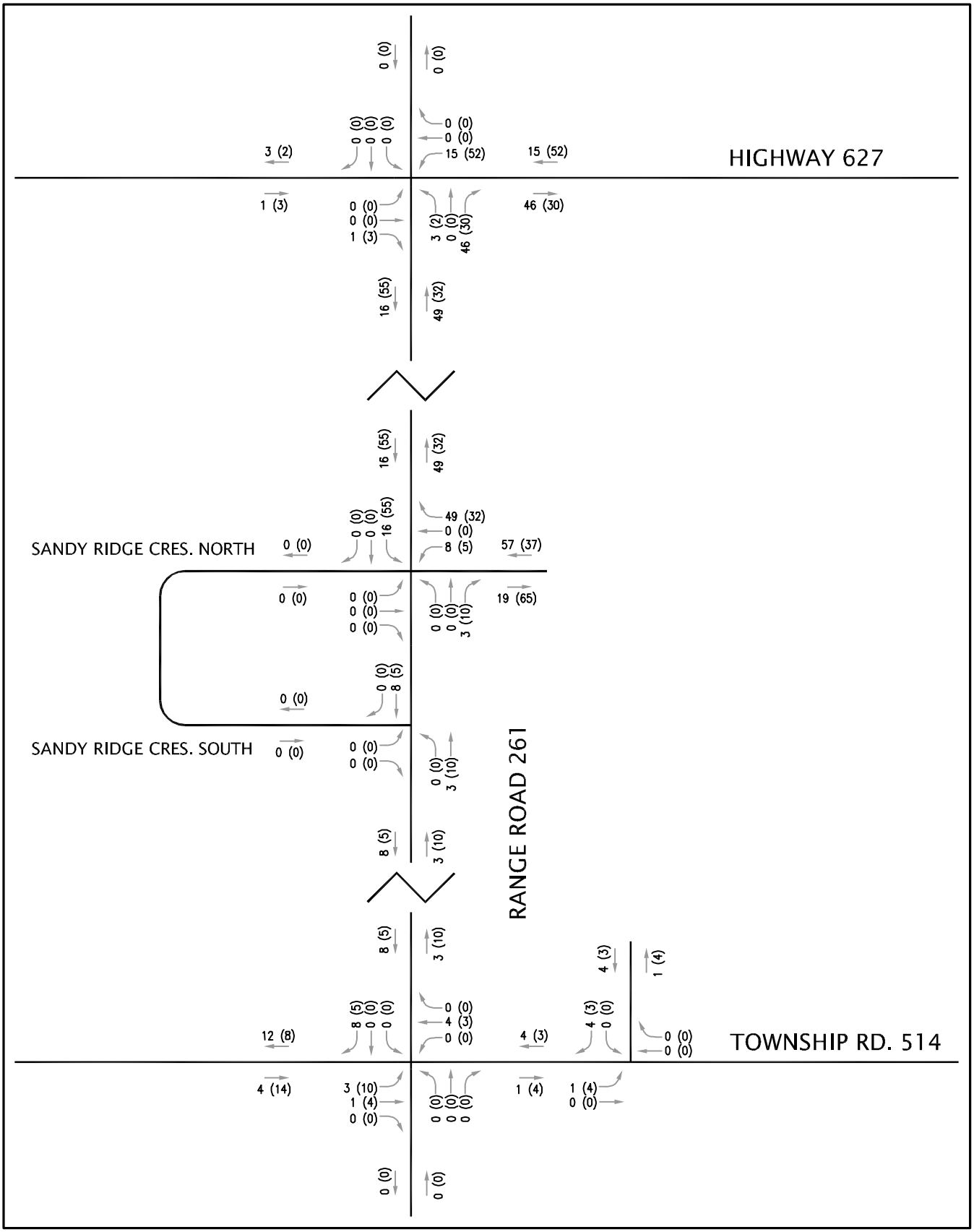

Exhibit 4-1

Scale NTS

Site Generated AM(PM) Peak Hour Volumes

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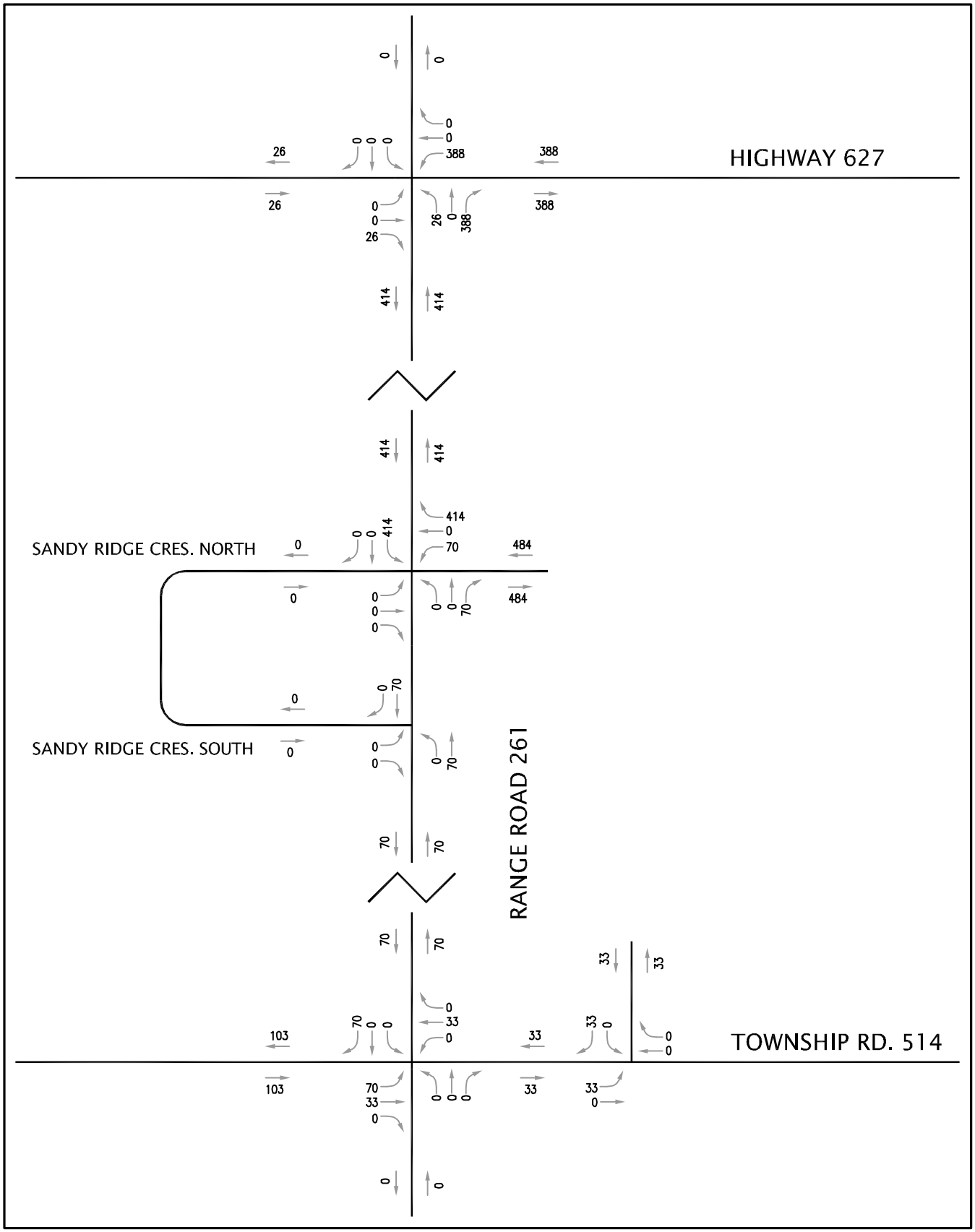

Exhibit 4-2

Scale NTS

Site Generated Daily Volumes

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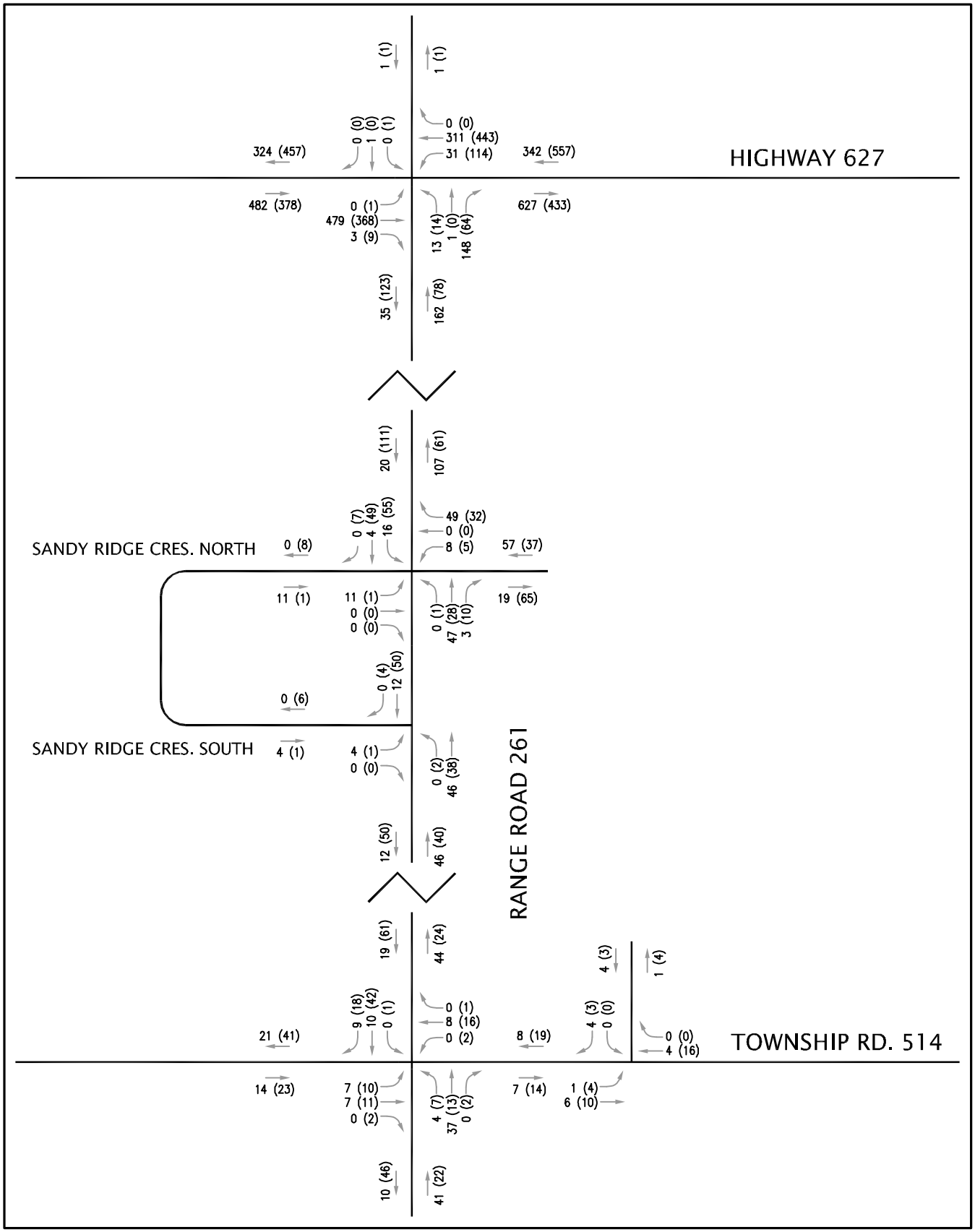

Exhibit 4-3

Scale NTS

2022 Total AM(PM) Peak Hour Volumes

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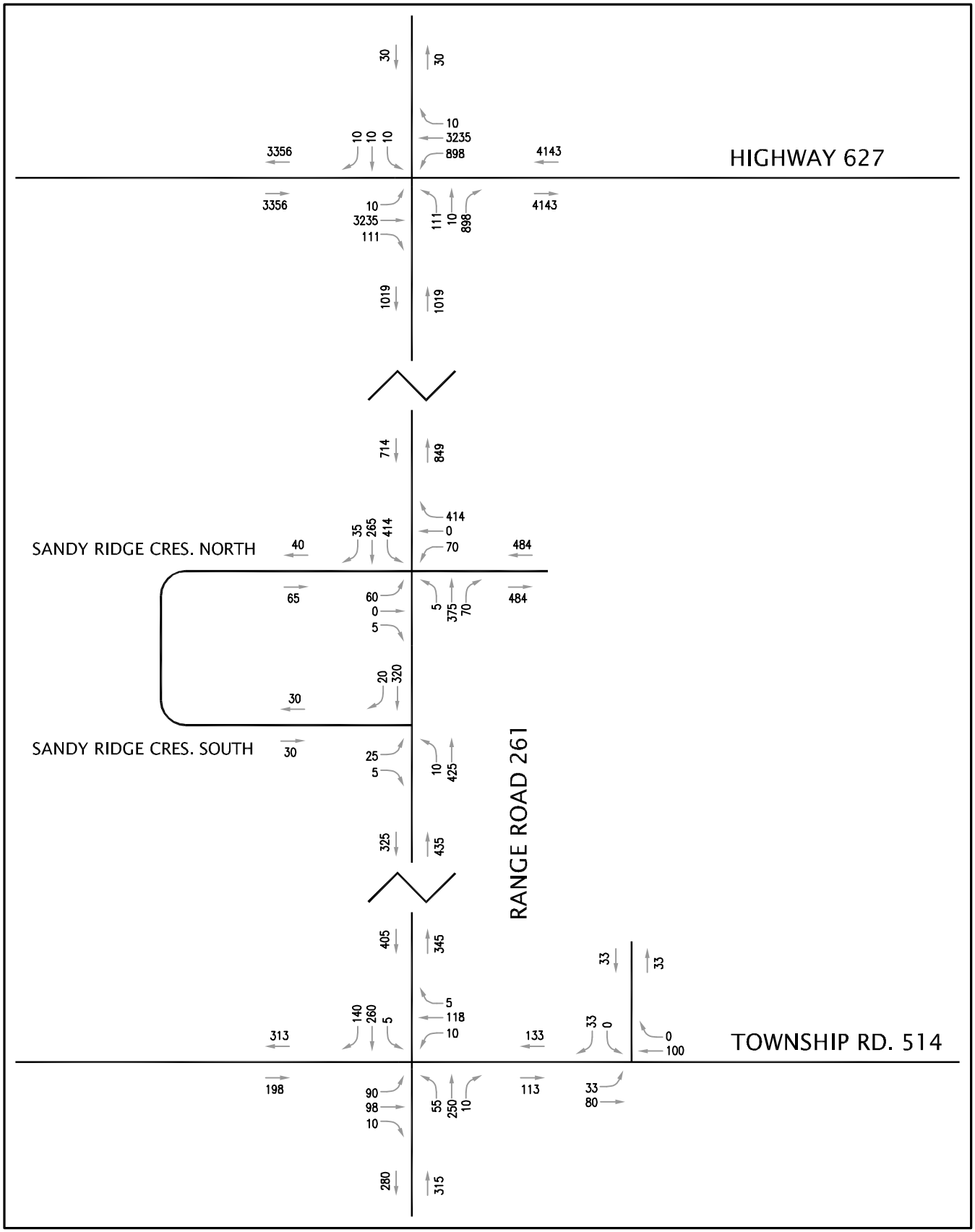

Exhibit 4-4

Scale NTS

2022 Total Daily Volumes

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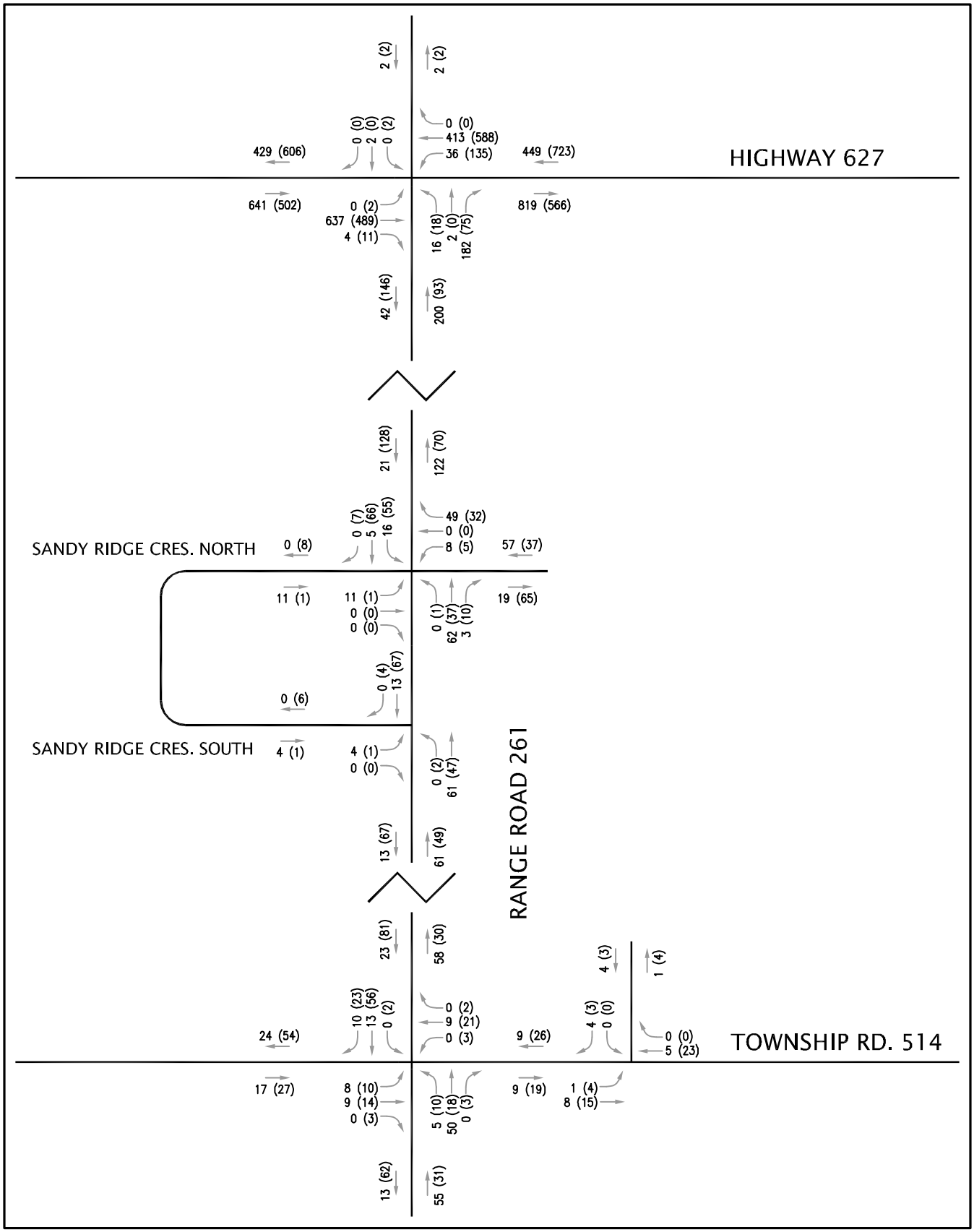

Exhibit 4-5

Scale NTS

2042 Total AM(PM) Peak Hour Volumes

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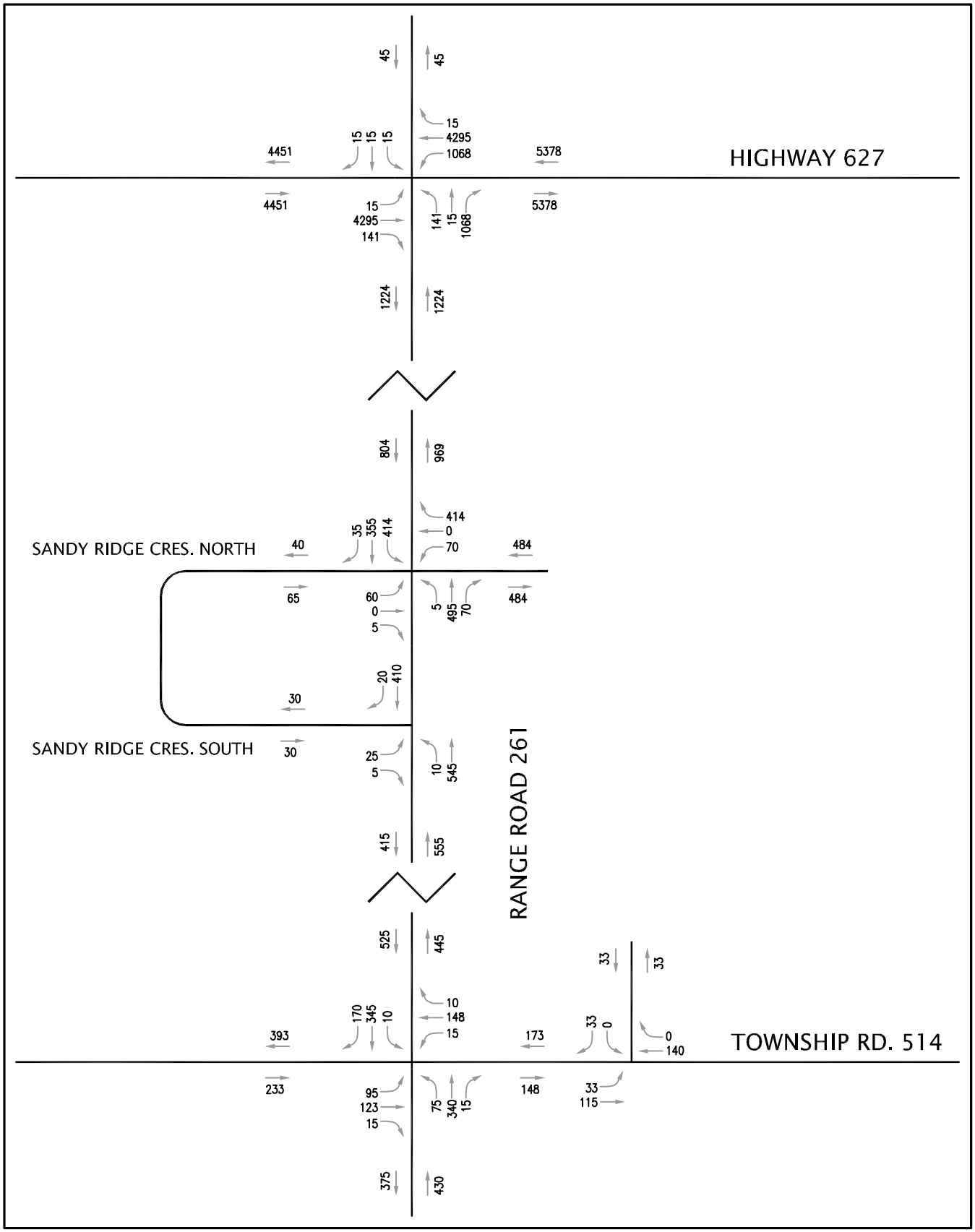


Exhibit 4-6

Scale NTS

2042 Total Daily Volumes

5. TRANSPORTATION ASSESSMENT

5.1 Analysis Methodology

The transportation assessment focused on the key study area intersections that are anticipated to be impacted by the proposed subdivision. These intersections include the Highway 627/RR 261, Sandy Ridge Crescent North/RR 261, Twp. Rd. 514/RR 261, and the Twp. Rd. 514/Site Access intersections. Although traffic volume data is available for the Sandy Ridge Crescent South/RR 261 intersection, the operations of the intersection are not anticipated to be significantly impacted by the proposed subdivision; therefore, an assessment of future operating conditions based on background and total traffic volumes was not completed for this intersection.

The transportation assessment includes the following five components:

5.1.1 AT Highway Geometric Design Guide

An assessment was completed based on the procedure outlined in the Highway Geometric Design Guide (1995) to determine if any roadway geometric improvements are required to meet AT guidelines for the intersection of Highway 627/RR 261.

5.1.2 Traffic Signal Warrants

Signal warrant analyses were conducted to determine if any of the study area intersections requires signalization within the 2022 and 2042 horizons. The Transportation Association of Canada's (TAC) "Canadian Traffic Signal Warrant Matrix Procedure 2005" and the spreadsheets associated with the "Traffic Signal Warrant Handbook 2007" were used in the signal warrant analyses.

5.1.3 Capacity Analysis

Capacity analyses were completed in accordance with the methodology outlined in the Highway Capacity Manual 2000 using Synchro 7.0 software to evaluate traffic operations during peak periods of traffic activity.

5.1.4 Lighting Analysis

Illumination warrant analyses were completed for the study area intersections using the methodology outlined in the "TAC Guide for the Design of Roadway Lighting" 2006 Edition.

5.1.5 County Roadway Requirements

Within the Subdivision Development Standards outlined by Parkland County a regulation of roadway systems exist. Internal subdivision roads are typically developed to a rural cross-section with an asphalt surface including ditches to accommodate runoff. The classifications of internal roadway systems are also set by these standards.

5.2 AT Highway Geometric Design Guide

5.2.1 Highway 627 and RR 261

AT's left and right turn warrants from the Highway Geometric Design Guide (1995) were reviewed to identify any intersection improvements required at the Highway 627/RR 261 intersection under future, background, and total traffic conditions.

Based on a review of the daily volume estimates, traffic volumes along Highway 627 are anticipated to increase from approximately 6,160 vpd in 2011 up to approximately 10,756 vpd in 2042 (with site generated traffic). Similarly, RR 261 currently accommodates in the order of 1,000 vpd and is anticipated to reach volumes in the order of 2,450 vpd in 2042 (with site generated traffic). Based on a review of Figure D-7.4, the intersection is anticipated to require a Type II, III, IV, or V intersection treatment under all horizons evaluated. Additional assessments were completed using Tables D.7.6-7a through D.7.6-7d to confirm the left turn intersection treatment required. **Table 5-1** summarizes the results of the left turn warrant review. Detailed calculations are included for reference in **Appendix B**.

Table 5-1: Warrant Analysis for Left Turn Lanes – Highway 627 and RR 261

Horizon	West Approach		East Approach	
	Intersection Type Required	Left Turn Bay Required? (Additional Storage Length)	Intersection Type Required	Left Turn Bay Required? (Additional Storage Length)
2011 Existing	I	No	IV	Yes (10 m)
2022 Background	I	No	IV	Yes (10 m)
2022 Total	I	No	IV	Yes (25 m)
2042 Background	I	No	IV	Yes (25 m)
2042 Total	I	No	IV	Yes (40 m)

As shown in Table 5-1, the intersection should be designed to a Type IVb configuration, with an additional 40 m of storage for the westbound left turn. Based on field observations, the intersection is assumed to currently be constructed as a Type IVb intersection (westbound left turn) with a parallel lane length estimated to be in the order of 170 m. Therefore, it is anticipated that an additional 70 m of storage is currently provided as compared to a standard left turn design for a 110 km/hr roadway.

Although a right turn bay is currently provided for eastbound right turns at the Highway 627/RR 261 intersection, AT's right turn warrants were reviewed for the Highway 627/RR 261 intersection which confirmed no improvements are required. The results of the right turn bay review are summarized in **Table 5-2**. Detailed information regarding the right turn warrants is summarized in Appendix B.

Table 5-2: Warrant Analysis for Right Turn Lanes – Highway 627 and RR 261

Horizon	West Approach	East Approach
	Is a right turn bay required?	
2011 Existing	No	No
2022 Background	No	No
2022 Total	No	No
2042 Background	No	No
2042 Total	No	No

As shown in Table 5-2, right turn bays are not currently required at the Highway 627/RR 261 intersection, and are not anticipated to be required within the 2022 or 2042 horizons.

Based on the assessments completed using the AT Highway Geometric Design Guidelines, no changes to the existing geometry at the Highway 627/RR 261 intersection are required to accommodate background or site generated traffic.

5.3 Traffic Signal Warrants

Signal warrant analyses were conducted using TAC's "Canadian Traffic Signal Warrant Matrix Procedure 2005" and spreadsheets from the "Traffic Signal Warrant Handbook 2007". The analyses were completed for the Highway 627/RR 261, Sandy Ridge Crescent North/RR 261, and Twp. Rd. 514/RR 261 intersections under existing, background, and total traffic conditions and for the proposed Twp. Rd. 514/Site Access intersection under total traffic conditions only.

The TAC warrant matrix procedure uses six hours of traffic volume data: AM, midday, and PM, to determine the requirements for signalization. Ratios of the existing AM and PM peak hour data to the full two hour counts and the existing AM and PM peak hours to the midday two hour count were calculated and used to adjust the projected 2022 and 2042 AM and PM peak hour volumes to six hour volumes at each intersection. The two hour factors were based on available count data at the Highway 627/RR 261, Sandy Ridge Crescent North/RR 261, and Twp. Rd. 514/RR 261 intersections. The factors calculated at the Twp. Rd. 514/RR 261 intersection were also applied to projected volumes at the proposed Twp. Rd. 514/Site Access intersection.

The results of the signal warrant analyses are summarized in **Table 5-3**. **Appendix C** contains a summary of the signal warrant calculation sheets for reference.

Table 5-3: Summary of Signal Warrant Analysis Scores

Intersection	2011/2012 Existing	2022 Background	2022 Total	2042 Background	2042 Total	Signal Warranted?
Highway 627 and RR 261	10	16	27	31	46	No
Sandy Ridge Crescent N and RR 261	0	0	1	0	1	No
Twp. Rd. 514 and RR 261	0	1	1	1	2	No
Twp. Rd. 514 and Site Access	n/a	n/a	0	n/a	0	No

As shown in Table 5-3, signalization is not warranted at any of the study area intersections within the 2022 or 2042 horizons.

5.4 Capacity Analysis

The capacity analyses are based on the methods outlined in the Highway Capacity Manual 2000, using Synchro 7 analysis software. Detailed Synchro printouts are included for reference in **Appendix D**.

Intersection operations are typically rated by two measures. The volume-to-capacity (v/c) ratio describes the extent to which the traffic volumes can be accommodated by the physical capacity of the road configuration and traffic control. A value (measured during the peak hour) less than 0.90 indicates that generally there is sufficient capacity and the projected traffic volumes can be accommodated at the intersection. A value between 0.90 and 1.0 suggests unstable operations may occur and volumes are nearing capacity conditions. A calculated value over 1.0 indicates that traffic volumes are theoretically exceeding capacity. The second measure of performance, Level of Service (LOS), is based on the estimated average delay per vehicle among all traffic passing through the intersection. A low average delay merits a LOS A rating. Average delays greater than 50 seconds per vehicle at an unsignalized intersection generally produce a LOS F rating.

The methodology includes a number of assumptions that relate to the operating conditions present at the intersection. The following assumptions were used in the analysis:

- Peak Hour Factor – As per existing count or 0.92 where unknown;
- % Heavy Vehicles – As per existing count or 2% where unknown.

5.4.1 Highway 627 and RR 261

The intersection of Highway 627 and RR 261 is currently an unsignalized intersection with the following geometry:

- ***West Approach*** – one shared left/through lane, one right turn bay;
- ***East Approach*** – one left turn bay, one shared through/right;
- ***South Approach*** – one shared left/through lane, one right turn bay; and,
- ***North Approach*** – one shared left/through/right lane.

Based on the review of the AT Highway Geometric Design Guide and the TAC Signal Warrants, the existing intersection geometry and traffic control is anticipated to be maintained through the 2042 horizon. **Tables 5-4** through **5-7** present the results of the assessments completed for the Highway 267/RR 261 intersection during the AM and PM peak hours.

Table 5-4: Highway 627 and RR 261 – AM Peak Hour Existing and 2022 Analyses

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
Existing – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	0	393	2	13	255	0	8	1	84	0	1	0
v/c	0.00		0.00	0.02	0.17		019		0.19	0.00		
Delay (s)	0.0		0.0	8.5	0.0		13.6		13.6	17.6		
LOS	A		A	A	A		B		B	C		
95th Queue (m)	0		0	1	0		5		5	0		
2022 Background – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	0	479	2	16	311	0	10	1	102	0	1	0
v/c	0.00		0.00	0.03	0.20		0.26		0.26	0.01		
Delay (s)	0.0		0.0	8.9	0.0		16.2		16.2	21.4		
LOS	A		A	A	A		C		C	C		
95th Queue (m)	0		0	1	0		8		8	0		
2022 Total – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	0	479	3	31	311	0	13	1	148	0	1	0
v/c	0.00		0.00	0.07	0.20		0.38		0.38	0.01		
Delay (s)	0.0		0.0	9.1	0.0		18.1		18.1	23.4		
LOS	A		A	A	A		C		C	C		
95th Queue (m)	0		0	2	0		14		14	0		

Table 5-5: Highway 627 and RR 261- AM Peak Hour 2042 Analysis

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
2042 Background – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	0	637	3	21	413	0	13	2	136	0	2	0
v/c	0.00		0.00	0.05	0.27		0.46		0.46	0.02		
Delay (s)	0.0		0.0	9.8	0.0		25.2		25.2	32.2		
LOS	A		A	A	A		D		D	D		
95th Queue (m)	0		0	1	0		18		18	0		
2042 Total – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	0	637	4	36	413	0	16	2	182	0	2	0
v/c	0.00		0.00	0.09	0.27		0.62		0.62	0.02		
Delay (s)	0.0		0.0	10.0	0.0		31.9		31.9	35.9		
LOS	A		A	B	A		D		D	E		
95th Queue (m)	0		0	2	0		31		31	1		

Table 5-6: Highway 627 and RR 261 – PM Peak Hour Existing and 2022 Analyses

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
Existing – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	1	302	5	51	363	0	10	0	28	1	0	0
v/c	0.00		0.00	0.04	0.25		0.07		0.07	0.00		
Delay (s)	0.0		0.0	8.0	0.0		13.1		13.1	19.5		
LOS	A		A	A	A		B		B	C		
95th Queue (m)	0		0	1	0		2		2	0		
2022 Background – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	1	368	6	62	443	0	12	0	34	1	0	0
v/c	0.00		0.00	0.05	0.30		0.11		0.11	0.01		
Delay (s)	0.0		0.0	8.3	0.0		15.3		15.3	25.1		
LOS	A		A	A	A		C		C	D		
95th Queue (m)	0		0	1	0		3		3	0		
2022 Total – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	1	368	9	114	443	0	14	0	64	1	0	0
v/c	0.00		0.01	0.10	0.30		0.16		0.16	0.01		
Delay (s)	0.0		0.0	8.5	0.0		15.6		15.6	32.7		
LOS	A		A	A	A		C		C	D		
95th Queue (m)	0		0	3	0		4		4	0		

Table 5-7: Highway 627 and RR 261- PM Peak Hour 2042 Analysis

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
2042 Background – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	2	489	8	83	588	0	16	0	45	2	0	0
v/c	0.00		0.01	0.08	0.40		0.26		0.26	0.02		
Delay (s)	0.1		0.0	8.8	0.0		23.0		23.0	43.3		
LOS	A		A	A	A		C		C	E		
95th Queue (m)	0		0	2	0		8		8	1		
2042 Total – Unsignalized (N/S Stop Control)												
Geometry	LT/R			L/TR			LT/R			LTR		
Volume (vph)	2	489	11	135	588	0	18	0	75	2	0	0
v/c	0.00		0.01	0.13	0.40		0.36		0.36	0.03		
Delay (s)	0.1		0.0	9.0	0.0		24.8		24.8	59.7		
LOS	A		A	A	A		C		C	F		
95th Queue (m)	0		0	3	0		12		12	1		

As shown in Tables 5-4 through 5-7, the majority of the movements at the intersection are anticipated to operate at acceptable levels of service under all horizon years and scenarios analyzed. However, the southbound movements are anticipated to experience long delays in the 2042 horizon under both background and total traffic conditions. The southbound movement volumes are anticipated to be low (less than 5 vph in the peak hours) and the projected v/c ratios are also very low (less than 0.05 in the peak hours); therefore, no intersection improvements are recommended to address the long delays for southbound movements.

5.4.2 Sandy Ridge Crescent North and RR 261

The intersection of Sandy Ridge Crescent North and RR 261 is currently an unsignalized T-intersection with stop control on the west approach and one lane provided to accommodate all movements on all approaches. No turn bays are anticipated to be required with the construction of the east intersection approach, which will provide access to the proposed subdivision; therefore, it is anticipated that all four approaches will include a single shared left/through/right lane.

Tables 5-8 through **5-11** present the results of the assessments completed for the Sandy Ridge Crescent North/RR 261 intersection during the AM and PM peak hours.

Table 5-8: Sandy Ridge Crescent North and RR 261 – AM Peak Hour Existing and 2022 Analyses

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
Existing – Unsignalized (EB Stop Control)												
Geometry	LR						LT			TR		
Volume (vph)	11		0				0	39			3	0
v/c	0.03						0.00				0.00	
Delay (s)	8.9						0.0				0.0	
LOS	A						A				A	
95th Queue (m)	1						0				0	
2022 Background – Unsignalized (EB Stop Control)												
Geometry	LR						LT			TR		
Volume (vph)	11		0				0	47			4	0
v/c	0.03						0.00				0.00	
Delay (s)	9.0						0.0				0.0	
LOS	A						A				A	
95th Queue (m)	1						0				0	
2022 Total – Unsignalized (E/W Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	11	0	0	8	0	49	0	47	3	16	4	0
v/c	0.03			0.06			0.00			0.01		
Delay (s)	9.9			8.9			0.0			5.7		
LOS	A			A			A			A		
95th Queue (m)	1			2			0			0		

Table 5-9: Sandy Ridge Crescent North and RR 261- AM Peak Hour 2042 Analysis

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
2042 Background – Unsignalized (EB Stop Control)												
Geometry	LR						LT			TR		
Volume (vph)	11		0				0	62			5	0
v/c	0.03						0.00				0.00	
Delay (s)	9.1						0.0				0.0	
LOS	A						A				A	
95th Queue (m)	1						0				0	
2042 Total – Unsignalized (E/W Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	11	0	0	8	0	49	0	62	3	16	5	0
v/c	0.03			0.06			0.00			0.01		
Delay (s)	10.1			9.0			0.0			5.4		
LOS	B			A			A			A		
95th Queue (m)	1			2			0			0		

Table 5-10: Sandy Ridge Crescent North and RR 261 – PM Peak Hour Existing and 2022 Analyses

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
Existing – Unsignalized (EB Stop Control)												
Geometry	LR						LT			TR		
Volume (vph)	1		0				1	23			41	7
v/c	0.00						0.00				0.04	
Delay (s)	9.1						0.3				0.0	
LOS	A						A				A	
95th Queue (m)	0						0				0	
2022 Background – Unsignalized (EB Stop Control)												
Geometry	LR						LT			TR		
Volume (vph)	1		0				1	28			49	7
v/c	0.00						0.00				0.05	
Delay (s)	9.2						0.2				0.0	
LOS	A						A				A	
95th Queue (m)	0						0				0	
2022 Total – Unsignalized (E/W Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	1	0	0	5	0	32	1	28	10	55	49	7
v/c	0.01			0.04			0.00			0.04		
Delay (s)	10.9			9.0			0.2			3.3		
LOS	B			A			A			A		
95th Queue (m)	0			1			0			1		

Table 5-11: Sandy Ridge Crescent North and RR 261- PM Peak Hour 2042 Analysis

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
2042 Background – Unsignalized (EB Stop Control)												
Geometry	LR						LT			TR		
Volume (vph)	1		0				1	37			66	7
v/c	0.00						0.00				0.07	
Delay (s)	9.4						0.2				0.0	
LOS	A						A				A	
95th Queue (m)	0						0				0	
2042 Total – Unsignalized (E/W Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	1	0	0	5	0	32	1	37	10	55	66	7
v/c	0.01			0.04			0.00			0.04		
Delay (s)	11.3			9.1			0.2			2.8		
LOS	B			A			A			A		
95th Queue (m)	0			1			0			1		

As shown in Tables 5-8 through 5-11, the Sandy Ridge Crescent North/RR 261 intersection is anticipated to operate very well in the AM and PM peak hours under the 2022 and 2042 background and total traffic scenarios. No intersection geometry or traffic control improvements other than the construction of the east intersection approach are recommended to accommodate site generated traffic.

5.4.3 Twp. Rd. 514 and RR 261

The intersection of Twp. Rd. 514 and RR 261 is currently an unsignalized intersection with one lane provided to accommodate movements on all four approaches. The existing intersection geometry and traffic control is anticipated to be maintained through the 2042 horizon.

As shown in **Tables 5-12** through **5-15** the intersection is anticipated to continue to operate at excellent levels of service in the 2022 and 2042 horizons under the background and total traffic scenarios. No intersection geometry or traffic control improvements are recommended at the intersection to accommodate site generated traffic.

Table 5-12: Twp. Rd. 514 and RR 261 – AM Peak Hour Existing and 2022 Analyses

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
Existing – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	3	5	0	0	3	0	3	31	0	0	8	1
v/c	0.00			0.00			0.06			0.01		
Delay (s)	2.5			0.0			9.4			9.1		
LOS	A			A			A			A		
95th Queue (m)	0			0			1			0		
2022 Background – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	4	6	0	0	4	0	4	37	0	0	10	1
v/c	0.00			0.00			0.07			0.01		
Delay (s)	2.7			0.0			9.5			9.2		
LOS	A			A			A			A		
95th Queue (m)	0			0			2			1		
2022 Total – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	7	7	0	0	8	0	4	37	0	0	10	9
v/c	0.01			0.00			0.08			0.02		
Delay (s)	3.5			0.0			9.7			9.0		
LOS	A			A			A			A		
95th Queue (m)	0			0			2			1		

Table 5-13: Twp. Rd. 514 and RR 261 – AM Peak Hour 2042 Analysis

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
2042 Background – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	5	8	0	0	5	0	5	50	0	0	13	2
v/c	0.00			0.00			0.10			0.02		
Delay (s)	2.6			0.0			9.7			9.2		
LOS	A			A			A			A		
95th Queue (m)	0			0			3			0		
2042 Total – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	8	9	0	0	9	0	5	50	0	0	13	10
v/c	0.01			0.00			0.10			0.03		
Delay (s)	3.3			0.0			9.9			9.1		
LOS	A			A			A			A		
95th Queue (m)	0			0			3			1		

Table 5-14: Twp. Rd. 514 and RR 261 – PM Peak Hour Existing and 2022 Analyses

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
Existing – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	0	6	2	2	11	1	6	11	2	1	35	11
v/c	0.00			0.00			0.03			0.07		
Delay (s)	0.0			0.09			9.2			9.3		
LOS	A			A			A			A		
95th Queue (m)	0			0			1			1		
2022 Background – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	0	7	2	2	13	1	7	13	2	1	42	13
v/c	0.00			0.00			0.03			0.09		
Delay (s)	0.0			0.8			9.3			9.4		
LOS	A			A			A			A		
95th Queue (m)	0			0			1			2		
2022 Total – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	10	11	2	2	16	1	7	13	2	1	42	18
v/c	0.01			0.00			0.03			0.09		
Delay (s)	3.0			0.7			9.5			9.6		
LOS	A			A			A			A		
95th Queue (m)	0			0			1			2		

Table 5-15: Twp. Rd. 514 and RR 261 – PM Peak Hour 2042 Analysis

	Eastbound			Westbound			Northbound			Southbound		
Movement	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**
2042 Background – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	0	10	3	3	18	2	10	18	3	2	56	18
v/c	0.00			0.00			0.04			0.12		
Delay (s)	0.0			0.8			9.5			9.7		
LOS	A			A			A			A		
95th Queue (m)	0			0			1			3		
2042 Total – Unsignalized (N/S Stop Control)												
Geometry	LTR			LTR			LTR			LTR		
Volume (vph)	10	14	3	3	21	2	10	18	3	2	56	23
v/c	0.01			0.00			0.05			0.13		
Delay (s)	2.6			0.8			9.8			9.9		
LOS	A			A			A			A		
95th Queue (m)	0			0			1			3		

5.4.4 Twp. Rd. 514 and Site Access

The proposed intersection of Twp. Rd. 514 and the site access to the south of the site is anticipated to operate as a T-intersection with stop control on the north approach. It is assumed that all intersection approaches will operate with one shared lane accommodating all possible traffic movements.

As shown in **Table 5-16** the proposed site access is anticipated to operate at excellent levels of service in the AM and PM peak hours.

Table 5-16: Twp. Rd. 514 and Site Access – AM & PM Peak Hour 2022 and 2042 Analyses

	Eastbound		Westbound		Southbound	
Movement	**L**	**T**	**T**	**R**	**L**	**R**
AM Peak Hour - 2022 Total – Unsignalized (SB Stop Control)						
Geometry	LT		TR		LR	
Volume (vph)	1	6	4	0	0	4
v/c	0.00		0.00		0.00	
Delay (s)	1.0		0.0		8.3	
LOS	A		A		A	
95th Queue (m)	0		0		0	
AM Peak Hour - 2042 Total – Unsignalized (SB Stop Control)						
Geometry	LT		TR		LR	
Volume (vph)	1	8	5	0	0	4
v/c	0.00		0.00		0.00	
Delay (s)	0.8		0.0		8.4	
LOS	A		A		A	
95th Queue (m)	0		0		0	
PM Peak Hour - 2022 Total – Unsignalized (SB Stop Control)						
Geometry	LT		TR		LR	
Volume (vph)	4	10	16	0	0	3
v/c	0.00		0.01		0.00	
Delay (s)	2.1		0.0		8.4	
LOS	A		A		A	
95th Queue (m)	0		0		0	
PM Peak Hour - 2042 Total – Unsignalized (SB Stop Control)						
Geometry	LT		TR		LR	
Volume (vph)	4	15	23	0	0	3
v/c	0.00		0.01		0.00	
Delay (s)	1.5		0.0		8.4	
LOS	A		A		A	
95th Queue (m)	0		0		0	

5.5 Lighting Analysis

Preliminary assessments based on Figure 10-2, Warrants for Intersection Lighting, from the TAC Guide for the Design of Roadway Lighting (2006) were completed to confirm if illumination is anticipated to be warranted at the Sandy Ridge Crescent North/RR 261, Twp. Rd. 514/RR 261, and Twp. Rd. 514/Site Access intersections. Analyses were also completed at the Highway 627/RR 261 intersection to determine if the existing delineation lighting would continue to provide appropriate illumination at the intersection in the future. **Table 5-17** summarizes the results of the illumination analyses completed at the study area intersections. The detailed calculations for the illumination warrant analyses are summarized in **Appendix E**.

Table 5-17: Summary of Lighting Assessment

Intersection	2011/2012 Existing	2022 Background	2022 Total	2042 Background	2042 Total	Illumination Warranted?
Highway 627 and RR 261	66	66	96	96	101	No
Sandy Ridge Crescent N and RR 261	18	18	21	18	21	No
Twp. Rd. 514 and RR 261	56	56	56	56	56	No
Twp. Rd. 514 and Site Access	n/a	n/a	18	n/a	18	No

As shown in Table 5-17, illumination is not anticipated to be required at any of the study area intersections within the 2042 horizon under background or total traffic conditions.

5.6 County Roadway Requirements

The internal roadway network should be constructed to meet or exceed Parkland Country roadway standards. The main internal roadway that is proposed to extend from RR 261 southwest to Twp. Rd. 514 is anticipated to be classified as a residential local road, while the north loop and the south cul-de-sac are anticipated to be classified as residential access roads. As per Parkland County's roadway standards the internal roadways will be developed as paved rural roadways within 30.0 metre right-of-ways.

Based on a review of Parkland County's typical approach locations (Drawing 7.11), the proposed site access locations exceed the minimum spacing requirements for access along county roads.

6. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis and assessment completed, it has been determined that traffic anticipated to be generated by the proposed subdivision can be accommodated on the existing roadway network, at acceptable levels of service. Therefore, the following recommendations are advanced:

- The east approach of the Sandy Ridge Crescent North/RR 261 should be constructed in conjunction with the development of the subdivision and should include one inbound and one outbound lane, with a stop sign for westbound traffic.
- The site access to Twp. Rd. 514 should be constructed to include one inbound and one outbound lane and should include stop sign on the north approach.
- The internal roadway connecting the access to RR 261 and the access to Twp. Rd. 514 should be constructed to a residential local road standard.
- The other internal roadways should be constructed as residential access roads.

In addition to the above the following items were noted during a review of the site plan:

- Allowance for a residential mail box location has not been identified within the subdivision. It is anticipated that an appropriate location will be discussed with Canada Post.
- A school bus stop is located on RR 261 approximately 90 m south of the existing intersection of Sandy Ridge Crescent South and RR 261. Allowance for pedestrian movements from the subdivision to this location may be of benefit.

APPENDIX A

Traffic Count Data

Turning Movement Summary Diagram

Reference No.: 70000238

Intersection of:
627 & RGE RD 261 (FLEMING RD) 35-51-26-400000000

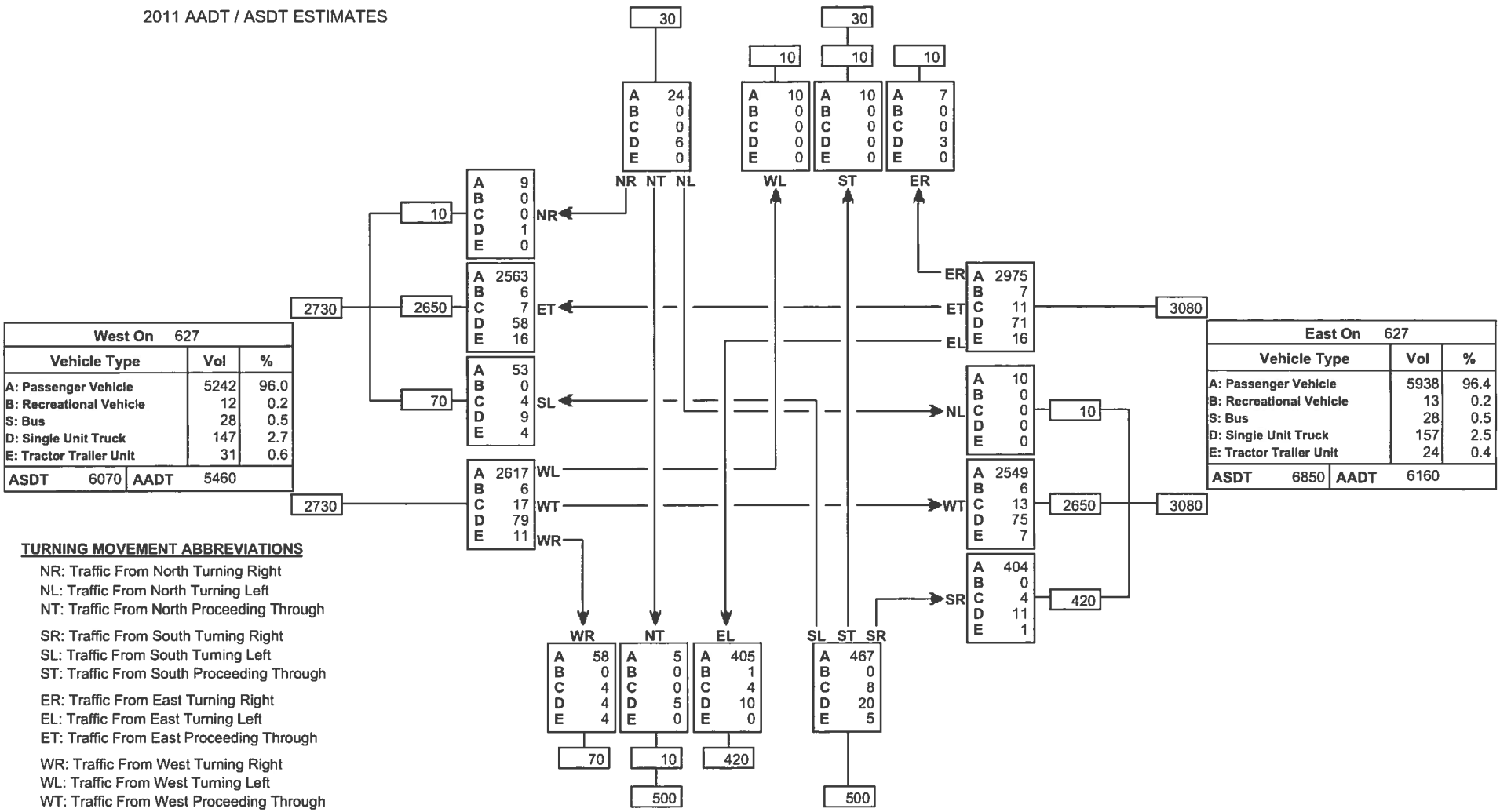
2011 AADT / ASDT ESTIMATES

North On Rge Rd 261		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	51	85.0
B: Recreational Vehicle	0	0.0
S: Bus	0	0.0
D: Single Unit Truck	9	15.0
E: Tractor Trailer Unit	0	0.0
ASDT 70	**AADT** 60	

West On 627		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	5242	96.0
B: Recreational Vehicle	12	0.2
S: Bus	28	0.5
D: Single Unit Truck	147	2.7
E: Tractor Trailer Unit	31	0.6
ASDT 6070	**AADT** 5460	

East On 627		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	5938	96.4
B: Recreational Vehicle	13	0.2
S: Bus	28	0.5
D: Single Unit Truck	157	2.5
E: Tractor Trailer Unit	24	0.4
ASDT 6850	**AADT** 6160	

South On Rge Rd 261		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	935	93.5
B: Recreational Vehicle	1	0.1
S: Bus	16	1.6
D: Single Unit Truck	39	3.9
E: Tractor Trailer Unit	9	0.9
ASDT 1110	**AADT** 1000	



TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
NT: Traffic From North Proceeding Through

SR: Traffic From South Turning Right
SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through

ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through

WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

TURNING MOVEMENT ABBREVIATIONS

AADT: Average Annual Daily Traffic
Average daily traffic expressed as vehicles per day fo
period of January 1 to December 31 (365 days)

ASDT: Average Summer Daily Traffic
Average daily traffic expressed as vehicles per day fo
period of May 1 to September 30 (153 days)

Turning Movement Summary Diagram

Reference No.: 70000238

Intersection of:
627 & RGE RD 261 (FLEMING RD) 35-51-26-400000000

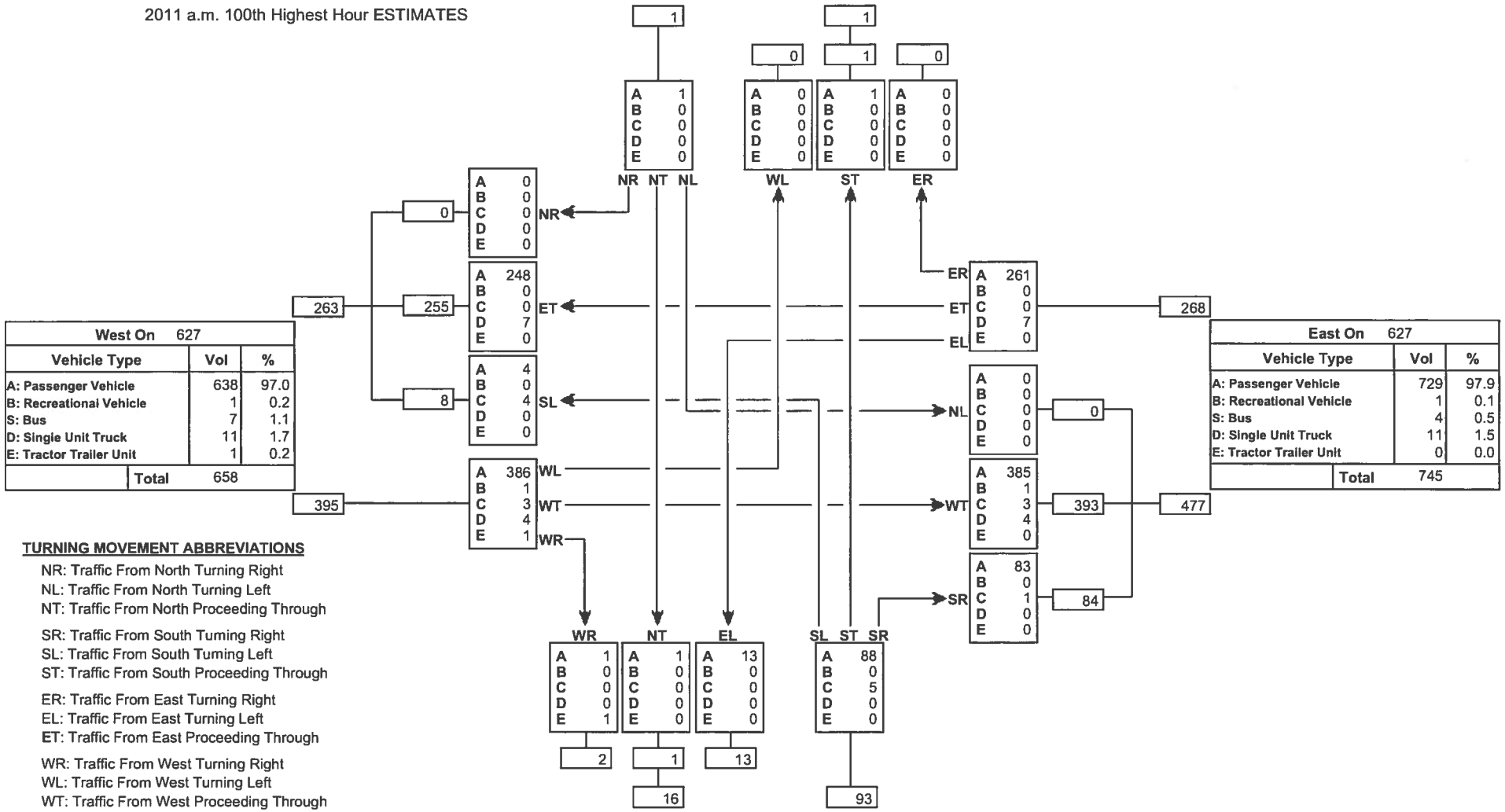
2011 a.m. 100th Highest Hour ESTIMATES

North On Rge Rd 261		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	2	100.0
B: Recreational Vehicle	0	0.0
S: Bus	0	0.0
D: Single Unit Truck	0	0.0
E: Tractor Trailer Unit	0	0.0
Total	2	

West On 627		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	638	97.0
B: Recreational Vehicle	1	0.2
S: Bus	7	1.1
D: Single Unit Truck	11	1.7
E: Tractor Trailer Unit	1	0.2
Total	658	

East On 627		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	729	97.9
B: Recreational Vehicle	1	0.1
S: Bus	4	0.5
D: Single Unit Truck	11	1.5
E: Tractor Trailer Unit	0	0.0
Total	745	

South On Rge Rd 261		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	103	94.5
B: Recreational Vehicle	0	0.0
S: Bus	5	4.6
D: Single Unit Truck	0	0.0
E: Tractor Trailer Unit	1	0.9
Total	109	



TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
NT: Traffic From North Proceeding Through

SR: Traffic From South Turning Right
SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through

ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through

WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

Turning Movement Summary Diagram

Reference No.: 70000238

Intersection of:
627 & RGE RD 261 (FLEMING RD) 35-51-26-400000000

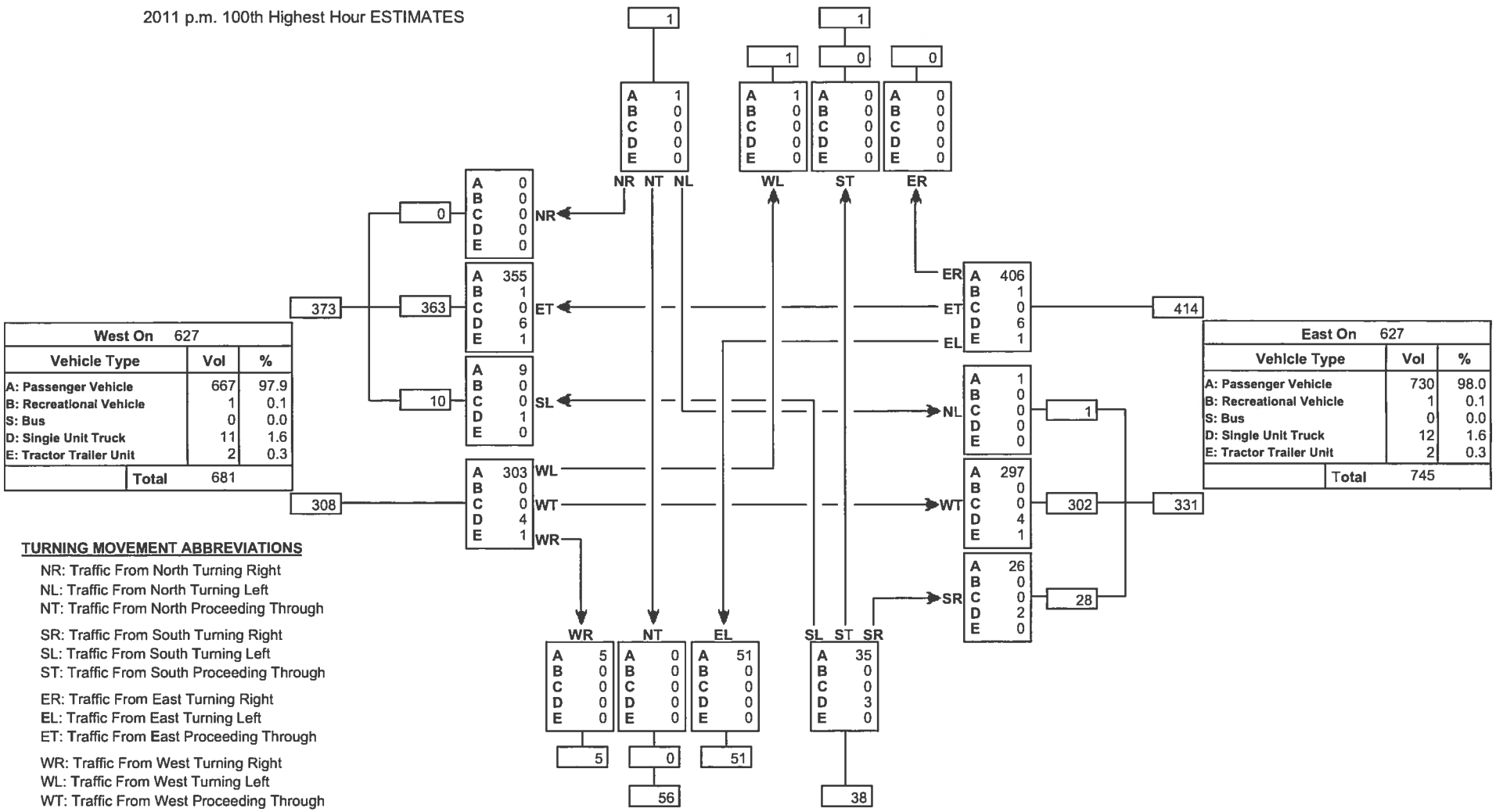
2011 p.m. 100th Highest Hour ESTIMATES

North On Rge Rd 261		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	2	100.0
B: Recreational Vehicle	0	0.0
S: Bus	0	0.0
D: Single Unit Truck	0	0.0
E: Tractor Trailer Unit	0	0.0
Total	2	

West On 627		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	667	97.9
B: Recreational Vehicle	1	0.1
S: Bus	0	0.0
D: Single Unit Truck	11	1.6
E: Tractor Trailer Unit	2	0.3
Total	681	

East On 627		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	730	98.0
B: Recreational Vehicle	1	0.1
S: Bus	0	0.0
D: Single Unit Truck	12	1.6
E: Tractor Trailer Unit	2	0.3
Total	745	

South On Rge Rd 261		
Vehicle Type	**Vol**	**%**
A: Passenger Vehicle	91	96.8
B: Recreational Vehicle	0	0.0
S: Bus	0	0.0
D: Single Unit Truck	3	3.2
E: Tractor Trailer Unit	0	0.0
Total	94	



TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
NT: Traffic From North Proceeding Through

SR: Traffic From South Turning Right
SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through

ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through

WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

Project No.	3378.01
Location	TWP Rd 514 & RR 261
Date	1-Feb-12
Weather	
Surveyor	JH

Street	Twp. Rd. 514												RR 261												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
start time	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV		
7:00 AM	0	0	0	0	0	0	0	0	1	0	1	0	2	0	6	1	0	0	0	0	0	0	0	0	11	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	1	0	0	0	1	0	0	0	13	
7:30 AM	1	0	2	0	0	0	0	0	3	0	0	0	0	0	12	0	0	0	0	0	1	0	0	0	19	
7:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	2	0	1	0	7	50
8:00 AM	0	1	2	0	0	0	0	0	0	0	0	0	2	0	7	0	0	0	0	0	2	0	0	0	14	53
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	9	0	0	0	0	0	3	0	0	0	14	54
8:30 AM	0	0	1	0	0	0	0	0	1	0	0	0	2	0	7	0	0	0	0	0	2	0	0	0	13	48
8:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	3	0	1	0	11	52
	2	1	8	0	0	0	0	0	5	0	1	0	7	0	60	1	1	0	0	0	14	0	2	0	102	54
Total	3		8		0		0		5		1		7		61		1		0		14		2			
Peak hour	7:30 - 8:30 AM																									
Peak Hour Total	**3**		**5**		**0**		**0**		**3**		**0**		**3**		**31**		**0**		**0**		**8**		**1**		**54**	
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Street	Twp. Rd. 514												RR 261												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
start time	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV		
11:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	0	3	0	0	0	9	
11:45 AM	0	0	2	0	1	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	1	0	0	0	10	
12:00 PM	2	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	2	0	1	0	9	
12:15 PM	0	0	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	3	0	2	0	10	38
12:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	3	0	1	0	9	38
12:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0	1	0	0	0	3	0	2	0	11	39
1:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	0	1	0	10	40
1:15 PM	1	0	1	0	0	0	0	0	2	0	0	0	1	0	4	0	0	0	0	0	5	0	1	0	15	45
	5	0	8	0	1	0	0	0	4	1	0	0	2	0	27	0	3	0	0	0	24	0	8	0	83	45
Total	5		8		1		0		5		0		2		27		3		0		24		8			
Peak hour	12:30 - 1:30 PM																									
Peak Hour Total	**2**		**2**		**0**		**0**		**3**		**0**		**2**		**15**		**1**		**0**		**15**		**5**		**45**	
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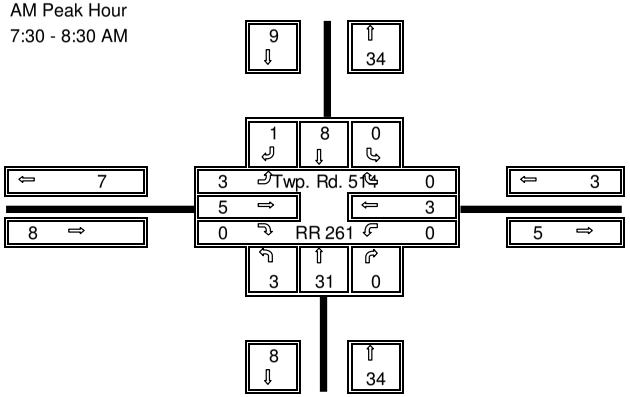
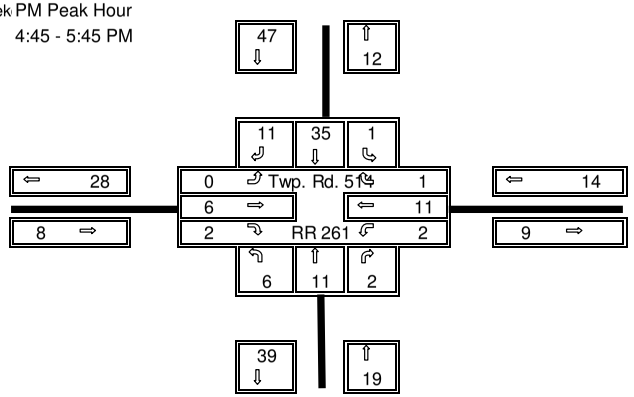
2 hour factor	**1.67**		**0.73**		**0.50**		**0.00**		**0.36**		**0.00**		**0.22**		**0.64**		**1.50**		**0.00**		**0.56**		**0.67**		**0.58**	

Street	Twp. Rd. 514												RR 261												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
start time	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV		
4:00 PM	2	0	1	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	0	0	3	0	3	0	13	
4:15 PM	0	0	0	0	1	0	0	0	3	0	0	0	0	0	2	0	2	0	1	0	4	0	2	0	15	
4:30 PM	3	0	3	0	0	0	2	0	3	0	0	0	1	0	2	0	0	0	0	0	7	0	4	0	25	
4:45 PM	0	0	1	0	0	0	1	0	2	0	0	0	3	0	3	1	1	0	0	0	10	0	3	0	25	78
5:00 PM	0	0	1	0	0	0	0	0	5	0	0	0	1	0	2	0	0	0	0	0	4	0	4	0	17	82
5:15 PM	0	0	2	0	2	0	1	0	1	0	0	0	0	0	3	0	0	0	1	0	8	0	2	0	20	87
5:30 PM	0	0	2	0	0	0	0	0	3	0	1	0	2	0	1	1	1	0	0	0	13	0	2	0	26	88
5:45 PM	3	0	2	0	1	0	0	0	1	0	1	0	1	0	2	0	0	0	0	0	5	0	3	0	19	82
	8	0	12	0	4	0	5	0	18	0	3	0	8	0	17	2	4	0	2	0	54	0	23	0	160	88
Total	8		12		4		5		18		3		8		19		4		2		54		23			
Peak hour	4:45 - 5:45 PM																									
Peak Hour Total	**0**		**6**		**2**		**2**		**11**		**1**		**6**		**11**		**2**		**1**		**35**		**11**		**88**	
% HV	**#DIV/0!**		**0%**		**0%**		**0%**		**0%**		**0%**		**0%**		**18%**		**0%**		**0%**		**0%**		**0%**		**2%**	
Peak Hour Factor	#DIV/0!		0.75		#DIV/0!		#DIV/0!		0.92		0.25		0.75		1.38		0.50		#DIV/0!		0.67		1.38		0.85	
2 hour factor	**#DIV/0!**		**2.00**		**2.00**		**2.50**		**1.64**		**3.00**		**1.33**		**1.73**		**2.00**		**2.00**		**1.54**		**2.09**		**1.82**	

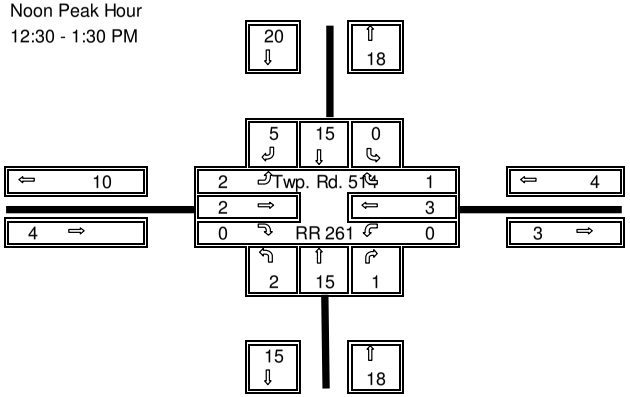
Weekday AM Peak Hour
7:30 - 8:30 AM



Weekday PM Peak Hour
4:45 - 5:45 PM



Weekday Noon Peak Hour
12:30 - 1:30 PM



Project No. 3378.01

Location Sandy Ridge Cresc N & RR 261

Date 2-Feb-12

Weather

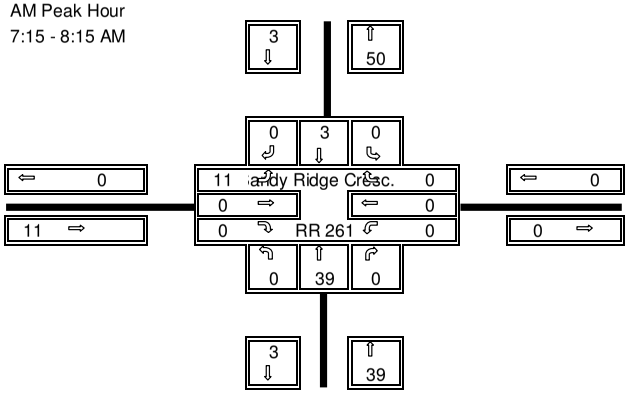
Surveyor JH

Street	Sandy Ridge Cresc. N												RR 261												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
start time	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV		
7:00 AM	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5	
7:15 AM	5	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	7	
7:30 AM	6	0	0	0	0	0	0	0	0	0	0	0	0	0	12	1	0	0	0	0	1	0	0	0	20	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	1	0	0	0	16	48
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0	0	0	0	1	0	0	0	10	53
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	0	6	52
8:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	3	0	0	0	9	41
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	3	0	0	0	7	32
	15	0	0	0	0	0	0	0	0	0	0	0	0	0	53	2	0	0	0	0	10	0	0	0	80	53
Total	15		0		0		0		0		0		0		55		0		0		10		0			
Peak hour	7:15 - 8:15 AM																									
Peak Hour Total	11		0		0		0		0		0		0		39		0		0		3		0		53	
% HV	0%		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		5%		#DIV/0!		#DIV/0!		0%		#DIV/0!		4%	
Peak Hour Factor	0.46		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		0.75		#DIV/0!		#DIV/0!		0.75		#DIV/0!		0.66	
2 Hour Factor	1.36		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		1.41		#DIV/0!		#DIV/0!		3.33		#DIV/0!		1.51	

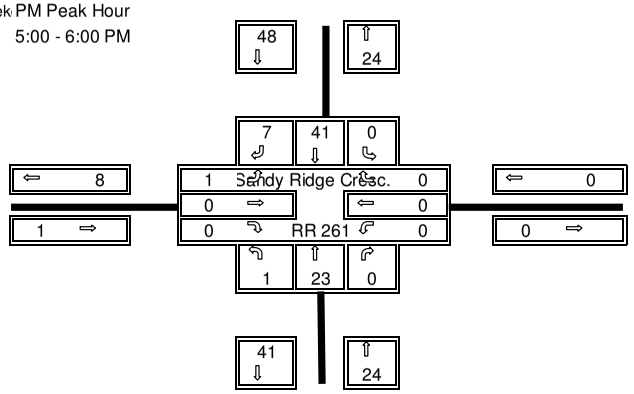
Street	Sandy Ridge Cresc. N												RR 261												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
start time	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV		
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	0	0	0	5	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	4	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	1	1	0	0	7	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	1	1	0	6	22
12:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	3	0	0	0	9	26
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	2	0	0	8	30
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	0	0	0	5	28
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	5	27
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	21	6	0	0	0	0	16	4	1	0	49	30
Total	1		0		0		0		0		0		0		27		0		0		20		1			
Peak hour	12:00 - 1:00 PM																									
Peak Hour Total	1		0		0		0		0		0		0		15		0		0		13		1		30	
% HV	0%		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		20%		#DIV/0!		#DIV/0!		31%		0%		23%	
Peak Hour Factor	0.25		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		0.75		#DIV/0!		#DIV/0!		1.08		#DIV/0!		0.83	
2 Hour Factor	0.08		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		0.00		0.44		#DIV/0!		#DIV/0!		0.45		0.14		0.39	

Street	Sandy Ridge Cresc. N												RR 261												Total	Hourly Totals
Direction	Eastbound						Westbound						Northbound						Southbound							
Movement	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right			
start time	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV	Car	HV		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1	1	0	9	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	0	0	0	0	9	0	0	0	14	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	11	0	0	0	14	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	3	1	1	0	9	46
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	1	0	8	45
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	16	0	2	0	29	60
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	12	0	2	0	23	69
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	8	0	2	0	13	73
Total	1	0	0	0	0	0	0	0	0	0	0	0	3	0	35	2	0	0	0	0	67	2	9	0	119	73
	1		0		0		0		0		0		3		37		0		0		69		9			
Peak hour	5:00 - 6:00 PM																									
Peak Hour Total	1		0		0		0		0		0		1		23		0		0		41		7		73	
% HV	0%		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		0%		0%		#DIV/0!		#DIV/0!		0%		0%		0%	
Peak Hour Factor	0.25		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		0.58		#DIV/0!		#DIV/0!		0.64		0.88		0.63	
2 Hour Factor	1.00		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		3.00		1.61		#DIV/0!		#DIV/0!		1.68		1.29		1.63	

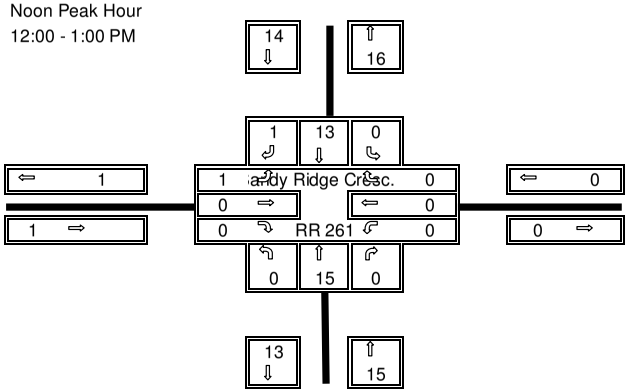
Weekday AM Peak Hour
7:15 - 8:15 AM



Weekday PM Peak Hour
5:00 - 6:00 PM



Weekday Noon Peak Hour
12:00 - 1:00 PM



APPENDIX B

Highway Geometric Design Guide Left & Right Turn Warrants

Warrant Analysis for Left Turn Lanes - HWY 627 & RR 261

Highway 627 & RR 261	AM Peak Hour									PM Peak Hour								
Location	Advancing Left Turn Volume, vph	Percent Trucks in ALTV, %	Advancing Volume (Va), vph	Proportion of Left Turns in Advancing Left Turn Volume (L), %	Opposing Volume (V-o), vph	Chart Used	Design Type?	Extra Storage Required?	Extra Storage for Trucks?	Advancing Left Turn Volume, vph	Percent Trucks in ALTV, %	Advancing Volume (Va), vph	Proportion of Left Turns in Advancing Left Turn Volume (L), %	Opposing Volume (V-o), vph	Chart Used	Design Type?	Extra Storage Required?	Extra Storage Required for Trucks?
2011 Existing Traffic																		
West Approach (EB)	0	0%	395	0%	268	n/a	I	no	no	1	0%	308	0%	414	n/a	I	no	no
East Approach (WB)	13	2%	268	5%	395	7a (5%)	III	no	no	51	2%	414	12%	308	7a (10%)	IV	s=10	no
2022 Background																		
West Approach (EB)	0	0%	481	0%	327	n/a	I	no	no	1	0%	375	0%	505	n/a	I	no	no
East Approach (WB)	16	2%	327	5%	481	7a (5%)	IV	no	no	62	2%	505	12%	375	7a (10%)	IV	s=10	no
2022 Total																		
West Approach (EB)	0	0%	482	0%	342	n/a	I	no	no	1	0%	378	0%	557	n/a	I	no	no
East Approach (WB)	31	2%	342	9%	482	7a (10%)	IV	S=10 m	no	114	2%	557	20%	378	7b (20%)	IV	s=25	no
2042 Background																		
West Approach (EB)	0	0%	640	0%	434	n/a	I	no	no	2	0%	499	0%	671	n/a	I	no	no
East Approach (WB)	21	2%	434	5%	640	7a (5%)	IV	S=10 m	no	83	2%	671	12%	499	7a (10%)	IV	s=25	no
2042 Total																		
West Approach (EB)	0	0%	641	0%	449	n/a	I	no	no	2	0%	502	0%	723	n/a	I	no	no
East Approach (WB)	36	2%	449	8%	641	7a (10%)	IV	S=15 m	no	135	2%	723	19%	502	7b (20%)	IV	s=40	no

Notes:

1. Where proportion of left turns is less than 3%, a Type I intersection was assumed to be adequate
2. Based on a review of Figures D-7.6-1a through 7d where opposing volume is <100 vph, a Type I intersection was assumed to be adequate

Warrant Analysis for Right Turn Lanes - Highway 627 & RR 261

Highway 627 & RR 261							
Location	**Main Road AADT**	**Main Road AADT > 1800 vph?**	**Estimated Intersecting Road AADT**	**Intersecting Road AADT > 900 vpd?**	**Estimated AADT Right Turn Volume**	**Daily Right Turn Volume > 360?**	**Right Turn Lane Warranted?**
2011 Existing Traffic							
West Approach (EB)	5460	Yes	1000	Yes	70	No	**NO**
East Approach (WB)	6160	Yes	60	No	10	No	**NO**
2022 Background							
West Approach (EB)	6660	Yes	1210	Yes	85	No	**NO**
East Approach (WB)	7510	Yes	60	No	10	No	**NO**
2022 Total							
West Approach (EB)	6712	Yes	2038	Yes	111	No	**NO**
East Approach (WB)	8286	Yes	60	No	10	No	**NO**
2042 Background							
West Approach (EB)	8850	Yes	1620	Yes	115	No	**NO**
East Approach (WB)	9980	Yes	90	No	15	No	**NO**
2042 Total							
West Approach (EB)	8902	Yes	2448	Yes	141	No	**NO**
East Approach (WB)	10756	Yes	90	No	15	No	**NO**

Notes:

1. "Main Road AADT" is assumed to be the approach from which the right turns are leaving
2. "Intersecting Road Volume" assumed to be volume on leg that right-turning traffic is turning into

APPENDIX C

TAC Signal Warrants

Alberta Transportation - Traffic Signal Warrant Analysis

Main Street (name)	**Hwy 627**	**Direction (EW or NS)**	**EW**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**
Quadrant / Int #		**Comments**	**2011 Existing Estimates**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**		

Road Authority:	**Alberta Transportation**
City:	**Parkland County**
Analysis Date:	**2012 Mar 27, Tue**
Count Date:	
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Hwy 627	WB	1				1		2,500	1
Hwy 627	EB		1				1	2,500	1
RR 261	NB		1				1		
RR 261	SB				1				
							n		

Are the RR 261 SB right turns significantly impeded by through movements? (y/n) n

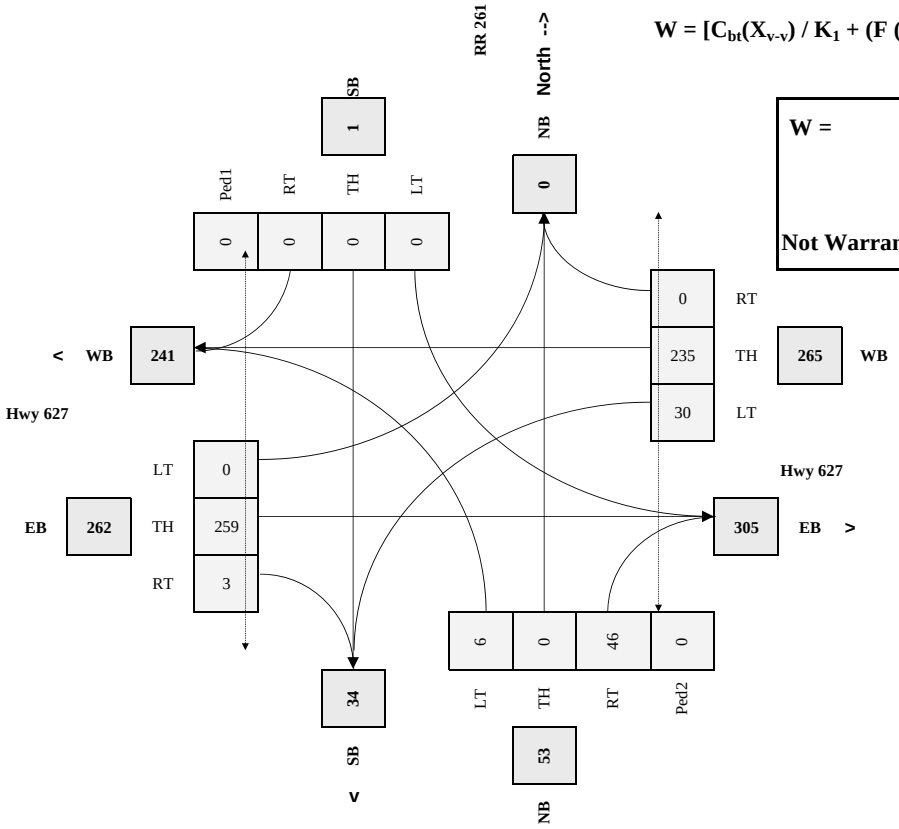
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Hwy 627	EW	80	7.0%	n	
RR 261	NS		3.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	17	1	160	0	1	0	29	436	0	0	668	4	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	4	0	67	0	1	0	55	260	0	0	327	8	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	17	0	51	2	0	0	98	711	0	1	556	7	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**38**	**1**	**278**	**2**	**2**	**0**	**182**	**1,407**	**0**	**1**	**1,551**	**19**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**6**	**0**	**46**	**0**	**0**	**0**	**30**	**235**	**0**	**0**	**259**	**3**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**10**	**10**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Alberta Transportation - Traffic Signal Warrant Analysis

Main Street (name)	**Hwy 627**	**Direction (EW or NS)**	**EW**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**
Quadrant / Int #		**Comments**	**2022 Background**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**		

Road Authority:	**Alberta Transportation**
City:	**Parkland County**
Analysis Date:	**2012 Mar 27, Tue**
Count Date:	
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Hwy 627	WB	1				1		2,500	1
Hwy 627	EB		1				1	2,500	1
RR 261	NB		1				1		
RR 261	SB				1				
							n		

Are the RR 261 SB right turns significantly impeded by through movements? (y/n) n

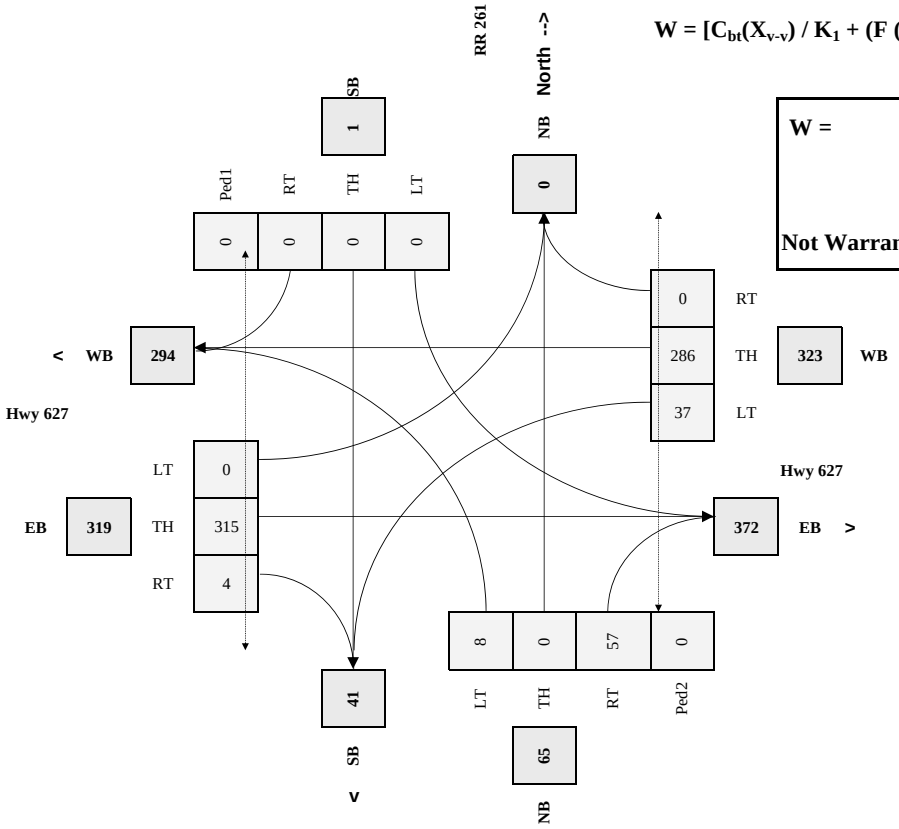
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Hwy 627	EW	80	7.0%	n	
RR 261	NS		3.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	22	1	195	0	1	0	35	532	0	0	814	4	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	5	0	82	0	1	0	67	317	0	0	398	9	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	21	0	62	2	0	0	119	868	0	1	677	9	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**48**	**1**	**339**	**2**	**2**	**0**	**221**	**1,717**	**0**	**1**	**1,889**	**22**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**8**	**0**	**57**	**0**	**0**	**0**	**37**	**286**	**0**	**0**	**315**	**4**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	**16**	**16**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Alberta Transportation - Traffic Signal Warrant Analysis

Main Street (name)	**Hwy 627**	**Direction (EW or NS)**	**EW**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**
Quadrant / Int #		**Comments**	**2022 Total**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**		

Road Authority:	**Alberta Transportation**
City:	**Parkland County**
Analysis Date:	**2012 Mar 27, Tue**
Count Date:	
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Hwy 627	WB	1				1		2,500	1
Hwy 627	EB		1				1	2,500	1
RR 261	NB		1				1		
RR 261	SB				1				
							n		

Are the RR 261 SB right turns significantly impeded by through movements? (y/n) n

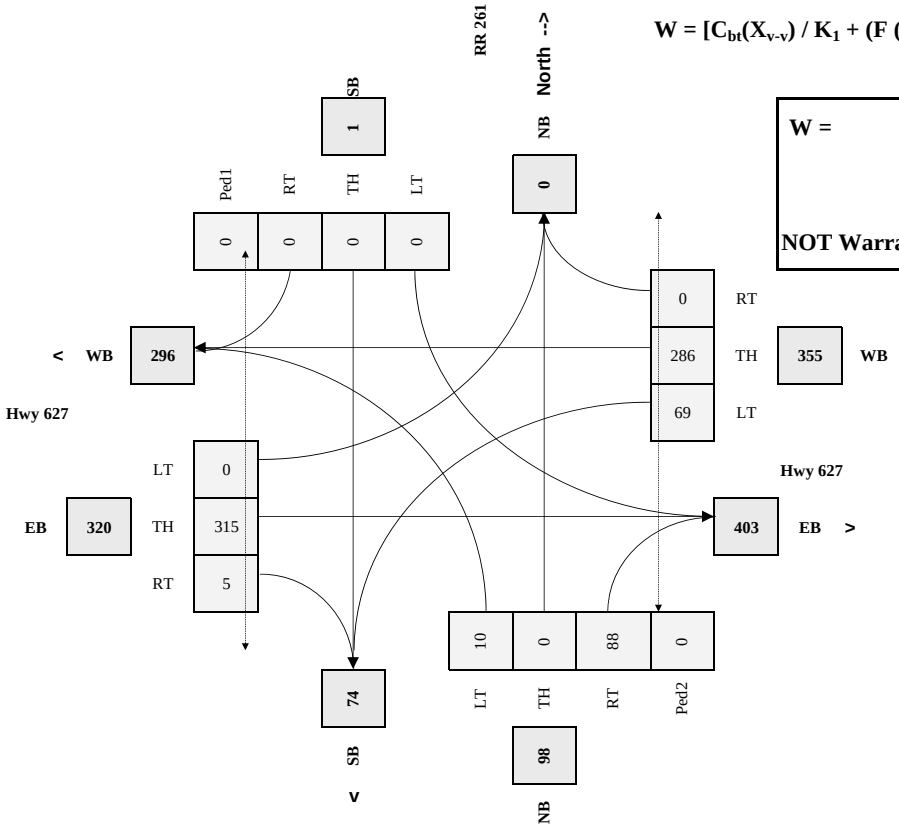
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Hwy 627	EW	80	7.0%	n	
RR 261	NS		3.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	28	1	283	0	1	0	68	532	0	0	814	6	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	6	0	127	0	1	0	125	317	0	0	398	13	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	24	0	116	2	0	0	219	868	0	1	677	13	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**58**	**1**	**526**	**2**	**2**	**0**	**412**	**1,717**	**0**	**1**	**1,889**	**32**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**10**	**0**	**88**	**0**	**0**	**0**	**69**	**286**	**0**	**0**	**315**	**5**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**27**	**27**	**0**
		Veh	***Ped***

NOT Warranted

RESET SHEET

Alberta Transportation - Traffic Signal Warrant Analysis

Main Street (name)	**Hwy 627**	**Direction (EW or NS)**	**EW**	**Road Authority:**	**Alberta Transportation**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**	**City:**	**Parkland County**
Quadrant / Int #		**Comments**	**2042 Background**	**Analysis Date:**	**2012 Mar 27, Tue**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Hwy 627	WB	1				1		2,500	1
Hwy 627	EB		1				1	2,500	1
RR 261	NB		1				1		
RR 261	SB				1				
							n		

Are the RR 261 SB right turns significantly impeded by through movements? (y/n) n

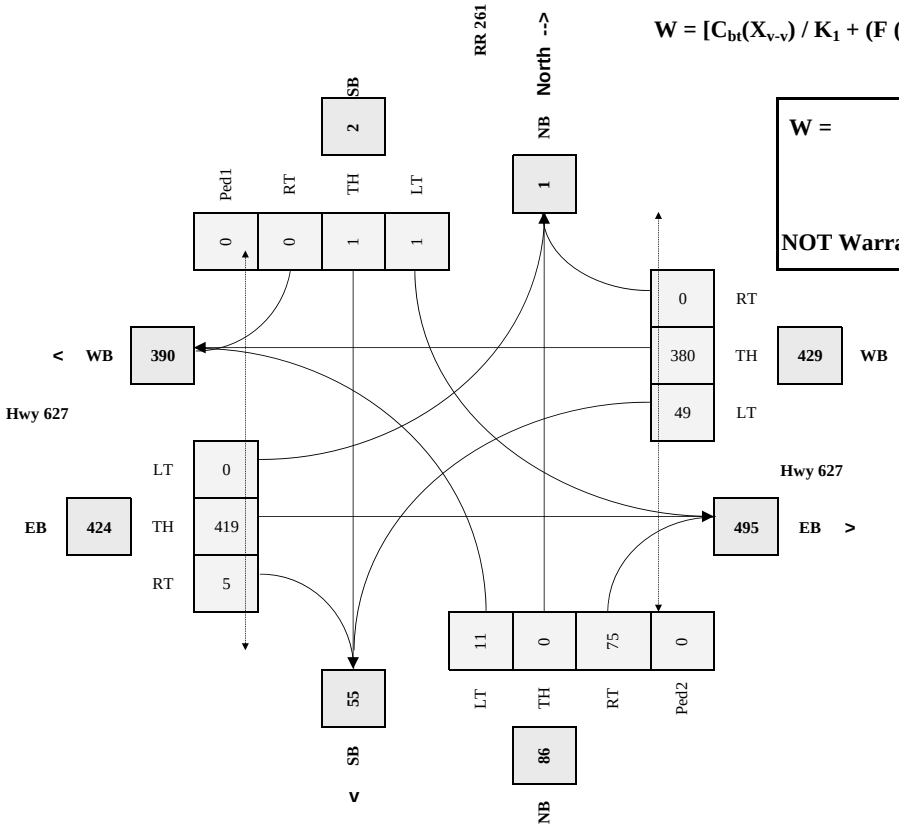
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Hwy 627	EW	80	7.0%	n	
RR 261	NS		3.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	28	2	260	0	2	0	46	706	0	0	1083	6	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	7	0	109	1	2	0	89	420	0	0	529	12	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	28	0	81	4	0	0	159	1152	0	2	900	12	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**63**	**2**	**450**	**5**	**4**	**0**	**294**	**2,278**	**0**	**2**	**2,512**	**30**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**11**	**0**	**75**	**1**	**1**	**0**	**49**	**380**	**0**	**0**	**419**	**5**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**31**	**31**	**0**
		Veh	***Ped***

NOT Warranted

RESET SHEET

Alberta Transportation - Traffic Signal Warrant Analysis

Main Street (name)	**Hwy 627**	**Direction (EW or NS)**	**EW**	**Road Authority:**	**Alberta Transportation**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**	**City:**	**Parkland County**
Quadrant / Int #		**Comments**	**2042 Total**	**Analysis Date:**	**2012 Mar 27, Tue**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**2010 May 13, Thu**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Hwy 627	WB	1				1		2,500	1
Hwy 627	EB		1				1	2,500	1
RR 261	NB		1				1		
RR 261	SB				1				
							n		

Are the RR 261 SB right turns significantly impeded by through movements? (y/n) n

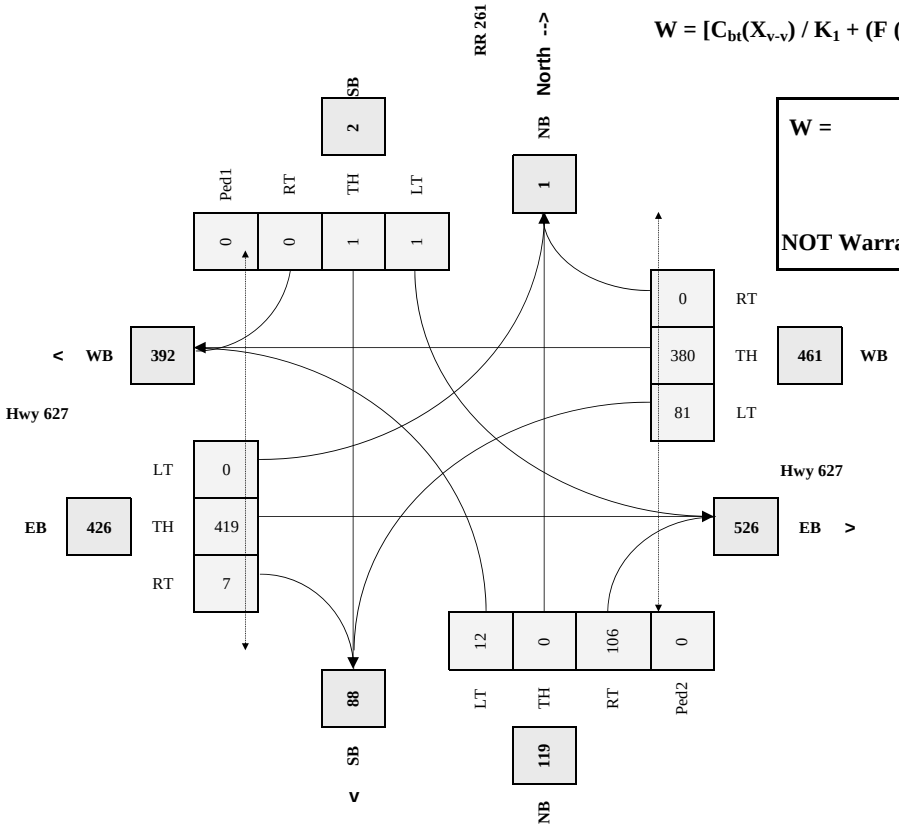
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Hwy 627	EW	80	7.0%	n	
RR 261	NS		3.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	35	2	348	0	2	0	79	706	0	0	1083	8	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	8	0	154	1	2	0	147	420	0	0	529	16	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	31	0	136	4	0	0	259	1152	0	2	900	16	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**74**	**2**	**638**	**5**	**4**	**0**	**485**	**2,278**	**0**	**2**	**2,512**	**40**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**12**	**0**	**106**	**1**	**1**	**0**	**81**	**380**	**0**	**0**	**419**	**7**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**46**	**46**	**0**
		Veh	***Ped***

NOT Warranted

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	RR 261	**Direction (EW or NS)**	NS
Side Street (name)	Sandy Ridge Cres North	**Direction (EW or NS)**	EW
Quadrant / Int #		**Comments**	2012 Existing
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	Parkland County
City:	Parkland County
Analysis Date:	2012 Mar 27, Tue
Count Date:	2012 Feb 02, Thu
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
RR 261	NB		1					2,500	1
RR 261	SB					1		2,500	1
Sandy Ridge Cres North	WB								
Sandy Ridge Cres North	EB				1				
							n		

re the Sandy Ridge Cres North EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

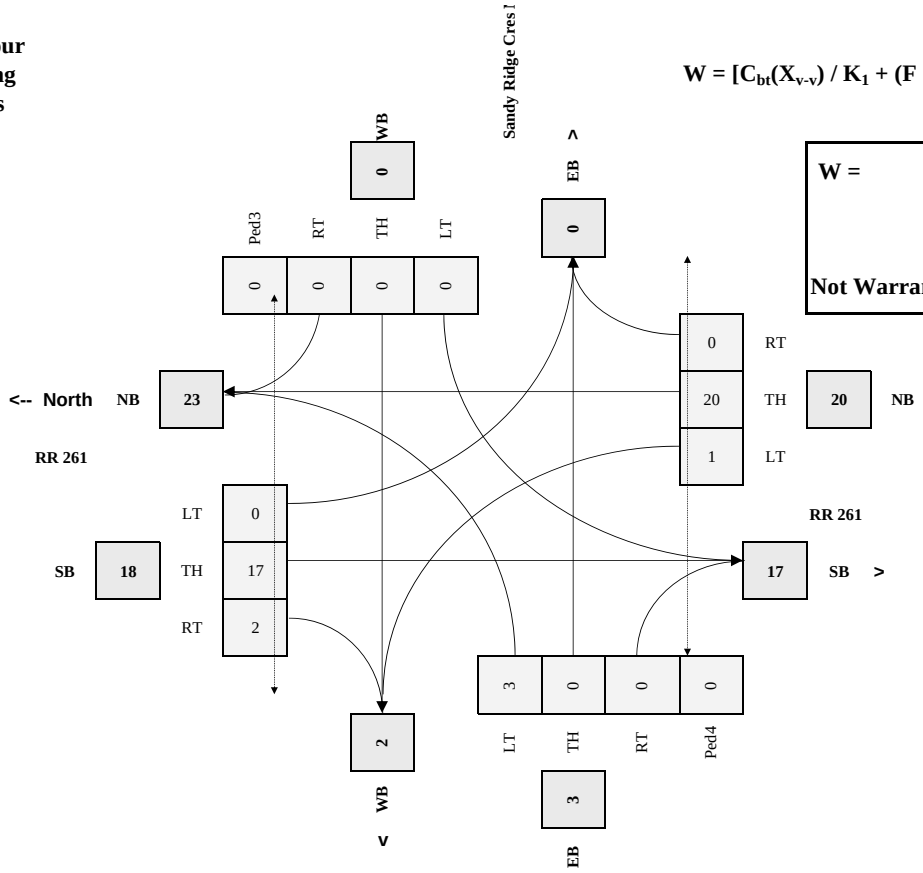
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
RR 261	NS	80	7.0%	n	
Sandy Ridge Cres North	EW		0.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1**	**Ped2**	**Ped3**	**Ped4**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**NS**	**NS**	**EW**	**EW**
													W Side	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	55	0	0	10	0	0	0	0	15	0	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	0	27	0	0	20	1	0	0	0	1	0	0	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	3	37	0	0	69	9	0	0	0	1	0	0	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**3**	**119**	**0**	**0**	**99**	**10**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**1**	**20**	**0**	**0**	**17**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$



W =	**0**	**0**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	RR 261	Direction (EW or NS)	NS
Side Street (name)	Sandy Ridge Cres North	Direction (EW or NS)	EW
Quadrant / Int #		Comments	2022 Background
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	Parkland County
City:	Parkland County
Analysis Date:	2012 Mar 27, Tue
Count Date:	2012 Feb 02, Thu
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
RR 261	NB		1					2,500	1
RR 261	SB					1		2,500	1
Sandy Ridge Cres North	WB								
Sandy Ridge Cres North	EB				1				
							n		
re the Sandy Ridge Cres North EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

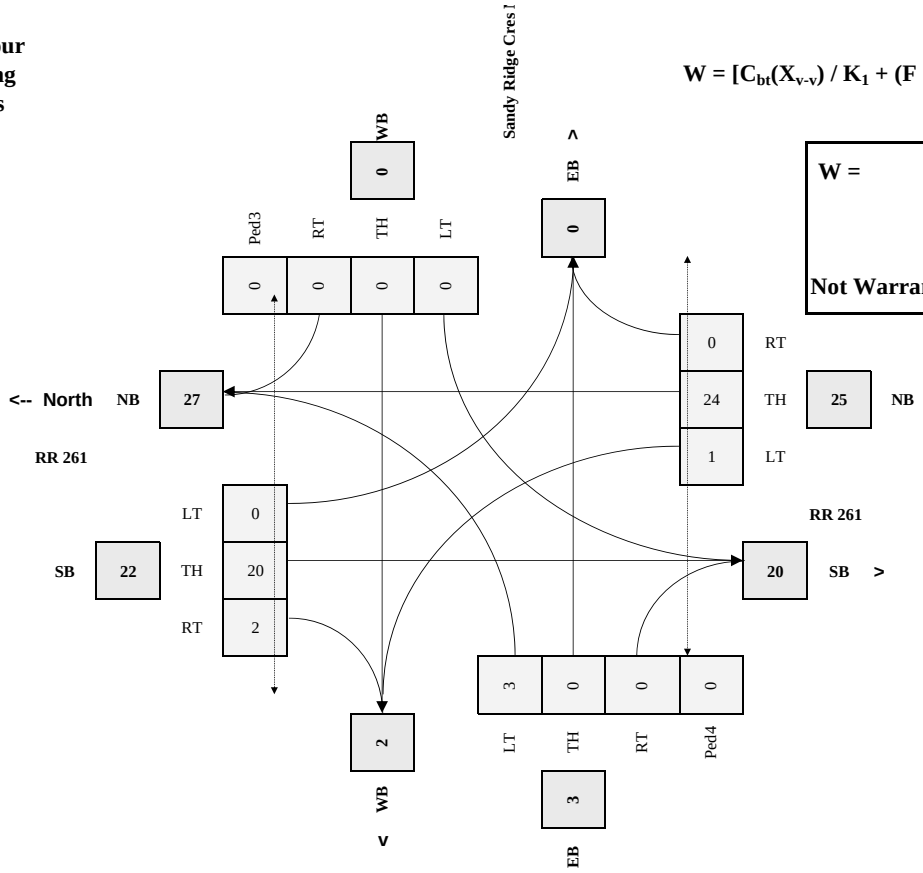
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
RR 261	NS	80	7.0%	n	
Sandy Ridge Cres North	EW		0.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	66	0	0	13	0	0	0	0	15	0	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	0	33	0	0	24	1	0	0	0	1	0	0	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	3	45	0	0	82	9	0	0	0	1	0	0	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**3**	**144**	**0**	**0**	**119**	**10**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**1**	**24**	**0**	**0**	**20**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$



W =	0	0	0
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**	**Road Authority:**	**Parkland County**
Side Street (name)	**Sandy Ridge Cres North**	**Direction (EW or NS)**	**EW**	**City:**	**Parkland County**
Quadrant / Int #		**Comments**	**2022 Total**	**Analysis Date:**	**2012 Mar 27, Tue**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**2012 Feb 02, Thu**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
RR 261	NB				1			2,500	1
RR 261	SB				1			2,500	1
Sandy Ridge Cres North	WB				1				
Sandy Ridge Cres North	EB				1				
e the Sandy Ridge Cres North WB right turns significantly impeded by through movements? (y/n)							n		
re the Sandy Ridge Cres North EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

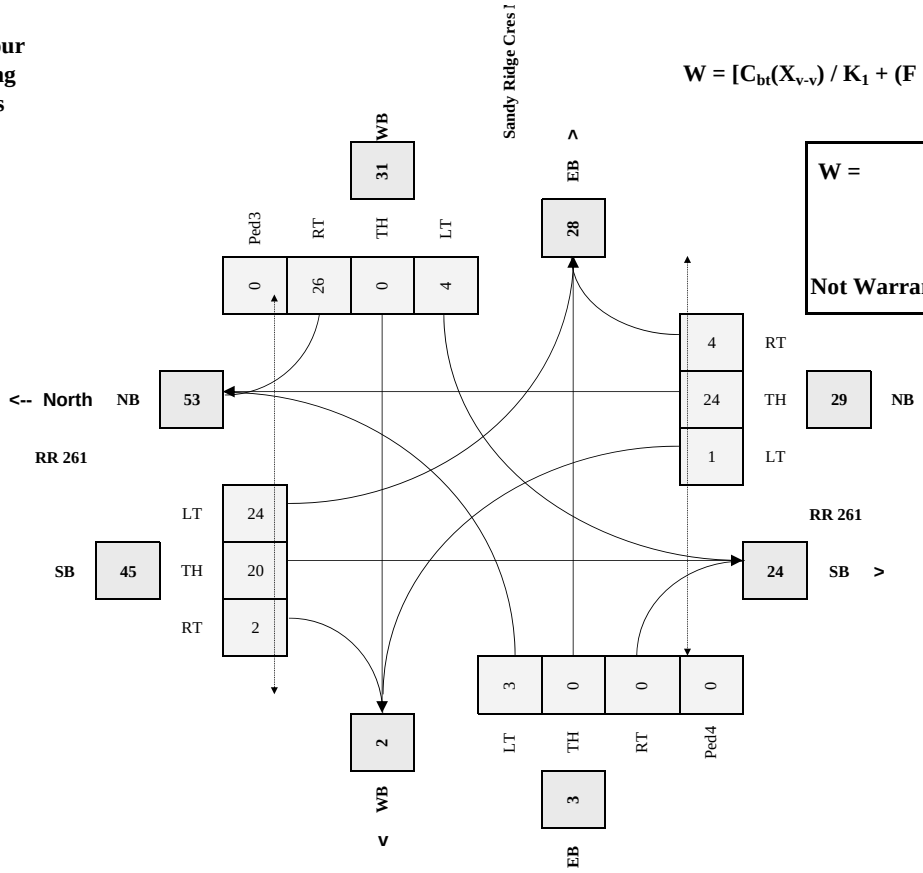
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
RR 261	NS	80	7.0%	n	
Sandy Ridge Cres North	EW		0.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1**	**Ped2**	**Ped3**	**Ped4**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**NS**	**NS**	**EW**	**EW**
													W Side	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	66	5	24	13	0	12	0	74	15	0	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	0	33	5	28	24	1	5	0	32	1	0	0	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	3	45	16	90	82	9	8	0	52	1	0	0	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**3**	**144**	**26**	**142**	**119**	**10**	**25**	**0**	**158**	**17**	**0**	**0**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**1**	**24**	**4**	**24**	**20**	**2**	**4**	**0**	**26**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$



W =	**1**	**1**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**
Side Street (name)	**Sandy Ridge Cres North**	**Direction (EW or NS)**	**EW**
Quadrant / Int #		**Comments**	**2042 Background**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**		

Road Authority:	**Parkland County**
City:	**Parkland County**
Analysis Date:	**2012 Mar 27, Tue**
Count Date:	**2012 Feb 02, Thu**
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
RR 261	NB		1					2,500	1
RR 261	SB					1		2,500	1
Sandy Ridge Cres North	WB								
Sandy Ridge Cres North	EB				1				
							n		
re the Sandy Ridge Cres North EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

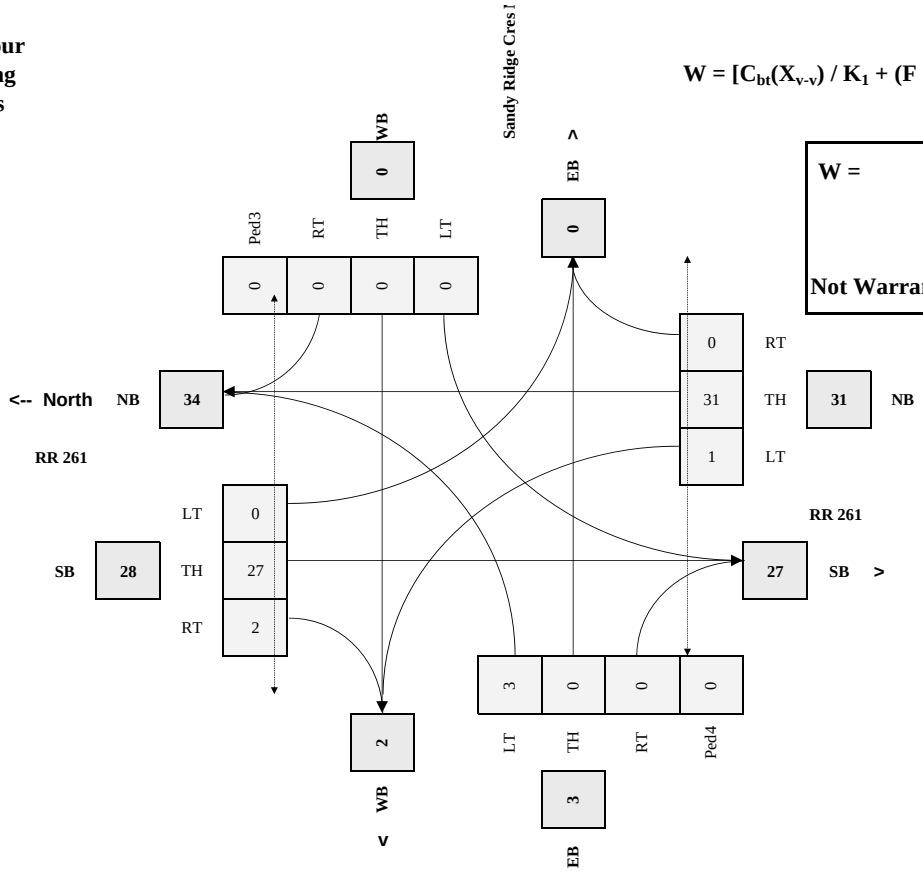
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
RR 261	NS	80	7.0%	n	
Sandy Ridge Cres North	EW		0.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1**	**Ped2**	**Ped3**	**Ped4**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**NS**	**NS**	**EW**	**EW**
													W Side	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	82	0	0	17	0	0	0	0	15	0	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	0	42	0	0	32	1	0	0	0	1	0	0	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	3	60	0	0	111	9	0	0	0	1	0	0	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**3**	**184**	**0**	**0**	**160**	**10**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**1**	**31**	**0**	**0**	**27**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$



W =	**0**	**0**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**
Side Street (name)	**Sandy Ridge Cres North**	**Direction (EW or NS)**	**EW**
Quadrant / Int #		**Comments**	**2042 Total**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**		

Road Authority:	**Parkland County**
City:	**Parkland County**
Analysis Date:	**2012 Mar 27, Tue**
Count Date:	**2012 Feb 02, Thu**
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
RR 261	NB				1			2,500	1
RR 261	SB				1			2,500	1
Sandy Ridge Cres North	WB				1				
Sandy Ridge Cres North	EB				1				
e the Sandy Ridge Cres North WB right turns significantly impeded by through movements? (y/n)							n		
re the Sandy Ridge Cres North EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

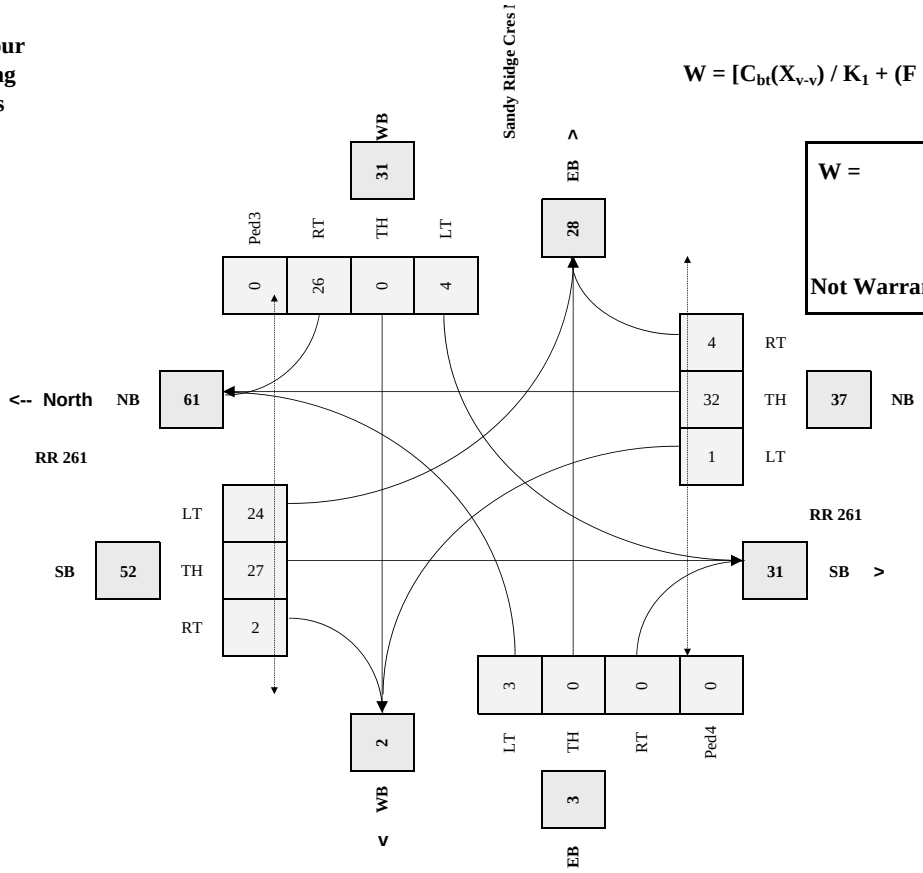
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
RR 261	NS	80	7.0%	n	
Sandy Ridge Cres North	EW		0.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1**	**Ped2**	**Ped3**	**Ped4**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**NS**	**NS**	**EW**	**EW**
													W Side	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	87	5	24	17	0	12	0	74	15	0	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	0	44	5	28	32	1	5	0	32	1	0	0	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	3	60	16	90	111	9	8	0	52	1	0	0	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**3**	**191**	**26**	**142**	**160**	**10**	**25**	**0**	**158**	**17**	**0**	**0**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**1**	**32**	**4**	**24**	**27**	**2**	**4**	**0**	**26**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$



W =	**1**	**1**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Alberta Transportation - Traffic Signal Warrant Analysis

Main Street (name)	**Twp. Rd. 514**	**Direction (EW or NS)**	**EW**	**Road Authority:**	**Alberta Transportation**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**	**City:**	**Parkland County**
Quadrant / Int #		**Comments**	**2012 Existing**	**Analysis Date:**	**2012 Mar 27, Tue**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**2012 Feb 01, Wed**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Twp. Rd. 514	WB				1			2,500	1
Twp. Rd. 514	EB				1			2,500	1
RR 261	NB				1				
RR 261	SB				1				
Are the RR 261 NB right turns significantly impeded by through movements? (y/n)							n		
Are the RR 261 SB right turns significantly impeded by through movements? (y/n)							n		

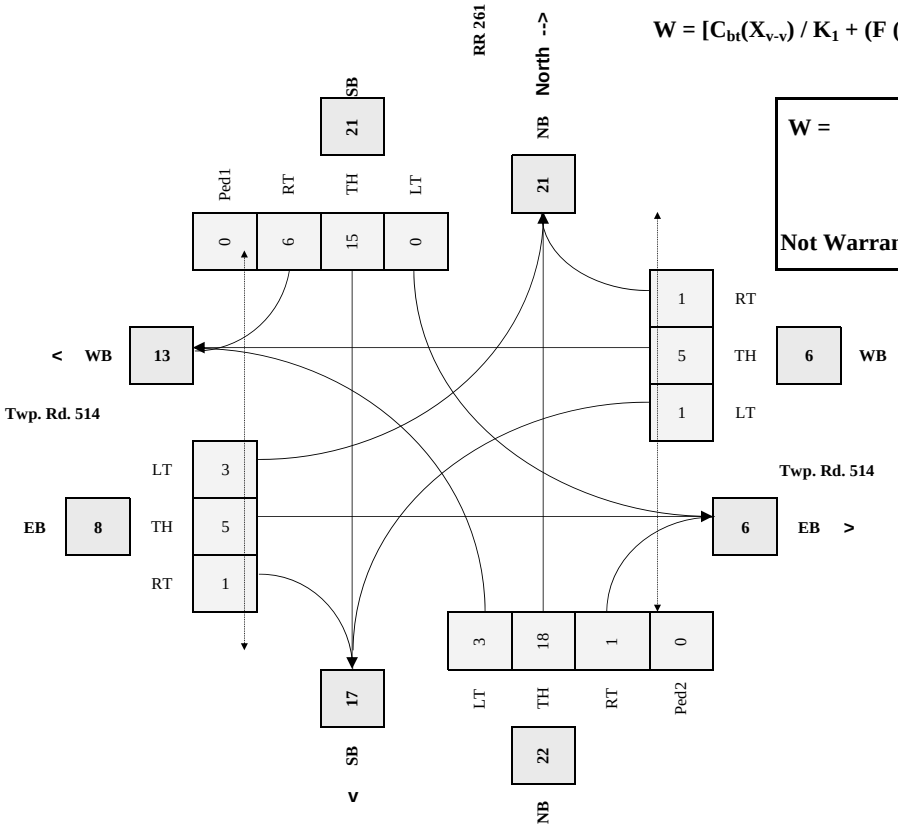
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Twp. Rd. 514	EW	80	2.0%	n	
RR 261	NS		1.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	7	61	1	0	14	2	0	5	1	3	8	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	2	27	3	0	24	8	0	5	0	5	8	1	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	8	19	4	2	54	23	5	18	3	8	12	4	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**17**	**107**	**8**	**2**	**92**	**33**	**5**	**28**	**4**	**16**	**28**	**5**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**3**	**18**	**1**	**0**	**15**	**6**	**1**	**5**	**1**	**3**	**5**	**1**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	0	0	0
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**Twp. Rd. 514**	**Direction (EW or NS)**	**EW**	**Road Authority:**	**Parkland County**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**	**City:**	**Parkland County**
Quadrant / Int #		**Comments**	**2022 Background**	**Analysis Date:**	**2012 Mar 27, Tue**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**2012 Feb 01, Wed**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Twp. Rd. 514	WB				1			2,500	1
Twp. Rd. 514	EB				1			2,500	1
RR 261	NB				1				
RR 261	SB				1				
Are the RR 261 NB right turns significantly impeded by through movements? (y/n)							n		
Are the RR 261 SB right turns significantly impeded by through movements? (y/n)							n		

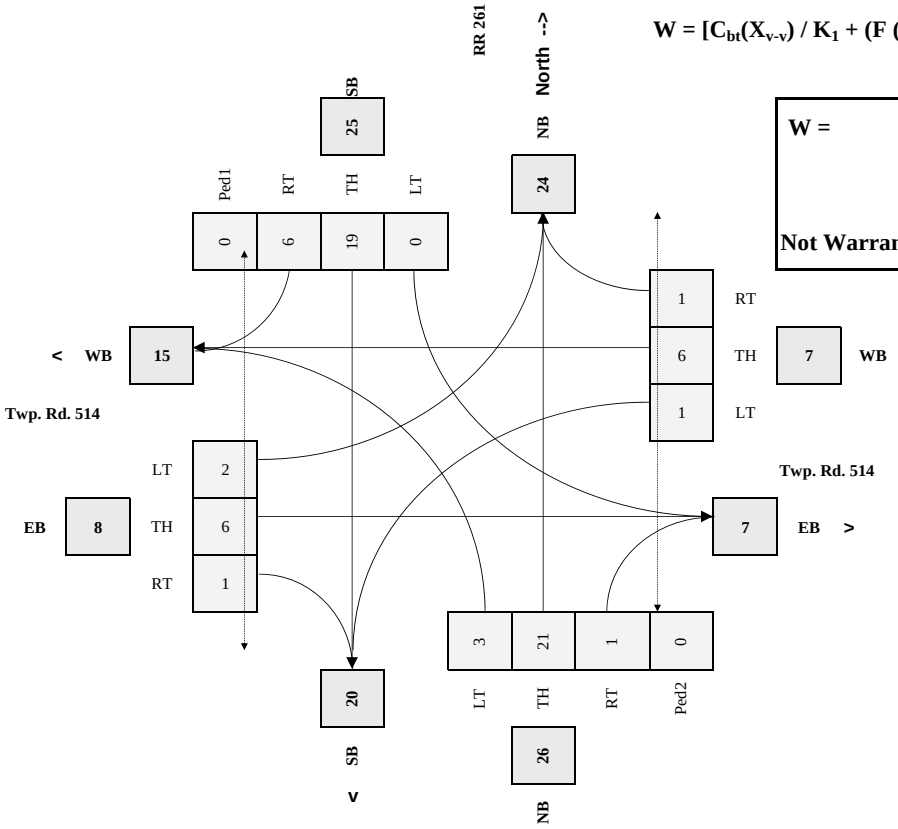
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Twp. Rd. 514	EW	80	2.0%	n	
RR 261	NS		1.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	9	73	0	0	18	2	0	7	0	4	10	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	2	32	3	0	29	9	0	6	0	7	9	1	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	9	22	4	2	65	27	5	21	3	0	14	4	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**20**	**127**	**7**	**2**	**112**	**38**	**5**	**34**	**3**	**11**	**33**	**5**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**3**	**21**	**1**	**0**	**19**	**6**	**1**	**6**	**1**	**2**	**6**	**1**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**1**	**1**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**Twp. Rd. 514**	**Direction (EW or NS)**	**EW**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**
Quadrant / Int #		**Comments**	**2022 Total**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**		

Road Authority:	**Parkland County**
City:	**Parkland County**
Analysis Date:	**2012 Mar 27, Tue**
Count Date:	**2012 Feb 01, Wed**
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Twp. Rd. 514	WB				1			2,500	1
Twp. Rd. 514	EB				1			2,500	1
RR 261	NB				1				
RR 261	SB				1				
Are the RR 261 NB right turns significantly impeded by through movements? (y/n)							n		
Are the RR 261 SB right turns significantly impeded by through movements? (y/n)							n		

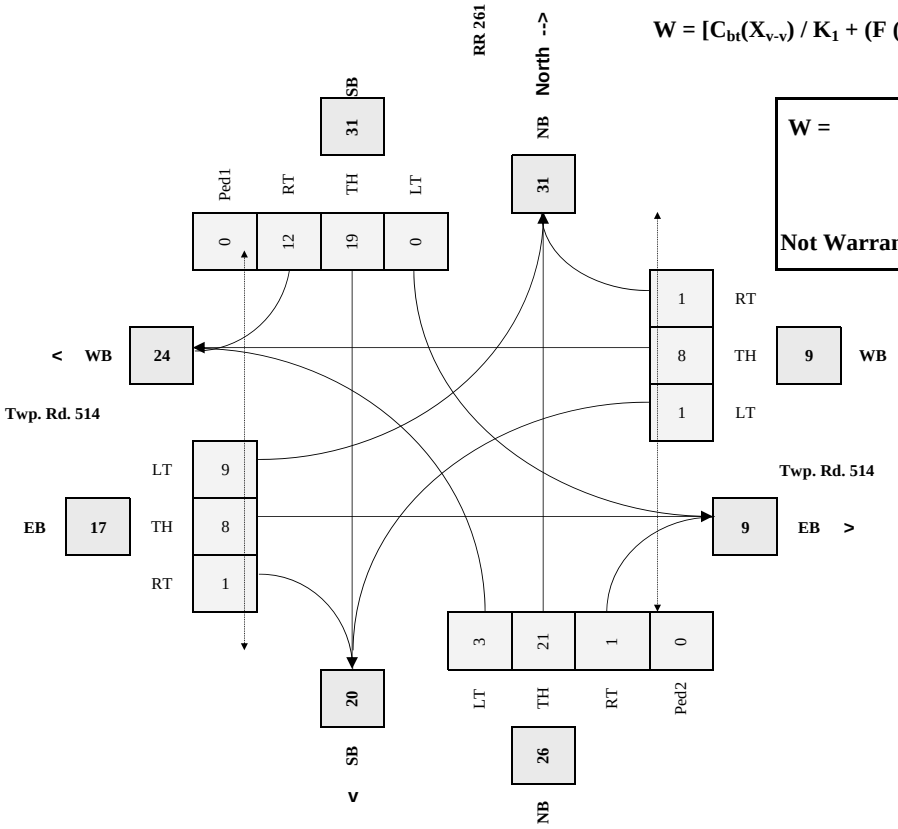
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Twp. Rd. 514	EW	80	2.0%	n	
RR 261	NS		1.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	9	73	0	0	18	18	0	13	0	7	11	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	2	32	3	0	29	18	0	9	0	28	13	1	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	9	22	4	2	65	38	5	26	3	18	22	4	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**20**	**127**	**7**	**2**	**112**	**74**	**5**	**48**	**3**	**53**	**46**	**5**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**3**	**21**	**1**	**0**	**19**	**12**	**1**	**8**	**1**	**9**	**8**	**1**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**1**	**1**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**Twp. Rd. 514**	**Direction (EW or NS)**	**EW**	**Road Authority:**	**Parkland County**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**	**City:**	**Parkland County**
Quadrant / Int #		**Comments**	**2042 Background**	**Analysis Date:**	**2012 Mar 27, Tue**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**2012 Feb 01, Wed**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Twp. Rd. 514	WB				1			2,500	1
Twp. Rd. 514	EB				1			2,500	1
RR 261	NB				1				
RR 261	SB				1				
Are the RR 261 NB right turns significantly impeded by through movements? (y/n)							n		
Are the RR 261 SB right turns significantly impeded by through movements? (y/n)							n		

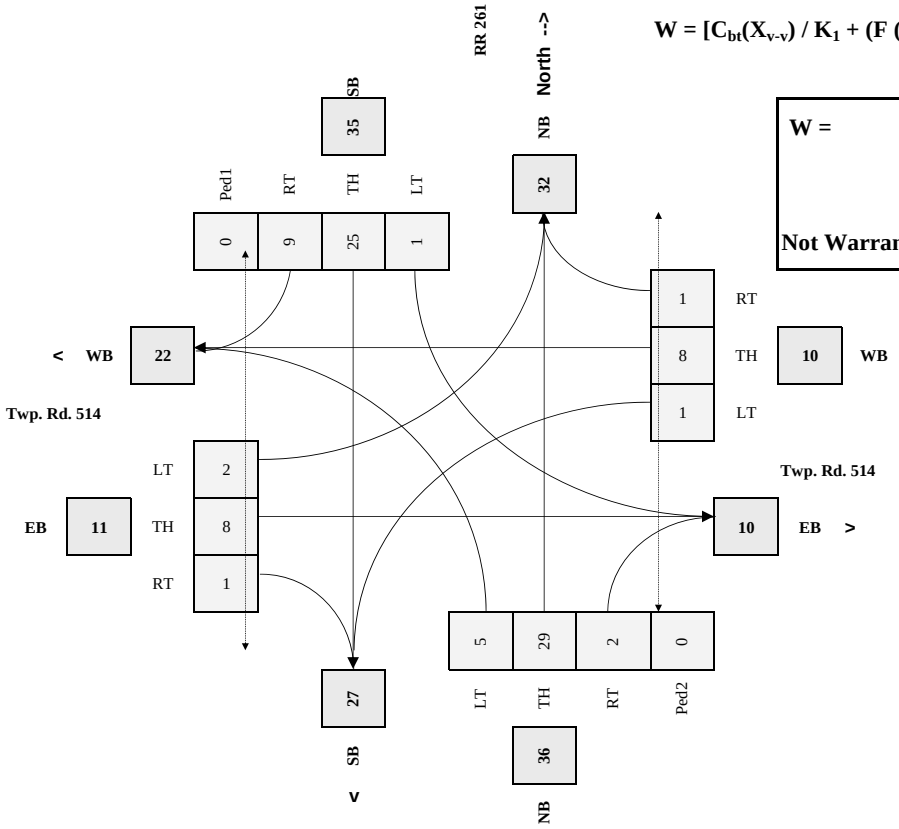
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Twp. Rd. 514	EW	80	2.0%	n	
RR 261	NS		1.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	12	99	0	0	23	4	0	8	0	5	13	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	3	44	5	0	39	13	0	8	0	8	13	2	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	13	31	6	4	86	38	8	30	6	0	20	6	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**28**	**174**	**11**	**4**	**148**	**55**	**8**	**46**	**6**	**13**	**46**	**8**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**5**	**29**	**2**	**1**	**25**	**9**	**1**	**8**	**1**	**2**	**8**	**1**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**1**	**1**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**Twp. Rd. 514**	**Direction (EW or NS)**	**EW**
Side Street (name)	**RR 261**	**Direction (EW or NS)**	**NS**
Quadrant / Int #		**Comments**	**2042 Total**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**		

Road Authority:	**Parkland County**
City:	**Parkland County**
Analysis Date:	**2012 Mar 27, Tue**
Count Date:	**2012 Feb 01, Wed**
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Twp. Rd. 514	WB				1			2,500	1
Twp. Rd. 514	EB				1			2,500	1
RR 261	NB				1				
RR 261	SB				1				
Are the RR 261 NB right turns significantly impeded by through movements? (y/n)							n		
Are the RR 261 SB right turns significantly impeded by through movements? (y/n)							n		

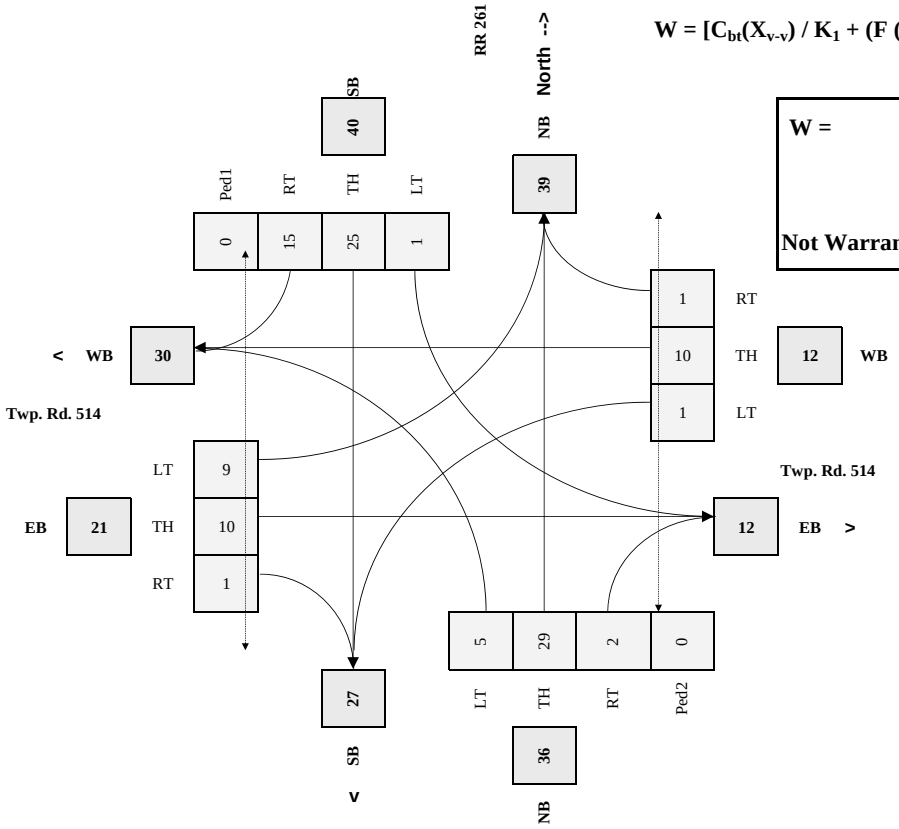
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Twp. Rd. 514	EW	80	2.0%	n	
RR 261	NS		1.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	12	99	0	0	23	20	0	15	0	8	14	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	3	44	5	0	39	22	0	11	0	30	17	2	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	13	31	6	4	86	48	8	34	6	18	28	6	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**28**	**174**	**11**	**4**	**148**	**90**	**8**	**60**	**6**	**56**	**59**	**8**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**5**	**29**	**2**	**1**	**25**	**15**	**1**	**10**	**1**	**9**	**10**	**1**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**2**	**2**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**Twp. Rd. 514**	**Direction (EW or NS)**	**EW**	**Road Authority:**	**Parkland County**
Side Street (name)	**Site Access**	**Direction (EW or NS)**	**NS**	**City:**	**Parkland County**
Quadrant / Int #		**Comments**	**2022 Total**	**Analysis Date:**	**2012 Mar 27, Tue**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**2012 Feb 01, Wed**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Twp. Rd. 514	WB					1		2,500	1
Twp. Rd. 514	EB		1					2,500	1
Site Access	NB								
Site Access	SB				1				
							n		
Are the Site Access SB right turns significantly impeded by through movements? (y/n)							n		

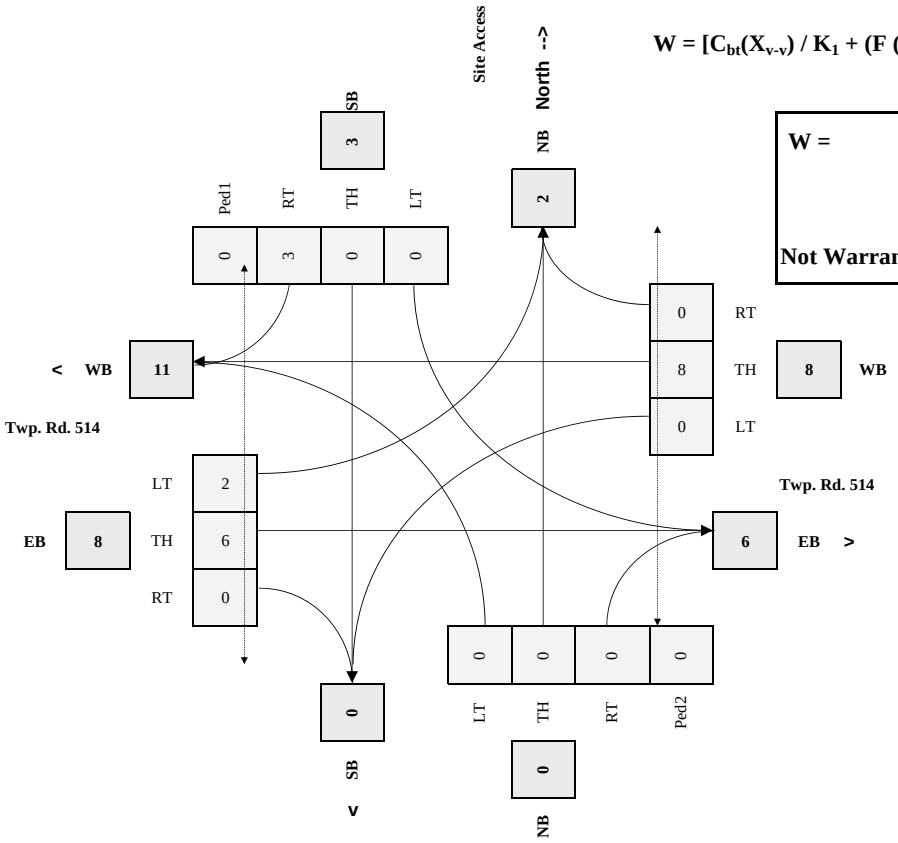
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Twp. Rd. 514	EW	80	2.0%	n	
Site Access	NS		1.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	0	0	0	0	8	0	8	0	2	11	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	0	0	0	0	0	4	0	12	0	3	9	0	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	0	0	0	0	0	5	0	29	0	7	18	0	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**49**	**0**	**12**	**38**	**0**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**8**	**0**	**2**	**6**	**0**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**0**	**0**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

Parkland County - Traffic Signal Warrant Analysis

Main Street (name)	**Twp. Rd. 514**	**Direction (EW or NS)**	**EW**	**Road Authority:**	**Parkland County**
Side Street (name)	**Site Access**	**Direction (EW or NS)**	**NS**	**City:**	**Parkland County**
Quadrant / Int #		**Comments**	**2042 Total**	**Analysis Date:**	**2012 Mar 27, Tue**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**2012 Feb 01, Wed**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Twp. Rd. 514	WB					1		2,500	1
Twp. Rd. 514	EB		1					2,500	1
Site Access	NB								
Site Access	SB				1				
							n		
Are the Site Access SB right turns significantly impeded by through movements? (y/n)							n		

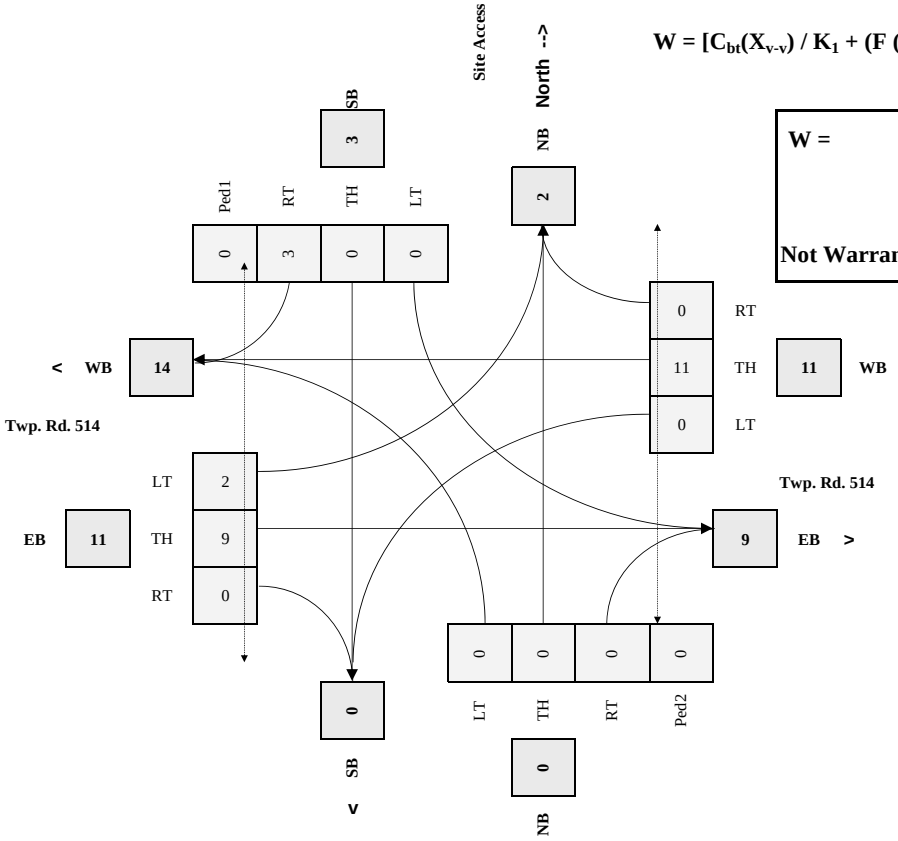
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	35,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Twp. Rd. 514	EW	80	2.0%	n	
Site Access	NS		1.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1** **NS**	**Ped2** **NS**	**Ped3** **EW**	**Ped4** **EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	0	0	0	0	8	0	9	0	2	15	0	0	0	0	0
8:00 - 9:00													0	0	0	0
11:30 - 12:30	0	0	0	0	0	4	0	16	0	3	13	0	0	0	0	0
12:30 - 13:30													0	0	0	0
16:00 - 17:00	0	0	0	0	0	5	0	42	0	7	27	0	0	0	0	0
17:00 - 18:00													0	0	0	0
Total (6-hour peak)	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**67**	**0**	**12**	**55**	**0**	**0**	**0**	**0**	**0**
Average (6-hour peak)	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**11**	**0**	**2**	**9**	**0**	**0**	**0**	**0**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	**0**	**0**	**0**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

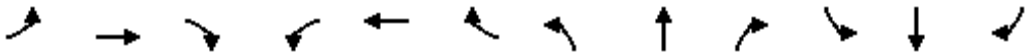
APPENDIX D

Synchro 7.0 Printouts

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	393	2	13	255	0	8	1	84	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.76	0.81	0.50	0.90	0.81	1.00	0.81	0.80	0.81	0.81	0.81
Hourly flow rate (vph)	0	517	2	26	283	0	8	1	105	0	1	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	283			520			853	852	517	906	855	283
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	283			520			853	852	517	906	855	283
tC, single (s)	4.1			4.1			7.6	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			4.0	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			96	100	81	100	100	100
cM capacity (veh/h)	1273			1041			227	288	558	203	287	753

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	517	2	26	283	114	1
Volume Left	0	0	26	0	8	0
Volume Right	0	2	0	0	105	0
cSH	1273	1700	1041	1700	607	287
Volume to Capacity	0.00	0.00	0.02	0.17	0.19	0.00
Queue Length 95th (m)	0.0	0.0	0.6	0.0	5.2	0.1
Control Delay (s)	0.0	0.0	8.5	0.0	13.6	17.6
Lane LOS			A		B	C
Approach Delay (s)	0.0		0.7		13.6	17.6
Approach LOS					B	C

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	479	2	16	311	0	10	1	102	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.76	0.81	0.50	0.90	0.81	1.00	0.81	0.80	0.81	0.81	0.81
Hourly flow rate (vph)	0	630	2	32	346	0	10	1	128	0	1	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	346			633			1040	1040	630	1104	1042	346
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	346			633			1040	1040	630	1104	1042	346
tC, single (s)	4.1			4.1			7.6	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			4.0	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			94	99	74	100	99	100
cM capacity (veh/h)	1208			945			165	222	481	134	221	695

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	630	2	32	346	139	1
Volume Left	0	0	32	0	10	0
Volume Right	0	2	0	0	128	0
cSH	1208	1700	945	1700	524	221
Volume to Capacity	0.00	0.00	0.03	0.20	0.26	0.01
Queue Length 95th (m)	0.0	0.0	0.8	0.0	8.0	0.1
Control Delay (s)	0.0	0.0	8.9	0.0	16.2	21.4
Lane LOS			A		C	C
Approach Delay (s)	0.0		0.8		16.2	21.4
Approach LOS					C	C

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	46.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	479	3	31	311	0	13	1	148	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.76	0.81	0.50	0.90	0.81	1.00	0.81	0.80	0.81	0.81	0.81
Hourly flow rate (vph)	0	630	4	62	346	0	13	1	185	0	1	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	346			634			1100	1100	630	1193	1104	346
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	346			634			1100	1100	630	1193	1104	346
tC, single (s)	4.1			4.1			7.6	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			4.0	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			91	99	62	100	99	100
cM capacity (veh/h)	1208			944			145	197	481	95	196	695

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	630	4	62	346	199	1
Volume Left	0	0	62	0	13	0
Volume Right	0	4	0	0	185	0
cSH	1208	1700	944	1700	518	196
Volume to Capacity	0.00	0.00	0.07	0.20	0.38	0.01
Queue Length 95th (m)	0.0	0.0	1.6	0.0	13.6	0.1
Control Delay (s)	0.0	0.0	9.1	0.0	18.1	23.4
Lane LOS			A		C	C
Approach Delay (s)	0.0		1.4		18.1	23.4
Approach LOS					C	C

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	49.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	568	3	20	369	0	10	2	121	0	2	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.76	0.81	0.50	0.90	0.81	1.00	0.81	0.80	0.81	0.81	0.81
Hourly flow rate (vph)	0	747	4	40	410	0	10	2	151	0	2	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	410			751			1239	1237	747	1314	1241	410
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	410			751			1239	1237	747	1314	1241	410
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			93	99	63	100	99	100
cM capacity (veh/h)	1143			854			145	167	411	81	166	639

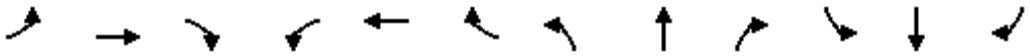
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	747	4	40	410	164	2
Volume Left	0	0	40	0	10	0
Volume Right	0	4	0	0	151	0
cSH	1143	1700	854	1700	445	166
Volume to Capacity	0.00	0.00	0.05	0.24	0.37	0.01
Queue Length 95th (m)	0.0	0.0	1.1	0.0	12.7	0.3
Control Delay (s)	0.0	0.0	9.4	0.0	19.7	27.0
Lane LOS			A		C	D
Approach Delay (s)	0.0		0.8		19.7	27.0
Approach LOS					C	D

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	52.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	637	4	36	413	0	16	2	182	0	2	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.76	0.81	0.50	0.90	0.81	1.00	0.81	0.80	0.81	0.81	0.81
Hourly flow rate (vph)	0	838	5	72	459	0	16	2	228	0	2	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	459			843			1442	1441	838	1556	1446	459
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	459			843			1442	1441	838	1556	1446	459
tC, single (s)	4.1			4.1			7.6	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			4.0	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			80	98	38	100	98	100
cM capacity (veh/h)	1097			789			79	120	366	32	119	600

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	838	5	72	459	246	2
Volume Left	0	0	72	0	16	0
Volume Right	0	5	0	0	228	0
cSH	1097	1700	789	1700	396	119
Volume to Capacity	0.00	0.00	0.09	0.27	0.62	0.02
Queue Length 95th (m)	0.0	0.0	2.3	0.0	30.8	0.5
Control Delay (s)	0.0	0.0	10.0	0.0	31.9	35.9
Lane LOS			B		D	E
Approach Delay (s)	0.0		1.4		31.9	35.9
Approach LOS					D	E

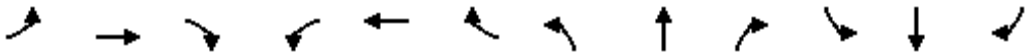
Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	302	5	51	363	0	10	0	28	1	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.94	0.75	1.00	0.87	0.90	0.55	0.90	0.65	0.90	0.90	0.90
Hourly flow rate (vph)	1	321	7	51	417	0	18	0	43	1	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	417			328			843	843	321	864	849	417
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	417			328			843	843	321	864	849	417
tC, single (s)	4.1			4.1			7.2	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			96			93	100	94	100	100	100
cM capacity (veh/h)	1142			1232			267	288	710	249	285	636

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	322	7	51	417	61	1
Volume Left	1	0	51	0	18	1
Volume Right	0	7	0	0	43	0
cSH	1142	1700	1232	1700	899	249
Volume to Capacity	0.00	0.00	0.04	0.25	0.07	0.00
Queue Length 95th (m)	0.0	0.0	1.0	0.0	1.7	0.1
Control Delay (s)	0.0	0.0	8.0	0.0	13.1	19.5
Lane LOS	A		A		B	C
Approach Delay (s)	0.0		0.9		13.1	19.5
Approach LOS					B	C

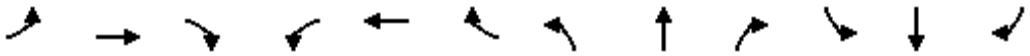
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	368	6	62	443	0	12	0	34	1	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.94	0.75	1.00	0.87	0.90	0.55	0.90	0.65	0.90	0.90	0.90
Hourly flow rate (vph)	1	391	8	62	509	0	22	0	52	1	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	509			399			1027	1027	391	1053	1035	509
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	509			399			1027	1027	391	1053	1035	509
tC, single (s)	4.1			4.1			7.2	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			95			89	100	92	99	100	100
cM capacity (veh/h)	1056			1159			198	222	648	180	219	564

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	393	8	62	509	74	1
Volume Left	1	0	62	0	22	1
Volume Right	0	8	0	0	52	0
cSH	1056	1700	1159	1700	672	180
Volume to Capacity	0.00	0.00	0.05	0.30	0.11	0.01
Queue Length 95th (m)	0.0	0.0	1.3	0.0	2.8	0.1
Control Delay (s)	0.0	0.0	8.3	0.0	15.3	25.1
Lane LOS	A		A		C	D
Approach Delay (s)	0.0		0.9		15.3	25.1
Approach LOS					C	D

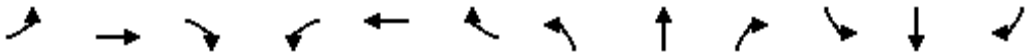
Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	58.4%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	368	9	114	443	0	14	0	64	1	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.94	0.75	1.00	0.87	0.90	0.55	0.90	0.65	0.90	0.90	0.90
Hourly flow rate (vph)	1	391	12	114	509	0	25	0	98	1	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	509			403			1131	1131	391	1180	1143	509
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	509			403			1131	1131	391	1180	1143	509
tC, single (s)	4.1			4.1			7.2	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			90			84	100	85	99	100	100
cM capacity (veh/h)	1056			1155			162	183	648	131	180	564

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	393	12	114	509	124	1
Volume Left	1	0	114	0	25	1
Volume Right	0	12	0	0	98	0
cSH	1056	1700	1155	1700	787	131
Volume to Capacity	0.00	0.01	0.10	0.30	0.16	0.01
Queue Length 95th (m)	0.0	0.0	2.5	0.0	4.2	0.2
Control Delay (s)	0.0	0.0	8.5	0.0	15.6	32.7
Lane LOS	A		A		C	D
Approach Delay (s)	0.0		1.5		15.6	32.7
Approach LOS					C	D

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	58.4%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	489	8	83	588	0	16	0	45	2	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.94	0.75	1.00	0.87	0.90	0.55	0.90	0.65	0.90	0.90	0.90
Hourly flow rate (vph)	2	520	11	83	676	0	29	0	69	2	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	676			531			1367	1367	520	1401	1377	676
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	676			531			1367	1367	520	1401	1377	676
tC, single (s)	4.1			4.1			7.2	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			92			74	100	87	98	100	100
cM capacity (veh/h)	916			1037			112	135	548	96	133	453

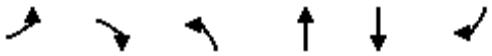
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	522	11	83	676	98	2
Volume Left	2	0	83	0	29	2
Volume Right	0	11	0	0	69	0
cSH	916	1700	1037	1700	380	96
Volume to Capacity	0.00	0.01	0.08	0.40	0.26	0.02
Queue Length 95th (m)	0.1	0.0	2.0	0.0	7.7	0.5
Control Delay (s)	0.1	0.0	8.8	0.0	23.0	43.3
Lane LOS	A		A		C	E
Approach Delay (s)	0.1		1.0		23.0	43.3
Approach LOS					C	E

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	73.3%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	489	11	135	588	0	18	0	75	2	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.94	0.75	1.00	0.87	0.90	0.55	0.90	0.65	0.90	0.90	0.90
Hourly flow rate (vph)	2	520	15	135	676	0	33	0	115	2	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									4			
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	676			535			1471	1471	520	1528	1485	676
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	676			535			1471	1471	520	1528	1485	676
tC, single (s)	4.1			4.1			7.2	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			87			64	100	79	97	100	100
cM capacity (veh/h)	916			1033			91	110	548	68	108	453

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	522	15	135	676	148	2
Volume Left	2	0	135	0	33	2
Volume Right	0	15	0	0	115	0
cSH	916	1700	1033	1700	412	68
Volume to Capacity	0.00	0.01	0.13	0.40	0.36	0.03
Queue Length 95th (m)	0.1	0.0	3.4	0.0	12.2	0.8
Control Delay (s)	0.1	0.0	9.0	0.0	24.8	59.7
Lane LOS	A		A		C	F
Approach Delay (s)	0.1		1.5		24.8	59.7
Approach LOS					C	F

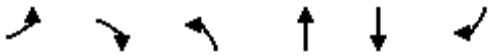
Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	73.3%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	11	0	0	39	3	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.46	0.66	0.66	0.75	0.75	0.66
Hourly flow rate (vph)	24	0	0	52	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	56	4	4			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	56	4	4			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	947	1074	1605			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	24	52	4
Volume Left	24	0	0
Volume Right	0	0	0
cSH	947	1605	1700
Volume to Capacity	0.03	0.00	0.00
Queue Length 95th (m)	0.6	0.0	0.0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	11	0	0	47	4	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.46	0.66	0.66	0.75	0.75	0.66
Hourly flow rate (vph)	24	0	0	63	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	68	5	5			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68	5	5			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	932	1072	1603			

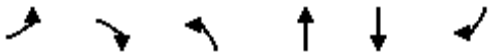
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	24	63	5
Volume Left	24	0	0
Volume Right	0	0	0
cSH	932	1603	1700
Volume to Capacity	0.03	0.00	0.00
Queue Length 95th (m)	0.6	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (veh/h)	11	0	0	8	0	49	0	47	3	16	4	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.46	0.92	0.66	0.92	0.92	0.92	0.66	0.75	0.92	0.92	0.75	0.66
Hourly flow rate (vph)	24	0	0	9	0	53	0	63	3	17	5	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	158	106	5	104	104	64	5			66		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	158	106	5	104	104	64	5			66		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	99	100	95	100			99		
cM capacity (veh/h)	754	775	1072	868	777	1000	1603			1536		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	62	66	23
Volume Left	24	9	0	17
Volume Right	0	53	3	0
cSH	754	979	1603	1536
Volume to Capacity	0.03	0.06	0.00	0.01
Queue Length 95th (m)	0.7	1.5	0.0	0.3
Control Delay (s)	9.9	8.9	0.0	5.7
Lane LOS	A	A		A
Approach Delay (s)	9.9	8.9	0.0	5.7
Approach LOS	A	A		

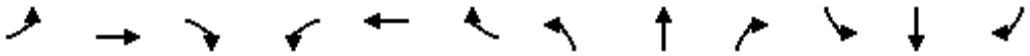
Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	17.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	1	0	0	24	21	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.46	0.66	0.66	0.75	0.75	0.66
Hourly flow rate (vph)	2	0	0	32	28	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	61	29	30			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	61	29	30			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	946	1046	1583			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	32	30
Volume Left	2	0	0
Volume Right	0	0	2
cSH	946	1583	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

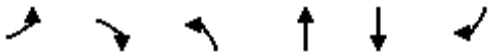
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	0	0	8	0	49	0	62	3	16	5	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.46	0.92	0.66	0.92	0.92	0.92	0.66	0.75	0.92	0.92	0.75	0.66
Hourly flow rate (vph)	24	0	0	9	0	53	0	83	3	17	7	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	179	127	7	126	126	84	7			86		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	179	127	7	126	126	84	7			86		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	99	100	95	100			99		
cM capacity (veh/h)	729	754	1070	841	756	975	1601			1510		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	62	86	24
Volume Left	24	9	0	17
Volume Right	0	53	3	0
cSH	729	953	1601	1510
Volume to Capacity	0.03	0.06	0.00	0.01
Queue Length 95th (m)	0.8	1.6	0.0	0.3
Control Delay (s)	10.1	9.0	0.0	5.4
Lane LOS	B	A		A
Approach Delay (s)	10.1	9.0	0.0	5.4
Approach LOS	B	A		

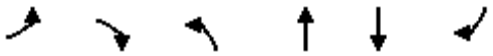
Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	18.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	1	0	1	23	41	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.63	0.63	0.58	0.64	0.88
Hourly flow rate (vph)	4	0	2	40	64	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	111	68	72			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	111	68	72			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	885	995	1528			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	41	72
Volume Left	4	2	0
Volume Right	0	0	8
cSH	885	1528	1700
Volume to Capacity	0.00	0.00	0.04
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.1	0.3	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	0.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	1	0	1	28	49	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.63	0.63	0.58	0.64	0.88
Hourly flow rate (vph)	4	0	2	48	77	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	132	81	85			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	132	81	85			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	861	980	1512			

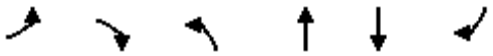
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	50	85
Volume Left	4	2	0
Volume Right	0	0	8
cSH	861	1512	1700
Volume to Capacity	0.00	0.00	0.05
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.2	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.2	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (veh/h)	1	0	0	5	0	32	1	28	10	55	49	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.92	0.63	0.92	0.92	0.92	0.63	0.58	0.92	0.92	0.64	0.88
Hourly flow rate (vph)	4	0	0	5	0	35	2	48	11	60	77	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	292	262	81	257	261	54	85			59		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	292	262	81	257	261	54	85			59		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	99	100	97	100			96		
cM capacity (veh/h)	618	617	980	675	618	1014	1512			1545		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	40	61	144
Volume Left	4	5	2	60
Volume Right	0	35	11	8
cSH	618	949	1512	1545
Volume to Capacity	0.01	0.04	0.00	0.04
Queue Length 95th (m)	0.1	1.0	0.0	0.9
Control Delay (s)	10.9	9.0	0.2	3.3
Lane LOS	B	A	A	A
Approach Delay (s)	10.9	9.0	0.2	3.3
Approach LOS	B	A		

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	23.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	1	0	1	37	66	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.63	0.63	0.58	0.64	0.88
Hourly flow rate (vph)	4	0	2	64	103	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	174	107	111			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174	107	111			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	815	947	1479			

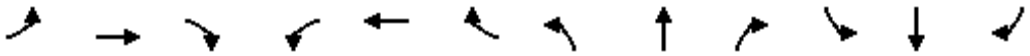
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	65	111
Volume Left	4	2	0
Volume Right	0	0	8
cSH	815	1479	1700
Volume to Capacity	0.00	0.00	0.07
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.4	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	14.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	0	0	5	0	32	1	37	10	55	66	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.92	0.63	0.92	0.92	0.92	0.63	0.58	0.92	0.92	0.64	0.88
Hourly flow rate (vph)	4	0	0	5	0	35	2	64	11	60	103	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	334	305	107	299	303	69	111			75		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	334	305	107	299	303	69	111			75		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	99	100	96	100			96		
cM capacity (veh/h)	580	584	947	633	585	994	1479			1525		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	40	76	171
Volume Left	4	5	2	60
Volume Right	0	35	11	8
cSH	580	923	1479	1525
Volume to Capacity	0.01	0.04	0.00	0.04
Queue Length 95th (m)	0.2	1.0	0.0	0.9
Control Delay (s)	11.3	9.1	0.2	2.8
Lane LOS	B	A	A	A
Approach Delay (s)	11.3	9.1	0.2	2.8
Approach LOS	B	A		

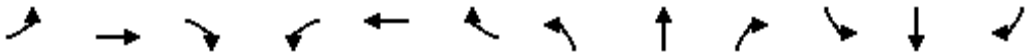
Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	24.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	5	0	0	3	0	3	31	0	0	8	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.63	0.71	0.71	0.25	0.71	0.71	0.65	0.71	0.71	1.00	0.71
Hourly flow rate (vph)	4	8	0	0	12	0	4	48	0	0	8	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	12			8			33	28	8	52	28	12
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	12			8			33	28	8	52	28	12
tC, single (s)	4.4			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.5			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	94	100	100	99	100
cM capacity (veh/h)	1427			1612			963	863	1074	905	863	1069

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	12	52	9
Volume Left	4	0	4	0
Volume Right	0	0	0	1
cSH	1427	1612	870	888
Volume to Capacity	0.00	0.00	0.06	0.01
Queue Length 95th (m)	0.1	0.0	1.4	0.2
Control Delay (s)	2.5	0.0	9.4	9.1
Lane LOS	A		A	A
Approach Delay (s)	2.5	0.0	9.4	9.1
Approach LOS			A	A

Intersection Summary				
Average Delay	7.1			
Intersection Capacity Utilization	14.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	6	0	0	4	0	4	37	0	0	10	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.63	0.71	0.71	0.25	0.71	0.71	0.65	0.71	0.71	1.00	0.71
Hourly flow rate (vph)	5	10	0	0	16	0	6	57	0	0	10	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	16			10			43	36	10	65	36	16
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	16			10			43	36	10	65	36	16
tC, single (s)	4.4			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.5			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	93	100	100	99	100
cM capacity (veh/h)	1421			1610			948	853	1072	879	853	1063

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	16	63	11
Volume Left	5	0	6	0
Volume Right	0	0	0	1
cSH	1421	1610	861	874
Volume to Capacity	0.00	0.00	0.07	0.01
Queue Length 95th (m)	0.1	0.0	1.8	0.3
Control Delay (s)	2.7	0.0	9.5	9.2
Lane LOS	A		A	A
Approach Delay (s)	2.7	0.0	9.5	9.2
Approach LOS			A	A

Intersection Summary				
Average Delay	7.1			
Intersection Capacity Utilization	16.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	7	7	0	0	8	0	4	37	0	0	10	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.63	0.71	0.71	0.25	0.71	0.71	0.65	0.71	0.71	1.00	0.71
Hourly flow rate (vph)	9	11	0	0	32	0	6	57	0	0	10	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	32			11			79	62	11	90	62	32
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			11			79	62	11	90	62	32
tC, single (s)	4.4			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.5			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			99	93	100	100	99	99
cM capacity (veh/h)	1402			1608			885	824	1070	843	824	1042

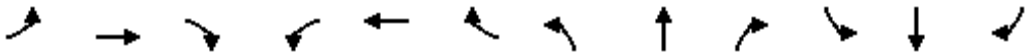
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	32	63	23
Volume Left	9	0	6	0
Volume Right	0	0	0	13
cSH	1402	1608	829	933
Volume to Capacity	0.01	0.00	0.08	0.02
Queue Length 95th (m)	0.2	0.0	1.9	0.6
Control Delay (s)	3.5	0.0	9.7	9.0
Lane LOS	A		A	A
Approach Delay (s)	3.5	0.0	9.7	9.0
Approach LOS			A	A

Intersection Summary				
Average Delay	6.4			
Intersection Capacity Utilization	19.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	3	0	0	5	0	3	24	2	0	24	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.63	0.71	0.71	0.25	0.71	0.71	0.65	0.71	0.71	1.00	0.71
Hourly flow rate (vph)	4	5	0	0	20	0	4	37	3	0	24	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	20			5			56	33	5	54	33	20
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	20			5			56	33	5	54	33	20
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	96	100	100	97	99
cM capacity (veh/h)	1596			1617			910	858	1078	909	858	1058

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	20	44	35
Volume Left	4	0	4	0
Volume Right	0	0	3	11
cSH	1596	1617	874	913
Volume to Capacity	0.00	0.00	0.05	0.04
Queue Length 95th (m)	0.1	0.0	1.2	0.9
Control Delay (s)	3.3	0.0	9.3	9.1
Lane LOS	A		A	A
Approach Delay (s)	3.3	0.0	9.3	9.1
Approach LOS			A	A

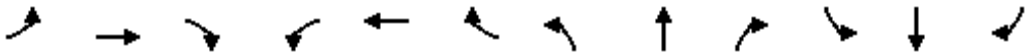
Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	14.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	9	0	0	9	0	5	50	0	0	13	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.63	0.71	0.71	0.25	0.71	0.71	0.65	0.71	0.71	1.00	0.71
Hourly flow rate (vph)	11	14	0	0	36	0	7	77	0	0	13	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	36			14			92	72	14	110	72	36
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	36			14			92	72	14	110	72	36
tC, single (s)	4.4			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.5			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			99	91	100	100	98	99
cM capacity (veh/h)	1397			1604			864	813	1066	801	813	1037

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	25	36	84	27
Volume Left	11	0	7	0
Volume Right	0	0	0	14
cSH	1397	1604	817	915
Volume to Capacity	0.01	0.00	0.10	0.03
Queue Length 95th (m)	0.2	0.0	2.6	0.7
Control Delay (s)	3.3	0.0	9.9	9.1
Lane LOS	A		A	A
Approach Delay (s)	3.3	0.0	9.9	9.1
Approach LOS			A	A

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	21.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (veh/h)	0	6	2	2	11	1	6	11	2	1	35	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.75	0.85	0.85	0.92	0.25	0.75	1.00	0.50	0.85	0.67	1.00
Hourly flow rate (vph)	0	8	2	2	12	4	8	11	4	1	52	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	16			10			65	30	9	37	29	14
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	16			10			65	30	9	37	29	14
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	99	100	100	94	99
cM capacity (veh/h)	1602			1609			876	831	1072	954	863	1066

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	18	23	64
Volume Left	0	2	8	1
Volume Right	2	4	4	11
cSH	1602	1609	881	893
Volume to Capacity	0.00	0.00	0.03	0.07
Queue Length 95th (m)	0.0	0.0	0.6	1.8
Control Delay (s)	0.0	0.9	9.2	9.3
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.9	9.2	9.3
Approach LOS			A	A

Intersection Summary				
Average Delay	7.2			
Intersection Capacity Utilization	14.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (veh/h)	0	7	2	2	13	1	7	13	2	1	42	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.75	0.85	0.85	0.92	0.25	0.75	1.00	0.50	0.85	0.67	1.00
Hourly flow rate (vph)	0	9	2	2	14	4	9	13	4	1	63	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	18			12			76	33	11	42	33	16
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	18			12			76	33	11	42	33	16
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	98	100	100	93	99
cM capacity (veh/h)	1599			1607			852	828	1071	945	859	1063

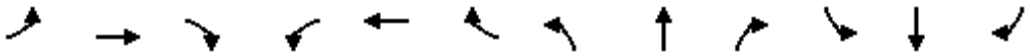
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	20	26	77
Volume Left	0	2	9	1
Volume Right	2	4	4	13
cSH	1599	1607	866	889
Volume to Capacity	0.00	0.00	0.03	0.09
Queue Length 95th (m)	0.0	0.0	0.7	2.2
Control Delay (s)	0.0	0.8	9.3	9.4
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.8	9.3	9.4
Approach LOS			A	A

Intersection Summary				
Average Delay	7.3			
Intersection Capacity Utilization	15.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	10	11	2	2	16	1	7	13	2	1	42	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.75	0.85	0.85	0.92	0.25	0.75	1.00	0.50	0.85	0.67	1.00
Hourly flow rate (vph)	12	15	2	2	17	4	9	13	4	1	63	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	21			17			113	65	16	74	65	19
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21			17			113	65	16	74	65	19
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.0	3.3
p0 queue free %	99			100			99	98	100	100	92	98
cM capacity (veh/h)	1594			1600			795	788	1063	895	819	1059

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	29	24	26	82
Volume Left	12	2	9	1
Volume Right	2	4	4	18
cSH	1594	1600	823	863
Volume to Capacity	0.01	0.00	0.03	0.09
Queue Length 95th (m)	0.2	0.0	0.8	2.4
Control Delay (s)	3.0	0.7	9.5	9.6
Lane LOS	A	A	A	A
Approach Delay (s)	3.0	0.7	9.5	9.6
Approach LOS			A	A

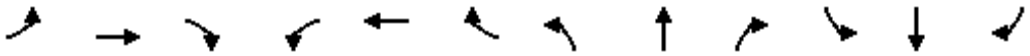
Intersection Summary				
Average Delay	7.1			
Intersection Capacity Utilization	16.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	10	3	3	18	2	10	18	3	2	56	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.75	0.85	0.85	0.92	0.25	0.75	1.00	0.50	0.85	0.67	1.00
Hourly flow rate (vph)	0	13	4	4	20	8	13	18	6	2	84	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	28			17			106	50	15	61	47	24
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			17			106	50	15	61	47	24
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.0	3.3
p0 queue free %	100			100			98	98	99	100	90	98
cM capacity (veh/h)	1586			1600			793	810	1064	912	842	1053

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	31	37	104
Volume Left	0	4	13	2
Volume Right	4	8	6	18
cSH	1586	1600	835	874
Volume to Capacity	0.00	0.00	0.04	0.12
Queue Length 95th (m)	0.0	0.1	1.1	3.1
Control Delay (s)	0.0	0.8	9.5	9.7
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.8	9.5	9.7
Approach LOS			A	A

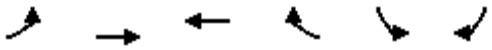
Intersection Summary				
Average Delay	7.3			
Intersection Capacity Utilization	17.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	14	3	3	21	2	10	18	3	2	56	23
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.75	0.85	0.85	0.92	0.25	0.75	1.00	0.50	0.85	0.67	1.00
Hourly flow rate (vph)	12	19	4	4	23	8	13	18	6	2	84	23
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	31			22			143	82	20	93	80	27
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31			22			143	82	20	93	80	27
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	98	99	100	90	98
cM capacity (veh/h)	1582			1593			739	771	1057	864	803	1049

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	34	34	37	109
Volume Left	12	4	13	2
Volume Right	4	8	6	23
cSH	1582	1593	793	846
Volume to Capacity	0.01	0.00	0.05	0.13
Queue Length 95th (m)	0.2	0.1	1.1	3.4
Control Delay (s)	2.6	0.8	9.8	9.9
Lane LOS	A	A	A	A
Approach Delay (s)	2.6	0.8	9.8	9.9
Approach LOS			A	A

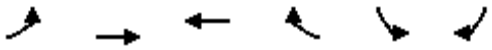
Intersection Summary				
Average Delay	7.2			
Intersection Capacity Utilization	17.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	1	6	4	0	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	4	0	0	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	4				13	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4				13	4
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1617				1005	1079

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	8	4	4
Volume Left	1	0	0
Volume Right	0	0	4
cSH	1617	1700	1079
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	1.0	0.0	8.3
Lane LOS	A		A
Approach Delay (s)	1.0	0.0	8.3
Approach LOS			A

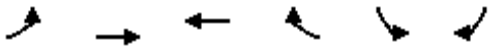
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	1	8	5	0	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	9	5	0	0	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	5				16	5
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5				16	5
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1616				1001	1078

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	10	5	4
Volume Left	1	0	0
Volume Right	0	0	4
cSH	1616	1700	1078
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.8	0.0	8.4
Lane LOS	A		A
Approach Delay (s)	0.8	0.0	8.4
Approach LOS			A

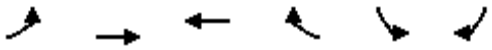
Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	4	10	16	0	0	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	11	17	0	0	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	17				37	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17				37	17
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1600				973	1061

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	15	17	3
Volume Left	4	0	0
Volume Right	0	0	3
cSH	1600	1700	1061
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	2.1	0.0	8.4
Lane LOS	A		A
Approach Delay (s)	2.1	0.0	8.4
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	4	15	23	0	0	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	16	25	0	0	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	25				50	25
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	25				50	25
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1589				956	1051

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	21	25	3
Volume Left	4	0	0
Volume Right	0	0	3
cSH	1589	1700	1051
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	1.5	0.0	8.4
Lane LOS	A		A
Approach Delay (s)	1.5	0.0	8.4
Approach LOS			A

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		14.5%	ICU Level of Service
Analysis Period (min)		15	

APPENDIX E

TAC Illumination Warrants

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Highway 627	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2011 Existing

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	3		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)	100		5		OK	
Channelization Factor					OK	15
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	100				OK	
Radius of Horizontal Curve (m)	1635			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =	B	1				
Posted Speed Category =		0				
Posted Speed Category =		0				
Horizontal Curvature Factor		1	5		OK	5
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.3	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
				Geometric Factors Subtotal		**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on Major Road (km/h)	100	4	5	Refer to Table 1(B), note #3	OK	20
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
				Operational Factors Subtotal		**40**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
				Environmental Factor Subtotal		**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
				Collision History Subtotal		**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	40
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**66**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Highway 627	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2022 Background

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	3		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)	100		5		OK	
Channelization Factor					OK	15
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	100				OK	
Radius of Horizontal Curve (m)	1635			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =	B	1				
Posted Speed Category =		0				
Posted Speed Category =		0				
Horizontal Curvature Factor		1	5		OK	5
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.3	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on Major Road (km/h)	100	4	5	Refer to Table 1(B), note #3	OK	20
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
					Operational Factors Subtotal	**40**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	40
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**66**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING

LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Highway 627	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date	March 19, 2012
Other	2022 Total

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	3		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)	100		5		OK	
Channelization Factor					OK	15
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	100				OK	
Radius of Horizontal Curve (m)	1635			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =	B	1				
Posted Speed Category =		0				
Posted Speed Category =		0				
Horizontal Curvature Factor		1	5		OK	5
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.3	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
				Geometric Factors Subtotal		**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10	Either Use the two AADT inputs **OR** the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
AADT on Minor Road (2-way)		0	20		OK	0
Signalization Warrant	Descriptive	1	30		OK	30
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on Major Road (km/h)	100	4	5	Refer to Table 1(B), note #3	OK	20
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
				Operational Factors Subtotal		**70**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
				Environmental Factor Subtotal		**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
				Collision History Subtotal		**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	70
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**96**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Highway 627	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2042 Background

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	3		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)	100		5		OK	
Channelization Factor					OK	15
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	100				OK	
Radius of Horizontal Curve (m)	1635			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =	B	1				
Posted Speed Category =		0				
Posted Speed Category =		0				
Horizontal Curvature Factor		1	5		OK	5
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.3	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	1	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	30
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on Major Road (km/h)	100	4	5	Refer to Table 1(B), note #3	OK	20
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
					Operational Factors Subtotal	**70**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY

Geometric Factors Subtotal	26
Operational Factor Subtotal	70
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**96**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Highway 627	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2042 Total

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	3		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)	100		5		OK	
Channelization Factor					OK	15
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	100				OK	
Radius of Horizontal Curve (m)	1635			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =	B	1				
Posted Speed Category =		0				
Posted Speed Category =		0				
Horizontal Curvature Factor		1	5		OK	5
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.3	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	1	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	30
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	2	5	Refer to Table 1(B) for ratings.	OK	10
Operating Speed or Posted Speed on Major Road (km/h)	100	4	5	Refer to Table 1(B), note #3	OK	20
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
					Operational Factors Subtotal	**75**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	75
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**101**

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LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Range Road 261	Main Road
Sandy Ridge Crescent	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2012 Existing

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	3	1	3	Number of legs = 3 or more	OK	3
					Geometric Factors Subtotal	**3**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factors Subtotal	**15**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	15
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**18**

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LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Range Road 261	Main Road
Sandy Ridge Crescent	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2022 Background

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	3	1	3	Number of legs = 3 or more	OK	3
					Geometric Factors Subtotal	**3**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factors Subtotal	**15**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	15
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**18**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Range Road 261	Main Road
Sandy Ridge Crescent	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2022 Total

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**6**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factors Subtotal	**15**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	15
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**21**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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INTERSECTION CHARACTERISTICS

Range Road 261	Main Road
Sandy Ridge Crescent	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2042 Background

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	3	1	3	Number of legs = 3 or more	OK	3
					Geometric Factors Subtotal	**3**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factors Subtotal	**15**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	15
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**18**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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INTERSECTION CHARACTERISTICS

Range Road 261	Main Road
Sandy Ridge Crescent	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2042 Total

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**6**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factors Subtotal	**15**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	15
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**21**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Twp. Rd. 514	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2012 Existing

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	50	2	10	Relative to the recommended minimum sight distance	OK	20
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
					Operational Factors Subtotal	**30**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	30
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**56**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Twp. Rd. 514	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2022 Background

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	50	2	10	Relative to the recommended minimum sight distance	OK	20
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10	Either Use the two AADT inputs **OR** the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
AADT on Minor Road (2-way)		0	20		OK	0
Signalization Warrant	Descriptive	0	30		OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
					Operational Factors Subtotal	**30**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	30
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**56**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Twp. Rd. 514	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2022 Total

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	50	2	10	Relative to the recommended minimum sight distance	OK	20
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
					Operational Factors Subtotal	**30**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	30
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**56**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING

LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Twp. Rd. 514	Main Road
Range Road 261	Minor Road
Parkland County	City/Town

Date March 19, 2012

Other 2042 Background

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	50	2	10	Relative to the recommended minimum sight distance	OK	20
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10	Either Use the two AADT inputs **OR** the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
AADT on Minor Road (2-way)		0	20		OK	0
Signalization Warrant	Descriptive	0	30		OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
					Operational Factors Subtotal	**30**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	30
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**56**

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LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Twp. Rd. 514	Main Road	**Date**	March 19, 2012
Range Road 261	Minor Road	**Other**	2042 Total
Parkland County	City/Town		

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	50	2	10	Relative to the recommended minimum sight distance	OK	20
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factors Subtotal	**26**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
					Operational Factors Subtotal	**30**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	26
Operational Factor Subtotal	30
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**56**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Twp. Rd. 514	Main Road
Site Access	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2022 Total

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	3	1	3	Number of legs = 3 or more	OK	3
					Geometric Factors Subtotal	**3**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10		OK	0
AADT on Minor Road (2-way)		0	20	Either Use the two AADT inputs **OR** the Descriptive Signalization	OK	0
Signalization Warrant	Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factors Subtotal	**15**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	15
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**18**

GUIDE FOR THE DESIGN OF ROADWAY LIGHTING
LIGHTING WARRANT SPREADSHEET

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Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS

Twp. Rd. 514	Main Road
Site Access	Minor Road
Parkland County	City/Town

Date March 19, 2012
Other 2042 Total

GEOMETRIC FACTORS

	Value	Rating	Weight	Comments	Check	Score
Channelization Rating	Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)	n				OK	
Highest operating speed on raised, channelized approach (km/h)			5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	80				OK	
Radius of Horizontal Curve (m)	T			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category =		0				
Posted Speed Category =		0				
Posted Speed Category =	C	0				
Posted Speed Category =		0				
Horizontal Curvature Factor		0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	0.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	3	1	3	Number of legs = 3 or more	OK	3
					Geometric Factors Subtotal	**3**

OPERATIONAL FACTORS

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		0	10	Either Use the two AADT inputs **OR** the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK	0
AADT on Minor Road (2-way)		0	20		OK	0
Signalization Warrant	Descriptive	0	30		OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	0	5	Refer to Table 1(B) for ratings.	OK	0
Operating Speed or Posted Speed on Major Road (km/h)	80	3	5	Refer to Table 1(B), note #3	OK	15
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factors Subtotal	**15**

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	OK	0
					Environmental Factor Subtotal	**0**

COLLISION HISTORY

Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)		0	0	Enter **either** the annual frequency (See Table 1(C), note #4)	OK	0
OR				**OR** the number of collisions / MEV		
Collision Rate over last 3 years, due to inadequate lighting (/MEV)		0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of **all** night to day collisions >= 1.5 (Y/N)		0			Use Y or N	
					OK	
					Collision History Subtotal	**Check Entry**

Check Intersection Signalization:
Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	15
Environmental Factor Subtotal	0
Collision History Subtotal	Check Entry
TOTAL POINTS	**18**