

# Final Report

## TOWN OF KINDERSLEY

### Kindersley Traffic Study

September 2013



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## Executive Summary

The Town of Kindersley requested a review of the major intersections in the Town in regards to the current traffic controls, traffic patterns and collision history. Due to the fact that the Town expects to experience relatively aggressive growth of the community that could double the population to 10,000 by the year 2036, the Town also requested recommendations for upgrading the current signage, signals and associated vehicular and pedestrian traffic controls to meet the future needs as well.

The purpose of the study was to recommend changes and/or improvements to the Town's roadway network that will meet current standards, accommodate traffic growth and improve operational efficiency. The project included the following tasks:

- Review of traffic signals, signs, pavement markings and other traffic controls at key intersections;
- Evaluation of pedestrian traffic and the need for pedestrian controls;
- Assessment of street and lane widths on major streets;
- Determine the current and future traffic volume forecast;
- Operational and capital upgrade recommendations for the present and future conditions;
- Improvements to operational efficiency to facilitate traffic growth; and
- Key stakeholder consultation.

The following major intersections were included in the study:

- All Highway 7 intersections;
- All Highway 21 intersections;
- All Main Street and Railway Avenue intersections;
- Ditson Drive and 11th Ave, West Road, Thomson Drive;
- 11th Ave and 2nd Street;
- 12th Ave and 2nd Street, 3rd Street; and
- The areas near the major facilities: schools, hospital and arena.

The study area is shown in photographs in Appendix A and in Figure 1-1.

A thorough review of the human factors, collision history, and geometric features of the highway corridors in the study area have been carried out. The majority of the road network is in excellent condition with many safety features already in place. Traffic volumes are expected to increase significantly in the area over the twenty-five years requiring minor to moderate adjustments, mainly at intersections and access points.

Recommendations for the short term, medium term and long term have been developed.

**Table ES-1  
Short Term Recommendations**

<b>Location</b>	<b>Recommendations</b>	<b>Planning Level Costs</b>
<b>Traffic Signs</b>	Replace signs that are non-standard, worn or deteriorated	\$100 to \$1,000 per sign, post and installation
	Install signs according to industry standards	N/A
	Consider reviewing traffic volumes and collision history at intersections with yield signs	N/A
<b>Traffic Signals</b>	Remove all traffic signals on Main Street, phased in over several years	To be determined at implementation
<b>Highway 7 and Main Street</b>	Restrict left turns onto 11 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue by adopting one of the recommendations from the 2009 report.	N/A
<b>Speed Limits</b>	Install a 50 km/h speed limit on the east end of Railway Avenue	\$500
	Relocate the 70 km/h speed limit on Highway 7 west of the town to the town limits	\$1000
	Use a speed display trailer in the study area several times a year	N/A
	Ask the RCMP to increase speed enforcement, or employ a Bylaw Officer.	N/A
	Install additional and/or oversize speed limit signs on Highway 7 and 21	\$2000
	Investigate options to reduce speeds on Highways 7 and 21 including additional signage, pavement markings and installing permanent speed displays.	N/A
<b>Parking</b>	Restrict parking on 11 <sup>th</sup> and 12 <sup>th</sup> Avenues to one side only, charge for parking or implement a one hour time limit	\$1000
<b>Other</b>	Establish east/west routes on 2 <sup>nd</sup> Avenue and 5 <sup>th</sup> Avenue	To be determined at installation
	Establish north/south routes on 3 <sup>rd</sup> Street West and 2 <sup>nd</sup> Street East	To be determined at installation
<b>Future Growth</b>	Initiate Engineering Functional Design of East Grid Road access for proposed residential development in south east and Highway 21 and 7 accesses for NW industrial	To be determined at detailed design stage

**Table ES-2**  
**Medium Term Recommendations**

Location	Recommendations	Planning Level Costs
<b>Highway 7</b>	Re-align intersections with 11 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue at Main Street and 2 <sup>nd</sup> Street	To be determined at detailed design stage
	Install traffic signals at 2 <sup>nd</sup> Street as warranted	\$250,000
	Upgrade existing traffic signals	\$160,000 per intersection
<b>Highway 7 and Highway 21</b>	Restrict left turns onto 11 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue	\$5000
<b>Ditson Drive</b>	Rebuild with an urban cross-section	To be determined at detailed design stage
<b>Pedestrians</b>	Install overhead pedestrian crosswalk at mid-block crossing on Highway 21	\$10,000
<b>Access Management</b>	Restrict access (no left turns) to Highway 7 west of Highway 21 except at 15 <sup>th</sup> Street	N/A
<b>Speed Limits</b>	Install a permanent speed display sign on all Highways entering the Town	\$10,000 to \$15,000 each
<b>Other</b>	Adopt a Level of Service "C" as a town level of service guideline	N/A
	Undertake a regular traffic counting program to monitor traffic volumes and emerging capacity issues	To be determined at time of development
	Develop a Main Street beautification plan and implement	To be determined at detailed design stage

**Table ES-3**  
**Long Term Recommendations**

<b>Location</b>	<b>Recommendations</b>	<b>Planning Level Costs</b>
<b>Highway 7</b>	Re-build major intersections to accommodate traffic growth	To be determined at detailed design stage
<b>Highway 7 and Highway 21</b>	Relocate intersections with 11 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue	To be determined at detailed design stage
<b>Railway Avenue</b>	Re-align intersections with Highway 21 and Ditson Drive	To be determined at detailed design stage
<b>Main Street</b>	Install traffic signals at major intersections as warranted	To be determined at detailed design stage
<b>Ditson Drive</b>	Rebuild major intersections and install traffic signals as warranted	To be determined at detailed design stage
<b>Access Management</b>	Remove accesses to Highway 7 west of Highway 21 except at 15 <sup>th</sup> Street	\$10,000/approach
<b>Parking</b>	Restrict truck parking on 11 <sup>th</sup> and 12 <sup>th</sup> Avenues and provide off-street parking area	\$250,000
<b>Other</b>	Monitor traffic volumes and expand road network as needed	N/A

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# 1 Introduction

## 1.1 BACKGROUND

The Town of Kindersley requested a review of the major intersections in the Town in regards to the current traffic controls, traffic patterns and collision history. Due to the fact that the Town expects to experience relatively aggressive growth of the community that could double the population to 10,000 by the year 2036, the Town also requested recommendations for upgrading the current signage, signals and associated vehicular and pedestrian traffic controls to meet the future needs as well.

The purpose of the study was to recommend changes and/or improvements to the Town's roadway network that will meet current standards, accommodate traffic growth and improve operational efficiency.

## 1.2 STUDY SCOPE

The scope of the project included the following:

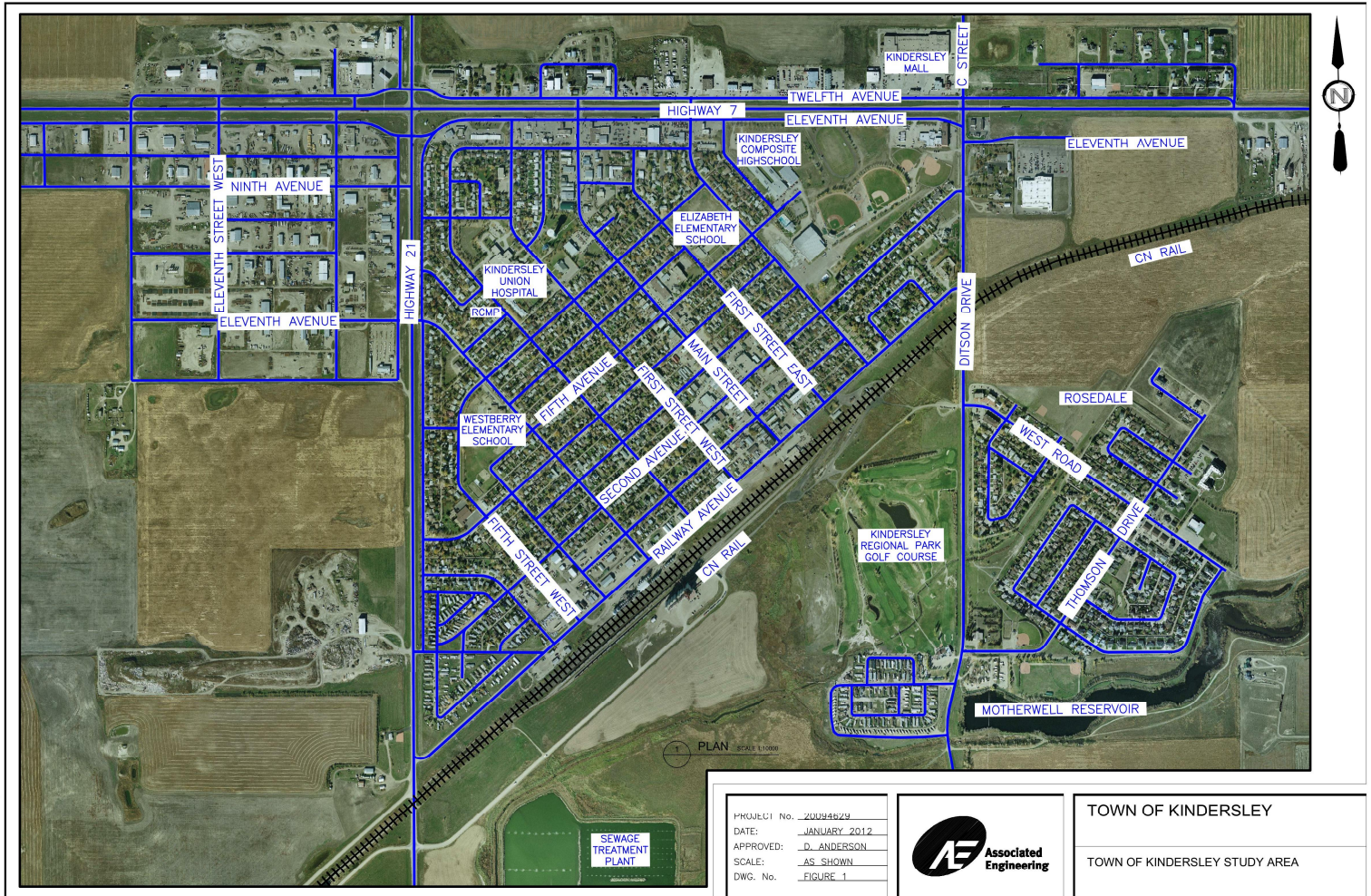
- Review of traffic signals, signs, pavement markings and other traffic controls at key intersections;
- Evaluation of pedestrian traffic and the need for pedestrian controls;
- Assessment of street and lane widths on major streets;
- Determine the current and future traffic volume forecast;
- Operational and capital upgrade recommendations for the present and future conditions;
- Improvements to operational efficiency to facilitate traffic growth; and
- Key stakeholder consultation.

The study included many of the major intersections in Town:

- All Highway 7 intersections;
- All Highway 21 intersections;
- All Main Street and Railway Avenue intersections;
- Ditson Drive and 11th Ave, West Road, Thomson Drive;
- 11th Ave and 2nd Street;
- 12th Ave and 2nd Street, 3rd Street; and
- The areas near the major facilities: schools, hospital and arena.

The study area is shown in photographs in Appendix A and in Figure 1-1.

**Figure 1-1  
Study Area**



The traffic study and in-service safety review was based on the procedures outlined in Transportation Association of Canada's (TAC) Canadian Guide to In-Service Road Safety Reviews. The review focused on the following elements:

- Site visit;
- Traffic observations;
- Existing and projected traffic on the network;
- Traffic flow at the key intersections and access points including turning movements;
- Existing and emerging operational and safety issues including, traffic control devices, signage, intersection treatments and pavement markings, pedestrian movements, etc.; and
- Determination of staging opportunities to address the operational and safety issues.

The engineering analysis will include the following components:

- Preparation of an overall site plan;
- Traffic collision analysis (10 year history for trend analysis);
- Review of the road classification system;
- Overall review of the transportation network to identify future roadways required to improve connectivity and improvements needed to accommodate Town growth;
- Assessment of the need for upgrades or changes to existing traffic signals using a TAC warrant evaluation and a capacity analysis;
- Review of traffic signs, pavement markings and other traffic controls to ensure compliance with the Transportation Association of Canada's Manual of Uniform Traffic Control Devices;
- Review of street and lane widths on major streets;
- Assessment of the need for pedestrian controls; and
- Determination of traffic operation options for the short, medium and long term time periods (next 5, 10 and 20 years).

### 1.3 REFERENCE MATERIAL

The traffic study and in-service safety review considered information from the Main Street and 11<sup>th</sup> Avenue In-Service Safety Review completed by AE in 2009 and the 2011 Prairie Wild Official Community Planning Study.

The in-service safety review included an assessment of the conditions at Main Street and 11<sup>th</sup> Avenue and provided recommendations on cost effective traffic safety countermeasures to reduce collision risk. The study recommended short-term countermeasures that involved repainting the lane markings, the removal of stop-signs for northbound right turns and centre barriers and signs on 11<sup>th</sup> Avenue.

The Official Community Planning Study is an update to the Kindersley Official Community Plan. It provides information on population increases for the Town to a planning horizon of 10,000 population in 2036 as well as identifying future land use concepts.



# 2

## Existing and Future Conditions

### 2.1 BACKGROUND

The Town has indicated a desire to address a number of inter-related but independent issues with the current traffic controls including:

**Main Street Traffic Signals** – the traffic signals on Main street downtown (1st, 2nd, 3rd and 5th) are aged, have out dated controls, are not placed for good visibility and are not phased for efficient traffic flow. In addition, they do not have pedestrian signals and the Town would like to add audible signals for the vision impaired. The Town would like to develop a plan for signalization and other controls for the intersections through the downtown area and the adjacent streets.

**Highway 7 Intersections** – the traffic signals have been adopted from the Ministry of Highways and Infrastructure (MHI) and are in need of upgrading. Some of the intersections do not have traffic lights and the Town has had complaints of near misses especially along the highway west of Highway 21. The number of intersections with Highway 7 is also a concern.

**11th and 12th Avenue Service Roads** – a previous study demonstrated that cost effective upgrading options are available to address the traffic confusion at Main and 11<sup>th</sup> but the findings also showed that further study is warranted, especially to determine what the impacts might be from implementing the restricted turning movements and other upgrades at Main Street and 11<sup>th</sup> Avenue. The service road traffic is increasing and the volume of truck traffic off Highway 7 and accessing the business on the service road is causing some issues for residents and the travelling public.

**Proposed Northwest Industrial** – there is a proposal from a developer to create industrial lots north of Highway 7 west of the current development.

**Growth Plans** – the Town is undergoing a growth planning exercise including an update to their Official Community Plan that will hopefully assist with developing infrastructure required to meet those plans. It is likely that the majority of residential growth will be along Thomson Drive northeast towards Highway 7. A pre-design for Thomson Drive was developed by AE in 2009 but the application for funding was not successful. These plans will be assessed in terms of the impacts of growth on future road and signal requirements for Ditson Drive, Thomson Drive and Highway 7.

**Major Facilities** – the Town would like to review the current traffic and controls near major facilities including the elementary schools, the high school, the hospital and the arena/recreation areas.

The existing conditions assessment included a review of the following:

- Traffic volumes;



- Turning counts;
- Traffic collision data;
- Speed studies;
- Design drawings;
- Site visit on July 7 and 8, 2011, to observe and record the visible site characteristics, including the terrain, surrounding land use, existing road network, light conditions and the typical road users in the area, highway junctions and adjacent area during daylight and darkness, traffic flow on the corridor and at key intersections; and
- Discussions with staff from the Town of Kindersley, the RCMP, Emergency Medical Services, school officials and business owners in the study area.

### 2.2 COLLISION DATA

Collision data was obtained from the Traffic Accident Information System (TAIS) supplied by Saskatchewan Government Insurance (SGI). The data presented in the following tables includes all roadways within the study area. A ten year study period from 2000 to 2010 was used for the study. An in-service safety review is usually intended to identify collision trends that may be attributable to human behaviour or the physical characteristics of the roadway.

Over 1000 collisions occurred in the ten year study period. The location descriptions for many collisions were inconsistent or incorrect so many collisions could not be included in the detailed intersection analysis. Caution should be used in drawing any conclusions from the trends.

As shown in Table 2-1 the number of collisions per year was relatively stable during the study period. Note that the data for 2010 may be incomplete.

**Table 2-1**  
**Collisions per Year**

YEAR	NUMBER	PERCENT
2001	84	8%
2002	88	8%
2003	121	11%
2004	96	9%
2005	102	9%
2006	121	11%
2007	128	12%
2008	151	14%
2009	110	10%
2010	94	9%
<b>TOTAL</b>	<b>1095</b>	<b>100%</b>

Collision severity per year is shown in Table 2-2. Three fatal collisions in the study area occurred within the study period. The fatal collision in 2004 occurred on Highway 7 and the fatal collisions in 2010 occurred on 11<sup>th</sup> Avenue E and on Highway 7.

**Table 2-2**  
**Collision Severity per Year**

SEVERITY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
FATAL				1						2	3
INJURY	8	5	13	6	9	9	8	7	4	11	80
PROPERTY DAMAGE ONLY	76	83	108	89	93	112	120	144	106	81	1012
<b>TOTAL</b>	<b>84</b>	<b>88</b>	<b>121</b>	<b>96</b>	<b>102</b>	<b>121</b>	<b>128</b>	<b>151</b>	<b>110</b>	<b>94</b>	<b>1095</b>

Collisions at key intersections in Kindersley are shown in Table 2-3 and are further analysed in Section 3.

**Table 2-3**  
**Collisions at Key Intersections**

Intersection	Collisions	Traffic Control
Highway 21 and 12th Avenue	0	Highway 21 - Free Flow
		12th Avenue - Stop Controlled
11th Avenue and 3rd Street E	0	T-Intersection
		3rd Street E - Stop Controlled
11th Avenue and 1st Street W	0	T-Intersection 1st Street W - Stop Controlled
1st Street E and 5th Avenue	0	1st Street E - Stop Controlled
		5th Avenue - Stop Controlled
1st Street West and 7th Avenue	0	1st Street W - Free Flow
		7th Avenue - Yield Controlled
Highway 21 and 3rd Street West	0	Highway 21 - Free Flow
		3rd Street W - Stop Controlled
3rd Street West and 4th Avenue	0	3rd Street W - Stop Controlled
		4th Avenue - Stop Controlled
Ditson Drive and Walmart Access	0	T-Intersection
		Walmart Access - Stop Controlled
West Road and Thomson Drive	0	West Road - Stop Controlled
		Thomson Drive - Stop Controlled



Intersection	Collisions	Traffic Control
7th Avenue and 1st Street East	0	7th Avenue - Yield Controlled
		1st Street East - Free Flow
Highway 7 and 11th Street West	1	Highway 7 - Free Flow
		11th Street W - Stop Controlled
Ditson Drive and 11th Avenue	1	Ditson Drive - Free Flow
		11th Avenue - Stop Controlled
Highway 21 and 11th Avenue	1	Highway 21 - Free Flow
		11th Avenue - Stop Controlled
Highway 21 and 7th Avenue	1	Highway 21 - Free Flow
		7th Avenue - Stop Controlled
5th Avenue and 2nd Street East	1	5th Avenue - Stop Controlled
		2nd Street E - Stop Controlled
5th Avenue and 3rd Street East	1	T-Intersection
		3rd Street E - Yield Controlled
Highway 7 and 2nd Street East	2	Highway 7 - Free Flow
		2nd Street E - Stop Controlled
Highway 7 and 15th Street	2	Highway 7 - Free Flow
		15th Street - Stop Controlled
Highway 21 and Railway Avenue	2	T-Intersection
		Railway Avenue - Stop Controlled
Highway 7 and 10th Street	3	Highway 7 - Free Flow
		10th Street - Stop Controlled
Ditson Drive and 12th Avenue	3	Ditson Drive - Free Flow 12th Avenue - Stop Controlled
12th Avenue and 2nd Street East	3	12th Avenue - Stop Controlled 2nd Street E - Free Flow
Main Street and 1st Avenue	3	Traffic Signals
Main Street and Railway Avenue	3	T-Intersection
		All Way Stop Controlled
Ditson Drive and 2nd Avenue	3	T-Intersection
		2nd Avenue - Stop Controlled
West Road and Rutley Crescent	3	West Road - Stop Controlled
		Rutley Crescent - Stop Controlled
7th Street West and 2nd Avenue	0	7th Avenue W - Free Flow
		2nd Avenue - Yield Controlled

2nd Street East and 7th Avenue	3	T-Intersection
		7th Avenue - Yield Controlled
1st Street West and 6th Avenue	3	T-Intersection
		6th Avenue - Yield Controlled
2nd Street East and 10th Avenue	3	T-Intersection
		10th Avenue - Yield Controlled
11th Avenue and 1st Street West	3	T-Intersection
		1st Street W - Yield Controlled
Ditson Drive and West Road	3	Ditson Drive - Free Flow
		West Road - Stop Controlled
Main Street and 12th Avenue	4	Main Street - Free Flow
		12th Avenue - Yield Controlled
Main Street and 6th Avenue	4	Main Street - Free Flow
		6th Avenue - Stop Controlled
1st Street East and 2nd Avenue	4	1st Street East - Free Flow
		2nd Avenue - Stop Controlled
Railway Avenue and Overlord Crescent	4	Railway Avenue - Free Flow
		Overlord Crescent - Yield Controlled
Railway Avenue and 2nd Street East	5	T-Intersection
		2nd Street East - Yield Controlled
Highway 7 and Museum Access	5	Highway 7 - Free Flow
		Museum Access - Stop Controlled
1st Street West and 5th Avenue	6	1st Street West - Stop Controlled
		5th Avenue - Stop Controlled
Main Street and 7th Avenue	6	Main Street - Free Flow
		7th Avenue - Stop Controlled
1st Street West and 3rd Avenue	6	1st Street W - Free Flow
		3rd Avenue - Stop Controlled
Main Street and 4th Avenue	9	Main Street - Free Flow
		4th Avenue - Stop Controlled
Ditson Drive and Thomson Road	8	T-Intersection
		Thomson Road - Stop Controlled
1st Street West and 2nd Avenue	10	1st Street West - Free Flow
		2nd Ave. - Yield and Stop
Main Street and 10th Avenue	9	Main Street - Free Flow
		10th Avenue - Stop Controlled

<b>11th Avenue and 2nd Street</b>	11	11th Avenue - Stop Controlled
		2nd Street East - Free Flow
<b>Ditson Drive and Railway Avenue</b>	11	T-Intersection
		Railway Avenue - Stop Controlled
<b>Highway 7 and Main Street</b>	13	Traffic Signals
<b>Main Street and 2nd Avenue</b>	15	Traffic Signals
<b>Main Street and 11th Avenue</b>	14	Main Street - Stop Controlled NB
		11th Avenue - Stop Controlled
<b>Highway 7 and Highway 21</b>	15	Traffic Signals
<b>Main Street and 3rd Avenue</b>	16	Traffic Signals
<b>Main Street and 5th Avenue</b>	22	Traffic Signals
<b>Highway 7 and Ditson Drive</b>	25	Traffic Signals

### 2.3 TRAFFIC VOLUMES

ME2 Transportation Data Corporation was retained to carry out traffic counts at key intersections. Two separate counts were completed. The first set of counts was completed in the summer of 2011 and a second set was completed near schools in September of 2011 to ensure traffic volumes included traffic generated during the school year. The detailed traffic counts are included in Appendix B. The traffic counts were used for various analyses as discussed in Section 3. The traffic volumes on the highways have grown over the last ten years; it is felt that this increase is primarily because of Kindersley becoming a service centre for oil industry growth in the region.

At the request of the Town, vehicle classification data was collected for the junction of Highways 7 and 21. A summary of the data is shown in Table 2-4 and the detailed counts are in Appendix B. For all intersections counted, the data represents a six hour count (morning, noon and afternoon peaks) and shows the number of vehicles travelling from the direction indicated for each classification. For each direction of travel the percent of vehicles by classification is also shown in the table. Caution should be used in extrapolating the data to annual numbers since the time period for the classification was only 6 hours on one day.

**Table 2-4**  
**Highway 7 and 21 Intersection - Vehicle Classification Data Summary**

Vehicle Classification	West		East		South		North		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Passenger Car \ Pickup	691	81%	834	82%	599	84%	708	86%	2832	83%
Passenger Vehicle with trailer (car or pickup)	54	6%	49	5%	39	5%	36	4%	178	5%
Single Unit - 2 axle	15	2%	20	2%	12	2%	11	1%	58	2%
Single Unit - 2 axle rear +	8	1%	18	2%	8	1%	17	2%	51	2%
Single Unit - 2 and 3 axles rear with trailer	2	0%	5	0%	3	0%	5	1%	15	0%
Tractor no trailer	2	0%	0	0%	4	1%	4	0%	10	0%
Tractor SemiTrailer	49	6%	63	6%	28	4%	26	3%	166	5%
Tractor Trailer multi trailer	25	3%	20	2%	12	2%	11	1%	68	2%
Buses	1	0%	1	0%	1	0%	0	0%	3	0%
Motorbike	5	1%	3	0%	4	1%	3	0%	15	0%
Bicycle	0	0%	0	0%	0	0%	0	0%	0	0%
Pedestrians	1	0%	0	0%	0	0%	1	0%	2	0%
<b>Total</b>	<b>853</b>	<b>100%</b>	<b>1013</b>	<b>100%</b>	<b>710</b>	<b>100%</b>	<b>822</b>	<b>100%</b>	<b>3398</b>	<b>100%</b>

## 2.4 TRAFFIC FORECAST

The Town commissioned a regional planning study by Prairie Wild Consulting. The study included a description of areas of growth to the planning horizon year of 2036 when the population of Kindersley would reach 10,000 people. A traffic forecast was carried out to estimate the growth in traffic volumes by the horizon year of 2036 for the afternoon or p.m. peak hour. The details of the traffic forecast are included in Appendix C.

### 2.4.1 Forecast Methodology

Future traffic within Kindersley was estimated using background traffic and development traffic. Background traffic represents growth in existing traffic as a result of growth in the surrounding area (i.e. Kindersley Planning District) and other socio-economic factors independent of growth within Kindersley. Background traffic volumes for the year 2036 were estimated by assuming linear



growth and applying an annual growth rate to the existing (2011) traffic volumes over a 25 year period.

Development traffic represents traffic generated by new developments within Kindersley. Figure 2 in Appendix C shows the *Future Land Use Concept Plan* developed by Prairie Wild Consulting. All the proposed land uses shown in the concept plan were considered part of the ultimate build-out for the 2036 horizon and were included in the traffic forecast, even if located outside of the existing Town boundary.

Development traffic volumes for 2036 were estimated using a three-step process:

- **Trip Generation:** estimate the number of trips generated from and attracted to each development;
- **Trip Distribution:** estimate the origin and destination of trips to and from each development; and
- **Trip Assignment:** select the routes to and from the developments and assign the development traffic volumes to the skeletal road network.

The major new developments proposed within Kindersley by 2036 include:

### **Industrial Land Use**

- 83 hectares located north of Highway 7 and west of Highway 21; and
- 148 hectares located south of Highway 7 and west of Highway 21.

### **Highway Commercial Land Use**

- 40 hectares located north of Highway 7 and west of Highway 21;
- 13 hectares located north of Highway 7 and east of Highway 21;
- 15 hectares located south of 6 Avenue and west of Highway 21;
- 26 hectares located north of Highway 7, between the proposed Thomson Drive connector and the proposed East Boundary Road;
- 10 hectares located south of Highway 7, between Ditson Drive and the proposed Thomson Drive connector; and
- 10 hectares located south of Highway 7, between the proposed Thomson Drive connector and the proposed East Boundary Road.

### **Residential Land Use**

- 238 hectares located south of Highway 7 and east of Ditson Drive
- 2,615 dwelling units anticipated:
  - 120 multi-storey dwellings;
  - 320 fourplex dwellings;
  - 180 duplex dwellings; and
  - 1,995 single dwellings.

### Other Land Uses

- 90 hectares of Future Urban Development north of Highway 7 and east of Highway 21;
- 40 hectares of Future Urban Development south of Railway Avenue and west of Highway 21; and
- Community Services and Green Space/Recreational dispersed throughout the Town.

The total traffic volumes in 2036 were calculated by combining the 2036 background traffic volumes with the adjusted 2036 development traffic volumes. The forecasted p.m. peak hour total traffic volumes for the 2036 horizon are shown in Figure 9 in Appendix C.

### Limitations

The future traffic volumes were estimated following best industry practices. The numbers should only be used for general planning purposes and are not meant for functional, preliminary or detailed design. The model and figures represent full build out of the growth areas with limited changes to intersection geometric configurations. The model should be updated and revised as major changes to and/or details of the future land use and roadway network are known.

## 2.5 STAKEHOLDER CONSULTATION

The project team consulted with key stakeholders during the project. Staff from the town of Kindersley, MHI, ambulance services and the RCMP were consulted regarding traffic operations in the study area. The following comments were made by the stakeholders:

- Town of Kindersley:
  - Some drivers do not follow the speed limits; and
  - Traffic volumes have increased significantly in the last few years.
- MHI Area Manager (Larry Mock):
  - No operational concerns with the town; and
  - Large vehicles have difficulty turning on and off Main Street at Highway 7.
- Emergency Medical Services:
  - Use Highway 7 and Main Street as their access into and out of the town, either coming or going to Saskatoon; and
  - Rosedale could be an issue if trains interrupt access. There hasn't been a problem so far but it could happen in the future.
- RCMP:
  - Highway 7 and Main Street configuration is confusing to drivers;
  - Speeding is a concern on 8<sup>th</sup> St. W., Ditson Drive, 2<sup>nd</sup> Avenue;
  - Illegal stopping is a concern along Highway 21 because people will just pull off to the side of the road to run into their houses rather than using 8<sup>th</sup> St. W;
  - The Highway 21 mid-block crossing is a concern because of the speeds on Highway 21; and
  - Large trucks park along 12<sup>th</sup> Avenue to access the commercial businesses. Trucks can be parked from the Shell Station located at 2<sup>nd</sup> Street East to as far west as the curve near Highway 21.

## 3 Engineering Assessment

### 3.1 INTRODUCTION

The roadway transportation system includes the road user, vehicles and the roadway. The engineering assessment of the highway corridors considered a number of factors including collisions, speed limits, existing and future access needs and intersection treatments. The limitations of the road user or driver in terms of their experience, condition, skills and other characteristics are factors in the safe and efficient functioning of the roadway system. Driver perception, reaction and workload can have a significant effect on traffic operations. This section provides an analysis of each characteristic including the application of human factors and includes a discussion of the major intersections, corridors and issues.

### 3.2 TRAFFIC SIGNAGE AND PAVEMENT MARKINGS

Numerous traffic signs are located on roadways in the study area including regulatory, warning, information and guidance signs. During the site visit it was noted that there was not an over-abundance of traffic signs and the risk of driver overload because of traffic signs was minimal. The number of signs appeared to be optimal and no signs were identified for removal or relocation.

Traffic signs were in good to excellent condition with several exceptions. Several installations were inconsistent with TAC standards (see below; additional photographs can be found in Appendix A).

- Yield Signs
  - The Town staff reported that there appears to be a high frequency of drivers who ignore the yield signs. As shown in Table 2-3 the collision frequency at intersections with yield signs is relatively low. The number of collisions is too low to draw any conclusions regarding the appropriateness of the yield signs, without carrying out further detailed analysis of the collisions.
  - The yield sign installations could be reviewed in light of TAC standards. An analysis of the traffic volumes and collision history could be carried out to determine whether the yield signs could be removed or replaced with stop signs.
  - Increased enforcement may improve compliance with the yield signs.





### Hospital zone signs – (IC-10)

- Hospital zone signs are typically denoted with a large white H set onto a green 600 mm X 600 mm background. The hospital zone shown in figure 3-1 shows a hospital zone sign with block letters on a sign blade at the approach to a curve. Changing the sign to the TAC standard sign would provide for easier recognition of the hospital zone by motorists.

**Figure 3-1**  
**Hospital Zone Sign**





- Street Name Sign Blades
  - There are several street name sign blades with street names that are difficult to read with small font that is inconsistent with other locations. Street name blade sizes and lettering should be consistent in size and be easily recognizable to motorists at a glance for way-finding. Figure 3-2 shows a sign with lettering that is difficult to view when sitting at the intersection. It is recommended that signs be upgraded to ensure that signs are viewable by motorists.

**Figure 3-2**  
**Street Name Blades**



- Intersections Ahead Warning Sign
  - Intersection ahead warning signs are typically in advance of important intersections that are unexpected or are used to provide drivers with notice that they are approaching urban built up areas. The sign in figure 3-3 is a non-standard sign in a location where there are numerous clues to drivers to indicate that they are approaching a built up area and the sign should be removed.
  - Generally Advanced Warning Signs are located prior to an intersection where the road speed is 70kmh or higher, where there are sight line difficulties or where a road grade requires harder than normally braking power. They are also used prior to the first signalized intersection in an urban area where traffic has been travelling for some period of time at highway speeds, even if the speed has been reduced already.

**Figure 3-3**  
**Important Intersections Sign**



- Pedestrian Crossing Signs
  - Pedestrian crossing signs should be placed perpendicular to a road to alert drivers of approaching pedestrians. The sign in Figure 3-4 should be upgraded to a RA-4L and rotated 90 degrees, with a RA-4R installed on the other side of the road with a painted crosswalk to alert drivers of the pedestrian corridor.

**Figure 3-4**  
**Pedestrian Crossing Advance Warning Sign**



- Major streets had centre line and lane markings. These markings were consistent with industry standards and no changes are recommended.

### 3.3 TRAFFIC SIGNALS

Traffic signals are currently installed at a number of intersections on Main Street and on Highway 7. The majority of the signals were installed over forty years ago and are out-dated and inefficient.

Many jurisdictions use TAC traffic signal warrants in combination with a capacity analysis for planning the installation of traffic signals. TAC traffic signal warrants (details in Appendix D) and capacity analysis (Appendix E) was calculated using current traffic volumes. None of the existing traffic signal installations analyzed meet the TAC minimum guidelines nor reach the level of service requirements for intersection upgrades.

#### 3.3.1 Traffic Signal Warrants

Traffic signal warrants show that on Main Street, traffic signals are not warranted should be removed at all locations. It is recommended that the removal of traffic signals on Main Street be phased over several years. This would allow for local traffic to become familiar with less traffic control, reduce delay and improve access to Main Street.

The intersections on Highway 7 do not meet warrants for signals. It is not recommended however that the signals be removed because signals will be warranted within ten years (details in Appendix F). The signals will require upgrading to improve the efficiency of traffic flow as volumes increase.

#### 3.3.2 2011 Intersection Capacity Analysis

An intersection capacity analysis was completed with Synchro using existing traffic volumes. The following table summarizes the results of the capacity analysis. Table 3-1 displays results using the 2011 volumes and existing intersection configurations. For a community the size of Kindersley an overall level of service of C or better is acceptable. The analysis shows that all intersections operate acceptably with 2011 traffic volumes.

**Table 3-1**  
**Capacity Analysis - 2011 Volumes with Existing Configurations**

Intersection	Treatment	PM Peak Hour						
		Approach LOS				Overall LOS	Overall v/c	Max v/c
		EB	WB	NB	SB			
Highway 7 and 15 Street W	Stop-Controlled	A	A	A	B	A	-	0.01
Highway 7 and	Stop-	A	A	A	B	A	-	0.05

11 Street W	Controlled							
Highway 7 and Highway 21	Signalized	A	B	A	A	A	0.23	0.24
Highway 7 and Main Street	Signalized	B	A	A	A	A	0.18	0.20
Highway 7 and 2 Street E	Stop-Controlled	A	A	B	C	A	-	0.36
Highway 7 and Ditson Drive	Signalized	B	A	A	A	B	0.26	0.36
Highway 21 and 7 Avenue	Stop-Controlled	B	A	A	A	A	-	0.10
Highway 21 and Railway Avenue	Stop-Controlled	-	A	A	A	A	-	0.04
Main Street and 6 Avenue	Stop-Controlled	B	B	A	A	A	-	0.14
Main Street and 4 Avenue	Stop-Controlled	B	B	A	A	A	-	0.12
Main Street and 2 Avenue	Signalized	A	A	A	A	A	0.13	0.15
Main Street and Railway Avenue	Stop-Controlled	A	A	-	A	A	-	0.17
Ditson Drive and 2 Avenue	Stop-Controlled	B	-	A	A	A	-	0.19
Ditson Drive and Railway Avenue	Stop-Controlled	B	-	A	A	A	-	0.23
Ditson Drive and West Road	Stop-Controlled	-	A	A	A	A	-	0.17
Ditson Drive and Thomson Drive	Stop-Controlled	B	A	A	A	A	-	0.08

A capacity analysis was also calculated using forecast traffic volumes assuming a 10,000 population in year 2036 using existing configurations (details are included in Appendix G). Table 3-2 shows the horizon volumes with the existing intersection configurations.

**Table 3-2**  
**2036 Volumes – Existing Configurations**

Intersection	Treatment	PM Peak Hour						
		Approach LOS				Overall LOS	Overall v/c	Max v/c
		EB	WB	NB	SB			
Highway 7 and 15 Street W	Stop-Controlled	A	A	B	C	A	-	0.37
Highway 7 and 11 Street W	Stop-Controlled	A	A	B	E	A	-	0.64
Highway 7 and Highway 21	Signalized	B	A	A	B	B	0.66	0.70
Highway 7 and Main Street	Signalized	A	A	B	B	B	0.54	0.61
Highway 7 and 2 Street E	Stop-Controlled	A	A	F	F	F	-	>1.0
Highway 7 and Ditson Drive	Signalized	B	B	B	B	B	0.60	0.71
Highway 7 and Future Thomson Drive Connector	Stop-Controlled	A	A	F	D	F	-	>1.0
Highway 7 and Future East Boundary Road	Stop-Controlled	A	A	C	B	A	-	0.50
Highway 21 and 7 Avenue	Stop-Controlled	C	B	A	A	A	-	0.46
Highway 21 and Railway Avenue	Stop-Controlled	-	B	A	A	A	-	0.10
Main Street and 6 Avenue	Stop-Controlled	C	C	A	A	A	-	0.28
Main Street and 4 Avenue	Stop-Controlled	C	C	A	A	A	-	0.26
Main Street and 2 Avenue	Signalized	A	A	A	B	A	0.30	0.30
Main Street and Railway Avenue	Stop-Controlled	B	B	-	B	B	-	0.55

Ditson Drive and 2 Avenue	Stop-Controlled	C	-	A	A	A	-	0.26
Ditson Drive and Railway Avenue	Stop-Controlled	D	-	A	A	B	-	0.68
Ditson Drive and West Road	Stop-Controlled	-	B	A	A	A	-	0.30
Ditson Drive and Thomson Drive	Stop-Controlled	C	B	A	A	A	-	0.18

In the horizon year there are capacity issues at certain intersections (Details can be found in Appendix H):

- At the Highway 7 and 11 Street W intersection, signalization would be required;
- At the Highway 7 and 2 Street E requires signalization;
- The Future Thomson Drive Connector will require signalization and a northbound left turning lane;
- Ditson Drive and Railway Avenue requires a southbound right turning lane; and
- All other intersections do not require upgrades to improve capacity.

Table 3-3 shows the 2036 volumes with recommended improvements.

**Table 3-3**  
**2036 Traffic Volumes with Recommended Improvements**

Intersection	Treatment	Recommended Improvement	PM Peak Hour						
			Approach LOS				Overall LOS	Overall v/c	Max v/c
			EB	WB	NB	SB			
Highway 7 and 15 Street W	Stop-Controlled	None	A	A	B	C	A	-	0.37
Highway 7 and 11 Street W	Signalized	Signals	B	B	A	A	B	0.40	0.53
Highway 7 and Highway 21	Signalized	None	B	A	A	B	B	0.66	0.70
Highway 7 and Main Street	Signalized	None	A	A	B	B	B	0.54	0.61
Highway 7 and 2 Street E	Signalized	Signals	B	A	B	B	B	0.66	0.75
Highway 7 and Ditson Drive	Signalized	None	B	B	B	B	B	0.60	0.71



Highway 7 and Future Thomson Drive Connector	Signalized	Signals; Northbound Left Turn Lane	B	C	C	B	B	0.69	0.82
Highway 7 and Future East Boundary Road	Stop-Controlled	None	A	A	C	B	A	-	0.50
Highway 21 and 7 Avenue	Stop-Controlled	None	C	B	A	A	A	-	0.46
Highway 21 and Railway Avenue	Stop-Controlled	None	-	B	A	A	A	-	0.10
Main Street and 6 Avenue	Stop-Controlled	None	C	C	A	A	A	-	0.28
Main Street and 4 Avenue	Stop-Controlled	None	C	C	A	A	A	-	0.26
Main Street and 2 Avenue	Signalized	None	A	A	A	B	A	0.30	0.30
Main Street and Railway Avenue	Stop-Controlled	None	B	B	-	B	B	-	0.55
Ditson Drive and 2 Avenue	Stop-Controlled	None	C	-	A	A	A	-	0.26
Ditson Drive and Railway Avenue	Stop-Controlled	Southbound Right Turn Lane	C	-	A	A	B	-	0.62
Ditson Drive and West Road	Stop-Controlled	None	-	B	A	A	A	-	0.30
Ditson Drive and Thomson Drive	Stop-Controlled	None	C	B	A	A	A	-	0.18

The horizon year traffic volumes used to determine the TAC traffic signal warrants and capacity analysis should be only considered for high level planning purposes. A traffic counting and analysis program where key intersections are counted and evaluated every five years should be implemented for planning intersection upgrades. The Town could hire a consultant to develop a counting program which could be implemented and managed by town staff.

### 3.3.3 Traffic Signal Equipment Upgrade

The majority of the existing signals on Main Street and were installed over forty years ago and are out-dated and inefficient. As well the signals on Highway 7 are also outdated and the town is



experiencing difficulty in maintaining and operating the signals. The signals on Highway 7 and the signals on Main Street (if not removed as recommended) should be upgraded as described below:

- On multi lane approaches to the intersection, install dual primary signal heads overhead to ensure the 10 degree “cone of vision” driver requirements are met;
- Where it is necessary to install Lane Control Signs on the signal arms, align them with the lanes, as a guide to drivers on snow covered streets where the lanes are;
- Replace existing poles with poles that meet the requirements of the Canadian Bridge code and ASSHTO to ensure poles structures are adequate to meet wind loading;
- Replace traffic controllers and cabinets with newer technology;
- Consider the installation of video detection equipment rather than traffic loops to reduce the cost of maintenance, particularly when future configuration upgrades are being considered;
- Review intersection street lighting to ensure the requirements of minimum 50% more ambient lighting at intersections is provided;
- Ensure primary and secondary signal heads are 300mm diameter within urban areas;
- Consider the installation of countdown timers on the pedestrian crossing signals;
- Where required in conjunction with the local visually impaired assistance societies, install audible signals in compliance with the TAC 2007 recommendations for enhanced pedestrian crossings;
- Install street name signs on the signal arms close to the curb line so they are within the 40 degree secondary ‘cone of vision’; and
- Consider providing emergency vehicle pre-emption.

#### 3.4 SPEED LIMITS

Speed limits on Kindersley streets and highways are shown in Figure 3-5 and outlined in the Town’s Traffic Bylaw (see Appendix I). Vehicle speeds were measured In July of 2011. The results of the speed studies are shown in Table 3-4.

**Table 3-4**  
**Speed Study Results Kindersley**

Location	Posted Speed Limit km/h	85th Percentile Speed km/h	
		Northbound	Southbound
Ditson Drive North of Thomson Drive	60	70	70
Ditson Drive South of Railway Avenue	60	55	75
Ditson Drive South of 2nd Avenue	60	65	63
Highway 21 North of Railway Avenue	70	82	83
11th Ave. West of Ditson Drive	50	54	68
Railway Avenue East of 2nd Street	40	51	54

The speed study data is used as part of the determination of the appropriate speed limit for a roadway. The 85<sup>th</sup> percentile is the speed at or below which 85% of the vehicles are travelling. It is generally thought that at least 84% of the drivers operate at speeds that are reasonable and prudent for the conditions pertaining to roadway. The 85<sup>th</sup> percentile speed is a first approximation of the speed zone which might be imposed subject to consideration of other factors. Use of the 85<sup>th</sup> percentile speed is based on the theory that the majority of drivers desire to reach their destination in the safest and shortest possible time.

The east side of Railway Avenue has a speed limit of 40 km/h and an 85<sup>th</sup> percentile speed of over 50 km/h. The west side of Railway Avenue has similar characteristics and a speed limit of 50 km/h. The Town should consider changing the speed limit on the east side to 50 km/h to be consistent with the remainder of Railway Avenue. If the Town changes the speed limit on Railway Avenue they should follow-up with a speed study after one year.

The speed limit is defined in the Town bylaw as 70 km/h on Highway 7 and Highway 21 within the town limits. For northbound and southbound drivers on Highway 21, signs are posted at the town limits for the transition for the 100 km/h to 70 km/h speed zone as they enter and leave the town.

The Town specifically reported a concern with traffic entering via Highway 7 at excessive speeds resulting in reported near misses, property damage and concerns from pedestrians crossing the highway. The Town could consider various options to improve speed compliance as described below.

On the west leg of Highway 7 there is development out to 15 Street West. For eastbound drivers there is a 70 km/h advance speed sign located just east of 11 Street West and a 70 km/h speed sign between 11th Street West and 10th Street West, only one and one half blocks from Highway 21. The 70 km/h speed transition zone should begin west of 15 Street West to slow vehicles as they enter the town limits.

On the west leg of Hwy 7 westbound departing from Hwy 21 the 100 km/h speed sign is located between 10th Street West and 11th Street West. This is only one and one half blocks from Hwy 21 and four and one half blocks from the end of the development and midblock intersections. The 100 km/h speed limit should be posted west of 15<sup>th</sup> Street West as traffic leaves the town limits.

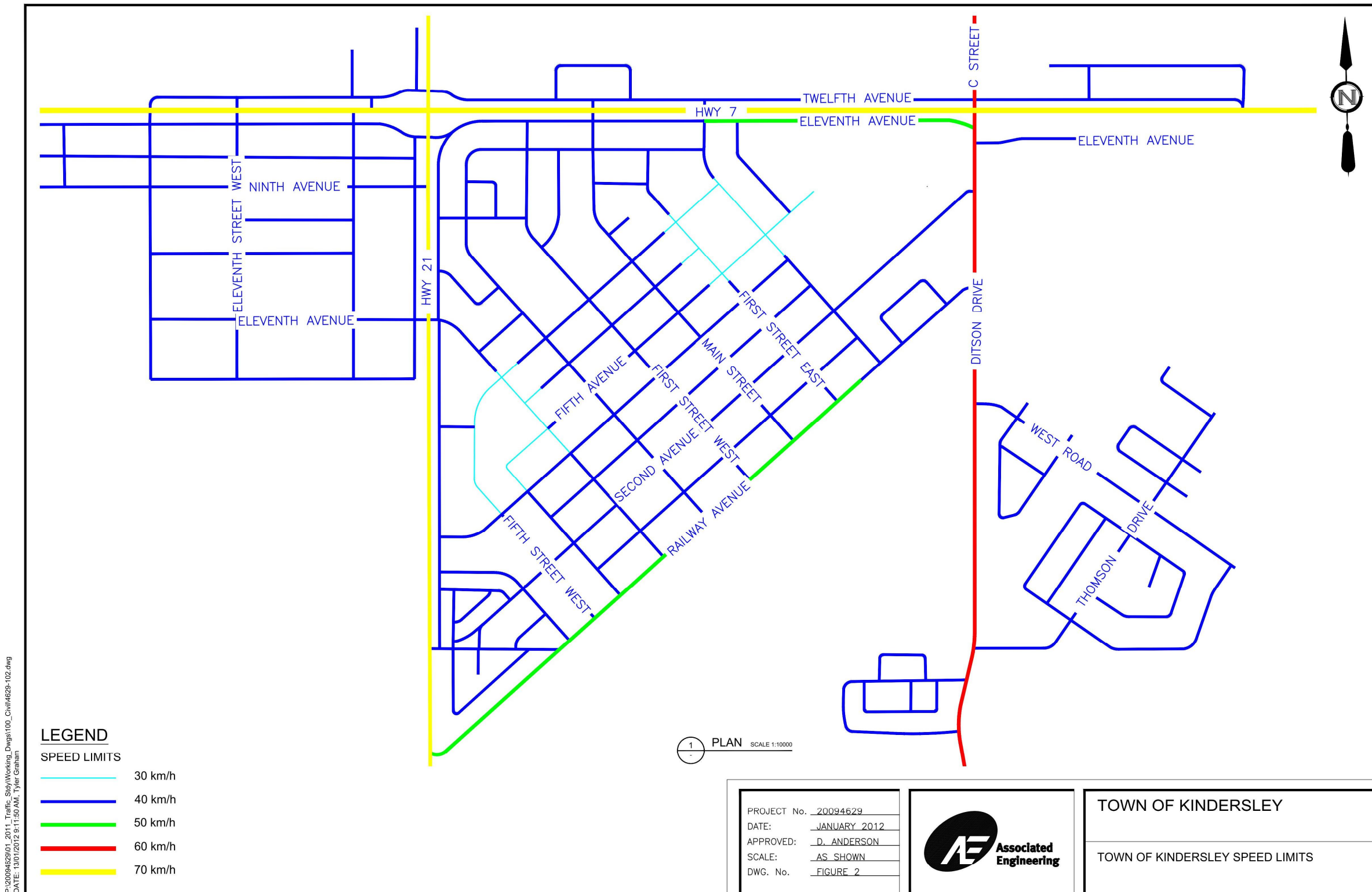
The Town could also consider installing a permanent speed display sign on one or more of the highway approaches into the town limits. The electronic sign constantly displays vehicle speeds and provides feedback to drivers that they need to adjust their speeds.

The RCMP have a number of speed trailers that can be deployed at various locations around the province as a speed enforcement tool. The speed trailers are placed in a safe location on the side of the roadway and display vehicle speeds on a light panel. The speed trailer display gives drivers feedback on their vehicle speed and may increase awareness and possibly compliance with posted speed limits. The speed trailer could be used in the study area several times a year at various locations. Alternately the Town may consider purchasing one of their own.

There are a number of other measures that the town could consider to improve speed compliance:

- Install additional and/or oversize speed limit signs;
- Ask the RCMP to increase enforcement; and
- Public education programs.

Figure 3-5  
Speed Limits in the Study Area



Installations such as rumble strips are not recommended on higher speed roadways such as Highways 7 and 21 because of the interference with emergency services (all vehicles must slow down for rumble strips) and the increased noise level from vehicle passing over the devices.

### 3.5 PARKING ON 11<sup>TH</sup> AVENUE AND 12<sup>TH</sup> AVENUE

There is commercial development along 11<sup>th</sup> Avenue and 12<sup>th</sup> Avenue including fast food restaurants and service stations. Parking on-street has become a safety and operational concern on both of these streets. In particular, large vehicles including tractor-trailers create hazards and cause damage to the roadways when they park on these streets. In the short term, the town could consider implementing parking restrictions such as parking on only one side of the street, charging for parking or a one-hour parking time limit. These restrictions should help alleviate some operational concerns.

In the medium to long term, prohibiting truck parking on these streets could also be considered. Off-street parking for large vehicles or a highway pull-out would need to be provided in close proximity to the businesses to ensure compliance.

The town should consult with local business owners and implement restrictions after receiving their feedback. An alternative convenient parking lot for trucks should be considered to manage truck parking.

### 3.6 CORRIDORS, MAJOR INTERSECTIONS AND KEY LOCATIONS

The following is a discussion of the corridors, major intersections and key locations identified by the Town initially in the study. This discussion combines a number of elements including the current geometry, signage, existing and forecasted traffic volumes and collision statistics. It is intended to provide a general overview of overall function as well as provide recommendations for consideration by the Town.

#### 3.6.1 Highway 7

Highway 7 passes through the north side of Kindersley. The highway has at-grade intersections with town streets and several intersections have traffic signals. There is a service road on each side of Highway 7; 11<sup>th</sup> Avenue on the south side and 12<sup>th</sup> Avenue on the north side. The service roads have a separation of approximately fifteen (15) metres from the highway resulting in congestion with turning vehicles. The section of Highway 7 to the west of Highway 21 is discussed under Section 3.7.

##### 3.6.1.1 Highway 7 and Ditson Drive

The intersection of Highway 7 and Ditson Drive is controlled by traffic signals. This intersection had the highest collision statistic during the study period; twenty-five collisions occurred at the intersection between 2001 and 2010. The intersection is currently operating at an acceptable level of service with minimal traffic delay except at peak hours.

In the horizon population of 10,000 traffic volumes will have increased significantly. The intersection should not require geometric modifications.

### **3.6.1.2 Highway 7 and 2<sup>nd</sup> Street East**

The intersection of Highway 7 and 2<sup>nd</sup> Street East is controlled by stop signs for traffic on 2<sup>nd</sup> Street East. Two collisions occurred at the intersection between 2001 and 2010. Traffic operations are near free flow and there are no countermeasures for this intersection in the short or medium term.

Prior to the horizon year this intersection will warrant traffic signals to accommodate additional traffic volumes. In the horizon year of 2036 traffic volumes will have increased significantly. The intersection will require geometric modifications including the addition of through lanes and dedicated turning lanes. As well, major conflicts will develop with the close spacing of the service roads. The Town should begin to plan for the realignment of the service roads.

### **3.6.1.3 Highway 7 and Main Street**

The intersection of Highway 7 and Main Street is controlled by traffic signals. Thirteen collisions occurred at this intersection between 2001 and 2010. This intersection was studied in detail in AE's 2010 report "Main Street and 11<sup>th</sup> Avenue In-Service Safety Review". That report included recommended countermeasures to restrict turning movements onto the service roads. The recommendations are included in Appendix J as an excerpt of the 2010 report.

In the horizon year of 2036 traffic volumes will have increased significantly. The intersection will require geometric modifications including the addition of through lanes and dedicated turning lanes. As well, major conflicts will escalate because of the close spacing of the service roads. The Town should immediately restrict left turns onto the service roads and begin realignment of the service roads within the next five years.

## **3.6.2 Highway 21**

Highway 21 passes through the west side of Kindersley. There are several at-grade intersections and one pedestrian mid-block crossing.

### **3.6.2.1 Highway 21 and Railway Avenue**

The intersection of Highway 21 and Railway Avenue is a three leg intersection with Railway Avenue intersecting the highway at an angle of approximately 50 degrees. Traffic on Railway Avenue faces a stop sign at Highway 21. Two collisions occurred at the intersection between 2001 and 2010. Traffic operations are near free flow.

The intersecting angle is not optimal and does not meet the TAC recommendation and industry standard of at least 70 degrees for a t-intersection. The acute angle of the intersection makes it difficult for drivers on Railway Avenue to assess gaps in the traffic on Highway 21. The acceptable gap and speed of approaching traffic is difficult to assess because cross traffic is travelling at an angle. In the very long term likely beyond the horizon year, when traffic volumes have increased, the Town should consider realigning Railway Avenue to improve the angle of the intersection.

#### **3.6.2.2 Highway 21 and 3<sup>rd</sup> Street West/7<sup>th</sup> Avenue**

The intersection of Highway 21 and 3<sup>rd</sup> Street West 7<sup>th</sup> Avenue is a four leg intersection controlled by stop signs for traffic on 3<sup>rd</sup> Street West. One collision occurred at the intersection between 2001 and 2010. Traffic operations are near free flow and there are no countermeasures for this intersection for current traffic volumes and in the horizon year.

#### **3.6.2.3 Mid-Block Pedestrian Crossing**

There is a mid-block pedestrian crossing near 11<sup>th</sup> Avenue. The crossing facilitates the movement of pedestrians to a business that employs staff with learning disabilities, on the west side of the highway. A marked crosswalk and side mounted signs with flashing amber lights are in place. In consideration of the 60 km/h speed limit on the highway and the high risk pedestrians using the crossing, the Town should consider installing additional lighting and overhead pedestrian crosswalk sign.

#### **3.6.3 Junction of Highway 7 and 21**

The junction of Highway 7 and 21 is a four leg intersection. Highway 7 runs east/west and is a major route between Saskatoon and Calgary. Highway 21 runs north/south. The intersection is controlled by traffic signals. Fifteen collisions occurred at the intersection between 2001 and 2010.

There are service roads (11<sup>th</sup> Avenue on the south side and 12<sup>th</sup> Avenue on the north side) on both sides of Highway 7 with at-grade intersections on Highway 21.

In the horizon year of 2036 traffic volumes will have increased significantly. The intersection will require geometric modifications including the addition of through lanes and dedicated turning lanes. As well, major conflicts will develop related to the location of the service roads. The Town should begin to plan for the restriction of left turns from the service roads onto Highway 21 and eventual relocation of the intersections.

#### **3.6.4 Main Street**

Main Street runs generally south from Highway 7 to Railway Avenue passing through the Town's main business and commercial district. The Town would like to encourage traffic to use Main Street



rather than 1<sup>st</sup> Street West and 1<sup>st</sup> Street East that run parallel on either side of Main Street. Currently traffic may avoid Main Street because the traffic signals cause delays (discussed in Section 3.3). The intersection of Main Street and 11<sup>th</sup> Avenue is discussed in Section 3.6.1.3 and in Appendix J.

Most of the intersections on Main Street had low numbers of collisions during the study period. Exceptions were Main Street and 5<sup>th</sup> Avenue with twenty-two collisions, Main Street and 3<sup>rd</sup> Avenue with sixteen collisions and Main Street and 2<sup>nd</sup> Avenue with 15 collisions. Each of these intersections currently operates using traffic signals. All other intersections had less than ten collisions in the ten year study period.

As discussed in Section 3.3, traffic signals should be removed from all intersections. Stop signs should be installed at cross streets to give Main Street the right-of-way and enable the free flow of traffic on Main Street.

The Town has indicated an interest in investigating options for Main Street that could have the combined effect of slowing traffic as well as providing additional landscaping features in boulevards in the middle of the wide street. The boulevards would limit the left turns in both directions and the reduced width is likely to induce drivers to slow down. The boulevards could be used for portable planters in the spring, summer and fall that could be removed for winter so the area could be used for snow storage. Some communities have also installed mid-block pedestrian crossings along with the boulevards to improve the walk-ability of the downtown commercial areas.

As traffic volumes increase, intersections may warrant traffic signals. In the horizon year traffic signals would be warranted at almost every intersection on Main Street. The signals should be synchronized to facilitate north/south traffic flow. Additional studies should be completed every five years to monitor traffic flow and develop traffic volume trends to determine a more accurate warrant year for traffic signal installation.

### **3.6.5 Ditson Drive**

Ditson Drive is a north/south arterial on the east side of Kindersley and has a rural cross-section. As traffic volumes increase, the Town should consider converting Ditson Drive to an urban cross-section to facilitate turning lanes.

The intersection of Ditson Drive and Highway 7 is discussed under Section 3.6.1.

The intersection of Ditson Drive and Railway Avenue is a three leg intersection with Railway Avenue intersecting at an angle of approximately 50 degrees with Ditson Drive. Traffic on Railway Avenue faces a stop sign. The intersection had eleven collisions during the study period. In the long term when traffic volumes have increased, the Town should consider realigning Railway Avenue to improve the angle of the intersection and adding a south bound right turn turning lane on Ditson Drive.



There are heavy left turning movements for southbound traffic at West Road and Thomson Drive. By the horizon year traffic signals will be warranted at these intersections. As well, the intersections will require geometric modifications including the addition of through lanes and dedicated turning lanes.

All other intersections on Ditson Drive had less than ten collisions during the ten year study period.

### 3.6.6 North/South and East/West Corridors

Traffic operations may improve with designated north/south and east/west corridors. As described in Section 3.6.4, Main Street traffic flow would be improved through the changes to the traffic signals. Other streets that may be effective north/south routes are 3<sup>rd</sup> Street West, 2<sup>nd</sup> Street East and Ditson Drive. 3<sup>rd</sup> Street West and 2<sup>nd</sup> Street East provide connections to major traffic generators. Stop and/or yield signs should be installed appropriately to give the right-of-way to traffic on 3<sup>rd</sup> Street West and 2<sup>nd</sup> Street East.

Highway 7 on the north side of the town and Railway Avenue on the south side provide east/west corridors. Additional east/west corridors could be established to connect major traffic generators. Stop and/or yield signs should be installed to allow for traffic to flow on the designated routes and stop or yield on the side streets.

### 3.6.7 School Zones

There are established school zones for the elementary schools and the Kindersley Composite High School. The school zones have a 30 km/h speed limit. The Town indicated that there is an informal mid-block crossing on 3<sup>rd</sup> Avenue East adjacent to the High School. This crossing should be updated with side mounted pedestrian crossing signs and a painted crosswalk. No other safety concerns were identified near the schools. Traffic flow is near optimal with few conflicts.

As traffic volumes increase traffic operations to and from the schools should be more manageable and/or predictable with the corridor designations described above. The Town should monitor speeds and conflicts at the school and review the need for other countermeasures in the future. Other options such as curb extensions or textured crosswalks may be effective in providing an extra level of safety at the schools.

## 3.7 ACCESS MANAGEMENT

Access on Highway 7 and Highway 21 should be managed to ensure safe and efficient traffic flow with turning and crossing vehicles. Highway 7 is classified as R-3 and Highway 21 is classified as R-4 in MHI's Access Management Levels (Roadside Management Manual 430-30).

### 3.7.1 R-3 Access Management Level

The R-3 Access Management Level has the following requirements:

- Permanent access allowed at most public road allowances with minimum spacing of 3.2 km and a desirable spacing of 8 km;
- Temporary direct access points are allowed at most public highway intersections. Other temporary direct access points to the main highway should be spaced at a minimum of 400 m; and
- Construction of new approaches or new median crossings is prohibited. All applicants are required to construct a service road to the nearest existing access or public road allowance.

### 3.7.2 R-4 Access Management Level

The R-4 Access Management Level has the following requirements:

- Permanent access allowed at most public road allowances with minimum spacing of 1.6 km;
- If topographic restrictions or other unusual conditions are present, new approaches may be permitted;
- Landowners are not expected to drive any great distance on the highway or across their land to arrive at access points. Therefore machinery crossings may be permitted;
- Approaches shall be spaced a minimum of 90 metres (m) and a desirable of 155 m from the intersection of two public roadways (See Standard Plan 20640 Design Manual Part 1);
- Type I accesses will be permitted at a desirable spacing of 400 m and minimum spacing of 300 m;
- Type II accesses will be permitted at a minimum spacing of 40 m; and
- A maximum of two approaches per 400 m section may be allowed. The two approaches can be either Type I or Type II.

Type I accesses are temporary high impact accesses and include the following:

- Rural Commercial Access
  - A rural commercial access is the means of access to a roadway from a parcel of land serving a highway commercial development such as service station, truck stop, etc. The location and frequency allowed and the geometric standard of the

access to be used is dependent on the type of facility, and the level of access management established for the highway to which access is required.

- **Rural Industrial Access**
  - A rural industrial access is the means of access to a roadway from a parcel of land used in industry, such as grain terminals and utility complexes etc. The location and frequency allowed and the geometric standard of the access to be used is dependent on the type of facility, and the level of access management established for the highway to which the access is required.
- **Resource Access**
  - A resource access is the means of access to a roadway from a well site, gravel pit, mine, log haul, etc.
- **Multi-Residential/Subdivisions Access**
  - The means of access to a roadway from a rural residential subdivision consisting of more than one lot.
- **Rural Recreational Access**
  - A recreational access is the means of access to a roadway from a recreational facility such as a golf course or campground. The location and frequency allowed and the geometric standard of the access to be used is dependent on the type of facility, and the level of access management established for the highway to which the access is required.

Type II accesses are low impact accesses including the following:

- **Rural Residential Acreage Access**
  - A rural residential access is the means of access to a roadway from an acreage.
- **Farmstead Access**
  - A farmstead access is the means of access to a roadway from a farm residence. The dimensions of the access must be adequate to accommodate farm machinery and truck movements.

- Field Access
  - A field access is the means of access to a roadway from a parcel of land used for agriculture. The dimensions of the access must be adequate to accommodate farm machinery and truck movements.
- Utility Access
  - A utility access is the means of access to a roadway from a utility installation such as power company substation, pumping station, etc.

There are multiple intersections along Highway 7 west of Highway 21. The close spacing of accesses may still result in driver confusion and operational concerns with turning manoeuvres. The collision database location identifiers do not have sufficient accuracy to pinpoint any access where multiple collisions may have occurred.

The access points on Highway 7 were all designated 'temporary' accesses by MHI. The temporary designation is an indication that MHI intended to remove this access point at some time in the future as highway volumes increased and/or the function of the roadway changed. Although the Town may not adopt the MHI access designation they should manage the access points to be consistent with other urban centres and national standards. Most urban centres do not allow direct driveway access on to high speed roadways and they limit the number and spacing of intersections and access points. TAC also provides a number of recommendations including:

- Locate access points beyond the taper length required for a right turn or left turn lane (a function of roadway design speed);
- Provide service roads adjacent to and parallel to major roadways;
- Locate access points directly across from each other (no offset);

The Town should begin to plan for the removal of several access points on Highway 7 in co-ordination with redevelopment. Service roads with appropriate separation and bulb-outs should be built or extended to allow access to the highway at Highway 21 and at 15<sup>th</sup> Street West. Removal of accesses should result in an improvement in traffic flow on the west side of Kindersley and along Highway 7 with less traffic turning on and off the highway.

On Highway 21, the access spacing is more consistent with MHI and industry guidelines. No new access points should be allowed and in the medium to long term access to the service roads (11<sup>th</sup> Avenue and 12<sup>th</sup> Avenue) should be changed to rights in/out only.

### 3.8 FUTURE GROWTH CONSIDERATIONS

The growth of Kindersley to the horizon year of 2036 will result in the need to add new roadways, including the addition of a new arterial access south off Highway 7 (i.e. the east grid road) to service residential growth of Rosedale and the proposed development east of Rosedale, along with internal roadways to serve the new industrial/commercial areas to the north of Highway 7.

Along Highway 7 west of Highway 21, service roads should be extended to allow access only at Highway 21 and at 15<sup>th</sup> Street. In the long term all other access points should be eliminated or modified to allow rights in/out only. Future growth and roadway networks are shown in Appendix C and details of the modifications to existing roadways will need to be assessed as the Town grows.

In the short term the Town should initiate an engineering functional design of the east grid road access for proposed residential development in the south east and the Highway 21 and 7 accesses for the NW industrial area.

## 4 Summary and Recommendations

### 4.1 SUMMARY

A thorough review of the human factors, collision history, and geometric features of the highway corridors in the study area have been carried out. The majority of the road network is in excellent condition with many safety features already in place. Traffic volumes are expected to increase significantly in the area over the twenty-five years requiring minor to moderate adjustments, mainly at intersections and access points.

### 4.2 RECOMMENDATIONS

The traffic review identified opportunities to reduce the potential for collisions and improve traffic operations through a number of countermeasures.

Short Term Recommendations (within five years) are shown in Table 4-1:

**Table 4-1**  
**Short Term Recommendations**

Location	Recommendations	Planning Level Costs
Traffic Signs	Replace signs that are non-standard, worn or deteriorated	\$100 to \$1,000 per sign, post and installation
	Install signs according to industry standards	N/A
	Consider reviewing traffic volumes and collision history at intersections with yield signs	N/A
Traffic Signals	Remove all traffic signals on Main Street, phased in over several years	To be determined at implementation
Highway 7 and Main Street	Restrict left turns onto 11 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue by adopting one of the recommendations from the 2009 report.	N/A

<b>Speed Limits</b>	Install a 50 km/h speed limit on the east end of Railway Avenue	\$500
	Relocate the 70 km/h speed limit on Highway 7 west of the town to the town limits	\$1000
	Use a speed display trailer in the study area several times a year	N/A
	Ask the RCMP to increase speed enforcement, or employ a Bylaw Officer.	N/A
	Install additional and/or oversize speed limit signs on Highway 7 and 21	\$2000
	Investigate options to reduce speeds on Highways 7 and 21 including additional signage, pavement markings and installing permanent speed displays.	N/A
<b>Parking</b>	Restrict parking on 11 <sup>th</sup> and 12 <sup>th</sup> Avenues to one side only, charge for parking or implement a one hour time limit	\$1000
<b>Other</b>	Establish east/west routes on 2 <sup>nd</sup> Avenue and 5 <sup>th</sup> Avenue	To be determined at installation
	Establish north/south routes on 3 <sup>rd</sup> Street West and 2 <sup>nd</sup> Street East	To be determined at installation
<b>Future Growth</b>	Initiate Engineering Functional Design of East Grid Road access for proposed residential development in south east and Highway 21 and 7 accesses for NW industrial	To be determined at detailed design stage



Medium Term Recommendations (within ten years) are shown in Table 4-2:

**Table 4-2**  
**Medium Term Recommendations**

Location	Recommendations	Planning Level Costs
<b>Highway 7</b>	Re-align intersections with 11 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue at Main Street and 2 <sup>nd</sup> Street	To be determined at detailed design stage
	Install traffic signals at 2 <sup>nd</sup> Street as warranted	\$250,000
	Upgrade existing traffic signals	\$160,000 per intersection
<b>Highway 7 and Highway 21</b>	Restrict left turns onto 11 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue	\$5000
<b>Ditson Drive</b>	Rebuild with an urban cross-section	To be determined at detailed design stage
<b>Pedestrians</b>	Install overhead pedestrian crosswalk at mid-block crossing on Highway 21	\$10,000
<b>Access Management</b>	Restrict access (no left turns) to Highway 7 west of Highway 21 except at 15 <sup>th</sup> Street	N/A
<b>Speed Limits</b>	Install a permanent speed display sign on all Highways entering the Town	\$10,000 to \$15,000 each
<b>Other</b>	Adopt a Level of Service "C" as a town level of service guideline	N/A
	Undertake a regular traffic counting program to monitor traffic volumes and emerging capacity issues	To be determined at time of development
	Develop a Main Street beautification plan and implement	To be determined at detailed design stage

Long Term Recommendations (within twenty years) are shown in Table 4-3:

**Table 4-3**  
**Long Term Recommendations**

<b>Location</b>	<b>Recommendations</b>	<b>Planning Level Costs</b>
<b>Highway 7</b>	Re-build major intersections to accommodate traffic growth	To be determined at detailed design stage
<b>Highway 7 and Highway 21</b>	Relocate intersections with 11 <sup>th</sup> Avenue and 12 <sup>th</sup> Avenue	To be determined at detailed design stage
<b>Railway Avenue</b>	Re-align intersections with Highway 21 and Ditson Drive	To be determined at detailed design stage
<b>Main Street</b>	Install traffic signals at major intersections as warranted	To be determined at detailed design stage
<b>Ditson Drive</b>	Rebuild major intersections and install traffic signals as warranted	To be determined at detailed design stage
<b>Access Management</b>	Remove accesses to Highway 7 west of Highway 21 except at 15 <sup>th</sup> Street	\$10,000/approach
<b>Parking</b>	Restrict truck parking on 11 <sup>th</sup> and 12 <sup>th</sup> Avenues and provide off-street parking area	\$250,000
<b>Other</b>	Monitor traffic volumes and expand road network as needed	N/A

### 4.3 NEXT STEPS

Next steps for the Town include the following:

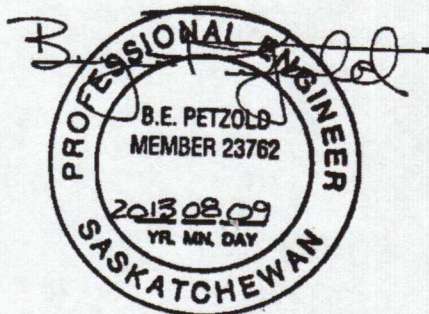
- Review the findings and recommendations with Staff and Council. AE staff could attend a meeting and review the final report findings with Council if desired;
- Select a short-list of recommendations to proceed with in 2014;
- Submit the report to the Ministry of Highways and Infrastructure along with a request for assistance to deal with the issues and recommendations for Highways 7 & 21; and
- Budget in 2014 for engineering or planning studies involved with the selected short-term recommendations.

## FINAL REPORT

### Certification Page

ASSOCIATION OF PROFESSIONAL ENGINEERS AND GEOSCIENTISTS OF SASKATCHEWAN CERTIFICATE OF AUTHORIZATION ASSOCIATED ENGINEERING (SASK) LTD NUMBER C116 <small>Permission to Conduct Field By</small>		
Discipline	Sask Reg No	Signature
Municipal	14039	Darryl Thompson

ASSOCIATED ENGINEERING QUALITY MANAGEMENT SIGN-OFF	
Signature:	<i>[Signature]</i>
Date:	Aug 15 / 2013



# A

## **Appendix A - Study Area Photographs**



Town of Kindersley  
Kindersley Traffic Study



**Photo 1 - 3<sup>rd</sup> Avenue & Main Street  
Looking North**



**Photo 2 - Highway 21  
Midblock Pedestrian Crosswalk Sign**



**Photo 3 - 1<sup>st</sup> Street West  
Looking South (Adjacent to Hospital)**



**Photo 4 - 11<sup>th</sup> Avenue E & 2<sup>nd</sup> Street E  
Looking East**



**Photo 5 - 11<sup>th</sup> Avenue E & Main Street  
Looking West**



**Photo 6 - 1<sup>st</sup> Avenue & Main Street  
Looking East**

Town of Kindersley  
Kindersley Traffic Study



**Photo 7 Main Street & Railway Avenue  
Looking South**



**Photo 8 – McEwen Drive Mid-Block  
Crossing Looking West**



**Photo 9 – West Road & Rutley Crescent  
Looking West**



**Photo 10 – Ditson Drive  
Looking North**



**Photo 11. – Railway Avenue & Ditson Drive  
Looking East**



**Photo 12 – Highway 7  
Small Truck Route Sign**



Town of Kindersley  
Kindersley Traffic Study



**Photo 13 – Main Street  
Truck Route Sign**



**Photo 14 – 4<sup>th</sup> Street  
Name Blade**



**Photo 15  
Catchbasin in Middle of Crosswalk**



**Photo 16 – Highway 7 & 21  
Faded Warning Sign**



**Photo 17 – 1<sup>st</sup> Street East  
School Zone Sign**



**Photo 18 – 3<sup>rd</sup> Street  
Pedestrian Corridor Sign**



# **B** **Appendix B – Traffic Counts**

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    HIGHWAY 7 & DITSON DRIVE

Date        JULY 20 2011

Observers    KB

time ending	FROM THE NORTH on DITSON DRIVE						FROM THE SOUTH on DITSON DRIVE						FROM THE EAST on HIGHWAY 7						FROM THE WEST on HIGHWAY 7					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	2	0	3	1	0	0	13	3	7	3	0	0	2	9	4	2	0	0	0	12	7	7	0	0
7:30	2	4	1	1	1	0	12	4	3	1	0	0	3	8	3	2	0	0	4	16	6	7	0	0
7:45	1	4	4	1	1	0	21	6	6	1	0	0	7	9	1	5	0	0	2	8	7	5	0	0
8:00	2	7	2	3	0	0	13	18	5	1	0	0	8	33	7	4	0	0	2	19	11	13	0	0
8:15	1	4	5	1	0	0	12	7	10	5	0	0	1	14	2	2	0	0	2	13	9	3	0	0
8:30	3	7	3	1	0	0	13	17	5	1	2	0	5	13	2	3	0	0	6	18	15	4	0	0
8:45	3	2	1	0	1	0	13	9	1	1	0	0	3	16	2	8	0	0	4	11	10	4	0	0
9:00	1	14	3	3	0	0	15	16	7	0	2	0	8	7	1	2	0	0	3	18	7	5	0	0
2 hr total	15	42	22	11	3	0	112	80	44	13	4	0	37	109	22	28	0	0	23	115	72	48	0	0
		79		14%				236		6%				168		17%				210		23%		
peak hour	7	22	14				59	48	26				21	69	12				12	58	42			
		43						133						102						112				
11:15	2	12	4	1	0	0	8	19	5	2	1	0	11	19	12	9	0	0	4	19	12	7	0	0
11:30	4	11	3	0	2	0	15	16	6	3	1	0	8	24	12	11	0	0	2	20	10	4	0	0
11:45	4	25	2	2	0	0	4	20	9	4	0	0	10	21	11	5	0	0	5	25	11	7	0	0
12:00	6	16	8	1	2	0	12	20	2	2	1	0	7	20	8	10	0	0	6	16	15	6	0	0
12:15	5	32	3	2	0	0	13	29	6	3	0	0	9	17	10	7	0	0	13	23	33	11	0	0
12:30	7	25	8	0	0	0	14	25	8	2	0	0	12	20	12	8	0	0	6	18	14	6	0	0
12:45	12	22	4	0	0	0	13	35	9	3	0	0	11	15	12	3	0	0	11	23	17	7	0	0
1:00	6	34	4	4	0	0	24	44	5	1	2	0	10	23	8	9	0	0	6	26	13	6	0	0
2 hr total	46	177	36	10	4	0	103	208	50	20	5	0	78	159	85	62	0	0	53	170	125	54	0	0
		259		4%				361		6%				322		19%				348		16%		
peak hour	30	113	19				64	133	28				42	75	42				36	90	77			
		162						225						159						203				
4:15	7	26	4	1	0	0	10	42	12	2	1	0	4	20	7	13	0	0	7	20	19	7	0	0
4:30	6	20	3	1	2	0	11	28	6	1	0	4	5	21	9	10	0	0	13	25	15	13	0	0
4:45	10	33	5	3	0	1	16	36	7	2	0	0	9	17	3	8	0	0	6	32	24	6	0	0
5:00	4	36	4	1	0	2	18	29	6	4	1	0	11	23	4	12	0	0	2	27	19	9	0	0
5:15	0	29	6	1	0	0	17	41	12	4	0	0	9	26	5	15	0	0	11	26	30	5	0	0
5:30	4	37	4	2	2	0	14	48	19	4	0	0	11	15	10	5	0	0	3	29	23	8	0	0
5:45	4	43	6	1	0	1	14	31	11	1	2	0	8	16	7	8	0	0	9	24	19	7	0	0
6:00	7	34	3	5	0	0	14	23	9	0	0	0	5	18	7	8	0	0	7	24	17	8	0	0
2 hr total	42	258	35	15	4	4	114	278	82	18	4	4	62	156	52	79	0	0	58	207	166	63	0	0
		335		4%				474		4%				270		29%				431		15%		
peak hour	18	135	19				65	154	44				40	81	22				22	114	96			
		172						263						143						232				
4 hour total	57	300	57				226	358	126				99	265	74				81	322	238			
		414						710						438						641				
2 direct L total	SB	414	45%				NB	710	53%				WB	438	46%				EB	641	54%			
	NB	513	55%				SB	637	47%				EB	505	54%				WB	548	46%			
		927						1347						943						1189				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 7 & 2nd Street

Date 22-Jul-11

Observers DW

time ending	FROM THE NORTH on 2nd Street						FROM THE SOUTH on 2nd Street						FROM THE EAST on Highway 7						FROM THE WEST on Highway 7					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	1	7	2	3	1	0	10	5	10	4	0	0	3	24	0	7	0	0	2	14	7	2	0	0
7:30	1	1	2	2	0	0	5	4	3	0	1	0	7	24	2	8	0	0	6	15	1	4	0	0
7:45	1	2	5	3	0	0	6	4	2	2	0	0	7	22	1	2	0	0	4	11	2	4	0	0
8:00	0	7	7	6	0	0	5	14	3	0	0	0	9	38	1	3	0	0	3	17	3	8	0	0
8:15	1	1	6	0	0	0	4	14	4	3	0	1	4	24	0	6	0	0	4	15	4	5	0	0
8:30	2	7	2	2	0	0	5	11	8	0	0	0	4	24	1	5	0	0	5	13	7	8	0	0
8:45	2	5	3	2	0	0	1	5	7	1	0	0	8	21	1	9	0	0	4	25	1	13	0	0
9:00	1	4	3	2	0	0	3	13	5	4	0	0	2	39	3	7	0	0	4	12	4	4	0	0
2 hr total	9	34	30	20	1	0	39	70	42	14	1	1	44	216	9	47	0	0	32	122	29	48	0	0
		73		27%				151		9%				269		17%				183		26%		
peak hour	5	20	18				15	44	22				25	107	3				16	70	15			
		43						81						135						101				
11:15	2	9	8	2	0	0	6	15	7	2	0	0	7	37	3	5	0	0	2	25	3	10	0	0
11:30	0	13	4	1	0	0	2	15	14	0	0	0	7	32	3	6	0	0	1	19	3	8	0	0
11:45	3	13	6	2	0	0	2	18	7	3	1	0	4	37	5	12	0	0	4	27	1	5	0	0
12:00	5	25	10	3	1	0	4	16	17	2	0	0	6	43	6	9	0	0	4	20	8	3	0	0
12:15	6	21	18	3	0	0	2	29	17	2	0	0	9	34	3	7	0	0	2	40	5	12	0	0
12:30	4	15	12	1	0	0	1	20	8	1	0	0	10	31	0	3	0	0	2	19	0	8	0	0
12:45	3	19	9	2	0	0	6	26	11	3	0	0	15	36	7	11	0	0	2	23	1	9	0	0
1:00	2	16	8	4	1	0	4	22	23	2	0	0	8	40	4	7	0	0	6	33	1	11	1	0
2 hr total	25	131	75	18	2	0	27	161	104	15	1	0	66	290	31	60	0	0	23	206	22	66	1	0
		231		8%				292		5%				387		16%				251		26%		
peak hour	15	71	47				13	97	59				42	141	14				12	115	7			
		133						169						197						134				
4:15	2	17	4	1	0	0	5	20	10	1	0	0	8	41	8	8	0	0	3	31	3	3	0	0
4:30	3	17	8	3	0	0	7	22	18	4	0	0	8	29	3	6	0	0	3	22	1	7	0	0
4:45	2	17	5	5	0	0	2	16	14	6	0	0	5	28	1	6	0	0	3	30	3	7	0	0
5:00	0	17	7	0	0	0	5	36	17	8	0	0	4	36	4	11	0	0	8	32	3	5	0	0
5:15	6	25	16	3	0	0	7	23	19	6	0	0	5	30	4	3	0	0	4	60	7	13	0	0
5:30	6	18	14	3	0	0	2	19	22	5	0	0	5	28	6	6	0	0	8	26	4	7	0	0
5:45	5	23	4	1	0	0	1	20	19	2	0	0	4	28	3	4	0	0	3	24	5	2	1	0
6:00	5	16	4	2	0	0	7	20	8	2	0	0	5	31	3	6	0	0	4	31	4	5	1	0
2 hr total	29	150	62	18	0	0	36	176	127	34	0	0	44	251	32	50	0	0	36	256	30	49	2	0
		241		7%				339		10%				327		15%				322		15%		
peak hour	17	83	41				15	98	77				18	122	17				23	142	19			
		141						190						157						184				
4 hour total	38	184	92				75	246	169				88	467	41				68	378	59			
		314						490						596						505				
2 direct L total	SB	314	47%				NB	490	60%				WB	596	50%				EB	505	44%			
	NB	355	53%				SB	331	40%				EB	585	50%				WB	634	56%			
		669						821						1181						1139				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location	Highway & & Main Street										Date		Observers												
	FROM THE NORTH on Main Street					FROM THE SOUTH on Main Street					FROM THE EAST on Highway 7					FROM THE WEST on Highway 7									
time ending	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	
7:15																									
7:30																									
7:45																									
8:00																									
8:15																									
8:30																									
8:45																									
9:00																									
2 hr total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0		#DIV/0!				0		#DIV/0!				0		#DIV/0!				0		#DIV/0!			
peak hour	0	0	0				0	0	0				0	0	0				0	0	0				
		0						0						0						0					
11:15																									
11:30																									
11:45																									
12:00																									
12:15																									
12:30																									
12:45																									
1:00																									
2 hr total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0		#DIV/0!				0		#DIV/0!				0		#DIV/0!				0		#DIV/0!			
peak hour	0	0	0				0	0	0				0	0	0				0	0	0				
		0						0						0						0					
4:15																									
4:30																									
4:45																									
5:00																									
5:15																									
5:30																									
5:45																									
6:00																									
2 hr total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0		#DIV/0!				0		#DIV/0!				0		#DIV/0!				0		#DIV/0!			
peak hour	0	0	0				0	0	0				0	0	0				0	0	0				
		0						0						0						0					
4 hour total	0	0	0				0	0	0				0	0	0				0	0	0				
		0						0						0						0					
2 direct L	SB	0	#DIV/0!				NB	0	#DIV/0!				WB	0	#DIV/0!				EB	0	#DIV/0!				
total	NB	0	#DIV/0!				SB	0	#DIV/0!				EB	0	#DIV/0!				WB	0	#DIV/0!				
		0						0						0						0					

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 7 & 10th Street

Date 22-Jul-11

Observers KB

time ending	FROM THE NORTH on 10th Street						FROM THE SOUTH on 10th Street						FROM THE EAST on Highway 7						FROM THE WEST on Highway 7					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	1	0	0	0	0	0	0	0	1	0	0	0	2	3	1	0	0	0	1	4	0	0	0	0
7:30	0	0	0	0	0	0	0	1	1	2	0	0	2	3	0	1	0	0	0	3	0	1	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0
8:00	0	1	0	0	0	0	1	0	0	1	0	0	2	3	0	1	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	1	0	1	1	1	0	4	3	0	0	0	0	0	2	2	1	0	0
8:30	0	1	0	0	0	0	0	3	0	0	0	0	2	6	0	0	0	0	0	2	0	0	0	0
8:45	0	0	0	0	0	0	0	4	0	2	0	0	2	2	0	1	0	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	2	0	0	0	1	0	0	0	0
2 hr total	1	2	0	0	0	0	2	8	3	6	1	0	17	23	1	5	0	0	1	13	2	2	0	0
		3		0%				13		46%				41		12%				16		13%		
peak hour	0	2	0				2	7	1				10	14	0				0	4	2			
		2						10						24						6				
11:15	0	0	0	0	0	0	0	1	1	1	0	0	2	6	0	0	0	0	0	0	2	0	0	0
11:30	1	1	0	0	0	0	0	0	1	0	0	0	1	2	1	0	0	0	0	2	0	0	0	0
11:45	0	0	0	0	0	0	0	1	1	1	1	0	3	4	0	1	0	0	0	1	0	0	0	0
12:00	0	1	0	0	0	0	1	2	0	1	0	0	1	6	0	1	0	0	0	3	0	0	0	0
12:15	0	0	0	0	0	0	1	3	4	0	0	0	0	1	1	0	0	0	0	6	0	0	0	0
12:30	0	0	0	0	0	0	3	3	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	1	0	0	0	3	1	1	0	0
1:00	3	0	0	3	0	0	0	0	1	0	0	0	1	2	0	0	0	0	0	3	1	1	0	0
2 hr total	4	2	0	3	0	0	5	10	8	4	1	0	9	27	2	3	0	0	0	20	4	2	0	0
		6		50%				23		17%				38		8%				24		8%		
peak hour	0	1	0				5	8	4				2	13	1				0	14	1			
		1						17						16						15				
4:15	0	1	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0
4:30	0	1	0	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0
4:45	0	1	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	5	0	0	0	0
5:00	0	1	0	0	0	0	0	1	2	0	0	0	1	3	0	1	0	0	0	1	0	1	0	0
5:15	0	0	0	0	0	0	1	6	1	0	0	0	2	5	1	0	0	0	0	4	0	0	0	0
5:30	2	0	0	1	0	0	1	2	0	1	0	0	1	0	0	0	0	0	0	3	0	0	0	0
5:45	0	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:00	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0
2 hr total	2	4	0	1	0	0	2	19	5	1	0	0	5	17	1	1	0	0	0	18	0	2	0	0
		6		17%				26		4%				23		4%				18		11%		
peak hour	2	2	0				2	11	4				4	11	1				0	13	0			
		4						17						16						13				
4 hour total	3	6	0				4	27	8				22	40	2				1	31	2			
		9						39						64						34				
2 direct L	SB	9	23%				NB	39	57%				WB	64	60%				EB	34	44%			
total	NB	30	77%				SB	30	43%				EB	42	40%				WB	44	56%			
		39						69						106						78				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 7 & 11th Street

Date 22-Jul-11

Observers KB

time ending	FROM THE NORTH on 11th Street						FROM THE SOUTH on 11th Street						FROM THE EAST on Highway 7						FROM THE WEST on Highway 7					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	3	0	0	0	0	0	2	0	1	0	0	1	2	1	0	0	0	2	1	3	1	0	0
7:30	0	3	1	1	0	0	0	5	0	1	0	0	0	2	1	0	0	0	1	4	2	2	0	0
7:45	1	1	1	0	0	0	0	2	0	0	0	0	0	0	2	1	0	0	1	3	1	3	0	0
8:00	0	6	1	1	0	0	0	1	0	0	0	0	0	4	0	1	0	0	0	0	1	1	0	0
8:15	1	7	2	3	0	0	0	2	0	1	0	0	2	2	1	1	0	0	1	3	0	0	0	0
8:30	0	4	1	2	0	0	0	8	0	1	0	0	2	5	0	0	0	0	2	2	1	1	0	0
8:45	0	5	1	0	0	0	0	3	0	1	0	0	1	1	1	1	0	0	3	1	1	2	0	0
9:00	0	1	3	1	0	0	1	2	0	2	0	0	1	1	1	0	0	0	1	0	0	1	0	0
2 hr total	2	30	10	8	0	0	1	25	0	7	0	0	7	17	7	4	0	0	11	14	9	11	0	0
		42		19%				26		27%				31		13%				34		32%		
peak hour	1	22	5				0	14	0				5	12	2				6	6	3			
		28						14						19						15				
11:15	2	6	2	2	0	0	0	2	1	0	0	0	1	4	2	0	0	0	1	0	0	1	0	0
11:30	1	5	1	3	0	0	1	2	0	2	0	0	1	1	0	0	0	0	2	1	0	0	0	0
11:45	0	5	0	1	0	0	1	2	2	1	0	0	1	2	0	0	0	0	2	2	0	1	0	0
12:00	0	7	2	3	0	0	0	4	0	1	0	0	2	4	1	1	0	0	0	1	0	0	0	0
12:15	0	2	1	2	0	0	1	13	2	1	0	0	0	0	1	0	0	0	0	3	1	0	0	0
12:30	1	4	0	1	0	0	1	4	0	3	0	0	1	2	1	0	0	0	0	0	0	0	0	0
12:45	1	3	0	1	0	0	0	2	0	0	0	0	3	1	1	1	0	0	0	3	0	1	0	0
1:00	1	3	0	1	0	0	0	3	0	0	0	0	0	2	1	1	0	0	0	4	0	1	0	0
2 hr total	6	35	6	14	0	0	4	32	5	8	0	0	9	16	7	3	0	0	5	14	1	4	0	0
		47		30%				41		20%				32		9%				20		20%		
peak hour	1	19	4				3	21	4				4	7	2				4	7	1			
		24						28						13						12				
4:15	0	2	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
4:30	2	1	1	0	0	0	2	4	0	0	0	0	0	3	0	0	0	0	0	1	3	0	0	0
4:45	0	4	0	0	0	0	0	6	0	0	0	0	2	1	1	0	0	0	2	4	1	1	0	0
5:00	0	5	0	1	0	0	0	2	0	1	0	0	1	0	1	1	0	0	2	2	0	1	0	0
5:15	1	3	0	1	0	0	0	2	0	0	0	0	1	2	0	0	0	0	1	2	0	0	0	0
5:30	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	2	0	0	0	0
5:45	0	2	0	1	0	0	0	3	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0
6:00	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0
2 hr total	4	17	1	3	0	0	4	21	0	1	0	0	5	9	2	2	0	0	7	13	4	3	0	0
		22		14%				25		4%				16		13%				24		13%		
peak hour	3	13	1				2	14	0				4	6	2				5	9	4			
		17						16						12						18				
4 hour total	6	47	11				5	46	0				12	26	9				18	27	13			
		64						51						47						58				
2 direct L total	SB	64	47%				NB	51	41%				WB	47	59%				EB	58	58%			
	NB	73	53%				SB	72	59%				EB	33	41%				WB	42	42%			
		137						123						80						100				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 7 & 15th Street

Date 22-Jul-11

Observers TI

time ending	FROM THE NORTH on 15th Street						FROM THE SOUTH on 15th Street						FROM THE EAST on Highway 7						FROM THE WEST on Highway 7					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	2	1	3	3	0	0	1	21	0	7	0	0	0	6	0	2	0	0
7:30	0	0	0	0	0	0	0	0	1	1	0	0	2	39	0	14	0	0	0	9	1	3	0	0
7:45	0	0	0	0	0	0	5	0	1	2	0	0	3	26	0	11	0	0	0	12	0	1	0	0
8:00	0	1	0	1	0	0	2	0	2	1	0	0	1	20	0	4	0	0	0	13	2	4	0	0
8:15	1	1	0	1	0	0	2	1	1	3	0	0	0	25	0	2	0	0	0	10	0	3	0	0
8:30	0	0	0	0	0	0	5	1	0	2	0	0	1	22	0	5	0	0	0	10	1	4	0	0
8:45	0	0	0	0	0	0	0	1	0	1	0	0	0	20	0	2	0	0	0	15	1	3	0	0
9:00	0	0	0	0	0	0	1	2	1	5	0	0	0	21	1	5	0	0	0	17	2	6	0	0
2 hr total	1	2	0	2	0	0	17	6	9	18	0	0	8	194	1	50	0	0	0	92	7	26	0	0
		3		67%				32		56%				203		25%				99		26%		
peak hour	1	2	0				9	1	5				6	110	0				0	44	3			
		3						15						116						47				
11:15	0	1	0	1	0	0	2	1	1	0	0	0	1	33	0	9	0	0	0	21	2	3	0	0
11:30	0	0	0	0	0	0	1	0	1	0	0	0	3	33	0	9	0	0	1	35	0	10	0	0
11:45	0	0	0	0	0	0	0	0	1	0	0	0	1	35	0	10	0	0	0	38	3	6	0	0
12:00	2	1	0	2	0	0	0	0	4	1	0	0	1	40	0	6	0	0	0	49	1	5	0	0
12:15	0	0	1	0	0	0	1	0	1	0	0	0	0	46	0	8	0	0	0	32	3	9	0	0
12:30	0	0	0	0	0	0	1	1	0	0	0	0	4	37	0	6	0	0	0	33	3	9	0	0
12:45	0	0	0	0	0	0	3	1	0	3	0	0	1	32	1	5	0	0	0	39	3	10	0	0
1:00	1	0	0	1	0	0	0	0	0	0	0	0	1	26	0	5	0	0	0	62	3	15	0	0
2 hr total	3	2	1	4	0	0	8	3	8	4	0	0	12	282	1	58	0	0	1	309	18	67	0	0
		6		67%				19		21%				295		20%				328		20%		
peak hour	2	1	1				5	2	5				6	155	1				0	153	10			
		4						12						162						163				
4:15	0	0	0	0	0	0	1	0	2	0	0	0	4	30	0	4	0	0	0	34	0	5	0	0
4:30	0	0	0	0	0	0	0	0	2	0	0	0	1	27	0	6	0	0	0	30	0	9	0	0
4:45	0	0	0	0	0	0	0	1	0	0	0	0	1	22	0	2	0	0	0	38	1	5	0	0
5:00	0	1	0	0	0	0	1	0	1	0	0	0	0	37	0	9	0	0	1	43	1	8	0	0
5:15	0	0	0	0	0	0	0	0	1	0	0	0	1	34	0	5	0	0	0	41	5	11	0	0
5:30	0	0	0	0	0	0	0	0	2	0	0	0	1	29	1	1	0	0	0	31	1	4	0	0
5:45	0	0	0	0	0	0	0	0	3	0	0	0	2	27	0	6	0	0	0	31	2	2	0	0
6:00	0	0	0	0	0	0	1	0	4	0	0	0	0	29	0	4	0	0	1	34	0	7	0	0
2 hr total	0	1	0	0	0	0	3	1	15	0	0	0	10	235	1	37	0	0	2	282	10	51	0	0
		1		0%				19		0%				246		15%				294		17%		
peak hour	0	1	0				1	0	7				4	127	1				1	146	9			
		1						8						132						156				
4 hour total	1	3	0				20	7	24				18	429	2				2	374	17			
		4						51						449						393				
2 direct L total	SB	4	27%				NB	51	57%				WB	449	53%				EB	393	47%			
	NB	11	73%				SB	38	43%				EB	399	47%				WB	449	53%			
		15						89						848						842				



INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 12th Ave (N Sevice Rd) & Ditson Dr

Date 20-Jul-11

Observers Ken

time ending	FROM THE NORTH on Ditson Dr						FROM THE SOUTH on Ditson Dr						FROM THE EAST on 12th Ave						FROM THE WEST on 12th Ave						
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	
7:15	0	6	0	0	0	0	2	6	0	1	0	0	0	1	0	0	0	0	0	2	1	2	1	0	0
7:30	0	4	0	0	1	0	3	6	1	0	0	0	2	0	0	0	0	0	0	1	0	5	1	0	0
7:45	0	5	0	1	1	0	3	6	0	0	0	0	2	0	0	0	0	0	0	2	1	3	1	0	0
8:00	1	12	1	1	0	0	13	13	0	1	0	0	1	3	1	0	0	0	0	3	0	3	1	0	0
8:15	0	4	0	0	0	0	5	5	1	1	0	0	2	1	0	0	0	0	0	3	0	6	1	0	0
8:30	0	9	0	0	0	0	12	14	1	1	2	0	0	0	0	0	0	0	0	0	0	4	1	0	0
8:45	0	6	0	0	1	0	8	7	0	1	0	0	1	0	0	0	0	0	0	2	1	2	0	0	0
9:00	0	6	1	1	0	0	5	16	0	1	2	0	2	0	0	0	0	0	0	2	0	8	2	0	0
2 hr total	1	52	2	3	3	0	51	73	3	6	4	0	10	5	1	0	0	0	0	15	3	33	8	0	0
		55		5%				127		5%				16		0%					51		16%		
peak hour	1	31	1				38	39	2				4	4	1					8	1	15			
		33						79						9							24				
11:15	2	12	1	1	0	0	11	25	1	3	1	0	0	1	0	1	0	0	0	1	1	7	1	0	0
11:30	0	10	1	0	1	0	15	18	0	1	2	0	0	1	0	0	0	0	0	2	2	9	2	0	0
11:45	0	25	1	0	0	0	10	23	4	2	0	0	0	0	0	0	0	0	0	1	0	11	1	0	0
12:00	0	21	2	1	0	0	13	16	0	2	3	0	0	2	0	0	0	0	0	5	1	8	0	0	0
12:15	0	26	1	2	0	0	20	38	0	3	0	0	0	0	0	0	0	0	0	6	0	21	0	0	0
12:30	0	23	4	0	0	0	18	25	2	2	0	0	2	0	0	0	0	0	0	4	0	13	0	0	0
12:45	0	27	0	1	0	0	26	31	1	4	0	0	2	0	0	0	0	0	0	3	0	12	0	0	0
1:00	1	29	1	2	0	0	30	28	3	3	2	0	2	1	0	0	0	0	0	1	0	18	3	0	0
2 hr total	3	173	11	7	1	0	143	204	11	20	8	0	6	5	0	1	0	0	0	23	4	99	7	0	0
		187		4%				358		6%				11		9%					126		6%		
peak hour	1	105	6				94	122	6				6	1	0					14	0	64			
		112						222						7							78				
4:15	6	30	0	0	0	0	16	25	1	3	1	0	0	0	4	0	0	0	0	0	0	10	1	0	0
4:30	0	22	1	0	2	0	25	26	1	1	0	4	2	0	1	1	0	0	0	2	1	13	3	0	0
4:45	1	32	0	1	0	1	13	31	2	0	0	0	0	0	0	0	0	0	0	0	2	21	3	0	0
5:00	0	28	1	1	0	2	19	19	0	4	1	0	2	0	0	0	0	0	0	2	0	18	0	0	0
5:15	0	19	2	1	0	0	24	36	2	4	0	0	0	2	0	0	0	0	0	3	1	22	0	0	0
5:30	1	40	1	1	2	0	22	36	1	7	0	0	0	2	0	1	0	0	0	1	0	19	1	0	0
5:45	0	31	2	0	0	1	16	26	2	5	2	0	0	3	0	0	0	0	0	5	0	25	1	0	0
6:00	0	18	3	1	0	0	14	23	2	1	0	0	3	2	0	0	0	0	0	4	0	19	4	0	0
2 hr total	8	220	10	5	4	4	149	222	11	25	4	4	7	9	5	2	0	0	0	17	4	147	13	0	0
		238		2%				382		7%				21		10%					168		8%		
peak hour	1	118	6				81	117	5				2	7	0					11	1	84			
		125						203						9							96				
4 hour total	9	272	12				200	295	14				17	14	6					32	7	180			
		293						509						37							219				
2 direct L total	SB	293	47%				NB	509	52%				WB	37	55%					EB	219	49%			
	NB	333	53%				SB	469	48%				EB	30	45%					WB	226	51%			
		626						978						67							445				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 12th Ave & 2nd Street

Date 19-Jul-11

Observers Twayla

time ending	FROM THE NORTH on 2nd Street						FROM THE SOUTH on 2nd Street						FROM THE EAST on 12th Ave						FROM THE WEST on 12 Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	1	1	1	0	0	0	0	0	4	1	0	0	3	5	1	1	0	0	0	7	1	2	0	0
7:30	1	0	0	0	0	0	3	1	4	1	1	0	2	3	0	2	0	0	2	6	1	3	0	0
7:45	0	1	1	1	0	0	0	3	3	1	0	0	13	8	0	3	0	0	0	1	1	1	0	0
8:00	1	2	0	1	0	0	4	4	12	3	0	0	7	10	0	2	0	0	0	4	0	1	0	0
8:15	0	1	0	0	0	0	3	0	7	2	0	0	9	4	1	1	0	0	1	7	1	1	0	0
8:30	0	0	0	0	0	0	0	2	16	0	1	0	4	9	0	4	0	0	0	10	0	0	0	0
8:45	1	3	0	1	0	0	4	3	21	1	0	0	12	17	1	5	1	0	2	6	4	2	0	0
9:00	1	3	2	2	0	0	2	4	10	2	1	0	8	10	1	2	0	0	0	13	2	1	0	0
2 hr total	5	11	4	5	0	0	16	17	77	11	3	0	58	66	4	20	1	0	5	54	10	11	0	0
		20		25%				110		10%				128		16%				69		16%		
peak hour	2	7	2				9	9	54				33	40	3				3	36	7			
		11						72						76						46				
11:15	0	0	0	0	1	0	4	1	10	2	0	0	5	20	0	3	0	0	1	21	1	0	0	0
11:30	0	1	0	0	0	0	0	1	9	1	0	0	9	27	0	3	1	0	0	11	3	2	0	0
11:45	0	2	0	0	0	0	8	4	16	6	0	0	15	27	0	6	0	0	2	14	7	2	0	0
12:00	0	2	0	0	0	0	7	3	6	2	0	0	9	19	0	4	0	0	2	16	7	5	0	0
12:15	2	2	0	1	1	0	2	0	6	1	0	0	12	38	1	4	0	0	2	16	8	1	0	0
12:30	1	4	0	2	1	0	3	4	18	4	2	0	24	27	0	6	0	0	1	15	6	2	1	0
12:45	0	0	0	2	1	0	4	3	10	1	1	0	18	21	0	7	0	0	0	18	6	4	0	0
1:00	0	4	2	0	1	0	4	3	16	0	0	0	16	21	0	3	0	0	1	23	2	3	1	0
2 hr total	3	15	2	5	5	0	32	19	91	17	3	0	108	200	1	36	1	0	9	134	40	19	2	0
		20		25%				142		12%				309		12%				183		10%		
peak hour	3	10	2				13	10	50				70	107	1				4	72	22			
		15						73						178						98				
4:15	0	1	1	1	0	0	5	1	13	2	0	0	13	24	0	3	0	0	1	12	8	2	0	0
4:30	0	4	1	0	0	0	8	8	11	1	0	2	11	25	0	1	0	1	2	18	7	2	0	0
4:45	1	5	3	0	0	3	2	4	8	3	0	0	15	20	0	2	0	0	2	19	8	2	0	0
5:00	0	0	0	0	0	0	5	3	14	1	1	0	16	20	0	3	0	0	3	15	3	2	0	0
5:15	0	0	4	1	0	0	9	3	22	1	0	0	13	39	0	2	0	0	3	24	14	4	0	0
5:30	0	8	1	1	3	0	8	2	14	0	0	0	18	36	2	5	2	0	1	17	8	5	0	0
5:45	0	1	1	0	0	0	6	0	10	0	0	0	14	26	0	3	0	0	2	15	11	1	0	0
6:00	0	5	2	0	0	0	10	2	11	1	0	0	11	30	1	2	0	0	5	6	10	2	0	0
2 hr total	1	24	13	3	3	3	53	23	103	9	1	2	111	220	3	21	2	1	19	126	69	20	0	0
		38		8%				179		5%				334		6%				214		9%		
peak hour	0	14	8				33	7	57				56	131	3				11	62	43			
		22						97						190						116				
4 hour total	6	35	17				69	40	180				169	286	7				24	180	79			
		58						289						462						283				
2 direct L total	SB	58	45%				NB	289	51%				WB	462	56%				EB	283	43%			
	NB	71	55%				SB	283	49%				EB	366	44%				WB	372	57%			
		129						572						828						655				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 12th Ave & Main Street

Date 19-Jul-11

Observers BF

time ending	FROM THE NORTH on						FROM THE SOUTH on						FROM THE EAST on						FROM THE WEST on					
	Main Street						Main Street						12th Ave						12th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	2	0	4	0	0	0	3	0	0	0	0	0	0	2	5	1	0	0
7:30	0	0	0	0	0	0	1	0	2	1	0	0	2	3	0	3	0	0	0	6	1	2	0	0
7:45	0	0	0	0	0	0	2	0	1	0	0	0	4	6	0	0	2	0	0	2	2	2	0	0
8:00	0	0	0	0	0	0	7	0	2	0	0	0	4	9	0	2	0	0	0	1	10	0	0	0
8:15	0	0	0	0	0	0	5	0	2	0	0	0	3	3	0	1	0	0	0	6	0	1	0	0
8:30	0	0	0	0	0	0	6	0	7	0	0	0	4	6	0	3	1	0	0	6	10	0	0	0
8:45	0	0	1	0	0	0	8	0	3	0	0	0	5	10	0	3	0	0	0	8	5	1	0	0
9:00	0	0	1	0	0	0	3	0	9	1	0	0	2	11	0	2	0	0	0	8	3	3	0	0
2 hr total	0	0	2	0	0	0	34	0	30	2	0	0	27	48	0	14	3	0	0	39	36	10	0	0
	2		0%				64		3%				75		19%				75		13%			
peak hour	0	0	2				22	0	21				14	30	0				0	28	18			
	2						43						44						46					
11:15	0	0	0	0	0	0	7	0	12	0	0	0	15	17	0	6	0	0	0	15	3	1	0	0
11:30	0	0	0	0	3	0	4	0	13	1	0	0	18	8	0	1	0	0	0	7	7	0	0	0
11:45	0	0	0	0	0	0	8	0	14	1	0	0	18	7	0	1	0	0	0	5	6	1	0	0
12:00	0	1	0	0	0	0	12	0	22	2	0	0	14	14	0	9	0	0	0	13	10	3	1	0
12:15	0	0	0	0	1	0	6	0	19	1	1	0	23	15	0	3	1	0	1	13	7	2	0	0
12:30	0	0	0	0	2	0	5	0	13	2	0	0	19	19	0	7	0	0	0	10	7	1	0	0
12:45	0	1	0	0	3	0	3	0	10	1	0	0	18	13	0	3	0	0	0	12	6	3	2	0
1:00	0	0	0	0	3	0	11	0	18	0	0	0	22	17	0	1	1	0	0	9	7	1	0	0
2 hr total	0	2	0	0	12	0	56	0	121	8	1	0	147	110	0	31	2	0	1	84	53	12	3	0
	2		0%				177		5%				257		12%				138		9%			
peak hour	0	2	0				26	0	64				74	61	0				1	48	30			
	2						90						135						79					
4:15	0	0	0	0	1	0	1	0	14	0	0	0	22	19	0	6	0	0	0	10	5	1	1	0
4:30	0	0	0	0	1	0	7	0	18	2	0	0	14	15	0	1	0	0	0	10	3	1	1	0
4:45	0	0	0	0	0	1	2	0	10	0	0	0	16	14	0	1	0	0	0	18	8	1	0	1
5:00	0	0	0	0	0	0	2	0	8	0	0	0	14	13	0	2	0	0	0	18	7	1	0	0
5:15	0	0	0	0	0	0	13	0	11	0	0	0	24	21	0	2	0	0	0	20	12	1	0	0
5:30	0	0	0	0	0	0	3	0	11	2	1	0	25	17	0	1	0	0	0	18	11	4	0	0
5:45	0	0	0	0	2	0	2	0	16	2	0	0	24	11	0	2	0	0	1	9	6	2	0	0
6:00	0	0	0	0	0	0	1	0	16	0	0	0	21	22	0	0	0	0	0	8	3	2	3	0
2 hr total	0	0	0	0	4	1	31	0	104	6	1	0	160	132	0	15	0	0	1	111	55	13	5	1
	0		#DIV/0!				135		4%				292		5%				167		8%			
peak hour	0	0	0				19	0	54				94	71	0				1	55	32			
	0						73						165						88					
4 hour total	0	0	2				65	0	134				187	180	0				1	150	91			
	2						199						367						242					
2 direct L total	SB	2	67%				NB	199	42%				WB	367	56%				EB	242	49%			
	NB	1	33%				SB	278	58%				EB	284	44%				WB	247	51%			
	3						477						651						489					

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 12th Ave & Highway 21

Date 20-Jul-11

Observers MS

time ending	FROM THE NORTH on Highway 21						FROM THE SOUTH on Highway 21						FROM THE EAST on 12th Ave						FROM THE WEST on 12th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	5	15	1	2	0	0	2	10	3	2	0	0	1	0	0	0	0	0	0	0	3	0	0	0
8:00	6	26	3	3	0	0	5	17	2	4	0	0	2	2	0	0	0	0	0	0	1	0	0	0
8:15	5	26	1	2	0	0	5	13	2	2	0	0	0	3	0	0	0	0	0	1	2	0	0	0
8:30	9	27	2	1	0	0	10	9	7	5	0	0	2	1	0	0	0	0	1	2	4	2	1	0
8:45	6	16	0	2	0	0	6	13	6	2	0	0	2	3	2	0	0	0	1	1	3	0	0	0
9:00	2	25	3	2	0	0	7	20	9	3	0	0	4	3	2	0	0	0	2	1	3	0	0	0
2 hr total	33	135	10	12	0	0	35	82	29	18	0	0	11	12	4	0	0	0	4	5	16	2	1	0
		178		7%				146		12%				27		0%				25		8%		
peak hour	22	94	6				28	55	24				8	10	4				4	5	12			
		122						107						22						21				
11:15	7	25	2	6	0	0	8	14	7	5	0	0	7	4	4	2	0	0	3	2	7	4	0	0
11:30	3	14	1	1	0	0	9	19	9	4	0	0	1	0	3	1	0	0	2	3	5	2	0	0
11:45	5	24	2	5	0	0	4	23	5	6	0	0	6	2	1	0	0	0	0	1	4	1	0	0
12:00	7	21	0	4	0	0	12	13	8	7	0	0	10	4	0	0	0	0	0	7	10	2	0	0
12:15	12	30	1	7	0	0	11	18	15	7	0	0	12	7	4	3	0	0	1	8	8	5	0	0
12:30	7	11	4	5	0	0	2	17	4	2	0	0	11	8	5	3	0	0	1	4	6	4	0	0
12:45	7	30	3	2	0	0	8	14	5	2	0	0	2	0	4	1	0	0	0	1	3	1	0	0
1:00	6	24	0	5	0	0	13	17	7	5	0	0	8	6	9	1	0	0	3	2	4	0	0	0
2 hr total	54	179	13	35	0	0	67	135	60	38	0	0	57	31	30	11	0	0	10	28	47	19	0	0
		246		14%				262		15%				118		9%				85		22%		
peak hour	32	95	8				34	66	31				33	21	22				5	15	21			
		135						131						76						41				
4:15	6	33	5	3	0	0	5	13	8	2	0	0	6	5	7	0	0	0	4	4	5	0	0	0
4:30	7	27	1	6	0	0	7	28	4	7	0	0	8	3	5	0	0	0	1	5	9	1	0	0
4:45	4	25	1	3	0	0	11	23	8	11	0	0	5	11	11	2	0	0	0	1	4	0	0	0
5:00	4	32	0	4	0	0	8	26	9	3	0	0	5	4	8	2	0	0	1	1	7	0	0	0
5:15	6	21	3	6	0	0	9	37	6	7	0	0	5	3	10	1	0	0	3	2	12	2	0	0
5:30	7	20	4	4	0	0	9	23	11	5	0	0	7	2	8	1	0	0	0	0	8	2	0	0
5:45	7	21	3	5	0	0	4	20	6	6	0	0	6	2	10	0	0	0	2	1	10	1	0	0
6:00	9	19	0	4	0	0	1	21	1	4	0	0	6	2	10	1	0	0	3	0	5	2	0	0
2 hr total	50	198	17	35	0	0	54	191	53	45	0	0	48	32	69	7	0	0	14	14	60	8	0	0
		265		13%				298		15%				149		5%				88		9%		
peak hour	21	105	5				35	114	27				23	21	34				5	9	32			
		131						176						78						46				
4 hour total	83	333	27				89	273	82				59	44	73				18	19	76			
		443						444						176						113				
2 direct L total	SB	443	55%				NB	444	49%				WB	176	49%				EB	113	41%			
	NB	364	45%				SB	468	51%				EB	184	51%				WB	160	59%			
		807						912						360						273				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 11th Ave & 2nd Street

Date 19-Jul-11

Observers DW

time ending	FROM THE NORTH on 2nd Street						FROM THE SOUTH on 2nd Street						FROM THE EAST on 11th Ave						FROM THE WEST on 11th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	5	8	3	0	0	6	10	2	2	0	0	3	17	7	3	0	0	4	10	5	1	0	0
7:30	1	6	1	0	0	0	8	8	2	1	0	0	2	17	3	1	0	0	11	9	7	4	0	0
7:45	0	9	6	4	0	0	12	6	2	2	0	0	1	15	1	0	0	0	6	7	10	4	0	0
8:00	4	7	8	6	0	0	13	13	3	3	0	0	4	13	2	2	0	0	12	15	9	2	0	0
8:15	3	6	3	2	0	0	8	6	3	0	0	0	0	18	6	3	0	0	7	9	7	3	0	0
8:30	1	5	1	0	0	0	5	9	1	0	0	0	0	18	3	1	0	0	8	10	14	0	0	0
8:45	0	11	9	2	0	0	6	7	4	2	0	0	0	9	3	3	0	0	14	11	5	3	0	0
9:00	0	6	3	0	0	0	7	9	3	0	0	0	2	20	1	1	0	0	4	11	18	3	0	0
2 hr total	9	55	39	17	0	0	65	68	20	10	0	0	12	127	26	14	0	0	66	82	75	20	0	0
		103		17%				153		7%				165		8%				223		9%		
peak hour	8	29	21				32	35	11				4	58	14				41	45	35			
		58						78						76						121				
11:15	1	6	6	2	0	0	1	9	4	2	0	0	2	12	2	2	0	0	10	17	7	2	0	0
11:30	1	10	3	1	0	0	3	9	4	1	0	0	4	9	1	1	0	0	10	13	7	1	0	0
11:45	3	15	4	3	0	0	9	9	2	1	0	0	3	11	6	2	0	0	11	9	2	1	0	0
12:00	4	11	5	2	0	0	2	12	3	0	0	0	3	8	1	3	0	0	7	9	8	0	0	0
12:15	1	14	10	2	0	0	4	10	4	1	0	0	5	12	3	2	0	0	11	16	10	1	0	0
12:30	2	10	4	0	0	0	9	7	1	0	0	0	1	13	3	4	0	0	15	20	9	1	0	0
12:45	2	11	10	0	0	0	4	11	2	0	0	0	2	13	2	0	0	0	13	11	8	2	0	0
1:00	1	15	2	2	0	0	2	14	5	1	0	0	4	21	4	2	0	0	12	16	11	2	0	0
2 hr total	15	92	44	12	0	0	34	81	25	6	0	0	24	99	22	16	0	0	89	111	62	10	0	0
		151		8%				140		4%				145		11%				262		4%		
peak hour	6	50	26				19	42	12				12	59	12				51	63	38			
		82						73						83						152				
4:15	3	10	11	1	0	0	11	16	2	0	0	0	4	9	4	4	0	0	11	15	7	4	0	0
4:30	2	16	4	0	0	0	7	11	2	0	0	0	5	9	4	4	0	0	12	21	8	1	0	0
4:45	3	16	6	1	0	0	2	5	4	0	0	0	3	18	2	1	0	0	7	19	9	1	0	0
5:00	2	14	10	4	0	0	6	6	5	1	0	0	7	14	7	1	0	0	6	18	10	2	0	0
5:15	1	14	9	1	0	0	12	15	3	0	0	0	5	15	2	0	0	0	11	15	5	1	0	0
5:30	3	24	6	0	0	0	4	17	2	1	0	0	2	18	1	1	0	0	16	14	7	1	0	0
5:45	5	23	2	2	0	0	9	15	8	1	0	0	2	14	2	0	0	0	9	17	8	3	0	0
6:00	6	14	3	2	0	0	4	10	4	3	0	0	3	16	4	0	0	0	5	8	6	0	0	0
2 hr total	25	131	51	11	0	0	55	95	30	6	0	0	31	113	26	11	0	0	77	127	60	13	0	0
		207		5%				180		3%				170		6%				264		5%		
peak hour	11	75	27				31	53	18				16	61	12				42	64	30			
		113						102						89						136				
4 hour total	34	186	90				120	163	50				43	240	52				143	209	135			
		310						333						335						487				
2 direct L total	SB	310	46%				NB	333	48%				WB	335	53%				EB	487	52%			
	NB	358	54%				SB	364	52%				EB	293	47%				WB	450	48%			
		668						697						628						937				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 11th Ave & 3rd Sreet

Date 19-Jul-11

Observers LM

time ending	FROM THE NORTH on 3rd Street						FROM THE SOUTH on 3rd Street						FROM THE EAST on 11th Ave						FROM THE WEST on 11th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	2	0	0	0	2	0	0	12	0	1	0	0	1	8	0	1	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	19	1	1	0	0	0	19	2	2	0	1
8:15	0	0	0	0	0	0	2	0	0	0	0	0	0	19	0	2	0	1	0	11	1	2	0	0
8:30	0	0	0	0	0	0	1	0	1	0	1	0	1	20	0	1	0	0	0	11	2	0	0	0
8:45	0	0	0	0	0	0	2	0	2	2	0	0	0	10	0	0	0	0	0	12	1	2	0	1
9:00	0	0	0	0	0	0	0	0	1	0	0	0	0	20	0	0	0	0	0	15	0	0	0	0
2 hr total	0	0	0	0	0	0	7	0	4	2	3	0	1	100	1	5	0	1	1	76	6	7	0	2
	0 #DIV/0!						11 18%						102 5%						83 8%					
peak hour	0	0	0				5	0	3				1	68	1				0	53	6			
	0						8						70						59					
11:15	0	0	0	0	0	0	0	0	2	0	0	0	0	13	0	0	0	0	0	21	0	4	0	0
11:30	0	0	0	0	0	0	0	0	2	0	0	0	3	20	0	4	0	0	0	17	1	0	0	0
11:45	0	0	0	0	0	0	3	0	0	0	1	0	1	15	0	1	0	0	0	14	1	2	1	0
12:00	0	0	0	0	0	0	1	0	0	0	0	0	3	16	0	2	0	0	0	14	4	2	0	0
12:15	0	0	0	0	0	0	0	0	1	1	0	0	0	19	0	3	0	0	0	21	1	3	0	0
12:30	0	0	0	0	0	0	0	0	1	0	0	0	0	11	0	2	0	1	0	23	0	0	0	0
12:45	0	0	0	0	0	0	2	0	3	1	1	0	1	20	0	2	0	0	0	14	1	1	0	0
1:00	0	0	0	0	0	0	2	0	0	0	1	0	1	29	0	4	0	0	0	25	0	2	0	0
2 hr total	0	0	0	0	0	0	8	0	9	2	3	0	9	143	0	18	0	1	0	149	8	14	1	0
	0 #DIV/0!						17 12%						152 12%						157 9%					
peak hour	0	0	0				4	0	5				2	79	0				0	83	2			
	0						9						81						85					
4:15	0	0	0	0	0	0	2	0	3	1	0	0	0	13	0	2	0	0	0	17	3	2	0	0
4:30	0	0	0	0	0	0	0	0	3	0	4	0	1	17	0	3	0	0	1	26	1	1	0	0
4:45	0	0	0	0	0	0	1	0	3	2	0	0	1	23	0	3	0	0	1	23	1	0	0	0
5:00	0	0	0	0	0	0	4	0	2	0	0	0	0	24	0	1	0	0	1	22	1	2	0	0
5:15	0	0	0	0	0	0	2	0	1	0	4	0	0	27	0	0	0	1	0	19	0	4	2	0
5:30	0	0	0	0	0	0	3	0	6	0	0	0	2	20	0	1	0	3	0	18	2	0	0	0
5:45	0	0	0	0	0	0	0	0	1	0	1	0	1	18	0	0	0	0	0	30	2	4	0	0
6:00	0	0	0	0	0	0	1	0	0	0	5	0	2	24	1	3	0	0	0	17	2	1	1	0
2 hr total	0	0	0	0	0	0	13	0	19	3	14	0	7	166	1	13	0	4	3	172	12	14	3	0
	0 #DIV/0!						32 9%						174 7%						187 7%					
peak hour	0	0	0				10	0	12				3	94	0				2	82	4			
	0						22						97						88					
4 hour total	0	0	0				20	0	23				8	266	2				4	248	18			
	0						43						276						270					
2 direct L total	SB	0	0%				NB	43	62%				WB	276	50%				EB	270	49%			
	NB	6	100%				SB	26	38%				EB	271	50%				WB	286	51%			
	6						69						547						556					

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 11th Ave & Main Street

Date 19-Jul-05

Observers MS

time ending	FROM THE NORTH on Main Street						FROM THE SOUTH on Main Street						FROM THE EAST on 11 Ave						FROM THE WEST on 11 Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	5	4	5	2	0	0	2	7	3	1	0	0	2	14	12	5	0	0	3	7	1	2	0	0
7:30	6	2	9	3	0	0	3	9	8	1	0	0	7	23	17	5	0	0	3	17	3	1	0	0
7:45	4	20	10	2	2	0	4	14	2	5	0	0	5	9	12	2	0	0	9	7	8	1	0	0
8:00	4	18	13	3	0	0	2	13	9	0	0	0	1	11	7	0	0	0	12	18	4	0	0	0
8:15	9	6	8	6	0	0	5	5	14	1	1	0	7	18	10	2	0	0	4	11	9	4	0	0
8:30	4	10	9	1	0	0	8	16	7	4	0	0	4	11	7	2	0	0	3	11	6	3	0	0
8:45	6	12	5	2	0	0	4	13	8	1	1	0	14	11	6	5	0	0	6	14	7	4	0	0
9:00	8	18	6	5	0	0	2	10	8	0	0	0	8	9	4	1	0	0	6	10	6	1	0	0
2 hr total	46	90	65	24	2	0	30	87	59	13	2	0	48	106	75	22	0	0	46	95	44	16	0	0
		201		12%				176		7%				229		10%				185		9%		
peak hour	23	46	40				14	41	33				20	61	46				28	53	24			
		109						88						127						105				
11:15	6	19	1	0	0	0	5	12	6	0	0	0	9	3	1	1	0	0	4	5	6	1	0	0
11:30	4	25	8	5	0	0	5	23	8	4	0	0	7	4	1	1	0	0	5	9	4	1	0	0
11:45	0	27	6	1	0	0	10	11	8	1	0	0	9	5	4	0	0	0	3	9	7	1	0	0
12:00	6	24	5	2	0	0	6	23	5	2	2	0	5	3	0	0	0	0	9	11	7	2	0	0
12:15	14	34	8	0	0	0	5	23	14	4	0	0	6	7	10	1	0	0	1	10	9	2	0	0
12:30	8	20	6	1	0	0	3	13	12	0	2	0	6	13	5	2	0	0	5	10	7	0	0	0
12:45	10	23	4	3	0	0	2	16	16	2	0	0	7	11	7	1	0	0	8	5	8	1	0	0
1:00	6	36	15	3	0	0	11	31	16	2	2	0	5	17	7	3	0	0	8	13	9	3	0	0
2 hr total	54	208	53	15	0	0	47	152	85	15	6	0	54	63	35	9	0	0	43	72	57	11	0	0
		315		5%				284		5%				152		6%				172		6%		
peak hour	38	113	33				21	83	58				24	48	29				22	38	33			
		184						162						101						93				
4:15	6	26	2	1	0	0	5	24	15	4	2	0	5	12	3	1	0	0	2	11	10	3	0	0
4:30	9	21	5	2	0	0	6	23	10	4	2	0	8	7	6	1	2	0	4	9	5	1	0	0
4:45	3	28	2	1	0	0	5	17	14	0	1	0	3	9	2	0	1	0	5	14	4	4	0	0
5:00	4	38	4	2	0	0	12	14	7	3	0	0	7	11	2	0	0	0	2	12	7	0	0	0
5:15	5	55	2	0	0	0	6	32	9	1	0	0	1	9	6	2	0	0	4	13	5	1	0	0
5:30	13	31	4	2	0	0	8	13	11	0	0	0	5	13	4	1	0	0	2	9	10	0	0	0
5:45	7	19	7	0	0	0	8	18	10	1	0	0	12	6	2	0	0	0	2	6	3	1	0	0
6:00	7	17	9	1	0	0	2	8	7	1	0	0	7	9	7	0	0	0	6	11	2	0	0	0
2 hr total	54	235	35	9	0	0	52	149	83	14	5	0	48	76	32	5	3	0	27	85	46	10	0	0
		324		3%				284		5%				156		3%				158		6%		
peak hour	25	152	12				31	76	41				16	42	14				13	48	26			
		189						148						72						87				
4 hour total	100	325	100				82	236	142				96	182	107				73	180	90			
		525						460						385						343				
2 direct L total	SB	525	56%				NB	460	47%				WB	385	48%				EB	343	49%			
	NB	416	44%				SB	511	53%				EB	422	52%				WB	364	51%			
		941						971						807						707				



INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 11th Ave & 1st Street West

Date July 19,2011

Observers KB

time ending	FROM THE NORTH on 1st Street						FROM THE SOUTH on 1st Street						FROM THE EAST on 11th Ave						FROM THE WEST on 11t Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	4	19	0	2	0	0	0	12	0	1	0	0
8:00	0	0	0	0	0	0	9	0	1	0	0	0	7	8	0	1	0	4	0	11	1	0	0	0
8:15	0	0	0	0	0	0	6	0	7	0	0	0	3	28	0	4	0	0	0	19	4	1	0	0
8:30	0	0	0	0	0	0	10	0	7	0	0	0	5	14	0	3	0	0	0	19	8	5	0	0
8:45	0	0	0	0	0	0	5	0	10	4	0	0	0	15	0	5	0	0	0	23	2	2	0	0
9:00	0	0	0	0	0	0	2	0	10	1	0	0	6	13	0	4	0	0	0	15	2	1	0	0
2 hr total	0	0	0	0	0	0	32	0	35	5	0	0	25	97	0	19	0	4	0	99	17	10	0	0
	0 #DIV/0!						67 7%						122 16%						116 9%					
peak hour	0	0	0				30	0	25				15	65	0				0	72	15			
	0						55						80						87					
11:15	0	0	0	0	0	0	6	0	4	2	0	0	2	10	0	1	1	0	0	13	2	1	1	0
11:30	0	0	0	0	0	0	8	0	7	0	0	0	4	18	0	3	0	0	0	20	1	1	0	0
11:45	0	0	0	0	0	0	2	0	7	0	0	0	3	16	0	1	1	0	0	20	0	3	2	0
12:00	0	0	0	0	0	0	13	0	8	0	0	0	2	6	0	1	2	0	0	19	3	0	2	0
12:15	0	0	0	0	0	0	4	0	10	1	0	0	4	9	0	0	0	0	0	27	13	1	0	0
12:30	0	0	0	0	0	0	10	0	7	0	0	0	2	19	0	1	0	0	0	25	3	1	0	0
12:45	0	0	0	0	0	0	7	0	10	1	0	0	3	15	0	2	1	0	0	20	4	2	1	0
1:00	0	0	0	0	0	0	13	0	8	0	0	0	5	25	0	2	0	0	0	22	2	2	1	0
2 hr total	0	0	0	0	0	0	63	0	61	4	0	0	25	118	0	11	5	0	0	166	28	11	7	0
	0 #DIV/0!						124 3%						143 8%						194 6%					
peak hour	0	0	0				34	0	35				14	68	0				0	94	22			
	0						69						82						116					
4:15	0	0	0	0	0	0	4	0	5	0	0	0	6	18	0	4	0	0	0	25	0	1	0	0
4:30	0	0	0	0	0	0	4	0	3	0	0	0	8	18	0	5	0	0	0	25	8	6	0	0
4:45	0	0	0	0	0	0	5	0	8	0	1	0	2	16	0	2	0	0	0	19	2	5	0	0
5:00	0	0	0	0	0	0	10	0	7	0	0	0	3	22	0	2	0	0	0	28	11	2	0	0
5:15	0	0	0	0	0	0	1	0	10	0	1	0	6	24	0	4	0	1	0	37	8	0	0	0
5:30	0	0	0	0	0	0	6	0	2	0	0	0	0	24	0	2	0	0	0	23	3	2	0	0
5:45	0	0	0	0	0	0	7	0	8	0	0	0	3	17	0	2	0	0	0	15	6	0	0	0
6:00	0	0	0	0	0	0	6	0	8	0	0	0	7	11	0	2	0	0	0	18	2	1	1	0
2 hr total	0	0	0	0	0	0	43	0	51	0	2	0	35	150	0	23	0	1	0	190	40	17	1	0
	0 #DIV/0!						94 0%						185 12%						230 7%					
peak hour	0	0	0				20	0	28				19	80	0				0	109	29			
	0						48						99						138					
4 hour total	0	0	0				75	0	86				60	247	0				0	289	57			
	0						161						307						346					
2 direct L total	SB	0	#DIV/0!				NB	161	58%				WB	307	45%				EB	346	52%			
	NB	0	#DIV/0!				SB	117	42%				EB	375	55%				WB	322	48%			
	0						278						682						668					

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 11th Ave & Highway 21

Date 22-Jul-11

Observers Tom

time ending	FROM THE NORTH on Highway 21						FROM THE SOUTH on Highway 21						FROM THE EAST on 11h Ave						FROM THE WEST on 11th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	9	5	0	2	0	0	1	17	5	3	0	0	9	2	23	2	0	0	0	0	1	0	0	0
7:30	8	7	0	0	0	0		15	3	5	0	0	11	8	18	1	0	0	0	3	0	0	0	0
7:45	8	10	5	4	0	0	1	12	9	2	0	0	17	6	20	3	0	0	0	2	0	0	0	0
8:00	11	18	4	6	0	0	3	17	12	2	0	0	13	14	26	2	0	0	0	4	0	1	0	0
8:15	8	11	1	6	0	0	1	20	10	10	0	0	15	10	15	4	0	0	3	0	0	0	0	0
8:30	5	17	2	5	0	0		15	7	8	0	0	8	3	25	3	0	0	0	1	0	0	0	0
8:45	9	10	2	5	0	0	1	18	8	5	0	0	3	10	23	1	0	0	0	1	0	1	0	0
9:00	13	20	1	5	0	0	1	23	7	5	0	0	10	9	15	2	0	0	0	2	0	0	0	0
2 hr total	71	98	15	33	0	0	8	137	61	40	0	0	86	62	165	18	0	0	3	13	1	2	0	0
		184		18%				206		19%				313		6%				17		12%		
peak hour	32	56	12				5	64	38				53	33	86				3	7	0			
		100						107						172						10				
11:15	11	50	3	3	0	0	3	32	24	4	0	0	5	29	8	5	0	0	3	27	5	3	0	0
11:30	33	85	12	11	0	0	7	58	23	6	0	0	11	27	15	2	1	0	5	34	14	0	1	0
11:45	6	75	15	23	0	0	2	54	23	7	0	0	5	15	2	3	0	0	7	32	3	8	0	0
12:00	11	31	8	5	0	0	1	27	21	0	0	0	2	10	11	0	0	0	5	13	3	0	0	0
12:15	7	19	8	8	0	0	1	26	19	4	0	0	0	0	0	0	0	0	0	5	3	1	0	0
12:30	10	48	6	13	0	0	4	28	18	9	0	0	3	6	10	0	0	0	3	10	5	1	0	0
12:45	14	28	4	13	0	0	7	36	9	14	0	1	2	14	4	0	0	0	6	16	1	4	0	0
1:00	10	64	4	8	0	0	4	50	24	5	0	0	10	4	8	0	0	0	2	13	4	1	0	0
2 hr total	102	400	60	84	0	0	29	311	161	49	0	1	38	105	58	10	1	0	31	150	38	18	1	0
		562		15%				501		10%				201		5%				219		8%		
peak hour	61	241	38				13	171	91				23	81	36				20	106	25			
		340						275						140						151				
4:15	13	30	6	8	0	0	1	19	7	1	0	0	10	2	14	1	0	0	9	6	3	0	0	0
4:30	13	27	1	2	0	0	0	16	15	1	0	0	7	2	16	0	0	0	6	4	2	2	0	0
4:45	10	26	1	8	0	0	1	13	13	4	0	0	9	3	15	1	0	0	4	3	0	2	0	0
5:00	13	48	2	12	0	0	1	24	15	3	0	0	15	2	21	3	0	0	6	3	1	1	0	0
5:15	24	27	3	5	0	0	3	38	16	1	0	0	4	2	21	1	0	0	2	4	2	0	0	0
5:30	10	23	0	3	0	0	2	22	8	7	0	0	7	0	17	0	0	0	3	3	6	0	0	0
5:45	9	16	1	5	0	0	2	16	12	1	0	0	8	0	16	0	0	0	1	2	2	0	0	0
6:00	9	13	1	3	0	0	1	12	16	3	0	0	9	3	20	2	0	0	4	1	2	0	0	0
2 hr total	101	210	15	46	0	0	11	160	102	21	0	0	69	14	140	8	0	0	35	26	18	5	0	0
		326		14%				273		8%				223		4%				79		6%		
peak hour	60	128	7				5	91	59				35	9	73				18	14	5			
		195						155						117						37				
4 hour total	172	308	30				19	297	163				155	76	305				38	39	19			
		510						479						536						96				
2 direct L total	SB	510	44%				NB	479	50%				WB	536	59%				EB	96	43%			
	NB	640	56%				SB	482	50%				EB	374	41%				WB	125	57%			
		1150						961						910						221				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Main Street & 6th

Date 21-Jul-11

Observers BF

time ending	FROM THE NORTH on Main Street						FROM THE SOUTH on Main Street						FROM THE EAST on 6th Ave						FROM THE WEST on 6th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	2	9	0	4	0	0	0	10	0	2	0	0	0	1	1	0	0	0	0	0	1	0	0	0
7:30	1	6	0	0	0	0	0	9	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3	0
7:45	1	22	0	2	0	0	0	17	0	1	0	0	1	0	2	0	0	0	3	0	0	0	2	0
8:00	2	22	2	1	0	0	0	19	0	1	1	0	0	0	2	0	0	0	5	0	2	0	1	1
8:15	3	10	2	1	1	0	1	18	0	3	2	0	0	0	3	0	0	0	3	0	1	0	0	0
8:30	0	19	0	3	0	0	0	18	0	0	0	0	0	0	2	0	0	0	0	1	2	0	0	0
8:45	2	23	0	1	0	0	0	22	2	2	0	1	0	0	3	0	3	0	3	0	0	0	0	0
9:00	1	33	1	0	0	0	0	20	0	2	0	1	0	2	4	0	0	0	2	1	0	0	0	0
2 hr total	12	144	5	12	1	0	1	133	2	11	3	2	1	4	17	0	4	0	16	2	6	0	6	1
		161		7%				136		8%				22		0%				24		0%		
peak hour	6	85	3				1	78	2				0	2	12				8	2	3			
		94						81						14						13				
11:15	2	28	2	4	2	0	1	30	0	2	0	0	0	1	2	2	0	0	1	0	2	0	1	0
11:30	1	31	1	1	0	0	0	26	0	2	0	0	2	2	1	0	1	0	0	0	1	0	1	0
11:45	1	42	1	0	0	0	1	32	1	3	0	0	0	3	2	1	3	0	1	0	1	1	4	0
12:00	3	53	1	1	0	0	0	34	1	0	0	0	0	0	0	0	1	0	2	0	2	0	0	0
12:15	3	54	4	1	0	0	2	34	1	1	1	0	1	0	2	0	1	0	1	1	5	0	2	0
12:30	1	35	0	3	1	0	1	36	0	0	1	0	0	0	3	0	0	0	0	0	2	0	2	0
12:45	4	43	0	2	1	0	2	36	0	0	0	0	1	1	6	0	0	0	0	1	0	0	1	0
1:00	1	59	2	0	0	0	1	44	2	2	0	0	1	1	2	0	3	0	6	2	1	0	0	0
2 hr total	16	345	11	12	4	0	8	272	5	10	2	0	5	8	18	3	9	0	11	4	14	1	11	0
		372		3%				285		4%				31		10%				29		3%		
peak hour	11	185	5				5	140	2				2	1	11				3	2	9			
		201						147						14						14				
4:15	3	45	3	0	0	1	1	25	1	0	0	1	2	1	0	0	0	0	1	2	0	0	0	0
4:30	5	41	3	1	0	1	1	39	3	0	1	4	0	1	4	0	0	0	1	0	1	0	0	0
4:45	2	55	3	0	0	0	5	45	4	2	0	0	2	0	3	0	1	0	1	2	1	0	1	0
5:00	3	44	2	0	2	1	1	42	0	1	1	0	1	4	1	0	3	0	3	1	1	0	2	0
5:15	4	62	5	0	1	0	4	43	0	1	0	1	0	0	2	0	2	0	3	3	6	0	0	0
5:30	1	46	1	1	0	3	3	37	0	0	0	0	1	0	2	0	0	0	2	0	2	0	1	0
5:45	5	45	2	2	2	0	2	30	4	3	0	1	1	5	2	0	2	0	4	0	3	0	0	2
6:00	7	38	3	0	0	0	4	29	0	1	1	0	1	1	2	0	1	0	1	2	1	0	2	0
2 hr total	30	376	22	4	5	6	21	290	12	8	3	7	8	12	16	0	9	0	16	10	15	0	6	2
		428		1%				323		2%				36		0%				41		0%		
peak hour	14	202	13				11	169	7				3	5	10				8	6	9			
		229						187						18						23				
4 hour total	42	520	27				22	423	14				9	16	33				32	12	21			
		589						459						58						65				
2 direct L total	SB	589	55%				NB	459	45%				WB	58	46%				EB	65	50%			
	NB	488	45%				SB	550	55%				EB	68	54%				WB	65	50%			
		1077						1009						126						130				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Main Street 5th Ave

Date 18-Jul-05

Observers TW

time ending	FROM THE NORTH on Main Street						FROM THE SOUTH on Main Street						FROM THE EAST on 5th Ave						FROM THE WEST on 5th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	6	0	0	0	0	0	9	0	0	0	0	0	1	1	0	0	0	2	1	1	0	0	0
7:30	1	5	2	0	0	0	0	9	0	0	0	0	1	0	4	0	0	0	0	1	1	0	0	0
7:45	1	7	1	0	0	0	0	18	0	2	0	0	0	1	1	0	0	0	3	0	0	0	0	0
8:00	2	24	7	2	1	0	0	19	2	1	0	2	0	2	5	0	0	0	0	5	2	0	0	0
8:15	1	15	2	1	0	0	0	13	1	0	0	0	1	2	2	0	0	0	3	1	0	0	0	0
8:30	4	16	1	0	0	2	0	14	2	0	0	0	0	2	2	0	0	0	2	1	2	0	0	1
8:45	2	18	3	0	0	0	0	13	2	0	0	2	3	1	2	0	0	0	1	2	1	1	0	0
9:00	3	22	2	3	0	0	0	20	2	1	0	0	1	1	5	0	0	0	3	1	1	0	0	0
2 hr total	14	113	18	6	1	2	0	115	9	4	0	4	6	10	22	0	0	0	14	12	8	1	0	1
		145		4%				124		3%				38		0%				34		3%		
peak hour	9	73	13				0	59	7				4	7	11				6	9	5			
		95						66						22						20				
11:15	3	28	0	0	0	0	3	38	3	1	0	1	3	3	3	1	0	1	2	2	0	0	0	0
11:30	0	37	3	2	0	0	2	21	3	2	0	0	3	3	0	0	0	0	2	1	1	0	0	0
11:45	2	43	0	0	1	0	3	26	7	2	1	1	5	4	3	0	3	0	4	0	3	0	0	3
12:00	3	50	2	3	0	0	1	25	4	0	0	0	3	3	5	0	1	0	1	6	2	0	0	1
12:15	2	60	5	1	0	2	1	52	2	2	0	0	3	4	4	0	2	3	5	4	0	0	0	0
12:30	1	45	0	2	0	0	1	29	2	0	1	0	3	1	3	1	0	1	0	1	2	0	0	0
12:45	3	40	2	1	2	0	1	26	5	0	0	0	0	2	3	0	0	0	3	0	3	0	0	0
1:00	4	35	3	2	0	2	5	42	8	0	1	0	3	3	3	0	2	0	4	7	7	0	0	2
2 hr total	18	338	15	11	3	4	17	259	34	7	3	2	23	23	24	2	8	5	21	21	18	0	0	6
		371		3%				310		2%				70		3%				60		0%		
peak hour	10	180	10				8	149	17				9	10	13				12	12	12			
		200						174						32						36				
4:15	4	36	3	1	0	0	11	39	4	2	0	0	3	8	4	0	1	0	3	3	1	0	0	0
4:30	0	36	0	1	0	0	3	24	3	1	0	0	5	4	4	0	0	0	2	2	2	0	0	0
4:45	2	43	6	1	0	0	3	48	10	4	0	0	2	3	3	0	4	0	3	3	3	0	0	0
5:00	1	32	4	0	0	0	0	27	3	0	4	0	4	2	3	0	0	0	1	1	2	0	0	0
5:15	2	44	3	0	0	0	1	26	5	0	0	0	2	3	3	0	2	0	3	3	1	0	2	0
5:30	1	52	2	3	0	2	0	37	3	2	0	0	3	1	2	0	0	0	3	2	1	0	0	3
5:45	1	43	4	1	0	2	0	20	4	0	0	2	4	3	2	0	0	0	1	1	2	0	0	0
6:00	3	28	1	1	0	1	1	16	5	0	0	1	2	5	6	0	0	0	1	5	2	0	0	0
2 hr total	14	314	23	8	0	5	19	237	37	9	4	3	25	29	27	0	7	0	17	20	14	0	2	3
		351		2%				293		3%				81		0%				51		0%		
peak hour	7	147	13				17	138	20				14	17	14				9	9	8			
		167						175						45						26				
4 hour total	28	427	41				19	352	46				31	39	49				31	32	22			
		496						417						119						85				
2 direct L total	SB	496	53%				NB	417	46%				WB	119	53%				EB	85	46%			
	NB	432	47%				SB	480	54%				EB	106	47%				WB	99	54%			
		928						897						225						184				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Main Street & 4th Ave

Date 18-Jul-11

Observers LM

time ending	FROM THE NORTH on Main Street						FROM THE SOUTH on Main Street						FROM THE EAST on 3rd Ave						FROM THE WEST on 3rd Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	8	0	2	0	0	0	7	0	2	0	0	0	1	1	0	0	0	1	0	2	0	0	0
7:30	1	7	1	1	2	0	0	7	0	0	1	0	0	0	0	0	0	0	1	2	0	0	0	0
7:45	0	16	4	2	0	0	0	9	0	1	0	0	0	0	1	0	0	0	2	0	0	0	0	0
8:00	0	17	1	1	3	0	0	14	0	1	0	0	0	1	3	0	1	0	3	0	1	0	0	0
8:15	2	11	0	0	0	0	0	12	1	2	0	0	0	1	1	0	1	0	2	2	1	0	0	0
8:30	1	17	2	3	0	1	1	14	1	0	0	0	0	1	1	0	0	0	2	2	0	0	0	0
8:45	0	21	0	0	0	0	0	17	0	2	0	0	0	1	4	0	0	0	2	0	1	0	1	0
9:00	2	24	3	0	2	1	0	18	0	2	6	0	2	1	2	0	0	0	7	3	2	0	10	0
2 hr total	6	121	11	9	7	2	1	98	2	10	7	0	2	6	13	0	2	0	20	9	7	0	11	0
		138		7%				101		10%				21		0%				36		0%		
peak hour	5	73	5				1	61	2				2	4	8				13	7	4			
		83						64						14						24				
11:15	1	30	2	4	2	0	3	26	1	0	0	0	0	2	1	0	1	0	1	0	3	0	0	0
11:30	1	27	3	0	2	1	1	25	1	1	5	1	1	2	0	0	0	0	3	0	1	0	0	0
11:45	0	42	3	1	1	0	1	26	0	1	5	0	3	0	0	0	3	0	1	1	2	0	0	0
12:00	1	54	1	1	3	0	2	33	1	0	3	1	0	2	2	0	0	0	1	2	2	0	2	0
12:15	4	62	1	0	1	0	4	33	1	0	1	0	2	1	0	0	0	0	3	3	2	0	0	0
12:30	4	36	2	3	3	0	1	35	2	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0
12:45	0	44	2	5	1	0	1	32	0	0	3	0	1	0	1	0	2	0	1	1	0	0	0	0
1:00	0	56	2	1	3	0	0	41	1	2	0	0	2	0	2	0	0	0	3	2	5	0	0	0
2 hr total	11	351	16	15	16	1	13	251	7	4	17	2	9	9	6	0	6	0	16	9	15	0	2	0
		378		4%				271		1%				24		0%				40		0%		
peak hour	8	198	7				6	141	4				5	3	3				10	6	7			
		213						151						11						23				
4:15	1	47	1	0	1	3	0	26	2	1	0	1	1	2	0	0	0	0	0	0	0	0	0	1
4:30	3	28	4	1	0	1	3	39	2	1	5	0	0	1	3	0	0	0	4	1	5	0	0	0
4:45	4	50	5	0	10	0	3	43	0	2	0	2	0	3	1	0	5	0	4	2	3	0	0	0
5:00	1	41	1	0	0	0	2	40	0	1	2	0	1	2	3	0	0	0	1	1	0	0	1	0
5:15	3	58	2	0	0	0	2	44	2	0	2	0	0	3	2	0	0	0	1	0	5	0	0	0
5:30	1	44	2	0	0	2	0	36	1	0	1	0	1	1	1	0	1	0	1	0	1	0	0	0
5:45	4	40	3	2	0	0	1	31	0	1	0	0	0	0	2	0	0	0	2	0	1	0	0	0
6:00	1	33	1	0	1	0	1	31	1	1	1	0	0	0	0	0	0	1	4	2	0	0	1	0
2 hr total	18	341	19	3	12	6	12	290	8	7	11	3	3	12	12	0	6	1	17	6	15	0	2	1
		378		1%				310		2%				27		0%				38		0%		
peak hour	11	177	12				10	166	4				1	9	9				10	4	13			
		200						180						19						27				
4 hour total	24	462	30				13	388	10				5	18	25				37	15	22			
		516						411						48						74				
2 direct L total	SB	516	53%				NB	411	46%				WB	48	49%				EB	74	55%			
	NB	450	47%				SB	489	54%				EB	49	51%				WB	61	45%			
		966						900						97						135				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Main Street& 3rd Ave

Date 08-Jul-11

Observers Lm

time ending	FROM THE NORTH on Main Street						FROM THE SOUTH on Main Stret						FROM THE EAST on 3rd Ave						FROM THE WEST on 3rd Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	1	5	1	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0
8:00	6	17	2	1	0	0	0	14	1	0	2	0	2	3	1	1	1	0	1	3	0	0	0	0
8:15	0	10	1	0	2	0	2	9	0	0	0	0	1	2	1	0	0	0	4	3	2	0	2	0
8:30	1	13	3	1	3	0	1	16	0	0	8	0	0	1	0	0	6	0	1	2	0	0	3	0
8:45	3	11	4	0	1	1	1	10	0	0	0	0	0	2	4	0	0	0	1	5	0	0	1	0
9:00	6	22	0	4	0	1	1	15	1	1	6	0	3	1	1	1	6	0	6	5	1	2	0	0
2 hr total	16	73	10	6	6	2	6	69	3	1	16	0	6	10	7	2	14	0	14	18	3	2	6	0
		99		6%				78		1%				23		9%				35		6%		
peak hour	10	56	8				5	50	1				4	6	6				12	15	3			
		74						56						16						30				
11:15	9	20	2	0	1	0	8	34	5	2	14	1	2	5	4	0	1	0	3	9	4	0	6	0
11:30	13	23	3	0	3	1	3	14	1	1	14	0	2	5	3	0	4	0	6	3	3	2	6	1
11:45	8	40	1	0	3	0	4	27	5	1	10	1	6	4	3	0	3	0	2	8	1	0	6	0
12:00	10	39	4	2	4	0	3	19	5	0	7	0	2	2	4	0	4	0	3	4	7	0	6	0
12:15	10	47	1	0	7	0	6	44	9	1	13	0	2	9	7	1	6	1	3	8	9	1	7	0
12:30	13	40	3	3	5	0	4	23	8	0	5	0	1	6	6	0	1	0	3	8	2	0	2	0
12:45	9	29	5	1	9	0	2	22	6	0	8	0	4	3	7	0	18	0	2	5	1	0	10	0
1:00	13	32	5	1	3	2	2	42	4	0	10	0	1	4	6	0	13	0	4	11	3	0	10	1
2 hr total	85	270	24	7	35	3	32	225	43	5	81	2	20	38	40	1	50	1	26	56	30	3	53	2
		379		2%				300		2%				98		1%				112		3%		
peak hour	45	148	14				14	131	27				8	22	26				12	32	15			
		207						172						56						59				
4:15	10	24	7	0	3	0	0	32	7	1	6	0	2	5	10	1	2	1	5	1	4	1	6	0
4:30	6	33	6	2	0	0	2	28	2	0	3	0	4	4	6	1	3	0	3	5	6	1	0	0
4:45	7	38	3	1	0	0	1	41	3	3	9	0	5	4	10	2	3	0	5	8	3	1	3	0
5:00	5	34	2	1	1	0	1	16	0	0	4	0	1	10	10	0	1	0	3	5	6	0	2	0
5:15	13	37	4	1	5	0	2	21	6	0	2	0	1	5	7	0	10	0	5	12	5	0	3	0
5:30	7	35	6	2	0	0	0	31	2	1	1	0	0	7	5	0	2	0	1	7	0	0	0	0
5:45	11	33	5	1	0	0	2	19	3	0	0	1	0	5	5	0	2	0	5	5	8	0	0	0
6:00	10	21	3	1	2	0	3	14	2	0	2	0	1	4	7	0	0	0	1	3	2	0	0	0
2 hr total	69	255	36	9	11	0	11	202	25	5	27	1	14	44	60	4	23	1	28	46	34	3	14	0
		360		3%				238		2%				118		3%				108		3%		
peak hour	31	142	15				6	106	11				11	23	33				16	30	20			
		188						123						67						66				
4 hour total	85	328	46				17	271	28				20	54	67				42	64	37			
		459						316						141						143				
2 direct L total	SB	459	55%				NB	316	45%				WB	141	44%				EB	143	55%			
	NB	380	45%				SB	385	55%				EB	177	56%				WB	117	45%			
		839						701						318						260				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    Main Street & 2nd Ave

Date        18-Jul-11

Observers    KB

time ending	FROM THE NORTH on Main Street						FROM THE SOUTH on Main Street						FROM THE EAST on 2nd Ave						FROM THE WEST on 2nd Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:30	2	3	1	0	1	0	0	6	1	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0
7:45	0	3	1	0	1	0	0	10	0	1	0	0	0	2	2	0	2	1	5	2	0	1	0	0
8:00	1	12	7	1	0	0	2	8	1	0	0	0	0	5	0	0	1	0	5	4	1	0	1	0
8:15	2	8	2	1	0	0	1	8	0	0	1	0	2	2	0	0	0	0	4	3	2	0	0	0
8:30	2	10	1	1	0	0	2	12	0	0	0	0	1	4	4	0	0	0	2	7	0	0	3	1
8:45	0	9	0	0	1	1	1	8	0	0	1	0	2	2	1	1	3	0	2	2	0	0	1	0
9:00	6	16	2	2	1	1	0	11	0	0	0	0	0	4	2	0	1	0	2	3	1	1	2	1
2 hr total	13	62	14	5	4	2	6	64	2	1	2	0	5	22	9	1	7	1	20	24	4	2	7	2
		89		6%				72		1%				36		3%				48		4%		
peak hour	10	43	5				4	39	0				5	12	7				10	15	3			
		58						43						24						28				
11:15	5	18	5	0	7	0	5	23	5	0	2	0	6	10	12	2	2	0	9	6	2	1	4	0
11:30	7	12	12	0	9	0	6	17	3	1	9	0	3	7	1	0	8	1	4	6	1	1	3	0
11:45	12	23	9	0	5	0	3	21	4	1	4	0	2	10	6	0	7	1	6	2	4	0	9	0
12:00	9	25	13	1	7	0	6	16	6	0	7	0	4	7	8	0	3	0	6	9	3	0	2	0
12:15	12	37	6	0	11	0	3	32	9	0	3	1	1	18	17	1	3	0	6	10	3	0	9	1
12:30	15	25	12	3	11	0	2	22	6	0	10	0	2	11	7	0	17	1	4	17	2	0	9	0
12:45	8	21	6	1	10	0	6	18	9	0	7	0	5	7	9	0	11	0	8	8	6	0	6	0
1:00	8	23	5	0	6	0	2	26	5	0	9	1	6	10	12	0	4	2	9	8	5	0	8	0
2 hr total	76	184	68	5	66	0	33	175	47	2	51	2	29	80	72	3	55	5	52	66	26	2	50	1
		328		2%				255		1%				181		2%				144		1%		
peak hour	43	106	29				13	98	29				14	46	45				27	43	16			
		178						140						105						86				
4:15	6	13	9	0	3	0	1	26	8	0	4	0	3	8	7	0	1	0	7	15	5	2	6	0
4:30	12	22	9	0	6	0	0	19	7	0	3	0	4	13	11	1	5	0	4	13	7	0	5	0
4:45	14	26	4	0	2	0	4	29	2	1	4	2	1	11	10	1	5	1	3	7	1	0	3	0
5:00	12	22	6	0	2	0	1	10	6	0	7	1	3	9	3	0	4	0	3	12	4	0	3	0
5:15	12	20	12	1	5	2	3	13	7	0	4	0	4	11	8	0	5	0	8	12	5	0	4	0
5:30	8	22	4	2	1	0	2	17	5	0	3	0	3	9	12	0	4	0	3	12	1	0	0	0
5:45	12	21	9	2	0	1	2	21	3	0	3	1	4	13	3	0	0	1	0	6	0	0	1	0
6:00	6	14	5	0	5	0	4	12	8	0	0	0	2	13	3	0	1	0	2	6	3	0	2	0
2 hr total	82	160	58	5	24	3	17	147	46	1	28	4	24	87	57	2	25	2	30	83	26	2	24	0
		300		2%				210		0%				168		1%				139		1%		
peak hour	50	90	31				8	71	22				12	44	32				18	44	17			
		171						101						88						79				
4 hour total	95	222	72				23	211	48				29	109	66				50	107	30			
		389						282						204						187				
2 direct L total	SB	389	54%				NB	282	50%				WB	204	45%				EB	187	48%			
	NB	327	46%				SB	281	50%				EB	250	55%				WB	204	52%			
		716						563						454						391				



INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    Main Street & 1st

Date            21-Jul-11

Observers     Ken

time ending	FROM THE NORTH on Main Street						FROM THE SOUTH on Main Street						FROM THE EAST on 1st						FROM THE WEST on 1st					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	6	0	2	0	0	0	4	0	2	0	0	1	0	0	0	0	0	3	1	0	0	0	0
7:30	0	2	1	1	1	0	0	2	0	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0
7:45	2	8	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	0
8:00	2	8	2	0	0	0	0	8	0	1	0	0	0	1	0	0	3	0	3	1	0	0	0	0
8:15	1	8	1	0	0	0	1	6	2	2	1	0	1	0	1	0	0	0	0	0	0	0	0	0
8:30	0	6	4	2	0	0	1	11	1	0	0	0	0	0	0	0	0	0	6	2	1	0	0	0
8:45	1	9	4	0	0	0	2	7	0	1	0	0	0	1	1	0	0	0	4	2	0	0	1	0
9:00	5	9	5	0	0	0	3	6	2	0	1	0	0	1	7	0	0	0	3	6	0	0	0	0
2 hr total	11	56	18	6	2	0	7	45	5	6	3	0	2	3	10	0	3	0	22	15	1	0	2	0
		85		7%				57		11%				15		0%				38		0%		
peak hour	7	32	14				7	30	5				1	2	9				13	10	1			
		53						42						12						24				
11:15	1	9	12	3	0	0	0	13	3	1	4	0	0	1	4	0	3	0	3	1	4	0	2	0
11:30	7	17	5	2	5	0	0	16	1	0	1	0	0	0	3	0	1	0	5	0	1	0	4	0
11:45	6	14	9	0	0	0	0	20	3	1	1	0	0	3	2	0	1	0	6	2	1	0	3	0
12:00	5	25	8	0	3	0	2	12	1	0	1	0	0	2	3	0	1	1	5	4	3	0	1	0
12:15	9	18	7	1	1	0	4	24	0	0	4	0	1	7	6	0	5	0	9	7	2	0	4	0
12:30	5	19	1	2	2	0	0	19	2	1	0	0	1	2	4	0	1	0	2	7	3	0	2	1
12:45	7	23	5	1	5	0	0	23	1	0	0	0	0	1	2	0	1	0	3	6	0	0	0	0
1:00	8	18	8	0	2	0	2	22	4	0	4	0	0	1	4	0	1	1	4	2	2	0	0	0
2 hr total	48	143	55	9	18	0	8	149	15	3	15	0	2	17	28	0	14	2	37	29	16	0	16	1
		246		4%				172		2%				47		0%				82		0%		
peak hour	29	78	21				6	88	7				2	11	16				18	22	7			
		128						101						29						47				
4:15	2	22	8	0	0	0	4	17	0	1	0	0	0	2	3	0	0	0	2	4	1	0	0	0
4:30	4	16	6	0	1	0	1	17	0	1	1	0	0	5	4	1	0	0	2	4	4	1	0	1
4:45	4	19	5	0	2	0	3	19	1	2	0	0	0	6	4	0	1	0	9	4	3	0	0	0
5:00	3	21	4	0	0	0	0	24	1	0	0	0	0	3	6	0	1	0	6	1	3	0	0	0
5:15	3	20	1	0	2	0	0	20	1	0	1	1	3	3	6	0	1	0	7	2	3	0	2	0
5:30	5	24	6	0	1	3	1	15	2	0	1	0	0	4	4	0	0	3	5	4	2	0	0	0
5:45	7	17	1	0	0	0	0	15	0	0	2	1	0	5	3	0	0	0	2	5	3	1	0	0
6:00	5	15	6	0	0	0	2	13	3	0	0	0	2	0	2	0	0	0	4	2	1	0	3	0
2 hr total	33	154	37	0	6	3	11	140	8	4	5	2	5	28	32	1	3	3	37	26	20	2	5	1
		224		0%				159		3%				65		2%				83		2%		
peak hour	15	84	16				4	78	5				3	16	20				27	11	11			
		115						87						39						49				
4 hour total	44	210	55				18	185	13				7	31	42				59	41	21			
		309						216						80						121				
2 direct L total	SB	309	52%				NB	216	48%				WB	80	45%				EB	121	54%			
	NB	286	48%				SB	238	52%				EB	98	55%				WB	104	46%			
		595						454						178						225				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    Main Street & Railway Ave

Date        21-Jul-11

Observers    RW

time ending	FROM THE NORTH on Main Street						FROM THE SOUTH on Main Street						FROM THE EAST on Railway Ave						FROM THE WEST on Railway Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	2	0	4	2	0	0	0	0	1	0	0	0	0	9	0	1	0	0	2	5	0	6	0	0
7:30	0	0	2	0	0	0	0	0	0	0	0	0	0	11	2	1	0	2	0	7	0	1	0	1
7:45	2	0	6	1	0	0	0	0	0	0	0	0	0	19	1	0	0	0	0	10	0	0	0	0
8:00	4	0	4	0	0	0	0	0	0	0	0	0	1	31	6	2	0	0	4	15	0	3	0	0
8:15	5	0	3	0	0	0	0	0	0	0	0	0	0	16	5	2	0	0	3	21	0	7	1	1
8:30	2	0	4	1	0	0	0	0	0	0	0	0	0	16	6	1	0	0	9	11	0	4	0	0
8:45	4	0	7	0	0	0	0	0	0	0	0	0	0	18	6	1	0	0	3	15	0	7	2	0
9:00	7	0	3	0	0	0	0	0	0	0	0	0	0	13	6	0	1	0	5	19	0	3	0	0
2 hr total	26	0	33	4	0	0	0	0	1	0	0	0	1	133	32	8	1	2	26	103	0	31	3	2
		59		7%				1		0%				166		5%				129		24%		
peak hour	15	0	18				0	0	0				1	81	23				19	62	0			
		33						0						105						81				
11:15	7	0	6	0	0	0	0	0	0	0	0	0	0	22	11	7	2	0	7	20	0	6	0	0
11:30	11	3	10	1	0	0	0	0	0	0	0	0	0	14	9	2	0	0	7	15	0	2	3	0
11:45	9	1	7	0	1	0	0	1	0	0	1	0	0	17	15	6	0	0	8	14	0	4	0	0
12:00	19	0	11	1	0	0	0	0	0	0	0	0	0	21	18	4	0	0	1	12	0	3	1	0
12:15	14	0	7	0	0	0	0	0	0	0	0	0	0	28	19	2	0	0	8	38	0	0	0	0
12:30	13	1	11	2	1	0	0	0	0	0	0	0	0	20	13	1	0	0	6	22	0	3	0	0
12:45	13	0	11	1	0	0	0	0	0	0	0	0	0	15	22	1	0	0	7	16	0	1	0	0
1:00	10	0	7	1	0	0	0	0	0	0	0	0	0	40	19	1	1	0	9	29	0	2	0	0
2 hr total	96	5	70	6	2	0	0	1	0	0	1	0	0	177	126	24	3	0	53	166	0	21	4	0
		171		4%				1		0%				303		8%				219		10%		
peak hour	50	1	36				0	0	0				0	103	73				30	105	0			
		87						0						176						135				
4:15	15	0	11	0	0	0	0	0	0	0	0	0	0	25	13	5	0	0	9	30	0	7	0	0
4:30	14	1	9	1	2	0	0	1	0	0	1	0	0	30	13	6	0	0	3	24	0	2	0	0
4:45	17	0	5	1	0	0	0	0	0	0	0	0	0	22	18	2	1	0	9	25	0	8	0	0
5:00	16	0	6	0	0	0	0	0	0	0	0	0	1	17	18	3	0	1	5	29	0	1	0	0
5:15	22	0	7	0	0	0	0	0	0	0	0	0	0	26	10	2	0	0	6	40	0	3	0	0
5:30	8	1	13	0	0	0	0	0	0	1	0	0	0	28	10	0	0	0	7	43	0	0	0	0
5:45	14	0	8	0	0	0	0	0	0	0	0	0	0	15	17	0	0	0	1	27	0	1	0	1
6:00	14	0	7	0	0	0	0	0	0	0	0	0	0	19	9	1	0	0	6	21	0	0	0	0
2 hr total	120	2	66	2	2	0	0	1	0	0	2	0	1	182	108	19	1	1	46	239	0	22	0	1
		188		1%				1		0%				291		7%				285		8%		
peak hour	63	1	31				0	0	0				1	93	56				27	137	0			
		95						0						150						164				
4 hour total	146	2	99				0	1	1				2	315	140				72	342	0			
		247						2						457						414				
2 direct L total	SB	247	54%				NB	2	33%				WB	457	48%				EB	414	50%			
	NB	213	46%				SB	4	67%				EB	489	52%				WB	414	50%			
		460						6						946						828				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 2nd Street East & Railway Ave

Date 20-Jul-11

Observers Lennete

time ending	FROM THE NORTH on 2nd Street East						FROM THE SOUTH on 2nd Street East						FROM THE EAST on Railway Ave						FROM THE WEST on Railway Av					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	0	1	0	0	8	0	0	0	0
7:30	1	0	1	0	0	0	0	0	0	0	0	0	1	8	3	0	0	0	1	8	0	0	0	0
7:45	0	0	2	0	0	0	0	0	0	0	0	0	0	20	2	0	0	0	1	12	0	0	0	0
8:00	1	0	2	0	0	0	0	0	0	0	0	0	0	43	2	0	0	0	4	23	0	0	0	0
8:15	1	0	3	0	0	0	0	0	0	0	0	0	0	27	3	0	0	0	1	13	0	1	0	0
8:30	1	0	5	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0	2	19	0	1	0	0
8:45	1	0	3	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	1	14	0	0	0	0
9:00	1	0	3	0	0	0	0	0	0	0	0	0	0	36	0	2	1	0	4	19	0	2	0	0
2 hr total	6	0	22	0	0	0	0	0	0	0	0	0	1	198	10	2	2	0	14	116	0	4	0	0
	280%						0#DIV/0!						2091%						1303%					
peak hour	4	0	13				0	0	0				0	128	5				8	69	0			
	17						0						133						77					
11:15	1	0	2	0	0	0	0	0	0	0	0	0	0	37	2	0	0	0	2	26	0	2	0	0
11:30	3	0	1	1	0	0	0	0	0	0	0	0	0	21	2	0	0	0	1	30	0	0	0	0
11:45	2	0	7	0	0	0	0	0	0	0	0	0	0	39	2	1	0	1	1	42	0	0	0	0
12:00	1	1	2	0	1	0	0	0	0	0	0	0	0	40	5	1	0	0	5	40	0	1	0	0
12:15	5	0	5	0	0	0	0	0	0	0	0	0	0	39	2	1	0	0	4	63	0	0	1	0
12:30	3	0	2	0	0	0	0	0	0	0	0	0	0	33	1	0	0	0	0	49	0	2	0	0
12:45	0	0	1	0	0	0	0	0	0	0	0	0	0	36	2	0	0	0	0	40	0	4	0	0
1:00	3	0	6	0	0	1	0	0	0	0	0	0	0	65	2	2	2	0	2	38	0	1	0	0
2 hr total	18	1	26	1	1	1	0	0	0	0	0	0	0	310	18	5	2	1	15	328	0	10	1	0
	452%						0#DIV/0!						3282%						3433%					
peak hour	11	0	14				0	0	0				0	173	7				6	190	0			
	25						0						180						196					
4:15	4	0	7	0	0	0	0	0	0	0	0	0	0	30	3	0	0	0	6	58	0	1	0	0
4:30	5	0	2	0	0	0	0	0	0	0	0	0	0	48	1	1	1	0	0	41	0	0	0	0
4:45	5	0	5	0	0	0	0	0	0	0	0	0	0	48	7	4	0	0	0	47	0	2	0	0
5:00	7	0	2	0	0	0	0	0	0	0	0	0	0	46	2	2	0	0	1	61	0	2	0	0
5:15	10	0	4	0	1	0	0	0	0	0	0	0	0	47	7	0	1	0	3	67	0	1	0	0
5:30	10	0	4	0	2	1	0	0	0	0	0	0	0	38	5	0	0	1	6	51	0	0	1	0
5:45	9	0	6	0	0	0	0	0	0	0	0	0	0	38	2	0	0	0	0	42	0	0	0	0
6:00	6	0	1	0	0	0	0	0	0	0	0	0	0	19	3	0	0	0	1	36	0	0	0	0
2 hr total	56	0	31	0	3	1	0	0	0	0	0	0	0	314	30	7	2	1	17	403	0	6	1	0
	870%						0#DIV/0!						3442%						4201%					
peak hour	32	0	15				0	0	0				0	179	21				10	226	0			
	47						0						200						236					
4 hour total	62	0	53				0	0	0				1	512	40				31	519	0			
	115						0						553						550					
2 direct L total	SB	115	62%				NB	0	0%				WB	553	49%				EB	550	49%			
	NB	71	38%				SB	1	100%				EB	581	51%				WB	565	51%			
	186						1						1134						1115					

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 1st Street East & 5th Ave

Date 21-Jul-11

Observers Twyla

time ending	FROM THE NORTH on 1st Street East						FROM THE SOUTH on 1st Street East						FROM THE EAST on 5th Ave						FROM THE WEST on 5th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	0	5	0	1	0	0
7:30	0	1	1	0	0	0	0	3	0	0	0	0	0	2	0	0	1	0	0	4	0	0	0	0
7:45	0	3	0	0	0	0	4	4	1	2	0	0	0	3	0	0	0	0	1	1	1	0	0	0
8:00	0	2	0	0	1	1	2	4	0	0	0	0	1	5	0	0	1	0	0	3	0	0	0	1
8:15	0	1	0	0	0	1	3	4	2	1	0	0	1	6	0	1	1	0	0	2	1	0	1	0
8:30	1	3	0	0	0	0	0	5	1	2	0	0	3	4	2	1	1	0	0	2	2	2	1	0
8:45	0	1	0	0	0	0	5	5	0	0	0	0	1	3	1	1	0	0	0	4	2	0	0	0
9:00	0	8	1	0	0	1	3	5	1	0	3	0	0	4	2	1	0	0	1	10	2	1	1	1
2 hr total	1	19	2	0	1	3	18	31	6	5	3	0	6	28	5	4	4	0	2	31	8	4	3	2
		22		0%				55		9%				39		10%				41		10%		
peak hour	1	13	1				11	19	4				5	17	5				1	18	7			
		15						34						27						26				
11:15	1	8	2	0	0	2	3	7	0	2	0	0	2	2	1	0	0	0	4	2	1	2	0	0
11:30	0	2	1	0	0	0	2	10	2	0	0	0	2	5	0	2	0	0	0	1	2	0	0	0
11:45	1	2	1	1	0	0	5	7	1	4	0	0	3	8	0	1	0	0	0	4	2	0	0	0
12:00	2	3	1	0	0	0	3	12	2	0	0	0	4	6	0	1	0	0	1	3	1	1	0	0
12:15	2	13	1	0	0	0	4	19	1	1	1	2	10	9	1	0	3	0	0	4	2	2	1	1
12:30	0	5	0	0	0	0	2	8	2	1	0	1	5	8	0	0	0	0	2	2	1	0	0	0
12:45	1	6	0	1	0	0	3	39	1	0	29	0	2	8	1	0	0	0	0	32	3	1	30	0
1:00	1	7	1	0	0	0	5	19	3	3	0	0	8	5	0	0	0	0	2	6	3	1	0	1
2 hr total	8	46	7	2	0	2	27	121	12	11	30	3	36	51	3	4	3	0	9	54	15	7	31	2
		61		3%				160		7%				90		4%				78		9%		
peak hour	4	31	2				14	85	7				25	30	2				4	44	9			
		37						106						57						57				
4:15	2	5	0	0	0	0	5	9	1	1	0	0	1	4	0	0	0	0	0	1	0	0	0	0
4:30	1	11	0	0	1	0	1	3	1	0	0	0	2	10	1	0	2	4	0	2	3	0	0	1
4:45	1	5	2	0	0	0	4	16	0	0	3	0	0	2	2	0	5	1	0	11	7	0	5	1
5:00	0	5	1	0	0	0	1	11	3	0	0	1	1	11	0	0	3	2	0	6	4	0	0	0
5:15	6	9	3	0	0	0	2	9	2	0	0	0	4	6	0	0	0	1	0	6	6	0	1	0
5:30	0	5	0	0	0	0	2	4	2	0	0	0	1	5	4	0	0	0	0	3	2	0	0	0
5:45	1	3	0	0	0	2	5	8	0	2	1	0	2	2	1	0	0	0	1	1	3	0	0	0
6:00	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
2 hr total	11	43	6	0	1	2	21	62	9	3	4	1	11	41	8	0	10	8	1	30	25	0	6	2
		60		0%				92		3%				60		0%				56		0%		
peak hour	8	30	6				8	39	6				7	29	3				0	25	20			
		44						53						39						45				
4 hour total	12	62	8				39	93	15				17	69	13				3	61	33			
		82						147						99						97				
2 direct L total	SB	82	43%				NB	147	57%				WB	99	53%				EB	97	46%			
	NB	109	57%				SB	112	43%				EB	88	47%				WB	116	54%			
		191						259						187						213				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 1st Street East & 2nd Ave

Date 21-Jul-11

Observers Tom

time ending	FROM THE NORTH on 1st Street						FROM THE SOUTH on 1s Street						FROM THE EAST on 2nd Ave						FROM THE WEST on 2nd Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	1	0	0	1	0	0	4	0	0	0	0	0	1	0	1	0	0	0	5	0	0	0	0
7:30	0	2	0	0	0	1	1	3	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	0
7:45	1	2	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
8:00	0	4	1	0	0	2	1	7	0	0	0	0	1	3	1	0	1	0	1	5	0	0	0	0
8:15	0	5	1	0	0	0	3	7	0	0	0	0	0	4	2	0	0	0	0	2	0	0	0	0
8:30	1	3	1	0	0	0	0	4	0	1	0	0	2	2	0	1	0	0	1	1	0	0	0	0
8:45	0	6	3	1	0	1	0	8	1	0	0	0	0	2	0	0	0	0	0	2	0	1	0	0
9:00	0	5	3	0	0	1	4	9	0	0	0	1	1	6	1	0	1	0	0	4	1	0	1	0
2 hr total	2	28	9	1	1	5	9	44	1	1	0	2	4	18	4	2	2	0	2	22	2	2	1	0
		39		3%				54		2%				26		8%				26		8%		
peak hour	1	19	8				7	28	1				3	14	3				1	9	1			
		28						36						20						11				
11:15	2	5	4	0	0	0	2	2	0	0	0	1	0	4	2	0	0	0	5	5	2	0	0	0
11:30	2	9	4	0	0	0	6	8	2	1	0	0	1	7	2	2	0	0	4	11	5	3	1	1
11:45	0	7	2	0	0	1	0	10	1	1	0	2	0	7	2	0	0	0	2	7	2	0	0	0
12:00	4	6	4	0	0	0	2	11	0	0	0	0	2	9	4	0	0	0	5	7	2	0	0	0
12:15	3	21	8	0	0	0	8	12	2	0	0	2	0	3	1	0	0	0	3	9	7	0	0	0
12:30	2	7	3	0	0	0	2	11	0	0	0	0	0	8	1	0	1	0	2	6	8	0	0	0
12:45	1	9	0	0	0	1	4	11	0	0	0	0	0	3	1	0	0	0	1	11	8	0	0	0
1:00	0	16	1	0	1	2	5	9	0	0	0	0	2	7	4	1	0	0	1	16	7	0	0	1
2 hr total	14	80	26	0	1	4	29	74	5	2	0	5	5	48	17	3	1	0	23	72	41	3	1	2
		120		0%				108		2%				70		4%				136		2%		
peak hour	6	53	12				19	43	2				2	21	7				7	42	30			
		71						64						30						79				
4:15	4	11	3	0	0	0	3	17	0	2	0	0	0	11	4	1	0	0	1	12	4	0	0	0
4:30	3	7	3	0	0	0	6	5	2	0	0	0	1	11	2	1	0	1	1	13	5	0	0	0
4:45	3	10	6	0	0	0	0	9	0	1	0	0	1	9	1	0	0	1	2	16	3	0	0	1
5:00	2	12	2	0	2	0	3	8	1	0	0	0	1	3	3	1	0	0	1	14	10	0	0	1
5:15	2	19	5	0	0	0	7	8	0	0	0	0	2	10	1	0	0	0	4	11	8	0	0	0
5:30	2	12	1	0	0	0	1	4	0	0	0	1	0	5	0	0	0	0	3	18	9	1	1	0
5:45	0	9	0	0	0	1	6	10	0	1	0	2	0	6	1	0	0	0	4	13	7	0	0	1
6:00	6	9	3	1	0	0	3	5	2	1	0	0	0	11	1	0	0	0	2	12	0	0	0	0
2 hr total	22	89	23	1	2	1	29	66	5	5	0	3	5	66	13	3	0	2	18	109	46	1	1	3
		134		1%				100		5%				84		4%				173		1%		
peak hour	10	48	16				16	30	3				5	33	7				8	54	26			
		74						49						45						88				
4 hour total	24	117	32				38	110	6				9	84	17				20	131	48			
		173						154						110						199				
2 direct L total	SB	173	54%				NB	154	47%				WB	110	41%				EB	199	56%			
	NB	147	46%				SB	174	53%				EB	161	59%				WB	154	44%			
		320						328						271						353				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 1st Street West & 7th Ave

Date 18-Jul-11

Observers Kayla

time ending	FROM THE NORTH on 1st Street						FROM THE SOUTH on 1st Street						FROM THE EAST on 7th Ave						FROM THE WEST on 7th Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	2	5	2	0	1	0	2	3	2	0	0	0	3	5	0	0	0	0
7:30	1	4	0	0	1	0	3	6	0	0	1	0	0	1	1	0	0	0	1	4	1	0	0	2
7:45	0	2	0	0	0	0	2	3	2	1	0	0	0	4	0	0	0	3	2	6	1	0	1	2
8:00	0	8	0	0	0	0	4	11	5	0	0	0	2	4	0	0	0	2	0	5	1	0	0	0
8:15	1	10	1	0	0	0	1	8	3	0	0	0	0	7	1	0	0	0	1	9	3	0	1	0
8:30	0	9	0	0	0	0	4	12	1	1	0	1	0	3	4	0	2	0	0	4	4	0	0	2
8:45	0	7	0	0	1	0	1	8	0	0	0	0	0	4	3	0	0	0	2	6	3	0	1	0
9:00	0	10	1	0	1	0	2	13	0	0	1	0	2	3	2	1	0	0	0	3	3	0	1	0
2 hr total	2	50	2	0	3	0	19	66	13	2	3	1	6	29	13	1	2	5	9	42	16	0	4	6
		54		0%				98		2%				48		2%				67		0%		
peak hour	1	34	1				10	39	9				2	18	8				3	24	11			
		36						58						28						38				
11:15	0	9	3	0	0	1	0	17	1	1	0	1	0	3	2	0	0	2	2	5	5	0	0	0
11:30	2	14	0	1	0	0	3	16	1	0	0	0	2	1	0	0	0	0	1	0	2	0	0	0
11:45	1	7	0	0	1	1	2	11	0	1	0	0	1	3	4	1	0	0	0	6	1	1	0	0
12:00	1	15	0	1	1	0	9	14	4	1	0	0	0	3	3	0	0	0	0	5	1	0	0	0
12:15	2	17	2	0	0	1	3	18	2	0	1	2	1	7	2	0	0	0	0	5	8	0	0	1
12:30	0	8	2	0	1	0	5	16	0	0	0	1	0	6	1	0	0	0	2	3	8	0	0	0
12:45	0	13	4	0	0	0	4	11	2	0	1	0	1	4	1	1	0	0	1	4	3	0	0	0
1:00	0	29	3	1	0	0	8	17	5	0	0	0	0	7	1	0	1	1	5	7	4	0	0	0
2 hr total	6	112	14	3	3	3	34	120	15	3	2	4	5	34	14	2	1	3	11	35	32	1	0	1
		132		2%				169		2%				53		4%				78		1%		
peak hour	2	67	11				20	62	9				2	24	5				8	19	23			
		80						91						31						50				
4:15	0	13	0	1	2	3	1	8	0	1	0	1	0	7	4	0	0	0	2	4	6	0	0	0
4:30	3	14	1	0	0	0	4	7	2	0	0	0	0	3	1	0	0	1	2	4	4	0	0	0
4:45	0	15	5	0	0	0	4	16	2	0	0	1	1	4	2	0	0	0	1	3	6	1	1	0
5:00	1	15	0	1	0	0	5	15	2	0	0	1	2	6	4	0	0	0	0	9	2	0	0	0
5:15	0	13	2	0	1	0	4	15	2	0	0	0	4	10	0	0	0	0	1	7	5	0	0	1
5:30	0	9	0	0	0	1	8	10	2	0	0	1	0	6	1	0	0	1	0	0	4	0	0	0
5:45	1	5	0	0	0	0	4	7	1	0	0	0	0	5	0	0	0	0	0	5	1	0	0	0
6:00	1	11	0	1	0	0	2	5	0	0	0	2	0	6	0	0	0	1	1	7	2	1	0	0
2 hr total	6	95	8	3	3	4	32	83	11	1	0	6	7	47	12	0	0	3	7	39	30	2	1	1
		109		3%				126		1%				66		0%				76		3%		
peak hour	4	57	8				17	53	8				7	23	7				4	23	17			
		69						78						37						44				
4 hour total	8	145	10				51	149	24				13	76	25				16	81	46			
		163						224						114						143				
2 direct L total	SB	163	46%				NB	224	52%				WB	114	50%				EB	143	51%			
	NB	190	54%				SB	204	48%				EB	113	50%				WB	137	49%			
		353						428						227						280				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 1st Street West & 5th Ave

Date 18-Jul-11

Observers Blair

time ending	FROM THE NORTH on 1st Street West						FROM THE SOUTH on 1st Street West						FROM THE EAST on						FROM THE WEST on					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	1	3	0	0	0	0	0	9	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0
7:30	1	4	0	0	0	0	0	6	0	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0
7:45	0	3	0	0	0	0	1	8	2	1	0	0	1	0	1	0	0	1	0	2	0	0	0	0
8:00	1	12	1	0	0	0	1	16	3	0	0	0	4	1	4	0	0	0	2	0	1	0	1	0
8:15	2	11	0	0	0	0	0	12	0	0	0	0	1	1	0	0	0	0	1	4	1	0	0	1
8:30	1	15	0	0	1	0	0	14	2	2	0	0	1	1	1	0	0	1	0	3	0	0	0	0
8:45	0	14	0	1	0	0	1	9	4	3	0	0	1	0	1	0	0	0	1	0	1	0	0	0
9:00	0	16	0	1	0	0	0	15	3	2	0	0	0	1	0	0	0	0	0	1	1	0	2	0
2 hr total	6	78	1	2	1	0	3	89	14	8	1	0	10	4	8	0	0	2	4	12	4	1	4	1
		85		2%				106		8%				22		0%				20		5%		
peak hour	4	52	1				2	51	9				7	3	6				4	7	3			
		57						62						16						14				
11:15	0	15	0	0	0	0	2	19	3	1	0	0	2	3	0	0	0	0	0	1	1	0	0	3
11:30	0	18	1	1	0	0	1	20	3	1	0	0	1	4	0	0	0	0	2	1	0	0	0	0
11:45	0	12	1	0	0	0	2	13	4	0	0	3	5	1	5	1	0	0	0	2	0	0	0	0
12:00	2	15	1	1	0	0	0	28	2	0	0	1	4	1	2	0	0	0	0	4	1	0	0	0
12:15	1	28	0	0	0	3	3	26	8	0	0	1	6	3	1	0	0	2	1	0	0	0	2	0
12:30	1	15	0	0	0	0	0	23	1	0	0	4	2	0	1	0	0	0	1	0	1	0	0	0
12:45	3	18	2	0	0	0	0	8	3	0	5	0	2	0	1	0	0	0	0	2	0	0	2	0
1:00	2	36	0	0	0	1	1	30	2	0	0	1	4	1	1	0	0	0	1	3	2	0	0	1
2 hr total	9	157	5	2	0	4	9	167	26	2	5	10	26	13	11	1	0	2	5	13	5	0	4	4
		171		1%				202		1%				50		2%				23		0%		
peak hour	7	97	2				4	87	14				14	4	4				3	5	3			
		106						105						22						11				
4:15	1	18	2	1	1	0	0	12	7	0	1	0	14	7	3	3	0	0	0	0	1	0	2	2
4:30	1	15	0	0	0	0	1	14	2	1	0	0	2	2	2	0	0	0	0	2	1	0	0	0
4:45	1	18	2	0	2	1	0	16	3	0	0	0	7	1	2	1	0	0	1	3	2	0	0	0
5:00	2	13	2	1	0	0	0	20	3	0	0	0	2	2	2	0	0	0	2	0	0	0	0	0
5:15	0	25	1	0	0	0	5	19	5	0	0	0	0	3	4	0	0	0	0	4	1	0	1	1
5:30	2	9	2	0	0	0	3	24	3	0	2	3	0	0	2	0	1	0	0	5	1	2	3	1
5:45	0	6	0	0	0	0	4	12	4	0	0	0	3	4	0	1	0	1	0	1	0	0	1	1
6:00	2	12	0	1	0	0	2	10	3	0	0	0	0	1	1	0	0	1	0	3	2	0	0	0
2 hr total	9	116	9	3	3	1	15	127	30	1	3	3	28	20	16	5	1	2	3	18	8	2	6	5
		134		2%				172		1%				64		8%				29		7%		
peak hour	5	65	7				8	79	14				9	6	10				3	12	4			
		77						101						25						19				
4 hour total	15	194	10				18	216	44				38	24	24				7	30	12			
		219						278						86						49				
2 direct L total	SB	219	47%				NB	278	53%				WB	86	49%				EB	49	49%			
	NB	247	53%				SB	244	47%				EB	89	51%				WB	52	51%			
		466						522						175						101				



INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 1 STREET W & 2 AVENUE

Date JULY 18 2011

Observers MS

time ending	FROM THE NORTH on 1 STREET						FROM THE SOUTH on 1 STREET						FROM THE EAST on 2 AVENUE						FROM THE WEST on 2 AVENUE						
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	
7:15	0	5	0	0	0	0	1	7	1	0	0	0	0	0	1	0	0	0	0	4	3	0	0	0	0
7:30	1	5	1	0	0	0	1	5	2	1	0	0	0	1	2	0	0	0	0	0	2	0	0	0	0
7:45	1	8	3	0	3	1	1	6	0	0	0	0	0	1	1	0	0	1	3	3	1	0	0	0	0
8:00	0	17	6	1	0	0	3	15	2	0	0	0	1	2	3	0	1	0	3	6	2	0	2	0	0
8:15	2	7	2	0	0	1	1	7	1	0	0	0	0	2	3	0	1	0	1	3	3	0	0	0	0
8:30	4	12	1	0	1	0	1	9	0	0	0	0	1	2	2	0	0	0	5	6	2	3	1	0	0
8:45	1	7	3	1	0	0	0	11	2	3	0	0	0	1	0	1	0	0	2	5	2	0	0	0	0
9:00	4	12	1	1	0	0	1	15	2	2	1	0	1	1	3	1	2	0	3	1	2	0	0	0	1
2 hr total	13	73	17	3	4	2	9	75	10	6	1	0	4	11	13	2	4	1	21	29	12	3	3	1	1
		103		3%				94		6%				28		7%				62		5%			
peak hour	7	43	12				5	42	5				2	7	8				11	20	9				
		62						52						17						40					
11:15	1	12	0	0	1	0	1	17	2	1	1	0	4	3	1	0	0	0	2	6	0	0	0	0	0
11:30	4	12	2	0	0	0	2	14	2	0	0	0	4	6	7	1	0	1	3	3	2	1	0	0	0
11:45	3	8	2	0	3	0	1	5	6	1	0	0	3	11	6	0	0	0	4	3	0	0	0	0	0
12:00	6	19	6	0	0	0	1	20	4	0	0	1	4	7	10	0	0	0	3	7	3	0	0	0	0
12:15	6	16	7	1	0	1	5	29	6	0	0	1	10	12	10	0	0	1	2	1	1	0	1	0	0
12:30	7	17	4	0	1	0	1	20	6	0	0	0	4	8	9	1	0	1	3	6	1	0	0	0	0
12:45	4	15	2	0	0	0	2	11	6	0	0	0	1	7	6	1	0	1	2	11	1	0	2	1	1
1:00	11	18	4	2	0	1	0	20	6	0	0	0	5	9	7	1	0	0	4	8	2	0	0	0	0
2 hr total	42	117	27	3	5	2	13	136	38	2	1	2	35	63	56	4	0	4	23	45	10	1	3	1	1
		186		2%				187		1%				154		3%				78		1%			
peak hour	23	67	19				9	80	22				19	34	35				10	25	6				
		109						111						88						41					
4:15																									
4:30	2	6	2	0	0	0	3	12	3	1	0	0	2	3	1	0	0	0	0	5	1	0	0	0	0
4:45	5	13	0	2	1	0	3	18	5	0	0	0	7	6	5	0	0	0	2	4	2	0	0	0	0
5:00	3	11	3	0	0	0	1	16	3	0	0	0	4	8	10	0	0	0	0	4	1	0	0	0	0
5:15	5	15	2	0	0	0	1	21	2	0	0	0	8	10	2	0	0	0	5	11	4	0	1	0	0
5:30	4	5	2	0	0	0	2	10	3	1	2	0	7	2	8	0	2	0	0	3	3	0	2	0	0
5:45	1	6	2	0	1	1	1	16	2	0	0	0	1	10	8	0	0	1	3	2	0	0	0	1	1
6:00	2	6	2	1	0	0	0	5	3	0	0	0	6	6	6	0	0	0	1	3	2	0	0	0	0
2 hr total	22	62	13	3	2	1	11	98	21	2	2	0	35	45	40	0	2	1	11	32	13	0	3	1	1
		97		3%				130		2%				120		0%				56		0%			
peak hour	15	45	7				8	67	13				21	27	18				7	24	8				
		67						88						66						39					
4 hour total	35	135	30				20	173	31				39	56	53				32	61	25				
		200						224						148						118					
2 direct L total	SB	200	44%				NB	224	53%				WB	148	54%				EB	118	53%				
	NB	258	56%				SB	199	47%				EB	127	46%				WB	106	47%				
		458						423						275						224					

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 3rd Street West & Highway 21

Date July 22,2011

Observers Kayla

time ending	FROM THE NORTH on 3rd Street West						FROM THE SOUTH on 3rd Street West						FROM THE EAST on Highway 21						FROM THE WEST on Highway 21					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	1	8	5	3	1	0	3	14	0	2	0	0	1	8	4	0	0	0	3	0	1	2	0	0
7:30	2	12	4	3	0	0	3	9	1	1	0	0	0	2	7	0	0	0	0	1	0	0	0	0
7:45	0	12	1	7	0	0	4	16	1	2	0	0	0	3	8	0	0	0	0	0	0	0	0	0
8:00	2	13	3	2	1	0	4	20	3	5	0	0	1	18	9	0	0	1	6	4	4	6	0	0
8:15	3	6	3	5	0	0	4	11	1	3	0	0	0	12	3	1	0	0	1	1	2	0	0	0
8:30	2	12	7	6	0	0	2	21	0	6	0	0	1	7	6	0	0	0	4	1	1	1	0	0
8:45	2	9	3	5	0	0	6	15	0	6	0	0	2	7	3	2	0	0	5	1	4	4	0	0
9:00	2	10	2	5	0	0	2	13	1	3	0	0	0	2	4	1	0	0	7	10	1	1	0	0
2 hr total	14	82	28	36	2	0	28	119	7	28	0	0	5	59	44	4	0	1	26	18	13	14	0	0
		124		29%				154		18%				108		4%				57		25%		
peak hour	9	40	16				16	67	4				4	44	21				16	7	11			
		65						87						69						34				
11:15	7	10	2	1	0	0	0	22	2	8	0	0	1	5	3	0	0	0	2	9	0	0	0	0
11:30	9	21	2	5	0	0	2	13	2	4	0	0	0	4	5	1	0	0	9	4	0	2	0	0
11:45	10	10	6	6	0	1	3	9	0	2	0	0	0	4	2	0	0	0	7	8	2	1	0	0
12:00	8	22	7	2	0	0	2	9	0	1	0	0	0	2	2	0	0	0	4	7	3	0	0	0
12:15	12	19	1	6	0	0	0	16	2	5	0	0	1	1	4	1	0	0	4	19	6	1	1	0
12:30	11	20	3	9	0	0	4	14	0	6	0	0	0	1	2	0	0	0	0	7	1	0	0	0
12:45	10	11	4	3	0	0	2	12	0	3	1	0	1	4	2	0	1	0	4	7	2	1	0	0
1:00	6	16	4	6	0	1	2	24	2	4	0	0	1	7	9	2	1	0	1	3	3	0	0	0
2 hr total	73	129	29	38	0	2	15	119	8	33	1	0	4	28	29	4	2	0	31	64	17	5	1	0
		231		16%				142		23%				61		7%				112		4%		
peak hour	39	66	12				8	66	4				3	13	17				9	36	12			
		117						78						33						57				
4:15	12	7	1	1	0	0	2	10	3	0	0	0	0	2	2	0	0	0	1	2	3	0	0	0
4:30	9	18	5	1	0	0	3	14	3	0	0	0	0	2	8	0	0	0	3	6	0	0	0	0
4:45	11	17	4	2	0	1	3	8	4	1	0	0	0	4	4	1	0	0	3	9	3	0	0	0
5:00	14	21	4	3	0	0	1	16	0	3	0	0	1	2	6	0	0	0	3	8	3	0	0	0
5:15	16	24	1	6	0	0	0	13	4	1	0	0	0	3	2	0	0	0	1	12	0	1	0	0
5:30	18	11	5	2	0	0	1	16	0	3	0	0	1	4	9	1	0	0	6	6	1	3	0	0
5:45	8	20	1	2	0	0	2	14	1	1	0	0	0	1	7	0	0	0	2	7	2	0	0	0
6:00	3	14	1	1	0	0	0	10	0	2	0	0	1	1	3	0	0	0	0	2	2	0	0	0
2 hr total	91	132	22	18	0	1	12	101	15	11	0	0	3	19	41	2	0	0	19	52	14	4	0	0
		245		7%				128		9%				63		3%				85		5%		
peak hour	59	73	14				5	53	8				2	13	21				13	35	7			
		146						66						36						55				
4 hour total	105	214	50				40	220	22				8	78	85				45	70	27			
		369						282						171						142				
2 direct L total	SB	369	51%				NB	282	53%				WB	171	46%				EB	142	46%			
	NB	350	49%				SB	249	47%				EB	197	54%				WB	168	54%			
		719						531						368						310				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 3rd Street West & 4th Ave

Date 21-Jul-11

Observers Lynette

time ending	FROM THE NORTH on 3rd Stret West						FROM THE SOUTH on 3rd Street West						FROM THE EAST on 4th Ave						FROM THE WEST on 4th Av						
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	
7:15	0	0	1	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	0	1	2	0	0	0	0
7:30	0	3	0	0	1	0	2	0	0	0	1	0	0	1	0	0	0	0	3	2	0	0	1	0	0
7:45	0	0	0	0	0	0	0	1	1	0	0	0	0	3	0	0	1	0	0	1	2	0	0	0	0
8:00	1	1	2	0	0	0	0	8	0	0	0	0	0	0	2	0	0	0	1	2	0	0	2	0	0
8:15	1	5	0	0	0	1	0	4	0	0	0	1	0	1	3	0	0	0	1	5	0	0	0	0	0
8:30	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
8:45	2	4	1	2	0	0	0	1	0	0	1	0	0	1	0	0	1	0	1	4	0	0	0	0	0
9:00	0	4	0	0	1	0	0	3	0	0	1	0	0	1	0	0	1	0	0	5	0	0	1	0	0
2 hr total	4	18	4	2	3	1	2	18	1	1	3	1	0	9	6	0	3	0	7	24	2	0	4	0	0
		26		8%				21		5%				15		0%				33		0%			
peak hour	4	11	3				0	13	0				0	2	5				3	14	0				
		18						13						7						17					
11:15	1	4	2	0	0	0	0	4	1	0	0	0	0	2	1	0	0	0	0	2	0	0	0	0	0
11:30	1	4	2	0	0	0	0	2	0	0	0	0	0	3	2	0	0	0	0	0	0	2	0	0	0
11:45	3	7	1	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	4	0	0	0	0	0
12:00	2	8	1	0	0	0	0	0	0	0	1	0	0	2	1	0	2	0	0	2	1	1	0	0	0
12:15	4	15	5	0	0	1	1	4	1	0	0	0	1	6	2	0	0	0	1	6	0	0	0	0	0
12:30	1	9	1	0	0	0	0	5	0	0	0	0	0	1	1	0	0	1	0	2	2	0	0	0	0
12:45	1	5	1	0	0	0	1	6	0	0	0	0	2	2	0	0	0	0	1	4	0	0	0	0	0
1:00	2	7	0	0	0	0	0	5	0	0	0	0	2	4	2	0	0	0	1	6	2	0	0	0	0
2 hr total	15	59	13	0	0	1	2	30	2	0	1	0	5	21	9	0	2	1	3	26	5	3	0	0	0
		87		0%				34		0%				35		0%				34		9%			
peak hour	8	36	7				2	20	1				5	13	5				3	18	4				
		51						23						23						25					
4:15	0	6	4	0	0	0	0	2	0	0	1	0	0	2	1	0	0	0	1	3	0	0	0	1	1
4:30	2	4	0	0	0	0	0	4	2	0	1	1	0	2	0	1	0	0	0	5	1	0	0	0	0
4:45	3	5	2	0	0	0	2	4	1	0	4	0	0	9	3	0	0	0	0	7	1	0	0	1	1
5:00	1	6	0	1	0	0	2	2	0	0	0	0	1	3	5	1	1	0	1	2	0	0	0	0	0
5:15	7	8	1	1	0	0	1	5	0	0	1	0	3	3	2	0	0	0	0	4	3	0	0	0	0
5:30	2	6	1	0	0	0	0	8	1	1	2	1	1	4	2	0	0	0	0	4	1	0	0	0	0
5:45	3	3	1	0	0	1	2	1	0	0	0	1	1	2	0	0	0	0	1	3	1	0	0	0	0
6:00	3	7	0	0	1	1	0	3	0	0	0	0	1	2	1	0	0	1	1	4	1	1	0	0	0
2 hr total	21	45	9	2	1	2	7	29	4	1	9	3	7	27	14	2	1	1	4	32	8	1	0	2	2
		75		3%				40		3%				48		4%				44		2%			
peak hour	13	25	4				5	19	2				5	19	12				1	17	5				
		42						26						36						23					
4 hour total	25	63	13				9	47	5				7	36	20				11	56	10				
		101						61						63						77					
2 direct L total	SB	101	56%				NB	61	43%				WB	63	42%				EB	77	57%				
	NB	78	44%				SB	80	57%				EB	86	58%				WB	58	43%				
		179						141						149						135					

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    Dittson Dr & Walmart

Date        July 21,2011

Observers    LJM

time ending	FROM THE NORTH on Dittson Dr						FROM THE SOUTH on Ditson Dr						FROM THE EAST on Walmart						FROM THE WEST on Walmart					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	3	9	0	2	0	0	12	17	2	1	1	0	2	4	1	0	0	0	1	2	5	0	0	0
8:00	3	9	0	0	0	0	20	38	1	1	1	0	1	2	0	1	1	0	1	1	6	1	3	0
8:15	8	3	0	2	0	0	18	22	9	9	0	0	2	2	4	0	0	0	3	1	4	2	1	0
8:30	5	10	1	2	0	0	14	19	1	3	0	0	3	0	4	2	0	0	2	2	5	1	1	0
8:45	6	9	2	1	0	0	13	23	6	4	3	4	5	6	1	1	1	1	7	4	13	4	2	1
9:00	9	15	2	4	0	0	9	24	9	2	0	1	4	3	7	2	0	0	5	5	4	3	0	0
2 hr total	34	55	5	11	0	0	86	143	28	20	5	5	17	17	17	6	2	1	19	15	37	11	7	1
		94		12%				257		8%				51		12%				71		15%		
peak hour	28	37	5				54	88	25				14	11	16				17	12	26			
		70						167						41						55				
11:15	20	15	2	0	0	0	6	19	7	4	0	0	15	3	13	0	0	0	3	4	6	1	1	0
11:30	15	16	1	4	1	0	7	13	17	4	3	1	11	3	17	2	0	0	5	5	10	0	0	0
11:45	8	20	0	4	0	0	8	22	10	2	0	1	6	3	12	3	0	0	9	6	8	6	2	0
12:00	11	23	8	6	0	1	9	20	6	2	0	1	12	8	20	1	0	0	5	3	5	2	0	0
12:15	17	49	3	2	3	0	13	24	13	2	0	0	16	11	16	1	0	1	3	7	13	2	0	0
12:30	14	28	0	3	0	0	14	22	11	0	0	0	13	0	12	0	0	0	6	6	7	3	0	0
12:45	14	22	1	1	1	0	4	25	16	1	0	3	12	3	14	5	0	0	6	7	15	2	0	0
1:00	9	28	2	0	1	0	22	43	18	3	0	0	9	7	23	1	0	1	3	11	12	0	0	0
2 hr total	108	201	17	20	6	1	83	188	98	18	3	6	94	38	127	13	0	2	40	49	76	16	3	0
		326		6%				369		5%				259		5%				165		10%		
peak hour	54	127	6				53	114	58				50	21	65				18	31	47			
		187						225						136						96				
4:15	15	42	0	2	0	0	11	34	8	0	0	0	8	16	16	0	0	1	6	3	11	0	0	0
4:30	20	33	4	2	0	0	8	24	14	4	3	0	9	4	18	2	1	0	7	7	8	3	1	0
4:45	17	36	3	4	0	0	10	34	9	4	0	0	17	9	26	2	0	0	7	5	6	2	0	0
5:00	21	35	1	4	0	0	10	29	8	3	0	0	6	8	25	1	0	0	6	4	12	1	1	0
5:15	18	42	3	5	0	0	13	36	8	4	0	1	9	5	17	1	0	0	7	8	13	1	1	0
5:30	20	49	2	5	0	1	8	36	13	2	0	1	8	7	23	1	0	0	5	3	9	1	0	0
5:45	21	40	7	3	0	1	13	27	12	4	0	0	9	13	26	1	0	0	6	3	6	1	0	0
6:00	12	55	6	9	0	0	12	23	7	1	2	3	6	7	16	1	0	0	2	2	10	2	0	0
2 hr total	144	332	26	34	0	2	85	243	79	22	5	5	72	69	167	9	1	1	46	35	75	11	3	0
		502		7%				407		5%				308		3%				156		7%		
peak hour	80	166	13				44	128	41				32	33	91				24	18	40			
		259						213						156						82				
4 hour total	178	387	31				171	386	107				89	86	184				65	50	112			
		596						664						359						227				
2 direct L total	SB	596	48%				NB	664	53%				WB	359	52%				EB	227	44%			
	NB	635	52%				SB	588	47%				EB	335	48%				WB	288	56%			
		1231						1252						694						515				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    Dittson Dr. & 2nd Ave

Date        20-Jul-11

Observers    Tom

time ending	FROM THE NORTH on Dittson Dr						FROM THE SOUTH on Dittson Dr						FROM THE EAST on 2nd Ave						FROM THE WEST on 2nd Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	14	0	1	0	0	0	38	0	3	0	0	0	0	0	0	0	0	4	0	0	0	0	0
7:30	0	10	1	2	0	0	1	23	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	21	2	0	1	0	1	49	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0
8:00	0	39	2	4	1	0	0	43	0	2	0	0	0	0	0	0	0	0	4	0	1	0	0	0
8:15	0	15	3	1	0	0	3	37	0	3	0	0	0	0	0	0	0	0	2	0	1	0	0	0
8:30	0	20	1	0	0	0	0	43	0	2	0	0	0	0	0	0	0	0	4	0	1	0	0	0
8:45	0	15	3	1	0	0	0	23	0	2	0	0	0	0	0	0	0	0	5	0	4	1	1	0
9:00	0	22	5	3	0	0	2	32	0	0	1	0	0	0	0	0	0	0	3	0	1	0	0	0
2 hr total	0	156	17	12	2	0	7	288	0	13	1	0	0	0	0	0	0	0	25	0	9	1	1	0
		173		7%				295		4%				0		#DIV/0!				34		3%		
peak hour	0	95	8				4	172	0				0	0	0				13	0	4			
		103						176						0						17				
11:15	0	27	10	3	0	0	1	24	0	2	0	0	0	0	0	0	0	0	3	0	3	1	0	0
11:30	0	23	9	2	0	0	4	22	0	2	0	0	0	0	0	0	0	0	6	0	2	0	0	0
11:45	0	29	11	1	0	0	2	24	0	1	0	0	0	0	0	0	0	0	8	0	1	2	1	1
12:00	0	33	9	0	0	0	1	39	0	3	0	0	0	0	0	0	0	0	6	0	0	0	0	0
12:15	0	70	12	1	0	1	5	35	0	0	0	0	0	0	0	0	0	0	10	0	4	0	0	0
12:30	0	44	7	0	0	0	5	47	0	2	0	0	0	0	0	0	0	0	9	0	6	0	0	0
12:45	0	48	16	2	0	1	0	44	0	5	0	0	0	0	0	0	0	0	5	0	3	0	2	0
1:00	0	36	13	3	0	0	3	64	0	1	0	0	0	0	0	0	0	0	10	0	0	0	0	0
2 hr total	0	310	87	12	0	2	21	299	0	16	0	0	0	0	0	0	0	0	57	0	19	3	3	1
		397		3%				320		5%				0		#DIV/0!				76		4%		
peak hour	0	198	48				13	190	0				0	0	0				34	0	13			
		246						203						0						47				
4:15	0	28	12	1	0	0	3	41	0	3	0	0	0	0	0	0	0	0	7	0	3	1	1	0
4:30	0	41	10	1	0	1	2	37	0	2	0	2	0	0	0	0	0	0	6	0	6	0	1	0
4:45	0	49	9	4	0	3	1	39	0	1	0	0	0	0	0	0	0	0	5	1	2	1	0	0
5:00	0	39	13	2	0	4	2	48	0	2	0	0	0	0	0	0	0	0	8	1	3	1	0	0
5:15	0	81	10	2	0	0	3	49	0	3	0	1	0	0	0	0	0	0	21	0	0	0	0	0
5:30	0	71	12	0	0	1	3	45	0	3	0	2	0	0	0	0	0	0	9	0	3	0	0	3
5:45	0	59	11	3	0	1	2	39	0	1	0	0	0	0	0	0	0	0	11	0	1	0	0	0
6:00	0	51	12	4	0	2	1	45	0	0	0	2	0	0	0	0	0	0	3	0	0	1	0	0
2 hr total	0	419	89	17	0	12	17	343	0	15	0	7	0	0	0	0	0	0	70	2	18	4	2	3
		508		3%				360		4%				0		#DIV/0!				90		4%		
peak hour	0	250	46				10	181	0				0	0	0				49	1	7			
		296						191						0						57				
4 hour total	0	575	106				24	631	0				0	0	0				95	2	27			
		681						655						0						124				
2 direct L total	SB	681	48%				NB	655	52%				WB	0	0%				EB	124	49%			
	NB	726	52%				SB	602	48%				EB	2	100%				WB	130	51%			
		1407						1257						2						254				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    Dittson Dr & Railway Ave

Date        20-Jul-11

Observers   Blair

time ending	FROM THE NORTH on Dittson Dr						FROM THE SOUTH on Dittson Dr						FROM THE EAST on Railway Ave						FROM THE WEST on Raiway Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	13	2	0	0	0	5	33	0	0	0	0	0	0	0	0	0	0	6	1	6	2	0	0
7:30	0	7	4	1	0	0	6	20	0	0	0	0	0	0	0	0	0	0	5	0	6	0	0	0
7:45	0	18	3	0	0	0	20	44	0	0	0	0	0	0	0	0	0	0	6	0	7	0	1	0
8:00	0	25	13	1	0	0	27	34	0	1	0	0	0	0	0	0	0	0	10	0	9	0	0	0
8:15	0	8	6	1	0	0	25	39	0	2	0	0	0	0	0	0	0	0	5	0	9	1	0	0
8:30	0	11	9	0	0	0	19	35	0	0	0	0	0	0	0	0	0	0	13	0	8	1	0	0
8:45	0	14	6	1	0	0	22	18	0	0	0	0	0	0	0	0	0	0	8	0	10	0	1	0
9:00	0	15	10	0	0	0	30	32	0	2	0	0	0	0	0	0	0	0	5	1	11	1	1	0
2 hr total	0	111	53	4	0	0	154	255	0	5	0	0	0	0	0	0	0	0	58	2	66	5	3	0
		164		2%				409		1%				0		#DIV/0!				126		4%		
peak hour	0	62	31				91	152	0				0	0	0				34	0	33			
		93						243						0						67				
11:15	0	19	15	3	0	0	21	15	0	2	0	0	0	0	0	0	0	0	12	0	15	3	0	0
11:30	0	21	11	2	0	0	15	18	0	2	0	0	0	0	0	0	0	0	9	0	22	0	0	0
11:45	0	20	16	2	0	0	21	12	0	1	0	0	0	0	0	0	0	0	20	0	20	0	0	1
12:00	0	24	16	0	0	0	26	21	0	1	0	0	0	0	0	0	0	0	16	0	22	1	0	0
12:15	0	58	17	1	0	0	20	23	0	2	0	0	0	0	0	0	0	0	13	0	51	0	0	0
12:30	0	38	11	0	0	0	24	24	0	1	0	0	0	0	0	0	1	0	25	0	29	2	1	0
12:45	0	39	14	1	0	0	25	38	0	1	0	0	0	0	0	0	0	0	11	0	28	4	0	0
1:00	0	27	21	3	0	0	48	41	0	2	0	0	0	0	0	0	0	0	19	0	17	1	0	0
2 hr total	0	246	121	12	0	0	200	192	0	12	0	0	0	0	0	0	1	0	125	0	204	11	1	1
		367		3%				392		3%				0		#DIV/0!				329		3%		
peak hour	0	162	63				117	126	0				0	0	0				68	0	125			
		225						243						0						193				
4:15	0	28	15	1	0	0	19	28	0	1	0	0	0	0	0	0	0	0	23	0	35	1	1	0
4:30	0	27	17	0	0	0	25	22	0	1	0	0	0	0	0	0	0	0	17	0	26	0	0	0
4:45	0	36	23	2	0	0	29	23	0	3	1	0	0	0	0	0	0	0	23	0	31	2	1	0
5:00	0	35	20	0	0	0	26	24	0	3	0	1	0	0	0	0	0	0	27	0	41	3	1	0
5:15	1	67	24	1	0	0	32	34	0	1	0	0	0	0	0	0	0	0	17	1	53	1	2	1
5:30	0	66	13	0	0	0	24	28	0	3	0	0	0	0	0	0	0	0	19	0	41	0	0	0
5:45	0	46	14	2	0	0	23	32	0	1	0	1	0	0	0	0	0	0	16	0	31	0	1	1
6:00	0	44	7	1	0	0	15	21	0	0	0	0	0	0	0	0	0	0	18	0	22	0	0	1
2 hr total	1	349	133	7	0	0	193	212	0	13	1	2	0	0	0	0	0	0	160	1	280	7	6	3
		483		1%				405		3%				0		#DIV/0!				441		2%		
peak hour	1	204	80				111	109	0				0	0	0				86	1	166			
		285						220						0						253				
4 hour total	1	460	186				347	467	0				0	0	0				218	3	346			
		647						814						0						567				
2 direct L total	SB	647	49%				NB	814	50%				WB	0	0%				EB	567	52%			
	NB	685	51%				SB	806	50%				EB	4	100%				WB	533	48%			
		1332						1620						4						1100				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    Dittson Dr & Thomson Dr

Date        July 20 2011

Observers    Twyla

time ending	FROM THE NORTH on Dittson Dr						FROM THE SOUTH on Dittson Dr						FROM THE EAST on Thomson Dr						FROM THE WEST on Thomson Dr					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	4	5	0	1	0	0	0	6	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
7:30	3	7	0	1	0	0	0	9	0	3	0	0	0	0	5	1	0	0	0	0	0	0	0	0
7:45	1	9	0	0	0	0	0	9	0	2	0	0	0	0	12	1	0	0	0	0	0	0	0	0
8:00	8	9	0	1	0	0	0	5	1	0	0	0	1	0	24	0	0	0	0	0	0	0	0	0
8:15	2	6	0	0	0	0	0	7	0	0	0	0	1	0	7	0	0	0	0	0	0	0	0	0
8:30	7	1	1	0	0	0	0	9	3	1	0	0	1	0	7	1	0	0	1	0	1	0	0	0
8:45	6	6	1	3	0	0	0	10	0	0	0	0	2	0	7	0	0	0	0	0	0	0	0	0
9:00	3	6	1	0	0	0	0	6	2	0	0	0	1	0	12	0	0	0	1	0	0	0	0	0
2 hr total	34	49	3	6	0	0	0	61	6	6	0	0	6	2	76	3	0	0	2	0	1	0	0	0
		86		7%				67		9%				84		4%				3		0%		
peak hour	23	22	2				0	31	4				5	0	45				1	0	1			
		47						35						50						2				
11:15	5	6	1	1	0	0	0	6	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
11:30	9	14	0	2	0	0	0	4	1	0	0	0	1	0	6	0	0	0	1	0	0	1	0	0
11:45	5	7	1	0	0	0	0	10	2	1	0	0	2	0	4	0	0	0	1	0	1	1	0	0
12:00	9	7	0	0	0	0	0	9	4	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
12:15	30	13	1	0	0	0	0	9	3	3	0	0	0	0	10	0	0	0	1	0	0	0	0	0
12:30	16	18	1	0	0	0	0	8	0	0	0	0	1	0	12	0	0	0	0	1	0	0	0	0
12:45	16	17	2	4	0	0	0	18	0	0	0	0	0	0	12	0	0	0	2	0	0	0	0	0
1:00	11	10	1	1	0	0	0	14	2	0	0	0	0	0	15	0	0	0	2	0	0	0	0	0
2 hr total	101	92	7	8	0	0	0	78	13	4	0	0	4	0	70	0	0	0	7	1	1	2	0	0
		200		4%				91		4%				74		0%				9		22%		
peak hour	73	58	5				0	49	5				1	0	49				5	1	0			
		136						54						50						6				
4:15	15	9	1	0	0	0	0	10	0	1	2	2	1	1	8	0	1	0	0	0	0	0	0	0
4:30	14	7	0	0	0	0	0	6	0	0	0	0	4	0	10	1	1	0	0	0	0	0	0	0
4:45	23	10	0	0	0	0	0	16	1	0	0	1	1	0	5	0	0	0	2	0	0	0	0	0
5:00	17	14	1	1	0	0	0	11	2	3	0	1	3	0	12	1	0	0	0	0	0	0	0	0
5:15	24	23	2	2	3	0	1	13	4	0	2	1	5	1	8	0	1	0	1	0	1	0	0	0
5:30	31	22	2	0	0	0	0	12	2	1	0	0	2	0	7	0	0	0	1	0	0	0	0	0
5:45	16	25	6	2	0	0	1	15	3	2	0	0	7	1	13	1	0	0	2	2	0	0	0	2
6:00	15	15	3	2	0	0	0	8	2	0	0	0	3	0	12	1	0	0	0	0	0	0	0	0
2 hr total	155	125	15	7	3	0	2	91	14	7	4	5	26	3	75	4	3	0	6	2	1	0	0	2
		295		2%				107		7%				104		4%				9		0%		
peak hour	88	84	11				2	51	11				17	2	40				4	2	1			
		183						64						59						7				
4 hour total	189	174	18				2	152	20				32	5	151				8	2	2			
		381						174						188						12				
2 direct L total	SB	381	55%				NB	174	46%				WB	188	47%				EB	12	32%			
	NB	311	45%				SB	208	54%				EB	211	53%				WB	25	68%			
		692						382						399						37				



INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    Dittson Dr & West Rd

Date        20-Jul-11

Observers    Kayla

time ending	FROM THE NORTH on Dittson Dr						FROM THE SOUTH on Dittson Dr						FROM THE EAST on West Rd						FROM THE WEST on West Rd					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	5	11	1	1	0	0	0	12	1	1	1	0	0	0	23	0	0	0	0	0	0	0	0	0
7:30	4	7	0	1	0	0	0	13	0	1	0	0	0	0	12	0	0	0	0	0	0	0	0	0
7:45	13	13	1	0	1	0	0	27	1	0	0	0	0	0	37	0	0	0	0	0	0	0	0	0
8:00	11	22	1	2	0	0	0	28	0	0	0	0	1	0	30	1	1	0	1	0	0	0	0	0
8:15	9	7	1	0	0	0	0	17	1	0	0	0	0	1	37	0	0	0	2	0	0	2	0	0
8:30	10	9	0	1	0	0	0	15	0	0	0	0	0	0	35	0	0	0	3	0	0	3	0	0
8:45	11	10	1	2	0	0	0	15	0	1	0	0	0	1	18	2	1	0	0	0	0	0	0	0
9:00	12	12	2	5	0	0	0	16	2	0	0	0	1	0	44	2	0	0	1	0	0	1	0	0
2 hr total	75	91	7	12	1	0	0	143	5	3	1	0	2	2	236	5	2	0	7	0	0	6	0	0
		173		7%				148		2%				240		2%				7			86%	
peak hour	43	51	3				0	87	2				1	1	139				6	0	0			
		97						89						141						6				
11:15	22	8	5	6	0	0	0	11	1	0	0	0	1	1	21	1	0	0	1	2	0	1	0	0
11:30	19	22	0	2	0	0	2	11	0	1	0	0	1	0	20	2	0	0	0	0	0	0	0	0
11:45	25	13	0	1	0	0	0	15	0	1	0	1	0	1	19	0	0	0	0	0	0	0	0	0
12:00	24	21	0	1	0	0	0	16	2	0	0	0	1	0	28	1	1	0	1	1	1	0	1	0
12:15	64	43	0	0	0	0	0	18	2	1	0	0	1	1	25	1	0	0	0	0	0	0	1	0
12:30	35	33	2	1	0	0	1	19	1	1	0	0	0	0	30	1	0	1	1	1	0	0	0	0
12:45	32	34	2	6	0	1	1	25	6	0	0	0	0	0	36	1	0	0	1	0	0	0	0	0
1:00	19	26	0	3	0	0	0	30	0	0	0	0	2	0	53	2	0	0	0	0	0	0	0	0
2 hr total	240	200	9	20	0	1	4	145	12	4	0	1	6	3	232	9	1	1	4	4	1	1	2	0
		449		4%				161		2%				241		4%				9			11%	
peak hour	150	136	4				2	92	9				3	1	144				2	1	0			
		290						103						148						3				
4:15	36	22	2	2	0	0	0	17	2	1	0	0	0	0	21	1	0	3	0	2	0	0	0	0
4:30	29	21	0	0	0	0	0	15	0	1	0	0	0	0	34	1	0	0	0	1	0	0	0	0
4:45	34	33	2	1	0	0	0	24	0	1	0	0	0	0	35	2	0	0	0	0	0	0	0	0
5:00	40	28	0	3	1	0	0	24	0	3	0	0	0	1	26	0	0	0	1	0	0	0	0	0
5:15	64	48	0	2	0	0	0	19	3	0	0	0	0	0	52	1	0	1	1	0	0	0	0	0
5:30	50	46	0	1	0	0	0	17	2	1	0	0	0	0	39	2	0	0	0	0	0	0	0	0
5:45	37	33	0	2	0	0	0	26	3	1	0	0	2	0	29	0	0	0	0	0	0	0	0	0
6:00	36	28	1	3	0	0	0	14	1	0	0	0	0	0	19	0	0	1	0	0	0	0	0	2
2 hr total	326	259	5	14	1	0	0	156	11	8	0	0	2	1	255	7	0	5	2	3	0	0	0	2
		590		2%				167		5%				258		3%				5			0%	
peak hour	191	155	0				0	86	8				2	1	146				2	0	0			
		346						94						149						2				
4 hour total	401	350	12				0	299	16				4	3	491				9	3	0			
		763						315						498						12				
2 direct L total	SB	763	49%				NB	315	47%				WB	498	54%				EB	12	44%			
	NB	799	51%				SB	354	53%				EB	420	46%				WB	15	56%			
		1562						669						918						27				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location West Rd & Rutley Cr

Date 20-Jul-11

Observers Dave

time ending	FROM THE NORTH on Rutley Cr						FROM THE SOUTH on Rutley Cr						FROM THE EAST on West Rd						FROM THE WEST on West Rd					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	2	0	0	0	2	0	0	0	0	0	1	18	0	0	0	0	0	4	3	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	3	0	0	0	0
7:45	0	0	2	0	0	0	2	0	0	0	0	0	0	23	0	0	0	0	0	10	0	0	0	0
8:00	0	0	0	0	0	0	4	0	0	1	0	0	1	20	0	0	0	0	0	8	1	0	0	0
8:15	0	0	0	0	0	0	3	0	0	0	0	0	0	31	0	0	0	0	1	5	0	0	0	0
8:30	0	0	0	0	0	0	3	0	0	0	0	0	1	25	0	0	0	0	0	7	1	1	0	0
8:45	0	0	1	0	0	0	1	0	0	0	0	0	0	15	0	1	0	0	0	9	0	0	0	0
9:00	0	0	1	0	0	0	3	0	1	0	0	0	0	29	0	1	0	0	0	10	0	0	0	0
2 hr total	0	0	6	0	0	0	18	0	1	1	0	0	3	168	0	2	0	0	1	56	5	1	0	0
		6		0%				19		5%				171		1%				62		2%		
peak hour	0	0	2				12	0	0				2	99	0				1	30	2			
		2						12						101						33				
11:15	0	0	2	0	0	0	0	0	0	0	0	0	0	17	0	1	0	0	0	17	4	3	0	0
11:30	2	0	0	0	0	0	2	0	0	0	0	0	0	13	1	2	0	0	0	13	1	1	0	0
11:45	1	0	0	0	0	0	2	0	1	0	0	0	1	16	0	0	0	0	0	19	2	1	0	0
12:00	0	0	0	0	0	0	1	0	0	0	0	0	0	18	0	0	0	0	0	15	0	0	0	0
12:15	0	0	0	0	0	0	2	0	0	0	0	0	0	18	0	0	0	0	2	36	8	0	0	0
12:30	0	0	0	0	0	0	0	0	1	0	0	0	3	19	0	0	0	0	0	25	3	0	0	0
12:45	0	0	0	0	0	0	3	0	3	0	0	0	1	21	0	1	0	0	0	17	5	1	0	0
1:00	0	0	0	0	0	0	5	0	1	0	0	0	0	41	0	2	0	0	1	16	0	2	1	0
2 hr total	3	0	2	0	0	0	15	0	6	0	0	0	5	163	1	6	0	0	3	158	23	8	1	0
		5		0%				21		0%				169		4%				184		4%		
peak hour	0	0	0				10	0	5				4	99	0				3	94	16			
		0						15						103						113				
4:15	0	0	2	0	0	0	1	0	1	0	0	0	0	12	0	0	0	1	0	34	2	0	2	0
4:30	0	1	0	0	0	0	5	0	1	0	2	0	1	27	0	1	0	0	1	22	1	0	0	0
4:45	0	0	0	0	0	0	2	0	1	1	0	0	0	20	0	0	0	0	0	24	1	0	0	0
5:00	0	0	0	0	0	0	0	0	1	0	0	0	0	19	0	0	0	0	2	30	2	2	0	0
5:15	1	0	1	0	0	0	2	0	0	0	0	0	0	33	0	0	0	0	3	49	3	1	0	0
5:30	0	0	1	0	0	0	1	0	0	1	0	0	0	28	0	1	0	0	0	39	2	0	0	2
5:45	0	0	0	0	0	0	2	0	1	0	0	0	0	19	2	0	0	0	2	26	4	0	1	0
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	1	25	2	0	0	2
2 hr total	1	1	4	0	0	0	13	0	5	2	2	0	1	174	2	2	0	1	9	249	17	3	3	4
		6		0%				18		11%				177		1%				275		1%		
peak hour	1	0	2				5	0	2				0	99	2				7	144	11			
		3						7						101						162				
4 hour total	1	1	10				31	0	6				4	342	2				10	305	22			
		12						37						348						337				
2 direct L total	SB	12	50%				NB	37	58%				WB	348	53%				EB	337	47%			
	NB	12	50%				SB	27	42%				EB	312	47%				WB	383	53%			
		24						64						660						720				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location    West Rd & Thomson Dr

Date        20-Jul-11

Observers   Rhonda

time ending	FROM THE NORTH on Thomson Dr						FROM THE SOUTH on Thomson Dr						FROM THE EAST on West Rd						FROM THE WEST on West Rd					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
7:30	0	0	3	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0
7:45	0	1	7	0	0	0	9	0	1	0	0	0	0	5	0	0	0	0	5	3	1	0	0	0
8:00	0	0	11	0	0	0	10	0	1	0	1	0	1	2	1	0	0	0	5	0	3	0	0	0
8:15	0	0	9	0	0	0	11	0	1	0	0	0	0	3	0	0	0	0	2	0	3	0	0	0
8:30	0	0	9	0	0	0	10	1	1	0	0	0	0	5	0	0	0	0	5	1	0	0	0	0
8:45	0	2	5	0	0	0	7	0	1	1	0	0	0	4	0	0	0	0	5	3	2	1	0	0
9:00	0	0	9	0	0	0	16	2	0	1	0	0	1	0	0	1	0	0	8	1	4	1	0	0
2 hr total	0	3	56	0	0	0	66	3	5	2	1	0	2	22	1	1	0	0	35	8	13	2	0	0
		59		0%				74		3%				25		4%				56		4%		
peak hour	0	2	32				44	3	3				1	12	0				20	5	9			
		34						50						13						34				
11:15	2	1	9	0	0	4	8	3	0	0	0	0	2	1	0	1	0	0	6	2	8	2	0	0
11:30	0	1	7	1	0	0	7	1	2	0	1	0	1	2	1	1	0	0	8	3	4	1	2	0
11:45	1	1	7	0	0	0	5	1	0	0	0	0	0	0	1	0	0	0	8	3	4	1	0	0
12:00	0	1	10	0	0	0	6	1	0	0	0	0	0	2	0	0	0	0	3	2	8	0	0	0
12:15	0	1	7	0	0	0	7	3	1	0	0	1	0	2	0	0	0	0	16	6	9	0	0	0
12:30	0	0	9	0	1	2	10	1	2	0	0	0	3	4	1	0	0	0	8	4	11	1	0	0
12:45	0	3	12	0	0	2	11	1	2	1	0	3	2	2	0	0	0	0	6	3	8	1	0	0
1:00	0	2	12	1	0	1	26	1	4	0	0	2	2	3	0	0	0	0	12	3	9	3	1	2
2 hr total	3	10	73	2	1	9	80	12	11	1	1	6	10	16	3	2	0	0	67	26	61	9	3	2
		86		2%				103		1%				29		7%				154		6%		
peak hour	0	6	40				54	6	9				7	11	1				42	16	37			
		46						69						19						95				
4:15	0	2	8	0	0	0	5	3	0	0	2	2	0	1	2	0	0	0	15	3	11	0	0	0
4:30	0	1	13	1	0	0	6	5	0	0	2	1	2	6	1	0	0	0	5	4	12	0	0	0
4:45	0	1	5	0	0	1	9	0	2	0	0	0	0	4	1	0	0	1	11	5	11	1	0	1
5:00	0	3	5	0	1	0	14	3	0	0	0	1	1	5	0	0	0	0	9	8	12	3	0	0
5:15	1	6	8	2	0	2	15	3	2	0	0	0	1	5	0	0	0	0	22	6	22	2	0	0
5:30	1	4	9	1	1	0	16	2	3	0	0	2	2	5	1	1	2	0	10	5	14	0	0	0
5:45	0	0	5	0	0	0	7	1	0	0	0	0	1	2	0	0	0	0	3	9	12	0	0	0
6:00	1	7	8	0	1	5	12	4	3	0	1	2	4	4	0	0	3	1	4	8	9	1	0	2
2 hr total	3	24	61	4	3	8	84	21	10	0	5	8	11	32	5	1	5	2	79	48	103	7	0	3
		88		5%				115		0%				48		2%				230		3%		
peak hour	2	14	27				54	8	7				4	19	2				52	24	59			
		43						69						25						135				
4 hour total	3	27	117				150	24	15				13	54	6				114	56	116			
		147						189						73						286				
2 direct L total	SB	147	51%				NB	189	55%				WB	73	50%				EB	286	47%			
	NB	144	49%				SB	156	45%				EB	74	50%				WB	321	53%			
		291						345						147						607				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 21 & Railway Ave

Date 22-Jul-11

Observers Rhonda

time ending	FROM THE NORTH on Highway 21						FROM THE SOUTH on Highway 21						FROM THE EAST on Railway Ave						FROM THE WEST on Railway Ave					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	1	7	0	3	0	0	0	5	0	0	0	0	2	0	6	3	0	0	0	0	1	0	0	0
7:30	0	8	0	4	0	0	0	6	5	0	0	0	4	0	4	1	0	0	0	0	0	0	0	0
7:45	1	10	0	7	0	0	0	10	7	1	0	0	3	0	3	2	0	0	0	0	1	0	0	0
8:00	4	12	0	5	0	0	0	21	6	4	0	0	3	0	3	1	0	0	0	1	0	0	0	0
8:15	4	4	0	3	0	0	0	9	7	1	0	0	0	0	5	2	0	0	0	0	0	0	0	0
8:30	2	7	0	3	0	0	0	15	3	4	0	0	1	0	4	1	0	0	0	0	0	0	0	0
8:45	3	6	0	6	0	0	0	11	7	3	0	0	4	0	4	3	0	0	0	0	0	0	0	0
9:00	5	6	0	9	0	1	0	10	8	3	0	0	2	1	8	3	0	0	0	0	0	0	0	0
2 hr total	20	60	0	40	0	1	0	87	43	16	0	0	19	1	37	16	0	0	0	1	2	0	0	0
		80		50%				130		12%				57		28%				3		0%		
peak hour	13	29	0				0	56	23				8	0	16				0	1	0			
		42						79						24						1				
11:15	2	6	0	2	0	0	0	14	3	6	0	0	5	0	3	5	0	0	0	0	0	0	0	0
11:30	1	13	0	4	0	0	0	9	9	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0
11:45	4	8	0	4	0	0	0	6	6	2	0	0	7	0	5	3	0	0	0	0	0	0	0	0
12:00	2	9	0	4	0	0	0	8	9	3	0	0	5	0	3	2	0	0	0	0	0	0	0	0
12:15	3	16	0	7	0	0	0	11	4	6	0	0	5	0	2	0	0	0	0	0	0	0	0	0
12:30	4	11	0	10	0	0	0	11	3	3	0	0	4	0	4	0	0	0	0	0	0	0	0	0
12:45	2	10	0	3	0	0	0	15	7	4	0	0	5	0	0	1	0	0	0	0	0	0	0	0
1:00	3	8	0	5	0	0	0	19	9	5	0	0	2	0	3	0	0	0	0	0	0	0	0	0
2 hr total	21	81	0	39	0	0	0	93	50	30	0	0	34	0	21	11	0	0	0	0	0	0	0	0
		102		38%				143		21%				55		20%				0		#DIV/0!		
peak hour	12	45	0				0	56	23				16	0	9				0	0	0			
		57						79						25						0				
4:15	2	9	0	2	0	0	0	7	9	2	0	0	6	0	4	0	0	0	0	0	0	0	0	0
4:30	1	13	0	1	0	0	0	7	5	2	0	0	7	0	2	0	0	0	0	0	0	0	0	0
4:45	6	12	0	1	0	0	0	7	7	4	0	0	7	0	6	0	0	0	0	0	0	0	0	0
5:00	3	17	0	1	0	0	0	10	3	1	0	0	3	0	4	2	0	0	0	0	0	0	0	0
5:15	6	13	0	4	0	0	0	6	1	1	0	0	8	0	4	0	0	0	0	0	0	0	0	0
5:30	7	8	0	2	0	0	0	11	2	2	0	0	15	0	6	0	0	0	0	0	0	0	0	0
5:45	0	16	0	2	0	0	0	3	4	0	0	0	7	0	4	2	0	0	0	0	0	0	0	0
6:00	3	10	0	2	0	0	0	9	2	3	0	0	4	0	3	2	0	0	0	0	0	0	0	0
2 hr total	28	98	0	15	0	0	0	60	33	15	0	0	57	0	33	6	0	0	0	0	0	0	0	0
		126		12%				93		16%				90		7%				0		#DIV/0!		
peak hour	22	50	0				0	34	13				33	0	20				0	0	0			
		72						47						53						0				
4 hour total	48	158	0				0	147	76				76	1	70				0	1	2			
		206						223						147						3				
2 direct L total	SB	206	49%				NB	223	49%				WB	147	54%				EB	3	75%			
	NB	217	51%				SB	236	51%				EB	125	46%				WB	1	25%			
		423						459						272						4				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 7 & Museum

Date 22-Jul-11

Observers Blair

time ending	FROM THE NORTH on Museum						FROM THE SOUTH on Museum						FROM THE EAST on Highway 7						FROM THE WEST on Highway &					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	1	0	0	0	0	0	0	15	1	5	0	0	1	24	1	9	0	0
7:30	1	0	0	0	0	0	0	0	0	0	0	0	0	29	1	6	0	0	0	22	1	7	0	0
7:45	0	0	0	0	0	0	1	0	0	0	0	0	1	20	0	7	0	0	0	14	2	5	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	39	0	3	0	0	0	18	9	7	0	0
8:15	0	0	0	0	0	0	1	0	0	0	0	0	0	19	0	7	0	0	0	18	3	3	0	0
8:30	0	0	0	0	0	0	2	0	0	0	0	0	1	24	0	3	0	0	1	18	2	7	0	0
8:45	0	0	0	0	0	0	0	0	1	0	0	0	0	25	0	6	0	0	0	32	2	14	0	0
9:00	0	0	0	0	0	0	1	0	0	0	0	0	0	37	0	6	0	0	0	17	2	6	0	0
2 hr total	1	0	0	0	0	0	6	0	1	0	0	0	3	208	2	43	0	0	2	163	22	58	0	0
		1		0%				7		0%				213		20%				187		31%		
peak hour	0	0	0				3	0	1				2	107	0				1	86	16			
		0						4						109						103				
11:15	1	0	0	0	0	0	4	0	0	0	0	0	2	50	0	10	0	0	0	28	1	6	0	0
11:30	0	0	0	0	0	0	1	0	0	0	0	0	1	38	0	8	0	0	2	37	6	6	0	0
11:45	0	0	0	0	0	0	2	0	0	0	0	0	0	52	0	12	0	0	1	31	2	5	0	0
12:00	0	0	2	1	0	0	9	0	1	0	0	0	0	49	0	10	0	0	0	27	5	6	0	1
12:15	1	0	1	0	0	0	9	0	1	0	0	0	1	46	1	8	0	0	0	41	4	12	0	0
12:30	0	0	0	0	0	0	4	0	0	0	0	0	0	34	0	5	0	0	0	29	0	6	0	0
12:45	0	0	1	1	0	0	2	0	1	1	0	0	0	49	1	8	0	0	0	30	4	9	0	0
1:00	0	1	0	0	0	0	2	0	0	0	0	0	1	40	0	7	0	0	0	56	5	11	0	0
2 hr total	2	1	4	2	0	0	33	0	3	1	0	0	5	358	2	68	0	0	3	279	27	61	0	1
		7		29%				36		3%				365		19%				309		20%		
peak hour	1	0	3				21	0	2				2	185	1				3	136	17			
		4						23						188						156				
4:15	1	0	0	0	0	0	4	0	3	1	0	0	0	40	0	10	0	0	1	44	2	3	0	0
4:30	0	1	1	0	0	0	2	0	1	0	0	0	0	31	1	7	0	0	0	45	1	5	0	0
4:45	0	0	0	0	0	0	2	1	1	0	0	0	1	43	0	10	0	0	0	39	2	11	0	0
5:00	1	0	1	0	0	0	3	0	0	0	0	0	0	31	0	9	0	0	0	49	1	10	0	0
5:15	0	0	0	0	0	0	4	1	0	1	0	0	0	40	0	4	0	0	1	62	0	14	0	0
5:30	0	0	0	0	0	0	2	0	0	0	0	0	0	28	0	5	0	0	0	45	0	10	0	0
5:45	0	0	1	0	0	0	1	0	0	0	0	0	0	21	0	6	0	0	3	50	1	2	1	0
6:00	0	0	0	0	0	0	1	0	0	0	0	0	1	31	0	10	0	0	1	36	0	5	0	0
2 hr total	2	1	3	0	0	0	19	2	5	2	0	0	2	265	1	61	0	0	6	370	7	60	1	0
		6		0%				26		8%				268		23%				383		16%		
peak hour	1	1	2				11	2	2				1	145	1				1	195	4			
		4						15						147						200				
4 hour total	3	1	3				25	2	6				5	473	3				8	533	29			
		7						33						481						570				
2 direct L total	SB	7	35%				NB	33	49%				WB	481	47%				EB	570	53%			
	NB	13	65%				SB	35	51%				EB	542	53%				WB	501	47%			
		20						68						1023						1071				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 7 and Main Street

Date 12-Oct-11

Observers Anita

time ending	FROM THE NORTH on 11 Street						FROM THE SOUTH on 11 Street						FROM THE EAST on Highway 7						FROM THE WEST on Highway 7					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	1	2	2	1	1	0	10	0	1	1	0	0	4	21	1	3	0	0	1	18	6	3	0	0
7:30	1	4	2	1	0	0	16	0	1	1	0	0	5	30	1	7	0	0	1	20	9	13	0	0
7:45	0	9	2	1	0	0	17	2	5	3	0	0	9	32	0	6	0	0	2	20	18	13	0	0
8:00	0	4	2	0	2	0	15	10	8	5	0	0	11	42	2	12	2	0	1	16	14	7	2	0
8:15	0	3	0	0	0	0	14	4	8	5	0	0	6	26	0	9	0	0	0	27	10	15	0	0
8:30	0	7	1	1	2	0	12	8	1	3	0	0	7	23	0	10	0	0	2	31	10	18	2	0
8:45	0	8	2	0	0	1	11	11	6	1	0	0	10	37	0	18	0	0	0	21	12	9	0	0
9:00	1	13	3	0	0	0	6	5	9	3	1	0	15	34	0	12	1	0	1	30	16	11	0	0
2 hr total	3	50	14	4	5	1	101	40	39	22	1	0	67	245	4	77	3	0	8	183	95	89	4	0
		67		6%				180		12%				316		24%				286		31%		
peak hour	1	31	6				43	28	24				38	120	0				3	109	48			
		38						95						158						160				
11:15	9	8	11	2	0	0	2	11	4	1	0	0	3	14	12	6	0	0	7	28	0	13	0	0
11:30	15	9	6	2	0	0	0	15	5	1	0	0	3	28	19	12	0	0	9	32	0	7	0	0
11:45	11	16	12	6	0	0	0	10	1	0	0	0	3	15	15	7	0	0	9	36	1	14	0	0
12:00	12	17	9	3	0	0	0	21	2	0	0	0	2	28	15	11	0	0	12	15	1	8	0	0
12:15	5	11	9	1	0	0	4	35	5	3	0	0	11	45	25	12	1	0	10	22	0	4	2	0
12:30	13	18	11	3	0	0	0	15	2	1	0	0	5	29	15	12	0	0	13	20	0	7	1	0
12:45	11	9	9	1	0	0	1	27	11	1	0	0	6	26	17	8	0	0	11	33	0	9	2	0
1:00	17	14	13	3	0	1	1	12	9	1	0	0	7	23	15	5	0	0	14	31	4	6	0	0
2 hr total	93	102	80	21	0	1	8	146	39	8	0	0	40	208	133	73	1	0	85	217	6	68	5	0
		275		8%				193		4%				381		19%				308		22%		
peak hour	46	52	42				6	89	27				29	123	72				48	106	4			
		140						122						224						158				
4:15	0	16	2	1	1	0	19	13	10	3	0	0	11	25	3	9	0	0	4	29	13	9	3	0
4:30	1	17	2	1	0	0	10	14	8	5	0	0	11	29	3	12	0	0	3	21	24	12	0	0
4:45	0	16	1	1	0	0	15	9	6	4	0	0	11	38	0	15	1	0	4	35	22	17	2	0
5:00	2	20	1	1	0	0	12	10	12	4	0	0	9	24	1	9	0	0	2	40	17	9	2	0
5:15	1	20	4	1	2	0	13	12	12	1	0	0	11	31	2	16	0	0	6	42	21	14	2	0
5:30	2	20	7	1	0	0	9	13	6	1	0	0	7	20	2	5	0	0	1	30	21	10	0	0
5:45	0	23	4	0	0	0	13	11	9	3	0	0	16	16	5	7	0	0	2	36	21	8	0	0
6:00	2	16	5	1	0	0	6	7	8	2	0	0	11	30	2	12	0	0	2	26	11	3	0	0
2 hr total	8	148	26	7	3	0	97	89	71	23	0	0	87	213	18	85	1	0	24	259	150	82	9	0
		182		4%				257		9%				318		27%				433		19%		
peak hour	4	73	8				50	45	38				42	122	6				15	138	84			
		85						133						170						237				
4 hour total	11	198	40				198	129	110				154	458	22				32	442	245			
		249						437						634						719				
2 direct L total	SB	249	58%				NB	437	42%				WB	634	53%				EB	719	51%			
	NB	183	42%				SB	597	58%				EB	563	47%				WB	696	49%			
		432						1034						1197						1415				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 7 and 10 Street

Date 12/10/2011

Observers Marsha

time ending	FROM THE NORTH on 10 Street						FROM THE SOUTH on 10 Street						FROM THE EAST on highway 7						FROM THE WEST on highway 7					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	0	1	0	0	0	0	31	0	6	0	0	0	17	0	8	0	0
7:30	0	0	0	0	0	0	0	0	4	4	0	0	1	34	0	7	0	0	0	14	0	4	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	7	0	0	0	37	0	15	0	0
8:00	0	0	0	0	0	0	0	0	2	1	0	0	0	41	0	10	0	0	0	24	0	5	0	0
8:15	0	0	0	0	0	0	0	0	5	2	0	0	0	29	0	6	0	0	0	25	1	10	0	0
8:30	0	0	0	0	0	0	0	0	6	4	0	0	0	20	0	10	0	0	0	18	1	10	0	0
8:45	0	0	0	0	0	0	0	0	5	1	0	0	0	34	0	9	0	0	0	16	1	4	0	0
9:00	0	0	0	0	0	0	0	0	8	2	0	0	0	21	0	5	0	0	0	21	1	3	0	0
2 hr total	0	0	0	0	0	0	0	0	31	14	0	0	1	243	0	60	0	0	0	172	4	59	0	0
		0		#DIV/0!					31	45%				244		25%				176		34%		
peak hour	0	0	0				0	0	11				1	137	0				0	100	1			
		0							11					138						101				
11:15	0	0	0	0	0	0	0	0	3	1	0	0	0	38	0	12	0	0	0	20	1	3	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	8	0	0	0	35	1	13	0	0
11:45	0	0	0	0	0	0	0	0	3	1	0	0	0	25	0	7	0	0	0	27	0	7	0	0
12:00	0	0	0	0	0	0	0	0	4	1	0	0	0	26	0	7	0	0	0	34	0	8	0	0
12:15	0	0	0	0	0	0	0	0	7	4	0	0	0	16	0	1	0	0	0	53	0	7	0	0
12:30	0	0	0	0	0	0	0	0	4	1	0	0	0	26	0	4	0	0	0	24	0	9	0	0
12:45	0	0	0	0	0	0	0	0	1	0	0	0	0	39	0	9	0	0	0	30	0	8	0	0
1:00	0	0	0	0	0	0	0	0	3	1	0	0	0	33	0	5	0	0	0	33	0	5	0	0
2 hr total	0	0	0	0	0	0	0	0	25	9	0	0	0	236	0	53	0	0	0	256	2	60	0	0
		0		#DIV/0!					25	36%				236		22%				258		23%		
peak hour	0	0	0				0	0	15				0	114	0				0	140	0			
		0							15					114						140				
4:15	0	0	0	0	0	0	0	0	5	0	0	0	0	35	0	7	0	0	0	35	2	9	0	0
4:30	0	0	0	0	0	0	0	0	1	0	0	0	0	33	0	11	0	0	0	36	1	10	0	0
4:45	0	0	0	0	0	0	0	0	6	0	0	0	0	32	0	9	0	0	0	36	2	14	0	0
5:00	0	0	0	0	0	0	0	0	1	0	0	0	0	31	0	6	0	0	0	53	0	13	0	0
5:15	0	0	0	0	0	0	0	0	6	0	0	0	0	23	0	9	0	0	0	53	0	12	0	0
5:30	0	0	0	0	0	0	0	0	1	0	0	0	0	38	0	10	0	0	0	41	0	7	0	0
5:45	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	7	0	0	0	38	0	3	0	0
6:00	0	0	0	0	0	0	0	0	1	0	0	0	0	38	0	12	0	0	0	29	0	2	0	0
2 hr total	0	0	0	0	0	0	0	0	21	0	0	0	0	254	0	71	0	0	0	321	5	70	0	0
		0		#DIV/0!					21	0%				254		28%				326		21%		
peak hour	0	0	0				0	0	14				0	124	0				0	183	2			
		0							14					124						185				
4 hour total	0	0	0				0	0	52				1	497	0				0	493	9			
		0							52					498						502				
2 direct L total	SB	0	#DIV/0!				NB	52	84%				WB	498	48%				EB	502	50%			
	NB	0	#DIV/0!				SB	10	16%				EB	545	52%				WB	497	50%			
		0						62						1043						999				



INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location Highway 7 and 11 Street

Date 12-Oct-11

Observers Marsha

time ending	FROM THE NORTH on 11 Street						FROM THE SOUTH on 11 Street						FROM THE EAST on Highway 7						FROM THE WEST on highway 7					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	4	3	3	0	0	5	24	0	5	0	0	0	16	2	6	0	0
7:30	0	0	0	0	0	0	2	3	1	3	0	0	3	29	0	7	0	0	0	19	0	6	0	0
7:45	0	1	0	0	0	0	0	0	7	3	0	0	3	24	3	5	0	0	1	26	0	9	0	0
8:00	0	0	0	0	0	0	1	1	4	1	0	0	7	30	7	10	0	0	0	26	2	7	0	0
8:15	1	0	1	0	0	0	0	2	6	4	0	0	1	26	4	7	0	0	0	19	0	8	0	0
8:30	2	1	0	1	0	0	2	0	1	1	0	0	3	15	1	9	0	0	2	16	1	9	0	0
8:45	4	2	1	4	0	0	2	1	1	1	0	0	5	24	4	11	0	0	1	18	2	5	0	0
9:00	1	0	1	1	0	0	3	0	3	0	0	0	3	18	2	5	0	0	0	19	0	3	0	0
2 hr total	8	4	3	6	0	0	10	11	26	16	0	0	30	190	21	59	0	0	4	159	7	53	0	0
		15		40%				47		34%				241		24%				170		31%		
peak hour	1	1	1				3	6	18				14	109	14				1	90	2			
		3						27						137						93				
11:15	0	0	0	0	0	0	0	1	0	0	0	0	4	30	2	10	0	0	1	23	0	3	0	0
11:30	1	1	0	0	0	0	1	1	4	3	0	0	4	26	1	7	0	0	0	28	1	12	0	0
11:45	2	2	0	0	0	0	0	0	5	0	0	0	4	23	1	7	0	0	0	22	0	7	0	0
12:00	3	0	1	0	0	0	0	1	3	1	0	0	4	19	1	7	0	0	0	26	2	8	0	0
12:15	10	1	0	0	0	0	1	0	7	1	0	0	2	14	0	1	0	0	0	36	0	5	0	0
12:30	0	2	0	0	0	0	0	0	3	2	0	0	2	22	1	3	0	0	0	21	0	7	0	0
12:45	1	0	1	0	0	0	1	0	1	2	0	0	5	35	1	11	0	0	0	28	0	5	0	0
1:00	1	0	0	0	0	0	0	2	6	1	0	0	6	24	3	5	0	0	1	31	1	8	0	0
2 hr total	18	6	2	0	0	0	3	5	29	10	0	0	31	193	10	51	0	0	2	215	4	55	0	0
		26		0%				37		27%				234		22%				221		25%		
peak hour	12	3	1				2	2	17				15	95	5				1	116	1			
		16						21						115						118				
4:15	2	1	0	0	0	0	2	1	4	0	0	0	7	27	0	6	0	0	1	31	1	9	0	0
4:30	1	1	0	0	0	0	2	2	5	2	0	0	5	29	1	10	0	0	3	31	1	9	0	0
4:45	1	0	0	1	0	0	0	1	6	1	0	0	3	27	1	9	0	0	1	30	0	13	0	0
5:00	0	2	0	2	0	0	2	0	7	2	0	0	3	21	0	4	0	0	1	50	0	17	1	0
5:15	5	0	1	0	0	0	3	3	6	2	0	0	1	23	0	10	0	0	1	40	1	14	0	0
5:30	2	1	0	0	0	0	1	1	7	0	0	0	3	36	0	9	0	0	1	33	1	9	0	0
5:45	2	0	0	0	0	0	0	0	7	1	0	0	0	24	1	8	0	0	0	30	1	1	0	0
6:00	0	1	0	1	0	0	2	2	4	0	0	0	5	33	0	12	0	0	0	27	0	2	0	0
2 hr total	13	6	1	4	0	0	12	10	46	8	0	0	27	220	3	68	0	0	8	272	5	74	1	0
		20		20%				68		12%				250		27%				285		26%		
peak hour	8	3	1				6	5	26				10	107	1				4	153	2			
		12						37						118						159				
4 hour total	21	10	4				22	21	72				57	410	24				12	431	12			
		35						115						491						455				
2 direct L total	SB	35	38%				NB	115	59%				WB	491	48%				EB	455	51%			
	NB	57	62%				SB	79	41%				EB	524	52%				WB	436	49%			
		92						194						1015						891				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 7 Avenue and 1 Street

Date 12-Oct-11

Observers RHONDA

time ending	FROM THE NORTH on 1 Street						FROM THE SOUTH on 1 Street						FROM THE EAST on 7 Avenue						FROM THE WEST on 7 Avenue					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	1	3	0	0	0	1	2	0	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0
7:30	0	1	0	0	0	0	0	4	0	0	0	0	1	1	0	0	0	0	0	2	0	0	0	0
7:45	1	1	0	0	0	0	2	4	0	0	0	0	1	1	1	0	0	0	1	1	0	0	0	0
8:00	0	3	0	0	0	0	2	5	1	0	0	0	2	5	2	0	0	0	1	3	1	0	0	0
8:15	0	7	1	0	0	0	1	3	0	1	0	0	4	1	1	0	0	0	1	1	1	0	0	0
8:30	1	6	2	0	0	0	1	5	1	0	0	0	3	1	1	0	0	0	0	5	4	0	0	0
8:45	0	7	1	0	0	0	1	8	1	1	0	0	8	11	0	6	0	0	1	12	2	3	0	0
9:00	1	8	0	0	0	0	3	6	6	3	0	0	8	4	1	0	0	0	1	14	0	1	0	0
2 hr total	3	34	7	0	0	0	11	37	9	5	0	0	27	25	7	6	0	0	6	38	9	4	0	0
		44		0%				57		9%				59		10%				53		8%		
peak hour	2	28	4				6	22	8				23	17	3				3	32	7			
		34						36						43						42				
11:15	0	1	0	0	0	0	0	9	0	0	0	0	1	3	1	0	0	0	1	1	1	0	0	0
11:30	0	4	0	0	0	0	0	4	0	0	0	0	3	2	0	0	0	0	1	0	0	0	0	0
11:45	0	4	0	0	0	0	2	3	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
12:00	0	4	2	0	0	0	2	11	2	0	0	0	2	0	1	0	0	0	2	1	1	0	0	0
12:15	1	9	2	0	0	0	1	20	4	0	0	1	4	7	3	0	0	0	3	3	1	0	0	0
12:30	0	9	0	0	0	0	0	5	1	0	0	0	2	4	1	1	0	0	0	2	3	0	0	0
12:45	0	2	0	0	0	0	1	9	0	0	0	0	3	2	0	0	0	0	2	1	1	0	0	0
1:00	0	8	0	0	0	0	3	11	1	1	0	0	6	5	2	0	0	0	0	11	1	0	0	0
2 hr total	1	41	4	0	0	0	9	72	8	2	0	1	21	25	8	1	0	0	9	19	8	0	0	0
		46		0%				89		2%				54		2%				36		0%		
peak hour	1	28	2				5	45	6				15	18	6				5	17	6			
		31						56						39						28				
4:15	0	7	1	0	0	0	1	10	2	1	0	0	1	4	0	1	0	0	0	4	1	0	0	0
4:30	0	5	0	0	0	0	1	7	3	1	0	0	1	3	2	0	0	0	2	10	1	0	0	0
4:45	0	3	1	0	0	0	2	10	1	0	0	0	0	5	0	0	0	0	3	1	0	0	0	0
5:00	0	4	0	0	0	0	1	6	1	2	0	0	2	3	0	0	0	0	2	1	1	0	0	0
5:15	0	11	1	0	0	0	2	6	3	0	0	0	3	10	1	0	0	0	0	6	1	0	0	0
5:30	0	2	1	0	0	0	3	7	3	0	0	0	1	4	1	0	0	0	2	5	3	1	0	0
5:45	0	4	0	0	0	0	0	11	1	0	0	0	1	5	0	0	0	0	0	3	4	0	0	0
6:00	0	2	1	0	0	0	1	6	0	0	0	0	1	6	2	0	0	0	1	1	0	0	0	0
2 hr total	0	38	5	0	0	0	11	63	14	4	0	0	10	40	6	1	0	0	10	31	11	1	0	0
		43		0%				88		5%				56		2%				52		2%		
peak hour	0	23	2				6	29	8				6	21	3				7	18	3			
		25						43						30						28				
4 hour total	3	72	12				22	100	23				37	65	13				16	69	20			
		87						145						115						105				
2 direct L total	SB	87	40%				NB	145	53%				WB	115	55%				EB	105	51%			
	NB	129	60%				SB	129	47%				EB	95	45%				WB	99	49%			
		216						274						210						204				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 5 Avenue and 1 Street

Date 13-Oct-11

Observers Ken

time ending	FROM THE NORTH on 1 Street						FROM THE SOUTH on 1 Street						FROM THE EAST on 5 Avenue						FROM THE WEST on 5 Avenue					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	1	2	1	0	0	0	0	3	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
7:30	0	0	0	0	0	0	1	2	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0
7:45	2	1	0	0	0	0	0	4	1	0	0	0	0	1	2	0	0	0	0	2	1	0	0	0
8:00	0	4	0	0	0	0	4	5	3	0	0	0	1	2	1	0	0	0	0	4	0	0	0	0
8:15	0	4	1	0	0	0	3	6	3	0	0	0	1	3	2	0	0	1	0	1	0	0	0	0
8:30	1	3	1	0	0	0	2	11	1	0	0	0	2	2	7	0	0	1	0	4	3	0	0	2
8:45	3	4	2	0	0	0	2	10	3	1	0	0	4	5	5	1	0	0	5	5	1	0	0	1
9:00	4	7	2	1	0	0	3	12	0	0	0	2	3	8	6	0	0	1	1	5	2	0	0	0
2 hr total	11	25	7	1	0	0	15	53	12	1	0	2	13	22	23	1	0	3	6	22	9	0	0	3
		43		2%				80		1%				58		2%				37		0%		
peak hour	8	18	6				10	39	7				10	18	20				6	15	6			
		32						56						48						27				
11:15	1	5	0	0	0	0	0	5	4	0	0	0	0	2	0	0	0	0	2	2	2	0	0	0
11:30	0	2	1	0	0	0	3	7	0	0	0	0	0	1	0	0	0	0	0	1	2	0	0	0
11:45	0	3	0	0	0	0	0	12	1	0	0	0	1	6	0	0	0	0	0	5	1	0	0	0
12:00	1	9	3	0	0	0	0	11	1	0	0	0	1	2	0	0	0	0	0	7	1	0	0	0
12:15	2	14	2	1	0	0	1	17	1	0	0	0	1	11	1	1	0	0	6	3	9	0	0	0
12:30	0	3	0	0	0	0	3	8	0	0	0	0	2	2	1	0	0	0	2	3	2	0	0	0
12:45	1	3	0	0	0	0	6	9	3	1	0	0	2	3	0	0	0	1	0	2	2	0	0	0
1:00	1	14	3	1	0	0	6	14	3	0	0	0	3	6	3	1	0	0	1	12	2	1	0	0
2 hr total	6	53	9	2	0	0	19	83	13	1	0	0	10	33	5	2	0	1	11	35	21	1	0	0
		68		3%				115		1%				48		4%				67		1%		
peak hour	4	34	5				16	48	7				8	22	5				9	20	15			
		43						71						35						44				
4:15	1	6	1	0	0	0	0	6	1	0	0	0	2	6	0	0	0	0	0	1	1	0	0	0
4:30	1	6	2	0	0	0	1	4	2	0	0	0	6	2	2	0	0	0	2	2	4	0	0	2
4:45	0	7	0	0	0	0	1	5	1	0	0	0	1	7	0	0	0	0	0	4	4	0	0	0
5:00	1	10	2	0	0	0	2	9	3	0	0	0	0	3	2	0	0	0	2	5	2	0	0	0
5:15	3	13	0	0	0	0	2	19	1	0	0	0	1	6	1	0	0	1	1	4	4	0	0	0
5:30	1	9	1	0	0	0	2	4	1	0	0	0	1	6	1	0	0	0	0	2	1	0	0	0
5:45	1	10	0	0	0	1	5	7	1	0	0	0	2	9	0	0	0	2	0	6	1	1	0	0
6:00	4	3	0	0	0	1	4	5	4	0	0	1	0	3	1	0	0	0	1	5	0	0	0	0
2 hr total	12	64	6	0	0	2	17	59	14	0	0	1	13	42	7	0	0	3	6	29	17	1	0	2
		82		0%				90		0%				62		0%				52		2%		
peak hour	6	42	3				11	39	6				4	24	4				3	17	8			
		51						56						32						28				
4 hour total	23	89	13				32	112	26				26	64	30				12	51	26			
		125						170						120						89				
2 direct L total	SB	125	45%				NB	170	55%				WB	120	55%				EB	89	45%			
	NB	154	55%				SB	141	45%				EB	100	45%				WB	109	55%			
		279						311						220						198				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 7 Avenue and 2 Street

Date 13-Oct-11

Observers Rhonda

time ending	FROM THE NORTH on 2 Street						FROM THE SOUTH on 2 Street						FROM THE EAST on 7 Avenue						FROM THE WEST on 7 Avenue					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	3	2	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
7:30	0	6	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
7:45	0	7	2	0	0	0	1	11	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0
8:00	0	8	6	2	0	0	1	13	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:15	0	11	2	0	0	0	2	8	0	1	0	0	0	0	1	0	0	0	1	1	1	0	0	0
8:30	0	18	1	3	0	0	1	14	0	2	0	0	1	2	0	0	0	0	4	1	2	0	0	0
8:45	0	27	11	17	0	0	1	14	0	4	0	0	0	1	0	0	0	0	3	5	4	4	0	0
9:00	0	12	5	2	0	0	3	17	0	5	0	0	0	0	0	0	0	0	5	9	12	1	0	0
2 hr total	0	92	29	24	0	0	9	95	0	12	0	0	1	4	1	0	0	0	19	16	19	5	0	0
		121		20%				104		12%				6		0%				54		9%		
peak hour	0	68	19				7	53	0				1	3	1				13	16	19			
		87						60						5						48				
11:15	0	9	1	1	0	0	0	7	0	1	0	0	0	0	0	0	0	0	1	1	2	0	0	0
11:30	0	6	1	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0
11:45	0	7	3	1	0	0	1	7	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0
12:00	0	14	5	0	0	0	1	10	0	0	0	0	0	0	0	0	0	0	5	1	2	0	0	0
12:15	0	18	10	0	0	0	2	15	0	0	0	0	2	14	1	2	0	0	4	0	1	0	0	0
12:30	2	20	2	0	0	0	2	8	0	1	0	0	0	5	0	0	0	0	8	0	2	0	0	0
12:45	3	20	5	0	0	0	1	7	0	1	0	0	0	0	0	0	0	0	2	0	1	0	0	0
1:00	7	22	6	0	0	0	2	19	0	1	0	0	0	0	0	0	0	0	4	4	0	0	0	0
2 hr total	12	116	33	4	0	0	10	76	0	4	0	0	2	19	1	2	0	0	29	7	9	0	0	0
		161		2%				86		5%				22		9%				45		0%		
peak hour	5	72	22				6	40	0				2	19	1				19	1	6			
		99						46						22						26				
4:15	0	14	6	0	0	0	1	12	0	1	0	0	0	0	0	0	0	0	2	0	1	0	0	0
4:30	0	14	5	0	0	0	1	9	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
4:45	0	21	4	0	0	0	1	7	0	0	0	0	0	0	2	0	0	0	1	0	1	0	0	0
5:00	0	16	4	0	0	0	2	8	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
5:15	0	23	5	3	0	0	1	15	0	0	0	0	0	1	0	0	0	0	7	0	6	0	0	0
5:30	0	7	4	0	0	0	0	8	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0
5:45	0	19	8	0	0	0	1	18	0	0	0	0	0	3	0	1	0	0	2	1	2	0	0	0
6:00	0	19	5	0	0	0	1	13	0	1	0	0	0	3	0	0	0	0	2	0	5	0	0	0
2 hr total	0	133	41	3	0	0	8	90	0	3	0	0	0	10	3	1	0	0	18	1	17	0	0	0
		174		2%				98		3%				13		8%				36		0%		
peak hour	0	68	22				3	54	0				0	9	0				12	1	13			
		90						57						9						26				
4 hour total	0	225	70				17	185	0				1	14	4				37	17	36			
		295						202						19						90				
2 direct L total	SB	295	57%				NB	202	44%				WB	19	53%				EB	90	47%			
	NB	226	43%				SB	262	56%				EB	17	47%				WB	101	53%			
		521						464						36						191				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 5 Avenue and 3 Street

Date 13-Oct-11

Observers Anita

time ending	FROM THE NORTH on 3 Street						FROM THE SOUTH on 3 Street						FROM THE EAST on 5 Avenue						FROM THE WEST on 5 Avenue					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0
7:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
8:00	3	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	0	0	0	0
8:15	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	4	0	0	0	0
8:30	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	9	9	0	2	0	0
8:45	1	0	5	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	21	15	0	13	0	0
9:00	2	0	14	1	0	0	0	0	0	0	0	0	0	4	0	1	0	0	28	20	0	2	0	0
2 hr total	6	0	25	1	0	0	0	0	0	0	0	0	0	11	1	5	0	0	63	54	0	17	0	0
		31		3%				0		#DIV/0!				12		42%				117		15%		
peak hour	3	0	22				0	0	0				0	10	0				61	48	0			
		25						0						10						109				
11:15	1	0	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0
11:30	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
11:45	1	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	7	1	0	1	0	0
12:00	2	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	3	0	0	0	0
12:15	3	0	8	0	0	0	0	0	0	0	0	0	0	8	3	0	0	0	6	8	0	0	0	0
12:30	2	0	4	1	0	1	0	0	0	0	0	0	0	0	4	0	0	0	3	6	0	0	0	2
12:45	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	8	6	0	0	0	0
1:00	4	0	8	1	0	0	0	0	0	0	0	0	0	4	5	1	0	0	11	11	0	1	0	0
2 hr total	13	0	32	2	0	1	0	0	0	0	0	0	0	16	19	1	0	0	42	36	0	2	0	2
		45		4%				0		#DIV/0!				35		3%				78		3%		
peak hour	9	0	22				0	0	0				0	15	12				28	31	0			
		31						0						27						59				
4:15	1	0	2	0	0	0	0	0	0	0	0	0	0	8	1	0	0	0	2	2	0	0	0	0
4:30	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	2
4:45	0	0	1	0	0	1	0	0	0	0	0	0	0	6	1	0	0	0	4	0	0	0	0	0
5:00	3	0	2	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	12	2	0	0	0	2
5:15	1	0	6	0	0	2	0	0	0	0	0	0	0	8	3	0	0	0	14	2	0	1	0	0
5:30	3	0	5	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	8	5	0	0	0	0
5:45	2	0	5	0	0	3	0	0	0	0	0	0	0	3	1	0	0	0	13	3	0	0	0	0
6:00	1	0	3	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	22	13	0	0	0	0
2 hr total	11	0	25	0	0	6	0	0	0	0	0	0	0	36	11	0	0	0	77	27	0	1	0	4
		36		0%				0		#DIV/0!				47		0%				104		1%		
peak hour	7	0	19				0	0	0				0	17	8				57	23	0			
		26						0						25						80				
4 hour total	17	0	50				0	0	0				0	47	12				140	81	0			
		67						0						59						221				
2 direct L total	SB	67	31%				NB	0	#DIV/0!				WB	59	38%				EB	221	69%			
	NB	152	69%				SB	0	#DIV/0!				EB	98	62%				WB	97	31%			
		219						0						157						318				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT  
ME2 TRANSPORTATION DATA CORP.

Location 5 Avenue and 2 Street

Date 13-Oct-11

Observers Marsha

time ending	FROM THE NORTH on 2 Street						FROM THE SOUTH on 2 Street						FROM THE EAST on 5 Avenue						FROM THE WEST on 5 Avenue					
	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	2	2	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0
7:30	0	4	2	0	0	0	0	8	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0
7:45	0	6	1	0	0	0	2	7	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0
8:00	2	6	1	2	0	0	2	10	0	0	0	0	0	0	1	0	0	0	4	3	0	0	0	0
8:15	2	10	1	0	0	0	2	7	4	0	0	1	2	0	1	0	0	1	3	1	0	0	0	0
8:30	7	7	6	2	0	0	4	10	10	1	0	0	0	2	1	1	0	0	4	3	1	0	0	1
8:45	16	5	5	14	0	0	6	8	13	4	0	0	1	2	3	3	0	0	2	9	0	1	0	0
9:00	14	11	2	3	0	0	6	9	30	0	0	0	6	7	4	2	0	0	1	10	0	2	0	0
2 hr total	43	51	18	21	0	0	22	62	57	5	0	1	10	12	10	6	0	1	21	28	1	3	0	1
		112		19%				141		4%				32		19%				50		6%		
peak hour	39	33	14				18	34	57				9	11	9				10	23	1			
		86						109						29						34				
11:15	0	12	0	0	0	0	1	3	1	0	0	0	3	1	0	0	0	0	3	0	3	0	0	0
11:30	0	6	1	0	0	0	0	4	1	0	0	0	3	0	0	0	0	0	0	0	2	0	0	0
11:45	1	5	1	0	0	0	2	8	6	1	0	0	0	3	0	0	0	0	2	2	0	0	0	0
12:00	3	14	1	1	0	0	1	8	4	0	0	0	0	1	0	0	0	0	3	4	0	0	0	0
12:15	1	12	2	0	0	0	1	11	7	1	0	0	6	7	5	0	0	0	1	3	2	0	0	0
12:30	6	12	2	0	0	0	1	8	2	1	0	1	4	0	0	0	0	1	0	2	0	0	0	0
12:45	3	15	1	0	0	0	1	7	8	0	0	0	2	1	0	0	0	0	1	3	2	1	0	0
1:00	4	13	3	0	0	0	5	13	10	2	0	1	6	4	0	1	0	0	4	8	2	1	0	0
2 hr total	18	89	11	1	0	0	12	62	39	5	0	2	24	17	5	1	0	1	14	22	11	2	0	0
		118		1%				113		4%				46		2%				47		4%		
peak hour	14	52	8				8	39	27				18	12	5				6	16	6			
		74						74						35						28				
4:15	1	8	1	0	0	0	2	6	1	0	0	0	2	7	2	0	0	0	1	2	2	0	0	0
4:30	0	10	2	0	0	0	2	7	2	1	0	0	1	1	0	0	0	0	4	0	4	0	0	2
4:45	1	24	1	0	0	0	5	7	2	0	0	0	3	2	2	0	0	1	2	1	1	1	0	0
5:00	1	11	3	0	0	0	1	10	7	0	0	0	3	2	1	1	0	1	1	5	4	0	0	0
5:15	4	21	1	1	0	0	3	8	8	2	0	0	4	5	2	0	0	0	4	3	1	0	0	0
5:30	3	6	1	0	0	0	4	13	10	0	0	0	4	3	3	0	0	0	0	1	0	0	0	0
5:45	3	15	2	0	0	0	2	13	13	1	0	0	0	4	2	0	0	3	1	2	6	0	0	0
6:00	8	13	2	0	0	0	0	13	21	0	0	0	3	2	1	0	0	1	1	6	3	0	0	0
2 hr total	21	108	13	1	0	0	19	77	64	4	0	0	20	26	13	1	0	6	14	20	21	1	0	2
		142		1%				160		3%				59		2%				55		2%		
peak hour	18	55	6				9	47	52				11	14	8				6	12	10			
		79						108						33						28				
4 hour total	64	159	31				41	139	121				30	38	23				35	48	22			
		254						301						91						105				
2 direct L total	SB	254	56%				NB	301	59%				WB	91	28%				EB	105	49%			
	NB	197	44%				SB	211	41%				EB	233	72%				WB	110	51%			
		451						512						324						215				

### **Classification Key**

A	Passenger Car \ Pickup
B	Passenger Vehicle with trailer (car or pickup)
C	Single Unit - 2 axle
D	Single Unit - 2 axle rear + (dump, cement)
E	Single Unit - 2 and 3 axles rear with trailer
F	Tractor NO trailer
G	Tractor SemiTrailer
H	Tractor Trailer multi trailer
I	Buses
J	Motorbike
K	Bicycle
L	Pedestrians



**ME2 TRANSPORTATION DATA CORP  
VEHICLE CLASSIFICATION**

Time Ending	LT												FROM THE EAST ON HWY 7 ST												RT													
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L		
7:15	3						2						6	1	1											6	1											
7:30	7												11		1						2					4	1											
7:45	8	1											8	1	1						1					7												
8:00	15						2						14	1		1				1	1					7	1						1					
8:15	7						1						24	1												8												
8:30	7												14	1						1	1					7		1	2									
8:45	8	1					2						15	3	3					2	3					11												
9:00	7												14	2	1					1						11						1						
2 hr total	62	2	0	0	0	0	8	0	0	0	0	0	106	10	7	1	0	0	5	8	0	0	0	0	0	61	3	1	2	0	0	0	1	1	0	0	0	0
peak hour	29	1	0	0	0	0	3	0	0	0	0	0	67	7	4	0	0	0	4	4	0	0	0	0	0	37	0	1	2	0	0	0	1	0	0	0	0	

Time Ending	LT												FROM THE EAST ON HWY 7 ST												RT												
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	K	L	M	
11:15	7												21	2	1				2							9	1	1									
11:30	6	1					2						24			1										9			1	1							
11:45	4	1					1						13	5					1							9		1					1				
12:00	4	1											20	1	2				3	1						7						1					
12:15	7									1			15	1	1		1									11	1					1					
12:30	10	2		2									20	1					2							8						1					
12:45	18												19	3						1						14	1										
13:00	12												36	3	1							1				14	1	1									
2 hr total	68	5	0	2	0	0	3	0	1	0	0	0	168	16	5	1	1	0	8	2	0	1	0	0	81	4	3	1	1	0	3	1	0	0	0	0	
							79												202																		
peak hour	47	2	0	2	0	0	0	0	1	0			90	8	2	0	1	0	2	1	0	1			47	3	1	0	0	0	2	0	0	0			

Time Ending	LT												FROM THE EAST ON HWY 7 ST												RT												
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	K	L	M	
4:15	7		1	1			2						20						2	1					7			1									
4:30	4						2						19	1	1		1		4						6	1		2			1						
4:45	8			1					1				13	1					2	1					10			2				1	1				
5:00	16												29	3					8						6												
5:15	3												17	2		1	1		3	2		1			17						1						
5:30	5										1		19	1	1	1			1						11						1						
5:45	5												18		1		1								8						1						
6:00	10												20						6	2					10			2									
2 hr total	58	0	1	2	0	0	4	1	0	1	0	0	155	8	3	2	3	0	26	6	0	1	0	0	75	1	0	7	0	0	5	1	0	0	0	0	
peak hour	23	0	0	0	0	0	67	0	0	0	1		74	3	2	2	2	0	10	4	0	1			46	0	0	2	0	0	3	0	0	0			

**ME2 TRANSPORTATION DATA CORP  
VEHICLE CLASSIFICATION**

Time Ending	LT												FROM THE WEST ON HWY 7												RT												
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	
7:15	3												4	1					1																		
7:30	2												5							1						1											
7:45	1												8		1				1							1											
8:00	3	1											7	3	1				2							6					2						
8:15	3												10						1	1					1	3											
8:30	2	1											13	2					2							5						2					
8:45	2						1						13							1						4	1										
9:00	7						1						17													3		1									
2 hr total	23	2	0	0	0	0	2	0	0	0	0	0	77	6	2	0	0	0	7	3	0	0	0	1	23	1	1	0	0	0	0	2	2	0	0	0	0
peak hour	14	1	0	0	0	0	27	0	0	0	0	0	53	2	0	0	0	0	95	3	2	0	0	15	1	1	0	0	0	0	29	0	2	0	0	0	

Time Ending	LT												FROM THE WEST ON HWY 7												RT												
	A	B	C	D	E	F	G	H	I	J	K	L	ST												A	B	C	D	E	F	G	H	I	J	K	L	
11:15	2												30	3		1		1		1						4											
11:30	5		1										14	2		1			1							3	1	1					1				
11:45	3	2											28	2					2	1						5											
0:00	1								1				27	1					3							3	1										
12:15	7		1				2						40		1	1			1	1						6	1										
12:30	1												24	3	1				2	1		2				3											
12:45	3												30	3					2	1		1				6						1					
13:00	1		1										28	1	1				2	1						3											
2 hr total	23	2	3	0	0	0			1	0	0	0	221	15	3	3	0	1	13	6	0	3	0	0	33	3	1	0	0	0	0	0	2	0	0	0	0
peak hour	12	0	2	0	0	0	31	2	0	0	0	0	122	7	3	1	0	0	7	4	0	3	0	18	1	0	0	0	0	0	0	1	0	0	0	0	
																			265												39						

Time Ending	LT												FROM THE WEST ON HWY 7												RT													
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L		
4:15	4												22	3	1				4							9						2	1	1				
4:30	4								1				22			1										4	1					1	1					
4:45	4	1											26	1					3							2						2						
5:00	11				1								28	2		1			3				1			3	2											
5:15	4		1										45	1					2	2						4							1					
5:30	5		1			1							35	3		1		1	1						3								1					
5:45	2							1	1				25	3						2			1			5		2		1			1					
6:00	1	1											19	6		1			2							4	1					1						
2 hr total	35	2	2	1	1	0	2	2	0	0	0	0	222	19	1	4	0	1	15	4	0	2	0	0	0	34	4	2	0	1	0	0	6	5	1	0	0	0
peak hour	12	1	2	0	1	0	1	1	0	0	0	0	124	13	0	2	0	1	5	4	0	1	0	1	16	1	2	0	1	0	0	1	3	0	0	0	0	

**ME2 TRANSPORTATION DATA CORP  
VEHICLE CLASSIFICATION**

Time Ending	LT												FROM THE SOUTH ON HWY 21												RT													
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L		
7:15	1												3	1					1							1						1						
7:30													2													2												
7:45	2												4							1						2						1						
8:00	9												7	1					1							10	1	1										
8:15	5		3						1				8						1	1						11												
8:30	2	1											12	1												5												
8:45	6					1							7			1										3	2					1						
9:00	4												17							1						9						1		1				
2 hr total	29	1	3	0	0	1			1	0	0	0	60	3	0	1	0	0		3	3	0	0	0	0	43	3	1	0	0	0	0	4	0	1	0	0	0
							35																									52						
peak hour	17	1	3	0	0	1	0	1	0	0			44	1	0	1	0	0	1	2	0	0				28	2	0	0	0	0	2	0	1	0			

Time Ending	LT												FROM THE SOUTH ON HWY 21												RT												
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	
11:15	3	1											12	1	1		1								8	1					1						
11:30	2												17	1	1										13	1											
11:45	5						1	1					13	1		1									7	1		1									
12:00	2							1					12	4				1							11			1			1						
12:15	7	1											15	2	1										22	1				1							
12:30	3	2					2						12						1						5												
12:45	3								1				10					1							3						1						
13:00	10												17		1	1									11												
2 hr total	35	4	0	0	0	0	3	3	0	0	0	0	108	9	4	2	1	0	2	1	0	0	0	0	80	4	0	2	0	1	3	0	0	0	0	0	0
peak hour	23	3	0	0	0	0	2	1	0	0			54	2	2	1	0	0	1	1	0	0			41	1	0	0	0	1	1	0	0	0			

Time Ending	LT												FROM THE SOUTH ON HWY 21 ST												RT													
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L		
4:15	7	1					2						15						1							4												
4:30	4												17		1				1							12	2					1	1					
4:45	4												15	2	1				2							5						1			2			
5:00	5								1				20	2												6	1											
5:15	5								1				21	2	1	2										19				1								
5:30	7	1				1		1					18						2							12						1						
5:45	3	1					1						16	2	1								1			7						1						
6:00	4	1											10				1									8					1				1			
2 hr total	39	4	0	0	1	0	4	3	0	0	0	0	132	8	4	3	0	1	5	0	0	1	0	0	0	73	3	0	0	1	1	4	1	0	3	0	0	
peak hour	19	3	0	0	1	0	2	2	0	0			65	4	2	3	0	0	2	0	0	1			46	0	0	0	1	1	2	0	0	1				

ME2 TRANSPORTATION DATA CORP  
VEHICLE CLASSIFICATION

Time Ending	LT												FROM THE NORTH ON HWY 21 ST												RT													
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L		
7:15	5												12				1			1						2												
7:30	5			1					1				13						1							1												
7:45	6												10	1					1							2												
8:00	10								1				14													2												
8:15	14								1				7													3	1											
8:30	17				1								8								1					3						1						
8:45	9				1								9													2	1											
9:00	12	1				1							13													3												
2 hr total	78	1	0	3	1	0			1	3	0	0	86	1	0		1	0	0	3	1	0	0	0	0	18	2	0	0	0	0	0	2	0	0	0	0	0
peak hour	52	1	0	2	1	0			87	1	1	0	0	37	0	0	0	0	0	0	1	0	0	0	0	11	2	0	0	0	0	0	2	0	0	0	0	0

Time Ending	LT												FROM THE NORTH ON HWY 21 ST												RT												
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	
11:15	11	3			3								15	2	1										3					2	1						
11:30	7												13	1																							
11:45	20	1						2					8				1								2	1											
12:00	14	1				1		1					15	1	1			1							3												
12:15	15	2	1						1				19		2	1		1							5		1	1									
12:30	8	1			1	1							14		1			1							3						1						
12:45	17												11					2	1						5						1						
13:00	16	1					1				1		15	1	1			1							4												
2 hr total	108	9	1	1	4	1		1	4	0	1	0	110	5	6	1	0	1	6	1	0	0	0	0	25	1	1	2	0	2	3	0	0	0	0	0	
peak hour	56	4	1	1	1	0	1	1	1	0	1		59	1	4	1	0	0	5	1	0	0			17	0	1	2	0	0	2	0	0	0			

Time Ending	LT												FROM THE NORTH ON HWY 21												RT													
	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L		
4:15	16	1											19						1							2												
4:30	11	2					1				1		23	2												3	1					1						
4:45	13												20						2	1						2		1										
5:00	16	1		1									20	2		2	1									2												
5:15	19			1				1					17	2	2	1			1							4			1									
5:30	10	1		1									24	1												3						1						
5:45	12	3											17			1			1							3								1				
6:00	11										1		16	1		1			1																			
2 hr total	108	8	0	3	0	0	2	0	0	2	0	0	156	8	2	5	0	0	6	1	0	0	0	1	0	19	1	1	1	0	0	2	1	0	0	0	0	
peak hour	52	4	0	2	0	0	1	0	0	1			74	4	2	3	0	0	3	0	0	0			10	0	0	1	0	0	1	1	0	0				



7 Avenue & 1 Street - Kindersley  
ME2 TRANSPORTATION DATA CORP.  
PEDESTRIAN AGE BREAK DOWN STUDY

12-Oct-11

NORTH CROSS WALK					
	1-14	15-18	18-64	65+	TOTAL
7:00 - 9:00	5	2	4	11	22
11:00 - 1:00	4	4	2	11	21
3:00 - 6:00	2	0	0	22	24
TOTAL	11	6	6	44	67

SOUTH CROSS WALK					
	1-14	15-18	18-64	65+	TOTAL
7:00 - 9:00	3	0	1	4	8
11:00 - 1:00	10	0	2	12	24
3:00 - 6:00	0	1	0	1	2
TOTAL	13	1	3	17	34

EAST CROSS WALK					
	1-14	15-18	18-64	65+	TOTAL
7:00 - 9:00	0	0	1	1	2
11:00 - 1:00	3	3	5	11	22
3:00 - 6:00	8	2	0	10	20
TOTAL	11	5	6	22	44

WEST CROSS WALK					
	1-14	15-18	18-64	65+	TOTAL
7:00 - 9:00	5	5	1	11	22
11:00 - 1:00	4	4	1	9	18
3:00 - 6:00	6	0	1	7	14
TOTAL	15	9	3	27	54

RAW DATA

	NORTH X WALK				SOUTH X WALK				EAST X WALK				WEST X WALK			
	1-14	15-18	19-64	65+	1-14	15-18	19-64	65+	1-14	15-18	19-64	65+	1-14	15-18	19-64	65+
7:15	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0
7:30	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
7:45	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
8:45	3	0	0	0	3	0	0	1	0	0	0	0	1	0	0	0
9:00	0	1	0	0	0	0	0	0	0	0	0	0	2	4	1	0

[illegible]

# **C** **Appendix C – Traffic Forecast**

## 1.0 Methodology

A spreadsheet model, following the four-step planning process, was used to forecast the future afternoon peak hour traffic volumes in the 2036 time horizon. To complete the spreadsheet model, a skeletal road network was used to represent the anticipated road network. The skeletal road network was based off the Town's Transportation Network Map (attached in **Appendix A**) and is illustrated in **Figure 1** with solid lines representing existing roadways and dashed lines representing proposed roadways. For the traffic forecast, the proposed roadways will be referred to as the Thomson Drive connector and East Boundary Road.

**Figure 1**  
***Skeletal Road Network***

Future traffic within Kindersley will be comprised of background traffic and development traffic. Background traffic represents growth in existing traffic as a result of growth in the surrounding area (i.e. Kindersley Planning District) and other socio-economic factors independent of growth within Kindersley. 2036 background traffic volumes were estimated by assuming linear growth and applying an annual growth rate to the existing (2011) traffic volumes over a 25-year period.

Development traffic represents traffic generated by new developments within Kindersley. Information about the future developments within the Town was provided by Prairie Wild Consulting. **Figure 2** presents the *Future Land Use Concept Plan* developed by Prairie Wild Consulting for the Town. All the proposed land uses shown in the concept plan were considered part of the ultimate build-out for the 2036 horizon and were included in the traffic forecast, even if located outside of the existing Town boundary. Associated Engineering (AE) assumed that land outside the Town boundary will be annexed and incorporated into the Town prior to development.

**Figure 2**  
***Future Land Use Concept Plan***

2036 development traffic volumes were estimated using a four-step process, which involved:

- **Trip Generation:** Estimate the number of trips generated from and attracted to each development
- **Trip Distribution:** Estimate the origin and destination of trips to and from each development
- **Modal Split:** Not within the scope of the study
- **Trip Assignment:** Select the routes to and from the developments and assign the development traffic volumes to the skeletal road network.

Total traffic volumes for the 2036 horizon were generated by combining the background traffic with the development traffic.

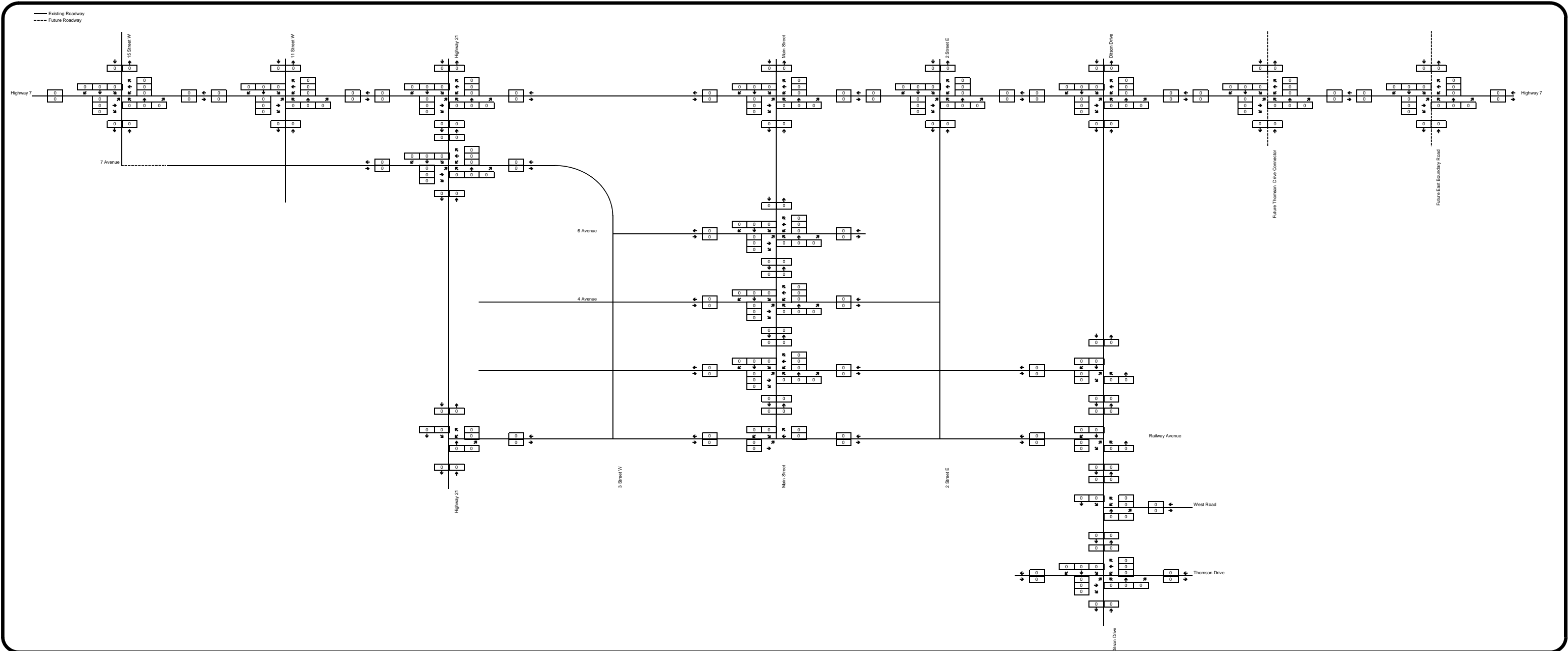
## 2.0 Background Traffic

### 2.1 Existing (2011) P.M. Peak Hour Traffic Volumes

Intersection turning movement counts were collected for the study intersections presented in **Figure 1** for the afternoon peak period, in the summer/fall of 2011. **Figure 3** summarizes the 2011 P.M. peak hour traffic volumes collected.

**Figure 3**  
***2011 P.M. Peak Hour Traffic Volumes***





# DRAFT Town of Kindersley Future Land Use Concept Plan Scenario 1



## Legend

### Existing

Road

Railway

Watercourse

Waterbody

Community Services

Park

Lagoon & Landfill

### Proposed

Residential

Country Residential

Community Services

Core Commercial

Highway Commercial

Industrial

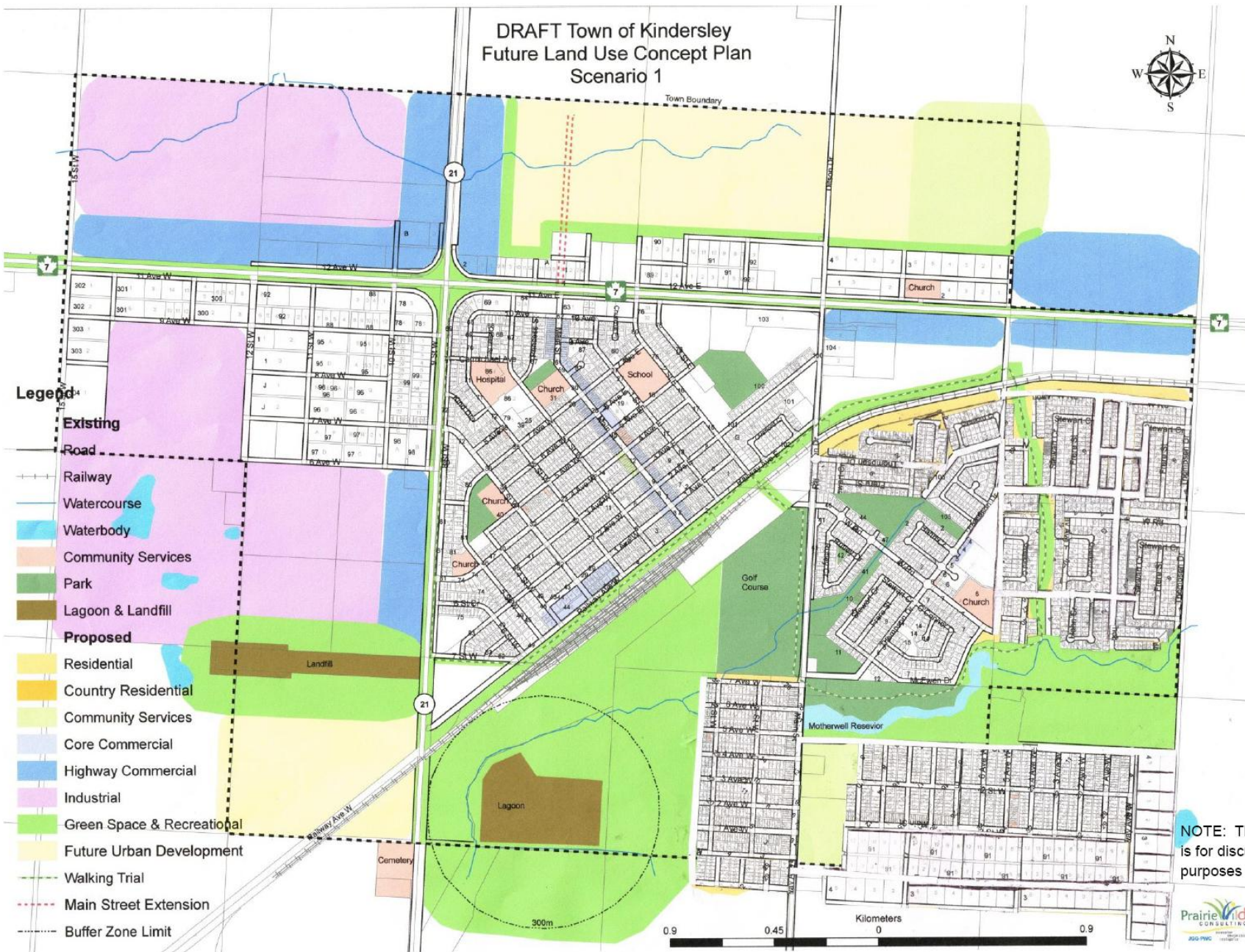
Green Space & Recreational

Future Urban Development

Walking Trail

Main Street Extension

Buffer Zone Limit



NOTE: This document is for discussion purposes only.

Prairie Wild Consulting  
2010 PWC



## 2.2 Growth Rate

The Average Annual Daily Traffic (AADT) history along Highway 7 and Highway 21 were reviewed to determine the average annual growth along both highways. AADTs from 2001 to 2010 were collected at the following locations:

- Section 0070600MUA, from km 27.85 to km 31.04 (Highway 7 from Kindersley Access to Highway 21)
- Section 0070700MUA, from km 0.00 to km 8.14 (Highway 7 from Highway 21 to Grid Road)
- Section 0210900MUA, from km 24.16 to km 26.17 (Highway 21 from Grid Road to Highway 7)
- Section 0211000MUA, from km 0.00 to km 16.16 (Highway 21 from Highway 7 to Grid Road)

**Table 1** presents the AADT history at these locations and the average annual growth rate calculations.

**Table 1**  
**AADT History and Growth Rate Calculations**

Highway Section	Location Description	Average Annual Daily Traffic (AADT)									
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
0070600MUA	Highway 7, E of Highway 21	3220	2960	3050	3050	2980	3000	3240	3240	3240	3330
	2001 – 2010 Growth	3.4%									
	Annualized Growth	0.3%									
0070700MUA	Highway 7, W of Highway 21	2330	2320	2170	2150	2640	2640	2640	2790	2510	2820
	2001 – 2010 Growth	21.0%									
	Annualized Growth	2.1%									
0210900MUA	Highway 21, S of Highway 7	2330	2330	2330	2330	2640	1430	1300	1310	1280	1430
	2001 – 2010 Growth	-38.6%									
	Annualized Growth	-3.9%									
0211000MUA	Highway 21, N of Highway 7	1800	1690	1540	1550	1600	1950	2340	2050	2020	2230
	2001 – 2010 Growth	23.9%									
	Annualized Growth	2.4%									

A significant decline in traffic was observed along Highway 21, south of Highway 7, between 2005 and 2006. The AADT dropped from 2,640 veh/day in 2005 to 1,430

veh/day in 2006 – equating to a 46% decrease in traffic. After 2006, traffic fluctuated but was the same in 2006 and 2010 (at 1,430 veh/day).

A uniform annual growth rate was established for Kindersley by utilizing the average of the following:

- 0.3% along Highway 7, East of Highway 21 (2001 to 2010)
- 2.1% along Highway 7, West of Highway 21 (2001 to 2010)
- 0.0% along Highway 21, South of Highway 7 (2006 to 2010)
- 2.4% along Highway 21, North of Highway 7 (2001 to 2010)

Using the above methodology, a 1.2% average annual growth rate was calculated for traffic in Kindersley. A portion of this traffic growth resulted from population and development growth experienced between 2001 and 2010. This growth cannot be applied as part of the average annual growth rate used to forecast the background traffic for the 2036 horizon. AE assumed that half of the annual growth between 2001 and 2010 resulted from population and development growth within the Town; therefore, the average annual growth rate was reduced to 0.6%.

To capture the densification anticipated within the Town, an additional 0.4% annual growth was added to the 0.6% discussed above. A 1.0% average annual growth rate was utilized by AE to grow the 2011 P.M. peak hour traffic volumes to the 2036 horizon.

## 2.3 2036 P.M. Background Traffic Volumes

Background traffic volumes for the 2036 horizon were estimated by applying the 1.0% annual growth rate to the 2011 P.M. peak hour traffic volumes. The growth rate was applied assuming linear growth over a 25-year period.

By 2036, two new accesses (Thomson Drive connector and East Boundary Road) will be provided to the community of Rosedale located in the southeast portion of Kindersley. To reflect the presence of these new accesses, a portion (approximately half) of the existing traffic that currently exit the community via the intersection of Ditson Drive and West Road was re-routed to the proposed intersection at Highway 7 and the future Thomson Drive connector. **Figure 4** presents the forecasted P.M. peak hour background traffic volumes for the 2036 horizon.

**Figure 4**  
**2036 P.M. Peak Hour Background Traffic Volumes**

## 3.0 Development Traffic Volumes

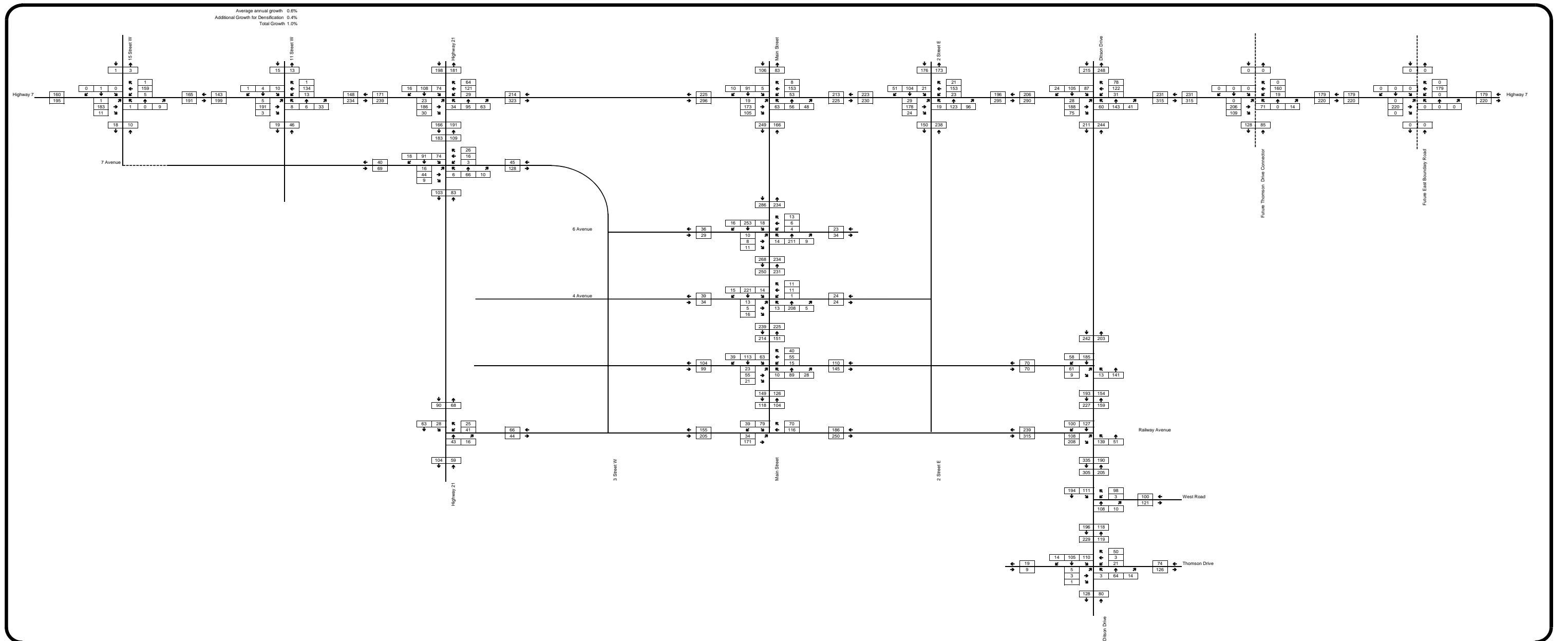
### 3.1 Future Developments

The population of Kindersley was approximately 5,200 in October 2011. In the *Kindersley Future Growth Summary Report (November 2011)*, the Town established a goal to double the population within the next 25 years. The *Future Land Use Concept Plan* was developed by Prairie Wild Consulting to present the additional developments required in Kindersley to achieve the Town's growth goals.

The major new developments proposed within Kindersley by 2036 include:

#### Industrial Land Use

- 83 hectares located north of Highway 7 and west of Highway 21
- 148 hectares located south of Highway 7 and west of Highway 21



#### Highway Commercial Land Use

- 40 hectares located north of Highway 7 and west of Highway 21
- 13 hectares located north of Highway 7 and east of Highway 21
- 15 hectares located south of 6 Avenue and west of Highway 21
- 26 hectares located north of Highway 7, between the proposed Thomson Drive connector and the proposed East Boundary Road
- 10 hectares located south of Highway 7, between Ditson Drive and the proposed Thomson Drive connector
- 10 hectares located south of Highway 7, between the proposed Thomson Drive connector and the proposed East Boundary Road

#### Residential Land Use

- 238 hectares located south of Highway 7 and east of Ditson Drive
- 2,615 dwelling units anticipated
  - 120 multi-storey dwelling
  - 320 fourplex dwelling
  - 180 duplex dwelling
  - 1,995 single dwelling

#### Other Land Uses

- 90 hectares of Future Urban Development located north of Highway 7 and east of Highway 21
- 40 hectares of Future Urban Development located south of Railway Avenue and west of Highway 21
- Community Services and Green Space/Recreational dispersed throughout the Town.

### **3.2 Trip Generation**

The new industrial, highway commercial, and residential land uses are expected to generate additional traffic volumes, beyond the 2036 background traffic volumes. The other land uses presented in the concept plan illustrate the intended use for the proposed area but do not illustrate the committed developments; therefore, the future urban development, community services and green space/recreational land uses were not included in the trip generation. **Table 2** summarizes the trip generation calculations for each development. The Institute of Transportation Engineer (ITE) *Trip Generation Handbook (8th Edition)* was referenced to obtain trip rates for each land use for the P.M. peak hour. To establish the gross floor area for the industrial and highway commercial land uses, 6% lot coverage was assumed based on existing lot coverage patterns within Kindersley.

**Table 2**  
**2036 Trip Generation Calculations**

**Figure 5** summarizes the traffic volumes that will be generated by each land use development during the P.M. peak hour, including the inbound and outbound split.

**Figure 5**  
**2036 Trip Generation for Future Developments**

### **3.3 Trip Distribution**

To simplify the trip distribution, the new developments were grouped into the following development areas based on location:



Kindersley Traffic Study  
Project No: 2009-4629  
Date: January 6, 2012

**Table 2: 2036 Trip Generation for New Developments**

Assumed: 6% lot coverage for Highway Commercial and Industrial

Excluded: Other Land Uses (Future Urban Development, Community Services, Green Space/Recreational)

		Quantity				ITE Handbook <sup>1</sup>					P.M. Peak Hour Trips (T)			Final Trips (T)		
Land Use Type	Land Use Breakdown	2,011	2,036	2036 (Additional)	Unit	Code	Independent Variable	Rate	% Entering	% Exiting	Total	Entering	Exiting	Total	Inbound	Outbound
Residential	Multi-Storey	24	144	120	Dwelling Unit	251 - Senior Adult Housing - Detached	Dwelling Units	$\text{Ln}(T) = 0.75\text{Ln}(X)+0.35$	61%	39%	51	31	20	60	35	25
	Quadruplex / Fourplex	64	384	320	Dwelling Unit	230 - Residential Condominium / Townhouse	Dwelling Units	$\text{Ln}(T) = 0.82\text{Ln}(X)+0.32$	67%	33%	156	105	51	160	105	55
	Duplex	36	216	180	Dwelling Unit	230 - Residential Condominium / Townhouse	Dwelling Units	$\text{Ln}(T) = 0.82\text{Ln}(X)+0.32$	67%	33%	97	65	32	105	70	35
	Single Dwelling	399	2,394	1,995	Dwelling Unit	210 - Single Family Detached Housing	Dwelling Units	$\text{Ln}(T) = 0.90\text{Ln}(X)+0.51$	63%	37%	1,554	979	575	1,555	980	575
											Total Residential			1,880	1,190	690
Highway Commercial (assume 6% site coverage)	Highway Commercial - 1	0	261	261	1000 sq.ft. GFA	770 - Business Park <sup>2</sup>	1000 sq.ft. GFA	$\text{Ln}(T) = 0.92\text{Ln}(X)+0.78$	23%	77%	364	84	281	370	85	285
	Highway Commercial - 2	0	84	84	1000 sq.ft. GFA	770 - Business Park	1000 sq.ft. GFA	$\text{Ln}(T) = 0.92\text{Ln}(X)+0.78$	23%	77%	129	30	99	130	30	100
	Highway Commercial - 3	0	94	94	1000 sq.ft. GFA	770 - Business Park	1000 sq.ft. GFA	$\text{Ln}(T) = 0.92\text{Ln}(X)+0.78$	23%	77%	143	33	110	150	35	115
	Highway Commercial - 4	0	165	165	1000 sq.ft. GFA	770 - Business Park	1000 sq.ft. GFA	$\text{Ln}(T) = 0.92\text{Ln}(X)+0.78$	23%	77%	240	55	184	245	60	185
	Highway Commercial - 5	0	66	66	1000 sq.ft. GFA	770 - Business Park	1000 sq.ft. GFA	$\text{Ln}(T) = 0.92\text{Ln}(X)+0.78$	23%	77%	103	24	79	105	25	80
	Highway Commercial - 6	0	66	66	1000 sq.ft. GFA	770 - Business Park	1000 sq.ft. GFA	$\text{Ln}(T) = 0.92\text{Ln}(X)+0.78$	23%	77%	103	24	79	105	25	80
											Total Highway Commercial			1,105	260	845
Industrial (assume 6% site coverage)	Industrial 1	0	534	534	1000 sq.ft. GFA	130 - Industrial Park <sup>3</sup>	1000 sq.ft. GFA	0.13	21%	79%	69	15	55	70	15	55
	Industrial 2	0	957	957	1000 sq.ft. GFA	130 - Industrial Park	1000 sq.ft. GFA	0.13	21%	79%	124	26	98	130	30	100
											Total Industrial			200	45	155
											Total			3,185	1,495	1,690

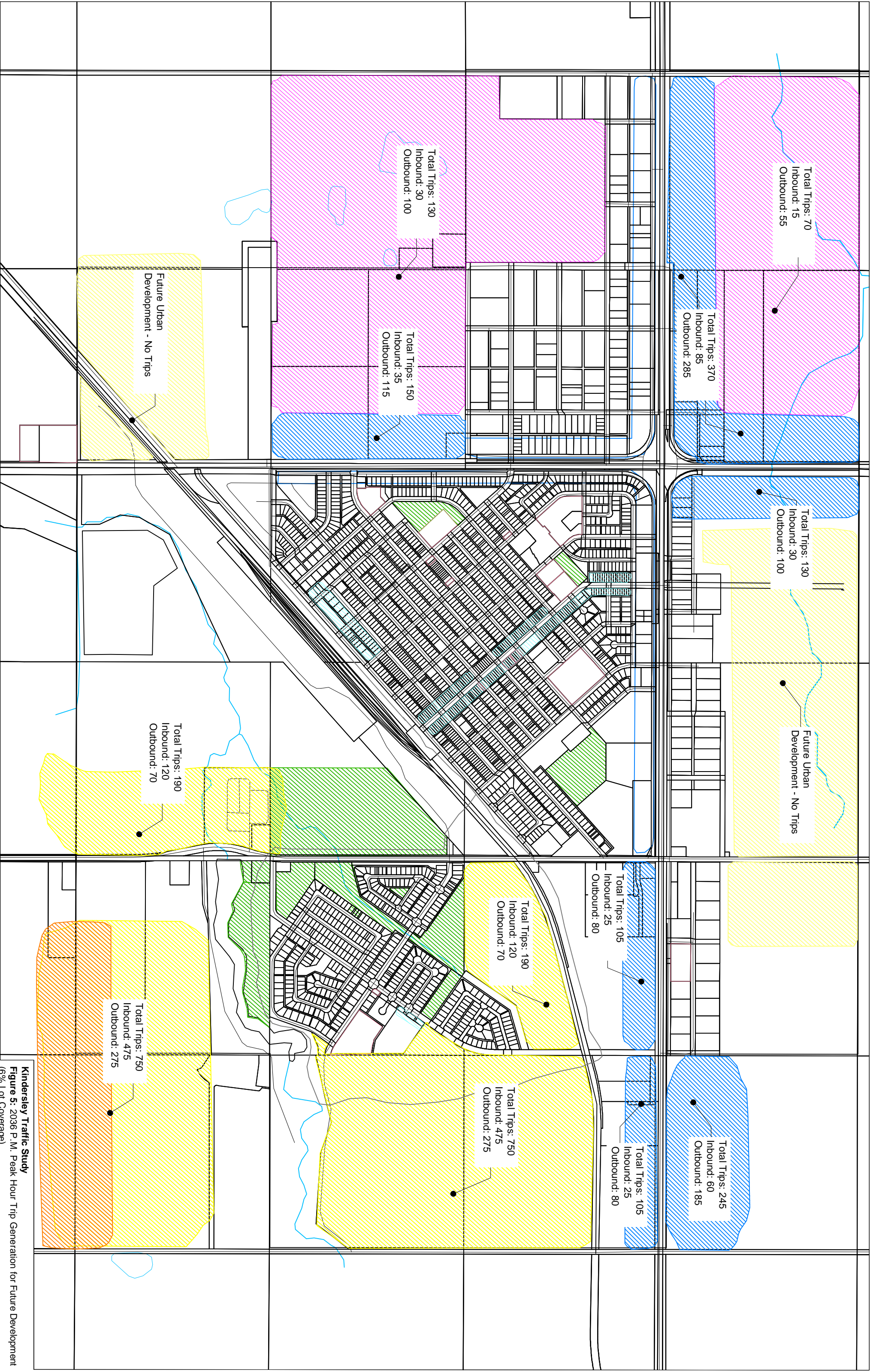
1) ITE Trip Generation 8th Edition (Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 pm)

1) ITE Trip Generation 8th Edition (Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 pm)

2) For 770 - Business park, only Weekday P.M. Peak Hour available

3) For 130 - Industrial park, Trip Rate (Low Range) = 0.13





**Kindersley Traffic Study**  
**Figure 5: 2036 P.M. Peak Hour Trip Generation for Future Development**  
(6% Lot Coverage)

- NW Highway Commercial and Industrial
- NE Highway Commercial
- SW Highway Commercial and Industrial
- SE Residential

**Figure 6** summarizes the traffic volumes that will be generated each development area during the P.M. peak hour, including the inbound and outbound splits.

**Figure 6**  
**2036 Trip Generation for Future Development, by Areas**

To distribute the new development traffic within Kindersley, trip origins and destinations were required. **Table 3** presents the trip distribution assumptions used by AE. All the new development trips were assumed to be internal to Kindersley.

**Table 3**  
**Trip Distribution Assumptions**

New Land Use	Inbound/ Outbound Trips	Residential		Core Commercial	Highway Commercial		Industrial		Total
		New	Existing		New	Existing	New	Existing	
NW Highway Commercial & Industrial	Inbound	35.0%	35.0%	10.0%	5.0%	5.0%	5.0%	5.0%	100.0%
	Outbound	35.0%	35.0%	10.0%	5.0%	5.0%	5.0%	5.0%	100.0%
SW Highway Commercial & Industrial	Inbound	35.0%	35.0%	10.0%	5.0%	5.0%	5.0%	5.0%	100.0%
	Outbound	35.0%	35.0%	10.0%	5.0%	5.0%	5.0%	5.0%	100.0%
NE Highway Commercial	Inbound	35.0%	35.0%	10.0%	5.0%	5.0%	5.0%	5.0%	100.0%
	Outbound	35.0%	35.0%	10.0%	5.0%	5.0%	5.0%	5.0%	100.0%
Residential	Inbound	0.0%	10.0%	30.0%	15.0%	15.0%	15.0%	15.0%	100.0%
	Outbound	0.0%	10.0%	40.0%	20.0%	20.0%	5.0%	5.0%	100.0%

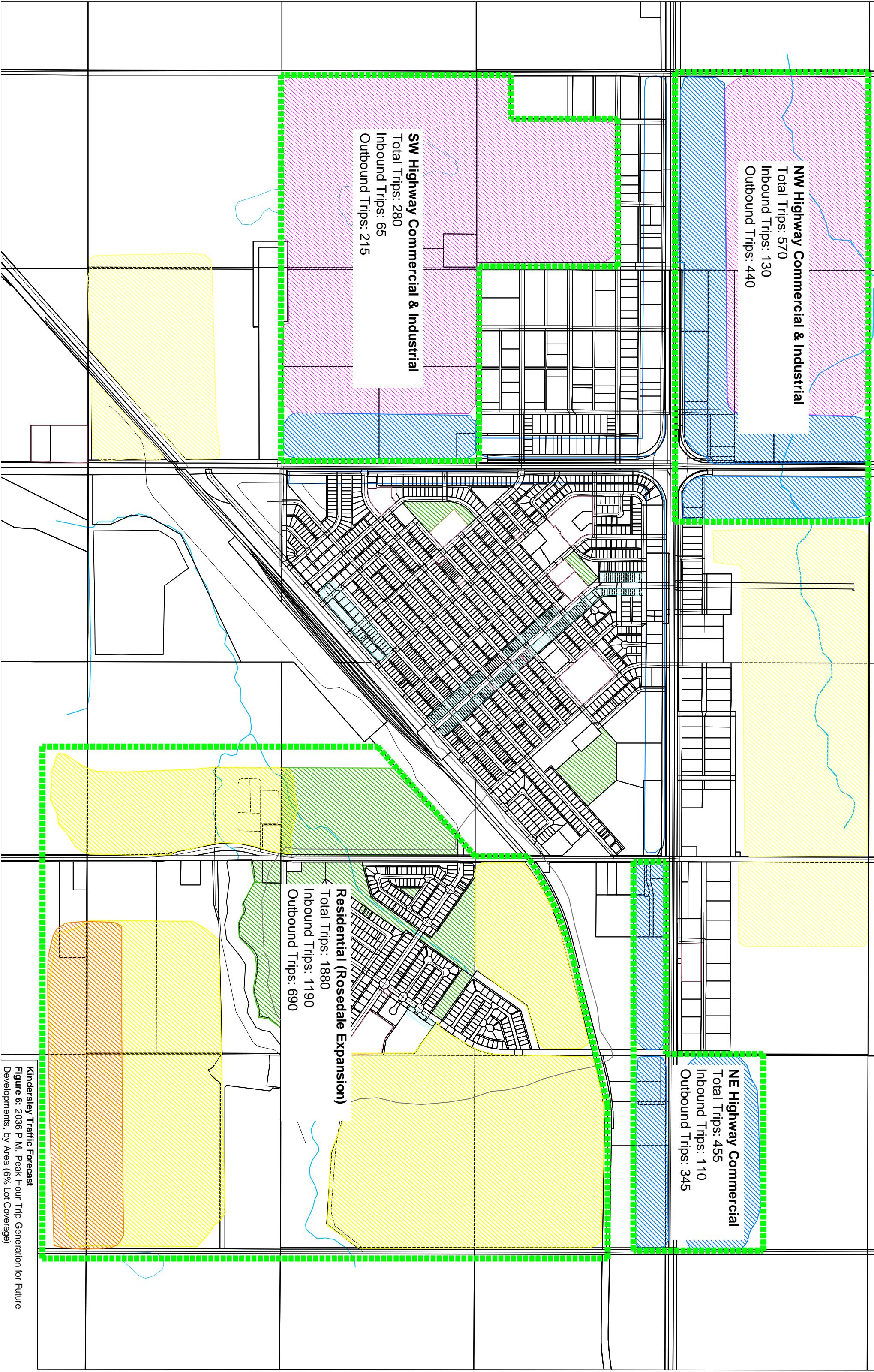
### 3.4 Trip Assignment

The development trips were assigned onto the future road network by considering the logical routes that would be taken by the commuters between the origin and destination, on the basis of minimal impedance and travel time. The development trips were assigned only to the skeletal road network established for the planning horizon. To simplify the trip assignment, selected intersections were used to represent each development area and development trips were assumed to enter/exit the area from those intersections only.

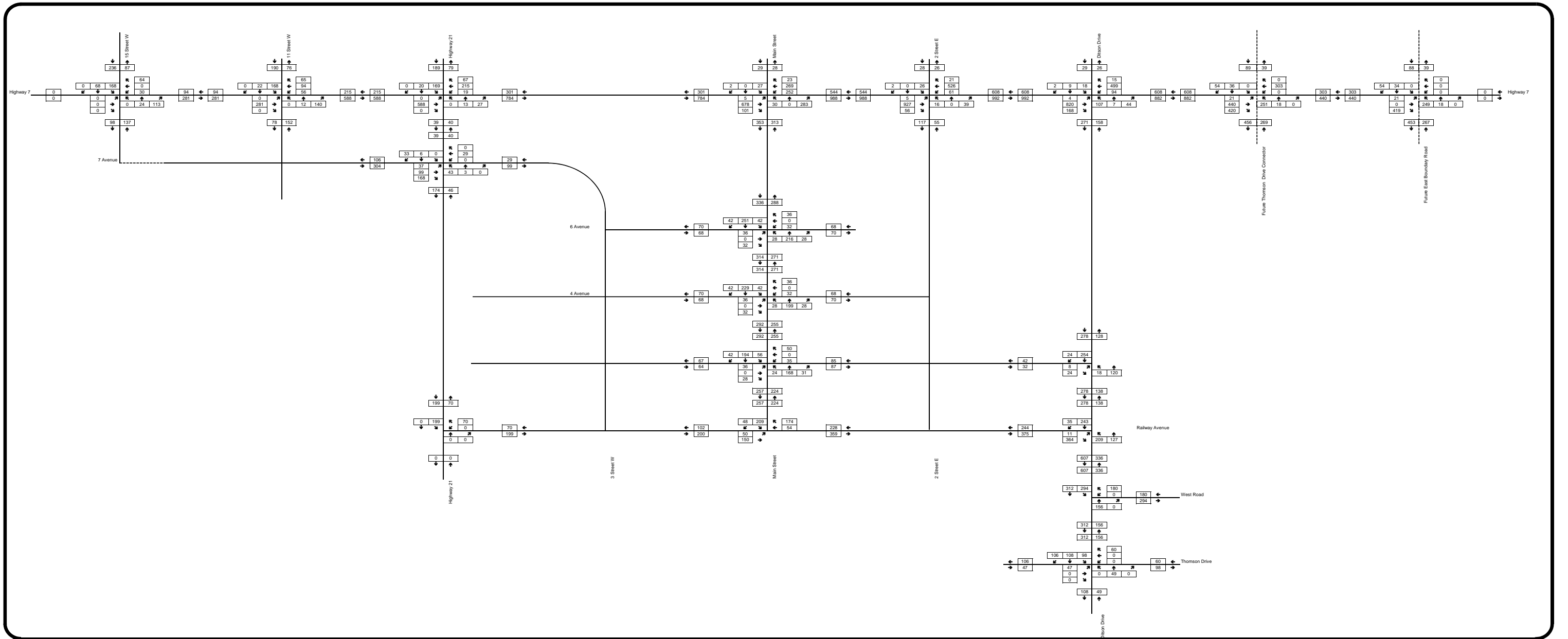
**Figure 7** presents the forecasted P.M. peak hour development traffic volumes for the 2036 horizon. To account for the fact that a large percentage of the inbound traffic to the new residential traffic would have resulted from outbound traffic from the new industrial/highway commercial areas (and vice versa) and to avoid double-counting, an adjustment factor was applied. The forecasted P.M. peak hour development traffic volumes were arbitrarily adjusted by 0.6 to account for this interaction between the industrial/highway commercial and residential land uses. **Figure 8** presents the adjusted P.M. peak hour development traffic volumes forecasted for the 2036 horizon.

**Figure 7**  
**2036 P.M. Peak Hour Development Traffic Volumes**





**Kindersley Traffic Forecast**  
**Figure 6:** 2036 P.M. Peak Hour Trip Generation for Future Developments, by Area (6% Lot Coverage)



**Figure 8**  
**Adjusted 2036 P.M. Peak Hour Development Traffic Volumes**

#### **4.0 2036 Total Traffic Volumes**

The 2036 total traffic volumes were calculated by combining the 2036 background traffic volumes with the adjusted 2036 development traffic volumes. **Figure 9** presents the forecasted P.M. peak hour total traffic volumes for the 2036 horizon.

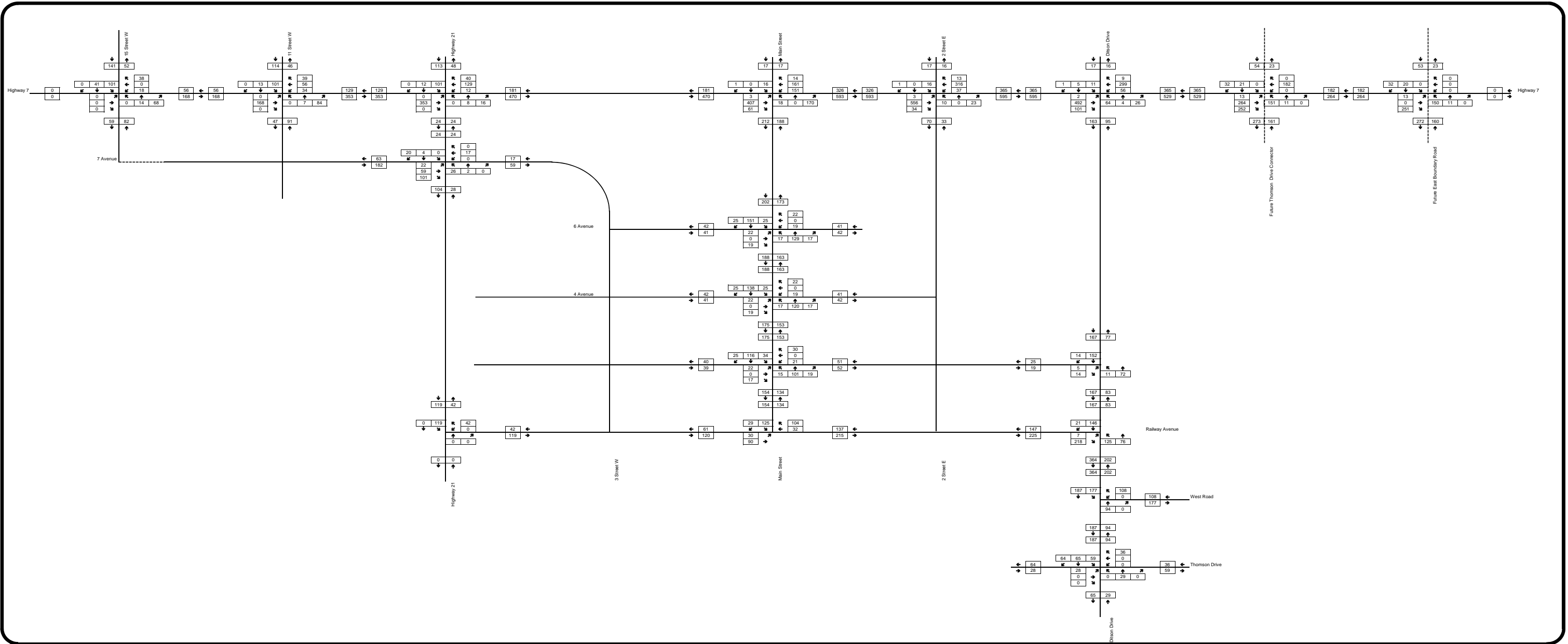
**Figure 9**  
**2036 P.M. Peak Hour Total Traffic Volumes**

#### **5.0 Summary**

This section has been prepared as part of the Kindersley Traffic Study to forecast the future 2036 P.M. peak hour traffic volumes along the major roadways in town.

The forecast was prepared using a high level travel demand forecasting model created in an Excel spreadsheet and based on projected and limited land use information supplied by Prairie Wild Consulting. While the resultant future traffic volumes were produced following best industry practices, it will be recognized that the figures should only be used for general planning purposes and are not meant for functional, preliminary or detailed design. The model and figures should be updated and revised as major changes to and/or details of the future land use and roadway network are known.

#### **Appendix A: Town of Kindersley's Transportation Network**





\\S-reg-fs-01\projects\20094629\01\_2011\_Traffic\_Stdy\Advisory\01.00\_Advice\Traffic Forecast\January 2012 Analysis\2011 Traffic Volumes\_20120106\2036 Total Traffic





# LEGEND

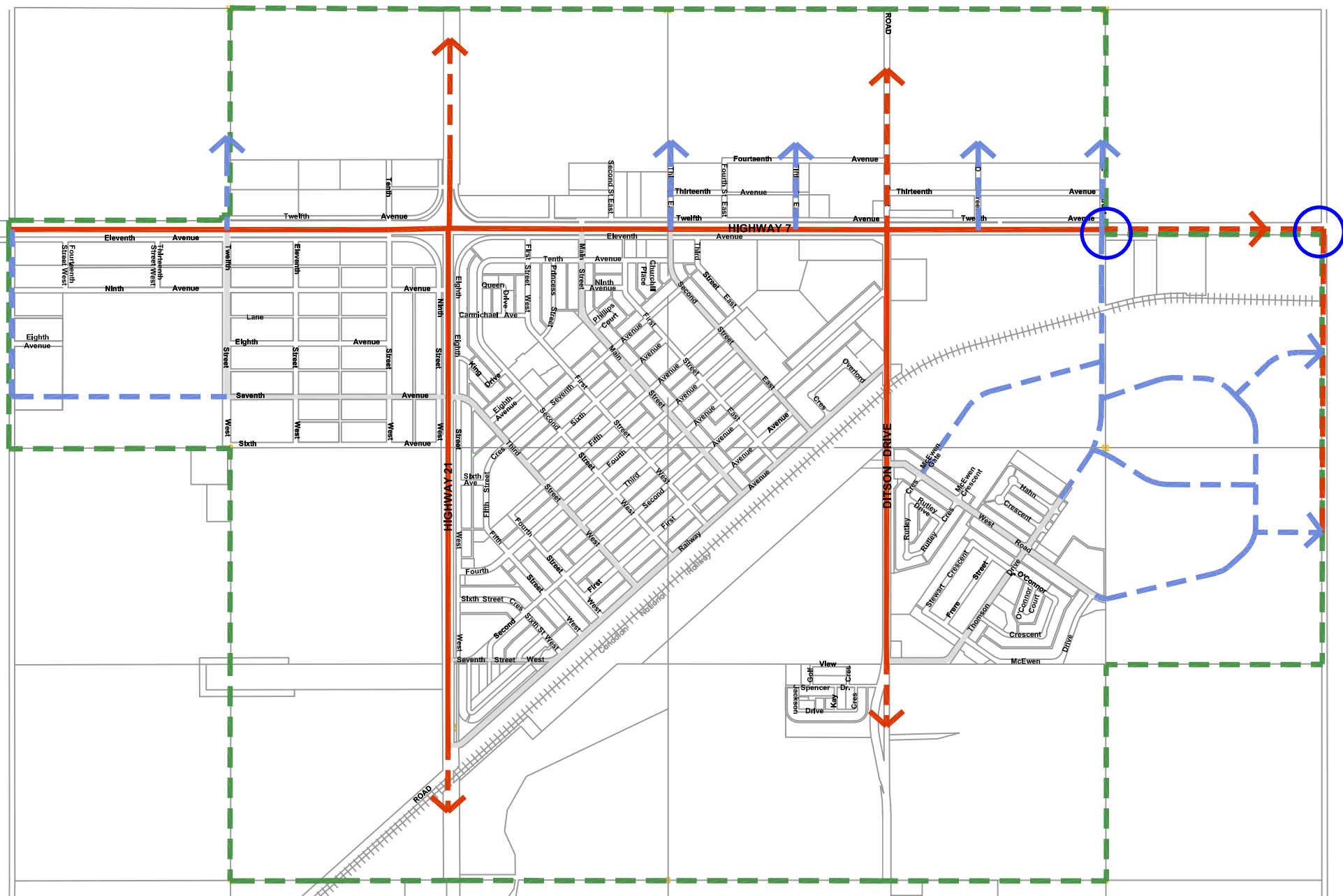
- Existing Arterial Street
- - - Proposed Arterial Street Extension
- Existing Collector Street
- - - Proposed Collector Street
- Existing Local Street
- - - Kindersley Corporate Limits

## MAP 6 Transportation Network

N.T.S.



**AEGIS**  
"Achieving Potential"





# **D Appendix D - 2011 Traffic Signal Warrants**

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Highway 7	Direction (EW or NS)	EW	Date:	Feb 23, 2012
Side Street (name)	Main Street	Direction (EW or NS)	NS	City:	Kindersley, Sk
Quadrant (if appl)					

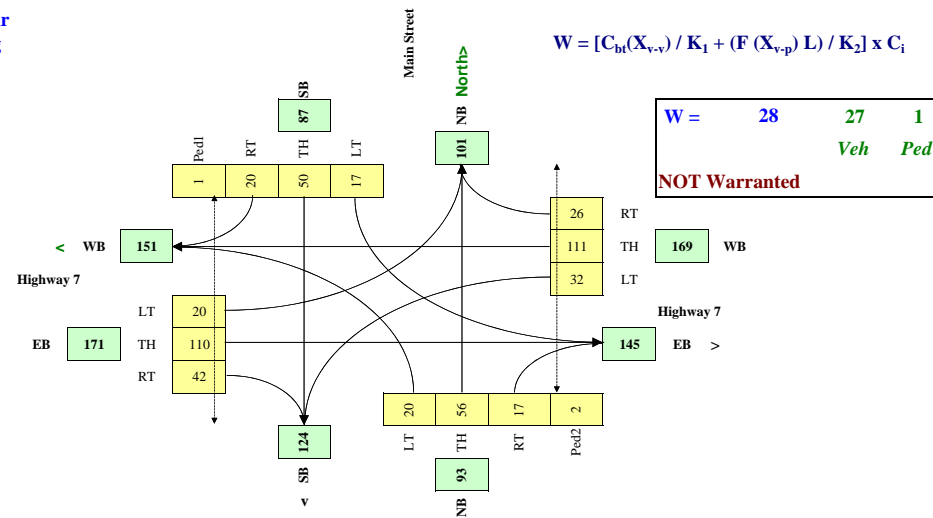
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Highway 7	WB	1			1		1,000	1	
Highway 7	EB	1			1		500	1	
Main Street	NB			1					
Main Street	SB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population (#)		5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Highway 7	EW	70	20.0%	n	y
Main Street	NS		10%	n	

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
7:30 - 8:30	58	12	15	2	19	8	29	125	4	5	74	47	3	1	2	2
8:30 - 9:30	43	28	24	1	31	6	38	120	0	3	109	48	2	1	0	0
11:30 - 12:30	2	57	12	47	50	38	11	85	61	37	111	2	0	0	2	0
12:30 - 13:30	6	89	27	46	52	42	29	123	72	48	106	4	0	0	1	5
16:00 - 17:00	3	69	6	3	69	6	42	116	7	13	125	76	1	2	1	7
17:00 - 18:00	5	79	20	5	79	20	45	97	11	11	134	74	2	6	0	2
Total (6-hour peak)	117	334	104	104	300	120	194	666	155	117	659	251	8	10	6	16
Average (6-hour peak)	20	56	17	17	50	20	32	111	26	20	110	42	1	2	1	3

### Average 6-hour Peak Turning Movements



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Highway 7	Direction (EW or NS)	EW	Date:	Aug 23, 2011
Side Street (name)	Highway 21	Direction (EW or NS)	NS	City:	Kindersley, Sk
Quadrant (if appl)					

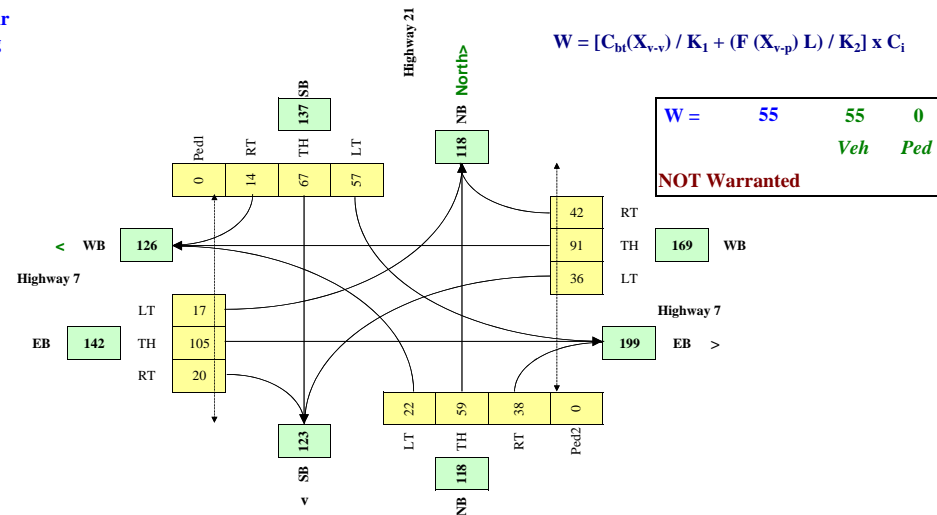
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Highway 7	WB	1		1		1		1	
Highway 7	EB	1		1		1		1	
Highway 21	NB		1			1			
Highway 21	SB		1			1			

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population (#)		5000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Highway 7	EW	70	15.0%	n	1.0
Highway 21	NS		15%	n	

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
7:30 - 8:30	12	21	19	29	54	7	39	51	28	10	35	10	0	0	0	0
8:30 - 9:30	23	49	33	58	38	15	33	86	41	17	60	19	0	0	0	0
11:30 - 12:30	16	66	46	64	59	12	27	97	41	15	118	19	0	0	0	0
12:30 - 13:30	29	61	44	66	71	22	52	105	53	16	147	20	0	0	0	0
16:00 - 17:00	24	77	35	63	92	12	43	106	38	27	118	29	0	0	0	0
17:00 - 18:00	27	77	51	60	86	13	24	98	51	18	150	24	0	0	0	0
Total (6-hour peak)	131	351	228	340	400	81	218	543	252	103	628	121	0	0	0	0
Average (6-hour peak)	22	59	38	57	67	14	36	91	42	17	105	20	0	0	0	0

### Average 6-hour Peak Turning Movements



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Highway 7	Direction (EW or NS)	EW	Date:	Aug 23, 2011
Side Street (name)	Ditson Drive	Direction (EW or NS)	NS	City:	Kindersley, Sk
Quadrant (if appl)					

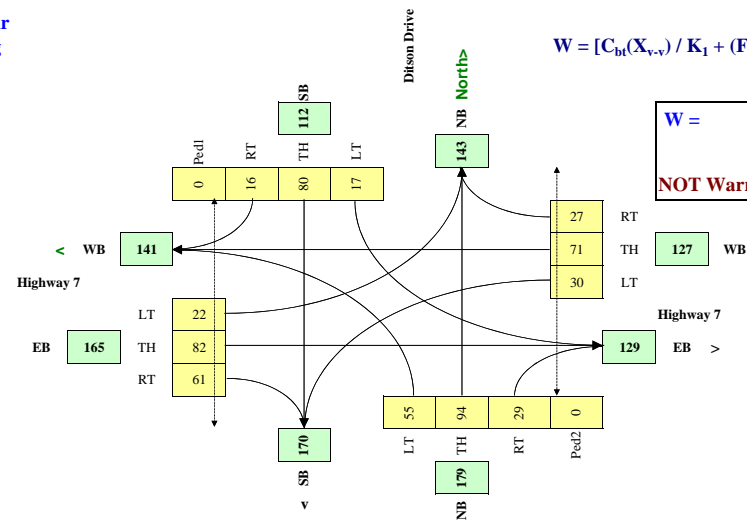
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Highway 7	WB		1		1		1,000	2	
Highway 7	EB		1		1			2	
Ditson Drive	NB		1	1					
Ditson Drive	SB		1	1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population (#)		5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Highway 7	EW	70	20.0%	n	2.0
Ditson Drive	NS		10%	n	

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
7:30 - 8:30	59	31	21	7	15	10	20	59	15	8	55	31	0	0	2	0
8:30 - 9:30	53	49	23	8	27	12	17	50	7	15	60	41	0	0	1	4
11:30 - 12:30	39	75	22	16	64	17	36	84	43	17	80	48	0	0	4	3
12:30 - 13:30	64	133	28	30	113	19	42	75	42	36	90	77	0	0	0	2
16:00 - 17:00	55	135	31	27	115	16	29	81	23	28	104	77	0	0	2	2
17:00 - 18:00	59	143	51	15	143	19	33	75	29	30	103	89	0	0	2	2
Total (6-hour peak)	329	566	176	103	477	93	177	424	159	134	492	363	0	0	11	13
Average (6-hour peak)	55	94	29	17	80	16	30	71	27	22	82	61	0	0	2	2

### Average 6-hour Peak Turning Movements



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

W =	53	53	0
		Veh	Ped
NOT Warranted			

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Highway 7	Direction (EW or NS)	EW	Date:	Aug 23, 2011
Side Street (name)	2nd Avenue	Direction (EW or NS)	NS	City:	Kindersley, Sk
Quadrant (if appl)					

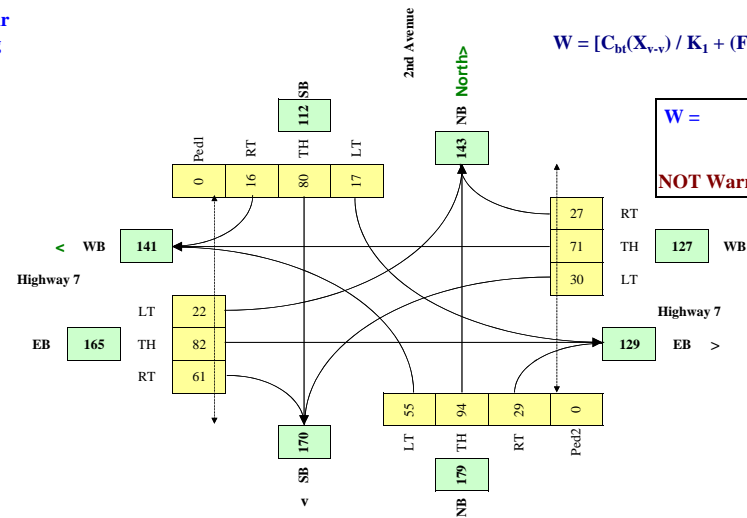
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Highway 7	WB	1		1		1	325	1	
Highway 7	EB	1		1		1	675	1	
2nd Avenue	NB		1	1					
2nd Avenue	SB		1	1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population (#)		5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Highway 7	EW	70	20.0%	n	2.0
2nd Avenue	NS		10%	n	

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
7:30 - 8:30	59	31	21	7	15	10	20	59	15	8	55	31	0	0	2	0
8:30 - 9:30	53	49	23	8	27	12	17	50	7	15	60	41	0	0	1	4
11:30 - 12:30	39	75	22	16	64	17	36	84	43	17	80	48	0	0	4	3
12:30 - 13:30	64	133	28	30	113	19	42	75	42	36	90	77	0	0	0	2
16:00 - 17:00	55	135	31	27	115	16	29	81	23	28	104	77	0	0	2	2
17:00 - 18:00	59	143	51	15	143	19	33	75	29	30	103	89	0	0	2	2
Total (6-hour peak)	329	566	176	103	477	93	177	424	159	134	492	363	0	0	11	13
Average (6-hour peak)	55	94	29	17	80	16	30	71	27	22	82	61	0	0	2	2

### Average 6-hour Peak Turning Movements



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

<b>W =</b>	<b>57</b>	<b>57</b>	<b>0</b>
	<b>Veh</b>	<b>Ped</b>	
<b>NOT Warranted</b>			

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Aug 24, 2011
Side Street (name)	1st Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

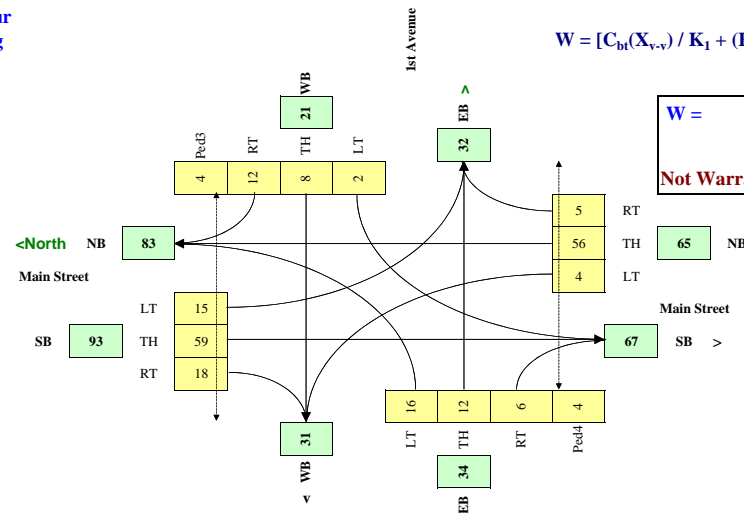
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		100	1	
Main Street	SB	1			1		100	1	
1st Avenue	WB			1					
1st Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	y
Metro Area Population	(#)	5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
1st Avenue	EW		5%	n	

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
7:30 - 8:30	0	15	0	4	24	4	1	1	1	9	5	0	3	1	2	1
8:30 - 9:30	7	30	5	7	32	14	1	2	9	13	10	1	0	1	0	2
11:30 - 12:30	2	61	8	19	65	34	0	6	12	19	7	9	6	10	8	7
12:30 - 13:30	6	88	7	29	78	21	2	11	16	18	22	7	8	6	10	8
16:00 - 17:00	8	77	2	13	78	23	0	16	17	19	13	11	2	0	3	1
17:00 - 18:00	3	63	6	20	76	14	5	12	15	18	13	9	1	5	3	4
Total (6-hour peak)	26	334	28	92	353	110	9	48	70	96	70	37	20	23	26	23
Average (6-hour peak)	4	56	5	15	59	18	2	8	12	16	12	6	3	4	4	4

### Average 6-hour Peak Turning Movements



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

W =	6	4	2
		Veh	Ped
Not Warranted - $V_s < 75$			

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Aug 24, 2011
Side Street (name)	2nd Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

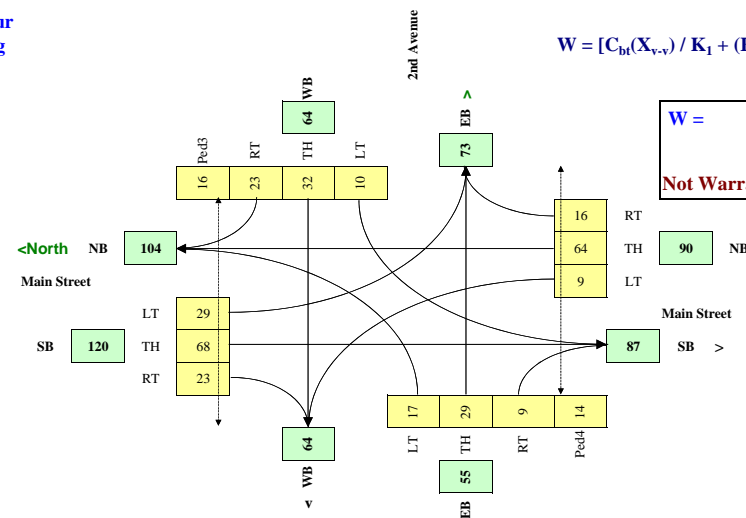
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		100	1	
Main Street	SB	1			1		100	1	
2nd Avenue	WB			1					
2nd Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	y
Metro Area Population	(#)	5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
2nd Avenue	EW		5%	n	

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
7:30 - 8:30	2	25	2	3	19	9	0	10	2	10	9	1	3	1	2	0
8:30 - 9:30	4	39	0	10	43	5	5	12	7	10	15	3	4	6	2	2
11:30 - 12:30	20	77	18	33	78	39	15	34	27	25	23	10	20	18	28	22
12:30 - 13:30	13	98	29	43	106	29	14	46	45	27	43	16	35	32	38	29
16:00 - 17:00	6	84	23	44	83	28	11	41	31	17	47	17	15	17	13	18
17:00 - 18:00	11	63	23	38	77	30	13	46	26	13	36	9	10	7	11	10
Total (6-hour peak)	56	386	95	171	406	140	58	189	138	102	173	56	87	81	94	81
Average (6-hour peak)	9	64	16	29	68	23	10	32	23	17	29	9	15	14	16	14

### Average 6-hour Peak Turning Movements



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

W =	21	13	8
		Veh	Ped
Not Warranted - $V_s < 75$			

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Aug 24, 2011
Side Street (name)	3rd Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

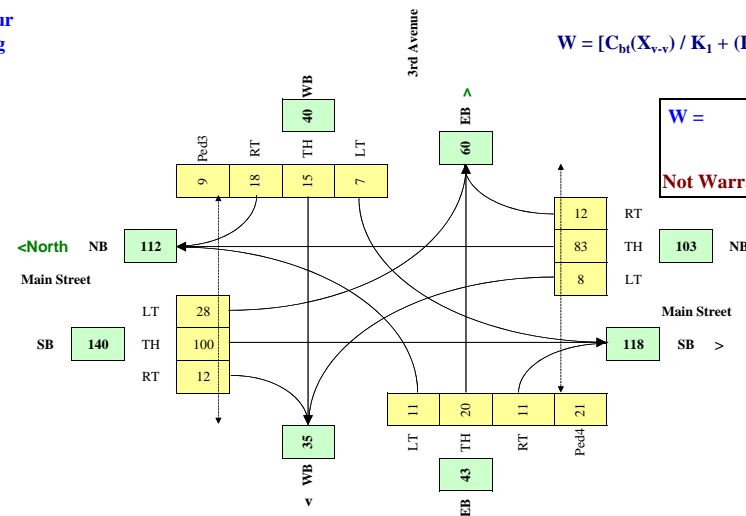
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		200	1	
Main Street	SB	1			1			1	
3rd Avenue	WB			1					
3rd Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	y
Metro Area Population	(#)	5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
3rd Avenue	EW		5%	n	

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
7:30 - 8:30	1	19	2	6	17	2	2	4	1	2	3	0	2	0	0	2
8:30 - 9:30	5	50	1	10	56	8	4	6	6	12	15	3	12	6	6	14
11:30 - 12:30	18	94	16	40	122	10	12	16	14	14	24	15	12	24	11	45
12:30 - 13:30	14	131	27	45	148	14	8	22	26	12	32	15	38	29	24	36
16:00 - 17:00	4	117	12	28	129	18	12	23	36	16	19	19	9	11	4	22
17:00 - 18:00	7	85	13	41	126	18	2	21	24	12	27	15	14	3	7	5
Total (6-hour peak)	49	496	71	170	598	70	40	92	107	68	120	67	87	73	52	124
Average (6-hour peak)	8	83	12	28	100	12	7	15	18	11	20	11	15	12	9	21

### Average 6-hour Peak Turning Movements



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

W =	20	10	10
		Veh	Ped
Not Warranted - $V_s < 75$			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Aug 24, 2011
Side Street (name)	4th Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

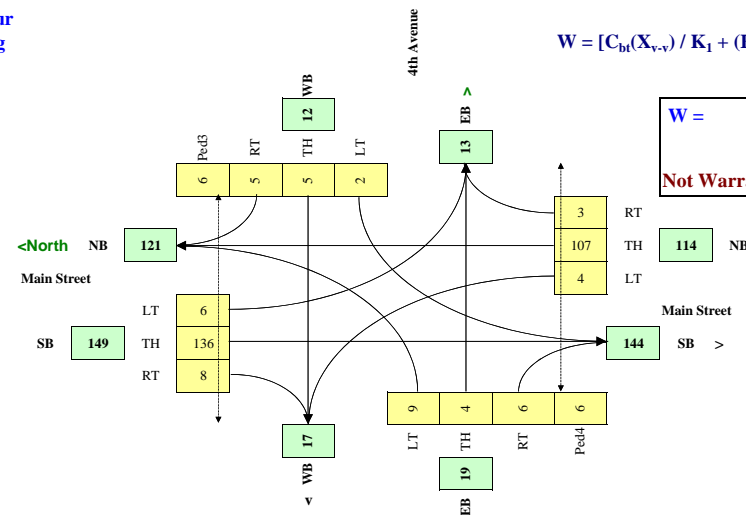
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		200	1	
Main Street	SB	1			1			1	
4th Avenue	WB			1					
4th Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	y
Metro Area Population (#)		5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
4th Avenue	EW		5%	n	

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
7:30 - 8:30	0	37	0	1	48	6	0	2	5	7	2	3	1	0	5	1
8:30 - 9:30	1	61	2	5	73	5	2	4	8	13	7	4	1	11	2	6
11:30 - 12:30	7	110	3	3	153	9	4	6	3	6	3	8	4	2	8	13
12:30 - 13:30	6	141	4	8	198	7	5	3	3	10	6	7	2	0	8	4
16:00 - 17:00	8	148	4	9	166	11	2	8	7	9	4	8	5	1	11	7
17:00 - 18:00	4	142	4	9	175	8	1	4	5	8	2	7	1	1	1	4
Total (6-hour peak)	26	639	17	35	813	46	14	27	31	53	24	37	14	15	35	35
Average (6-hour peak)	4	107	3	6	136	8	2	5	5	9	4	6	2	3	6	6

### Average 6-hour Peak Turning Movements



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

$$W = 8 \quad 4 \quad 4$$

Veh Ped

Not Warranted -  $V_s < 75$

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Aug 24, 2011
Side Street (name)	5th Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

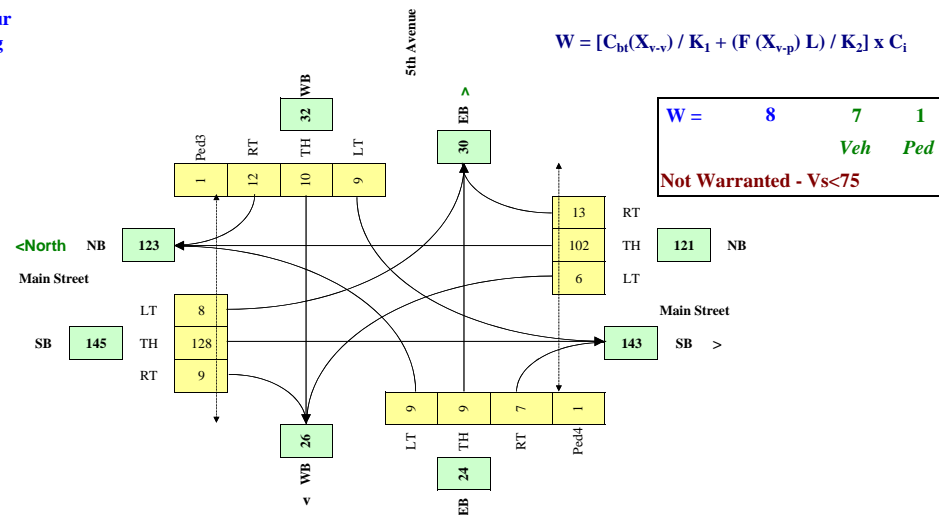
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		200	1	
Main Street	SB	1			1			1	
5th Avenue	WB			1					
5th Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	y
Metro Area Population (#)		5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
5th Avenue	EW		5%	n	

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
7:30 - 8:30	0	55	2	4	42	10	1	4	11	5	7	4	0	0	1	0
8:30 - 9:30	0	60	7	10	71	8	5	6	11	9	5	4	0	0	0	0
11:30 - 12:30	9	110	17	8	158	5	14	13	11	9	9	6	4	0	1	1
12:30 - 13:30	8	149	17	10	180	10	9	10	13	12	12	12	4	0	2	2
16:00 - 17:00	17	138	20	7	147	13	14	17	14	9	9	8	5	0	0	4
17:00 - 18:00	2	99	17	7	167	10	11	12	13	8	11	6	2	2	0	0
Total (6-hour peak)	36	611	80	46	765	56	54	62	73	52	53	40	15	2	4	7
Average (6-hour peak)	6	102	13	8	128	9	9	10	12	9	9	7	3	0	1	1

### Average 6-hour Peak Turning Movements



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Aug 23, 2011
Side Street (name)	6th Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

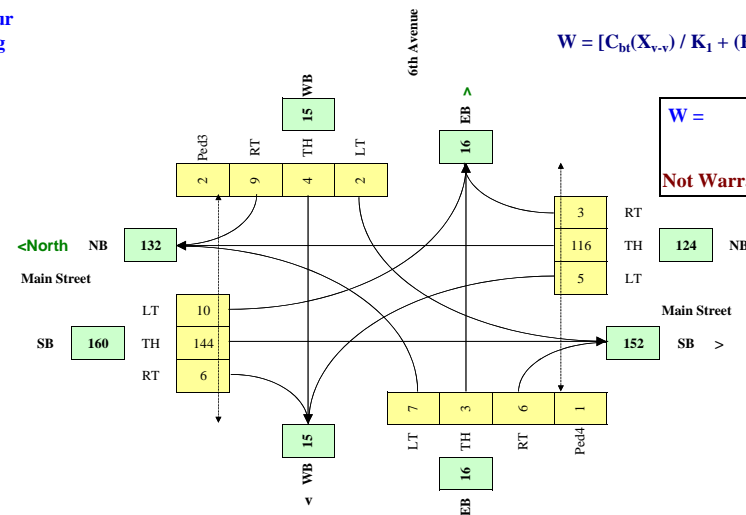
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		300	1	
Main Street	SB	1			1			1	
6th Avenue	WB			1					
6th Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	y
Metro Area Population (#)		5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
6th Avenue	EW		5%	n	

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
7:30 - 8:30	0	55	0	6	59	2	1	2	5	8	0	3	1	6	0	1
8:30 - 9:30	1	78	2	6	85	3	0	2	12	8	2	3	3	0	1	2
11:30 - 12:30	2	122	2	7	154	5	2	6	5	4	0	6	5	6	2	0
12:30 - 13:30	6	150	3	9	191	6	3	2	13	7	4	8	4	5	2	2
16:00 - 17:00	8	151	8	13	185	11	5	6	8	6	5	3	4	3	2	2
17:00 - 18:00	13	139	4	17	191	11	3	6	8	10	5	12	5	3	3	1
Total (6-hour peak)	30	695	19	58	865	38	14	24	51	43	16	35	22	23	10	8
Average (6-hour peak)	5	116	3	10	144	6	2	4	9	7	3	6	4	4	2	1

### Average 6-hour Peak Turning Movements



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

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Aug 24, 2011
Side Street (name)	Railway Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

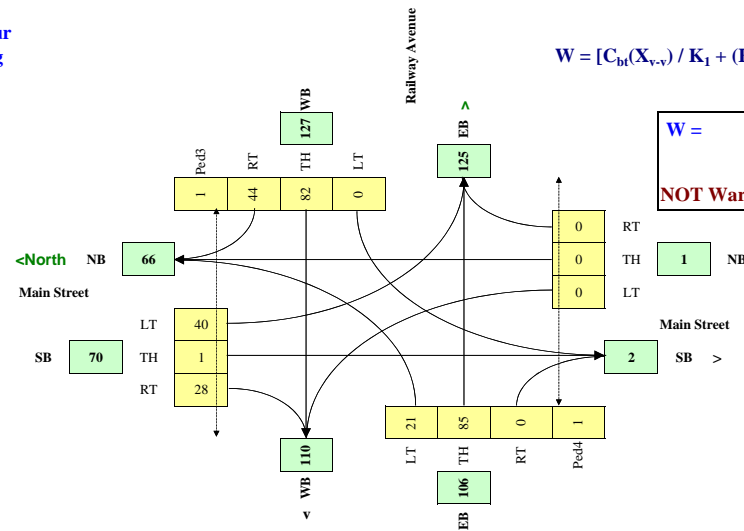
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB						100	0	
Main Street	SB	1				1		0	
Railway Avenue	WB				1				
Railway Avenue	EB		1						

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population (#)		5000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
Railway Avenue	EW		5%	n	

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
7:30 - 8:30	0	0	1	8	0	16	1	70	9	6	37	0	0	0	0	0
8:30 - 9:30	0	0	0	18	0	17	0	63	23	20	66	0	1	3	0	0
11:30 - 12:30	0	1	0	46	4	34	0	74	53	23	61	0	2	4	1	1
12:30 - 13:30	0	0	0	50	1	36	0	103	73	30	105	0	1	0	1	0
16:00 - 17:00	0	1	0	62	1	31	1	94	62	26	108	0	1	0	2	1
17:00 - 18:00	0	0	0	58	1	35	0	88	46	20	131	0	0	0	0	1
Total (6-hour peak)	0	2	1	242	7	169	2	492	266	125	508	0	5	7	4	3
Average (6-hour peak)	0	0	0	40	1	28	0	82	44	21	85	0	1	1	1	1

### Average 6-hour Peak Turning Movements



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























# **E**

## **Appendix E - 2011 Intersection Capacity Analysis**

# HCM Signalized Intersection Capacity Analysis

## 3: Highway 7 & Highway 21

Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	149	24	23	97	51	27	76	50	59	86	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.98	1.00
Satd. Flow (prot)	1789	1883	1601	1789	1883	1601		1859	1601		1846	1601
Flt Permitted	0.69	1.00	1.00	0.65	1.00	1.00		0.92	1.00		0.86	1.00
Satd. Flow (perm)	1298	1883	1601	1233	1883	1601		1728	1601		1625	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	162	26	25	105	55	29	83	54	64	93	14
RTOR Reduction (vph)	0	0	16	0	0	33	0	0	32	0	0	8
Lane Group Flow (vph)	20	162	10	25	105	22	0	112	22	0	157	6
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases	4				8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0		16.0	16.0		16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0		16.0	16.0		16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40		0.40	0.40		0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	519	753	640	493	753	640		691	640		650	640
v/s Ratio Prot	c0.09				0.06							
v/s Ratio Perm	0.02		0.01	0.02		0.01		0.06	0.01		c0.10	0.00
v/c Ratio	0.04	0.22	0.02	0.05	0.14	0.03		0.16	0.03		0.24	0.01
Uniform Delay, d1	7.3	7.9	7.2	7.3	7.6	7.3		7.7	7.3		8.0	7.2
Progression Factor	1.00	1.00	1.00	1.21	1.23	2.01		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.7	0.0	0.2	0.4	0.1		0.5	0.1		0.9	0.0
Delay (s)	7.5	8.5	7.3	9.1	9.7	14.8		8.2	7.4		8.8	7.3
Level of Service	A	A	A	A	A	B		A	A		A	A
Approach Delay (s)	8.3				11.2			7.9			8.7	
Approach LOS	A				B			A			A	

### Intersection Summary

















HCM Average Control Delay	9.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 6: Highway 7 & 15 Street W

















Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	146	9	4	127	1	1	0	7	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	159	10	4	138	1	1	0	8	0	1	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	139			168			314	314	164	321	318	139
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	139			168			314	314	164	321	318	139
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	100	99	100	100	100
cM capacity (veh/h)	1444			1409			636	599	881	625	596	910
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	170	143	9	1								
Volume Left	1	4	1	0								
Volume Right	10	1	8	0								
cSH	1444	1409	841	596								
Volume to Capacity	0.00	0.00	0.01	0.00								
Queue Length 95th (m)	0.0	0.1	0.2	0.0								
Control Delay (s)	0.1	0.3	9.3	11.1								
Lane LOS	A	A	A	B								
Approach Delay (s)	0.1	0.3	9.3	11.1								
Approach LOS			A	B								
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			19.5%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 10: 7 Avenue & Highway 21

Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	35	7	2	13	21	5	53	8	59	73	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	38	8	2	14	23	5	58	9	64	79	15
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	318	292	87	315	296	62	95			66		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	318	292	87	315	296	62	95			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 %	98	94	99	100	98	98	100			96		
cM capacity (veh/h)	588	590	972	581	588	1003	1499			1535		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	60	39	72	159								
Volume Left	14	2	5	64								
Volume Right	8	23	9	15								
cSH	621	774	1499	1535								
Volume to Capacity	0.10	0.05	0.00	0.04								
Queue Length 95th (m)	2.4	1.2	0.1	1.0								
Control Delay (s)	11.4	9.9	0.6	3.2								
Lane LOS	B	A	A	A								
Approach Delay (s)	11.4	9.9	0.6	3.2								
Approach LOS	B	A										
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			28.5%		ICU Level of Service				A			
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis

## 12: Highway 7 & 11 Street W






















Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	153	2	10	107	1	6	5	26	8	3	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	166	2	11	116	1	7	5	28	9	3	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	117			168			317	315	167	346	316	117
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	117			168			317	315	167	346	316	117
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			99			99	99	97	99	99	100
cM capacity (veh/h)	1471			1409			627	594	877	580	594	935
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	173	128	40	13								
Volume Left	4	11	7	9								
Volume Right	2	1	28	1								
cSH	1471	1409	777	603								
Volume to Capacity	0.00	0.01	0.05	0.02								
Queue Length 95th (m)	0.1	0.2	1.2	0.5								
Control Delay (s)	0.2	0.7	9.9	11.1								
Lane LOS	A	A	A	B								
Approach Delay (s)	0.2	0.7	9.9	11.1								
Approach LOS			A	B								
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			20.6%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Signalized Intersection Capacity Analysis

## 16: Highway 7 & Main Street



















Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	138	84	42	122	6	50	45	38	4	73	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00		1.00	
Satd. Flow (prot)	1789	1883	1601	1789	1869			1835	1601		1855	
Flt Permitted	0.67	1.00	1.00	0.66	1.00			0.85	1.00		0.99	
Satd. Flow (perm)	1257	1883	1601	1246	1869			1597	1601		1843	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	150	91	46	133	7	54	49	41	4	79	9
RTOR Reduction (vph)	0	0	55	0	4	0	0	0	25	0	5	0
Lane Group Flow (vph)	16	150	36	46	136	0	0	103	16	0	87	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases	4				8			2			6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0			16.0	16.0		16.0	
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0			16.0	16.0		16.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40			0.40	0.40		0.40	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	503	753	640	498	748			639	640		737	
v/s Ratio Prot		c0.08			0.07							
v/s Ratio Perm	0.01		0.02	0.04				c0.06	0.01		0.05	
v/c Ratio	0.03	0.20	0.06	0.09	0.18			0.16	0.03		0.12	
Uniform Delay, d1	7.3	7.8	7.4	7.5	7.8			7.7	7.3		7.6	
Progression Factor	1.08	1.11	1.81	1.19	1.21			0.89	0.84		1.00	
Incremental Delay, d2	0.1	0.6	0.2	0.4	0.5			0.5	0.1		0.3	
Delay (s)	8.0	9.3	13.5	9.3	9.9			7.4	6.2		7.9	
Level of Service	A	A	B	A	A			A	A		A	
Approach Delay (s)		10.7			9.8			7.1			7.9	
Approach LOS		B			A			A			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			9.3			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.18									
Actuated Cycle Length (s)			40.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			32.4%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 20: Main Street & 6 Avenue

Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration



















												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	14	202	13	11	169	7	8	6	9	3	5	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	220	14	12	184	8	9	7	10	3	5	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	191			234			478	472	227	474	476	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	191			234			478	472	227	474	476	188
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 %	99			99			98	99	99	99	99	99
cM capacity (veh/h)	1382			1334			479	480	813	482	478	855
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	SW 1						
Volume Total	15	234	12	191	25	20						
Volume Left	15	0	12	0	9	3						
Volume Right	0	14	0	8	10	11						
cSH	1382	1700	1334	1700	571	634						
Volume to Capacity	0.01	0.14	0.01	0.11	0.04	0.03						
Queue Length 95th (m)	0.3	0.0	0.2	0.0	1.0	0.7						
Control Delay (s)	7.6	0.0	7.7	0.0	11.6	10.9						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.5		0.5		11.6	10.9						
Approach LOS					B	B						
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			21.6%		ICU Level of Service		A					
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 23: Main Street & 4 Avenue

# Kindersley Traffic Study





2011 Traffic Volumes - Existing Configuration

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	11	177	12	10	166	4	10	4	13	1	9	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	192	13	11	180	4	11	4	14	1	10	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)					200							
pX, platoon unblocked												
vC, conflicting volume	185			205			440	429	199	437	434	183
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185			205			440	429	199	437	434	183
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 %	99			99			98	99	98	100	98	99
cM capacity (veh/h)	1390			1366			507	510	842	511	507	860
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	SW 1						
Volume Total	12	205	11	185	29	21						
Volume Left	12	0	11	0	11	1						
Volume Right	0	13	0	4	14	10						
cSH	1390	1700	1366	1700	628	630						
Volume to Capacity	0.01	0.12	0.01	0.11	0.05	0.03						
Queue Length 95th (m)	0.2	0.0	0.2	0.0	1.1	0.8						
Control Delay (s)	7.6	0.0	7.7	0.0	11.0	10.9						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.4		0.4		11.0	10.9						
Approach LOS					B	B						
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			22.1%		ICU Level of Service		A					
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis 26: Main Street & Railway Avenue

Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	63	31	27	137	93	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	34	29	149	101	61
Direction, Lane #	SE 1	SE 2	NE 1	SW 1		
Volume Total (vph)	68	34	178	162		
Volume Left (vph)	68	0	29	0		
Volume Right (vph)	0	34	0	61		
Hadj (s)	0.53	-0.67	0.07	-0.19		
Departure Headway (s)	5.8	4.6	4.4	4.2		
Degree Utilization, x	0.11	0.04	0.22	0.19		
Capacity (veh/h)	586	730	792	824		
Control Delay (s)	8.3	6.6	8.6	8.2		
Approach Delay (s)	7.7		8.6	8.2		
Approach LOS	A		A	A		
Intersection Summary						
Delay			8.3			
HCM Level of Service			A			
Intersection Capacity Utilization			30.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 27: Highway 21 & Railway Avenue












Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↩			↩	↩	↩
Volume (veh/h)	34	13	22	50	33	20
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)	37	14	24	54	36	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			51		146	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			51		146	44
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	98
cM capacity (veh/h)			1555		833	1026
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	51	78	58			
Volume Left	0	24	36			
Volume Right	14	0	22			
cSH	1700	1555	1338			
Volume to Capacity	0.03	0.02	0.04			
Queue Length 95th (m)	0.0	0.4	1.0			
Control Delay (s)	0.0	2.3	9.2			
Lane LOS		A	A			
Approach Delay (s)	0.0	2.3	9.2			
Approach LOS			A			
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization		20.5%		ICU Level of Service		A
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

## 28: Ditson Drive & Railway Avenue






















Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	111	109	204	80	86	166
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)	121	118	222	87	93	180
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	309				625	265
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	309				625	265
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				77	77
cM capacity (veh/h)	1252				405	773
Direction, Lane #	NB 1	NB 2	SB 1	NE 1		
Volume Total	121	118	309	274		
Volume Left	121	0	0	93		
Volume Right	0	0	87	180		
cSH	1252	1700	1700	1174		
Volume to Capacity	0.10	0.07	0.18	0.23		
Queue Length 95th (m)	2.4	0.0	0.0	6.9		
Control Delay (s)	8.2	0.0	0.0	12.9		
Lane LOS	A			B		
Approach Delay (s)	4.1		0.0	12.9		
Approach LOS				B		
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization			36.5%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 29: Highway 7 & 2 Street E

Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	142	19	18	122	17	15	98	77	17	135	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	154	21	20	133	18	16	107	84	18	147	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)		320										
pX, platoon unblocked												
vC, conflicting volume	151			175			470	395	154	513	397	133
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	151			175			470	395	154	513	397	133
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 %	98			99			96	80	91	95	72	98
cM capacity (veh/h)	1430			1401			377	525	892	352	524	917
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	25	154	21	20	133	18	207	186				
Volume Left	25	0	0	20	0	0	16	18				
Volume Right	0	0	21	0	0	18	84	21				
cSH	1430	1700	1700	1401	1700	1700	607	523				
Volume to Capacity	0.02	0.09	0.01	0.01	0.08	0.01	0.34	0.36				
Queue Length 95th (m)	0.4	0.0	0.0	0.3	0.0	0.0	11.4	12.1				
Control Delay (s)	7.6	0.0	0.0	7.6	0.0	0.0	13.9	15.6				
Lane LOS	A			A			B	C				
Approach Delay (s)	0.9			0.9			13.9	15.6				
Approach LOS							B	C				
Intersection Summary												
Average Delay			8.0									
Intersection Capacity Utilization			34.2%			ICU Level of Service		A				
Analysis Period (min)			15									





















# HCM Signalized Intersection Capacity Analysis

## 32: Main Street & 2 Avenue

# Kindersley Traffic Study

2011 Traffic Volumes - Existing Configuration










												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	50	90	31	8	71	22	18	44	17	12	44	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.96		1.00	0.96			0.97			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1789	1811		1789	1816			1809			1779	
Flt Permitted	0.69	1.00		0.67	1.00			0.94			0.97	
Satd. Flow (perm)	1303	1811		1267	1816			1724			1736	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	98	34	9	77	24	20	48	18	13	48	35
RTOR Reduction (vph)	0	20	0	0	14	0	0	11	0	0	21	0
Lane Group Flow (vph)	54	112	0	9	87	0	0	75	0	0	75	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	6			2			4			8		
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	16.0	16.0		16.0	16.0			16.0			16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0			16.0			16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.40			0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	521	724		507	726			690			694	
v/s Ratio Prot	c0.06			0.05				c0.04			0.04	
v/s Ratio Perm	0.04			0.01				c0.04			0.04	
v/c Ratio	0.10	0.15		0.02	0.12			0.11			0.11	
Uniform Delay, d1	7.5	7.7		7.3	7.6			7.5			7.5	
Progression Factor	1.00	1.02		1.00	1.00			1.00			0.79	
Incremental Delay, d2	0.4	0.5		0.1	0.3			0.3			0.3	
Delay (s)	7.9	8.3		7.3	7.9			7.8			6.3	
Level of Service	A	A		A	A			A			A	
Approach Delay (s)	8.2			7.8				7.8			6.3	
Approach LOS	A			A				A			A	
Intersection Summary												
HCM Average Control Delay	7.7			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.13											
Actuated Cycle Length (s)	40.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	23.2%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 34: Ditson Drive & 2 Avenue

# Kindersley Traffic Study


















2011 Traffic Volumes - Existing Configuration

						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	10	181	250	46	49	7
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)	11	197	272	50	53	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)			233			
pX, platoon unblocked						
vC, conflicting volume	322				515	297
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	322				515	297
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				90	99
cM capacity (veh/h)	1238				515	743
Direction, Lane #	NB 1	SB 1	NE 1			
Volume Total	208	322	61			
Volume Left	11	0	53			
Volume Right	0	50	8			
cSH	1238	1700	536			
Volume to Capacity	0.01	0.19	0.11			
Queue Length 95th (m)	0.2	0.0	2.9			
Control Delay (s)	0.5	0.0	12.6			
Lane LOS	A		B			
Approach Delay (s)	0.5	0.0	12.6			
Approach LOS			B			
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			27.7%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Signalized Intersection Capacity Analysis










## 35: Highway 7 & Ditson Drive

Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	114	96	40	81	22	65	154	44	18	135	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		4.0	
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	
Frt		0.94			0.98			1.00	0.85		0.98	
Flt Protected		1.00			0.99			0.99	1.00		0.99	
Satd. Flow (prot)		3341			3448			1856	1601		1845	
Flt Permitted		0.93			0.85			0.87	1.00		0.96	
Satd. Flow (perm)		3111			2978			1639	1601		1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	124	104	43	88	24	71	167	48	20	147	21
RTOR Reduction (vph)	0	62	0	0	14	0	0	0	29	0	11	0
Lane Group Flow (vph)	0	190	0	0	141	0	0	238	19	0	177	0
Turn Type	Perm			Perm			Perm			Perm	Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		16.0			16.0			16.0	16.0		16.0	
Effective Green, g (s)		16.0			16.0			16.0	16.0		16.0	
Actuated g/C Ratio		0.40			0.40			0.40	0.40		0.40	
Clearance Time (s)		4.0			4.0			4.0	4.0		4.0	
Lane Grp Cap (vph)		1244			1191			656	640		712	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.05			c0.15	0.01		0.10	
v/c Ratio		0.15			0.12			0.36	0.03		0.25	
Uniform Delay, d1		7.7			7.6			8.4	7.3		8.0	
Progression Factor		2.09			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.3			0.2			1.6	0.1		0.8	
Delay (s)		16.3			7.8			10.0	7.4		8.8	
Level of Service		B			A			A	A		A	
Approach Delay (s)		16.3			7.8			9.5			8.8	
Approach LOS		B			A			A			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			11.0			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			40.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			45.3%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis 38: West Road & Ditson Drive

















Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	146	86	8	191	155
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	159	93	9	208	168
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	682	98			102	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	682	98			102	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	83			86	
cM capacity (veh/h)	358	958			1490	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	161	102	376			
Volume Left	2	0	208			
Volume Right	159	9	0			
cSH	937	1700	1490			
Volume to Capacity	0.17	0.06	0.14			
Queue Length 95th (m)	4.7	0.0	3.7			
Control Delay (s)	9.6	0.0	4.9			
Lane LOS	A		A			
Approach Delay (s)	9.6	0.0	4.9			
Approach LOS	A					
Intersection Summary						
Average Delay		5.3				
Intersection Capacity Utilization		41.2%		ICU Level of Service	A	
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

## 40: Thomson Drive & Ditson Drive

Kindersley Traffic Study  
2011 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	2	1	17	2	40	2	51	11	88	84	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	1	18	2	43	2	55	12	96	91	12
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	399	360	97	357	360	61	103			67		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	399	360	97	357	360	61	103			67		
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	97	100	96	100			94		
cM capacity (veh/h)	509	531	959	567	531	1004	1489			1534		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	8	64	70	199								
Volume Left	4	18	2	96								
Volume Right	1	43	12	12								
cSH	553	802	1489	1534								
Volume to Capacity	0.01	0.08	0.00	0.06								
Queue Length 95th (m)	0.3	2.0	0.0	1.5								
Control Delay (s)	11.6	9.9	0.2	3.9								
Lane LOS	B	A	A	A								
Approach Delay (s)	11.6	9.9	0.2	3.9								
Approach LOS	B	A										
Intersection Summary												
Average Delay			4.4									
Intersection Capacity Utilization			26.9%	ICU Level of Service					A			
Analysis Period (min)			15									

# **F Appendix F - Horizon Year Traffic Signal Warrants**

## 2005 Canadian Traffic Signal Warrant Matrix Analysis\_2018

Main Street (name)	Highway 7	Direction (EW or NS)	EW	Date:	Feb 23, 2012
Side Street (name)	Ditson Drive	Direction (EW or NS)	NS	City:	Kindersley, Sk
Quadrant (if appl)					

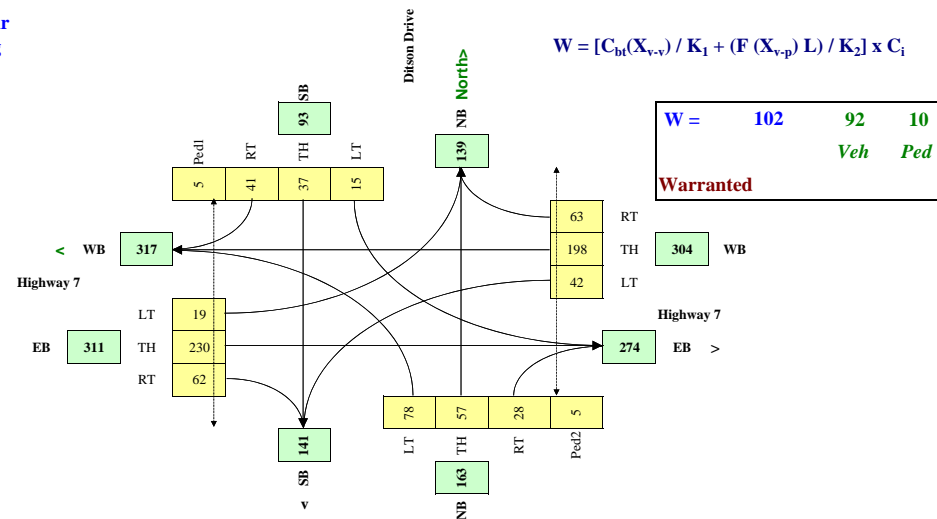
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Highway 7	WB		1		1		1,000	2	
Highway 7	EB		1		1			2	
Ditson Drive	NB		1	1					
Ditson Drive	SB		1	1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population (#)		6544
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Highway 7	EW	70	20.0%	n	2.0
Ditson Drive	NS		10%	n	

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
7:30 - 8:30	75	31	24	8	14	22	27	132	28	9	135	39	5	5	5	5
8:30 - 9:30	67	48	26	9	26	26	23	110	13	17	145	51	5	5	5	5
11:30 - 12:30	68	72	31	21	54	74	70	374	147	22	406	81	5	5	5	5
12:30 - 13:30	109	128	39	39	97	79	79	318	138	46	434	126	5	5	5	5
16:00 - 17:00	74	31	24	8	14	21	26	129	27	9	131	38	5	5	5	5
17:00 - 18:00	74	31	24	8	14	21	26	129	27	9	131	38	5	5	5	5
Total (6-hour peak)	466	341	169	92	219	244	251	1,191	381	111	1,383	373	30	30	30	30
Average (6-hour peak)	78	57	28	15	37	41	42	198	63	19	230	62	5	5	5	5

### Average 6-hour Peak Turning Movements



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

## 2005 Canadian Traffic Signal Warrant Matrix Analysis\_2019

Main Street (name)	Highway 7	Direction (EW or NS)	EW	Date:	Feb 23, 2012
Side Street (name)	2nd Avenue	Direction (EW or NS)	NS	City:	Kindersley, Sk
Quadrant (if appl)					

Lane Configuration		Excl LT	Th & LT	Through or Th & RT+LT	Th & RT	Excl RT	U/SStream or Signal (m)	# of Thru Lanes	
Highway 7	WB	1	1	1		1	325	1	
Highway 7	EB	1				1	675	1	
2nd Avenue	NB		1	1					
2nd Avenue	SB		1	1					

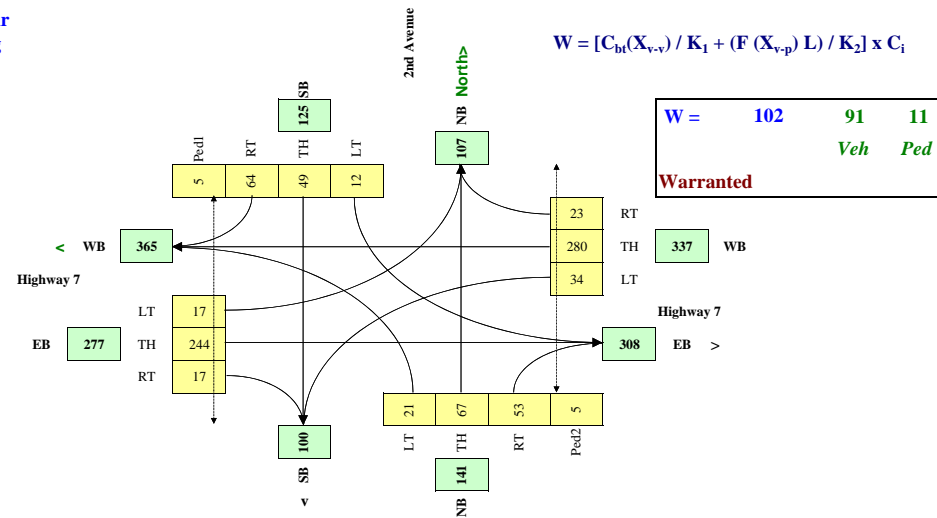
Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population	(#)	6736
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Highway 7	EW	70	20.0%	n	2.0
2nd Avenue	NS		10%	n	

Traffic Input	NB			SB			WB			EB			Ped1	Ped2	Ped3	Ped4
													NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	30	27	19	3	17	26	31	180	6	16	102	15	5	5	5	5
8:30 - 9:30	15	43	26	6	16	24	22	190	8	18	123	18	5	5	5	5
11:30 - 12:30	18	63	52	11	57	63	32	339	32	12	228	19	5	5	5	5
12:30 - 13:30	18	95	72	17	66	125	62	382	31	14	347	9	5	5	5	5
16:00 - 17:00	25	93	69	8	64	56	34	315	31	19	298	13	5	5	5	5
17:00 - 18:00	22	81	79	25	77	88	26	275	31	21	365	25	5	5	5	5
Total (6-hour peak)	127	401	318	71	296	382	207	1,679	139	100	1,462	99	30	30	30	30
Average (6-hour peak)	21	67	53	12	49	64	34	280	23	17	244	17	5	5	5	5

### Average 6-hour Peak Turning Movements

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





## 2005 Canadian Traffic Signal Warrant Matrix Analysis\_2019

Main Street (name)	Highway 7	Direction (EW or NS)	EW	Date:	Feb 23, 2012
Side Street (name)	Main Street	Direction (EW or NS)	NS	City:	Kindersley, Sk
Quadrant (if appl)					

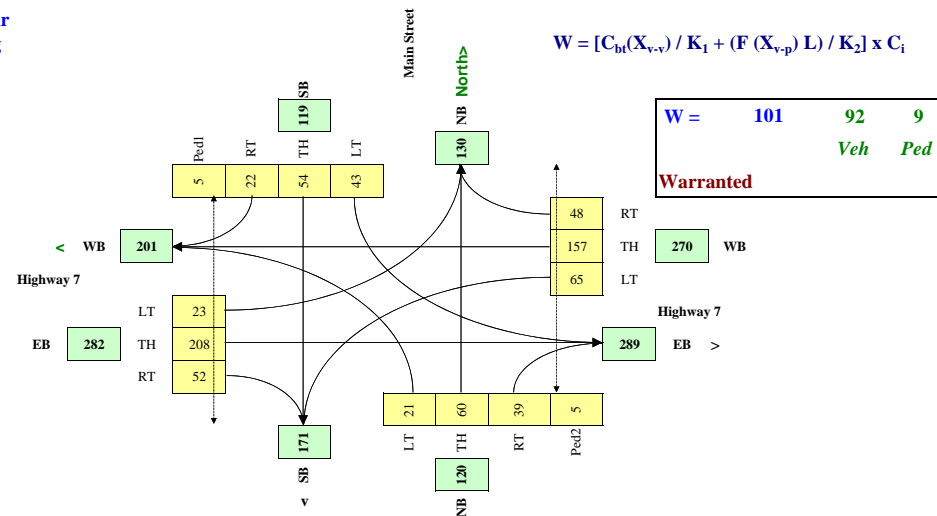
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Highway 7	WB	1			1		1,000	1	
Highway 7	EB	1			1		500	1	
Main Street	NB			1					
Main Street	SB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population	(#)	6736
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Highway 7	EW	70	20.0%	n	2.0
Main Street	NS		10%	n	

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
7:30 - 8:30	63	12	24	3	20	8	44	151	5	5	106	53	5	5	5	5
8:30 - 9:30	47	29	39	2	32	6	58	145	0	3	156	54	5	5	5	5
11:30 - 12:30	2	62	32	116	54	43	26	132	114	43	234	3	5	5	5	5
12:30 - 13:30	7	97	73	116	57	48	69	192	136	56	227	5	5	5	5	5
16:00 - 17:00	4	74	15	7	74	7	94	174	13	15	253	100	5	5	5	5
17:00 - 18:00	6	85	50	12	85	22	101	146	20	13	271	97	5	5	5	5
Total (6-hour peak)	129	360	233	256	322	134	391	941	288	135	1,247	312	30	30	30	30
Average (6-hour peak)	21	60	39	43	54	22	65	157	48	23	208	52	5	5	5	5

### Average 6-hour Peak Turning Movements



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Highway 7	Direction (EW or NS)	EW	Date:	Feb 23, 2012
Side Street (name)	Highway 21	Direction (EW or NS)	NS	City:	Kindersley, Sk
Quadrant (if appl)					

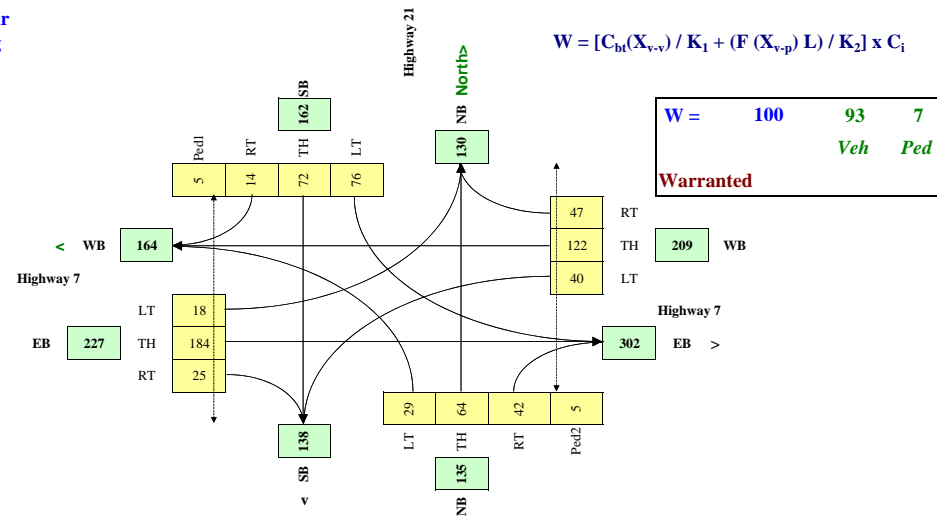
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Highway 7	WB	1		1		1		1	
Highway 7	EB	1		1		1		1	
Highway 21	NB		1			1			
Highway 21	SB		1			1			

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	6736
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Highway 7	EW	70	15.0%	n	2.0
Highway 21	NS		15%	n	

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
7:30 - 8:30	12	22	20	37	57	7	43	62	32	10	47	10	5	5	5	5
8:30 - 9:30	55	51	25	10	28	12	19	60	8	16	81	42	5	5	5	5
11:30 - 12:30	17	73	54	102	66	13	33	144	54	16	212	20	5	5	5	5
12:30 - 13:30	31	68	52	108	80	24	64	158	71	17	271	22	5	5	5	5
16:00 - 17:00	26	86	41	103	104	13	53	160	51	29	217	31	5	5	5	5
17:00 - 18:00	29	86	60	98	97	14	30	147	68	20	276	26	5	5	5	5
Total (6-hour peak)	171	386	254	457	432	83	242	731	283	109	1,103	152	30	30	30	30
Average (6-hour peak)	29	64	42	76	72	14	40	122	47	18	184	25	5	5	5	5

### Average 6-hour Peak Turning Movements



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

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Feb 23, 2012
Side Street (name)	2nd Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

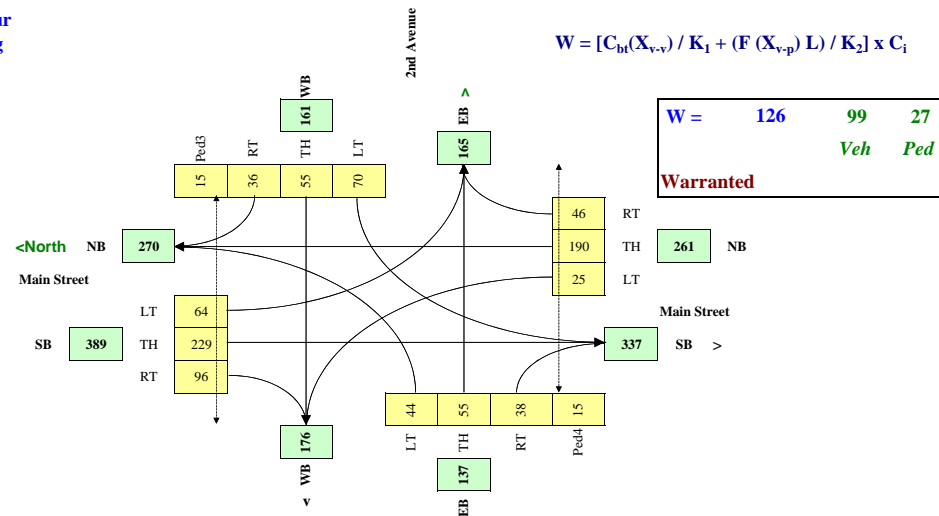
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		100	1	
Main Street	SB	1			1		100	1	
2nd Avenue	WB			1					
2nd Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population (#)		10000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
2nd Avenue	EW		5.0%	n	

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
7:30 - 8:30	25	190	46	64	229	96	70	55	36	44	55	38	15	15	15	15
8:30 - 9:30	25	190	46	64	229	96	70	55	36	44	55	38	15	15	15	15
11:30 - 12:30	25	190	46	64	229	96	70	55	36	44	55	38	15	15	15	15
12:30 - 13:30	25	190	46	64	229	96	70	55	36	44	55	38	15	15	15	15
16:00 - 17:00	25	190	46	64	229	96	70	55	36	44	55	38	15	15	15	15
17:00 - 18:00	25	190	46	64	229	96	70	55	36	44	55	38	15	15	15	15
Total (6-hour peak)	150	1,140	276	384	1,374	576	420	330	216	264	330	228	90	90	90	90
Average (6-hour peak)	25	190	46	64	229	96	70	55	36	44	55	38	15	15	15	15

### Average 6-hour Peak Turning Movements



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

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Feb 23, 2012
Side Street (name)	4th Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

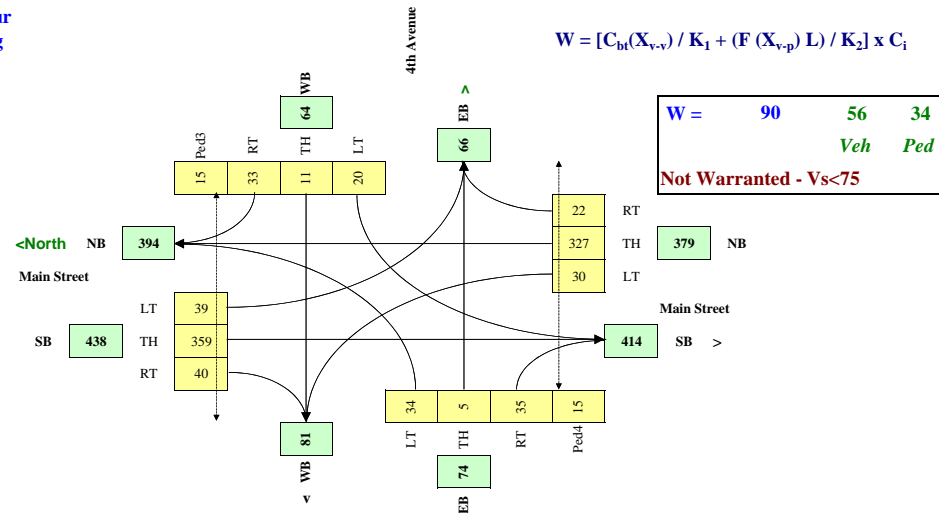
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		200	1	
Main Street	SB	1			1			1	
4th Avenue	WB			1					
4th Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	y
Metro Area Population	(#)	10000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
4th Avenue	EW		5%	n	

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
7:30 - 8:30	30	327	22	39	359	40	20	11	33	34	5	35	15	15	15	15
8:30 - 9:30	30	327	22	39	359	40	20	11	33	34	5	35	15	15	15	15
11:30 - 12:30	30	327	22	39	359	40	20	11	33	34	5	35	15	15	15	15
12:30 - 13:30	30	327	22	39	359	40	20	11	33	34	5	35	15	15	15	15
16:00 - 17:00	30	327	22	39	359	40	20	11	33	34	5	35	15	15	15	15
17:00 - 18:00	30	327	22	39	359	40	20	11	33	34	5	35	15	15	15	15
Total (6-hour peak)	180	1,962	132	234	2,154	240	120	66	198	204	30	210	90	90	90	90
Average (6-hour peak)	30	327	22	39	359	40	20	11	33	34	5	35	15	15	15	15

### Average 6-hour Peak Turning Movements



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS	Date:	Feb 23, 2012
Side Street (name)	6th Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

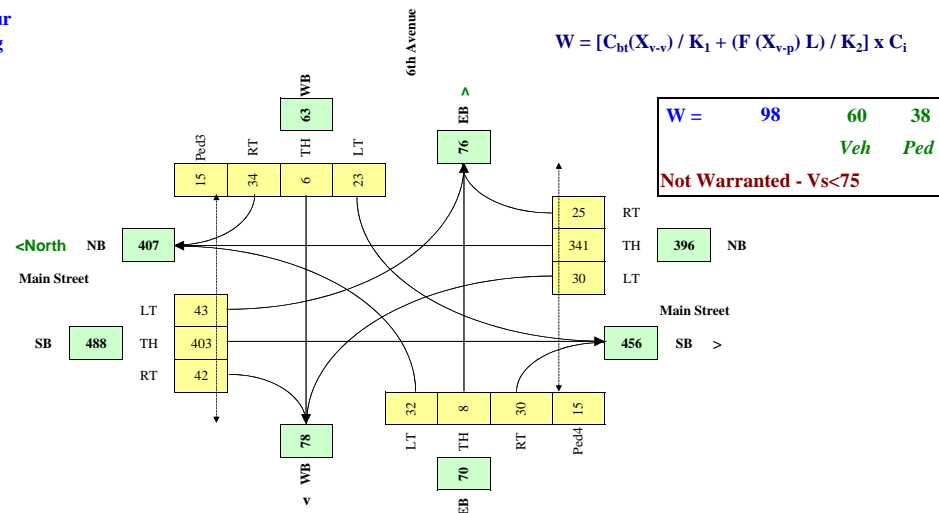
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB	1			1		300	1	
Main Street	SB	1			1			1	
6th Avenue	WB			1					
6th Avenue	EB			1					

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population (#)		10000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
6th Avenue	EW		5%	n	

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
7:30 - 8:30	30	341	25	43	403	42	23	6	34	32	8	30	15	15	15	15
8:30 - 9:30	30	341	25	43	403	42	23	6	34	32	8	30	15	15	15	15
11:30 - 12:30	30	341	25	43	403	42	23	6	34	32	8	30	15	15	15	15
12:30 - 13:30	30	341	25	43	403	42	23	6	34	32	8	30	15	15	15	15
16:00 - 17:00	30	341	25	43	403	42	23	6	34	32	8	30	15	15	15	15
17:00 - 18:00	30	341	25	43	403	42	23	6	34	32	8	30	15	15	15	15
Total (6-hour peak)	180	2,046	150	258	2,418	252	138	36	204	192	48	180	90	90	90	90
Average (6-hour peak)	30	341	25	43	403	42	23	6	34	32	8	30	15	15	15	15

### Average 6-hour Peak Turning Movements



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

## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Main Street	Direction (EW or NS)	NS
Side Street (name)	Railway Avenue	Direction (EW or NS)	EW
Quadrant (if appl)			

Date:	Feb 23, 2012
City:	Kindersley, Sk

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Main Street	NB						100	0	
Main Street	SB	1				1		0	
Railway Avenue	WB				1				
Railway Avenue	EB		1						

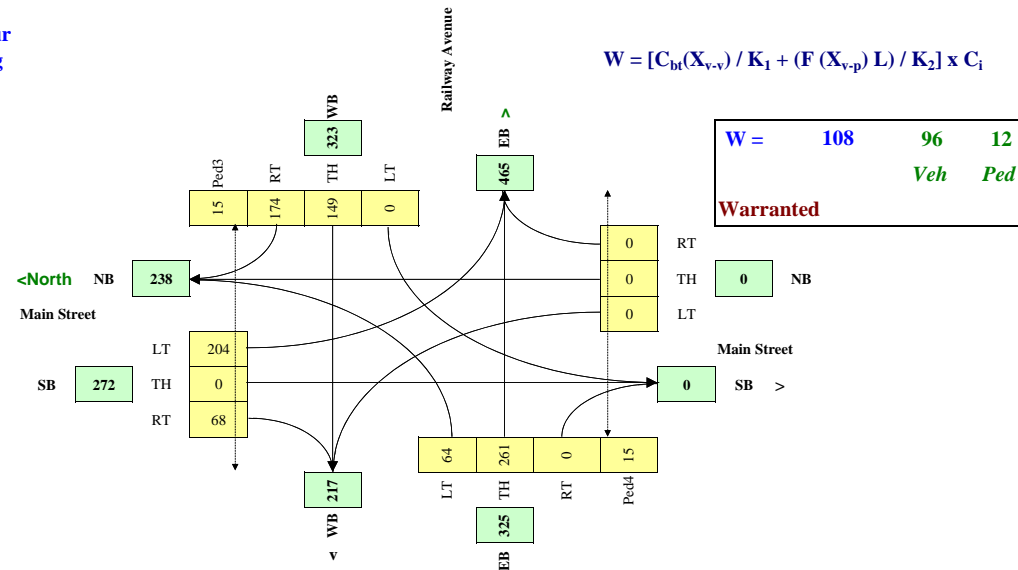
Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population	(#)	10000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Main Street	NS	40	5.0%	n	0.0
Railway Avenue	EW		5%	n	

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
7:30 - 8:30	0	0	0	204	0	68	0	149	174	64	261	0	15	15	15	15
8:30 - 9:30	0	0	0	204	0	68	0	149	174	64	261	0	15	15	15	15
11:30 - 12:30	0	0	0	204	0	68	0	149	174	64	261	0	15	15	15	15
12:30 - 13:30	0	0	0	204	0	68	0	149	174	64	261	0	15	15	15	15
16:00 - 17:00	0	0	0	204	0	68	0	149	174	64	261	0	15	15	15	15
17:00 - 18:00	0	0	0	204	0	68	0	149	174	64	261	0	15	15	15	15
Total (6-hour peak)	0	0	0	1,224	0	408	0	894	1,044	384	1,566	0	90	90	90	90
Average (6-hour peak)	0	0	0	204	0	68	0	149	174	64	261	0	15	15	15	15

### Average 6-hour Peak Turning Movements

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



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Main Street (name)	Ditson Drive	Direction (EW or NS)	NS	Date:	Feb 23, 2012
Side Street (name)	Railway Avenue	Direction (EW or NS)	EW	City:	Kindersley, Sk
Quadrant (if appl)					

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Ditson Drive	NB			1			500	1	
Ditson Drive	SB	1		1				1	
Railway Avenue	WB	1							
Railway Avenue	EB					1			

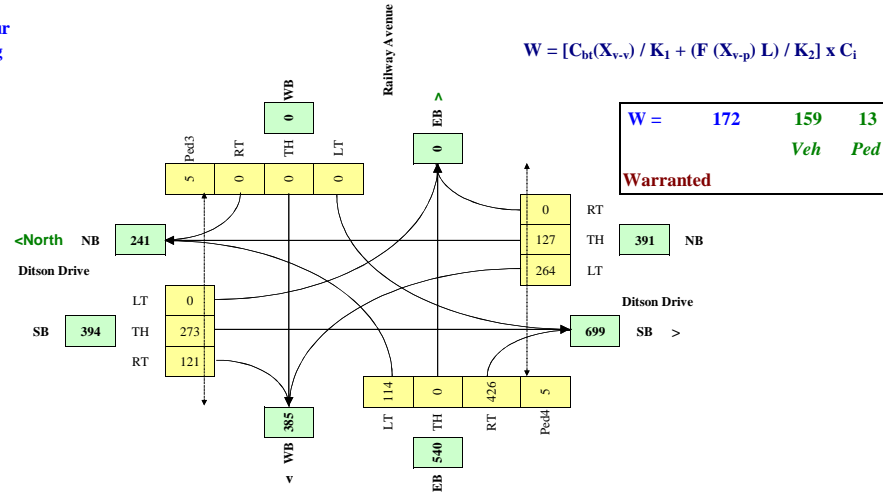
Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	n
Metro Area Population	(#)	10000
Central Business District	(y/n)	y

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Ditson Drive	NS	60	5.0%	n	0.0
Railway Avenue	EW		5%	n	

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
7:30 - 8:30	264	127	0	0	273	121				114		426	5	5	5	5
8:30 - 9:30	264	127	0	0	273	121				114		426	5	5	5	5
11:30 - 12:30	264	127	0	0	273	121				114		426	5	5	5	5
12:30 - 13:30	264	127	0	0	273	121				114		426	5	5	5	5
16:00 - 17:00	264	127	0	0	273	121				114		426	5	5	5	5
17:00 - 18:00	264	127	0	0	273	121				114		426	5	5	5	5
Total (6-hour peak)	1,584	762	0	0	1,638	726	0	0	0	684	0	2,556	30	30	30	30
Average (6-hour peak)	264	127	0	0	273	121	0	0	0	114	0	426	5	5	5	5

### Average 6-hour Peak Turning Movements

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



























## **Appendix G - Horizon Year Intersection Capacity Analysis with Existing Intersection Configuration**



# HCM Signalized Intersection Capacity Analysis

## 3: Highway 7 & Highway 21

Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	539	30	40	250	104	34	103	79	175	120	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.97	1.00
Satd. Flow (prot)	1789	1883	1601	1789	1883	1601		1860	1601		1829	1601
Flt Permitted	0.58	1.00	1.00	0.26	1.00	1.00		0.88	1.00		0.73	1.00
Satd. Flow (perm)	1090	1883	1601	498	1883	1601		1657	1601		1382	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	586	33	43	272	113	37	112	86	190	130	17
RTOR Reduction (vph)	0	0	18	0	0	63	0	0	54	0	0	11
Lane Group Flow (vph)	25	586	15	43	272	50	0	149	32	0	320	6
Turn Type	Perm		Perm	Perm	Perm		Perm	Perm		Perm	Perm	
Protected Phases	4				8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.0	20.0	20.0	20.0	20.0	20.0		17.0	17.0		17.0	17.0
Effective Green, g (s)	20.0	20.0	20.0	20.0	20.0	20.0		17.0	17.0		17.0	17.0
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.44	0.44		0.38	0.38		0.38	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	484	837	712	221	837	712		626	605		522	605
v/s Ratio Prot	c0.31				0.14							
v/s Ratio Perm	0.02		0.01	0.09		0.03		0.09	0.02		c0.23	0.00
v/c Ratio	0.05	0.70	0.02	0.19	0.32	0.07		0.24	0.05		0.61	0.01
Uniform Delay, d1	7.1	10.1	7.0	7.6	8.1	7.2		9.6	8.9		11.3	8.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	4.8	0.1	2.0	1.0	0.2		0.9	0.2		5.3	0.0
Delay (s)	7.3	14.9	7.1	9.6	9.1	7.4		10.5	9.1		16.6	8.8
Level of Service	A	B	A	A	A	A		B	A		B	A
Approach Delay (s)	14.2				8.7			10.0			16.2	
Approach LOS	B				A			A			B	
Intersection Summary												
HCM Average Control Delay			12.6	HCM Level of Service					B			
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			45.0	Sum of lost time (s)					8.0			
Intersection Capacity Utilization			62.6%	ICU Level of Service					B			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 6: Highway 7 & 15 Street W

# Kindersley Traffic Study

















2036 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	183	11	23	159	39	1	14	77	101	42	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	199	12	25	173	42	1	15	84	110	46	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	215			211			474	472	205	542	457	194
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	215			211			474	472	205	542	457	194
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			98			100	97	90	72	91	100
cM capacity (veh/h)	1355			1360			458	481	836	390	490	847
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	212	240	100	155								
Volume Left	1	25	1	110								
Volume Right	12	42	84	0								
cSH	1355	1360	745	415								
Volume to Capacity	0.00	0.02	0.13	0.37								
Queue Length 95th (m)	0.0	0.4	3.5	13.0								
Control Delay (s)	0.0	0.9	10.6	18.8								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.0	0.9	10.6	18.8								
Approach LOS			B	C								
Intersection Summary												
Average Delay			6.0									
Intersection Capacity Utilization			46.8%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 9: Highway 7 & Future Thomson Drive Connector

















Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	470	361	222	11	14	222	11	14	0	21	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	511	392	241	12	15	241	12	15	0	23	35
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	27			903			1284	1245	707	1259	1434	20
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	27			903			1284	1245	707	1259	1434	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 %	99			68			0	90	97	100	75	97
cM capacity (veh/h)	1587			753			83	117	435	99	90	1058
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	917	268	268	58								
Volume Left	14	241	241	0								
Volume Right	392	15	15	35								
cSH	1587	753	89	201								
Volume to Capacity	0.01	0.32	3.03	0.29								
Queue Length 95th (m)	0.2	10.5	Err	8.6								
Control Delay (s)	0.2	11.2	Err	29.9								
Lane LOS	A	B	F	D								
Approach Delay (s)	0.2	11.2	Err	29.9								
Approach LOS			F	D								
Intersection Summary												
Average Delay			1778.8									
Intersection Capacity Utilization			91.6%		ICU Level of Service				F			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 10: 7 Avenue & Highway 21

















Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	103	110	3	34	26	32	68	10	74	95	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	112	120	3	37	28	35	74	11	80	103	41
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	480	439	124	609	454	79	145			85		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480	439	124	609	454	79	145			85		
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 %	90	76	87	99	92	97	98			95		
cM capacity (veh/h)	426	473	927	274	463	981	1438			1512		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	273	68	120	225								
Volume Left	41	3	35	80								
Volume Right	120	28	11	41								
cSH	590	568	1438	1512								
Volume to Capacity	0.46	0.12	0.02	0.05								
Queue Length 95th (m)	18.5	3.1	0.6	1.3								
Control Delay (s)	16.3	12.2	2.3	3.0								
Lane LOS	C	B	A	A								
Approach Delay (s)	16.3	12.2	2.3	3.0								
Approach LOS	C	B										
Intersection Summary												
Average Delay			9.1									
Intersection Capacity Utilization			44.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 12: Highway 7 & 11 Street W






















Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	360	3	46	190	40	8	13	117	111	17	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	391	3	50	207	43	9	14	127	121	18	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	250			395			742	754	393	866	734	228
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	250			395			742	754	393	866	734	228
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			96			97	96	81	41	94	100
cM capacity (veh/h)	1316			1164			306	322	656	205	331	811
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	400	300	150	140								
Volume Left	5	50	9	121								
Volume Right	3	43	127	1								
cSH	1316	1164	564	218								
Volume to Capacity	0.00	0.04	0.27	0.64								
Queue Length 95th (m)	0.1	1.0	8.1	29.5								
Control Delay (s)	0.1	1.7	13.7	47.4								
Lane LOS	A	A	B	E								
Approach Delay (s)	0.1	1.7	13.7	47.4								
Approach LOS			B	E								
Intersection Summary												
Average Delay			9.4									
Intersection Capacity Utilization			63.2%		ICU Level of Service				B			
Analysis Period (min)			15									

# HCM Signalized Intersection Capacity Analysis

## 16: Highway 7 & Main Street

















Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	579	166	204	314	21	81	56	217	21	91	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00		0.99	
Satd. Flow (prot)	1789	1883	1601	1789	1866			1829	1601		1845	
Flt Permitted	0.51	1.00	1.00	0.32	1.00			0.81	1.00		0.94	
Satd. Flow (perm)	966	1883	1601	604	1866			1517	1601		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	629	180	222	341	23	88	61	236	23	99	12
RTOR Reduction (vph)	0	0	72	0	4	0	0	0	173	0	6	0
Lane Group Flow (vph)	24	629	108	222	360	0	0	149	63	0	128	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases	4			8	8			2		6		
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	36.0	36.0	36.0	36.0	36.0			16.0	16.0		16.0	
Effective Green, g (s)	36.0	36.0	36.0	36.0	36.0			16.0	16.0		16.0	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60			0.27	0.27		0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	580	1130	961	362	1120			405	427		467	
v/s Ratio Prot		0.33			0.19							
v/s Ratio Perm	0.02		0.07	c0.37				c0.10	0.04		0.07	
v/c Ratio	0.04	0.56	0.11	0.61	0.32			0.37	0.15		0.27	
Uniform Delay, d1	4.9	7.2	5.1	7.6	5.9			17.9	16.8		17.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	2.0	0.2	7.6	0.8			2.6	0.7		1.5	
Delay (s)	5.1	9.2	5.4	15.2	6.7			20.5	17.5		18.9	
Level of Service	A	A	A	B	A			C	B		B	
Approach Delay (s)		8.2			9.9			18.7			18.9	
Approach LOS		A			A			B			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			11.5			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			65.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 19: Highway 7 & Future East Boundary Road



















Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	220	251	0	179	0	150	11	0	0	20	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	239	273	0	195	0	163	12	0	0	22	35
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	195			512			644	598	376	604	735	195
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	195			512			644	598	376	604	735	195
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 %	99			100			53	97	100	100	94	96
cM capacity (veh/h)	1379			1053			349	411	671	398	343	847
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	526	195	175	57								
Volume Left	14	0	163	0								
Volume Right	273	0	0	35								
cSH	1379	1053	353	542								
Volume to Capacity	0.01	0.00	0.50	0.10								
Queue Length 95th (m)	0.2	0.0	20.0	2.6								
Control Delay (s)	0.3	0.0	24.8	12.4								
Lane LOS	A		C	B								
Approach Delay (s)	0.3	0.0	24.8	12.4								
Approach LOS			C	B								
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			60.5%		ICU Level of Service				B			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 20: Main Street & 6 Avenue

Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	43	403	42	30	341	25	32	8	30	23	6	34
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	47	438	46	33	371	27	35	9	33	25	7	37
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	398			484			1030	1017	461	1018	1027	384
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	398			484			1030	1017	461	1018	1027	384
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 %	96			97			81	96	95	87	97	94
cM capacity (veh/h)	1161			1079			185	221	601	187	218	663
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	SW 1						
Volume Total	47	484	33	398	76	68						
Volume Left	47	0	33	0	35	25						
Volume Right	0	46	0	27	33	37						
cSH	1161	1700	1079	1700	270	313						
Volume to Capacity	0.04	0.28	0.03	0.23	0.28	0.22						
Queue Length 95th (m)	1.0	0.0	0.7	0.0	8.5	6.2						
Control Delay (s)	8.2	0.0	8.4	0.0	23.5	19.7						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.7		0.6		23.5	19.7						
Approach LOS					C	C						
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			42.9%		ICU Level of Service		A					
Analysis Period (min)			15									





















# HCM Unsignalized Intersection Capacity Analysis

## 23: Main Street & 4 Avenue

# Kindersley Traffic Study





2036 Traffic Volumes - Existing Configuration

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	39	359	40	29	327	22	34	5	35	20	11	33
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	390	43	32	355	24	37	5	38	22	12	36
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					200							
pX, platoon unblocked												
vC, conflicting volume	379			434			957	939	412	946	949	367
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			434			957	939	412	946	949	367
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 %	96			97			82	98	94	90	95	95
cM capacity (veh/h)	1179			1126			206	247	640	213	244	678
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	SW 1						
Volume Total	42	434	32	379	80	70						
Volume Left	42	0	32	0	37	22						
Volume Right	0	43	0	24	38	36						
cSH	1179	1700	1126	1700	308	341						
Volume to Capacity	0.04	0.26	0.03	0.22	0.26	0.20						
Queue Length 95th (m)	0.8	0.0	0.7	0.0	7.8	5.7						
Control Delay (s)	8.2	0.0	8.3	0.0	20.7	18.3						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.7		0.6		20.7	18.3						
Approach LOS					C	C						
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			41.4%		ICU Level of Service		A					
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis 26: Main Street & Railway Avenue

Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration













Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	204	68	64	261	149	174
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	222	74	70	284	162	189
Direction, Lane #	SE 1	SE 2	NE 1	SW 1		
Volume Total (vph)	222	74	353	351		
Volume Left (vph)	222	0	70	0		
Volume Right (vph)	0	74	0	189		
Hadj (s)	0.53	-0.67	0.07	-0.29		
Departure Headway (s)	6.9	5.6	5.4	5.1		
Degree Utilization, x	0.42	0.12	0.53	0.50		
Capacity (veh/h)	489	595	637	677		
Control Delay (s)	13.6	8.2	14.4	13.0		
Approach Delay (s)	12.2		14.4	13.0		
Approach LOS	B		B	B		
Intersection Summary						
Delay			13.3			
HCM Level of Service			B			
Intersection Capacity Utilization			57.1%	ICU Level of Service	B	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 27: Highway 21 & Railway Avenue












Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

						
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (veh/h)	43	16	147	63	41	67
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)	47	17	160	68	45	73
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			64		443	55
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			64		443	55
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		91	93
cM capacity (veh/h)			1538		512	1011
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	64	228	117			
Volume Left	0	160	45			
Volume Right	17	0	73			
cSH	1700	1538	1350			
Volume to Capacity	0.04	0.10	0.09			
Queue Length 95th (m)	0.0	2.6	2.2			
Control Delay (s)	0.0	5.6	10.3			
Lane LOS		A	B			
Approach Delay (s)	0.0	5.6	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			6.1			
Intersection Capacity Utilization			28.1%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 28: Ditson Drive & Railway Avenue

Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration






















						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	264	127	273	121	114	426
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)	287	138	297	132	124	463
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	428				1074	362
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	428				1074	362
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	75				32	32
cM capacity (veh/h)	1131				182	682
Direction, Lane #	NB 1	NB 2	SB 1	NE 1		
Volume Total	287	138	428	587		
Volume Left	287	0	0	124		
Volume Right	0	0	132	463		
cSH	1131	1700	1700	860		
Volume to Capacity	0.25	0.08	0.25	0.68		
Queue Length 95th (m)	7.7	0.0	0.0	42.2		
Control Delay (s)	9.3	0.0	0.0	28.8		
Lane LOS	A			D		
Approach Delay (s)	6.3		0.0	28.8		
Approach LOS				D		
Intersection Summary						
Average Delay			13.6			
Intersection Capacity Utilization			54.8%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 29: Highway 7 & 2 Street E

# Kindersley Traffic Study

2036 Traffic Volumes - Existing Configuration



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	734	57	59	468	34	28	123	120	37	104	52
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	798	62	64	509	37	30	134	130	40	113	57
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		320										
pX, platoon unblocked				0.82			0.82	0.82	0.82	0.82	0.82	
vC, conflicting volume	546			860			1617	1541	798	1702	1566	509
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	546			722			1643	1550	647	1745	1581	509
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 %	97			91			0	0	66	0	0	90
cM capacity (veh/h)	1024			724			0	82	388	0	79	564
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	35	798	62	64	509	37	295	210				
Volume Left	35	0	0	64	0	0	30	40				
Volume Right	0	0	62	0	0	37	130	57				
cSH	1024	1700	1700	724	1700	1700	0	0				
Volume to Capacity	0.03	0.47	0.04	0.09	0.30	0.02	Err	Err				
Queue Length 95th (m)	0.8	0.0	0.0	2.2	0.0	0.0	Err	Err				
Control Delay (s)	8.6	0.0	0.0	10.5	0.0	0.0	Err	Err				
Lane LOS	A			B			F	F				
Approach Delay (s)	0.3			1.1			Err	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			69.8%		ICU Level of Service			C				
Analysis Period (min)			15									

# HCM Signalized Intersection Capacity Analysis

## 32: Main Street & 2 Avenue

# Kindersley Traffic Study

2036 Traffic Volumes - Existing Configuration

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	229	64	25	190	46	44	55	38	36	55	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.97		1.00	0.97			0.96			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1789	1821		1789	1828			1785			1753	
Flt Permitted	0.60	1.00		0.53	1.00			0.88			0.92	
Satd. Flow (perm)	1130	1821		990	1828			1596			1635	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	249	70	27	207	50	48	60	41	39	60	76
RTOR Reduction (vph)	0	25	0	0	22	0	0	25	0	0	46	0
Lane Group Flow (vph)	104	294	0	27	235	0	0	124	0	0	129	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	6			2			4			8		
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	16.0	16.0		16.0	16.0			16.0			16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0			16.0			16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.40			0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	452	728		396	731			638			654	
v/s Ratio Prot	c0.16			0.13				0.08			c0.08	
v/s Ratio Perm	0.09			0.03				0.08			c0.08	
v/c Ratio	0.23	0.40		0.07	0.32			0.19			0.20	
Uniform Delay, d1	7.9	8.6		7.4	8.3			7.8			7.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.30	
Incremental Delay, d2	1.2	1.7		0.3	1.2			0.7			0.7	
Delay (s)	9.1	10.2		7.7	9.4			8.5			10.8	
Level of Service	A	B		A	A			A			B	
Approach Delay (s)	10.0			9.3				8.5			10.8	
Approach LOS	A			A				A			B	

### Intersection Summary

HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		










c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 34: Ditson Drive & 2 Avenue

# Kindersley Traffic Study

2036 Traffic Volumes - Existing Configuration


















						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	23	213	337	72	66	23
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)	25	232	366	78	72	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)			233			
pX, platoon unblocked						
vC, conflicting volume	445				687	405
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445				687	405
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				82	96
cM capacity (veh/h)	1116				403	645
Direction, Lane #	NB 1	SB 1	NE 1			
Volume Total	257	445	97			
Volume Left	25	0	72			
Volume Right	0	78	25			
cSH	1116	1700	447			
Volume to Capacity	0.02	0.26	0.22			
Queue Length 95th (m)	0.5	0.0	6.2			
Control Delay (s)	1.0	0.0	15.3			
Lane LOS	A		C			
Approach Delay (s)	1.0	0.0	15.3			
Approach LOS			C			
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			42.1%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Signalized Intersection Capacity Analysis

## 35: Highway 7 & Ditson Drive

# Kindersley Traffic Study

2036 Traffic Volumes - Existing Configuration










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	680	176	87	422	86	124	147	67	97	110	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		4.0	
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	
Frt		0.97			0.98			1.00	0.85		0.99	
Flt Protected		1.00			0.99			0.98	1.00		0.98	
Satd. Flow (prot)		3466			3476			1841	1601		1818	
Flt Permitted		0.92			0.69			0.79	1.00		0.77	
Satd. Flow (perm)		3198			2407			1483	1601		1430	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	739	191	95	459	93	135	160	73	105	120	27
RTOR Reduction (vph)	0	55	0	0	34	0	0	0	44	0	11	0
Lane Group Flow (vph)	0	908	0	0	613	0	0	295	29	0	241	0
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		16.0			16.0			16.0	16.0		16.0	
Effective Green, g (s)		16.0			16.0			16.0	16.0		16.0	
Actuated g/C Ratio		0.40			0.40			0.40	0.40		0.40	
Clearance Time (s)		4.0			4.0			4.0	4.0		4.0	
Lane Grp Cap (vph)		1279			963			593	640		572	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.25			c0.20	0.02		0.17	
v/c Ratio		0.71			0.64			0.50	0.05		0.42	
Uniform Delay, d1		10.1			9.7			9.0	7.3		8.7	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.4			3.2			3.0	0.1		2.3	
Delay (s)		13.4			12.9			12.0	7.5		10.9	
Level of Service		B			B			B	A		B	
Approach Delay (s)		13.4			12.9			11.1			10.9	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			12.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			40.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			82.8%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Unsignalized Intersection Capacity Analysis

## 38: West Road & Ditson Drive

















Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	3	206	201	10	287	381
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	224	218	11	312	414
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	1262	224			229	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1262	224			229	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	73			77	
cM capacity (veh/h)	144	816			1339	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	227	229	726			
Volume Left	3	0	312			
Volume Right	224	11	0			
cSH	764	1700	1339			
Volume to Capacity	0.30	0.13	0.23			
Queue Length 95th (m)	9.5	0.0	6.9			
Control Delay (s)	11.7	0.0	5.1			
Lane LOS	B		A			
Approach Delay (s)	11.7	0.0	5.1			
Approach LOS	B					
Intersection Summary						
Average Delay		5.4				
Intersection Capacity Utilization		70.0%		ICU Level of Service		C
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

## 40: Thomson Drive & Ditson Drive

Kindersley Traffic Study  
2036 Traffic Volumes - Existing Configuration

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	33	3	1	21	3	86	3	93	14	169	170	77
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	3	1	23	3	93	3	101	15	184	185	84
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	804	717	227	712	751	109	268			116		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	804	717	227	712	751	109	268			116		
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 %	85	99	100	93	99	90	100			88		
cM capacity (veh/h)	243	310	813	311	296	945	1295			1472		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	40	120	120	452								
Volume Left	36	23	3	184								
Volume Right	1	93	15	84								
cSH	252	652	1295	1472								
Volume to Capacity	0.16	0.18	0.00	0.12								
Queue Length 95th (m)	4.2	5.1	0.1	3.2								
Control Delay (s)	22.0	11.8	0.2	3.9								
Lane LOS	C	B	A	A								
Approach Delay (s)	22.0	11.8	0.2	3.9								
Approach LOS	C	B										
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			43.5%		ICU Level of Service				A			
Analysis Period (min)			15									























# H

## **Appendix H - Horizon Year Intersection Capacity Analysis with Recommended Improvements**

# HCM Signalized Intersection Capacity Analysis

## 3: Highway 7 & Highway 21

















Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	539	30	40	250	104	34	103	79	175	120	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.97	1.00
Satd. Flow (prot)	1789	1883	1601	1789	1883	1601		1860	1601		1829	1601
Flt Permitted	0.58	1.00	1.00	0.26	1.00	1.00		0.88	1.00		0.73	1.00
Satd. Flow (perm)	1090	1883	1601	498	1883	1601		1657	1601		1382	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	586	33	43	272	113	37	112	86	190	130	17
RTOR Reduction (vph)	0	0	18	0	0	63	0	0	54	0	0	11
Lane Group Flow (vph)	25	586	15	43	272	50	0	149	32	0	320	6
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.0	20.0	20.0	20.0	20.0	20.0		17.0	17.0		17.0	17.0
Effective Green, g (s)	20.0	20.0	20.0	20.0	20.0	20.0		17.0	17.0		17.0	17.0
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.44	0.44		0.38	0.38		0.38	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	484	837	712	221	837	712		626	605		522	605
v/s Ratio Prot		c0.31			0.14							
v/s Ratio Perm	0.02		0.01	0.09		0.03		0.09	0.02		c0.23	0.00
v/c Ratio	0.05	0.70	0.02	0.19	0.32	0.07		0.24	0.05		0.61	0.01
Uniform Delay, d1	7.1	10.1	7.0	7.6	8.1	7.2		9.6	8.9		11.3	8.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	4.8	0.1	2.0	1.0	0.2		0.9	0.2		5.3	0.0
Delay (s)	7.3	14.9	7.1	9.6	9.1	7.4		10.5	9.1		16.6	8.8
Level of Service	A	B	A	A	A	A		B	A		B	A
Approach Delay (s)		14.2			8.7			10.0			16.2	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM Average Control Delay			12.6		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			45.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			62.6%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 6: Highway 7 & 15 Street W


















Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	183	11	23	159	39	1	14	77	101	42	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	199	12	25	173	42	1	15	84	110	46	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	215			211			474	472	205	542	457	194
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	215			211			474	472	205	542	457	194
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			98			100	97	90	72	91	100
cM capacity (veh/h)	1355			1360			458	481	836	390	490	847
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	212	240	100	155								
Volume Left	1	25	1	110								
Volume Right	12	42	84	0								
cSH	1355	1360	745	415								
Volume to Capacity	0.00	0.02	0.13	0.37								
Queue Length 95th (m)	0.0	0.4	3.5	13.0								
Control Delay (s)	0.0	0.9	10.6	18.8								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.0	0.9	10.6	18.8								
Approach LOS			B	C								
Intersection Summary												
Average Delay			6.0									
Intersection Capacity Utilization			46.8%	ICU Level of Service					A			
Analysis Period (min)			15									

# HCM Signalized Intersection Capacity Analysis

## 9: Highway 7 & Future Thomson Drive Connector

















Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	470	361	222	11	14	222	11	14	0	21	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		0.95	0.95			1.00	
Frt		0.94			0.99		1.00	0.98			0.92	
Flt Protected		1.00			0.96		0.95	0.96			1.00	
Satd. Flow (prot)		1773			1789		1700	1692			1730	
Flt Permitted		1.00			0.30		0.72	0.74			1.00	
Satd. Flow (perm)		1766			553		1287	1305			1730	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	511	392	241	12	15	241	12	15	0	23	35
RTOR Reduction (vph)	0	45	0	0	4	0	0	7	0	0	26	0
Lane Group Flow (vph)	0	872	0	0	264	0	135	126	0	0	32	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		36.0			36.0		16.0	16.0			16.0	
Effective Green, g (s)		36.0			36.0		16.0	16.0			16.0	
Actuated g/C Ratio		0.60			0.60		0.27	0.27			0.27	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)		1060			332		343	348			461	
v/s Ratio Prot											0.02	
v/s Ratio Perm		c0.49			0.48		c0.10	0.10				
v/c Ratio		0.82			0.80		0.39	0.36			0.07	
Uniform Delay, d1		9.5			9.2		18.0	17.9			16.4	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		7.2			17.8		3.4	2.9			0.3	
Delay (s)		16.7			27.0		21.4	20.7			16.7	
Level of Service		B			C		C	C			B	
Approach Delay (s)		16.7			27.0			21.1			16.7	
Approach LOS		B			C			C			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			19.3			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			84.8%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 10: 7 Avenue & Highway 21

Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	103	110	3	34	26	32	68	10	74	95	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	112	120	3	37	28	35	74	11	80	103	41
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	480	439	124	609	454	79	145			85		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480	439	124	609	454	79	145			85		
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 %	90	76	87	99	92	97	98			95		
cM capacity (veh/h)	426	473	927	274	463	981	1438			1512		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	273	68	120	225								
Volume Left	41	3	35	80								
Volume Right	120	28	11	41								
cSH	590	568	1438	1512								
Volume to Capacity	0.46	0.12	0.02	0.05								
Queue Length 95th (m)	18.5	3.1	0.6	1.3								
Control Delay (s)	16.3	12.2	2.3	3.0								
Lane LOS	C	B	A	A								
Approach Delay (s)	16.3	12.2	2.3	3.0								
Approach LOS	C	B										
Intersection Summary												
Average Delay			9.1									
Intersection Capacity Utilization			44.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Signalized Intersection Capacity Analysis

## 12: Highway 7 & 11 Street W

# Kindersley Traffic Study

2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	360	3	46	190	40	8	13	117	111	17	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			0.98			0.89			1.00	
Flt Protected		1.00			0.99			1.00			0.96	
Satd. Flow (prot)		1880			1832			1663			1804	
Flt Permitted		1.00			0.90			0.99			0.69	
Satd. Flow (perm)		1874			1655			1643			1299	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	391	3	50	207	43	9	14	127	121	18	1
RTOR Reduction (vph)	0	1	0	0	15	0	0	76	0	0	1	0
Lane Group Flow (vph)	0	398	0	0	285	0	0	74	0	0	139	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0			16.0			16.0	
Effective Green, g (s)		16.0			16.0			16.0			16.0	
Actuated g/C Ratio		0.40			0.40			0.40			0.40	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		750			662			657			520	
v/s Ratio Prot												
v/s Ratio Perm		c0.21			0.17			0.04			c0.11	
v/c Ratio		0.53			0.43			0.11			0.27	
Uniform Delay, d1		9.1			8.7			7.5			8.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.7			2.0			0.3			1.3	
Delay (s)		11.8			10.7			7.9			9.3	
Level of Service		B			B			A			A	
Approach Delay (s)		11.8			10.7			7.9			9.3	
Approach LOS		B			B			A			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			10.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			40.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			63.2%			ICU Level of Service			B			
Analysis Period (min)			15									





















c Critical Lane Group



# HCM Signalized Intersection Capacity Analysis

## 16: Highway 7 & Main Street

















Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	579	166	204	314	21	81	56	217	21	91	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00		0.99	
Satd. Flow (prot)	1789	1883	1601	1789	1866			1829	1601		1845	
Flt Permitted	0.51	1.00	1.00	0.32	1.00			0.81	1.00		0.94	
Satd. Flow (perm)	966	1883	1601	604	1866			1517	1601		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	629	180	222	341	23	88	61	236	23	99	12
RTOR Reduction (vph)	0	0	72	0	4	0	0	0	173	0	6	0
Lane Group Flow (vph)	24	629	108	222	360	0	0	149	63	0	128	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases	4			8	8			2			6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	36.0	36.0	36.0	36.0	36.0			16.0	16.0		16.0	
Effective Green, g (s)	36.0	36.0	36.0	36.0	36.0			16.0	16.0		16.0	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60			0.27	0.27		0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	580	1130	961	362	1120			405	427		467	
v/s Ratio Prot		0.33			0.19							
v/s Ratio Perm	0.02		0.07	c0.37				c0.10	0.04		0.07	
v/c Ratio	0.04	0.56	0.11	0.61	0.32			0.37	0.15		0.27	
Uniform Delay, d1	4.9	7.2	5.1	7.6	5.9			17.9	16.8		17.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	2.0	0.2	7.6	0.8			2.6	0.7		1.5	
Delay (s)	5.1	9.2	5.4	15.2	6.7			20.5	17.5		18.9	
Level of Service	A	A	A	B	A			C	B		B	
Approach Delay (s)		8.2			9.9			18.7			18.9	
Approach LOS		A			A			B			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			11.5			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			65.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 19: Highway 7 & Future East Boundary Road



















Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	220	251	0	179	0	150	11	0	0	20	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	239	273	0	195	0	163	12	0	0	22	35
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	195			512			644	598	376	604	735	195
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	195			512			644	598	376	604	735	195
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 %	99			100			53	97	100	100	94	96
cM capacity (veh/h)	1379			1053			349	411	671	398	343	847
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	526	195	175	57								
Volume Left	14	0	163	0								
Volume Right	273	0	0	35								
cSH	1379	1053	353	542								
Volume to Capacity	0.01	0.00	0.50	0.10								
Queue Length 95th (m)	0.2	0.0	20.0	2.6								
Control Delay (s)	0.3	0.0	24.8	12.4								
Lane LOS	A		C	B								
Approach Delay (s)	0.3	0.0	24.8	12.4								
Approach LOS			C	B								
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			60.5%	ICU Level of Service				B				
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 20: Main Street & 6 Avenue

Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements



















												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	43	403	42	30	341	25	32	8	30	23	6	34
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	47	438	46	33	371	27	35	9	33	25	7	37
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	398			484			1030	1017	461	1018	1027	384
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	398			484			1030	1017	461	1018	1027	384
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 %	96			97			81	96	95	87	97	94
cM capacity (veh/h)	1161			1079			185	221	601	187	218	663
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	SW 1						
Volume Total	47	484	33	398	76	68						
Volume Left	47	0	33	0	35	25						
Volume Right	0	46	0	27	33	37						
cSH	1161	1700	1079	1700	270	313						
Volume to Capacity	0.04	0.28	0.03	0.23	0.28	0.22						
Queue Length 95th (m)	1.0	0.0	0.7	0.0	8.5	6.2						
Control Delay (s)	8.2	0.0	8.4	0.0	23.5	19.7						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.7		0.6		23.5	19.7						
Approach LOS					C	C						
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			42.9%		ICU Level of Service		A					
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 23: Main Street & 4 Avenue

# Kindersley Traffic Study





2036 Traffic Volumes - Proposed Improvements

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	39	359	40	29	327	22	34	5	35	20	11	33
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	390	43	32	355	24	37	5	38	22	12	36
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					200							
pX, platoon unblocked												
vC, conflicting volume	379			434			957	939	412	946	949	367
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			434			957	939	412	946	949	367
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 %	96			97			82	98	94	90	95	95
cM capacity (veh/h)	1179			1126			206	247	640	213	244	678
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	SW 1						
Volume Total	42	434	32	379	80	70						
Volume Left	42	0	32	0	37	22						
Volume Right	0	43	0	24	38	36						
cSH	1179	1700	1126	1700	308	341						
Volume to Capacity	0.04	0.26	0.03	0.22	0.26	0.20						
Queue Length 95th (m)	0.8	0.0	0.7	0.0	7.8	5.7						
Control Delay (s)	8.2	0.0	8.3	0.0	20.7	18.3						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.7		0.6		20.7	18.3						
Approach LOS					C	C						
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			41.4%		ICU Level of Service		A					
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis 26: Main Street & Railway Avenue

Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	204	68	64	261	149	174
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	222	74	70	284	162	189
Direction, Lane #	SE 1	SE 2	NE 1	SW 1		
Volume Total (vph)	222	74	353	351		
Volume Left (vph)	222	0	70	0		
Volume Right (vph)	0	74	0	189		
Hadj (s)	0.53	-0.67	0.07	-0.29		
Departure Headway (s)	6.9	5.6	5.4	5.1		
Degree Utilization, x	0.42	0.12	0.53	0.50		
Capacity (veh/h)	489	595	637	677		
Control Delay (s)	13.6	8.2	14.4	13.0		
Approach Delay (s)	12.2		14.4	13.0		
Approach LOS	B		B	B		
Intersection Summary						
Delay			13.3			
HCM Level of Service			B			
Intersection Capacity Utilization			57.1%	ICU Level of Service	B	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 27: Highway 21 & Railway Avenue













Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

	↑	↗	↖	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↰			↱	↙	↘
Volume (veh/h)	43	16	147	63	41	67
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)	47	17	160	68	45	73
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			64		443	55
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			64		443	55
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		91	93
cM capacity (veh/h)			1538		512	1011
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	64	228	117			
Volume Left	0	160	45			
Volume Right	17	0	73			
cSH	1700	1538	1350			
Volume to Capacity	0.04	0.10	0.09			
Queue Length 95th (m)	0.0	2.6	2.2			
Control Delay (s)	0.0	5.6	10.3			
Lane LOS		A	B			
Approach Delay (s)	0.0	5.6	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			6.1			
Intersection Capacity Utilization			28.1%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 28: Ditson Drive & Railway Avenue

Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements





















						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	264	127	273	121	114	426
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)	287	138	297	132	124	463
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	428				1009	297
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	428				1009	297
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	75				38	38
cM capacity (veh/h)	1131				199	743
Direction, Lane #	NB 1	NB 2	SB 1	SB 2	NE 1	
Volume Total	287	138	297	132	587	
Volume Left	287	0	0	0	124	
Volume Right	0	0	0	132	463	
cSH	1131	1700	1700	1700	941	
Volume to Capacity	0.25	0.08	0.17	0.08	0.62	
Queue Length 95th (m)	7.7	0.0	0.0	0.0	34.3	
Control Delay (s)	9.3	0.0	0.0	0.0	24.2	
Lane LOS	A				C	
Approach Delay (s)	6.3		0.0		24.2	
Approach LOS					C	
Intersection Summary						
Average Delay			11.7			
Intersection Capacity Utilization			47.4%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Signalized Intersection Capacity Analysis

## 29: Highway 7 & 2 Street E

# Kindersley Traffic Study

2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	734	57	59	468	34	28	123	120	37	104	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.94			0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.99	
Satd. Flow (prot)	1789	1883	1601	1789	1883	1601		1762			1797	
Flt Permitted	0.39	1.00	1.00	0.19	1.00	1.00		0.96			0.91	
Satd. Flow (perm)	739	1883	1601	351	1883	1601		1692			1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	798	62	64	509	37	30	134	130	40	113	57
RTOR Reduction (vph)	0	0	27	0	0	16	0	52	0	0	24	0
Lane Group Flow (vph)	35	798	35	64	509	21	0	242	0	0	186	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases	4				8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	31.0	31.0	31.0	31.0	31.0	31.0		16.0			16.0	
Effective Green, g (s)	31.0	31.0	31.0	31.0	31.0	31.0		16.0			16.0	
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56		0.29			0.29	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Grp Cap (vph)	417	1061	902	198	1061	902		492			483	
v/s Ratio Prot	c0.42				0.27							
v/s Ratio Perm	0.05		0.02	0.18		0.01		c0.14			0.11	
v/c Ratio	0.08	0.75	0.04	0.32	0.48	0.02		0.49			0.38	
Uniform Delay, d1	5.5	9.1	5.4	6.4	7.2	5.3		16.1			15.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.4	4.9	0.1	4.3	1.6	0.0		3.5			2.3	
Delay (s)	5.9	14.0	5.4	10.7	8.7	5.4		19.6			17.9	
Level of Service	A	B	A	B	A	A		B			B	
Approach Delay (s)	13.1				8.7			19.6			17.9	
Approach LOS	B				A			B			B	
Intersection Summary												
HCM Average Control Delay	13.2			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	55.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	69.8%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												





















# HCM Signalized Intersection Capacity Analysis

## 32: Main Street & 2 Avenue

# Kindersley Traffic Study

2036 Traffic Volumes - Proposed Improvements










												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	229	64	25	190	46	44	55	38	36	55	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.97		1.00	0.97			0.96			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1789	1821		1789	1828			1785			1753	
Flt Permitted	0.60	1.00		0.53	1.00			0.88			0.92	
Satd. Flow (perm)	1130	1821		990	1828			1596			1635	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	249	70	27	207	50	48	60	41	39	60	76
RTOR Reduction (vph)	0	25	0	0	22	0	0	25	0	0	46	0
Lane Group Flow (vph)	104	294	0	27	235	0	0	124	0	0	129	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	6			2			4			8		
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	16.0	16.0		16.0	16.0			16.0			16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0			16.0			16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.40			0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	452	728		396	731			638			654	
v/s Ratio Prot	c0.16			0.13				0.08			c0.08	
v/s Ratio Perm	0.09			0.03				0.08			c0.08	
v/c Ratio	0.23	0.40		0.07	0.32			0.19			0.20	
Uniform Delay, d1	7.9	8.6		7.4	8.3			7.8			7.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.30	
Incremental Delay, d2	1.2	1.7		0.3	1.2			0.7			0.7	
Delay (s)	9.1	10.2		7.7	9.4			8.5			10.8	
Level of Service	A	B		A	A			A			B	
Approach Delay (s)	10.0			9.3				8.5			10.8	
Approach LOS	A			A				A			B	
Intersection Summary												
HCM Average Control Delay	9.7			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.30											
Actuated Cycle Length (s)	40.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	41.1%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 34: Ditson Drive & 2 Avenue

# Kindersley Traffic Study

2036 Traffic Volumes - Proposed Improvements


















						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	23	213	337	72	66	23
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)	25	232	366	78	72	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)			233			
pX, platoon unblocked						
vC, conflicting volume	445				687	405
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445				687	405
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				82	96
cM capacity (veh/h)	1116				403	645
Direction, Lane #	NB 1	SB 1	NE 1			
Volume Total	257	445	97			
Volume Left	25	0	72			
Volume Right	0	78	25			
cSH	1116	1700	447			
Volume to Capacity	0.02	0.26	0.22			
Queue Length 95th (m)	0.5	0.0	6.2			
Control Delay (s)	1.0	0.0	15.3			
Lane LOS	A		C			
Approach Delay (s)	1.0	0.0	15.3			
Approach LOS			C			
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		42.1%		ICU Level of Service		A
Analysis Period (min)		15				

# HCM Signalized Intersection Capacity Analysis

## 35: Highway 7 & Ditson Drive

# Kindersley Traffic Study










2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	680	176	87	422	86	124	147	67	97	110	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0		4.0	
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	
Frt		0.97			0.98			1.00	0.85		0.99	
Flt Protected		1.00			0.99			0.98	1.00		0.98	
Satd. Flow (prot)		3466			3476			1841	1601		1818	
Flt Permitted		0.92			0.69			0.79	1.00		0.77	
Satd. Flow (perm)		3198			2407			1483	1601		1430	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	739	191	95	459	93	135	160	73	105	120	27
RTOR Reduction (vph)	0	55	0	0	34	0	0	0	44	0	11	0
Lane Group Flow (vph)	0	908	0	0	613	0	0	295	29	0	241	0
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		16.0			16.0			16.0	16.0		16.0	
Effective Green, g (s)		16.0			16.0			16.0	16.0		16.0	
Actuated g/C Ratio		0.40			0.40			0.40	0.40		0.40	
Clearance Time (s)		4.0			4.0			4.0	4.0		4.0	
Lane Grp Cap (vph)		1279			963			593	640		572	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.25			c0.20	0.02		0.17	
v/c Ratio		0.71			0.64			0.50	0.05		0.42	
Uniform Delay, d1		10.1			9.7			9.0	7.3		8.7	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.4			3.2			3.0	0.1		2.3	
Delay (s)		13.4			12.9			12.0	7.5		10.9	
Level of Service		B			B			B	A		B	
Approach Delay (s)		13.4			12.9			11.1			10.9	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			12.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			40.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			82.8%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 38: West Road & Ditson Drive

















Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	3	206	201	10	287	381
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	224	218	11	312	414
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	1262	224			229	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1262	224			229	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	73			77	
cM capacity (veh/h)	144	816			1339	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	227	229	726			
Volume Left	3	0	312			
Volume Right	224	11	0			
cSH	764	1700	1339			
Volume to Capacity	0.30	0.13	0.23			
Queue Length 95th (m)	9.5	0.0	6.9			
Control Delay (s)	11.7	0.0	5.1			
Lane LOS	B		A			
Approach Delay (s)	11.7	0.0	5.1			
Approach LOS	B					
Intersection Summary						
Average Delay		5.4				
Intersection Capacity Utilization		70.0%		ICU Level of Service		C
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

## 40: Thomson Drive & Ditson Drive

Kindersley Traffic Study  
2036 Traffic Volumes - Proposed Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	33	3	1	21	3	86	3	93	14	169	170	77
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	3	1	23	3	93	3	101	15	184	185	84
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	804	717	227	712	751	109	268			116		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	804	717	227	712	751	109	268			116		
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 %	85	99	100	93	99	90	100			88		
cM capacity (veh/h)	243	310	813	311	296	945	1295			1472		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	40	120	120	452								
Volume Left	36	23	3	184								
Volume Right	1	93	15	84								
cSH	252	652	1295	1472								
Volume to Capacity	0.16	0.18	0.00	0.12								
Queue Length 95th (m)	4.2	5.1	0.1	3.2								
Control Delay (s)	22.0	11.8	0.2	3.9								
Lane LOS	C	B	A	A								
Approach Delay (s)	22.0	11.8	0.2	3.9								
Approach LOS	C	B										
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			43.5%		ICU Level of Service				A			
Analysis Period (min)			15									

## **Appendix I - Kindersley Traffic Bylaw**

## SCHEDULE "I"

Forming Part of Bylaw No. 08-11  
being a Bylaw to regulate traffic.

### MAXIMUM PERMITTED SPEED LIMIT 3 – 10 (Section "29")

#### 1. Thirty (30 km) Kilometres per hour:

ON	FROM	TO
Fifth (5 <sup>th</sup> ) Street Crescent W	Sixth (6 <sup>th</sup> ) Avenue West	Third (3 <sup>rd</sup> ) Street West
Third (3 <sup>rd</sup> ) Street West	Fifth (5 <sup>th</sup> ) Avenue West	Seventh (7 <sup>th</sup> ) Avenue West
Fifth (5 <sup>th</sup> ) Avenue West	Fourth (4 <sup>th</sup> ) Street West	Fifth (5 <sup>th</sup> ) Street West
First (1 <sup>st</sup> ) Street East	Fifth (5 <sup>th</sup> ) Avenue East	Seventh (7 <sup>th</sup> ) Avenue East
Second (2 <sup>nd</sup> ) Street East	Fifth (5 <sup>th</sup> ) Avenue East	Tenth (10 <sup>th</sup> ) Avenue East
Third (3 <sup>rd</sup> ) Street East	Fifth (5 <sup>th</sup> ) Avenue East	Eleventh (11 <sup>th</sup> ) Avenue East
Fifth (5 <sup>th</sup> ) Avenue East	First (1 <sup>st</sup> ) Street East	Second (2 <sup>nd</sup> ) Street East
Seventh (7 <sup>th</sup> ) Avenue East	First (1 <sup>st</sup> ) Street East	Second (2 <sup>nd</sup> ) Street East

#### 2. Forty (40 km) Kilometres per hour unless otherwise posted within the Town of Kindersley.

These will be placed on the six entrances into Kindersley:

ON	AT
Highway 7 East	Town Limits
Highway 7 West	Town Limits
Highway 21 North	Town Limits
Highway 21 South	Town Limits
Ditson Drive South	Town Limits
C Street North	Town Limits

#### 3. Fifty (50 km) Kilometres per hour:

ON	FROM	TO
Railway Avenue West	Second (2 <sup>nd</sup> ) Street West	Highway 21 South
Railway Avenue West	Highway 21 South	Second (2 <sup>nd</sup> ) Street West
Eleventh (11 <sup>th</sup> ) Avenue East	Ditson Drive	Third (3 <sup>rd</sup> ) Street East
Eleventh (11 <sup>th</sup> ) Avenue East	Third (3 <sup>rd</sup> ) Street East	Ditson Drive
Twelfth (12 <sup>th</sup> ) Avenue East	C Street North East	Third (3 <sup>rd</sup> ) Street East
Twelfth (12 <sup>th</sup> ) Avenue East	Third (3 <sup>rd</sup> ) Street East	C Street North East

4. Sixty (60 km) kilometres per hour:

ON	FROM	TO
Ditson Drive	Highway No. 7	Town Limits South
Ditson Drive	Town Limits South	Highway No. 7

5. Seventy (70 km) kilometres per hour:

ON	FROM	TO
Highway 7	Town Limits East	Town Limits West
Highway 21	Town Limits South	Town Limits North

6. Forty (40 km) Kilometres per hour on any other public highway except where  
Speed limits are designated by Highway Traffic Board order.



# J

## **Appendix J - Recommendations from 2010 Main Street and 11th Avenue In-Service Safety Review**



## RECOMMENDATIONS

The In-Service Safety Review identified opportunities to reduce the potential for collisions and improve traffic operations through a number of countermeasures. Countermeasures for the study corridor have been identified for the short term, medium term and long term as shown in Table 5-1, 5-2 and 5-3. Planning level cost estimates have been included for the countermeasures.

**Table J-1**  
**Short Term Countermeasures (within one to two years)**

<b>Countermeasure</b>	<b>Planning Level Costs</b>
Remove stop sign for northbound right turns	Nominal operational costs
Repaint lane markings	Nominal operational costs
Centre barriers and signs on 11 <sup>th</sup> Avenue	\$8,000
Consultation with stakeholders	\$5,000

**Table J-2**  
**Medium Term Countermeasure (within three to five years)**

<b>Countermeasure</b>	<b>Planning Level Costs</b>
Centre barriers and signs on Main Street	\$17,000

**Table J-3**  
**Long Term Countermeasures (beyond five years)**

<b>Countermeasure</b>	<b>Planning Level Costs</b>
Centre medians on Main Street and 11 <sup>th</sup> Avenue and signs	\$37,000
Right turns only on 11 <sup>th</sup> Avenue	\$30,000

Implementation of the short term countermeasures is recommended to improve traffic operations at the lowest cost levels. Public education and consultation should take place prior to implementation of any turning restrictions. Further detailed study, perhaps as part of the development of a Transportation Master Plan is required for the medium and long term countermeasures.

In the future if traffic operation concerns escalate, more significant countermeasures including closure or rerouting of 11<sup>th</sup> Avenue could be considered. A Transportation Master Plan for the Town could also include an analysis of the impact of changes at Main Street and 11<sup>th</sup> Avenue.