City of Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

appendices



City of Lethbridge
Transportation Master Plan
Final Report

Associated Engineering

Adopted by City Council - April 2, 2013

A Appendix A - Data Collection Report

Report

City of Lethbridge

Transportation Master Plan
Data Collection Report

January 2013

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1 Introduction

1.1 STUDY BACKGROUND

Associated Engineering (AE) was retained by the City of Lethbridge (City) to undertake the Transportation Master Plan (TMP) study. The purpose of the Lethbridge Transportation Master Plan study is to provide a long-range plan that integrates the transportation infrastructure requirements of existing and future land uses. In order to develop a long-range transportation plan and policy, an accurate travel demand forecasting model is required. The accuracy of a travel demand forecasting model relies on a comprehensive data collection program. This report summarizes the data collection and survey program, results and analysis.

1.2 TRANSPORTATION MASTER PLAN STUDY BACKGROUND

The City completed a TMP in 2004, which was an update to the 1984 TMP. The existing 2004 TMP, as well as the Circulation Road Study completed in 2010, used an EMME travel demand model to forecast the traffic. The existing EMME model contains 197 urban, 16 rural and seven (7) external zones.

The City has updated the Municipal Development Plan (MDP) through a comprehensive public consultation process known as “Plan Your City”. The MDP provides future land-use policies. The 2004 TMP is now in need of updating to reflect changes in the roadway network and land-use planning philosophies illustrated in the newly developed MDP. The existing EMME model developed under the 2004 TMP is a single occupant vehicular model and requires revisions to include a modal split that supports a transportation road network, not only for automobile travel but also for other modes such as transit.

1.3 TRANSPORTATION MASTER PLAN DATA COLLECTION REPORT

The following were completed for the data collection report:

- Data Collection
- Travel Survey
- Field Inventory
- Synthesis phase

1.4 DATA COLLECTION REPORT

The purpose of the data collection report is to:

- Summarize the review of existing data
- Summarize the new data collection process
- Summarize the results of the overall data collection program

In order to support our data collection efforts, Associated Engineering hired the following sub consultants to complete various tasks identified under the Surveys and Data Collection Phase:

- Synovate - Travel Diary Survey
- ME2 Transportation Data Corporation - Automatic Traffic Recorders (ATRs)
- Miovision – Equipment Supply for Turning Movement Counts (TMCs)

2 Data Collection Program

2.1 SCOPE

The following tasks were completed under the data collection program:

- Extract the relevant data from existing study documents
- Obtain and review existing population data
- Obtain and review existing land use
- Obtain and review existing area structure plans (ASP)
- Obtain and review existing roadway inventory shape files
- Obtain and review existing turning movement and automatic traffic counts
- Conduct intersection turning movement and automatic traffic counts at the screenline locations where no data is available
- Conduct a ridership count
- Conduct travel diary survey (origin-destination survey)
- Prepare a technical memorandum

2.2 DATA SOURCES

In addition to the existing data from previous studies, additional data was obtained from various departments within the City such as planning and engineering. The AE project team collected additional data where the existing data was not available or accurate. The following illustrates the source of data obtained or collected through the data collection phase and their corresponding sources:

- Background studies such as the 2009 Lethbridge Transportation Model Calibration Report and July 2010 City of Lethbridge Circulation Road Study – City of Lethbridge, Transportation Planning
- City of Lethbridge census data including the Lethbridge 2010 overall population quadrant report and City occupancy rates - City of Lethbridge, Land Use Planning
- City of Lethbridge existing land use data - City of Lethbridge, Land Use Planning
- City of Lethbridge existing roadway inventory shape files - City of Lethbridge, Transportation Planning
- Existing EMME model files - City of Lethbridge, Transportation Planning
- Alberta Transportation (AT) turning movements and automatic traffic recorder counts – AT website
- 2010 traffic counts - In the fall of 2010, AE conducted a comprehensive turning movement count using Miovision at 40 locations
- 2010 automatic traffic recorder counts conducted - ME2 Transportation Data Corporation conducted three day ATRs at 20 locations
- 2011 transit ridership count – AE
- 2010 travel diary (origin-destination) survey - Synovate
- City of Lethbridge Area Structure Plans (ASPs) - City of Lethbridge, Transportation Planning

3 Existing Literature and Data Review

3.1 2004 TRANSPORTATION MASTER PLAN FOR ROADWAYS

The 2004 TMP for roadways is an update to the roadway component of the 1984 Lethbridge Transportation Study. This plan is a high-level assessment of roadway network needs for the 83,200 and 95,000 population thresholds; 25 key intersections within the City were assessed under the 2004 TMP. This study concluded the road network in Lethbridge is adequate to accommodate the future growth in traffic; however, it will require some improvements to support the projected growth to maintain a high level of safety. **Figure 3-1** illustrates the 2004 TMP recommended development of road and roadways in the existing (2001) and future horizons.

3.2 2009 LETHBRIDGE TRANSPORTATION MODEL CALIBRATION REPORT

The 2009 Lethbridge Transportation Model Calibration Report prepared by AECOM illustrates the travel demand model development and calibration. The data collection surveys conducted for the model development and calibration included:

- Phone survey: A phone survey was conducted and 5% of the City's households were contacted. The information collected included each household member's age, sex, employment status, location of work or school and detailed information regarding their peak hour trips.
- Roadside survey: The roadside surveys were conducted on Highway 3, Highway 5, Highway 4 and Highway 25. The collected information included when and where the trip began and ended as well as the information on any stops made within the City.
- University of Lethbridge survey: One of the major generators of the City's traffic is University of Lethbridge. In the fall of 2006, 7,100 students attended the institution with approximately 5,000 of these students being non-residents of Lethbridge. The survey was conducted on campus where non-resident students lived during the school year. The survey collected information similar to that collected in the phone survey so that the model could include these students.
- Traffic counts: Turning movement counts were conducted in the fall 2006 at major intersections within the City.
- Trip generation studies: The commercial and residential trip rates for the morning and afternoon peak hours were developed based on the trip generation studies conducted in the following areas:
    - Heritage Heights residential neighbourhood (excluding the commercial site in the north east corner of the neighbourhood)
    - Big box retail
    - Strip mall retail

Based on the above-mentioned data collection processes, screenlines were developed to combine a number of links crossing a specific area of the network. The screenlines used in the 2009 Lethbridge Transportation Model Calibration report are illustrated in **Figure 3-2**.

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FIGURE 3-1

DEVELOPMENT ROAD AND ROADWAYS RECOMMENDED FOR FUTURE INVESTIGATION (SOURCE 2004 TMP)

3.3 CIRCULATION ROAD STUDY

The City of Lethbridge Circulation Road Study (July 2010 by AECOM) examined two potential river crossing locations; Chinook Trail Popson Park Crossing and a 'No River Crossing'. The Road Study concluded that the Chinook Trail crossing is the best option to cross the Oldman River south of Whoop-Up Drive for the future. This study also examined two alternatives, Scenic Drive and 43 Street for connections from North Lethbridge to the future north south Trade Corridor. It concluded that two connections to the Trade Corridor provide better access to north Lethbridge and the downtown core. The data collection program used for the study included:

- 130 Manual and automatic intersection traffic counts
- 1800 external roadside surveys along major highways
- 1700 household telephone interviews
- 1300 University of Lethbridge student interviews

3.4 POPULATION DATA

Based on the official 2010 Census, the City's current population is 86,659, which is a 1.37% increase since the 2009 municipal census population data. The census results reflect that the City remains a vibrant and dynamic community showing a continued sustainable growth pattern. The City is divided into six quadrants. **Table 3-1** summarizes the population data by each quadrant for different census years. As illustrated in **Table 3-1** and **Figure 3-3**, West Lethbridge has been experiencing more population growth than any other part of the City. West Lethbridge-South experienced the highest population growth of 5.75% in 2010.

Table 3-1
Population for Each Quadrant in Different Census Years

Quadrant	2002	2005	2006	2007	2008	2009	2010
North Lethbridge-West	6,745	6,701	6,725	7,040	7,491	7,946	8,124
North Lethbridge-East	15,602	16,210	16,516	16,984	17,023	16,889	16,994
South Lethbridge-West	9,086	9,032	9,167	9,313	9,371	9,383	9,236
South Lethbridge-East	18,855	18,852	19,151	19,912	20,402	20,785	20,906
West Lethbridge-North	10,294	13,816	13,947	14,605	15,059	15,088	15,112
West Lethbridge-South	12,135	12,591	13,207	13,838	14,614	15,401	16,287
Totals	**72,717**	**77,202**	**78,713**	**81,692**	**83,960**	**85,492**	**86,659**

The City's 2010 occupancy rate and dwelling summary is included in **Appendix A**. Based on a review of the City's 2010-occupancy rate, the average occupancy rate is 2.38 persons/dwelling units in 2010.

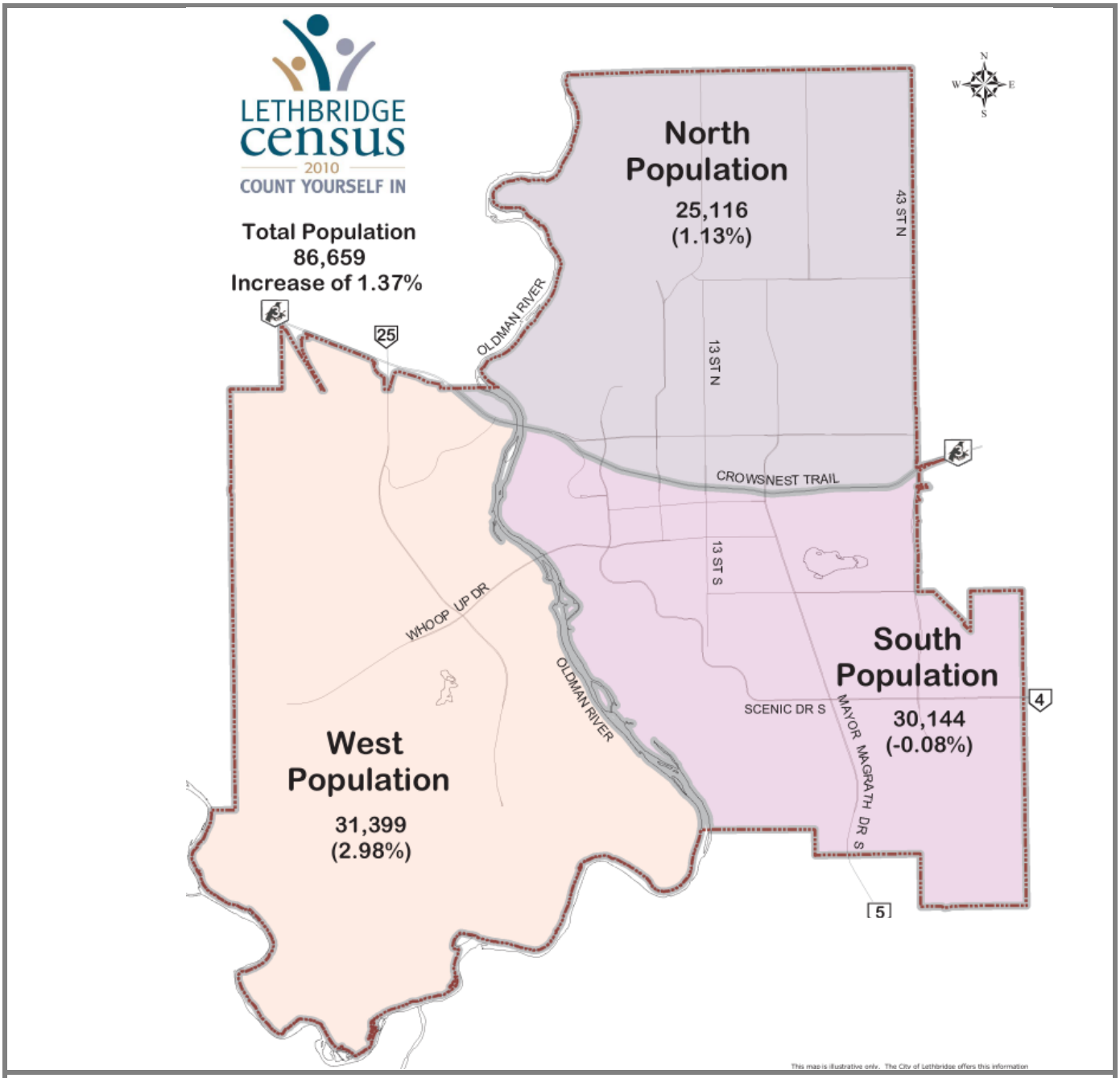

FIGURE 3-3

LETHBRIDGE 2010 POPULATION GROWTH

3.5 EXISTING AREA STRUCTURE PLANS AND OUTLINE PLANS

The City of Lethbridge Area Structure Plan (ASP) are illustrated in **Figure 3-4**. The documents are titled as follows:

- Hardieville - Legacy Ridge - Uplands ASP
- Heritage Heights ASP
- Fairmont Park ASP
- Mountain Heights - Riverstone - Riverbend ASP
- Sherring Business and Industrial ASP
- South Gate ASP
- West Highlands Phase I and Phase II ASP
- West Lethbridge Employment Center ASP
- West Lethbridge Phase II ASP
- Country Meadows ASP

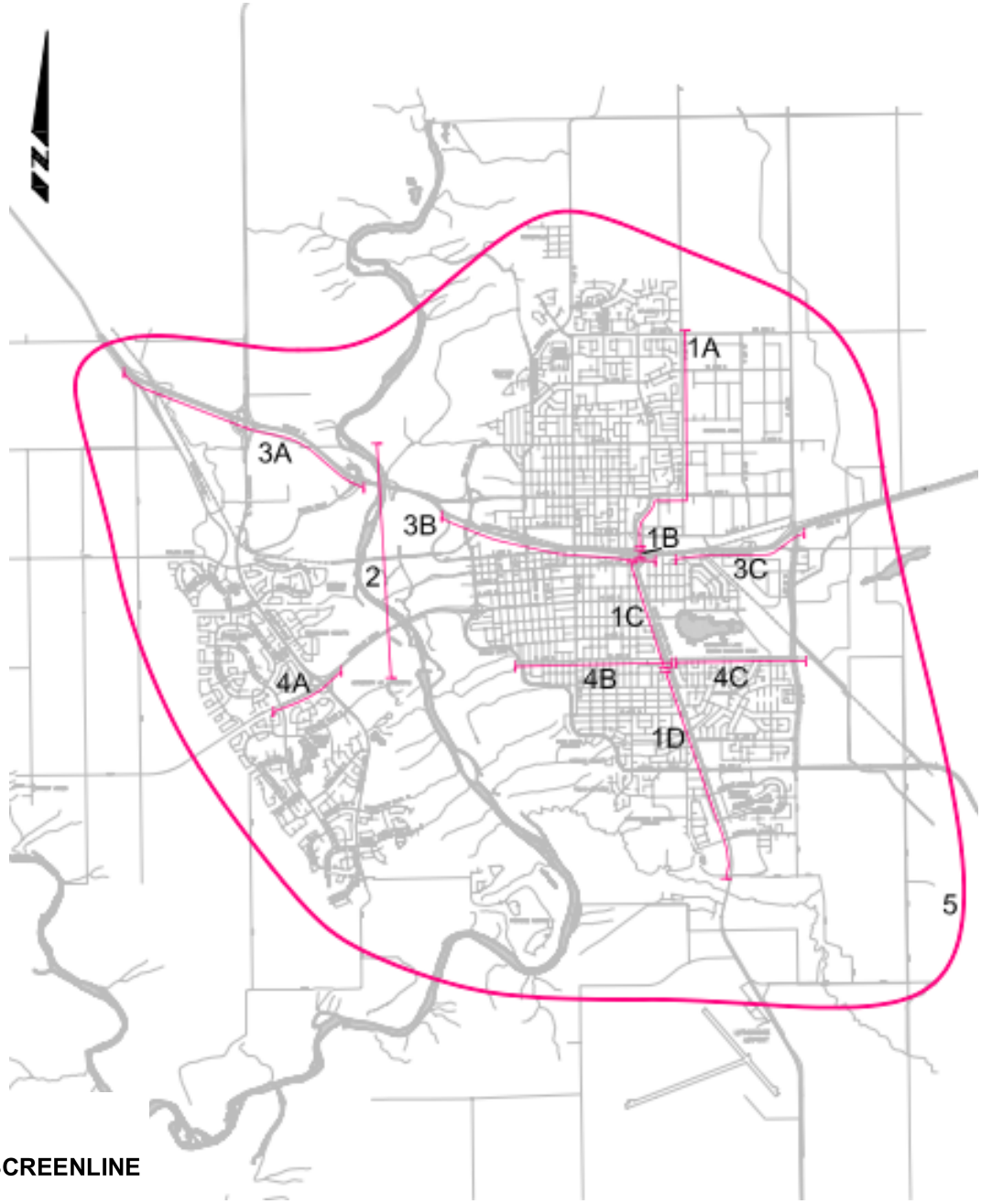

FIGURE 3-2

2009 CALIBRATION REPORT SCREENLINE LOCATIONS

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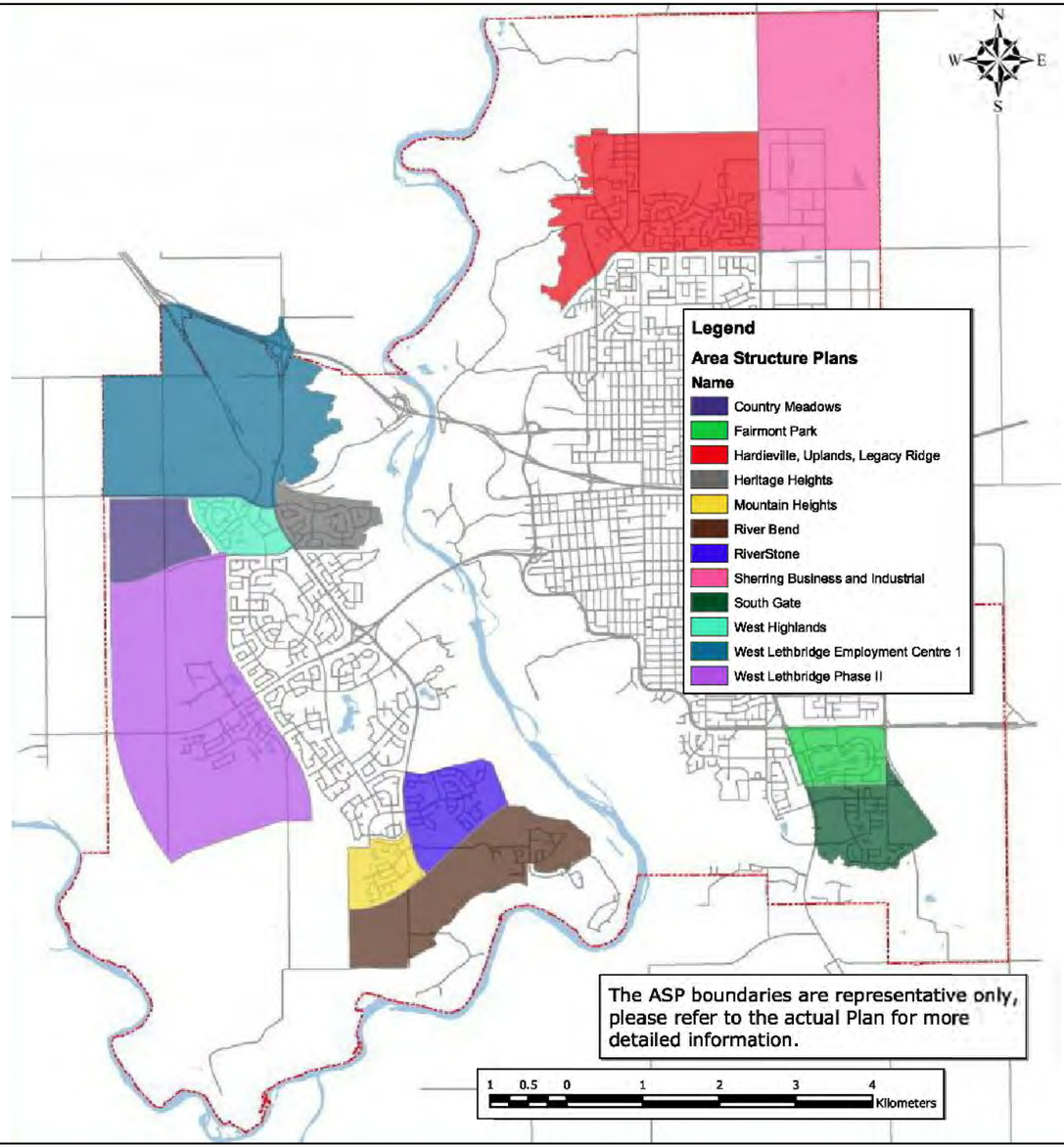

Legend

- Single Line Street Network
- City Boundary
- Hydrology

Associated Engineering

FIGURE 3-4

EXISTING AREA STRUCTURE PLANS

The proposed land-use map for the ASP's such as Sherring Business and Industrial Park, Hardieville - Legacy Ridge - Uplands, South Gate and West Lethbridge Phase II, are included in **Appendix B.**

3.6 EXISTING ROADWAY INVENTORY REVIEW

Figure 3-5 illustrates the map of the existing roadway network obtained from the City. Some of the major roadways within the City are:

- Highway 3
- Mayor Magrath Drive
- Scenic Drive
- Highway 4
- Highway 5
- Whoop-Up Drive
- 6 Avenue South
- 13 Street
- 26 Avenue North
- 5 Avenue North
- 9 Avenue North
- 10 Avenue South
- 28 Street North
- University Drive
- 43 Street

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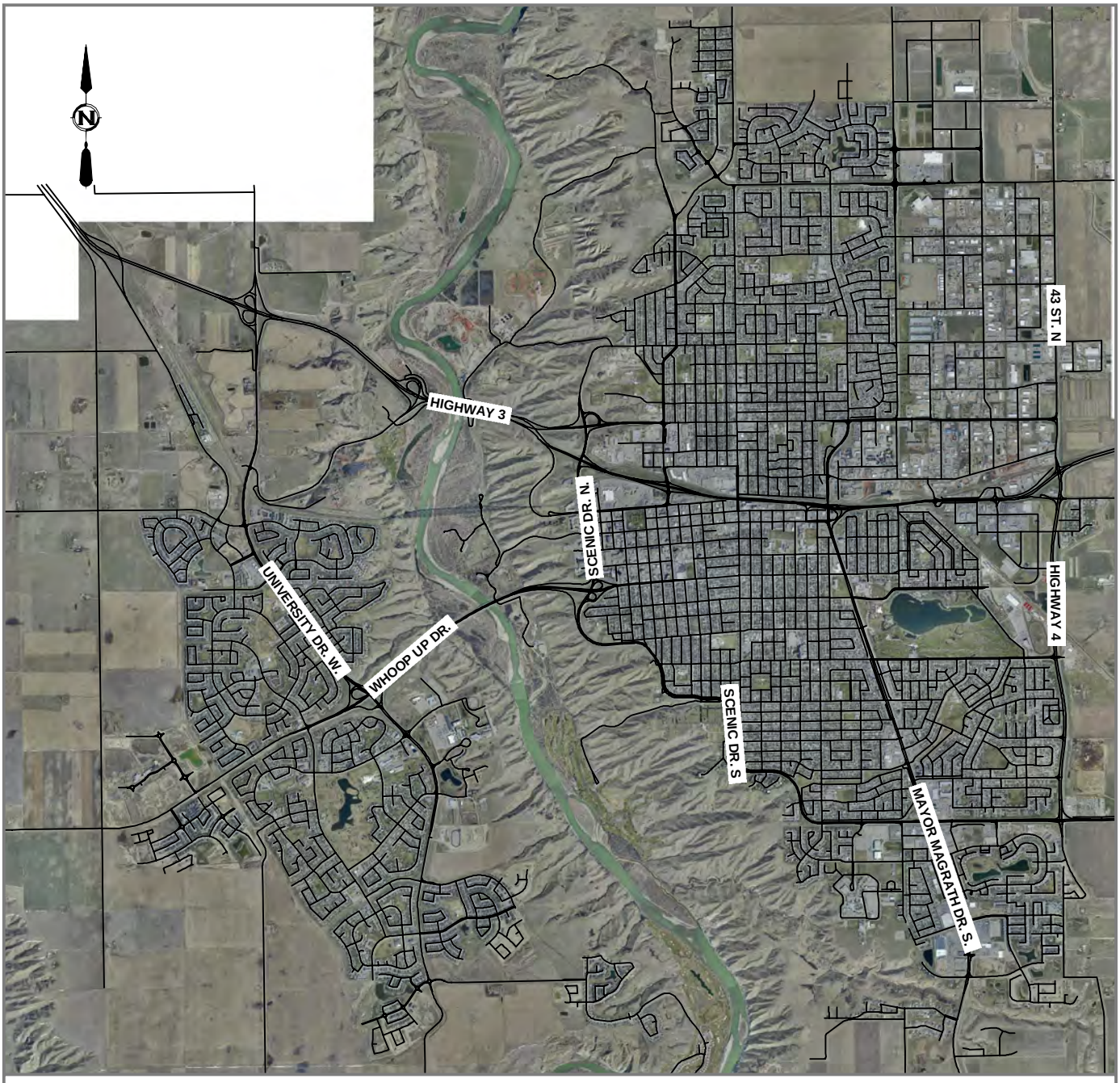

FIGURE 3-5

EXISTING ROADWAY NETWORK

3.7 EXISTING TRAFFIC COUNTS

The 2010 turning movement counts were obtained from Alberta Transportation at the following intersections:

- Highway 3 and Highway 3A
- Highway 3, Highway 4 and Highway 843
- Highway 3 and 5 Avenue N
- Highway 3 and Highway 25
- Highway 3 and 28 Street S
- Highway 3 and 30 Street N
- Highway 3 and 36 Street S
- Highway 3 and Bridge Drive
- Highway 3 and Mayor Magrath Drive
- Highway 3 and River Valley
- Highway 3 and Scenic Drive N
- Highway 3 and Stafford Drive
- Highway 4 and 4 Avenue S
- Highway 4 and 6 Avenue S
- Highway 4 and 20 Avenue S
- Highway 4 and 24 Avenue S
- Highway 4 and Forestry Avenue
- Highway 4 and Jail Road
- Highway 4 and S Parkside Drive

Figure 3-6 illustrates the above-mentioned traffic counts. This information will be utilized in developing the travel demand model traffic screenlines.

In addition to the above noted locations, the AE project team also obtained the 2010 automatic traffic recorder counts at the following locations from Alberta Transportation:

- 2.4 km west of Highway 3 and Highway 25 in Coalhurst
- West of Highway 3 and Old Man River Bridge
- 0.2 km west of Highway 3 and 28 Street S
- 0.5 km south of Highway 4 and Jail Road
- 4.5 km east of Highway 3 and 43 Street

3.8 TRANSIT DATA

Transit ridership data along 12 routes was conducted by the City in February, July and August 2010. The detailed existing transit ridership counts are included in **Appendix C**. The City states that the data is not accurate enough to use in the model and instructed AE project team to conduct a comprehensive transit ridership survey. The results of this survey are summarized in the Data Collection (2010-2011) section.

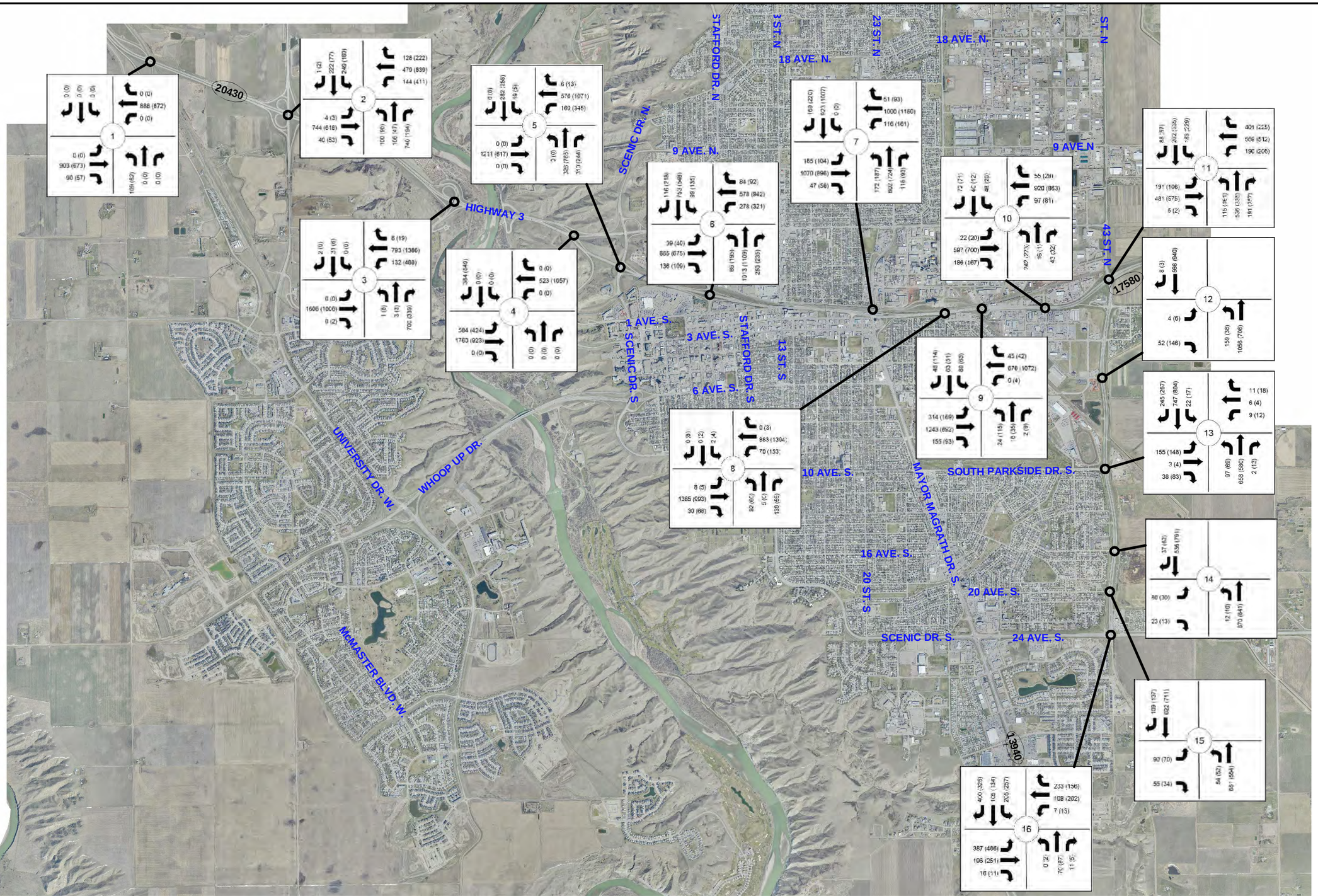

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FIGURE 3-6

EXISTING (2010) INTERSECTION TURNING MOVEMENT COUNTS FROM ALBERTA TRANSPORTATION

4 Data Collection (2010 - 2011)

The 2010-2011 data collection consisted of intersection counts and mid-block traffic volume counts. In addition, Synovate conducted telephone survey to determine travel patterns and AE completed a transit ridership survey. These various data collection methods and the results are discussed below.

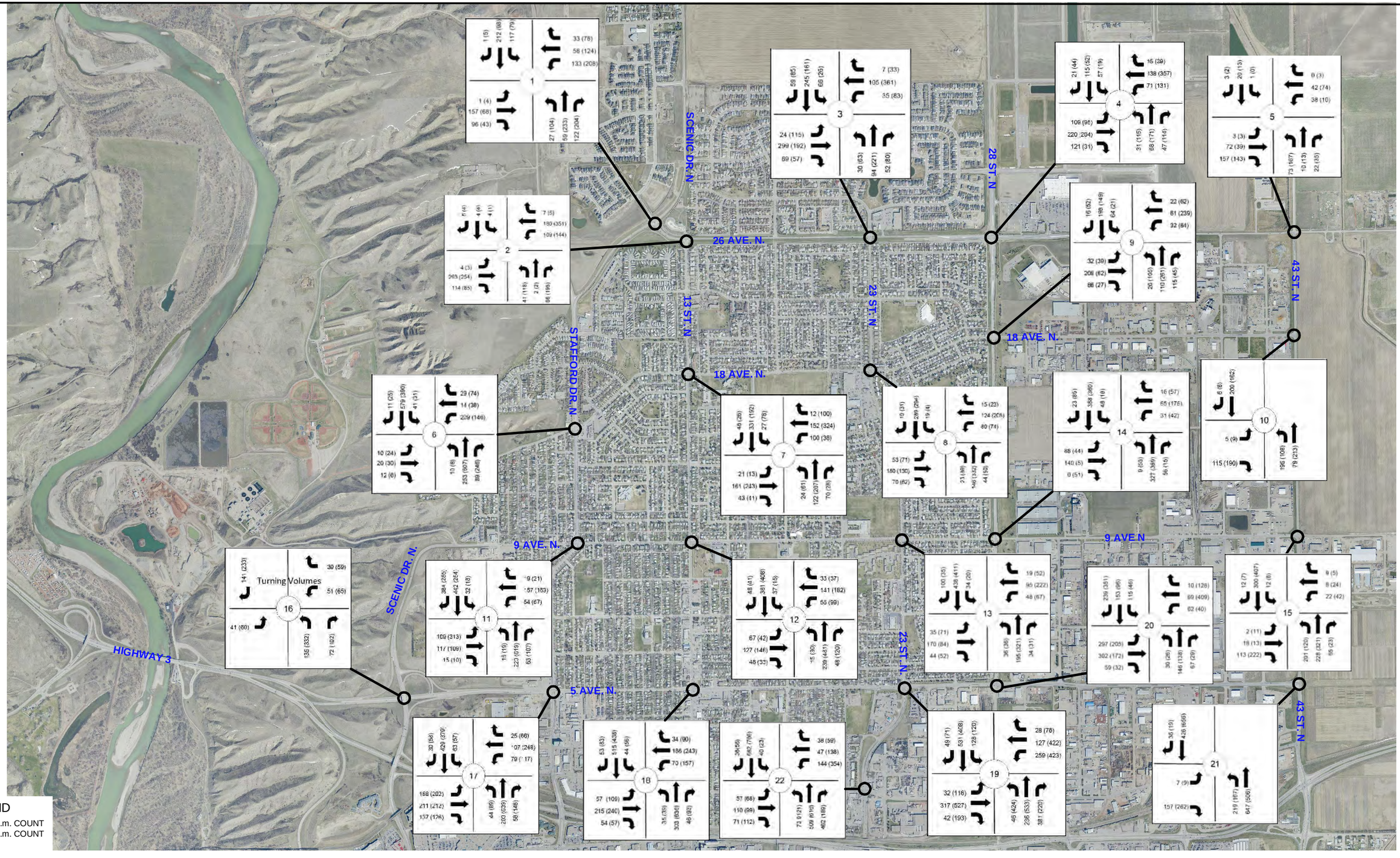
4.1 INTERSECTION TURN MOVEMENT COUNTS

Intersection turning movement counts (TMCs) were carried out from September to November 2010 at major intersections by AE. Video collection units (VCUs) provided by Miovision technologies were used to record traffic movements. The portable video collection units were installed at each intersection to record the traffic between 7:00 a.m. - 9:00 a.m. and 4:00 p.m. to 6:00 p.m. The VCU's were installed on Tuesdays, Wednesdays and Thursdays of a given week, to capture a normal weekday travel pattern. Data was collected such that passenger vehicles, bus and truck traffic were reported separately for each movement. Turning movement counts were recorded in 15-minute time intervals. A total of 40 intersection counts were conducted at the following locations:

1. Scenic Drive N and 26 Avenue N
2. 13 Street N and 26 Avenue N
3. 23 Street N and 26 Avenue N
4. 28 Street N and 26 Avenue N
5. 43 Street N and 26 Avenue N
6. Stafford Drive N and 18 Avenue N
7. 13 Street N and 18 Avenue N
8. 23 Street N and 18 Avenue N
9. 28 Street N and 18 Avenue N
10. 43 Street N and 18 Avenue N
11. Stafford Drive N and 9 Avenue N
12. 13 Street N and 9 Avenue N
13. 23 Street N and 9 Avenue N
14. 28 Street N and 9 Avenue N
15. 43 Street N and 9 Avenue N
16. Scenic Drive N and 5 Avenue N
17. Stafford Drive N and 5 Avenue N
18. 13 Street N and 5 Avenue N
19. 23 Street N and 5 Avenue N
20. 28 Street N and 5 Avenue N
21. 43 Street N and 5 Avenue N
22. 23 Street N and 2 Avenue N
23. Scenic Drive S and 1 Avenue S
24. Scenic Drive S and 3 Avenue S

25. 9 Street S and 3 Avenue S
26. 13 Street S and 3 Avenue S
27. Mayor Magrath Drive S and 3 Avenue S
28. Scenic Drive S and 6 Avenue S
29. 9 Street S and 6 Avenue S
30. 13 Street S and 6 Avenue S
31. Mayor Magrath Drive S and 6 Avenue S
32. Scenic Drive S and 10 Avenue S
33. 13 Street S and 10 Avenue S
34. Mayor Magrath Drive S and 10 Avenue S
35. Mayor Magrath Drive S and 16 Avenue S
36. Mayor Magrath Drive S and 20 Avenue S
37. Scenic Drive S and 20 Street S
38. Scenic Drive S and Mayor Magrath Drive S
39. Whoop-Up Drive N and University Drive W
40. Whoop-Up Drive N and McMaster Boulevard W

Figure 4-1 and **Figure 4-2** illustrate the intersection turning movement counts for the morning and afternoon peak hour. The counts will be utilized to establish traffic screenlines for the travel demand model.



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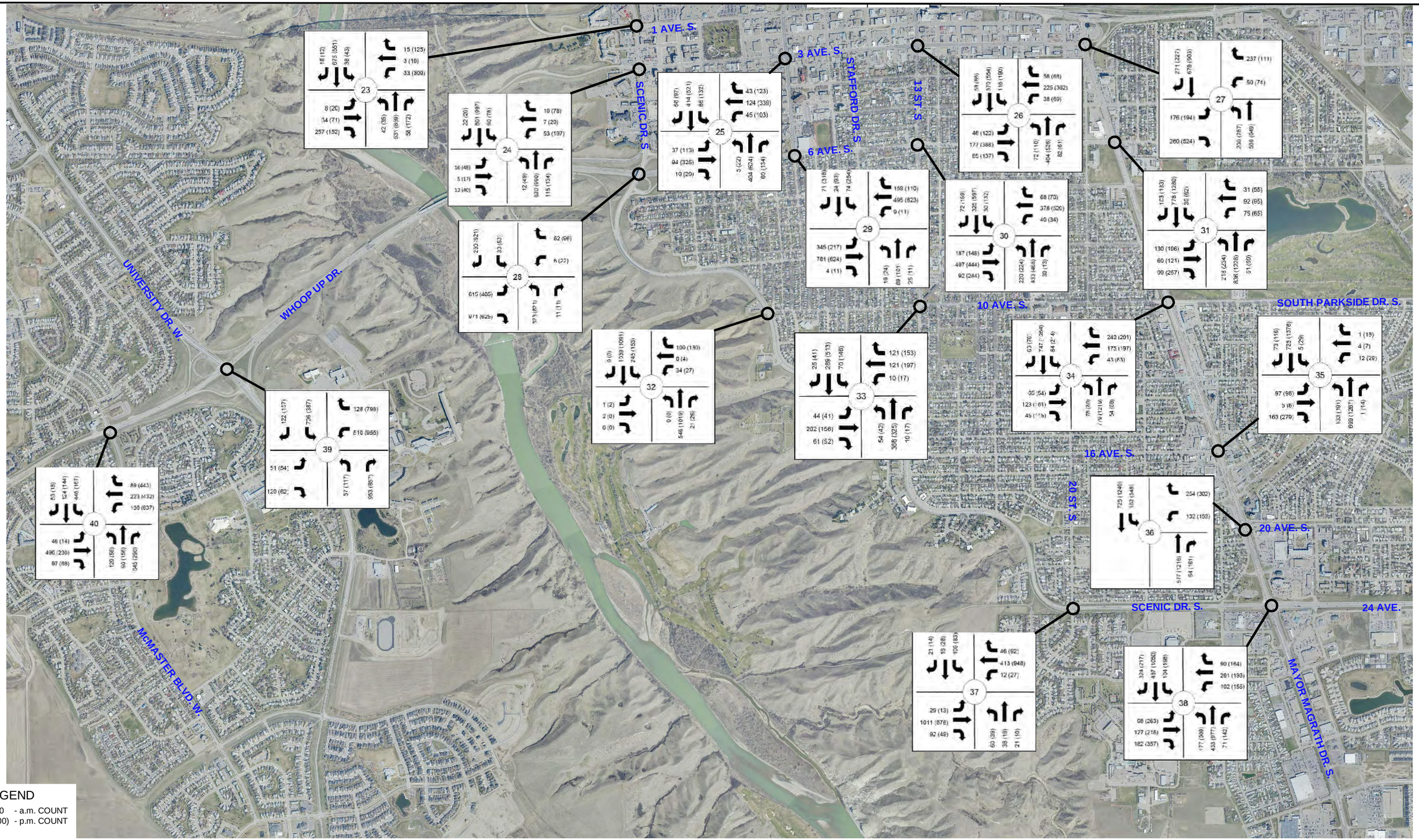
2010 INTERSECTION TRAFFIC VOLUMES NORTH OF HIGHWAY 3

FIGURE 4-1



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2010 INTERSECTION TRAFFIC VOLUMES SOUTH OF HIGHWAY 3

FIGURE 4-2

4.2 MID-BLOCK TRAFFIC COUNTS

Automatic traffic recorders (ATR) were installed by ME2 Transportation Data for three consecutive days to record directional mid-block traffic volumes at key locations within the City. ATRs were installed on Tuesdays, Wednesdays and Thursdays of a given week to capture a normal weekday travel pattern. As illustrated in **Figure 4-3** a total of 20 ATRs were conducted in 2010 at the following locations:

1. North of Scenic Drive N/26 Avenue N/13 Street N intersection
2. North of 26 Avenue N/26 Street N intersection
3. North of 26 Avenue N/43 Street N intersection
4. West of Scenic Drive N/5 Avenue N interchange
5. South of Scenic Drive N/5 Avenue N interchange
6. West of 5 Avenue N/23 Street N intersection
7. South of 5 Avenue N/23 Street N intersection
8. North of Crowsnest Highway/43 Street N intersection
9. North of Stafford Drive N/Crowsnest Highway interchange
10. South of Mayor Magrath Drive N/Crowsnest Highway interchange
11. North of Scenic Drive S/Whoop-Up Drive/6 Avenue S interchange
12. South of Scenic Drive S/10 Avenue S intersection
13. West of 10 Avenue S/Mayor Magrath Drive S intersection
14. South of 10 Avenue S/Mayor Magrath Drive S intersection
15. South of 43 Street S/S Parkside Drive intersection
16. East of 43 Street S/24 Avenue S intersection
17. South of Mayor Magrath Drive S/Southgate Boulevard S/40 Avenue S intersection
18. East of Whoop-Up Drive/University Drive W interchange
19. North of Whoop-Up Drive/University Drive W interchange
20. South of Crowsnest Highway/University Drive W/Highway 25 interchange

Figure 4-3 also illustrates the location of the 2010 ATR counts provided by Alberta Transportation at the following locations within the study area:

1. 2.4 km west of Highway 3 and Highway 25 in Coalhurst
2. West of Highway 3 and Old Man River Bridge
3. 0.2 km west of Highway 3 and 28 Street S
4. 0.5 km south of Highway 4 and Jail Road
5. 4.5 km east of Highway 3 and 43 Street

The detailed automatic directional traffic count data is included in **Appendix D**. The counts will be utilized to establish traffic screenlines for the travel demand model.

4.3 TRAVEL DIARIES (ORIGIN-DESTINATION SURVEY)

Synovate, a global market research company, conducted the City of Lethbridge Travel Diary Survey. The survey provided information on 24-hour travel characteristics from a random sample of 2,166 local households. The purpose of the household travel survey was to:

- Collect data on local residents, and on regional travel patterns;
- Provide data for the development of the travel demand model (EMME); and
- Build a travel behaviour database for policy research and planning.

The collection and recording of travel characterisations for a random sample of study area residents included two surveys as follows:

- The telephonic recruitment survey was used to engage the respondent to participate in the online diary survey; and
- Online travel diary survey was used to record the travel characteristics of residents.

The survey design tool was placed during August 2010, and the recruitment phase ran from September 14 to October 6, 2010. The travel diary survey, which was primarily conducted online, started on September 17 and ran until October 18, 2010. On-site interviews were also conducted at the University of Lethbridge and Lethbridge Community College between September 22 and October 14, 2010.

The online diary survey structure as well as a copy of the survey is illustrated in the “City of Lethbridge Travel Study” report prepared by Synovate.

22,554 telephonic recruitments were made, with approximately 4,000 households completing the telephone survey and agreeing to participate in either the online or mail-in diary survey. The final status of the diary survey returns are illustrated in **Table 4-1**.

Table 4-1
Diary Survey Returns

	Number	Percent
Total Recruits	4,226	100
Total Eligible Returns	2,166	51.3
Total Ineligible Returns	54	1.3
Non-Returns	2,006	47.5

Once the online surveys were completed, the information received was repackaged into a relational database including the following tables:

- Household table contains general household information;
- Person table contains information of every member of the household;
- Trip table contains information on the trips made by each member of the household.

The trip diaries represent 5.29% of the study area households. After developing the relational database the information was expanded to represent the total target population, i.e. the total number of households in the study area. In order to better understand the data expansion process, survey error and statistical reliability, and the trip rates, refer to the "City of Lethbridge Travel Study" report prepared by Synovate.

4.4 TRANSIT COUNT

A transit count was conducted by AE in February 2011 to record the boardings and alightings along the transit routes. The boardings and alightings along the following transit routes have been recorded by staff while riding the buses for a continuous period of 12 hours between 7:00 a.m. and 7:00 p.m.:

- Route 12 – University/Columbia Boulevard/College
- Route 14 – NW Express (University/North Terminal)
- Route 20 South – Lakeview
- Route 20 North – Winston Churchill
- Route 21 East – Henderson Lake
- Route 21 South – Nord-Bridge
- Route 22 South – Park Meadows
- Route 22 South – Agnes Davidson
- Route 23 – Link (13 Street/Mayor Magrath)
- Route 24 – Link (Mayor Magrath/13 Street)
- Route 30 – Fairmont
- Route 31 – Hardieville/Uplands
- Route 32 – Jerry Potts Boulevard
- Route 33 – Heritage
- Route 34 – Industrial Park
- Route 35 – Copperwood

The staff members moved from one route to another over a period of several days. The collected data along the above-mentioned routes will be utilized to establish and validate the transit screen lines for the travel demand model. Table 4-2 summarizes the results of the survey.

Table 4-2
Routes Boarding / Alighting's

Route #	Total Boarding	Total Alighting	Total Boarding and Alighting
12	1,620	1,603	3,223
14	339	301	640
20	1,186	1,135	2,321
21	744	742	1,486
22	1,147	1,101	2,248
23	273	297	570
24	277	268	545
30	68	74	142
31	105	93	198
32	508	535	1,043
33	258	251	509
34	16	18	34

A Appendix A - Occupancy Rate and Dwelling Survey

Vacancy Rate and Dwelling Summary as of April 1, 2010 Census

LETHBRIDGE census 2010 COUNT YOURSELF IN

Dwelling ID	Occupied	Vacant	Grand Total	Occupied	Vacant
101	349	9	358	97.5%	2.5%
102	281	7	288	97.6%	2.4%
103	237	16	253	93.7%	6.3%
104	153	9	162	94.4%	5.6%
105	270	34	304	88.8%	11.2%
106	192	13	205	93.7%	6.3%
107	154	11	165	93.3%	6.7%
108	63	6	69	91.3%	8.7%
109	148	8	156	94.9%	5.1%
110	182	13	195	93.3%	6.7%
111	92	9	101	91.1%	8.9%
112	346	7	353	98.0%	2.0%
113	374	14	388	96.4%	3.6%
114	212	3	215	98.6%	1.4%
115	279	16	295	94.6%	5.4%
201	310	14	324	95.7%	4.3%
202	5	0	5	100.0%	0.0%
203	98	1	99	99.0%	1.0%
204	145	8	153	94.8%	5.2%
205	155	5	160	96.9%	3.1%
206	207	6	213	97.2%	2.8%
207	231	9	240	96.3%	3.8%
208	131	3	134	97.8%	2.2%
209	152	16	168	90.5%	9.5%
210	258	12	270	95.6%	4.4%
211	263	13	276	95.3%	4.7%
212	133	2	135	98.5%	1.5%
213	147	3	150	98.0%	2.0%
214	211	7	218	96.8%	3.2%
215	319	4	323	98.8%	1.2%
216	216	2	218	99.1%	0.9%
217	203	8	211	96.2%	3.8%
218	226	1	227	99.6%	0.4%
219	289	6	295	98.0%	2.0%
220	301	9	310	97.1%	2.9%
301	193	3	196	98.5%	1.5%
302	122	8	130	93.8%	6.2%
303	160	9	169	94.7%	5.3%
304	183	8	191	95.8%	4.2%
305	222	34	256	86.7%	13.3%
306	143	1	144	99.3%	0.7%
307	138	7	145	95.2%	4.8%
308	181	15	196	92.3%	7.7%
309	179	12	191	93.7%	6.3%
310	114	3	117	97.4%	2.6%
311	153	8	161	95.0%	5.0%
312	79	14	93	84.9%	15.1%
313	182	16	198	91.9%	8.1%

Vacancy Rate and Dwelling Summary as of April 1, 2010 Census

	Occupied	Vacant	Grand Total	Occupied	Vacant
314	189	17	206	91.7%	8.3%
315	235	15	250	94.0%	6.0%
316	172	7	179	96.1%	3.9%
401	151	27	178	84.8%	15.2%
402	369	22	391	94.4%	5.6%
403	316	46	362	87.3%	12.7%
404	142	11	153	92.8%	7.2%
405	174	19	193	90.2%	9.8%
406	172	16	188	91.5%	8.5%
407	130	16	146	89.0%	11.0%
408	207	43	250	82.8%	17.2%
409	192	10	202	95.0%	5.0%
410	153	28	181	84.5%	15.5%
411	135	9	144	93.8%	6.3%
412	137	10	147	93.2%	6.8%
413	86	6	92	93.5%	6.5%
414	145	15	160	90.6%	9.4%
415	217	19	236	91.9%	8.1%
416	204	28	232	87.9%	12.1%
417	153	32	185	82.7%	17.3%
418	61	1	62	98.4%	1.6%
419	373	24	397	94.0%	6.0%
501	101	8	109	92.7%	7.3%
502	172	19	191	90.1%	9.9%
503	354	14	368	96.2%	3.8%
504	115	16	131	87.8%	12.2%
505	98	3	101	97.0%	3.0%
506	197	11	208	94.7%	5.3%
507	104	13	117	88.9%	11.1%
508	223	28	251	88.8%	11.2%
509	120	8	128	93.8%	6.3%
510	154	10	164	93.9%	6.1%
511	111	13	124	89.5%	10.5%
512	188	8	196	95.9%	4.1%
513	81	3	84	96.4%	3.6%
514	75	8	83	90.4%	9.6%
515	153	6	159	96.2%	3.8%
601	1	0	1		
602	314	4	318	98.7%	1.3%
603	386	5	391	98.7%	1.3%
604	97	5	102	95.1%	4.9%
605	99	6	105	94.3%	5.7%
606	126	15	141	89.4%	10.6%
607	143	11	154	92.9%	7.1%
608	119	10	129	92.2%	7.8%
609	72	5	77	93.5%	6.5%
610	167	12	179	93.3%	6.7%
611	130	2	132	98.5%	1.5%

Vacancy Rate and Dwelling Summary as of April 1, 2010 Census

	Occupied	Vacant	Grand Total	Occupied	Vacant
612	97	6	103	94.2%	5.8%
613	147	6	153	96.1%	3.9%
614	142	9	151	94.0%	6.0%
615	189	8	197	95.9%	4.1%
616	122	11	133	91.7%	8.3%
617	143	4	147	97.3%	2.7%
618	63	2	65	96.9%	3.1%
619	119	3	122	97.5%	2.5%
620	125	8	133	94.0%	6.0%
621	244	5	249	98.0%	2.0%
622	122	8	130	93.8%	6.2%
701	47	3	50	94.0%	6.0%
702	124	4	128	96.9%	3.1%
703	131	3	134	97.8%	2.2%
704	95	2	97	97.9%	2.1%
705	254	11	265	95.8%	4.2%
706	122	8	130	93.8%	6.2%
707	169	4	173	97.7%	2.3%
708	269	8	277	97.1%	2.9%
709	90	4	94	95.7%	4.3%
710	195	10	205	95.1%	4.9%
711	296	8	304	97.4%	2.6%
712	345	18	363	95.0%	5.0%
713	375	24	399	94.0%	6.0%
714	266	17	283	94.0%	6.0%
715	147	21	168	87.5%	12.5%
716	155	5	160	96.9%	3.1%
717	158	20	178	88.8%	11.2%
718	370	5	375	98.7%	1.3%
719	385	8	393	98.0%	2.0%
720	293	6	299	98.0%	2.0%
801	318	8	326	97.5%	2.5%
802	211	13	224	94.2%	5.8%
803	77	6	83	92.8%	7.2%
804	206	25	231	89.2%	10.8%
805	156	1	157	99.4%	0.6%
806	349	10	359	97.2%	2.8%
807	140	5	145	96.6%	3.4%
808	421	12	433	97.2%	2.8%
809	351	6	357	98.3%	1.7%
810	310	6	316	98.1%	1.9%
811	306	24	330	92.7%	7.3%
812	372	11	383	97.1%	2.9%
813	374	12	386	96.9%	3.1%
814	208	7	215	96.7%	3.3%
901	55	1	56	98.2%	1.8%
902	226	5	231	97.8%	2.2%
903	319	7	326	97.9%	2.1%

Vacancy Rate and Dwelling Summary as of April 1, 2010 Census

	Occupied	Vacant	Grand Total	Occupied	Vacant
904	280	60	340	82.4%	17.6%
905	241	2	243	99.2%	0.8%
906	333	1	334	99.7%	0.3%
907	255	3	258	98.8%	1.2%
908	289	6	295	98.0%	2.0%
909	223	9	232	96.1%	3.9%
910	212	7	219	96.8%	3.2%
911	230	1	231	99.6%	0.4%
912	275	8	283	97.2%	2.8%
913	154	55	209	73.7%	26.3%
914	419	8	427	98.1%	1.9%
915	87	63	150	58.0%	42.0%
1001	289	2	291	99.3%	0.7%
1002	199	8	207	96.1%	3.9%
1003	217	7	224	96.9%	3.1%
1004	225	11	236	95.3%	4.7%
1005	398	16	414	96.1%	3.9%
1006	245	14	259	94.6%	5.4%
1007	148	5	153	96.7%	3.3%
1008	267	8	275	97.1%	2.9%
1009	98	1	99	99.0%	1.0%
1010	128	6	134	95.5%	4.5%
1011	202	8	210	96.2%	3.8%
1012	245	8	253	96.8%	3.2%
1013	298	12	310	96.1%	3.9%
1014	317	11	328	96.6%	3.4%
1015	238	20	258	92.2%	7.8%
1016	244	29	273	89.4%	10.6%
2001	1	0	1	100.0%	0.0%
2002	5	2	7	71.4%	28.6%
2006	9	3	12	75.0%	25.0%
2007	69	15	84	82.1%	17.9%
2008	9	0	9	100.0%	0.0%
2009	29	10	39	74.4%	25.6%
Grand Total	**34470**	**1943**	**36413**	**94.7%**	**5.3%**

Basic Stats

			2010	2009	2008
Total Population			**86659**	**85492**	**83960**
	Females	51.1%	44286	43525	42800
	Males	48.9%	42373	41967	41160

Total Dwellings	**36413**	**35638**	**34873**

Average residents per dwelling	**2.38**	**2.40**	**2.41**
Number of dwellings with 1 person	8533	8429	8389
Number of dwellings with 2 people	13335	13099	13040
Number of dwellings with 3 people	5568	5525	5331
Number of dwellings with 4 people	4425	4367	4269
Number of dwellings with 5 people	1760	1735	1705
Number of dwellings with 6 people	547	536	516
Number of dwellings with 7 people	152	127	136

Average Age	**37.5**	**37.5**	**37.3**
Average male age	36.6	36.4	36.3
Average female age	38.3	38.5	38.4

B Appendix B - Household Travel Survey

2010 City of Lethbridge Household Travel Survey

Prepared for: **The City of Lethbridge**

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Date: March 15th, 2011

TABLE OF CONTENTS

1. OVERVIEW

Background & Introduction

Travel diaries are invaluable in understanding the travel characteristics and patterns of the City's residents and identifying emerging trends. They provide a read on the effectiveness of the past transportation plans and programs and identify for planners what needs to be improved in the future to meet the area's transportation objectives.

The purpose of the 2010 City of Lethbridge household travel survey is to collect data on the regional travel patterns of residents so as to:

- Provide data for the development of a new regional transportation demand model
- Enable monitoring of transportation patterns in the City to assess policies and plans
- Develop a City of Lethbridge travel database for the purpose of analysis and use in policy research and planning

General Approach

This report documents the 2010 City of Lethbridge Household Travel Survey. The survey was planned, administered and conducted by Synovate, a global market research company with an office in Vancouver. It provides information on 24-hour travel characteristics from a random sample of 2,166 local households.

The major phases and tasks undertaken for this study include:

- Phase 1 – Travel Diary Design and Testing
- Phase 2 – Data Collection
- Phase 3 – Data Processing and Validation
- Phase 4 – Reporting and Documentation

2. METHODOLOGY

Survey Design

The 2010 City Of Lethbridge Household Travel Survey was designed to collect information on 24 hour weekday travel characteristics from a random sample of study area residents. There were two surveys used in this study – the telephone recruitment survey and the web based travel diary survey.

The survey design and preparation took place during August 2010, with the recruitment phase running from September 14th until October 6th, 2010. The travel diary survey (which was primarily conducted online, with the option of mail-back) commenced three days later, starting on September 17th and continuing on every weekday until October 18th, 2010 (with the exception of October 11th, Thanksgiving Day).

Several measures were taken to encourage participation:

- Prize draws were offered as incentives for participating
- Households were provided with unique password protected survey links
- Households were sent acknowledgement and reminder emails
- Respondents wishing to verify the survey were directed to City of Lethbridge website which posted information about the survey
- Respondents with questions about how to complete the survey were provided with Synovate's 1-800 helpline

To ensure that young people, particularly post-secondary students, were appropriately represented in the sample, on-site interviewing was conducted at the University of Lethbridge campus and Lethbridge Community College on Tuesday to Friday from September 22nd until October14th, 2010.

Sampling Plan

Synovate used ASDE Canada Survey Sampler (CSS) to generate the telephone sample. Canada Survey Sampler provides electronic up-to-date listings of Lethbridge residents, including names, addresses, postal codes and telephone numbers.

Response rates from each of the 9 districts were monitored closely throughout the recruiting phase. However, strict quota limits were not put in place as accurate dwelling distribution data was not available and not all listed addresses were initially geocodable (geocoded after confirmation of respondents' address).

At the data processing stage, the data was weighted by household size within each of the 9 districts to bring the sample composition in line with the population (please see pg. 14 for more details).

Telephone Recruitment

The telephone recruitment survey was used to engage the respondent to participate in the online diary survey (or in the mail-back diary survey for those without Internet access) and to collect basic household demographics.

The telephone survey was administered via Computer Assisted Telephone Interviewing (CATI) and consisted of household information questions as well as the request to participate in the trip diary survey. The interviewer asked to speak to the person in the household who was most familiar with the daily commuting and local traffic habits of the household. If this designated person agreed to participate, he or she was assigned a specific diary day during the telephone recruitment, typically three to five days later. The household's address was then confirmed and email address obtained and re-confirmed for accuracy. The average length for the telephone survey was 8 minutes.

The telephone survey was pre-tested by the project team and improvements were made to the survey, mostly to smooth out wording and enable quicker collection of the desired information. (See **Appendix A** for the telephone questionnaire.)

Online and Mail-back Trip Diary

The diary survey was administered online (or by mail for those without Internet access). The online survey was designed to consist of an easy-to-follow set of screens which included instructions, examples, drop down menus and explanations/examples where needed. Respondents were prompted when a question was skipped or appeared to be inconsistent or inaccurate. For example, when providing the end time of each trip, the program checked against the trip start time to ensure the start time was earlier than the end time.

The web survey was also programmed to minimize respondent time and mistakes, in the following ways:

- By using GIS data for the region to provide a list of all possible roads and intersections
- By using word recognition software to shortcut typing, prevent typos and standardize abbreviations for landmarks and street names
- By automatically geocoding locations upon entry of destination information

Respondents were provided with several ways of indicating their location information to make this as easy as possible for them:

- By choosing from a customized list of locations for their household (home address as well as work and school addresses)
- By entering the name of a landmark location (assisted by word recognition)
- By entering two cross streets (assisted by word recognition)

Prior to the survey going live, the online survey was tested and refined to verify logic and ensure

ease of use.

The online diary survey was structured as follows:

- Introduction screens – residents entered their unique ID code and password. These screens also included an introductory letter from the City of Lethbridge, and Synvoate's 1-800 number to call with questions or to verify the legitimacy of the survey. Printable forms for the trip diary were provided along with an example of a completed form.
- Household information screen – the household information gathered during the telephone survey was displayed and respondents verified and made corrections to this information as necessary.
- Personal information screens – information was collected for each member of the household.
- Trip data screens – information was collected for each and every trip made by each household member on the specified day.

A copy of the online survey is provided in **Appendix C.**

The mail-back package included the following components:

- An introductory letter from the City of Lethbridge
- General survey instructions, including Frequency Asked Questions
- Example of a completed trip diary form
- Household information form
- Trip diary form for each household member

The components of the mail-back package are presented in **Appendix B.**

3. SURVEY IMPLEMENTATION

Survey Dates and Rate of Return

The telephone recruitment began on September 14th, 2010 and continued over a four-week period to October 6th, 2010, with the exception of October 11th, Thanksgiving Day.

Approximately 22,554 original telephone recruitment calls were made, with 4,004 households completing the telephone survey and agreeing to participate in either the online or mail-back diary survey. About 16% of the households lacked internet access and opted for a mail-back survey. An additional 201 surveys were conducted with post-secondary students at University of Lethbridge and Lethbridge Community College, from September 22nd to October 14th, every Tuesday to Friday. A total of 2,220 diaries were collected by the due date of October 30th – 1,818 by web , 201 by mail and 201 onsite interviews with post-secondary students. 54 forms (2%) were excluded due to incomplete/inaccurate information, for a final sample of 2,166.

Respondent Inquiries

Respondent inquiries were handled by Synovate staff. Respondents were provided with our 1-800 helpline, which was staffed throughout the duration of the survey, Monday to Friday from 9am to 9pm Mountain Time. The calls received primarily requested assistance to complete the online survey or sought clarification about the survey.

Email Reminders

Three to four automated email reminders were sent out to each respondent who agreed to participate in the online survey.

- Acknowledgement Email – sent by 10am the next business day following the previous night's telephone recruiting.
- Reminder & Link Email – sent by 5pm the night before the assigned diary day.
- Thank-You & Follow-Up Email – sent at 8pm the night of the assigned diary day.
- Second Chance Email – sent only to respondents who had not completed the online survey 24 hours after the assigned diary day. Respondents were given the choice of a new diary date if they did not track their household's travel on the assigned day.

Email Bounce-backs

To deal with email bounce-backs, email addresses that were obviously wrong were corrected or respondents were called back to clarify misspellings.

Final Status of Diary Survey Returns

The final status of the diary survey returns is shown in **Exhibit 3.1**. A total of 4,226 surveys were distributed (3,384 web, 642 mail-back and 201 onsite interviews with post-secondary students). A total of 2,220 surveys were returned by the due date of October 30th, of which 54 were ineligible for various reasons. Some of the reasons included incomplete or inaccurate information or home addresses not being geocodable. The final number of eligible returns was 2,166 resulting in a 51% eligible return rate. **Exhibit 3.2** and **Exhibit 3.3** show the eligible returns by week and by weekday.

Exhibit 3.1 – Final Status of Survey Returns

	Number	Percent
Total Recruits	4,226	100%
Survey Return Statistics		
Total Eligible Returns	2,166	51.3%
Total Ineligible Returns	54	1.3%
Non-Returns	2,006	47.5%

Exhibit 3.2 - Eligible Returns by Week

		Number of Eligible Returns			
Week	**Diary Date**	**Web**	**Mail**	**Onsite**	***Total***
1	Sep 17 – Sep 23	513	2	28	*543*
2	Sep 24 – Sep 30	488	60	-	*548*
3	Oct 1 – Oct 7	639	75	110	*824*
4	Oct 8 – Oct 14	103	56	43	*202*
5+	Oct 15 – Oct 22	37	4	8	*49*

Exhibit 3.3 - Eligible Returns Aggregated by Weekday

	Number of Eligible Returns			
Diary Day	**Web**	**Mail**	**Onsite**	***Total***
Mondays	351	39	5	*395*
Tuesdays	366	47	71	*484*
Wednesdays	379	42	57	*478*
Thursdays	340	42	56	*438*
Fridays	344	27	-	*371*

4. DATA PROCESSING AND DATABASE STRUCTURE

This section provides an overview of the steps that were taken to prepare the data.

Database Structure

Once the phone interviews were completed, the information obtained was repackaged into a relational database. At this stage, field names and codes were standardized. The relational database contains the following tables:

Household Table – contains general household information for every respondent household obtained from the telephone survey. Information includes survey dates, household location and number of occupants in the household.

Person Table – contains information for every member of the household. Information on gender, age, school status and employment status are contained in this file.

Trip Table – contains information on the 24 hour trips made by each member of the household from the trip diary survey. Each trip is stored as a unique record that contains information on the origin and destination, start and arrival times and duration, mode of travel, trip purpose, trip purpose pairings and land use type.

The tables in this relational database are linked by way of two key fields described as Household Serial Number and Person Serial Number. The following subsections provide a summary of the household, person and trip table structure. Note that address information has been eliminated from the final tables to ensure confidentiality.

4.1. Household Table Structure

The household table contains 14 fields that provide a general description of the household. The table contains 2,166 records each representing a surveyed household. The structure of the household table is shown in **Exhibit 4.1**. A detailed codebook for the household table is included in **Appendix D**.

Exhibit 4.1 Household Table

Field_Name	Field_Type	Column #	Field Description
HHID	Numeric	1	Household Serial Number
HHDistrict	Numeric	2	Household District
HHLat	Numeric	3	Household Latitude
HHLong	Numeric	4	Household Longitude
HH_Size	Numeric	5	Household Size
Home	Numeric	6	Household Type
#_Cars	Numeric	7	# of Autos owned/leased in HH
#_Bikes	Numeric	8	# of Bicycles in HH
#_Motor	Numeric	9	# of Motorcycles in HH
#_Moped	Numeric	10	# of Mopeds/2-wheeled motorized scooters
#_Wheel	Numeric	11	# of Motorized wheelchairs/4 wheel motorized scooters
HH_Inc	Numeric	12	Total Household Income
Day_Week	Numeric	13	Day of Week
ExpFact	Numeric	14	Expansion Factor

4.2 Person Table Structure

The person table contains 33 fields and 5,409 records describing the characteristics of each household member. Each record is linked to the household table via the key field. The structure of the person table is shown in **Exhibit 4.2**. A detailed codebook for the person table is included in **Appendix D**.

Exhibit 4.2 Person Table

Field_Name	Field_Type	Column #	Field Description
HHID	Numeric	1	Household Serial Number
Person#	Numeric	2	Person #
PerID	Numeric	3	Person Serial Number
#Trips	Numeric	4	Number of Trips
HHDistrict	Numeric	5	Household District
HHLat	Numeric	6	Household Latitude
HHLong	Numeric	7	Household Longitude
Gender	Numeric	8	Gender
Age	Numeric	9	Age
Transit	Numeric	10	Taken Public Transit Past 30 days
DrivLic	Numeric	11	Has valid driver's license
WorkFT	Numeric	12	Working Full Time
WorkPT	Numeric	13	Working Part Time
StudFT	Numeric	14	Full Time Student
StudPT	Numeric	15	Part Time Student
Unempl	Numeric	16	Unemployed
Retired	Numeric	17	Retired
Toddler	Numeric	18	Toddler
Work1Loc	Numeric	19	Work 1 Location
Work1Dist	Numeric	20	Work 1 District
Work1Lat	Numeric	21	Work 1 Latitude
Work1Long	Numeric	22	Work 1 Longitude
Work2Loc	Numeric	23	Work 2 Location
Work2Dist	Numeric	24	Work 2 District
Work2Lat	Numeric	25	Work 2 Latitude
Work2Long	Numeric	26	Work 2 Longitude

Field_Name	Field_Type	Column #	Field Description
Sch1Dist	Numeric	27	School 1 District
Sch1Lat	Numeric	28	School 1 Latitude
Sch1Long	Numeric	29	School 1 Longitude
Sch2Dist	Numeric	30	School 2 District
Sch2Lat	Numeric	31	School 2 Latitude
Sch2Long	Numeric	32	School 2 Longitude
ExpFac	Numeric	33	Expansion Factor

4.3 Trip Table Structure

The trip table contains 20 fields and 19,458 records describing the characteristics of each trip. These records are linked to the household table via the Household Serial Number and to the person table via the Person Serial Number. The structure of the trip table is shown in **Exhibit 4.3**. A detailed codebook for the trip table is included in **Appendix D**.

Exhibit 4.3 Trip Table Structure

Field_Name	Field_Type	Column #	Field Description
HHID	Numeric	1	Household Serial Number
Person#	Numeric	2	Person #
Trip#	Numeric	3	Trip #
TripID	Numeric	4	Trip Serial Number
O_Location	Numeric	5	Origin - Location Type
O_District	Numeric	6	Origin - District
O_Lat	Numeric	7	Origin - Latitude
O_Long	Numeric	8	Origin - Longitude
D_Location	Numeric	9	Destination - Location Type
D_District	Numeric	10	Destination - District
D_Lat	Numeric	11	Destination - Latitude
D_Long	Numeric	12	Destination - Longitude
TripPurp	Numeric	13	Main Trip Purpose
TripStart	Numeric	14	Trip Start Time
TripArr	Numeric	15	Arrival Time
TripDur	Numeric	16	Duration
TripMode	Numeric	17	Main Mode of Transportation
TripNum	Numeric	18	People in the car
PurpPair	Numeric	19	Purpose Pairings
ExpFact	Numeric	20	Expansion Factor

4.4 Data Logic Checks

In addition to the logic checks built into the telephone survey, a further set of logic checks were undertaken once the data was converted to a relational database format. The following is a summary of these logic checks.

- Age of full time employees
- Age of drivers
- Arrival time is earlier than the start time of the next trip
- Reasonable trip travel time based on travel mode
- Elimination of trips made entirely outside the study region
- Elimination of trips made after midnight (i.e. on the following day)
- Destination is the same as the origin of the next trip
- Duplicate records were identified and eliminated
- Reasonable trip distances and times by mode
- Crosscheck on work trips to ensure person is employed*
- Crosscheck on school trips to ensure person is attending school*

These checks were implemented using database programs that created flags for problem records. The problem records were then visually scanned and corrected. In some instances, the original mail-back forms were referenced to make corrections.

*Note: In some special cases, a working trip was allowed for unemployed, retired or underage respondents on the basis of them possibly volunteering or doing ad-hoc jobs. School trips were also allowed for very young children (i.e. under the age of 3) who may have been attending a preschool or a daycare.

4.5 Geocoding Procedures

The geocoding process involved the assignment of UTM coordinates to the addresses, landmarks and intersections provided in the trip diary. Most of the geocoding was done automatically by the web program using the road, intersection and landmark files, but additional geocoding was required for locations that weren't recognized or for which partial information was missing or vague. Upon the completion of the geocoding process (including the assignment of UTM coordinates), one of 9 districts were assigned to each set of coordinates as follows:

District 1	West North
District 2	West South
District 3	North West
District 4	North East
District 5	Centre
District 6	South West
District 7	South East
District 8	CMA North
District 9	CMA South

Locations that could not be geocoded were not assigned with a code.

Of the 2,166 households that submitted complete and eligible surveys, 98% of all the origin and destination points provided were successfully geocoded. To increase geocoding effectiveness, a program was written such that when a location name or spelling was corrected in one field the adjustment was carried across the datafile.

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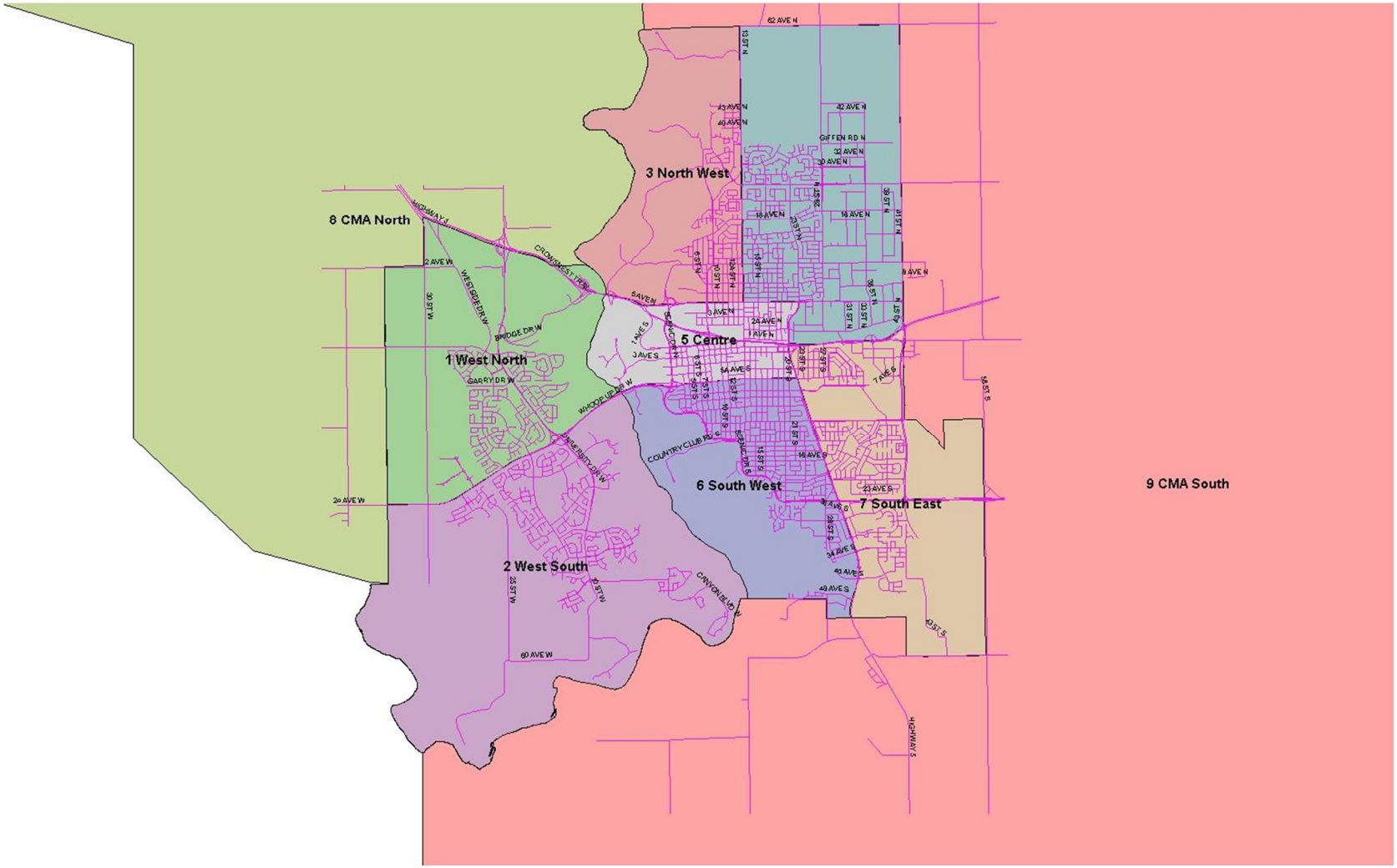
Exhibit 4.6 Lethbridge Map



4.7 Data Expansion

The trip diary survey represents 5.29% of the study area's households (2,166 out of 40,949 households). In order to use the information to estimate trip totals by area and by time of day, the information was expanded to represent the total target population (ie. the total number of households in the study area). Data expansion also helps to eliminate sampling biases in the unexpanded data.

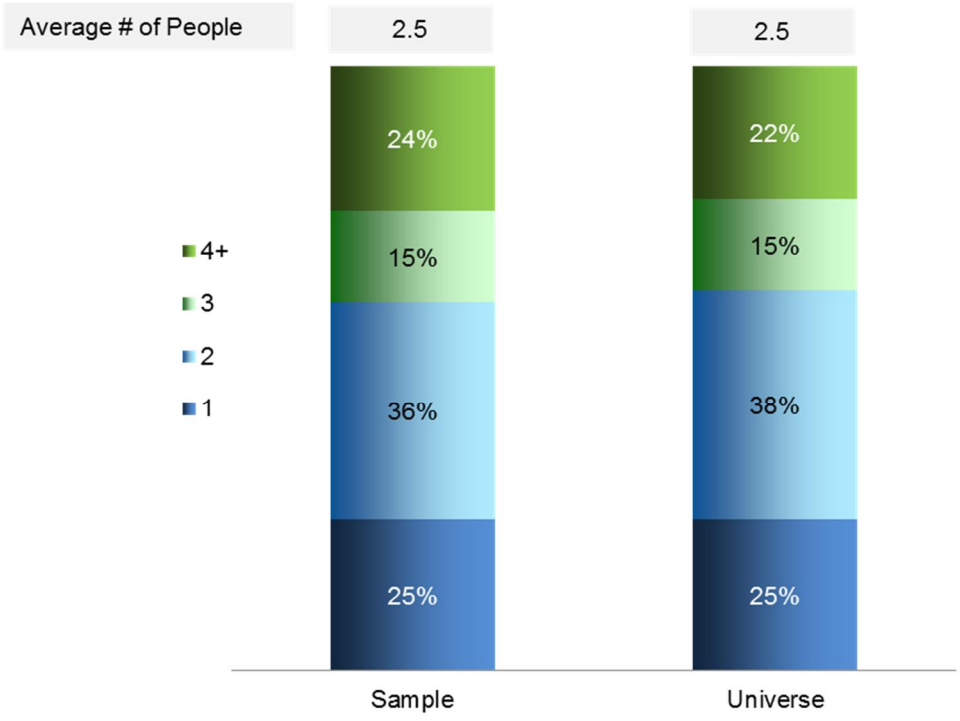
Exhibit 4.7 shows the survey responses by household size*.

*The 189 surveys completed by university/college students on campus were treated as a single person household.

To bring the sample composition in line with the population, the data was weighted by household size within each of the 9 districts. Specifically, the data was expanded according to the number of one-person, two-person, three-person, four-plus person households in each zone, based on 2010 Municipal Census data.

A total of 36 unique weighting factors (9 districts x 4 household size categories) were developed. The adjusted data was then weighted by a common expansion factor for the data sets, the factor applied was 18.90115.

Exhibit 4.7 People In Household



5 SURVEY ERROR AND STATISTICAL RELIABILITY

5.1 Sources of Survey Error

Any survey is subject to sampling errors that can affect the reliability of the results. These errors can arise from a number of factors, including:

- Sampling error
- Biased response error
- Non-response error
- Coding and reduction errors

Sampling error can be controlled to a large extent at the survey design stage. This type of error represents the variation between a sample and the survey universe. Sampling error can also occur when the sample is selected in a biased or non-random manner. To minimize the impact of sampling error, the sample should be chosen in a random manner and the sample size should be selected to ensure an acceptable confidence level and error tolerance.

Biased response error is introduced by the subject when the response is incorrect or not "truthful." This type of error can be introduced either inadvertently or intentionally. A well-designed and properly tested survey instrument will help to minimize this affect.

Non-response error occurs when those that refuse to participate in the survey are in some way different from those that respond. Individuals with language problems are one example of a group that may have different travel characteristics but are unable to respond. Offering survey translations or multi-lingual interviewers can minimize this bias. In general, a survey with a high response rate is less likely to be prone to this type of error.

Coding and reduction errors are introduced during the data entry and processing stage. These errors can be eliminated by proper training and quality control procedures.

For the 2010 Lethbridge Travel Survey, each of these potential error sources was addressed at various stages of the survey. Sampling error was minimized by targeting a certain number of returns from each area. Biased response error was reduced by using a well-established survey design, combined with pre-testing. Non-response error was addressed by achieving a high response rate through telephone recruiting, a mix of a few large incentives and many smaller incentives, a media campaign, acknowledgements and reminders, as well as the 1-800 helpline. Lastly, coding and reduction errors were addressed through training, quality control and data verification procedures.

5.2 Estimating Sampling Error

An important use of the 2010 Lethbridge Travel Survey will be to produce travel statistics (e.g., trip rates, trip lengths, mode shares, etc.) for specific sub-areas to assist with various planning and engineering studies. The reliability of these statistics is largely dependent on the sample size and can be calculated using standard formulas.

Error Around Means

The error associated with a statistic such as an average household trip rate or average trip length can be determined using the following formula:

$$\chi - \frac{Z_{\alpha/2}s}{\sqrt{n}} < \mu < \chi + \frac{Z_{\alpha/2}s}{\sqrt{n}}$$

where:
χ = sample mean
μ = population mean
*Z*α/2 = normal variant
α = 1.0 – confidence coefficient
s = sample standard deviation
n = number of samples

For example, the average length of trips going to/from work during in the AM Peak Period (0600 – 0859) is 14.2 minutes, based on a sample of 63,357 trips with a standard deviation of 10.9. Applying the 95% confidence interval (*Z*α/2 =1.96) this results in a range of error of ±0.08 or 14.1 to 14.3 minutes per work-related trip during this time period.

Error Around Proportions

The error associated with mode shares and other proportional statistics is calculated based on the following formula:

$$p' - Z_{\alpha/2}\sqrt{\frac{p'q'}{n}} < p < p' + Z_{\alpha/2}\sqrt{\frac{p'q'}{n}}$$

where:
p = proportion of the population
p' = proportion of the sample
q' = 1 – *p*'
*Z*α/2 = normal variate
α = 1.0 – confidence coefficient
n = number of samples

For example, during the PM peak (1500-1759), 100,955 trips are made during this period of which 65.9% are made by auto drivers. Applying a 95% confidence interval (*Z*α/2 =1.96), the range of error is calculated as follows:

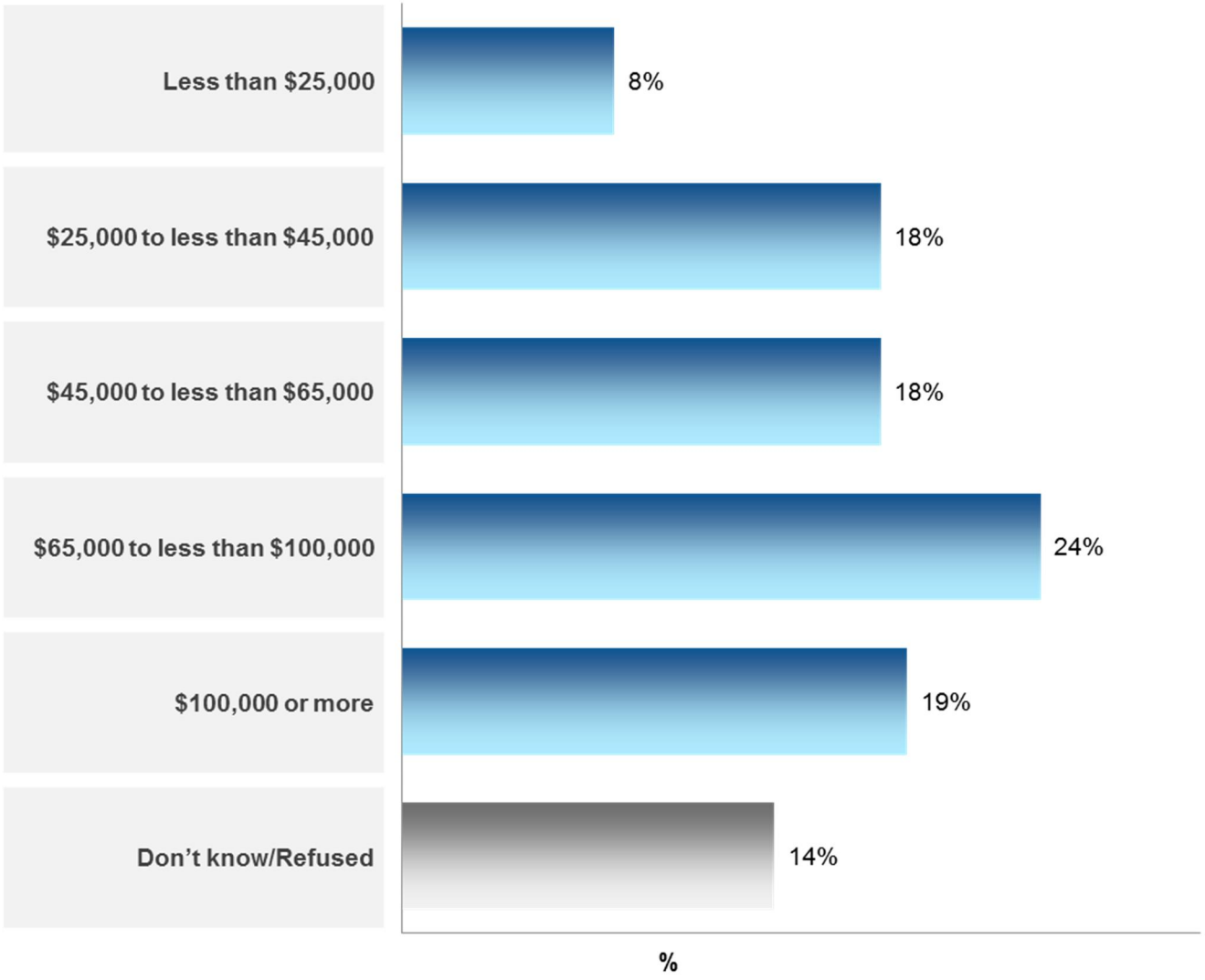
p' = 0.659
q' = 1 – 0.659 = 0.341
α = 1 – 0.95 = 0.05
*Z*α/2 = 1.96
n = 100,955

As a result the proportion of auto driver trips during the PM peak ranges between 65.6% and 66.2%.

6 SURVEY FINDINGS: HOUSEHOLD AND PERSON CHARACTERISTICS

The distribution of annual household incomes in Lethbridge are shown below.

Exhibit 6.1 2010 Household Income



Lethbridge's population is fairly evenly divided between men and women.

One-third of residents fall into the boomer age group of 45-64..

Exhibit 6.2 Gender

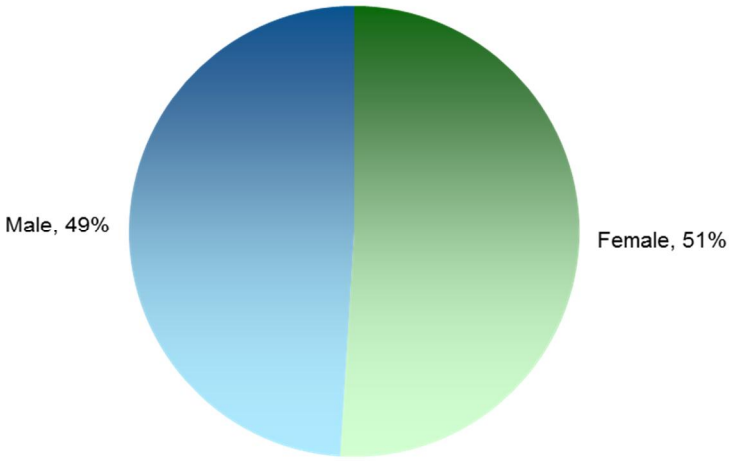
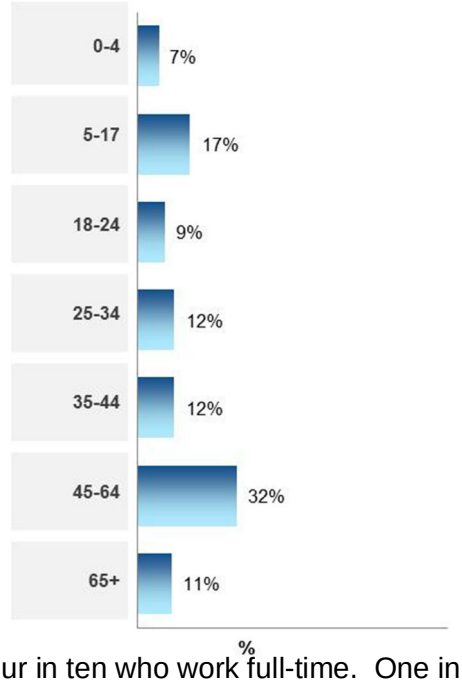


Exhibit 6.3 Age



Just over half of residents are working, including about four in ten who work full-time. One in four are attending school, most typically full-time.

Exhibit 6.4 Employment Status

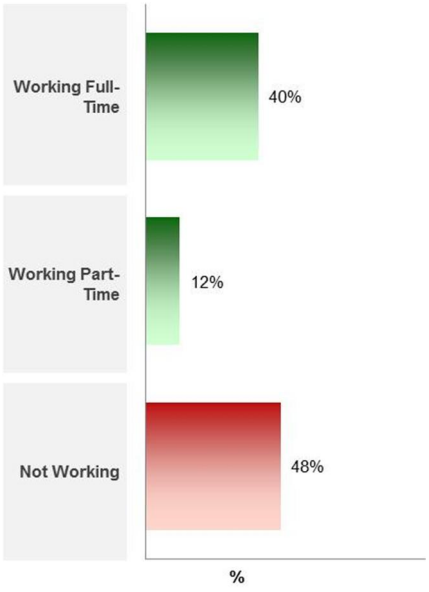
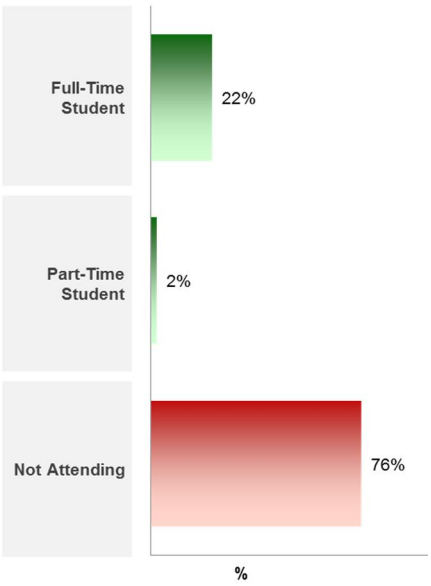


Exhibit 6.5 School Status



Approximately eight in ten residents live in single detached homes.

Exhibit 6.6a Type of Home

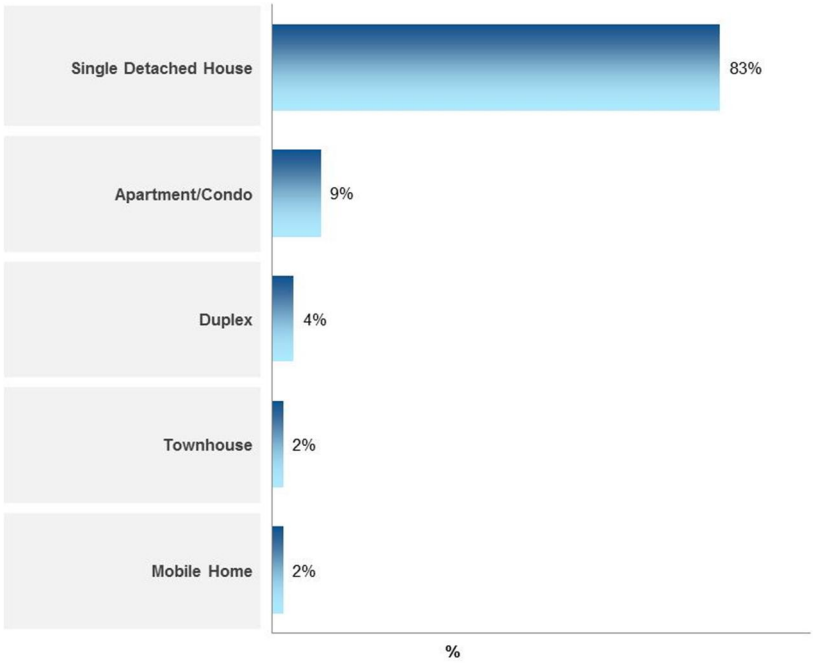
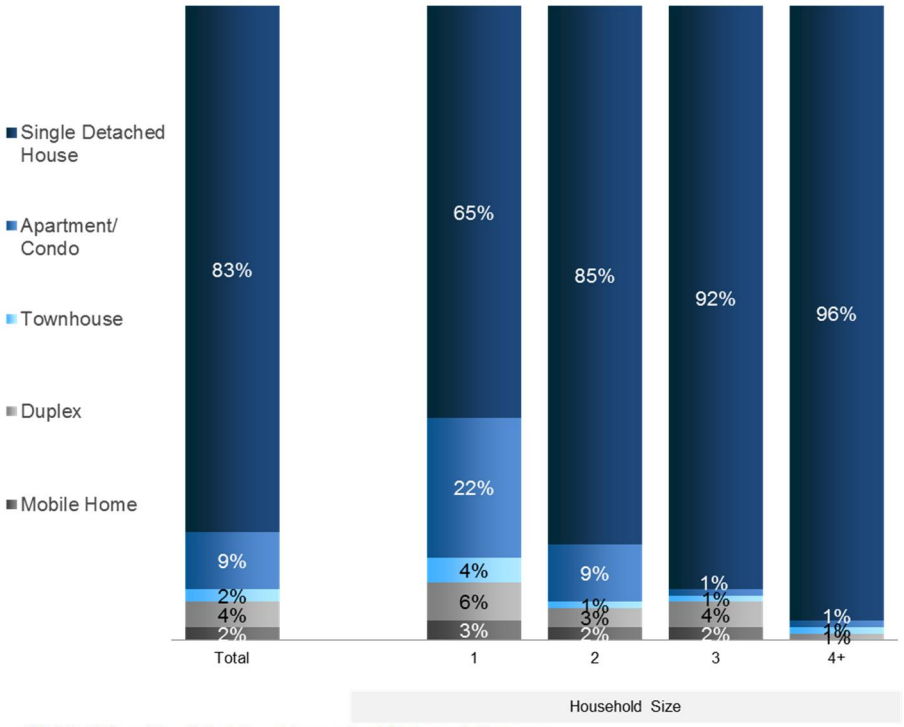


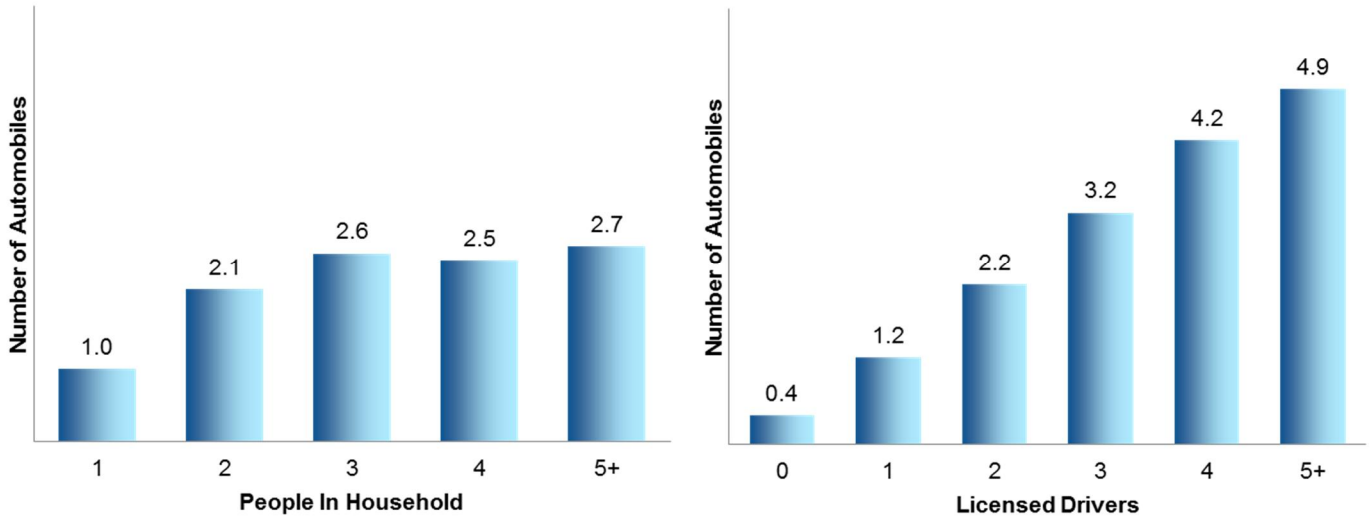
Exhibit 6.6b Type of Home by Household Size



On average, residents have about two automobiles per household. The number rises predictably with household size. In a given household, there are about as many automobiles per household as there are licensed drivers.

Exhibit 6.7 Average Number of Automobiles per Household

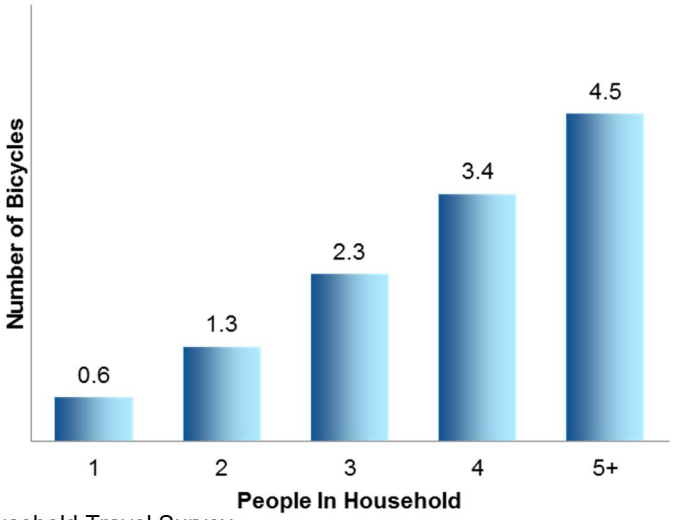
Average Number of Automobiles: 2.0



There are nearly as many bicycles per household as automobiles, with the average standing at 1.8. On average, households consists of slightly fewer bicycles than people.

Exhibit 6.8 Average Number of Bicycles per Household (Caution: Bicycles count might include toy cycles as well).

Average Number of Bicycles: 1.8



On average, each household made approximately 9 trips a day.

Exhibit 6.9a Average Number Of Trips Made By Household Size

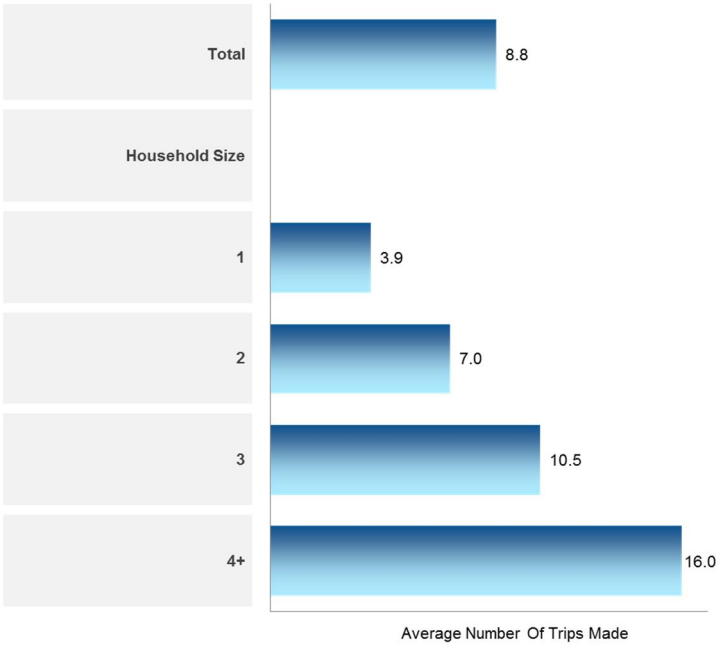
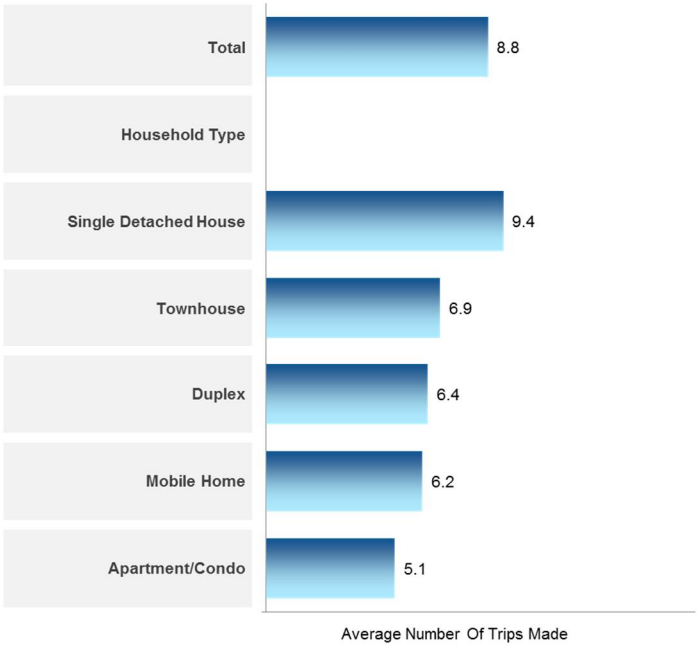
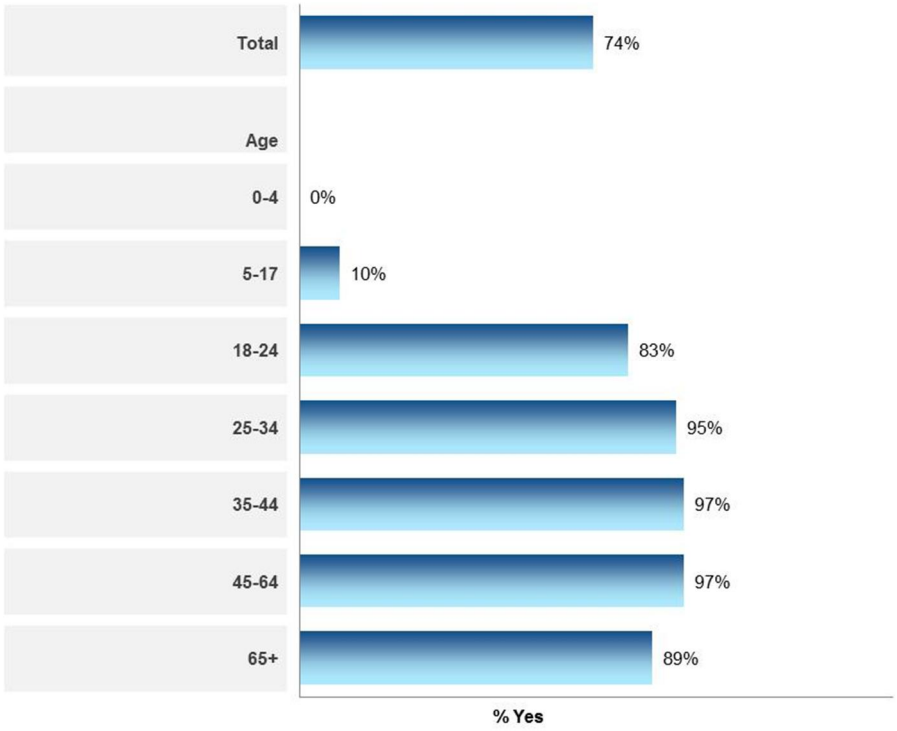


Exhibit 6.9b Average Number Of Trips Made By Household Type



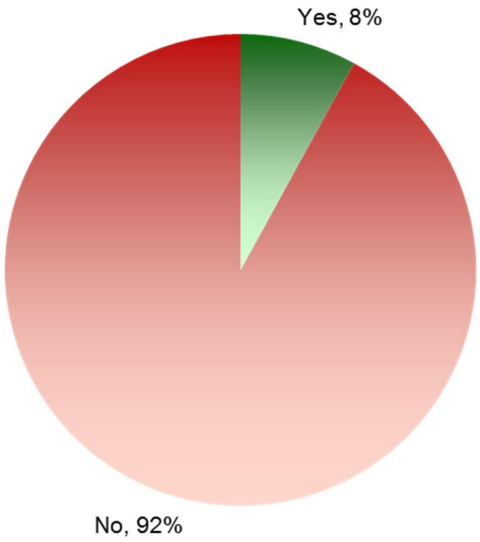
Three-quarters of residents claim to hold a valid driver's license, including two-thirds who are 25 years and older.

Exhibit 6.10 Possessing a Valid Driver's License



Overall, 8% of all residents report taking transit in the past 30 days.

Exhibit 6.11: Taken Transit in Past 30 Days



Trip Totals and Trip Rates

For a typical 2010 weekday, the total number of daily trips made by Lethbridge City residents is estimated at approximately 358,329. Note that this figure does not include trips made by non-residents traveling within or through the study area. This translates to a daily average of approximately 3.5 trips per person or 9.2 trips per household. **Exhibit 7.1** provides a summary of this information by time of the day. Most trips occur during the mid-day and PM peak periods, followed by the morning peak period and the evening.

Note: The number of trips shown can vary between tables because some respondents did not provide all the information for all trips. Accordingly, if a location, mode or time was not provided, these trips will not appear in the respective table.

Exhibit 7.1 Trip Totals and Average Trip Rates

Trip Totals	Time Period						
	Night	AM Peak	Midday	PM Peak	Evening		
	0000-0559	*0600-0859*	*0900-1459*	*1500-1759*	*1800-2359*	*Time Unspec.*	Total
Total	2,201	68,920	116,400	101,050	66,209	3,549	358,329
% of Daily Trips	0.6%	19.2%	32.5%	28.2%	18.5%	1.0%	100.0%
Trips per Person	0.02	0.68	1.15	1.00	0.65	0.04	3.54
Trips per Household	0.06	1.76	2.98	2.59	1.69	0.09	9.17

Exhibit 7.2 presents the trip rates by age category and time of the day. Residents aged 25-64 make the most trips per day, with those aged 35-44 averaging more than four trips per day.

Exhibit 7.2 Average Person Trip Rates Among Age Groups

Age	Trip Totals						
	Night	AM Peak	Midday	PM Peak	Evening		
	0000-0559	*0600-0859*	*0900-1459*	*1500-1759*	*1800-2359*	*Time Unspec.*	Total
0-4	0.00	0.38	0.70	0.73	0.26	0.01	2.08
05-17	0.00	0.85	0.44	1.05	0.51	0.02	2.88
18-24	0.02	0.56	0.83	0.83	0.90	0.02	3.15
25-34	0.02	0.76	1.18	1.04	0.80	0.02	3.83
35-44	0.03	0.99	1.28	1.27	0.86	0.03	4.46
45-64	0.04	0.69	1.45	1.07	0.72	0.04	4.02
65+	0.01	0.27	1.74	0.69	0.36	0.08	3.14
Total	0.02	0.68	1.15	1.00	0.65	0.04	3.54

Exhibits 7.3 and 7.4 show the total number of trips that originate in and are destined for the 9 districts by time period. The greatest number of trips occurs during the midday which spans from 0900 to 1459. The PM peak accounts for significantly more trips than the AM Peak. By zone, the Centre Sector accounts for the most trips, followed by the Southwest.

Exhibit 7.3 Trip Origins By Time Period

	Trip Totals						
	Night	AM Peak	Midday	PM Peak	Evening		
Zone	*0000-0559*	*0600-0859*	*0900-1459*	*1500-1759*	*1800-2359*	*Time Unspec.*	Total
West North	249	10,592	9,895	9,210	6,505	146	36,597
West South	260	10,445	11,370	10,851	8,405	439	41,770
North West	151	3,840	4,991	3,798	3,004	306	16,090
North East	325	10,268	15,310	14,502	7,743	425	48,574
Centre	179	5,430	27,914	23,491	13,020	774	70,808
South West	337	9,921	21,130	16,635	13,150	671	61,842
South East	176	7,280	12,559	9,038	7,015	355	36,423
CMA North	402	4,791	3,792	3,584	1,608	32	14,210
CMA South	121	5,820	5,387	5,686	2,717	-	19,731
Out of Region	-	332	1,281	1,873	1,036	-	4,521
Total Trips	2,201	68,719	113,627	98,668	64,203	3,149	350,566

Exhibit 7.4 Trip Destinations by Time Period

	Trip Totals						
	Night	AM Peak	Midday	PM Peak	Evening		
Zone	*0000-0559*	*0600-0859*	*0900-1459*	*1500-1759*	*1800-2359*	*Time Unspec.*	Total
West North	30	5,773	9,506	12,712	8,022	205	36,247
West South	200	7,791	11,407	12,650	9,625	341	42,013
North West	23	2,165	4,553	5,022	4,171	180	16,114
North East	569	11,555	14,328	13,654	8,126	417	48,649
Centre	376	15,667	29,128	16,259	9,032	713	71,174
South West	220	11,468	21,373	16,089	11,750	678	61,577
South East	146	4,864	12,682	10,792	7,135	530	36,149
CMA North	169	2,743	3,524	4,632	3,049	32	14,150
CMA South	176	3,639	4,919	6,680	3,785	188	19,387
Out of Region	187	1,827	1,695	864	426	-	4,998
Total Trips	2,095	67,492	113,112	99,355	65,121	3,285	350,460

Exhibit 7.5 shows the trips made between districts during the AM Peak, while **Exhibit 7.6** shows the autodriver trips between districts made during the AM Peak. The Centre district is the top destination (16,098 trips. Within districts, the highest trip volumes occur within the North East (4,295 trips), South West (3,647) and West North (3,349) districts. Trips typically start and finish within the same district in the AM Peak, however there are exception to this (e.g. AM Peak trips starting in the Centre district usually end in another district).

Exhibit 7.5 Total Trips For AM Peak Period

	Trip Origin										
Trip Destination	West North	West South	North West	North East	Centre	South West	South East	CMA North	CMA South	Out of Region	Total
West North	3,349	1,715	92	240	131	156	142	107	35	32	6,001
West South	1,711	3,476	219	503	475	958	433	245	183	17	8,220
North West	97	167	307	472	226	143	136	437	219	-	2,203
North East	973	1,061	1,083	4,295	700	1,092	873	492	804	183	11,555
Centre	2,733	2,084	1,256	1,850	1,958	2,676	2,003	815	674	48	16,098
South West	985	1,594	714	1,020	1,372	3,647	1,707	225	587	71	11,921
South East	345	390	105	841	299	737	1,762	176	411	-	5,065
CMA North	92	155	23	177	86	67	108	1,990	35	-	2,733
CMA South	157	102	23	286	79	153	126	28	2,715	-	3,670
Out of Region	343	53	90	409	102	257	144	248	192	-	1,839
Total Trips	10,785	10,796	3,911	10,092	5,430	9,887	7,434	4,765	5,855	350	69,305

Exhibit 7.6 Total Auto Driver Trips For AM Peak Period

	Trip Origin										
Trip Destination	West North	West South	North West	North East	Centre	South West	South East	CMA North	CMA South	Out of Region	Total
West North	1,474	711	72	172	83	108	126	75	35	32	2,889
West South	1,030	1,691	111	370	360	738	299	245	141	17	5,002
North West	66	134	160	212	150	91	87	67	-	-	966
North East	847	925	777	2,626	561	872	804	464	520	117	8,514
Centre	2,160	1,521	881	1,562	1,440	1,717	1,399	442	563	15	11,701
South West	737	1,105	546	810	866	1,914	1,153	196	502	71	7,900
South East	310	271	105	644	223	591	1,318	119	339	-	3,919
CMA North	60	105	23	132	86	49	61	617	-	-	1,132
CMA South	142	102	23	190	50	134	126	28	1,264	-	2,061
Out of Region	297	53	90	228	58	197	110	220	114	-	1,366
Total Trips	7,122	6,616	2,789	6,946	3,876	6,411	5,485	2,474	3,479	253	45,450

Exhibit 7.7 shows the total trips made between zones during the PM Peak. **Exhibit 7.8** shows the auto driver trips made between zones during the PM Peak. PM Peak trip volume is the highest within the North East (5,806 trips) and Centre (5,316) districts. Again, the trips typically start and finish within the same district for both. The highest volume in the PM Peak are seen between West North and South West districts.

Exhibit 7.7 Total Trips For PM Peak Period

	Trip Origin										
Trip Destination	West North	West South	North West	North East	Centre	South West	South East	CMA North	CMA South	Out of Region	Total
West North	4,275	2,400	213	935	2,265	1,304	266	212	161	309	12,339
West South	2,206	4,312	126	789	2,482	1,352	617	184	131	95	12,293
North West	130	302	783	1,005	1,532	539	325	82	23	109	4,830
North East	294	514	928	5,806	2,453	1,153	913	234	419	401	13,115
Centre	831	1,434	730	1,641	6,146	2,258	1,479	409	641	83	15,650
South West	696	1,127	250	1,535	3,659	5,316	2,194	82	627	253	15,739
South East	239	521	312	1,173	2,133	3,085	2,295	258	199	146	10,361
CMA North	268	121	300	437	713	343	171	1,819	28	289	4,489
CMA South	77	75	169	534	1,063	653	297	92	3,367	115	6,442
Out of Region	31	33	43	32	98	107	140	71	142	-	697
Total Trips	9,048	10,837	3,853	13,886	22,545	16,109	8,698	3,443	5,739	1,799	95,957

Exhibit 7.8 Total Auto Driver Trips For PM Peak Period

	Trip Origin										
Trip Destination	West North	West South	North West	North East	Centre	South West	South East	CMA North	CMA South	Out of Region	Total
West North	1,963	1,565	99	682	1,845	946	234	108	161	263	7,865
West South	1,294	1,971	92	690	1,733	981	452	151	114	95	7,572
North West	107	177	548	731	1,065	429	254	82	23	86	3,503
North East	178	380	482	3,929	1,935	946	677	140	188	337	9,194
Centre	566	1,116	519	1,163	4,185	1,467	972	249	289	38	10,563
South West	495	669	158	1,231	2,538	3,034	1,733	46	383	174	10,462
South East	177	412	191	974	1,440	2,156	1,445	144	199	130	7,268
CMA North	135	121	129	267	528	221	158	965	28	189	2,741
CMA South	77	75	36	424	652	540	262	28	1,323	79	3,496
Out of Region	15	16	20	32	65	107	63	32	64	-	414
Total Trips	5,008	6,502	2,276	10,123	15,986	10,827	6,250	1,945	2,773	1,389	63,079

Travel Mode and Trip Purpose By Time of Day

This section provides an overview of regional travel by mode and trip purpose. Travel mode and trip purpose percentages are by time of day.

Exhibit 7.9 provides a summary of the travel mode share for each of the five time periods. The most common mode for all time periods is the automobile, and more specifically, auto driver. Auto driver trips account for seven in ten trips overall and account for almost nine in ten trips made at night (after midnight but before 6am) and three-quarters of the trips during midday. Auto passenger trips are the next most common mode, accounting for one-fifth of all trips and for more than one-quarter of trips in the evening. Walking is the third most common mode with Lethbridge residents making 5% of their trips by foot.

Exhibit 7.9 Travel Mode Share By Time of Day

Travel Mode	Travel Mode Percentages							Total Trips
	Night *0000-0559*	AM Peak *0600-0859*	Midday *0900-1459*	PM Peak *1500-1759*	Evening *1800-2359*	*Time Unspec.*	Total (%)	
Auto Driver	87.4%	65.5%	75.0%	65.9%	67.0%	70.6%	69.2%	247,331
Auto Passenger	7.1%	18.5%	15.4%	21.4%	27.2%	19.2%	19.9%	71,021
Commercial Vehicle Driver	-	0.7%	1.3%	0.5%	0.4%	0.5%	0.8%	2,749
Transit Bus	-	1.9%	1.3%	1.5%	0.8%	0.5%	1.4%	4,949
School Bus	-	6.6%	0.5%	3.8%	0.1%	1.5%	2.5%	9,017
Bicycle	1.8%	1.3%	1.2%	1.4%	1.2%	0.5%	1.3%	4,592
Rollerblade/Skateboard	-	-	-	-	-	-	-	81
Walking	2.7%	5.3%	4.8%	5.3%	3.2%	7.2%	4.7%	16,982
Taxi/Airport Shuttle	1.0%	0.1%	0.1%		0.1%	-	0.1%	203
Motorcycle/Moped	-	0.2%	0.3%	0.2%	0.2%	-	0.2%	742
Trip Totals	2,201	68,908	116,346	100,955	66,119	3,138	100.00%	357,667

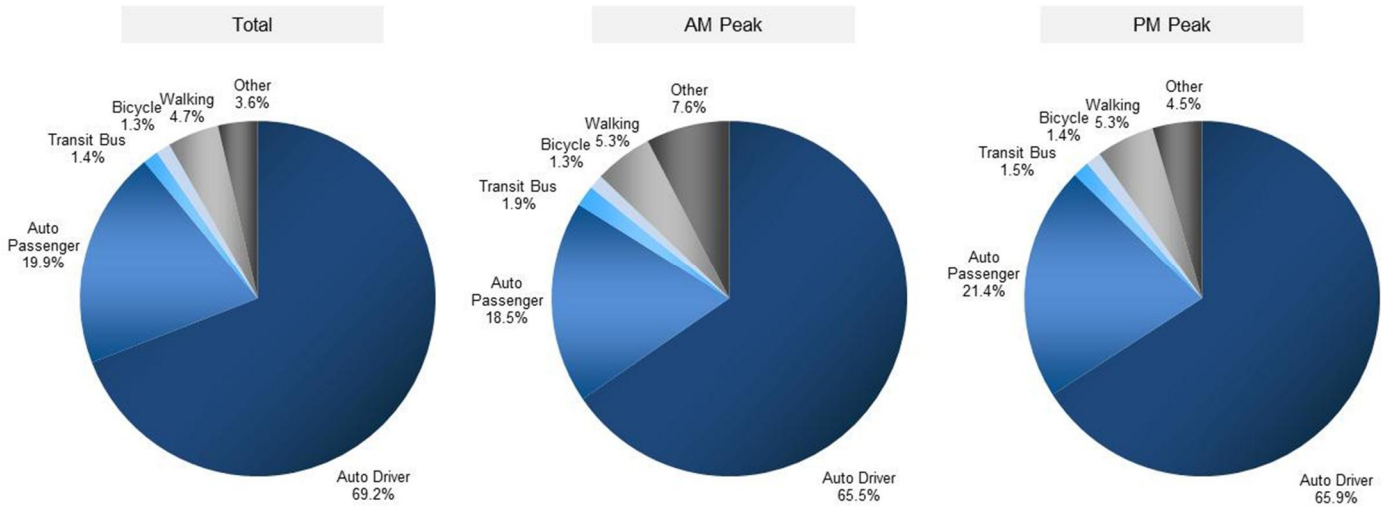


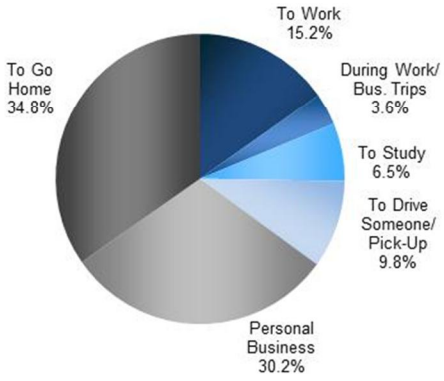
Exhibit 7.10 shows the trip purpose shares for different time periods.

Trips that involve going to or from work account for about one-third of all trips, while trips involving getting to or from school account for 13% of trips. The remaining trips do not involve work or school and are for purposes such as personal business, dropping off or picking someone up and recreation.

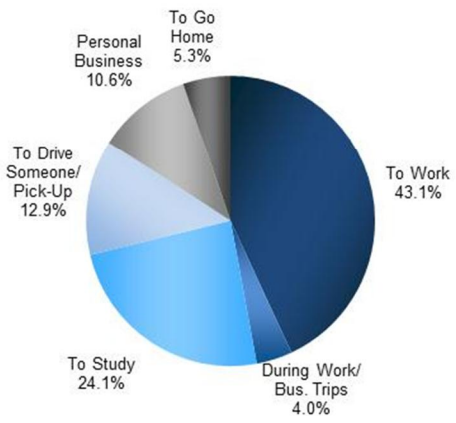
Exhibit 7.10 Trip Purpose By Time of Day

Travel Purpose	Trip Prupose Percentages							Total Trips
	Night *0000-0559*	AM Peak *0600-0859*	Midday *0900-1459*	PM Peak *1500-1759*	Evening *1800-2359*	*Time Unspec.*	Total (%)	
To Work	72.2%	43.1%	14.5%	4.0%	2.8%	6.7%	15.2%	54,277
During Work/Business Trips	3.6%	4.0%	6.6%	1.9%	0.5%	2.1%	3.6%	12,807
To Study	0.5%	24.1%	3.8%	1.1%	1.4%	4.1%	6.5%	23,173
To Drive Someone/Pick-Up	4.0%	12.9%	7.4%	11.8%	8.3%	2.6%	9.8%	35,102
Personal Business	12.4%	10.6%	40.9%	29.9%	33.0%	26.5%	30.2%	108,093
To Go Home	7.3%	5.3%	26.8%	51.3%	54.1%	58.1%	34.8%	124,458
Trip Total	2,201	68,867	116,345	100,986	66,194	3,319	100.0%	357,911
Total To/From Work	*77.2%*	*47.9%*	*33.5%*	*32.9%*	*16.5%*	*17.1%*	*33.1%*	*118,383*
Total To/From School	*0.5%*	*24.2%*	*9.4%*	*14.2%*	*5.2%*	*7.6%*	*12.7%*	*45,624*

Total



AM Peak



PM Peak

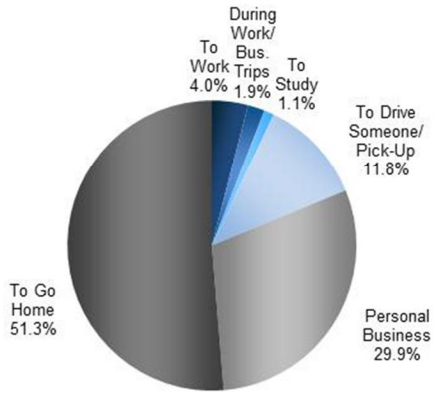
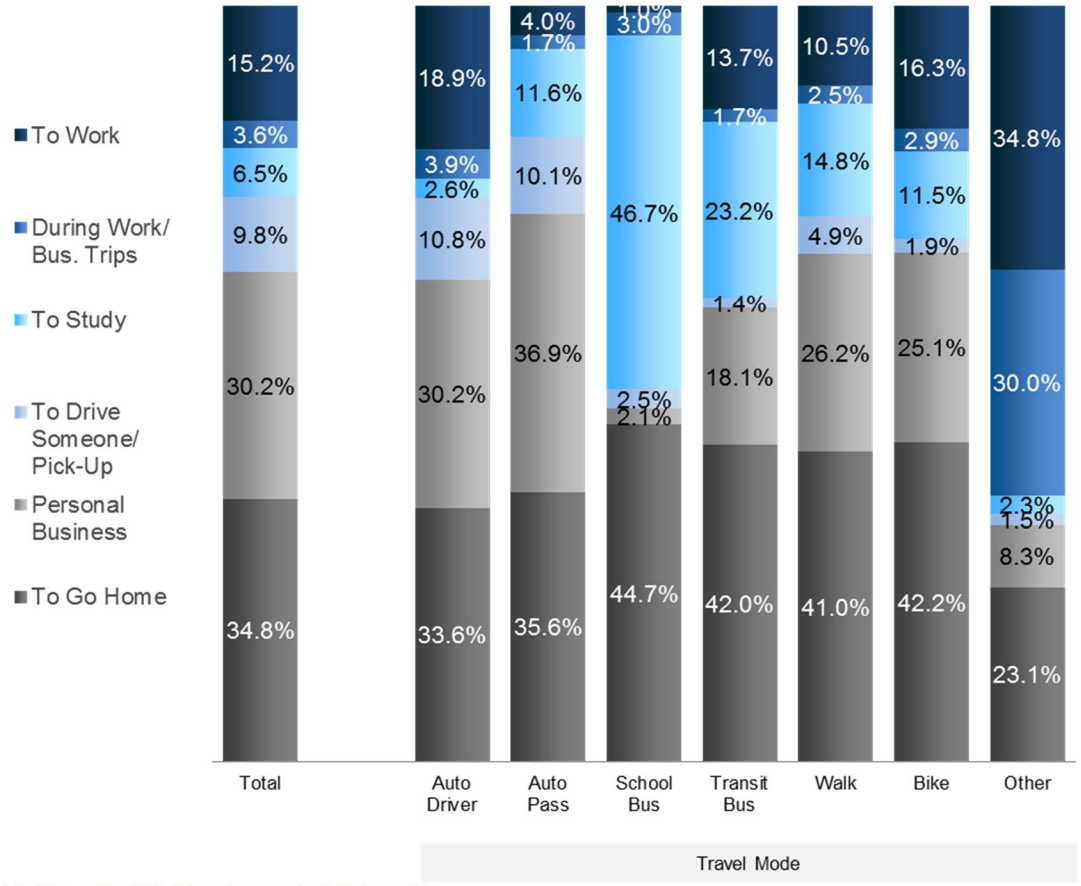


Exhibit 7.11 shows the different trip purposes for each travel mode.

Exhibit 7.11 Trip Purpose by Travel Mode

Travel Purpose	Trip Totals							
	Auto Driver	Auto Pass	School Bus	Transit Bus	Walk	Bike	Other	Total
To Work	18.9%	4.0%	1.0%	13.7%	10.5%	16.3%	34.8%	54,277
During Work/Business Trips	3.9%	1.7%	3.0%	1.7%	2.5%	2.9%	30.0%	12,807
To Study	2.6%	11.6%	46.7%	23.2%	14.8%	11.5%	2.3%	23,173
To Drive Someone/Pick-Up	10.8%	10.1%	2.5%	1.4%	4.9%	1.9%	1.5%	35,102
Personal Business	30.2%	36.9%	2.1%	18.1%	26.2%	25.1%	8.3%	108,093
To Go Home	33.6%	35.6%	44.7%	42.0%	41.0%	42.2%	23.1%	124,458
Trip Total	247,185	70,934	9,017	4,949	16,982	4,592	3,775	357,911
Total To/From Work	*40.3%*	*10.6%*	*7.9%*	*28.7%*	*24.2%*	*35.9%*	*84.5%*	*118,383*
Total To/From School	*5.2%*	*22.2%*	*88.8%*	*48.9%*	*32.2%*	*22.0%*	*4.5%*	*45,624*



Other Travel Characteristics

This section provides information on average trip length and on how travel modes and trip purposes vary by age category and land use.

Exhibit 7.12 provides a summary of trip length by mode and purpose. Very few trips are taken late at night (after midnight but before 6am) so the high average duration is more a reflection of the uniqueness of these trips. The other time periods have very similar trip durations except for those made in the evening which tend to be a little shorter (averaging about 13 minutes).

Exhibit 7.12 Average Trip Time By Mode and By Trip Purpose

Travel Mode	Average Trip Time (Minutes)						
	Night *0000-0559*	AM Peak *0600-0859*	Midday *0900-1459*	PM Peak *1500-1759*	Evening *1800-2359*	*Time Unspec.*	Total
Auto Driver	16.0	13.0	13.8	13.8	12.5	4.1	13.4
Auto Passenger	15.0	11.2	13.0	12.5	13.5	2.3	12.6
Transit Bus	-	26.6	27.4	31.6	31.6	-	29.0
School Bus	-	30.3	32.2	31.1	36.5	-	30.8
Bicycle	8.3	14.2	17.0	15.7	15.5	-	15.8
Walking	31.6	15.1	14.1	15.5	19.2	-	15.5
Other	15.0	15.9	15.4	16.3	19.7	-	16.1
Total	16.4	14.3	14.0	14.7	13.2	3.4	14.1
Trip Purpose							
To Work	14.0	14.2	12.5	14.7	12.2	1.0	13.6
During Work/Business Trips	5.0	16.3	16.8	14.2	22.3	2.0	16.4
To Study	10.0	17.2	13.8	13.5	11.5	-	16.2
To Drive Someone/Pick-Up	22.2	10.4	12.2	11.2	11.7	24.8	11.3
Personal Business	24.6	13.8	14.9	14.7	13.8	1.5	14.5
To Go Home	19.3	11.0	13.4	15.5	13.2	2.5	14.1
Total	16.4	14.3	14.0	14.7	13.2	3.4	14.1
Total To/From Work	*13.8*	*14.2*	*14.0*	*15.1*	*13.8*	*1.7*	*14.3*
Total To/From School	*10.0*	*17.2*	*14.1*	*19.3*	*14.6*	-	*16.9*

The following tables **7.13** show the mode share among age groups. More than half of the (53%) auto driver trips are made by those aged 45-64, while about the same proportion of the auto passenger trips are made by those aged under 18. Over one-half of transit trips are mostly made by residents under age 25, while most walking trips are made by those aged 5-17 or 45-64.

Exhibit 7.13 Breakdown of Travel Modes Among Age Groups

Age	Mode Share Over 24 Hours							
	Auto Driver	Auto Pass	School Bus	Transit Bus	Walk	Bike	Other	Total Trips
0-4	-	18.2%	0.3%	-	5.9%	5.0%	-	14,178
05-17	1.9%	40.8%	94.2%	16.0%	30.4%	17.7%	2.2%	48,919
18-24	7.7%	5.9%	2.3%	40.6%	10.8%	15.0%	9.2%	28,259
25-34	15.2%	7.1%	-	10.4%	9.8%	7.0%	12.3%	45,656
35-44	19.5%	5.9%	1.0%	8.4%	9.0%	15.1%	19.3%	55,776
45-64	44.1%	15.6%	1.8%	13.3%	25.9%	31.4%	53.3%	128,834
65+	11.6%	6.5%	0.4%	11.2%	8.3%	8.7%	3.9%	35,779
Total	69.0%	19.8%	2.5%	1.4%	4.7%	1.3%	1.1%	357,403

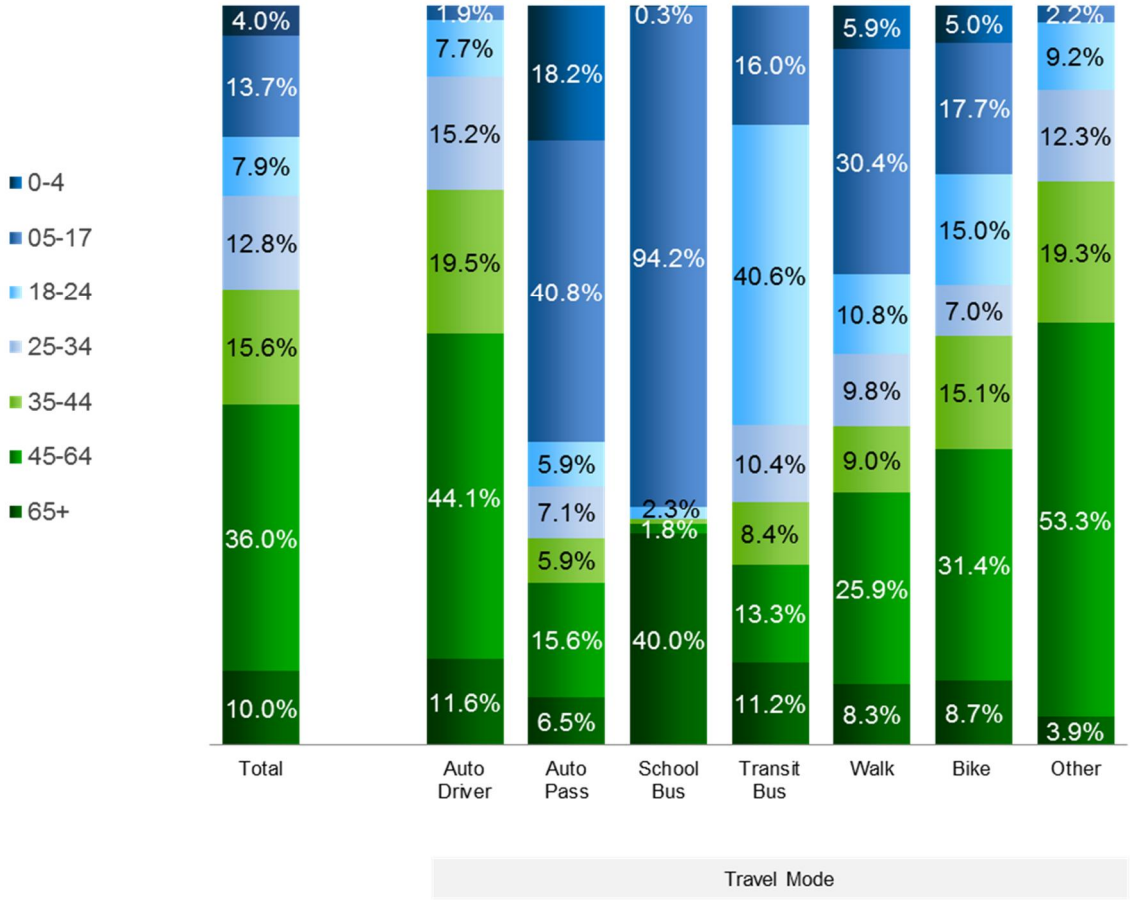


Exhibit 7.14 breaks down the trip purposes by age group. 86% of the trips made to/from work are by those aged 25-64. Of the trips made to/from school 89% are predictably made by those aged under 25, including 61% by those aged 5-17.

Exhibit 7.14 Trip Purpose Share Among Age Groups

Age	24 Hour Trip Purpose Distribution								
								Purpose Totals	
	To Work	During Work	To Study	Pick Up/ Drop-Off	Personal Bus	To Go Home	Trip Total	*To/From Work*	*To/From School*
0-4	0.2%	0.4%	3.1%	7.5%	4.8%	4.5%	14,178	*0.3%*	*3.2%*
05-17	1.1%	8.4%	61.4%	9.2%	9.5%	15.8%	48,919	*2.8%*	*61.4%*
18-24	7.1%	3.8%	24.6%	2.3%	5.7%	9.1%	28,259	*6.7%*	*24.7%*
25-34	17.3%	12.2%	5.6%	15.5%	11.3%	12.7%	45,656	*16.2%*	*5.6%*
35-44	20.8%	16.5%	1.4%	29.4%	12.6%	14.7%	55,776	*19.9%*	*1.4%*
45-64	49.8%	52.5%	2.7%	30.3%	39.0%	33.6%	128,834	*49.7%*	*2.6%*
65+	3.8%	6.1%	1.2%	5.8%	17.2%	9.7%	35,779	*4.4%*	*1.1%*
Total	15.1%	3.6%	6.5%	9.8%	30.2%	34.7%	357,403	*33.0%*	*12.7%*

Exhibit 7.15 shows the type of starting locations for each of the trip destination purposes. For most trip purposes, the starting point is a house or apartment.

Exhibit 7.15 Land Use Type Of Destinations By Trip Purpose

Origin Land Use	24 Hour Trip Purpose Distribution							Purpose Totals	
	To Work	During Work	To Study	Pick Up/ Drop-Off	Personal Bus	To Go Home	Total	*To/From Work*	*To/From School*
House/ Apt	75.0%	40.7%	88.5%	62.0%	52.0%	11.4%	44.6%	*41.4%*	*45.6%*
Store/ Rest.	7.6%	13.7%	3.7%	10.1%	18.8%	27.0%	17.9%	*10.3%*	*2.2%*
School	6.5%	3.8%	3.4%	11.5%	8.0%	26.4%	14.0%	*10.6%*	*47.9%*
Office Bldg.	2.5%	18.4%	0.8%	4.5%	6.1%	8.8%	6.4%	*14.4%*	*0.8%*
Industrial	2.0%	11.2%	0.3%	1.8%	2.4%	5.5%	3.5%	*8.4%*	*0.2%*
Hosp.	1.2%	2.7%	0.5%	2.9%	2.5%	3.5%	2.6%	*3.8%*	*0.3%*
Indoor Rec.	0.7%	0.6%	0.3%	1.1%	1.5%	3.7%	2.0%	*0.7%*	*0.3%*
Bank	1.1%	2.3%	0.1%	0.8%	3.1%	1.8%	1.9%	*2.1%*	-
Religious. Inst.	0.2%	1.2%	1.1%	1.4%	1.3%	2.1%	1.4%	*0.9%*	*1.1%*
Outdoor Rec.	0.3%	0.2%	0.2%	0.6%	0.9%	2.1%	1.1%	*0.5%*	*0.2%*
Daycare	0.9%	-	0.6%	1.1%	0.4%	1.3%	0.8%	*0.9%*	*0.6%*
Farm/ Vineyard	0.5%	1.6%	-	0.1%	0.4%	1.4%	0.8%	*1.4%*	-
Airport	0.1%	0.1%	-	-	-	0.2%	0.1%	*0.2%*	-
Other	1.3%	3.4%	0.6%	2.1%	2.5%	4.7%	2.9%	*4.3%*	*0.8%*
Trip Total	53,707	12,411	22,939	34,594	105,689	119,657	349,415	*115,936*	*45,102*

APPENDIX A
Telephone Survey Script

APPENDIX B
Mail Survey Package

APPENDIX C
Web Survey

APPENDIX D
Database Codebook

APPENDIX A
Telephone Survey Script

Lethbridge TMP – Telephone Recruit

Hello, this is _____ calling from Synovate retained by the City of Lethbridge to undertake One Day Travel Survey, your household has been randomly selected to take part in the Travel Survey. You may have seen or heard about this short but important survey in the local media.

May I speak with the adult who is most familiar with the daily commuting and local travel habits of the people in your household?

IF 2 PEOPLE ARE EQUALLY FAMILIAR SPEAK TO EITHER REINTRODUCE IF NECESSARY . IF NOT AVAILABLE, SCHEDULE CALLBACK, OTHERWISE CONTINUE.

Today's/tonight's survey will only take a few minutes to see whether your household qualifies. We will then ask you to complete an online survey in a few days time, and you will be eligible to win one of 8 prizes including one grand prize of $500, 6 prizes of $100 each and 1 Apple iPad.

The purpose of the survey is to understand the local travel patterns of residents so that the City's planners can improve the overall transportation efficiency of the City of Lethbridge as a whole. All information obtained in the survey will be grouped together and kept confidential.

IF RESP WANTS TO VERIFY THE STUDY AT ANY TIME: Information about this survey can be found at www.Lethbridge.ca. The results of the survey will be posted in December 2010.

IF RESPONDENT SAYS THEY DO NOT HAVE EMAIL/WEB ACCESS, ENTER BELOW WITHOUT ASKING THIS QUESTION.
Can you tell me whether you have internet access at home, at your work or school or not at all?
IF BOTH HOME AND WORK/SCHOOL, ENTER BOTH CODES

1. Home
2. Work/school
3. Neither *

IF NEITHER: You can still participate in this study. We can mail you a paper survey along with a postage paid return envelope and you will still be entered to win the prize draws.

1. Continue
2. Not interested in receiving/filling out the mail survey THANK AND TERMINATE

The purpose of the survey is to understand the local travel patterns of residents so that the City's planners can improve the overall transportation efficiency of the City of Lethbridgeas a whole. All information obtained in the survey will be grouped together and kept confidential.

1. How many people, including yourself, currently live in your household? IF REFUSE, READ: Your answers will be kept confidential and reported in aggregate with those of others. IF STILL REFUSE, THANK & TERMINATE

DP NOTE: NUMBER OF PEOPLE IN Q.2 SHOULD EQUAL Q1

3. Is your current home a: **READ LIST ONLY IF NECESSARY**

1. Single detached house
2. An apartment or condo
3. A townhouse / row house
4. A duplex
5. A mobile home

4. How many automobiles does your household own or lease?

5. Deleted

6. Deleted

6. And how many of the following does your household have:, (**READ LIST)**

(RANGE 0 TO 10)

a. Bicycles
b. Motorcycles
c. Mopeds or 2-wheeled motorized scooters (e.g. Vespa)
d. Motorized wheelchairs or 4 wheel motorized scooters (e.g. the Rascal)

7 Which of the following best describes your total household income? **READ**

1. Less than $25,000
2. $25,000 to less than $45,000
3. $45,000 to less than $65,000
4. $65,000 to less than $100,000
5. $100,000 or more

DNR 6. Don't know
DNR 7. Refused

Ask only for those who have Internet Access:

8. Lastly can I confirm that the last 4 digits of your phone number are:
_ _ _ _ (**Insert Numbers)**

DNR 1. Correct
DNR 2. Incorrect

IF ASKED WHY WE NEED TO CONFIRM THE NUMBERS: We are confirming the last four digits of your phone number because you will need to enter it as your pass code to access the online survey.

If Incorrect in Q9,

9. What are the last four digits of your phone number?
_____

IF REFUSED: Your information will be kept confidential. We are confirming the numbers because you will need to enter the last four digits of your phone number in order to enter the online survey.

IF STILL REFUSED: THANK AND TERMINATE. Unfortunately you will need to provide the last four digits of your phone number to complete the online survey. However, we do thank you for being willing to participate. Those are all my questions. Thank you and have a nice day.

DP NOTE: PULL IN COMMUNITY/CITY AND POSTAL CODE FROM LISTINGS INTO THIS DATAFILE

The second half of this study involves completing an [INSERT BASED ON INTERNET ACCESS: on-line/paper] survey about your household's local travel behavior for 1 day, _ **specifically, INSERT DAY/DATE (see attached list of days). Are you able to record your household's trips for that date?**

1. **Respondent agrees to assigned date**
2. **Respondent can't do assigned date.**

IF CAN'T DO ASSIGNED DAY: (TO BE ASKED FOR BOTH ONLINE/MAIL RESPONDENTS)
For what reason does <1ST ASSIGNED DATE> not work for you?

1. I'm out of town → FOR ONLINE: RE-ASSIGN SAME WEEKDAY ON FOLLOWING WEEK/FOR MAIL GO TO LIST OF DAYS BUT HAVE INTERVIEWER SUGGEST FIRST WORKING DAY AFTER ORIGINAL ASSIGNED DATE.
2. That's too soon for me → FOR ONLINE: RE-ASSIGN SAME WEEKDAY ON FOLLOWING WEEK/FOR MAIL GO TO LIST OF DAYS BUT HAVE INTERVIEWER SUGGEST FIRST WORKING DAY AFTER ORIGINAL ASSIGNED DATE.
3. Other household members are away
4. Too busy that day
5. I/nobody in household will be traveling that day
6. That's an unusual day (eg. People visiting, events happening, etc)
7. Person in household is sick

96. Other (specify) → FOR ONLINE: RE-ASSIGN SAME WEEKDAY ON FOLLOWING WEEK/FOR MAIL GO TO LIST OF DAYS BUT HAVE INTERVIEWER SUGGEST FIRST WORKING DAY AFTER ORIGINAL ASSIGNED DATE.

FOR CODES 3-7: It's okay if that day is not typical for your household; in fact, we need to include these types of days in our survey.

1. Respondent agrees to assigned day
2. Respondent needs to be reassigned another day

FOR RE-ASSIGNING :
Well if that day won't work, how about (SAME WEEKDAY ON THE FOLLOWING WEEK)? IF THAT WON'T WORK, SUGGEST A DIFFERENT DAY ON LIST STARTING WITH THE DAY AFTER ORIGINAL ASSIGNED DAY, THEN MOVE DOWNWARDS. [PROGRAMMER NOTE: ONLY INCLUDE DATES AFTER THE RESPECTIVE ORIGINAL ASSIGNEDONLINE/MAIL DATE

FOR THOSE WITH INTERNET ACCESS:
May I please have your main or home email address? Be assured that your email will only be used to send you information for this survey. When we send you an email it will be coming from Lethbridge Travel Survey, so please don't delete it by mistake. If you do not get an email by tomorrow (FRI/SAT/SUN INTERVIEWS, INSERT: MONDAY), please check your spam folder or call Synovate's toll free number 1-800-717-1777.

(INTERVIEWER, ENTER EMAIL ADDRESS CAREFULLY AND SPELL BACK TO RESP. TO CONFIRM ACCURACY. EXAMPLE: mary.smith@shaw.ca)

IF REFUSE TO GIVE EMAIL ADDRESS. THANK & TERMINATE.

FOR ALL:
May I (IF SOURCE=INTERPOLATED ADDRESS: confirm / IF SOURCE = OTHER: have) your name and full mailing address please?

CONFIRM (FROM IMPORTED LISTINGS) OR OBTAIN FULL NAME AND MAILING ADDRESS:
IF CONFIRMING ADDRESS AND RESPONDENT ASKS HOW WE OBTAINED THE INFO: The mailing address we have is based on published directories.
Name:_____
Street Address_____
_____
City _____
Postal Code _____

IF RESP. ASKS WHY MAILING ADDRESS IS NEEDED, READ: We need to get your exact location to ensure we include residents from every area.

IF REFUSE TO CONFIRM OR PROVIDE MAILING ADDRESS, THANK AND TERMINATE. Unfortunately you will need to provide your location to complete the online survey. However, we do thank you for being willing to participate. Those are all my questions. Thank you and have a nice day.

ASK IF SOURCE NOT EQUAL INTERPOLATED ADDRESS
May I please ask for the cross street closest to your home please?

INTERVIEWER NOTE: Please remember to record the suffix (i.e. st, ave, rd…etc) and direction (i.e. North, East, South, West) with the street name.

[INSERT HOME STREET] _____
Cross street: _____

Thank you for participating in this important study. Once you have completed the [online/mail] survey, you will be entered to win the prizes. (IF ASKS: ALL WINNERS WILL BE CONTACTED IN NOVEMBER). We will be sending you [a reminder email and a link to the survey/the survey in the mail] in the next few days.

GRID FOR ASSIGNING DIARY DAYS

Interviewing Date	Diary Date That Should Be Assigned	
	Online	Mail
Tues, Sep 14	Fri, Sep 17	Fri, Sep 24
Wed, Sep 15	Fri, Sep 17	Fri, Sep 24
Thurs, Sep 16	Mon, Sep 20	Mon, Sep 27
Fri, Sep 17	Tues Sep 21	Tues, Sep 28
Sat, Sep 18	Tues Sep 21	Tues, Sep 28
Sun, Sep 19	Wed, Sep 22	Wed, Sep 29
Mon, Sep 20	Wed, Sep 22	Wed, Sep 29
Tues, Sep 21	Thurs, Sep 23	Thurs, Sep 30
Wed, Sep 22	Fri, Sep 24	Fri, Oct 1
Thurs, Sep 23	Mon, Sep 27	Mon, Oct 4
Fri, Sep 24	Thurs, Sep 30	Thurs, Oct 7
Sat, Sep 25	Tues Sep 28	Tues, Oct 5
Sun, Sep 26	Fri, Oct 1	Fri, Oct 8
Mon, Sep 27	Wed, Sep 29	Wed, Oct 6
Tues, Sep 28	Mon, Oct 4*	Mon, Oct 4
Wed, Sep 29	Fri, Oct 1	Fri, Oct 8
Thurs, Sep 30	Tues, Oct 5	Tues, Oct 12*
Fri, Oct 1	Wed, Oct 6	Wed, Oct 13*
Sat, Oct 2	Thurs, Oct 7	Thurs, Oct 14**
Sun, Oct 3	Thurs, Oct 7	Thurs, Oct 14**
Mon, Oct 4	Wed, Oct 6	Wed, Oct 13*
Tues, Oct 5	Thurs, Oct 7	Thurs, Oct 14*
Wed, Oct 6	Fri, Oct 8	Fri, Oct 15*
Thurs, Oct 7	Mon, Oct 18**	Mon, Oct 18**
Fri, Oct 8	Mon, Oct 18**	Mon, Oct 18**

NOTE: NO DIARY ASSIGN ON MONDAY OCT 11 (THANKSGIVING).

INTERVIEWER: IF ONLINE SURVEY RESP. CANNOT DO OR REFUSES THE ASSIGNED DAY, ASSIGN THE SAME WEEKDAY OF THE FOLLOWING WEEK (e.g. can't do Mon Sep 27, then assign Mon, Oct 4).

INTERVIEWER: IF ONLINE SURVEY RESP STILL CANNOT DO OR REFUSES SECOND OFFERED DAY OR MAIL SURVEY RESP REFUSES INITIAL ASSIGNED DAY ASK: How about (INTERVIEWER: suggest the first available on list, then work downwards if not suitable for respondent)? ENTER RESPONDENT'S SELECTED DAY/DATE

***INTERVIEWER: IF RESP CANNOT DO OR REFUSES THE ASSIGNED DAY, ASSIGN THE NEXT AVAILABLE DATE ON LIST, ASK:** How about (INTERVIEWER: suggest the first available on list, then work downwards if not suitable for respondent). **If it still doesn't work, Thank and Terminate.**

****THANK AND TERMINATE IF FIRST ASSIGNED DATE DOES NOT WORK.**

*/** THANK & TERMINATE: Unfortunately, we are near the end of the survey period and there's not enough time to conduct the survey. However, we do thank you for being willing to participate.

APPENDIX B
Mail Survey Package

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN 2050

September/October 2010

Dear Resident:

2010 City Of Lethbridge Household Trip Diary Survey

Thank you for agreeing to take part in the **One Day Travel Survey**. The survey is being conducted by **Synovate**, a professional research firm, on behalf of the **CITY OF LETHBRIDGE**.

Having accurate and up to date information on the travel patterns of residents will enable City of Lethbridge to assess current transportation needs, identify trends and develop transportation strategies and improvements.

The survey is easy – it's simply a log or diary of the trips your household makes on a single day, namely: **October 07, 2010.**

It doesn't matter if this will be an unusual day for your household (eg. you stay home, have visitors, go to a show, etc.) – in fact, we need to include the full range of travel behaviours in our study. The information you provide will be grouped together with others and be kept completely confidential.

Once you have completed the enclosed survey and mailed it back to Synovate in the postage-paid return envelope, you will be entered to **win one of 8 prizes**:

- **1 grand prize of $500**
- **6 prizes of $100 each**
- **1 Apple iPad**

More information about the study can be found at the City of Lethbridge website at www.lethbridge.ca. If you have additional questions about the survey, please feel free to call Synovate, toll-free at 1-800-717-1777.

Thank you in advance for your participation. Your time and participation are much appreciated.

Ahmed Ali, P.Eng., PTOE
Traffic Engineering & Transportation Planning Manager
Infrastructure Services
City of Lethbridge

synovate
Research reinvented

How to participate in this study:

1. Check at the top right hand corner of the survey sheet(s) for your assigned diary date. This is the date on which you need to record all the trips you make. On that date you (and the other adult household members) may want to have a time piece and a paper and pencil with you all day to keep track of your trip details.
2. At the end of your assigned diary date or the next morning, please fill in the survey for all household members.
3. Place all the completed survey sheets into the postage-paid envelope provided and drop it in a mailbox.
4. Once we receive your completed surveys, your name will be entered into the prize draw to win one of 8 prizes.

Frequently Asked Questions:

Do I need to fill in the entire survey to qualify for the prize draw?

Yes, it is important that you fill in all the required information so that we have a complete profile of your household's travel patterns!

When will the prize winners be announced?

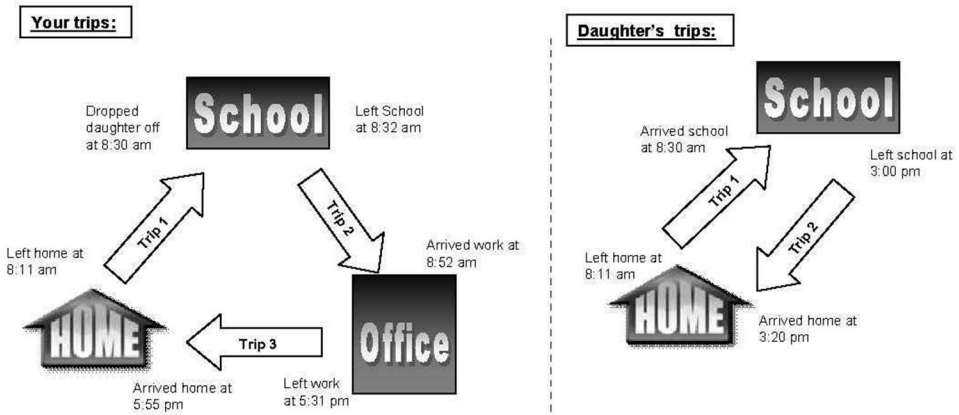
December 2010

What if I don't want to provide personal information, such as my income?

Please be assured that all information collected will be kept completely confidential and anonymous. Information such as income and street addresses are critical to ensuring that we have a good cross-section of residents participating in the study. In no way will your personal information be divulged.

What constitutes a trip?

For this study, a trip means you and/or another household member left one location and arrived at another. For example, if you left home, dropped off your daughter at school, went to work and then returned home, these trips would be recorded as follows:



What <u>doesn't</u> count as a trip?

The following do not count as trips:

- Walking a dog
- Walking between a parking lot and your destination
- Walking to or from transit stops
- Jogging or biking in your neighbourhood for recreational purposes
- Moving around campus

My son/daughter made all the same trips as I did that day, so do I need to fill out a trip survey sheet for him or her as well?

Yes, every member of your household has to have a survey sheet filled out for the assigned diary date.

PLEASE FILL OUT THIS FORM FOR EACH PERSON IN HOUSEHOLD

Trip Form For: Bob A

Please record the trips made by this person on Monday October 18, 2010
Your diary date

Did this person make any trips on Monday October 18, 2010 **?** ☐ Yes ☐ No (e.g. stayed home or was out of town all day) [LEAVE TABLE BLANK]

Please refer to the EXAMPLE PAGE TO assist you in completing this form.
Note: A trip is one-way travel to a destination (for example, a non-stop trip from home to work).

STARTING LOCATION **Location**: If this trip started from home or from or work, write "Home" or "Work #1" or "Work #2". Otherwise, give precise address OR nearby intersection OR landmark **Location type:** *(Please write **1 for house/apartment**. For other location type, please refer to location type list below.)*	I started my first trip from: Home Location Code #1 House

END LOCATION **End Location**: Give precise address OR nearby intersection OR landmark. If trip ended at home or work, write "Home", "Work #1" or "Work #2".	I went to: Galbraith Elementary School	Next I went to: Work #1	Next I went to: ABC Restaurant 1238th Ave N, Lethbridge	Next I went to: Work #1	Next I went to: Home	Next I went to:	Next I went to:	Next I went to:
Location type: (*Choose one, write in the code #*) 1. House/apartment 2. Office building 3. Industrial/factory 4. School 5. Store/mall/dining/theatre 6. Daycare 7. Hospital/medical 8. Bank/financial 9. Religious institution 10. Farm/vineyard 11. Indoor rec/gym 12.Outdoor rec (park, beach, golf) 13. Airport	Location Code #4 School	Location Code #2 Office	Location Code #5 Restaurant	Location Code #2 Office	Location Code #1 House	Location Code	Location Code	Location Code
Main Trip Purpose: (*Choose one, write in the code #)* 1. To work 2. During work/bus. trips 3. To study 4. To drive someone/pick-up 5. Personal (eg. Social, ent., shop, medical) 6. To go home	Trip Purpose: #4 DropOff	Trip Purpose: #1 Work	Trip Purpose: #5 Eat	Trip Purpose: #1 Work	Trip Purpose: #6 GoHOme	Trip Purpose:	Trip Purpose:	Trip Purpose:
Method of travel: (*Choose main mode of transportation)* 1. Automobile – driver 2. Automobile – passenger 3. Commercial vehicle driver 4. Transit bus 5. School bus 6. Bicycle 7. Rollerblade/skateboard 8. Walking 9. Taxi/airport shuttle 10. Motorcycle/moped	Traveled by: #1 Driver	Traveled by: #1 Drive	Traveled by: #8 Walk	Traveled by: #8 Walk	Traveled by: #1 Driver	Traveled by:	Traveled by:	Traveled by:
If by automobile: Write in the total # of people in car, including driver (eg. driver plus one passenger=2)	# in car 2	# in car 1	# in car n/a	# in car n/a	# in car 1	# in car	# in car	# in car
Start time: Write in Exact Time you left the start location. *Be sure to circle AM or PM!*	Left start location at: 8:00 (AM) PM	Left start location at: 8:20 (AM) PM	Left start location at: 1:00 AM (PM)	Left start location at: 2:00 AM (PM)	Left start location at: 5:01 AM (PM)	Left start location at: AM PM	Left start location at: AM PM	Left start location at: AM PM
Arrival time: Write in Exact Time you arrived at this destination. *Be sure to circle AM or PM!*	Arrived at: 8:15 (AM) PM	Arrived at: 8:45 (AM) PM	Arrived at: 1:15 AM (PM)	Arrived at: 2:15 AM (PM)	Arrived at: 5:24 AM (PM)	Arrived at: AM PM	Arrived at: AM PM	Arrived at: AM PM
Where did you go next?	Go to next column	Go to next column	Go to next column	Go to next column	Go to next column	Go to next column	Go to next column	If 9+ trips, photocopy or call 1-800-717-1777

PLEASE REMEMBER TO FILL IN THE OTHER SIDE

PLEASE FILL OUT THIS FORM FOR EACH PERSON IN HOUSEHOLD AGED 5 OR OLDER

Person Profile For: Bob A
First name or initials

Please write in home phone number (403) 123 - 4567
(This will only be used for verification if necessary.)

1. Gender of this person: ☑ Male ☐ Female
2. Age of this person 38 years
3. Person taken public transit in the past 30 days? ☑ Yes ☐ No
4. Person has a valid driver's license? ☐ Yes ☐ No ☐ N/A (<16 years)

7. Person is:
(Indicate all that apply)
- ☑ 1 Working full time
- ☐ 2 Working part time
- ☐ 3 Full time student
- ☐ 4 Part time student
- ☐ 5 Unemployed
- ☐ 6 Retired

9. Did this person make any trips on Monday October 18, 2010 ? ☑ Yes ☐ No (e.g. stayed home or was out of town all day)
If no trips were made by this person, simply write "NO TRIPS" in large letters on the other side of this page.

10. **If this person works, please list their workplace(s)**

Work #1 Name: ABC Company LTd.
Address or cross streets #123 456 8th Ave.
Municipality Lethbridge

Work #2 Name:
Address or cross streets
Municipality

11. **If this person is a student, please list their school(s)**

School #1 Name:
Address or cross streets
Municipality

School #2 Name:
Address or cross streets
Municipality

PLEASE REMEMBER TO FILL IN THE OTHER SIDE

PLEASE FILL OUT THIS FORM FOR EACH PERSON IN HOUSEHOLD

Please record the trips made by this person on Wednesday October 13, 2010
Your diary date

Trip Form For: _____ (First name or initials) Age Of This Person: ___ (Years) Gender: ☐ Male ☐ Female Please write in home phone number (403) ___-____ (This will only be used for verification if necessary.)

Person is: **(Indicate all that apply)**: ☐[1] Working from home ☐[2] Working outside of home ☐[3] Student ☐[4] Unemployed ☐[5] Retired ☐[6] Infant/Toddler

Did this person make any trips on **Wednesday October 13, 2010?** ☐ Yes ☐ No (e.g. stayed home or was out of town all day) [LEAVE TABLE BLANK AND FLIP PAGE]

Please refer to the EXAMPLE PAGE TO assist you in completing this form.
Note: A trip is one-way travel to a destination (for example, a non-stop trip from home to work).

STARTING LOCATION **Location**: If this trip started from home or from or work, write "Home" or "Work #1" or "Work #2". Otherwise, give precise address OR nearby intersection OR landmark	I started my first trip from:
Location type: *(Please write **1 for house/apartment**. For other location type, please refer to location type list below.)*	Location Code

END LOCATION **End Location**: Give precise address OR nearby intersection OR landmark. If trip ended at home or work, write "Home", "Work #1" or "Work #2".	I went to:	Next I went to:	Next I went to:	Next I went to:	Next I went to:	Next I went to:	Next I went to:	Next I went to:
Location type: (*Choose one, write in the code #*) 1. House/apartment 8. Bank/financial 2. Office building 9. Religious institution 3. Industrial/factory 10. Farm/vineyard 4. SchoolCollege 11. Indoor rec/gym 5. Store/mall/dining/theatre 12.Outdoor rec (park, beach, golf) 6. Daycare 13. Airport 7. Hospital/medical	Location Code	Location Code	Location Code	Location Code	Location Code	Location Code	Location Code	Location Code
Main Trip Purpose: (*Choose one, write in the code #)* 1. To work 5. Personal (eg. Social, ent., shop, medical) 2. During work/business trips 6. To go home 3. To study 4. To drive someone/pick-up	Trip Purpose:	Trip Purpose:	Trip Purpose:	Trip Purpose:	Trip Purpose:	Trip Purpose:	Trip Purpose:	Trip Purpose:
Method of travel: (*Choose main mode of transportation)* 1. Automobile – driver 7. Rollerblade/skateboard 2. Automobile – passenger 8. Walking 3. Commercial vehicle driver 9. Taxi/airport shuttle 4. Transit bus 10. Motorcycle/moped 5. School bus 6. Bicycle	Traveled by:	Traveled by:	Traveled by:	Traveled by:	Traveled by:	Traveled by:	Traveled by:	Traveled by:
If by automobile: Write in the total # of people in car, including driver (eg. driver plus one passenger=2)	# in car _____	# in car _____	# in car _____	# in car _____	# in car _____	# in car _____	# in car _____	# in car _____
Start time: Write in Exact Time you left the start location. *Be sure to circle AM or PM!*	Left start location at: AM PM	Left start location at: AM PM	Left start location at: AM PM	Left start location at: AM PM	Left start location at: AM PM	Left start location at: AM PM	Left start location at: AM PM	Left start location at: AM PM
Arrival time: Write in Exact Time you arrived at this destination. *Be sure to circle AM or PM!*	Arrived destination at: AM PM	Arrived destination at: AM PM	Arrived destination at: AM PM	Arrived destination at: AM PM	Arrived destination at: AM PM	Arrived destination at: AM PM	Arrived destination at: AM PM	Arrived destination at: AM PM
Where did you go next?	Go to next column ➘	Go to next column ➘	Go to next column ➘	Go to next column ➘	Go to next column ➘	Go to next column ➘	Go to next column ➘	If 9+ trips, photocopy or call 1-800-717-1777

PLEASE REMEMBER TO FILL IN THE OTHER SIDE

PLEASE FILL OUT THIS FORM FOR EACH PERSON IN HOUSEHOLD

Person Profile For: _____
First name or initials

Please write in home phone number (403) _____ - _____
(This will only be used for verification if necessary.)

1. Gender of this person: ☐ Male ☐ Female
2. Age of this person _____ years
3. Person taken public transit in the past 30 days? ☐ Yes ☐ No
4. Person has a valid driver's license? ☐ Yes ☐ No ☐ N/A (<16 years)

7. Person is:
(Indicate all that apply)
- ☐[1] Working full time
- ☐[2] Working part time
- ☐[3] Full time student
- ☐[4] Part time student
- ☐[5] Unemployed
- ☐[6] Retired

9. **If this person works, please list their workplace(s)**

Work #1 Name: _____
Address or cross streets _____
Municipality _____

Work #2 Name: _____
Address or cross streets _____
Municipality _____

10. **If this person is a student, please list their school(s)**

School #1 Name: _____
Address or cross streets _____
Municipality _____

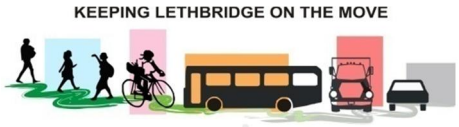
School #2 Name: _____
Address or cross streets _____
Municipality _____

PLEASE REMEMBER TO FILL IN THE OTHER SIDE

APPENDIX C
Web Survey

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE



TRANSPORTATION MASTER PLAN 2050

Welcome to the 1-Day Travel Survey

Please enter your password: XXXX (It's the last 4 digits of your home phone number)

Please enter the LAST FOUR DIGITS of your phone number. If the password is not working or if you encounter a problem with the survey, please call our toll free number at 1-800-717-1777 or email us at Lethbridgetravel@websurveys.ca.

NOTE: Your information has been fully secured. You have received a unique link to the survey website and this is verified by a matching password.

Have you read this already? CLICK "HERE" TO SKIP TO SURVEY

September/October 2010

Dear Resident:

2010 City Of Lethbridge Household Trip Diary Survey

Thank you for agreeing to take part in the **One Day Travel Survey**. The survey is being conducted by **Synovate**, a professional research firm, on behalf of the **CITY OF LETHBRIDGE**.

Having accurate and up to date information on the travel patterns of residents will enable City of Lethbridge to assess current transportation needs, identify trends and develop transportation strategies and improvements.

The survey is easy – it's simply a log or diary of the trips your household makes on a single day, namely: [INSERT DIARY DAY].

It doesn't matter if this will be an unusual day for your household (eg. you stay home, have visitors, go to a show, etc.) – in fact, we need to include the full range of travel behaviours in our study. The information you provide will be grouped together with others and be kept completely confidential.

Once you have **completed the survey on-line** you will be entered to **win one of 8 prizes**:

- **1 grand prize of $500**
- **6 prizes of $100 each**
- **1 Apple iPad**

More information about the study can be found at the City of Lethbridge website at www.lethbridge.ca.

Thank you in advance for your participation. Your time and participation are much appreciated.

Ahmed Ali, P.Eng., PTOE
Traffic Engineering & Transportation Planning Manager
Infrastructure Services
City of Lethbridge

If you have any additional questions about the survey, please feel free to call Synovate (toll-free) at 1-800-717-1777.

TO CHECK/ENTER YOUR HOUSEHOLD INFORMATION CLICK “HERE”.
>>> You can do this before your assigned diary day

TO ENTER YOUR TRIP INFORMATION FOR YOUR DIARY DAY, CLICK “HERE”.
>>> You can only do this at the end of your assigned diary day or after that day has passed

Trip Diary Suggestions

- Please print out a trip diary form for EACH member of your household – this will help them keep track of their trips during that day. Press here for the printer-friendly form. After your diary day is over, refer to your filled out forms to help you complete the on-line survey.

- For an example of a completed trip diary form, press here.

- On your household’s trip diary day, it helps to have each person carry some sort of a timepiece (eg. a watch or cellphone) in order to accurately record when trips start and finish.

FOR RESPONDENTS WHO MISSED ORIGINAL DATE AND WERE ASSIGNED NEW DATE:

A. Before we begin, did you or other members of your household make any trips on the original date that was assigned to you, which was (INSERT ORIGINAL DATE), or did you and your entire household not make any trips on that date?

1. We made trips CONTINUE WITH SURVEY REFERENCING NEW DATE
2. Entire household did not make any trips ASK QB
3. Can't recall CONTINUE WITH SURVEY REFERENCING NEW DATE

B. Why did you and other members of your household not make any trips on that original date of ORIGINAL DIARY DATE?

1. Out of town for entire day
2. Sick/Illness
3. No need to leave home
4. Other (specify)

RESPONDENTS WHO DID NOT MAKE ANY TRIPS ON THE ORIGINAL DIARY DATE (QA = 2)- GO THRU HOUSEHOLD INFO SECTION, FILL OUT PERSON DATA SECTION AND THEN FINISH (THEY SKIP TRIP INFO SECTION).

Household Information

During the telephone survey you provided information about your household. That information is shown below, along with your address. Please take a moment to ensure this information is correct. **If information is missing or incorrect, please change it here before clicking the CONTINUE button.**

Please verify your name and address:

Name _____
Address _____
City _____
Province _____
Postal code _____

H1. How many people, including yourself, currently live in your household?

_____

H2. Please complete the following information for each household member

(Programming Note: Those under 16 should automatically default to no for driver's license)

	Gender	Age - Please enter number between 0 and110 years	Has taken public transit in the past 30 days?	Has a valid driver's license?
Person 1 (You)	M F		Yes No	Yes No
Person 2	M F		Yes No	Yes No
Person 3	M F		Yes No	Yes No
Person 4	M F		Yes No	Yes No
Person 5	M F		Yes No	Yes No
Person 6	M F		Yes No	Yes No
Person 7	M F		Yes No	Yes No
Person 8	M F		Yes No	Yes No
Person 9	M F		Yes No	Yes No
Person 10	M F		Yes No	Yes No

H3. Is you current home a:

1. Single detached house
2. An apartment or condo
3. A townhouse
4. A duplex
5. A mobile home

H6. And how many, if any, of each of these are in your household?

		Number
1.	Cars owned/leased	_____
2.	Bicycles	_____
3.	Motorcycles	_____
4.	Mopeds or 2-wheeled motorized scooters (e.g. Vespa)	_____
5.	Motorized wheelchairs or 4 wheel motorized scooters (e.g. the Rascal)	_____

H7. Which of the following best describes your total household income?

1. Less than $25,000
2. $25,000 to less than $45,000
3. $45,000 to less than $65,000
4. $65,000 to less than $100,000
5. $100,000 or more
6. Don't know
7. Don't want to say

First, the (INSERT **FIRST GENDER / AGE COMBO**)

1a. Is this person (indicate all that apply):

Working full time
Working part time
A full time student
A part time student
Unemployed
Retired

ONLY ASK Q3 OF THOSE WORKING FULL OR PART TIME
3. Please enter the name and address or nearest cross streets of this person's **workplace(s).**

When entering the location or Street name, type a few letters from the beginning of the desired name. A list of names that match what you have typed should appear. When you see the name that you want, click on it. If the name doesn't appear, just type the full name.

Work 1
Company Name: _____
MUNICIPALITY: _____ - **Programming Note: Default to Lethbridge with option to change if needed**
Cross Streets: OR ENTER Proper Address:
_____ and _____ _____ _____
(address number*) (street name)

Type of location:
House or apartment
Office Building
Industrial
School
Store, shopping more, restaurant or theatre
Daycare
Hospital or medical
Bank or financial
Religious institution
Farm or vineyard
Indoor recreational (i.e. gym)
Outdoor recreational (i.e. park, beach, golf course)
Airport, long-distance bus depot
Other

Work 2 (if applicable)
Company Name: _____
MUNICIPALITY: _____ **(Default to Lethbridge)**

Cross Streets: OR ENTER Proper Address:

_____ and _____ _____ _____

(address number*) (street name)

Type of location:
House or apartment
Office building
Industrial or factory
School or college
Store, shopping more, restaurant or theatre
Daycare
Hospital or medical
Bank or financial
Religious institution
Farm or vineyard
Indoor recreational (ex. gym)
Outdoor recreational (ex. park, beach, golf course)
Airport

REQUIRE THAT THE MUNICIPALITY AND ALSO CROSS STREET OR ADDRESS IS OBTAINED BEFORE LEAVING PAGE. IF THEY MISS SOMETHING PROVIDE THE FOLLOWING PROMPT(S):

Please indicate the municipality **(Default to Lethbridge)**
Please specify the cross-streets or address
Please use the pull down menu to indicate the type of location

ONLY ASK Q4 OF FULL AND PART TIME STUDENTS
4. Please enter the name and address or near cross streets of the **school(s) attended by this person.**

When entering the Location or Street name, type a few letters from the beginning of the desired name. A list of names that match what you have typed should appear. When you see the name that you want, click on it. If the name doesn't appear, just type the full name.

School 1
School Name: _____

School 2 (if appliable)
School Name: _____

If school name is not on list:

Please enter the address for (INSERT SCHOOL 1 NAME):

This is for the (INSERT **FIRST GENDER/AGE COMBO)**.

MUNICIPALITY: _____ **(Default to Lethbridge)**
Cross Streets: OR ENTER Proper Address:
_____ and _____ _____ _____
(address number*) (street name)

IF APPLIABLE: Please enter the address for (INSERT SCHOOL 2 NAME):

This is for the (INSERT **FIRST GENDER/AGE COMBO)**.

MUNICIPALITY: _____ (**Default to Lethbridge)**
Cross Streets: OR ENTER Proper Address:
_____ and _____ _____ _____
(address number*) (street name)

REPEAT QNS 1-8 FOR EACH HOUSEHOLD MEMBER. THE HOUSEHOLD MEMBER (E.G. FEMALE, Age 23) SHOULD APPEAR ON EVERY SCREEN TO REMIND THE RESPONDENT WHO THEY ARE FILLING OUT INFORMATION ABOUT.

Now I'd like to ask you about (NEXT GENDER/AGE COMBO)

Thank you for completing the household information section of the survey.

Please don’t forget to do the trip survey at the end of [insert diary day] or the following day.

If you are ready to do that now (your diary day is over) please press here:

DO TRIP SURVEY NOW

If that day has not yet arrived or finished or you can’t enter the information right now, please press here

DO TRIP SURVEY LATER

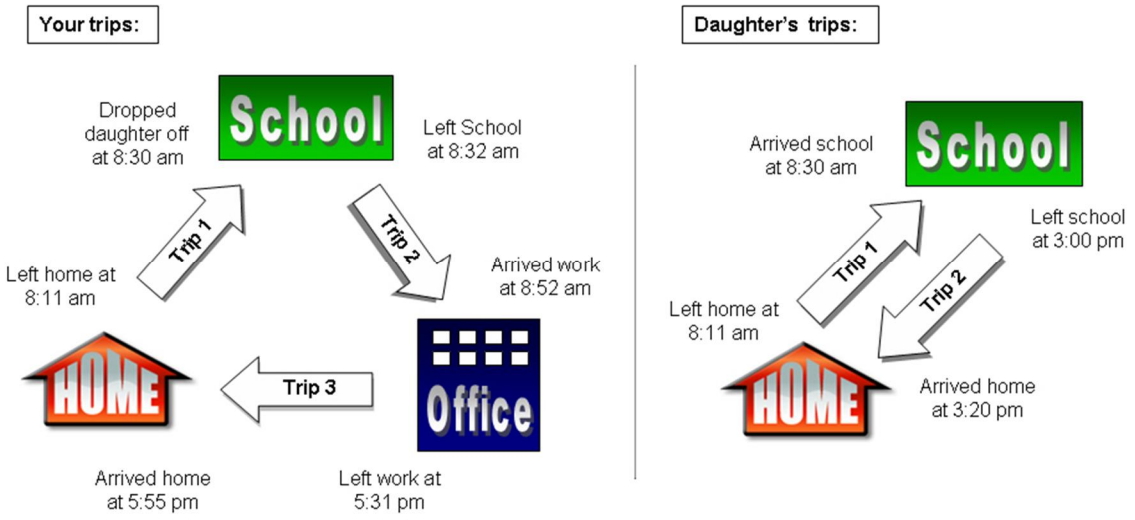
POP-UP: To do the trip survey on or after your diary day, just click on the same survey link provided in the email.

Trip Survey

For this section, you will need to know or have on hand the trip information (the destinations, travel modes, and trip times) for everyone in your household for INSERT DIARY DATE.

We now need to find out about all the trips your household made on INSERT DIARY DATE.

A trip means you and/or another household member left one location and arrived at another. For example, if you left home, dropped off your daughter at school, went to work and then returned home, these trips would be recorded as follows:



What <u>doesn't</u> count as a trip?

- Walking a dog
- Walking between a parking lot and your destination
- Walking to or from transit stops
- Jogging or biking in your neighbourhood for recreational purposes
- Moving around campus

First, the trips made on INSERT DIARY DATE by the (INSERT FIRST GENDER / AGE COMBO).

1. Did this person make any trips on INSERT DIARY DATE?
   Note: If you are not sure about this person's travel, please ask them or make your best guess.

   Yes- made a trip/trips GO TO Q.2
   No – stayed home or was out of town all day

IF NO TRIPS MADE BY THIS PERSON, ASK ABOUT TRIP DATA FOR NEXT HH PERSON, STARTING WITH INTRO PRIOR TO Q.1

2. This person's first trip of the day **started at:**

Your home → GO TO NEXT QUESTION

LIST ALL THE HH WORK AND SCHOOL LOCATIONS → GO TO NEXT QUESTION

OR

Other→ GO TO NEXT SCREEN

Enter location name _____ (**Begin typing in the name. When the correct name appears click on it. Otherwise type in the full name.**)

Example: Friend's house; Superstore; McDonald's…etc.

(PROGRAMMING: End location must not be the same as starting location)

IF CHOSE A RECOGNIZED LANDMARK FROM THE LIST GO TO NEXT QUESTION (Q3)

IF DID NOT CHOOSE A LANDMARK: Please provide the location of [INSERT LOCATION NAME THAT WAS UNRECOGNIZED]:

MUNICIPALITY: _____ - **(Default to Lethbridge with Option to change)**
Cross Streets: OR ENTER Proper Address:
_____ and _____ _____ _____

(address number*) (street name)

Type of location:
House or apartment
Office building
Industrial or factory
School or college
Store, shopping more, restaurant or theatre
Daycare
Hospital or medical
Bank or financial
Religious institution
Farm or vineyard
Indoor recreational (ex. gym)
Outdoor recreational (ex. park, beach, golf course)
Airport

3.0 This trip ended at (**destination**):
SELECT OR INDICATE ONE OF THE FOLLOWING:

Your home → GO TO NEXT QUESTION

LIST ALL THE HH WORK AND SCHOOL LOCATIONS → GO TO NEXT QUESTION

OR

Other→ GO TO NEXT SCREEN

Enter location name _____ (**Begin typing in the name. When the correct name appears click on it. Otherwise type in the full name.**)

Example: Friend's house; Superstore; McDonald's…etc

IF CHOSE A RECOGNIZED LANDMARK FROM THE LIST GO TO NEXT QUESTION (Q3)

IF DID NOT CHOOSE A LANDMARK: Please provide the location of [INSERT LOCATION NAME THAT WAS UNRECOGNIZED]:

MUNICIPALITY: _____**(Default to Lethbridge with Option to change)**

Cross Streets: OR ENTER Proper Address:
_____ and _____ _____ _____
(address number*) (street name)

Type of location:
House or apartment
Office building
Industrial or factory
School or college
Store, shopping more, restaurant or theatre
Daycare
Hospital or medical
Bank or financial
Religious institution
Farm or vineyard
Indoor recreational (ex. gym)
Outdoor recreational (ex. park, beach, golf course)
Airport

4.0 **Main Trip Purpose:** *Choose only one*:

To work
During work/business trips
To study
To drive someone/pick up
Personal (e.g. social, entertainment, shop, medical)
To go home

5.0 At what time did this **trip start**?

Enter the exact time to the nearest minute, for example, 8:45 or 845.

___ *am* *pm*

6.0 And at what time did you arrived at this location?
Enter the exact time to the nearest minute, for example, 8:45 or 845.

_____ am pm

(PROGRAMMING: If end time is earlier than start time → Please note the starting time of this trip is (insert start time).

(PROGRAMMING: If start time is earlier than end time of previous trip→ Please note you arrived (insert previous destination name) at (insert end time of previous trip).)

Please convert time to 24hours when extracting data.)

7.0 What was the method of transportation for this trip? *If you use more than one modes of transportation, please select the main mode used for this trip.*

Automobile - driver
Automobile - passenger
Commercial vehicle driver
Transit bus
School bus
Bicycle
Roller blades/skateboard
Walking
Taxi/airport shuttle
Motorcycle/moped

(PROGRAMMING: If Automobile- driver but without driver's license or under 16 → Please note (Person #, Age #) do not have a valid driver's license/is under the age of 16.)

IF AUTOMOBILE OR COMMERCIAL VEHICLE ASK:

8.0 Please indicate **the total number of people in the vehicle**, including the driver (e.g. "1" means drove alone).

Number of People: _____

(**PROGRAMMING:** If Automobile passenger and 1 people or less → Please be aware that the total number of people in the vehicle INCLUDE THE DRIVER as well).

FOR TRIP 2 ONWARDS, INSERT THIS QUESTION INSTEAD OF Q3.0

3.1. What was the next destination?

Starting Point: (INSERT THE LAST DESTINATION (Q3) FROM PREVIOUS TRIP)

Destination:
Your home → GO TO NEXT QUESTION

LIST ALL THE HH WORK AND SCHOOL LOCATIONS → GO TO NEXT QUESTION

Nowhere -- that was the last trip made that day (by midnight) → SEND TO CONCLUSION SCREEN/NEXT HH MEMBER TRIP DATA; HIGHLIGHT AND BOLD!

Please remember to include your return home trip.

[PROGRAMMING IF SELECT NOWHERE: If previous trip purpose was not "To go home", prompt with "Please remember to include your return home trip. If you have already done so, click OK. If not, please fill it out here."

OR

Other → GO TO NEXT SCREEN

Enter location name _____ (**Begin typing in the name. When the correct name appears click on it. Otherwise type in the full name.**)

Example: Example: Friend's house; Superstore; McDonald's…etc.

(Destination must not be the same as Starting Location)

CONCLUSION SCREEN

Thanks so much for participating in this survey. Your input will be invaluable in understanding the travel patterns of the region. Your name will be entered to win several prizes. Winners will be contacted by email or phone in November 2010.

THANK YOU
Please click here to submit: [INSERT SUBMIT BUTT

(Note: If you finished sooner than you expected that's because the progress bar is you are in the survey and is based on a larger household and/or on m

[PROGRAMMING: REDIRECT TO WWW.LETHBRIDGE.CA A SUCESSFULLY]

APPENDIX D
Database Codebook

Household Database Structure

Detailed Codebook - Household

Code	Description		
	HHDistrict		
1	West North		
2	West South		
3	North West		
4	North East		
5	Centre		
6	South West		
7	South East		
8	CMA North		
9	CMA South		

Code	Description		
	Home		
1	Single Detached House		
2	Apartment/Condo		
3	Townhouse/Row House		
4	Duplex		
5	Mobile Home		

	#_Cars		
	Code absolute	99=Refused	

	#_Bikes		
	Code absolute	99=Refused	

	#_Motor		
	Code absolute	99=Refused	

	#_Moped		
	Code absolute	99=Refused	

	#_Wheel		
	Code absolute	99=Refused	

Detailed Codebook – Household (continued)

	HH_Inc		
Code	Description		
1	Less than $25,000		
2	$25,000 to less than $45,000		
3	$45,000 to less than $65,000		
4	$65,000 to less than $100,000		
5	$100,000 or more		
6	Don’t know		
7	Don't want to say		

	Day_Week		
Code	Description		
1	Monday		
2	Tuesday		
3	Wednesday		
4	Thursday		
5	Friday		

Detailed Codebook – Person

# of Trips	
	Code Absolute

	HHDistrict
Code	**Description**
1	West North
2	West South
3	North West
4	North East
5	Centre
6	South West
7	South East
8	CMA North
9	CMA South

Gender	
Code	**Description**
1	Male
2	Female

Age		
	Code Absolute	**0 - 110 999=Refused**

Transit	
1	Yes
2	No

Detailed Codebook – Person (continued)

DrivLic	
1	Yes
2	No

EmpType	
Code	**Description**
1	Working Full Time
2	Working Part Time
3	Full Time Student
4	Part Time Student
5	Unemployed
6	Retired
7	Toddler

Work1Dist Work2Dist Sch1Dist Sch2Dist	
Code	**Description**
1	West North
2	West South
3	North West
4	North East
5	Centre
6	South West
7	South East
8	CMA North
9	CMA South

Detailed Codebook – Trips

Origin/Destination - Type of Location	
Code	**Description**
1	House or apartment
2	Office building
3	Industrial or factory
4	School or college
5	Store, shopping mall, restaurant, theatre
6	Daycare
7	Hospital or medical
8	Bank or financial
9	Religious institution
10	Farm or vineyard
11	Indoor recreation (ex. gym)
12	Outdoor recreation (ex. park, beach, golf course)
13	Airport
14	Other

Origin/Destination - District	
1	West North
2	West South
3	North West
4	North East
5	Centre
6	South West
7	South East
8	CMA North
9	CMA South

Detailed Codebook – Trips (Continued)

Main Purpose of Trip	
Code	**Description**
1	To work
2	During work/business trip
3	To study
4	To drive someone/pick-up
5	Personal (eg. Social, entertainment, shop, medical)
8	To go home

Trip Start/Arrival Time		
	2400-hour clock	**999 = Don't Know/Refused**

Duration		
	Code Absolute	**(in minutes)**

Transportation Mode	
Code	**Description**
1	Automobile – Driver
2	Automobile – Passenger
3	Commercial vehicle driver
4	Transit bus
5	School bus
6	Bicycle
7	Rollerblade/skateboard
8	Walking
9	Taxi/airport shuttle
11	Motorcycle/moped

Detailed Codebook – Trips (Continued)

People in the car	
Code Absolute	**99=Refused**

Purpose Pairings	
1	To work
2	During work/business trips
3	To study
4	To drive someone/pick-up
5	Personal
8	To go home
11	Work - To work
12	Work - During work/business trip
13	Work - To study
14	Work - To drive someone/pick-up
15	Work - Personal (eg. Social, entertainment, shop, medical)
18	Work - To go home
21	During work/business trip - To work
22	During work/business trip - During work/business trip
23	During work/business trip - To study
24	During work/business trip - To drive someone/pick-up
25	During work/business trip - Personal (eg. Social, entertainment, shop, medical)
28	During work/business trip - To go home
31	To study - To work
32	To study - During work/business trip
33	To study - To study
34	To study - To drive someone/pick-up
35	To study - Personal (eg. Social, entertainment, shop, medical)
38	To study - To go home

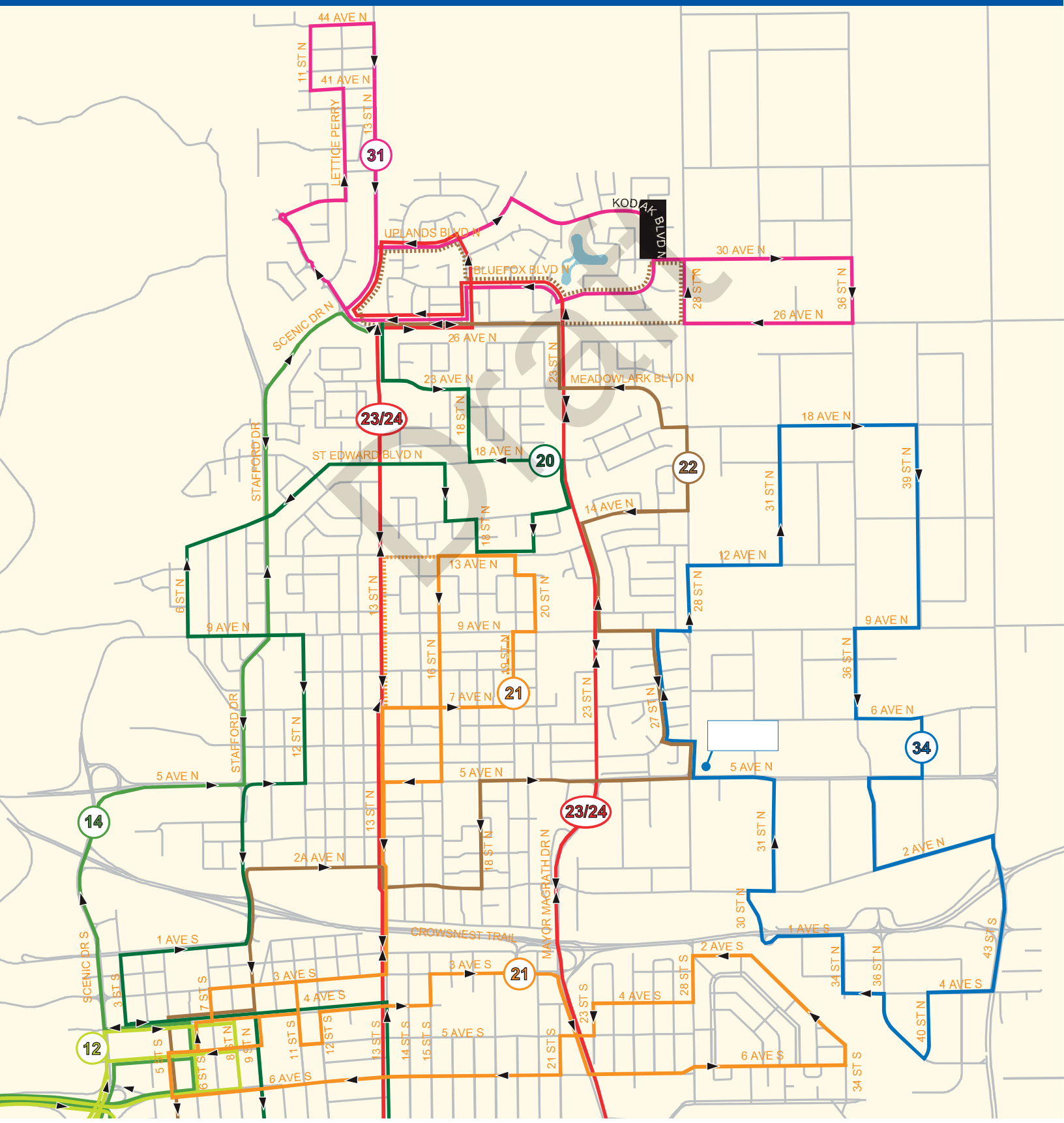
41	To drive someone/pick-up - To work
42	To drive someone/pick-up - During work/business trip
43	To drive someone/pick-up - To study
44	To drive someone/pick-up - To drive someone/pick-up
45	To drive someone/pick-up - Personal (eg. Social, entertainment, shop, medical)
48	To drive someone/pick-up - To go home
51	Personal - To work
52	Personal - During work/business trip
53	Personal - To study
54	Personal - To drive someone/pick-up
55	Personal - Personal (eg. Social, entertainment, shop, medical)
58	Personal - To go home
81	To go home - To work
82	To go home - During work/business trip
83	To go home - To study
84	To go home - To drive someone/pick-up
85	To go home - Personal (eg. Social, entertainment, shop, medical)

C Appendix C - Model Calibration & Validation Report

City of Lethbridge - Map of Transit Routes

West Routes

North Routes



South Routes

Mon Feb 2010 Counts			
Route	Days	Nights	Total
12	2139	127	2266
14	360		360
20	1457	133	1590
21	546	53	599
22	1099	117	1216
23	433		433
24	369		369
30	74		74
31	127		127
32	706	67	773
33	327		327
34	37		37
Total	7674	497	8171

Tues Feb 2010 Counts			
Route	Days	Nights	Total
12	2285	231	2516
14	335		335
20	1559	177	1736
21	623	50	673
22	1220	161	1381
23	454		454
24	381		381
30	78		78
31	131		131
32	723	99	822
33	350		350
34	36		36
Total	8175	718	8893

Wed Feb 2010 Counts			
Route	Days	Nights	Total
12	2160	187	2347
14	351		351
20	1545	138	1683
21	599	49	648
22	1217	155	1372
23	419		419
24	352		352
30	80		80
31	120		120
32	746	109	855
33	308		308
34	34		34
Total	7931	638	8569

Thurs Feb 2010 Counts			
Route	Days	Nights	Total
12	2117	162	2279
14	333		333
20	1472	191	1663
21	632	54	686
22	1216	176	1392
23	429		429
24	319		319
30	82		82
31	138		138
32	724	95	819
33	304		304
34	30		30
Total	7796	678	8474

Fri Feb 2010 Counts			
Route	Days	Nights	Total
12	2125	146	2271
14	343		343
20	1496	218	1714
21	580	51	631
22	1243	200	1443
23	452		452
24	353		353
30	73		73
31	154		154
32	672	85	757
33	291		291
34	30		30
Total	7812	700	8512

Average M-F Feb 2010 Counts						
Route	Days	Nights	Total	M-F Days	M-F Evenings	Weekly Totals
12	2165.2	170.6	2335.8	10826	853	11679
14	344.4	0	344.4	1722	0	1722
20	1505.8	171.4	1677.2	7529	857	8386
21	596	51.4	647.4	2980	257	3237
22	1199	161.8	1360.8	5995	809	6804
23	437.4	0	437.4	2187	0	2187
24	354.8	0	354.8	1774	0	1774
30	77.4	0	77.4	387	0	387
31	134	0	134	670	0	670
32	714.2	91	805.2	3571	455	4026
33	316	0	316	1580	0	1580
34	33.4	0	33.4	167	0	167
Total	7877.6	646.2	8523.8	39388	3231	42619

Sat Feb 2010 Counts			
Route	Days	Nights	Total
12	775	102	877
20	728	103	831
21	272	39	311
22	715	107	822
31	78		78
32	323	55	378
Total	2891	406	3297

Sun Feb 2010 Counts	
Route	Total
12	408
20	476
21	114
22	403
32	242
Total	1643

Feb 2010 Weekly Average	
M-F	42619
Sat	3297
Sun	1643
Total	47559

D Appendix D - Policy Paper

Highway : 3
Control Section : 09
ATR Number : 50030920
Location Description : 0.2 KM W OF 3 & 28 ST SOUTH, LETHBRIDGE
Year : 2010
ATR Efficiency : 100.0 %

Produced : 16-Feb-2011 By CornerStone Solutions Inc.

	Two Way	Westbound	Eastbound
Average Annual Daily Traffic	22177	11284	10893
Average Summer Daily Traffic	23160	11785	11375
Average Daily Traffic by Month			
January	19640	9927	9713
February	20399	10363	10036
March	22763	11592	11171
April	22503	11510	10993
May	22486	11446	11040
June	24192	12259	11933
July	22803	11632	11171
August	23262	11866	11396
September	23086	11735	11351
October	22932	11650	11282
November	21275	10803	10472
December	20676	10568	10108

Peak Hour Traffic	Year Mo Da Hour	Two Way	Westbound	Eastbound
30th Highest Hour	2010.09.28.1600	2482	967	939
100th Highest Hour	2010.03.24.1600	2376	1015	947
90th %ile Hour	2010.10.12.0700	1870	304	593

Highway : 4
Control Section : 07
ATR Number : 60040690
Location Description : 0.5 KM S OF 4 & 512(JAIL ROAD), LETHBRIDGE
Year : 2010
ATR Efficiency : 100.0 %

Produced : 16-Feb-2011 By CornerStone Solutions Inc.

	Two Way	Southbound	Northbound
Average Annual Daily Traffic	15710	7727	7983
Average Summer Daily Traffic	16510	8109	8401
Average Daily Traffic by Month			
January	13618	6750	6868
February	14176	6997	7179
March	15896	7792	8104
April	15683	7601	8082
May	16247	7955	8292
June	17420	8578	8842
July	16066	7867	8199
August	16416	8087	8329
September	16427	8073	8354
October	16412	8125	8287
November	15123	7460	7663
December	14942	7396	7546

Peak Hour Traffic	Year Mo Da Hour	Two Way	Southbound	Northbound
30th Highest Hour	2010.10.19.1600	1766	720	709
100th Highest Hour	2010.09.15.1600	1683	719	729
90th %ile Hour	2010.07.19.1200	1295	535	502

Highway : 3
Control Section : 08
ATR Number : 50030810
Location Description : 2.4 KM W OF 3 & 25 COALHURST
Year : 2010
ATR Efficiency : 79.8 %

Produced : 16-Feb-2011 By CornerStone Solutions Inc.

	Two Way	Westbound	Eastbound
Average Annual Daily Traffic	18711	9446	9265
Average Summer Daily Traffic	19993	10094	9899
Average Daily Traffic by Month			
January	16167	8162	8005
February	16813	8535	8278
March	18374	9325	9049
April	18855	9519	9336
May	19194	9743	9451
June	20415	10316	10099
July	20817	10541	10276
August	20074	10091	9983
September	19462	9778	9684
October	19704	9889	9815
November	16948	8520	8428
December	17545	8854	8691

Peak Hour Traffic	Year Mo Da Hour	Two Way	Westbound	Eastbound
30th Highest Hour	2010.09.17.1700	2024	1076	855
100th Highest Hour	2010.08.06.1500	1822	799	817
90th %ile Hour	2010.09.26.1800	1389	624	770

Highway : 3
Control Section : 09
ATR Number : 50030910
Location Description : W OF 3 & OLD MAN RIVER BRIDGE, LETHBRIDGE
Year : 2010
ATR Efficiency : 100.0 %

Produced : 16-Feb-2011 By CornerStone Solutions Inc.

	Two Way	Westbound	Eastbound
Average Annual Daily Traffic	31338	15453	15885
Average Summer Daily Traffic	33506	16571	16935
Average Daily Traffic by Month			
January	27081	13295	13786
February	28201	13848	14353
March	31246	15383	15863
April	31586	15728	15858
May	32354	16009	16345
June	35462	17576	17886
July	33659	16727	16932
August	33314	16432	16882
September	32780	16129	16651
October	32751	16070	16681
November	28713	14055	14658
December	28703	14079	14624

Peak Hour Traffic	Year Mo Da Hour	Two Way	Westbound	Eastbound
30th Highest Hour	2010.04.30.1600	3400	1641	1413
100th Highest Hour	2010.09.28.1600	3239	1417	1196
90th %ile Hour	2010.10.22.1400	2464	1196	1266

Highway : 3
Control Section : 10
ATR Number : 50031010
Location Description : 4.5 KM E OF 3 & 4(43 ST) LETHBRIDGE
Year : 2010
ATR Efficiency : 100.0 %

Produced : 16-Feb-2011 By CornerStone Solutions Inc.

	Two Way	Westbound	Eastbound
Average Annual Daily Traffic	16649	8394	8255
Average Summer Daily Traffic	17437	8798	8639
Average Daily Traffic by Month			
January	14573	7352	7221
February	15260	7659	7601
March	16777	8454	8323
April	16462	8300	8162
May	16810	8473	8337
June	17972	9090	8882
July	17183	8664	8519
August	17592	8861	8731
September	17649	8914	8735
October	17635	8882	8753
November	15829	7990	7839
December	15957	8044	7913

Peak Hour Traffic	Year Mo Da Hour	Two Way	Westbound	Eastbound
30th Highest Hour	2010.09.22.1600	1794	679	771
100th Highest Hour	2010.08.27.1700	1714	805	989
90th %ile Hour	2010.04.07.1500	1338	597	684

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-14 -- English (ENU)

Datasets:
Site: Lethbridge - 13th st NB site 1
Filter time: 2:58 Tuesday, October 05, 2010 => 3:37 Wednesday, October 06, 2010
Direction: North (bound)

Tuesday, October 05, 2010 - Total=2436 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**1**	**2**	**3**	**21**	**57**	**92**	**120**	**91**	**104**	**155**	**117**	**147**	**207**	**276**	**264**	**228**	**177**	**138**	**143**	**61**	**32**	**21**
-	-	-	0	1	0	1	13	19	25	34	24	56	30	36	37	65	74	59	50	41	44	17	8	11
-	-	-	1	0	0	5	13	27	21	16	23	35	31	39	67	56	68	46	45	31	44	20	13	2
-	-	-	0	0	3	4	13	24	44	17	22	38	28	33	53	72	57	62	37	31	32	13	4	5
-	-	0	0	1	0	11	18	22	30	24	35	26	28	39	50	83	65	61	45	35	23	11	7	3

PM Peak 1630 - 1730 (297), PM PHF=0.89

Wednesday, October 06, 2010 - Total=39 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
21	**11**	**4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
11	5	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	5	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-15 -- English (ENU)

Datasets:
Site: Lethbridge - 13th st SB site 1
Filter time: 2:58 Tuesday, October 05, 2010 => 3:37 Wednesday, October 06, 2010
Direction: South (bound)

Tuesday, October 05, 2010 - Total=2624 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**3**	**4**	**44**	**93**	**291**	**247**	**140**	**120**	**146**	**170**	**117**	**144**	**163**	**160**	**183**	**217**	**167**	**91**	**75**	**35**	**14**	**13**
-	-	-	2	1	5	9	47	76	36	29	36	33	33	35	36	34	49	53	53	27	27	8	2	6
-	-	-	0	1	5	22	63	62	38	19	39	39	29	38	37	36	38	52	40	29	19	8	5	3
-	-	-	1	1	13	39	87	64	37	44	33	47	23	36	49	47	50	52	32	22	16	12	2	2
-	-	0	0	1	21	23	94	45	29	28	38	51	32	35	41	43	46	60	42	13	13	7	5	2

PM Peak 1800 - 1900 (217), PM PHF=0.90

Wednesday, October 06, 2010 - Total=19 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
13	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
6	2	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DAT CORP.
Vehicle Counts

VehicleCount-233 -- English (ENC)

Datasets:
Site: Lethbridge - 28th st NB site 2
Filter time: 3:36 October 7, 2010 => 13:57 October 8, 2010
Direction: North (bound)

October 7, 2010 - Total=3212 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**4**	**31**	**180**	**175**	**185**	**158**	**191**	**190**	**250**	**210**	**217**	**270**	**290**	**271**	**160**	**152**	**93**	**86**	**68**	**31**	**8**
-	-	-	-	1	2	13	42	63	43	38	54	80	56	53	58	65	76	37	51	29	27	19	11	3
-	-	-	-	1	6	28	34	55	43	50	40	62	38	53	63	65	62	42	43	25	25	23	12	0
-	-	-	0	0	10	67	54	35	32	43	50	59	53	56	80	87	66	40	23	17	17	14	5	4
-	-	-	3	2	13	72	45	32	40	60	46	49	63	55	69	73	67	41	35	22	17	12	3	1

PM Peak 1615 - 1715 (301), PM PHF=0.86

October 8, 2010 - Total=1666 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
8	**9**	**12**	**4**	**10**	**29**	**181**	**169**	**202**	**182**	**192**	**218**	**246**	**204**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3	4	5	0	4	8	14	32	63	46	35	52	70	53	-	-	-	-	-	-	-	-	-	-	-
0	2	2	1	2	4	29	35	49	35	53	46	65	60	-	-	-	-	-	-	-	-	-	-	-
4	1	3	2	1	10	65	37	49	49	50	70	46	54	-	-	-	-	-	-	-	-	-	-	-
1	2	2	1	3	7	73	65	41	52	54	50	65	37	-	-	-	-	-	-	-	-	-	-	-

AM Peak 1130 - 1230 (255), AM PHF=0.91

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-234 -- English (ENC)

Datasets:
Site: Lethbridge - 28th street SB site 2
Filter time: 3:17 October 5, 2010 => 3:52 October 6, 2010
Direction: South (bound)

October 5, 2010 - Total=1512 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**11**	**19**	**69**	**162**	**125**	**68**	**82**	**91**	**115**	**109**	**91**	**168**	**107**	**86**	**67**	**60**	**41**	**19**	**17**	**5**	**3**
-	-	-	-	2	1	6	13	35	21	26	17	30	35	19	20	24	23	19	17	8	5	6	1	0
-	-	-	0	0	4	20	30	23	15	18	18	26	30	18	33	34	27	16	15	10	6	7	3	1
-	-	-	1	6	4	18	58	36	16	18	27	19	19	24	84	25	23	13	13	14	6	2	0	0
-	-	-	0	3	10	25	61	31	16	20	29	40	25	30	31	24	13	19	15	9	2	2	1	2

PM Peak 1530 - 1630 (173), PM PHF=0.51

October 6, 2010 - Total=17 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
3	**2**	**10**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	2	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	0	8	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-16 -- English (ENU)

Datasets:
Site: Lethbridge - 43rd St NB site 3
Filter time: 3:28 Tuesday, October 05, 2010 => 3:58 Wednesday, October 06, 2010
Direction: North (bound)

Tuesday, October 05, 2010 - Total=243 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**3**	**2**	**6**	**7**	**16**	**11**	**21**	**16**	**20**	**18**	**21**	**16**	**16**	**23**	**13**	**8**	**10**	**9**	**6**	**1**	**1**
-	-	-	-	0	0	0	2	6	5	3	7	5	7	6	1	4	9	4	2	4	2	0	1	1
-	-	-	0	2	1	0	1	4	3	2	4	6	1	3	7	7	6	4	1	3	1	2	0	0
-	-	-	0	0	0	5	0	5	2	8	3	5	8	5	5	3	5	3	3	0	4	4	0	0
-	-	-	0	1	1	1	4	1	1	8	2	4	2	7	3	2	3	2	2	3	2	0	0	0

PM Peak 1700 - 1800 (23), PM PHF=0.64

Wednesday, October 06, 2010 - Total=4 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
1	**2**	**0**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	0	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-17 -- English (ENU)

Datasets:
Site: Lethbridge - 43rd St SB site 3
Filter time: 3:28 Tuesday, October 05, 2010 => 3:58 Wednesday, October 06, 2010
Direction: South (bound)

Tuesday, October 05, 2010 - Total=248 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**0**	**4**	**6**	**20**	**28**	**16**	**8**	**23**	**20**	**20**	**20**	**16**	**13**	**11**	**27**	**7**	**3**	**2**	**2**	**2**	**0**
-	-	-	-	0	2	3	3	6	5	2	7	8	8	4	3	4	6	5	1	1	1	0	2	0
-	-	-	0	0	0	1	4	5	3	2	4	4	5	6	7	2	2	6	1	1	1	0	0	0
-	-	-	0	0	0	2	10	7	4	3	6	2	3	4	1	3	1	8	2	0	0	2	0	0
-	-	-	0	0	2	0	3	10	4	1	6	6	4	6	5	4	2	8	3	1	0	0	0	0

PM Peak 1800 - 1900 (27), PM PHF=0.84

Wednesday, October 06, 2010 - Total=2 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
0	**1**	**0**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	0	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-236 -- English (ENC)

Datasets:
Site: Lethbridge - 5th ave EB site 4
Filter time: 2:06 October 5, 2010 => 2:24 October 6, 2010
Direction: East (bound)

October 5, 2010 - Total=5107 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**2**	**8**	**22**	**72**	**259**	**442**	**414**	**290**	**242**	**278**	**272**	**270**	**279**	**375**	**454**	**394**	**340**	**262**	**168**	**116**	**102**	**46**	**23**
-	-	0	3	1	9	16	65	102	70	63	77	56	67	67	85	98	120	74	71	44	32	23	13	9
-	-	0	1	5	18	41	84	117	64	44	66	72	74	57	83	113	93	98	73	46	31	31	14	7
-	-	0	1	7	25	103	131	94	77	63	65	77	54	67	104	119	94	79	69	32	28	29	7	3
-	-	2	3	9	20	99	162	101	79	72	70	67	75	88	103	124	87	89	49	46	25	19	12	4

PM Peak 1615 - 1715 (476), PM PHF=0.96

October 6, 2010 - Total=48 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
23	**21**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
9	7	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	6	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-235 -- English (ENC)

Datasets:
Site: Lethbridge - 5th ave WB site 4
Filter time: 2:02 October 5, 2010 => 2:27 October 6, 2010
Direction: West (bound)

October 5, 2010 - Total=7314 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**8**	**23**	**24**	**71**	**205**	**303**	**391**	**283**	**310**	**373**	**411**	**433**	**462**	**643**	**801**	**791**	**489**	**418**	**369**	**262**	**146**	**98**	**47**
-	-	0	2	5	8	30	63	94	66	70	90	134	121	114	138	196	268	153	116	102	71	51	22	16
-	-	3	4	5	10	42	71	105	68	92	103	98	101	107	157	188	196	125	92	96	72	36	30	14
-	-	2	9	4	30	79	74	99	71	75	90	89	102	115	169	205	177	112	120	93	75	31	19	11
-	-	3	8	10	23	54	95	93	78	73	90	90	109	126	179	212	150	99	90	78	44	28	27	6

PM Peak 1630 - 1730 (881), PM PHF=0.82

October 6, 2010 - Total=76 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
47	**20**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
16	11	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	3	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-232 -- English (ENC)

Datasets:
Site: Lethbridge - Scenic Drive NB site 5
Filter time: 2:25 October 5, 2010 => 2:44 October 6, 2010
Direction: North (bound)

October 5, 2010 - Total=6707 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**15**	**8**	**51**	**122**	**284**	**299**	**287**	**287**	**409**	**490**	**445**	**497**	**619**	**765**	**571**	**444**	**324**	**312**	**240**	**133**	**105**	**52**
-	-	-	1	2	7	16	49	69	59	68	87	155	119	137	136	177	180	145	80	106	74	36	26	18
-	-	1	5	0	12	25	58	74	70	62	115	123	108	120	151	192	130	113	87	58	73	35	27	11
-	-	4	6	1	11	43	79	78	77	72	98	119	112	117	168	201	140	88	85	94	53	37	19	12
-	-	4	3	5	21	38	98	78	81	85	109	93	106	123	164	195	121	98	72	54	40	25	33	11

PM Peak 1615 - 1715 (768), PM PHF=0.96

October 6, 2010 - Total=79 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
52	**20**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
18	11	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-231 -- English (ENC)

Datasets:
Site: Lethbridge - Scenic Drive SB site 5
Filter time: 2:22 October 5, 2010 => 2:42 October 6, 2010
Direction: South (bound)

October 5, 2010 - Total=3716 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**14**	**10**	**31**	**112**	**335**	**370**	**234**	**193**	**181**	**256**	**272**	**208**	**273**	**289**	**274**	**227**	**157**	**117**	**83**	**60**	**20**	**20**
-	-	-	3	2	5	9	45	113	65	44	34	58	81	45	57	75	83	61	56	37	24	19	11	5
-	-	0	2	2	4	29	51	107	63	46	34	47	73	44	64	63	72	44	31	36	19	16	3	4
-	-	1	6	2	10	24	91	62	61	58	49	57	53	58	75	77	63	67	36	28	24	12	3	5
-	-	1	3	4	12	50	148	88	45	45	64	94	65	61	77	74	56	55	34	16	16	13	3	6

PM Peak 1630 - 1730 (306), PM PHF=0.92

October 6, 2010 - Total=30 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
20	**4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-239 -- English (ENC)

Datasets:
Site: Lethbridge - 5th ave EB site 6
Filter time: 3:16 October 6, 2010 => 3:48 October 7, 2010
Direction: East (bound)

October 6, 2010 - Total=5249 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**26**	**91**	**231**	**392**	**261**	**247**	**301**	**321**	**454**	**419**	**319**	**402**	**416**	**342**	**309**	**259**	**180**	**141**	**88**	**50**	**18**
-	-	-	-	6	14	24	61	66	60	74	63	108	118	80	90	107	86	85	74	55	42	33	17	5
-	-	-	0	3	22	37	96	73	55	80	74	122	109	77	98	108	99	75	69	33	35	21	13	4
-	-	-	3	15	32	75	96	61	60	65	86	96	104	90	117	85	73	70	63	50	35	19	8	3
-	-	-	0	2	23	95	139	61	72	82	98	128	88	72	97	116	84	79	53	42	29	15	12	6

PM Peak 1215 - 1315 (464), PM PHF=0.91

October 7, 2010 - Total=62 (Incomplete) , 15 minute drop

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
18	**22**	**8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5	6	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	4	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Event Counts

EventCount-243 -- English (ENC)

Datasets:
Site: Lethbridge - 5th ave WB site 6
Filter time: 3:18 October 6, 2010 => 3:51 October 7, 2010
Direction: West (bound)

October 6, 2010=6988 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**26**	**57**	**156**	**335**	**398**	**330**	**388**	**533**	**582**	**467**	**455**	**533**	**624**	**629**	**396**	**361**	**304**	**193**	**132**	**94**	**45**
-	-	-	-	11	6	25	79	74	81	100	116	219	122	109	124	133	217	104	106	89	59	47	41	13
-	-	-	2	3	23	41	68	126	91	87	102	142	146	93	131	129	167	90	92	70	43	28	12	17
-	-	-	4	8	15	31	100	115	69	112	170	111	102	125	158	201	130	82	85	79	39	31	21	9
-	-	-	3	5	14	61	89	84	89	90	146	110	97	129	121	162	116	120	79	67	53	27	20	6

PM Peak 1630 - 1730 (746), PM PHF=0.86

October 7, 2010=116 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
44	**34**	**18**	**20**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
13	12	4	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	8	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	8	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	7	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-238 -- English (ENC)

Datasets:
Site: Lethbridge - Mayor Mcgrath Dr NB site 7
Filter time: 4:37 October 6, 2010 => 5:01 October 7, 2010
Direction: North (bound)

October 6, 2010 - Total=8408 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**75**	**232**	**554**	**443**	**386**	**430**	**508**	**587**	**533**	**535**	**722**	**747**	**629**	**484**	**505**	**384**	**318**	**196**	**140**	**74**
-	-	-	-	-	11	24	83	128	101	105	117	178	138	120	189	188	184	133	148	101	83	57	58	30
-	-	-	-	-	14	21	126	107	92	104	118	131	137	149	158	169	157	118	128	96	82	57	31	23
-	-	-	-	8	28	77	148	106	82	107	128	128	128	120	178	204	148	115	108	96	75	42	25	8
-	-	-	-	7	22	110	197	102	111	114	145	150	130	146	197	186	140	118	121	91	78	40	26	13

PM Peak 1545 - 1645 (758), PM PHF=0.93

October 7, 2010 - Total=203 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
74	**38**	**21**	**29**	**40**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
30	14	4	9	9	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	13	9	8	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	7	5	5	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	4	3	7	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-237 -- English (ENC)

Datasets:
Site: Lethbridge - Mayor Mcgrath Dr SB site 7
Filter time: 4:47 October 6, 2010 => 4:57 October 7, 2010
Direction: South (bound)

October 6, 2010 - Total=9667 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**62**	**245**	**605**	**667**	**557**	**569**	**672**	**720**	**644**	**618**	**774**	**788**	**781**	**597**	**487**	**310**	**268**	**167**	**136**	**58**
-	-	-	-	-	6	34	96	179	146	133	148	192	165	134	185	187	231	145	155	85	84	59	54	20
-	-	-	-	-	12	45	121	175	132	151	163	161	163	148	200	203	220	137	120	77	61	41	37	10
-	-	-	-	-	20	72	166	167	125	150	169	154	167	151	198	216	172	146	125	68	64	35	23	17
-	-	-	-	5	24	94	222	146	154	135	192	213	149	185	191	182	158	169	87	80	59	32	22	11

PM Peak 1630 - 1730 (849), PM PHF=0.92

October 7, 2010 - Total=187 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
58	**38**	**23**	**24**	**44**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
20	11	6	4	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	10	8	8	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	10	5	8	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	7	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-246 -- English (ENC)

Datasets:
Site: Lethbridge - 43 St NB site 8
Filter time: 4:13 October 6, 2010 => 4:44 October 7, 2010
Direction: North (bound)

October 6, 2010 - Total=7712 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**30**	**168**	**555**	**791**	**504**	**420**	**450**	**488**	**542**	**506**	**518**	**527**	**647**	**470**	**340**	**267**	**184**	**147**	**110**	**48**	**32**
-	-	-	-	0	16	48	124	140	126	131	115	118	136	129	128	170	147	95	83	56	51	35	11	14
-	-	-	-	5	23	86	169	120	87	100	126	130	119	129	139	159	129	88	77	43	42	24	15	5
-	-	-	-	10	66	190	224	125	108	90	113	136	113	132	135	163	102	71	62	42	30	25	9	8
-	-	-	-	15	63	231	274	119	99	129	134	158	138	128	125	155	92	86	45	43	24	26	13	5

PM Peak 1600 - 1700 (647), PM PHF=0.95

October 7, 2010 - Total=113 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
32	**15**	**12**	**27**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
14	4	4	9	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	7	3	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	2	3	5	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	2	2	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-247 -- English (ENC)

Datasets:
Site: Lethbridge - 43 St SB site 8
Filter time: 4:09 October 6, 2010 => 4:47 October 7, 2010
Direction: South (bound)

October 6, 2010 - Total=8321 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**11**	**105**	**258**	**555**	**547**	**495**	**466**	**560**	**595**	**532**	**566**	**675**	**842**	**852**	**396**	**254**	**242**	**199**	**85**	**86**	**41**
-	-	-	-	0	12	50	117	157	120	112	133	169	145	124	153	183	268	114	68	74	49	31	21	8
-	-	-	-	3	25	50	113	141	127	106	136	158	126	126	142	165	196	105	61	65	50	27	23	13
-	-	-	-	5	30	58	155	126	116	125	147	134	140	182	217	243	229	89	64	47	52	17	25	10
-	-	-	-	3	38	100	170	123	132	123	144	134	121	134	163	251	159	88	61	56	48	10	17	10

PM Peak 1630 - 1730 (958), PM PHF=0.89

October 7, 2010 - Total=142 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
41	**40**	**13**	**21**	**27**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8	6	1	10	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	4	4	4	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	12	5	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	18	3	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-245 -- English (ENC)

Datasets:
Site: Lethbridge - Stafford Dr NB site 9
Filter time: 2:57 October 6, 2010 => 3:22 October 7, 2010
Direction: North (bound)

October 6, 2010 - Total=9312 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**10**	**22**	**36**	**180**	**340**	**502**	**499**	**580**	**694**	**796**	**775**	**724**	**813**	**904**	**746**	**526**	**410**	**293**	**232**	**136**	**94**	**42**
-	-	-	0	3	6	20	61	116	109	149	154	225	231	182	215	229	234	131	101	81	94	37	26	16
-	-	-	2	7	12	40	78	125	132	147	167	189	196	190	189	200	202	122	110	82	56	36	27	10
-	-	-	6	5	7	45	72	127	132	150	185	188	192	182	222	261	165	131	91	54	40	37	21	4
-	-	0	2	7	11	75	129	134	126	134	188	194	156	170	187	214	145	142	108	76	42	26	20	12

PM Peak 1630 - 1730 (911), PM PHF=0.87

October 7, 2010 - Total=93 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
42	**30**	**16**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
16	5	7	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	7	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-244 -- English (ENC)

Datasets:
Site: Lethbridge - Stafford Dr SB site 9
Filter time: 3:00 October 6, 2010 => 3:26 October 7, 2010
Direction: South (bound)

October 6, 2010 - Total=9650 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**14**	**17**	**78**	**166**	**477**	**568**	**558**	**621**	**695**	**759**	**783**	**757**	**820**	**855**	**757**	**536**	**417**	**297**	**229**	**147**	**99**	**56**
-	-	-	3	4	7	22	72	141	126	128	159	179	203	187	186	197	228	129	123	90	74	46	37	18
-	-	-	1	4	19	30	92	146	148	159	164	193	197	179	216	205	178	144	98	66	62	39	20	7
-	-	-	3	6	18	37	128	137	121	154	190	189	200	175	204	233	203	133	99	64	42	34	23	18
-	-	-	7	3	34	77	185	144	163	180	182	198	183	216	214	220	148	130	97	77	51	28	19	13

PM Peak 1615 - 1715 (886), PM PHF=0.95

October 7, 2010 - Total=132 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
56	**44**	**26**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
18	14	7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	13	13	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	8	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-250 -- English (ENC)

Datasets:
Site: Lethbridge- Mayor Mcgrath NB site 10
Filter time: 4:12 October 7, 2010 => 13:44 October 8, 2010
Direction: North (bound)

October 7, 2010 - Total=14119 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**35**	**135**	**362**	**782**	**740**	**672**	**782**	**948**	**982**	**994**	**1064**	**1134**	**1104**	**997**	**866**	**777**	**619**	**583**	**304**	**239**	**100**
-	-	-	-	0	20	42	122	195	148	184	233	237	265	279	293	257	283	208	222	165	154	100	80	37
-	-	-	-	2	25	67	171	196	165	194	235	229	239	243	261	280	235	236	205	160	151	81	62	27
-	-	-	-	15	46	114	211	178	169	189	249	259	251	273	306	309	236	219	180	152	139	57	61	23
-	-	-	-	18	44	139	278	171	190	215	231	257	239	269	274	258	243	203	170	142	139	66	36	13

PM Peak 1500 - 1600 (1134), PM PHF=0.93

October 8, 2010 - Total=6919 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
100	**53**	**55**	**50**	**63**	**134**	**351**	**760**	**760**	**711**	**843**	**1015**	**1155**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
37	24	11	17	9	20	42	98	187	158	206	271	260	320	-	-	-	-	-	-	-	-	-	-	-
27	14	14	12	13	25	59	168	186	152	200	222	290	279	-	-	-	-	-	-	-	-	-	-	-
23	9	16	10	19	43	116	219	195	185	194	278	298	270	-	-	-	-	-	-	-	-	-	-	-
13	6	14	11	22	46	134	275	192	216	243	244	307	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 1145 - 1245 (1092), AM PHF=0.92

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-249 -- English (ENC)

Datasets:
Site: Lethbridge - Mayor Mcgrath Dr SB site 10
Filter ti 4:09 October 7, 2010 => 13:38 October 8, 2010
Directi South (bound)

October 7, 2010 - Total=17806 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**31**	**77**	**281**	**615**	**796**	**776**	**862**	**1035**	**1101**	**1017**	**1000**	**1194**	**1643**	**1934**	**1691**	**1260**	**844**	**821**	**469**	**359**	**214**
-	-	-	-	1	14	26	92	221	192	213	253	323	253	231	323	308	565	432	360	241	237	151	137	67
-	-	-	-	9	16	57	118	193	190	219	241	268	255	243	317	322	498	421	304	233	202	123	81	68
-	-	-	-	11	19	89	192	177	187	198	262	257	252	243	258	468	463	426	289	199	196	97	68	46
-	-	-	-	10	28	109	213	205	207	232	279	253	257	283	296	545	408	412	307	171	186	98	73	33

PM Peak 1630 - 1730 (2076), PM PHF=0.92

October 8, 2010 - Total=11448 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
214	**114**	**71**	**68**	**71**	**129**	**424**	**971**	**1268**	**1297**	**1641**	**1811**	**2101**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
67	31	29	29	18	22	46	197	333	269	386	438	586	541	-	-	-	-	-	-	-	-	-	-	-
68	24	19	18	21	31	85	172	309	316	423	438	497	496	-	-	-	-	-	-	-	-	-	-	-
46	37	16	13	17	13	132	242	322	363	434	442	497	231	-	-	-	-	-	-	-	-	-	-	-
33	22	7	8	15	63	161	360	304	349	398	493	521	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 1145 - 1245 (2073), AM PHF=0.88

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-253 -- English (ENC)

Datasets:
Site: Lethbridge - Scenic Dr NB site 11
Filter ti 2:41 October 7, 2010 => 12:52 October 8, 2010
Directi North (bound)

October 7, 2010 - Total=11131 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**23**	**23**	**103**	**379**	**804**	**921**	**619**	**606**	**669**	**787**	**778**	**705**	**888**	**859**	**797**	**645**	**469**	**379**	**303**	**231**	**143**	**92**
-	-	-	5	3	15	41	112	251	144	137	157	184	229	204	183	224	209	178	148	93	65	61	42	20
-	-	-	5	5	21	77	174	250	168	141	177	179	175	160	217	204	202	173	115	113	72	51	30	28
-	-	1	5	9	30	128	242	201	140	160	156	195	183	168	249	221	186	145	124	99	88	66	35	21
-	-	4	8	6	37	133	276	219	167	168	179	229	191	173	239	210	200	149	82	74	78	53	36	23

PM Peak 1515 - 1615 (929), PM PHF=0.93

October 8, 2010 - Total=5152 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
92	**79**	**58**	**19**	**28**	**99**	**343**	**800**	**898**	**633**	**659**	**723**	**721**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
20	22	10	5	4	12	26	121	232	158	184	148	230	-	-	-	-	-	-	-	-	-	-	-	-
28	17	22	4	7	23	74	189	245	150	140	186	207	-	-	-	-	-	-	-	-	-	-	-	-
21	19	13	4	9	26	111	210	200	147	157	191	227	-	-	-	-	-	-	-	-	-	-	-	-
23	21	13	6	8	38	132	280	221	178	178	198	57	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 0730 - 0830 (967), AM PHF=0.86

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-254 -- English (ENC)

Datasets:
Site: Lethbridge - Scenic Dr SB site 11
Filter time: 2:44 October 7, 2010 => 12:55 October 8, 2010
Direction: South (bound)

October 7, 2010 - Total=12623 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**25**	**14**	**47**	**154**	**497**	**632**	**552**	**634**	**839**	**910**	**747**	**801**	**979**	**1374**	**1213**	**775**	**721**	**684**	**514**	**299**	**212**	**145**
-	-	-	8	6	3	26	92	166	142	154	200	298	200	180	219	312	364	222	189	172	168	102	68	50
-	-	-	4	4	9	34	87	161	124	151	191	222	190	181	266	330	321	193	210	151	147	74	46	34
-	-	0	4	3	21	41	157	146	136	169	215	180	192	194	238	377	267	178	160	153	108	63	50	37
-	-	4	9	1	14	53	161	159	150	160	233	210	165	246	256	355	261	182	162	208	91	60	48	24

PM Peak 1615 - 1715 (1426), PM PHF=0.95

October 8, 2010 - Total=4710 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
145	**125**	**102**	**44**	**26**	**55**	**140**	**474**	**609**	**574**	**691**	**830**	**895**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
50	30	36	18	6	6	19	91	150	123	145	182	277	-	-	-	-	-	-	-	-	-	-	-	-
34	31	33	10	7	10	30	84	166	138	178	187	234	-	-	-	-	-	-	-	-	-	-	-	-
37	34	19	9	6	20	33	154	153	162	181	204	225	-	-	-	-	-	-	-	-	-	-	-	-
24	30	14	7	7	19	58	145	140	151	187	257	159	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 1145 - 1245 (993), AM PHF=0.90

ME2TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-255 -- English (ENC)

Datasets:
Site: Lethbridge - Scenic Dr NB site 12
Filter time: 2:59 October 7, 2010 => 13:01 October 8, 2010
Direction: North (bound)

October 7, 2010 - Total=12665 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**14**	**17**	**56**	**152**	**473**	**758**	**593**	**657**	**782**	**774**	**856**	**847**	**1139**	**1138**	**1053**	**808**	**805**	**674**	**545**	**306**	**218**	**130**
-	-	-	3	4	8	17	66	187	167	155	155	221	249	202	230	313	289	224	227	192	158	100	73	41
-	-	-	4	1	15	32	101	190	118	165	208	177	200	210	298	283	271	202	209	188	126	66	51	38
-	-	-	4	3	18	40	136	184	141	173	210	179	200	222	324	267	259	185	192	148	139	69	58	33
-	-	0	3	9	15	63	170	197	167	164	209	197	207	213	287	275	234	197	177	146	122	71	36	18

PM Peak 1515 - 1615 (1222), PM PHF=0.94

October 8, 2010 - Total=4765 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
130	**48**	**46**	**18**	**20**	**49**	**156**	**496**	**667**	**601**	**755**	**867**	**895**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
41	16	13	4	2	7	16	76	170	142	166	192	248	17	-	-	-	-	-	-	-	-	-	-	-
38	8	9	4	3	13	28	100	162	142	190	228	189	-	-	-	-	-	-	-	-	-	-	-	-
33	12	13	6	5	11	59	141	185	148	217	241	215	-	-	-	-	-	-	-	-	-	-	-	-
18	12	11	4	10	18	53	179	150	169	182	206	243	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 1115 - 1215 (923), AM PHF=0.93

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-256 -- English (ENC)

Datasets:
Site: Lethbridge - Scenic Dr SB site 12
Filter ti 2:57 October 7, 2010 => 13:04 October 8, 2010
Directi South (bound)

October 7, 2010 - Total=12770 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**15**	**33**	**76**	**335**	**892**	**994**	**725**	**683**	**754**	**887**	**913**	**701**	**885**	**1032**	**944**	**823**	**687**	**516**	**446**	**275**	**154**	**87**
-	-	-	5	8	11	41	102	308	144	162	164	267	198	153	208	219	262	221	199	143	120	78	49	30
-	-	-	1	6	8	69	163	271	156	160	191	219	206	174	231	240	235	201	185	121	103	53	26	23
-	-	-	4	9	26	94	289	210	211	153	195	202	267	183	237	314	208	187	155	124	131	66	39	20
-	-	0	5	10	31	131	338	205	214	208	204	199	242	191	209	259	239	214	148	128	92	78	40	14

PM Peak 1615 - 1715 (1075), PM PHF=0.86

October 8, 2010 - Total=5708 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
87	**48**	**40**	**27**	**42**	**99**	**338**	**807**	**920**	**741**	**692**	**851**	**977**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
30	9	15	5	4	12	49	117	272	188	171	207	271	39	-	-	-	-	-	-	-	-	-	-	-
23	14	12	7	8	25	61	146	254	158	169	190	209	-	-	-	-	-	-	-	-	-	-	-	-
20	12	4	7	15	23	112	274	212	213	167	200	236	-	-	-	-	-	-	-	-	-	-	-	-
14	13	9	8	15	39	116	270	182	182	185	254	261	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 0730 - 0830 (1070), AM PHF=0.98

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-18 -- English (ENU)

Datasets:
Site: Lethbridge - 10th Ave EB site 13
Filter time: 3:09 Thursday, October 07, 2010 => 13:16 Friday, October 08, 2010
Direction: East (bound)

Thursday, October 07, 2010 - Total=3683 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**3**	**8**	**25**	**79**	**199**	**199**	**201**	**203**	**267**	**260**	**260**	**242**	**305**	**352**	**243**	**211**	**180**	**156**	**137**	**90**	**63**	**19**
-	-	-	0	3	1	12	36	68	49	44	57	66	81	53	80	87	68	55	45	39	27	23	22	6
-	-	-	1	1	7	13	37	48	37	54	62	71	51	59	88	94	51	55	59	32	33	25	17	5
-	-	-	0	2	8	30	58	33	59	50	62	61	61	72	66	90	71	43	39	46	41	20	12	7
-	-	-	2	2	9	24	68	50	56	55	86	62	67	58	71	81	53	58	37	39	36	22	12	1

PM Peak 1600 - 1700 (352), PM PHF=0.94

Friday, October 08, 2010 - Total=1551 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
19	**11**	**15**	**5**	**11**	**21**	**67**	**172**	**214**	**184**	**184**	**276**	**301**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
6	5	4	0	3	2	9	27	61	44	45	63	82	71	-	-	-	-	-	-	-	-	-	-	-
5	4	6	1	5	4	5	35	46	41	48	52	71	-	-	-	-	-	-	-	-	-	-	-	-
7	2	4	2	1	6	24	57	46	43	49	78	63	-	-	-	-	-	-	-	-	-	-	-	-
1	0	1	2	2	9	29	53	61	56	42	83	85	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 1130 - 1230 (314), AM PHF=0.95

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-19 -- English (ENU)

Datasets:
Site: Lethbridge - 10th Ave WB site 13
Filter time: 3:09 Thursday, October 07, 2010 => 13:16 Friday, October 08, 2010
Direction: West (bound)

Thursday, October 07, 2010 - Total=3845 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**4**	**7**	**22**	**117**	**245**	**283**	**224**	**208**	**213**	**268**	**298**	**275**	**313**	**304**	**271**	**251**	**187**	**114**	**99**	**81**	**61**	**21**
-	-	-	1	1	6	21	38	70	41	41	45	70	90	58	85	72	70	55	53	41	28	19	25	6
-	-	-	0	3	3	19	45	75	48	65	51	53	81	66	78	73	73	63	44	23	28	18	19	7
-	-	-	1	2	5	40	56	68	69	45	59	69	63	62	76	85	68	64	47	28	26	25	8	4
-	-	-	2	1	8	37	106	70	66	57	58	76	64	89	74	74	60	69	43	22	17	19	9	4

PM Peak 1445 - 1545 (328), PM PHF=0.92

Friday, October 08, 2010 - Total=1767 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
21	**23**	**22**	**15**	**4**	**15**	**127**	**201**	**284**	**203**	**232**	**223**	**314**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
6	5	4	5	2	2	21	22	77	39	42	55	84	82	-	-	-	-	-	-	-	-	-	-	-
7	8	8	7	1	3	22	42	82	41	61	53	72	1	-	-	-	-	-	-	-	-	-	-	-
4	5	3	2	0	2	49	56	64	65	64	62	75	-	-	-	-	-	-	-	-	-	-	-	-
4	5	7	1	1	8	35	81	61	58	65	53	83	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 0745 - 0845 (304), AM PHF=0.93

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-252 -- English (ENC)

Datasets:
Site: Lethbridge - Mayor Mcgrath Dr NB site 14
Filter time: 4:30 October 7, 2010 => 13:25 October 8, 2010
Direction: North (bound)

October 7, 2010 - Total=14123 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**76**	**283**	**686**	**741**	**717**	**816**	**965**	**1007**	**1067**	**1091**	**1107**	**1040**	**1019**	**931**	**830**	**679**	**560**	**310**	**198**	**82**
-	-	-	-	-	13	46	115	181	174	196	207	228	296	293	285	257	276	239	204	212	159	102	60	33
-	-	-	-	-	13	51	149	197	191	205	250	267	242	266	242	260	262	229	223	166	151	82	49	18
-	-	-	-	5	24	100	207	179	165	180	236	250	277	256	302	279	235	226	192	143	132	60	49	22
-	-	-	-	10	26	86	215	184	187	235	272	262	252	276	278	244	246	237	211	158	118	66	40	9

PM Peak 1500 - 1600 (1107), PM PHF=0.92

October 8, 2010 - Total=6407 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
82	**39**	**38**	**30**	**50**	**81**	**285**	**685**	**727**	**729**	**968**	**979**	**1174**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
33	11	9	7	10	17	43	90	178	154	211	221	272	302	-	-	-	-	-	-	-	-	-	-	-
18	8	15	10	6	15	63	164	168	177	222	251	283	238	-	-	-	-	-	-	-	-	-	-	-
22	10	8	6	16	18	80	205	178	186	255	265	321	-	-	-	-	-	-	-	-	-	-	-	-
9	10	6	7	18	31	99	226	203	212	280	242	298	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 1145 - 1245 (1118), AM PHF=0.87

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-251 -- English (ENC)

Datasets:
Site: Lethbridge - Mayor Mcgrath Dr SB site 14
Filter time: 4:28 October 7, 2010 => 13:21 October 8, 2010
Direction: South (bound)

October 7, 2010 - Total=12714 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**52**	**229**	**510**	**691**	**678**	**819**	**902**	**915**	**866**	**930**	**1023**	**991**	**1012**	**884**	**763**	**532**	**452**	**284**	**181**	**92**
-	-	-	-	-	8	30	90	182	169	185	225	241	219	219	276	244	290	223	198	140	118	89	59	29
-	-	-	-	0	13	34	111	167	146	212	218	248	201	239	239	227	271	207	195	145	121	70	43	27
-	-	-	-	10	7	59	133	162	167	195	210	213	216	243	259	275	231	230	184	145	106	53	41	18
-	-	-	-	9	24	106	176	180	196	227	249	213	230	229	249	245	220	224	186	102	107	72	38	18

PM Peak 1630 - 1730 (1081), PM PHF=0.93

October 8, 2010 - Total=5689 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
92	**57**	**35**	**26**	**38**	**70**	**233**	**512**	**640**	**734**	**794**	**996**	**1068**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
29	17	15	4	10	14	22	117	171	156	182	244	303	289	-	-	-	-	-	-	-	-	-	-	-
27	19	9	8	11	14	50	99	153	167	206	239	274	105	-	-	-	-	-	-	-	-	-	-	-
18	12	8	9	9	13	56	131	154	182	210	228	242	-	-	-	-	-	-	-	-	-	-	-	-
18	9	3	5	8	29	105	165	162	229	196	285	249	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak 1145 - 1245 (1104), AM PHF=0.91

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-1 -- English (ENU)

Datasets:
Site: Lethbridge - 43 st NB site 15
Filter time: 21:50 Tuesday, October 12, 2010 => 0:35 Thursday, October 14, 2010
Direction: North (bound)

Tuesday, October 12, 2010 - Total=171 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**112**	**59**	**27**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37	21	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	15	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	11	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	19	12	3

Wednesday, October 13, 2010 - Total=8038, 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
27	**15**	**8**	**13**	**31**	**106**	**333**	**705**	**575**	**436**	**426**	**517**	**564**	**518**	**571**	**573**	**716**	**558**	**397**	**351**	**205**	**205**	**120**	**68**	**30**
9	6	1	1	4	11	46	96	150	114	105	130	135	145	131	146	165	172	121	109	59	70	41	30	12
7	4	2	3	5	27	61	158	149	114	99	142	119	123	153	131	169	142	104	92	57	55	29	19	17
8	3	2	5	8	35	96	206	131	99	108	121	156	112	153	144	197	125	83	75	45	53	25	13	1
3	2	3	4	14	33	130	245	145	109	114	124	154	138	134	152	185	119	89	75	44	27	25	6	-

AM Peak 0715 - 0815 (759), AM PHF=0.77 PM Peak 1615 - 1715 (723), PM PHF=0.92

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
30	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-2 -- English (ENU)

Datasets:
Site: Lethbridge - 43 st SB site 15
Filter time: 21:49 Tuesday, October 12, 2010 => 0:25 Thursday, October 14, 2010
Direction: South (bound)

Tuesday, October 12, 2010 - Total=201 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**131**	**70**	**38**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37	24	15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	17	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	15	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	28	14	8

Wednesday, October 13, 2010 - Total=7828, 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
38	**23**	**13**	**7**	**21**	**34**	**148**	**441**	**514**	**449**	**451**	**529**	**545**	**510**	**513**	**588**	**786**	**805**	**439**	**339**	**242**	**182**	**125**	**86**	**23**
15	7	5	1	10	6	21	72	134	103	111	127	199	128	131	148	195	261	128	96	71	50	40	27	16
10	6	2	4	4	7	31	95	125	125	109	112	129	113	113	158	173	202	104	90	59	58	31	21	7
5	6	2	0	3	11	41	125	123	106	117	147	100	138	121	145	197	202	106	67	53	47	36	15	-
8	4	4	2	4	10	55	149	132	115	114	143	117	131	148	137	221	140	101	86	59	27	18	23	-

AM Peak 1130 - 1230 (618), AM PHF=0.78

Thursday, October 14, 2010 - Total=23 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
23	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-3 -- English (ENU)

Datasets:
Site: Lethbridge - Highway 4 EB site 16
Filter time: 22:06 Tuesday, October 12, 2010 => 0:46 Thursday, October 14, 2010
Direction: East (bound)

Tuesday, October 12, 2010 - Total=123 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**76**	**47**	**35**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	10	11
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	15	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	10	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	12	7

Wednesday, October 13, 2010 - Total=195, 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
35	**31**	**10**	**6**	**4**	**11**	**22**	**46**	**21**	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
11	6	2	0	0	3	3	8	13	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	9	4	6	2	4	8	6	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	9	2	0	0	2	6	18	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	7	2	0	2	2	5	14	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-

AM Peak 0715 - 0815 (51), AM PHF=0.71 PM Peak 1200 - 1300 (0), PM PHF=1.00

Thursday, October 14, 2010 - Total=0 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-4 -- English (ENU)

Datasets:
Site: Lethbridge - Highway 4 WB site 16
Filter time: 22:07 Tuesday, October 12, 2010 => 0:53 Thursday, October 14, 2010
Direction: West (bound)

Tuesday, October 12, 2010 - Total=87 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**45**	**42**	**24**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	15	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	11	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	11	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	5	7

Wednesday, October 13, 2010 - Total=4345, 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
24	**10**	**8**	**13**	**21**	**48**	**168**	**404**	**412**	**274**	**262**	**263**	**259**	**275**	**257**	**267**	**343**	**303**	**251**	**182**	**110**	**93**	**63**	**35**	**23**
9	2	0	3	3	5	27	51	109	71	74	70	73	64	63	50	73	88	57	57	32	26	19	8	5
3	3	3	1	4	14	32	80	97	71	57	72	57	73	66	73	95	87	74	33	25	24	21	13	10
5	2	3	6	4	16	52	126	99	72	65	51	71	70	68	62	95	57	50	42	30	26	11	8	4
7	3	2	3	10	13	57	147	107	60	66	70	58	68	60	82	80	71	70	50	23	17	12	6	4

AM Peak 0730 - 0830 (479), AM PHF=0.81 PM Peak 1615 - 1715 (358), PM PHF=0.94

Thursday, October 14, 2010 - Total=23 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	
23	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**s**
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-12 -- English (ENU)

Datasets:
Site: Lethbridge - Highway 5 NB site 17
Filter time: 22:26 Tuesday, October 12, 2010 => 1:05 Thursday, October 14, 2010
Direction: North (bound)

Tuesday, October 12, 2010 - Total=19 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**19**	**28**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	7	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	1	14
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	5	4

Wednesday, October 13, 2010 - Total=4519, 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
28	**7**	**4**	**4**	**15**	**40**	**125**	**345**	**334**	**335**	**272**	**252**	**298**	**264**	**270**	**331**	**432**	**345**	**272**	**215**	**102**	**100**	**98**	**31**	**29**
2	4	1	0	2	8	16	46	78	82	70	62	95	63	62	75	161	134	87	72	27	31	19	8	7
8	2	2	1	3	11	21	65	86	76	64	53	54	54	65	69	116	76	64	50	27	20	25	8	11
14	0	1	1	7	8	61	111	77	81	71	68	55	77	73	82	73	69	61	57	21	23	35	10	5
4	1	0	2	3	13	27	123	93	96	67	69	94	70	70	105	82	66	60	36	27	26	19	5	6

AM Peak 0730 - 0830 (398), AM PHF=0.81 PM Peak 1530 - 1630 (464), PM PHF=0.72

Thursday, October 14, 2010 - Total=29 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
29	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-13 -- English (ENU)

Datasets:
Site: Lethbridge - Highway 5 SB site 17
Filter time: 22:26 Tuesday, October 12, 2010 => 1:05 Thursday, October 14, 2010
Direction: South (bound)

Tuesday, October 12, 2010 - Total=35 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**35**	**32**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	11
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	9	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	10	4

Wednesday, October 13, 2010 - Total=4345, 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
32	**4**	**8**	**7**	**25**	**33**	**130**	**278**	**272**	**201**	**200**	**219**	**265**	**241**	**287**	**366**	**374**	**408**	**346**	**205**	**158**	**152**	**92**	**42**	**36**
11	4	1	1	5	8	17	66	65	58	53	48	58	69	80	73	76	111	101	71	49	45	35	10	16
9	0	2	1	7	10	17	75	70	49	55	45	57	62	57	105	95	113	81	48	49	44	29	15	10
8	0	2	1	2	5	49	54	73	53	55	50	80	56	73	84	98	99	99	43	22	35	18	7	6
4	0	3	4	11	10	47	83	64	41	37	76	70	54	77	104	105	85	65	43	38	28	10	10	4

AM Peak 0745 - 0845 (291), AM PHF=0.88 PM Peak 1645 - 1745 (428), PM PHF=0.95

Thursday, October 14, 2010 - Total=40 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
36	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
16	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME 2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-5 -- English (ENU)

Datasets:
Site: Lethbridge - Whoop Up Dr EB site 18
Filter time: 1:42 Wednesday, October 06, 2010 => 2:10 Thursday, October 07, 2010
Direction: East (bound)

Wednesday, October 06, 2010 - Total=21984 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**26**	**39**	**65**	**229**	**913**	**2054**	**2031**	**1266**	**1077**	**1175**	**1465**	**1368**	**1233**	**1456**	**1558**	**1395**	**1499**	**1052**	**785**	**717**	**394**	**187**	**103**
-	-	5	6	9	17	97	271	613	284	265	292	375	389	319	357	351	333	373	313	205	202	105	59	34
-	-	8	8	21	44	168	426	566	323	265	252	323	334	300	325	362	330	359	290	211	225	90	39	21
-	3	7	8	14	86	325	659	443	330	270	298	338	338	301	371	451	335	372	231	152	164	103	46	22
-	17	6	17	21	82	323	698	409	329	277	333	429	307	313	403	394	397	395	218	217	126	96	43	26

PM Peak 1545 - 1645 (1567), PM PHF=0.87

Thursday, October 07, 2010 - Total=147 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
103	**40**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
34	13	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-6 -- English (ENU)

Datasets:
Site: Lethbridge - Whoop Up Dr WB site 18
Filter time: 1:56 Wednesday, October 06, 2010 => 2:21 Thursday, October 07, 2010
Direction: West (bound)

Wednesday, October 06, 2010 - Total=22197 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**52**	**47**	**24**	**63**	**196**	**764**	**1066**	**943**	**896**	**1233**	**1374**	**1234**	**1303**	**1869**	**2365**	**2322**	**1569**	**1426**	**1270**	**1112**	**620**	**449**	**204**
-	-	14	14	7	6	21	130	238	242	202	260	427	332	318	406	522	620	462	383	348	337	187	136	70
-	-	21	9	7	9	32	128	253	213	231	278	336	328	294	532	543	637	382	331	297	289	183	134	50
-	-	7	10	3	19	58	228	306	249	226	348	317	263	316	438	632	556	366	356	316	260	144	95	49
-	3	10	14	7	29	85	278	269	239	237	347	294	311	375	493	668	509	359	356	309	226	106	84	35

PM Peak 1630 - 1730 (2557), PM PHF=0.96

Thursday, October 07, 2010 - Total=306 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
204	**84**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
70	25	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	18	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-7 -- English (ENU)

Datasets:
Site: Lethbridge - University dr NB site 19
Filter time: 2:04 Wednesday, October 06, 2010 => 2:28 Thursday, October 07, 2010
Direction: North (bound)

Wednesday, October 06, 2010 - Total=12634 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**14**	**23**	**23**	**72**	**220**	**429**	**485**	**479**	**570**	**744**	**806**	**740**	**727**	**1072**	**1292**	**1123**	**957**	**830**	**786**	**721**	**335**	**186**	**90**
-	-	3	7	3	12	31	85	120	129	168	178	283	233	198	260	295	316	263	195	193	210	108	72	37
-	-	5	7	10	19	42	98	118	119	145	161	187	184	182	262	304	283	242	217	208	211	95	48	23
-	-	2	7	5	15	70	125	117	113	116	192	174	154	149	257	326	268	213	229	171	168	66	32	14
-	-	4	2	5	26	77	121	130	118	141	213	162	169	198	293	367	256	239	189	214	132	66	34	16

PM Peak 1615 - 1715 (1313), PM PHF=0.89

Thursday, October 07, 2010 - Total=135 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
90	**37**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
37	11	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	8	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-8 -- English (ENU)

Datasets:
Site: Lethbridge - University dr SB site 19
Filter time: 1:29 Wednesday, October 06, 2010 => 2:01 Thursday, October 07, 2010
Direction: South (bound)

Wednesday, October 06, 2010 - Total=12790 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**19**	**20**	**32**	**101**	**283**	**908**	**1176**	**854**	**722**	**714**	**825**	**728**	**693**	**814**	**857**	**997**	**949**	**768**	**521**	**431**	**247**	**131**	**72**
-	-	3	3	5	3	30	89	300	180	168	159	172	186	156	200	196	222	237	205	134	133	70	46	24
-	2	5	9	9	20	42	190	325	210	168	155	185	197	153	206	192	244	239	207	144	114	60	29	14
-	15	5	3	9	33	101	320	302	241	206	204	223	178	201	200	222	251	243	196	127	109	65	31	18
-	8	6	5	9	45	110	309	249	223	180	196	245	167	183	208	247	280	230	160	116	75	52	25	16

PM Peak 1715 - 1815 (1012), PM PHF=0.90

Thursday, October 07, 2010 - Total=104 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
72	**32**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
24	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-9 -- English (ENU)

Datasets:
Site: Lethbridge - University dr NB site 20
Filter time: 1:50 Tuesday, October 05, 2010 => 2:14 Wednesday, October 06, 2010
Direction: North (bound)

Tuesday, October 05, 2010 - Total=4121 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**6**	**10**	**24**	**56**	**261**	**587**	**379**	**211**	**215**	**181**	**222**	**190**	**221**	**247**	**314**	**235**	**239**	**177**	**122**	**97**	**87**	**40**	**13**
-	-	1	5	2	10	32	88	124	55	53	45	48	51	59	60	69	48	70	45	30	34	25	10	5
-	-	1	1	6	6	57	122	104	42	42	46	65	45	45	49	92	67	58	54	27	25	27	9	3
-	-	0	1	11	20	84	182	81	69	59	41	59	42	52	66	73	65	51	40	36	25	23	8	1
-	0	4	3	5	20	88	195	70	45	61	49	50	52	65	72	80	55	60	38	29	13	12	13	4

PM Peak 1600 - 1700 (314), PM PHF=0.85

Wednesday, October 06, 2010 - Total=27 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
13	**11**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ME2 TRANSPORTATION DATA CORP.
Vehicle Counts

VehicleCount-11 -- English (ENU)

Datasets:
Site: Lethbridge - University dr SB site 20
Filter time: 1:50 Tuesday, October 05, 2010 => 2:14 Wednesday, October 06, 2010
Direction: South (bound)

Tuesday, October 05, 2010 - Total=4125 (Incomplete) , 15 minute drops

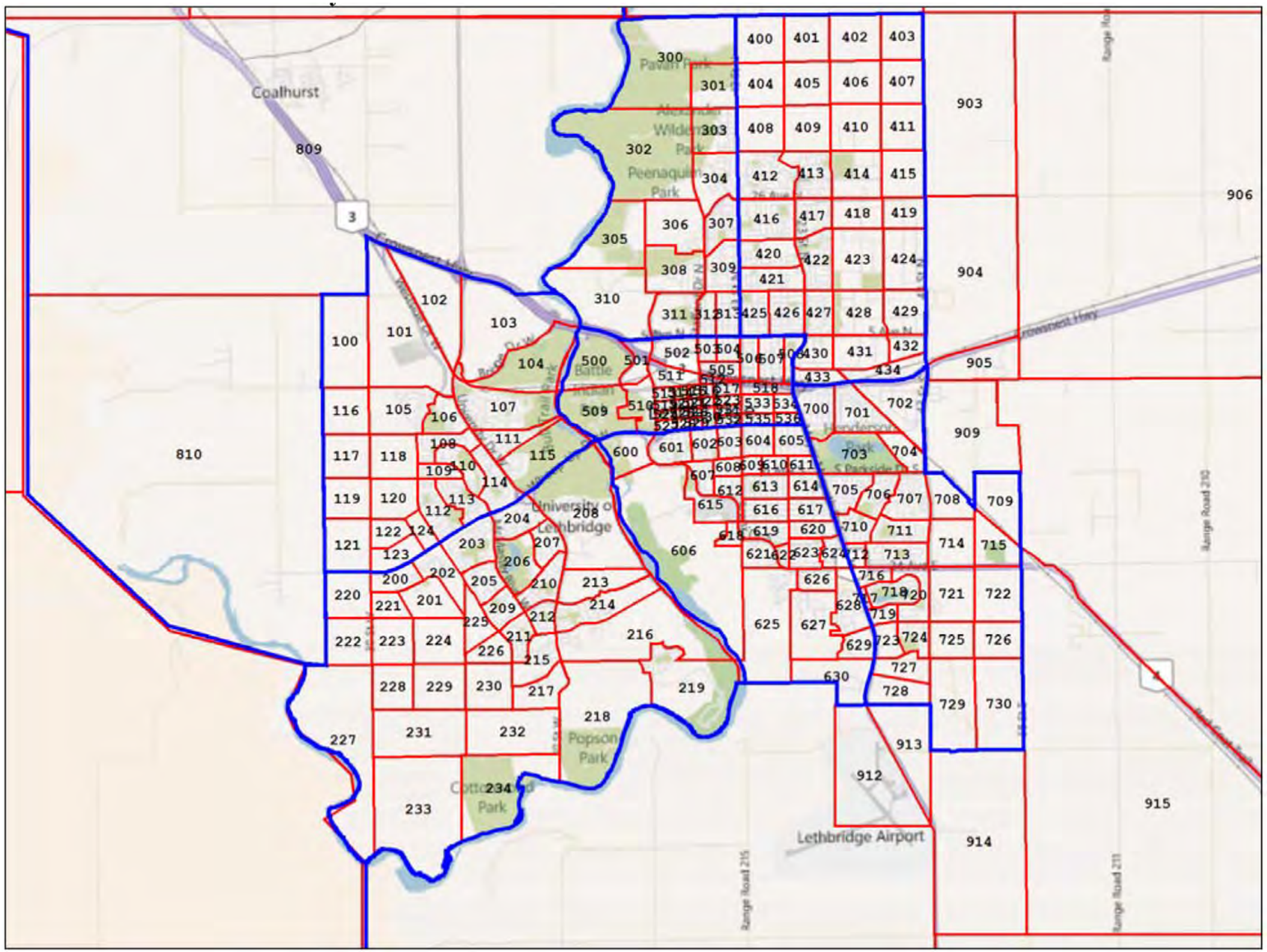
0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
-	**-**	**2**	**10**	**8**	**19**	**46**	**172**	**276**	**174**	**207**	**230**	**219**	**221**	**217**	**312**	**458**	**512**	**311**	**279**	**198**	**127**	**76**	**51**	**30**
-	-	0	4	1	6	5	31	51	60	45	51	76	51	41	57	102	157	88	78	54	43	31	19	15
-	-	1	3	1	4	6	36	67	50	63	60	45	51	66	78	98	141	81	66	62	28	19	15	7
-	-	1	2	0	5	14	44	80	31	59	46	49	61	53	90	126	114	70	75	39	32	15	9	5
-	0	0	1	6	4	21	61	78	33	40	73	49	58	57	87	132	100	72	60	43	24	11	8	3

PM Peak 1630 - 1730 (556), PM PHF=0.89

Wednesday, October 06, 2010 - Total=73 (Incomplete) , 15 minute drops

0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
30	**40**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
15	11	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

E Appendix E - EMME Plots



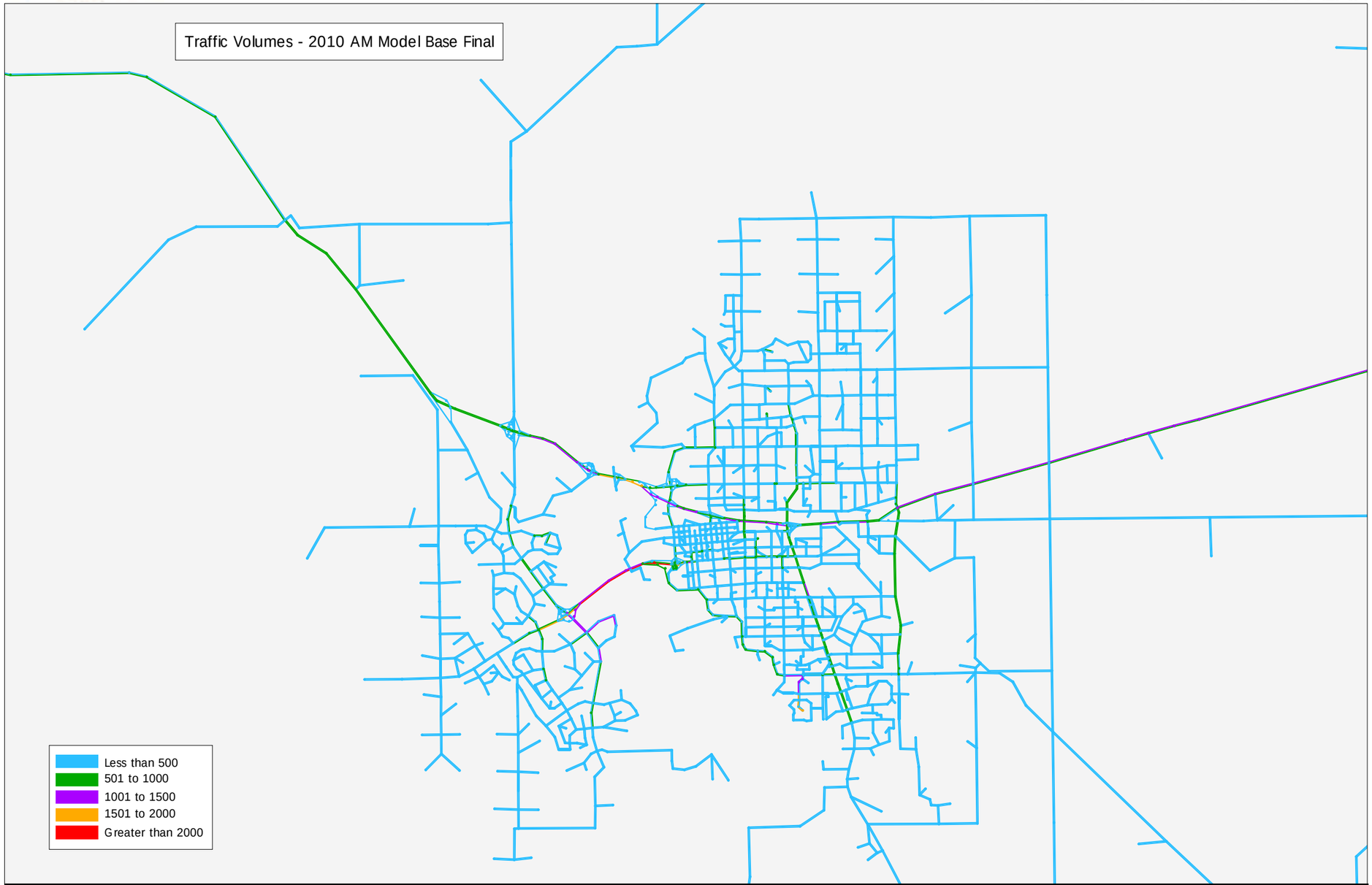
Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

APPENDIX E00
TRAFFIC ANALYSIS ZONES

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

APPENDIX E01

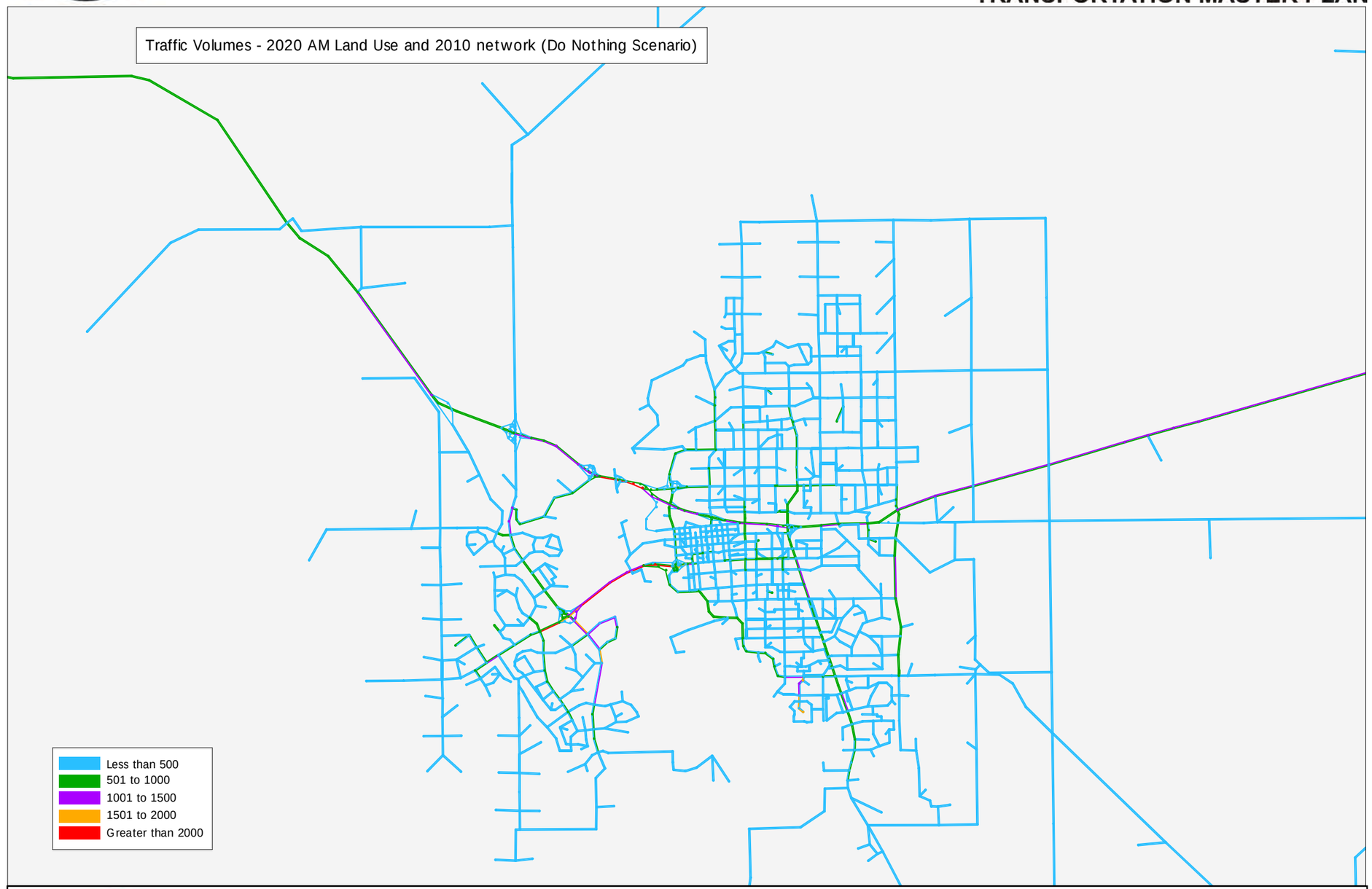
Traffic Volumes - 2010 AM Model Base Final

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

Traffic Volumes - 2020 AM Land Use and 2010 network (Do Nothing Scenario)



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

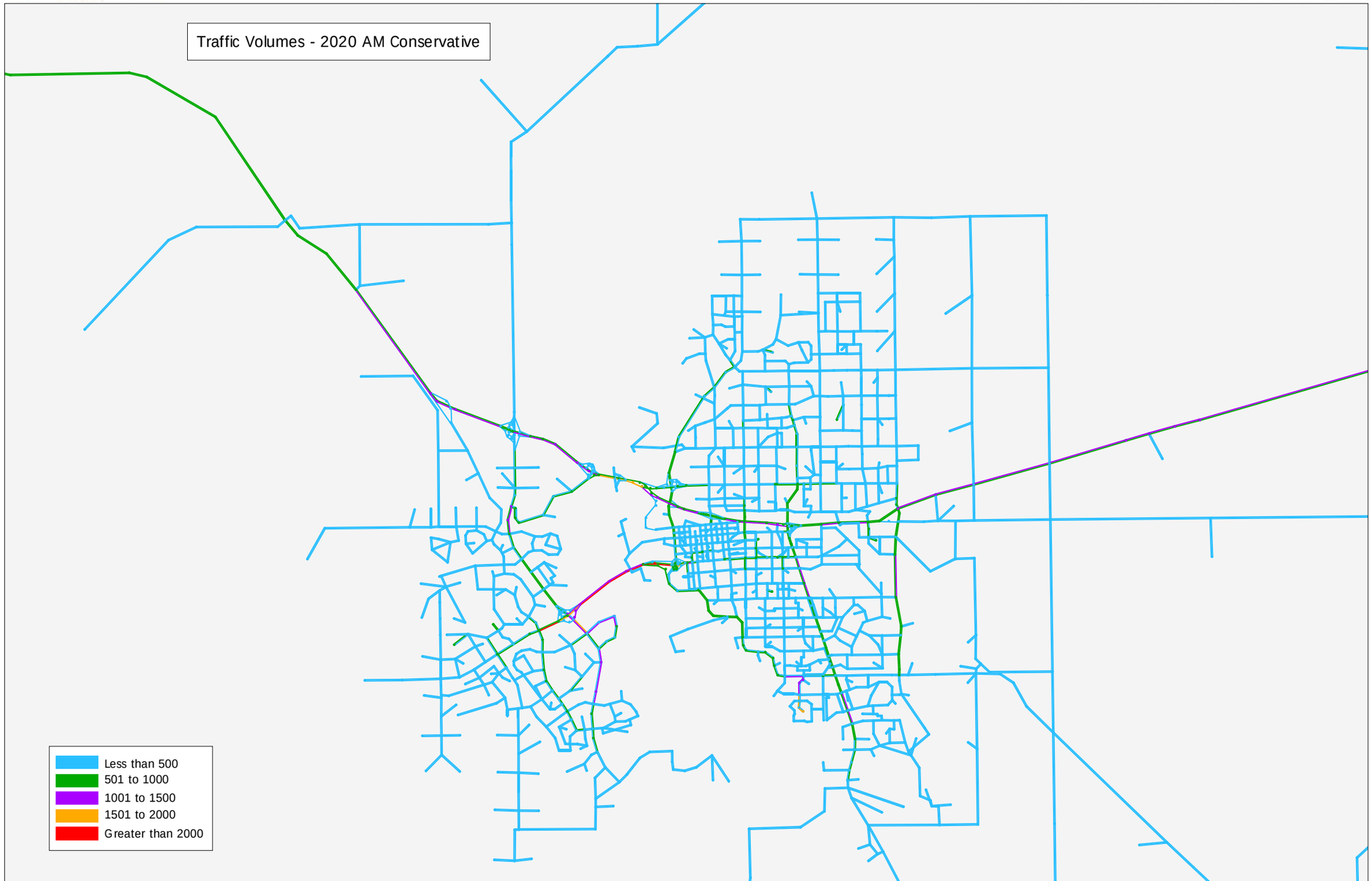
APPENDIX E02

Traffic Volumes - 2020 AM Land Use and 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

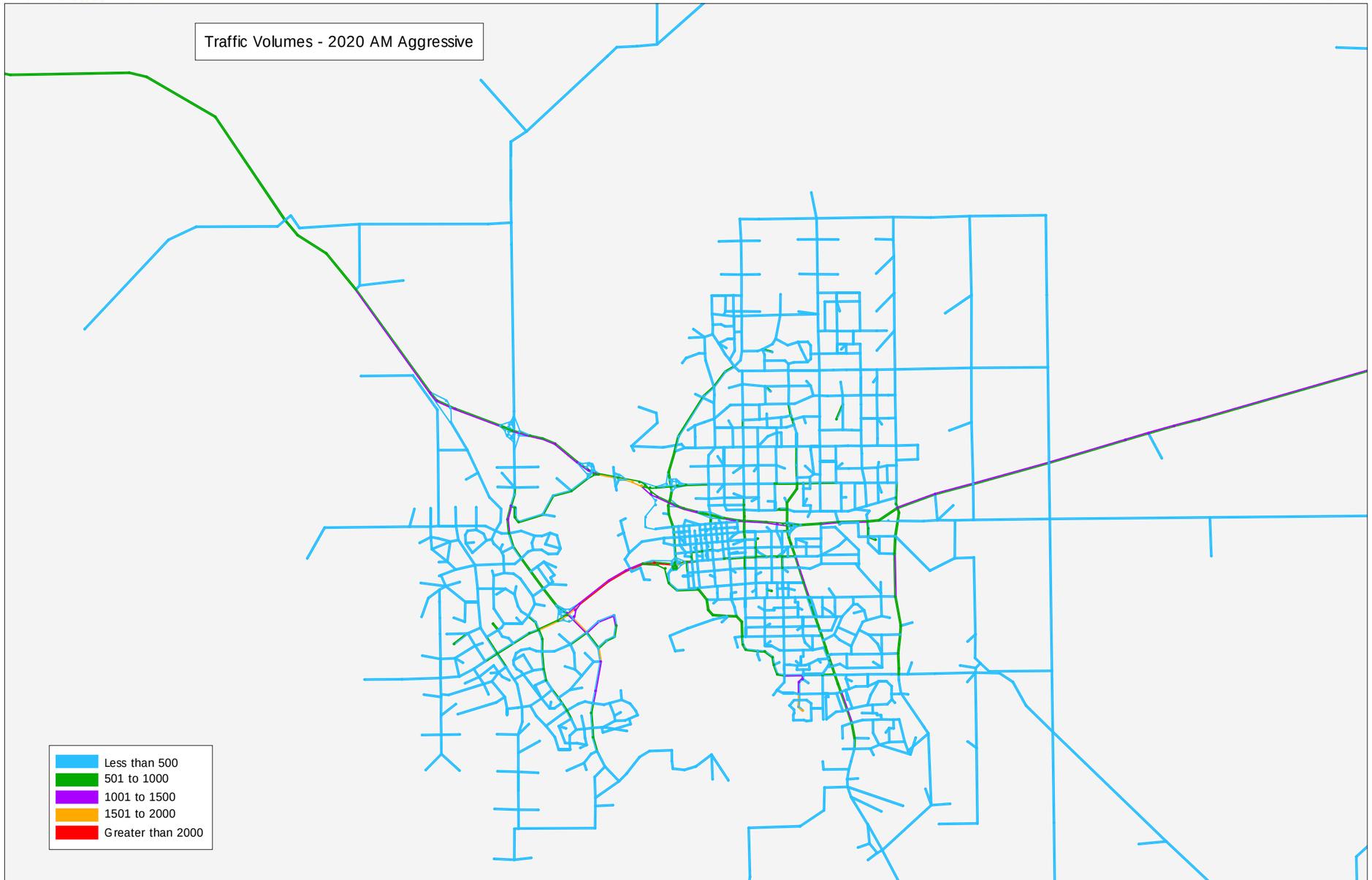
APPENDIX E03

Traffic Volumes - 2020 AM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

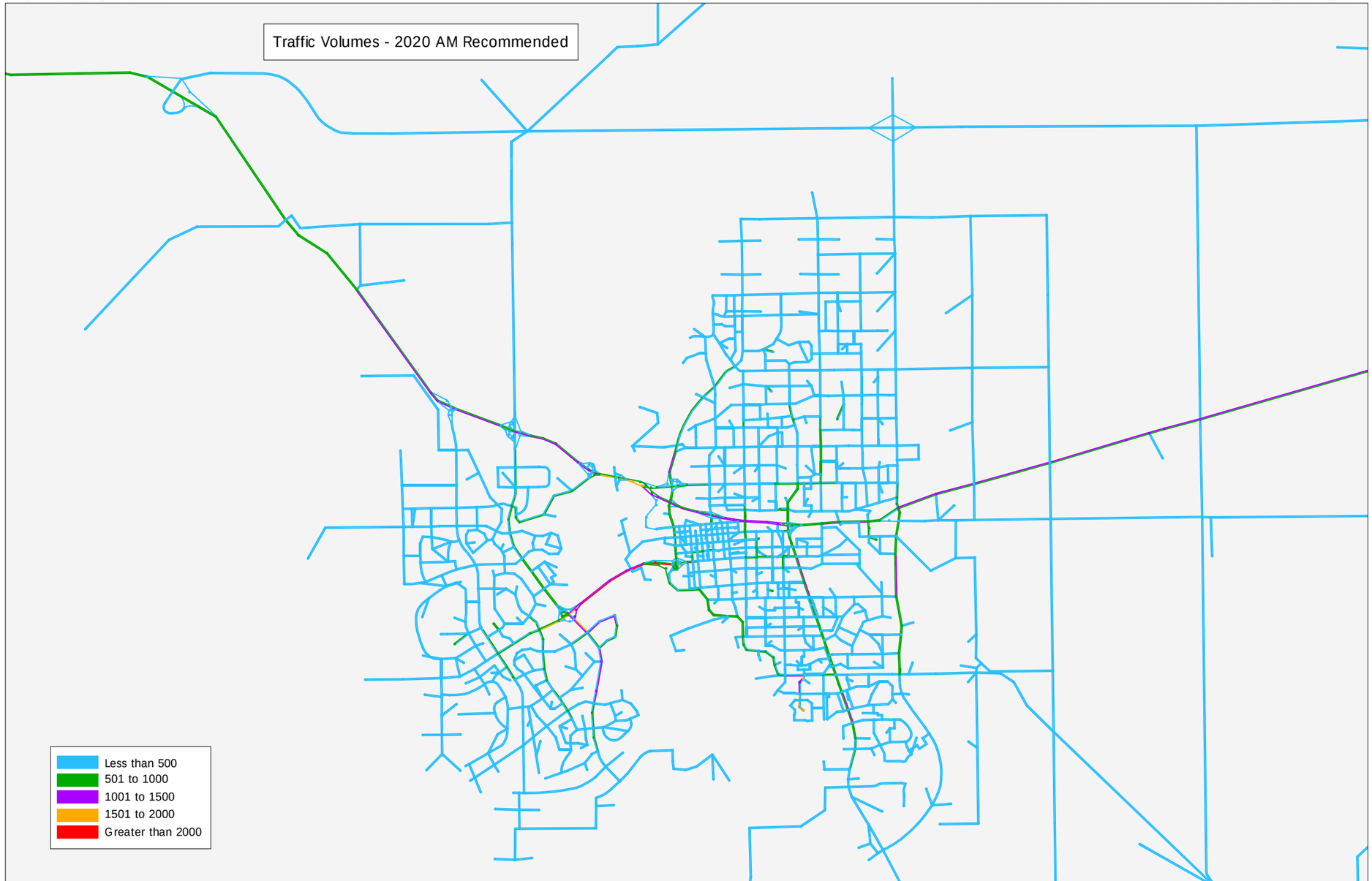
APPENDIX E04

Traffic Volumes - 2020 AM Aggressive

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

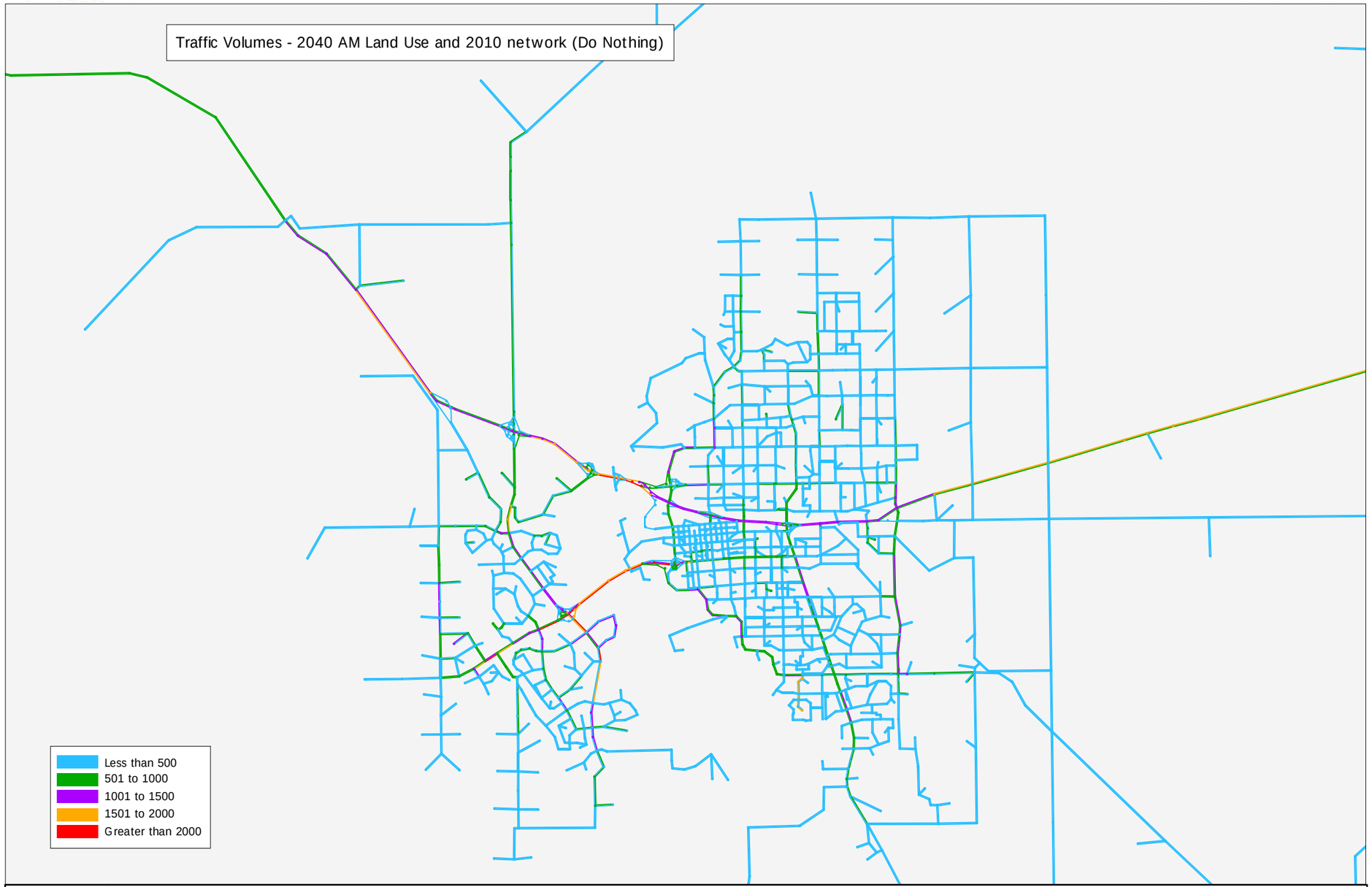
APPENDIX E05

Traffic Volumes - 2020 AM Recommended

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

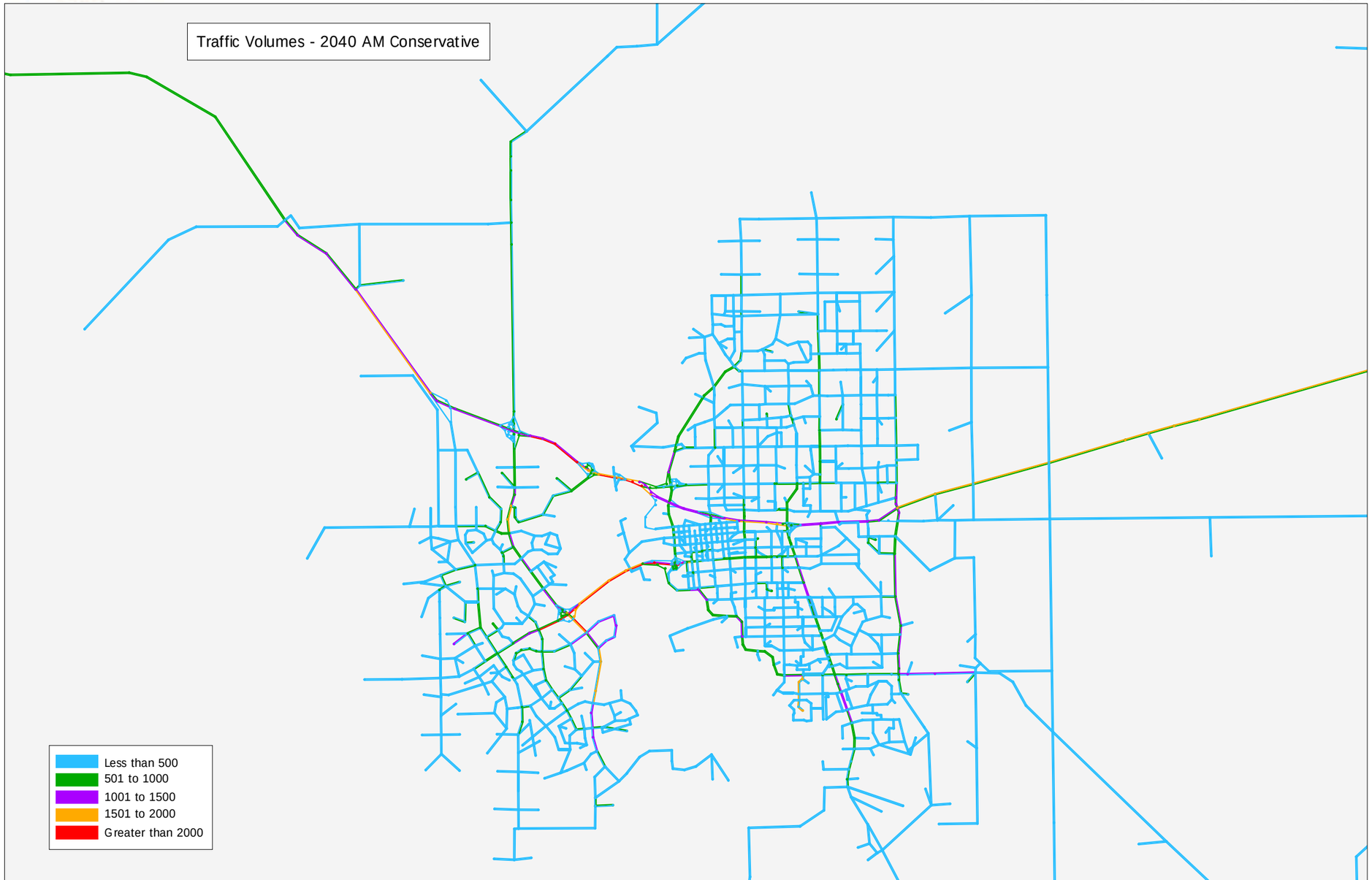
APPENDIX E06

Traffic Volumes - 2040 AM Land Use and 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

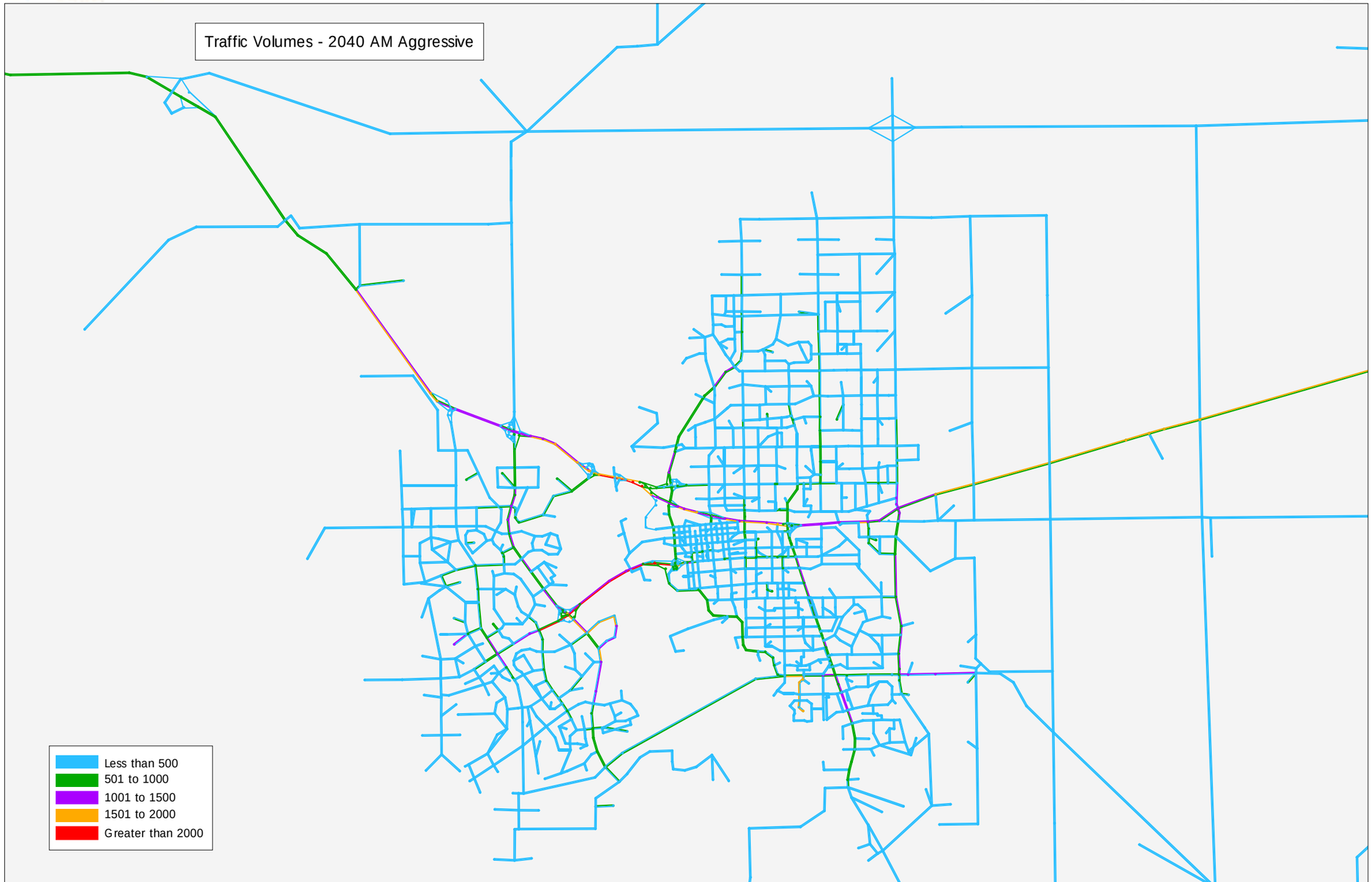
APPENDIX E07

Traffic Volumes - 2040 AM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

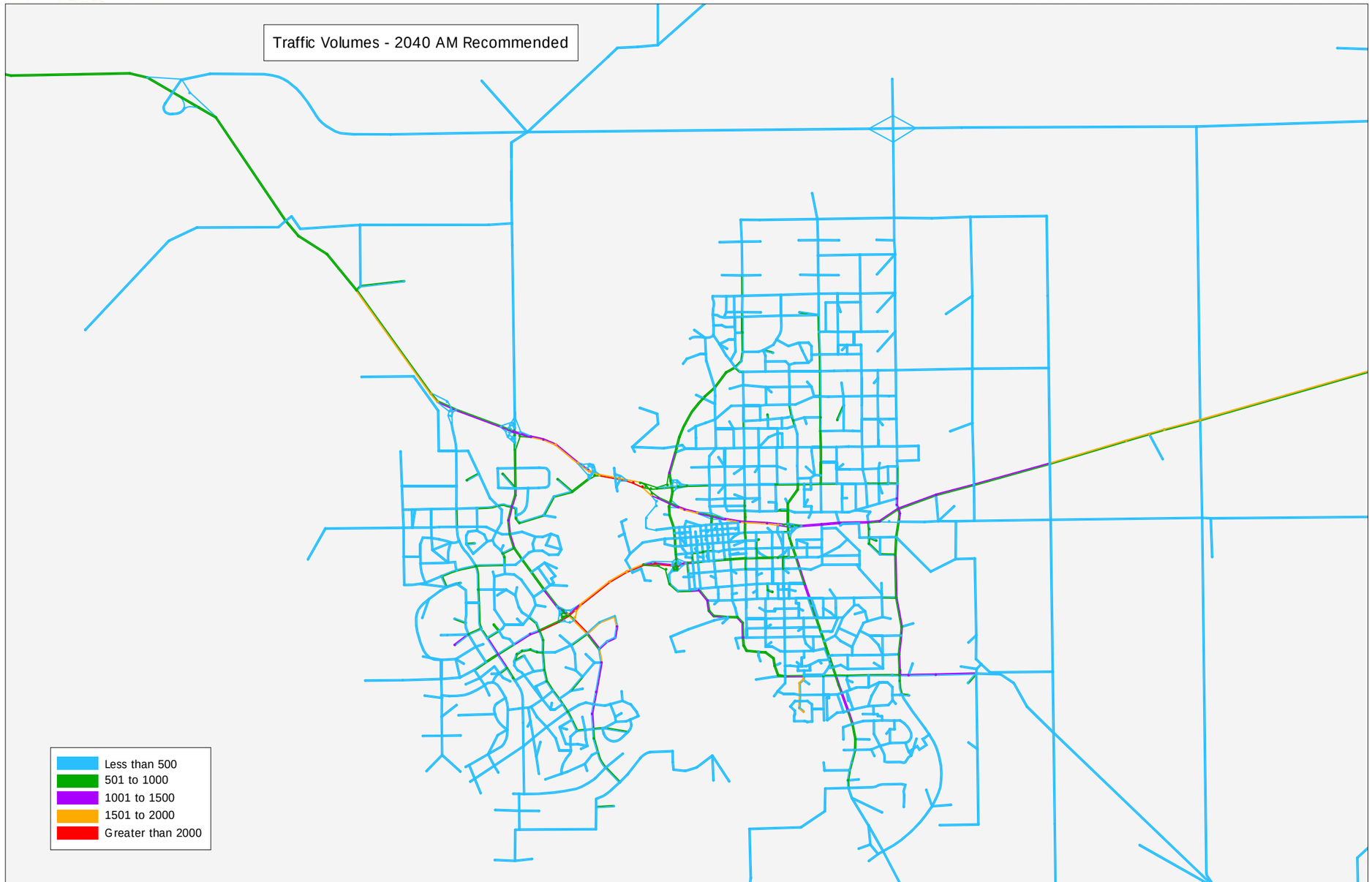
APPENDIX E08

Traffic Volumes - 2040 AM Aggressive

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

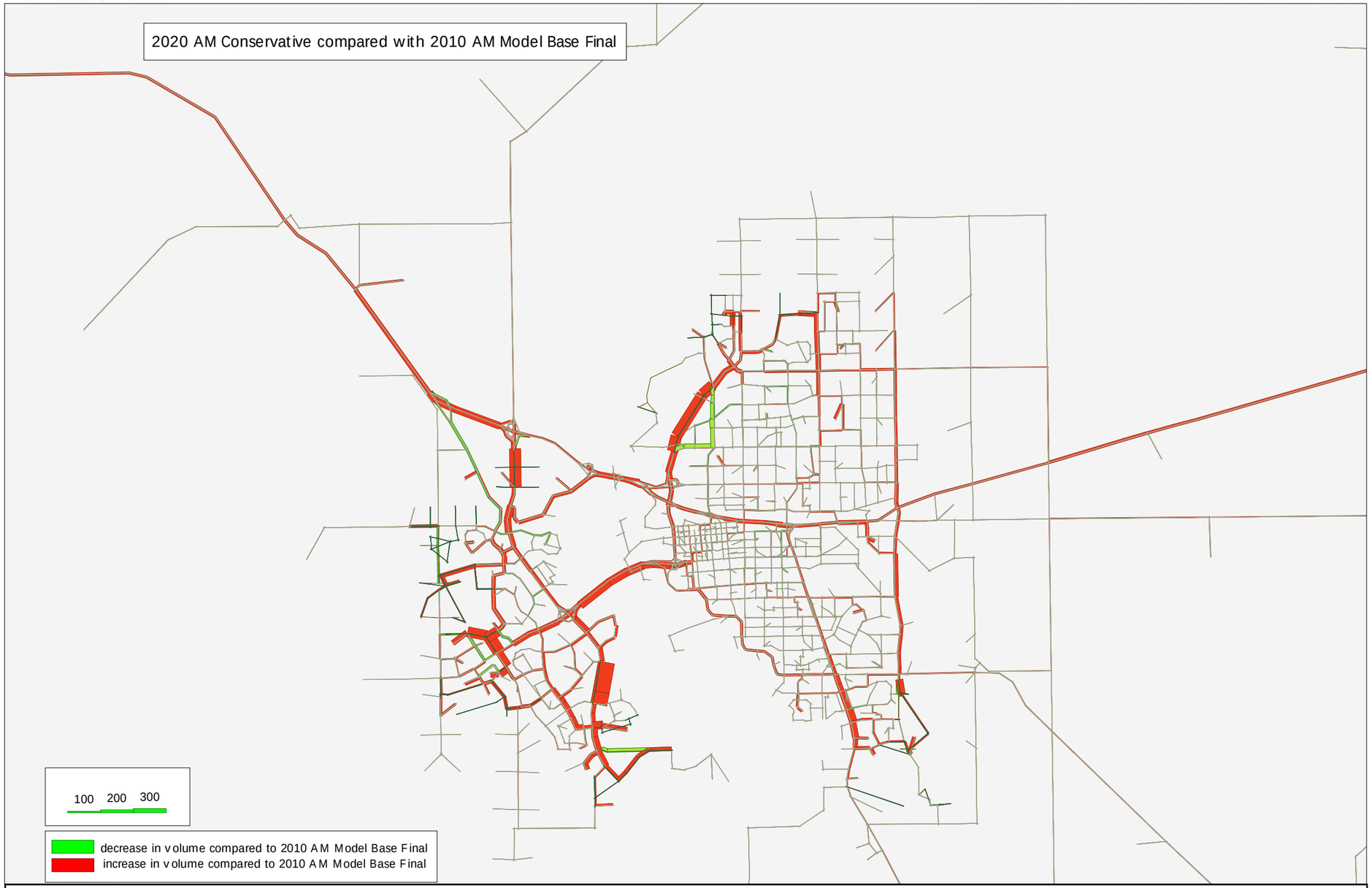
APPENDIX E09

Traffic Volumes - 2040 AM Recommended

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

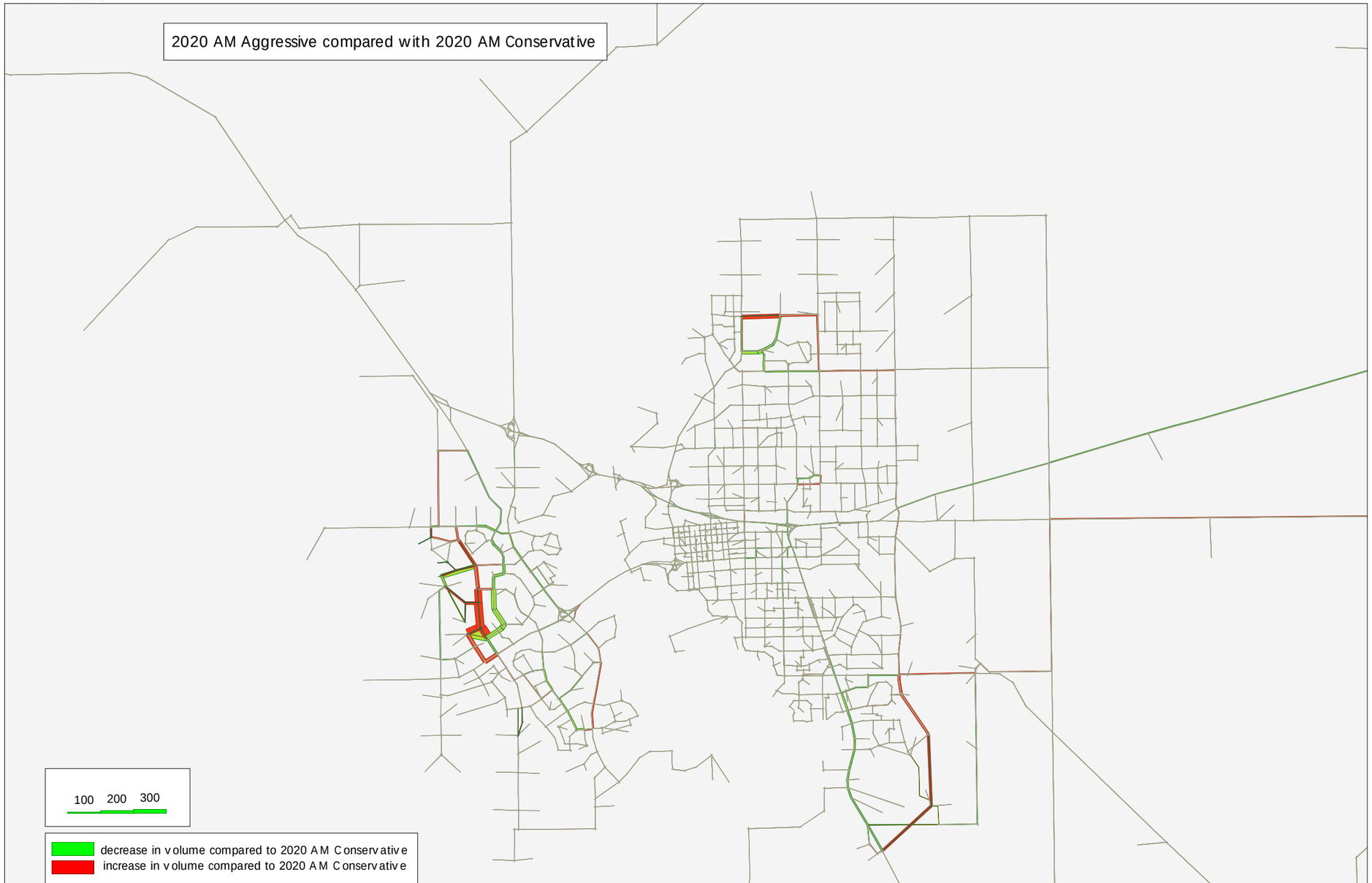
APPENDIX E10

Volume Comparison - 2020 AM Conservative compared with 2010 AM Model Base Final

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

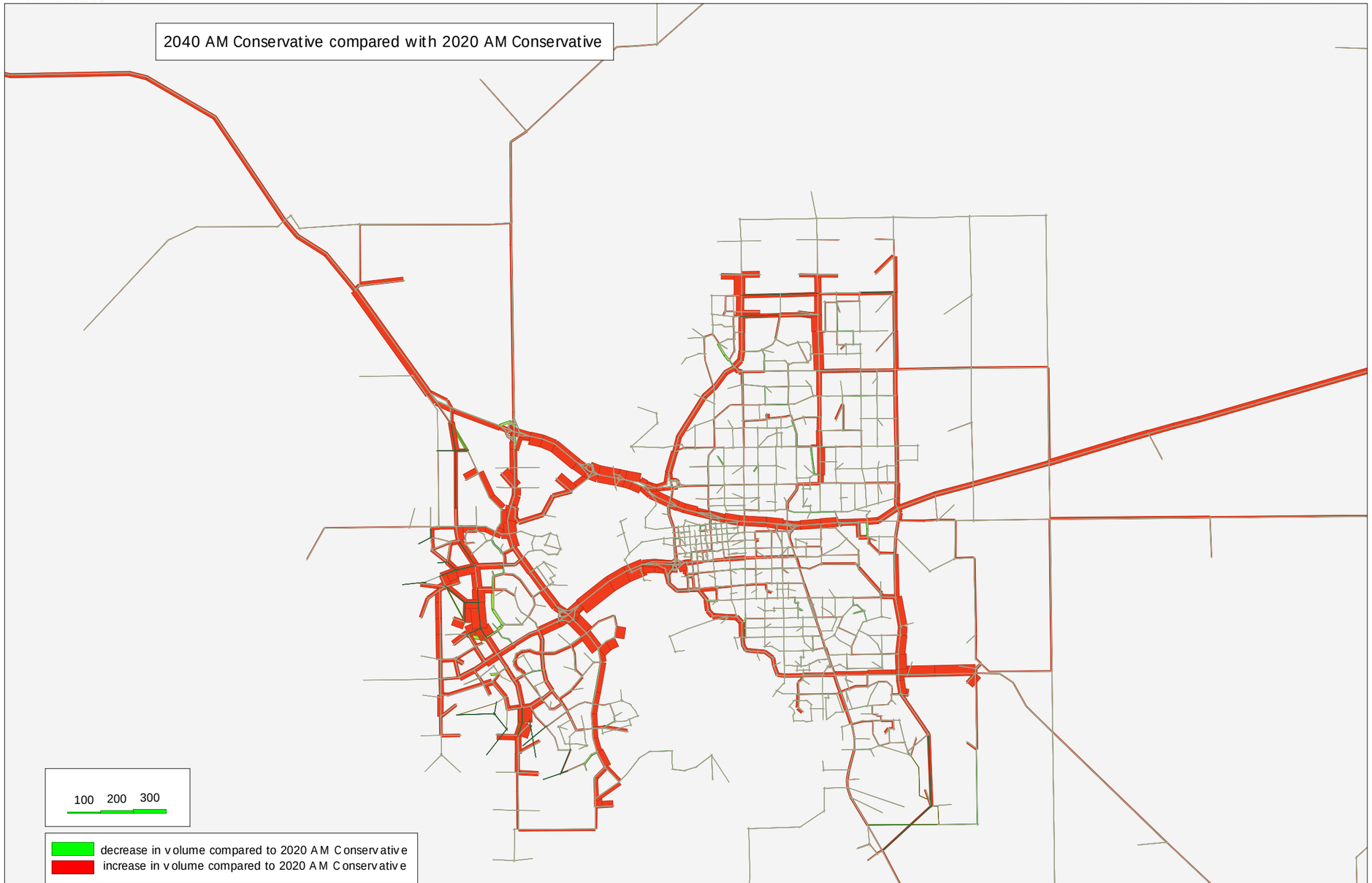
APPENDIX E11

Volume Comparison - 2020 AM Aggressive compared with 2020 AM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

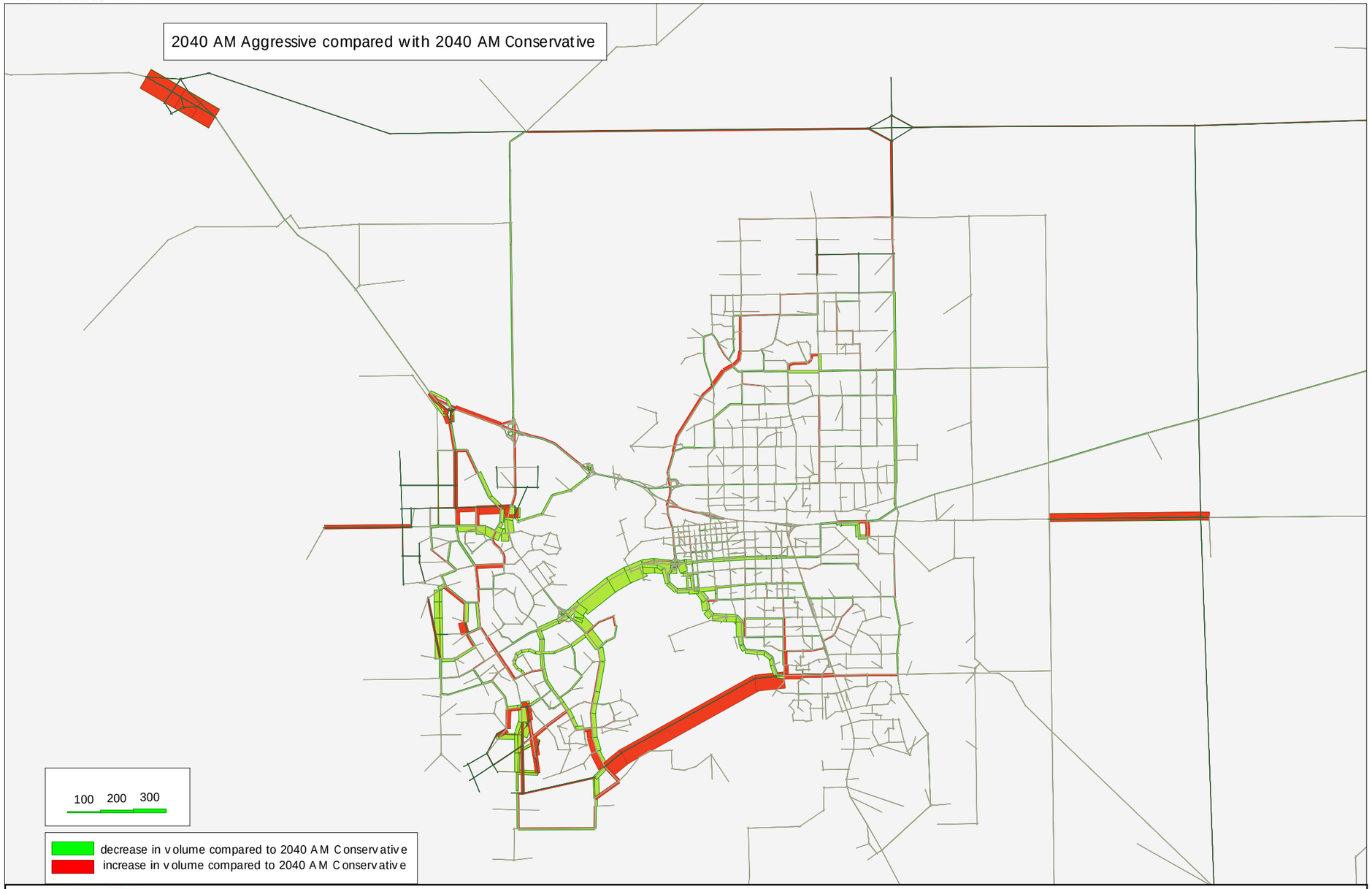
APPENDIX E12

Volume Comparison - 2040 AM Conservative compared with 2020 AM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

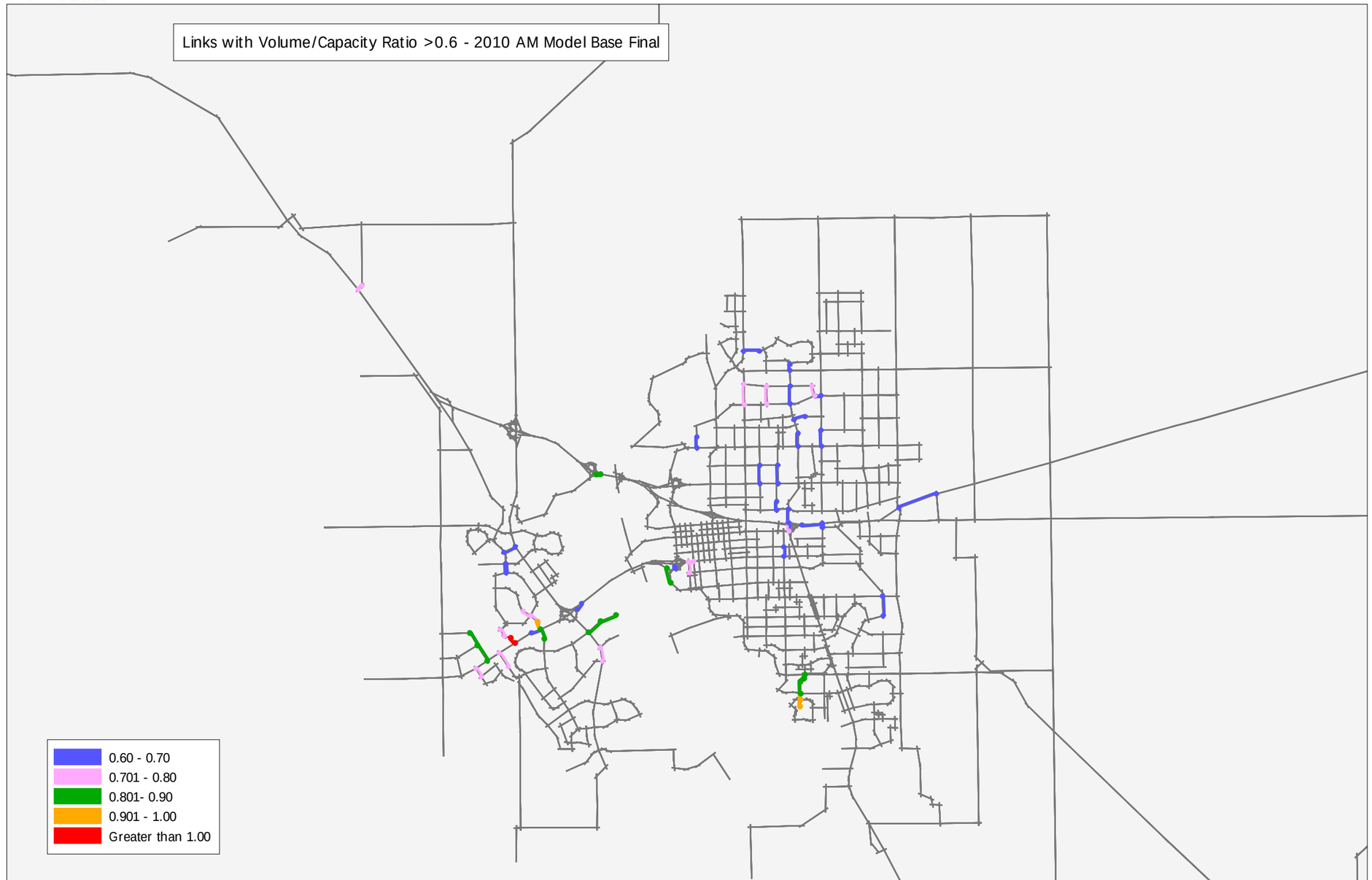
APPENDIX E13

Volume Comparison - 2040 AM Aggressive compared with 2040 AM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

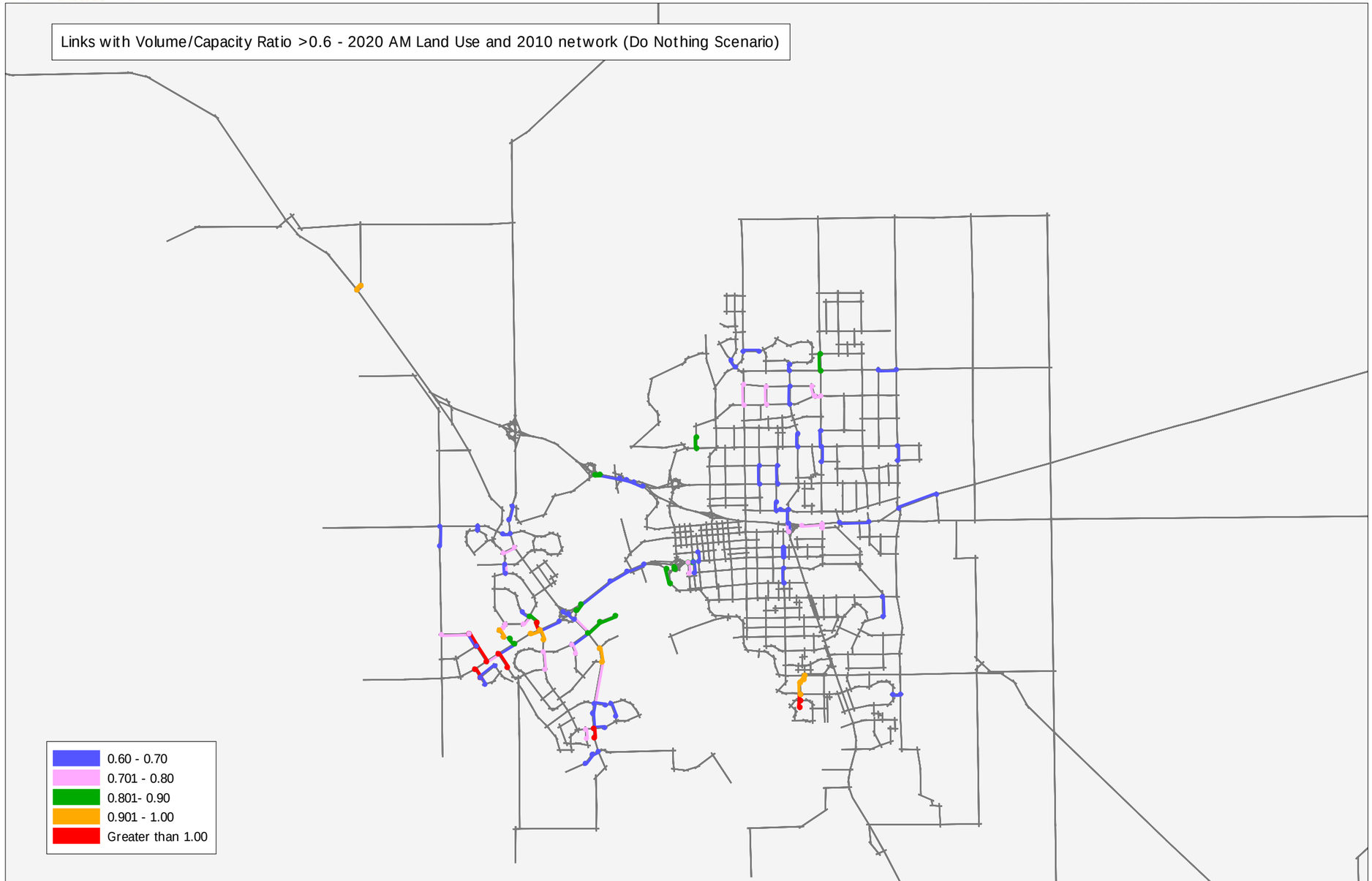
APPENDIX E14

Volume to Capacity Ratio - 2010 AM Model Base Final

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

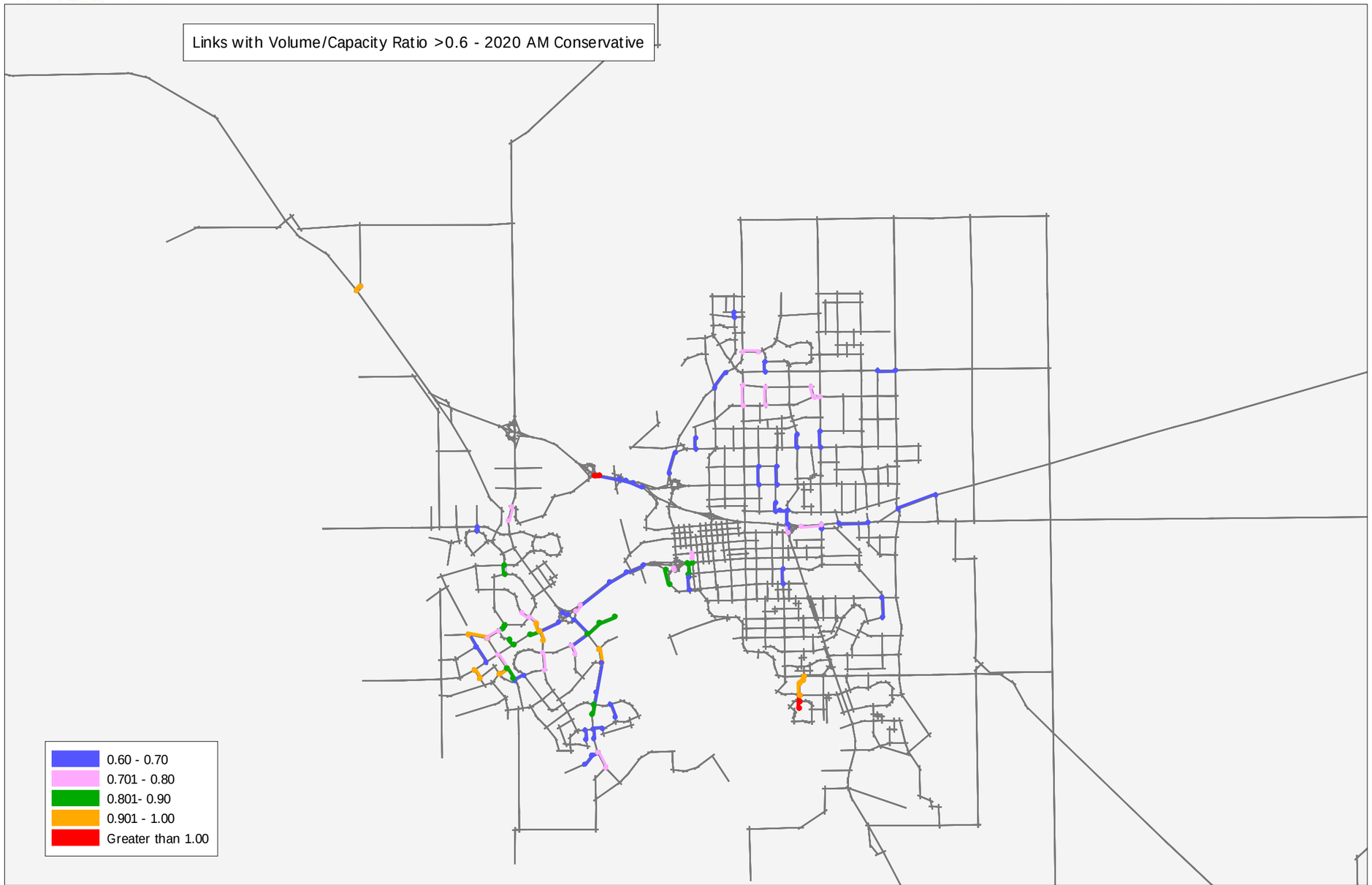
APPENDIX E15

Volume to Capacity Ratio - 2020 AM Land Use and 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

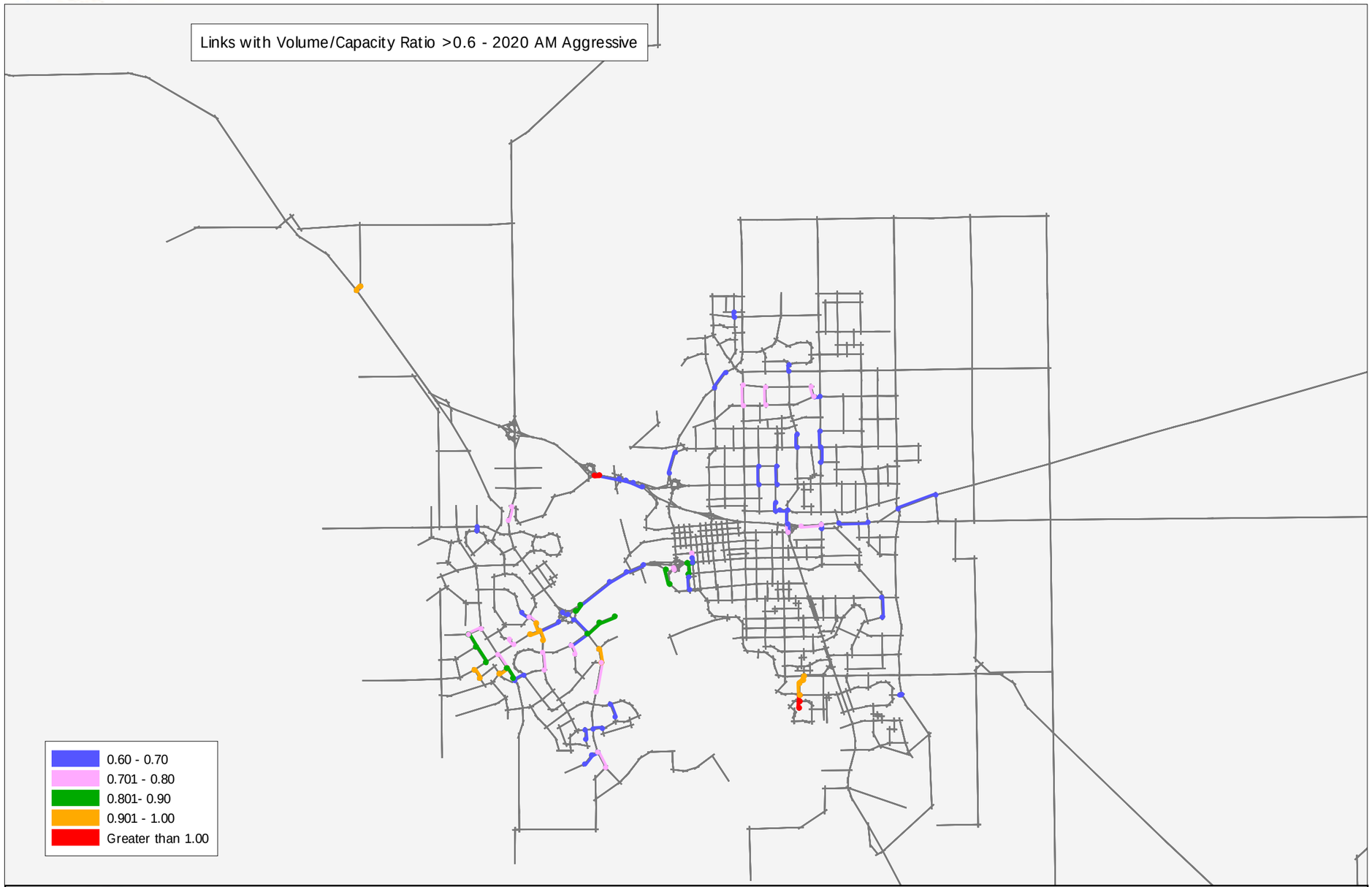
APPENDIX E16

Volume to Capacity Ratio - 2020 AM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

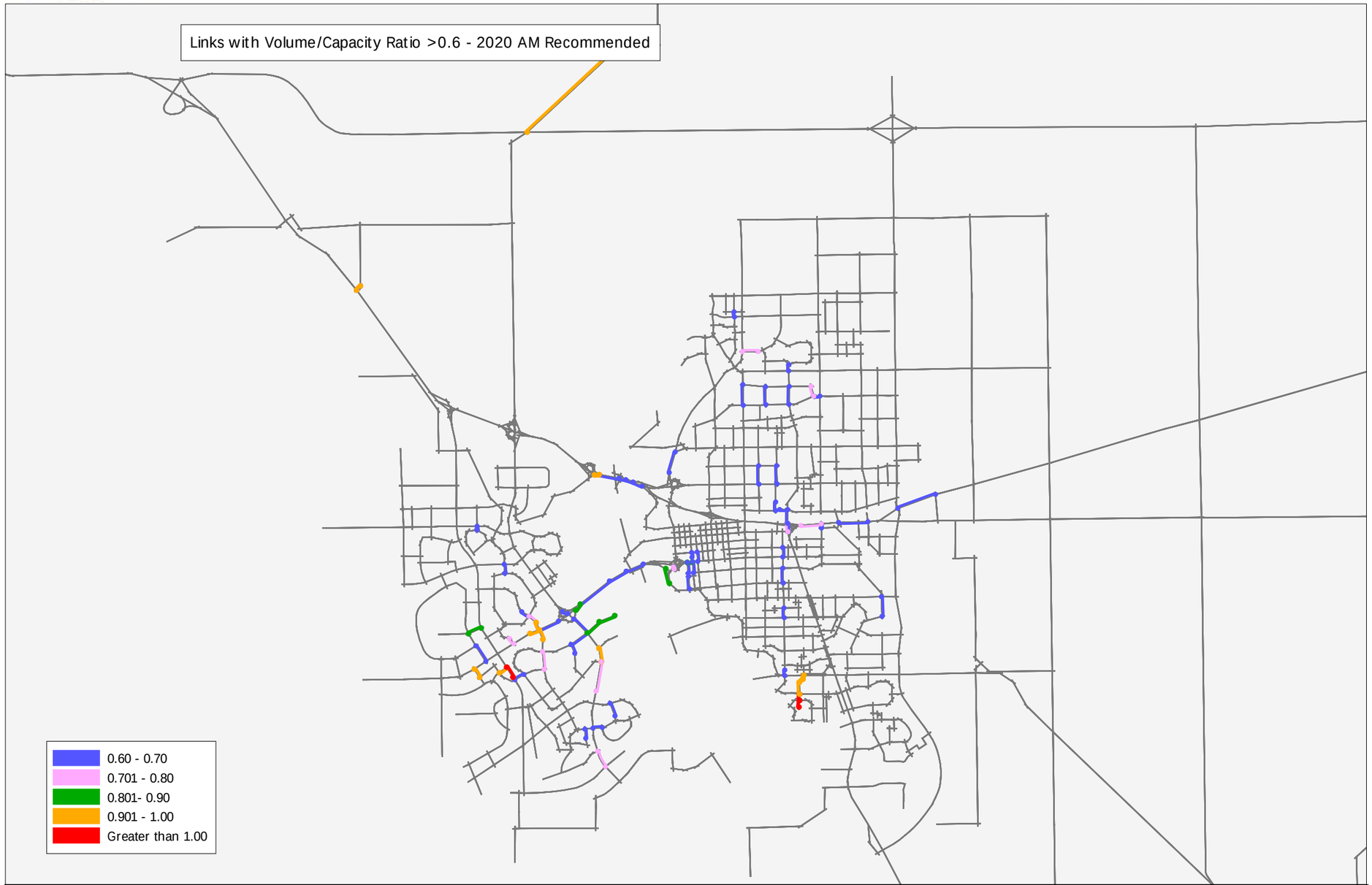
APPENDIX E17

Volume to Capacity Ratio - 2020 AM Aggressive

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

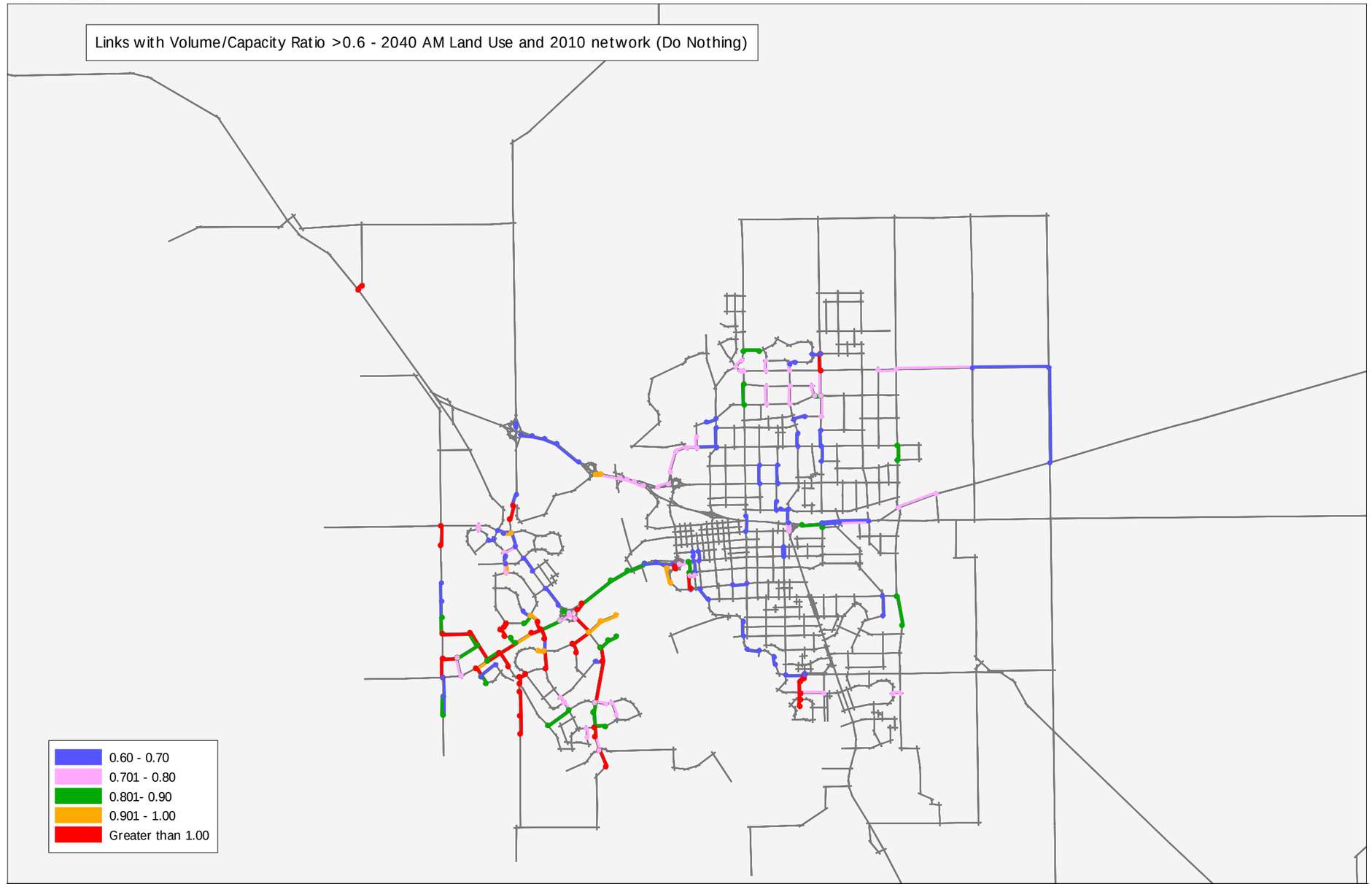
APPENDIX E18

Volume to Capacity Ratio - 2020 AM Recommended

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

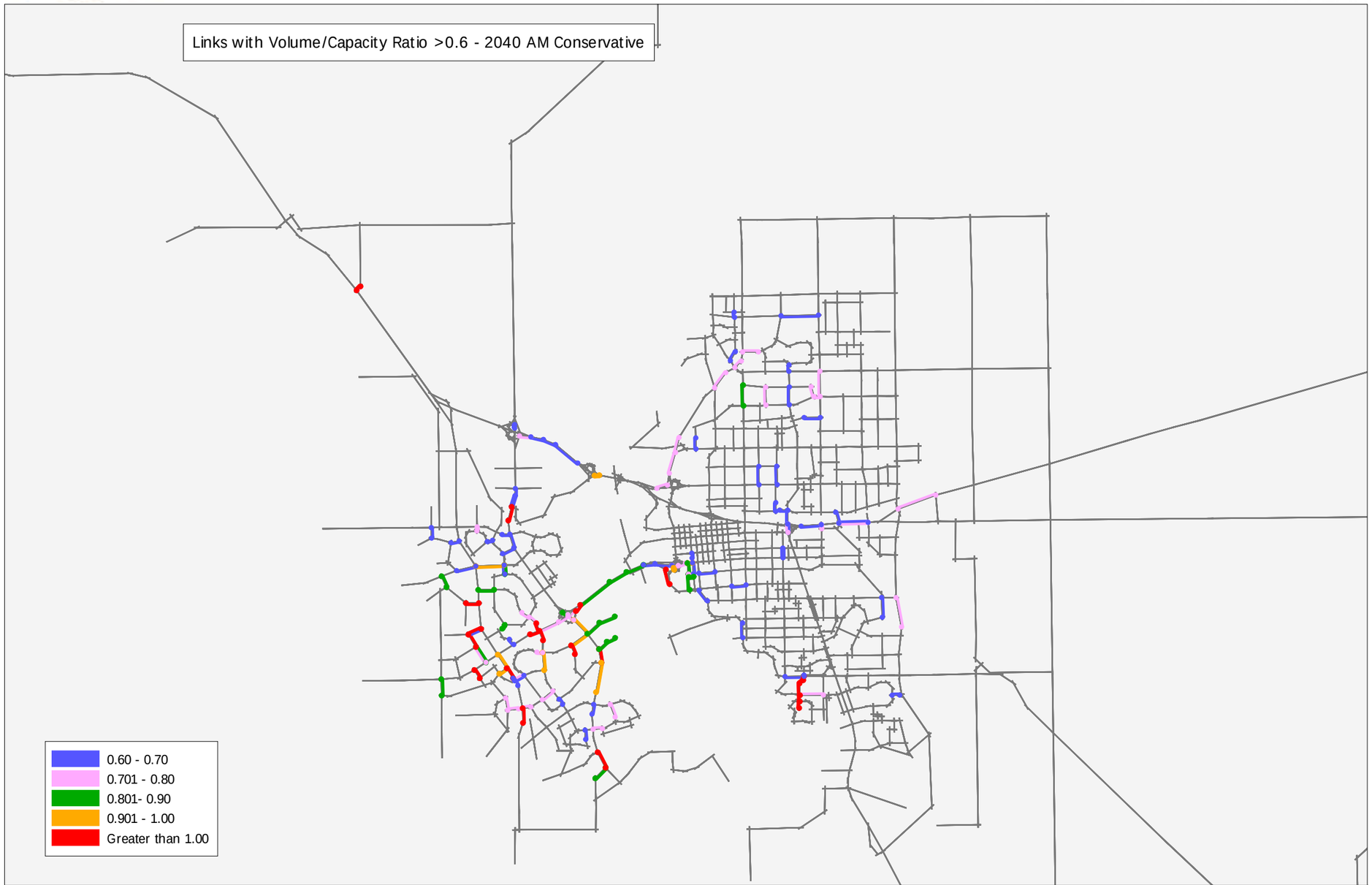
APPENDIX E19

Volume to Capacity Ratio - 2040 AM Land Use and 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

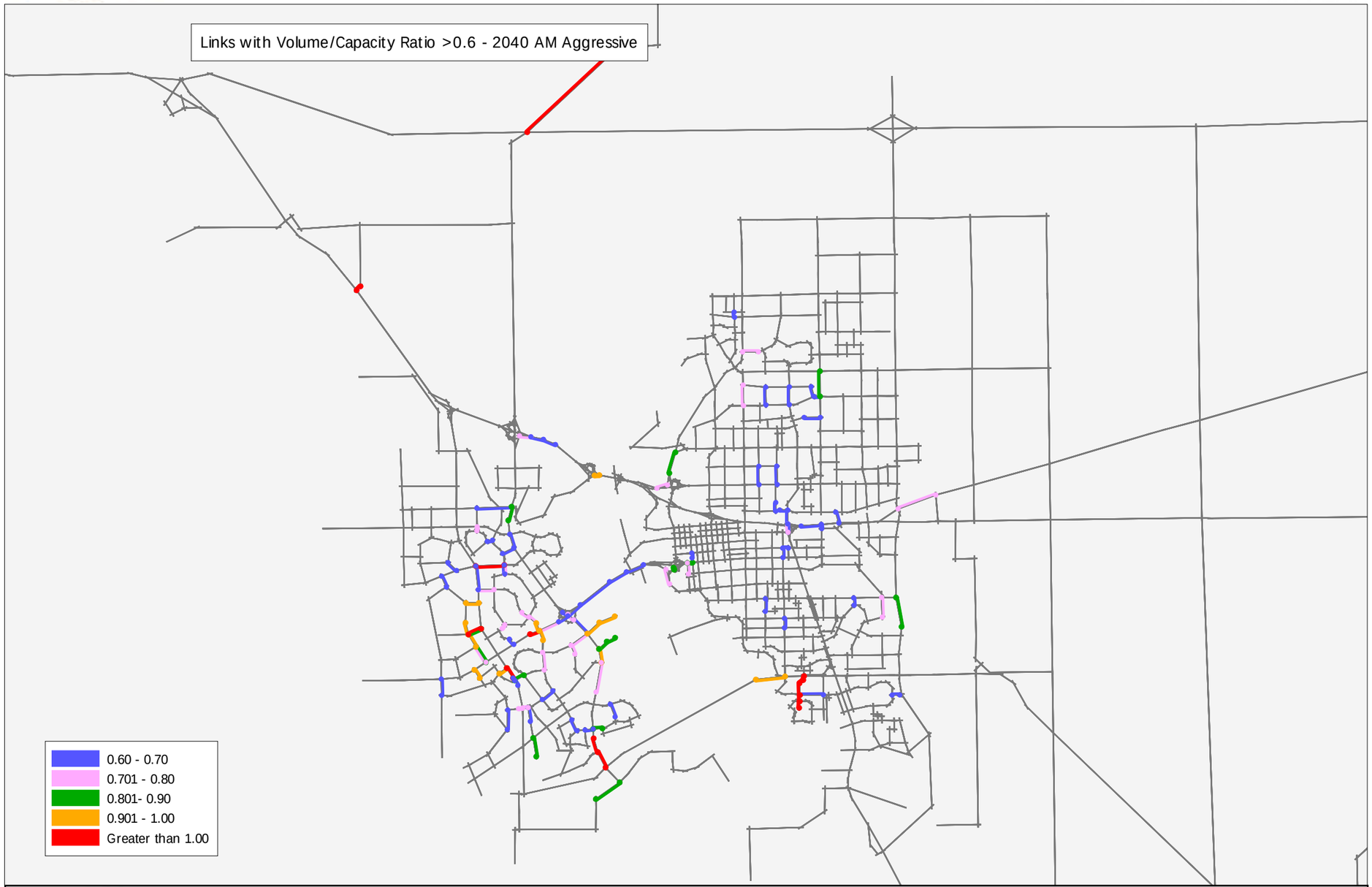
APPENDIX E20

Volume to Capacity Ratio - 2040 AM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

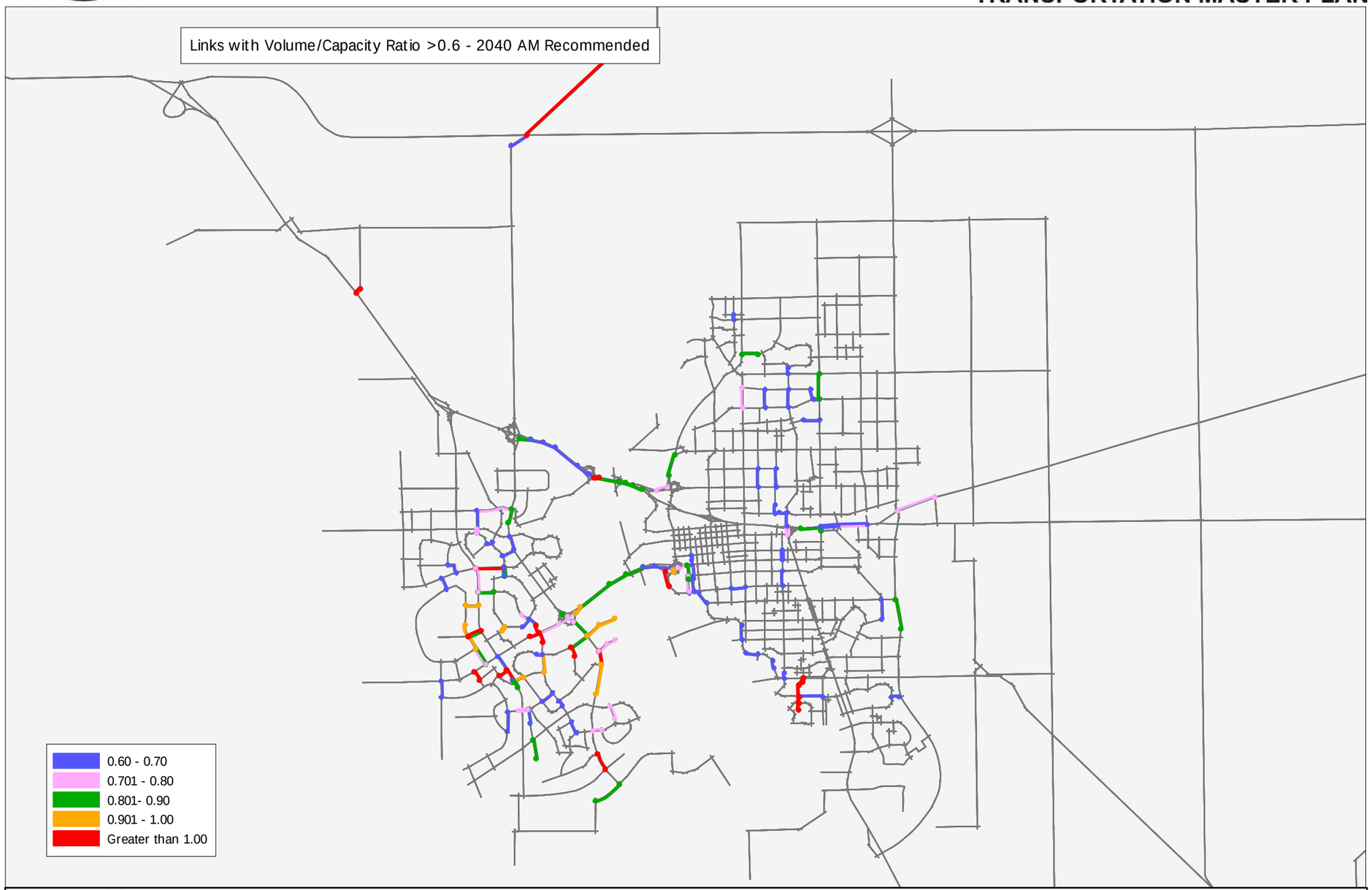
APPENDIX E21

Volume to Capacity Ratio - 2040 AM Aggressive

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

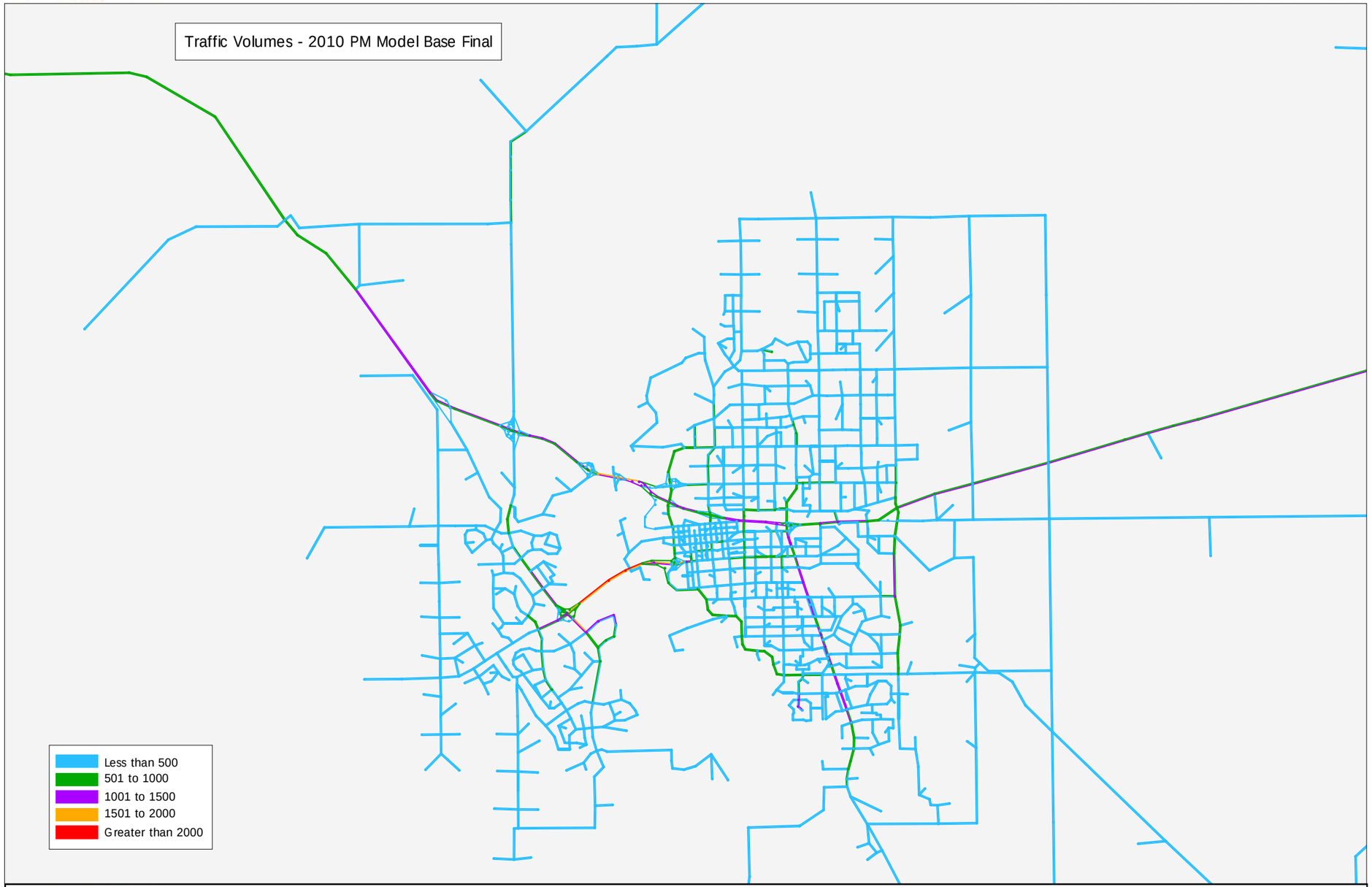
APPENDIX E22

Volume to Capacity Ratio - 2040 AM Recommended

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

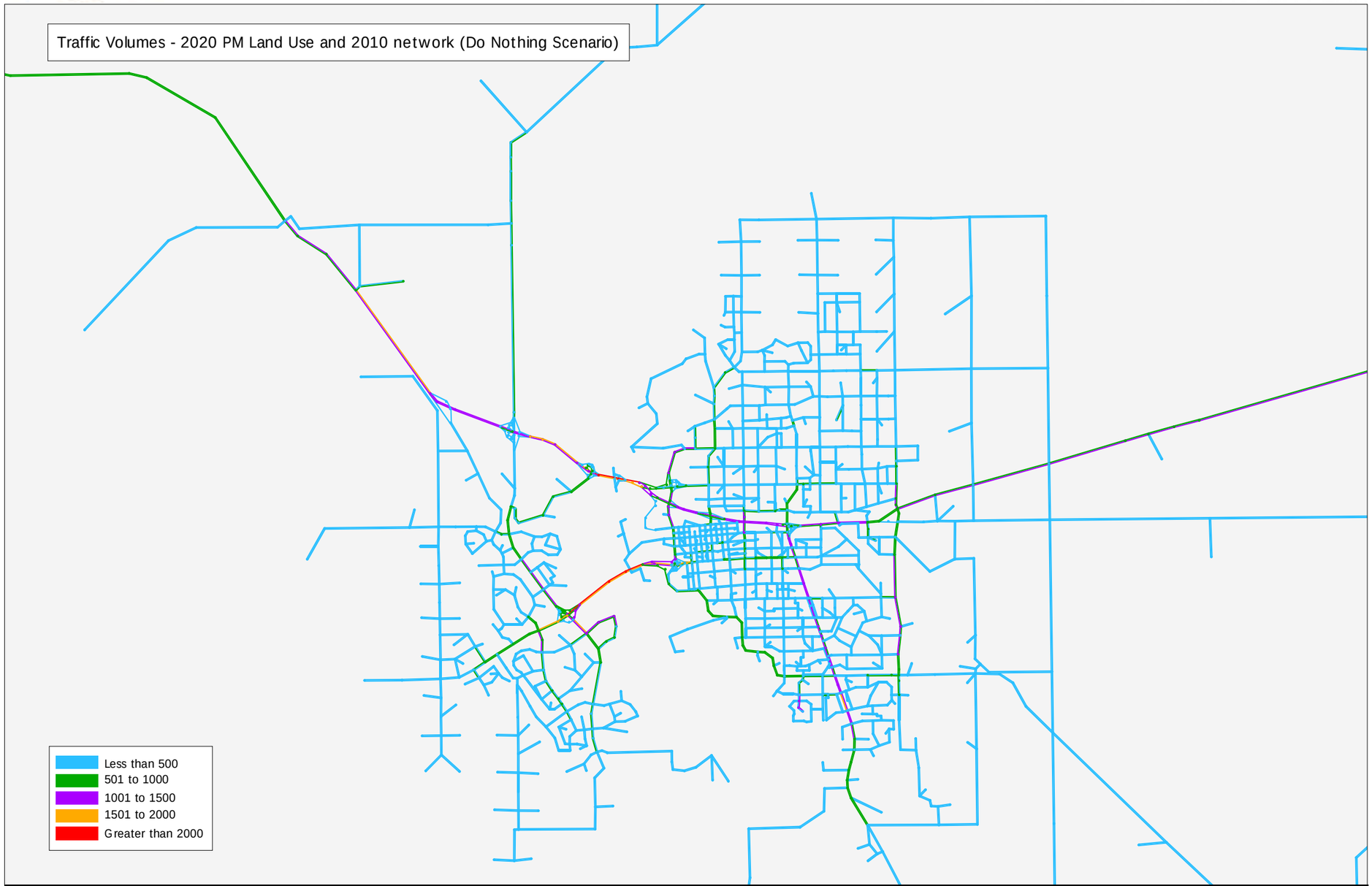
APPENDIX E23

Traffic Volumes - 2010 PM Model Base Final

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

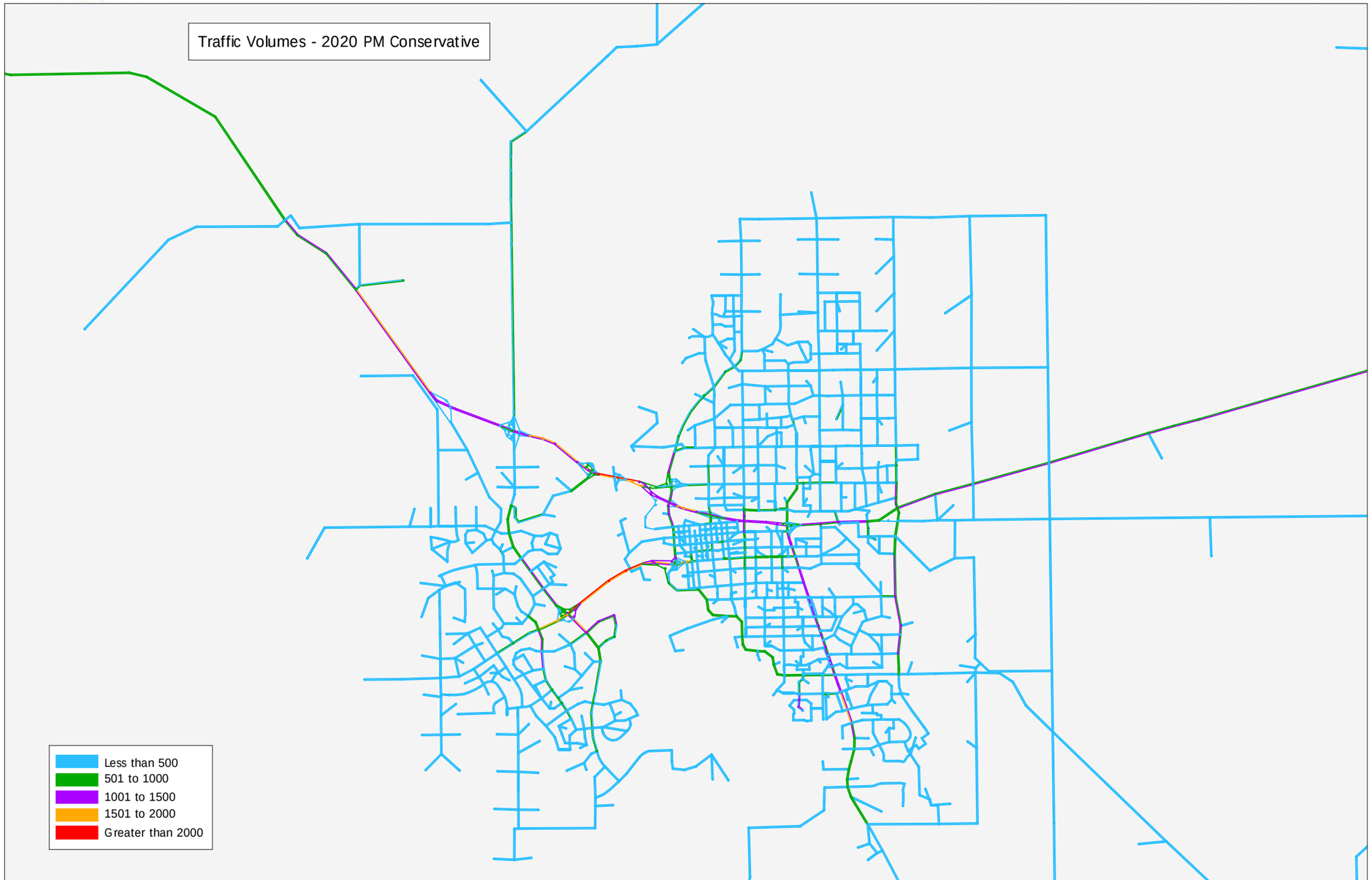
APPENDIX E24

Traffic Volumes - 2020 PM Land Use and 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

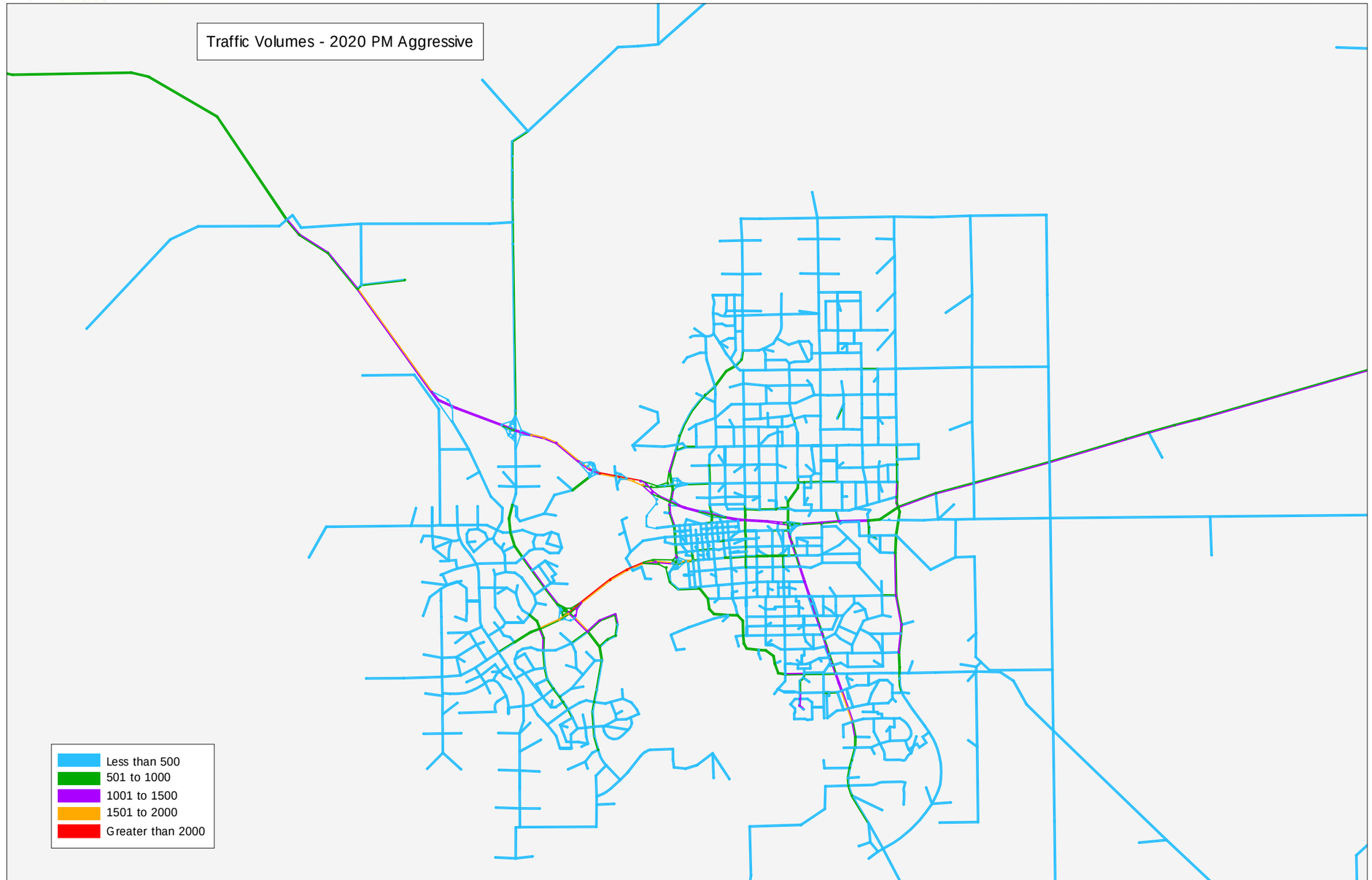
APPENDIX E25

Traffic Volumes - 2020 PM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

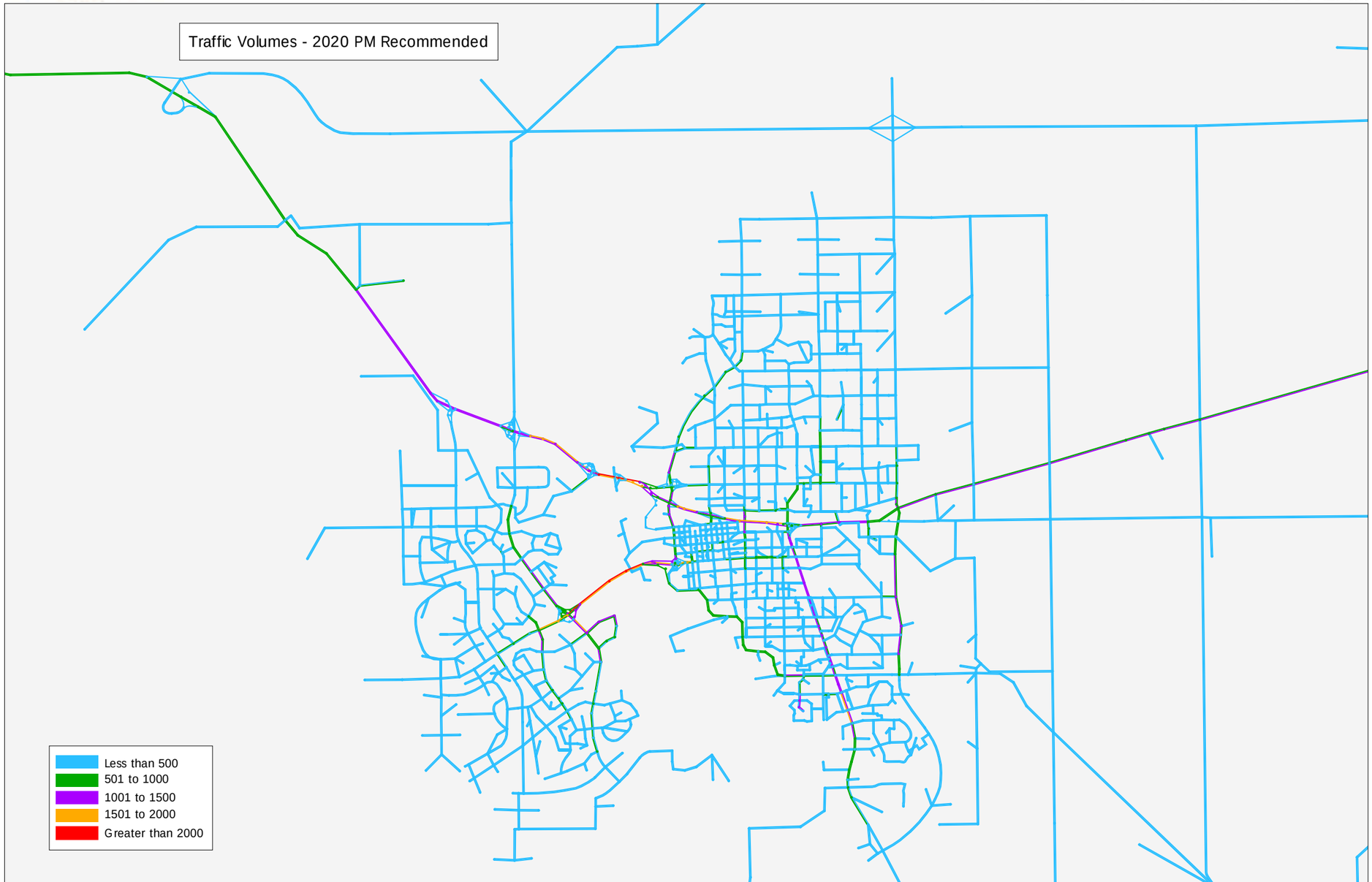
APPENDIX E26

Traffic Volumes - 2020 PM Aggressive

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

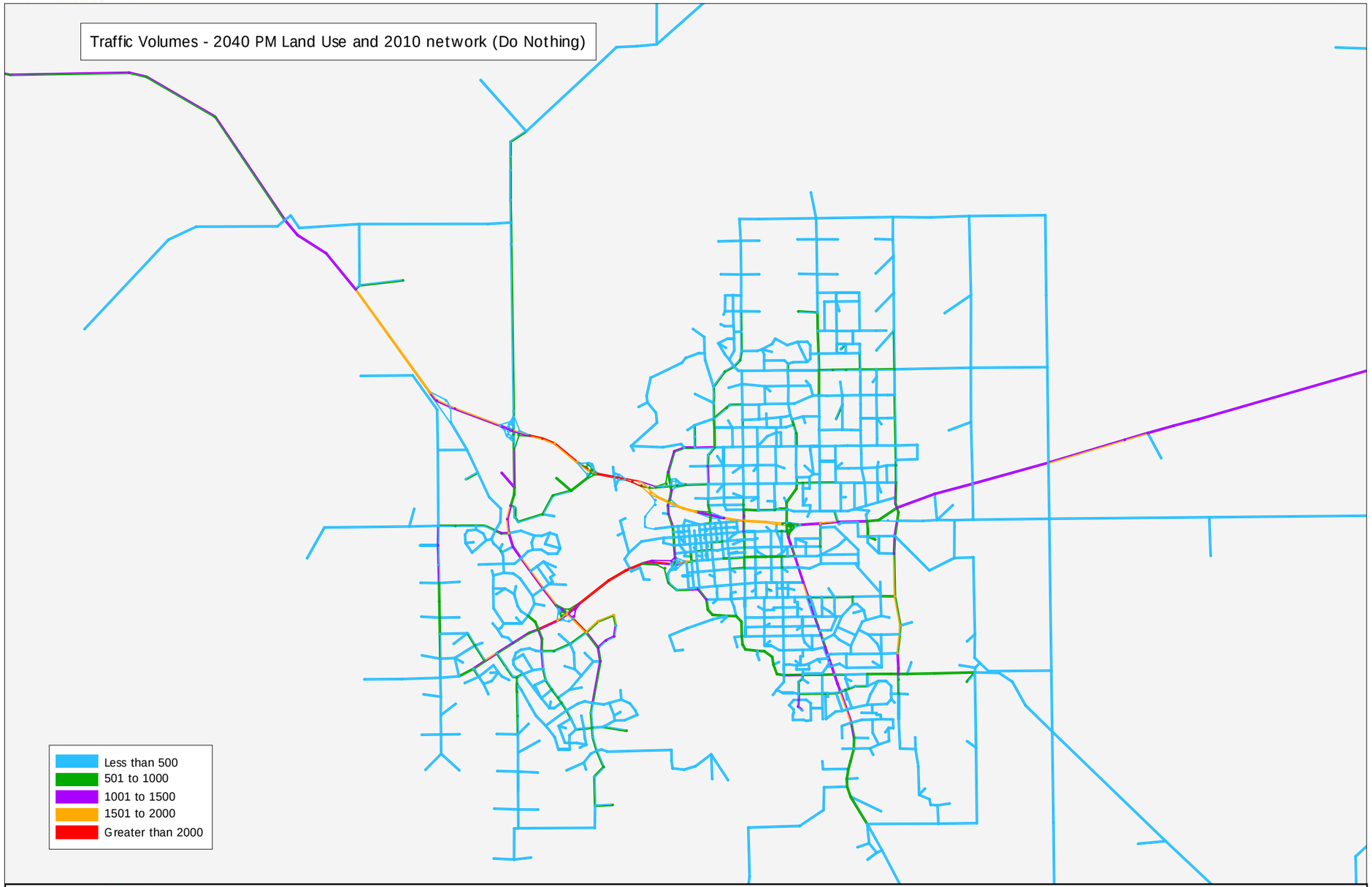
APPENDIX E27

Traffic Volumes - 2020 PM Recommended

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

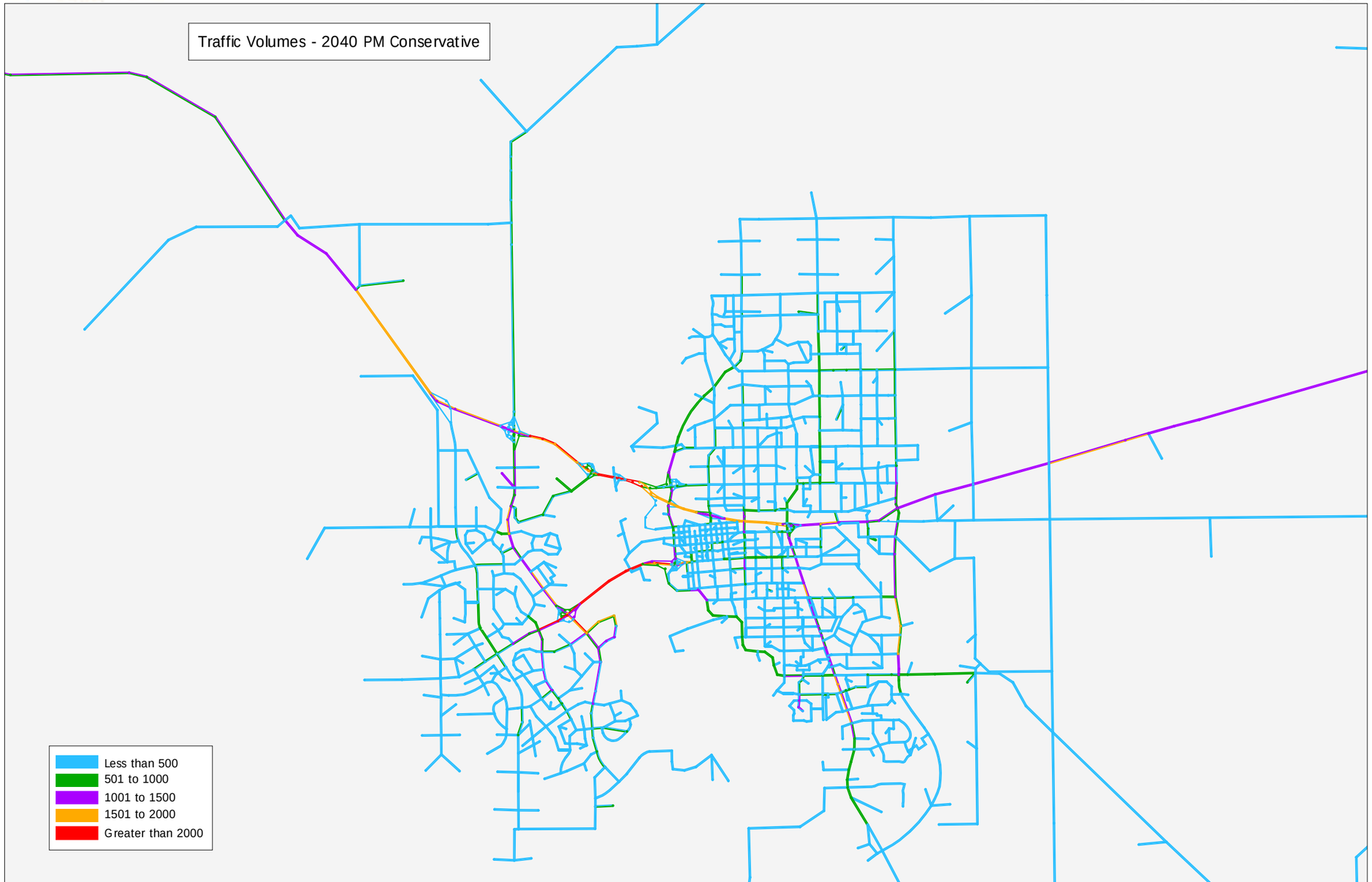
APPENDIX E28

Traffic Volumes - 2040 PM Land Use with 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

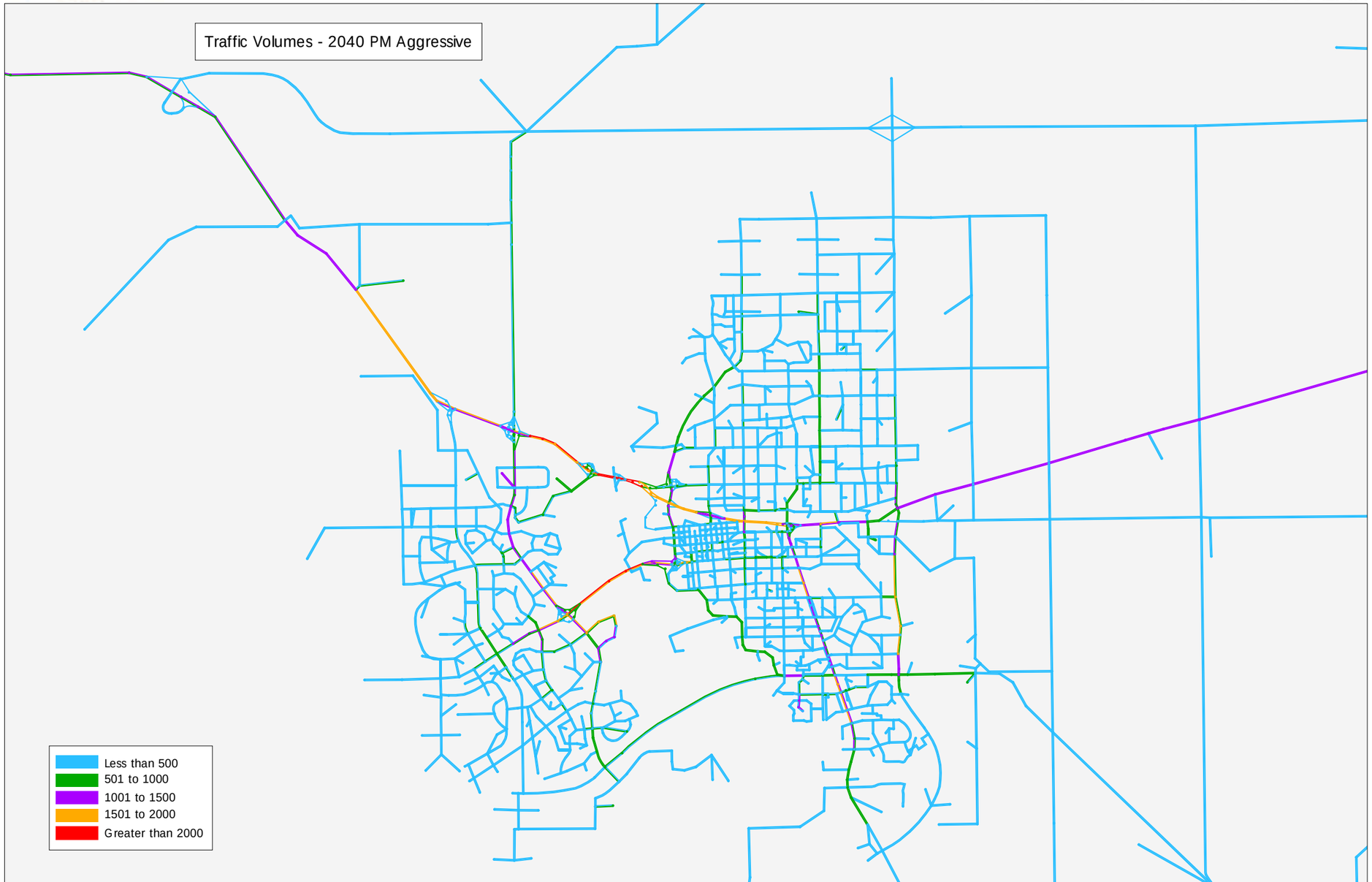
APPENDIX E29

Traffic Volumes - 2040 PM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

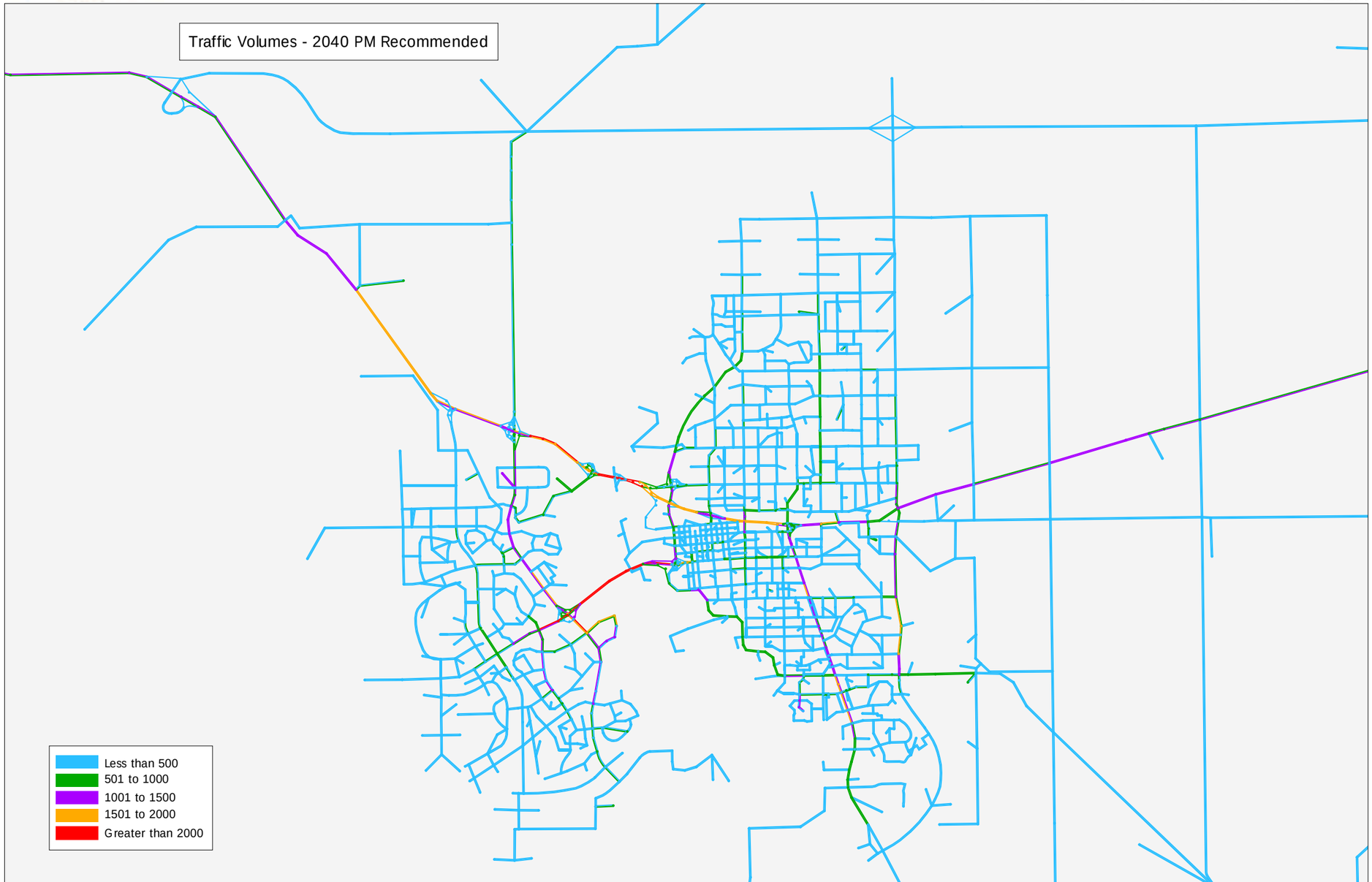
APPENDIX E30

Traffic Volumes - 2040 PM Aggressive

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

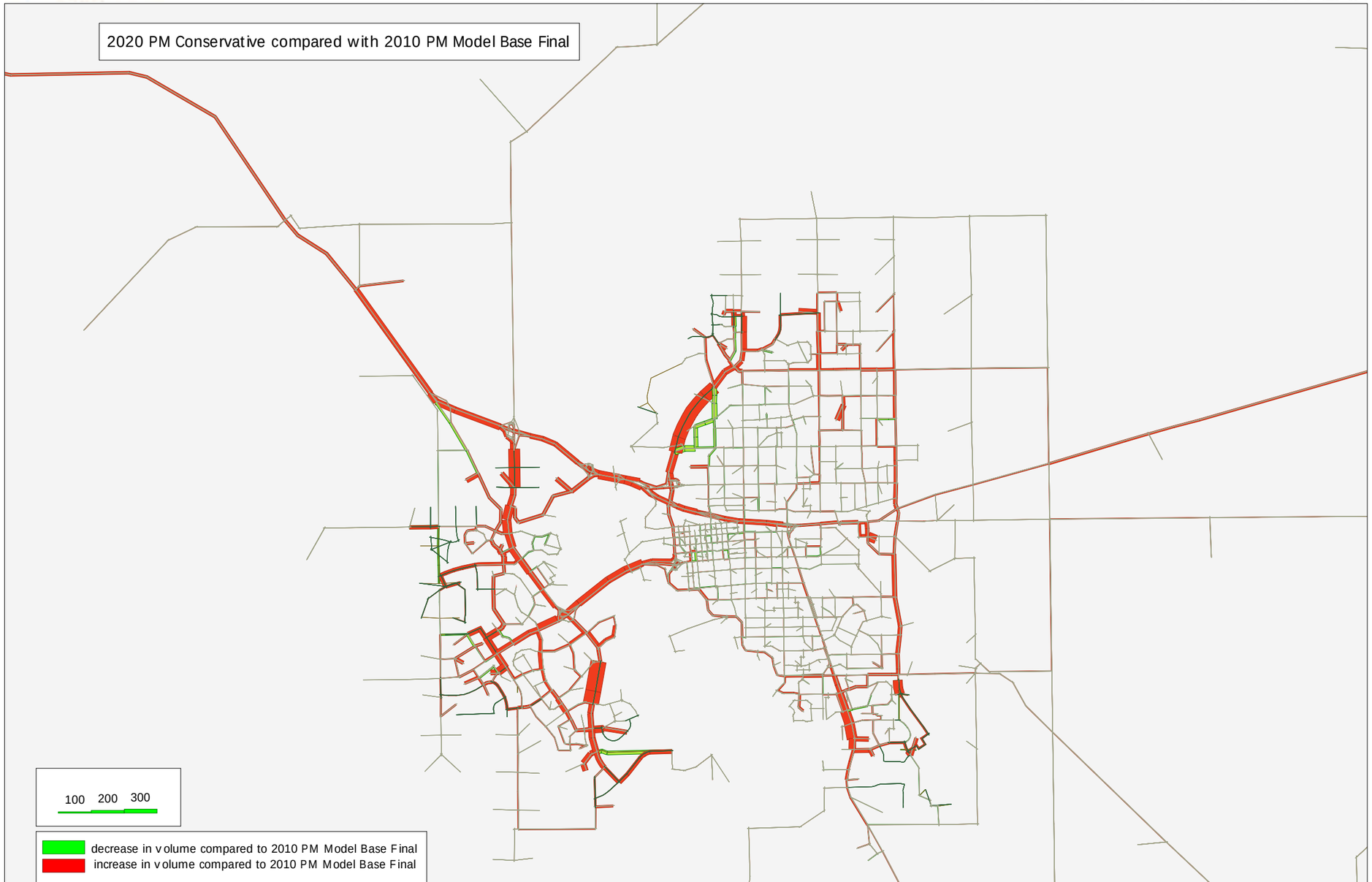
APPENDIX E31

Traffic Volumes - 2040 PM Recommended

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

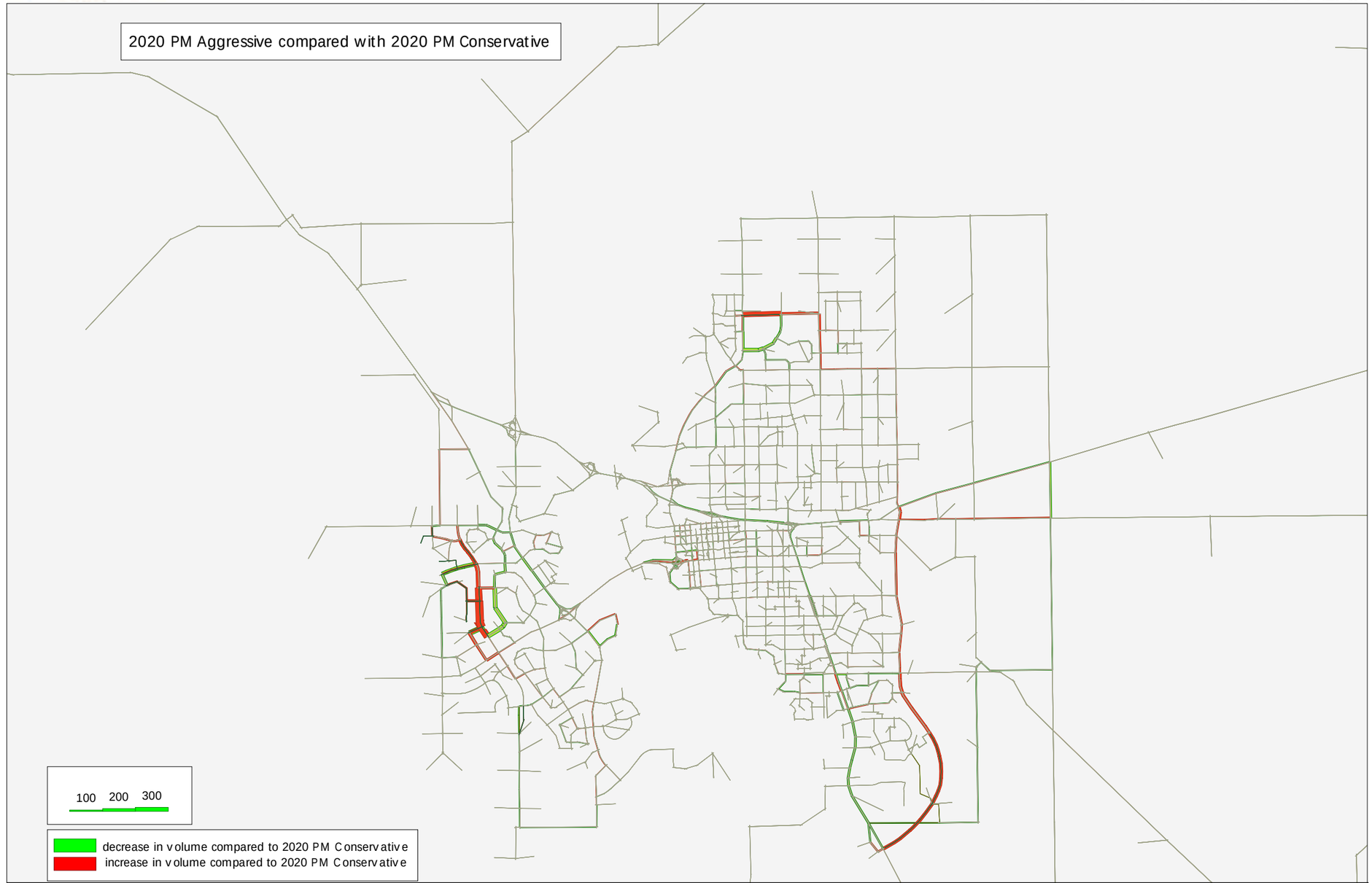
APPENDIX E32

Volume Comparison - 2020 PM Conservative compared with 2010 PM Model Base Final

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

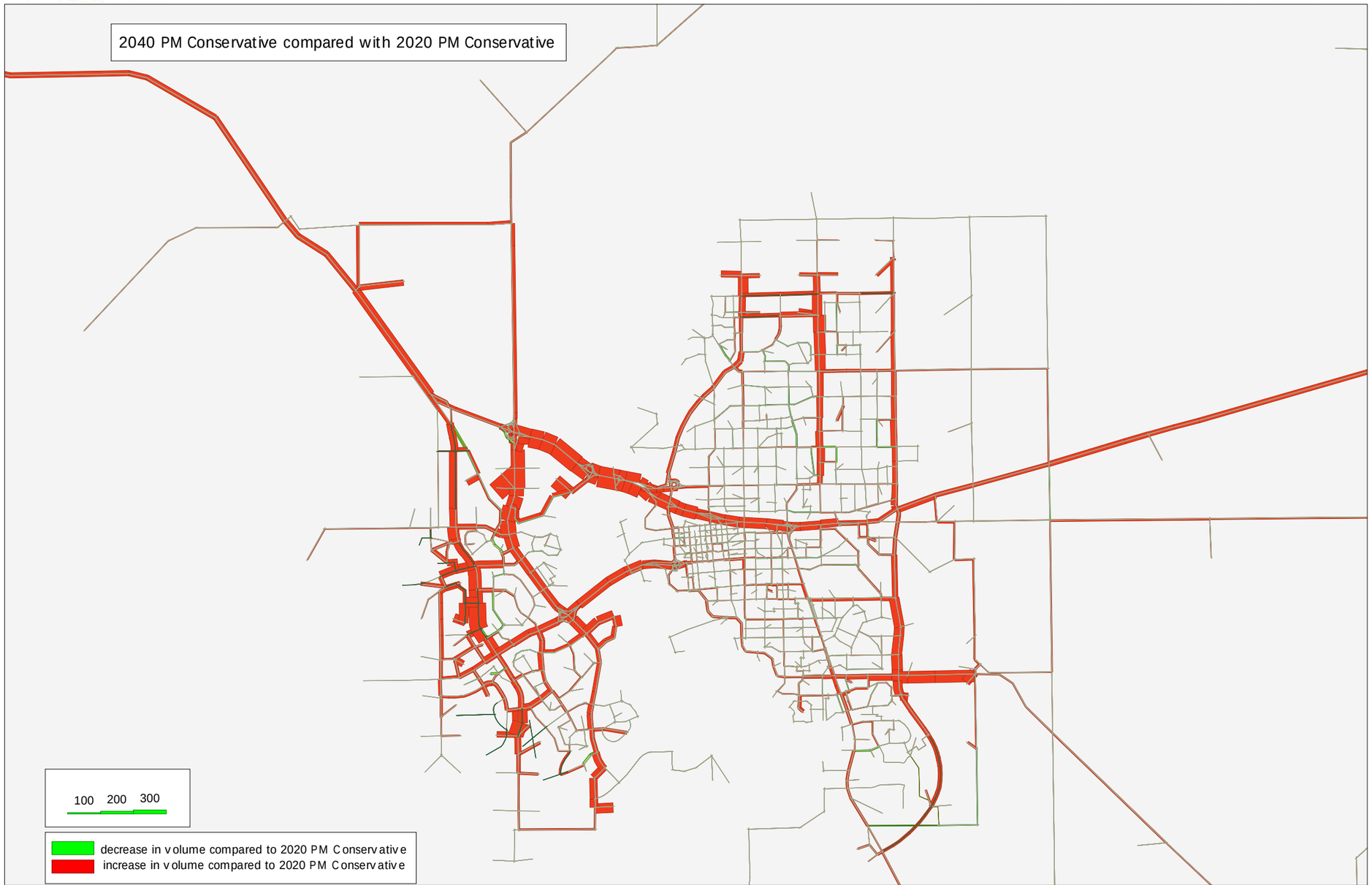
APPENDIX E33

Volume Comparison - 2020 PM Aggressive compared with 2020 PM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

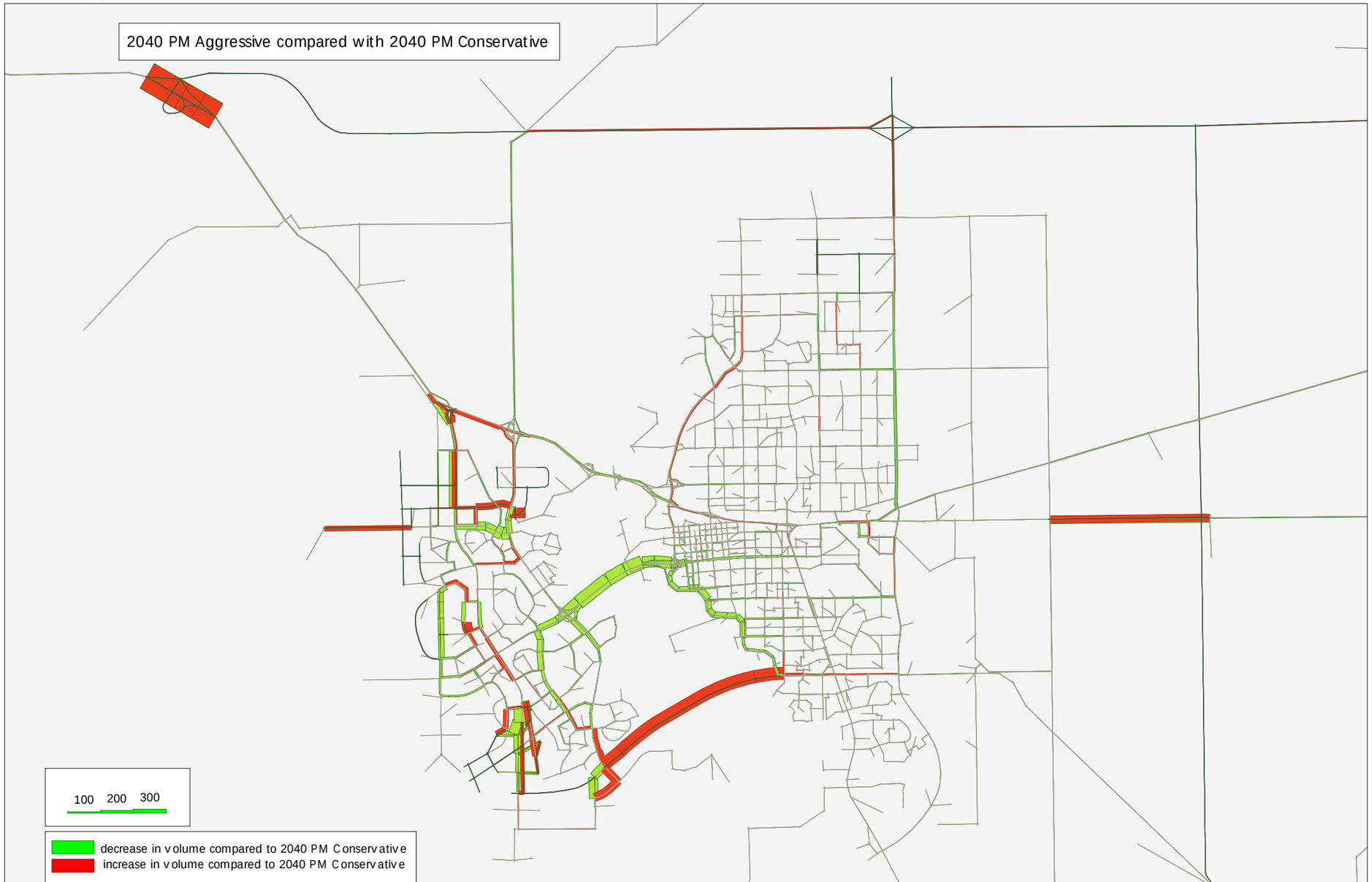
APPENDIX E34

Volume Comparison - 2040 PM Conservative compared with 2020 PM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



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APPENDIX E35

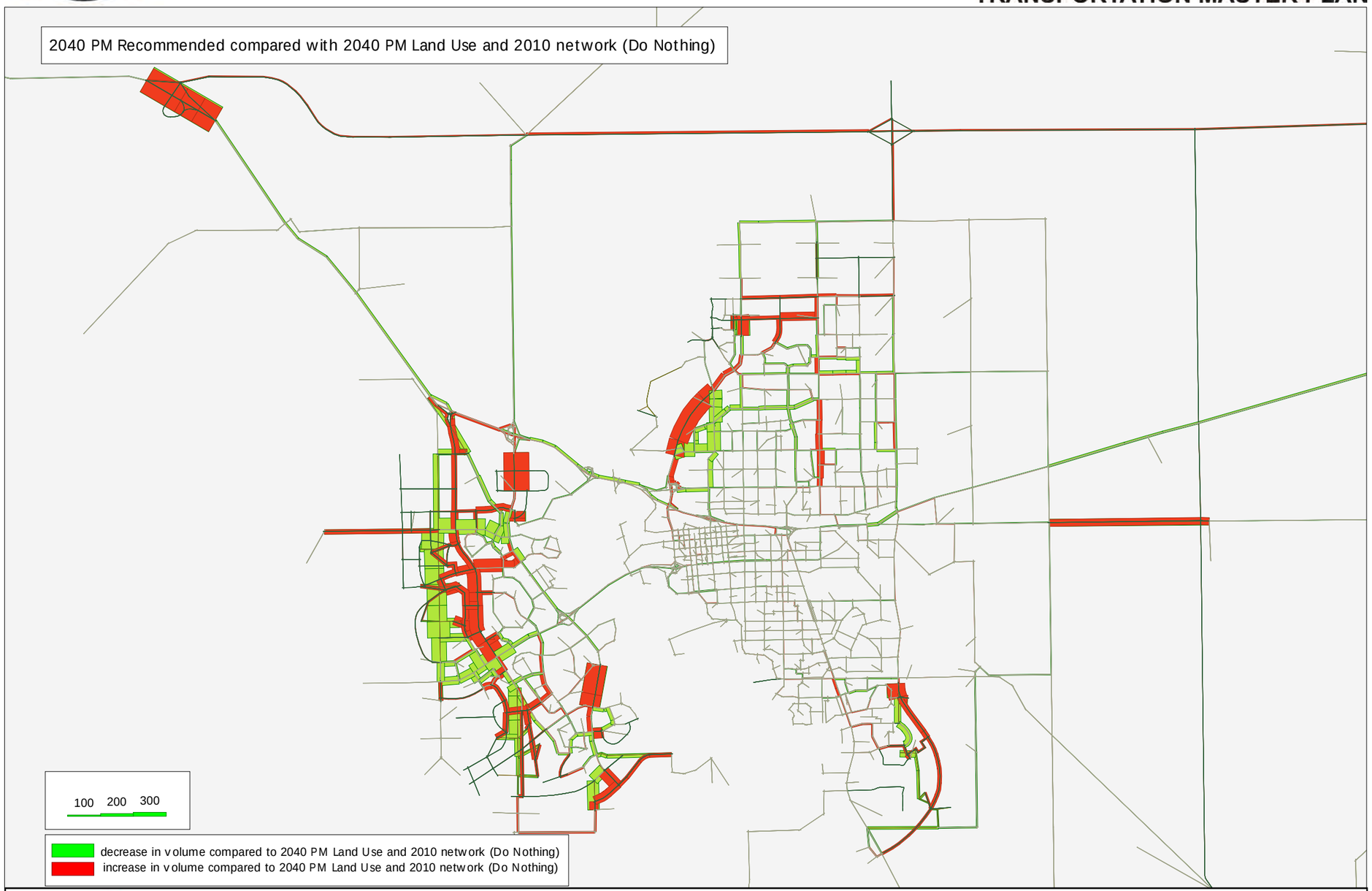
Volume Comparison - 2040 PM Aggressive compared with 2040 PM Conservative

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

2040 PM Recommended compared with 2040 PM Land Use and 2010 network (Do Nothing)



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APPENDIX E36

Volume Comparison - 2040 PM Recommended compared with 2040 PM Land Use and 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

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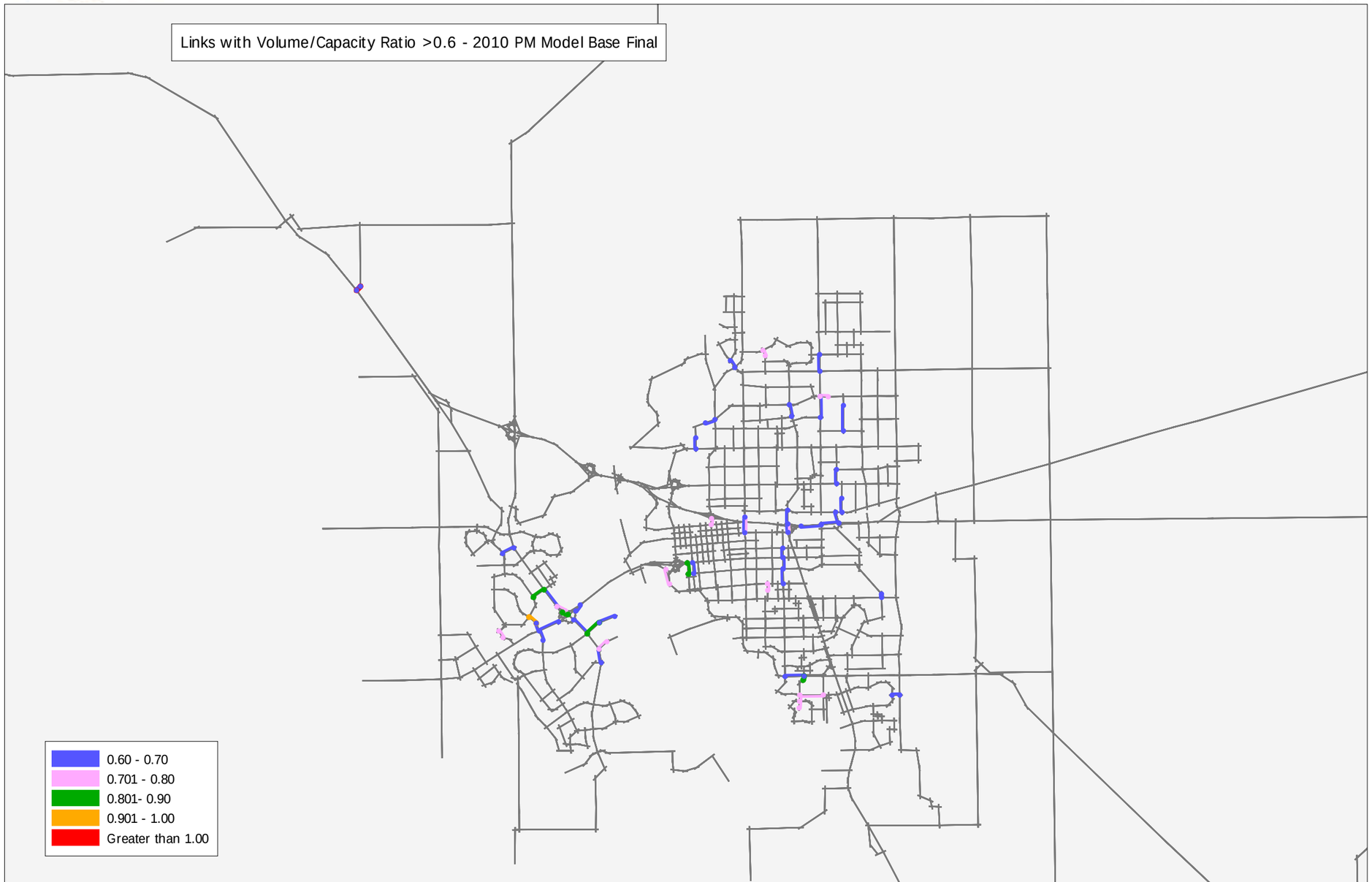
TRANSPORTATION MASTER PLAN



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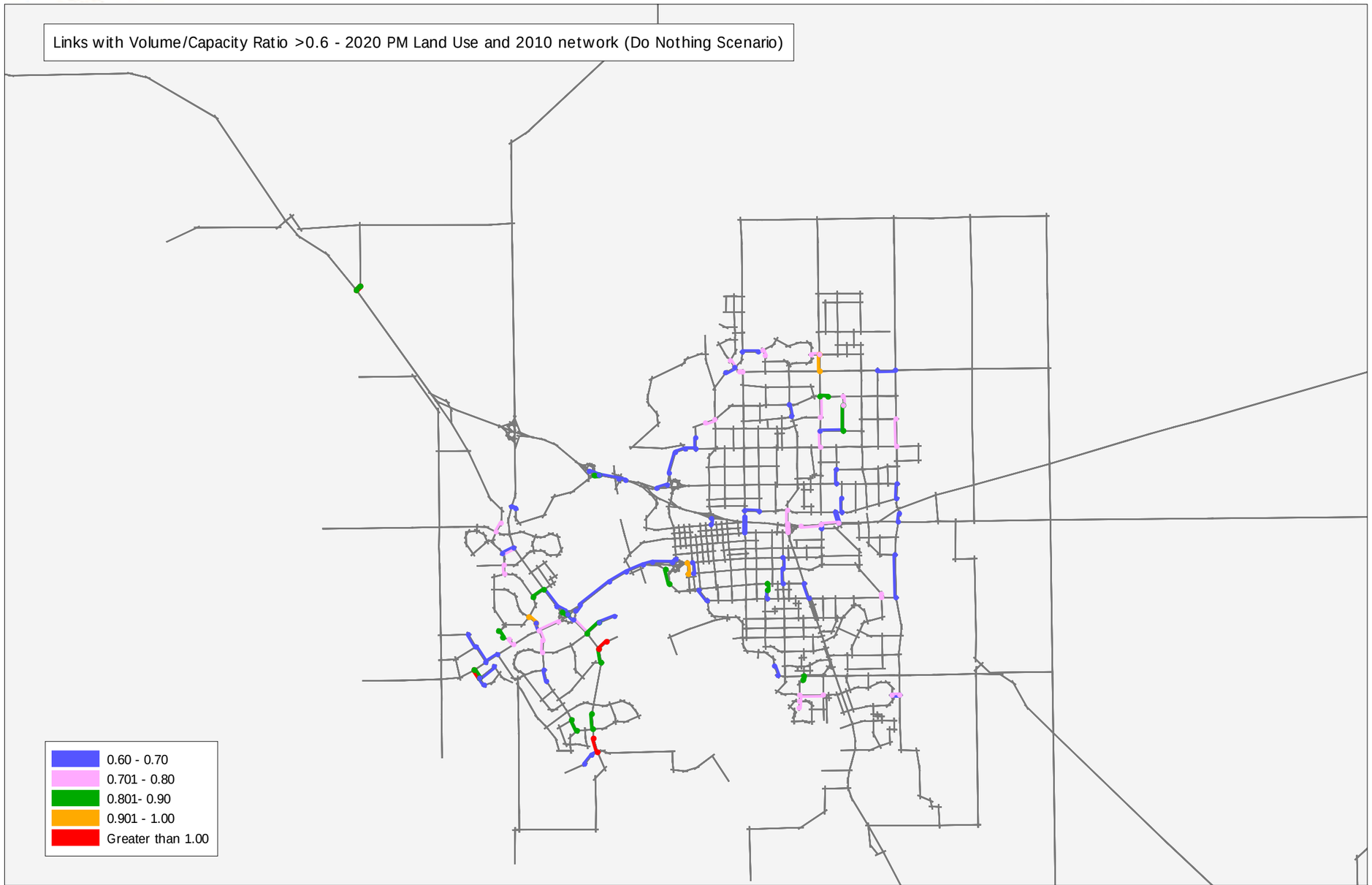
APPENDIX E37

Volume to Capacity Ratio - 2010 PM Model Base Final

CITY OF Lethbridge

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN



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APPENDIX E38

Volume to Capacity Ratio - 2020 PM Land Use and 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

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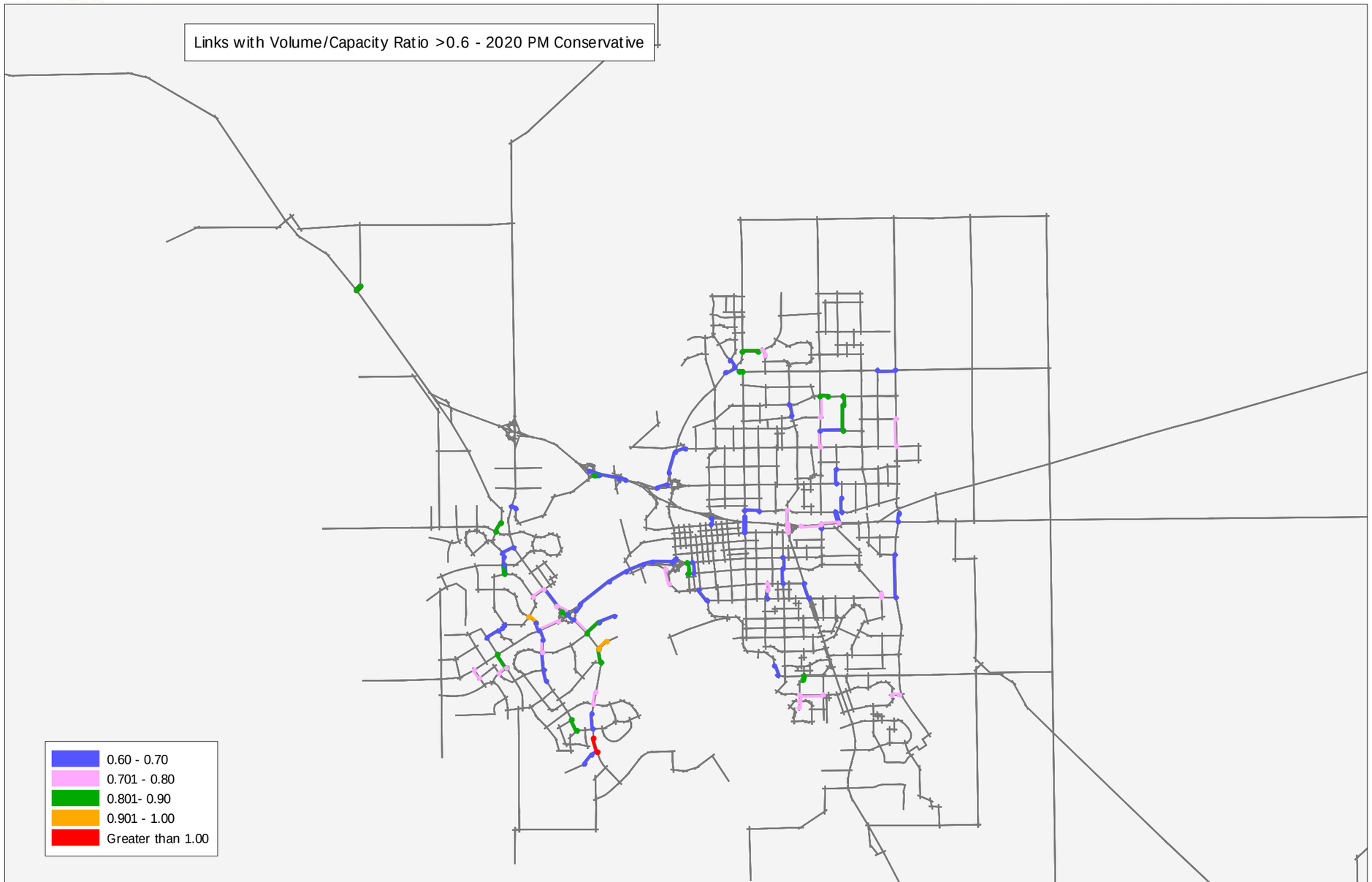
TRANSPORTATION MASTER PLAN



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APPENDIX E39

Volume to Capacity Ratio - 2020 PM Conservative

CITY OF Lethbridge

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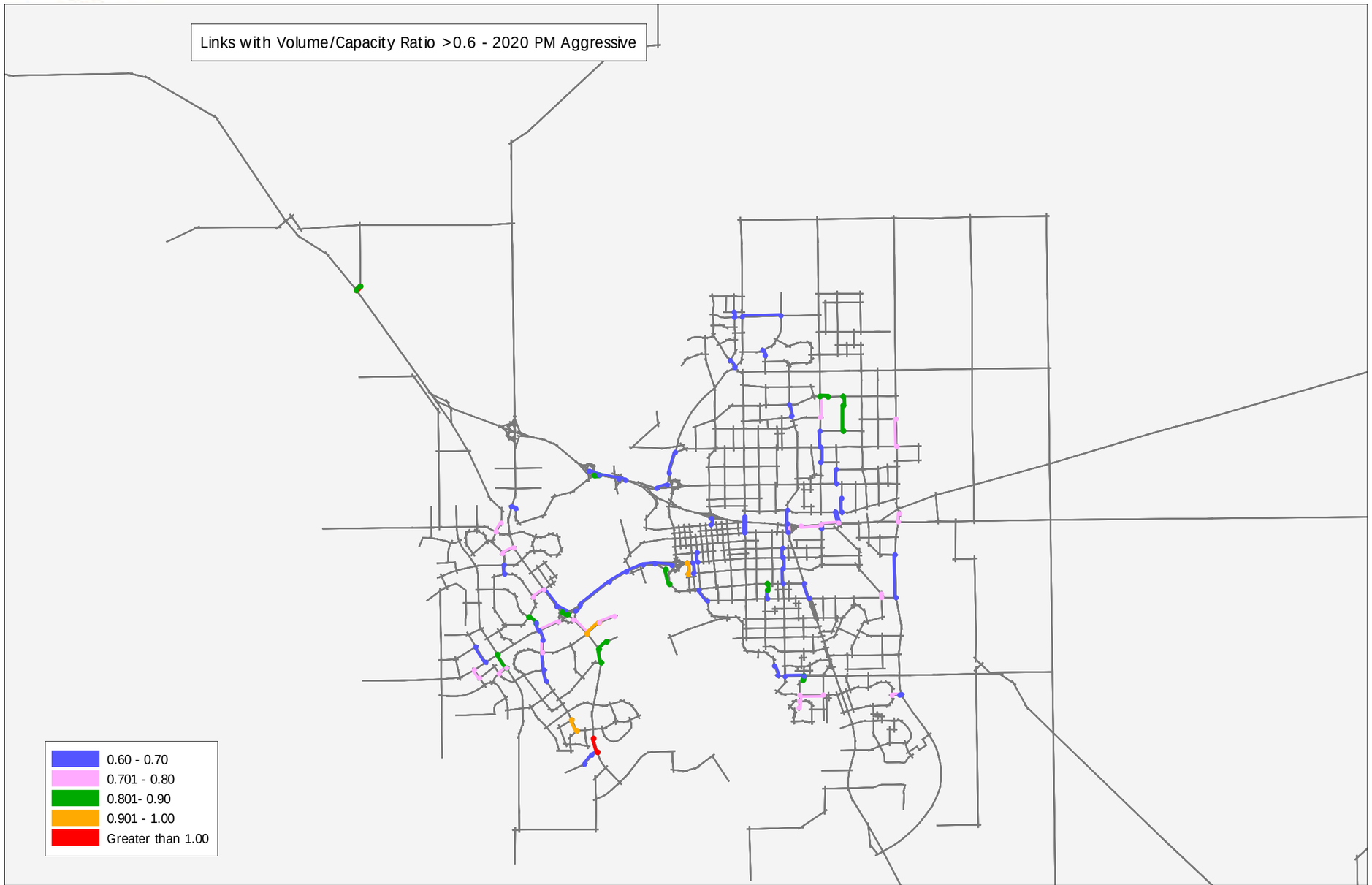
TRANSPORTATION MASTER PLAN



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APPENDIX E40

Volume to Capacity Ratio - 2020 PM Aggressive

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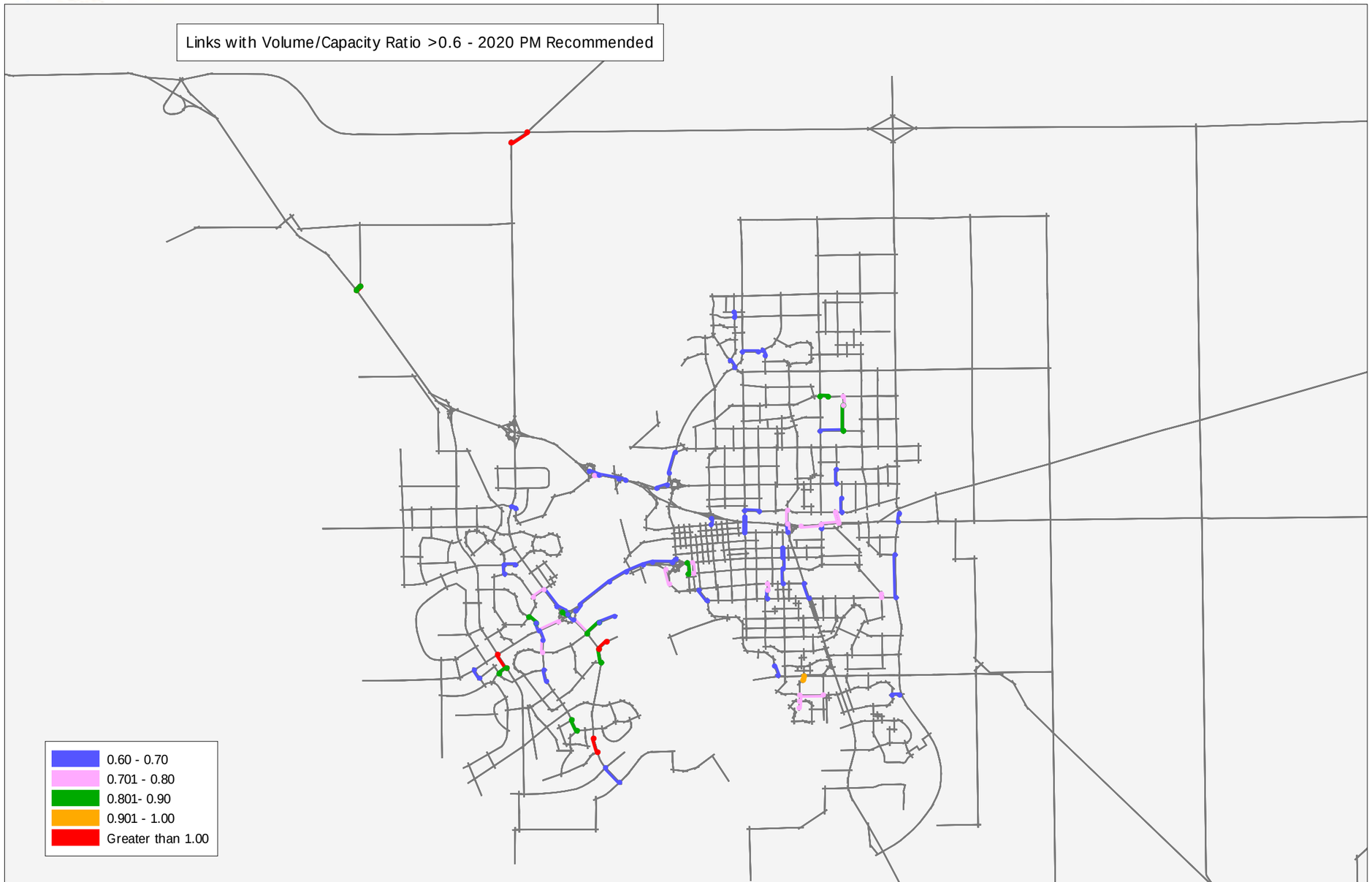
TRANSPORTATION MASTER PLAN



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APPENDIX E41

Volume to Capacity Ratio - 2020 PM Recommended

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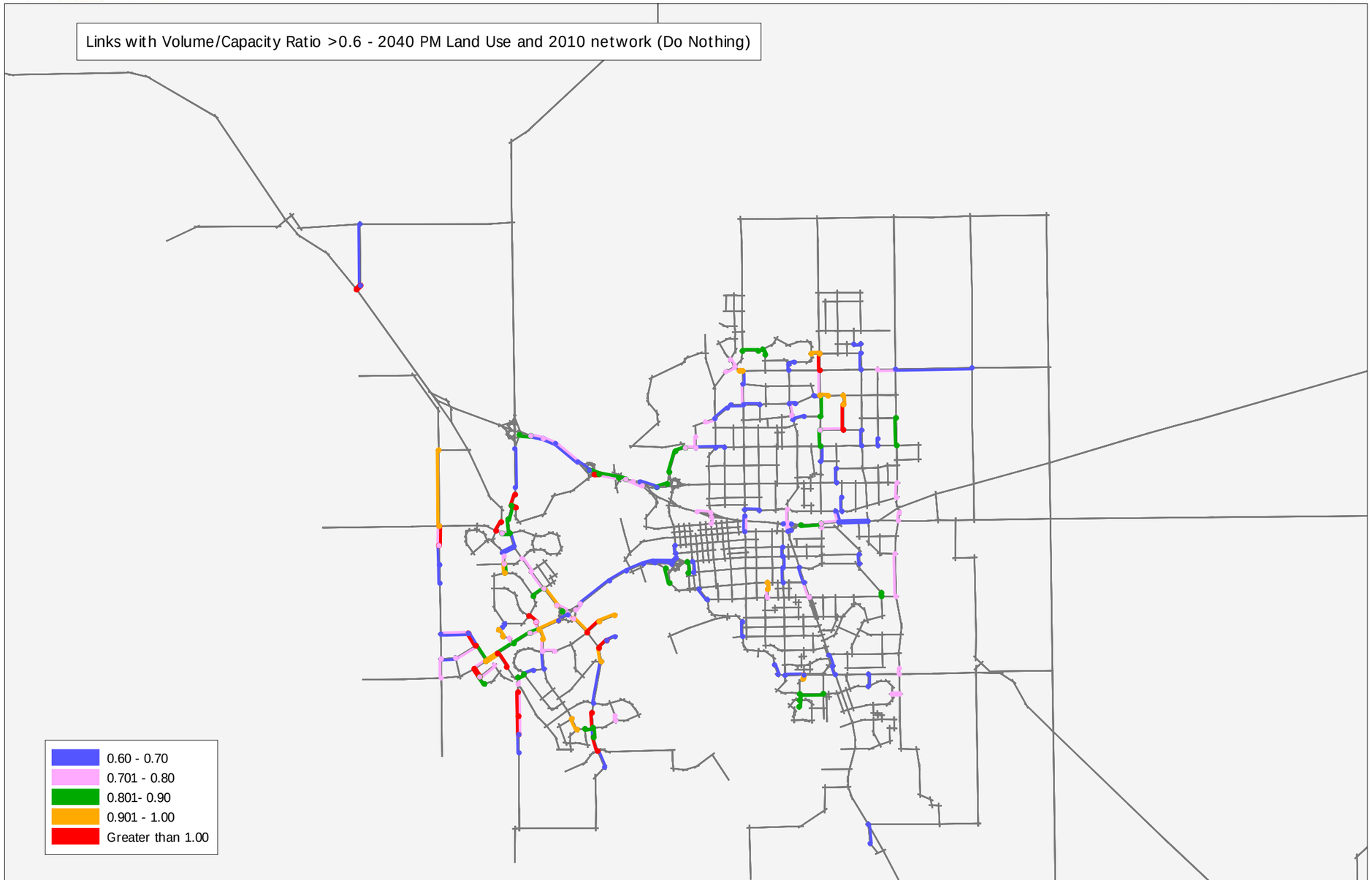
TRANSPORTATION MASTER PLAN



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APPENDIX E42

Volume to Capacity Ratio - 2040 PM Land Use and 2010 Network (Do Nothing Scenario)

CITY OF Lethbridge

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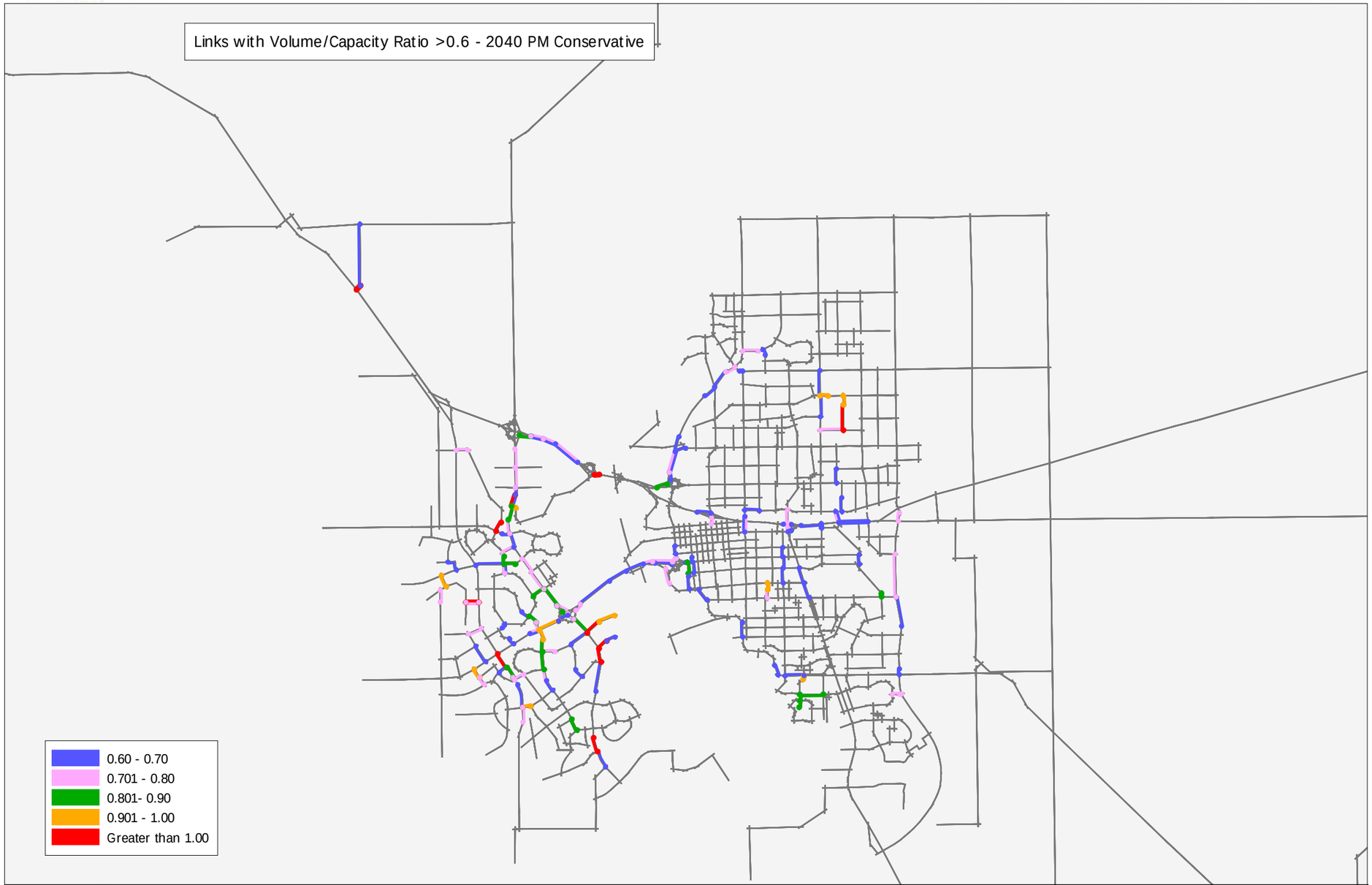
TRANSPORTATION MASTER PLAN



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APPENDIX E43

Volume to Capacity Ratio - 2040 PM Conservative

CITY OF Lethbridge

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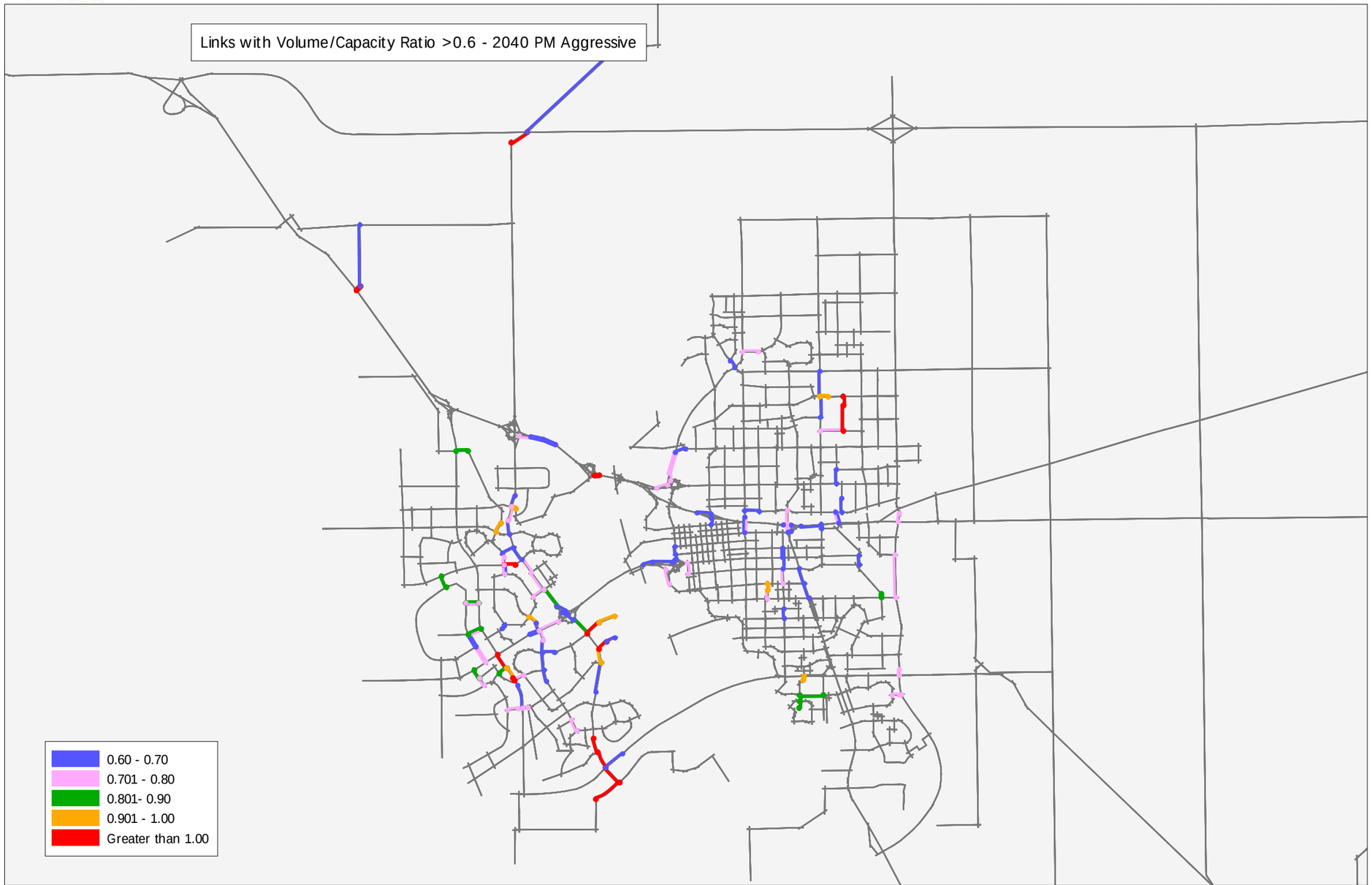
TRANSPORTATION MASTER PLAN



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APPENDIX E44

Volume to Capacity Ratio - 2040 PM Aggressive

CITY OF Lethbridge

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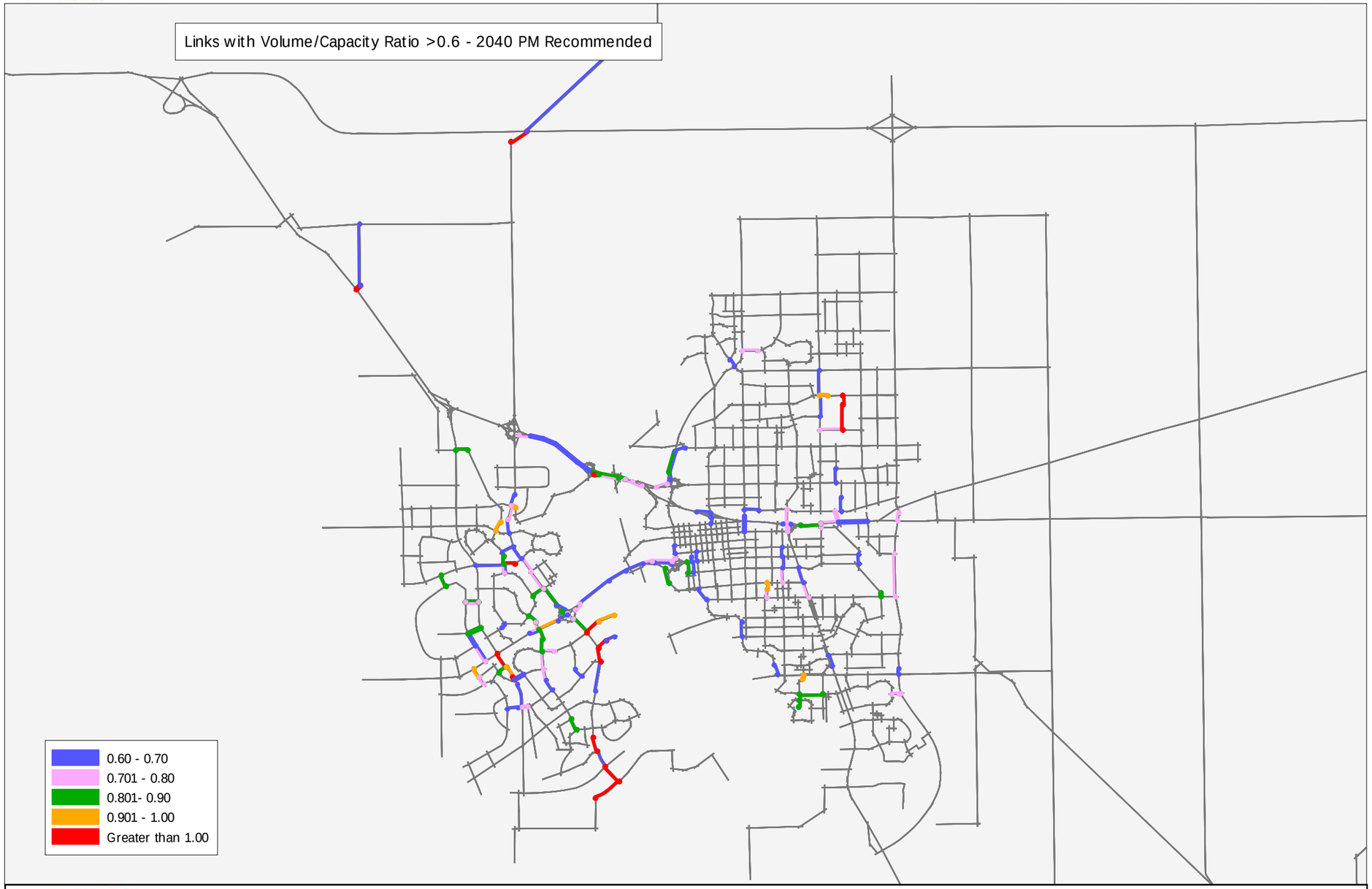
TRANSPORTATION MASTER PLAN



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APPENDIX E45

Volume to Capacity Ratio - 2040 PM Recommended

F Appendix F - Network Screening Analysis Results

Memorandum

To: **AHMED ALI, PH.D., P.ENG., PTOE**

Copy:

From: Bruce Nelligan, M.Eng., P.Eng., PTOE

Our File #: 2941.T01

Project: Lethbridge Intersection Safety Review

Date: May 24, 2012

RE: **NETWORK SCREENING ANALYSIS RESULTS**

As per our previous conversations, DAW has completed the first phase of the Lethbridge Road Safety Project which included network screening of the collision data to identify five intersections to study in more detail as part of Phase 2. This Memorandum provides you with the results of our network screening analysis and recommendations for the five locations to include in Phase 2 of the project.

COLLISION DATA ANALYSIS – INITIAL SCREENING

The City of Lethbridge provided collision data for a eight-year period from 2003-2010. Due to the high volume of crash data, it was decided to focus the network screening analysis on the most recent three years of crash data (2008-2010). If deemed useful, older collision data from before 2008 can be used for the next phase of the study.

The three network screening performance measures that were used for the assessment included:

- Average Crash Frequency;
- Crash Rate (crashes per million entering vehicles); and,
- Equivalent Property Damage Only (EPDO) Average Crash Frequency.

A brief explanation of each of these safety performance measures is provided below:

Average Crash Frequency: Total number of crashes reported during the study period.

Crash Rate: This performance measure normalizes the crash frequency with exposure and is calculated by dividing the total number of crashes over the reporting period by the volume of vehicles entering the intersection during the same period (expressed in millions of vehicles). Traffic volumes were available for 18 of the top 25 intersections ranked by collision frequency.

Equivalent Property Damage Only (EPDO) Average Crash Frequency: This performance measure is used to account for the severity of crashes by assigning a weight to each of the collision severity types including property damage only (PDO), injury and fatal crashes. Typically, the average cost of each crash type is used to establish the weight. For this study, the average cost of each collision type as provided by the Province of Alberta was used as the basis for establishing the weighting scheme as shown in **TABLE 1**.

TABLE 1: WEIGHTING SCHEME FOR EPDO CALCULATIONS

Collision Type	Average Cost	Weight
PDO	$12,000	1.0
Injury	$100,000	8.3
Fatal	$1,345,068	112.1

As an example, using this weight scheme, the EPDO for a site with 100 PDO crashes and 10 injury crashes would be (100x1+10x8.3=183).

Using the above three performance measures, a summary of the top 25 locations by collision frequency was prepared as shown in **TABLE 2**. An overall score was added which represents a weighted average of the three performance measures with equal weight given to each measure.

COLLISION DATA ANALYSIS – SECONDARY SCREENING

The next step in the network screening process was to look at the top 10 intersections by overall rank in more detail to assist in the selection of the five sites for in-service safety reviews. The secondary network screening process included the following tasks:

- Review of collision types
- Review of peak hour traffic volumes (where available)
- Review of intersection geometry
- Review of signal phasing

TABLE 2: SUMMARY OF COLLISION DATA

Rank	Intersection	Collision Frequency	Collision Rate	EPDO	Overall Score
1	24 AVE S - MAYOR MAGRATH DR S	90	2.01	236	84.6
2	13 ST N - 5 AVE N	55	3.73	165	76.9
3	Highway 3 - 43 ST	65	3.03	182	76.8
4	UNIVERSITY DR W - GARRY DR W	48	3.04	150	66.2
5	22 AVE S - MAYOR MAGRATH DR S	54	2.84	134	64.3
6	20 AVE S - MAYOR MAGRATH DR S	46	2.50	170	63.4
7	UNIVERSITY DR W - WHOOP UP DR W	58	-	138	61.5
8	2 AVE N - 23 ST N	38	3.16	133	61.1
9	13 ST S - 3 AVE S	46	2.91	126	60.9
10	23 ST N - 5 AVE N	55	3.09	92	60.9
11	COLUMBIA BLVD W - UNIVERSITY DR W	46	3.45	75	58.5
12	34 AVE S - MAYOR MAGRATH DR S	43	3.15	87	56.4
13	10 AVE S - MAYOR MAGRATH DR S	50	2.24	123	55.9
14	3 AVE S - STAFFORD DR S	35	3.22	101	55.9
15	1 AVE S - STAFFORD DR S	41	2.86	107	55.8
16	28 AVE S - MAYOR MAGRATH DR S	47	2.39	98	52.6
17	12 AVE S - MAYOR MAGRATH DR S	38	2.50	111	52.1
18	HIGHWAY 3 - STAFFORD DR N	43	-	116	48.5
19	16 AVE S - MAYOR MAGRATH DR S	35	2.67	72	46.9
20	6 AVE S - MAYOR MAGRATH DR S	34	2.38	85	45.9
21	19 AVE S - LAKEVIEW DR S	30	-	96	36.9
22	16 AVE S - SCENIC DR S	33	-	84	36.2
23	5 AVE S - MAYOR MAGRATH DR S	33	-	84	36.2
24	1 AVE S - SCENIC DR S	32	-	61	30.7
25	6 AVE S - SCENIC DR S	31	-	60	30.0

The primary purpose of the secondary screening process was to confirm that the top five intersections from the initial screening process exhibited geometric or signal timing characteristics that were deemed to be correctable through engineering improvements. The results of the secondary screening process are presented below for the top ranked intersections.

Mayor Magrath Drive / 24th Avenue

- Highest frequency of collisions (90 over 3 years)
- Highest EPDO score for all intersections in Lethbridge (236)
- Mostly rear-end collisions (67%) followed by left-turn opposing (11%) and Angle (8%)
- Slotted left-turn bays NB/SB and channelized right-turn bays in all directions
- No commercial accesses near intersection
- Heavy northbound left-turn volume in PM peak (332 vph)

- EB/WB split phase
- NB/SB left turns are protected/permissive

Preliminary Assessment: This intersection is recommended for an in-service safety review due to the fact that it is ranked highest in two of the three performance measure categories. Based on the secondary screening process, we believe there are some geometric and signal phasing improvements that could be tested to reduce the overall collision severity and frequency at this location.

13th Street N. / 5th Avenue N

- Highest collision rate for all intersections in Lethbridge (3.73)
- High percentage of left-turn opposing (20%) and angle (20%) collisions
- Short left-turn bays EB/WB and shared through/left lanes in NB/SB direction
- Several commercial accesses near the intersection which may be contributing to the overall collision frequency
- Overall volumes are moderate with left-turn volumes <100vph during the peak periods
- EB/WB have protected/permissive left-turn phase
- NB/SB left turns are permissive

Preliminary Assessment: This intersection is recommended for an in-service safety review due to the fact that it had the highest collision rate in the City. Based on the secondary screening process, we believe there are some geometric, access and signal phasing improvements that could be tested to reduce the overall collision severity and frequency at this location.

Highway 3 / 43rd Street

- 2nd highest collision frequency (65 collisions) and EPDO score (182)
- Relatively high proportion of left-turn opposing collisions (28%)
- Slotted left-turn bays in all directions (dual NB/SB)
- High speed right-turn ramps on three legs
- CP mainline crosses north leg near intersection
- High SB and WB left-turn volumes during PM peak (approx. 200 vph)
- Protected/Permissive left-turn phases in all directions

Preliminary Assessment: This intersection ranked third overall from the initial screening and has a relatively high collision frequency and EPDO score. Based on the secondary screening process, we believe there are some geometric and signal phasing improvements that could be tested to reduce the overall collision severity and frequency at this location. Therefore, this intersection is recommended for an in-service safety review.

University Drive / Garry Drive

- Ranked 4th overall in initial screening with a relatively high collision rate (3.04)
- Relatively high proportion of left-turn opposing and angle collisions (35% total)
- Fairly modern intersection design with single left-turn lanes in each direction
- Heavy NB left-turn volume in the PM peak (336 vph)
- Heavy EB and WB left-turn volumes in the AM but little conflicting traffic volume (approx.. 225 vph)
- Protected/Permissive left-turn phases in NB/SB direction
- Permissive left-turn phases in EB/WB direction

Preliminary Assessment: This intersection ranked fourth from the initial screening and has a relatively high collision rate of 3.04 collisions per million entering vehicles. Based on the secondary screening process, we believe there are some geometric and signal phasing improvements that could be tested to reduce the overall collision severity and frequency at this location. Therefore, this intersection is recommended for an in-service safety review.

Mayor Magrath Drive / 22nd Avenue S.

- Ranked 5th overall in initial screening with a relatively high collision frequency (54)
- High proportion of left-turn opposing collisions (26%) and angle collisions (19%)
- Three through lanes with exclusive left-turn bays in NB/SB direction
- EB/WB approaches provide two travel lanes (shared turn movements)
- Relatively high WB left-turn volumes in mid-day and PM peak (approx.. 125 vph)
- Protected/Permissive left-turn phases in NB/SB direction
- Permissive left-turn phases in EB/WB direction

Preliminary Assessment: This intersection ranked fifth overall from the initial screening and has a relatively high collision frequency of 54 collisions over the three-year period. Based on the secondary screening process, we believe there are some geometric and signal phasing

improvements that could be tested to reduce the overall collision severity and frequency at this location. Therefore, this intersection is recommended for an in-service safety review.

Other Intersections

The intersections that were ranked 6-10 in the overall ranking list were also reviewed as part of the secondary screening process. Based on this review there were no anomalies noted in the collision data that would warrant prioritizing one of these other five locations ahead of the first five locations. It was noted however, that the intersection of 3rd Avenue and Stafford Drive exhibited an unusually high proportion of angle collisions (31% of total). We believe this intersection was the subject of a previous in-service safety review in early the early 2000's so it might be worthwhile for the City to review the recommendations from that report.

Recommendations

Based on the network screening exercise completed for this study, we recommend the following intersections for in-service safety reviews as part of Phase 2:

1) Mayor Magrath Drive / 24th Avenue
2) 13th Street / 5th Avenue
3) Highway 3 / 43 Street
4) University Drive / Garry Drive
5) Mayor Magrath Drive / 22nd Avenue

Sincerely,
D.A. Watt Consulting

Bruce Nelligan, M.Eng., P.Eng., PTOE
Vice President

G Appendix G - Public Communication Material

You are invited to an Open House and Presentation of the City of Lethbridge's Transportation Master Plan (TMP)

West Side Open House

Date: Wednesday, June 20

Time: 5:00pm to 8:30pm

Presentation at 6:30pm

Location: University Dr. Alliance Church, 55 Columbia Blvd. W

South Side Open House

Date: Thursday, June 21

Time: 5:00pm to 8:30pm

Presentation at 6:30pm

Location: Fritz Sick Senior Centre (420 11 St S)

Why attend? You may have helped us shape this Master Plan with your inputs in our Policy Workshop earlier in the year. Now you can see the preliminary results, please come to the next Open House and visit our website for more information www.Lethbridge.ca.

Questions?

Contact:

Darwin Juell, Transportation Manager

Darwin.Juell@Lethbridge.ca

403-320-4181.

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN 2050

KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

Welcome

City of Lethbridge
Transportation Master Plan
Open House

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GENIVAR

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TRANSPORTATION MASTER PLAN

*Why are we here?

* Provide information about the Transportation Master Plan (TMP) process
* Present draft policies – future roadway and transit options
* Gather public feedback on future roadway and transit options

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TRANSPORTATION MASTER PLAN

Integrated Community Sustainability Plan/Municipal Development Plan

Transportation Master Plan

* Integrated Community Sustainability Plan/Municipal Development Plan (ICSP/MDP) approved by City Council in June 2010
* A long term vision of community aspirations/values developed through public engagement which involved more than 2000 people
* Provides policies to achieve the vision
* ICSP/MDP provides direction to the goals and outcomes of other master plans including the Transportation Master Plan (TMP)
* Results of Public Consultation were used for the TMP
* TMP refines the vision in terms of roadway and transit planning
* Specific information for TMP was collected during Travel Survey and stakeholder workshops

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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

ICSP/MDP Policies for Transportation, Land Use and Transit

- Lethbridge is a compact city
- Lethbridge has an efficient and effective integrated transportation network
- Lethbridge is a walkable bicycle friendly city
- Lethbridge is expanding in a responsible manner
- Lethbridge is a planned city that exhibits quality urban design
- Lethbridge has a diverse parks and open space system
- Lethbridge has a strong and vibrant Downtown

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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

*TMP Steps

- *Completed Surveys & Data Collection
- *Completed Traffic Model & Forecasting
- *Developed Draft Transportation and Transit Policies
- *Developed Transit and Roadway Options
- *Public Engagement (TODAY)
- *Develop Transit & Road Network Recommendations
- *Present Recommendations to Public and City Council
- *Final Report & Documentation

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TRANSPORTATION MASTER PLAN

TMP Study Objectives

- Provide a transportation plan for the next 30 years, with meaningful public involvement that:
  - Aligns with the Integrated Community Sustainability Plan/ Municipal Development
  - Integrates Transit with Transportation Planning
  - Provides budget guidance for 2020 roadway plan
  - Provides effective access and mobility for people and goods.
  - Promotes a transportation system supportive of and integrated with land-use decisions.
  - Outlines Transportation policies

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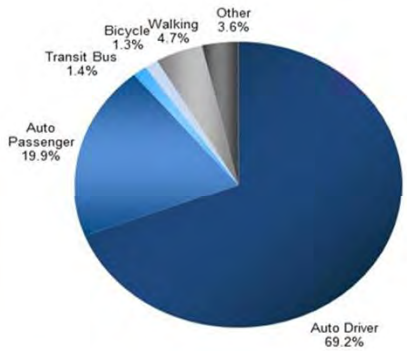
KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

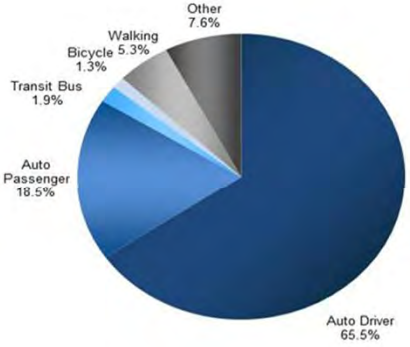
* Lethbridge Travel Survey of 4000 people

Travel Mode	Travel Mode Percentages							Total Trips
	Night 0000-0559	AM Peak 0600-0859	Midday 0900-1459	PM Peak 1500-1759	Evening 1800-2359	Time Unspec.	Total (%)	
Auto Driver	87.4%	65.5%	75.0%	65.9%	67.0%	70.6%	69.2%	247,331
Auto Passenger	7.1%	18.5%	15.4%	21.4%	27.2%	19.2%	19.9%	71,021
Commercial Vehicle Driver	-	0.7%	1.3%	0.5%	0.4%	0.5%	0.8%	2,749
Transit Bus	-	1.9%	1.3%	1.5%	0.8%	0.5%	1.4%	4,949
School Bus	-	6.6%	0.5%	3.8%	0.1%	1.5%	2.5%	9,017
Bicycle	1.8%	1.3%	1.2%	1.4%	1.2%	0.5%	1.3%	4,592
Rollerblade/Skateboard	-	-	-	-	-	-	-	81
Walking	2.7%	5.3%	4.8%	5.3%	3.2%	7.2%	4.7%	16,982
Taxi/Airport Shuttle	1.0%	0.1%	0.1%		0.1%	-	0.1%	203
Motorcycle/Moped	-	0.2%	0.3%	0.2%	0.2%	-	0.2%	742
Trip Totals	2,201	68,908	116,346	100,955	66,119	3,138	100.00%	357,667

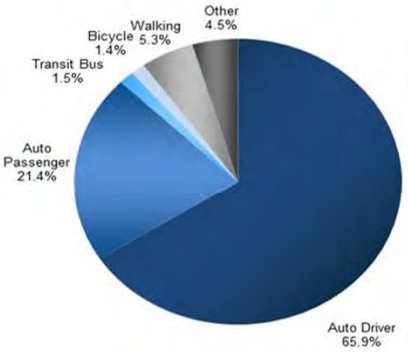
Total



AM Peak



PM Peak



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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

Transportation Policy Development

- Referenced Transportation Association of Canada and Canadian Urban Transit Association Practices
- Referenced ICSP/MDP policies
- Stakeholder workshops representing a variety of interest groups and institutions
- Developed draft transportation policies

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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

Transportation Policy

1. Integrate transportation and land-use planning

- Develop new lands with intention of encouraging all modes
- Focus development in targeted nodes and corridors served by transit and intensify uses and activities in these areas (transit oriented developments)
- Develop opportunities for mixed use developments in the areas with existing infrastructure capacity which will increase the potential for shorter trips

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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

Transportation Policy

2. Consider all modes

- Design streets to create pedestrian, cycling and transit supportive environments
- Build awareness and promote the benefits of walking and cycling
- Use development approval process to provide for and enhance cycling and walking

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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

Transportation Policy

3. Promote Public Transit

- Increase transit service levels on an incremental basis to improve the viability of transit with a goal of increasing ridership by 2% per year
- Focus service level increases to corridors and routes that have the potential to generate the greatest increase in ridership
- Increase opportunities for Lethbridge residents to have access to the transit system

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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

Transportation Policy

4. Manage Transportation Demand

- Apply travel demand management (TDM) strategies in pursuit of a sustainable transportation system
- Consider traffic calming as an effective means of reducing the negative impacts of traffic on quality of life in Lethbridge

5. Manage Transportation Supply

- Maximize the multimodal capacity of the current infrastructure
- Consider the life cycle benefits and costs when planning, maintaining and operating the transportation system

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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

Transportation Policy

6. Manage Parking

- Review Land Use Bylaw for required parking ratios to balance supply with demand
- Improve on street parking operations

7. Measure Performance

- Develop implementation and performance measurement programs to monitor progress towards planning goals
- Monitor traffic safety

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KEEPING LETHBRIDGE ON THE MOVE

TRANSPORTATION MASTER PLAN

* Transportation Planning 2020 to 2040

* Developed roadway and transit options based on:
  * Technical analysis
  * Growth plans
  * Public engagement
  * Draft transportation policies
  * Current Capital Improvement Program

* 2020 Plan shows roads and transit that would be developed over the next 8 years to serve 100,000 population

* 2040 Plan shows roads and transit that would be developed over the next 30 years to serve 130,000 population

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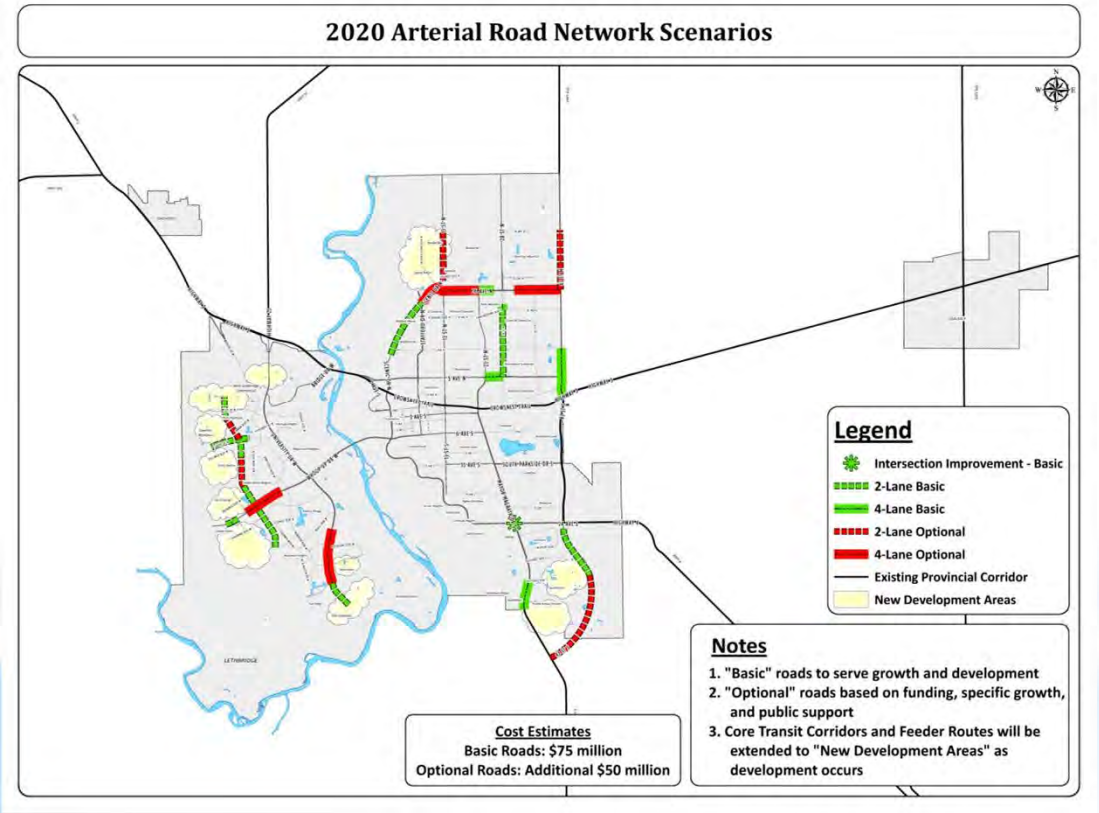
TRANSPORTATION MASTER PLAN

* 2020 Road Network Scenarios



* Green lines show committed roads based on need and to serve new development areas
* Red lines show potential road options depending on:
  * Rate of growth
  * Funding availability
  * Level of public support

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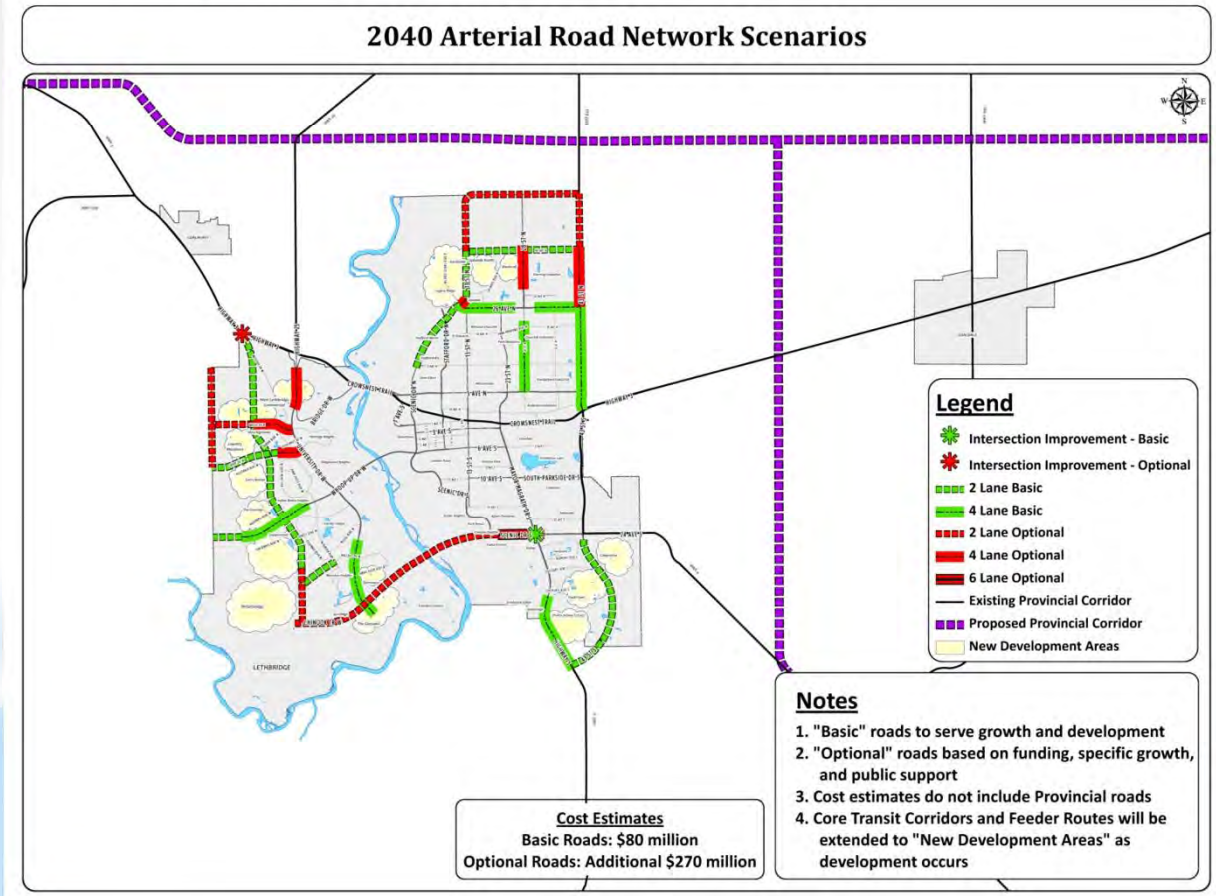
* 2040 Road Network Scenarios



* Green lines show potential roads based on need and to serve new development areas
* Red lines show potential road options depending on:
  * Rate of growth
  * Funding availability
  * Level of public support

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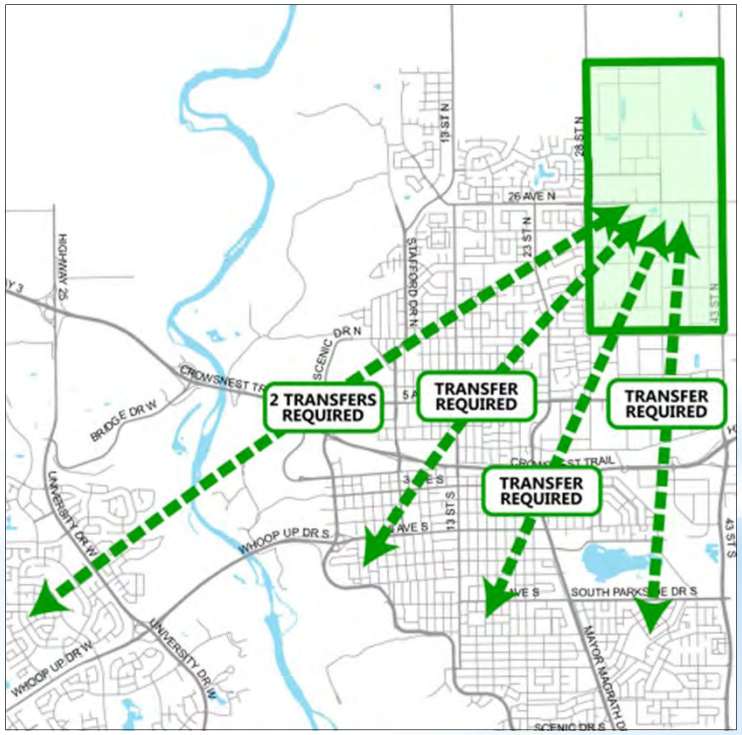
Background Transit Service Conditions

* Observed service deficiencies
  * Poor service coverage in some areas
    * More than 10% of the city currently exceeds the standard minimum walking distance to the nearest bus stop
  * High level of passenger transfers required
    * Almost 40% of trips require at least one transfer to reach desired destination

Route transfer requirements to the northeast employment lands



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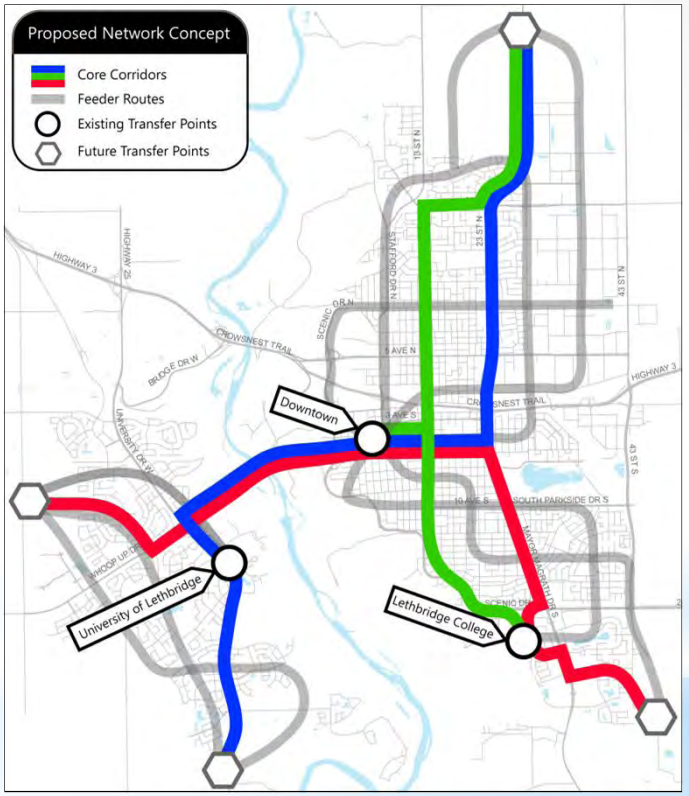
Future Transit Network Concept

* Consists of three core corridors:
  * Red: Northwest to Southeast
  * Blue: Southwest to Northeast
  * Green: Northeast to Southeast
* Feeder routes provide coverage with connections to major transfer points
* Two service options developed: conservative and aggressive

	Basic	Optional
Route Structure	See map Network concept applied to both options	
Level of Service	Similar to existing	More frequent service
Service Span	Similar to existing	Expanded service hours
Priority Measures	Little or no priority measures	Signal priority; queue jump lanes



Map shows network concept only and does not illustrate exact routing alignments.

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Next Steps

- Draft Plan will be developed based on public feedback and technical analysis
- Recommendations will be presented to public September 2012
- Present recommendations to City Council shortly after

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*Comments?

* We'd like your comments:
  * Please fill out a questionnaire
  * Mark what roads are important to you on the map
  * Place your three stickers next to the most important policies

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H Appendix H - Aggressive Transit Plan Recommendations That Were Not Accepted

Note:

* ***The following Section 7.2 is the original section of the report that was not accepted by City Council and was requested to be retained as an Appendix to the final document.***

REPORT

* ***The following Section 7.2 is the original section of the report that was not accepted by City Council and was requested to be retained as an Appendix to the final document.***

7.2 RECOMMENDED TRANSIT PLAN

As described in Section 5.2, the recommended transit network will be structured around three core corridors, complemented by a number of local feeder routes.

7.2.1 Conventional Routes and Service Frequencies

The study team proposes that service in the three core corridors would operate every ten or 15 minutes during the weekday peak periods and 20 to 30 minutes during the weekday midday and evening periods. Saturday and Sunday services would operate every 10 to 30 minutes depending on the route and time of day.

As for the local routes, service would operate every 20 to 30 minutes during the weekday peak and midday periods, and 40 to 60 minutes during weekday evenings. On Saturdays and Sundays, local services would operate every 20 to 60 minutes depending on the route and time of day.

Between the 2020 shorter term and 2040 mature state scenarios, service levels would be stepped up in peak periods and selected off-peak periods. There will also be a need to extend routes to accommodate the planned growth occurring in the urban fringe. Table 7-2 outlines the recommended service plan statistics for 2020 and 2040.

Table 7-2
Recommended Service Plan Statistics

	Existing	2020	2040
Rides per capita and related ridership	25 2,125,000	33 3,300,000	42 5,460,000
Hours of service per capita and annual hours	1.25 110,000	1.5 150,000	1.7 220,000
Passengers per vehicle-hour	Peak: 25 Off peak: 15 Average: 20	Peak: 28 Off peak: 16 Average: 22	Peak: 30 Off peak: 18 Average: 25
Peak Vehicles Required (Excluding Spares)	27	48	62
Total Vehicles Required	43 (Currently on hand)	51	72
Vehicle Spare Ratio	59%	37%	15%

7.2.2 Transit Capital Improvements

To accommodate the recommended service strategy for transit, capital purchases and improvements will be required including:

- New vehicle purchases for conventional and para-transit services
- Bus stops and shelters in the urban expansion areas
- Garage expansion
  - Planned and budgeted to expand to meet projected requirements to 2025
  - Additional capital required to accommodate fleet requirements to 2040 and beyond
- Technology improvements:
  - CAD / AVL system (computer-aided dispatch and automatic vehicle location)
  - APC system (automatic passenger counting)
  - Customer information including variable message signs (VMS) with passenger information at key locations, trip planners, direct customer communication (email text) and open data

7.2.3 Transit Timing and Priorities

Within the first five years, implementing the base transit network of services and procuring the required fleet to accommodate the proposed services is recommended. Additional para-transit buses will also be required to accommodate service growth due to an increasing and aging population. An expansion of the existing garage and maintenance facility will take place to accommodate the increasing fleet needs to year 2025.

Within the sixth and tenth year, the study team proposed continued increases in service levels and its associated vehicle requirements to accommodate growth. We recommend the installation of automatic passenger counters on the conventional fleet to facilitate the continuous monitoring and improvement of services. The implementation of a CAD / AVL system is proposed to provide improved customer service, improve service operation control, and maintain service reliability. The continued additional of para-transit buses are also required during this period.

A transit trip planner is also recommended to provide new and existing passengers convenient and easy-to-use tools to understand and use the transit system. The implementation of variable message signs is also recommended to provide improved real-time transit service information to passengers.

A garage facility expansion study should be conducted to understand in detail the maintenance and storage components requirements to accommodate growth needs beyond the proposed garage expansion to 2025.

Within the 10- to 30-year timeframe, it is recommended to continue to increase service hours to accommodate ridership and overall growth of the city. Additional conventional and para-transit vehicles will also be required to accommodate the increase in service. Recommendations identified in the garage facility expansion study are to be implemented during this period to accommodate the needs beyond the planned expansion beyond 2025.

Throughout the duration of the transportation master plan, the replacement of aging conventional and para-transit vehicles will be required.

Table 7-3 summarizes the proposed transit improvements in the near and long term.

Table 7-3
Summary of Transit Improvements

Improvement Description	Improvements from Year 2011 to 2020	Improvements from Year 2021 to 2040
Bus Purchases		
Conventional Buses		
New vehicles to accommodate growth	8 buses	20 buses
Replacing existing vehicles	15 buses	60 buses
Para-transit Buses		
New vehicles to accommodate growth	3 buses	7 buses
Replacing existing vehicles	31 buses	74 buses
Stops and Shelters		
Additional stops required to the network	140 stops	90 stops
Additional shelters required to the network	28 shelters	18 shelters
Garage and Maintenance Facility		
Facility needs study beyond the planned expansion to 2025	1 study	--
Garage and maintenance facility expansion	Expansion to accommodate needs to 2025--currently underway	Expansion to accommodate needs beyond 2025-- based on proposed study
APC, CAD/AVL System		
System Costs	1 system	--
Bus infrastructure	51 technology units	21 technology units
Customer Information Tools		
Trip Planner	1 system	--
Variable Message Signs	6 message signs	4 message signs
Transit Priority Measures		
Transit Signal Priority System	--	1 system
TSP Intersection Improvements	--	To be determined as required.

7.2.4 Elements Required for Implementation

Implementing the recommended transit plan will involve an investment to maintain current fleets and equipment and additional costs for fixed facilities and systems. This section presents the various items to be included in the plan.

Conventional Vehicles
A spare vehicle ratio of 15 percent was used to identify total fleet. Lethbridge Transit currently has a large fleet of spare vehicles (as shown in Table 7-2) and we assume a gradual decrease in spare fleet to 15 percent by 2040.

Vehicle procurement to replace existing vehicles will still be required regardless of the spare ratio target. We assume an 18-year replacement for 40-foot buses, and the mid-life overhaul of vehicles is included as part of existing operating costs.

Para-transit Vehicles
We assume a 7-year replacement for these vehicles, as well as some expansion to accommodate population growth.

Garage and Maintenance Facility
An expansion of the garage and maintenance facility is currently underway that will accommodate current fleet needs and growth requirements based upon the present transit service levels. With growth in service hours and fleet requirements as identified in 2040, a further expansion will be required. Expansion to accommodate this future growth at the current site is limited and will require additional study.

Given the scale of the conventional, para-transit, and contracted school bus fleets, a contiguous expansion of the current facility would best promote the appropriate economies of scale.

Other Elements
Other elements to support key service elements of the plan include:

- Automatic passenger counter (APC) and automatic vehicle location (AVL) systems.
- Bus stop infrastructure (e.g. bus stop pole, concrete pad) will be required in the urban expansion areas.
- Bus shelters are assumed to be required for 20 percent of new stops.
- Installation of a Transit Signal Priority (TSP) System and intersection modifications to accommodate the system, which would be funded through Capital funding for intersection modifications. The exact number of intersections requiring this system will be determined as the need arises in the 2021 and 2040 timeframe.