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1.0 INTRODUCTION

1.1 BACKGROUND

In April 2008, the Government of Alberta created the Capital Region Board (CRB) through the Capital Region Board Regulation under the Municipal Government Act.

The CRB was given the following mandate:

- Prepare a proposed Capital Region Growth Plan in accordance with Part 2; Advise and make recommendations to the Minister regarding the preparation and implementation of the Capital Region Growth Plan;
- Facilitate the resolution of issues arising from the preparation and implementation of the Capital Region Growth Plan;
- Implement policies for the sharing of costs among the participating municipalities for regional projects of the Capital Region; and
- Carry out any other functions and duties as the Minister directs.


The CRB Growth Plan entitled “Growing Forward” consists of four components:

- Land Use Plan
- Intermunicipal Transit Network Plan
- Housing Plan
- Geographic Information System Plan

The October 2009 and December 2009 Addenda to the Growth Plan included the development of maps that identified Priority Growth Areas (PGAs), as well as transportation and other infrastructure.

Towards the completion of the December 2009 Addendum to the Growth Plan, Alberta Transportation advised the Capital Region Board that authorization had been given for commencement of planning for a second Outer Regional Ring Road within a specific study area. Upon consideration of the Alberta Government’s plans, some CRB member municipalities expressed concerns about the need for or location of a potential Outer Regional Ring Road. These concerns, together with the absence of satisfactory justification for a second Outer Regional Ring Road, led to the completion of the Transportation Infrastructure map without indication of an Outer Regional Ring Road.
Subsequent to the completion of the Growth Plan amendments, the CRB initiated the Integrated Regional Transportation System Study in spring of 2010.

1.2 OBJECTIVES OF THE INTEGRATED REGIONAL TRANSPORTATION SYSTEM STUDY (IRTSS)

The Integrated Regional Transportation System Study (IRTSS) is a strategic study that identifies key elements of the Capital Region’s future transportation system. The purpose of the IRTSS is to fill a strategic gap in the regional planning framework by defining a regional transportation system that serves the Region’s land use and transportation needs in a manner that is consistent and compatible with the objectives of the Capital Region Growth Plan.

The key objectives of IRTSS are:

- To assess alternative regional roadway network configurations and document the strengths and weaknesses of these alternatives relative to regional objectives as set out in the Capital Region Growth Plan.
- To develop an Integrated Regional Transportation Master Plan that is consistent with and supportive of the Growth Plan.
- To develop policy statements that underpin the recommended plan and support the Growth Plan as a whole.
- To develop a recommended network of regionally significant roads, transit facilities and active transportation corridors.
- To develop implementation priorities and strategies.

This report documents the development and analysis of alternative regional transportation networks that led to formulation of the Integrated Regional Transportation Master Plan, which is published under separate cover.

1.3 PLANNING HORIZON

This study has been based on thirty-five year growth forecasts adopted by the Capital Region Board in late 2009. These forecasts were developed by CRB in accordance with guidelines established by Alberta Finance and Enterprise and approved by the Minister of Municipal Affairs in March 2010.

The CRB forecasts anticipate population in the Capital Region to grow from 1.12 million in 2009 to 1.73 million by 2044. Employment was forecast to rise from 620,000 in 2009 to 862,000 by 2044.
2.0 DEVELOPMENT OF ALTERNATIVE TRANSPORTATION NETWORKS

2.1 GENERAL METHODOLOGY

In order to assess the merits of various regional network alternatives, the analysis relied on the City of Edmonton/Alberta Transportation Regional Travel Model that has been developed using the EMME2 software package. The Regional Travel Model (RTM) has served as the basis for analysis of regional transportation investment decisions for over twenty years. In order to maintain its robustness and effectiveness, it was enhanced and developed into one of the most advanced travel demand forecasting and analysis tools in North America.

The RTM is a complex analytical tool that is used to test and forecast the effects of land use and transportation changes so as to inform decisions about transportation infrastructure changes. In order to maintain its reliability over time, the Regional Travel Model is calibrated and recalibrated periodically. The model calibration process is often preceded by a region-wide Household Travel Survey that collects travel information from a representative sample of households in the Capital Region.

The RTM is able to “model” the Region’s land use and transportation system and enables the testing of various alternatives for a wide study area or for a specific corridor. As a multi-modal model, it has been used to assess large-scale projects such as LRT alignments, Anthony Henday Drive and Yellowhead Trail.

Typical model inputs include socio-economic data, land use characteristics as represented by population and employment, and transportation network characteristics as represented by roadway links, intersections and capacities, as well as transit facilities including LRT and bus services.
For each alternative that is tested using the RTM, a number of outputs can be extracted. A standard output package typically consists of plots of the characteristics of the network being tested; roadway links forming the network, number of lanes, capacities, daily and peak period traffic volumes as well as volume to capacity ratios. In addition to these plots, it is common to extract some key “measures of effectiveness” (MoEs) that provide a more macroscopic indication of performance of a transportation network. These types of plots and MoEs were used for this study.

2.2 ALTERNATIVE TRANSPORTATION NETWORKS

Given the broad factors that gave rise to the undertaking of this Study and the specific proposal for a possible Outer Regional Ring Road, the alternatives that were developed and tested focused on this key element in the proposed regional transportation network.

In order to test various alternatives, an initial set of four alternatives were developed and tested. It was expected that the analysis of the initial four alternatives would inform possible further refinement that would in turn lead to a final network recommendation.

The development and testing of alternatives that were undertaken focused on responding to the following key questions:

- Is an Outer Regional Ring Road justified or required?
- If a Ring Road is justified or required, should it be located in the location proposed by Alberta Transportation? Or, should it be placed in a different location?
- If a Ring Road is not required or justified, what is an appropriate transportation system for the Region?

The initial four alternatives that were tested included a “Base Case”, referred to as Alternative 1. The Base Case represents the regional transportation system with a new Outer Regional Ring Road in the location proposed by Alberta Transportation.

The following sections describe the initial four alternatives, including their similarities and common features.
Alternative 1 (Base Case): Regional Network - With Outer Regional Ring Road

As noted, the Base Case represents the regional transportation system for the 2044 planning horizon as defined by Alberta Transportation. The network is graphically represented in Figure 1. The Base Case network consists of a regional roadway network that is largely made up of the existing but upgraded roadways (twinned roads and intersection upgrades) that is supplemented with a number of key new linkages as follows:

- Outer Regional Ring Road (freeway).
- Completed Anthony Henday Drive (freeway).
- Extension of Ray Gibbon Drive to Highway 2 at Morinville (freeway).
- Extension of 127 Street from Anthony Henday Drive to Highway 2.
- Extension of Highway 627 from 199 Street to Anthony Henday Drive.
- Completion of Nisku Spine Road.
- Extension of 170 Street from 41 Avenue SW to Highway 39.
- Construction of south/southwest Leduc Bypass.
- Extension of 65 Avenue (Leduc) west to 170 Street Extension.

The new Regional Ring Road is assumed to coincide with Highways 37 and 21 in the north and east respectively. In the south, it is assumed to lie between the Town of Beaumont and 41 Avenue SW. In the southwest, it crosses the North Saskatchewan River northeast of the Town of Devon and proceeds north-westerly before heading north near RR265 past the City of Spruce Grove and continuing north along Highway 44 to Highway 37. The Outer Regional Ring Road is assumed to be a four to eight lane freeway with a limited number of interchanges and a posted speed of 110km/hr. In this alternative, the Ring Road traverses and severs several Priority Growth Areas (PGAs), namely in Leduc County, Parkland County, Strathcona County and in Edmonton (northeast).

Noteworthy upgrades to the existing regional roadway system include:

- Twinning of Highways 19, 28, 28A, 60, 625, 628.
- Expansion of QE2 Highway with new interchanges at 41 Avenue, 65 Avenue, Highway 2A.
- Expansion of Highway 16 east of Anthony Henday Drive east and west of Anthony Henday Drive west.
- Upgrade of Yellowhead Trail in Edmonton to freeway standard (156 Street to 50 Street).
- Widening of Whitemud Drive in Edmonton (53 Avenue to 119 Street; 75 Street to Anthony Henday Drive).
- Upgrading of 75 Street in Edmonton (Whitemud Drive to Capilano Bridge).

Alternative 1 is depicted in Figure 1.
**Alternative 2: Regional Network — No Outer Regional Ring Road**

Alternative 2 represents a regional network without the Province’s proposed Outer Regional Ring Road.

As per the Base Case, the Alternative 2 network is largely made up of the existing but upgraded roadways (twinned roads and intersection upgrades) that are supplemented with a number of key new linkages as follows:

- Completed Anthony Henday Drive (freeway).
- Extension of Ray Gibbon Drive to Highway 2 at Morinville (freeway).
- Extension of 127 Street from Anthony Henday Drive to Highway 2.
- Extension of Highway 627 from 199 Street to Anthony Henday Drive.
- Completion of Nisku Spine Road.
- Extension of 170 Street from 41 Avenue SW to Highway 39.
- Construction of south/southwest Leduc Bypass.
- Extension of 65 Avenue (Leduc) west to 170 Street Extension.

Noteworthy upgrades to the existing regional roadway system include:

- Twinning of highways 19, 28, 28A, 60, 625, 628, 37.
- Expansion of QE2 Highway with new interchanges at 41 Avenue, 65 Avenue, Highway 2A.
- Expansion of Highway 16 east of Anthony Henday Drive east and west of Anthony Henday Drive west.
- Upgrade of Yellowhead Trail in Edmonton to freeway standard (156 Street to 50 Street).
- Widening of Whitemud Drive in Edmonton (53 Avenue to 119 Street; 75 Street to Anthony Henday Drive).
- Upgrading of 75 Street in Edmonton (Whitemud Drive to Capilano Bridge).

Noteworthy differences with Alternative 1 include:

- No Outer Regional Ring Road.
- Highway 21 is a 4-lane expressway at 100km/hr with more access.
- Highway 37 is a 4-lane expressway at 100km/hr with more access.
- An arterial grid replaces the Outer Regional Ring Road between Highway 19/625 and 41 Avenue in the north part of Leduc County.

Alternative 2 is depicted in Figure 2.
Alternative 3: Regional Network with Outer Ring Road – CRB location

This Alternative tests the possibility of including an Outer Regional Ring Road in a location that is further out than the Province’s proposal in Alternative 1. In most other respects, the regional network is the same as in Alternative 2, except where changes were needed to include the Ring Road.

Figure 3 illustrates the Alternative 3 regional network. In contrast to Alternative 1, the Outer Ring Road in this alternative is positioned outside of all PGAs except for some encroachment in northeast Edmonton and the northwest part of Strathcona County.

In this Alternative the Outer Regional Ring Road has been assumed to be a 4-lane freeway throughout. Interchanges have been assumed to be in place at major crossings with other highways in the Region. In the southern portion of the Region, the network has been modified in comparison to all other alternatives in order to enable appropriate connections.

The rationale behind this alternative is that it can provide high speed, high capacity movement around rather than through the urbanizing part (PGAs) of the Region. The position of the Ring Road in this alternative provides excellent connectivity between the Port Alberta/Edmonton International Airport/Nisku Industrial Park area in the south and the Alberta Industrial Heartland area in the northeast. In addition, it provides excellent connectivity of this major regional activity hub with major markets in Asia (via Highway 16/43 to the Prince Rupert trade terminal) and the United States and Mexico via the QE2 Highway.

Alternative 3 is depicted in Figure 3.
Alternative 4: Regional Network with Partial Ring (South of Highway 16)

This network alternative is very similar to Alternative 3, except that it excludes the northern segment of the Outer Regional Ring Road. The ring road alignment in Alternative 3 was modified to exclude the section north of Highway 16 and it therefore does not include a river crossing that connects Highway 21 with Highways 15 and 28A. The connectivity from the Leduc area to the Industrial Heartland in the northeast and the Grande Prairie/Prince Rupert corridor in the northwest is similar to what is provided in Alternative 3.

Figure 4 illustrates the Alternative 4 regional network.
3.0 EVALUATION OF ALTERNATIVES

3.1 BROAD PERFORMANCE INDICATORS

The four network alternatives were coded into and tested in the Regional Travel Model as per the process described in Section 2.1. Broad indicators of performance were extracted for each of the Alternatives and are presented in Table 1 below:

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Alternative 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle-Kilometres</td>
<td>57,219,230</td>
<td>57,088,420</td>
<td>57,091,274</td>
<td>57,050,326</td>
</tr>
<tr>
<td>Vehicle Hours</td>
<td>976,529</td>
<td>982,604</td>
<td>977,183</td>
<td>979,141</td>
</tr>
<tr>
<td>Auto Trips</td>
<td>3,810,071</td>
<td>3,837,308</td>
<td>3,836,040</td>
<td>3,836,114</td>
</tr>
<tr>
<td>Transit Trips</td>
<td>466,024</td>
<td>477,728</td>
<td>477,793</td>
<td>468,992</td>
</tr>
<tr>
<td>Ave. Vehicle Speed (km/hr)</td>
<td>75.1</td>
<td>73.5</td>
<td>74.6</td>
<td>74.1</td>
</tr>
</tbody>
</table>

The network performance indicators presented in Table 1 do not illustrate any material differences between the four network alternatives that were initially tested.

3.2 DETAILED COMPARISON OF ALTERNATIVES

Given that there are no material system-wide differences between the alternatives, a more detailed review of the alternatives was carried out to determine if there were any noteworthy differences at a more localized level. A review of network utilization was carried out for different sectors in the Region in order to determine how traffic was distributed across the available infrastructure.
Table 2: Network Utilization – Daily Traffic Volumes – Southwest Sector

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Alternative 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whitemud Dr. at Quesnell Bridge</td>
<td>139,300</td>
<td>140,700</td>
<td>140,100</td>
<td>140,200</td>
</tr>
<tr>
<td>SW Anthony Henday Dr. at River</td>
<td>87,700</td>
<td>96,900</td>
<td>94,000</td>
<td>94,100</td>
</tr>
<tr>
<td>Outer Regional Ring Road at River</td>
<td>12,400</td>
<td>No Ring Road</td>
<td>4,600</td>
<td>4,600</td>
</tr>
<tr>
<td>Hwy 60 at River</td>
<td>10,200</td>
<td>11,000</td>
<td>10,000</td>
<td>10,100</td>
</tr>
<tr>
<td>170 St North of Hwy 19</td>
<td>4,800</td>
<td>4,600</td>
<td>4,400</td>
<td>4,400</td>
</tr>
<tr>
<td>QE2 Hwy North of Hwy 19</td>
<td>115,400</td>
<td>115,400</td>
<td>109,100</td>
<td>109,400</td>
</tr>
</tbody>
</table>

Table 2 above illustrates that provision of an Outer Regional Ring Road per Alternative 1 results in less traffic on Anthony Henday Drive and virtually no change in volumes on either Highway 60 or 170 Street. The additional daily traffic on Anthony Henday Drive is well within its carrying capacity as an urban freeway. Both Highway 60 and 170 Street are observed to be highly underutilized, while QE2 Highway carries a high volume of north south traffic. This is likely due to the provision of significant capacity on QE2 Highway.

Table 3: Network Utilization – Daily Traffic Volumes – West Sector

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Alternative 1 (Base)</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Alternative 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hwy 16 (E. of Calahoo Road)</td>
<td>69,500</td>
<td>67,400</td>
<td>62,700</td>
<td>65,000</td>
</tr>
<tr>
<td>Hwy 16A (E. of Calahoo Road)</td>
<td>20,600</td>
<td>20,000</td>
<td>20,300</td>
<td>20,600</td>
</tr>
<tr>
<td>Hwy 628 (E. of Calahoo Road)</td>
<td>8,200</td>
<td>7,100</td>
<td>6,600</td>
<td>6,900</td>
</tr>
<tr>
<td>Hwy 627 (E. of Calahoo Road)</td>
<td>4,100</td>
<td>6,500</td>
<td>6,100</td>
<td>6,200</td>
</tr>
<tr>
<td><strong>North-South Screenline Total</strong></td>
<td><strong>102,400</strong></td>
<td><strong>101,000</strong></td>
<td><strong>95,700</strong></td>
<td><strong>98,700</strong></td>
</tr>
<tr>
<td>Hwy 779 (S. of Twp Road 522)</td>
<td>2,000</td>
<td>2,500</td>
<td>1,900</td>
<td>1,900</td>
</tr>
<tr>
<td>Outer Regional Ring Road (S. of 45 Avenue)</td>
<td>11,800</td>
<td>-</td>
<td>5,100</td>
<td>5,000</td>
</tr>
<tr>
<td>Hwy 60 (S. of 45 Avenue)</td>
<td>8,900</td>
<td>6,600</td>
<td>6,300</td>
<td>6,300</td>
</tr>
<tr>
<td>Anthony Henday Dr (S. of 45 Ave)</td>
<td>83,100</td>
<td>91,200</td>
<td>82,200</td>
<td>83,000</td>
</tr>
<tr>
<td>Whitemud Dr (S. of 45 Ave)</td>
<td>70,200</td>
<td>71,200</td>
<td>70,800</td>
<td>74,200</td>
</tr>
<tr>
<td><strong>East-West Screenline Total</strong></td>
<td><strong>176,000</strong></td>
<td><strong>171,500</strong></td>
<td><strong>166,300</strong></td>
<td><strong>170,400</strong></td>
</tr>
</tbody>
</table>

In the west sector, the presence of the Outer Regional Ring Road west of Highway 60 appears to pull traffic away from Anthony Henday Drive, dispersing traffic further out into the region. This dispersal occurs despite the fact that Highway 60 remains highly underutilized at 8,900 vehicles per day.
Table 4 indicates that the provision of a Ring Road alignment or a partial Ring east of Highway 21 is beneficial in drawing traffic that is headed north into the Industrial Heartland, away from Highway 21 within Fort Saskatchewan.

The absence of a river crossing south of the existing Highway 15 crossing (Alternatives 2 and 4) causes a significant rise in traffic on the existing crossing and the attendant impacts of Industrial Heartland destined traffic being fed through the City of Fort Saskatchewan.

Traffic on Highway 37 does not vary appreciably between the Alternatives although it is somewhat higher in Alternatives that include a full Ring Road (Alternatives 1 and 3). It appears that the presence of a Ring Road tends to disperse traffic outwards into the Region. This is also demonstrated by a substantial increase in traffic on Highway 44 in Alternative 1.
3.3 SUMMARY OF OBSERVATIONS ON INITIAL NETWORK ALTERNATIVES

A number of broad observations have been made concerning the performance and effects of the four initial network alternatives that were developed and tested with the regional Travel Model as follows:

» The presence of a second Outer Regional Ring Road in the Capital Region has a tendency to pull traffic outwards from the central portion of the Region, thereby contributing to greater dispersal of regional traffic. This tendency is not consistent with the Capital Region Growth Plan goal of trying to contain the regional footprint.

» In the northeast part of the Region, the positioning of a Ring Road or partial Ring Road that lies east of Highway 21 provides more direct access to the Industrial Heartland with less impact on the residential areas in the southern and eastern portions of the City of Fort Saskatchewan. However, the creation of a diagonally-oriented freeway route east of Highway 21 will have significant impacts on already developed areas of Strathcona County, south of Highway 16.

» In the south part of the Region, the extensive proposed expansion of QE2 Highway will tend to overly concentrate traffic on this major corridor and leave other available routes, such as the 170 Street extensions from Edmonton, highly underutilized. This over-concentration will in the long term have negative consequences for adjoining municipalities as is the case with the City of Leduc and the City of Airdrie whose internal transportation networks have suffered as a result of limited access to QE2 Highway and a lack of viable alternative routes that can compete with the QE2 Highway.

» The positioning of a Ring Road within the Priority Growth Areas (PGAs) will impose access restrictions within these areas and sever them into non-contiguous areas that will become more auto-dependent and less amenable to being well served by alternative travel modes. This is particularly the case in Leduc County with the proposed Outer Regional Ring Road as proposed in Alternative 1.
4.0 DEVELOPMENT OF A RECOMMENDED REGIONAL NETWORK

The analysis of the initial four network Alternatives provided valuable information that will serve to inform the development of an optimal transportation network for the Capital Region. The key leanings from the analysis, which was summarized in Section 3, led to the development of two additional network Alternatives that were tested and compared.

4.1 ALTERNATIVE 5

The findings concerning the behaviour of the four initial Alternatives were consolidated into a single new Alternative, Alternative 5 (which was developed on the basis of Alternative 2 and Alternatives 3 and 4).

Alternative 5 has the following key features:
• Completed Anthony Henday Drive (freeway).
• Extension of Ray Gibbon Drive to QE2 Highway at Morinville (freeway).
• Extension of 127 Street from Anthony Henday Drive to Highway 2.
• Extension of Highway 627 from 199 Street to Anthony Henday Drive.
• Completion of Nisku Spine Road.
• Extension of 170 Street from 41 Avenue SW to Highway 39.
• Construction of south/southwest Leduc Bypass.
• Extension of 65 Avenue (Leduc) west to 170 Street Extension.
Noteworthy upgrades to the existing regional roadway system include:

- Twinning of Highways 19, 28, 28A, 60, 625, 628, 37.
- Expansion of QE2 Highway with new interchanges at 41 Ave, 65 Avenue and Highway 2A.
- Expansion of Highway 16 east of Anthony Henday Drive east and west of Anthony Henday Drive west.
- Upgrade of Yellowhead Trail in Edmonton to freeway standard (156 Street to 50 Street).
- Widening of Whitemud Drive in Edmonton (53 Ave t0 119 Street; 75 Street to Anthony Henday Drive).
- Upgrading of 75 Street in Edmonton (Whitemud Drive to Capilano Bridge).

In order to reflect the advantages shown by a more distant Regional Ring Road in Alternatives 3 and 4, the existing highway network in Strathcona County has been strengthened as follows:

- Twinning and upgrading of Highway 830 from Highway 630 to Highway 15
- Twinning and upgrading of RR 222 from Highway 16 to Highway 15
- Twinning and upgrading of Twp. Rd. 542 from Highway 21 to Highway 830, and

Network Alternative 5 is depicted in Figure 5.
Alternative 5 was tested using the Regional Travel Model to determine the effects of the changes in the northeast part of the Region. Table 5 provides a summary:

**Table 5: Alternative 5 – Daily Traffic Volumes – Northwest/Northeast Sector**

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Alternative 1 (Base)</th>
<th>Alternative 2</th>
<th>Alternative 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hwy 21 (N. of Hwy 16)</td>
<td>44,200</td>
<td>41,600</td>
<td>35,000</td>
</tr>
<tr>
<td>Hwy 830 (N. of Hwy 16)</td>
<td>6,500</td>
<td>6,100</td>
<td>12,000</td>
</tr>
<tr>
<td>Hwy 21 (S. of Hwy 15)</td>
<td>26,200</td>
<td>24,800</td>
<td>17,000</td>
</tr>
<tr>
<td>Hwy 830 (S. of Hwy 15)</td>
<td>2,700</td>
<td>3,900</td>
<td>9,900</td>
</tr>
<tr>
<td>Existing Hwy 15 Bridge at Fort Sask.</td>
<td>27,500</td>
<td>32,100</td>
<td>26,000</td>
</tr>
<tr>
<td>New Bridge (S. of Fort Sask.)</td>
<td>6,700</td>
<td>N/A</td>
<td>9,400</td>
</tr>
<tr>
<td>Hwy 37 (W. of Hwy 28A)</td>
<td>7,200</td>
<td>5,500</td>
<td>6,800</td>
</tr>
<tr>
<td>Anthony Henday Drive at River</td>
<td>68,200</td>
<td>70,700</td>
<td>68,000</td>
</tr>
<tr>
<td>Hwy 37 (W. of Hwy 28)</td>
<td>15,800</td>
<td>12,300</td>
<td>12,300</td>
</tr>
<tr>
<td>Hwy 37 (W. of Ray Gibbon Drive)</td>
<td>13,900</td>
<td>12,200</td>
<td>12,100</td>
</tr>
</tbody>
</table>

The changes reflected in Alternative 5 have resulted in the desired shifting of traffic away from Highway 21 and onto Highway 830, further east. The insertion of a new river crossing south of Fort Saskatchewan as with Alternative 1 and 3 is successful in limiting traffic flow through Fort Saskatchewan on the existing Highway 15 crossing.
4.2 ALTERNATIVE 6

The refinements reflected in Alternative 5 focused only on addressing issues in the northeast part of the Region. As was mentioned in Section 3.3, the extensive improvements planned for QE2 Highway and included in all the network Alternatives, tend to lead to an overconcentration of traffic onto the QE2 Highway. To alleviate this phenomenon, an additional alternative, Alternative 6 was developed. Alternative 6 is identical to Alternative 5, but includes the following additional refinements:

- The capacity of QE2 Highway was been reduced to avoid over-use.
- Terwillegar Drive/170 Street was upgraded south of Whitemud Drive with the addition of interchanges in place of at-grade intersections to enhance its appeal as a parallel route to QE2 Highway.

Figure 6 illustrates Alternative 6, and Table 6 illustrates the effects of the refinements in the southern part of the Region.

Table 6: Alternative 6 – Daily Traffic Volumes – South Sector

<table>
<thead>
<tr>
<th></th>
<th>Alternative 1</th>
<th>Alternative 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whitemud Drive at Quesnell Bridge</td>
<td>139,300</td>
<td>143,500</td>
</tr>
<tr>
<td>SW Anthony Henday Drive at River</td>
<td>87,700</td>
<td>96,900</td>
</tr>
<tr>
<td>Outer Regional Ring Road at River</td>
<td>12,400</td>
<td>No Ring</td>
</tr>
<tr>
<td>Hwy 60 at River</td>
<td>10,200</td>
<td>9,000</td>
</tr>
<tr>
<td>170 St North of Hwy 19</td>
<td>4,800</td>
<td>16,000</td>
</tr>
<tr>
<td>QE2 Hwy North of Hwy 19</td>
<td>115,400</td>
<td>103,700</td>
</tr>
</tbody>
</table>

As indicated in Table 6 above, the network refinements reflected in Alternative 6 succeed in making better use of 170 Street and providing a viable alternative to QE2 Highway for trips to and from the west side of the Region.
5.0 CONCLUSION AND RECOMMENDATIONS

On the basis of the network reviews and analysis described herein, the following conclusions are drawn:

- A second Outer Regional Ring Road located generally as indicated in Alternative 1 provides no compelling benefits. Its results in underutilization of available alternative transportation capacity and results in traffic patterns that tend to be more dispersed; this is contrary to the policy direction in the Capital Region Growth Plan.
- Protection of right of way for a second Outer Regional Ring Road on the basis of perceived benefits well beyond the thirty-year time frame of the current Capital Region Growth Plan is fraught with the risk of inducing land development patterns that are diametrically opposed to the Government’s direction in the CRB Regulation.
- The Capital Region Board’s Integrated Regional Transportation Master Plan should be based on Network Alternative 5 and 6.
- Network Alternatives 5 and 6 reflect a philosophy of leveraging the benefits of the existing infrastructure through judicious upgrading that involves twinning of highways, constructing interchanges at key locations, selectively adding a limited number of new linkages and being more flexible with intersection and interchange spacing.
- The regional transportation system should foster a wide choice of routes through the provision of complementary system improvements that provide redundancy and multiple options for travel.
- The Capital Region Board is encouraged to engage in proactive discussions with the Government of Alberta to encourage an approach to transportation and land use planning that is consistent with the policy directions of the Capital Region Growth Plan.