

Executive Summary

1.0 Project Introduction

The City of Airdrie is the second largest municipality in the Calgary metropolitan area, and the largest outside of Calgary itself. Over the past two decades, growth in Airdrie has been phenomenal - nearly tripling in size from a small city of 12,000 people in 1991 to a population of just under 35,000 today. Airdrie's growth is sustained and enhanced by its transportation network, which provides distinct advantages in promoting the city as a regional hub for distribution and logistics, including:

- It is the gateway to the Calgary region on Highway 2
- It is proximate to the Calgary International Airport
- It is proximate to Stoney Trail, the provincial ring road
- It is well connected to neighbouring communities

While the transportation network is an effective driver for community growth and diversification, growth can in turn strain the network. These pressures raise concerns ranging from traffic safety to mobility to availability of adequate capital funding. As one of its key planning documents, a Transportation Master Plan (TMP) is a necessary and effective tool to assist the City in managing, programming and planning for upgrading of the transportation network in response to municipal development.

In 2008, the City of Airdrie sought to complete updates to a number of its key planning documents. These included: a new Comprehensive Growth Strategy (CGS), completed by Dillon Consulting; an update to the Servicing Master Plan and Levy requirements, completed by Brisbin & Sentis Engineering Inc. (BSEI); and an update to the Transportation Master Plan provided in this report by ISL Engineering and Land Services Ltd. This is the first time that all three studies have been updated concurrently, and the coordination of study assumptions, horizons and recommendations is of benefit to the City in ensuring that the plans are consistent. One of the key factors leading to the need for these updates was a revision to the residential density policy in the Airdrie City Plan approved by Council in 2008.

2.0 Travel Demand Model and Land Use

Transportation network forecasting was carried out by updating and expanding the Travel Demand Model developed as part of the 2006 Transportation Master Plan (TMP.) At that time, the model was newly constructed in order to modernize the City's forecasting capabilities, and provided an effective foundation for the City's ongoing use in traffic studies, roadway planning and evaluation of alternate network improvements.

The 2006 TMP included two forecasting horizons: population levels of 35,000 and 55,000, respectively. With continued annual population growth in the range of 8 to 10%, the expected time horizons for these population levels are faster than originally anticipated. In fact, the City has essentially already reached the 35,000 horizon, with results of the June 2008 municipal census indicating a current population in excess of 34,000. As such, for the 2008 update, the 55,000 population level is now considered the nearer-term horizon, and an 80,000 population horizon was added to reflect longer-term build-out of the existing City limits. The TMP model also considers the effect of new employment areas on the transportation network. Total employment within the City of

Airdrie was forecast to be about 19,000 jobs at the 55,000 population level, and about 25,000 jobs at the 80,000 population level.

For the first time, the 2008 update also coordinated the City of Airdrie's transportation forecasting with the Regional Transportation Model maintained by the City of Calgary for the region as a whole. This is particularly beneficial in determining the impact of regional development on major roads through Airdrie, such as Highway 2, and will provide more consistent information for the City to use in working with the Calgary Regional Partnership.

3.0 55,000 Population Horizon

For the 55,000 population horizon, a total of eight different scenarios were modelled. Each scenario tested network improvements in various combinations in order to confirm which are necessary to address traffic demand produced by the level of development estimated to occur by this horizon.

Based on the modeling analysis and detailed intersection review, a target transportation network was developed for the 55,000 population horizon. The review has indicated the need for the following network improvements by that time, also shown on Exhibit ES-1.

- Veterans Blvd - 4 lanes from 8 Street to Woodside Dr (confirmed 2009 project)
- Railway Street - CP Rail crossing to Tower Lane Drive
- Yankee Valley Blvd - 6 lanes from Luxstone Blvd to East Lake Blvd
- Yankee Valley Blvd - ultimate interchange
- 40 Avenue - 4 lanes from 8 Street to Kingsview Blvd
- 40 Avenue - interchanges at Highway 2 and Main Street
- 8 Street - 4 lanes from Veterans Blvd to 40 Avenue
- East Connector - 2 lanes from Yankee Valley Blvd to East Lake Hill

4.0 80,000 Population Horizon

For the 80,000 population horizon, a total of nine different scenarios were modeled. Generally, scenario testing at this level was a less "linear" process than the 55,000 horizon. A variety of solutions were tested and explored, many of which did not ultimately prove effective. The intention of long range modelling is to identify a potential, realistic scenario to allow the City to protect for and maintain as many future options as possible.

Based on the modeling analysis, a target transportation network was developed for the 80,000 population horizon. The review has indicated the need for the following network improvements, also shown on Exhibit ES-2.

- Highway 2 - 8 Lanes from Stoney Trail to Veterans Blvd (10 lanes incl. auxiliary lanes from Yankee Valley Blvd to East Lake Cres / Edmonton Tr)
- Highway 2 - 6 Lanes north of Veterans Blvd
- 40 Avenue Interchange - dual-lane NB exit
- Yankee Valley Blvd Interchange - dual-lane NB and SB exits
- Veterans Blvd Interchange - dual-lane NB exit
- Veterans Blvd - 4 Lanes from Woodside Dr to 24 Street
- CP Rail Grade Separations - Auxiliary Lanes
- Yankee Valley Blvd - 6 Lanes from Luxstone Blvd to Bayside Gate
- Yankee Valley Blvd - 4 Lanes from Bayside Gate to 24 Street

- Yankee Valley Blvd - 4 Lanes from East Lake Blvd to Ravenswood View
- 40 Avenue - 6 Lanes from Coopers Link to Kingsview Blvd
- 40 Avenue - 4 Lanes from 8 Street to 24 Street
- 8 Street - 4 Lanes from 40 Avenue to Chinook Winds Access

A key assumption in the 80,000 analysis is that Airdrie's existing transit use of 2-3% will grow significantly in the long term. A target level of 11% was assumed at this horizon. This figure is based on the expected level of transit use identified in the recently-completed Transportation Master Plan of the City of St. Albert. As the primary outlying communities to their respective central cities, St. Albert and Airdrie share many potential characteristics, and this level was taken to be a reasonable target for Airdrie in the long range.

4.1 Long Range Congestion

Even with all of the above improvements and enhancement of transit service, a number of problem areas will remain in Airdrie's long term transportation network, including:

- Yankee Valley Blvd / 8 Street intersection remains over capacity
- Yankee Valley Blvd through Main Street to Highway 2 remains over capacity
- Yankee Valley Blvd / East Lake Blvd intersection remains over capacity
- Numerous Highway 2 ramps, particularly loops, remain over capacity

Due to right-of-way constraints and other limitations, all of these facilities would be at the practical limit of upgrading, and further widening would likely prove ineffective in further horizons. Increased diversion of single passenger auto trips to transit or other modes will be essential to reducing these concern areas to tolerable levels of congestion in the long range.

While traffic congestion is often portrayed as a negative event, it can be beneficial in promoting changes in travel choices and behaviours (alternate modes, alternate travel times,) especially if the alternatives are developed and promoted in such a way as to make them the obvious and more beneficial choice.

5.0 Capital Works Program

Given the rapid growth in Airdrie and uncertainty surrounding the anticipated rate of growth in years to come, the TMP modeling horizons deliberately maintain population levels, not calendar years, as their defining characteristic. Capital Works programming, however, requires that the improvements be spread out over a number of years. The recently approved Comprehensive Growth Strategy predicted horizon years of 2018 and 2034 for the 55,000 and 80,000 population levels, respectively. As such, the 55,000 horizon network still constitutes a reasonable basis for a 10-year capital plan.

The project costs provided in this report were prepared by updating the 2006 TMP Program to reflect the 55,000 network improvements identified in this report, and by updating unit costs to those now prevailing in the Calgary region. Price inflation over these two years was significant, averaging at about 30% across all project types.

The program sequence has also been updated to reflect current development patterns and a logical succession plan for major projects. These requirements should continue to be assessed by the City as a part of the annual Roadworks Program. The identified

program is summarized in Table ES-1 below.

Table ES-1 10-Year Capital Works Program

Year	Roadway	Project	Cost
2009	Veterans Blvd - Woodside Blvd to 8 St	4-Lane	\$7.8 Million
2010	8 Street - Bayside Dr to MacKenzie Way	4-Lane	\$6.1 Million
2011	40 Avenue - 8 St to Main St	2-Lane New	\$7.6 Million
2012	Railway Avenue	CP Crossing	\$1.0 Million
	Yankee Valley Blvd - Bayside Gt to 24 St	2-Lane Urban	\$5.7 Million
2013	8 Street - Veterans Blvd to First Ave	4-Lane	\$3.1 Million
	Yankee Valley Blvd - East Lake Bv to RvnWd	2-Lane Urban	\$4.7 Million
2014	8 Street - Yankee Valley Blvd to 40 Ave	4-Lane	\$5.4 Million
2015	40 Avenue - 8 St to Main St	4-Lane	\$6.1 Million
2016	Yankee Valley Blvd	CP Crossing	\$14.0 Million
2017	Yankee Valley Blvd	CP Crossing	\$9.4 Million
	Yankee Valley Blvd - Luxstone Blvd to Main St	6-Lane	\$2.2 Million
2018	East Connector	2-Lane New	\$8.5 Million
<i>10-Year Total</i>			\$81.6 Million

The program reflects the following sequencing of major projects in south Airdrie, the order of which is important to build a transportation network that can support major construction detours and traffic diversion caused by subsequent projects:

1. Upgrades to the Yankee Valley Blvd interchange (currently underway by Alberta Transportation)
2. Complete the 40 Avenue network link (2 lanes) and twinning of other network segments (8 Street, etc.)
3. Construct the new 40 Avenue interchange (Provincial project subject to funding / timing - ideally falling in the 2012/2013 timeframe in the above program)
4. Twin the 8 Street / 40 Avenue corridor
5. Construct the Yankee Valley Blvd / CP Rail grade separation (potentially closing the link to traffic for the duration of the project)

The City of Airdrie and future users of this report are strongly cautioned on using the budgetary figures presented in this report as a definitive source for complete programming and implementation of the identified program over a 10-year period. The budget values have been prepared on a conceptual level only based on simplistic "per kilometre" construction costs for typical upgrades. They have been completed without the benefit of functional planning or preliminary design which would account for particular ground conditions, stormwater management requirements or general constructability challenges for any specific project. It is recommended that all project capital budgets confirmed by Council be based on appropriate functional planning studies or preliminary design estimates. This lessens the risk of unknown factors requiring budget adjustment by Council over the life of a project.

6.0 Residential Density Policy

In 2008, an amendment was approved to the Airdrie City Plan removing the previous residential density cap of 5.5 to 9.0 units per net acre (upa), and replacing it instead with a minimum residential density level of 7.0 upa. The TMP Update has considered the

implications of the new policy by increasing population and employment levels in yet-to-be-developed areas of Airdrie, primarily in the far southwest.

Generally, transportation corridors in the vicinity of the affected areas were found to operate well in the target 80,000 horizon network, which included an 11% traffic diversion to public transit or other alternate modes of transportation. However, key corridors elsewhere in the City remain problematic even at that level of transit use.

A key advantage of residential densification is that it allows the development of a greater range of community amenities and opportunities than is the case with low density housing. Higher densities will support a variety of business, recreational and cultural opportunities and thereby enhance and enrich community life. In terms of its impacts on transportation infrastructure, the key benefit of higher densities is that they would allow the City to pursue transit service as a means of handling higher levels of travel demand. The continued development of Airdrie at 5 to 6 upa would pose a significant constraint on the long-term viability of full community transit service, and especially on high-speed transit connections to Calgary. With increased densities, Bus Rapid Transit (BRT) may be a viable, cost-effective solution for providing long-term connectivity between Airdrie and the Calgary LRT system.

In adopting the revised policy, the City should consider aggressively improving transit service throughout the community. Key planning strategies for transit would include:

- Rethinking the layout of new subdivisions to make them more suited to transit operations (they are not at present)
- Making transit facilities and connectivity a priority in neighbourhood planning
- Making provision for transit centres in Neighbourhood Structure Plans and City budgets
- Consideration of bus lanes, queue jump lanes and transit priority signals on major corridors
- Creating pedestrian-friendly environments throughout and between neighbourhoods
- Prioritizing transit access to major nodes and centres
- Creating mixed use nodes within neighbourhoods (retail, office, schools, etc.) to foster greater use of non-vehicular modes (more short and more walkable trips)

Airdrie enjoys a strong advantage over communities in comparable circumstances in that it is still at a relatively early stage of transit development. By starting early and proactively, the City has an opportunity to build alternate modes of transportation into its infrastructure and community life over a longer period of time, which allows travel choices to evolve and change gradually with the growth of the community.

7.0 Main Street Corridor

Main Street was historically Airdrie's main north-south corridor on the west side of Highway 2. It serves the City's oldest communities and the downtown commercial district, and fronts one of the City's most important natural park areas along Nose Creek. As City growth has moved further west, 8 Street has replaced Main Street as the primary north-south transportation spine west of Highway 2, providing access to new communities and serving as a more effective arterial connector.

With viable alternates including 8 Street and 24 Street, Main Street's role as an arterial corridor has become less important on a city-wide scale. The downgrading of other arterials in the downtown area, including the permanent confirmation of First Ave and Center Ave as two-lane collectors east of Main Street in the 2006 TMP and Village Area Redevelopment Plan, has lead the City to explore whether a four-lane arterial standard is necessary on Main Street as well.

The TMP Update tested scenarios that converted Main Street to a two-lane corridor between Yankee Valley Blvd and Veterans Blvd. Some possible ideas for modified uses on Main Street are shown on Exhibit ES-3 and could include:

- A landscaped median or wider landscaped boulevards
- Two-way center left-turn lanes
- Transit-only lanes or bus bays
- Bicycle lanes or separate raised bicycle / walkways
- On-street parallel parking, or back-in angle parking in select widened areas
- Roadside features tied to historic, community or natural themes

On a network-wide level, the analysis suggested that sections of Main Street north of Erin Drive could be converted without having an adverse impact on parallel routes. Detailed study would be necessary to review intersections, confirm turn-bay requirements, and consider Main Street's role as the main transportation route for area neighbourhoods. The TMP findings do not commit the City to any particular course of action or corridor plan, but rather just confirm the general viability of the concept.

8.0 Highway Arterials / Access Management

The 2006 Transportation Master Plan introduced an enhanced arterial roadway classification to the City of Airdrie, the Highway Arterial. Airdrie's reliance on Highway 2 as its main transportation route places exceptional importance on corridors leading up to and connecting with the freeway, as follows:

- Veterans Blvd (west City limits to east City limits)
- Yankee Valley Blvd (west City limits to east City limits)
- 8 Street (south of Yankee Valley Blvd)
- 40 Avenue (8 Street to Kingsview Blvd)

The TMP Update re-confirms the desirability of protecting these corridors to a higher standard. As such, it is recommended that the City maintain this classification on the above noted routes, and that it continue to protect the 48m right-of-way in all new development areas where the wider dedication is still possible. Right-of-way protection is a pro-active and cost-effective way to maintain future options open.

The 2006 TMP also recommended stricter access management standards for Highway Arterials in new areas, suggesting minimum intersection spacing of 600 to 800 m. Analysis of the 80,000 population horizon in this TMP Update has suggested that a major long-term problem with the City network may be the concentration of left-turning traffic at a limited number of roadways. The wider distribution and disbursement of left-turning traffic will be key to the long-term viability of the network. As such, it is recommended that the more restrictive access management standards for new Highway Arterials be removed, and that they maintain the same access management requirements as standard arterial roadways, as follows:

- Minimum intersection spacing of 300 m

- Preferred intersection spacing of 400 m
- Commercial / industrial / institutional access provided as right-in / right-out or at major intersections at the above spacing
- No direct residential access, including multi-family

9.0 East Connector

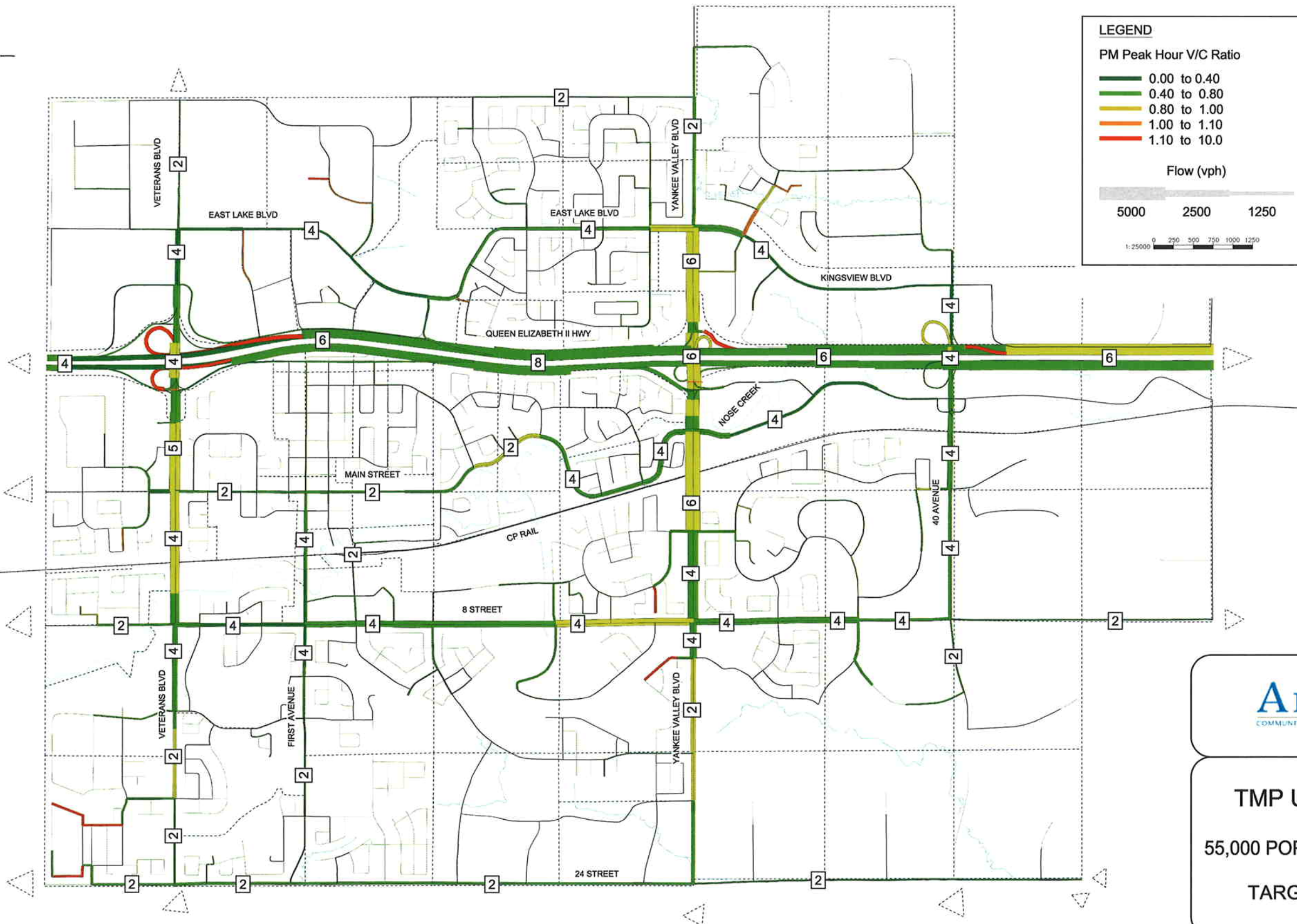
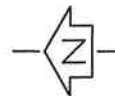
In initial model runs for the 80,000 horizon, the section of East Lake Blvd immediately north of Yankee Valley Blvd was operating beyond capacity. It is evident that operations will be problematic in the long-run as a result of three very-high volume movements in the PM Peak period - the southbound right turn, the eastbound left turn and northbound left turn movements. The eastbound left turn is particularly poor, because East Lake Blvd is the only roadway connecting Yankee Valley Blvd to northeast neighbourhoods.

In order to improve the long-term operation of this intersection, the TMP suggests that the City evaluate an additional access for communities north of Yankee Valley Blvd. This "East Connector" could provide an alternate route to the Meadowbrook, Thorburn and Eastlake Industrial areas, allowing traffic to bypass the more congested left-turn lanes at East Lake Blvd. The modelling was completed with a connection immediately to the east of these existing communities, near the existing pipeline / pathway right-of-way, although this exact location is not critical at this level of analysis.

The TMP findings do not commit the City to any particular roadway alignment, but rather recommend that further study be completed in future, including neighbourhood consultation, to identify an alternate access route in the area.

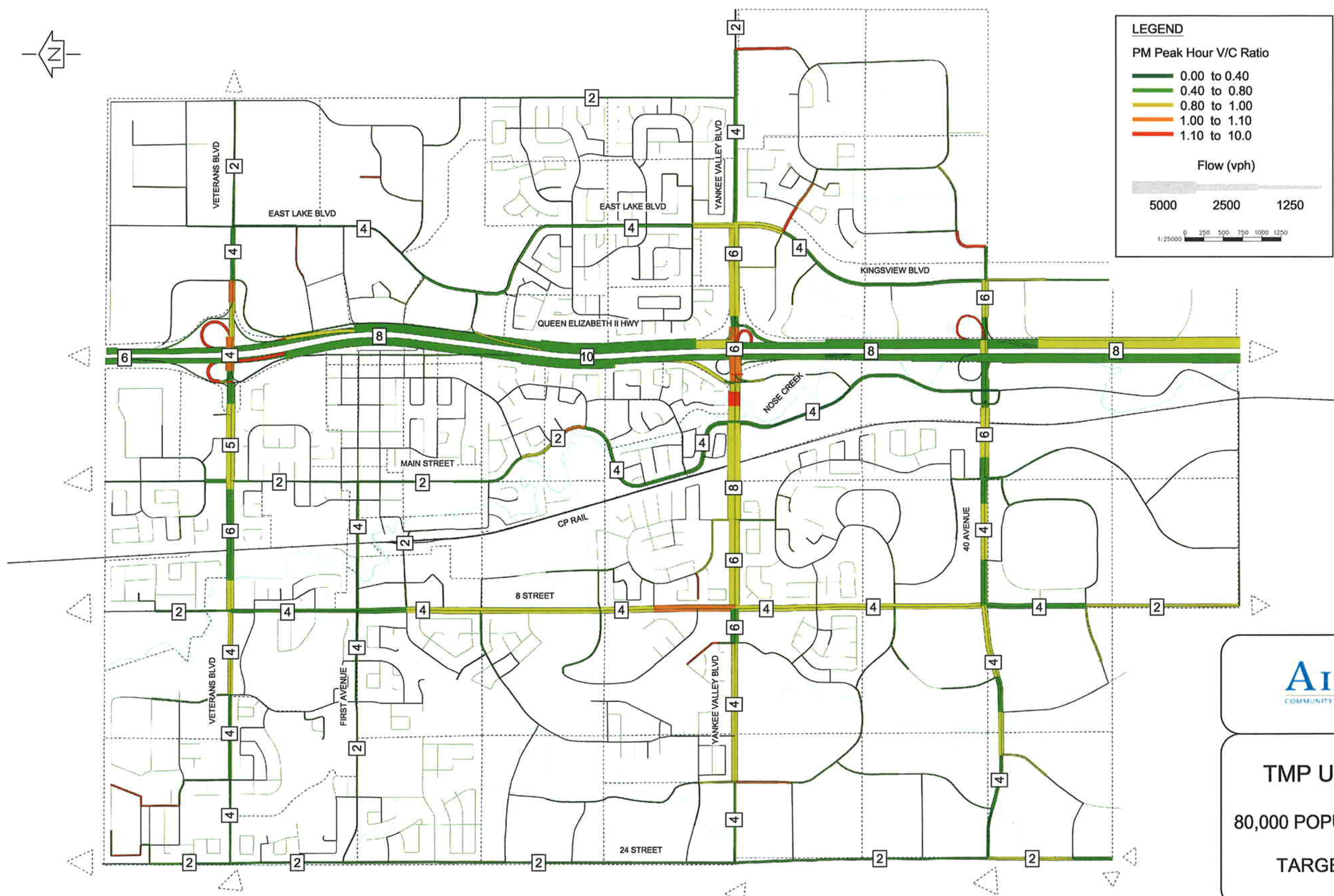
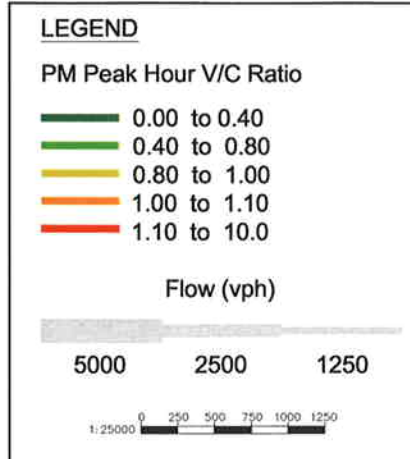
10.0 Public Engagement

A community open house for the Transportation Master Plan was held at Airdrie City Hall on Wednesday, November 19, 2008. Public notification was provided by: advertising in the Airdrie City View newspaper; street-side signs near City Hall; the City's website (www.airdrie.ca); and direct e-mail to the City's contacts within the development community. About 30 members of the public attended, representing a cross section of residents, business owners, the consulting engineering community and the City's major developers. Eight survey response forms were returned, and were generally positive with respect to the information presented. Following the open house, display materials were posted in PDF format on the City's website and will continue to be available for public review.



TMP UPDATE 2008
 55,000 POPULATION HORIZON
 TARGET NETWORK





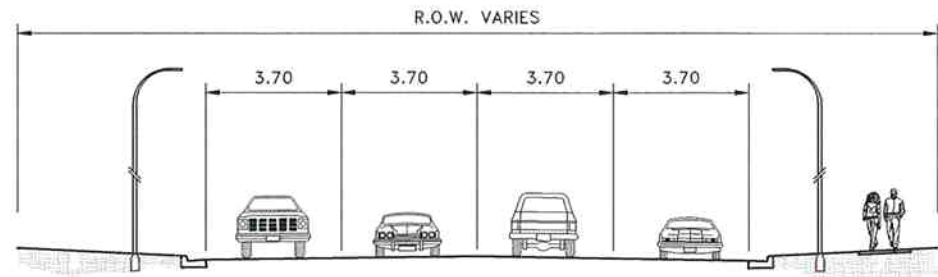
11% Transit Diversion



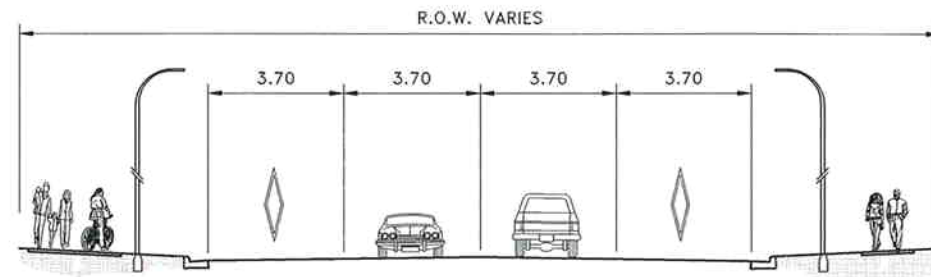
TMP UPDATE 2008
 80,000 POPULATION HORIZON
 TARGET NETWORK



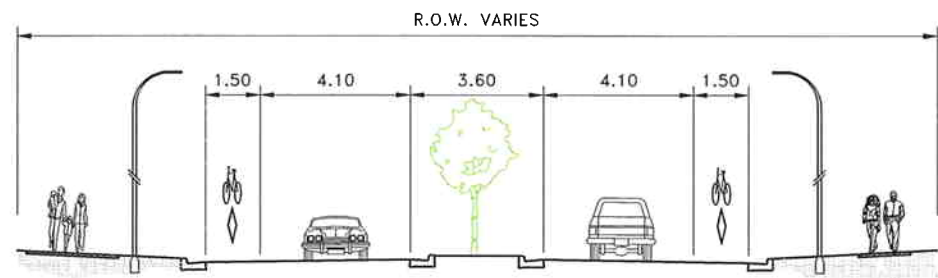
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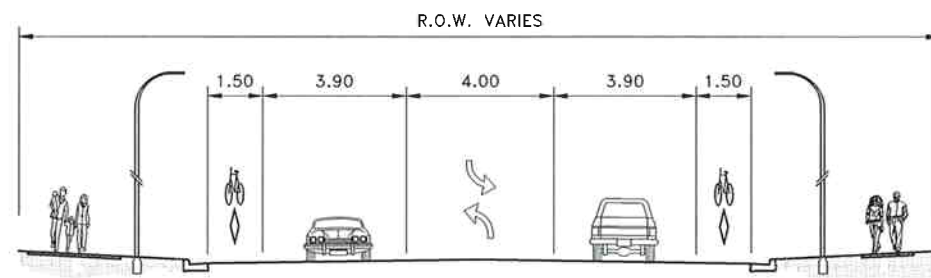
**MAIN STREET
EXISTING (WITH 4 LANES)**



**MAIN STREET
WITH TRANSIT LANES**



**MAIN STREET
WITH BIKE LANES AND MEDIAN**



**MAIN STREET
WITH BIKE LANES AND
TWO-WAY LEFT TURN LANE**



**TMP UPDATE 2008
MAIN STREET
CORRIDOR ILLUSTRATIONS**

