Edmonton City Centre Airport Lands Impact Assessment Final Report

Prepared For: *The City of Edmonton*

Date: *June 15, 2009*

Prepared By:

bunt & associates
TRANSPORTATION PLANNERS AND ENGINEERS

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

SEC

COLLIERS INTERNATIONAL

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF EXHIBITS

E.1 STUDY PURPOSE

This report presents the land use, transportation, servicing, and market feasibility impacts associated with the possible closure and redevelopment of the Edmonton City Centre Airport (ECCA) Lands. This report does not recommend either closing the airport or expanding service.

E.2 STUDY BACKGROUND

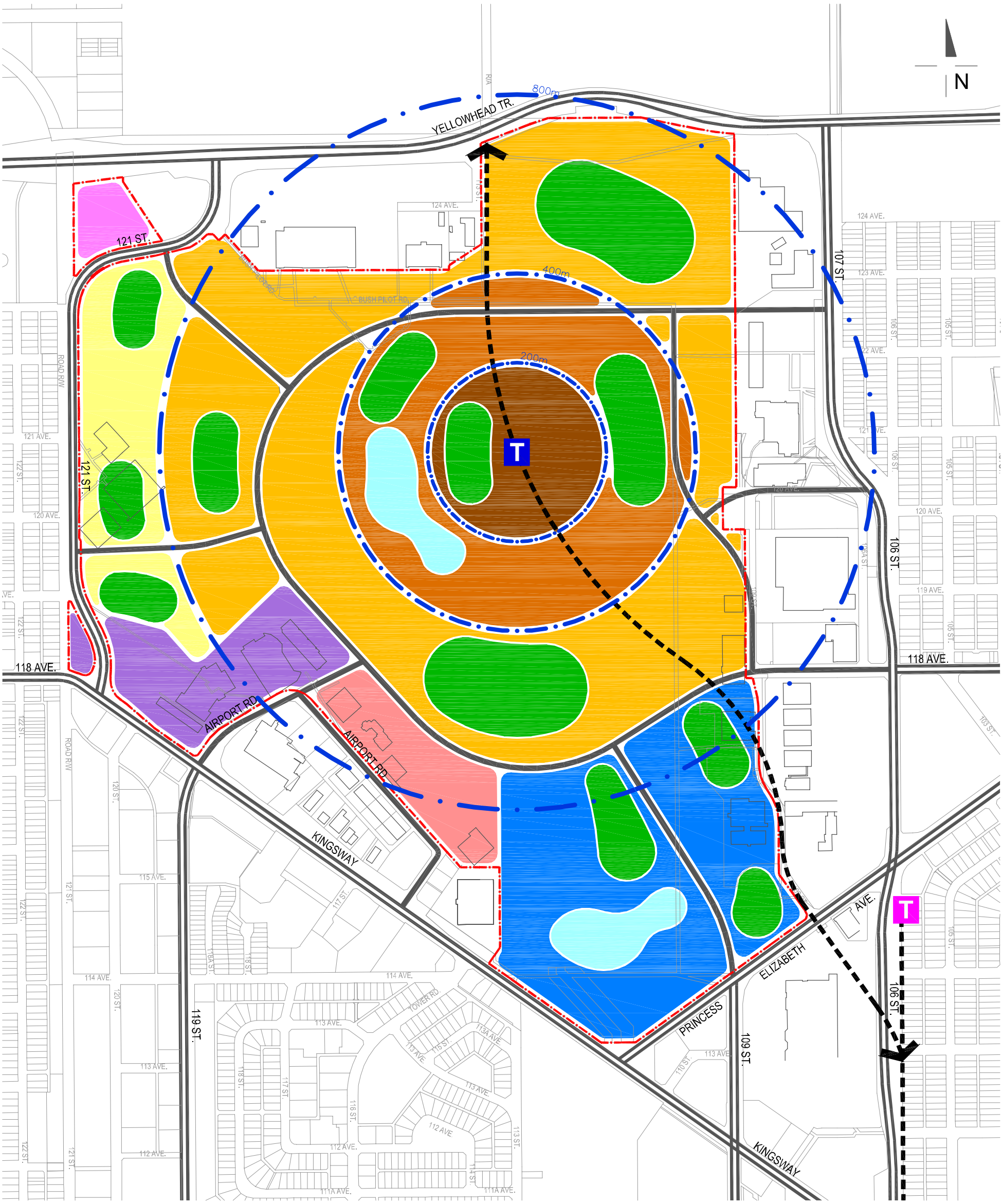
The Edmonton City Centre Airport is currently owned by the City of Edmonton. Lands comprising the airport area have been leased to Edmonton Airports for the operation of a general aviation facility.

The future status of the ECCA Lands has been the subject of significant debate over the past few years. In June 2008, the City Administration presented a report to City Council which summarized the challenges and possibilities associated with the Edmonton City Centre Airport Lands. This report included the preparation of alternative land use concepts which illustrated potential urban redevelopment opportunities should the Edmonton City Centre Airport be closed. On October 8, 2008, Executive Committee of City Council approved Administration undertaking more detailed assessments of the potential impacts related to the possible closure of the Edmonton City Centre Airport as a general aviation airport.

E.3 DEMONSTRATION PLAN PREPARATION

For the purposes of determining land use, transportation, market feasibility and servicing impacts related to the redevelopment of the ECCA Lands, a Demonstration Plan (**Exhibit E-1**) was prepared to illustrate how the ECCA Lands could potentially be redeveloped as a comprehensive Transit Oriented Neighbourhood. Primarily, the neighbourhood could be developed for High and Medium Density Residential Mixed Use land uses, supportive of transit. Other lands within this new neighbourhood could include:

- Ground-Oriented Multi-Family Dwellings outside of the 10 minute walking distance from the potential LRT station;
- significant land for Parkland, Recreation and Schools;
- land to accommodate a NAIT expansion;
- General Business and Neighbourhood Commercial uses;
- an area planned for a mix of Office, Institutional and Industrial uses;
- a Transportation Node including the Medevac (helipad) facility;
- a local and collector roadway network;
- stormwater management facilities; and
- lands to accommodate future LRT expansion.



Legend

- ECCA Lands
- High Density Residential Mixed Use Centre
- Medium to High Density Residential Mixed Use Centre
- Medium Density Residential Mixed Use Centre
- Low Density Residential
- Mixed Use Office / Institutional / Industrial
- Parks / Municipal Reserve / Schools
- Stormwater Management Facility
- General Business
- Transportation Node
- Institutional (NAIT Expansion)
- Conceptual LRT Alignment
- Arterial Roadway
- Collector Roadway
- Potential LRT Station
- Temporary LRT Station
- Walking Distance from LRT (200 m)
- Walking Distance from LRT (400 m)
- Walking Distance from LRT (800 m)

NOTE:
- LRT alignment is conceptual in nature and is subject to further assessment.
- Yellowhead Trail alignment is presently under review.

Exhibit E-1
Demonstration Plan For The ECCA Lands

Edmonton City Centre Airport Lands
Edmonton, Alberta

0 100 200 400m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009

The Demonstration Plan is not intended to represent a final design plan for the ECCA Lands, nor is it intended to represent a proposal for future zoning, transportation planning (including the location or relocation of public roads or LRT), land acquisition or disposition, or the projected status of tenancies on ECCA Lands. The Demonstration Plan does illustrate how a comprehensively planned neighbourhood could be achieved. This type of redevelopment initiative would align with the City's current vision for compact sustainable land use development and Transit Oriented Development activity.

For the purposes of this impact assessment, development activity within the ECCA Lands was anticipated to begin in 2016.

E.4 LAND USE IMPACTS

E.4.1 City Vision

In July 2008, City Council unanimously approved the City's Strategic Vision for a successful Edmonton in 2040. To support implementation of the Vision, Council also unanimously approved a ten year strategic plan, "The Way Ahead" that included a number of strategic goals to measure progress. Council's Vision provides a creative description of Edmonton's future. Elements from the Vision that are applicable to the ECCA Lands include the skyline, towers, urban villages, extensive LRT service, a city of design, linking the continent with the north and Asia and a centre for advanced technology, health care and green energy.

The continued use of the ECCA Lands as a general aviation facility is an example of an employment node at the regional and City level. Further infill development on the ECCA Lands for aviation and non-aviation uses, where appropriate, would support its current node function. The current ECCA Lands could accommodate limited employment and building infill potential, but not mixed use residential development, given the nature of the aviation uses. The ECCA provides aviation services and access to the north. In terms of Council's Vision, the ECCA makes a contribution in terms of its economic and employment activity and the connection with the north.

The redevelopment of the ECCA Lands represents an opportunity to develop a transit oriented concept, consistent with achieving Council's goals in "The Way Ahead". A transit oriented development supports Council's goals regarding urban form, changing transportation modes, and the potential for the development of an urban village. The land sale revenue and increased non-residential municipal property tax revenue associated with the Demonstration Plan also supports Council's goal of financial sustainability.

E.4.2 Adjacent Community Impacts

It has been determined that, if the ECCA Lands were to change from a general aviation facility to a mixed use Transit Oriented residential community, this land use modification could act as a catalyst for future revitalization and rejuvenation of adjacent neighbourhoods such as Prince Charles, Inglewood, Prince Rupert, Spruce Avenue, and Westwood. It is anticipated that future revitalization and rejuvenation efforts in the adjacent residential communities would consist primarily of replacement of the some of the older housing stock and potentially some redevelopment with increased densities. This redevelopment and rejuvenation would be

consistent with the policy direction of the draft "The Way We Grow: Municipal Development Plan", which focuses on the need to manage growth and emphasizes the need for a more compact and urban form, medium and higher density development related to transit, and a wide range of housing types.

E.4.3 Downtown Height Restriction Impacts

If the decision is made to cease airport operations on the ECCA Lands, this would result in the removal of the Airport Protection Overlay (APO) from the Edmonton Zoning Bylaw and the removal of restrictions to development height in other areas of the city in relation to the airport use. Subject to the amendment of plans impacted by the APO it is conservatively estimated that approximately 3,200 additional units could be developed, over and above the current development potential, in the Downtown and Oliver neighbourhoods.

E.5 MARKET FEASIBILITY IMPACTS

E.5.1 Residential Demand and Absorption

Competition between redevelopment of the ECCA Lands with other development initiatives throughout the City of Edmonton was considered. A review of twelve (12) redevelopment areas identified the potential for more than 31,200 dwelling units within these redevelopment projects. Under the Demonstration Plan, the ECCA Lands would add an additional 11,529 residential units (not including student residences).

Between 2006 and 2041 Edmonton is expected to see net new demand for over 72,500 apartments and 27,660 new ground-oriented multi-family units. Considering the pace of forecasted demand, and supply from other developments both underway, planned and even those currently unforeseen but expected to arise, the units within the ECCA Lands would take between 23 and 28 years to absorb.

E.5.2 Market Potential for Retail, Office, and Industrial Land Uses

The Primary Trade Area for retail commercial land uses located within the ECCA Lands is considered to be the development site itself, which as shown in the Demonstration Plan could build out with a population of 24,286 people. The Secondary Trade Area would extend into the residential neighbourhoods east and west of the site. Considering the supply of retail on Kingsway, and its role in northwest Edmonton, capture rates for ECCA retail commercial have been reduced to predominantly local-serving and convenience levels. Therefore, the net demand for retail and service commercial floor area in this scenario is estimated to be 378,800 square feet at build-out, which represents less than 27% of the total demand expected to be generated by the ECCA population.

In addition to retail land uses it would be reasonable to expect that, starting in 2016, ECCA could absorb 5% of new City-wide traditional office demand, or 7,200 square feet per year, if appropriate lands and development opportunities were available. Over 7 years, the accrued demand could support a 50,000 square feet office building; and over 14 years, two such buildings would be warranted.

Based on the successes seen in other post secondary-associated industrial developments, and the unique opportunity of an accessible city centre site adjacent to NAIT, regional shopping, services, and a high-density transit oriented community, the mixed use office and business industrial lands would experience more business interest than comparable sites in a different location. It is anticipated that all of the lands in these designations would be absorbed within 10 years of construction starting on other uses in the ECCA Lands, and possibly sooner.

E.5.3 Future Market Value

The net value to the City of Edmonton assuming straight-line revenues and costs for the Demonstration Plan is approximately $90,000,000, which contemplates revenues and costs without a time factor.

The second method of estimating value was based on a development proforma, which assumes the land will be sold to a third party who would then undertake the development over a period of time. Amongst other things the proforma incorporated hard costs, soft costs, sales commissions, developer's profit, and most importantly an absorption period of 28 years. The resultant value discounted to account for time (28 years) at a 12% discount rate equated to approximately $41.8M, assuming a start period in 2016. This value equates to approximately $78,000 / gross acre of land.

E.6 TRANSPORTATION IMPACTS

The redevelopment of the ECCA Lands is anticipated to impact existing transportation infrastructure, such as roadways, and also impact the potential LRT alignment through the area.

E.6.1 Future LRT Alignment

The City is planning to expand the LRT network, including a route to the northwest sector of Edmonton. Redevelopment of the ECCA Lands would provide an opportunity for greater flexibility in the development of an LRT corridor into the northwest sector of the City.

The Airport Protection Overlay imposes restrictions on options for the construction of an LRT bridge across Yellowhead Trail and the CN Yards. Depending on the preferred LRT route alignment, it may be necessary to tunnel a considerable distance underneath Yellowhead Trail and the CN Walker Yards north of the ECCA Lands. Redevelopment of the ECCA Lands would provide greater flexibility and possible cost savings in LRT alignment options from the Kingsway LRT Station going north; including how and where the LRT crosses the CN Walker Yards.

In addition to providing additional flexibility in the development of route options for the NW LRT line, the redevelopment of the ECCA Lands provides an opportunity to develop a centrally located LRT station as a focal point for the development of a master planned Transit Oriented Development. Focusing additional residential development in close proximity to an LRT station would result in an increased potential for transit ridership along the NW LRT line and may expedite the construction of the NW LRT line. It is anticipated that redevelopment of the ECCA Lands would result in positive impacts on LRT in Edmonton.

E.6.2 Bus Transit

The Demonstration Plan is based on the assumption that an LRT station can be developed in a central location within the ECCA study area and that a Transit Oriented Community can be established. To fully realize a Transit Oriented community, a transit plan should be developed for the neighbourhood to complement the LRT system.

E.6.3 Pedestrian and Bicycle Integration

With the potential redevelopment of the ECCA Lands, there are opportunities to provide pedestrian and cycling facilities that are integrated with the potential future LRT station and the surrounding community in a way that encourages these alternate transportation modes. As well, expanding pedestrian and cycling facilities to the edge of the plan area allows for the integration of the ECCA Lands with the adjacent communities.

E.6.4 Roadway Impacts

The transportation characteristics of the Demonstration Plan were reviewed to identify any potential impacts associated with the redevelopment of the ECCA Lands. Although the Demonstration Plan was based on a Transit Oriented Development concept, the neighbourhood would continue to generate vehicle traffic, but at a lower rate than a traditional suburban residential neighbourhood.

Based on the transportation analysis completed for the Demonstration Plan, a new neighbourhood could be developed on the ECCA Lands without the construction of new arterial roadways through the plan area. Analysis of the Demonstration Plan indicates that a network of collector and local roadways can be designed to adequately accommodate traffic generated by the plan area. Given the availability of access to the adjacent arterial roadways, a significant challenge for the development of the plan area is the identification of a collector roadway network that serves the neighbourhood, without creating opportunities for external traffic to shortcut through the neighbourhood.

The analysis of the Demonstration Plan was based on a 2040 Horizon, consistent with the assessment of the Transportation Master Plan, which assumed that an interchange would be constructed at Yellowhead Trail and 121 Street and that the at-grade intersection at Yellowhead Trail and 107 Street would be removed. Changes to access to Yellowhead Trail are anticipated to impact traffic patterns on the adjacent arterial roadway network and may result in intersection modifications being required on the adjacent arterial roadway network. For example, in the analysis completed, improvements to the 118 Avenue/121 Street intersection may be required to accommodate increased demands along 121 Street. The addition of traffic generated within the ECCA Lands would also contribute to the requirement for improvements at this location. However, overall it is anticipated that the arterial roadway network can accommodate the future demands at appropriate long term levels of service.

E.6.5 Yellowhead Trail and Truck Routes

Yellowhead Trail is currently designated as the north leg of the Inner Ring Road. Ultimately, Yellowhead Trail has been identified to be upgraded to accommodate free flow traffic

movements. Current airport operations create constraints in regards to upgrading Yellowhead Trail in the future.

Yellowhead Trail is currently designated a dangerous goods truck route, while 121 Street, 119 Street, 109 Street, 106 Street/107 Street, Kingsway, and Princess Elizabeth Avenue are currently designated as 24 hour truck routes. No changes to the existing truck route network are proposed as a result of the redevelopment of the ECCA Lands; however, it is anticipated that 106 Street/107 Street would not be designated a truck route if the Yellowhead Trail/107 Street at-grade intersection is removed.

E.6.6 Canadian National Railway Walker Yards

The Canadian National Railway Walker (formerly Calder) Yards are located north of the study area, north of Yellowhead Trail. In 1983, the City of Edmonton entered into a lease agreement with CN (effective date was retroactive to December 1, 1979), which allowed a portion of Yellowhead Trail to be constructed within CN lands (lease lands). As part of the lease agreement, CN can terminate the CN Lease on two years notice if changes to operations at the ECCA allow Yellowhead Trail to be relocated to the south, and CN needs the lease lands to expand the Walker Yards.

If the ECCA Lands are approved for redevelopment, and if CN requires the land for expansion, Yellowhead Trail will need to be relocated, reducing the overall area available for redevelopment within the ECCA Lands. It is anticipated that the cost to realign Yellowhead Trail west of 107 Street would be in the order of $10 Million.

E.6.7 Transportation Hub

A transportation node, which includes a Medevac (helipad) facility, was intentionally located in the northwest corner of the redevelopment lands to facilitate easy access from the Yellowhead Trail and to mitigate impacts on redevelopment potential in close proximity to the LRT station. This location also mitigates any nuisance affects related to noise, nearby odours, and traffic associated with its operation. Access to the Royal Alexandra Hospital from the relocated Medevac (helipad) Facility would be accomplished via 121 Street and Kingsway, which are both arterial roadways. Appropriate buffering and separation distances to address interface with residential uses should be addressed in more detail during the preparation of future redevelopment plans.

E.6.8 Noise Attenuation

Based on the City of Edmonton's Urban Traffic Noise Policy, noise attenuation is required if projected noise levels in outdoor amenity areas exceeds 60 dBA Leq24. For residential developments three storeys or more, noise levels of 45 dBA Leq24 or less should be achieved after applying attenuation measures. As the ECCA study area is surrounded by arterial roadways, and if redeveloped would include an LRT line through the plan area, a noise study would need to be completed to determine the extent of potential mitigation measures.

In addition to noise associated with transportation facilities, CN Rail has identified that any residential development within the ECCA Lands should meet their standard Right of Way Guidelines as they pertain to noise.

E.7 SERVICING IMPACTS

The existing infrastructure and servicing options were reviewed for the proposed redevelopment of the ECCA Lands. Connection to the existing infrastructure for water, sanitary and storm will provide service for the redeveloped lands. The existing sanitary and storm infrastructure can accommodate new gravity sewer systems in the ECCA Lands. The redevelopment of the ECCA Lands will provide some downstream relief in the existing combined sewer system by implementing a storm water management system on site. A road network would be constructed to tie into the existing arterial roads adjacent to the ECCA Lands. The utility companies (Telus and Shaw) will carry out any upgrades or expansion of existing facilities so that capacity is available when redevelopment of the ECCA Lands occurs. There are no servicing constraints that would impact the proposed redevelopment of the ECCA Lands.

The opinion of probable cost for the redevelopment of the airport lands is $204,000,000.

This cost includes construction of roads, underground utilities (water, sanitary, storm), stormwater management facilities, walkways, fencing, amenities, engineering and overhead, and a contingency of 25%. The costs were estimated based on 2009 rates. This cost also includes $12,000,000 for the construction of a new LRT station within the ECCA Lands but does not include the construction of the LRT tracks.

Further to the above, contingent costs have been identified for potential demolition of existing buildings ($13,500,000) as well as for the acquisition of existing buildings ($25,100,000 to $67,500,000). The opinion of probably cost does not include modifications to Yellowhead Trail or the remediation of contaminated soil that may be required.

E.8 SYNOPSIS OF KEY STUDY FINDINGS

Based on the land use, market feasibility, transportation and servicing impact assessment completed, the redevelopment of the ECCA Lands into a new mixed-use residential and employment based neighbourhood represents a significant opportunity for the City to achieve established long term visions regarding sustainable development and a more compact urban form.

The following key study findings are advanced:

- The existing operation of a general aviation facility on the ECCA Lands represents an employment node at the regional and City level. In terms of Council's Strategic Vision the ECCA makes a contribution through its economic and employment activity and connectivity with the North. The current ECCA Lands could accommodate limited employment and building infill potential; however, existing airport operations do not lend themselves to the development of a transit oriented development, since it will lack residential land uses and a mixed use form;

- Under existing operations the ECCA Lands can make a limited contribution to increasing the City's non-residential revenue and financial sustainability.

- The redevelopment of the ECCA Lands could represent a significant land use planning opportunity for the City. Changing demographics, increased traffic congestion and public policy initiatives such as Smart Choices are making clear the importance of transit and its inter-relationship with land development activity;

- The redevelopment of the ECCA Lands provides an opportunity to develop a compact and sustainable Transit Oriented Community with a pedestrian orientation;

- The redevelopment of the ECCA Lands can be redeveloped into a new residential mixed use community while the land use, transportation and servicing impacts are manageable;

- The redevelopment of the ECCA Lands could have a significant positive role in the extension and utilization of the City's LRT system, the continued development of the Downtown sector as the primary employment and commercial node in the City, the redevelopment of existing adjacent neighbourhoods, and the future expansion of the NAIT Campus;

- The redevelopment of the ECCA Lands could provide increased flexibility in the upgrading of the Yellowhead Trail to a free-flow facility, and;

- It has been estimated that the redevelopment of the ECCA Lands could be developed over a 23 to 28 year time frame.

INTRODUCTION 1

The City of Edmonton is evaluating land use, transportation, and servicing impacts as well as the market potential associated with the possible closure and redevelopment of the Edmonton City Centre Airport Lands.

The central theme of the study was to identify and assess opportunities and challenges associated with the current Edmonton City Centre Airport and its possible redevelopment. This report does not recommend either closing the airport or expanding service.

This initial section presents a summary of the project requirements including study purpose, scope, goals, and objectives.

1.1 PREAMBLE

The City of Edmonton continues to grow and take its place as an economic centre in Canada. The 2008 census for the City indicated a population of 752,412 people. The Census Metropolitan Area (CMA) population in 2008 was estimated to be about 1,102,401 people. By 2043 the City of Edmonton's population is anticipated to grow to about 1.174 million people.

With continued growth within the City and region comes increased pressure on the City to reassess current land use management and transportation related policies and initiatives to promote a denser, more sustainable urban form.

1.2 PROJECT UNDERSTANDING

The City of Edmonton continues to plan for the future. Due to significant economic and demographic changes within the City and region, City administrators have decided to initiate and implement new land use and transportation strategies and tactics to mitigate the impacts typically associated with continued outward development as opposed to reacting to growth demands through traditional methods. The recognition of increasing economic, social, and environmental costs associated with existing land use management philosophies has created a paradigm shift in the methods employed to address land use and transportation issues.

The implementation of smart growth initiatives, neighbourhood infill, more compact urban forms, Transit Oriented Development and promoting and facilitating sustainable transportation initiatives (increased mode split to transit) will assist the City in achieving their vision. These strategies more appropriately recognize and consider current conditions and forecast economic and demographic changes.

The Edmonton City Centre Airport (ECCA) is strategically located in the central sector of the City on the edge of the downtown core, bordered by arterial roadways. The potential redevelopment of the ECCA Lands represents an opportunity to assist the City in achieving longer-term land use and transit service objectives by providing an alternative to outward development through the development of a sustainable mixed-use activity node. Redevelopment of the ECCA Lands as a compact mixed-use development area based on a Transit Oriented Development framework would align with the City's current vision and Smart Choices policies.

Redevelopment of the ECCA Lands into a new inner city mixed-use precinct could represent a significant economic and social opportunity for the City. Redevelopment would have the benefit of stimulating additional sources of revenue for the City while at the same time, removing constraints associated with airport operations on adjacent land use and transportation development activity (i.e. NAIT Expansion, North and Northwest LRT Expansion, Yellowhead Trail redevelopment, removal of building height restrictions due to Airport Protection Overlay restrictions).

1.3 STUDY PURPOSE

The purpose of this assignment was three fold.

The primary purpose was to assist the Executive Committee and City Council in rationalizing the impacts associated with the possible closure and redevelopment of the ECCA Lands. As well, the possibilities and challenges associated with the current use of the ECCA Lands were considered. The base information used to assemble this information and documentation was through the completion of land use, transportation, market, economic, financial and technical feasibility impact assessments.

It is recognized that the area of significant influence is not restricted to the ECCA Lands. The assignment must acknowledge adjacent/secondary study areas and regional influences. As such, a second study purpose was to explore the impacts associated with the redevelopment of the ECCA Lands as a sustainable mixed-use community on downtown redevelopment opportunities (elimination of the Airport Protection Overlay or APO) and the effects on adjacent city neighbourhoods.

Thirdly, although an initial concept plan for the ECCA Lands was prepared by the City, an opportunity existed to prepare a more refined land use Demonstration Plan to create value and to shape development opportunities within the ECCA Lands.

1.4 STUDY GOALS

The central theme of this assignment was to complete a comprehensive and detailed assessment of key implications, opportunities, and challenges (within the City's authority) associated with the possible closure of the Edmonton City Centre Airport and redevelopment of the ECCA Lands. The development of a comprehensive overview that reflects current realities and future trends, to the extent that they can be anticipated, will facilitate decisions regarding the future role and function of the ECCA Lands.

In a project such as this, there are often conflicting and competing demands on decision making and resources. In order to ensure these concerns are met and balanced, the following study goals were established:

- provide the City of Edmonton with a coordinated comprehensive and integrated study taking into account all required qualitative and quantitative components;
- prepare a fully integrated, effective and sustainable land use development framework;
- provide leadership in determining how the redevelopment of the ECCA Lands could be implemented from a planning, transportation and economic feasibility perspective;

- acknowledge and consider the greater City area from a planning and transportation perspective through an investigation of issues, challenges, constraints and opportunities, and;

- acknowledge and consider Transit Oriented Development and Transportation Demand Management opportunities and partnering opportunities within the development and implementation of a comprehensive land use management plan for the ECCA Lands.

The assessment allows the City of Edmonton to properly assess both the physical and financial aspects of redevelopment opportunities, utility servicing, and open space requirements in concert with adjacent development activity and development activity within the Downtown core.

1.5 STUDY OBJECTIVES

The following principal study objectives were identified.

Information Gathering

- Review existing land use activity at the ECCA Lands within and adjacent to the study area;

- Review the new Municipal Development Plan (MDP), Transportation Master Plan (TMP), Capital Region Plan, Downtown Plan and surrounding statutory and non statutory plans including the APO;

- Review plans for intensification efforts in other City locations such as Alberta Avenue, Downtown, Downtown North Edge, The Quarters, Station Pointe, Century Park, Stadium Station Transportation Oriented Development Area, Strathearn Heights, etc., and;

- Review information and materials from complementary studies completed by the City for the ECCA Lands (Public Involvement, Economic Impact and Opportunity Costs and Historical Association).

Best Practices

- Review and document best practices from research and application in other cities in regards to successful urban infill projects.

Land Use Planning

- Determine fit with MDP, TMP, Capital Region Plan, and other statutory and non statutory plans;

- Identify competitive issues/implications of transit oriented development with the introduction of LRT into the plan area;

- Identify potential impacts on the CN Walker (formerly Calder) Yards and impacts on adjacent communities from a land use and community infrastructure perspective, and;

- Identify potential mitigation measures necessary to address the land use impacts of the redevelopment of ECCA Lands.

Downtown Impact Assessment

- Provide an analysis of Downtown development opportunities with the removal of the APO from the Edmonton Zoning Bylaw;

- Develop capacity estimate potential when compared to existing constraints of the APO, and;

- Compare existing land use, vacant and underused parcels and provide potential conversion and uptake due to intensification based on the Downtown Plan Zoning revisions.

Market Feasibility Impacts

- Evaluate the current market value of the ECCA Lands;

- Complete a market commercial demand assessment based on alternative land use concepts being considered, and;

- Complete a residential demand and absorption assessment.

Transportation Planning

- Determine the number of new trips based on land use and complete a traffic assignment on the adjacent roadway network assuming the introduction of LRT into the plan area;

- Estimate transit and non-motorized mode splits based on Transit Oriented Development (TOD) and Transportation Demand Management (TDM) concepts;

- Identify basic internal roadway network requirements (new roadways, extensions of existing roadways, access to Yellowhead Trail), and;

- Identify transportation related improvements including; truck accesses and routes, pedestrian and bicycle linkages, and the integration of the roadway network with the adjacent City roadway infrastructure.

Servicing Impacts

- Provide an analysis of hard and soft servicing impacts and requirements including on-site and off-site roads, walkways, sanitary, storm, water, and power service requirements.

1.6 A UNIQUE & MULTI-FACETED CHALLENGE

The redevelopment of the ECCA Lands is a unique and opportunistic challenge that can make a statement about the vision of Edmonton. The challenge is to develop a reliable long term vision and implementation plan that pursues the goals of a healthy economy and environment, while continuing to operate a metropolitan region, home to more than 1 million people. To minimize continued outward development, redevelopment of large urban brownfield sites into sustainable communities is a well documented and encouraged process.

City Growth and Expansion

The City continues to grow and expand in area. Continued growth will generate increased vehicular travel demands. This demand, layered on top of existing transportation demands will further exacerbate reduced levels of transportation service. One of the major efforts required will be to manage passenger vehicle traffic and encourage the use of public transit and other non-auto modes.

It will be important to understand the longer term role that transit will play within the City. The expansion of the LRT from Downtown to NAIT and to points beyond will play an integral role in encouraging the change.

Geographic Considerations

The City of Edmonton has an urban transportation system that depends heavily on a number of critical river and rail crossings that are often congested during peak periods of demand. The redevelopment of the ECCA Lands may provide increased flexibility in the development of transportation facilities in the north sector of Edmonton thereby reducing congestion and improving operations on key roadways.

Regional Considerations

The City is the focal point of regional activity. It will be important to acknowledge and consider transit opportunities from a regional perspective.

Understanding the Area of Significant Impact

The need to address and evaluate the impact of redevelopment opportunities on the ECCA Lands (primary study area) in consideration of land development opportunities in the downtown core and surrounding neighbourhoods (secondary study area) from a land use development competitive perspective must be recognized. The need to maintain the vision of developing the

downtown core as the primary focus of employment, retail and residential growth must be acknowledged and respected.

Transportation Demand Management and Sustainability

Continued City and regional growth will generate thousands of daily trips. A significant amount of these trips will occur on critical corridors that already experience traffic congestion. Experience indicates that Transportation Demand Management can play a critical role in ensuring that transportation systems can operate efficiently and effectively. This includes efficient management of transportation activities; improved transportation options; clear and timely guidance to travellers on the travel options available; and suitable incentives to encourage travellers to choose efficient alternatives.

If properly implemented, transit oriented TDM tactics and strategies could facilitate efficient mobility as the ECCA Lands develop.

The redevelopment of the ECCA Lands represents an opportunity to develop a new mixed-use neighbourhood with opportunities for future residents and visitors to live, work, shop, learn and play. This new neighbourhood could be designed to fully integrate transit access to Downtown and other areas of the City as a central organizing feature.

Balancing TOD and Development Oriented Transit

The importance of the integration of transit improvements with land use decisions, to create mutually supportive synergies, is consistent with the Smart Choices initiatives adopted by City Council in March 2004. In order for Transit Oriented Developments to succeed, transit advocates must continuously strive to improve the system's image and to locate transit routes to maximize the development potential of higher density developments.

The development of new transit routes is often limited to locations that reduce overall costs or operational impacts. This could reduce the effectiveness of a route for maximizing ridership and transit oriented development opportunities. In order for TOD opportunities to succeed, a "development oriented transit" philosophy should be considered.

Best Practices

This study presents an opportunity to review and explore how others have developed major infill sites. This will include a review of how other cities have made decisions related to the redevelopment of airports and rail yards, and the challenges and opportunities faced.

1.7 COMPLEMENTARY SUPPORTING REPORTS

The City of Edmonton, in addition to the completion of the Edmonton City Centre Airport Lands Impact Assessment also completed a Public Involvement Plan, an Economic Impact and Opportunity Cost Study and a Historical Study. Throughout the completion of this study,

information exchange between these studies and the Edmonton City Centre Airport Lands Impact Assessment occurred.

1.8 REPORT ORGANIZATION

The report consists of the following six sections: **Section 2** presents the study context and existing uses at the ECCA Lands while **Section 3** presents a summary of best practices. **Section 4** includes a detailed description of the land use plans assumed for assessment purposes including their land use schedules and associated land use statistics.

The land use, transportation, market feasibility, and servicing impacts identified are presented in **Section 5** while **Section 6** includes the study findings and conclusions.

STUDY CONTEXT | 2

As a land use and economic activity centre strategically located in the central sector of the City of Edmonton, the Edmonton City Centre Airport Lands, given their size and location, may have significant impact on surrounding residential neighbourhoods and on the development of the downtown core. This section of the report presents the study and policy context, and describes the Edmonton City Centre Airport Lands in regards to current land uses and adjacent land uses.

2.1 SITE LOCATION

The Edmonton City Centre Airport is located within the northwest inner sector of the City of Edmonton, adjacent to Yellowhead Trail, as shown in **Exhibit 1** – **Site Context Plan.**

2.2 EDMONTON CITY CENTRE AIRPORT STUDY AREA

2.2.1 Edmonton City Centre Airport Lease Lands

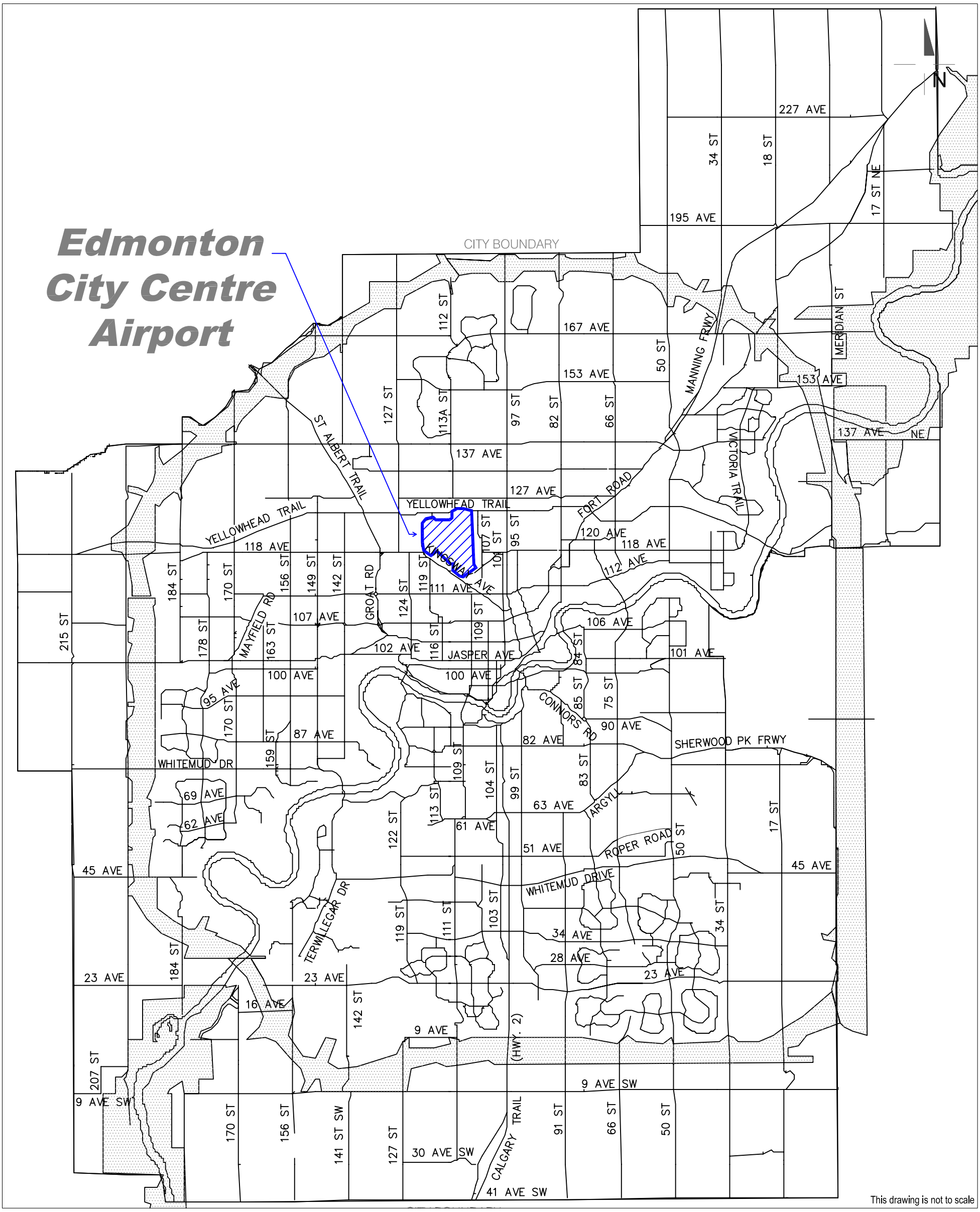
This Impact Assessment includes only those lands owned by the City of Edmonton and leased to Edmonton Airports, constituting the Edmonton City Centre Airport (ECCA) Lands. As shown in **Exhibit 2 – Edmonton City Centre Airport Lands**, the area comprises 217.1 ha (536.5 ac) of land and is generally bounded by:

- Kingsway, Airport Road and Princess Elizabeth Avenue to the south;
- Yellowhead Trail, the Northgate Trailer site and the two smaller parcels to the west of 113 Street;
- 121 Street and the CN Rail right-of-way to the west; and
- 109 Street to the east.

2.2.2 Existing Edmonton City Centre Airport Operations

Previous City of Edmonton Reports (2008COG007, City Council, June 18, 2008 and 2008DCM032, Executive Committee, October 8, 2008) identified and analyzed a number of issues associated with the current ECCA Lands as an airport. These reports discussed the use of the ECCA Lands as a general aviation facility and concluded:

> "The continued use of the ECCA land as a general aviation facility is an example of a node and corridor at the regional and city level. However, as the background work for the Radke (regional) report notes, the ECCA given its size and site limitations can only fulfill a relatively narrow role, its role overlaps the roles of other airports; it has limited operational capacity and no room for runway or operational expansion. As Edmonton Airports noted, activity at the Josephburg Airport is a competitive challenge to ECCA. Further infill development of the ECCA Lands for aviation and non-aviation uses, where appropriate, would support its current node function. The current ECCA Lands could accommodate limited employment infill potential, but no mixed use residential development." (Report 2008DCM032)



Legend

Edmonton City Centre Airport

Exhibit 1

Site Context Plan

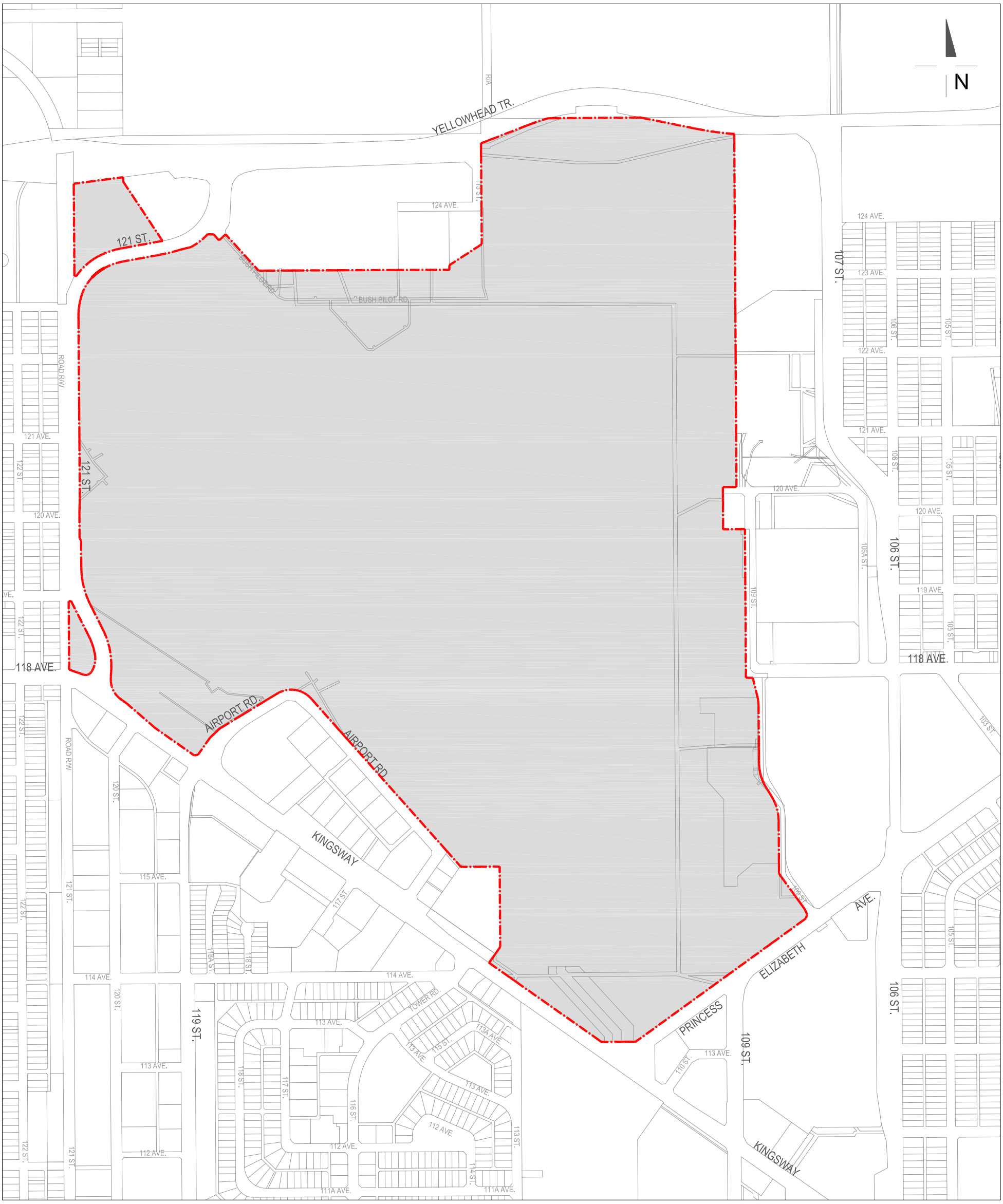
Edmonton City Centre Airport Lands

Edmonton, Alberta

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009



Legend

ECCA Lands (Airport Lease Area)

Exhibit 2

Edmonton City Centre Airport Lands

Edmonton City Centre Airport Lands

Edmonton, Alberta

0 100 200 400m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009

2.2.3 Sublease Agreements

Five (5) major sub-lease areas are located within the ECCA Lands. These major sub-leases are generally located in the southwest and southeast portions of the lands and include the Nova Business Complex, the Nova Hotel, the Amiskwaciy Academy, the DND Armouries and the Millard Centre. For specific sizes and locations of these sub-leases, refer to **Exhibit 3 – Sub-Lease Areas**. It is anticipated that the uses and buildings subject to these sub-leases will remain in operation for the longer-term and have been incorporated into the "General Business" and "Institutional" uses identified in the Demonstration Plan for the ECCA Lands.

2.2.4 Existing and Surrounding Land Uses

The ECCA Lands currently contain a number of land uses as shown in **Exhibit 4 - Existing Land Use Within the ECCA Lands**. These uses include airport related uses such as the ECCA air traffic control tower, the Edmonton Flying Club, and Transport Canada. In total, nineteen airport related uses have been identified.

Three industrial uses have been identified and include the Nova Business Centre, ZEEBEST (Mantilla Industries), and Klemke Foundation (Luscar Ltd.). The two commercial uses located in the lease area are the Nova Hotel and the WCB Millard Health Building (Canadian Regional Airlines). Two community, educational, recreational, and cultural service uses have been identified: the Amiskwaciy Academy and the RCMP. Finally, other uses located in the lease area include the Municipal Airport Parkade and Via Rail Canada and which is located in the northwest portion of the ECCA Lands.

As shown in **Exhibit 5 – Surrounding Land Uses Adjacent to the ECCA Lands**, a range of residential, commercial, industrial, public service, and community, educational, and cultural land uses surround the ECCA Lands. These uses are located within the five surrounding neighbourhoods of Prince Charles, Inglewood, Prince Rupert, Spruce Avenue and Westwood along with the Yellowhead Corridor (which contains the CNR, Walker Yards and Intermodal Facilities) located to the north of the site.

There are also a number of commercial, industrial, public service and community, educational, and cultural land uses located immediately adjacent to the ECCA Lands. These include Northgate Industries Ltd and other light industrial uses located directly north of the ECCA Lands, south of Yellowhead Trail. The Ramada Inn, Alberta Aviation Museum and a number of commercial / general business uses are located southeast of the lease area between Airport Road and Kingsway. Located between the ECCA Lands and 106 Street are uses such as the Northern Alberta Institute of Technology (N.A.I.T), Alberta Sustainable Resource Development, Telus, Government of Alberta Air Transportation, EPCOR Services, and the City of Edmonton AMPW facilities.

Legend

- ECCA Lands
- Sub-Lease Areas

Sub-Lease Areas

1. Nova Business Complex - 0.64 ha (1.59 ac)
2. Nova Hotel - 1.29 ha (3.19 ac)
3. Amiskwaciy Academy - 2.28 ha (5.63 ac)
4. DND Armouries - 3.29 ha (7.90 ac)
5. Millard Centre - 3.24 ha (8.00 ac)

Exhibit 3
Sub-Lease Areas

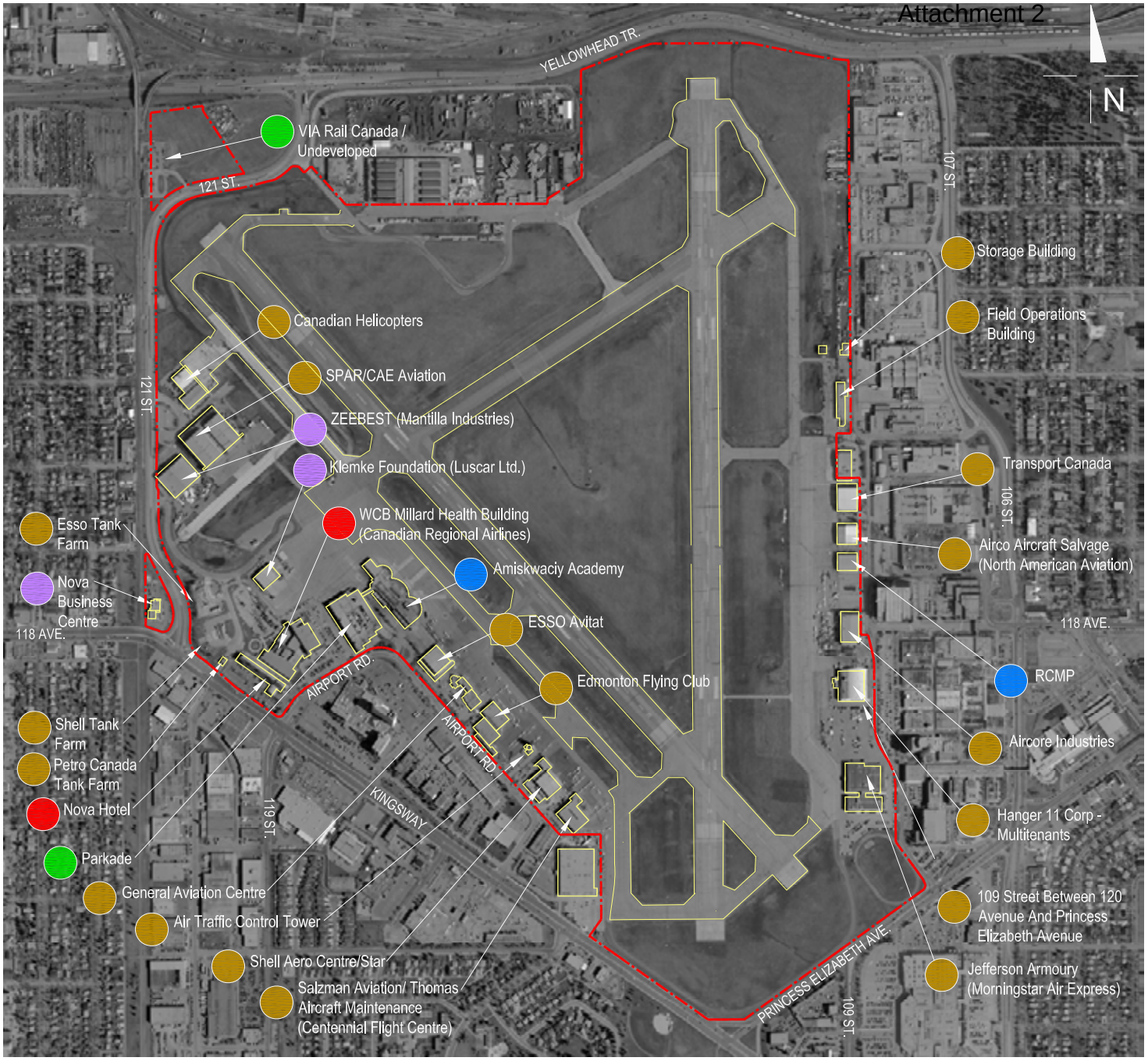
Edmonton City Centre Airport Lands
Edmonton, Alberta

0 100 200 400m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009



Legend

- ECCA Lands
- Airport Related Use
- Industrial Use
- Commercial Use
- Community, Educational, Recreational and Cultural Service Use
- Other Uses (Parkade, VIA Rail Canada / Underdeveloped

Exhibit 4
Existing Land Use Within the ECCA Lands

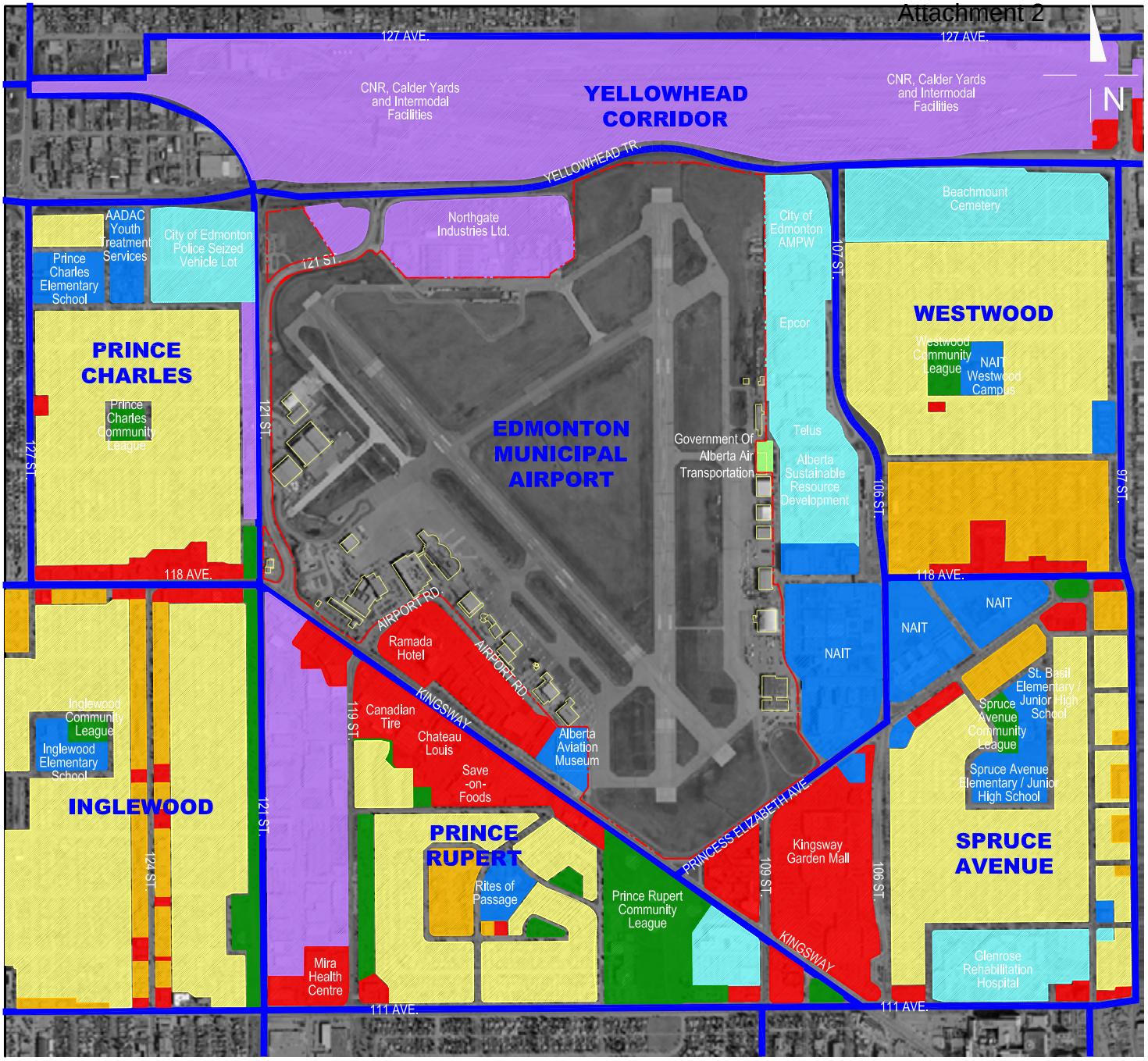
Edmonton City Centre Airport Lands
Edmonton, Alberta

0 150 300 600m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009



Legend

- ECCA Lands
- Low Density Residential
- Medium Density Residential
- Commercial
- Industrial
- Community, Educational and Cultural Service
- Parks / Open Space
- Public Service
- Airport Related Use

Exhibit 5
Surrounding Land Uses Adjacent to the ECCA Lands

Edmonton City Centre Airport Lands
Edmonton, Alberta

0 200 400 800m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009

The Prince Charles Neighbourhood is located to the west of the ECCA Lands on the east side of 121 Street, south of Yellowhead Trail and north of 118 Avenue. A number of industrial uses are located directly adjacent to 121 Street and a variety of commercial uses are located along 118 Avenue. Public service and community, educational, and cultural service uses such as City of Edmonton Police Seized Vehicle Lot and the AADAC Youth Treatment Facility are located on the northern boundary of the neighbourhood adjacent to Yellowhead Trail. The interior area of the Prince Charles neighbourhood is composed primarily of low density residential uses.

The Inglewood Neighbourhood is located west of the ECCA Lands on the east side of 121 Street, and is bounded by 118 Avenue to the north and 111 Avenue to the south. This neighbourhood has a variety of commercial uses along the south side of 118 Avenue and a mixture of medium density residential and commercial uses along 124 Street. The interior of the neighbourhood is composed primarily of low density residential uses.

Located south of the ECCA Lands, south of Kingsway and north of 111 Avenue, is the Prince Rupert Neighbourhood. Commercial uses such as Save-On-Foods, Canadian Tire, and the Chateau Louis Hotel and Conference Centre are located directly south of Kingsway and a variety of industrial and commercial uses are located east of 121 Street. The interior area of the Prince Rupert neighbourhood is composed primarily of low and medium density residential uses.

The Spruce Avenue Neighbourhood is located southeast of the ECCA Lands, southeast of Princess Elizabeth Avenue and south of 118 Avenue. In the southwest corner of the neighbourhood, located directly east of 109 Street, is Kingsway Garden Mall. Further east along the north side of 111 Avenue is the Glenrose Rehabilitation Hospital. In the northern portion of the neighbourhood, south of 118 Avenue, are buildings that make up part of the main N.A.I.T campus. Low and medium density residential uses along with educational and community uses, such as Spruce Avenue Elementary / Junior High School and the Spruce Avenue Community League, make up the interior of the neighbourhood.

Located east of the ECCA Lands on the east side of 107 Street is the Westwood Neighbourhood. The neighbourhood is composed primarily of low and medium density residential uses. A strip of commercial uses is located at the south end of the neighbourhood on the north side of 118 Avenue. The Westwood Community League and the N.A.I.T Westwood Campus are centrally located within the neighbourhood.

2.3 LEGISLATED PLAN RELATIONSHIP

The recent redrafts of the Municipal Development Plan and the Transportation Master Plan prepared together and coordinated to provide a realistic framework for planning Edmonton's growth are currently completed and awaiting approval by Council. The development of a concept plan to redevelop the ECCA Lands is an opportunity to create a plan that addresses all six elements identified in "The Way We Grow" and "The Way We Move'. The desires of the citizens and the challenges facing the city that include: Environmental sustainability; civic affordability; personal affordability; supporting economic vitality; health; and biodiversity could and should be the keystones of a new master planned community, should this large infill site be

redeveloped. The Demonstration Plan developed as part of the assessment meets the intent of the MDP and TMP and could, in the next stages of plan development, embrace the desires and challenges facing the City of Edmonton.

The Capital Region Plan is silent on specific developments within the borders of the municipalities but certainly encourages sustainable development and provides expectations that infill development will be a part of continued growth in the Region.

A master planned community on the ECCA Lands, based on sustainability would also follow the six, ten-year strategic goals identified in the City of Edmonton Strategic Plan.

2.4 POLICY CONTEXT

The project team reviewed relevant statutory and non-statutory policy documents to identify the policies and strategies that provide support for the proposed redevelopment of the ECCA Lands to a mixed use transit- oriented development. It should be noted that none of the documents reviewed below made specific mention of the ECCA. The City of Edmonton's desire to have more compact mixed use development which is accessible to public transit is illustrated by the Alternate Scenario population projections put forth in the Growing Forward: The Capital Region Growth Plan. The Plan projects that the population of Edmonton will grow "from approximately 767,000 in 2008 to 1.174 million in 2043. This growth of almost 408,000 in Edmonton represents an average annual growth rate of 1.3 percent over the projection period."

In addition to the documents listed below, the West Ingle Area Redevelopment Plan (ARP) Bylaw 15140 and the Yellowhead Corridor Area Structure Plan (ASP) Bylaw 7044 were reviewed as well; however, no applicable polices were identified. For a more detailed look at the specific policies and strategies that were identified in the documents below see the summery provided in **Appendix A - Policy Context Technical Report**.

2.4.1 Growing Forward: The Capital Region Growth Plan, March 2009

"Growing Forward: The Capital Region Growth Plan" was developed to address the long-term prosperity and sustainability of the Capital Region. It does so by addressing community priorities which inform detailed approaches to Land Use, Transit, GIS, Housing, and Implementation. Within this plan the specific area of focus that is relevant to this policy context review is Section 7, Land Use Plan. Policies that would provide support for the proposed redevelopment of the ECCA Lands to a mixed use transit oriented development include: Policy 2 – Minimize Regional Footprint; Policy 3 – Strengthen Communities; Policy 4 – Increase Transportation Choice; Policy 5 – Ensure Efficient Provision of Services; and Policy 6 – Support Regional Economic Development.

2.4.2 Capital Region Land Use Plan, Appendix 2, March 2009

The purpose of the Capital Region Land Use Plan is to outline a strategy to manage growth in an effort to minimize the Region's footprint, based upon transit oriented development and the

densification of existing developed areas. The focus of the plan is to promote an integrated and strategic approach to planning for future growth in the Region, to identify the overall development pattern and key infrastructure investments that would best complement decisions to sustain economic growth and ensure strong communities and a healthy environment. Policies and principles that would provide support for the proposed redevelopment of the ECCA Lands to a mixed use transit oriented development include: Policy 2.B. Concentrate New Growth Within Priority Growth Areas; Policy 2.D Support Medium and Higher Density Residential Housing Forms; Policy 3.C. Support Public Transit; and Policy 4.A. Integrate Transportation Systems with Land Use.

2.4.3 Council's Vision and The City of Edmonton Strategic Plan 2009 -2018 "The Way Ahead"

City Report 2008DCM032 (September 16, 2008) assessed the current ECCA Lands and possible redevelopment in the context of Council's Vision and Strategic Plan "The Way Ahead". This section draws from that report.

On July 9, 2008, City Council unanimously approved the City's Strategic Vision for a successful Edmonton in 2040. To support implementation of the Vision, Council also unanimously approved a ten year strategic plan, "The Way Ahead" that included six strategic goals to measure progress.

Council's Vision provides a creative description of Edmonton's future. Elements from the Vision that are applicable to the ECCA Lands include the skyline, towers, urban villages, extensive LRT service, a city of design, linking the continent with the north and Asia and a centre for advanced technology, health care and green energy.

In "The Way Ahead", one goal is to "Improve Edmonton's Liveability". This goal focuses attention on strategic areas of welcoming, safety perception, cleanliness, and aspects important to the notion of urban village creation.

Another goal is to "Transform Edmonton's Urban Form". This goal has statements for higher residential densities, more mixed uses, more transit oriented development (TOD), and more people living within proximity to transit nodes and corridors. Specific progress measures are identified for higher residential density and increasing the number of TOD projects. An associated goal is "Shifting Edmonton's Transportation Modes". Within this goal is the desire to have more people use transit as part of a more integrated transportation network.

A fourth goal is to "Ensure Edmonton's Financial Sustainability", including diversifying revenue sources and increasing revenue from non-residential sources.

A fifth goal is to "Diversify Edmonton's Economy". This goal involves leveraging Edmonton's physical locale, centres of excellence and industrial/entrepreneurial advantages with local, northern and Asian opportunities. Priority goals cover logistics and servicing for the needs of the north and Asia and investment in the transportation network to support Port Alberta and Edmonton's northeast development.

In terms of the Vision, based on Edmonton Airports Air Service Policy, the current ECCA operations are not anticipated to change over time. The current facility cannot be a full transit oriented development since it will always lack residential development and thus a mixed use form. As well, under existing operations the ECCA Lands can make only a limited contribution to increasing the City's non-residential revenue and financial sustainability.

Redevelopment of the ECCA Lands based on a transit oriented concept would be consistent with achieving Council's goals in "The Way Ahead" A transit oriented development supports Council's goals regarding urban form, changing transportation modes, and the potential for the development of an urban village. The land sale revenue and increased non-residential municipal property tax revenue associated with the Demonstration Plan also supports Council's goal of financial sustainability.

2.4.4 The Way We Grow: Municipal Development Plan, Draft October 2008

The Way We Grow will be the City of Edmonton's new Municipal Development Plan (MDP) upon adoption by City Council. The purpose of this plan is to provide strategic policy direction for land use, urban form, growth, and development for the next 10 years. The MDP focuses on the need to manage growth emphasizing the need for: a more compact and urban form; the development of an active transportation system including transit oriented development nodes; medium and higher density development related to transit; and a wide range of housing types. This strategic direction is based upon a 30 year land development concept map. Policies and principles that would provide support for the proposed redevelopment of the ECCA to a mixed use transit oriented development include policies regarding; Integrated Transit and Land Use; Established Neighbourhoods; Housing Choices; Urban Design; Office, Retail and Service Space; Regional Co-operation; and Contaminated Sites.

2.4.5 The Way We Move: Transportation Master Plan, Draft October 2008

The main purpose of The Way We Move: Transportation Master Plan (TMP) is to establish a framework for how the City of Edmonton will address its future transportation needs to the year 2040. An important thrust of the TMP is to integrate higher density development and premium transit locations. The TMP establishes policies to give direction for the management of the transportation system, and to provide a basis for making strategic planning and budgetary decisions by the City of Edmonton, on behalf of its citizens. Strategic goals and policies that would provide support for the proposed redevelopment of the ECCA Lands to a mixed use transit oriented development include the topical areas of; Transportation and Land Use Integration; and Sustainability.

CASE STUDIES | 3

The Edmonton City Centre Airport Lands, while not necessarily in the category of either a brownfield or greyfield site, is a large infill site within the confines of a large urban metropolitan area. A review of similar successful or initiated projects will help in the decision making process when reviewing the possibilities and challenges a large urban infill site can bring to the community.

3.1 INTRODUCTION

The redevelopment of large urban infill sites is a current and common practice that can provide many benefits to a community, including an increased tax base, creation of new jobs, new affordable housing developments, and more efficient and effective utilization of existing infrastructure. These projects are typically called Brownfield or Greyfield sites. A Brownfield site is commonly an abandoned or underused industrial or commercial facility in which redevelopment is hampered by real or potential environmental contamination. Greyfield land describes economically obsolescent, outdated, failing, and/or underutilized real estate assets or land. The term Greyfield has historically been applied to formerly viable shopping centre sites such as Heritage Mall (Century Park) in Edmonton.

3.2 CASE STUDIES

Our research found numerous worldwide and particularly North American projects which have been initiated and/or undertaken, some more successful than others. We have categorized our research into three areas: airport redevelopment, rail yard redevelopment, and other infill site redevelopment.

3.2.1 Airport Redevelopment

Three airport redevelopment projects were reviewed by the study team; Stapleton International Airport in Denver, Colorado; Rialto Airport Redevelopment Project – "Renaissance Rialto" in the City of Rialto, California; and Robert Mueller Municipal Airport redevelopment in Austin, Texas.

3.2.1.1 Stapleton International Airport

For thirty-six years Stapleton International Airport provided the primary air service to Denver, Colorado but was decommissioned in 1995. By the early eighties it was evident that the problems plaguing the airport such as inadequate separation between runways; no room for additional airlines; lawsuits over noise from Park Hill community residents; and legal threats to block runway extensions into Adams County, would not be solved by continuing the airport operations on this site. A new airport site was selected and planners began developing a masterplan for the Stapleton site.

Forest City Enterprises started redeveloping the former airport in 2001 and are transforming it into one of the largest neighbourhoods in Denver. Just ten minutes from downtown Denver the 1,902 ha (4,700 acre) development will be home to 30,000 residents and 35,000 workers in 13 million square feet of commercial space. This well planned community of open spaces, parks, and walkable tree-lined streets provides a close-knit neighbourhood with the convenience of a diverse urban centre. It is well on the way to full build out in approximately fifteen years time.

Stapleton is the largest urban infill project in the United States and is financed through a public/private partnership. Although build-out is not expected until 2020, its presence has provided a positive "ripple effect" in surrounding neighbourhoods.[1]

3.2.1.2 Rialto Airport Redevelopment

Art Scholl Memorial Field Municipal Airport is exclusively utilized by privately operated and chartered aircraft. Along with several aviation related businesses, including both a flight school and a helicopter flight school, the facility is used by an air ambulance business. However, the limited nature of the airport (82 operations per day) has lead to approval to close the airport by 2009/2010 and allow redevelopment of the property.

A 607 ha (1,500 acre) master planned community called "Renaissance Rialto" has been initiated by the City of Rialto, California to be built on the existing airport site. The Renaissance Land Use Plan, while still in conceptual stages, envisions a diverse and balanced mixed-use community that will provide a variety of housing choices and job opportunities for the whole City.

3.2.1.3 Robert Mueller Municipal Airport

Mueller community is a master built mixed-use transit oriented development in Austin, Texas under construction by Catellus Development Group. It is a redevelopment of a 288 ha (711 acre) former municipal airport which received zoning approval in 2004. The first residential occupancies occurred in late 2007. The pedestrian friendly, sustainable community features residential, commercial and retail space, including a regional retail centre and several major employment centres. It is anticipated to have a market value of $1.3 billion with approximately 4.2 million square feet of non-residential development which would include office, retail and other major employment centres. Mueller will grow to about 10,000 residents in a mix of 2,200 apartment or condominium suites; 1,500 single-family homes; and 900 row housing units. One quarter of the housing units will be designated affordable housing.

The award-winning Mueller Master Plan is a sustainable community development that promotes energy efficiency, reduced auto dependency and green space preservation while creating a revenue stream that funds infrastructure and increases the City's tax base.

3.2.2 Rail Yard Redevelopment

Three Rail Yard redevelopments projects from Montreal, Edmonton, and Kelowna were reviewed and are summarized below.

[1] The Urban Land Institute, 2005, Washington D.C.

3.2.2.1 Le Cours Chaboillez

A 4.9 ha (12.1 acre) former rail, industrial, warehouse site in downtown Montréal was reconstructed between 2003 and 2007 for residential, educational, and commercial uses. At a residential density of 330 units per hectare the 990 housing units share the site with approximately 23,225 m^2 of retail commercial space. The assessed value of the land was estimated to increase from $7,545,000 to $167,000,000 and the property taxes increase was estimated to be 12-fold from $307,000 to $3,600,000 per year.

3.2.2.2 Oliver Village

Canada Lands Company took ownership of this surplus former CN Rail Yard on the northern edge of Downtown Edmonton. They undertook remediation of the site and sold it to Westcorp for development. The site was developed with 308 residential rental apartments at a density of 225 units per hectare. The 3.9 ha site cost over $30 million to develop but has provided market rate rental accommodation, connectivity for the City's multi-use trail system, and an increased tax base for the City. In 1995 the original site generated taxes of $69,072 while in 2004 the commercial establishments on the site alone paid $183,000 in taxes to the municipality.

3.2.2.3 Brandt's Creek Crossing

The acquisition of the Kelowna CN Rail yards in 1995 by Canada Lands Company initiated the development of a vibrant, pedestrian friendly, mixed-use neighbourhood with Brandt's Creek as its centre point. The first residential phase started in 2005 and is expected to be built out by 2010. The 600 residential units will be integrated with 1.7 hectares of commercial use land, 1.6 hectares of office land uses, and 1.5 hectares of industrial land uses. In 1996 the assessed value of the CN lands was approximately $3.45 million but had increased to $12.5 million by 2004 with the start of the development. As well as the $50 million in direct investment in the Kelowna area the tax revenue jumped form $80,000 on the CN land in 1996 to $224,000 by Brandt's Creek Crossing in 2004.

3.2.3 Infill Redevelopment

In addition to the Airport and Rail Yard redevelopments other infill projects from Montreal, Dundas (Hamilton), and Glenwood Park, Atlanta were reviewed and are summarized below.

3.2.3.1 Quai Des Éclusiers

This 1.8 ha (4.4 acre) site on the Lachine Canal in Montreal was a former wrought iron factory and foundry. At a density of 222 units per hectare, the 400 unit development was phased in over four years with a project start in January of 2003. The increased housing density and renewed links between the Lachine Canal and the neighbouring area improved the overall image and public safety of the area while generating roughly 400 jobs per year of development. The increased tax revenue from $25,000 a year to $1,900,000, and the significant economic spin-off was a tremendous benefit to the municipality.

3.2.3.2 Spenser Creek Village

Spenser Creek Village is a 598 unit high-density residential redevelopment situated on 4.5 ha (11.1 acres) of land in the heart of Dundas in Hamilton, Ontario that is the site of a former steel foundry. The 11 phase project started in 1996 and is anticipated to be completed in 2010. The increase in construction jobs was welcomed and the annual property tax increase will be about $1,760,000 per year upon project completion.

3.2.3.3 Glenwood Park

This 11.3 ha (28.0 acre) site is a former concrete recycling plant in Atlanta, Georgia. A mix of 350 condominium, townhouses, and single family units are complimented by 50,000 SF of retail space and 20,000 SF of office space in this award winning infill redevelopment. The ground breaking ceremony was held in January 2003 and Glenwood Park has received numerous awards for its resourceful land use, preservation of the environment, economic success, and innovative design, all created in the master planned community.

3.3 LESSONS LEARNED

There are consistent themes in the redevelopment of large urban infill projects, in that they can be master planned communities that provide a mix of housing types, shopping opportunities, and employment centres in a sustainable environment. The success of these long term projects is dependant on the cooperation between the municipal authority and the land developer and often requires a key initiative or encouragement to jump start the development. The economic benefits of the increased tax base and employment opportunities are typically only one aspect of the rewards received by the community. The trickle down effects, the connectivity, increased park spaces, consolidation of urban landscapes and the reduction of nuisances caused by vacant or unused lands are seen as positive benefits received from the redevelopment of these infill sites.

The lessons learned were numerous on these projects and are highlighted below:

- Proper long-term planning of all project components is a key element to success on a multi-phase long term project of large scale and size;
- Having an overall plan in place before development was of tremendous benefit and facilitated the approval process;
- Integration of efforts from both public and private sectors, as well as from the community is important to ensure a blending with the existing urban landscape;
- Solid project financing must be in place from inception because large infill projects always take longer than anticipated;

- Attempting a large-scale residential infill redevelopment project without a municipal incentive program in place and solid municipal support for the project is very difficult;
- Establishing a positive relationship between the developer and civic administration early in the process is important;
- Early engagement with the community and neighbourhood associations proved to be very helpful;
- Municipalities learned that they can turn liabilities into assets with vision, hard work and preparation;
- Flexibility in design can help address the cost of remediation and/or changes in economic climate over a long development period in a multi-phased project;
- A major hurdle can be to obtain the permits, plan approvals, and zoning changes for such a large property, and;
- A catalyst is often required to economically jump-start the project so that retail shops, office space, and homes could be constructed simultaneously.

The single most important factor in developing a large urban infill site is the ability to masterplan the development into a complete, sustainable, walkable, mixed use community. The most powerful tool to accomplish this type of community is densification, which is controlled by the municipality. The thought of densification is always controversial but can be simply stated as "Higher densities make walkability possible, and great design makes it enjoyable." [2]

The ability to extend LRT into the heart of the EECA Lands is the first step in the development of a sustainable community, followed closely by linking all areas with a network of pathways to prioritize pedestrian and cyclist modes of mobility, thereby encouraging alternatives to single-person auto use.

[2] Brent Toderian and Mark Holland in an article "The Case for Density" in Urban Land Green in the spring of 2008

The initial scope of the assignment was to review the land use, transportation, servicing and market feasibility impacts associated with Concept Plan 2, a land use plan prepared by the City of Edmonton to illustrate potential development opportunities at the Edmonton City Centre Airport.

It was determined that an alternative land use framework should be evaluated. This latter concept is enhanced by Transit Oriented Development strategies, new urbanism concepts, smart growth, and vital transit access that will promote and encourage the economic revitalization of the development area and which could transform the area into a liveable, successful mixed-use urban community that is vibrant, and walkable.

4.1 CITY OF EDMONTON CONCEPT PLAN PREPARATION

In June 2008, the City Administration presented a report to City Council which summarized the challenges and possibilities associated with the Edmonton City Centre Airport Lands. This report included the preparation of alternative land use concepts which illustrated potential urban redevelopment opportunities should the Edmonton City Centre Airport be closed. Three high level concept plans prepared by the City offered alternative combinations of land uses and transportation options within the ECCA Lands.

On October 8, 2008, Executive Committee of City Council approved Administration undertaking more detailed assessments of the potential impacts related to the possible closure of the Edmonton City Centre Airport as a general aviation airport. This assessment was to be based on the second concept plan prepared by the City (Concept Plan 2 – Limited Expansion and Relocation).

4.1.1 Concept Plan 2

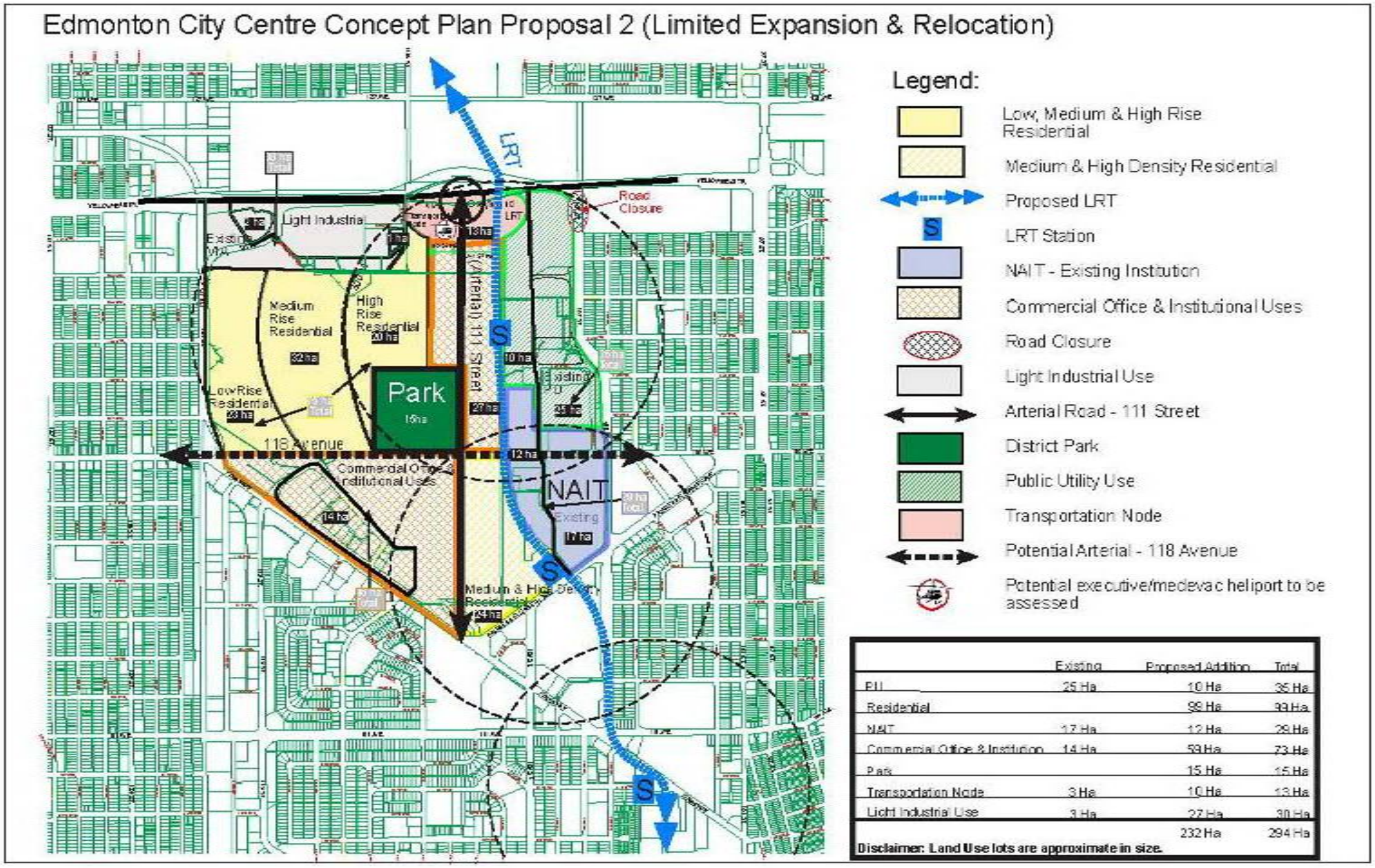
Concept Plan 2, which is reproduced in **Exhibit 6 – City of Edmonton, Concept Plan 2,** represented a high level land use concept and transportation plan. This land use redevelopment option was predicated on a Transit Oriented Development concept (TOD), served by the LRT.

Land uses included medium to high density residential development with commercial/office/institutional uses as employment nodes as well as public utility, district park, light and medium industrial uses and transportation node uses. Concept 2 allowed for the expansion of the Westwood Integrated Facility by 10 ha and the expansion of the NAIT Campus by 12 ha. The associated residential population was established to be in the order of 32,000 people.

The initial review of Concept Plan 2 by the Consultant team suggested that there was an opportunity to develop a modified neighbourhood plan. Notwithstanding that Concept Plan 2, prepared by the City, was based on Transit Oriented Development (TOD) principles, the Consultant Team identified a number of components associated with Concept Plan 2 which did not necessarily support or take full advantage of the tactics and strategies associated with the development of a sustainable Transit Oriented Development community plan.

One of the elements identified in Concept Plan 2 that restricted the walkability of a new community was the proposed location of a new 111 Street arterial roadway, which paralleled a new LRT corridor and bisected the neighbourhood. Other elements of the plan that did not lend themselves to the development of a transit focused or transit friendly development included the relative location of residential land use activity and the diversity of land use development activity in close proximity to a future LRT station, which to some extent restricted residential densification.

Exhibit 6: City of Edmonton, Concept Plan 2



	Existing	Proposed Addition	Total
PU	25 Ha	10 Ha	35 Ha
Residential		99 Ha	99 Ha
NAIT	17 Ha	12 Ha	29 Ha
Commercial Office & Institution	14 Ha	59 Ha	73 Ha
Park		15 Ha	15 Ha
Transportation Node	3 Ha	10 Ha	13 Ha
Light Industrial Use	3 Ha	27 Ha	30 Ha
		232 Ha	294 Ha

While there were general transportation and planning reasons for redeveloping Concept Plan 2, it was also decided that a conservative approach regarding the density of uses and the mix of uses would reflect a balanced review of redevelopment possibilities for the ECCA Lands.

In light of the above, it was decided that Concept Plan 2 be revisited. The creation of a new modified land use Demonstration Plan started with the siting of a new LRT station centrally within the plan area to allow for a sustainable mixed-use community to be developed 360° around the station. A further review of the arterial road system suggested that the existing arterials on the perimeter of the site would provide appropriate accessibility to the new neighbourhood and an internal collector road system could be developed that would complement the LRT with transit accessibility.

The land use plan followed, with higher density residential mixed-use land uses located near the central LRT station, radiating out to lower residential densities as the walking distances increased. The logical westerly expansion of NAIT fit the plan and the continuation of the general business district along Airport Road would provide employment opportunities for new residents. The existing Via Rail Station would remain in place and adjacent lands could be utilized for a transportation hub including a Medevac (helipad) facility with direct access to 121 Street providing a quick connection to the Royal Alexandra Hospital via Kingsway.

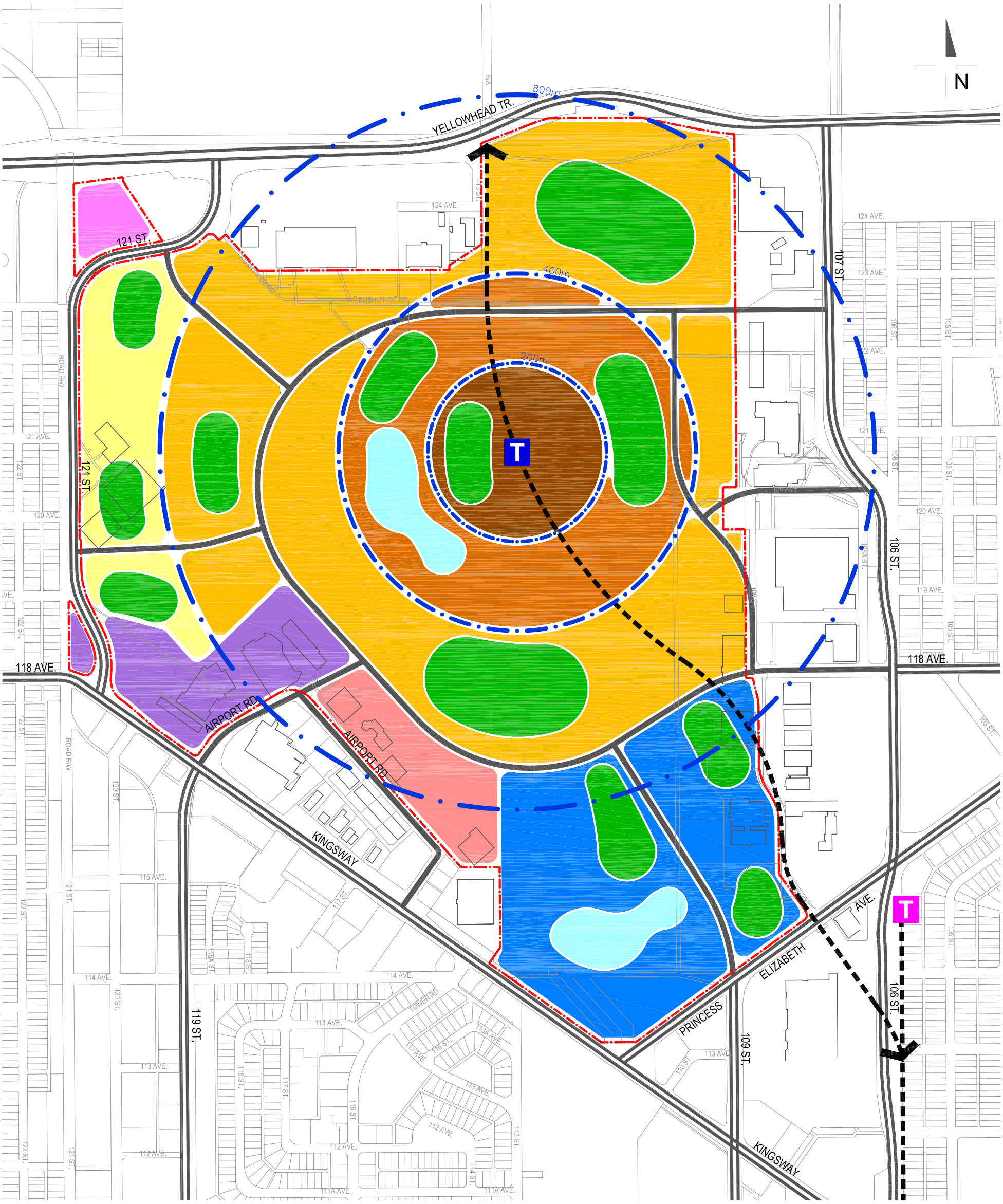
The concept plan rebuilding exercise resulted in the creation of a new Demonstration Plan that provides a potential development option that was used to assess the potential impacts associated with the redevelopment of the ECCA Lands. The new plan accommodates a variety of services within easy walking distance of the LRT station and would allow for excellent pedestrian connectivity between land uses and transit.

4.2 DEMONSTRATION PLAN

The Demonstration Plan prepared for the ECCA Lands, comprising 217.1 ha (536.5 ac), is illustrated in **Exhibit 7 – Demonstration Plan for the ECCA Lands.** A breakdown of the land areas allocated to each use and the residential unit and population densities is summarized in **Table 1 – Land Use and Population Statistics**.

In total the Demonstration Plan identifies the development of 13,529 dwelling units accommodating a population of 24,286 people. The assumptions used in the preparation of the Demonstration Plan are summarized in the following sections.

Further to the above, the Demonstration Plan was prepared for the purpose of illustrating future development possibilities for the ECCA Lands and should not be deemed as a proposal for future zoning, transportation planning (including the location or relocation of public roads or LRT), land acquisition or disposition, or the projected status of tenancies on ECCA Lands.



Legend

- ECCA Lands
- High Density Residential Mixed Use Centre
- Medium to High Density Residential Mixed Use Centre
- Medium Density Residential Mixed Use Centre
- Low Density Residential
- Mixed Use Office / Institutional / Industrial
- Parks / Municipal Reserve / Schools
- Stormwater Management Facility
- General Business
- Transportation Node
- Institutional (NAIT Expansion)
- Conceptual LRT Alignment
- Arterial Roadway
- Collector Roadway
- Potential LRT Station
- Temporary LRT Station
- Walking Distance from LRT (200 m)
- Walking Distance from LRT (400 m)
- Walking Distance from LRT (800 m)

NOTE:
- LRT alignment is conceptual in nature and is subject to further assessment.
- Yellowhead Trail alignment is presently under review.

Exhibit 7
Demonstration Plan For The ECCA Lands

Edmonton City Centre Airport Lands
Edmonton, Alberta

0 100 200 400m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009

TABLE 1 - LAND USE AND POPULATION STATISTICS
FOR THE ECCA LANDS DEMONSTRATION PLAN

	Area (ha)	% of GA
GROSS AIRPORT LEASE AREA	**217.1**	**100.0%**
Arterial Road Right-of-Way	0.0	0.0%
Existing NAIT	0.0	0.0%
Existing Commercial / General Business	0.0	0.0%
		% of GDA
GROSS DEVELOPABLE AREA	**217.1**	**100.0%**
Commercial		
Neighbourhood Commercial		
Within 200m	0.8	0.4%
Within 400m	2.3	1.1%
Within 800m	2.5	1.2%
General Business	8.9	4.1%
Parkland, Recreation, School (Municipal Reserve)		
Parks / Municipal Reserve / Schools	32.6	15.0%
Institutional		
NAIT Expansion	23.9	11.0%
Transportation		
Collector Roadway	11.6	5.3%
Local Circulation	21.7	10.0%
Transit Centre		
LRT Station / Right-of-Way	1.6	0.7%
Infrastructure / Servicing		
Stormwater Management Facilities	15.2	7.0%
Special Use		
Transportation Node (Including Heliport)	1.7	0.8%
Mixed Use Office/Institutional/Industrial	7.1	3.3%
TOTAL Non-Residential Area	**129.9**	**59.8%**
Net Residential Area (NRA)	**87.2**	**40.2%**

RESIDENTIAL LAND USE AREA, UNIT & POPULATION COUNT

	Area (ha)	Units / ha	Units	People / Unit	Population	% of NRA
Ground Oriented						
Ground Oriented Multi-family Dwellings	11.0	30	330	3.0	990	12.6%
Non-Ground Oriented						
High Density Residential Mixed Use Centre*	7.4	300	2205	1.5	3308	8.4%
Medium to High Density Residential Mixed Use Centre	21.1	200	4218	2.0	8437	24.2%
Medium Density Residential Mixed Use Centre	47.8	100	4776	2.0	9551	54.7%
NAIT Student Residences			2000		2000	
Total Residential	87.2		13529	0.0	24286	100.0%

* This area includes two 4,645 m^2 (50,000 square foot) office buildings

June 4, 2009

4.2.1 Plan Vision

Sustainability has been identified as one of the key strategic elements associated with the possible redevelopment of the ECCA Lands. The development area represents an excellent opportunity for the City of Edmonton to implement components and elements associated with sustainable development and green buildings and to provide leadership in implementing policies to ensure sustainable future growth. Redevelopment of the ECCA Lands provides an opportunity to develop a landmark community. While this opportunity may require higher levels of urban design, it would represent a unique community that embraces Smart Choices principals.

To ensure that the ECCA Lands could be developed in a sustainable fashion, a diversity of land uses have been incorporated into the plan area to allow for synergies to be developed between the various land use groups.

To achieve a sustainable development, the transportation system should identify a wide range of transportation choices that promote alternate modes of transportation. To achieve the sustainability goals established by the City, transportation strategies should be aimed at balancing the overall system including reducing single occupancy vehicle trips, improving transit use, implementing parking management tactics, improving pedestrian and bicycle linkages and ensuring transit oriented design development.

4.2.2 LRT in Plan Area – TOD Master Planned Community

In consultation with the City of Edmonton, the conceptual LRT alignment has been shifted further to the west in order to locate a new LRT Station centrally within the ECCA Lands. The revised conceptual alignment and station location provide additional opportunities for higher density residential and mixed use development activity to be located in proximity to the new LRT Station, enhancing walkability and increasing transit ridership.

4.2.3 Residential Density Assumptions

Mixed use residential development has been located within 800 m of the potential LRT Station wherever possible in order to maximize the number of residential units within a 10 minute walking distance of the potential LRT station. Residential densities are planned to transition from highest to lowest as distance from the LRT Station increases. Density assumptions are based on best practices in Transit Oriented Development and are consistent with densities approved for recent developments in the City of Edmonton.

Within 200 m of the potential LRT Station, High Density Residential Mixed Use development is proposed with a density of 300 units/ha. Built forms in this area are anticipated to consist of a mix of high-rise residential towers, mid-rise apartments and street oriented row housing. These built forms and densities are comparable with those recently approved by the City of Edmonton for the Century Park and Strathearn developments.

Between 200 m and 400 m of the potential LRT Station, Medium to High Density Residential Mixed Use development is proposed with a density of 200 units/ha. Built forms in this area are anticipated to consist primarily of a mix of mid-rise apartments, low-rise apartments and stacked row housing. These built forms and densities are comparable with those allowed under the RA8 – Medium Rise Apartment Zone of the City of Edmonton Zoning Bylaw.

Between 400 m and 800 m of the potential LRT Station, Medium Density Residential Mixed Use development is proposed with a density of 100 units/ha. Development in this area is anticipated to consist primarily of low-rise apartments, stacked row housing, and row housing. These built forms and densities are comparable with those allowed under the RA7 – Low Rise Apartment Zone of the City of Edmonton Zoning Bylaw.

Outside of 800 m of the potential LRT Station, adjacent to 121 Street, Ground Oriented Multi-family Dwellings are proposed. It is anticipated that this would consist of a mix of stacked row housing, row housing, duplexes and some single detached residential development.

4.2.4 Mixed Use Developments

Within 800 m of the potential station location, in the proposed Residential Mixed Use development areas, it is anticipated that this neighbourhood's demand for Community Shopping Centre and Neighbourhood Convenience/Street Front Commercial development can be accommodated. This commercial development would be located in the ground floor levels of residential buildings in most instances and could also include some stand-alone commercial buildings. While the majority of the commercial development would be focused in close proximity to the potential LRT Station, some commercial development is anticipated to be dispersed within 800 m of the potential LRT Station. A total of 35,190 m2 (378,800 square feet) of commercial floor area is anticipated to be required to service the residents of the ECCA Lands and visitors from other areas of the City. For additional information, please refer to **Section 5.2.2**.

In addition, a 7.1 ha (17.5 ac) area northeast of Airport Road has been identified for Mixed Use Office / Institutional / Industrial development. This area has been located to provide development complementary to the existing Commercial / General Business development southwest of Airport Road, outside of the ECCA Lands, to provide a logical transition to the Residential Mixed Use areas and to take advantage of access to Airport Road and Kingsway. It is anticipated that this area would accommodate light industrial and office park development, possibly related to the expansion of the existing NAIT campus, and has been located in proximity to the lands identified for NAIT expansion.

4.2.5 NAIT Expansion

A westward extension of the existing NAIT campus has been identified in the southeast corner of the ECCA Lands as a possible expansion opportunity for NAIT. This area is bounded to the north by the extension of 118 Avenue, and comprises 23.9 ha (59.1 ac) of land. It is anticipated that in addition to expansion of educational facilities, approximately 2,000 student residences

could be included within this expansion area. Additional land within the ECCA Lands may be required, depending on NAIT's future expansion plans.

The DND Armouries is included within the area for NAIT Expansion and is anticipated to be retained.

4.2.6 General Business

In the southwest corner of the ECCA Lands, 8.9 ha (22.0 ac) of land has been allocated for General Business uses. This area is intended to integrate several of the existing uses, which currently have long term leases in place, as well as to provide opportunities for additional development of General Business types of uses. The existing uses include the Nova Business Complex, the Nova Hotel, the Amiskwaciy Academy, and the Millard Centre.

4.2.7 Transportation Node

A transportation node, approximately 1.7 ha in size, was intentionally located in the northwest corner of the redevelopment lands to facilitate easy access from Yellowhead Trail. Uses anticipated for this area include the existing VIA Rail station and a Medevac (helipad) facility. Other potential uses could include a relocated Greyhound Bus station and offices and Edmonton Transit System (ETS) offices. The transportation node was not located adjacent to the LRT station as a result of potential operations of the Medevac (helipad) facility.

This site is separated from the majority of the ECCA Lands by 121 Street, which provides good arterial road access to the Royal Alexandra Hospital, Yellowhead Trail and downtown. This separation is also anticipated to mitigate any nuisance affects related to noise, nearby odours, and traffic associated with this type of operation. Appropriate buffering and separation distances to address interface with residential uses should be reviewed in more detail during the preparation of an area redevelopment plan.

4.2.8 Municipal Reserve Allocation

Throughout the plan area, 15% of the Gross Developable Area (GDA) has been allocated for Municipal Reserve (MR) totalling 32.6 ha (80.6 ac). This has been determined in accordance with Section 668 – Additional Municipal and School Reserve of the Municipal Government Act (MGA), which states:

> (2) Subject to section 663, when in the opinion of the subdivision authority a proposed subdivision would result in a density of 30 dwelling units or more per hectare of developable land, the subdivision authority may require municipal reserve, school reserve or municipal and school reserve in addition to that required to be provided under Section 666.

(3) The additional land that may be required to be provided under subsection (2) may not exceed the equivalent of 5% of the developable land or a lesser percentage as prescribed in the subdivision and development regulations.

Development of the proposed 13,529 units within the 217.1 ha ECCA Lands would result in a density of approximately 62.3 units/ha. Lands for MR have been conceptually identified on the Demonstration Plan in order to provide a visual representation of the amount of MR land required. Land, cash-in-lieu of land, or a combination of land and cash-in-lieu can be required for MR dedication, which would be determined at the Neighbourhood Area Structure Plan stage and through the subdivision process. Ultimate sizes, locations, uses, and configurations of Municipal Reserve would be refined at the Neighbourhood Area Structure Plan stage in accordance with the requirements of the City of Edmonton Urban Parks Master Plan.

Based on discussions with Parks Planning, Edmonton Public School Board and the Edmonton Catholic School Board, given the projected distribution of land uses and housing types, it does not appear that either school board will require a new school in this area. It is noted however that given the projected densities in the area, the need for a specialty recreation centre may be required. This need will be further assessed at more detailed levels of planning. Given the proximity of the NAIT Campus, shared recreation facilities could be considered.

4.2.9 Roadway Network

The Transportation Department has initiated a study on Yellowhead Trail, which is presently underway. The project team assumed Yellowhead Trail would maintain its current alignment and operations in the preparation of the Demonstration Plan, not wanting to presuppose the outcome of the report. As such no changes to the existing arterial roadway network were assumed in the preparation of the Demonstration Plan.

A refined collector roadway network was identified to provide adequate vehicular and transit access to and within the ECCA Lands. A factor of 15.3% of the GDA (33.3 ha) has been calculated to accommodate the internal collector and local roadway network.

4.2.10 Stormwater Management

Approximately 7.0% of the GDA (15.2 ha) is anticipated to be required to accommodate stormwater management for the ECCA Lands area. Two (2) conceptual locations have been identified for future stormwater management facilities. These areas represent low lying areas within the overall development parcel. At the detailed design stage, these stormwater management facilities could be redesigned to provide a more “linear” system integrated in the design of the parks and open space network. This could be a desirable alternative to larger, more centralized facilities, considering the potential risk of attracting birds to this area in relation to the location of the Medevac (helipad) facility.

4.2.11 Community Services

Based on information provided by the Edmonton Police Service (EPS) a new facility is not anticipated to be required within the ECCA Lands. However, the potential increase in population would necessitate the hiring of new officers. At an average of 1 officer per 1,000 residents, approximately 25 new officers would be required to serve the ECCA Lands. As well, an increase in officers would contribute to the need for a larger Headquarters building, which is already desired by EPS.

At this time, a new Fire Rescue Station is not anticipated to be required to serve the ECCA Lands if developed in accordance with the Demonstration Plan. At the time of the report's preparation, no information was available in regards to the needs or requirements for additional municipal services within the ECCA Lands, such as libraries or EMS facilities. The need for and provision of these facilities are better determined in future planning exercises as directed by City Council.

4.3 LONG TERM VISION/OPPORTUNITY – EXTENDED PLAN AREA

An additional Demonstration Plan and associated Land Use and Population Statistics were prepared to conceptually identify future redevelopment potential for the overall ECCA Lands area, including portions of the existing NAIT campus, the Westwood Yards and the privately owned lands south of Yellowhead Trail, which comprises 290.9 ha (718.8 ac) of land. This extended Demonstration Plan and Land Use and Population Statistics are included as **Appendix B** to this report.

DEVELOPMENT IMPACTS | 5

This section of the report presents the land use, transportation, and servicing impacts associated with the possible redevelopment of the Edmonton City Centre Airport Lands.

In addition, Downtown redevelopment and adjacent community impacts are reported. This section also presents the market feasibility impacts in regards to market potential and absorption.

5.1 LAND USE IMPACTS

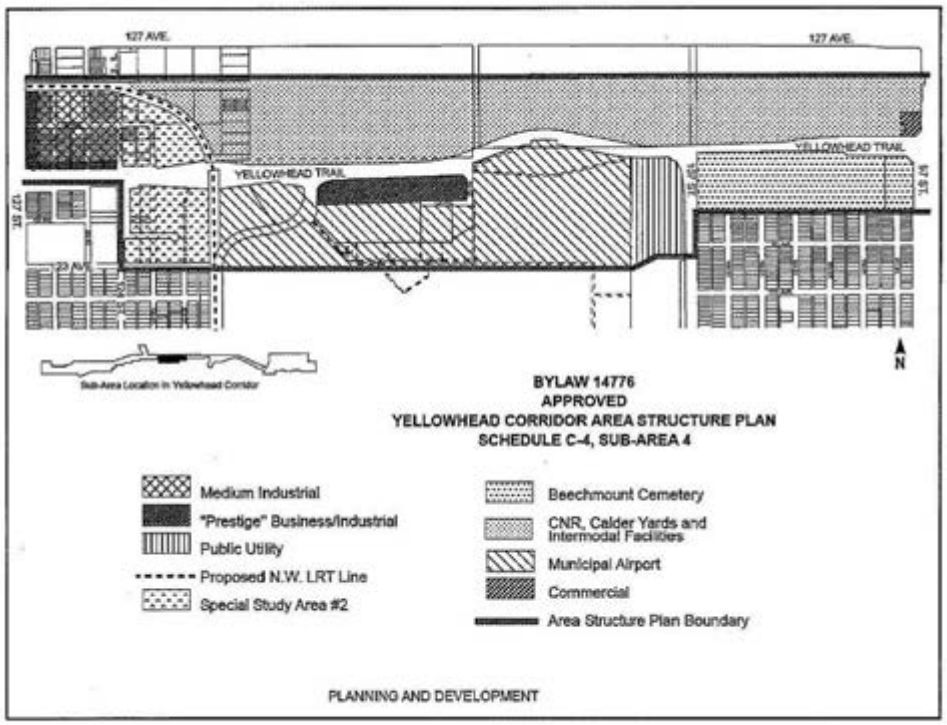
5.1.1 Analysis of the Development Opportunities Surrounding the ECCA Lands

Redevelopment of the ECCA Lands as a master planned residential mixed use community with the northwest LRT line could act as a catalyst for redevelopment and intensification of neighbourhoods and other surrounding areas. The following provides an analysis of the development opportunities for the neighbourhoods and areas surrounding the ECCA Lands.

5.1.1.1 Yellowhead Corridor

The ECCA Lands are bounded on the north by Yellowhead Trail and are within Sub-Area 4 of the Yellowhead Corridor Area Structure Plan Bylaw No. 14776. The proposed land uses are conceptually shown on Schedule C-4.

PROPOSED LAND USES SCHEDULE C-4 SUB-AREA 4 (Bylaw 14776, January 14, 2008)*



*Amended by Editor

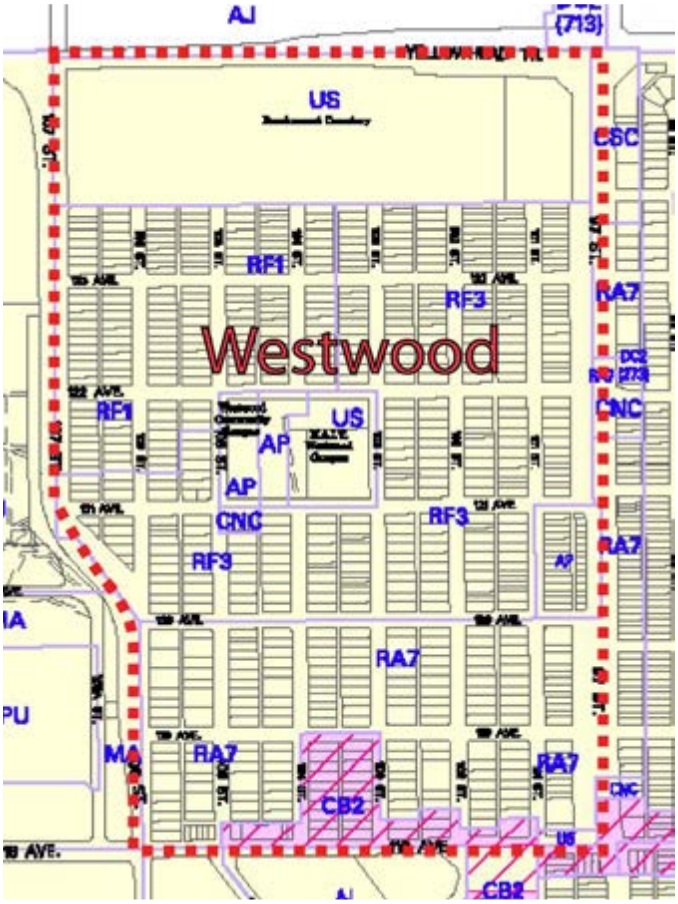
Yellowhead Corridor ASP *Office Consolidation July 2008* 45

The majority of the area, 57 ha (142 acres), is CNR, including the Walker Yards and Intermodal Facilities. It is anticipated that these uses will continue to operate if the ECCA is retained or redeveloped.

The lands within the Yellowhead Corridor, north of Yellowhead Trail, have no redevelopment potential if the ECCA Lands are redeveloped as a master planned residential mixed use community; these lands will remain as railway yards for the foreseeable future.

5.1.1.2 Westwood Neighbourhood

The Westwood neighbourhood is located immediately east of the ECCA Lands. The Westwood neighbourhood has modest, small scale, redevelopment opportunities if the ECCA Lands are redeveloped as a master planned residential mixed use community.



The neighbourhood falls within the Mature Neighbourhood Overlay. The neighbourhood is comprised mainly of single detached housing, semi-detached housing, and low rise apartments. The existing (RA7) Low Rise Apartment Zone sites are already developed to their opportune use, and it would be uneconomical to demolish or redevelop these sites to what would essentially be comparable densities. A large portion of the neighbourhood is zoned (US) Urban Services Zone and is the site of Beechmont Cemetery. This cemetery comprises the entire northern portion of the Westwood neighbourhood. Additional uses in the neighbourhood include the Westwood Community League Centre and the NAIT Westwood Campus. A small portion of the southern area of the neighbourhood, along 118 Avenue, is zoned (CB2) General Business Zone and is the site of the Park Plaza commercial development.

The 2008 Municipal Census indicated a population of 3,197 people and 1,992 dwelling units in the Westwood neighbourhood.

A modest increase in population, in the order of approximately 10% or about 300 people, may result from small-scale residential infill in the form of secondary suites, duplexes or row housing. This type of development is possible in the parcels already zoned (RF3) Low Density Development Zone in the neighbourhood that do not currently utilize the densities permitted under this zoning. There are no large sites in the neighbourhood that have the potential for redevelopment if the ECCA Lands are redeveloped.

5.1.1.3 Spruce Avenue Neighbourhood

The Spruce Avenue neighbourhood is located immediately southeast of the ECCA Lands. The Spruce Avenue neighbourhood has moderate redevelopment potential for small scale infill redevelopment primarily in the form of redevelopment to duplexes, four-plexes, and row housing, as envisioned in the City's Small Scale Infill Redevelopment Guidelines. As well there is a potential for redevelopment of the (RA7) Low Rise Apartment Zone site on Princess Elizabeth Avenue between 102 Street and 103 Street. This site does not currently utilize the densities permitted in the (RA7) zoning.

The neighbourhood falls within the Mature Neighbourhood Overlay. This neighbourhood contains a wide range of residential, commercial, and industrial uses. Although much of the neighbourhood is zoned (RF3) Low Density Development Zone, which allows for small-scale conversion and infill redevelopment to housing forms containing up to four (4) dwellings per building, the predominant housing form is single detached homes. NAIT and Kingsway Garden Mall comprise approximately 50% of the site area of the neighbourhood. The NAIT campus, in the northwest portion of the neighbourhood, is zoned (DC2) Site Specific Development Control Provision and (AJ) Alternative Jurisdiction Zone. Kingsway Garden Mall, in the southwest portion of the neighbourhood, is zoned (CSC) Shopping Centre Zone. In the southern portion of the neighbourhood, a large area is zoned (US) Urban Services Zone and is the site of the Glenrose Rehabilitation Hospital and the Glenrose

School. Other uses in the neighbourhood include Saint Basil Elementary / Junior High School, Spruce Avenue Elementary / Junior High School, and the Spruce Avenue Community League.

The 2008 Municipal Census indicated a population of 2,054 people and 1,149 dwelling units in the Spruce Avenue neighbourhood.

Much of the land in this neighbourhood is occupied by NAIT and Kingsway Garden Mall, and therefore there appears to be only one large site well suited for redevelopment, as explained above. Redevelopment of this site to utilize the existing (RA7) Low Rise Apartment Zone designation could add an additional 197 residential units to the site or approximately 250 people.

Although a temporary LRT station is proposed in the vicinity, it is envisioned it will primarily serve NAIT employees and Students, employees and customers of Kingsway Garden Mall, and employees and visitors to the Royal Alexandra and Glenrose Rehabilitation Hospitals.

5.1.1.4 Prince Rupert Neighbourhood

The Prince Rupert neighbourhood is located immediately southwest of the ECCA Lands. The neighbourhood falls within the Mature Neighbourhood Overlay. This neighbourhood contains a combination of residential, industrial, commercial, and urban services uses. Residential designations include (RF1) Single Detached Residential Zone, (RF4) Semi-detached Residential Zone, (RA7) Low Rise Apartment Zone, and (RSL) Residential Small Lot Zone. The primary housing type in this neighbourhood is single detached homes. Industrial uses comprise a large area and are concentrated in the western portion of the neighbourhood. These industrial areas fall under the designations of (IB) Industrial Business Zone and (IM) Medium Industrial Zone. Commercial designations are primarily (CB2) General Business Zone and are concentrated along Kingsway. These commercial sites are comprised of large retail businesses such as Canadian Tire and Save on Foods. The Urban Service uses are concentrated in the southeast portion of the neighbourhood and include parcels designated (AP) Public Parks Zone and (AJ) Alternative Jurisdiction Zone. These uses include Airway Park, the RCMP Headquarters, and the Lions Recreation Centre.

Municipal Census figures from 2008 indicated a population of 1,260 people and 696 residential units for the Prince Rupert neighbourhood. The Prince Rupert neighbourhood has limited residential redevelopment potential as a large portion of the Neighbourhood is zoned RF-1 Single Detached Residential Zone.

There is possibility for commercial intensification along Kingsway if the ECCA Lands are redeveloped. As well, there is the possibility for industrial intensification in the western portion of the neighbourhood between 119 Street and 121 Street. If the ECCA Lands are redeveloped, the area north of the northwest portion of the Prince Rupert neighbourhood on the ECCA Lands would be developed as General Business, so intensification of the current industrial development in the western portion of the neighbourhood would be a logical extension of the development anticipated in the southwest portion of the ECCA Lands. We do foresee opportunities for commercial intensification as well as (IM) Medium Industrial zoned sites being rezoned to (IB) Business Industrial zones resulting in commercial uses such as offices which will likely have a higher density employee population on a square footage basis than uses characteristically found in an (IM) Medium Industrial Zone.

5.1.1.5 Inglewood Neighbourhood

The Inglewood neighbourhood is located southwest of the ECCA Lands. The Inglewood neighbourhood has good redevelopment potential whether the ECCA Lands are or are not redeveloped as a master planned residential mixed use community.

The neighbourhood falls within the Mature Neighbourhood Overlay. The uses in the neighbourhood are generally in accordance with the West Ingle Area Redevelopment Plan. The neighbourhood is mostly developed for residential uses which include (RF3) Low Density Development Zone, (RF4) Semi-detached Residential Zone, (RA7) Low Rise Apartment Zone, (RA8) Medium Rise Apartment Zone, and (RA9) High Rise Apartment Zone. Other uses in this neighbourhood include Inglewood Park, Inglewood Elementary School, Inglewood Community League, and Westmount Junior High School.

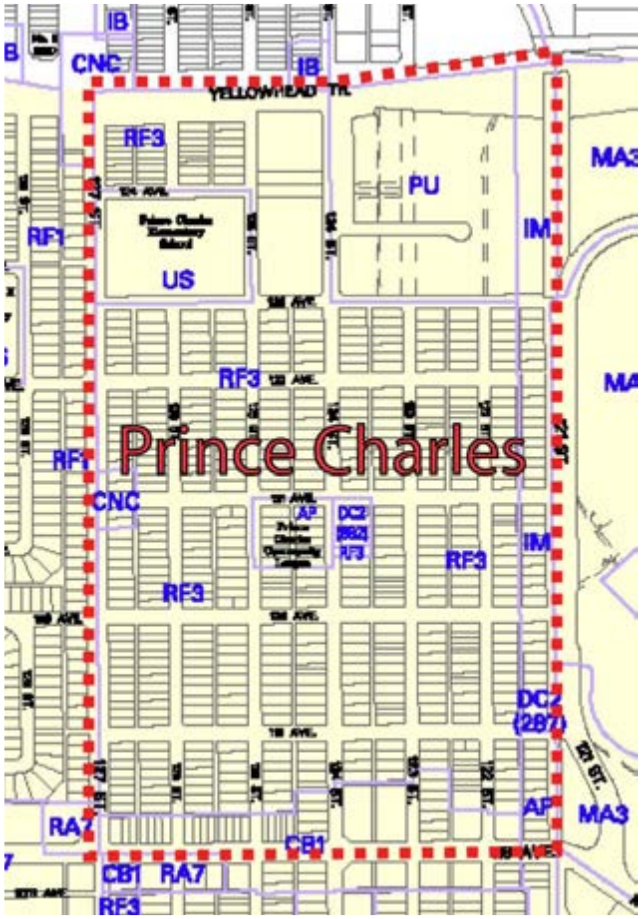
Municipal Census figures from 2008 indicated a population of 6,925 people and 3,936 residential units for the Inglewood neighbourhood.

The West Ingle ARP indicates that the two (2) larger (RA7) Low Rise Apartment Zone sites (Premier City Park condos along 118 Avenue and Baywood Park Apartments along Groat Road) have the potential for future redevelopment. If the Premier City Park Condo site redeveloped to fully maximize its (RA7) Low Rise Apartment Zone potential, approximately 96 additional residential units could be added to the site. If the Baywood Park redeveloped to utilize its zoning potential, it could add an approximate 606 residential units to its site.

A third possible redevelopment site is the vacant Charles Camsell Provincial Hospital located in this neighbourhood. The site has been rezoned to (DC2) Site Specific Development Control Provision in order to accommodate residential development, with a maximum of 594 dwelling units and a population forecast of up to 1,000 people.

5.1.1.6 Prince Charles Neighbourhood

The Prince Charles neighbourhood is located immediately to the west of the ECCA Lands. The neighbourhood falls within the Mature Neighbourhood Overlay. The neighbourhood is predominantly single detached and semi-detached housing. However, there are additional land uses within the neighbourhood. In the northeast corner of the neighbourhood there is a large parcel of land that is zoned (PU) Public Utility which is currently being used as the City of Edmonton Police Seized Vehicle Impound Lot. There are also (IM) Medium Industrial uses along the eastern edge of the neighbourhood which border the ECCA Lands. Along the southern edge of the neighbourhood, along 118 Avenue, there are commercial uses which are zoned (CB1) Low Intensity Business Zone. Other uses found in the neighbourhood include the Prince Charles Elementary School and the Prince Charles Community League. The development in this neighbourhood generally utilizes the various zoning districts to their maximum potential.



2008 Municipal Census data indicated a population of 1,297 people and 613 units in the Prince Charles neighbourhood.

The Prince Charles neighbourhood has two areas of redevelopment potential if the ECCA Lands are redeveloped as a master planned residential mixed use community. The (IM) Medium Industrial sites along the eastern boundary of this neighbourhood as well as the large parcel of land currently zoned (PU) Public Utility in the northeast portion of this neighbourhood are potential redevelopment sites, as their current uses would not be compatible with an adjacent residential neighbourhood. If the City of Edmonton Police Seized Vehicle Impound Lot in the northeast portion of the neighbourhood is developed as (RA7) Low Rise Apartment Zone, at 125 dwellings per hectare, the population of the neighbourhood would likely increase significantly because this lot could accommodate a maximum of 952 residential units under this zoning.

5.1.1.7 Synopsis of the Impact of the ECCA Lands Redevelopment on Surrounding Neighbourhoods

It is anticipated that the effects related to redevelopment within the neighbourhoods adjacent to the ECCA Lands would be generally positive. It is anticipated that future revitalization and rejuvenation efforts in the adjacent residential communities would consist primarily of replacement of the some of the older housing stock and potentially some redevelopment with increased densities. This redevelopment and rejuvenation would be consistent with the policy direction of the draft "The Way We Grow: Municipal Development Plan", which focuses on the need to manage growth and emphasizes the need for: a more compact and urban form; medium and higher density development related to transit; and a wide range of housing types.

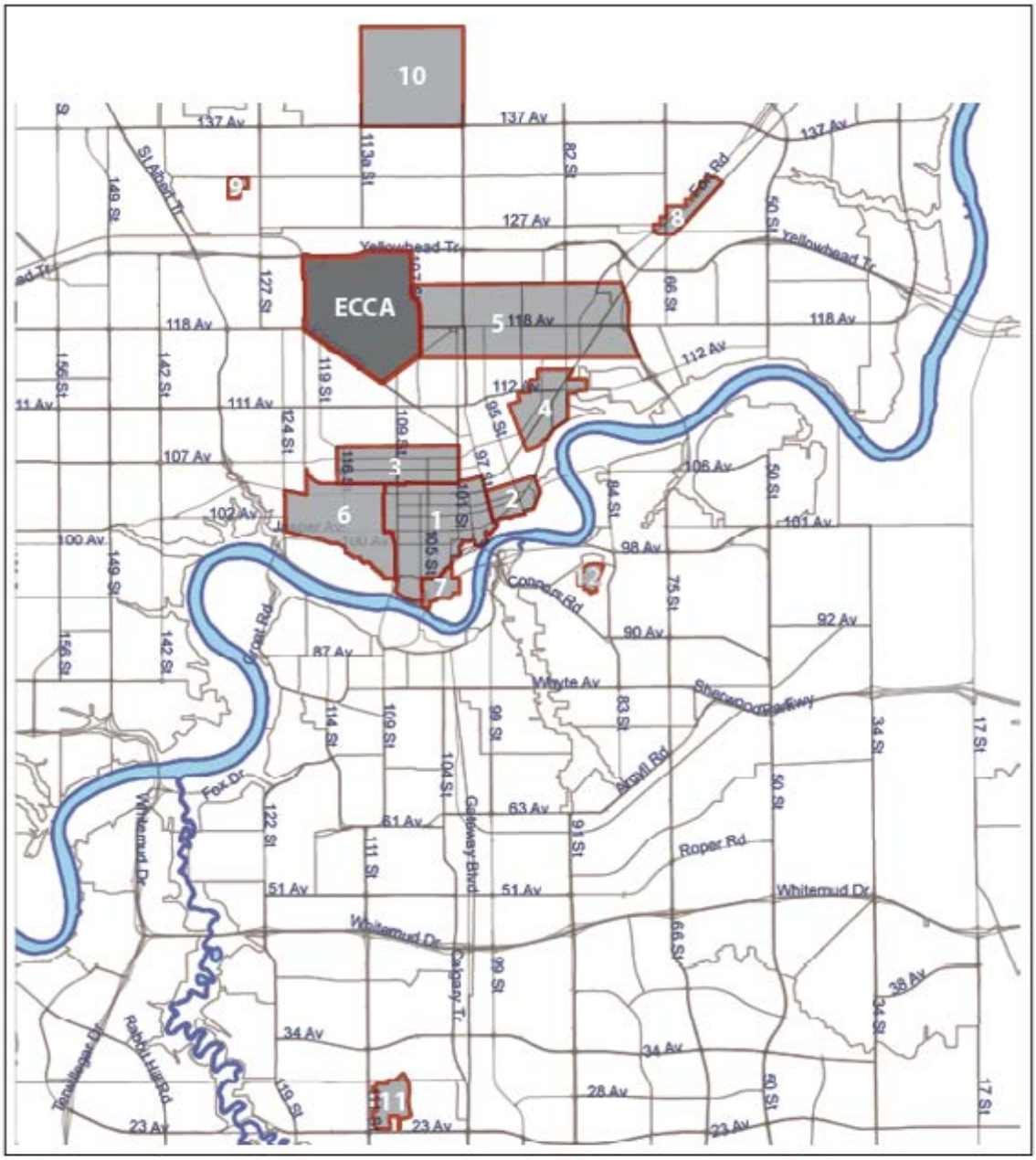
If the ECCA was closed and the lands were developed for a new neighbourhood, a Neighbourhood Area Structure Plan would have to be prepared, with supporting technical studies, as well as opportunities for community and stakeholder consultation.

5.1.2 Competition with Other Redevelopment and Intensification Efforts in Other Parts of Edmonton

An analysis was undertaken to determine the potential implications of competition with redevelopment and intensification efforts in other locations throughout the City of Edmonton. Selected potential areas of competition are shown in **Exhibit 8 - Major Redevelopment / Intensification Initiatives in Edmonton**. The twelve (12) redevelopment areas surveyed include Downtown, the Quarters, Downtown North Edge, Stadium TOD Area, Alberta Avenue, Oliver, West Rossdale, Station Pointe, Bellwether Park, Griesbach, Century Park, and Strathearn Heights.

With assistance from Planning and Development Department staff, a review was undertaken of available plans, approved rezoning applications and development permits issued. **Table 2** summarizes the Development Potential and Projects Underway in Other Parts of Edmonton. The findings are described in more detail in **Appendix C - Review of Selected Competing Redevelopment and Intensification Efforts in Other Parts of Edmonton**.

Exhibit 8: Major Redevelopment / Intensification Initiatives in Edmonton



It is important to note that this analysis does not provide a comprehensive list of all redevelopment / intensification projects underway, but rather selected major large scale infill projects that have been approved by the City of Edmonton that could impact the market demand for redevelopment of the ECCA Lands. There were limitations to the data collected. The total number of potential residential units and commercial space were not available for all the redevelopment areas. Approved DC-2 Provisions provide specifics in terms of number of residential units and commercial space to be built. In other cases this is at the discretion of individual developers within the allowable densities specified in the Zoning Bylaw.

Table 2: Summary of Development Potential and Projects Underway in Other Parts of Edmonton

Redevelopment Area	Residential Units		Commercial Space	
	Full Build Out Potential	**Developments Underway**	**Full Build Out Potential**	**Developments Underway**
Downtown	(Information Unavailable)	2,789 units	(Information Unavailable)	9,970 m^2 (107,316 SF)
The Quarters	11,373 units	62 units	63,948 m^2 (688,330 SF)	(Information Unavailable)
Downtown North Edge	4,638 units	1,720 units	(Information Unavailable)	2,322 m^2 (25,000 SF)
Stadium Station TOD	(Information Unavailable)	995 units	To be determined	3,000 m^2 (32,292 SF)
Alberta Avenue	3,097 units	145 units	2,926 m^2 (31,500 SF)	0
Oliver	(Information Unavailable)	566 units	(Information Unavailable)	600 m^2 (6458 SF)
West Rossdale	1,500 units	55 units	3,716 m^2 (40,000 SF)	(Information Unavailable)
Station Pointe	1,000 units	1,000 units	6,968 m^2 (75,000 SF)	6,968 m^2 (75,000 SF)
Bellwether Park	750 units	750 units	0	0
Village at Griesbach	4,274 units	4,274 units	117,000 m^2 (1,259,378 SF)	117,000 m^2 (1,259,378 SF)
Century Park	2,886 units	2,886 units	32,000 m^2 (344,445 SF)	32,000 m^2 (344,445 SF)
Strathearn Heights	1,750 units	1,750 units	3,716 m^2 (40,000 SF)	3,716 m^2 (40,000 SF)
Total	**31,268 units**	**16,992 units**	**230,274 m^2 (2,478,649 SF)**	**175,576 m^2 (1,889,884 SF)**

5.1.3 Removal of Airport Vicinity Protection Overlay & Height Restrictions

Appendix D includes a report entitled "Review of Downtown Impacts: Removal of Airport Vicinity Protection Overlay & Height Restrictions". The purpose of this report was to identify potential gains from the removal of building height limits associated with the Airport Protection Overlay (APO) in the Edmonton Zoning Bylaw, which would allow for redevelopment and intensification efforts in locations throughout Downtown Edmonton and Downtown Fringe neighbourhoods. Currently, the Edmonton Zoning Bylaw 12800, using the Airport Protection Overlay (APO), provides for the safe operation of the ECCA through the federal regulation of building heights and land uses in the vicinity of the Airport and the four runway approaches.

The APO restricts development within portions of the Central Core, which consists of the Downtown and the neighbourhoods and areas that have a strong inter- relationship with the Downtown, which have different characteristics and development expectations than mature neighbourhoods. According to the City of Edmonton's new draft Municipal Development Plan, The Way We Grow, these areas encompass Boyle Street, McCauley, The Quarters, Central McDougal, Queen Mary Park, Oliver, University of Alberta, Garneau, Strathcona, Cloverdale, Riverdale and Rossdale. For the purpose of this report the study area encompasses portions of the Downtown and the Oliver Neighbourhood.

Restriction of alternatives for high forms of development is not the only constraint imposed by the APO, as there may also be financial implications to the City in terms of lost tax revenue. Edmonton's Downtown and other affected edge neighbourhoods of the Central Core would benefit from the removal of the APO by allowing for more intensification of uses, more design creativity regarding height and expansion of uses in adjacent areas. However, there must be a more comprehensive analysis of the actual development potential of the areas affected by the APO and key implications within the Edmonton's Planning policies to inform the Executive Committee and Council and support the decision making process on the possible closure of the ECCA.

The methodology employed in this report was developed in consultation with the Planning and Development Department, and applied a qualitative approach employing qualifiers that are based on planning principles and practices indentified among the development industry. The following summarizes the main stages of the methodology applied in this report:

1. Neighbourhoods south of the ECCA that are currently affected by the APO limitations were identified consistent with the Edmonton City Centre Airport (ECCA) Impact Assessment Request for Proposal.

2. Edmonton's most recent planning initiative –the City's new draft MDP The Way We Grow defines the Central Core as being among the prime lands for intensification. A study area was determined within the neighbourhoods encompassing the Central Core based on the APO boundaries. Neighbourhoods within the Central Core that were excluded from the study area are addressed further on in the report.

3. Site selection criteria were developed, taking into consideration a minimal parcel size appropriate for high rise development and the current type of development found on the ground. Vacant parcels and/or parcels containing parking developments not accessory to other developments were the primary focus of this exercise. In discussions with Planning and Development Department staff it was determined that only those parcels of land which were two or more lots in size had any immediate potential for redevelopment. Single parcels were deemed a second priority unless they could be consolidated with adjacent parcels of land. Therefore this report's statistical analysis focuses upon parcels of vacant land that are a minimum of two city lots in size and/or a minimum of 0.2 hectares.

4. Aerial photographs and AutoCAD Base maps available from the City's archives were used in order to identify the appropriate sites based on the site selection criteria.

5. An approach to establish factors that combine the appropriate building height / density standards was developed based on criteria that have high consideration for planning principles with the outcome of quality building forms, mix of uses and integration with surrounding developments. Density is expressed in both units per hectare and Floor Area Ratio.

6. The maximum density factors under the current zonings and the building height / density factors were applied to selected sites. In each case, total numbers of units and commercial / office spaces were tabulated in order to determine the additional lift resulting from the removal of the APO.

Several assumptions were made during the course of this analysis as follows:

1. Statutory documents referred to by this report were assumed to have been undertaken with fair public participation, with concerns incorporated in the final products.

2. Zoning parameters currently being applied or proposed by statutory documents concerning the study area were deemed adequate to neighbourhood contexts without further adjustments.

3. The priority for choosing a site was given to those that were readily available for development in detriment of those that needed to be consolidated with other lots in order to create a parcel large enough to undertake high rise development.

4. Based on the assumption that the removal of the APO would allow for increased residential and employment opportunities in the study area, the report outlines: how lands were identified for potential redevelopment; how building height may be affected by the removal of the APO; and, the potential population growth and additional commercial / office / retail space that may be achieved with the removal of the APO.

5. In order to calculate the population forecast, the City's Neighbourhood profile was considered for both the Downtown and Oliver neighbourhoods, and a 1.4 persons per unit density was applied across the board.

Planning and Development Department staff emphasized the importance of maintaining current planning practices with regards to the development of high rise development in the City of Edmonton. Planning principles that would apply to any high rise development include: preservation of view corridors; the minimization of shadows onto surrounding sites; the building of slim towers between 500 – 750 m^2 at the tower level with podium bases containing commercial / office / retail uses; and human scaled frontage. The range of floor plate sizes at the tower level would allow for a minimum of four and a maximum of eight market units per floor.

Without building height limits, the cut off is determined by the maximum FAR adequate for various sizes of sites. Usually, a large site can provide a better transition to surrounding developments by tapering down the scale and mass of building height. Similar undertakings were conducted in other North American cities such as San Francisco, and rather than a definitive answer, it is a matter of testing different height levels that may result in a building mass based on the following design principles:

- ensure the buildings are of a human scale at the street level;
- moderate the mass of the building so that it steps up or down to its neighbourhood;
- provide enough articulation to soften the perception of a place.

The methodology applied to this report contains the following limitations:

1. The areas included in this report do not represent a comprehensive inventory of all potential development activity in selected neighbourhoods but rather specific areas where infill projects and redevelopment would be likely from a land use planning perspective. Specifically, long term potential redevelopment sites that contain vacant, older (non-historic) buildings at the end of their economic cycle were not included. The criteria for selecting non-vacant potential redevelopment sites would be subjective, since market conditions and land ownership would have to be factored in and could infer a more optimistic picture of the current development potential of the study area.

2. The perception of density is a matter of how comfortable a place feels given its design and social characteristics and while this report acknowledges this matter as factual it only considers the perception of density as a valid concern from a high level perspective without getting into the detailed analysis for any particular selected site.

3. The area known as the *Downtown North Edge*, bounded by 101 Street to the east, 117 Street to the west, 105 Avenue to the south and 108 Avenue to the north, involves portions of the neighbourhoods of Queen Mary Park and Central MacDougall, which are some of the most ethnically diverse communities in Edmonton. Several areas within these older neighbourhoods are undergoing rejuvenation, many of which are centered

around the various ethnic businesses that can be found there. These neighbourhoods contain a variety of housing types and are also impacted partially by the APO restrictions.

4. Nonetheless, the areas within the Downtown North Edge that are affected by the APO have building heights delineated by planning principles with a focus on the desired outcome as building mass with human scaled frontages. Although the maximum allowable densities being considered within the Downtown North Edge area are higher than current Edmonton standards, the methodology employed by this study considered that increasing building height within the Downtown North Edge Area would be in conflict with the overall development concept of this study which was concluded in January 2005.

5. The Boyle Street McCauley Plan, Bylaw 10704 affected by the APO falls within the Chinatown North Special Commercial sub area which envisions the area for low intensity business uses being up to 4 storeys in height. The other area affected by the APO is the Housing and Renewal Transition sub area. This sub area proposes a mix of commercial uses and low to medium density residential development. Any suggestion of rezoning these sub areas to high rise residential would be in conflict with overarching objectives of the plan.

Table 3 shows residential units and commercial space for areas reviewed in this report.

Table 3: Summary of Intensification Potential in Areas Affected by the APO Removal

Redevelopment Area	Residential Units	Population	Commercial Space
Downtown	1,927	2,696	46,167 m2
Oliver	1,252	1,723	17,621 m2
Total	3,179	4,419	63,788 m2

Intensification efforts that may be undertaken due to the removal of the APO are bound by the City's limited capacity regardless of the approach of the analysis being undertaken. These intensification efforts have to give consideration to the following:

- Potential future development opportunities through the consolidation of existing vacant single parcels with adjacent properties. Within this report these parcels were not part of the statistical analysis due to their existing size.

- Potential future development opportunities through the redevelopment of long term redevelopment sites that contain vacant, older (non-historic) buildings at the end of their economic cycle are subject to further analysis. Within this report these parcels were not part of the statistical analysis as they are not readily available for redevelopment.

- The built form of any proposed development will need to integrate with the existing built form in the area and consider any Planning and Development initiatives for the area such as urban village, main street, and /or transit oriented development.

- Market conditions such as the absorption rate for condominium units and office space at the time that the development is being considered.

- Proposed development will be required to undertake traffic and servicing capacity studies to determine what the impact of the proposed development will be on these services in the area.

- The built form will need to be designed to mitigate any environmental effects such as lost sun light (shadowing) and wind tunnelling.

- Current statutory documents will need to be reviewed and potentially amended to consider the integration of any proposed increase in height above that currently allowed within these statutory documents and the Zoning Bylaw.

- Community consultation will need to be undertaken as part of any initiative, whether it is led by the City or a private developer, to look at increasing height above that currently allowed within the Downtown or Oliver Neighbourhood.

5.1.4 Existing Special Events

Edmonton Northlands was contacted regarding the potential impact of the redevelopment of the ECCA Lands on the Indy Car Race. Northlands advised that the City of Edmonton and Northlands have an agreement in place to host the Indy Car Race through and including 2010. It is unlikely that any decision regarding the ECCA would be activated prior to July 2010. As such, the impact of that decision on the hosting of the Indy Car Race would be negligible. In the long term, should the City choose to continue to host an Indy Car Race, it is anticipated that an alternate location for the race could be identified.

5.2 MARKET FEASIBILITY IMPACTS

5.2.1 Residential Demand and Absorption

The population of Edmonton is expected to grow, and its age profile will change over the next several decades. Between 2006 and 2041, Edmonton will grow by more than 414,000 people, or 57%. With the growing and changing population there will be demand for new homes of all types. If the ECCA Lands are developed with residential uses, some of the demand for new dwellings would go there, while other parts of the City would also satisfy some of the demand.

Between 2006 and 2041 Edmonton is expected to see net new demand for over 72,500 apartments and 27,660 new ground-oriented multi-family units. Under the Demonstration Plan,

the ECCA Lands would see 11,529 units built (not including student residences) – the majority as apartments. Considering the pace of forecasted demand, and supply from other developments both underway, planned and even those currently unforeseen but expected to arise, the units at ECCA would take between 23 and 28 years to absorb. Additional information can be found in **Appendix E – Residential Demand and Absorption**.

5.2.2 Market Potential for Retail, Office, and Industrial Land Uses

5.2.2.1 Retail Commercial Demand

The Primary Trade Area for ECCA retail commercial land uses is considered to be the development site itself, which as shown in the Demonstration Plan would build out with a population of 24,286 people. The Secondary Trade Area would extend into the residential neighbourhoods to the east and west of the site. Considering the supply of retail on Kingsway, and its role in northwest Edmonton, capture rates for ECCA retail commercial have been reduced to predominantly local-serving and convenience levels.

Net demand for retail and service commercial floor area in this scenario is estimated to be 378,800 square feet at build-out. This represents less than 27% of the total demand expected to be generated by the ECCA population alone, resulting in significant net additional support for local businesses from the ECCA population. It is expected that the commercial would be developed in a series of nodes and mixed-use districts located with maximum accessibility to the on-site population.

Further information regarding the potential Retail Commercial Demand within the ECCA Lands is summarized in **Appendix F – Commercial Demand and Configuration – Demonstration Plan**. As well, potential Retail Commercial Demand for the extended area is summarized in **Appendix G – Commercial Demand and Configuration – Demonstration Plan for Extended Area**.

5.2.2.2 Office Demand

While there has been a significant softening of both the office and industrial real estate markets in Edmonton in the last year, there is considerable reason for optimism in the market. Edmonton remains an energy-driven market, and with oil prices recently reaching close to $70US per barrel once again, and construction and trades costs dropping, major oil projects will likely be restarted after a brief hiatus.

It would be reasonable to expect that, starting in 2016, ECCA could absorb 5% of new City-wide traditional office demand, or 7,200 square feet per year, if appropriate lands and development opportunities were available. Over 7 years, the accrued demand could support a 50,000 square feet office building; and over 14 years, two such buildings would be warranted.

5.2.2.3 Industrial Lands

Based on the successes seen in other post secondary-associated industrial developments, and the unique opportunity of an accessible city centre site adjacent to NAIT, regional shopping, services, and a high-density transit oriented community, the mixed use office and business industrial lands would experience more business interest than comparable sites in a different location. We would expect that all of the lands in these designations would be absorbed within 10 years of construction starting on other uses in the ECCA Lands, and possibly sooner.

A more detailed summary of the projected demand for office and industrial lands is summarized in **Appendix H – Office and Industrial Brief**.

5.2.3 Future Market Value

The Consultant team has reviewed the ECCA Lands essentially as a new town centre within the City of Edmonton, one that among other things would contain a mix of land uses across the site. In an effort to estimate the value of the lands to the City of Edmonton from a real estate perspective, Colliers International made estimates of value relative to the specific land uses contemplated in the future. While this consulting exercise does not constitute a formal appraisal, it is intended that the figures put forward reflect the market realities of May 2009.

Since third quarter last year, the all markets have declined. The evidence that supports the notion of declining market values includes the following:

- The volume of land sales has decreased. Increasing land transactions represent increasing demand since the supply of land remains constant. As dictated by simple economics, when supply remains constant and demand decreases, price will decrease.

- Housing prices have decreased over the past twelve months.

- Building permits have declined. Another strong indicator that reflects demand for land is the value of building permits.

- Vacancy rates for most property classes have increased. Land prices escalate when the demand for land exceeds the supply of land. Land demand will increase when existing buildings become full, necessitating the construction of new buildings to accommodate the additional demand created by residential and commercial occupants.

- The economy is contracting. During the first quarter of 2009, the Canadian economy contracted by a significant 5.4%.

- Perception. Everybody (or nearly everybody) in the real estate industry within Edmonton is of the opinion that land values have decreased over the past twelve months. .

The development scenarios modelled from a revenue perspective were based on the Demonstration Plan prepared for the ECCA Lands. The associated revenues are outlined below in **Table 4**. These values represent current values in the market place and are supported by the recent sales data. It is believed that these represent the best comparables that are also the most current.

Table 4: Revenue Projections

Land Use	$/ha	$/acre
Commercial		
Mixed Use 200 m	$3,211,000	$1,300,000
Mixed Use 400 m	$2,717,000	$1,100,000
Mixed Use 800 m	$2,099,500	$850,000
General Business	$2,099,500	$850,000
Institutional		
NAIT	$1,729,000	$700,000
Special Use		
Transportation Node (including helipad)	$1,729,000	$700,000
Mixed Use Office/Institutional/Industrial	$1,729,000	$700,000
Residential		
Low Density Residential	$1,852,500	$750,000
High Density Residential (200 m)		$12,000/unit
Medium to High Density Residential (400 m)		$15,000/unit
Medium Density Residential (800 m)		$20,000/unit

5.2.3.1 Commercial Land Values:

Should the proposed commercial development be located directly adjacent to a major arterial collector, it would likely generate unit values of between $850,000 and $1,300,000 per acre depending on a wide variety of factors including size of parcel, configuration, adjacent uses, ability to change zoning, and proximity to LRT. For the purposes of this assignment we have utilized a range of values representative of proximity to LRT.

5.2.3.2 Residential Land Values:

As such, it appears that a value of $600,000 to $800,000 per acre is a reasonable value in today's market for low density, ground oriented residential product.

In consideration of the declining market, a unit value likely in the range between $20,000 per unit for the outer lands (furthest from LRT) to $12,000 per unit for the lands closest to the LRT in the "mixed-use areas" is probably appropriate if their focus is residential-oriented. These values will depend on the quality of the improvements, connectivity of the LRT, density, and a numerous other factors so these values could range significantly. It should be acknowledged that the smaller the parcel and/or the lower the density, the higher the unit value.

5.2.3.3 Industrial/Institutional Land

Conventional industrial land (IM) exhibits a wide variance but is averaging around $550,000 to $650,000 per acre for better neighbourhoods and locations in Edmonton. Again, in recognition of a declining market (and the scarcity of good comparable information that such a market would bring), this land is probably most accurately valued at between $600,000 and $800,000 per acre.

The net value to the City of Edmonton assuming straight-line revenues and costs for the Demonstration Plan is approximately $90,000,000, which contemplates revenues and costs without a time factor.

The second method of estimating value was based on a development proforma, which assumes the land will be sold to a third party who would then undertake the development over a period of time. Amongst other things the proforma incorporated hard costs, soft costs, sales commissions, developer's profit and most importantly an absorption period of 28 years. The resultant value discounted to account for time (28 years) at a 12% discount rate equated to approximately $41.8M, assuming a start period in 2016. This value equates to approximately $78,000 / gross acre of land.

Additional detail regarding the estimate of the future market value of the ECCA Lands is summarized in **Appendix I – Land Value Brief**.

5.3 TRANSPORTATION IMPACTS

The redevelopment of the ECCA Lands is anticipated to impact existing transportation infrastructure, such as roadways, and also impact the potential LRT alignment through the area.

5.3.1 LRT Corridor

Currently, an LRT line is planned from downtown to NAIT, with a temporary station designated on the southeast corner of the Princess Elizabeth Avenue/106 Street intersection. The NW LRT Study is currently being completed and is expected to be finalized in the Spring of 2010. Redevelopment of the ECCA Lands would provide an opportunity for greater flexibility in the development of an LRT corridor into the northwest sector of the City.

Based on current rail yard operational requirements, either a tunnel or a bridge will need to be constructed to cross the CN Walker Yards north of the ECCA Lands. The Airport Protection Overlay imposes restrictions on options for the construction of an LRT bridge across Yellowhead Trail and the CN Yards. Depending on the preferred LRT route alignment, it may be necessary to tunnel a considerable distance underneath Yellowhead Trail and the CN Walker Yards north of the ECCA Lands. Redevelopment of the ECCA Lands would provide greater flexibility and possible cost savings in LRT alignment options from north of the Kingsway LRT Station, including how and where the LRT crosses the CN Walker Yards.

In addition to providing additional flexibility in the development of route options for the NW LRT line, the redevelopment of the ECCA Lands provides an opportunity to develop a centrally located LRT station as a focal point for the development of a master planned Transit Oriented community. Focusing additional residential development in close proximity to an LRT station would result in an increased potential for transit ridership along the NW LRT line and may expedite the construction of the NW LRT line. Overall, it is anticipated that redevelopment of the ECCA Lands would result in positive impacts on LRT in Edmonton.

5.3.2 Neighbourhood Transit Considerations

The Demonstration Plan is based on the assumption that an LRT station can be developed in a central location within the ECCA study area and that a Transit Oriented Community can be established. Based on the origin-destination information available from the City of Edmonton, trips to and from the ECCA study area are not confined to locations along existing or future LRT lines. Therefore, to fully realize a Transit Oriented community, a transit plan should be developed for the neighbourhood to complement the LRT system.

5.3.3 Multi-Use Trails & Pedestrian Connections

With the potential redevelopment of the ECCA Lands there is an opportunity to provide pedestrian and cycling facilities that are integrated with the potential future LRT station and the surrounding community in a way that encourages these alternate transportation modes. As well, expanding pedestrian and cycling facilities to the edge of the plan area allows for the integration of the ECCA Lands with the adjacent communities. Overall it is anticipated that the redevelopment of the ECCA Lands would provide significant opportunities to develop pedestrian and cycling networks that benefit not only the ECCA Lands, but also adjacent communities and businesses.

5.3.4 Roadway Network

A preliminary Transportation Impact Assessment (TIA) was completed for the study area, based on the Demonstration Plan for the Extended Area, to determine potential transportation impacts associated with the redevelopment of the ECCA Lands. A copy of the TIA is included for reference as **Appendix J**. The TIA reviewed the potential impacts on the adjacent arterial roadway network, the potential collector roadway requirements within the plan area, and the internal and external roadway network interface. As well, transit, pedestrian, and bicycle requirements were considered in the review of the transportation impacts.

5.3.4.1 Arterial Roadway Network

Assumptions used in the preparation of the TIA were based on the City's Transportation Master Plan assessment for the 2040 horizon and included: the construction of an interchange at Yellowhead Trail and 121 Street, the closure of the at-grade intersection at Yellowhead Trail and 107 Street, and the expansion of the LRT network in Edmonton. Overall, it is anticipated that the existing arterial roadway network, with these modifications, can accommodate the

projected increase in vehicle traffic anticipated to be associated with the development of the ECCA Lands and the extended area. Some intersection modifications, such as dual eastbound left turn bays, may be required at 118 Avenue and 121 Street to accommodate the change in traffic patterns resulting from the potential construction of an interchange at Yellowhead Trail and 121 Street, in combination with development traffic from the ECCA Lands. The remaining arterial/arterial intersections are anticipated to be able to accommodate AM peak hour commuter traffic as well as site generated traffic, at or below capacity.

No additional arterial roadway links are anticipated to be required to accommodate the vehicle traffic estimated to be generated by the plan area, assuming the community is developed as a master planned Transit Oriented community accommodating a population of approximately 24,300 people.

5.3.4.2 Internal Collector Roadway Network

The Demonstration Plan included a collector loop through the plan area with a series of collector links radiating out towards the arterial roadway network. Although collector access would not be provided to Yellowhead Trail, the Demonstration Plan illustrated that a network of collector and local roadways can be designed to adequately accommodate traffic generated by the plan area. Additional collector access to 121 Street may be considered in the preparation of future neighbourhood plans, to better accommodate potential vehicle traffic from the neighbourhood to Yellowhead Trail. Based on the anticipated distribution of traffic, Yellowhead Trail is anticipated to be a key roadway for residents, employees, and visitors to the ECCA Lands. Yellowhead Trail is part of the City's Inner Ring Loop and is part of a larger regional network, providing convenient access to a number of locations within the City and the adjacent Region that are not anticipated to be easily accessed by transit. As well, additional collector access to Kingsway may be considered as collector intersections along Princess Elizabeth Avenue may be impacted by at-grade LRT crossings.

Given the availability of access to the adjacent arterial roadways, a significant challenge for the development of the plan area is the identification of a collector roadway network that serves the neighbourhood, without creating opportunities for external traffic to shortcut through the neighbourhood.

The development of the internal collector roadway network should be consistent with the City of Edmonton's proposed Transit-Land Use Framework. A detailed review of transit supportive, mixed use development in the area would likely result in a different roadway network than what is shown in the Demonstration Plan. As well, while an internal collector roadway network can be developed to accommodate the potential traffic volumes, it is recommended that the design of any internal roadway facilities also review the requirements for pedestrians, cyclists, and transit. This does not necessarily mean increasing the right-of-way to accommodate all users simultaneously, but may result in a reduction in vehicle operations to provide improved facilities for other users.

5.3.5 Truck Routes

Yellowhead Trail is currently designated a dangerous goods truck route, while 121 Street, 119 Street, 109 Street, 106 Street/107 Street, Kingsway, and Princess Elizabeth Avenue are currently designated as 24 hour truck routes. No changes to the existing truck route network are proposed as a result of the redevelopment of the ECCA Lands; however, it is anticipated that 106 Street/107 Street would not be designated a truck route if the Yellowhead Trail/107 Street at-grade intersection is removed.

5.3.6 CN Rail

The Canadian National Railway Walker Yards are located north of the study area, north of Yellowhead Trail. In 1983, the City of Edmonton entered into a lease agreement with CN (effective date was retroactive to December 1, 1979), which allowed a portion of Yellowhead Trail to be constructed within CN lands (lease lands). As part of the lease agreement, CN can terminate the CN Lease on two years notice if changes to operations at the ECCA allow Yellowhead Trail to be relocated to the south, and CN needs the lease lands to expand the Walker Yard.

If the ECCA Lands are approved for redevelopment, and if CN requires the land for expansion, Yellowhead Trail will need to be relocated, reducing the overall area available for redevelopment within the ECCA Lands. Based on the Demonstration Plan, medium density land uses were anticipated to be developed adjacent to Yellowhead Trail in the vicinity of the CN Lease. Any future modifications to the Yellowhead Trail alignment may impact the development potential in the north sector of the ECCA Lands. It is anticipated that the cost to realign Yellowhead Trail west of 107 Street would be in the order of $10 Million.

5.3.7 Medevac (Helipad) Facility

The redevelopment of the ECCA Lands would result in the relocation of the existing Medevac facility to the Edmonton International Airport. Details regarding the relocation of the Medevac facility are summarized in the Medevac Transport Report prepared by Donna L. Towers Consulting Inc.

As shown in the Demonstration Plan, a Medevac (helipad) facility, including a helicopter landing pad and transfer facilities, would be relocated to a “Transportation Node” potentially located on 121 Street south of Yellowhead Trail. Access to the Royal Alexandra Hospital from the relocated Medevac (helipad) facility would be accomplished via 121 Street and Kingsway, which are both arterial roadways. Overall, it is anticipated that a suitable location can be identified for the Medevac (helipad) facility.

5.3.8 Noise Attenuation

Based on the City of Edmonton's Urban Traffic Noise Policy, noise attenuation will need to be provided by the developer if the projected noise level in outdoor amenity areas exceeds 60 dBA Leq_{24}. For residential developments three storeys or more, noise levels of 45 dBA Leq_{24} or less should be achieved after applying attenuation measures. As the ECCA study area is surrounded by arterial roadways, and if redeveloped, will potentially include an LRT line through the plan area, a noise study will need to be completed to determine the extent of potential mitigation measures.

In addition to noise associated with transportation facilities, CN Rail has identified that any residential development within the ECCA Lands should meet their standard Right of Way Guidelines as they pertain to noise.

5.4 ENGINEERING AND SERVICING IMPACTS

In reviewing the servicing options for the redevelopment of the ECCA Lands, the smaller watermains and sewers within the ECCA Lands were not considered to be utilized in the redevelopment servicing scheme. This infrastructure will likely not be used due to either the deteriorating condition of the infrastructure or it will not meet current design standards. Servicing of the redevelopment was considered much like a green field development.

The site drains from north to south with a gentle overall slope of approximately 0.5%. Redevelopment of the site should require minimal site grading. The addition of Stormwater Management Facilities throughout the site will dictate the grading requirements.

Epcor Water Services completed some simulations on their global water model and it indicated that the redevelopment of the ECCA Lands would not have a negative effect on the water pressure of the adjacent neighbourhoods. The watermains in the redeveloped lands would connect to three existing large mains located along the perimeter of the ECCA Lands (two 610 mm mains and one 450mm main).

The neighbourhoods surrounding the ECCA Lands, and including the airport, are serviced by large diameter combined sewer trunks. The sanitary flows from the redevelopment will be directed to the City's combined sewer trunks that are located on the east and south edge of the ECCA Lands. These are the only existing sewers in the vicinity that can accommodate sanitary flows. Considering the depth of the existing sewers (13m – 15 m deep), there should be no problem in accommodating a gravity sanitary system from the redeveloped lands. The sanitary peak flow rate for the redeveloped land is projected to be 0.47m3/s, which is substantially less than the current storm flow of 2.1 m3/s this being directed in the combined system. Currently approximately 89 ha of storm runoff is directed to the east combined sewer system. During winter months, runoff from an additional 87 ha is directed to the combined sewer system so that the runoff can be treated (mainly due to de-icing operations). With the proposed redevelopment, all storm flows will be accommodated by the storm system; therefore, providing some relief downstream in the combined sewer system.

All storm runoff from the redevelopment ECCA Lands will be directed to the existing 1350 mm storm sewer located in an easement at the south end of the ECCA Lands. The 1350mm storm sewer was constructed to handle a maximum flow rate of 3.89m3/s. The connection point to the existing 1350 mm storm sewer is 7.5 m deep with a pipe invert elevation of 657.3m. The depth of the connection point is adequate to support a gravity storm sewer system for the redeveloped lands. Storm runoff, both piped system and overland flow, will be directed to new Stormwater Management Facilities (SWMF) on site. These facilities will be interconnected and will drain into the existing 1350 mm sewer at the controlled rate of 3.89m3/s.

Roads will be constructed as needed to accommodate traffic generated by the redevelopment. Collector roadways will connect into the existing arterial roadway system.

Shallow utilities (Epcor power, Telus, Shaw cable) will provide service to the redeveloped lands. The utility companies will carry out any upgrades or expansion of existing facilities so that capacity is available when redevelopment of the ECCA Lands occurs.

The opinion of probable cost for the redevelopment of the ECCA Lands is $203,800,000. This cost includes construction of roads, underground utilities (water, sanitary, storm), stormwater management facilities, walkways, fencing, amenities, engineering and overhead, and a contingency of 25%. The costs were estimated based on 2009 rates. This cost also includes $12,000,000 for the construction of a new LRT station within the ECCA Lands but does not include the construction of the LRT tracks. Further to the above, contingent costs have been identified for potential demolition of existing buildings ($13,500,000) as well as for the acquisition of existing buildings ($25,100,000 to $67,500,000). The opinion of probably cost does not include modifications to Yellowhead Trail or the remediation of contaminated soil that may be required.

The servicing review for the Demonstration Plan and associated costs were based on traditional land servicing. It is anticipated that alternative and innovative servicing options such as district heating, renewable energy, geothermal energy, and LEED Neighbourhood initiatives (such as green roofs, recycled gray water, etc), could be considered at future stages of planning.

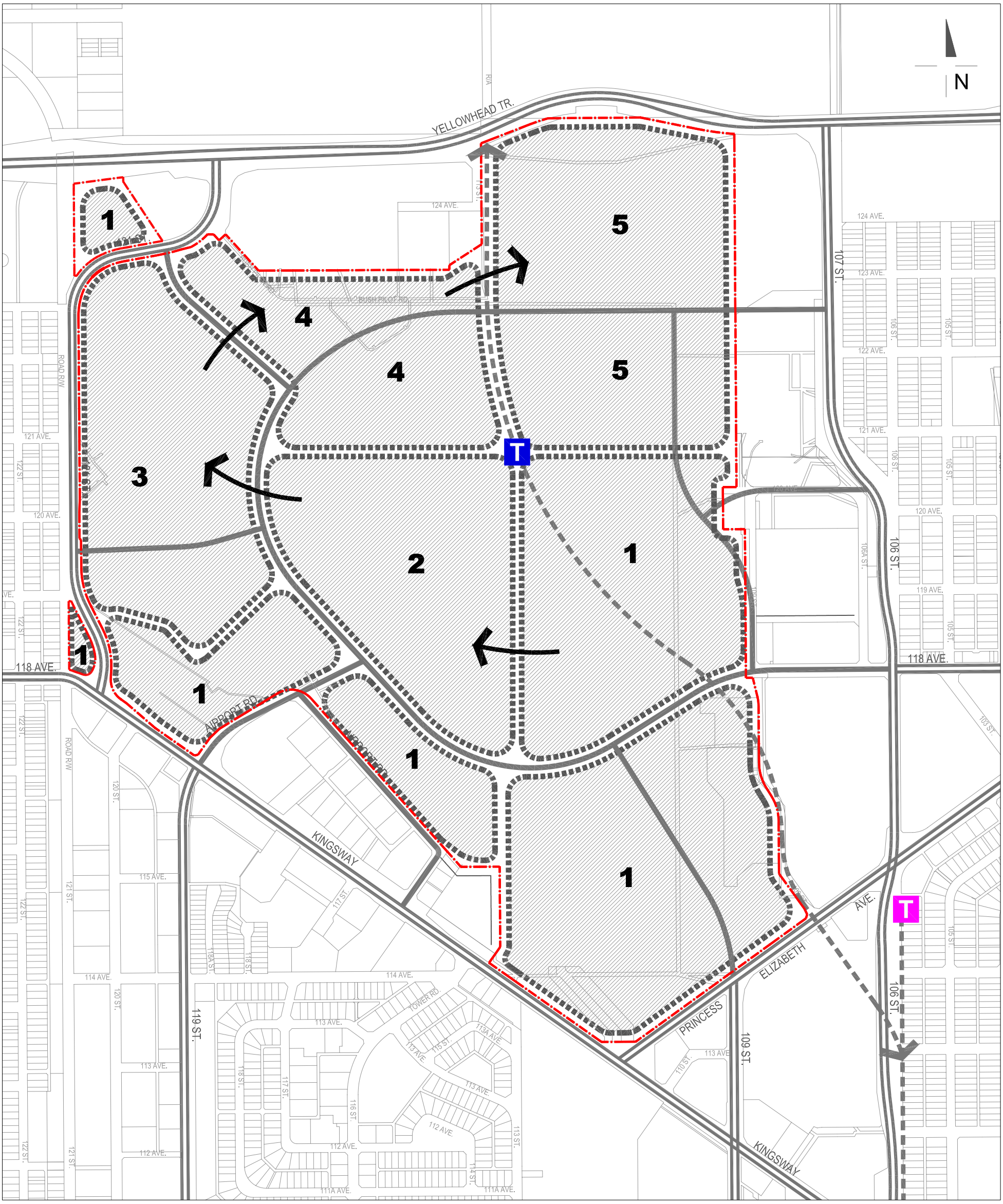
Additional information on the engineering servicing and costs are included in **Appendix K**.

5.5 DEVELOPMENT STAGING

A preliminary staging plan was developed as shown in **Exhibit 9- Conceptual Staging Plan**. From a land use and servicing perspective it would appear that initiating development in the south sector of the plan area working northwest represents a logical and economic extension of roads and services. This would allow for the development of a wide range of housing types to be developed in the vicinity of a future LRT station in the initial stages of the neighbourhood.

The staging plan also identifies the expansion of NAIT at early stages of development. Services are already in place for development in the general business and mixed use office/institutional/industrial areas as well as for the transportation node; therefore, development in these areas could potentially proceed as demand warrants, subject to plan approval.

Staging of development would be refined at more detailed levels of planning and should consider market demands at time the plan is prepared as well as updated servicing costs.



Legend

- ECCA Lands
- Staging Boundary
- 1 Stage Number
- Direction of Infrastructure Extension
- Conceptual LRT Alignment
- Arterial Roadway
- Collector Roadway
- T Potential LRT Station
- T Temporary LRT Station

Exhibit 9
Conceptual Staging Plan

Edmonton City Centre Airport Lands
Edmonton, Alberta

NOTE:
- Staging Plan is conceptual in nature and to be refined through the Area Redevelopment Plan process.

0 100 200 400m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009

SUMMARY 6

This section of the report summarizes the possibilities and challenges associated with the possible redevelopment of the ECCA Land.

6.1 STUDY SYNOPSIS

This report documents the results of a comprehensive and integrated impact assessment report prepared to assess the possibilities and challenges associated with the redevelopment of the ECCA Lands. Specifically, the impact assessment included a review of land use, market feasibility, transportation, and servicing impacts. Commentary is also provided in regards to current ECCA Lands operations.

6.2 POTENTIAL OPPORTUNITIES AND CHALLENGES

Based on the review completed, the redevelopment of the ECCA Lands into a new residential and employment based neighbourhood represents a significant opportunity for the City to achieve established long term visions regarding sustainable development and a more compact urban form. The redevelopment of the ECCA Lands could allow for the development of a new urban community with transit as its centrepiece.

A number of opportunities were identified through the completion of the ECCA Lands Impact Assessment and include:

- The redevelopment of the ECCA Lands may act as a catalyst for revitalization and rejuvenation of adjacent residential neighbourhoods.

- While the redevelopment of the ECCA Lands would compete with a number of other redevelopment projects within the City of Edmonton, it is anticipated that the residential land uses could be absorbed within a 23 to 28 year time frame (beginning in 2016).

- The potential redevelopment would remove limitations on building heights in the downtown core and in other areas surrounding the ECCA Lands allowing for further land use intensification to be considered.

- The Demonstration Plan identified the potential for 378,800 SF of retail and service commercial land uses to be developed within the plan area. This represents less than 27% of the total demand expected to be generated by the ECCA Lands, based on the Demonstration Plan, resulting in significant net additional support for local businesses from the ECCA population.

- It is anticipated that up to 100,000 SF of office land uses could be supported within 200 metres of a future LRT station, further supporting a Transit Oriented Development node.

- The development of a mixed use office/institutional/industrial sector adjacent to NAIT is anticipated to experience more business interest than comparable sites in a different location.

- The net value to the City of Edmonton assuming straight-line revenues and costs for the Demonstration Plan is approximately $90,000,000, which contemplates revenues and costs without a time factor.

- The redevelopment of the ECCA Lands is anticipated to provide greater flexibility and possible cost savings in LRT alignment options for the extension of the LRT north from the Kingsway Station.

- The potential development of an LRT station centrally located within the ECCA Lands as the focal point of a Transit Oriented Development would result in an increased potential for transit ridership along the NW LRT line, and may expedite the construction of the line.

- The redevelopment of the ECCA Lands is anticipated to provide greater flexibility in the options for upgrading of Yellowhead Trail to a free-flow facility.

- The redevelopment of the ECCA Lands would provide significant opportunities to develop pedestrian and cycling networks that benefit not only the ECCA Lands, but also adjacent communities and businesses.

The following development challenges have been identified in the completion of the ECCA Lands Impact Assessment.

- The redevelopment of the ECCA Lands may result in a requirement to realign Yellowhead Trail south of the CN lands to fulfil lease agreements with CN.

- To truly achieve a Transit Oriented Development, the introduction of LRT into the plan area at an early stage of the redevelopment is required.

- A transit plan should be developed for the neighbourhood to complement the LRT system.

- The development of an internal roadway network that provides appropriate access for pedestrians, cyclists, transit, and passenger vehicles without creating shortcuts for external traffic represents a key transportation related challenge.

- The development of interchange options along Yellowhead Trail should consider the downstream impacts on the adjacent arterial roadway in combination with the potential impacts associated with traffic generated by the redeveloped ECCA Lands.

A review of potential engineering and servicing impacts identified there are no servicing constraints that would impact the proposed redevelopment of the ECCA Lands. As well, it is anticipated that a suitable location for the Medevac (helipad) facility can be identified.

APPENDIX A
POLICY CONTEXT TECHNICAL REPORT

Policy Context Technical Report

The project team reviewed relevant statutory and non-statutory policy documents to identify the policies and strategies that provide support for the proposed redevelopment of the Edmonton City Centre Airport (ECCA) to a mixed use transit- oriented development. It should be noted that none of the documents reviewed below made specific mention of the ECCA. The City of Edmonton's desire to have more compact mixed use development which is accessible to public transit is illustrated by the Alternate Scenario population projections put forth in the *Growing Forward: The Capital Region Growth Plan*. The Plan projects that the population of Edmonton will grow "from approximately 767,000 in 2008 to 1.174 million in 2043. This growth of almost 408,000 in Edmonton represents an average annual growth rate of 1.3 percent over the projection period."

In addition to the documents listed below the *West Ingle Area Redevelopment Plan* (ARP) Bylaw 15140 and the *Yellowhead Corridor Area Structure Plan* (ASP), Bylaw 7044 were reviewed as well, however no applicable polices were identified.

REGIONAL DOCUMENT	RELEVANT SUPPORTING POLICIES AND STRATEGIES

Growing Forward: The Capital Region Growth Plan, March 2009	*Growing Forward: The Capital Region Growth Plan* was developed to address the long-term prosperity and sustainability of the Capital Region. It does so by addressing community priorities which inform detailed approaches to Land Use, Transit, GIS, Housing, and Implementation. Within this plan the specific area of focus that is relevant to this policy context review is Section 7. Land Use Plan which focuses on the need to; manage growth, minimize development footprint, strengthen communities, increase transportation choice, and ensure economic development. The following are relevant policies and principles:
	• **Policy 2: Minimize Regional Footprint:**
	  ○ Principles
	  ➢ "b. Concentrate new growth within priority growth areas"
	  ➢ "d. Support expansion of medium and higher density residential housing forms"
	• **Policy 3: Strengthen Communities**
	  ○ Principles
	  ➢ "a. Create inclusive communities"
	  ➢ "b. Support healthy communities"
	  ➢ "c. Support public transit"
	• **Policy 4: Increase Transportation Choice**
	  ○ Principles
	  ➢ "a. Integrate transportation systems with land use"
	  ➢ "b. Support the expansion of transit services in various forms"
	• **Policy 5: Ensure Efficient Provision of services**
	  ○ Principles
	  ➢ "b. Maximize utilization of existing infrastructure"

	• **Policy 6: Support Regional Economic Development** o Principles ➢ "a. Ensure a supply of land to sustain a variety of economic development activities" ➢ "b. attract and retain individuals and families with a diverse range of skills to the Capital Region to satisfy the Region's economic development goals."

REGIONAL DOCUMENT	RELEVANT SUPPORTING POLICIES AND STRATEGIES
Capital Region Land Use Plan, Appendix 2, March 2009	The purpose of the *Capital Region Land Use Plan* is to outline a strategy to manage growth in an effort to minimize the Region's footprint, based upon transit-oriented development and the densitification of existing developed areas. The focus of the plan is to: promote an integrated and strategic approach to planning for future growth in the Region; to identify the overall development pattern and key infrastructure investments that would best complement decisions to sustain economic growth; and ensure strong communities and a healthy environment. The following are relevant policies and principles: • **Policy 2: Minimize Regional Footprint:** o Principles ➢ **B. Concentrate New Growth Within Priority Growth Areas**:" concentrate growth within priority growth areas in order to maximize the use of infrastructure and public transit by incorporating mixed use and higher density development." ▪ Policies ❖ " (ii) Priority shall be given to accommodating growth in major employment areas and in locations that meet at least three of the following four criteria: • a. Existing and proposed multi-mode movement corridors, including transit nodes; • b. Adjacent to existing and proposed major employment areas; • c. Redevelopment and intensification opportunities within existing urban areas; and • d. Locations that utilize existing infrastructure and servicing capacity or logically and efficiently extend that infrastructure." ❖ "(v) Priority growth areas shall incorporate intensive forms of development that significantly exceed existing development patterns." ❖ "(vi) Transit corridors and nodes within the priority growth areas shall be identified. Growth within nodes and along theses corridors shall be intensified. Encourage and support multi-use and multi-storey development at the nodes within the priority growth areas." ❖ "(vii) Ensure that transit corridors and nodes are identified and developed with a range of mixed uses and densities. These uses shall be integrated within existing and potential employment centres."

	➢ **D. Support Medium and Higher Density Residential Housing Forms:** "Medium and higher density housing forms have several benefits compared to low density housing forms. These include a much smaller development footprint and lower cost of provision of infrastructure (utilities, roads, etc.) and services (police, fire, ambulance, etc.) as well as contributing to more affordable housing. Medium and higher density housing also allows concentration at transit nodes and in corridors, thereby supporting public transit and encouraging less reliance on automobiles." ▪ Policies ❖ "(i) New residential developments shall provide greater proportion of higher density residential units." ❖ "(ii) Support innovative housing design and/or built forms within new and existing residential neighbourhoods." ❖ "(iv) Transit accessibility must be included in the design of all new developments." • **Policy 3: Strengthen Communities:** o Principles ➢ **C. Support Public Transit:** "…new communities within the Region shall be designed to support public transit by providing higher intensity uses in key locations and increasing accessibility o transit facilities." ▪ Policies ❖ "(i) Provide a mix of higher intensity land uses along transit corridors, at nodes, and employment centres." ❖ "(iii) New developments shall be designed for connectivity and accessibility to transit facilities." • **Policy4: Increase Transportation Choice:** o Principles ➢ **A. Integrate Transportation Systems with Land Us**e ▪ Policies ❖ "(ii) Ensure the integration of public transportation and land use development." ❖ "(iii) Design transportation infrastructure to support multiple modes of transport." ❖ "(iv) Support development of inclusive communities to reduce the need to travel"

CITY OF EDMONTON DOCUMENT	RELEVANT SUPPORTING POLICIES AND STRATEGIES
Council's Vision and The City of Edmonton Strategic Plan 2009 - 2018 "The Way Ahead"	On July 9, 2008, City Council unanimously approved the City's Strategic Vision for a successful Edmonton in 2040. Council's Vision provides a creative description of Edmonton's future. Elements from the Vision that are applicable to the ECCA Lands include the skyline, towers, urban villages, extensive LRT service, a city of design, linking the continent with the north and Asia and a centre for advanced technology, health care and green energy. To support implementation of the Vision, Council also unanimously approved a ten year strategic plan, *"The Way Ahead"* that included the following five relevant strategic goals to measure progress. • **Improve Edmonton's Liveability:** This goal focuses attention on strategic areas of welcoming, safety perception, cleanliness, and aspects important to the notion of urban village creation. • **Transform Edmonton's Urban Form:** This goal has statements for higher residential densities, more mixed uses, more transit oriented development (TOD), and more people living within proximity to transit nodes and corridors. Specific progress measures are identified for higher residential density and increasing the number of TOD projects. • **Shift Edmonton's Transportation Modes:** Within this goal is the desire to have more people use transit as part of a more integrated transportation network. • **Ensure Edmonton's Financial Sustainability:** This goal includes diversifying revenue sources and increasing revenue from non-residential sources. • **Diversify Edmonton's Economy:** This goal involves leveraging Edmonton's physical locale, centres of excellence and industrial/entrepreneurial advantages with local, northern and Asian opportunities. Priority goals cover logistics and servicing for the needs of the north and Asia and investment in the transportation network to support Port Alberta and Edmonton's northeast development. *Note: No specific reference is made in this plan to the Edmonton City Centre Airport.*
The Way We Grow: Municipal Development Plan, Draft October 15, 2008	*The Way We Grow* will be the City of Edmonton's new Municipal Development Plan (MDP) upon adoption by City Council. The purpose of this plan is to provide strategic policy direction for land use, urban form, growth and development for the next 10 years. The MDP focuses on the need to manage growth emphasizing the need to for: a more compact and urban form; the development of an active transportation system including transit-oriented development nodes; medium and higher density development related to transit; and a wide range of housing types. This strategic direction is based upon a 30 year land development concept map. The following are

	relevant policies and principles: • **Integrated Transit and Land Use:** "Integrate higher density development with premium transit locations."(Policy 2.1.1.1), "Encourage a greater percentage of housing unit growth to locate in the Downtown and mature neighbourhoods…where infrastructure capacity supports redevelopment." (Policy 2.1.1.2), "Promote medium and higher density residential and employment growth around premium transit locations…to support and ensure the viability of transit service." (Policy 2.3.1.1), and "Encourage commercial, entertainment, institutional and employment uses to locate at premium transit locations." (Policy2.3.1.3), • **Established Neighbourhoods:** "Established neighbourhoods gain a greater portion of new growth, accommodating changes and growth with certainty." (Objective 2.5.1), "Support redevelopment and residential infill that contribute to the livability and adaptability of established neighbourhoods (see Map 1: Land Development Concept) and that are sensitive to existing development." (Policy2.5.1.1); • **Housing Choices:** "Provide a broad and varied housing choice, incorporating housing for various demographic and income groups in all neighbourhoods" (Policy 3.4.1.1), "Provide a greater range of housing choice in association with the location of education and health uses." (Policy 3.4.1.2), and "Develop higher density housing and a mix of uses in proximity to premium transit locations (see Map 5: Premium Transit)."(Policy 3.4.1.4); • **Urban Design: "**Ensure that as development occurs around premium transit locations, high quality public spaces, streets and buildings emerge to support compact living and encourage transit ridership." (Objective 4.3.1), "Support medium and higher density, mixed land use and the provision of a range of community services, facilities and amenities." Policy (4.3.1.1 Bullet 1), and "Minimize adverse effects of redevelopment on surrounding neighbourhoods by establishing firm boundaries for the development area, transitioning the scale and intensity of activity within the development to the surrounding neighbourhoods and managing traffic and parking impacts." (Policy 4.3.1.1 Bullet 3); • **Office, Retail and Service Space:** "Encourage office development around LRT stations and transit centres." (Policy 5.1.1.4), "Include retail development as a key component of planned mixed use centres that focus on transit centres, especially LRT stations." (Policy 5.2.1.1), and "Plan for new commercial sites within area structure plans around transit centres to increase accessibility by a variety of transportation modes and improve connections to surrounding neighbourhoods." (Policy 5.2.1.2); • **Regional Co-operation: "**An integrated transit and land use approach will concentrate a greater share of Edmonton's growth around LRT stations and other major transit centres. Edmonton will encourage regional partnerships which support this approach within the context of the Capital Region Growth Plan." (Policy 7.1.2.3);

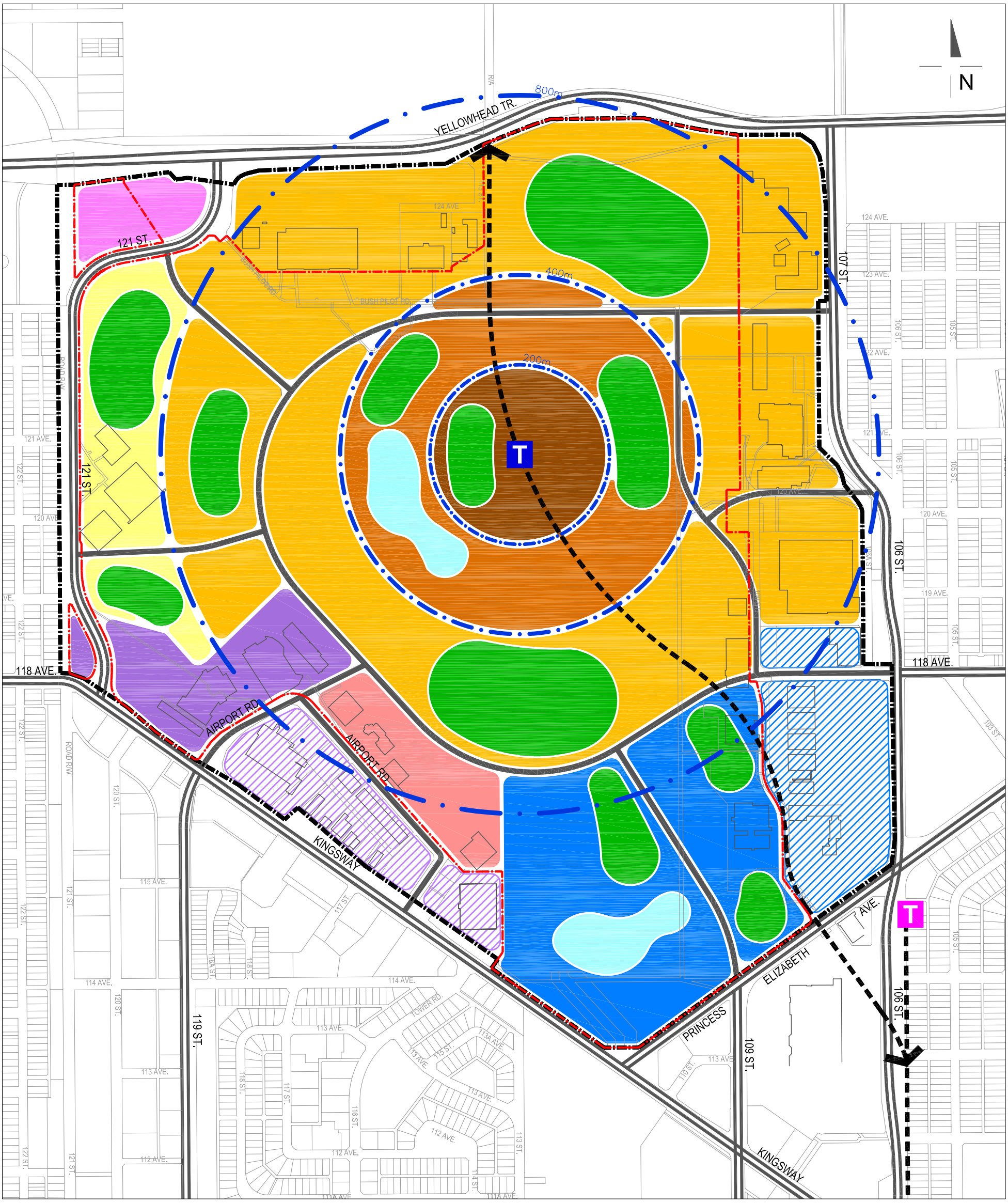
	• **Contaminated Sites:** "Promote and facilitate brownfield redevelopment to add vitality to established communities." (Policy 8.5.1.3). *Note: No specific reference is made in this plan to the Edmonton City Centre Airport.*

CITY OF EDMONTON DOCUMENT	RELEVANT SUPPORTING POLICIES AND STRATEGIES
The Way We Move: Transportation Master Plan, Draft October 2008	The main purpose of *The Way We Move: Transportation Master Plan* (TMP) is to establish a framework for how the City of Edmonton will address its future transportation needs to the year 2040. An important thrust of the TMP is to integrate higher density development and premium transit locations. The TMP establishes policies to give direction for the management of the transportation system, and to provide a basis for making strategic planning and budgetary decisions by the City of Edmonton, on behalf of its citizens. • **Strategic Goals:** o **Transportation and Land Use Integration: "**The transportation system and land uses/urban design complement and support each other."(pg. 5) and **"**Transit Oriented Development will optimize use of transit infrastructure, and transportation infrastructure will strategically support best land use."(pg.5) o **Sustainability:** "Sustainable, livable communities minimize transportation's environmental impacts, reduce the need for new infrastructure, and increase quality of life." (pg. 7) • **Transportation and Land Use Integration:** "An integrated transit and land use framework focuses higher density residential and employment growth around transit nodes (transit centres and LRT stations) and along transit corridors where it can be best supported by a variety of transportation services and other public facilities. This approach promotes "Transit-Oriented Development". Transit Oriented Development (TOD) refers to intensified development around premium transit nodes with progressively lower density development spreading outwards from the centre. Premium transit refers to LRT nodes, transit centres or high frequency transit corridors. TOD creates attractive, livable, compact neighbourhoods with housing, jobs, shopping, community services and recreational opportunities within convenient walking distance of a node. The intent is to create well designed communities that facilitate walking, cycling, transit and car-pooling, rather than reliance on the automobiles as the only viable mode of travel." (pg. 24), applicable LRT Station formats include "**Town Centre/Mixed Use Stations** – These station areas can be mixed-use communities that will develop in character over time." and "**Employment Centre Stations** – These station areas can be employment-focused with a mixture of land uses." (pg. 25) *Note: No specific reference is made in this plan to the Edmonton City Centre Airport.*

- THIS PAGE INTENTIONALLY LEFT BLANK -

APPENDIX B

DEMONSTRATION PLAN AND STATISTICS FOR EXTENDED AREA



Legend

- Extended Plan Area
- ECCA Lands
- High Density Residential Mixed Use Centre
- Medium to High Density Residential Mixed Use Centre
- Medium Density Residential Mixed Use Centre
- Low Density Residential
- Mixed Use Office / Institutional / Industrial
- Parks / Municipal Reserve / Schools
- Stormwater Management Facility
- General Business
- Transportation Node
- Institutional (NAIT Expansion)
- Existing Commercial / General Business (to remain)
- Existing Institutional (NAIT - to remain)
- Conceptual LRT Alignment
- Arterial Roadway
- Collector Roadway
- Potential LRT Station
- Temporary LRT Station
- Walking Distance from LRT (200 m)
- Walking Distance from LRT (400 m)
- Walking Distance from LRT (800 m)

NOTE:
- LRT alignment is conceptual in nature and is subject to further assessment.
- Yellowhead Trail alignment is presently under review.

Exhibit B-1
Demonstration Plan For The Extended Area

Edmonton City Centre Airport Lands
Edmonton, Alberta

0 100 200 400m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009

TABLE B-1 - LAND USE AND POPULATION STATISTICS
DEMONSTRATION PLAN FOR THE EXTENDED AREA

	Area (ha)	% of GA
GROSS PLAN AREA	**290.9**	**100.0%**
Arterial Road Right-of-Way	6.9	2.4%
Existing NAIT	15.0	5.2%
Existing Commercial / General Business	10.6	3.6%
		% of GDA
GROSS DEVELOPABLE AREA	**258.4**	**100.0%**
Commercial		
Neighbourhood Commercial		
Within 200m	0.8	0.3%
Within 400m	2.3	0.9%
Within 800m	2.5	1.0%
General Business	8.8	3.4%
Parkland, Recreation, School (Municipal Reserve)		
Parks / Municipal Reserve / Schools	38.7	15.0%
Institutional		
NAIT Expansion	23.9	9.2%
Transportation		
Collector Roadway	16.1	6.2%
Local Circulation	25.8	10.0%
Transit Centre		
LRT Station / Right-of-Way	1.6	0.6%
Infrastructure / Servicing		
Stormwater Management Facilities	18.1	7.0%
Special Use		
Transportation Node (Including Heliport)	3.0	1.2%
Mixed Use Office/Institutional/Industrial	7.1	2.7%
TOTAL Non-Residential Area	**148.8**	**57.6%**
Net Residential Area (NRA)	**109.6**	**42.4%**

RESIDENTIAL LAND USE AREA, UNIT & POPULATION COUNT

	Area (ha)	Units / ha	Units	People / Unit	Population	% of NRA
Ground Oriented						
Ground Oriented Multi-family Dwellings	10.9	30	327	3.0	981	9.9%
Non-Ground Oriented						
High Density Residential Mixed Use Centre	7.4	300	2205	1.5	3308	6.8%
Medium to High Density Residential Mixed Use Centre	21.1	200	4218	2.0	8437	19.2%
Medium Density Residential Mixed Use Centre	70.2	100	7024	2.0	14047	64.1%
NAIT Student Residences			2000		2000	
Total Residential	109.6		15774	0.0	28773	100.0%

* This area includes two 4,645 m2 (50,000 square foot) office buildings

June 3, 2009

- THIS PAGE INTENTIONALLY LEFT BLANK -

APPENDIX C

REVIEW OF SELECTED COMPETING REDEVELOPMENT AND INTENSIFICATION EFFORTS IN OTHER PARTS OF EDMONTON

Technical Report

Review of Selected Competing Redevelopment and Intensification Efforts in Other Parts of Edmonton

As part of the
Edmonton City Centre Airport (ECCA) Land Impact Assessment

Prepared for

THE CITY OF Edmonton

by

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

June 4, 2009

Technical Report

Review of Selected Competing Redevelopment and Intensification Efforts in Other Parts of Edmonton

Prepared for

THE CITY OF Edmonton

by

ARMIN A. PREIKSAITIS
& ASSOCIATES LTD.

#605 Empire Building
10080 Jasper Avenue
Edmonton, Alberta
T5J 1V9
Phone (780) 423-6824
Fax (780) 423-6850
Email: armin@arminap.ca
www.arminap.ca

June 4, 2009

TABLE OF CONTENTS

1.0 OVERVIEW

1.1 PURPOSE

The purpose of this analysis is to identify potential implications for competition with redevelopment and intensification efforts in locations throughout Edmonton.

The areas included in this report do not represent a comprehensive indexing of redevelopment activity in Edmonton but rather known large scale infill projects and redevelopment initiatives that are approved and underway in the City that could impact market demand on the Edmonton City Centre Airport (ECCA) Lands. Selected potential areas of competition include the Alberta Avenue Revitalization Strategy, Downtown, The Quarters Downtown, Oliver Area Redevelopment Plan (ARP) Area, Station Pointe, Downtown North Edge, West Rossdale, Century Park, Strathearn Heights, Bellwether Park, Greisbach and Stadium Station TOD Plan Area.

This analysis forms part of the ECCA Lands Impact Assessment. The ECCA Lands Impact Assessment will assess impacts including land use and transportation impacts, downtown impacts, servicing impacts and feasibility impacts, as outlined in the City of Edmonton's Terms of Reference, to allow the City of Edmonton to make an informed decision on how to proceed with the possible redevelopment of the ECCA lands.

1.2 BACKGROUND

On October 8, 2008, the City of Edmonton Executive Committee of Council directed Administration to undertake an assessment of the potential impacts related to the possible closure of the ECCA Lands as a general aviation airport.

The work to date on the ECCA lands by Administration has provided a high level identification of the potential impacts of the possible closure and redevelopment of the ECCA lands. However, there must be a more comprehensive and detailed analysis of the key implications within the City's authority. The overall goal of the impact assessment activities is to provide sufficient information to the Executive Committee and Council to allow them to make a decision on the possible closure and subsequent redevelopment of the Edmonton City Centre Airport.

1.3 HOW THE STUDY WAS PREPARED

Information regarding the areas targeted for redevelopment, such as Downtown, West Rossdale or The Quarters was gathered from various approved plans and information obtained from the Planning and Development Department staff. Information for major infill projects such as Century Park, Bellwether Park and Strathearn Heights was taken primarily from the land use zoning. Information regarding the specific developments was gathered from a variety of sources including zoning, the City of Edmonton Maps website, the Planning and Development department at the City of Edmonton and project websites. Specific developments included in this report were limited to developments greater than 50 units in size. Complete information regarding commercial space was not available, and as such, information regarding commercial space is incomplete and is provided for information only.

1.4 REPORT ORGANIZATION

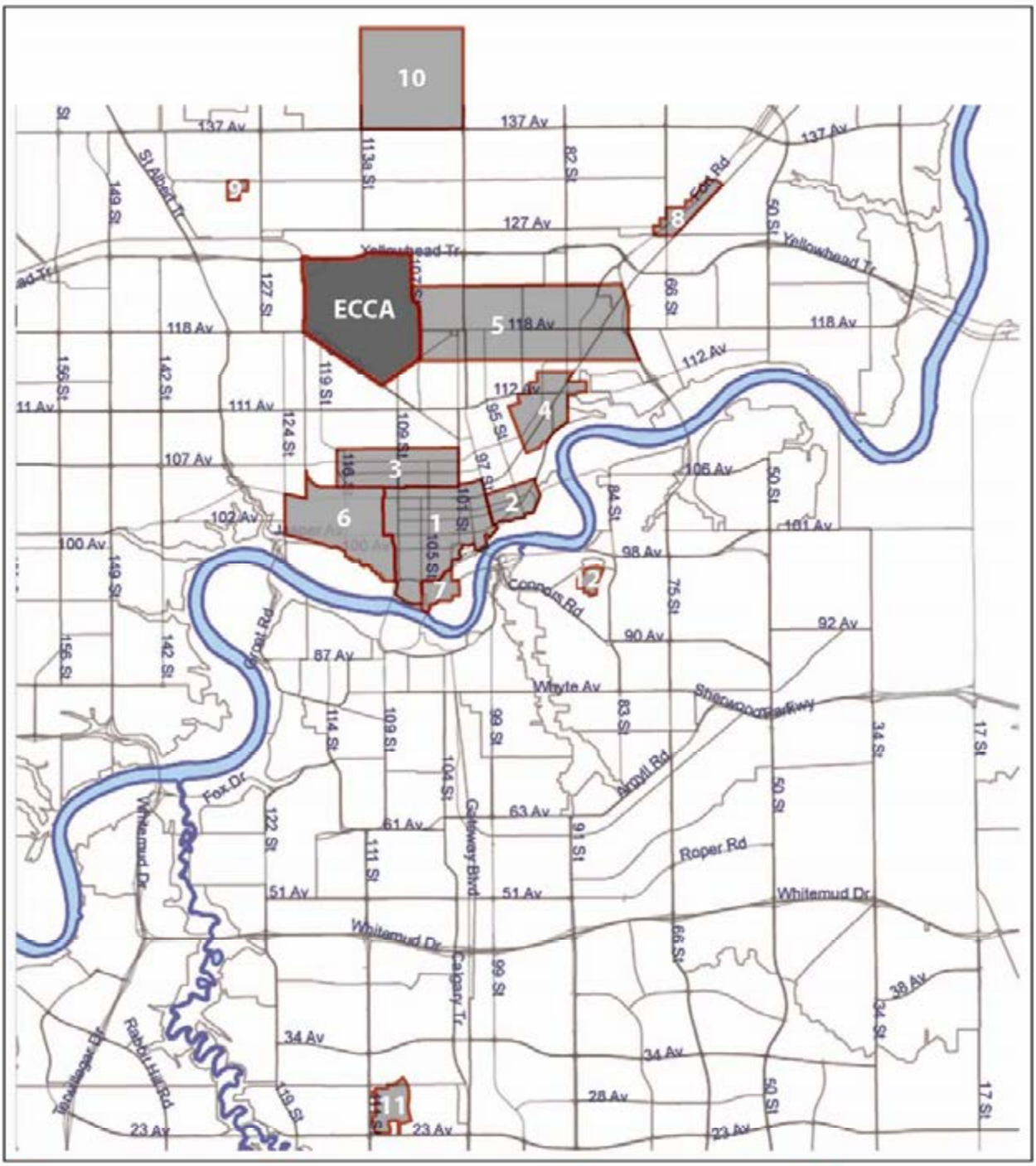
This report is organized into sections according to each potential area of competition. Following a general description of each area, recent or proposed redevelopments underway are outlined in order to illustrate the quantity of redevelopment currently taking place in these specific areas. Key maps at the beginning of each section show the location of each development described. The conclusion of this report reviews both the quantity of redevelopment currently underway in the city and the quantity that is planned for through redevelopment plans and initiatives. This provides both a short term and longer term picture of future redevelopment in Edmonton.

2.0 REDEVELOPMENT AND INTESIFICATION EFFORTS

The City of Edmonton's new draft Municipal Development Plan, "*The Way We Grow*," indicates that "*Edmonton's current population of 750,000 is expected to grow by 400,000 people by 2040*." This projected growth supports many intensification efforts underway in the City, however, the capacity is not unlimited. In this section of the report, several major revitalization and intensification initiatives are reviewed to understand how much of the projected growth for the City is currently being accommodated in areas throughout Edmonton.

Figure 1: Major Redevelopment / Intensification Initiatives in Edmonton on the next page identifies major revitalization initiatives in Edmonton in relation to the ECCA lands. The twelve (12) areas identified in the map below are described individually in the following sections.

Figure 1: Major Redevelopment / Intensification Initiatives in Edmonton



1 DOWNTOWN

The City of Edmonton is developing a new Downtown Plan. The Plan is expected to go in front of Council in the spring of 2009. The new Plan reflects a 20 year vision for managing the long term transformation of Downtown into a compact, more sustainable, liveable, well-designed, thriving and accessible community.

The new vision for Downtown is as follows:

"Downtown Edmonton has undergone a change to a sophisticated urban lifestyle. Creativity and cultural expression thrive in our streets and venues, forming an inclusive community, home to a variety of lifestyles. Participation in the governance of our city and province informs decision-makers and helps guide a powerful economy. Walk from home to work, to dinner or the symphony; take high speed transit to major sports and entertainment destinations or the university. Run, cycle or ski in our river valley. Touch the river's edge. Celebrate life at a variety of year-round festivals. Relax in our parks, cafes and plazas. Experience first-class cuisine, and shop for vintage or chic. Stay connected to the world through an array of media. Live and work in a centre of life-long learning, iconic architecture, design innovation and sustainable choices. ***Do it all Downtown."***

The following chart shows information regarding some overall land use statistics for the Downtown. On the following pages, specific developments are summarized. Total number of units and commercial space of these redevelopments in the Downtown can be found in the conclusion of this report.

Downtown Land Use Statistics

Site Size	137.4 ha (339.5 ac)
Potential Residential Units	Not Available
Population Forecast	Not Available
Potential Commercial Space	Not Available

Locations of Development Activity in the Downtown

A. Abbey Lane

Address	10410 97 Avenue
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Rezoning Approved March 23, 2009
Site Size	0.28 ha (0.69 ac)
Density	622 units/ha
Height	26 storeys
Floor Area Ratio (FAR)	8.0 max.
Number of Residential Units	173 units
Amount of Commercial Space	190 m^2 (2045 sq ft)

B. Alta Vista At Railtown

Address	10319 111 Street
Zoning	(DC2.472) Site Specific Development Control Provision
Current Status	Alta Vista South is under construction Alta Vista North is complete
Site Size	1.58 ha (3.9 ac)
Density	130 units/ha
Height	12 storeys
Floor Area Ratio (FAR)	2.0 max
Number of Residential Units	206 units
Amount of Commercial Space	None

C. Azure Lofts

Address	10921 Jasper Avenue
Zoning	(MSC) Main Street Commercial Zone and (CO) Commercial Office Zone
Current Status	Development Permit Stage
Site Size	0.95 ha (2.35 ac)
Density	112 units/ha
Height	14 storeys
Floor Area Ratio (FAR)	10.0 max.
Number of Residential Units	82 units
Amount of Commercial Space	716 m^2 (7707 sq ft)

D. Cascadia

Address	10008 109 Street
Zoning	(CMU) Commercial Mixed Use Zone
Current Status	Development Permit Application in Process
Site Size	0.50 ha (1.24 ac)
Density	480 units/ha
Height	14 storeys
Floor Area Ratio (FAR)	5.8 max.
Number of Residential Units	240 units
Amount of Commercial Space	5200 m^2 (55,972 sq ft)

E. Founders Ridge

Address	10430 98 Avenue
Zoning	(DC2.728) Site Specific Development Control Provision
Current Status	Rezoning Approved September 10, 2008
Site Size	0.21 ha (0.52 ac)
Density	757 units/ha
Height	26 storeys
Floor Area Ratio (FAR)	10.4 max
Number of Residential Units	142 units
Amount of Commercial Space	None

F. The Icon 2

Address	10146 104 Street
Zoning	(HA) Heritage Area
Current Status	Under Construction
Site Size	0.17 ha (0.42 ac)
Density	865 units/ha
Height	35 storeys
Floor Area Ratio (FAR)	10.0 max.
Number of Residential Units	147 units
Amount of Commercial Space	96 m^2 (1033 sq ft)

G. The Icon 1

Address	10130 104 Street
Zoning	(HA) Heritage Area
Current Status	Construction Near Completion
Site Size	0.18 ha (0.45 ac)
Density	700 units/ha
Height	30 storeys
Floor Area Ratio (FAR)	10.0 max.
Number of Residential Units	126 units
Amount of Commercial Space	96 m^2 (1033 sq ft)

H. Opus

Address	10404 98 Avenue
Zoning	(DC2.724) Site Specific Development Control Provision
Current Status	Rezoning Approved July 21, 2008
Site Size	0.14 ha (0.34 ac)
Density	820 units/ha
Height	26 storeys
Floor Area Ratio (FAR)	8.7 max.
Number of Residential Units	114 units
Amount of Commercial Space	None

I. Parkwood Tower

Address	9724 105 Street
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Rezoning Application in Circulation
Site Size	0.28 ha (0.70 ac)
Density	500 units/ha
Height	26 storeys
Floor Area Ratio (FAR)	5.73 max.
Number of Residential Units	169 units
Amount of Commercial Space	None

J. Quest

Address	10382 105 Street
Zoning	(EZ) Enterprise Zone
Current Status	Under Construction
Site Size	0.21 ha (0.52 ac)
Density	485 units/ha
Height	22 storeys
Floor Area Ratio (FAR)	6.0 max.
Number of Residential Units	102 units
Amount of Commercial Space	502 m^2 (5403 sq ft)

K. Raintree

Address	9712 106 Street
Zoning	(RMU) Residential Mixed Use Zone
Current Status	Public Hearing on Rezoning Application July 6, 2009
Site Size	0.243 ha (0.6 ac)
Density	659 units/ha
Height	27 storeys
Floor Area Ratio (FAR)	8.5 max.
Number of Residential Units	160 units
Amount of Commercial Space	160 m^2 (1722 sq ft)

L. Urbia

Address	10416 102 Avenue
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Rezoning Application in Circulation
Site Size	0.35 ha (0.86 ac)
Density	1,200 units/ha
Height	North Tower: 50 storeys South Tower: 40 storeys
Floor Area Ratio (FAR)	14.0 max.
Number of Residential Units	420 units
Amount of Commercial Space	To be determined

M. Mayfair Village North

Address	10815 Jasper Avenue
Zoning	(MSC) Main Street Commercial Zone
Current Status	Geotechnical studies being prepared for site
Site Size	0.43ha (1.06 ac)
Density	1095 units/ha
Height	16 storeys
Floor Area Ratio (FAR)	9.41 max.
Number of Residential Units	471 units
Amount of Commercial Space	2348 m^2 (25,277 sq ft)

N. Mayfair Village South

Address	10037 109 Street
Zoning	(CMU) Commercial Mixed Use Zone
Current Status	Geotechnical studies being prepared for site
Site Size	0.20 ha (0.49 ac)
Density	1185 units/ha
Height	16 storeys
Floor Area Ratio (FAR)	9.17 max.
Number of Residential Units	237 units
Amount of Commercial Space	662 m^2 (7,127 sq ft)

2 THE QUARTERS

The Quarters is located immediately east of the Downtown and southeast of the ECCA lands. As shown on the map below, the area is bounded by 103A Avenue to the north, 92 Street to the east, 97 Street to the west and Jasper Avenue/101 Avenue to the south and encompasses 18 blocks or approximately 43 hectares (106 acres) of land.

Revitalization of The Quarters began with a community visioning process in 2006. It resulted in a Vision, Guiding Principles, and Physical Framework for the area as well as recommendations for immediate actions to kick-start the revitalization. These items were summarized in *"Downtown East Project: Creating A Vision, August 24, 2006*," which was approved by City Council on September 26, 2006. New statutory and non-statutory plans, documents and zoning for the area including the Area Redevelopment Plan, DC1 zoning, and an Urban Design Plan were adopted by Council on April 15, 2009. It is anticipated that once The Quarters is fully developed and built out it will accommodate a population of up to approximately 20,000 people. The current residential population for this area is approximately 2,400 people. The recent redevelopment efforts are outlined in the following section.

The Quarters Land Use Statistics

Site Size	14 ha (100 ac)
Potential Residential Units	11,373 units
Population Forecast	Up to 20,000 residents
Potential Commercial Space	63,948 m^2 (688,331 sq ft)

Location of Development Activity in The Quarters

A. Valleyview Properties

Address	9569 Jasper Avenue
Zoning	(DC2.719) Site Specific Development Control Provision
Current Status	Major Development Permit in Review
Site Size	0.20 ha (0.50 ac)
Density	310 units/ha
Height	16 storeys
Floor Area Ratio (FAR)	6.2 max.
Number of Residential Units	62 units
Amount of Commercial Space	Information Unavailable

3 DOWNTOWN NORTH EDGE

View of Downtown Edmonton from the North Edge

The Downtown North Edge consists of the area bounded by 101 Street to the east, 117 Street to the west, 105 Avenue to the south and 108 Avenue to the north.

Work completed in 2005 includes a development plan and design guidelines for the older industrial area north of downtown, parallel to the former CN Rail lands, which is characterized by vacant and under utilized land, industrial and commercial uses, and low-rise apartments. As the area was facing significant redevelopment pressures and is anticipated to contain a future light rail transit stop, the City required a comprehensive plan to guide new development and enhance area amenities. A vision for the area was identified during community and stakeholder consultation. In addition to a mixed use development concept, key recommendations included a multi-use trail through the area, comprehensive urban design guidelines and an implementation program. The plan encourages the creation of a walkable environment by recommending pedestrian amenities, increased density, housing choice and a mix of land uses.

Downtown North Edge Redevelopment Land Use Statistics

Site Size	115 ha (284 ac)
Potential Residential Units	4,638 new units
Population Forecast	5,799 new residents
Potential Commercial Space	Not Available

Locations of Development Activity in Downtown North Edge

A. Aurora

Address	10550 102 Street
Zoning	(DC1) Direct Development Control Provision
Current Status	On Hold
Site Size	2.89 ha (7.14 ac)
Density Approved	500 units/ha
Height	28 storeys
Floor Area Ratio (FAR)	Information Unavailable
Number of Residential Units	1,443 units
Amount of Commercial Space	2322 m^2 (25,000 sq ft)

B. Fifth Avenue Vista

Address	11129 105 Avenue
Zoning	(RA9) High Rise Apartment Zone
Current Status	Development Permit Application in Process
Site Size	0.43 ha (1.06 ac)
Density	300 units/ha
Height	15 storeys
Floor Area Ratio (FAR)	3.9 max.
Number of Residential Units	129 units
Amount of Commercial Space	None

C. Time Square

Address	10118 106 Avenue
Zoning	(RA8) Medium Rise Apartment Zone
Current Status	Under Construction
Site Size	0.28 ha (0.67 ac)
Density	223 units/ha
Height	4 storeys
Floor Area Ratio (FAR)	1.8 max.
Number of Residential Units	62 units
Amount of Commercial Space	None

D. The Zen

Address	11425 105 Avenue
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Under Construction
Site Size	0.29 ha (0.72 ac)
Density	297 units/ha
Height	7 storeys
Floor Area Ratio (FAR)	3.0 max.
Number of Residential Units	86 units
Amount of Commercial Space	None

4 STADIUM STATION TOD PLAN

A Transit Oriented Development Plan is currently being developed for the area near the Stadium LRT Station. This is the third of the City's TOD projects. The Stadium Station TOD Plan boundary is shown on the map below and roughly corresponds to an 800 metre radius around the Stadium LRT Station.

This Plan is in its early stages. The first community workshop was held on January 21, 2009. The Plan is scheduled to be complete in December 2009. The project brochure distributed at the first workshop indicated that the Plan will identify a suitable mix of land uses and densities for the area, as well as circulation routes for pedestrians, cyclists, buses and cars. The Plan will build on many of the positive features and community facilities that exist in the area. In order to make sure the Plan can be successful, the Consultants will do a number of background and technical studies on issues such as traffic impact, parking needs, as well as assessing the market demand for housing and commercial floorspace in the area.

Stadium Station TOD Plan Land Use Statistics

Plan Size	91 ha (224 ac)[1]
Potential Residential Units	to be determined
Population Forecast	to be determined
Potential Commercial Space	to be determined

Locations of Development Activity in the Stadium Station TOD Plan Area

[1] Plan Size is approximate

A. Tango

Address	8224 - 8228 Jasper Avenue
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Rezoning Application in Circulation
Site Size	0.14 hectares (0.35 ac)
Density	679 units/ha
Height	29 storeys
Floor Area Ratio (FAR)	8.7 max.
Number of Residential Units	95 units
Amount of Commercial Space	None

B. Regency Developments

Address	10660 85 Street
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Rezoning Application in Circulation
Site Size	1.88 ha (4.65 ac)
Density	479 units/ha
Height	35 storeys
Floor Area Ratio (FAR)	6.0 max.
Number of Residential Units	900 units
Amount of Commercial Space	3,000 m^2 (32,292 sq ft) maximum

5 ALBERTA AVENUE REVITALIZATION STRATEGY

The Alberta Avenue Revitalization initiative began in 2005 with a vision and strategy. The study area included a large area centred on 118 Avenue, shown in *Figure 2: Alberta Avenue Study Area*. Then, in 2007, the City undertook rezoning of portions of this area to facilitate the implementation of the vision for the area. These areas are shown below in *Figure 3: Alberta Avenue Proposed Rezoning.*

Figure 2: Alberta Avenue Study Area

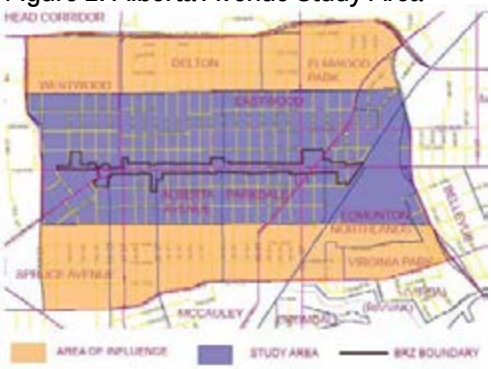
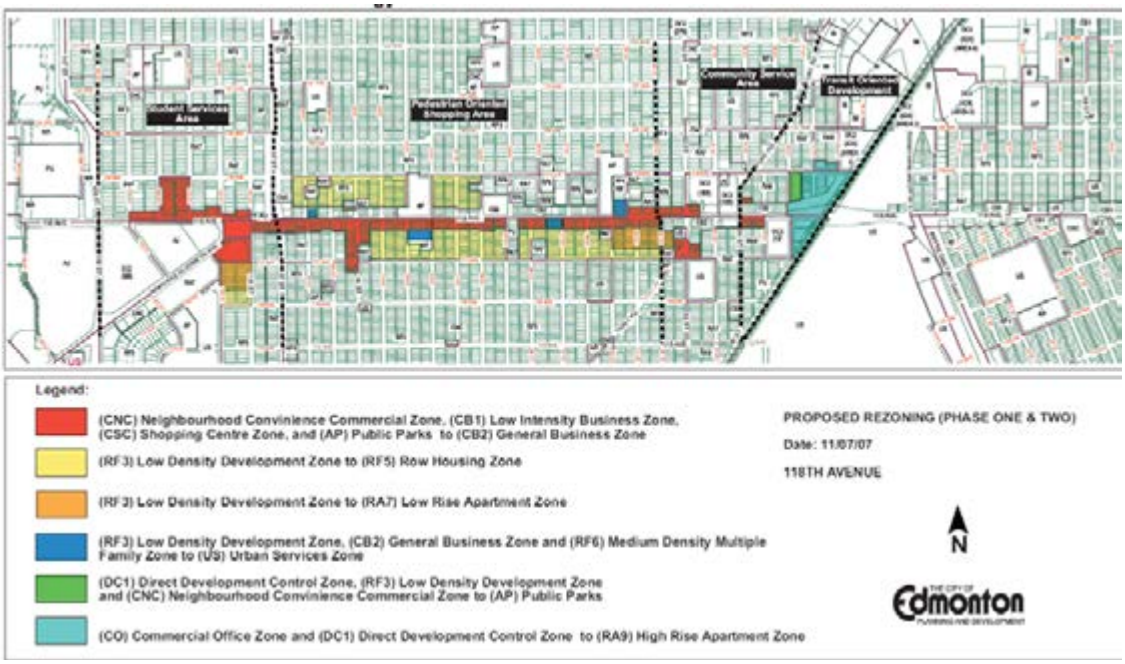


Figure 3: Alberta Avenue Proposed Rezoning

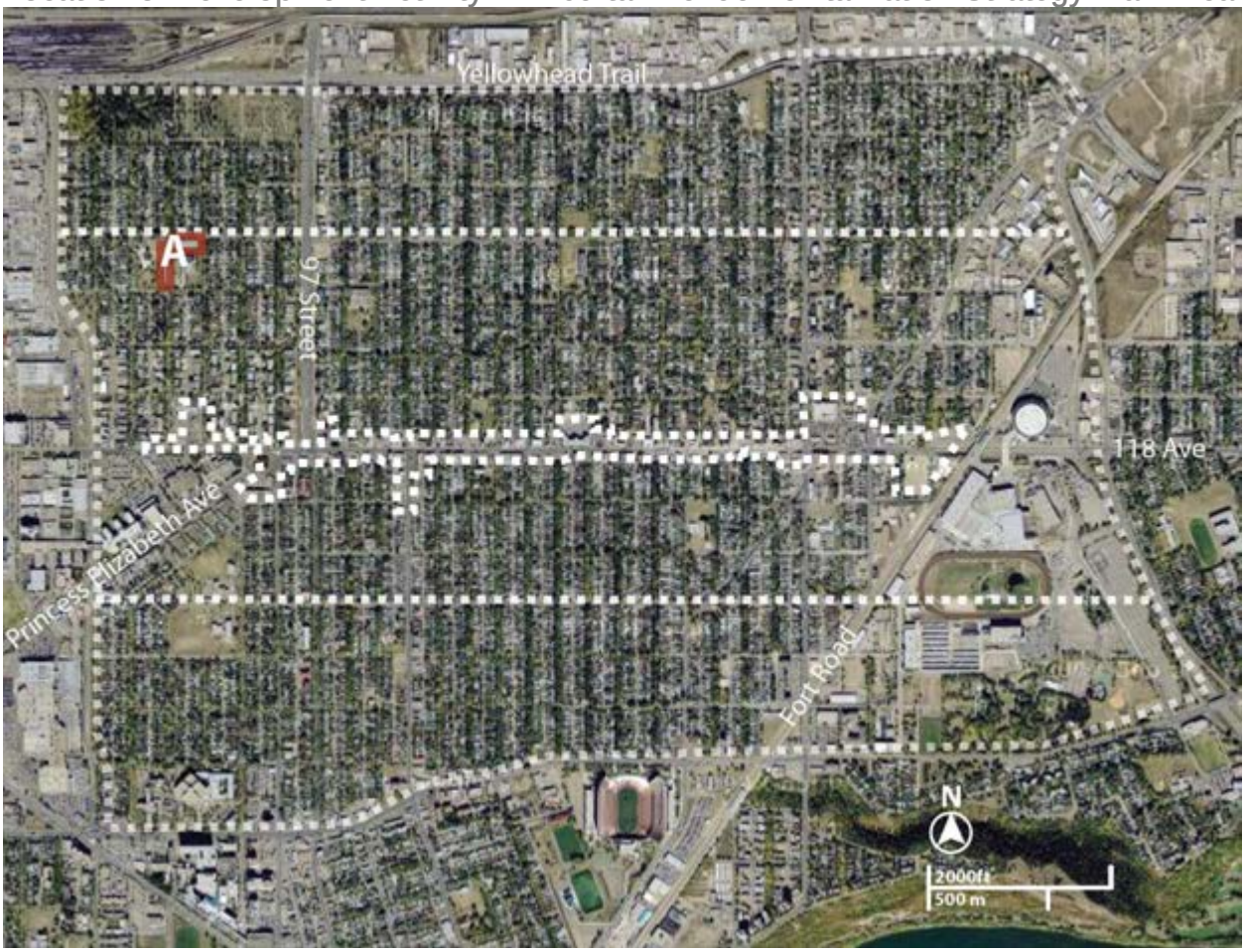


Alberta Avenue Revitalization Strategy Plan Area Land Use Statistics

Site Size	415 ha (1,025 ac)[2]
Potential Residential Units	3,097 units
Population Forecast	Not Available
Potential Commercial Space	2,926 m^2 (31, 500 sq ft)

[2] The site size is approximate and refers to the study area as shown in Figure 2 above.

Location of Development Activity in Alberta Avenue Revitalization Strategy Plan Area



A. Assisted Living Facility – Vanguard College

Address	10404 121 Avenue and 10311 122 Avenue
Zoning	(US) Urban Services Zone
Current Status	Development Permit Issued March 12, 2009
Site Size	0.81 ha (2.01 ac)
Density	179 units/ha
Height	3 storeys max.
Floor Area Ratio (FAR)	Information Unavailable
Number of Residential Units	145 units
Amount of Commercial Space	None

6 OLIVER AREA REDEVELOPMENT PLAN (ARP) AREA

The Oliver neighbourhood is Edmonton's most dense neighbourhood. Located immediately west of downtown, it has a residential population of over 15,000 people. At the time the last Oliver ARP was prepared, the committee felt that the neighbourhood was nearly at full build out and no projected population was provided in the plan.

The Oliver neighbourhood has undergone redevelopment since the adoption of the Oliver ARP in 1997. Several new buildings such as the Illuminada I and II have added further to its residential population. While Oliver may not have the same redevelopment potential as some areas reviewed in this technical report, there is still redevelopment occurring. Five large projects currently underway in Oliver are summarized on the next two pages.

Oliver ARP Area Land Use Statistics

Plan Size	174 ha (430 ac)[3]
Potential Residential Units	Not Available
Population Forecast	Not Available
Potential Commercial Space	Not Available

Locations of Development Activity in Oliver ARP Area

[3] Plan Size is approximate

A. The Pearl

Address	11949, 11955, 11959, & 11961 Jasper Ave
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Rezoning Application in Circulation
Site Size	0.29 ha (0.72 ac)
Density	600 units/ha
Height	35 storeys
Floor Area Ratio (FAR)	6.0 max.
Number of Residential Units	174 units
Amount of Commercial Space	600 m^2 (6458 sq ft)

B. Meridian Plaza

Address	10142 111 Street
Zoning	(CO) Commercial Office Zone
Current Status	Under Construction
Site Size	0.49 ha (1.21 ac)
Density	235 units/ha
Height	10 storeys
Floor Area Ratio (FAR)	7.0 max.
Number of Residential Units	115 units
Amount of Commercial Space	Not Available

C. The Serenity

Address	11765 Jasper Avenue
Zoning	(DC1) Direct Development Control Provision
Current Status	Under Construction
Site Size	0.14 ha (0.35 ac)
Density	457 units/ha
Height	12 storeys
Floor Area Ratio (FAR)	6.0 max.
Number of Residential Units	64 units
Amount of Commercial Space	Not Available

D. The Venetian

Address	10333 112 Street
Zoning	(DC1) Direct Development Control Provision
Current Status	Under Construction
Site Size	0.45 ha (1.21 ac)
Density	322 units/ha
Height	7 storeys
Floor Area Ratio (FAR)	4.0 max.
Number of Residential Units	145 units
Amount of Commercial Space	Not Available

E. The Oliver

Address	10022 110 Street
Zoning	(RA9) High Rise Apartment Zone
Current Status	Development Permit Issued with conditions. Project is on hold.
Site Size	0.21 ha (0.52 ac)
Density	323 units/ha
Height	14 storeys
Floor Area Ratio (FAR)	3.0 max.
Number of Residential Units	68 units
Amount of Commercial Space	Not Available

7 WEST ROSSDALE

West Rossdale is located in the valley just south of Downtown. In 2008, the City of Edmonton identified this area as a special project and an Urban Design Plan is currently being drafted for the area in order to establish a clear plan for the redevelopment of the area prior to selling any land that the City owns there.

The draft plan contains a development concept that would involve a significant increase in both residential population and commercial space. The draft Urban Design Plan is expected to be complete in Spring 2009.

Currently, there is one development taking place in the area and this development is summarized on the following page.

West Rossdale Land Use Statistics

Site Size	22.5 ha (55.5 acres)
Potential Residential Units	1,500 units
Population Forecast	4,000 people
Potential Commercial Space	3,716 m^2 (40,000 sq ft)

Location of Development Activity in West Rossdale

A. Rossdale Green

Address	9614 105 Street
Zoning	(RA9) High Rise Apartment Zone
Current Status	Development Permit Issued January 2008
Site Size	0.14 ha (0.35 ac)
Density	325 units/ha
Height	12 storeys
Floor Area Ratio (FAR)	3.0 max.
Number of Residential Units	55 units
Amount of Commercial Space	Not Available

Other Redevelopments

8 STATION POINTE

Location	66 Street to 129 Avenue and south of Fort Road to the CNR Line
Zoning	(DC1) Direct Development Control Provision
Current Status	Land for sale by City of Edmonton to Developer
Site Size	21 ha (52 ac)
Density	370 units/ha max.
Height	18 storeys max.
Floor Area Ratio (FAR)	4.9 max.
Number of Residential Units	1000 units
Amount of Commercial Space	6,968 m^2 (75,000 sq ft)

Site Plan for Station Pointe

9 BELLWETHER PARK

Location	Bounded by 132 Street on the west, 130 Avenue on the south, 130 and 129 Street to the east and 132 Avenue to the north
Zoning	(DC2.688) Site Specific Development Control Provision
Current Status	Rezoning Approved January 22, 2007
Site Size	6.6 ha (16.3 ac)
Density	114 units/ha
Height	4 storeys
Floor Area Ratio (FAR)	1.5 max.
Number of Residential Units	750 units
Amount of Commercial Space	None

Site Plan for Bellwether Park

10 VILLAGE AT GRIESBACH

Location	Bounded by 153 Avenue to the north, 97 Street to the east, 137 Avenue to the south, and 113 A Avenue to the west
Zoning	Multiple Zones, predominantly DC2 and 940 Special Area
Current Status	Partially built out, Stage 7 is currently under construction
Site Size	251 ha (620 ac)
Density	17 units/ha
Height	4 storeys max
Floor Area Ratio (FAR)	n/a
Number of Residential Units	4,274 units
Amount of Commercial Space	117,000 m^2 (1,259,378 sq ft)

Site Plan for Griesbach

11 CENTURY PARK

Location	Former Heritage Mall Site, East side of 111 Street, North of 23 Avenue
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Phase I – Century One is complete and being occupied. Phase II – Regent is under construction.
Site Size	17.4 ha (43 ac)
Density	166 units/ha
Height	24 storeys max.
Floor Area Ratio (FAR)	1.75 max.
Number of Residential Units	2,886 units
Amount of Commercial Space	32,000 m^2 (344,000 sq ft)

Site Plan for Century Park

12 STRATHEARN HEIGHTS

Location	Bounded by 95 Avenue, 87 Street, Strathearn Drive and 90 Street
Zoning	(DC2) Site Specific Development Control Provision
Current Status	Subdivision Application in circulation at the City
Site Size	8.9 ha (22.0 ac)
Density	197units/ha
Height	23 storeys max.
Floor Area Ratio (FAR)	3.4 max.
Number of Residential Units	1,750 units
Amount of Commercial Space	3,716 m^2 (40,000 sq ft)

Site Plan for Strathearn Heights

3.0 CONCLUSION

The following table shows residential units and commercial space for areas reviewed in this technical paper. For residential units and commercial space, two projections for each are included. Full build out potential as projected in the plans and zoning for the areas as a whole is listed under the "Full Build Out Potential" columns. The total number of units and commercial space that are currently being developed within those areas are listed in the column "Developments Underway."

Table 1: Summary of Development Potential and Projects Underway in Other Parts of Edmonton

	Residential Units		Commercial Space	
Redevelopment Area	Full Build Out Potential	Developments Underway	Full Build Out Potential	Developments Underway
Downtown	*(Information Unavailable)*	2,789 units	*(Information Unavailable)*	9970 m^2 (107,316 sq ft)
The Quarters	11,373 units	62 units	63,948 m^2 (688,330 sq ft)	*(Information Unavailable)*
Downtown North Edge	4,638 units	1,720 units	*(Information Unavailable)*	2322 m^2 (25,000 sq ft)
Stadium Station TOD	*(Information Unavailable)*	995 units	*To be determined*	3,000 m^2 (32,292 sq ft)
Alberta Avenue	3,097 units	145 units	2,926 m^2 (31,500 sq ft)	0
Oliver	*(Information Unavailable)*	566 units	*(Information Unavailable)*	600 m^2 (6458 sq ft)
West Rossdale	1,500 units	55 units	3,716 m^2 (40,000 sq ft)	*(Information Unavailable)*
Station Pointe	1,000 units	1,000 units	6,968 m^2 (75,000 sq ft)	6,968 m^2 (75,000 sq ft)
Bellwether Park	750 units	750 units	0	0
Village at Greisbach	4,274 units	4,274 units	117,000 m^2 (1,259,378 sq ft)	117,000 m^2 (1,259,378 sq ft)
Century Park	2,886 units	2,886 units	32,000 m^2 (344,445 sq ft)	32,000 m^2 (344,445 sq ft)
Strathearn Heights	1,750 units	1,750 units	3,716 m^2 (40,000 sq ft)	3,716 m^2 (40,000 sq ft)
Total	31,268 units	16,992 units	230,274 m^2 (2,478,649 sq ft)	175,576 m^2 (1,889,884 sq ft)

- THIS PAGE INTENTIONALLY LEFT BLANK -

APPENDIX D

REVIEW OF DOWNTOWN IMPACTS: REMOVAL OF AIRPORT VICINITY PROTECTION OVERALAY & HEIGHT RESTRICTION

Technical Report

Review of Downtown Impacts: Removal of Airport Vicinity Protection Overlay & Height Restrictions

As part of the
Edmonton City Centre Airport (ECCA) Land Impact Assessment

Please Note:

The information contained in this report represents the information we have to date, as of May 29, 2009.
Some of the information contained in this report may change before it is finalized.

Prepared for

THE CITY OF Edmonton

by

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

June 10, 2009

Technical Report

Review of Downtown Impacts: Removal of Airport Vicinity Protection Overlay & Height Restrictions

Prepared for

THE CITY OF Edmonton

by

ARMIN A. PREIKSAITIS
& ASSOCIATES LTD.

#605 Empire Building
10080 Jasper Avenue
Edmonton, Alberta
T5J 1V9
Phone (780) 423-6824
Fax (780) 423-6850
Email: armin@arminap.ca
www.arminap.ca

June 10, 2009

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this report is to identify potential gains from the removal of building height limits associated with the Airport Protection Overlay (APO) in the Edmonton Zoning Bylaw which would allow for redevelopment and intensification efforts in locations throughout the Downtown Edmonton and edge neighbourhoods, pertaining to the Central Core, as part of the Edmonton City Centre Airport (ECCA) Impact Assessment. The intensification of areas through the removal of the APO is a by-product of the closure of the ECCA that would allow for intensification of areas that currently have height restrictions associated with the APO, but also would add additional competing developments to the redevelopment of ECCA lands, as identified in other technical reports that support the ECCA Impact Assessment.

1.2 REPORT ORGANIZATION

The Report is organized into four Sections.

Section 1.0 **INTRODUCTION** provides an overview of the purpose of this report, contains a series of objectives, background information, and the description of the study area.

Section 2.0 **METHODOLOGY** provides the description of the methodology employed to develop this study, its qualifiers, assumptions and limitations.

Section 3.0 **ANALYSIS** is organized in subsections according to each neighbourhood within the study area. Following a general description of the neighbourhood, a summary of the development potential is outlined in tabular form to illustrate the overall intensification potential for that neighbourhood, in terms of increased building height and density.

Section 4.0 **CONCLUSION** reviews the findings of Section 3.0 and provides recommendations to how the development opportunities identified in this report should be evaluated given Edmonton's current and future development initiatives, and existing policies of statutory plans related to establishing building height limits.

1.3 OBJECTIVES

This report has the following objectives:

- To identify opportunities and potential gains from intensification within the study area should the APO limits be removed;
- To develop capacity estimates for additional residential units and associated population, and commercial and office floor space that could be accommodated;
- To provide recommendations to how the development opportunities identified in this report should be evaluated given Edmonton's current and future development initiatives, and existing policies of statutory plans related to establishing building height limits.

1.4 BACKGROUND

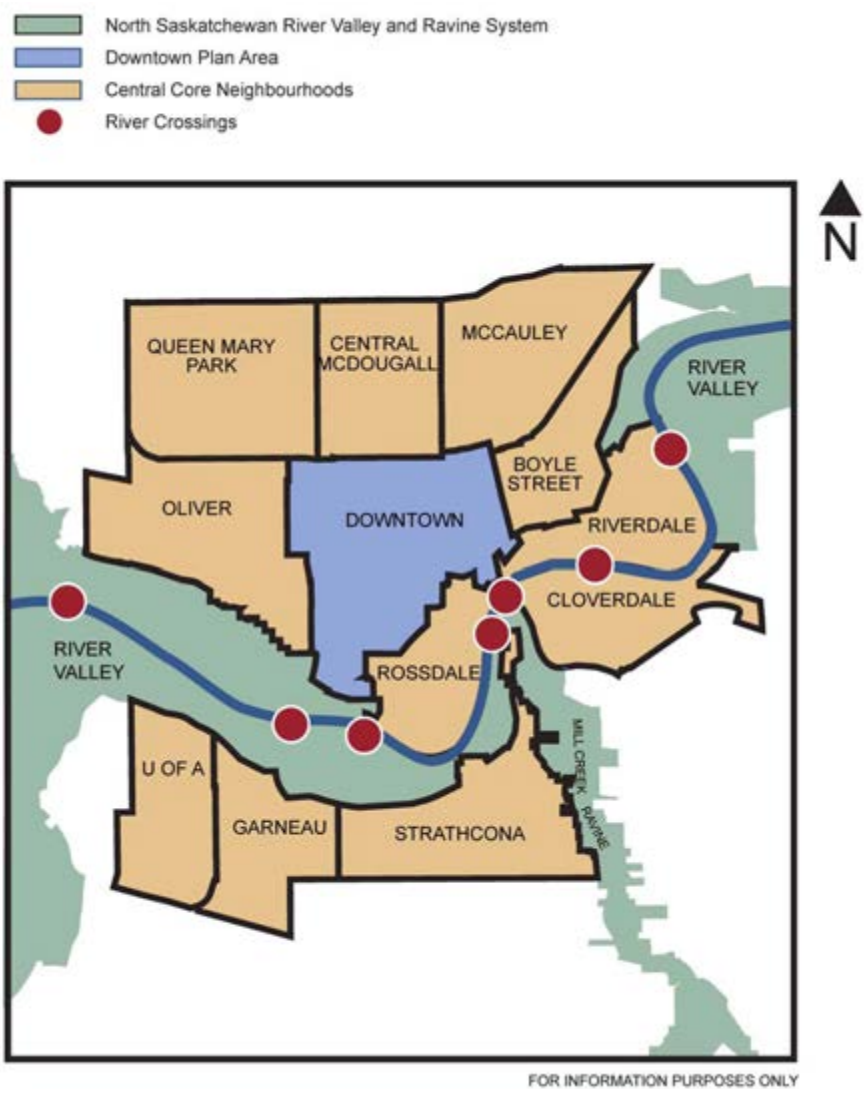
On October 8, 2008, the City of Edmonton Executive Committee of Council directed City Administration to undertake an assessment of the potential impacts related to the possible closure of the ECCA lands as a general aviation airport. The work to date on the ECCA lands by City Administration has provided a high level identification of the potential impacts of the possible closure and redevelopment of the ECCA lands, nonetheless the need for further research on off-site impacts due to the removal of the APO has been identified as a valid component to be investigated.

Currently, the Edmonton Zoning Bylaw 12800, using the Airport Protection Overlay (APO), provides for the safe operation of the ECCA through the federal regulation of building heights and land uses in the vicinity of the Airport and the four runway approaches as follows:

- the Inner Horizontal Surface, being a plane established at a consistent elevation of 45.72 m above the airport reference point and extending outward to a radius of 2438.4 m;
- the Conical Surface, being a surface measured out from the outer circumference of the inner horizontal surface and rising in a 1:20 slope to 76.21 m above the level of the Inner Horizontal Surface;
- the Take Off/Approach Surface, consisting of inclined planes diverging upwards and outwards from a fixed point at the end of the runway;
- the Transitional Surfaces, prescribed by Transport Canada, consisting of inclined planes diverging outwards from the side of the Take Off/Approach Surfaces until it intersects the Inner Horizontal Surface or as otherwise specified.

The APO restricts development within portions of the Central Core, which consists of the Downtown and the neighbourhoods and areas that have a strong inter- relationship with the Downtown, which have different characters and development expectations than mature neighbourhoods. According to the City of Edmonton's new draft Municipal Development Plan*, The Way We Grow*, these areas encompass Boyle Street, McCauley, The Quarters, Central McDougal, Queen Mary Park, Oliver, University of Alberta, Garneau, Strathcona, Cloverdale, Riverdale and Rossdale. For the purpose of this report the study area encompasses portions of the Downtown, and the Oliver Neighbourhood.

Figure 1 – Central Core (*The Way We Grow*)



Source: *The Way We Grow: City of Edmonton Municipal Development Plan – Draft October 15, 2008* pg.100

The current height limits on buildings has an impact on residential and commercial development. The maximum building height in the Downtown Development area is 815.34 m above sea level. The actual height varies within that area, depending on base elevation. Restriction of alternatives for high forms of development is not the only constraint imposed by the APO, as there may also be financial implications to the City in terms of lost tax revenue.

Edmonton's Downtown and other affected edge neighbourhoods of the Central Core would benefit from the removal of the APO by allowing for more intensification of uses, more design creativity regarding height and expansion of uses in adjacent areas. However, there must be a more comprehensive analysis of the actual development potential of the areas affected by the APO and key implications within the Edmonton's Planning policies to inform the Executive Committee and Council and support the decision making process on the possible closure of the Edmonton City Centre Airport.

2.0 METHODOLOGY

2.1 OVERVIEW

The methodology employed on this report was developed in consultation with the Planning and Development Department, and applied a qualitative approach employing qualifiers that are based on planning principles and practices indentified among the development industry. The following summarizes the main stages of the methodology applied in this report:

1. Neighbourhoods south of the ECCA that are currently affected by the APO limitations were identified consistent with the Edmonton City Centre Airport (ECCA) Impact Assessment Request for Proposal.

2. Edmonton's most recent planning initiative –the City's new draft MDP *The Way We Grow* defines the Central Core as being among the prime lands for intensification. A study area was determined within the neighbourhoods encompassing the Central Core based on the APO boundaries. Neighbourhoods within the Central Core that were excluded from the study area are addressed further on within this section.

3. A site section criteria was developed taking into consideration a minimal parcel size appropriate for high rise development and the current type of development on found the ground. Vacant parcels and/or parcels containing parking developments not accessory to other developments were the primary focus of this exercise.

4. Aerial photographs and AutoCAD Base maps available from the City's archives were used in order to identify the appropriate sites based on the site selection criteria.

5. An approach to establish factors that combine the appropriate building height / density standards was developed based on criteria that have high consideration for planning principles with the outcome of quality building forms, mix of uses and integration with surrounding developments. Density is expressed in both units per hectare and Floor Area Ratio.

6. The maximum density factors under the current zonings and the building height / density factors were applied to selected sites. In each case, total numbers of units and commercial / office spaces were tabulated in order to determine the additional lift resulting from the removal of the APO.

Several assumptions were made during the course of this analysis as follows:

1. Statutory documents referred to by this report were assumed to have been undertaken with fair public participation, with concerns incorporated in the final products.

2. Zoning parameters currently being applied or proposed by statutory documents concerning the study area were deemed adequate to neighbourhood contexts without further adjustments.

3. The priority for choosing a site was given to those that were readily available for development in detriment of those that needed to be consolidated with other lots in order to create a parcel large enough to undertake high rise development.

4. Based on the assumption that the removal of the APO would allow for increased residential and employment opportunities in the study area, the sections below outline: how lands were identified for potential redevelopment; how building height may be affected by the removal of the APO; and, the potential population growth and additional commercial / office / retail space that may be achieved with the removal of the APO.

5. In order to calculate the population forecast, the City's Neighbourhood profile was considered for both the Downtown and Oliver neighbourhoods, and a 1.4 persons per unit was applied across the board.

2.2 STUDY AREA

The areas affected by the APO are shown on *Map 1 – Key Plan Airport Protection Overlay*. For the purpose of this report the study area encompasses portions of the Downtown, and the Oliver Neighbourhood. These areas are part of the larger Central Core area identified in the City's new draft MDP *The Way We Grow*.

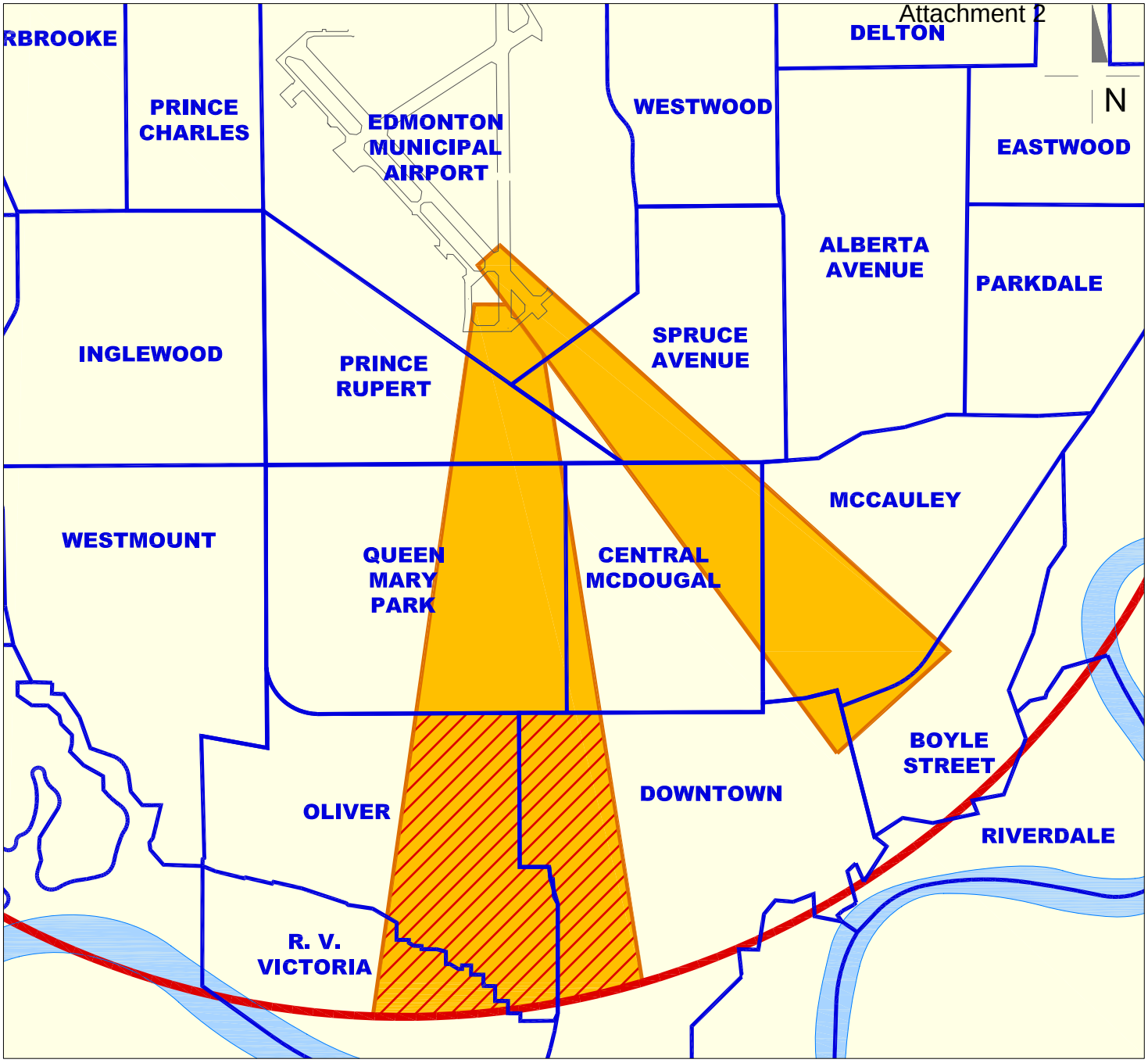
When discussing the Central Core the City's new draft MDP *The Way We Grow* notes the importance of ensuring that the Central Core area continues to be a prime focus for employment and residential growth. The objective of Section 2.4 Central Core is to "Create a strong downtown characterized by high density, mixed-use, transit and pedestrian oriented and excellent urban design." To support this objective Policy 2.4.1.2 states "Promote the Downtown as the prime focus of Edmonton's central growth."

When discussing employment opportunities the draft MDP states "Promote the growth of office employment opportunities across the city, with the Downtown as the primary focus." (Objective 5.1.1). To support this objective the following policies are put forth: "Preserve and strengthen the role of the Downtown as the premier employment centre in the city through the active promotion of high quality office development." (Policy 5.1.1.2); "Include office space above the ground floor in mixed-use centres to provide local services and employment opportunities." (Policy 5.1.1.3); and "Encourage office development around LRT stations and transit centres." (Policy 5.1.1.4).

2.3 SITE SELECTION

This report's analysis focuses on vacant parcels of land (e.g. at grade parking lots) located in the portions of the Downtown and Oliver Neighbourhood which are impacted by the APO as seen in *Map 2 – Vacant Parcels Affected By Airport Protection Overlay*. Information regarding the areas targeted for redevelopment was gathered from various approved plans and information obtained from Planning and Development Department staff.

In discussions with Planning and Development Department staff it was determined that only those parcels of land which were two or more lots in size had any immediate potential for redevelopment. Single parcels were deemed a second priority unless they could be consolidated with adjacent parcels of land. Therefore this report's statistical analysis focuses upon parcels of vacant land that are a minimum of two city lots in size and/or a minimum of 0.2 hectares.



Legend

- Runway Approach Surface
- Outer Approach Surface
- Study Area
- Neighbourhood Boundary

Map 1

Key Plan
Airport Protection Overlay
Edmonton City Centre Airport Lands
Edmonton, Alberta

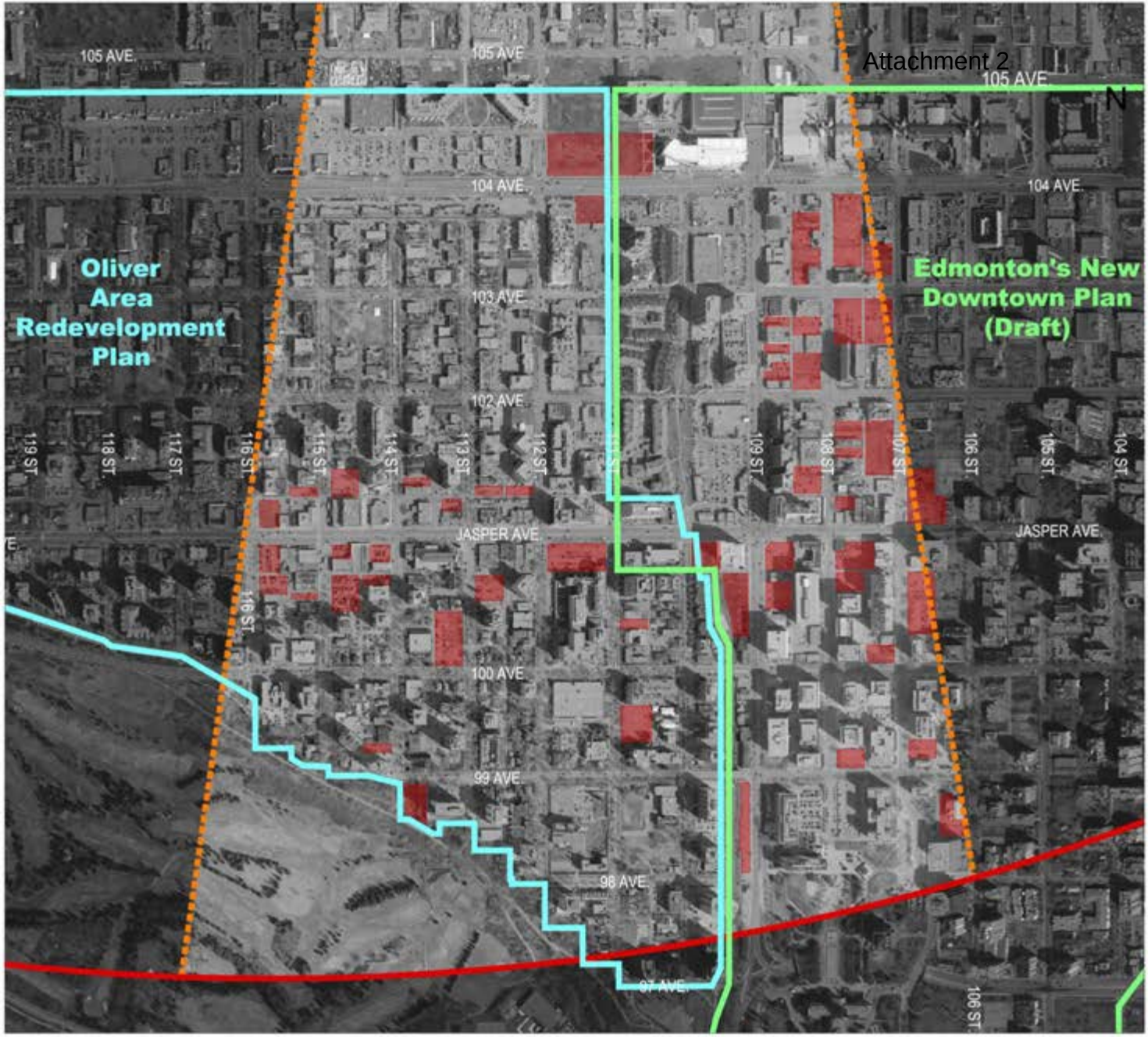
DRAFT

0 250 500 1000m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 2, 2009



Legend

- Runway Approach Surface
- Outer Approach Surface
- Vacant Parcel / Surface Parking
- Oliver Area Redevelopment Plan
- Edmonton's New Downtown Plan (Draft)

Map 2

Vacant Parcels Affected By Airport Protection Overlay

Edmonton City Centre Airport Lands

Edmonton, Alberta

DRAFT

0 100 200 400m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 2, 2009

The sites that were deemed vacant but do not have the minimal size described above were tabulated on a second priority list and could benefit from increased density but not necessarily from increased height, if the planning principles listed in Section 2.1 above were carried forward.

2.4 BUILT FORM

Planning and Development Department staff emphasized the importance of maintaining current planning practices with regards to the development of high rise development in the City of Edmonton. Planning principles that would apply to any high rise development include: preservation of view corridors; the minimization of shadows onto surrounding sites; the building of slim towers between 500 – 750 m^2 at the tower level with podium bases containing commercial / office / retail uses; and human scaled frontage. The range of floor plate sizes at the tower level would allow for a minimum of four and a maximum of eight market units per floor.

Without building height limits, the cut off is determined by the maximum FAR adequate for various sizes of sites. Usually, a large site can provide a better transition to surrounding developments by tapering down the scale and mass of building height. Similar undertakings were conducted in other North American cities such as San Francisco, and rather than a definitive answer, it is a matter of testing different height levels that may result in a building mass based on the following design principles:

- ensure the building are of a human scale at the street level;
- moderate the mass of the building so that it steps up or down to its neighbourhood;
- provide enough articulation to soften the perception of a place.

2.5 BUILDING HEIGHT AND DENSITY

Consistent with what has been described in previous sections of this report, the maximum allowable density must been increased in order to achieve the objective of higher forms of developments within the study area. The testing approach discussed with the Planning and Development Department employed an initial 33% incremental increase to building height on selected sites having regard for the underlying zoning. Despite the additional building height, most sites zoned (HA) Heritage Zone, (EZ) Enterprise Zone, (CMU) Commercial Mixed Use Zone, and (MSC) Main Street Commercial Zone would be able to accommodate taller buildings without substantial increase in FAR, by simply applying better design.

Furthermore, it was found that the new draft *Downtown Plan* was given a similar approach to its proposed zones. The short list of districts within the *Downtown Plan* that would need to increase the FAR to allow for additional building height includes the (HDR) High Density Residential Zone, (RMX) Residential Mixed Use Zone, and (EZ) Enterprise Zone, the latter having regard to its transition to the *Downtown North Edge Study*.

Therefore, additional increments were given to a maximum FAR ranging from 8.5 to 10 (approximately 750 to 900 units per hectare, market size units), acknowledging the fact that some districts within the new draft *Downtown Plan*, like the (CCA) Core Commercial Arts Zone, would allow up to a 14.0 FAR. Consideration was given to Plan objectives of the districts subject to the APO limitations comparing to these other office oriented districts such as the (CCA) Core Commercial Arts Zone.

In the Oliver neighbourhood most sites are zoned (DC1) Direct Development Control Provision or (RA9) High Rise Apartment Zone. The RA9 zone, outside the Downtown area is an exception of the analysis above, thus the 33% incremental approach holds true for that particular zone. Nonetheless, based on most recent DC2 approved by Council in the Downtown and edge neighbourhoods, in this study an additional building height and FAR increase was given to the sites zoned RA9 (or DC1). Therefore potential high rise developments in the Oliver Neighbourhood to ensure continued attractiveness to developers, given its proximity to the Downtown, would require flexibility in the application of building height and FAR.

High density development in the Oliver Neighbourhood under current zoning allows for a 6.0 FAR which is being built to a maximum of 12 – 15 storeys in height and includes a substantial commercial component (50% of the FAR). In this exercise, the slim tower approach allowed by the removal of the APO could easily reach 25 to 30 storeys within the Oliver Neighbourhood and up to 40 storeys within the *Downtown Plan* area. Therefore within this study the final FAR applied within the Oliver Neighbourhood was 5.0 to 6.0 (0.5 for commercial / 0.5 for office development) representing 500 units per hectare (market size units).

2.6 LIMITATIONS

The methodology applied to this report contains the following limitations:

1. The areas included in this report do not represent a comprehensive inventory of all potential development activity in selected neighbourhoods but rather specific areas where infill projects and redevelopment would be likely from a land use planning perspective. Specifically, long term potential redevelopment sites that contain vacant, older (non-historic) buildings at the end of their economic cycle were not included. The criteria for selecting non-vacant potential redevelopment sites would be subjective, since market conditions, land ownership would have to be factored in and could infer a more optimistic picture of the current development potential of the study area.

2. The perception of density is a matter of how comfortable a place feels given its design and social characteristics and while this report acknowledges this matter as factual it only considers the perception of density as a valid concern from a high level perspective without getting into the detailed analysis for any particular selected site.

3. The area known as the *Downtown North Edge Development Study*, is bounded by 101st Street to the east, 117th Street to the west, 105th Avenue to the south and 108th Avenue to the north involves portions of the neighbourhoods of Queen Mary Park and Central MacDougall, which are some of the most ethnically diverse communities in Edmonton. Several areas within these older neighbourhoods are undergoing rejuvenation, many of which are centered around the various ethnic businesses that can be found there. These neighbourhoods contain a variety of housing types and are also impacted partially by the APO restrictions.

4. Nonetheless, the areas within the *Downtown North Edge Development Study* that are affected by the APO have building heights delineated by planning principles with a focus on the desired outcome as building mass with human scaled frontages. Although the maximum allowable densities being considered within the *Downtown North Edge Development Study* area are higher than current Edmonton standards, the methodology employed by this study considered that

increasing building height within the *Downtown North Edge Development Study* Area would be in conflict with the overall development concept of this study which was concluded in January 2005.

5. The *Boyle Street McCauley Plan*, Bylaw 10704 affected by the APO falls within the Chinatown North Special Commercial sub area which envisions the area for low intensity business uses being up to 4 storeys in height. The other area affected by the APO is the Housing and Renewal Transition sub area. This sub area proposes a mix of commercial uses and low to medium density residential development. Any suggestion of rezoning these sub areas to high rise residential would be in conflict with overarching objectives of the plan.

3.0 REDEVELOPMENT AND INTESIFICATION

3.1 DOWNTOWN

As of 2008 approximately 10,000 people live in the Downtown core. The City of Edmonton is undertaking a new *Downtown Plan* to replace the last plan approved in 1997. While the current the *Capital City Downtown Area Redevelopment Plan* (ARP), Bylaw 11400 was intended as a 10 year plan for the Downtown, the new Plan aims to reflect a 20 year time period with enough flexibility to allow for new opportunities and to rapidly respond to challenges. A key strategic objective identified in the draft *Downtown Plan* is to implement zoning changes that will reinforce and diversify the mix of land uses in the Downtown, to facilitate higher density housing, commerce and office uses, expand educational and institutional uses and ensure the development of human scale, high quality buildings, public spaces and amenities in support of an economically healthy, sustainable business environment.

The plan proposes uplift in building height, density and FAR in all districts; Commercial Core, Warehouse District, Jasper Avenue, the Capital City District, and the McKay Avenue District, but it ties in the uplift with the envisioned built form for each district, thus the APO is not the only variable restricting high forms of development. Generally the uplift proposed in the draft *Downtown Plan* allows for additional 1/3 (33.33%) increase in building height.

According to the draft Downtown Plan, there are approximately16.8 hectares of potentially developable parking lots throughout the Downtown core with the majority of developable land being located in the Warehouse District where almost 60% of the Downtown's surface parking is located.

Downtown is a major regional employment centre – home to more than 65% of the commercial office space in the City. Commercial construction reached a high in 2005, dropped through 2006 and has risen through 2007.

The following chart summarizes the intensification potential for the Downtown without the APO restriction. The total number of units and commercial space of these potential redevelopments are outlined in the chart. One-off sites, as described in Section 2.0 Methodology were not included in the calculations.

APO Removal: Downtown Intensification Potential	
Total Site Size	6.2433 hectares
Potential Residential Units	1,927 units
Potential Commercial Space	46,167 m^2
Population Forecast	2,696

Table 1: Downtown Intensification Potential in areas affected by the APO removal

3.2 OLIVER NEIGHBOURHOOD

Oliver is a high density residential community with over 17,000 residents and developing commercial strips along Jasper and 104th Avenues. Oliver is one of Edmonton's oldest neighbourhoods and because of its wide range of amenities and central location is one of the City's more popular, and younger, neighbourhoods. The neighbourhood is nearly at full build out and few sites were identified for intensification.

According to the *Oliver Redevelopment Plan (ARP)*, Bylaw 11618, increased density and traffic are the main concerns identified by residents of the area. The Plan recognizes there is a need to enhance the commitment to the retention of Oliver's diversity of housing forms by providing greater incentive for the retention of the significant number of older single detached homes. The Plan also calls for stronger support for the development of a high quality pedestrian oriented commercial corridor along Jasper Avenue and enhanced protection of the residential interior of the neighbourhood from incompatible land uses and high volumes of vehicular traffic.

Nonetheless, the vision for Oliver for the next 10 – 15 years foresees the neighbourhood as the major high density residential core of the City, supporting both of the City's major employment centres, the Downtown and the University area, where higher density multi-unit housing in the City core is likely to occur, blending family-oriented housing and commercial developments.

The following chart summarizes the intensification potential for the Oliver Neighbourhood without the APO restriction. The total number of units and commercial space of these potential redevelopments are outlined in the chart. One-of sites, as described in Section 2.0 Methodology were not included in the calculations.

APO Removal: Oliver Neighbourhood Intensification Potential	
Total Site Size	3.5242 hectares
Potential Residential Units	1,252 units
Potential Commercial Space	17,621 m^2
Population Forecast	1,723

Table 2: Oliver Neighbourhood Intensification Potential in areas affected by the APO removal

4.0 CONCLUSION

The following table shows residential units and commercial space for areas reviewed in this report.

Redevelopment Area	Residential Units	Population	Commercial Space
Downtown	1,927	2,696	46,167 m^2
Oliver	1,252	1,723	17,621 m^2
Total	**3,179**	**4,419**	**63,788 m^2**

Table 3: Summary of Intensification Potential in areas affected by the APO removal

Intensification efforts that may be undertaken due to the removal of the APO are bound by the City's limited capacity regardless of the approach of the analysis being undertaken. These intensification efforts have to give consideration to the following:

- Potential future development opportunities through the consolidation of existing vacant single parcels with adjacent properties. Within this report these parcels were not part of the statistical analysis due to their existing size.

- Potential future development opportunities through the redevelopment of long term potential redevelopment sites that contain vacant, older (non-historic) buildings at the end of their economic cycle are subject to further analysis. Within this report these parcels were not part of the statistical analysis as they are not readily available for redevelopment.

- The built form of the any proposed development will need to integrate with the existing built form in the area and consider any Planning and Development initiatives for the area such as urban village, main street, and /or transit-oriented development.

- Market conditions such as the absorption rate for condominium units and office space at the time that the development is being considered.

- Proposed development will be required to undertake traffic and servicing capacity studies to determine what the impact of the proposed development will be on these services in the area.

- The built form will need to be designed to mitigate any environmental effects such as loss sun light (shadowing) and wind tunneling.

- Current statutory documents will need to be reviewed and potentially amended to consider the integration of any proposed increase in height above that currently allowed within these statutory documents and the Zoning Bylaw.

- Community consultation will need to be undertaken as part of any initiative, whether it be led by the City or a private developer, to look at increasing height above that currently allowed within the Downtown or Oliver Neighbourhood.

- THIS PAGE INTENTIONALLY LEFT BLANK -

APPENDIX E
RESIDENTIAL DEMAND AND ABSORPTION

Edmonton City Centre Airport

Residential Demand and Absorption Brief

June 1, 2009

COLLIERS INTERNATIONAL

Introduction

This study was undertaken by Colliers International Consultants to determine what absorption rate and market share could be expected at the Edmonton City Centre Airport (ECCA), based on a City of Edmonton forecast of dwelling unit demand by type.

Population Forecast

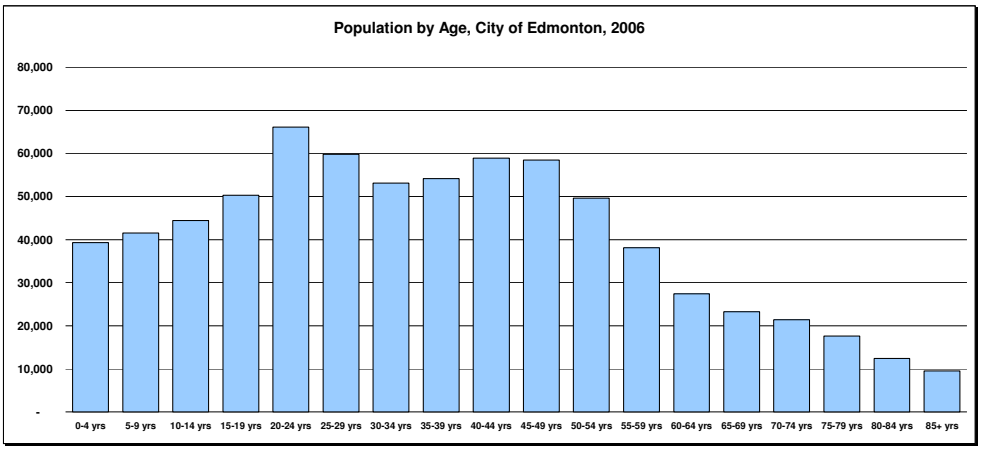
The population forecast used for projecting dwelling unit demand was provided by Applications Management Consulting at the traffic zone and traffic district level. City –wide aggregated totals for each age group were used for the projection years provided: 2016, and 2041. The following table shows the total population used for the dwelling unit forecast, which nets out selected population that does not affect the demand for market residential. According to the data, the population in 2006 was 725,711, and is forecast to increase to 883,929 by 2016 and 1,139,825 by 2041.

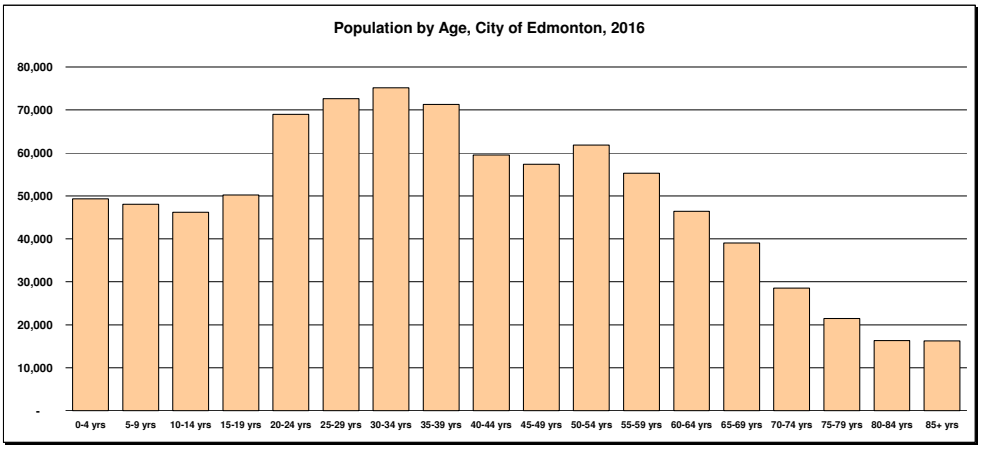
	Population
2006	725,711
2016	883,929
2041	1,139,825

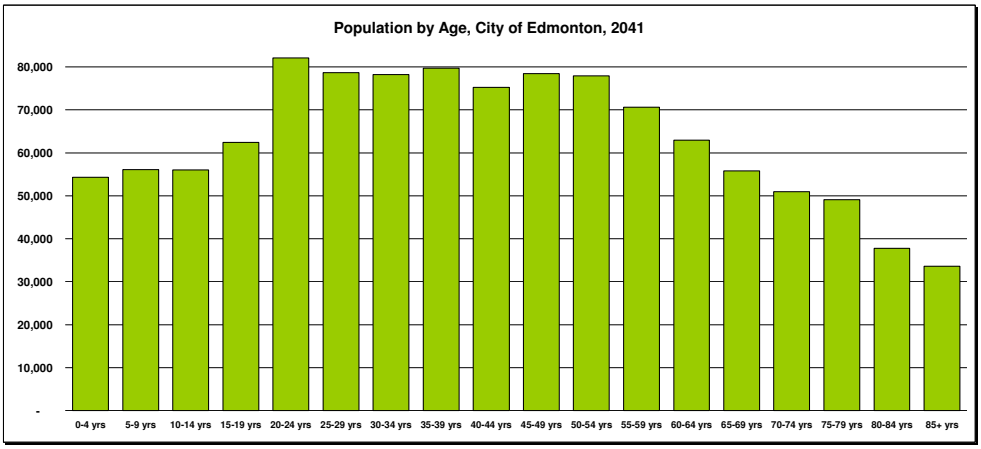
The population is projected to grow by 158,218 people, or an average of 15,822 per year between 2006 and 2016. This growth represents an annual average growth rate of 2.0% in Edmonton. Between 2016 and 2041, the population is projected to grow by a further 255,896 people, or an average of 10,236 people per year. Over the 25-year period, growth will average 1.0% per year city-wide.

	Increase	Annual Average	Annual %
2006 to 2016	158,218	15,822	2.0%
2016 to 2041	255,896	10,236	1.0%

The following charts show how the population age profile of the city is projected to change in the projection years.







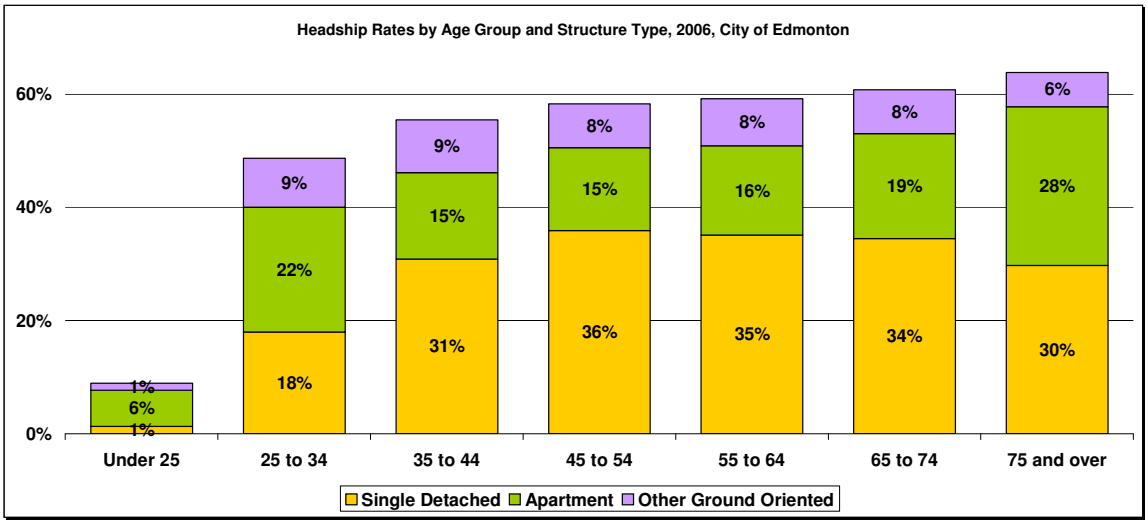
Methodology

The projection of housing demand in Edmonton is based on the age specific population projection described above. With the projection of the population by age, and the age-specific propensities for maintaining a household in a particular dwelling or tenure type, one is able to forecast the demand for dwellings based on population growth and demographic change. The inherent assumption of this forecast is that it does not assume that the units will be built, rather it is only a forecast of what would need to be built in order to accommodate the projected City population, given the current occupancy patterns. Those occupancy patterns, or Headship Rates, are shown in the following table, and are from the 2006 national Census.

The chart shows that Edmonton residents largely prefer to maintain households in single detached residences for much of their lives. From age 35 to after 75, single detached homes are the single most-preferred housing format, peaking in the 45 to 54 age group in which 36% of the population maintains a household in a single detached dwelling.[1] Single detached homes become less favourable towards the later stages of

[1] For Census purposes, a household has one household head, who is primarily responsible for paying bills and household operation.

life, but on average, maintaining one's own private household does not, as total headship rates increase through the age groups to 64% for those aged 75 plus.



The preference to live in an apartment has an early peak of 22% of the population aged 25 to 34 before dropping to 15% for those aged 35 to 54. After age 54, apartment preference increases once again, reaching 28% for the 75 plus age group. Other Ground Oriented dwellings include town houses, duplexes, and other attached dwellings with access directly to the ground, and are, on average, the choice of 8% to 9% of people over the age of 25.

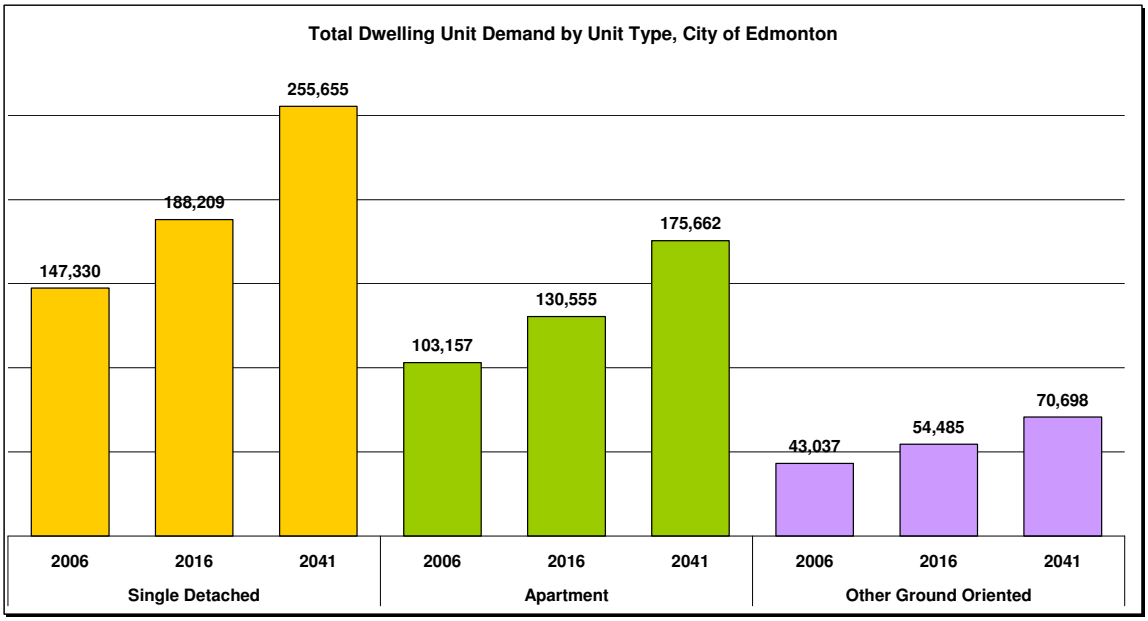
It should be noted that, with the exception of single detached homes, the above rates are aggregates of multiple dwelling unit types. The forecast below is based on the detailed types and aggregated to these three categories for ease of display and analysis.

For the purposes of this report, the rates shown above are being held constant for the life of the projection. While it would be reasonable to expect the rates to change over time, by maintaining the current rates, this forecast is much more conservative. The general trend in Canadian cities is towards increased densification, and if adjusted rates were used, they would move towards higher multi-family rates over time. The ECCA land use plan contains only multi-family residential, so by maintaining the current rates, this forecast will show slower absorption than if modified rates were used.

Dwelling Unit Forecast

The following chart shows the forecast demand for dwelling units, by type, in the City of Edmonton in 2016 and 2041. Total demand for single detached homes will increase from a calculated 147,330 in 2006 to 188,209 by 2016 and to 255,655 by 2041.

Apartment demand will grow from 103,157 in 2006 to 130,555 by 2016, and to 175,662 by 2041. Other ground oriented units will see demand growth from 43,037 in 2006 to 54,485 in 2016, and 70,698 by 2041.



In terms of additional demand, single detached homes will continue to represent the lions share of development on a unit by unit basis. From 2006 to 2016, there will be demand for an additional 40,879 single detached, 27,398 apartment, and 11,448 other ground oriented units. Single detached will represent 51% of new home demand between 2006 and 2016. From 2016 to 2041, the forecast suggests there will be new demand for 67,446 single detached homes, 45,107 apartments, and 16,212 other ground oriented units.

Additional Demand by Unit Type

	Single Detached	Apartments	Other Ground Oriented	Total All Units
2006 to 2016	40,879	27,398	11,448	79,725
2016 to 2041	67,446	45,107	16,212	128,766
Units per Year	3,095	2,072	790	5,957

Absorption at ECCA – 3b

The preliminary land use plan for ECCA shows 11,199 apartment residences and 330 ground oriented multi-family units. The following table uses the dwelling unit projection from above and information collected on current and upcoming major developments in the City. The analysis establishes the current competition and calculates the pace of absorption at ECCA assuming that the developments all have equal market appeal.

It has been determined that there are almost 35,000 residential units that could be built in major developments or redevelopments that are currently in the planning process. This figure does not include ECCA lands. At the projected rate of new demand for multi-family units between 2006 and 2016, there will be 27,192 units absorbed between 2009 and 2016. This will leave 7,718 units remaining from current projects after 2016. In 2016, if ECCA units come on-line, there will be 19,559 multi-family units in the development pipeline. The model also anticipates the addition of competitive supply elsewhere, which is currently unknown, and is therefore difficult to quantify. Other competition is included in two scenarios as a residual calculation which results in total City-wide multi-family supply equalling the 20-year average multi-family housing starts of 2,278 per year in the Low Range, and 2,717 starts per year to match the 15-year trend in the High Range.

At the average absorption rate per year from 2016 to 2041, and assuming all units are considered equal to the market, absorption of all units at ECCA would take between 23 and 28 years.

ECCA Absorption Model				
Current Major Development in Edmonton	**34,910**	**Units**		
2006 to 2016 Projected Pace of Absorption (units)				
Apartments	2,740	per year		
OtherGround Oriented	1,145	per year		
Total Multi-family	**3,885**	**per year**		
2009 to 2016 Absorption Total	**27,192**	**Units**		
Balance of Current Developments after 2016	**7,718**	**Units**		
2016 to 2045 Potential Multi-family Supply	**Low Range**		**High Range**	
Balance of Current Developments	7,718	Units	7,718	Units
Edmonton City Centre Airport	11,529	Units	11,529	Units
Other Competition*	37,703	Units	48,678	Units
Total	**56,950**	**Units**	**67,925**	**Units**
2016 to 2041 Projected Pace of Absorption (units)				
Apartments	1,804	per year		
Other Ground Oriented	648	per year		
Total Multi-family	**2,453**	**per year**		
Edmonton Airport Development Timing	**Absorption Period** 23 to 28 Years			

* Calculated to bring total 25-year supply to the 20-year average MF starts of 2278/yr (low range); and 2717/yr to match the 15-year annual average MF starts (high range)

- THIS PAGE INTENTIONALLY LEFT BLANK -

APPENDIX F

COMMERCIAL DEMAND AND CONFIGURATION - DEMONSTRATION PLAN

Edmonton City Centre Airport

Commercial Demand and Development Concept Brief

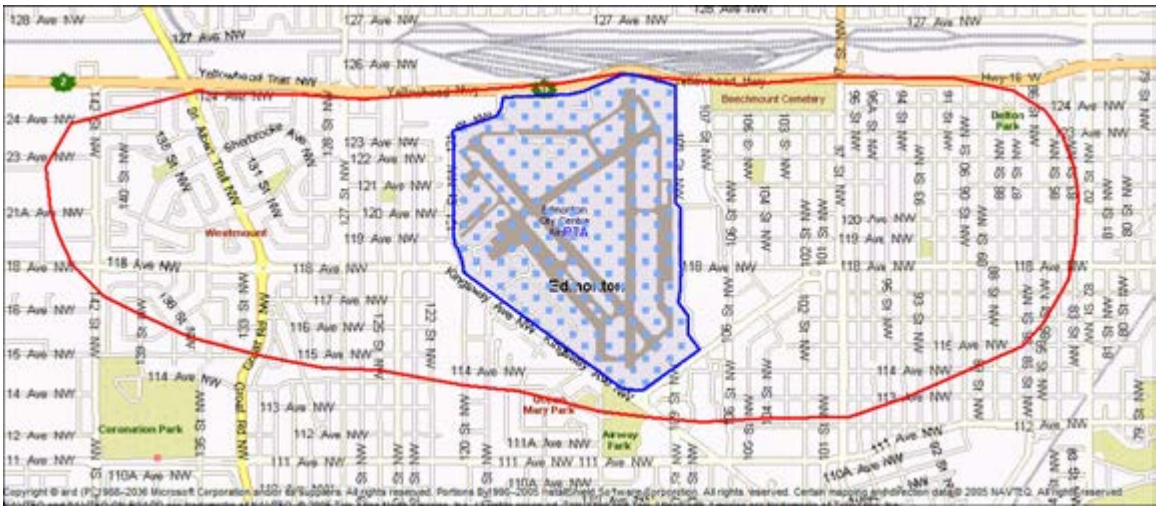
Concept 3b

June 1, 2009

COLLIERS INTERNATIONAL

Retail and Service Commercial Demand Assessment

For the purposes of this commercial brief, the Primary Trade Area (PTA) is considered to be the ECCA site itself. The Secondary Trade Area (STA) is shown on the following map, and is estimated to span the area from the Yellowhead Trail to roughly 112 Avenue in the south, and from past 142 Street to approximately 82 Street. The population in the STA is estimated at approximately 25,000 in 2009 and is projected to grow to over 26,700 by 2014; and increasing at a modest .18% per year thereafter[1].



The projected build-out population of the PTA is 24,286. For the purposes of estimating commercial demand potential from these residents, we have assumed a 25-year development timing.

PTA Resident Spending

Based on the anticipated population of the ECCA Lands, and our estimates of the future personal disposable income (PDI) of residents within the trade area, the table below illustrates that at build out, there would be approximately $448 million in spending retail spending generated by residents of the ECCA lands. The spending is expected to be comprised of $65.3 million at Supermarkets, $50.3 million at General Merchandise stores, $21.5 million at home centre and hardware stores, and over $100 million at new car dealers.

[1] Population growth rate for the STA was extrapolated from traffic zone projections to 2016 and 2041 by Applications Management Consulting Ltd.

RETAIL EXPENDITURE POTENTIAL, Build-out Edmonton Municipal Airport -- PTA		
		Build-Out
POPULATION		24,286
INCOME (PDI)	$	35,278
TOTAL INCOME POTENTIAL		$856,749,480
RETAIL SALES / INCOME		52.3%
TOTAL RETAIL POTENTIAL		**$448,138,400**
Supermarkets	$	65,336,881
Convenience and specialty food stores	$	7,627,795
Beer, wine and liquor stores	$	11,896,541
Pharmacies and personal care stores	$	18,153,977
General merchandise stores	$	50,306,535
Clothing stores	$	18,956,138
Shoe, clothing accessories and jewellery stores	$	6,253,077
Home centres and hardware stores	$	21,517,386
Home electronics and appliance stores	$	18,016,651
Furniture stores	$	10,648,977
Home furnishings stores	$	8,423,416
Specialized building materials and garden stores	$	7,297,194
Sporting goods, hobby, music and book stores	$	11,854,398
Computer and software stores	$	1,852,817
Miscellaneous store retailers	$	10,545,074
New car dealers	$	100,484,463
Used and recreational motor vehicle and parts dealers	$	24,218,866
Gasoline stations	$	54,748,211
TOTAL RETAIL EXPENDITURES	**$**	**448,138,400**

Source: Colliers International Realty Advisors, 2009

PTA Net Retail Spending

The following table outlines what the net retail spending potential of the ECCA Lands would be based on the assumption that the retail uses within the ECCA Lands themselves would capture a proportion of the overall gross expenditure potential. The capture rates shown for each category reflect a typical pattern of consumer habit, whereby convenience-type spending is more likely to occur in the local community, and comparable goods spending flows more to large regional and super-regional shopping centres as well as destination shopping nodes, and areas near places of work. In this situation, the net spending that would be expected to remain within the ECCA is lower than in comparable developments, due primarily to the region-serving Kingsway Garden Mall, as well as the other retailers along Kingsway.

Maintaining conservative capture rates while also establishing a critical mass will promote a healthy commercial environment within the ECCA, characterized by high occupancy rates, strong lease values, and high volumes of customer traffic. Furthermore, it reinforces a City-wide commercial hierarchy, which promotes more environmentally sustainable shopping habits.

The anticipated capture rates are illustrated below. Total net expenditures are expected to reach $75.2 million at build-out. This would be comprised of over $22.8 million in Supermarket spending; and $15.0 million at General merchandise stores.

NET RETAIL EXPENDITURES, Build-Out
Edmonton Municipal Airport -- PTA

	Market Capture (%)	Build-Out
Supermarkets	35%	$22,867,908
Convenience and specialty food stores	35%	$2,669,728
Beer, wine and liquor stores	35%	$4,163,789
Pharmacies and personal care stores	35%	$6,353,892
General merchandise stores	30%	$15,091,961
Clothing stores	10%	$1,895,614
Shoe, clothing accessories and jewellery stores	10%	$625,308
Home centres and hardware stores	10%	$2,151,739
Home electronics and appliance stores	15%	$2,702,498
Furniture stores	15%	$1,597,347
Home furnishings stores	15%	$1,263,512
Specialized building materials and garden stores	10%	$729,719
Sporting goods, hobby, music and book stores	10%	$1,185,440
Computer and software stores	15%	$277,923
Miscellaneous store retailers	15%	$1,581,761
Automobiles and Related Merchandise	10%	$10,048,446
TOTAL COMMERCIAL		**$75,206,585**

Source: Colliers International Realty Advisors, 2009

Net Commercial Floor Area

The net warranted floor area is the retail and service commercial floor area that is supported by the net spending from the PTA, at productivity levels (sales per sq.ft.) which represent typical sales in new developments. The table below shows the total floor area, by major category, supported by the net PTA spending. It is estimated the PTA residents would support almost 264,000 sq.ft. of retail space on-site at the build-out of the community. This total net retail demand would be comprised of over 31,000 square feet of supermarket space, 51,000 square feet of general merchandise stores, and almost 100,000 square feet of service commercial businesses.

NET WARRANTED RETAIL FLOOR AREA, Build-Out
Edmonton Municipal Airport -- PTA

	Sales Reqm't ($/Sq. Ft.)	Build-Out
Supermarkets	$750	31,136
Convenience and specialty food stores	$1,000	2,726
Beer, wine and liquor stores	$650	6,541
Pharmacies and personal care stores	$650	9,982
General merchandise stores	$300	51,371
Clothing stores	$450	4,302
Shoe, clothing accessories and jewellery stores	$650	982
Home centres and hardware stores	$300	7,324
Home electronics and appliance stores	$1,300	2,123
Furniture stores	$400	4,078
Home furnishings stores	$950	1,358
Specialized building materials and garden stores	$250	2,981
Sporting goods, hobby, music and book stores	$600	2,018
Computer and software stores	$550	516
Miscellaneous store retailers	$500	3,230
Automobiles and Related Merchandise	$300	34,204
Service Commercial	60%	98,923
TOTAL COMMERCIAL		**263,796**

Source: Colliers International Realty Advisors, 2009

Total Commercial Demand

Assuming that the PTA residents will contribute approximately 65%-70% of the potential expenditures at build out, an additional 15%-20% is anticipated to be derived from the Secondary Trade Area (STA), and a further 10%-15% from inflow trade. This pattern is observed at commercial centres at a variety of scales. Taken collectively these expenditures comprise 100% of the potential expenditures, which translates into approximately 378,000 sq.ft. of retail and service commercial floor area at build-out.

There would be demand for over 40,700 sq.ft. of Supermarkets, almost 70,000 sq.ft. of General Merchandise stores, and over 138,000 sq.ft. of Service Commercial, including restaurants, financial institutions, personal services, some medical services, etc.

NET DEMAND ORIGINS at Build-Out Edmonton Municipal Airport	PTA 68%	STA 17%	Inflow 15%	Total 100%
Supermarkets	30,491	4,157	6,114	40,761
Convenience and specialty food stores	2,670	364	535	3,569
Beer, wine and liquor stores	6,406	873	1,285	8,564
Pharmacies and personal care stores	9,775	1,333	1,960	13,068
Other general merchandise stores	50,307	8,001	10,290	68,597
Clothing stores	4,212	2,010	1,098	7,321
Shoe, clothing accessories and jewellery stores	962	459	251	1,672
Home centres and hardware stores	7,172	3,422	1,870	12,464
Home electronics and appliance stores	2,079	661	484	3,224
Furniture stores	3,993	1,270	929	6,193
Home furnishings stores	1,330	423	309	2,062
Specialized building materials and garden stores	2,919	1,393	761	5,072
Sporting goods, hobby, music and book stores	1,976	943	515	3,433
Computer and software stores	505	161	118	784
Miscellaneous store retailers	3,164	1,006	736	4,906
Automobiles and Related Merchandise	33,495	15,982	8,731	58,208
Service Commercial	96,873	21,229	20,842	138,944
TOTAL COMMERCIAL	**258,328**	**63,687**	**56,826**	**378,841**

Source: Colliers International Realty Advisors, 2009

Commercial Configuration

While the above noted tables outline the amount of warranted retail space, the table below defines a sample hierarchy of commercial centres that could be developed for the ECCA Lands based on shopping centre types and demand levels. Further, this table defines how much land area should be allocated for each type of retail format, using a 26% land efficiency factor.

COMMERCIAL CONFIGURATION Edmonton Municipal Airport	Buildout Population 24,286	
	Square Feet	Acres
Community Shopping Centre	208,300	18.4
Neighbourhood Convenience (2) / Streetfront	170,500	15.0
Total Square Feet	**378,800**	**33.4**

Source: Colliers International Realty Advisors, 2009

Commercial Sites and Format

The following table describes more detailed characteristics about the sample commercial layout, with descriptions of what each type of centre or commercial area could become. The table provides a description of the typical merchandise mix and size, as well as the number of potential sites in ECCA and a range of total square feet that the commercial centres could become.

Commercial Type	Description	Size	Number in ECCA	Total square feet
Neighbourhood Convenience / Streetfront Commercial	Small grocery-anchored convenience commercial: gas station, convenience store, groceries, limited services, restaurants. Or streetfront.	Minimum 50,000-60,000 sf	3 neighbourhood centres or 2 plus high street district	150,000 TO 180,000
Community Shopping Centre	Ranging from Local-serving to community-level, offering groceries, convenience goods, some apparel, restaurants and services	10-20 acre sites with 100,000-125,000 square feet of commercial in each	2	200,000 TO 250,000
Total			**5 sites**	**350,000 To 430,000 sf**

If 350,000 square feet of commercial space was created on the ECCA lands, it would satisfy the equivalent of less than 25% of demand generated by the anticipated ECCA population alone. If 430,000 square feet were provided, it would satisfy 30% of PTA demand. The balance, and virtually all STA demand, would flow to other businesses, both locally and elsewhere in the City.

Commercial Design and Development Principles

The following planning principles should be considered in planning for future retail / service commercial uses in the conceptual redevelopment of the ECCA Lands:

Accessibility

- Retailers require their premises to be easily accessible to the buying public. Access/egress by way of vehicle and pedestrian traffic signalization is encouraged where possible.

Signage and Visibility

- Ensure entrances to parking lots are properly identified with signs, if possible. Animation of the parking lot entrances will provide a positive image to visitors and will increase repeat visits.
- Some retailers require high exposure premises in order to perform competitively within their respective markets. This is typically realized by orienting storefronts and/or signage toward main thoroughfares, commercial corridors, or popular streets.
- Establish Signage Guidelines as quickly as possible. This will enable the land owners to maintain control over the visual attractiveness of the commercial frontages.

Parking

- A parking ratio of 4.5 stalls for every 1,000 square feet of commercial space is often demanded by major retailers. In fact, some major retailers require 5 stalls for every 1,000 square feet of commercial space.
- Easy circulation throughout the parking lot is very important to ensuring that customers return. Driveway aisles should provide a width that will enable vehicular traffic to comfortably manoeuvre in and out of the parking lot.
- Retailers also want to know that the parking facility will appeal to their customers and employees, particularly women. Attractive design elements including landscaping, walkway treatments (interlocking brick, stamped concrete, stamped asphalt, etc.), powerful lighting that illuminates the facility beyond traditional standards, directories and directional signage are very important. Security may be required to ensure that the parking lot is as safe as possible at all times, especially after daytime working hours.

Opportunities and Challenges

The following is an assessment of the opportunities and challenges that can be expected in the development of the ECCA commercial areas. The criteria identified are shown on the left. They are accompanied by a brief description and followed by the identification of advantages and challenges.

1. Regional Shopping Competition	*Edmonton is still dominated by regional and Super-Regional shopping nodes including Kingsway Garden Mall, South Edmonton Common and West Edmonton Mall.*
Opportunity: Edmonton has a number of prominent shopping destinations, however, the proposed community to be developed on the ECCA lands is in very close proximity to Kingsway Garden Mall, and an additional regional scale shopping centre is not recommended for the ECCA site.	
2. Neighbourhood Node Competition	*Areas in and around the ECCA Lands do not have a significant amount of neighbourhood commercial*
Opportunity: There is the opportunity to develop some neighbourhood centres serving the local population as part of an effective and sustainable commercial hierarchy.	
3. Arterial and Highway Commercial Competition	*There are few major highway-oriented commercial opportunities in this area of Edmonton*
Opportunity: ECCA Lands, combined with complementary Kingsway retail could become a commercial destination, attracting inflow trade from throughout the City.	
4. Resident Market	*The proposed residential communities comprising the ECCA Lands will provide the primary trade for the ECCA Lands commercial.*
Opportunity: There is anticipated to be a substantial population to support the contemplated commercial aspects of the project, and growth prospects are very strong.	

5. Pass-By Market	*The volumes of pass-by traffic, both of residents and visitors to and from the City, provide a significant demand sector for commercial services.*
Opportunity: The anticipated large volumes of vehicle traffic on the proposed road network will support destination businesses that require exposure to potential customers.	
6. Major Nodes	*Kingsway Garden Mall is a significant commercial node.*
Opportunity: Kingsway Garden Mall can serve the regional commercial needs of the future ECCA population.	
7. Growth of Markets	*The growth of the PTA and passing traffic will influence the scale and type of commercial that can thrive in the ECCA Lands plan.*
Opportunity: As the market area population increases, it increases the viability of the businesses that serve it. Businesses in the ECCA Lands will derive benefit from population increases in the neighbourhoods and in the communities in close proximity.	
8. Critical Mass	*Need to create a critical mass of commercial floor space to ensure a strong variety of stores and services. Critical mass is necessary for all commercial nodes, big and small.*
Opportunity: The ECCA Lands commercial should be able to attain a critical mass of commercial activity over time. Commercial uses should be concentrated in order to gain critical mass for destination, neighbourhood and convenience uses.	
9. Compactness	*Must ensure that neighbourhood commercial areas are compact to promote easy pedestrian flow and comparison shopping.*
Challenge: Effective site planning will be necessary to ensure relative compactness of all commercial types.	

10. Accessibility	*Must ensure that commercial areas have strong accessibility for a variety of patrons. The commercial businesses should have convenient vehicle and pedestrian access. Integration with the LRT Stations.*
Opportunity: Accessibility to commercial opportunities in the ECCA Lands should be gained via the proposed road network system. Pedestrian accessibility from residential neighbourhoods is provided by sidewalks and via direct connection to LRT Stations.	
11. Anchors	*Must ensure that the commercial areas have strong traffic-generating uses. It will be in the developer/investors' interests to secure high quality anchor tenants at each commercial node.*
Opportunity: Anchor tenants will be attracted to the commercial sites in the ECCA Lands. The strong market potential for commercial will attract anchors such as food stores.	
12. Mixed Use	*The location of the civic, institutional, and recreational land uses would increase activity around the commercial uses. A mix of uses can enhance the identity of the area and attract a greater number of visitors/shoppers for a greater number of reasons.*
Challenge: The ECCA site is proposed to contain development at a variety of densities, and while mixed use areas are desirable, they may only be achieved in the Commercial Core area.	
13. Convenience	*Planned commercial nodes should be positioned to offer convenience to their markets.*
Challenge: The Neighbourhood Commercial component of the ECCA should be located in proximity to multi-family areas while also connecting to the lower density residential and industrial sites within the plan area.	

14. Human-scale	*The neighbourhood commercial areas should be designed for a comfortable experience, with strong pedestrian orientation. Design controls, and the size and scale of warranted commercial development can work in tandem to ensure strong pedestrian orientation and a comfortable experience.* *Shopping areas should be limited to two blocks surrounding an anchor or between two anchors.*
Opportunity: There should be plans for human-scale commercial in the neighbourhood commercial areas.	
15. Continuity	*Should ensure that retail uses are located at-grade and form a continuous ribbon through the commercial nodes to promote pedestrian movement. Planning activities should consider retail continuity at the design stage, and have retail at ground level, in a contiguous pattern.*
Opportunity: The ECCA Lands detailed plans can be developed from design elements that create continuity within the neighbourhood commercial areas.	
16. Uniqueness	*Notwithstanding a common theme, individual buildings should be unique to promote a destination development. It will be in the community and the developers' interests to create a unique and interesting shopping environment that appeals to a broad customer base.*
Opportunity: The ECCA Lands plan can be developed from design elements that create uniqueness and enhance the shopping experience.	
17. Lot Size	*Commercial lot sizes should be large enough to attract a wide array of potential developers and builders.*
Opportunity: Lot subdivision should be pursued by developers where possible and appropriate to address smaller individual lot sizes.	

18. Tenant Spaces and Frontages	*Should encourage the development of some smaller tenant spaces and narrow frontages (12 to 15 feet) to assist in creating a greater sense of variety. It will be in the community and the developers' interests to create a vibrant and successful shopping area.*
Opportunity: Narrow frontages typical in large integrated developments promote pedestrian comfort. These can be pursued in the neighbourhood commercial area.	
19. Merchandise Mix	*The merchandise mix should sufficiently reflect the market segments to which it caters. It will be in the community and the developers' interests for this development to have a scale and variety of retailers that is warranted by the trade area.*
Opportunity: ECCA Lands can be planned with a merchandise mix that is responsive to the market.	

APPENDIX G

COMMERCIAL DEMAND AND CONFIGURATION - DEMONSTRATION PLAN FOR EXTENDED AREA

Edmonton City Centre Airport

Commercial Demand and Development Concept Brief

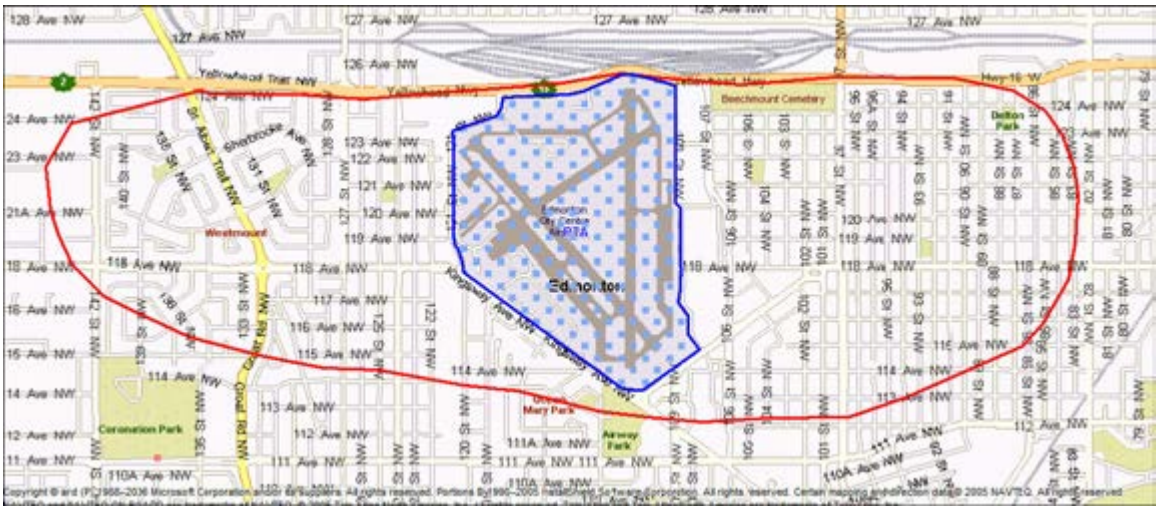
Concept 4b

June 1, 2009

COLLIERS INTERNATIONAL

Retail and Service Commercial Demand Assessment

For the purposes of this commercial brief, the Primary Trade Area (PTA) is considered to be the ECCA site itself. The Secondary Trade Area (STA) is shown on the following map, and is estimated to span the area from the Yellowhead Trail to roughly 112 Avenue in the south, and from past 142 Street to approximately 82 Street. The population in the STA is estimated at approximately 25,000 in 2009 and is projected to grow to over 26,700 by 2014; and increasing at a modest .18% per year thereafter[1].



The projected build-out population of the PTA is 28,773. For the purposes of estimating commercial demand potential from these residents, we have assumed a 25-year development timing.

PTA Resident Spending

Based on the anticipated population of the ECCA Lands, and our estimates of the future personal disposable income (PDI) of residents within the trade area, the table below illustrates that at build out, there would be approximately $530 million in spending retail spending generated by residents of the ECCA lands. The spending is expected to be comprised of $77.4 million at Supermarkets, $59.6 million at General Merchandise stores, $25.5 million at home centre and hardware stores, and almost $120 million at new car dealers.

[1] Population growth rate for the STA was extrapolated from traffic zone projections to 2016 and 2041 by Applications Management Consulting Ltd.

RETAIL EXPENDITURE POTENTIAL, Build-out Edmonton Municipal Airport -- PTA		
		Build-Out
POPULATION		28,773
INCOME (PDI)	$	35,278
TOTAL INCOME POTENTIAL		$1,015,039,640
RETAIL SALES / INCOME		52.3%
TOTAL RETAIL POTENTIAL		**$530,934,900**
Supermarkets	$	77,408,297
Convenience and specialty food stores	$	9,037,080
Beer, wine and liquor stores	$	14,094,505
Pharmacies and personal care stores	$	21,508,044
General merchandise stores	$	59,600,997
Clothing stores	$	22,458,409
Shoe, clothing accessories and jewellery stores	$	7,408,374
Home centres and hardware stores	$	25,492,864
Home electronics and appliance stores	$	21,345,345
Furniture stores	$	12,616,445
Home furnishings stores	$	9,979,698
Specialized building materials and garden stores	$	8,645,398
Sporting goods, hobby, music and book stores	$	14,044,576
Computer and software stores	$	2,195,138
Miscellaneous store retailers	$	12,493,345
New car dealers	$	119,049,625
Used and recreational motor vehicle and parts dealers	$	28,693,460
Gasoline stations	$	64,863,301
TOTAL RETAIL EXPENDITURES	**$**	**530,934,900**

Source: Colliers International Realty Advisors, 2009

PTA Net Retail Spending

The following table outlines what the net retail spending potential of the ECCA Lands would be based on the assumption that the retail uses within the ECCA Lands themselves would capture a proportion of the overall gross expenditure potential. The capture rates shown for each category reflect a typical pattern of consumer habit, whereby convenience-type spending is more likely to occur in the local community, and comparable goods spending flows more to large regional and super-regional shopping centres as well as destination shopping nodes, and areas near places of work. In this situation, the net spending that would be expected to remain within the ECCA is lower than in comparable developments, due primarily to the region-serving Kingsway Garden Mall, as well as the other retailers along Kingsway.

Maintaining conservative capture rates while also establishing a critical mass will promote a healthy commercial environment within the ECCA, characterized by high occupancy rates, strong lease values, and high volumes of customer traffic. Furthermore, it reinforces a City-wide commercial hierarchy, which promotes more environmentally sustainable shopping habits.

The anticipated capture rates are illustrated below. Total net expenditures are expected to reach $89.1 million at build-out. This would be comprised of over $27.0 million in Supermarket spending; and $17.8 million at General merchandise stores.

NET RETAIL EXPENDITURES, Build-Out
Edmonton Municipal Airport -- PTA

	Market Capture (%)	Build-Out
Supermarkets	35%	$27,092,904
Convenience and specialty food stores	35%	$3,162,978
Beer, wine and liquor stores	35%	$4,933,077
Pharmacies and personal care stores	35%	$7,527,815
General merchandise stores	30%	$17,880,299
Clothing stores	10%	$2,245,841
Shoe, clothing accessories and jewellery stores	10%	$740,837
Home centres and hardware stores	10%	$2,549,286
Home electronics and appliance stores	15%	$3,201,802
Furniture stores	15%	$1,892,467
Home furnishings stores	15%	$1,496,955
Specialized building materials and garden stores	10%	$864,540
Sporting goods, hobby, music and book stores	10%	$1,404,458
Computer and software stores	15%	$329,271
Miscellaneous store retailers	15%	$1,874,002
Automobiles and Related Merchandise	10%	$11,904,963
TOTAL COMMERCIAL		**$89,101,493**

Source: Colliers International Realty Advisors, 2009

Net Commercial Floor Area

The net warranted floor area is the retail and service commercial floor area that is supported by the net spending from the PTA, at productivity levels (sales per sq.ft.) which represent typical sales in new developments. The table below shows the total floor area, by major category, supported by the net PTA spending. It is estimated the PTA residents would support almost 306,000 sq.ft. of retail space on-site at the build-out of the community. This total net retail demand would be comprised of over 36,000 square feet of supermarket space, 59,600 square feet of general merchandise stores, and over 114,000 square feet of service commercial businesses.

NET WARRANTED RETAIL FLOOR AREA, Build-Out
Edmonton Municipal Airport -- PTA

	Sales Reqm't ($/Sq. Ft.)	Build-Out
Supermarkets	$750	36,124
Convenience and specialty food stores	$1,000	3,163
Beer, wine and liquor stores	$650	7,589
Pharmacies and personal care stores	$650	11,581
General merchandise stores	$300	59,601
Clothing stores	$450	4,991
Shoe, clothing accessories and jewellery stores	$650	1,140
Home centres and hardware stores	$300	8,498
Home electronics and appliance stores	$1,300	2,463
Furniture stores	$400	4,731
Home furnishings stores	$950	1,576
Specialized building materials and garden stores	$250	3,458
Sporting goods, hobby, music and book stores	$600	2,341
Computer and software stores	$550	599
Miscellaneous store retailers	$500	3,748
Automobiles and Related Merchandise	$300	39,683
Service Commercial	60%	114,771
TOTAL COMMERCIAL		**306,056**

Source: Colliers International Realty Advisors, 2009

Total Commercial Demand

Assuming that the PTA residents will contribute approximately 65%-70% of the potential expenditures at build out, an additional 15%-20% is anticipated to be derived from the Secondary Trade Area (STA), and a further 10%-15% from inflow trade. This pattern is observed at commercial centres at a variety of scales. Taken collectively these expenditures comprise 100% of the potential expenditures, which translates into approximately 435,000 sq.ft. of retail and service commercial floor area at build-out.

There would be demand for over 47,000 sq.ft. of Supermarkets, almost 80,000 sq.ft. of General Merchandise stores, and over 160,000 sq.ft. of Service Commercial, including restaurants, financial institutions, personal services, some medical services, etc.

NET DEMAND ORIGINS at Build-Out Edmonton Municipal Airport	PTA 70%	STA 15%	Inflow 15%	Total 100%
Supermarkets	36,124	4,157	7,108	47,389
Convenience and specialty food stores	3,163	364	622	4,149
Beer, wine and liquor stores	7,589	873	1,493	9,956
Pharmacies and personal care stores	11,581	1,333	2,279	15,193
Other general merchandise stores	59,601	8,001	11,930	79,532
Clothing stores	4,991	2,010	1,235	8,236
Shoe, clothing accessories and jewellery stores	1,140	459	282	1,881
Home centres and hardware stores	8,498	3,422	2,104	14,023
Home electronics and appliance stores	2,463	661	551	3,676
Furniture stores	4,731	1,270	1,059	7,061
Home furnishings stores	1,576	423	353	2,352
Specialized building materials and garden stores	3,458	1,393	856	5,707
Sporting goods, hobby, music and book stores	2,341	943	579	3,863
Computer and software stores	599	161	134	893
Miscellaneous store retailers	3,748	1,006	839	5,593
Automobiles and Related Merchandise	39,683	15,982	9,823	65,488
Service Commercial	114,771	21,229	24,000	160,000
TOTAL COMMERCIAL	**306,056**	**63,687**	**65,249**	**434,992**

Source: Colliers International Realty Advisors, 2009

Commercial Configuration

While the above noted tables outline the amount of warranted retail space, the table below defines a sample hierarchy of commercial centres that could be developed for the ECCA Lands based on shopping centre types and demand levels. Further, this table defines how much land area should be allocated for each type of retail format, using a 26% land efficiency factor.

COMMERCIAL CONFIGURATION Edmonton Municipal Airport	Buildout Population 28,773	
	Square Feet	Acres
Community Shopping Centre	239,300	21.1
Neighbourhood Convenience (2) / Streetfront	195,700	17.2
Total Square Feet	**435,000**	**38.3**

Source: Colliers International Realty Advisors, 2009

Commercial Sites and Format

The following table describes more detailed characteristics about the sample commercial layout, with descriptions of what each type of centre or

commercial area could become. The table provides a description of the typical merchandise mix and size, as well as the number of potential sites in ECCA and a range of total square feet that the commercial centres could become.

Commercial Type	Description	Size	Number in ECCA	Total square feet
Neighbourhood Convenience / Streetfront Commercial	Small grocery-anchored convenience commercial: gas station, convenience store, groceries, limited services, restaurants. Or streetfront.	50,000-60,000 sf	3 neighbourhood centres or 2 plus high street district	150,000 TO 180,000
Community Shopping Centre	Ranging from Local-serving to community-level, offering groceries, convenience goods, some apparel, restaurants and services	10-20 acre sites with 125,000-150,000 square feet of commercial in each	2	250,000 TO 300,000
Total			**5 sites**	**400,000 To 480,000 sf**

If 400,000 square feet of commercial space was created on the ECCA lands, it would satisfy the equivalent of less than 24% of demand generated by the anticipated ECCA population alone. If 480,000 square feet were provided, it would satisfy 28% of PTA demand. The balance, and virtually all STA demand, would flow to other businesses, both locally and elsewhere in the City.

Commercial Design and Development Principles

The following planning principles should be considered in planning for future retail / service commercial uses in the conceptual redevelopment of the ECCA Lands:

Accessibility

- Retailers require their premises to be easily accessible to the buying public. Access/egress by way of vehicle and pedestrian traffic signalization is encouraged where possible.

Signage and Visibility

- Ensure entrances to parking lots are properly identified with signs, if possible. Animation of the parking lot entrances will provide a positive image to visitors and will increase repeat visits.
- Some retailers require high exposure premises in order to perform competitively within their respective markets. This is typically realized by orienting storefronts and/or signage toward main thoroughfares, commercial corridors, or popular streets.
- Establish Signage Guidelines as quickly as possible. This will enable the land owners to maintain control over the visual attractiveness of the commercial frontages.

Parking

- A parking ratio of 4.5 stalls for every 1,000 square feet of commercial space is often demanded by major retailers. In fact, some major retailers require 5 stalls for every 1,000 square feet of commercial space.
- Easy circulation throughout the parking lot is very important to ensuring that customers return. Driveway aisles should provide a width that will enable vehicular traffic to comfortably manoeuvre in and out of the parking lot.
- Retailers also want to know that the parking facility will appeal to their customers and employees, particularly women. Attractive design elements including landscaping, walkway treatments (interlocking brick, stamped concrete, stamped asphalt, etc.), powerful lighting that illuminates the facility beyond traditional standards, directories and directional signage are very important. Security may be required to ensure that the parking lot is as safe as possible at all times, especially after daytime working hours.

Opportunities and Challenges

The following is an assessment of the opportunities and challenges that can be expected in the development of the ECCA commercial areas. The criteria identified are shown on the left. They are accompanied by a brief description and followed by the identification of advantages and challenges.

1. Regional Shopping Competition	*Edmonton is still dominated by regional and Super-Regional shopping nodes including Kingsway Garden Mall, South Edmonton Common and West Edmonton Mall.*
Opportunity: Edmonton has a number of prominent shopping destinations, however, the proposed community to be developed on the ECCA lands is in very close proximity to Kingsway Garden Mall, and an additional regional scale shopping centre is not recommended for the ECCA site.	
2. Neighbourhood Node Competition	*Areas in and around the ECCA Lands do not have a significant amount of neighbourhood commercial*
Opportunity: There is the opportunity to develop some neighbourhood centres serving the local population as part of an effective and sustainable commercial hierarchy.	
3. Arterial and Highway Commercial Competition	*There are few major highway-oriented commercial opportunities in this area of Edmonton*
Opportunity: ECCA Lands, combined with complementary Kingsway retail could become a commercial destination, attracting inflow trade from throughout the City.	
4. Resident Market	*The proposed residential communities comprising the ECCA Lands will provide the primary trade for the ECCA Lands commercial.*
Opportunity: There is anticipated to be a substantial population to support the contemplated commercial aspects of the project, and growth prospects are very strong.	

5. Pass-By Market	*The volumes of pass-by traffic, both of residents and visitors to and from the City, provide a significant demand sector for commercial services.*
Opportunity: The anticipated large volumes of vehicle traffic on the proposed road network will support destination businesses that require exposure to potential customers.	
6. Major Nodes	*Kingsway Garden Mall is a significant commercial node.*
Opportunity: Kingsway Garden Mall can serve the regional commercial needs of the future ECCA population.	
7. Growth of Markets	*The growth of the PTA and passing traffic will influence the scale and type of commercial that can thrive in the ECCA Lands plan.*
Opportunity: As the market area population increases, it increases the viability of the businesses that serve it. Businesses in the ECCA Lands will derive benefit from population increases in the neighbourhoods and in the communities in close proximity.	
8. Critical Mass	*Need to create a critical mass of commercial floor space to ensure a strong variety of stores and services. Critical mass is necessary for all commercial nodes, big and small.*
Opportunity: The ECCA Lands commercial should be able to attain a critical mass of commercial activity over time. Commercial uses should be concentrated in order to gain critical mass for destination, neighbourhood and convenience uses.	
9. Compactness	*Must ensure that neighbourhood commercial areas are compact to promote easy pedestrian flow and comparison shopping.*
Challenge: Effective site planning will be necessary to ensure relative compactness of all commercial types.	

10. Accessibility	*Must ensure that commercial areas have strong accessibility for a variety of patrons. The commercial businesses should have convenient vehicle and pedestrian access. Integration with the LRT Stations.*
Opportunity: Accessibility to commercial opportunities in the ECCA Lands should be gained via the proposed road network system. Pedestrian accessibility from residential neighbourhoods is provided by sidewalks and via direct connection to LRT Stations.	
11. Anchors	*Must ensure that the commercial areas have strong traffic-generating uses. It will be in the developer/investors' interests to secure high quality anchor tenants at each commercial node.*
Opportunity: Anchor tenants will be attracted to the commercial sites in the ECCA Lands. The strong market potential for commercial will attract anchors such as food stores.	
12. Mixed Use	*The location of the civic, institutional, and recreational land uses would increase activity around the commercial uses. A mix of uses can enhance the identity of the area and attract a greater number of visitors/shoppers for a greater number of reasons.*
Challenge: The ECCA site is proposed to contain development at a variety of densities, and while mixed use areas are desirable, they may only be achieved in the Commercial Core area.	
13. Convenience	*Planned commercial nodes should be positioned to offer convenience to their markets.*
Challenge: The Neighbourhood Commercial component of the ECCA should be located in proximity to multi-family areas while also connecting to the lower density residential and industrial sites within the plan area.	

14. Human-scale	*The neighbourhood commercial areas should be designed for a comfortable experience, with strong pedestrian orientation. Design controls, and the size and scale of warranted commercial development can work in tandem to ensure strong pedestrian orientation and a comfortable experience.* *Shopping areas should be limited to two blocks surrounding an anchor or between two anchors.*
Opportunity: There should be plans for human-scale commercial in the neighbourhood commercial areas.	
15. Continuity	*Should ensure that retail uses are located at-grade and form a continuous ribbon through the commercial nodes to promote pedestrian movement. Planning activities should consider retail continuity at the design stage, and have retail at ground level, in a contiguous pattern.*
Opportunity: The ECCA Lands detailed plans can be developed from design elements that create continuity within the neighbourhood commercial areas.	
16. Uniqueness	*Notwithstanding a common theme, individual buildings should be unique to promote a destination development. It will be in the community and the developers' interests to create a unique and interesting shopping environment that appeals to a broad customer base.*
Opportunity: The ECCA Lands plan can be developed from design elements that create uniqueness and enhance the shopping experience.	
17. Lot Size	*Commercial lot sizes should be large enough to attract a wide array of potential developers and builders.*
Opportunity: Lot subdivision should be pursued by developers where possible and appropriate to address smaller individual lot sizes.	

18. Tenant Spaces and Frontages	*Should encourage the development of some smaller tenant spaces and narrow frontages (12 to 15 feet) to assist in creating a greater sense of variety. It will be in the community and the developers' interests to create a vibrant and successful shopping area.*
Opportunity: Narrow frontages typical in large integrated developments promote pedestrian comfort. These can be pursued in the neighbourhood commercial area.	
19. Merchandise Mix	*The merchandise mix should sufficiently reflect the market segments to which it caters. It will be in the community and the developers' interests for this development to have a scale and variety of retailers that is warranted by the trade area.*
Opportunity: ECCA Lands can be planned with a merchandise mix that is responsive to the market.	

APPENDIX H
OFFICE AND INDUSTRIAL BRIEF

Edmonton City Centre Airport

Office and Industrial Market Brief

June 2, 2009

COLLIERS INTERNATIONAL

Industrial Market Highlights

The Greater Edmonton city-wide industrial market totals approximately 95 million square feet. Since 2000 we have seen steadily increasing new construction, starting at 1 million square feet and peaking at 3 million square feet, with a matching amount of absorption over the same time period. However, the story was quite different for 2008, as a record was posted for new construction; but a dramatic reduction in absorption was experienced.

Vacancy

Overall industrial vacancy rate in Greater Edmonton has unexpectedly decreased slightly from the fourth quarter of 2008 from 3.17% to where it sits now at 2.99%, with 2,840,201 square feet of available space now on the market.

The Central Edmonton submarket (in which the ECCA is located) has almost 6 million square feet of industrial buildings, and a Q1 2009 vacancy rate of 2.28% -- slightly lower than the Greater Edmonton region as a whole. Sales of industrial buildings in Central Edmonton (airport lands, Yellowhead Trail, and the industrial corridor along 121 Street south to approximately 106 Ave) dropped in 2008 to less than $9 million after totaling almost $30 million in 2006 and 2007.

		Q4 2008		Q1 2009	
Industrial District	Market (Sq.Ft.)	Vacancy (Sq.Ft)	Vacancy Rate	Vacancy (Sq.Ft)	Vacancy Rate
Central Edmonton	5,961,376	125,082	2.10%	135,932	2.28%

Office Market Highlights

With the recent economic shift and the drop in the price of oil, the Edmonton office market has undergone some changes. A telling indicator was the decision of the Provincial Government to place a moratorium on all leasing activity for an indefinite period of time. This decision, along with various other elements, has altered the supply and demand forecasts for the Edmonton office market from where they were just one year ago.

The Edmonton Suburban office market consists of 141 buildings totaling just over eight million square feet. The inventory and the vacancy have increased substantially since the fourth quarter of 2008 due to new construction and former engineering/construction office space added back into the market.

As a result of the new added new construction and large pockets of space becoming available in existing buildings, the current suburban availability rate is 8.94%; more than doubling from 3.35% at year's end.

The 118th Avenue area has a total office inventory of 763,640 square feet, and a current vacancy rate of 5.31%, which is still below the Downtown vacancy rate of 6.19% and the city-wide suburban office vacancy rate of 8.94%.

Class	Total Inventory (Sq.Ft)	Direct Vanacy (Sq.Ft)	Direct Vacancy Rate	Current Vacancy Rate Q1-'09	Net Absorption (Sq.Ft) Q1-'09	Net New Supply Q1-'09	Avg Asking Rental Rates	Top Rates & New Product
118th Ave	763,640	41,602	5.31%	5.31%	-12,554	0	$15-$17	$22

While there has been a significant softening of both the office and industrial real estate markets in Edmonton in the last year, there is considerable optimism in the market. Edmonton remains an oil market, and with oil prices recently reaching $70US per barrel once again, and construction and trades costs dropping, major oil projects will likely be restarted after a 6-month hiatus.

Outside of the traditional office and industrial markets, the existing programs and expanded facilities at NAIT could result in additional office/industrial land demand. The following section presents several examples of universities, colleges, and technical schools that have neighbouring office/industrial developments that have been absorbed, either intentionally or not, by spin-off industries from the educational facility.

Case Studies – Post Secondary Affiliated Office/Industrial Development

There are literally hundreds of examples across North America where a post-secondary institution has established a relationship with private sector enterprises that are either related to specific, University related research initiatives, or form part of a strategic approach to technology/ research commercialization.

Discovery Parks, University of British Columbia

Discovery Parks is a private Canadian Trust with board representation by the University of British Columbia, Simon Fraser University, the British Columbia Institute of Technology, University of Victoria as well as other private and public sector organizations. The mandate of the Trust is to support the commercialization and technology transfer activities of research and technologies developed at these post-secondary institutions. The Trust develops and manages approximately two million square feet of commercial research, office, institutional and light industrial class buildings specifically designed to the unique requirements of the high tech sector, including life sciences research, applied research, communications technologies, software development, etc.

Discovery Parks has a long history of successful commercialization projects and companies and has fostered further expansion at the University of Victoria, Vancouver Island Technology Park, with particular focus on marine oriented research projects.

This for-profit development model has supported economic development and reinvestment of real estate profits for post-secondary education. It has also led to spin-off real estate development models to support endowment fund growth through development, land sales & land leases and/or joint ventures.

Vancouver Island Technology Park, University of Victoria

The University of Victoria created the Vancouver Island Technology Park in 2001 to promote academic, industry, and government collaboration designed to lead to the establishment and maintenance of research and technology-based facilities in British Columbia. The park was developed on 35 acres and used a former hospital as its first building. This building, developed as a "green building," has since been certified as the first Leadership in Environmental and Energy Design (LEED) Gold Certified Building in Canada. (LEED is a rating system developed by the U.S. Green Building Council.)

Innovation Place Research Park, University of Saskatoon

Established in 2000, Innovation Place in Regina, Saskatchewan, is one of Canada's newest university related research parks. Innovation Place is home to 30 clients in five buildings, employing more than 1,000 people.

Located next to the University of Regina, the park features five buildings that host leading edge petroleum and environmental sciences research. The Terrace, the flagship building, was recognized for its excellence in environmental design.

Torrey Pines Mesa, University of San Diego

Years ago the City of San Diego set aside land on Torrey Pines Mesa, which is located adjacent to the University of San Diego, California (UCSD). Occupancy within the City of San Diego property was limited to firms doing science research type work or corporate headquarters of more than 40,000 square feet.

Since its inception the concept's success has been greater than expected. The property became the focal point of San Diego's biotech world with many pharmaceutical users, specifically Pfizer, occupying space and working with graduates of UCSD. There is also a UCSD veteran's research hospital located nearby.

Mission Bay, University of California San Francisco

Mission Bay comprises layers of mixed uses, all surrounding a new research campus for UCSF built on 43 acres donated to the university as part of the overall redevelopment of a 303-acre former rail yard. The UCSF campus itself is mixed use, including four major

bioscience laboratory buildings; housing for more than 800 faculty, students, and staff; a community center; a childcare center; two garages; and a central green space.

That institutional core is adjoined by an additional 14.5 acres set aside for a planned 289-bed hospital center and by space for commercial bioscience uses being developed by both nonprofit and for-profit owners. Finally, both areas are buffered from downtown by a larger area for general office and retail development, along with thousands of more housing units (many affordable). The live-work population of the entire redevelopment district is projected to reach 9,000 by 2020.

University Park at the Massachusetts Institute of Technology

The University Park at MIT exemplifies a business park including various amenities. In addition to 1.5 million square feet of wet-lab facilities in nine buildings and 674 residential units in five buildings, the park includes a 210-room hotel and conference center, two restaurants, a health club, a full-service grocery store, banking services and a childcare center.

The Research Triangle Park, North Carolina: Building on a Legacy for Future Sustainability

The Research Triangle Park (RTP) was founded in 1959 by government, university, and business leaders as a model for research, innovation, and economic development. By establishing a place where educators, researchers, and businesses could collaborate as partners, the RTP founders hoped to change the economic composition of the region and state, thereby increasing opportunities for North Carolina citizens.

RTP is one of the oldest and largest examples of positive impact on an economy by strategic investments in education, infrastructure, and business climate. RTP's success was built around its first-mover status in research parks, its ability to build a critical mass of technology companies and knowledge workers, and its linkages to the region's universities' R&D strengths.

Over the past 50 years, the vision for RTP has transformed into the leading and largest planned research park in North America, recognized around the globe for its world-class R&D companies and contributions. Spanning 7,000 acres in total, with 20 million square feet of developed space, RTP is currently home to over 157 companies employing more than 39,000 knowledge workers in a wide array of industries. RTP is steeped in deep and robust relationships with three world-class research universities in close proximity: Duke University in Durham; North Carolina State University in Raleigh; and the University of North Carolina at Chapel Hill.

As the Research Triangle region has grown both outward and inward toward RTP, a host of amenities has developed around RTP. Currently, major initiatives are under way to re-develop older RTP properties and encourage retail and residential development in parcels directly surrounding the park. Within a 4-mile radius of RTP's boundaries, 13 million

square feet of built space and 15,000 acres are under development for office, commercial, retail, and industrial uses. In the same area, there are more than 40,550 housing units, offering executive housing, single-family homes, townhouses, and apartment units. The developments around RTP have contributed to a unique urban landmass with a tremendous impact on the region's and state's economic vitality and dynamism. No other campus location in the Research Triangle region has comparable access to such a broad mix of housing and retail opportunities.

Implications for ECCA Office and Industrial

The office real estate market in Edmonton is expected to experience a soft period brought on by the global recession, lower oil prices, and the resulting cancellation of a number of major oil extraction and refinement projects. Edmonton is the major urban service centre for oil and energy-related companies, and the slow down in this sector has resulted in increased office vacancy levels across the City. This is not expected to be a long-term condition. As oil prices rise above the important $70US per barrel level, the industry, and office and industrial real estate markets should begin a slow recovery.

Suburban Office/Industrial

In the ECCA there is the potential for a variety of office/industrial products, ranging from pure office in a high-density mixed-use town centre to suburban-style office park, R&D campus, and business industrial. The small overall potential supply of these products at ECCA, relative to the supply in the Greater Edmonton area, makes accurately forecasting demand somewhat of a challenge. While typical industrial land parcel sizes in Edmonton are in the range of less than 10 acres, it is conceivable that the 17.5 acre mixed-use office/industrial and the 22-acre business industrial parcels could attract a single occupant or, more likely several occupants, for each, as inner-city parcels of this size are not common.

Based on the successes seen in other post secondary-associated office industrial developments, and the unique opportunity of an accessible city centre site adjacent to NAIT, regional shopping, services, and a high-density transit-oriented town centre, the mixed-use office and business industrial lands would experience more business interest than comparable sites in a different location. We would expect that all of the lands in these designations would be absorbed within 10 years of construction starting on the town centre's other uses, and possibly sooner.

Traditional Office

Over the last 8 quarters, the City of Edmonton has added approximately 32,700 square feet of office space per month, on average. Over that period, an average of 11,900 square feet has been absorbed each month. If, after recovering from the current recession, the City absorbs a long-term average of 12,000 square feet of office space per month, or 144,000 square feet per year, some of that demand would be available for office users

looking for a unique high-density town centre location such as the ECCA could offer. It would be reasonable to expect that, starting in 2016, ECCA could absorb 5% of City-wide traditional office demand, or 7,200 square feet per year, if appropriate lands and development opportunities were available. Over 7 years, the accrued demand could support a 50,000 square feet office building; and over 14 years, two such buildings would be warranted.

APPENDIX I
LAND VALUE BRIEF

Edmonton City Centre Airport

Land Value Brief

June 9, 2009

COLLIERS INTERNATIONAL

Introduction

The Consultant team has reviewed the ECCA Lands essentially as a new town centre within the City of Edmonton, one that among other things would contain a mix of land uses across the site. In an effort to estimate the value of the lands to the City of Edmonton from a real estate perspective, Colliers International has made estimates of value relative to the specific land uses contemplated in the future. While this consulting exercise does not constitute a formal appraisal, it is intended that the figures put forward reflect the market realities of May 2009, which will likely vary from the previous estimates of value.

Current Market Activity

Theoretically, the most accurate manner in which to track land values over the past year is to complete a Paired Sales Analysis. This form of analysis compares parcels of land that sold in May 2008 and then resold in May 2009. If it is possible to obtain five or six such sales (to remove transaction-specific motivation), a good indication of the land value trend can be obtained. Unfortunately, no such sales are known to exist within the commercial and residential land market within the City of Edmonton due to reduced transaction volumes. Even if one or two sales occurred, this would not be sufficient evidence to draw a conclusion because the individual motivations of one or two sales (i.e. foreclosure, change in business plans, etc.) tend to cloud market-specific trends.

However, the lack of Paired Sales Analysis information does not prevent the determination of market trends. In fact, during times of significant movement (such as what is occurring in the market today), the indirect factors can be of greater relevance since they are not influenced by the specific motivations of individual sales. The indirect evidence that supports the notion of declining market values include the following:

- The volume of land sales has decreased. Increasing land transactions represent increasing demand since the supply of land remains constant. As dictated by simple economics, when supply remains constant and demand decreases, price will decrease. In the first quarter of 2007, there were 32 sales of commercial land in Metropolitan Edmonton including 16 sales within the City of Edmonton. In the first quarter of 2008, the volume of Metropolitan Edmonton commercial land sales dropped to 13 with only 5 sales in the City of Edmonton. During the first quarter of 2009, there were only 5 commercial land sales in Metropolitan Edmonton and only 4 within the city itself.

- Housing prices have decreased over the past twelve months. According to the Edmonton Real Estate Board, single-family house prices within the City of Edmonton averaged $367,672 during May 2009 compared to $383,167 during May 2008. This represents a decrease of 4.0% over the twelve-month period. Housing forms of higher density also dropped including a price decrease of 6.2% for condominium units and 12.3% for row housing. Housing price trends are a

strong indicator of residential land demand, which in turn will be a significant influence on residential land pricing.

- Building permits have declined. Another strong indicator that reflects demand for land is the value of building permits. Although some building permit values are attributed to renovation projects, the majority pertains to new construction. In order to construct a building, vacant land or a property that has a highest and best use as vacant is required. For the first four months of 2009, building permits within the city totalled only $608.3 million compared to $799.0 million during the first four months of 2008. Building permits within the city have decreased in tandem with decreases to land demand. This, in turn, has caused downward pressure on land values. The CMHC reports that Edmonton housing starts declined 56% during 2008 and they have predicted housing starts to decline by a further 8% during 2009.

- Vacancy rates for most property classes have increased. Land prices escalate when the demand for land exceeds the supply of land. Land demand will increase when existing buildings become full, necessitating the construction of new buildings to accommodate the additional demand created by residential and commercial occupants. According to statistics provided by CMHC, the vacancy rate for apartments climbed from 1.5% during October 2007 to 2.4% during October 2008.

- The economy is contracting. During the first quarter of 2009, the Canadian economy contracted by a significant 5.4%. The unemployment rate within the city has increased by 1.5 percentage points from April 2008 to April 2009. Property values are strongly correlated to economic cycles and therefore tend to decrease as the economy decreases.

- Perception. Everybody (or nearly everybody) in the real estate industry within Edmonton is of the opinion that land values have decreased over the past twelve months. This is arguably the most important detail of all, because land price is a function of expectations, not an aggregation of input costs such as a car or a meal at a restaurant. Land within a big city can be 100 times more expensive than land within a smaller town despite offering the same physical qualities. Should you call ten agents, appraisers, and/or mortgage brokers, you will find that all ten will concur that a value decrease has occurred over the past year. This will shape reality as much as any technical factor.

Methodology

It is recognized that the values associated with the current demonstration plans developed during the course of this assignment differ from those contemplated previously. This issue reflects the fact that more conceptual planning has been done with respect to the specific land uses as well as some of the other features of the proposed development such as park space, storm water management, road networks etc. In addition, the global economy has undergone some significant changes since

2008 with impacts on real estate market values being felt across every market in North America, and for that matter the world. While real estate values are anticipated to rebound over time, this assignment treats both gross revenues and gross costs in 2009 dollars in order to estimate the return to the City of Edmonton from a financial perspective.

The principle of highest and best use is fundamental to the concept of value in real estate. Highest and best use, in general, may be defined as follows:

> "The reasonably probable and legal use of vacant land of an improved property; which is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum productivity."

It is recognized that in cases where a site has existing improvements on it, the highest and best use may very well be determined to be different from the existing use. The existing use will continue, unless and until land value in its highest and best use exceeds the total value of the property in its existing use. This is the case with respect to the ECCA Lands in which the demonstration land use plans represent a higher and better use as opposed to the ongoing Airport operations and associated facilities.

The concept of highest and best use represents the premise upon which value is based. In the context of most probable selling price (market value) land values have been utilized that are best believed to represent the current Edmonton marketplace subject to the following assumptions:

- The lands have been serviced by the City of Edmonton acting as developer who would then sell lands to third party in a competitive marketplace as "*serviced development sites*";
- The Lands have been "*planned*" to the extent that there is a level of certainty with respect to the ultimate development that could take place on the lands (i.e. height, density, level of amenities) as increased levels of uncertainty will have a negative impact upon values;
- The Lands would be sold by the City in a rational phasing sequence with urban size development sites (1 to 5 acres in size);
- The values outlined herein are based on 2009 Canadian dollars as of June 1/2009;
- No increase in gross revenues over time have been contemplated for simplistic purposes albeit historically long term land values have appreciated in the neighbourhood of 2% to 3% per annum on average;
- The costs are derived from the summary of development costs developed by the Consulting Team and are estimated at $172M in April 2009 Canadian dollars;
- The estimated market value of the real estate, which is the object of this assignment, pertains to the value of the fee simple interest in the real property. No allowances have been made or consideration given to subsurface rights, if any;

- The property values have been presented on the basis that title to the real estate considered herein is good and marketable;
- There has been no consideration for legal matters, questions of survey, opinions of title, hidden or unapparent conditions of the property, toxic wastes or contaminated materials, soil or sub-soil conditions, environmental, engineering or other technical matters, which might render this property more or less valuable than as stated herein;
- The property has been valued on the basis that the real estate is free and clear of all value influencing encumbrances, encroachments, restrictions or covenants except as may be noted in this report and that there are no pledges, charges, liens or special assessments outstanding against the property;
- The interpretation of the leases and other contractual agreements, pertaining to the operation and ownership of the property has been disregarded for the purposes of this assignment. In cases where there are existing leases in place with third parties, it is assumed that the lands could be sold at market value to tenants or third parties;
- The property has been valued on the basis that there is no action, suit, proceeding or investigation pending or threatened against the real estate or affecting the owners of the property, at law or in equity or before or by any federal, provincial or municipal department, commission, board, bureau, agency or instrumentality which may adversely influence the value of the real estate herein considered;

There were two development scenarios modelled from land use and corresponding revenue perspective. These are demonstration plan 3b, which includes a smaller gross area of development as portions of the site are excluded from redevelopment; and, demonstration plan 4b, which includes the entire airport lands for redevelopment. The associated revenues are outlined below. These values represent current values in the market place and are supported by the following sales data. It is believed that these represent the best comparables that are also the most current. It should also be noted that there have been a very limited number of sales over the last 6 months due to the economic forces at play both in Edmonton and across Canada.

Land Use	$/ha	$/ac
Commercial		
200m	$3,211,000	$1,300,000
400m	$2,717,000	$1,100,000
800m	$2,099,500	$850,000
General Business	$2,099,500	$850,000
Institutional		
NAIT	$1,729,000	$700,000
Special Use		
Transport Node (including Heliport)	$1,729,000	$700,000
Mixed Use Office/Institutional/Industrial	$1,729,000	$700,000
Residential		
low density	$1,852,500	$750,000
		$/Unit
200m		$12,000
400m		$15,000
800m		$20,000

Commercial Land Values

The commercial land values that are proposed to form part of the mixed-use centre within the ECCA redevelopment are difficult to value as although some commercial development will occur within the project, the portions of the commercial components could be sparsely distributed throughout the "Mixed Use Centre" areas in conjunction with residential development. Detailed below are several sales of commercially designated lands within the City of Edmonton that have apartment uses as either permitted (CB2) or discretionary (CB1).

8935 - 127 Avenue
Zoned CB2
$667,500
0.69 acres
Sold February 2009
$967,391 per acre

11105 - 107 Avenue
Zoned CB1
$578,000
0.34 acres
Sold January 2009
$1,700,000 per acre

9009 - 111 Avenue
Zoned CB1
$900,000
0.42 acres
Sold March 2008
$2,142,857 per acre

10430 - 61 Avenue
Zoned CB2
$5,300,000
4.97 acres
Sold February 2008
$1,066,398 per acre

Should the proposed commercial development be located directly adjacent to a major arterial collector, it would likely generate unit values of between **$850,000 and $1,300,000 per acre** depending on a wide variety of factors including size of parcel, configuration, adjacent uses, ability to change zoning, and proximity to LRT. For the purposes of this assignment we have utilized a range of values representative of proximity to LRT.

Residential Land Values

Where case studies contained some flexibility with residential densities, the middle-density value was selected for illustrative purposes. Examples of lower density land sales in the City of Edmonton are as follows.

4330 Veterans Way
Zoned RF5G
$1,880,000
3.88 acres - approximately 77 units
Sold March 2009
$24,416 per unit
$484,536 per acre

10404 - 172 Avenue
Zoned RF5
$1,725,000
2.75 acres - approximately 55 units
Sold March 2009
$31,364 per unit
$627,273 per acre

11908 - 122 Street
Zoned RF3
$810,000
0.49 acres - approximately 8 units
Sold January 2009

$101,250 per unit
$1,653,061 per acre

6520 - 2 Avenue SW
Zoned RF5
$2,160,000
2.64 acres - approximately 53 units
Sold July 2008
$40,755 per unit
$818,182 per acre

As such, it appears that a value of **$600,000 to $800,000 per acre** is a reasonable value in today's market. For this low-density land, it is assumed that the City is going to sell serviced blocks of land to builders. The value within that range is open for debate depending on the eventual zoning. Having industrial-oriented uses to the south and north, does not add to the value of this particular area.

Examples of medium to medium-high density land sales in the City of Edmonton are as follows.

12334 - 82 Street
Zoned RA7
$480,000
0.28 acres - approximately 14 units
Sold April 2009
$34,286 per unit
$1,714,286 per acre

603 Watt Boulevard
Zoned RF6
$6,001,000
7.06 acres - approximately 264 units
Sold December 2008
$22,731 per unit
$850,000 per acre

10741 - 109 Street
Zoned RA8
$920,000
0.28 acres - approximately 25 units
Sold November 2008
$36,800 per unit
$3,285,714 per acre

12104 - 22 Avenue
Zoned RA7
$6,600,000
6.02 acres - approximately 304 units
Sold September 2008
$21,711 per unit

$1,096,346 per acre

12103 - 22 Avenue
Zoned RA7
$1,900,000
1.91 acres - approximately 96 units
Sold September 2008
$19,792 per unit
$994,764 per acre

10631 - 107 Street
Zoned RA8
$1,600,000
0.68 acres - approximately 62 units
Sold August 2008
$25,806 per unit
$2,352,941 per acre

3707 Whitelaw Way
Zoned RA7
$9,251,000
6.38 acres - approximately 322 units
Sold August 2008
$28,730 per unit
$1,450,000 per acre

In consideration of the declining market, a unit value likely in the range between **$20,000 per acre for the outer lands (furthest from LRT) to $12,000 per unit for the lands closest to the LRT** in the "mixed-use areas" is probably appropriate if their focus is residential-oriented. These values will depend on the quality of the improvements, connectivity of the LRT, density, and a numerous other factors so these values could range significantly. It should be acknowledged that the smaller the parcel and/or the lower the density, the higher the unit value. Some of the sites listed above are very small and probably not relevant within this analysis but they have been included for a more complete report.

Industrial/Institutional Land

This portion of the valuation pertains to the proposed Business Industrial area at the southwest corner of the site, the Transportation Node area at the northwest corner of the site, the Mixed-Use Office/Institutional/Industrial area, and the Institutional area at the southern tip. These areas share a similar sort of "use profile". They will all contain a variety of light industrial and/or suburban office and/or institutional and/or quasi-retail uses. These uses tend to be most accurately reflected within Edmonton's IB (Industrial Business) and IL (Light Industrial) zoning designations. It is not valid to value the Institutional land with institutional zoning sales (US, PU, AP) because these sales are usually very sale-specific and pertain to old schools, parkland, etc. and not

to land that is highly viable for commercial or residential uses. Similarly, higher value commercial comparables are not relevant either due to the location, sizes, and intended uses for these parcels. Examples of IB land sales are as follows:

17451 - 103 Avenue
Zoned IB
$765,000
1.02 acres
Sold December 2008
$750,000 per acre

18715 Stony Plain
Zoned IB
$7,987,195
11.10 acres
Sold October 2008
$719,567 per acre

5621 - 99 Street
Zoned IL
$1,050,000
1.86 acres
Sold October 2008
$564,516 per acre

17505 - 109A Avenue
Zoned IB
$285,000
0.58 acres
Sold March 2008
$491,379 per acre

Conventional industrial land (IM) exhibits a wide variance but is averaging around $550,000 to $650,000 per acre for better neighbourhoods and locations in Edmonton. Again, in recognition of a declining market (and the scarcity of good comparable information that such a market would bring), this land is probably most accurately valued at between **$600,000 and $800,000 per acre**.

The following analysis outlines a straight-line revenue and cost projection for both demonstration plan 3b and 4b and outlines net revenue to the City ranging between $92M and $138M assuming the City acts as developer with no consideration for soft costs are time factor for absorption.

ECCA LANDS
Projected Revenues - Demonstration Plan 3b

	Area (ha)	Area (ac)	Units/ac	Value/ac	Revenue
Commercial					
200m	0.80	1.98		$1,300,000	$2,568,800
400m	2.30	5.68		$1,100,000	$6,249,100
800m	2.50	6.18		$850,000	$5,248,750
General Business	8.90	21.98		$850,000	$18,685,550
Park/Rec/School	32.60	80.52			
Institutional				n/a	
NAIT	23.90	59.03		$700,000	$41,323,100
Transportation					
collector road	11.60	28.65		n/a	
local road	21.70	53.60		n/a	
Transit Centre					
LRT/RoW	1.60	3.95		n/a	
Infrastructure/servicing					
Storm Management	15.20	37.54		n/a	
Special Use					
Transport Node (including Heliport)	1.70	4.20		$700,000	$2,939,300
Mixed Use Office/Institutional/Industrial	7.10	17.54		$700,000	$12,275,900
	129.90	**320.85**			**$89,290,500**

Residential	**Area (ha)**	**Units/ha**	**Area (ac)**	**Units/ac**	**Value/ac**	**Revenue**	**# Units**	**Value/Unit**
low density	11.00	30	27.17	12	$750,000	$20,377,500	330	$61,750
200m	7.40	300	18.28	121	$1,447,642	$26,460,000	2,205	$12,000
400m	21.10	200	52.12	81	$1,213,999	$63,270,000	4,218	$15,000
800m	47.80	100	118.07	40	$809,039	$95,520,000	4,776	$20,000
	87.30		215.63			**$205,627,500**	**11,529**	**$17,836**

Total Gross Revenue	**217.20**	**536.48**	**$294,918,000**
Total Gross Redevelopment Costs			**$203,800,000**
Total Net Revenue			**$91,118,000**

ECCA LANDS
Projected Revenues - Demonstration Plan 4b

	Area (ha)	Area (ac)	Units/ac	Value/ac	Revenue
Commercial					
200m	0.80	1.98		$1,300,000	$2,568,800
400m	2.30	5.68		$1,100,000	$6,249,100
800m	2.50	6.18		$850,000	$5,248,750
General Business	8.90	21.98		$850,000	$18,685,550
Park/Rec/School	38.70	95.59			
Institutional					
NAIT	23.90	59.03		$700,000	$41,323,100
Transportation					
collector road	16.10	39.77		n/a	
local road	25.80	63.73		n/a	
Transit Centre					
LRT/RoW	1.60	3.95		n/a	
Infrastructure/servicing					
Storm Management	18.10	44.71		n/a	
Special Use					
Transport Node (including Heliport)	3.00	7.41		$700,000	$5,187,000
Mixed Use Office/Institutional/Industrial	7.10	17.54		$700,000	$12,275,900
	148.80	**367.54**			**$91,538,200**

Residential	Area (ha)	Units/ha	Area (ac)	Units/ac	Value/ac	Revenue	# Units	Value/Unit
low density	11.00	30	27.17	12	$750,000	$20,377,500	330	$61,750
200m	7.40	300	18.28	121	$1,447,642	$26,460,000	2,205	$12,000
400m	21.10	200	52.12	81	$1,213,999	$63,270,000	4,218	$15,000
800m	70.20	100	173.39	40	$810,178	$140,480,000	7,024	$20,000
	109.70		270.96			**$250,587,500**	**13,777**	**$18,189**

Total	**258.50**	**638.50**		**$342,125,700**
Total Gross Redevelopment Costs				**$203,800,000**
			Total Net Revenue	**$138,325,700**

Another method of forecasting revenues is to assume that the City Centre Airport Lands are sold to a third party and a development proforma would determine the costs and revenues available under a number of assumptions. In estimating the market value of a development property in this manner, there are two main criteria for the measurement of value. The first is an analysis of the comprehensive subdivision's requirements and projection of costs, timing and financing to achieve those requirements. The second is an analysis of the end product in terms of sales values per unit, cost of sales, and expected absorption period.

These projected costs and revenues are then assembled into an overall project cash flow. This cash flow is then discounted at a rate that is commensurate with the risk associated with such a project in order to arrive at a Net Present Value (NPV) estimate for the subject property. Given the project is anticipated to be absorbed over a period of 28 years it is important to consider the project's revenue as at the beginning of the project as this will assist in determining the value of the project and essentially what one could pay for the lands based on the assumptions utilized.

A number of assumptions were made in carrying out the accompanying analysis including:

Time Horizon: The time horizon contemplated for the financial analysis is 28 years consistent with the work undertaken by Colliers International with respect to residential commercial and office absorption.

Hard Costs: These were provided by Select Engineering as part of the ECCA lands assignment and included costs associated with infrastructure, roads, storm detention, off site roads and on site parks etc. For the purpose of the financial analysis the engineering and consulting fees were backed out of the hard construction estimate. The consulting fees were then included under the soft cost line item. The total hard cost estimate excluding the soft cost component was $184,900,000.

Soft Costs: These costs include such things as engineering and design fees, financing costs, legal; City imposed fees etc. and includes the engineering/design fees that were allocated under the hard construction budget figure. These were calculated at 20% of hard costs.

Developer's Profit: The stimulus to undertake a development is primarily motivated by the potential financial return to the party taking the risk. There are many ways to measure this return, or developer's profit. Often it is a percentage of total costs, however it can be percentage of total sales or net sales, or a return on equity invested.

Quantitative data of developer's profit is difficult to come by, however anecdotal evidence suggests that developers generally expect a rate of return in the range of 20% to 30%. For the purposes of the financial analysis, a rate of 20% of total project costs was utilized.

Commissions: Realizing a transaction involves real estate professionals and legal experts. We have estimated the following sales costs for each unit or land parcel that is sold at 3% of sale.

Inflation: Taking into consideration the current conditions in the marketplace, as well as consideration for growth over the longer term, we have elected to use a conservative inflation rate of 1.5% on all costs and revenues.

Present Value: While a 28-year time horizon is applicable to the project, a discount rate must be utilized to discount future cash flows. In this instance, the discount rate should reflect the developer's cost of money and as well an assessment of the risk associated with the property. While interest rates currently are low, they are expected to rise over the course of development and as well the project represents a level of risk. We have utilized a range of discount rates between 10% and 12% with the higher rate being applicable to the project.

Summary

The above analysis indicates a range of NPV of $40.1M to $41.8M, which equates to approximately $78,121 per gross acre for demonstration plan 3b.

The above analysis indicates a range of NPV of $59.5M to $60.2M, which equates to approximately $110,000 per gross acre for demonstration plan 4b.

On the following pages are the detailed annual cash flows based on the assumptions as noted in this and the preceding sections.

EDMONTON AIRPORT - PHASED DEVELOPMENT PROFORMA

JUNE 2009

DEVELOPMENT ASSUMPTIONS			DEVELOPMENT SCENARIO 3B			
Gross Site Area	536.49	acres		**Acres**	**Units**	**Value/ Ac**	**Value/ Unit**
Net Developable Area	332.23	acres	**Commercial**				
			200 M	1.98		$ 1,300,000	
Absorption Schedule	28	years	400 M	5.68		$ 1,100,000	
			800 M	6.18		$ 850,000	
			General Business	21.98		$ 850,000	
			Park/ Rec/ School	80.52		n/a	
Developer's Required Profit	20%		**NAIT**	59.03		$ 700,000	
Discount Rate	10%		**Transportation**	82.25		n/a	
Inflation/ Price Escalators	1.5%		**Transit Centre**	3.95		n/a	
			Infrastructure/ servicing				
Costs Summary (Sourced Table F)			STM Management	37.54		n/a	
Total Hard Costs (Net Item 8)	**$**	**184,900,000**	**Special Use**				
Total Soft Costs (20% of Hard Costs)	**$**	**36,980,000**	Transport Node	4.20		$ 700,000	
Developer's Profit (Project Costs)	**$**	**56,740,871**	Mixed Use (Off/Ins/Ind)	17.54		$ 700,000	
			Residential				
			Low Density	27.17	330		$ 61,750
			200M	18.28	2,205		$ 12,000
			400M	52.12	4,218		$ 15,000
			800M	118.07	4,776		$ 20,000
				536.49	11,529		

PHASED DEVELOPMENT
SALES AND REVENUE FORECAST

PRICE ESCALATORS		1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	
		1.000	1.015	1.030	1.046	1.061	1.077	1.093	1.110	1.126	1.143	1.161	1.178	1.196	1.214	1.232	1.250	1.269	1.288	1.307	1.327	1.347	1.367	1.388	1.408	1.430	1.451	1.473	1.495	
ABSORPTION SCHEDULE	**Gross**																													
	Units &/or Acres	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**TOTAL**
Commercial		0.33										0.33	-	-	-	-	-	-	-	-	-	0.33								
200 M	**1.98**	0.66	-	-	-	-	-	-	-	-	-	0.66	-	-	-	-	-	-	-	-	-	0.66	-	-	-	-	-	-	-	**1.98**
400 M	**5.68**	1.89	-	-	-	-	-	-	-	-	-	1.89	-	-	-	-	-	-	-	-	-	1.89	-	-	-	-	-	-	-	**5.68**
800 M	**6.18**	2.06	-	-	-	-	-	-	-	-	-	2.06	-	-	-	-	-	-	-	-	-	2.06	-	-	-	-	-	-	-	**6.18**
General Business	**21.98**	7.33	-	-	-	-	-	-	-	-	-	7.33	-	-	-	-	-	-	-	-	-	7.33	-	-	-	-	-	-	-	**21.98**
NAIT	**59.03**	-	59.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**59.03**
Special Use																														
Transport Node	**4.20**	4.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**4.20**
Mixed Use (Off/Ins/Ind)	**17.54**	8.77	8.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**17.54**
Residential																														
Low Density	**330.00**	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	**330.00**
200M	**2,205.00**	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	**2,205.00**
400M	**4,218.00**	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	**4,218.00**
800M	**4,776.00**	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	170.57	**4,776.00**
Total Acres Per Annum		25	68	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-
Total Units Per Annum		412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	**11,529.00**
Cumulative Unit Sales		**412**	**824**	**1,235**	**1,647**	**2,059**	**2,471**	**2,882**	**3,294**	**3,706**	**4,118**	**4,529**	**4,941**	**5,353**	**5,765**	**6,176**	**6,588**	**7,000**	**7,412**	**7,823**	**8,235**	**8,647**	**9,059**	**9,470**	**9,882**	**10,294**	**10,706**	**11,117**	**11,529**	

REVENUE SCHEDULE	**Gross**																														
	$$$/ Ac. Or Unit	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	
Commercial																														
200 M	$ 1,300,000	$ 857,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 858,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 857,991	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 2,573,991**
400 M	$ 1,100,000	$ 2,082,665	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,082,667	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,082,646	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 6,247,977**
800 M	$ 850,000	$ 1,750,998	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,751,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,750,982	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 5,252,981**
General Business	$ 850,000	$ 6,227,660	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,227,667	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,227,604	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 18,682,931**
NAIT	$ 700,000	$ -	$ 41,321,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 41,321,000**
Special Use																														
Transport Node	$ 700,000	$ 2,940,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 2,940,000**
Mixed Use (Off/Ins/Ind)	$ 700,000	$ 6,139,000	$ 6,139,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 12,278,000**
Residential																														
Low Density	$ 61,750	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	**$ 20,377,500**
200M	$ 12,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	**$ 26,460,000**
400M	$ 15,000	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	**$ 63,270,000**
800M	$ 20,000	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	$ 3,411,429	**$ 95,520,000**
Total gross revenues		**27,342,162**	**55,625,897**	**7,565,807**	**7,679,294**	**7,794,483**	**7,911,401**	**8,030,072**	**8,150,523**	**8,272,781**	**8,396,872**	**21,195,157**	**8,650,668**	**8,780,428**	**8,912,134**	**9,045,816**	**9,181,503**	**9,319,226**	**9,459,014**	**9,600,900**	**9,744,913**	**24,597,698**	**10,039,453**	**10,190,045**	**10,342,895**	**10,498,039**	**10,655,509**	**10,815,342**	**10,977,572**	**$ 348,775,604**
Less Commissions	**3.0%**	820,265	1,668,777	226,974	230,379	233,835	237,342	240,902	244,516	248,183	251,906	635,855	259,520	263,413	267,364	271,374	275,445	279,577	283,770	288,027	292,347	737,931	301,184	305,701	310,287	314,941	319,665	324,460	329,327	**$ 10,463,268**
Less Hard Costs	**$ 184,900,000**	6,603,571	6,702,625	6,803,164	6,905,212	7,008,790	7,113,922	7,220,631	7,328,940	7,438,874	7,550,457	7,663,714	7,778,670	7,895,350	8,013,780	8,133,987	8,255,997	8,379,837	8,505,534	8,633,117	8,762,614	8,894,053	9,027,464	9,162,876	9,300,319	9,439,824	9,581,421	9,725,143	9,871,020	**$ 227,700,907**
Less Soft Costs	**$ 36,980,000**	1,320,714	1,340,525	1,360,633	1,381,042	1,401,758	1,422,784	1,444,126	1,465,788	1,487,775	1,510,091	1,532,743	1,555,734	1,579,070	1,602,756	1,626,797	1,651,199	1,675,967	1,701,107	1,726,623	1,752,523	1,778,811	1,805,493	1,832,575	1,860,064	1,887,965	1,916,284	1,945,029	1,974,204	**$ 45,540,181**
Less Developer's Profit	**$ 56,740,871**	1,748,910	1,942,385	1,678,154	1,703,327	1,728,877	1,754,810	1,781,132	1,807,849	1,834,967	1,862,491	1,966,462	1,918,785	1,947,567	1,976,780	2,006,432	2,035,528	2,067,076	2,098,082	2,129,554	2,161,497	2,282,159	2,226,828	2,260,231	2,294,134	2,328,546	2,363,474	2,398,926	2,434,910	**$ 56,740,871**
Net Income		**16,848,701**	**43,971,585**	**(2,503,119)**	**(2,540,666)**	**(2,578,776)**	**(2,617,457)**	**(2,656,719)**	**(2,696,570)**	**(2,737,019)**	**(2,778,074)**	**9,396,383**	**(2,862,041)**	**(2,904,972)**	**(2,948,546)**	**(2,992,774)**	**(3,037,666)**	**(3,083,231)**	**(3,129,480)**	**(3,176,422)**	**(3,224,068)**	**10,904,745**	**(3,321,516)**	**(3,371,338)**	**(3,421,908)**	**(3,473,237)**	**(3,525,335)**	**(3,578,216)**	**(3,631,889)**	**$ 8,330,376**

		Annual Net	Present Value at:		
Year		Revenue	10.00%	11.00%	12.00%
1	2016	$16,848,701	$16,848,701	$16,848,701	$16,848,701
2	2017	$43,971,585	$39,974,168	$39,614,040	$39,260,343
3	2018	-$2,503,119	-$2,068,693	-$2,031,587	-$1,995,471
4	2019	-$2,540,666	-$1,908,840	-$1,857,713	-$1,808,396
5	2020	-$2,578,776	-$1,761,338	-$1,698,719	-$1,638,859
6	2021	-$2,617,457	-$1,625,235	-$1,553,334	-$1,485,216
7	2022	-$2,656,719	-$1,499,649	-$1,420,391	-$1,345,977
8	2023	-$2,696,570	-$1,383,767	-$1,298,826	-$1,219,791
9	2024	-$2,737,019	-$1,276,839	-$1,187,665	-$1,105,436
10	2025	-$2,778,074	-$1,178,174	-$1,086,018	-$1,001,801
11	2026	$9,396,383	$3,622,713	$3,309,260	$3,025,384
12	2027	-$2,862,041	-$1,003,128	-$908,078	-$822,768
13	2028	-$2,904,972	-$925,614	-$830,360	-$745,634
14	2029	-$2,948,546	-$854,089	-$759,293	-$675,731
15	2030	-$2,992,774	-$788,091	-$694,308	-$612,381
16	2031	-$3,037,666	-$727,193	-$634,885	-$554,970
17	2032	-$3,083,231	-$671,001	-$580,548	-$502,942
18	2033	-$3,129,480	-$619,151	-$530,862	-$455,791
19	2034	-$3,176,422	-$571,307	-$485,428	-$413,061
20	2035	-$3,224,068	-$527,161	-$443,882	-$374,336
21	2036	$10,904,745	$1,620,921	$1,352,558	$1,130,460
22	2037	-$3,321,516	-$448,838	-$371,154	-$307,438
23	2038	-$3,371,338	-$414,155	-$339,388	-$278,616
24	2039	-$3,421,908	-$382,152	-$310,342	-$252,496
25	2040	-$3,473,237	-$352,622	-$283,781	-$228,824
26	2041	-$3,525,335	-$325,374	-$259,493	-$207,372
27	2042	-$3,578,216	-$300,232	-$237,284	-$187,931
28	2043	-$3,631,889	-$277,032	-$216,976	-$170,312
Total Present Value Estimates:		**$8,330,376**	**$40,176,825**	**$41,104,246**	**$41,873,340**

EDMONTON AIRPORT - PHASED DEVELOPMENT PROFORMA

JUNE 2009

DEVELOPMENT ASSUMPTIONS		DEVELOPMENT SCENARIO 4B	Acres	Units	Value/ Ac	Value/ Unit
Gross Site Area	638.51 acres	**Commercial**				
Net Developable Area	390.76 acres	200 M	1.98		$ 1,300,000	
		400 M	5.68		$ 1,100,000	
Abosorption Schedule	28 years	800 M	6.18		$ 850,000	
		General Business	21.98		$ 850,000	
		Park/ Rec/ School	95.59		n/a	
Developer's Required Profit	20%	**NAIT**	59.03		$ 700,000	
		Transportation	103.50		n/a	
Inflation/ Price Escalators	1.5%	**Transit Centre**	3.95		n/a	
		Infrastructure/ servicing				
Costs Summary (Sourced Table F)		STM Management	44.71		n/a	
Total Hard Costs (Net Item 8)	**$ 184,900,000**	**Special Use**				
Total Soft Costs (20% of Hard Costs)	**$ 36,980,000**	Transport Node	7.41		$ 700,000	
Developer's Profit (Project Costs)	**$ 57,086,558**	Mixed Use (Off/Ins/Ind)	17.54		$ 700,000	
		Residential				
		Low Density	27.17	330		$ 61,750
		200M	18.28	2,205		$ 12,000
		400M	52.12	4,218		$ 15,000
		800M	173.39	7,024		$ 20,000
			638.51	13,777		

PHASED DEVELOPMENT
SALES AND REVENUE FORECAST

PRICE ESCALATORS			1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
			1.000	1.015	1.030	1.046	1.061	1.077	1.093	1.110	1.126	1.143	1.161	1.178	1.196	1.214	1.232	1.250	1.269	1.288	1.307	1.327	1.347	1.367	1.388	1.408	1.430
ABSORPTION SCHEDULE		**Gross**																									
		Units &/or Acres	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Commercial			**0.33**										**0.33**										**0.33**				
200 M		**1.98**	0.66	-	-	-	-	-	-	-	-	-	0.66	-	-	-	-	-	-	-	-	-	0.66	-	-	-	-
400 M		**5.68**	1.89	-	-	-	-	-	-	-	-	-	1.89	-	-	-	-	-	-	-	-	-	1.89	-	-	-	-
800 M		**6.18**	2.06	-	-	-	-	-	-	-	-	-	2.06	-	-	-	-	-	-	-	-	-	2.06	-	-	-	-
General Business		**21.98**	7.33	-	-	-	-	-	-	-	-	-	7.33	-	-	-	-	-	-	-	-	-	7.33	-	-	-	-
NAIT		**59.03**	-	59.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Special Use																											
Transport Node		**7.41**	7.41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mixed Use (Off/Ins/Ind)		**17.54**	8.77	8.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residential																											
Low Density		**330.00**	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79	11.79
200M		**2,205.00**	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75	78.75
400M		**4,218.00**	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64	150.64
800M		**7,024.00**	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86	250.86
Total Acres Per Annum			28	68	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	12	-	-	-	-
Total Units Per Annum			492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492
Cumulative Unit Sales			**492**	**984**	**1,476**	**1,968**	**2,460**	**2,952**	**3,444**	**3,936**	**4,428**	**4,920**	**5,412**	**5,904**	**6,396**	**6,889**	**7,381**	**7,873**	**8,365**	**8,857**	**9,349**	**9,841**	**10,333**	**10,825**	**11,317**	**11,809**	**12,301**

REVENUE SCHEDULE			**Gross**																								
			$$$/ Ac. Or Unit	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Commercial																											
200 M		$ 1,300,000	$ 857,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 858,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 857,991	$ -	$ -	$ -	$ -
400 M		$ 1,100,000	$ 2,082,665	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,082,667	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,082,646	$ -	$ -	$ -	$ -
800 M		$ 850,000	$ 1,750,998	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,751,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,750,982	$ -	$ -	$ -	$ -
General Business		$ 850,000	$ 6,227,660	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,227,667	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,227,604	$ -	$ -	$ -	$ -
NAIT		$ 700,000	$ -	$ 41,321,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Special Use																											
Transport Node		$ 700,000	$ 5,187,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mixed Use (Off/Ins/Ind)		$ 700,000	$ 6,139,000	$ 6,139,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Residential																											
Low Density		$ 61,750	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768	$ 727,768
200M		$ 12,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000	$ 945,000
400M		$ 15,000	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643	$ 2,259,643
800M		$ 20,000	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143	$ 5,017,143
Total gross revenues				**31,194,876**	**57,255,697**	**9,220,054**	**9,358,355**	**9,498,730**	**9,641,211**	**9,785,829**	**9,932,617**	**10,081,606**	**10,232,830**	**23,058,654**	**10,542,117**	**10,700,249**	**10,860,753**	**11,023,664**	**11,189,019**	**11,356,854**	**11,527,207**	**11,700,115**	**11,875,617**	**26,760,363**	**12,234,557**	**12,418,076**	**12,604,347**	**12,793,412**
Less Commissions		**3.0%**		935,846	1,717,671	276,602	280,751	284,962	289,236	293,575	297,978	302,448	306,985	691,760	316,264	321,007	325,823	330,710	335,671	340,706	345,816	351,003	356,269	802,811	367,037	372,542	378,130	383,802
Less Hard Costs	**$**	**184,900,000**		6,603,571	6,702,625	6,803,164	6,905,212	7,008,790	7,113,922	7,220,631	7,328,940	7,438,874	7,550,457	7,663,714	7,778,670	7,895,350	8,013,780	8,133,987	8,255,997	8,379,837	8,505,534	8,633,117	8,762,614	8,894,053	9,027,464	9,162,876	9,300,319	9,439,824
Less Soft Costs	**$**	**36,980,000**		1,320,714	1,340,525	1,360,633	1,381,042	1,401,758	1,422,784	1,444,126	1,465,788	1,487,775	1,510,091	1,532,743	1,555,734	1,579,070	1,602,756	1,626,797	1,651,199	1,675,967	1,701,107	1,726,623	1,752,523	1,778,811	1,805,493	1,832,575	1,860,064	1,887,965
Less Developer's Profit	**$**	**57,086,558**		1,772,026	1,952,164	1,688,080	1,713,401	1,739,102	1,765,189	1,791,666	1,818,541	1,845,819	1,873,507	1,977,643	1,930,133	1,959,085	1,988,472	2,018,299	2,048,573	2,079,302	2,110,491	2,142,149	2,174,281	2,295,135	2,239,999	2,273,599	2,307,703	2,342,318
Net Income				**20,562,718**	**45,542,712**	**(908,425)**	**(922,051)**	**(935,882)**	**(949,920)**	**(964,169)**	**(978,632)**	**(993,311)**	**(1,008,211)**	**11,192,794**	**(1,038,684)**	**(1,054,264)**	**(1,070,078)**	**(1,086,129)**	**(1,102,421)**	**(1,118,957)**	**(1,135,742)**	**(1,152,778)**	**(1,170,070)**	**12,989,553**	**(1,205,435)**	**(1,223,517)**	**(1,241,869)**	**(1,260,497)**

		Annual Net	Present Value at:		
Year		Revenue	10.00%	11.00%	12.00%
1	2016	$20,562,718	$20,562,718	$20,562,718	$20,562,718
2	2017	$45,542,712	$41,402,465	$41,029,470	$40,663,136
3	2018	-$908,425	-$750,764	-$737,298	-$724,191
4	2019	-$922,051	-$692,751	-$674,196	-$656,298
5	2020	-$935,882	-$639,220	-$616,494	-$594,770
6	2021	-$949,920	-$589,826	-$563,731	-$539,010
7	2022	-$964,169	-$544,248	-$515,484	-$488,478
8	2023	-$978,632	-$502,193	-$471,366	-$442,683
9	2024	-$993,311	-$463,387	-$431,024	-$401,182
10	2025	-$1,008,211	-$427,580	-$394,135	-$363,571
11	2026	$11,192,794	$4,315,307	$3,941,928	$3,603,780
12	2027	-$1,038,684	-$364,052	-$329,557	-$298,597
13	2028	-$1,054,264	-$335,921	-$301,352	-$270,603
14	2029	-$1,070,078	-$309,963	-$275,560	-$245,234
15	2030	-$1,086,129	-$286,012	-$251,976	-$222,244
16	2031	-$1,102,421	-$263,911	-$230,411	-$201,408
17	2032	-$1,118,957	-$243,518	-$210,691	-$182,526
18	2033	-$1,135,742	-$224,700	-$192,659	-$165,414
19	2034	-$1,152,778	-$207,337	-$176,170	-$149,907
20	2035	-$1,170,070	-$191,316	-$161,092	-$135,853
21	2036	$12,989,553	$1,930,814	$1,611,145	$1,346,585
22	2037	-$1,205,435	-$162,891	-$134,698	-$111,575
23	2038	-$1,223,517	-$150,304	-$123,170	-$101,114
24	2039	-$1,241,869	-$138,690	-$112,628	-$91,635
25	2040	-$1,260,497	-$127,973	-$102,989	-$83,044
26	2041	-$1,279,405	-$118,084	-$94,175	-$75,259
27	2042	-$1,298,596	-$108,959	-$86,115	-$68,203
28	2043	-$1,318,075	-$100,540	-$78,744	-$61,809
Total Present Value Estimates:		**$63,870,660**	**$60,267,164**	**$59,879,546**	**$59,501,610**

- THIS PAGE INTENTIONALLY LEFT BLANK -

APPENDIX J
TRANSPORTATION IMPACT ASSESSMENT

Edmonton City Centre Airport Lands
Traffic Impact Assessment
Final Report

Prepared For: City of Edmonton

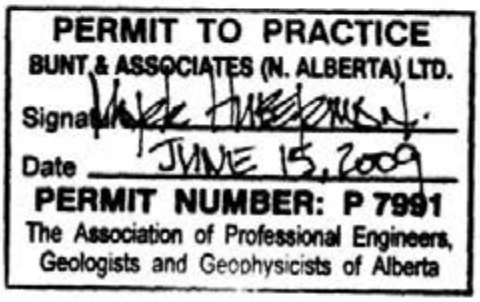
Date: June15, 2009

Prepared By: Bunt & Associates

Project No. 3027.26

CORPORATE AUTHORIZATION

This document entitled **"Edmonton City Centre Airport Lands, Traffic Impact Assessment Update, Final Report"** was prepared by Bunt & Associates for the benefit of the Client to whom it is addressed. The information and data in the report reflects Bunt & Associates best professional judgment in light of the knowledge and information available to Bunt & Associates at the time of preparation. Except as required by law, this report and the information and data contained are to be treated as confidential and may be used and relied upon only by the client, its officers and employees. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Bunt & Associates accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



Corporate Permit

June 15, 2009

Engineer's Stamp

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF EXHIBITS

SECTION 1.0
INTRODUCTION

1.1 EDMONTON CITY CENTRE AIRPORT

The City of Edmonton is currently in the process of evaluating the land use, transportation, and servicing impacts as well as the market potential associated with the possible closure of the Edmonton City Centre Airport and the redevelopment of the Edmonton City Centre Airport (ECCA) Lands. As part of the evaluation process, Bunt & Associates was retained to complete a review of the transportation impacts associated with the potential redevelopment of the ECCA Lands based on a Demonstration Plan prepared for this purpose.

1.2 STUDY GOALS AND OBJECTIVES

Careful consideration must be given to the potential traffic impacts associated with the redevelopment of the ECCA Lands. The primary goals for completing the assignment were to:

- Assess anticipated travel characteristics generated by the Demonstration Plan;
- Identify the impact that mode splits to transit (bus & LRT), walking, and cycling may have on the generation of vehicle trips by the study area;
- Assess the traffic impact of the potential development of the ECCA Lands on the abutting arterial roadway network;
- Confirm sufficient collector roadway access can be provided to accommodate the projected vehicle traffic volumes;
- Review ancillary transportation related items such as noise considerations and pedestrian and bicycle circulation.

The report will verify that a suitable transportation plan can be developed to accommodate the redevelopment of the ECCA Lands as a master planned transit oriented community.

1.3 STUDY METHODOLOGY

The Traffic Impact Assessment was completed using the following methodology:

- An examination of the development area with respect to existing conditions: land use, roadways, and traffic conditions;
- An examination of the proposed future roadway network adjacent to and through the development area and forecasted traffic conditions based on the City of Edmonton's 2041 Traffic Model;
- An estimate of future vehicular trips generated to and from the ECCA Lands assuming traditional suburban development;

- A review of available origin-destination information for the study area under current and 2041 scenarios;

- An overall evaluation of transit considerations required for the planned development of a transit oriented development on the ECCA Lands.

- A review of potential mode splits to transit, walking, and cycling that would reduce the overall vehicle traffic generated by the neighbourhood;

- An estimate of the potential vehicular demands generated by the ECCA Lands and assignment of the vehicle traffic to the collector and arterial roadway network as illustrated in the Demonstration Plan, and;

- An overall review of the estimated roadway volumes within the study area to identify the potential opportunities and challenges associated with the redevelopment of the ECCA Lands from a Transportation perspective.

SECTION 2.0
SITE CONTEXT – AREA CONDITIONS

2.1 STUDY AREA AND SITE LOCATION

The study area is located within the northwest inner sector of the City of Edmonton as shown in **Exhibit 2-1**. The study area for the completion of the TIA includes the ECCA Lands plus the adjacent lands bounded by Yellowhead Trail to the north, 106 Street and 107 Street to the east, Princess Elizabeth Avenue to the southeast, Kingsway to the southwest, and 121 Street to the west. The study area is illustrated in **Exhibit 2-2**.

2.2 EXISTING DEVELOPMENT

The ECCA is a functioning airport that currently accommodates small charters, private and corporate aircraft, and training, military, industrial, and medevac flights. In addition to the buildings and services currently developed to support the airport functions, the ECCA Lands currently include development that complements the airport functions. As well, a number of long term sublease areas have been identified that are anticipated to remain in the longer term, regardless of changes to the ECCA Lands. These sublease areas include:

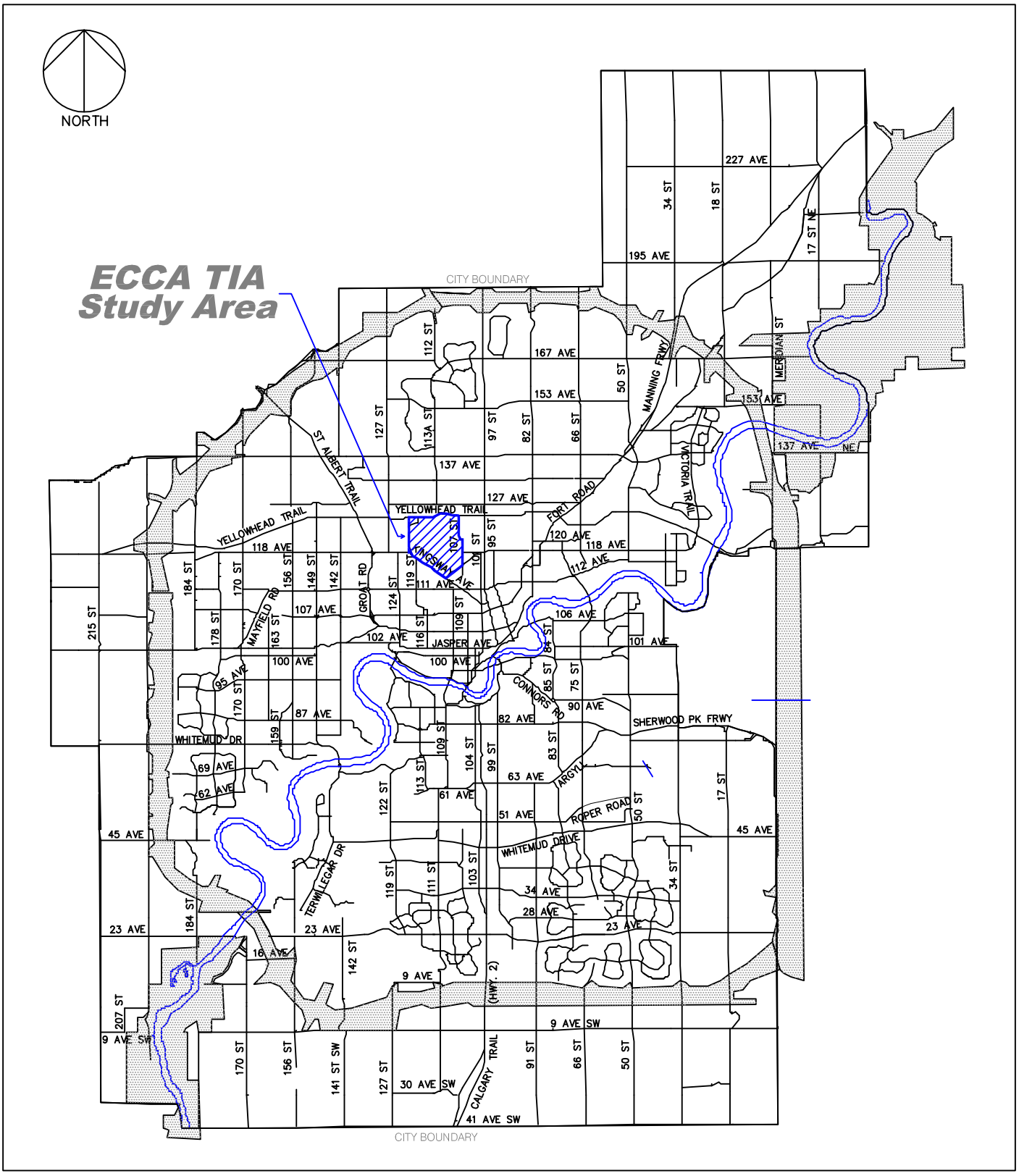
- Nova Business Complex
- Chateau Nova Hotel & Suites
- Amiskwaciy Academy
- DND Armouries
- Millard Centre

Within the study area the following developments are anticipated to remain in the longer term:

- The existing NAIT main campus encompasses an area generally bounded by Princess Elizabeth Avenue to the south and east, public utilities and 118 Avenue to the north, and the ECCA Lands to the west. Based on information provided by NAIT, the 2009-2010 enrolment at the Main Campus is in the order of 14,100 Full Time Learning Equivalents (FLEs).

- The existing commercial and general business land uses located south and east of Airport Road are anticipated to remain in the longer term. The existing Aviation Museum located east of Airport Road south is also anticipated to remain in the longer term.

- The VIA Rail station currently developed south of Yellowhead Trail and west of 121 Street is anticipated to remain in the study area in the longer term.



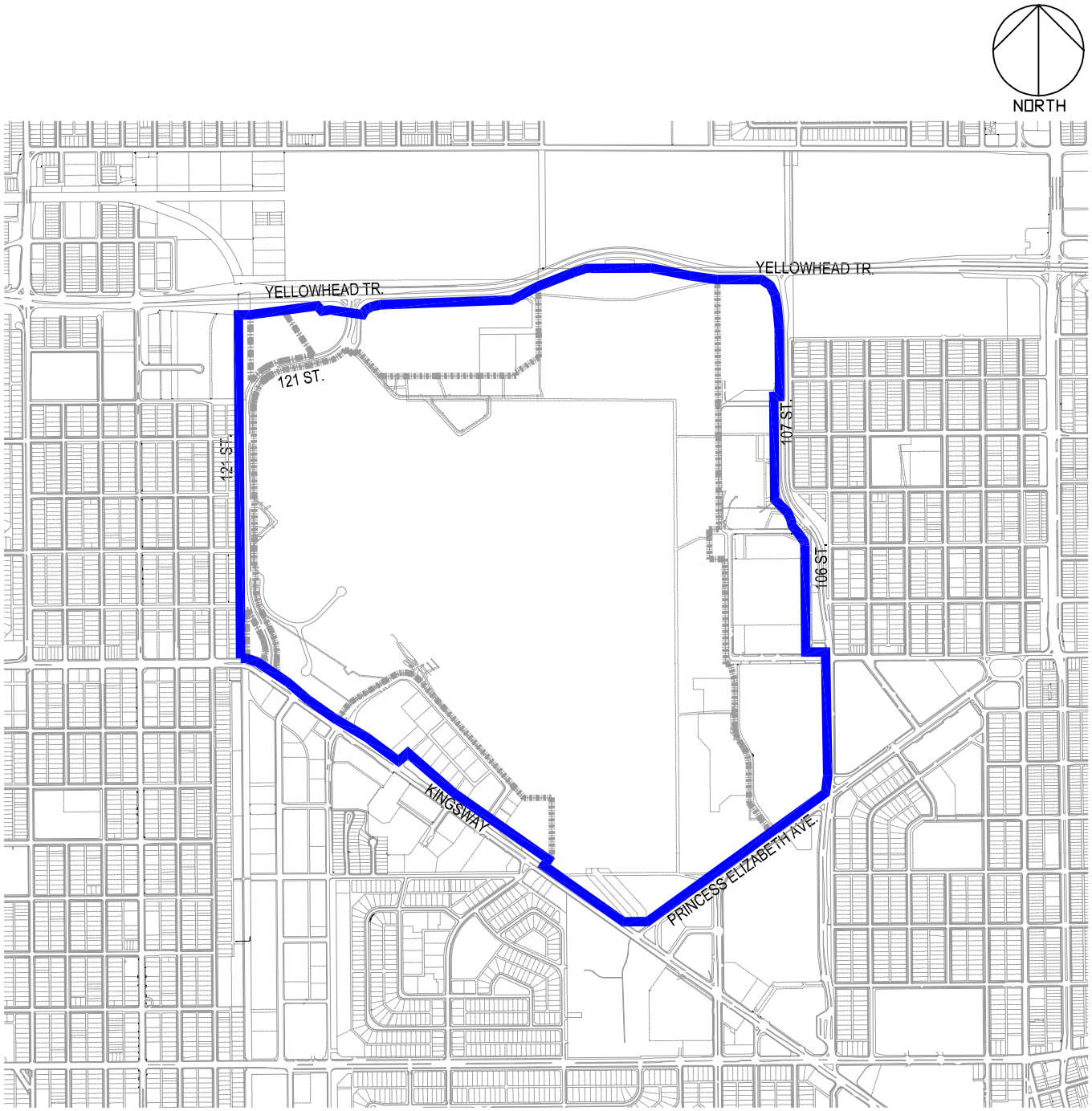
ECCA Traffic Impact Assessment Study Area Location

bunt & associates
TRANSPORTATION ENGINEERS AND ENGINEERS

ECCA TIA STUDY AREA

Exhibit 2-1

June 2009



Traffic Impact Assessment Study Area

Legend

TIA Study Area

ECCA Lease Lands

Exhibit 2-2

June 2009

2.3 EXISTING TRANSPORTATION SYSTEM

2.3.1 Existing Roadway Network

The existing arterial roadway network adjacent to the study area is made up of the following roadways:

- **Yellowhead Trail** is a six lane divided roadway with a posted speed limit of 70 km/hr in the vicinity of the study area. As the north leg of the inner ring loop, Yellowhead Trail facilitates cross-town movements, is a dangerous goods truck route, and is designed to a higher standard than a typical arterial within the City of Edmonton. Access to Yellowhead Trail in the vicinity of the study area is currently provided via at-grade intersections at 107 Street (westbound left turn banned) and 121 Street.

- **106 Street/107 Street** is currently developed as a four lane divided arterial between Princess Elizabeth Avenue and Yellowhead Trail and is a 24 hour truck route. The posted speed limit along 106 Street/107 Street transitions from 50 km/hr north of Princess Elizabeth Avenue to 60 km/hr between 119 Avenue and Yellowhead Trail. A number of pedestrian crosswalks have been installed across 106 Street to accommodate pedestrian movements between different components of the NAIT campus. As well, an overhead pedway has been constructed between the NAIT hp Centre and the NAIT Technical Building.

- **121 Street** extends between Kingsway and Yellowhead Trail as a four lane divided arterial roadway. 121 Street is a 24 hour truck route with a posted speed limit of 60 km/hr.

- **Kingsway** is a six lane divided arterial that runs in a southeast/northwest direction along the southwest edge of the study area. To the west, Kingsway ties into 118 Avenue at approximately 121 Street. To the east, Kingsway ties into 108A Avenue at 101 Street. Kingsway is a 24 hour truck route and the posted speed limit is 60 km/hr adjacent to the study area. West of the site the 24 hour truck route continues along 118 Avenue. Public access to the existing ECCA Lands is primarily accommodated via Kingsway to Airport Road.

- **Princess Elizabeth Avenue** is a four lane divided arterial that bounds the southeast side of the study area. The posted speed limit along Princess Elizabeth Avenue is 50 km/hr. Princess Elizabeth Avenue is a 24 hour truck route.

- **Airport Road** is a collector roadway about 13.5 metres wide that runs parallel to Kingsway from approximately 116 Street to 119 Street. Airport Road provides access to a number of commercial and general business land uses located south of the ECCA Lands and also provides the primary access to the ECCA Lands. The speed limit along Airport Road is 50 km/hr.

- **119 Street** is a two lane north/south arterial between Kingsway and approximately 108 Avenue where it curves to the east to tie into 117 Street. The posted speed limit along 119 Street is 50 km/hr. Currently, 119 Street is designated a 24 hour truck route.

- **109 Street** south of the study area is a divided arterial that extends south to the High Level Bridge. South of the study area, 109 Street is a four lane divided roadway that is a 24 hour truck route and has a posted speed limit of 50 km/hr.

In addition to the above arterial and collector roadways there are a number of local roadways within the periphery of the ECCA Lands that provide access to existing developments within the ECCA Lands.

2.3.2 Existing Daily and Peak Hour Traffic Volumes

Existing and historical traffic flows on arterial roadways immediately adjacent to, and in the vicinity of the development area were ascertained based upon a review of Average Annual Weekday Traffic Volume Reports prepared by the Transportation Department. **Table 2-1** summarizes the traffic volumes along the arterial roadways in the vicinity of the study area.

Table 2-1: Average Annual Weekday Traffic Volumes

Location	2002	2003	2004	2005	2006	2007
Yellowhead Tr West of 107 St	76,500	75,900	75,300	74,800	76,800	81,100
Kingsway West of Princess Elizabeth Ave	39,200	-	36,400	-	36,700	-
Princess Elizabeth Ave West of 106 St	29,800	-	27,300	-	27,500	-
106 St North of Princess Elizabeth Ave	20,100	-	17,000	15,200	-	-
121 St North of Kingsway	12,200	-	11,900	-	13,300	-

Tables 2-2 and **2-3** summarize the Weekday AM and PM Peak Hour traffic movements (two-way) along the arterial roadways adjacent to the study area.

Table 2-2: Weekday AM Peak Hour Traffic Volumes

Location	Direction	2002	2003	2004	2005	2006	2007
Yellowhead Tr West of 107 St	East	2,273	2,246	2,411	2,330	2,266	2,620
	West	3,426	3,342	3,261	3,525	3,357	3,481
Kingsway West of Princess Elizabeth Ave	East	2,215	-	1,963	-	2,096	-
	West	1,157	-	947	-	1,064	-
Princess Elizabeth Ave West of 106 St	East	814	-	842	-	898	-
	West	1,346	-	1,153	-	1,282	-
106 St North of Princess Elizabeth Ave	North	632	-	716	605	-	-
	South	799	-	628	511	-	-
121 St North of Kingsway	North	258	-	215	-	243	-
	South	977	-	717	-	1,221	-

Table 2-3: Weekday PM Peak Hour Traffic Volumes

Location	Direction	2002	2003	2004	2005	2006	2007
Yellowhead Tr West of 107 St	East	3,321	3,415	3,489	3,521	3,393	3,683
	West	2,575	2,642	2,586	2,789	2,660	2,308
Kingsway West of Princess Elizabeth Ave	East	1,529	-	1,379	-	1,424	-
	West	2,174	-	1,978	-	2,088	-
Princess Elizabeth Ave West of 106 St	East	1,541	-	1,513	-	1,532	-
	West	1,124	-	978	-	978	-
106 St North of Princess Elizabeth Ave	North	1,344	-	1,358	1,180	-	-
	South	636	-	464	385	-	-
121 St North of Kingsway	North	959	-	976	-	1,146	-
	South	317	-	327	-	340	-

Overall traffic volumes on the arterial roadways in the vicinity of the study area appear to be relatively consistent between 2002 and 2007, with the exception of Yellowhead Trail, which showed a 5.6% increase in 2007 over 2006. The other exception is 106 Street north of Princess Elizabeth Avenue, which showed an overall decrease in traffic between 2002 and 2005, particularly in southbound traffic. It is anticipated that the decrease in southbound traffic along 106 Street is related to the westbound left turn ban implemented at the Yellowhead Trail/107 Street in July 2003.

2.3.3 Existing Transit Routes

Existing transit routes in the area primarily service the NAIT main campus. There are currently four basic service routes that provide access to NAIT (Route 8, 9, 130, and 143), three peak hour Super Express transit routes the provide transit access to/from NAIT from/to Southgate (Route 95), Millwoods (Route 97), and West Edmonton Mall (Route 98), and one route that operates during the evening only, providing access to Northgate and communities north and northwest of Yellowhead.

In addition to the routes servicing NAIT, the Kingsway Transit Centre, located approximately 700 to 800 metres southeast of the study area, currently accommodates three routes.

2.3.4 Existing Pedestrian and Bicycle Routes

Sidewalks are currently provided along the majority of the adjacent arterials, although there are some links currently missing, such as along 121 Street north of Flight Line Road, and along 107 Street north of 124 Avenue.

Bicycle routes in the vicinity of the plan area include a combination of separated bike paths (sidewalks shared with pedestrians), signed bike routes (on roadway), and service roads. An existing north/south separated bike path is currently constructed along the 121 Street right-of-way, between 106 Avenue and 118 Avenue. This separated bike path connects to signed bike routes along 105 Avenue east of 119 Street and 121 Street south of 106 Avenue, providing excellent access to the downtown fringe and downtown core.

In addition to the north/south route along approximately 121 Street, separated bike paths are provided along portions of 118 Avenue, Princess Elizabeth Avenue, and 106 Street adjacent to the NAIT main campus. An east/west signed bike route is provided along 119 Avenue, which provides a connection to north/south signed bike routes east of NAIT.

West of the study area, bicycle movements are accommodated along signed bike routes through the Prince Charles neighbourhood to 127 Street, which accommodates a variety of bicycle facilities from the North Saskatchewan River to 127 Avenue north of Yellowhead Trail. There are also two short separated bike paths identified within the Prince Rupert neighbourhood, one of which provides a bicycle connection between 111 Avenue and Kingsway as an extension of Princess Elizabeth Avenue.

2.3.5 Existing Rail Lines and VIA Rail Station

The Canadian National Railway Walker Yards are located north of the study area, north of Yellowhead Trail. The Walker Yards operate 24 hours per day, 7 days per week, and represent one of CN's major rail yards in Western Canada.

In addition to the Walker Yards, a rail line is currently constructed along the west side of 121 Street, providing access to the VIA Rail station located west of 121 Street and south of Yellowhead Trail.

2.4 FUTURE TRANSPORTATION SYSTEM

2.4.1 Horizon Year Selection

It is anticipated that if the ECCA Lands are approved for redevelopment, construction could begin by 2016 and take between 25 and 30 years to complete. For the purpose of this assessment it is assumed that development will be completed by 2041 to be consistent with planning horizons used by the City of Edmonton Transportation Department.

2.4.2 Future Roadway Network

The City of Edmonton Transportation Department retained a consultant to develop a strategic plan for the upgrading of Yellowhead Trail to a freeflow facility. The study is currently underway; however, an approved plan for Yellowhead Trail is not anticipated to be available until Winter 2009/2010.

As the strategic planning study is not complete, assumptions have been made regarding potential modifications and improvements that may impact the transportation network in the vicinity of the ECCA Lands. The assumptions used in the analysis include:

- An interchange constructed in the vicinity of 121 Street.
- Closure of the 107 Street at-grade access to Yellowhead Trail.

Other than the potential changes to access locations to Yellowhead Trail, no additional major arterial roadway network changes are anticipated within the 2041 horizon.

2.4.3 Future CN Rail Yards

The Canadian National Railway Walker Yards are located north of the study area, north of Yellowhead Trail. In 1983, the City of Edmonton entered into a lease agreement with CN (effective date was retroactive to December 1, 1979), which allowed a portion of Yellowhead Trail to be constructed within CN lands (lease lands). As part of the lease agreement, CN can terminate the CN Lease on two years notice if changes to operations at the ECCA allow Yellowhead Trail to be relocated to the south, and CN needs the lease lands to expand the Walker Yards.

Although there is the potential that CN could request the lease be terminated if the ECCA is closed, the Demonstration Plan for the extended lands assumes that Yellowhead Trail will remain along its existing alignment within the lease lands.

2.4.4 Future Potential Light Rail Transit (LRT)

The City of Edmonton has retained a consultant to determine the recommended alignment for the Northwest LRT line that will extend from Kingsway/Royal Alexandra Hospital LRT Station to St. Albert. At this time, the next station to the north represents a temporary station, which has been identified to be located on the east side of 106 Street, south of Princess Elizabeth Avenue. It is anticipated that the permanent station location will be confirmed through the completion of the Northwest LRT study.

For the purpose of this study, it is assumed that the LRT line will extend north from 106 Street through the ECCA study area, and will include an LRT station within the study area.

2.4.5 Long Term Background Traffic Volumes

The City of Edmonton Transportation Department provided 2041 AM peak hour link volume estimates for use as background traffic volumes in the evaluation of the traffic impacts associated with the ECCA study area. The following assumptions were used in the development of the 2041 traffic volumes.

Based on a review of population and employment information used in the City of Edmonton's 2041 traffic model, minor increases in employment were assumed in the vicinity of the ECCA study area, with more significant increases projected for the Royal Alexandra Hospital area as well as for lands north of the hospital. Based on a review of available population estimates, it was assumed that the population will increase significantly within the next 30 years east (54% increase), southeast (62% increase) and south (51% increase) of the study area. It should be noted that the 2041 traffic model did not assume any significant changes in land use within the ECCA Lands.

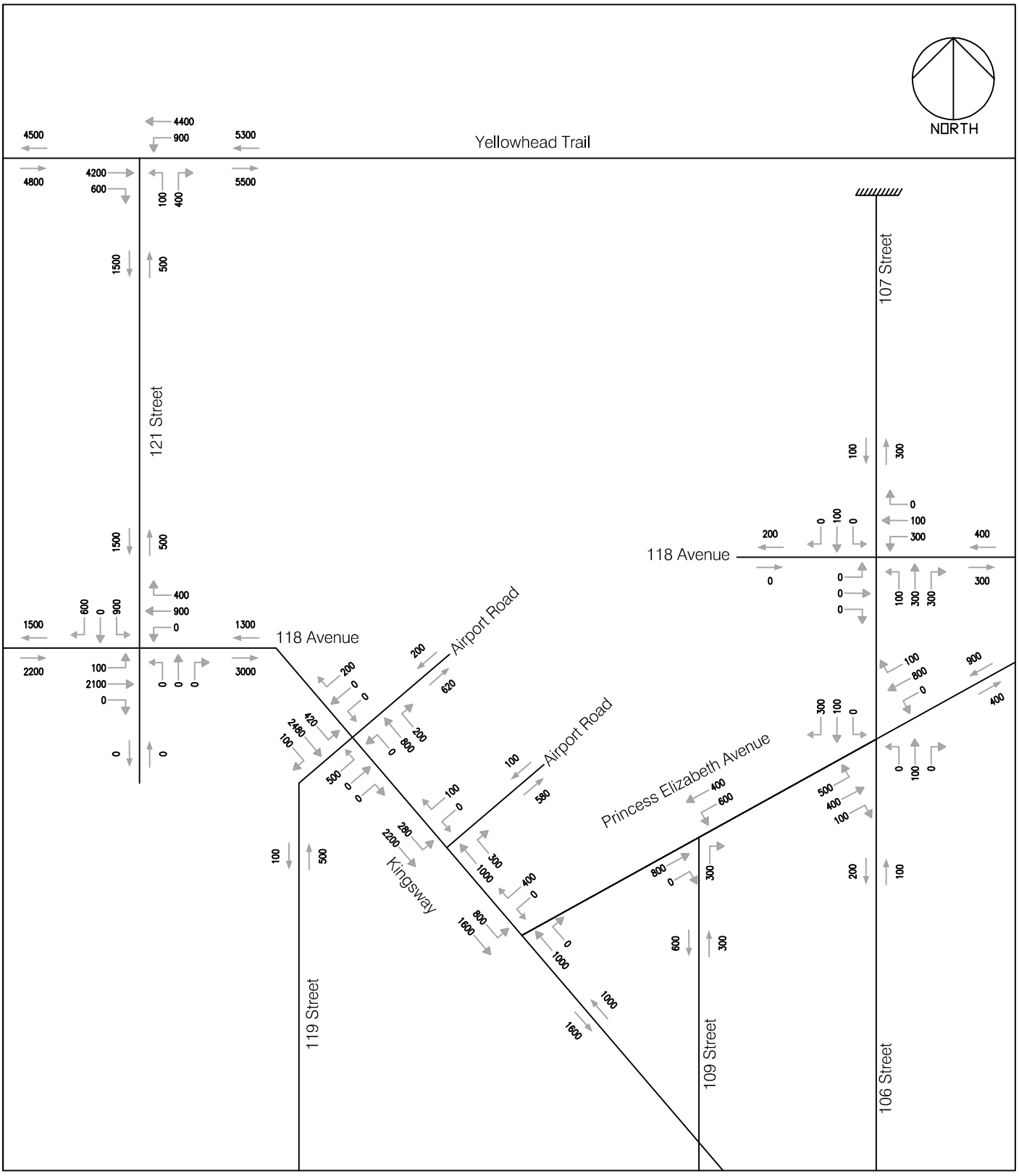
In addition to the population and employment estimates, the model assumed 15,400 FLEs would be located at the NAIT main campus by 2041. This is an increase of approximately 1,300 FLEs over 2009-2010 enrollment.

The development of the 2041 traffic model also assumed the expansion of the existing LRT system to include a Northwest line, a Southeast line, a West line, and a Sherwood Park line. As well, it was assumed that the existing LRT line would extend south to the international airport and northeast to Anthony Henday Drive.

Along the Northwest line, in the vicinity of the ECCA Lands, the 2041 traffic model assumed that stations would be constructed at Kingsway and 106 Street, 118 Avenue and 106 Street (NAIT), and 129 Avenue and 113A Street. The projected increases in employment and population in mature areas assumed in the development of the model are consistent with the assumed LRT station locations.

The City's 2041 traffic model also assumed that improvements would be made to Yellowhead Trail, including the development of an interchange at Yellowhead Trail and 121 Street and closure of the at-grade intersection at Yellowhead Trail and 107 Street.

The 2041 AM peak hour link volumes were reviewed and an estimate of intersection turning movement volumes were established at key study area intersections. **Exhibit 2-3** illustrates the estimated 2041 AM Peak Hour background traffic volumes used in the assessment.



2041 AM Peak Hour Background Volume Estimates

Exhibit 2-3

June 2009

SECTION 3.0
DEMONSTATION PLAN

3.1 BACKGROUND

The ECCA study team, in consultation with the City of Edmonton, developed a Demonstration Plan to assist in the evaluation of potential impacts associated with the redevelopment of the ECCA Lands. As the redevelopment of the lands is anticipated to impact existing land uses adjacent to the ECCA Lands, a Demonstration Plan for the extended area (TIA study area) was also developed.

The purpose of the Demonstration Plan is provide a redevelopment scenario to allow the study team to provide more specific information regarding the potential impacts associated with the redevelopment of the ECCA Lands. Generally, the ECCA study team determined that the redevelopment of the ECCA Lands would provide an opportunity to develop a master planned transit oriented community that could be focused around a potential future LRT station.

Some of the key assumptions used in the development of the Demonstration Plan are:

- The future Northwest LRT alignment will travel through the study area and an LRT station would be provided within the central portion of the plan area;
- No additional arterial roadways would be developed through the plan area;
- Development densities would be highest within 200 metres of the LRT station and would decrease as the distance from the station increased; and
- NAIT would expand into the study area rather than develop additional satellite campuses. The expanded campus would allow for the majority of students at existing satellite campuses to be relocated to the Main campus.

3.2 DEMONSTRATION PLAN FOR THE EXTENDED AREA

The Demonstration Plan for the Extended Area (TIA study area), as included as an appendix to the Edmonton City Centre Airport Lands Impact Assessment, is illustrated in **Exhibit 3-1**. In order to further refine the land use schedules, and to develop trip generation data for comparison purposes, several assumptions were made to determine the net developable areas associated with given uses. **Table 3-1** presents the factors taken into consideration, and assumptions made when reducing the gross areas for the residential land uses, while **Table 3-2** summarizes the assumed residential dwelling unit and population estimates.

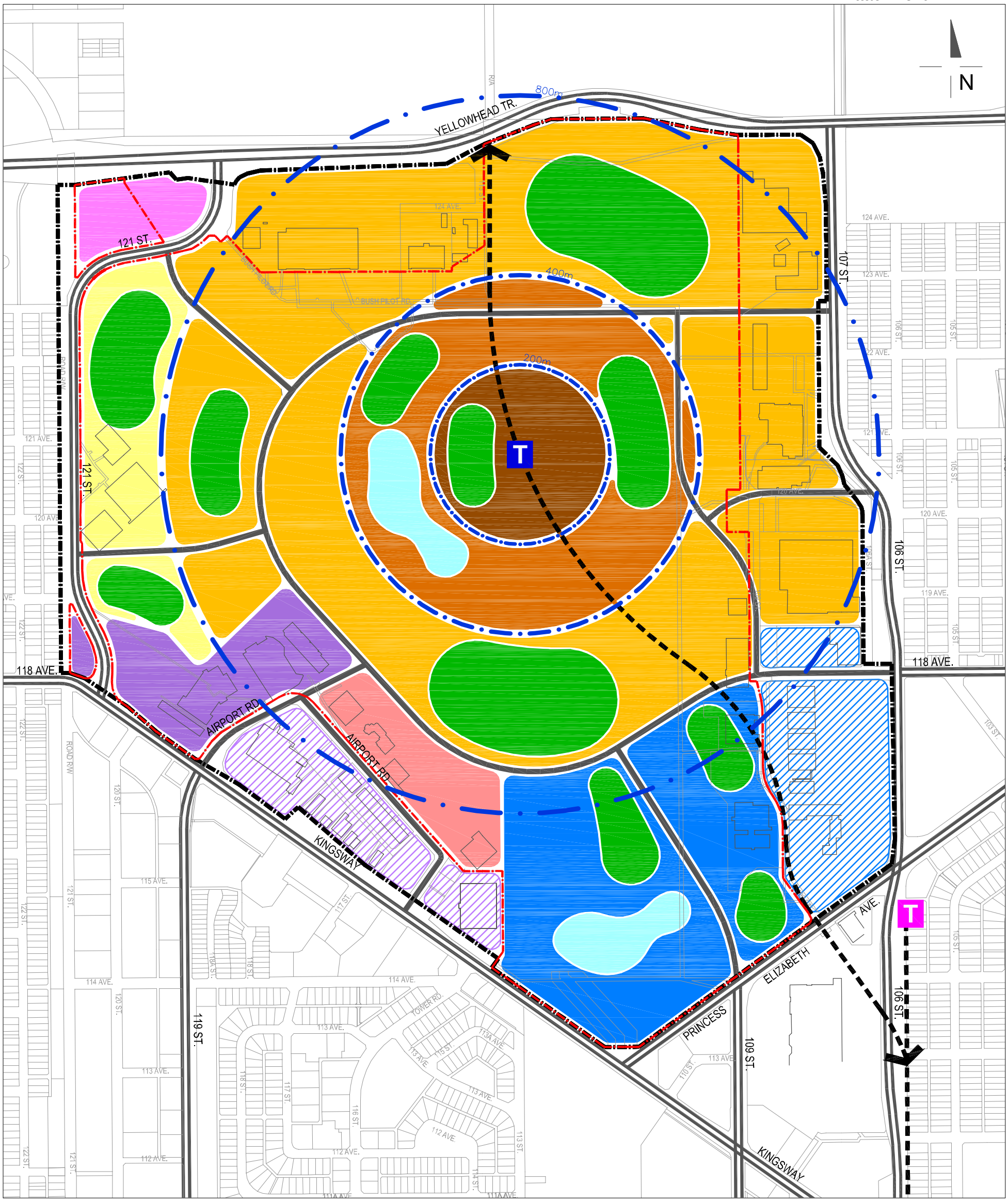
Table 3-1: ECCA Extended Area Land Use Statistics

Land Use	Size (ha)	% of GDA
Gross Plan Area	**290.9**	
Arterial Road Right-of-Way	6.9	
Existing NAIT	15.0	
Existing Commercial/General Business	10.6	
Gross Developable Area	**258.4**	**100.0%**
Commercial		
Neighbourhood Commercial within 200m	0.8	0.3%
Neighbourhood Commercial within 400m	2.3	0.9%
Neighbourhood Commercial within 800m	2.5	1.0%
General Business	8.9	3.4%
Parkland, Recreation, School (Municipal Reserve)	38.7	15.0%
Institutional – NAIT Expansion	23.9	9.2%
Transportation		
Collector Roadways	16.1	6.2%
Local Circulation	25.8	10.0%
LRT Station and ROW	1.6	0.6%
Transportation Node (incl. Heliport)	3.0	1.2%
Stormwater Management Facilities	18.1	7.0%
Mixed Use Office/Institutional/Industrial	7.1	2.7%
Total Non-Residential Area	**148.8**	**57.6%**
Net Residential Area	**109.6**	**42.4%**

Table 3-2: ECCA Extended Area Residential Dwelling Unit and Population Estimates

Residential Land Use	Area (ha)	Density (du/ha)	Units	Pop. Density (people/du)	Population
Low Density Residential	10.9	30	327	3.0	981
High Density Residential Mixed Use Centre within 200 m	7.4	300	2,205	1.5	3,308
Medium-High Density Residential Mixed Use Centre within 400 m	21.1	200	4,218	2.0	8,437
Medium Density Residential Mixed Use Centre within 800 m	70.2	100	7,024	2.0	14,047
NAIT Student Residences			2,000	1.0	2,000
Total Residential	**109.6**		**15,774**		**28,773**

In addition to the residential units identified in Table 3-2, it is anticipated that 100,000 SF of office land uses could be included in the Mixed Use Centre within 200 metres of the LRT station.



Legend

- Extended Plan Area
- ECCA Lands
- High Density Residential Mixed Use Centre
- Medium to High Density Residential Mixed Use Centre
- Medium Density Residential Mixed Use Centre
- Low Density Residential
- Mixed Use Office / Institutional / Industrial
- Parks / Municipal Reserve / Schools
- Stormwater Management Facility
- General Business
- Transportation Node
- Institutional (NAIT Expansion)
- Existing Commercial / General Business (to remain)
- Existing Institutional (NAIT - to remain)
- Conceptual LRT Alignment
- Arterial Roadway
- Collector Roadway
- Potential LRT Station
- Temporary LRT Station
- Walking Distance from LRT (200 m)
- Walking Distance from LRT (400 m)
- Walking Distance from LRT (800 m)

NOTE:
- LRT alignment is conceptual in nature and is subject to further assessment.
- Yellowhead Trail alignment is presently under review.

Exhibit 3-1
Demonstration Plan For The Extended Area

Edmonton City Centre Airport Lands
Edmonton, Alberta

0 100 200 400m

ARMIN A. PREIKSAITIS & ASSOCIATES LTD.

bunt & associates

Date: June 10, 2009

3.2.1 Commercial Land Uses

Based on information provided by Colliers, approximately 435,000 SF of commercial space could be supported based on the projected 28,773 new residents identified in the Demonstration Plan for the extended area. **Table 3-3** summarizes the assumed allocation of commercial space to the three residential mixed use centres.

Table 3-3: Neighbourhood Commercial Allocation

Location	Commercial Space (SF)
Mixed Use Centre within 200 m	65,000
Mixed Use Centre within 400 m	185,000
Mixed Use Centre within 800 m	185,000
Total Commercial	**435,000**

In addition to the neighbourhood commercial land uses, 8.9 ha of area has been identified as general business west of Airport Road, north of Kingsway and east and west of 121 Street. The general business designation has been used to be consistent with a number of buildings that have been developed within long term sub-lease areas that are anticipated to remain over the next 30 years. As shown in **Table 3-4**, the long term sub-lease areas represent approximately 7.45 ha of general business area. Therefore it is anticipated that 1.45 ha of the general business area could be redeveloped within the 2041 horizon.

Table 3-4: General Business Long Term Lease Areas

Land Use	Sub-Lease Area (ha)
Nova Business Complex	0.64
Nova Hotel	1.29
Amiskwaciy Academy	2.28
Millard Centre	3.24
Total	**7.45**

In addition to the above sub-lease areas, the DND Armouries are located west of the existing NAIT main campus and are anticipated to remain in the 2041 horizon.

3.2.2 NAIT Expansion

Based on discussions with NAIT representatives, they would be interested in exploring options to expand the NAIT main campus if the ECCA Lands are approved for redevelopment. Although a formal plan has not been prepared for this potential circumstance, NAIT provided existing and future student enrollment and Full Time Learning Equivalents (FLE) for the Metro Edmonton region for use in the assessment. **Table 3-5** summarizes the information provided by NAIT.

Table 3-5: NAIT Expansions – Metro Edmonton Region

Description	# of Students	FLE
2009/10 Enrollment		
Full Time Programs	7,910	6,665
Apprenticeship Programs	14,700	3,600
Registrations in Continuing Education Programs	47,270	5,540
Total Estimated 2009/10 Enrollment	**69,880**	**15,805**
Short Term Expansions		
Souch Campus – Apprenticeship Programs	900	225
Main Campus - Centre for Applied Technology (CAT) – Full Time	1,700	1,700
Total Short Term Expansion	**2,600**	**1,925**
Future Expansions (15 years)		
Full Time Programs	5,890	4,635
Apprenticeship Programs	4,400	1,175
Registrations in Continuing Education Programs	27,730	3,460
Total Future Expansions	**38,020**	**9,270**
Total Future Enrollment	**110,500**	**27,000**

Of the 2009/10 FLEs in the Metro Edmonton Region, approximately 14,100 are currently located at the Main Campus. Based on discussions with NAIT representatives it is anticipated that if sufficient land becomes available within the ECCA Lands, that by 2041 the majority of existing satellite campuses would be consolidated at the NAIT main campus. Therefore, the main campus has the potential to expand by 12,900 FLEs by 2041.

3.2.3 Transportation Node

A 3.0 ha transportation node has been identified in the northwest portion of the study area and is intended to accommodate the existing VIA Rail Station and also provide a location for a future Medevac (helipad) facility in close proximity to the arterial roadway network. Additional land is also anticipated to be available to accommodate other transportation related infrastructure.

3.2.4 Mixed Use Office/institutional/Industrial

A mixed use office/institutional/industrial area has been identified north of Airport Road and west of the NAIT expansion lands. It is anticipated that this area could be used to develop a research park that provides opportunities for institutional/industry relationships. A FAR of 0.5 has been assumed for the site, resulting in a total potential building development of approximately 382,000 SF.

3.3 COLLECTOR ROADWAY NETWORK

The collector roadway network included in the Demonstration Plan was developed to provide a variety of access points for both passenger vehicles and transit. The site is well located, and while access will not be provided to Yellowhead Trail directly from the study area, the provision

of access to the four other arterial roadways adjacent to the study area is anticipated to provide excellent mobility for residents within the study area.

A collector loop has been identified within the central portion of the plan area, primarily to provide a strong transit loop through the study area. A primary concern in the development of the collector roadway network is the potential for shortcutting through the study area. For example, a continuous collector connection extending from Princess Elizabeth Avenue at 109 Street to 121 Street was avoided in the development of the plan area, as it was anticipated that a connection of this type would ultimately operate as an arterial roadway through the study area. Similarly, the extension of 118 Avenue west of 106 Street does not connect directly to Kingsway to reduce the potential for shortcutting.

SECTION 4.0
SITE TRAFFIC CHARACTERISTICS

4.1 TRIP GENERATION ASSUMPTIONS

The peak hour and daily trip generation rates used for the assessment were derived from a review of ITE Trip Generation, 8th Edition, in conjunction with requirements of the City of Edmonton Transportation Department. **Table 4-1** summarizes the assumed trip generation rates used in the assessment for the various land uses proposed to be developed within the ECCA study area.

Table 4-1: Trip Generation Rates

Land Use	ITE Land Use Code*	Variable	AM Peak Hour	PM Peak Hour	Daily
Low density residential	210	dwelling unit	0.75	1.01	9.20
High Density Residential Mixed Use Centre within 200 m	232	dwelling unit	0.34	0.38	4.18
Medium-High Density Residential Mixed Use Centre within 400 m	230	dwelling unit	0.44	0.52	5.81
Medium Density Residential Mixed Use Centre within 800 m	230/231	dwelling unit	0.51	0.60	6.32
NAIT Student Residences	N/A	dwelling unit	0.03	0.057	0.17
NAIT Expansion	540	Students	0.12	0.12	1.20
Neighbourhood Commercial	820	1,000 SF	1.20 – 1.84	5.19 – 7.33	54.76 – 78.96
Mixed Use Office/Industrial/Institutional	760	Employees	0.43	0.41	2.77
General Business and Office	710	Employees	0.48	0.46	3.32
Transportation Node	110	Employees	0.44	0.42	3.02

*Note: Listed where applicable

4.1.1 Residential

The rates assumed for low, medium, and high residential land uses are consistent with trip rates employed in previous Traffic Impact Assessments prepared for Edmonton Neighbourhood and Area Structure Plans, and typically represent rates from *ITE Trip Generation, 8th Edition*.

- Low density AM and PM peak hour rates are based on ITE Land Use 210 – Single Family. The daily rate is based on City of Edmonton, Transportation Planning Branch accepted rates.

- The trip generation rates used in the assessment for high density residential land uses are based on ITE Land Use Code 232 – High-Rise Residential Condominium/Townhouse. The units included in the surveys were located within buildings with three or more levels. Trip rates for ITE Land Use Code 222 – High-Rise Apartment were also reviewed; however, as they represent primarily rental units, the condominium/townhouse rates were utilized.

- AM peak hour, PM peak hour, and daily trip generation rates for ITE Land Use 230 – Residential Condominium/Townhouse were utilized to estimate the number of trips generated by the medium to high density residential units. The use of these rates is consistent with rates utilized in planning studies for medium density land uses with a density of 90 units/ha or higher.

- The AM and PM peak hour trip generation rates for the medium density residential land uses are based on a combination of ITE Land Use 230 – Residential Condominium/Townhouse and ITE Land Use 231 – Low-Rise Residential Condominium/Townhouse. An average density of 100 units/ha was assumed in the generation of medium density units. For the purpose of this assessment, a blend of 30% townhouse units (35 du/ha) and 70% apartment units (125 du/ha) was assumed. A daily rate is not published for ITE Land Use Code 231 therefore an estimate of 7.5 trips/day was used to calculate a blended daily rate for the medium density residential land uses.

- Trip generation information for on-site residences is not included in ITE Trip Generation. Therefore, trip generation estimates were based on assumptions regarding potential parking supplies and an estimate of vehicle use per day.

  Bunt & Associates completed a Parking Impact Assessment in July 2003 for the student residence at Grant MacEwan College. Based on a review of parking supply rates for student resident parking at a number of universities and colleges in Western Canada, a ratio of 1 stall per 3.5 students was selected for the development of parking stalls at MacEwan. Using a similar ratio at NAIT, it is estimated that the residence parking supply could be in the order of 572 stalls. It was further assumed that the residence parking supply is equal to the parking demand.

  It is assumed that the majority of resident parking stalls are utilized for the longer term storage of vehicles, where residents would use the vehicle to head to a permanent home outside of the City of Edmonton on weekends, or will potentially use the vehicle for personal business outside of the typical weekday peak hours. However, some residents may own a vehicle to provide transportation to off campus employment. It is assumed that approximately 10% of the vehicles parked within resident parking would be used during the AM peak hour and approximately 20% would be used during the PM peak hour. As well, it is assumed that 30% of the vehicles would be used for a return trip (two-way) during a typical weekday. Based on the above, it is anticipated that the student residences will generate traffic at a rate of 0.03 trips/du during the AM peak hour, 0.57 trips/du during the PM peak hour, and 0.17 trips/day on a typical weekday.

4.1.2 NAIT Expansion

The trip generation rate for the NAIT expansion is based on ITE Land Use Code 540 – Junior/Community College, which includes two-year junior, community, or technical colleges. The trip generation rates were applied to the projected increase in FLEs on campus as

compared to the assumptions used in the City's 2041 traffic model. Therefore, an increase of 11,600 FLEs was assumed in the traffic assessment.

4.1.3 Commercial Sites

The fitted curve equations for ITE Land Use Code 820 – Shopping Centre were used to determine AM peak hour, PM peak hour, and daily rates for the three neighbourhood commercial areas. The ITE Shopping Centre rates reflect a large variety of shopping centres ranging in size from 1,700 SF to 2.2 million SF. As site plans are currently not available for the commercial sites, the shopping centre rates are anticipated to provide an appropriate estimate of trip generation at the current level of review.

4.1.4 Mixed Use Office/Industrial/Institutional

Trip generation rates published for ITE land use code 760 – Research and Development Center based on number of employees were used in the assessment for the Mixed Use Office/Industrial/Institutional area included in the Demonstration Plan. The number of employees was estimated assuming one employee would occupy approximately 250 SF (23.225 m^2).

4.1.5 General Business

It is assumed that additional offices land uses would be developed in the general business area identified on the Demonstration Plan. Based on an available area of 1.45 ha and an FAR of 0.35 (similar to the Millard Centre), approximately 54,630 SF of office space could be developed on the site. Based on a ratio of 1 employee per 250 SF, a total of approximately 220 employees could be accommodated on the site.

4.1.6 Office

It was estimated that approximately 100,000 SF of office space could be developed as part of the mixed use development identified within 200 metres of the LRT station in the Demonstration Plan. Based on a ratio of 1 employee per 250 SF, a total of approximately 400 employees could be accommodated on the site.

4.1.7 Transportation Node

The transportation node is anticipated to include a number of transportation related facilities that would include the VIA Rail Station and a Medevac (helipad) facility. Trip generation rates for these types of land uses is not available, therefore, it was assumed that they would generate traffic volumes of a similar magnitude as if the area was developed to accommodate light industrial land uses. Trip rates based on number of employees published in ITE Trip Generation, 8th Edition for ITE Land Use Code – 110 – General Light Industrial, were used in the assessment. The number of employees estimated to work in the area was based on an employment density of 35 employees/ha.

4.2 TRIP GENERATION TOTALS

Table 4-2 summarizes the projected two-way AM peak hour, PM peak hour, and Daily vehicle trips anticipated to be generated by the ECCA study area based on the Demonstration Plan and the trip generation rates summarized above.

Table 4-2: ECCA Study Area Trip Generation Totals

Land Use	Units	Total Trips		
		AM Peak Hour	PM Peak Hour	Daily
Low Density Residential	327 du	245	330	3,008
HDR Mixed Use Centre within 200 m	2,205 du	749	837	9,216
MDR/HDR Mixed Use Centre within 400 m	4,218 du	1,856	2,194	24,506
MDR Mixed Use Centre within 800 m	7,024 du	3,583	4,214	44,392
NAIT Student Residences	2,000 du	60	114	340
Total Residential	**15,774 du**	**6,493**	**7,689**	**81,462**
NAIT	11,600 students	1,392	1,392	13,920
Neighbourhood Commercial within 200 m	65,000 SF	120	476	5,132
Neighbourhood Commercial within 400 m	185,000 SF	222	960	10,130
Neighbourhood Commercial within 800 m	185,000 SF	222	960	10,130
Mixed Use Office/Institutional/Industrial	1,528 employees	657	627	4,232
General Business	220 employees	106	101	730
Transportation Node	105 employees	46	44	318
Office within 200 m	400 employees	192	184	1,328
Total Non Residential		**2,957**	**4,744**	**45,920**
Total ECCA Study Area		**9,450**	**12,433**	**127,382**

As shown in Table 4-2, the ECCA study area could generate in the order of 9,450 two-way trips during the AM peak hour and 12,433 two-way trips during the PM peak hour. Daily trip-making activity generated by the Demonstration Plan is estimated to be in the order of 127,400 two-way trips.

4.3 TRIP DISTRIBUTION

The 2041 Origin-Destination tables from the City of Edmonton's "Origin – Destination Car Driver Trips November 2007" were used to distribute the residential and employment trips generated by the ECCA study area. The general distribution of external AM, PM, and Daily trips generated by the neighbourhood is summarized in **Table 4-3**.

Table 4-3: External Trip Distribution by Direction

Direction	% of Traffic					
	AM		PM		Daily	
	In	Out	In	Out	In	Out
Northeast	15.3%	7.1%	8.6%	12.1%	10.3%	10.1%
Northwest	20.3%	27.8%	27.5%	22.8%	26.2%	26.2%
East	16.5%	10.5%	12.4%	15.6%	13.5%	14.2%
West	21.7%	17.3%	20.5%	23.8%	22.2%	23.6%
Southeast	13.1%	25.9%	20.1%	14.6%	16.4%	15.5%
Southwest	13.1%	11.4%	10.9%	11.1%	11.4%	10.4%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Commercial trips were distributed based on the location of the site in relation to adjacent residential land uses. Based on information provided by Colliers, the ECCA study area is the Primary Trade Area for commercial land uses within the ECCA study (internal trips). The Secondary Trade Area is anticipated to include the lands between 112 Avenue and Yellowhead Trail, and between 82 Street and 142 Street. As well, some longer distance trips may also be generated depending on the ultimate size and types of commercial lands ultimately developed. The distribution of longer range trips was based on the distribution summarized in Table 4-3.

4.4 MODE SPLIT

The Demonstration Plan assumes that an LRT station would be constructed within the central portion of the plan area, and that a master planned Transit Oriented Development (TOD) would be developed. From a transportation perspective, the development of a TOD community is intended to promote transit trips, pedestrian trips, and bicycle trips as alternatives to single occupant passenger vehicle trips. As there is the ability to plan an entire TOD community on the ECCA Lands, it is anticipated that bus routes, pedestrian routes, and cycling routes will also be planned to further enhance the reduction of private auto use by residents, employees, and visitors of the plan area.

As the residential trip generation rates used in the assessment generally reflect rates used in assessments for suburban locations in Edmonton, significant mode split factors have been applied. **Table 4-4** summarizes the combined mode split factor to transit, walking, and cycling assumed for external trips generated by residential land uses within 800 metres of an LRT station and employment areas located within 400 metres of an LRT station. The external mode split factors were also applied to external trips anticipated to be generated by the NAIT expansion.

Table 4-4: Overall Mode Split to Transit, Walking, Cycling

Time Period	Overall Mode Split	
	In	Out
AM Peak Hour	40%	40%
PM Peak Hour	30%	40%
Daily	40%	35%

The mode split factors summarized in Table 4-4 are based on a review of the 2041 Origin-Destination information as well as assumptions regarding the LRT network assumed to be in place by 2041. Generally, it is anticipated that transit, walk, and cycle trips will be higher to/from the downtown, the downtown fringe, the University, and the surrounding neighbourhoods, and would be lower to/from the suburbs and the region where LRT and transit are not anticipated to provide a strong alternative to the passenger vehicle.

4.5 TRIP ASSIGNMENT

4.5.1 Residential Trip Assignment

The residential trips were assigned to the arterial roadway network based on the origin-destination information, the mode split factor, the availability of collector accesses and the location of land uses in relation to the collector roadways.

4.5.2 Commercial Trips

The commercial trips were separated into primary and non-primary trips. The primary trips were anticipated to be generated by residential developments within and adjacent to the ECCA study area, while the non-primary trips were anticipated to be passing by the site along the adjacent collector or arterial roadways. Non-primary trips to the commercial land uses within 400 metres and 800 metres of the LRT station were assumed to represent 20% of the total trips generated by these land uses. No vehicle non-primary trips were assumed for the commercial land uses within 200 metres of the LRT station.

Based on a review of information provided by Colliers, it was assumed that 68% of the commercial demand associated with the commercial land uses in the ECCA study area would be generated by residents within the ECCA study area (internal trips). The remaining 32% of the demand is anticipated to be generated by the Secondary Trade Area, which includes residential land uses east and west of the ECCA Lands (20%), and the City of Edmonton as a whole (12%).

Internal trips were assigned to the collector roadway network based on the potential distribution of residents throughout the neighbourhood. External trips to the Secondary Trade Area were assigned to the collector and arterial roadway network based on the location of residential land uses within the Secondary Trade Area, while the distribution of external trips to Edmonton as a whole was based on the distribution previously summarized in Table 4-3.

4.5.3 NAIT, Mixed Use Office/Institutional/Industrial, Business Industrial

Trips generated by the remaining non-residential land uses were assigned to the arterial roadway network based on the origin-destination information, the mode split factor where applicable, the availability of collector accesses and the location of land uses in relation to the collector roadways.

4.5.4 Internal Trips

Internal trips are trips originating in, and destined to land uses within the ECCA study area. Where both the origin and destination of a trip are within the ECCA study area, there is the potential to double count the trips. For example, a trip from a residence to the transportation node is generated by both land uses, but only represents one trip on the network. Internal trips accounted for in the ECCA study area include trips between the residential land uses and the commercial, employment, and NAIT land uses.

The trips remaining within the neighbourhood were removed from the total trips generated by the residential land uses to avoid double counting of the trips. **Table 4-5** summarizes the estimation of internal trips for the AM, PM, and Daily timeframes.

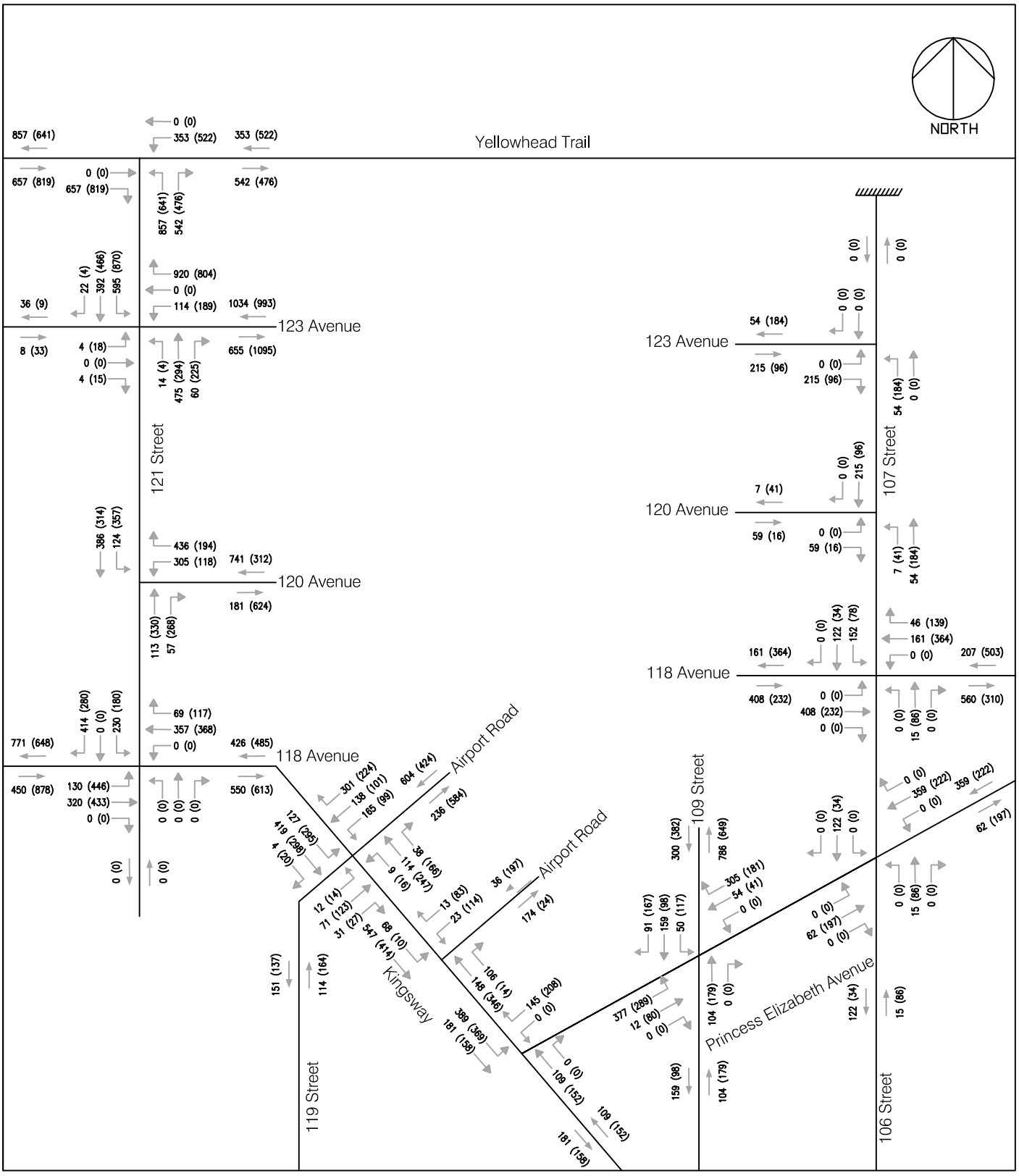
Table 4-5: Internal Trip Summary

Trips	AM Peak Hour		PM Peak Hour		Daily	
	In	Out	In	Out	In	Out
Total Residential Trips	1,210	5,283	4,970	2,719	40,731	40,731
Total Non-Residential Internal Trips (Out/In)	146	309	765	716	7,739	7,739
External Residential Trips	**1,064**	**4,974**	**4,205**	**2,003**	**32,992**	**32,992**
Overall % Internal	**7.0%**		**19.3%**		**19.0%**	

4.6 SITE GENERATED TRAFFIC VOLUME ESTIMATES

The total trips anticipated to be generated by the ECCA study area in the AM and PM peak hours are illustrated in **Exhibit 4-1**, while the daily trips anticipated to be generated by the ECCA study area are illustrated in **Exhibit 4-2**.

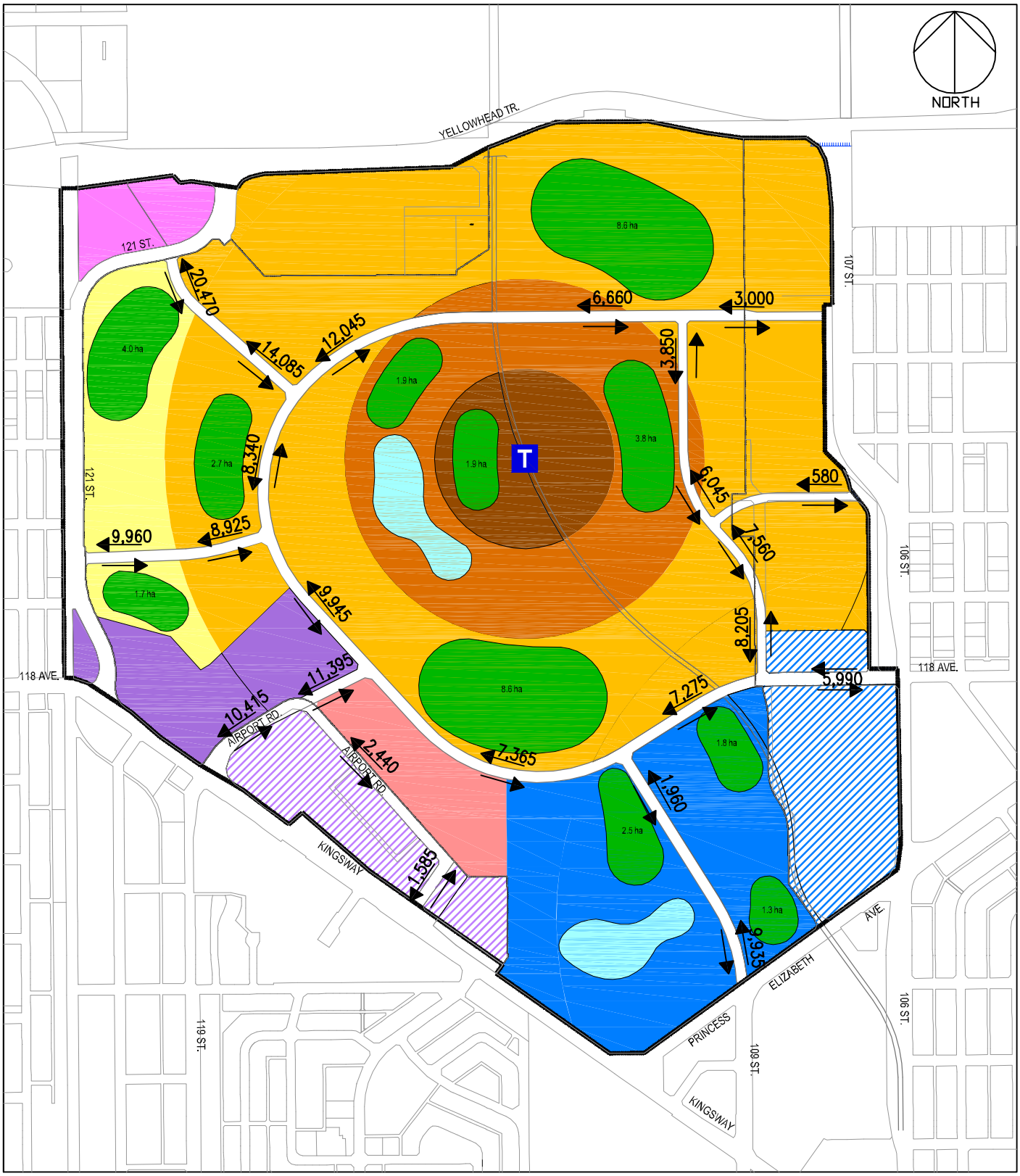
The trips generated by the ECCA study area were superimposed on the 2041 background traffic volumes to represent the 2041 total traffic volumes. **Exhibit 4-3** illustrates the AM peak hour 2041 Total Traffic Volumes.



ECCA Site Generated Traffic Volumes AM (PM) Peak Hour

Exhibit 4-1

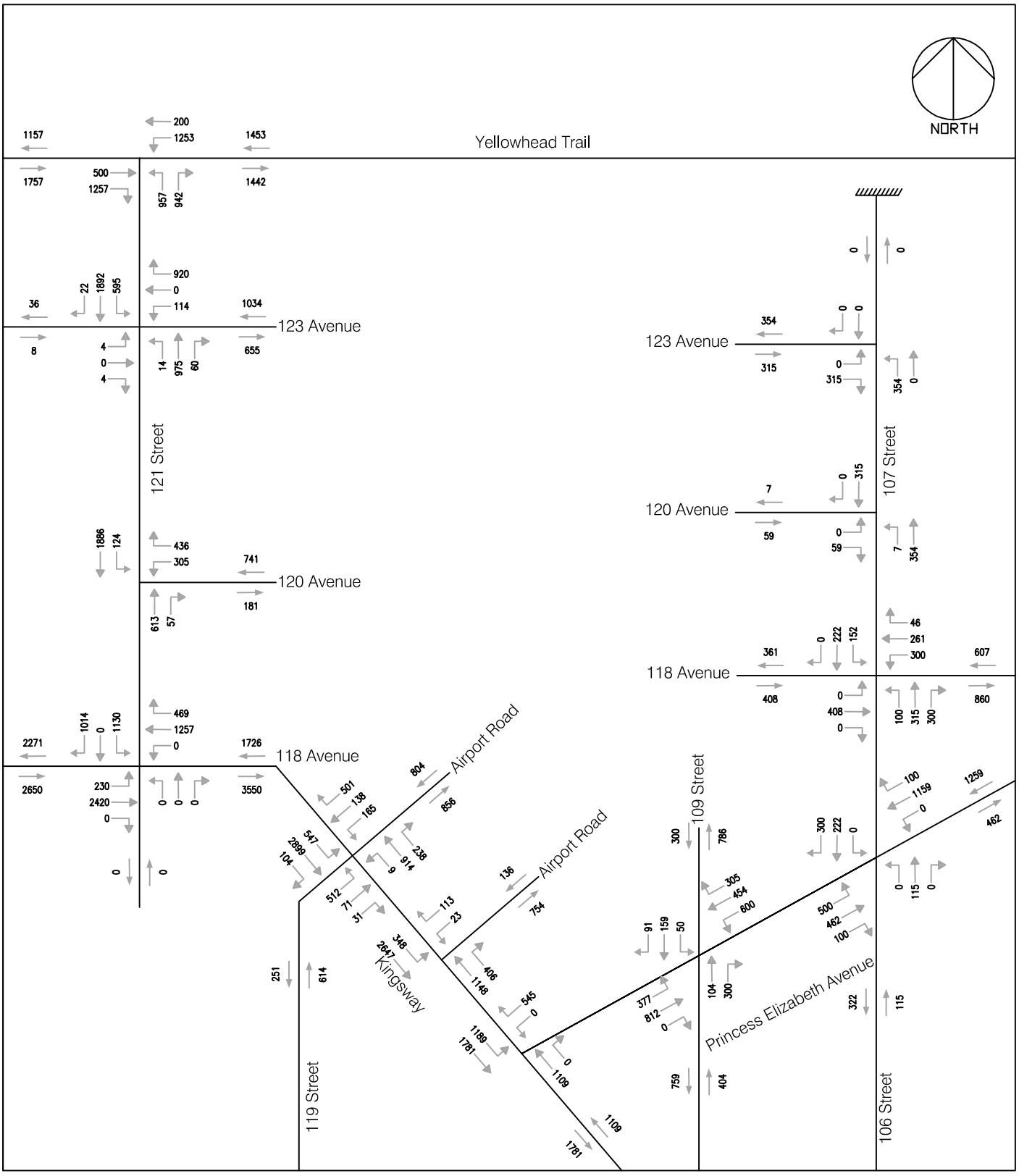
June 2009



ECCA Daily Site Generated Traffic Volumes

Exhibit 4-2

June 2009



2041 Total Traffic Volume Estimates AM Peak Hour

Exhibit 4-3

June 2009

SECTION 5.0
TRANSPORTATION ASSESSMENT

5.1 NEIGHBOURHOOD TRANSIT CONSIDERATIONS

The Demonstration Plan is based on the assumption that an LRT station can be developed in a central location within the ECCA study area and that a Transit Oriented Community can be established. During the development of site traffic estimates, mode splits to transit, walking, and cycling were assumed to significantly decrease the projected vehicle traffic generated by the neighbourhood. Based on the origin-destination information available from the City of Edmonton, trips to and from the ECCA study area are not confined to locations along existing or future LRT lines. Therefore, to fully realize a Transit Oriented community, transit plan should be developed for the neighbourhood to complement the LRT system.

5.2 PEDESTRIAN AND BICYCLE NETWORK

It is recommended that any future planning for the ECCA study area include the development of a strong radial pedestrian/bicycle network that provides convenient and efficient access to the LRT station, as well as strong connections from the residential land uses to the business industrial, commercial, and institutional land uses. As well, a multi-use trail connection should be developed within the plan area that connects to the existing north/south separated bicycle path on 121 Street south of 118 Avenue.

5.3 COLLECTOR ROADWAY NETWORK CHALLENGES

The ECCA study area is bounded on all sides by arterial roadways that have predominantly been developed along a grid pattern. The development of an internal collector roadway network will need to provide appropriate transit and passenger vehicle access to the neighbourhood, but must also be cognizant of potential shortcutting routes. For example, the extension of 118 Avenue from 106 Street to Kingsway as a direct connection through the plan area would provide a more direct route than the current arterial roadway network. The collector roadway network illustrated in the Demonstration Plan attempted to limit direct collector connections through the plan area, although it is recognized that a more thorough review of the collector network will be required during the development of a plan for the ECCA study area, and that a number of traffic calming techniques may be required within the neighbourhood where collector roadway connections through the plan area cannot be eliminated.

5.4 COLLECTOR ROADWAY DESIGN CRITERIA

The Demonstration Plan illustrates that an internal network of collector roadways can be developed to service the ECCA study area. The daily volumes estimated based on the Demonstration Plan indicated that collector roadways may need to be designed to accommodate in the order of 10,000 vehicles per day, depending on their location within the plan area. Higher volume collectors may be required at access points into the community, specifically to 121 Street in the vicinity of Yellowhead Trail.

Ultimately, the internal collector roadway network will need to be designed as part of an overall TOD transportation plan. The Integrated Transit and Land Use Guidelines currently being developed by the City of Edmonton will provide direction on the development of collector roadway networks for TOD communities, such as the ECCA Lands.

5.5 ARTERIAL ROADWAY CAPACITY

A preliminary capacity analysis was completed based on the methods outlined in the Highway Capacity Manual 2000, using *SYNCHRO 7.0* analysis software.

Intersection operations are typically rated by two measures. The volume-to-capacity (V/C) ratio describes the extent to which the traffic volumes can be accommodated by the physical capacity of the road configuration and signal control. A value (measured during the peak hour) less than 0.90 indicates that generally, there is sufficient capacity and projected traffic volumes can be accommodated at the intersection. A value between 0.90 and 1.0 suggests unstable operations may occur and volumes are nearing capacity conditions. A calculated value over 1.0 indicates that traffic volumes are theoretically exceeding capacity. The second measure of performance, Level of Service (LOS), is based on the estimated average delay per vehicle among all traffic passing through the intersection. A low average delay merits a LOS A rating. Average delays greater than 80 seconds per vehicle generally produce a LOS F rating for signalized intersections, while average delays greater than 50 seconds per vehicle generally produce a LOS F rating for unsignalized intersections.

The City of Edmonton's Roadway Planning and Design Objectives identifies a Peak Hour Level of Service (LOS) Design Objective of LOS E for the Long Term (Population ≥1,000,000 people), which relates to v/c ratios between 0.90 and 1.0 for signalized arterials. This planning objective has been used in the review of the capacity assessments for arterial/arterial and arterial/collector intersections. This guide is currently under review to consider the direction of the draft Transportation Master Plan and the City Strategic Vision.

5.6 INTERSECTION ANALYSIS

AM Peak hour intersection analyses were completed using the 2041 AM peak hour total traffic volumes to provide an estimate of potential future traffic operations.

5.6.1 Yellowhead Trail and 121 Street

The City of Edmonton anticipates that an interchange at Yellowhead Trail and 121 Street will be required. A preliminary analysis was completed assuming a diamond interchange is ultimately installed at this location. Based on the preliminary analysis, a diamond interchange at Yellowhead Trail/121 Street is anticipated to provide sufficient capacity to accommodate the projected volumes; however, queuing between the north and south intersections could result in congestion on the interchange. Therefore, the City of Edmonton may wish to include the potential development of the ECCA Lands as an option in the review of potential interchange designs along Yellowhead Trail in the vicinity of 121 Street.

5.6.2 123 Avenue and 121 Street

The analysis of 123 Avenue and 121 Street assumed that a future arterial/collector intersection in this location would be signalized. The analysis indicated that the westbound right turn is anticipated to approach capacity in the AM peak hour, resulting in the potential for significant queues. Based on the analysis completed, it is anticipated that additional access to 121 Street from the northwest portion of the plan area may ultimately be required to better accommodate traffic heading to Yellowhead Trail.

5.6.3 120 Avenue and 121 Street

The analysis of 120 Avenue and 121 Street assumed the intersection would be signalized in the future. Based on the analysis completed, the second collector south of Yellowhead Trail is anticipated to operate at acceptable levels of service in the AM peak hour.

5.6.4 118 Avenue and 121 Street

With changes in background volumes estimated based on a future interchange at Yellowhead Trail and 121 Street in combination with traffic generated by the redeveloped ECCA study area, the intersection of 118 Avenue and 121 Street is anticipated to operate at or near capacity during the AM peak hour. Based on the estimated AM peak hour volumes, no additional geometric changes have been identified. While a second southbound right turn might be developed in the future, this improvement is not anticipated to significantly improve the overall intersection operations, and adding additional through lanes along 118 Avenue is not consistent with policies outlined in the Transportation Master Plan

While no improvements are proposed in the AM peak hour, it is anticipated that a high volume eastbound left turn would be generated in the PM peak hour as a result of a potential interchange at Yellowhead Trail and 121 Street in combination with redevelopment on the ECCA Lands. Therefore, a dual eastbound left turn may be considered at the intersection in the future.

5.6.5 Kingsway and 119 Street

The intersection of Kingsway and 119 Street is anticipated to accommodate the projected 2041 AM peak hour total traffic volumes at acceptable levels of service.

5.6.6 Kingsway and Airport Road South

The intersection of Kingsway/Airport Road South is anticipated to operate at acceptable levels of service under the projected 2041 AM peak hour total traffic volumes.

5.6.7 Kingsway and Princess Elizabeth Avenue

Based on the analysis completed, the Kingsway/Princess Elizabeth Avenue intersection is anticipated to operate at acceptable levels of service in 2041.

5.6.8 Princess Elizabeth Avenue and 109 Street

The Demonstration Plan assumes that 109 Street would be extended north into the plan area and it is anticipated that the intersection would be signalized with the construction of the fourth leg. Based on the analysis completed the intersection of Princess Elizabeth Avenue and 109 Street is anticipated to operate well in the AM Peak hour as a four-legged signalized intersection. It is anticipated that the northbound left will continue to be banned at the intersection in the long term.

The analysis completed for the intersection of Princess Elizabeth Avenue and 109 Street does not take into account the potential impacts an at-grade LRT crossing across Princess Elizabeth Avenue would have on the operations of the intersection. Additional traffic analysis will need to be completed once an LRT alignment is set to determine appropriate intersection geometry and traffic control for intersections in the vicinity of at-grade crossings.

5.6.9 Princess Elizabeth Avenue and 106 Street

The intersection of Princess Elizabeth Avenue and 106 Street is anticipated to operate at acceptable levels of service during the AM peak hour in 2041. It should be noted that the assignment of 2041 Background traffic did not assume access to NAIT from Princess Elizabeth Avenue. Currently access to Princess Elizabeth Avenue from the NAIT Main Campus is provided west of 106 Street.

As identified in the analysis for the intersection of Princess Elizabeth Avenue and 109 Street, the development of an at-grade LRT crossing across Princess Elizabeth Avenue is anticipated to impact intersection operations in the vicinity. More detailed assessments should be completed as part of the review of potential LRT corridors north of Kingsway and should include potential development scenarios for the ECCA Lands, if redevelopment of the ECCA Lands is approved.

5.6.10 118 Avenue and 106 Street

The intersection of 118 Avenue and 106 Street is currently a signalized four-legged intersection that provides access to the existing NAIT Main Campus. Based on the analysis completed, the intersection of 118 Avenue and 107 Street is anticipated to operate well as a signalized intersection in 2041.

5.6.11 120 Avenue and 107 Street

The City of Edmonton's 2041 traffic model assumed that 107 Street would no longer connect to Yellowhead Trail if an interchange was installed at 121 Street. Therefore, future traffic volumes on 107 Street are anticipated to be very low. Based on the analysis completed, the intersection of 120 Avenue and 107 Street is anticipated to operate at excellent levels of service as an unsignalized intersection.

5.6.12 123 Avenue and 107 Street

The existing 123 Avenue/107 Street intersection is assumed to be converted to a collector intersection in the ECCA Demonstration Plan. As traffic volumes are anticipated to be limited on 107 Street once the connection to Yellowhead Trail is removed, it is anticipated that 123 Avenue and 107 Street will operate as an unsignalized intersection in the future. Based on the assessment completed, the intersection of 123 Avenue and 107 Street is anticipated to operate at excellent levels of service as an unsignalized intersection.

5.7 RECOMMENDED INTERSECTION GEOMETRY AND TRAFFIC CONTROL

Based on a review of the 2041 background volumes, the projected ECCA study area traffic volumes, and the results of the Synchro analysis, it is anticipated that the adjacent arterial roadway network can accommodate the projected AM peak hour traffic volumes. Some intersection geometry modifications may be required at 118 Avenue and 121 Street to accommodate changes in traffic patterns associated with the construction of an interchange on Yellowhead Trail at 121 Street. As well, additional collector access from the ECCA study area to 121 Street in the northwest portion of the plan area would be beneficial in distributing traffic heading for Yellowhead Trail along the 121 Street corridor. Additional collector access to Kingsway would also be beneficial in distributing site generated traffic to the external roadway network.

SECTION 6.0
ANCILLARY CONSIDERATIONS

6.1 NOISE ATTENUATION

Based on the City of Edmonton's Urban Traffic Noise Policy, noise attenuation will need to be provided by the developer if the projected noise level in outdoor amenity areas exceeds 60 dBA Leq_{24}. For residential developments three storeys or more, noise levels of 45 dBA Leq_{24} or less should be achieved after applying attenuation measures. As the ECCA study area is surrounded by arterial roadways, and if redeveloped, will potentially include an LRT line through the plan area, a noise study will need to be completed to determine the extent of potential mitigation measures.

In addition to noise associated with transportation facilities, CN Rail has identified that any residential development within the ECCA study area should meet their standard Right of Way Guidelines as they pertain to noise.

SECTION 7.0
CONCLUSIONS AND RECOMMENDATIONS

7.1 STUDY SYNOPSIS

This report documents the results of the traffic impact assessment completed to determine the potential transportation impacts associated with the redevelopment of the ECCA Lands. The assessment was completed using a Demonstration Plan for the area generally bounded by 106 Street/107 Street to the east, 121 Street to the west, Kingsway and Princess Elizabeth Avenue to the south, and Yellowhead Trail to the north, which assumed the development of a transit oriented community surrounding a future LRT station.

The results of the study will assist in identifying the potential impacts of redeveloping the ECCA Lands, and adjacent areas as a master planned Transit Oriented Community, with a population of 28,773 people.

7.2 SUMMARY OF STUDY FINDINGS

7.2.1 Traffic Generation

The Demonstration plan assumed the development of 13,774 residential dwelling units plus 2,000 student resident units within the extended plan area. In addition to the residential population, the Demonstration Plan assumed additional commercial, office, general business, and mixed use office/institutional/industrial land uses would be developed within the area along with a NAIT expansion and a transportation node.

The densities proposed in the Demonstration Plan reflect the development of the plan area as a Transit Oriented Community. The generation of traffic utilized standard trip generation rates, and then applied mode split factors to account for increased transit usage, as well as increased walking and cycling trips. Based on the Demonstration Plan it is estimated that the neighbourhood could generated approximate 6,230 AM peak hour trips, 7,705 PM peak hour trips, and 77,000 daily trips.

7.2.2 Arterial and Collector Roadway Network Capacity

The future arterial roadway network assumed in the analysis is anticipated to be able to accommodate the projected site generated traffic at long term services levels. The intersection of 118 Avenue and 121 Street is anticipated to operate at or near capacity in the AM peak hour in the future, based on the site generated traffic in combination with background traffic volumes that assume an interchange will be constructed at Yellowhead Trail and 121 Street. While some intersection improvements may be considered to accommodate increased volumes moving from 118 Avenue to 121 Street and vice versa, it is anticipated that a significant increase in eastbound and westbound capacities will not be considered in the long term.

The internal collector roadway network is anticipated to ultimately require the development of collector roadways that can accommodate in the order of 10,000 vehicles per day. In

developing the internal collector roadway network the most significant challenge is mitigating potential future shortcutting routes. The collector roadway network illustrated in the Demonstration Plan attempted to limit direct collector connections through the plan area, although it is recognized that a more thorough review of the collector network will be required during the development of a plan for the ECCA study area, and that a number of traffic calming techniques may be required within the neighbourhood where collector roadway connections through the plan area cannot be eliminated.

7.3 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis of the Demonstration Plan for the extended area, it is anticipated that the vehicle traffic estimated to be generated by the study area can be accommodated on the external roadway network.

Based on the analysis completed, the following recommendations are advanced:

- To truly achieve a TOD, the introduction of LRT into the plan area at an early stage of the redevelopment is required.
- The redevelopment of the ECCA Lands should include the development of pedestrian and cycling networks that connect the community to the central LRT station and that also connect to adjacent communities and businesses.
- A transit plan should be developed for the neighbourhood to complement the LRT system.
- The internal roadway network should be designed as a TOD network, which will provide appropriate access for pedestrians, cyclists, transit, and passenger vehicles, while limiting the potential for shortcutting traffic.

APPENDIX K

ENGINEERING SERVICING AND OPINION OF PROBABLE COST

SELECT ENGINEERING CONSULTANTS LTD.
SUITE 220, 9303 - 34 AVENUE
EDMONTON AB T6E 5W8
PH: 780.651.5777 FAX: 780.651.5757

4June 5, 2009 File No.: 53-08001-3.2

Mark Huberman
Principal
Bunt & Associates
#504 Princeton Place
10339 – 124 Street
Edmonton AB T5N 3W1

Dear Sir:

Re: **Edmonton City Centre Airport Impact Assessment**
Servicing Impacts

We have completed the Servicing Impact Assessment component of the Edmonton City Center Airport Lands Impact Assessment. The servicing impact analysis is divided in two sections:

1. Engineering and Servicing Impact section deals with the proposed servicing and constraints for the redevelopment of the airport lease lands.

2. Cost Estimate section details the costs associated with the redevelopment based on the demonstration plan.

ENGINEERING AND SERVICING IMPACTS

In reviewing the servicing options for the proposed redevelopment of the airport lands, the smaller watermains and sewers within the airport lands were not considered to be utilized in the ultimate servicing scheme. This existing infrastructure will likely not be used due to either the deteriorating condition of the infrastructure or it will not meet current design standards. Usually, existing sewers and watermains are not at an adequate depth after re-grading of the area is completed and the size of the utilities will most likely not be adequate for the new land use proposed. Servicing of the redevelopment was considered much like a green field development.

Site Grading

The site drains from north to south with a gentle overall slope of approximately 0.5%. Existing ground elevations range from 671 m in the north to 664 m at the south. Given this existing slope, redevelopment of the site should require minimal site grading. The final location of stormwater management facilities (SWMF) throughout the site will dictate the grading requirements. The site will be required to be graded so that all storm runoff will be directed to the new stormwater management facilities.

Roadways

Roads will be constructed in the redevelopment as needed to accommodate the vehicle and pedestrian traffic. A system of local and collector roadways will be constructed within the redevelopment.

Water

There are four large watermains in the surrounding neighbourhoods that provide water supply to the area. Two 610 mm watermains are located along 106 Street and 122 Street, one 450 mm watermain is located along the south side of Yellowhead Trail that connects into the two 610 mm lines and a 750 mm watermain located along 111 Avenue. All other existing distribution watermains tie into these. The redevelopment of the airport lands was discussed with Epcor Water Services. They had completed some simulations on their global water model to reflect the water demand from the proposed redevelopment. Their simulation was based on the City's Potential Development Concept No. 2 which projected a population of 32,000. The demonstration plan included in The ECCA Lands Impact Assessment report projects a population of 24,286. Epcor's simulation showed that the additional demand from the redeveloped airport lands would not have a significant effect on the water pressure of the adjacent neighbourhoods. The pressures in these neighbourhoods maintained the minimum required during peak conditions. Based on Epcor's simulation, the key requirements for redevelopment was the addition of a 450 mm watermain that connected the two existing 610 mm lines on 122 Street and 106 Street and a 300 mm watermain that would connect the two east/west 450 mm watermains. The attached Proposed Water Servicing plan shows the proposed and existing watermain system. There are several smaller watermains in the immediate vicinity of the airport lands which can be connection points to the new system, however, these lines are older and may have reliability issues (frequent water breaks etc.). Epcor required that the construction of a 450 mm watermain in the airport lands would be included in the first stage of the redevelopment to ensure minimum pressures are maintained in the system.

In order to connect into the two existing 610 mm watermains, the new 450 mm watermain will have to extend outside the airport lands. The recommended location for the connection to the existing mains would be at 118 Avenue for the tie in at 106 Street and 119 Avenue for the tie in at 122 Street. Both of these offsite extensions require crossing under an existing Via Rail train track (along 121 Street) and possibly under the future LRT tracks. Alignments may be more difficult to obtain in an established area, but a future review of the existing watermains along those roads may indicate that the existing watermains need replacing and the existing alignments can be used.

All new service connections for individual parcels should be made into watermains that are constructed with the redevelopment and not from existing, older mains.

Sanitary

The neighbourhoods surrounding the airport lands, and including the airport, are serviced by large diameter combined sewer systems. A combined sewer system carries sanitary and storm flows in one system of pipes. Two combined sewer trunk systems, one from the north, the other from the west, drain into a 2400 mm trunk along 118 Avenue that directs the flows to the Goldbar Treatment Plant. The trunk from the north (varies from 1200 mm to 1500 mm) is located in a north/south easement located along the east edge of the airport lands. This combined sewer takes flows from the north part of Edmonton, including the neighbourhood to the east and directs the flows to the 2400 mm trunk sewer along 118

Avenue. Another trunk (varies from 1350 mm to 1800 mm) services the area west and south of the airport lands, including the southern portion of the airport lands, and directs the flows in the 2400 mm trunk along 118 Avenue. A portion of the 1350 mm and 1800 mm trunks are located in an easement running east/west along the southern part of the airport lands. These combined sewers are shown on the attached Proposed Sanitary Servicing plan.

The sanitary flows from the proposed redevelopment will be directed to the City's combined sewer trunks that are located on the east and south edge of the airport lands. These are the only sewers in the vicinity that can accommodate sanitary flows. Considering the depth of the existing sewers (13 m - 15 m deep), there would be no problem in accommodating a gravity sanitary system from the redeveloped lands. Currently, approximately 89 ha of storm runoff from the airport is directed into the east combined sewer system. Storm runoff in the redeveloped lands will not be directed to the combined sewer system, which will reduce the surcharging problems in the downstream combined sewer system. The estimated 1:5 year peak storm flow (the storm event that storm sewers are designed for) from the 89 ha is estimated at 2.1 m^3/s. This estimated flow is based on using a runoff coefficient for grassed areas of 0.1 and a time of concentration of 10 minutes. The redevelopment sanitary peak flow rate is projected to be 0.48 m^3/s for 24,286 residents plus 48.8 ha of industrial/institutional/commercial development. The redevelopment sanitary flow rate is substantially less than the current 1:5 year storm flow directed into the combined sewer system.

The redevelopment will need to pay into the Sanitary Servicing Strategy Fund (based on area) which deals with upgrades in the sanitary system so that service can be provided to new developments. One of the factors that determine if an area is to pay into the SSSF is that it does not have an approved Area Structure plan. Typically if a development is assessed under the SSSF, then there is no requirement for onsite storage. However, if at pre-design stage the downstream system it is determined that on site sanitary storage would be needed, then the development will not pay into the SSSF system and would construct the needed onsite storage.

Storm

Generally, storm runoff from the airport lands is currently directed to the existing combined sewer system. In 1996, a 1350 mm storm trunk was constructed west of 109 Street between 111 Avenue and the airport lands. This trunk was designed to accommodate runoff from the most westerly 87.2 ha of land within the airport. A control structure was placed at the intersection of the new 1350 mm trunk and the existing 1800 mm combined sewer. In the winter months, runoff from the runway (including runoff from de-icing operations) will be directed to the combined sewer so that the runoff can be treated before it is directed to the river. In the summer months, the control chamber is set to direct the flows to the 1350 mm storm sewer that is connected to the 2775 mm storm tunnel on 111 Avenue that drains to the North Saskatchewan River. The 1996 addition of the 1350 mm storm sewer has provided some relief in the combine sewer system during the large storm events in the summer months.

All storm runoff from the proposed redevelopment will be directed to the existing 1350 mm storm sewer located in an easement at the south end of the airport lands. The 1350 mm storm sewer was constructed to handle a maximum flow rate of 3.89 m^3/s (based on 1996 Detailed Design Report by Reid Crowther). The connection point to the existing 1350 mm storm sewer is 7.5 m deep with a pipe invert elevation of 657.3 m. The depth of the connection point is adequate to support a gravity storm sewer system for the redeveloped lands.

Storm runoff, both piped system and overland flow, will be directed to new Stormwater Management Facilities (SWMF) on site. These facilities will be interconnected. The north SWMF will drain into the south SWMF and the south facility will drain into the existing 1350 mm sewer at the controlled rate of 3.89 m^3/s. Modeling of the proposed system will have to be carried out as more detailed planning and engineering progresses for the redevelopment. The modeling will confirm the storage volume required on site in the SWMF's. At this level of conceptual review, a typical 7% of the development is allocated for SWMF. This number will vary depending on configuration and location of the facilities. Two facilities are shown on the attached Proposed Storm Servicing plan, but the number and size of the facilities may vary with detail design.

As mentioned in the above Sanitary section, currently 89 ha of storm runoff is directed to the east combined sewer system. With the proposed redevelopment, all storm flows will be accommodated by the storm system and therefore providing some relief downstream in the combined system.

Power

The redevelopment of the airport lands will require considerable system expansion and may also involve increasing the capacity at nearby substations. Increasing substation capacity can require as much as three (3) years lead time. If the power demand grows slowly, Epcor would accommodate as much load as possible with existing substation/distribution facilities and plan longer term to handle the full load. Costs for offsite feeders are normally covered by rate base. On site construction is paid by the developer. Epcor power has a rebate program in place that consists of $1050 per residential lot and 80% of the estimated construction cost for the feeder cables.

Gas

The redevelopment of the airport lands will require the addition of gas facilities and upgrading of existing facilities. All costs for getting new sources of supply to the development and within the development will be paid for by ATCO. If however, alteration of the ultimate system and relocation of existing facilities are needed due to staging of the new development, this cost would be paid for by the developer of the site. A brief summary of gas servicing options for the redevelopment is attached.

Shallow Utilities

Other shallow utilities (Telus and Shaw) with be installed with power distribution system on site. Any offsite improvements or system expansion needed to service the redevelopment will be made by the utility companies. Some costs may be shared with the redevelopment of the site.

COST ESTIMATE

The estimated cost for the redevelopment for the airport lease lands reflects the demonstration plan presented in the ECCA Impact Assessment report. Costs were estimated using typical and standard development costs which are commonly used in the City for new neighbourhoods. Costs were projected using 2009 pricing.

Roads

The costs for roadway construction were divided into two categories - Local and Collector roads. Based on the land use statistics, the areas that were projected for local and collector roadway circulation were 11.6 ha and 21.7 ha respectively. To project the length of roadway, the areas were divided by the typical road right-of-way width of 17.0 m and 24.0 m which resulted in lengths of 4,900 m and 12,800 m. Costs were compiled based on one (1) meter length of roadway and then multiplied by the associated length. Tables A and B summarize those costs. The road structure for each type of road was based on general guidelines in the City for these classifications for roadway. Costs included concrete curb and gutter, 1.5 m separate walks on both sides and landscaped boulevards. The collector road cost also included upgrading of some existing roads outside the lease lands to tie into the adjacent arterial roads. Intersection improvements and traffic signalization were also added to the costs.

Underground Utilities

The cost for construction of utilities was also based on the road category and length or road. Smaller utilities are typically located in local roads and the larger utilities in collector roads. An average of size watermain, sanitary and storm sewer were projected for both the local and collector roadways. Power and street lighting costs were included in both summaries. Telephone and cable costs were included in the power installation cost. Offsite watermain construction was added in the cost of utilities under the collector road. Outside of the airport lease lands, a 450 mm watermain will need to connect to the two large feeder mains located on 121 Street and 106 Street. Connections to both mains includes going under the Via Rail and the proposed future LRT. Additional costs for crossing the LRT with watermain, sanitary and storm sewers within the redevelopment were also included in the costs.

Other Costs

Other costs to be incurred with redevelopment were summarized in Table E. The items include:

- Services to individual parcels (for sanitary, water, storm and power) - This was broken down for residential lots and commercial lots. An estimated 530 residential lots were used based on typical lots sizes for proposed zoning and 15 parcels were projected for commercial sites. It was assumed that four services would be provided to the N.A.I.T. expansion area.

- Site Grading - Site grading includes topsoil stripping and common excavation and placement. An assumed depth of 0.3 m was used to project the topsoil stripping quantity. Topsoil can be used in landscaping of boulevards, parks and storm water management facilities. The amount of topsoil that can be used on site is much less than will be generated from stripping. An allowance was added for 75% of the topsoil/marginal material to be hauled off site. Common excavation quantity was determined using an average of 0.5 m over the entire site. It was assumed that an onsite clay earth balance would be achieved.

- Stormwater Management Facilities - Typical costs to construct SWMF facilities can vary between $80,000/ha to $120,000/ha of assessable lands. These costs include excavation of the facilities, large storm trunks (over 1200 mm in size), inlets/outlets, landscaping, special features and land costs. Since the City owns the land, the land costs were excluded and cost of $100,000/ha was thought to be reasonable for the estimate. Assessable land area is considered to be the entire area less MR and SWMF areas.

- Sanitary assessments will be paid under the Sanitary Servicing Strategy Fund as each stage of redevelopment proceeds. As with all new areas connecting to the existing sanitary trunks, this area will also be assessed. The rate is updated each year. For the cost estimate, the 2009 rate of $19,174 was used over the assessable area of 169 ha. If it is determined after further evaluation of the downstream sewer system that onsite sanitary storage is required, then the redevelopment would not be assessed under the SSSF and construction of the onsite storage would be carried by the redevelopment.

- Shallow Utilities - Telus and Shaw will need to upgrade some facilities in order to meet the demand of the redevelopment. Some of these costs may be passed onto the development but would be determined as more detail is available. A contingency amount of $500,000 was added to the costs.

Summary of Costs

Table F summarizes all the construction costs associated with redevelopment from the previous Tables (A to E). Additional costs for fencing, walkways, parks, entrance features were considered as one item and projected at 15% of base construction cost. Typically, 10% is used for these items in other neighbourhood developments but this redevelopment has allocated 5% more land for municipal reserve for a total of 15%. Costs for these items can vary greatly depending on the level of development that is desired. Also, an allowance was added for special amenities such as public plazas seating areas, statues, etc.

The geotechnical testing, engineering, planning, legal survey, landscape architect costs were derived using a percentage of construction costs. The total estimated cost for redevelopment of the entire 217 ha of the airport lease lands is $204,000,000.

These costs do not include building demolition, modifications to Yellowhead Trail, or the remediation of contaminated soil that may be required. The cost of removing and recycling the runway will be incurred as redevelopment proceeds. The removal of asphalt and concrete can be done in stages to reflect the quantities that can be recycled and used for the construction of new roads in the development. It is expected that a majority of the runway material will be removed and recycled for use onsite for roads and sidewalks. There are cost savings in construction when using recycled material and the cost savings would net out the cost of removal and recycling of the runway. The existing sewers (mainly small diameter sewers) can be left in place unless they are encountered during construction, where they will be removed and disposed of at that time.

SUMMARY

The existing infrastructure and servicing options were reviewed for the proposed redevelopment of the airport lease lands. Connection to the existing infrastructure for water, sanitary and storm will provide service for the redeveloped lands. The existing sanitary and storm infrastructure can accommodate new gravity sewer systems in the redeveloped lands. The redevelopment will provide some downstream relief in the existing combined sewer system by implementing a storm water management system on site. A road network would be constructed to tie into the existing arterial roads adjacent to the airport lands. The utility companies (Telus and Shaw) will carry out any upgrades or expansion of existing facilities so that capacity is available when redevelopment of the airport lands occurs. There are no servicing constraints that would impact the proposed redevelopment of the airport lands.

The opinion of probable cost for the redevelopment of the airport lands is $204,000,000. This cost includes construction of roads, underground utilities (water, sanitary, storm), stormwater management facilities, walkways, fencing, amenities, engineering and overhead and a contingency of 25%. The costs were estimated based on 2009 rates. These costs do not include the construction of LRT tracks or modifications to Yellowhead Trail, building demolition or the remediation of contaminated soil that may be required.

The servicing review for the redevelopment and associated costs were based on traditional land servicing. There will be opportunities to consider alternative and innovative servicing options for the redevelopment such as district heating, renewal energy, geothermal energy, and LEED Neighbourhood initiatives (such as green roofs, recycled gray water, etc).

Should you have any questions, or require additional information, please feel free to call me at 780-651-5754.

Sincerely,

SELECT ENGINEERING CONSULTANTS LTD.

Ken Sadownyk, P. Eng.
Manager
ksadownyk@selecteng.ca

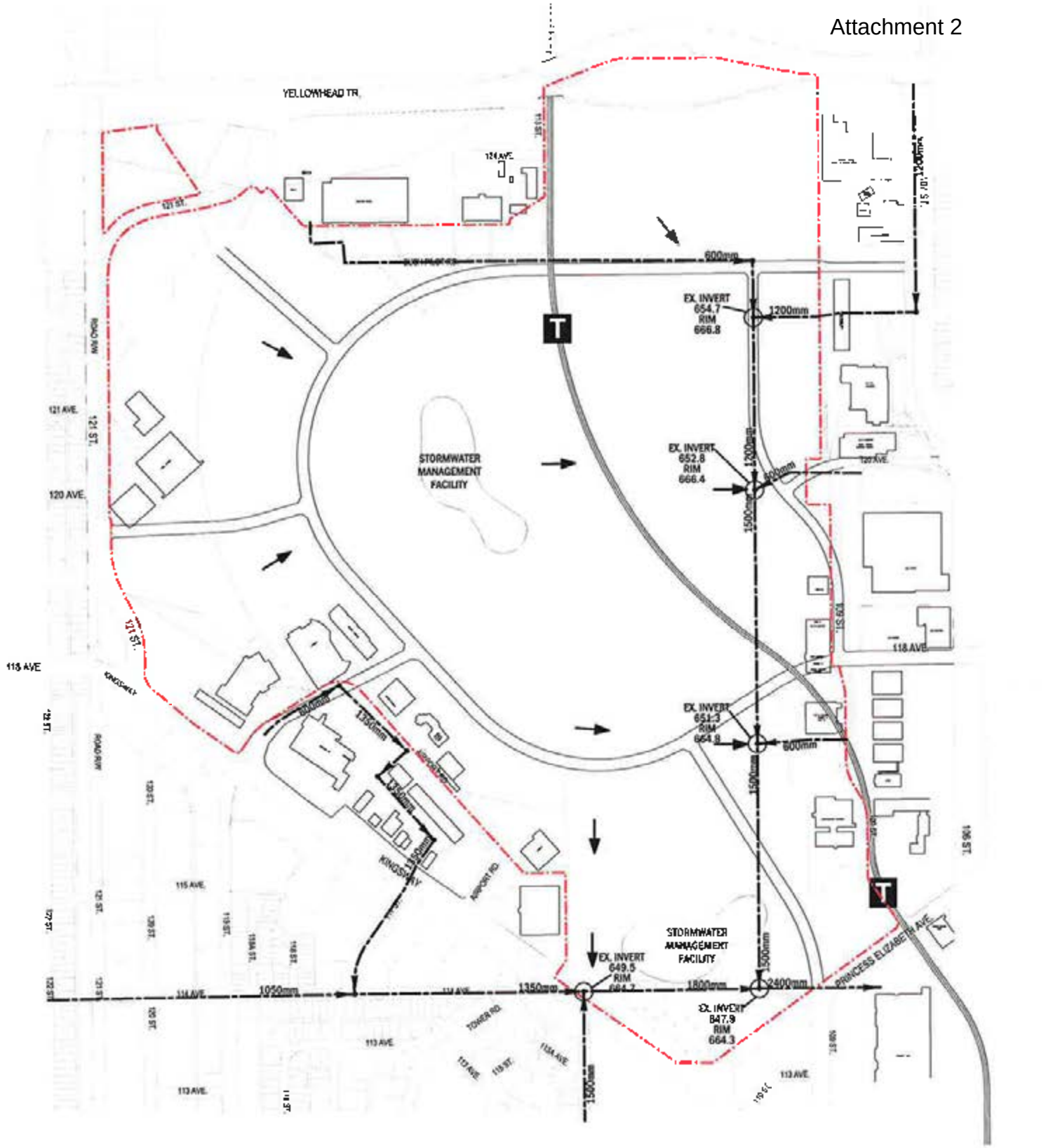
KLS/djs

Attachments
- A - Proposed Sanitary Servicing Plan
- B - Proposed Storm Servicing Plan
- C - Proposed Water Servicing Plan
- D - Cost Estimate - Table A-F
- E - Correspondence with Epcor Power
- F - Atco Gas - Municipal Airport Redevelopment Study
- G - Epcor Water Services - Simulation of Redevelopment
- H - Correspondence with Telus and Shaw Cable
- I - Correspondence with City of Edmonton, Drainage

cc: Marinella Matesic-Barth - Select

Attachment

'A'



Legend

- Plan Area
- Existing Sanitary Sewer (Combined Sewer System)
- Proposed Connection to Existing Combined Sewer Trunk
- Existing Inverts of Combined Sewer System

Proposed Sanitary Servicing

Edmonton City Centre Airport

Edmonton, Alberta

sec

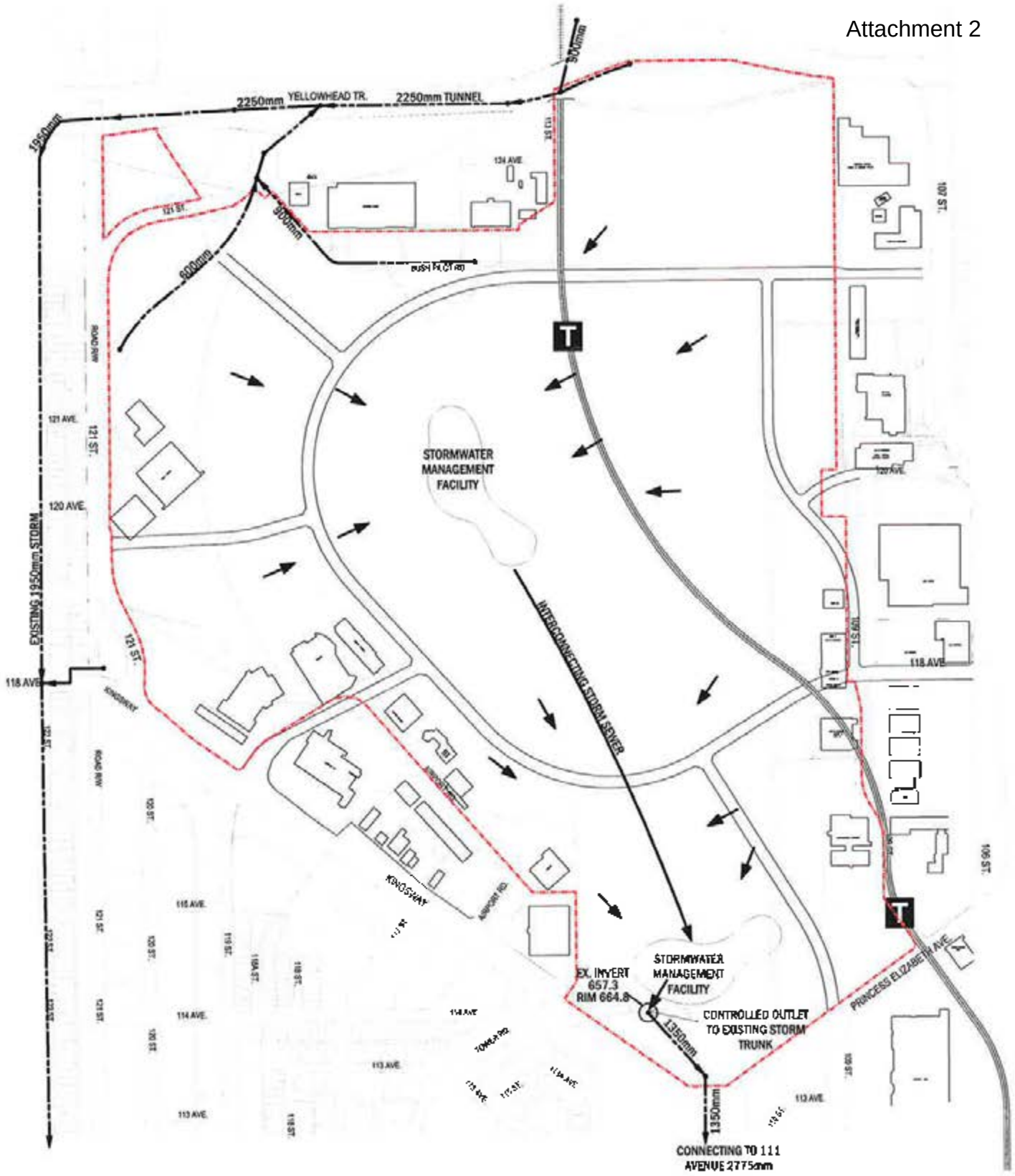
bunt & associates

Date: May 2009

File: 53 26201 CDF008.dwg

Attachment

'B'



Legend

- Plan Area
- Existing Storm Sewer
- Proposed Storm Runoff Directed to Proposed SWMF
- EX. Invert Elevation

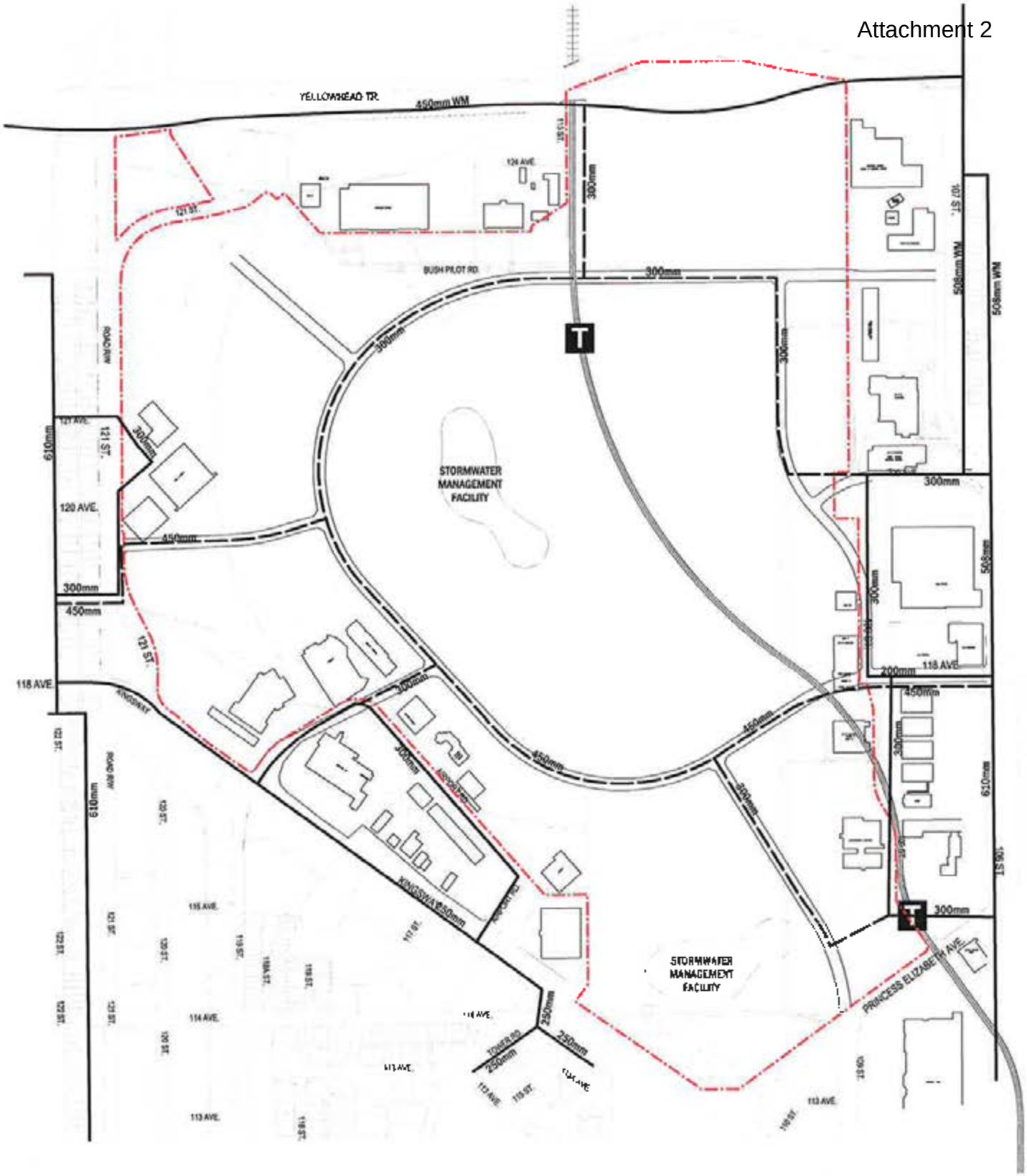
Proposed Storm Servicing

Edmonton City Centre Airport
Edmonton, Alberta

Date: May 2009

Attachment

'C'



Legend

- Plan Area
- Existing Watermains
- Proposed Servicing

Proposed Water Servicing

Edmonton City Centre Airport
Edmonton, Alberta

sec

bunt & associates

Date: May 2009
File: 51-08001-L3F20C.dwg

Attachment

'D'

TABLE: A

Construction of local roadways (9.0 m wide carriage way in a 17.0 m road right-of-way)
Date: April, 2009 (based on 2009 rates)

1) costs for 9.0 m wide pavement structure (a typical local road structure)

(150mm)	subgrade prep(cement stabilized)	$7 /m^2
(200mm)	granular base	$18 /m^2
(65mm)	asphalt base ACO	$18 /m^2
(35mm)	asphalt surface ACO (at FAC)	$14 /m^2
		$57 /m^2
	multiply by 9.0 m wide =	**$513** /m roadway

2) Costs for concrete work (using separate walk & straight face curb & gutter on both sides)

straight face curb and gutter		$100 /m
1.5m wide separate walk		$162 /m
curb ramps (2 every 100m) $1000 x 2 /100		$20 /m
	sublotal	$282 /m of curb line
	multiply by 2 for both sides =	**$564** /m roadway

3) Costs of landscaping boulevards (both sides)

topsoil & sod	$12.00 /m^2 x 2.0 m^2 blvd width	$24 /m roadway
trees	$575.00 / 9.0 m spacing	$64 /m roadway
		$88
	multiply by 2 for both sides =	**$176** /m roadway

TOTAL =	**$1,253 /m roadway X**	**12,800 m =**	**16,000,000**

Assumptions:
1 Road structure based on general guidelines from City of Edmonton Transportation Department
2 Assumed separate walk and boulevards on both sides of road as per CofE standard drawing #4031
3 Separate walks promotes pedestrian friendly development and were used for this cost estimate
4 Pavement width estimated at 9.0m (instead of 8.5m) to allow for the additional asphalt at intersections

53-08001-development costs.xls 9 0m Local

TABLE: B

Construction of major collector roadways (14.5 m wide carriage way in a 24.0 m road right-of-way)
Date: April, 2009 (based on 2009 rates)

1) costs for 14.5 m wide pavement structure (a typical major collector bus route structure)

(150mm)	subgrade prep(cement stabilized)	$7 /m^2
(325mm)	granular base	$27 /m^2
(75mm)	asphalt base ACO	$22 /m^2
(50mm)	asphalt surface ACO (at FAC)	$20 /m^2
		$76 /m^2
	multiply by 14.5 wide =	**$1,102** /m roadway

2) Costs for concrete work (using separate walk & Straight Face curb & gutter on both sides)

straight face curb and gutter	$100 /m
1.5m wide separate walk	$162 /m
curb ramps (2 every 100m) $1000 x 2 /100	$20 /m
subtotal	$282 /m of curb line
multiply by 2 for both sides =	**$564** /m of roadway

3) Costs of landscaping boulevards (both sides)

topsoil & sod	$12.00/m^2 x 2.6m^2 blvd width	$31 /m roadway
trees	$575.00 / 9.0 m spacing	$64 /m roadway
		$95 /m roadway
	multiply by 2 for both sides =	**$190** /m roadway

subtotal =	**$1,856 /m roadway @**	**4,900 m =**	**$9,100,000**

4) Intersections of Collector and existing Arterial roads

traffic signalization - 4 locations at $350,000/ea	**$1,400,000**
3 intersection improvements at arterial connections @ $200,000/ea	**$600,000**
4 intersection improvements at arterial connections @ $100,000/ea	**$400,000**

5) Roads - collector extension - outside of airport lands to tie into existing arterials

- 800 m of road - at $1,856/m + 20% for removal of existing structure	**$1,800,000**
TOTAL =	**$13,300,000**

Assumptions:

1 Road structure based on general guidelines from City of Edmonton
2 Assumed separate walk and boulevards on both sides of road as per CofE standard drawing #4036
3 Pavement width estimated at 14.5m (instead of 14.0m) to allow for the additional asphalt at intersections

53-08001-development costs.xls 14.5m Collector

TABLE: C

Construction of water, sanitary, storm systems within local roads
Date: April, 2009 (based on 2009 rates)

1) Watermains -	
200mm watermains	$147 /m
hydrants (every 90 m) - $6,000 ea/90m	$67 /m
200 mm valves (every 100 m) - $1700 ea/100m	$17 /m
	$231 /m roadway
2) Sanitary sewer -	
200mm sanitary sewer 0-4m deep	$140 /m
Manholes (every 100 m) - $1,500 x 4 vert m/100m	$60 /m
Video inspection & mandrel testing	$16 /m
	$216 /m roadway
3) Storm sewer -	
600mm storm sewer 0-4m deep	$320 /m
Manholes (every 100 m) - $1,500 x 4 vert m /100m	$60 /m
Catch basins (3 every 90m) - $2,600 x 3 / 90	$87 /m
Catch basin leads (average 15m length per CB)	$65 /m
Video inspection	$8 /m
	$540 /m roadway
4) Miscellaneous items	
for wash rock in trenches, stubs, plugs, etc	
approx 10% of total construction costs	**$99** /m roadway
4) Power - main line	
based on $300/m roadway	**$300** /m roadway

TOTAL =	**$1,386 /m roadway X**	**12,800 m =**	**17,700,000**

Assumptions:

1 Water - - used 90m separation for hydrants (used for higher density and high value properties)

2 Sanitary - - assumed typical 200 mm size sewer at average depth of 0-4m

3 Storm - - assumed an average size sewer of 600mm within local roads with average depth of 0-4m
- storm sewers at the upper end of the system can vary from 200mm foundation drains to 900mm
- catch basins are typically needed at all intersections - usually 4, in other locations only 2 are needed, an average of 3 every 90m was used

4 Services - included in "Other Cost" summary

5 Shallow Utilities - there are no other costs typically associated with other shallow utilities
- gas main are installed and paid for by ATCO
- if temporary lines or facilities are required, these would be costs to the development but would be determined when the staging of the project is finalized.
- cable and telephone is installed with the power

6 Power - standard light poles were included in the cost
-no power rebates included (typically $1050/lot & 80% of feeder cable only)

TABLE: D

Construction of water, sanitary, storm systems within collector roads
Date: April, 2009 (based on 2009 rates)

1) Watermains -			
300mm watermains	$240 /m		
hydrants (every 90 m) - $6,000 ea/90m	$67 /m		
300 mm valves (every 100 m) - $2100 ea/100m	$21 /m		
	$328 /m roadway		
2) Sanitary sewer -			
300mm sanitary sewer 5-6 m deep	$273 /m		
Manholes (every 100 m) - $1,500 x 6 vert m/100m	$90 /m		
Video inspection & mandrel testing	$16 /m		
	$379 /m roadway		
3) Storm sewer -			
1050mm storm sewer 4-5m deep	$850 /m		
Manholes (every 100 m) - $2,000 x 5 vert m /100m	$100 /m		
Catch basins (3 every 90m) - $2,600 x 3 / 90	$87 /m		
Catch basin leads (average 15m length per CB)	$65 /m		
Video inspection	$8 /m		
	$1,110 /m roadway		
4) Miscellaneous items			
for wash rock in trenches, stubs, plugs, etc			
approx 10% of total construction costs	**$182** /m roadway		
5) Power - main line -based on $440/m roadway	**$440** /m roadway		
subtotal = $2,439 /m roadway @	**4,900 m** =		**$12,000,000**
6) Offsite Watermains - to tie into existing large mains located outside of airport lands			
-upsizing 300mm to 450mm WM in collectors-$310/m @1950m		$605,000	
-450mm watermains - offsite costs - $550/m @ 500m		$275,000	
-450 mm valves - approx 7 @ $40,000		$280,000	
-connection to existing 610 mm steel mains at 2 locations			
- under CN tracks and proposed LRT tracks		$400,000	
			$1,560,000
7) Additional costs for crossing proposed LRT with water, sanitary, storm			
- at 2 locations along collector roadway			**$350,000**
		TOTAL =	**$13,900,000**

Assumptions:

1 Water - - used 90m separation for hydrants (used for higher density and high value properties)

2 Sanitary - - assumed average 300 mm size sewer (sizes can vary from 250mm to 375mm)
- assumed two or three connection points to existing sanitary trunks and therefore limiting the maximum sewer size in the system

3 Storm - - used an average size sewer of 1050mm within the Collector roadways

4 Shallow Utilities - there are no other costs typically associated with other shallow utilities
- gas main are installed and paid for by ATCO
- if temporary lines or facilities are required, these would be costs to the development
- cable and telephone is installed with the power

6 Power - standard light poles were included in the cost
-no power rebates included (typically $1050/lot & 80% of feeder cable only)

7 Watermain - costs for crossing under tracks includes road restoration

TABLE: E

Other costs of redevelopment
Date: April, 2009 (based on 2009 rates)

1) Sanitary sewer -	
-Sanitary sewer Expansion Assessment under the SSSF for connection to existing trunk system	
-2009 rate are $19,174/ha @ 169 ha assessable (w/o SWMF & MR)	**$3,240,000**
2) Storm sewer - no offsite construction costs required	n/a
3) Arterial Road Assessment - no ARA basin would be needed in this area	n/a
4) Site grading	
- topsoil stripping and stockpile	
- assumed 0.3 m depth over site at $3.0/$m^3$ = approx 650,000 m^3	**$1,950,000**
- haul offsite approx 75% of topsoil that cannot be used on site @ $12/$m^3$	**$5,860,000**
- common excavation and compaction to 98%	**$4,720,000**
- assume 0.5m over entire site of 217 ha at $4.35 / m^3	
- assumed onsite clay earth balance	
5) Services	
Sanitary storm and water to each individual lot	
residential lots (based on 530 parcels @ $5,000/ea	$2,650,000
commercial (based on 23.3 ha /1.5 ha = 15 parcels) @ $20,000	$300,000
Nait expansion area - 4 services	$80,000
power service	
residential lots (based on 530 parcels)	$9,250,000
commercial (based on 23.3 ha /1.5 ha = 15 parcels) @ $40,000	$600,000
Nait expansion area - 4 services	$130,000
	$13,010,000
6) Stormwater management facilities	
- typical costs approx 100,000/ha (excludes lands cost)	**$16,900,000**
- based on 169 ha assessable land - excludes parks and SWMF areas	
- enhanced features/amenities within Stormwater management facilities	**$4,000,000**
7) Shallow Utilities - Telus, Shaw	
- costs to be paid to utilities for upgrades of existing facilities	**$500,000**
TOTAL =	**$50,200,000**

TABLE: F

Summary of Re-development Costs Airport lease lands only
Date: April, 2009 (based on estimated 2009 rates)

1) Local road construction (9.0m road)	$16,000,000
2) Collector road construction (14.5m road)	$13,300,000
3) Local road - underground utilities	$17,700,000
4) Collector road - underground utilities	$13,900,000
5) Other Costs	$50,200,000
Sub-Total Construction Costs	**$111,100,000**
6) Fencing/walkways/parks/entrance features/amenities - used 15% of development construction cost. typical for residential neighbourhoods is 10%. This development is dedicating 5% more of MR and therefore more funds required	$16,700,000
- Addition of special amenities (public plazas, seating areas, statues etc)	$5,000,000
7) Geotechnical testing - 1.5% of construction cost	$1,700,000
8) Engineering/Planning/Legal Surveys/Landscape Architect - including reports and studies - used 17% of construction cost	$18,900,000
Sub-Total	**$153,400,000**
Contingency - 25%	$38,400,000
9) LRT station in the redeveloped lands (estimate from City of Edmonton)	$12,000,000
TOTAL DEVELOPMENT COST =	**$203,800,000**

Attachment

'E'

Marinella Matesic-Barth

From: Tough, Dan [dxt@epcor.ca]
Sent: Monday, May 04, 2009 3:54 PM
To: Marinella Matesic-Barth
Cc: Bowman, Peter; Hull, Kirstine; Swystun, Steve; Behr, Wilfred; Barker, Lance
Subject: RE: City Center Airport - redevelopment

Marinella

The off site feeders will need to be designed by EPCOR once you provide the conceptual plan. EPCOR's design will then need to be approved by the Alberta Electric System Operator When approved, the costs for residential development are normally covered by rate base.

For the area within the neighbourhood the developer of the servicing agreement will enter into a contract, construct all facilities, and be reimbursed at a current rate of $1050 per lot residential and 80% of EPCOR's estimated construction costs for feeder cables and cubicles servicing industrial lots if any exist. The on site costs are estimated and given a contribution toward construction on a lot by lot basis.

An estimated cost to construct may be better supplied by a developer or their consultant base on the conceptual plan.

Thanks,
Dan Tough

Senior Engineering Technologist
Land Servicing
EPCOR Distribution and Transmission
North Service Centre
12116 - 107 Street,
Edmonton, AB T5G 2S7
780-412-3858
780-412-4452 (fax)

From: Barker, Lance
Sent: Monday, May 04, 2009 1:49 PM
To: 'Marinella Matesic-Barth'
Cc: Bowman, Peter; Hull, Kirstine; Tough, Dan; Swystun, Steve; Behr, Wilfred
Subject: RE: City Center Airport - redevelopment

Marinella:

I assume this would initially involve land servicing then as individual customers occupy the site then our Customer Service criteria would kick in. I will however leave it up to those more directly involved to comment on how this would all work & any potential costs, those being:

Peter Bowman/Dan Tough - Land Servicing

Kirstine Hull - Customer Engineering Services

Regards,

Lance

From: Marinella Matesic-Barth [mailto:mmatesic-barth@selecteng.ca]
Sent: Monday, April 27, 2009 8:55 AM
To: Barker, Lance
Subject: RE: City Center Airport - redevelopment

Lance,
The summary below is exactly what we need at this time. There is one more issue regarding costs/responsibility that we will have to identify. With the improvements needed to the existing system, who would be paying for these upgrades and additional feeders? Will there be offsite costs and onsite costs that would be handled separately from a construction and cost perspective?

Also, would you be able to give me a rough cost estimate for power / street lighting servicing for a typical development like this. For planning purposes, are there some numbers that would give us an order of magnitude of projected costs. I realize there is very little detailed information at this time, but a rough number would at least identify power requirements at a cost item.

Thanks

Marinella Matesic-Barth, P.Eng.
Project Manager
Direct: 780-651-5760 Cell: 780-691-2588
E-mail: mmatesic-barth@selecteng.ca

From: Barker, Lance [mailto:lxb@epcor.ca]
Sent: Friday, April 24, 2009 11:15 AM
To: Marinella Matesic-Barth
Cc: Tough, Dan; Behr, Wilfred; Swystun, Steve
Subject: FW: City Center Airport - redevelopment

Marinella:

From a Planning point of view we would certainly need to construct additional feeders to supply a re-developed City Center Airport area. From what you indicate, we may have an added load of over 24 MVA or roughly equivalent to 4 fully loaded distribution feeders or more depending upon the amount of commercial development. I.e. We certainly cannot accommodate this type of added load with the existing facilities.

Assuming that we ultimately get some sort of development/concept plan for the area and an idea of the timing of the development, we can start to put in place plans to supply the area. To accommodate this full load would take considerable system expansion and may also involve increasing the capacity at nearby substations. Increasing substation capacity can require as much as 3 years lead time. If the load grows slowly we would accommodate as much load as possible with our existing substation/distribution facilities and plan longer term to handle the full load. I.e. Unless some very rapid development is expected, we should have sufficient lead time to put in place the required facilities.

Let us know when you have some more specific development details that we can consider?

Regards,

Lance Barker, P. Eng.

Manager of System Planning

EPCOR D&T Inc.

From: Lui, Kin
Sent: Wednesday, April 22, 2009 7:53 AM
To: Tough, Dan; Behr, Wilfred; Barker, Lance
Cc: 'mmatesic-barth@selecteng.ca'
Subject: FW: City Center Airport - redevelopment

Good Morning All,
Please review and provide information or any other requirements/conditions from your section regarding this redevelopment to Marinella as per her e-mail below.
Thanks.

Kin Y. Lui, C.E.T.
Senior Engineering Technologist
Customer Engineering Services
EPCOR Distribution & Transmission Inc.
Ph.: 780-412-4510
Fax: 780-412-7955

From: Marinella Matesic-Barth [mailto:mmatesic-barth@selecteng.ca]
Sent: Tuesday, April 21, 2009 4:44 PM
To: Lui, Kin
Subject: City Center Airport - redevelopment

Kin,
I am working on a project to review the possibilities of the redevelopment of the City Center Airport. I was hoping you were the right person to contact regarding some information on power servicing of the area.

What I am looking for:

- On a very rough overview, is there a problem in redeveloping the area and providing power service to the new development. The area is shown on the attached plan and is projected to house a maximum population of 32,000. There will also be some commercial live/work areas. At this time we don't have more information. The redevelopment area is approx 220 ha. This would be a high density area.
- Will there be a requirement for upgrading any power systems outside this area.

We are reviewing the opportunities and constraints at a very high level at this time. We want to identify any large construction costs that may be required.

Also, in redeveloping this type of area, is there a cost that Epcor typically uses for power that we can project for this project. For surface works, we sometimes use a typical cost per ha for local road construction. I realize that the information we have is minimal, but we are looking at order of magnitude numbers.

Please call me if you have any questions on the above or if there is anyone else that may be of assistance in gathering the required information. We are looking at finalizing the servicing section of the report for the City by Mid May. Thanks

Marinella Matesic-Barth, P.Eng.
Project Manager
Select Engineering Consultants Ltd.
Suite 220, 9303-34 Avenue
Edmonton, AB T6E 5W8
Office: 780-651-5777 Fax:780-651-5757
Direct: 780-651-5760 Cell: 780-691-2588
E-mail: mmatesic-barth@selecteng.ca

This email contains confidential information that is proprietary to EPCOR and its subsidiary companies in all respects. This information is intended only for the person(s) named in the destination address. Unauthorized distribution, copying or disclosure is strictly prohibited. If you receive this e-mail in error please delete it immediately.

Attachment

'F'

Municipal Airport Redevelopment Study
Overview

- Based on other large scale development proposals, the estimated load for a total population of 30,000 living in condos and high density living, as well as 86 ha of commercial and light industrial land, is approximately 31,000 cubic meters per hour.
- The arbitrary piping system used to represent the possible installation for the airport area was kept constant over all scenarios studied.
- The volumetric loading of the system was distributed over the same number of taps in each scenario, and was distributed evenly across the taps modeled.
- The costs for getting new sources of supply to the development and within the development will be borne by ATCO, however depending upon the how the development is staged any alteration and relocation required to any of the existing piping will be a cost that the developer would have to bear.

Scenario #1
Dedicated Gate Station & Feeder Installation

- This scenario would require the construction of a new gate station to provide service to the development on the airport lands. This could be done by installing a new gate station on an existing HP gas line north of the intersection of 156 St and Yellowhead Trail, and extending a 16" feeder east along an alignment paralleling Yellowhead Trail.
- This scenario was capable of supplying 70000 CMH before reaching the failure of criteria of an end of line pressure of 172 kPa, and thus is capable of handling both the full load that the development is projected to reach, as well as a large amount of future growth it may undergo.
- Either instance of this scenario would require an alignment along Yellowhead Trail to be provided to ATCO Gas before servicing would be possible, and would also require a 30m x 30m area of land for construction of a gate station.

Scenario #2
Dedicated Gate Station & HP Line Extension

- This scenario calls for ATCO Pipelines to extend a high pressure gas along Yellowhead Trail from 156 St to the airport lands. A gate station would then be constructed at the north end of the airport lands to feed the development.

- This scenario was capable of supplying 98000 CMH before reaching the failure of criteria of an end of line pressure of 172 kPa, and thus is capable of handling both the full load that the development is projected to reach, as well as a large amount of future growth it may undergo.

- This scenario would require an alignment along Yellow head Trail to be provided to ATCO Pipelines for the extension of the high pressure line. A 30m x 30m site on the airport lands would also be required for the construction of a new gate station to serve the development.

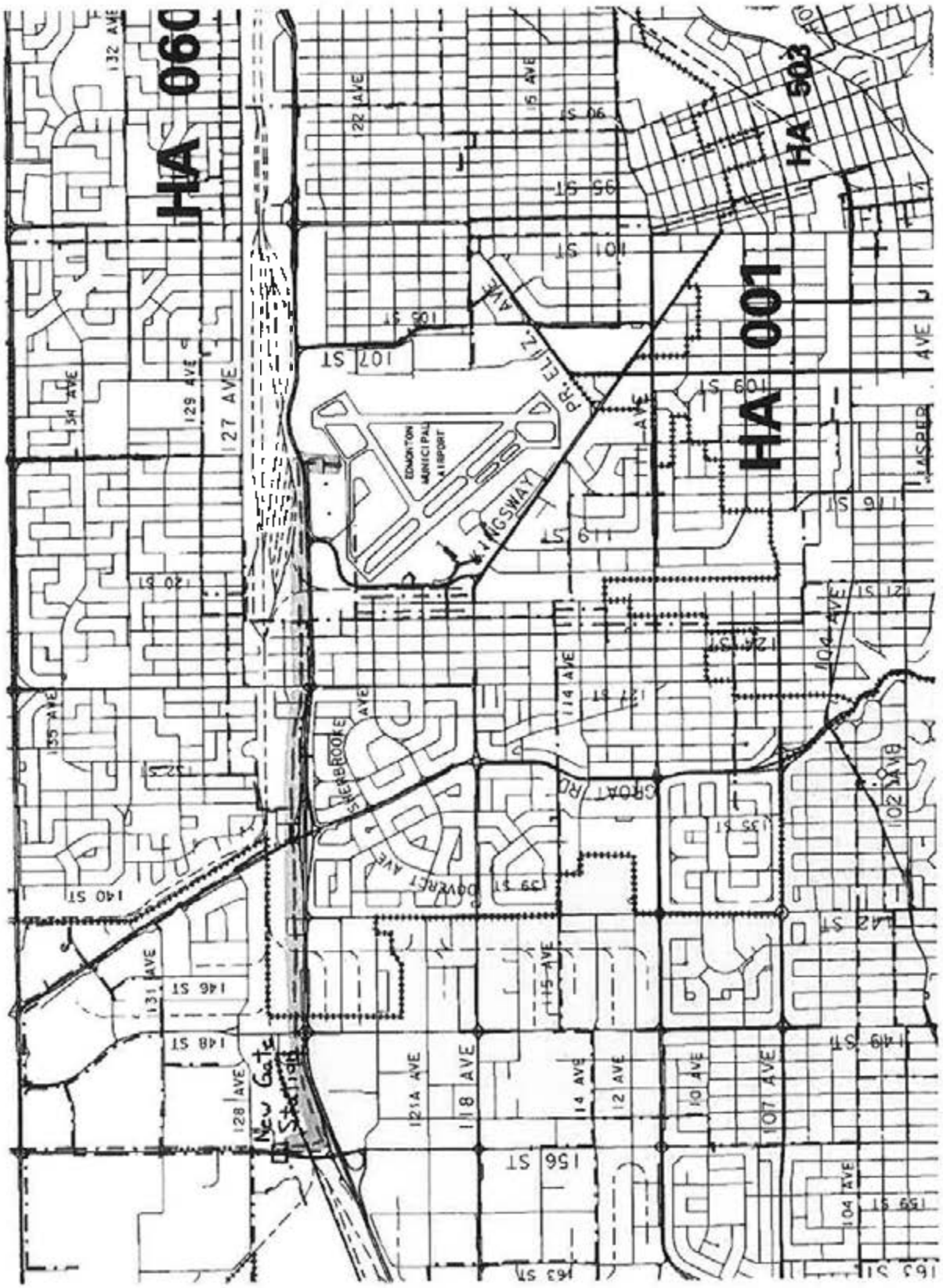
Scenario #3
New Gate Station to Backfeed into Existing IP System

- This scenario calls for the installation of a new gate station at the aforementioned location north of the intersection of 156 St and Yellowhead Trail. A 16" feeder line would then need to be run south in an alignment along 156 St to connect to the existing North Edmonton IP system. As the load increases, a second connection from the gate station would also need to be extending along on alignment paralleling Yellowhead Trail to connect to an existing 8" line in an alignment along St. Albert Trail to further ensure security of supply in the north.

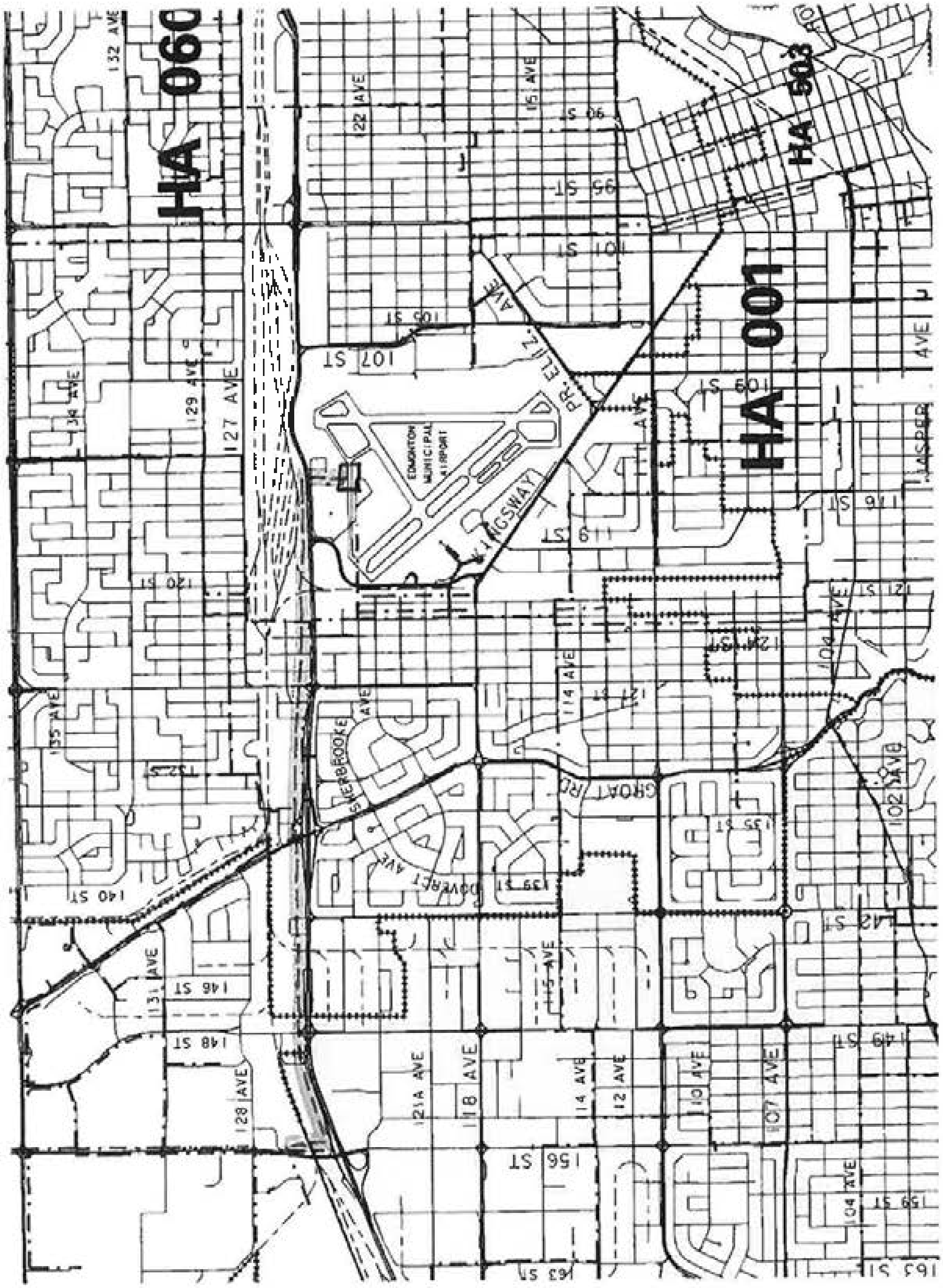
- This scenario is capable of supplying the airport area with 59000 CMH before reaching the failure criteria of an end of line pressure of 172 kPa, thus is capable of supplying the full load the development is expected to reach as well as some future growth it may undergo.

- This scenario would require an alignment running south along 156 St to be provided to ATCO Gas for servicing to be possible, and if the load increases significantly beyond projections, would also require an alignment running east along Yellowhead Trail to be provided.

Scenario #1


HA 060
HA 001
HA 503
New Gate Station
Possible Alignment for new Feeder

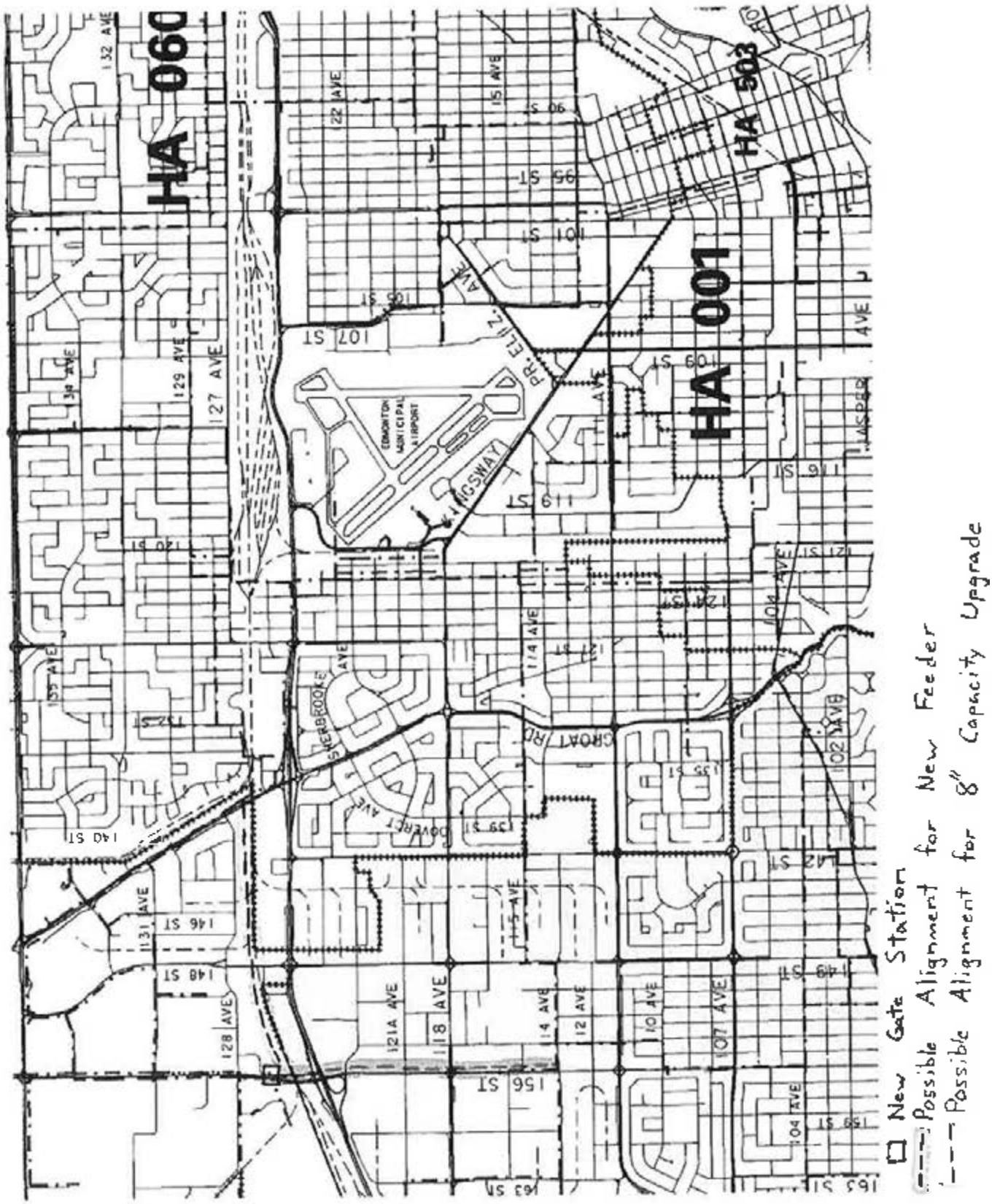
Scenario #2



Possible Alignment for High Pressure Line

New Gate Station

Scenario # 3


HA 060
HA 001
HA 503
New Gate Station
Possible Alignment for New Feeder
Possible Alignment for 8" Capacity Upgrade

Attachment

'G'

City Center Airport Redevelopment
Demand Calculations

Concept 1

Land Use	Area (net) ha	Area (net) mi²	ADD Demand Unit Demand	ADD Demand Total Demand	Maximum Daily Demand Factor	Maximum Daily Demand Total Demand	Peak Hour Demand Factor	Peak Hour Demand Total Demand
RA7	20 ha	0.078 mi²	2.5 ML/d/mi² (net)	0.195 ML/d	1.5 x ADD	0.293 ML/d	2.5 x ADD	0.488 ML/d
RA8	27 ha	0.105 mi²	2.5 ML/d/mi² (net)	0.264 ML/d	1.5 x ADD	0.396 ML/d	2.5 x ADD	0.659 ML/d
RA9	17 ha	0.066 mi²	2.5 ML/d/mi² (net)	0.166 ML/d	1.5 x ADD	0.249 ML/d	2.5 x ADD	0.415 ML/d
Mixed Residential	34 ha	0.133 mi²	3.0 ML/d/mi² (net)	0.398 ML/d	1.5 x ADD	0.598 ML/d	2.3 x ADD	0.916 ML/d
Commercial Office (111 Street)	23 ha	0.090 mi²	6 L/day/m² (net)	1.380 ML/d	1.8 x ADD	2.484 ML/d	1.8 x ADD	2.484 ML/d
Commercial Office (118 Ave)	27 ha	0.105 mi²	6 L/day/m² (net)	1.620 ML/d	1.8 x ADD	2.916 ML/d	1.8 x ADD	2.916 ML/d
NAIT	33 ha	0.129 mi²	20 L/day/m² (net)	6.600 ML/d	2.3 x ADD	15.180 ML/d	2.3 x ADD	15.180 ML/d
Transportation Node	12 ha	0.047 mi²	3 L/day/m² (net)	0.360 ML/d	2.3 x ADD	0.828 ML/d	2.3 x ADD	0.828 ML/d
	193 ha	0.754 mi²		10.983 ML/d		22.943 ML/d		23.887 ML/d

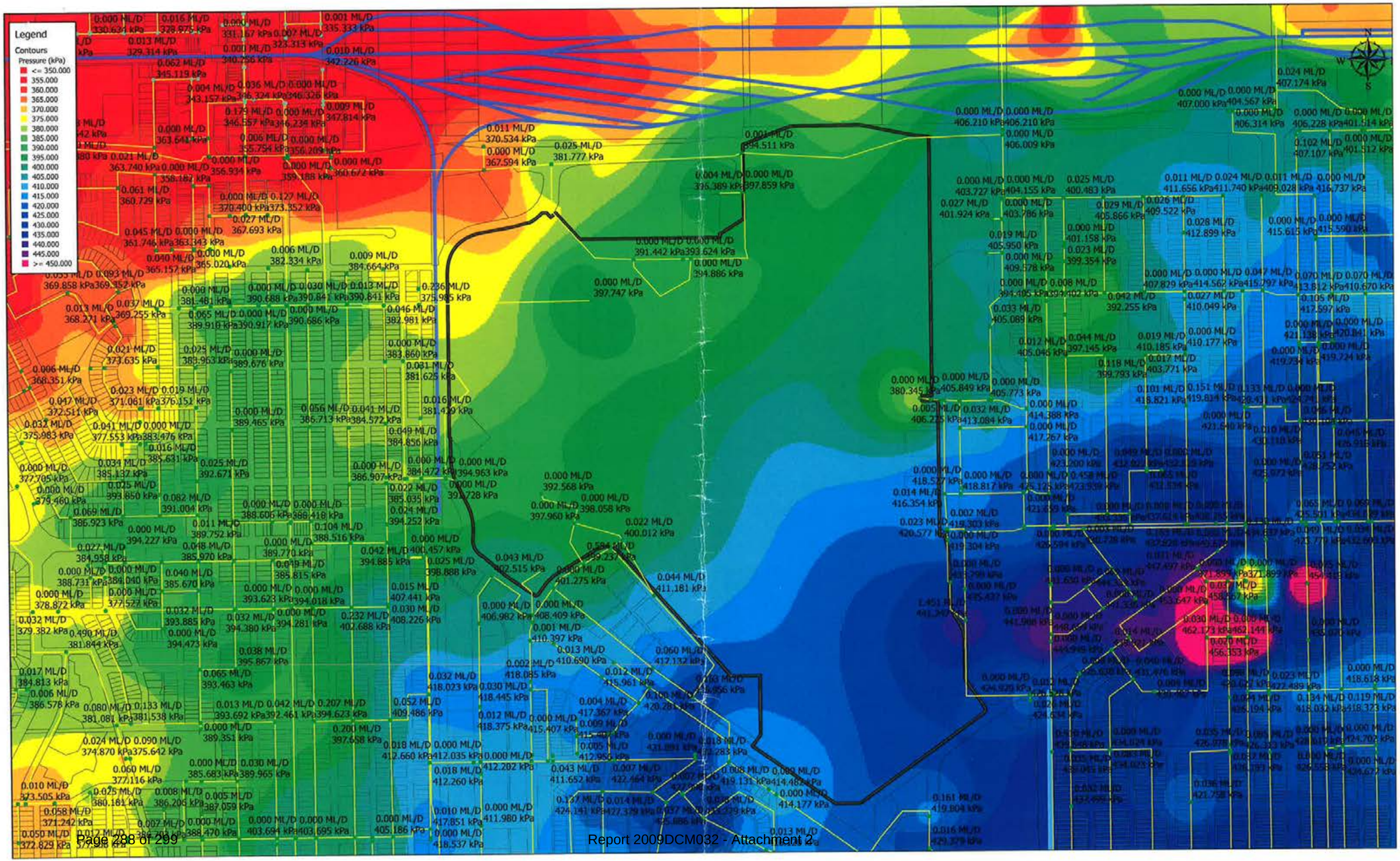
Concept 2

Land Use	Area (net) ha	Area (net) mi²	ADD Demand Unit Demand	ADD Demand Total Demand	Maximum Daily Demand Factor	Maximum Daily Demand Total Demand	Peak Hour Demand Factor	Peak Hour Demand Total Demand
RA7	20 ha	0.078 mi²	2.5 ML/d/mi² (net)	0.195 ML/d	1.5 x ADD	0.293 ML/d	2.5 x ADD	0.488 ML/d
RA8	27 ha	0.105 mi²	2.5 ML/d/mi² (net)	0.264 ML/d	1.5 x ADD	0.396 ML/d	2.5 x ADD	0.659 ML/d
RA9	17 ha	0.066 mi²	2.5 ML/d/mi² (net)	0.166 ML/d	1.5 x ADD	0.249 ML/d	2.5 x ADD	0.415 ML/d
Mixed Residential	20 ha	0.078 mi²	3.0 ML/d/mi² (net)	0.234 ML/d	1.5 x ADD	0.352 ML/d	2.3 x ADD	0.539 ML/d
Commercial Office (111 Street)	23 ha	0.090 mi²	6 L/day/m² (net)	1.380 ML/d	1.8 x ADD	2.484 ML/d	1.8 x ADD	2.484 ML/d
Commercial Office (118 Ave)	27 ha	0.105 mi²	6 L/day/m² (net)	1.620 ML/d	1.8 x ADD	2.916 ML/d	1.8 x ADD	2.916 ML/d
NAIT	12 ha	0.047 mi²	20 L/day/m² (net)	2.400 ML/d	2.3 x ADD	5.520 ML/d	2.3 x ADD	5.520 ML/d
Transportation Node	12 ha	0.047 mi²	3 L/day/m² (net)	0.360 ML/d	2.3 x ADD	0.828 ML/d	2.3 x ADD	0.828 ML/d
Light/Medium Industrial	3 ha	0.012 mi²	57 m³/d/ha (net)	0.171 ML/d	1.8 x ADD	0.308 ML/d	1.8 x ADD	0.308 ML/d
	161 ha	0.629 mi²		6.790 ML/d		13.345 ML/d		14.157 ML/d

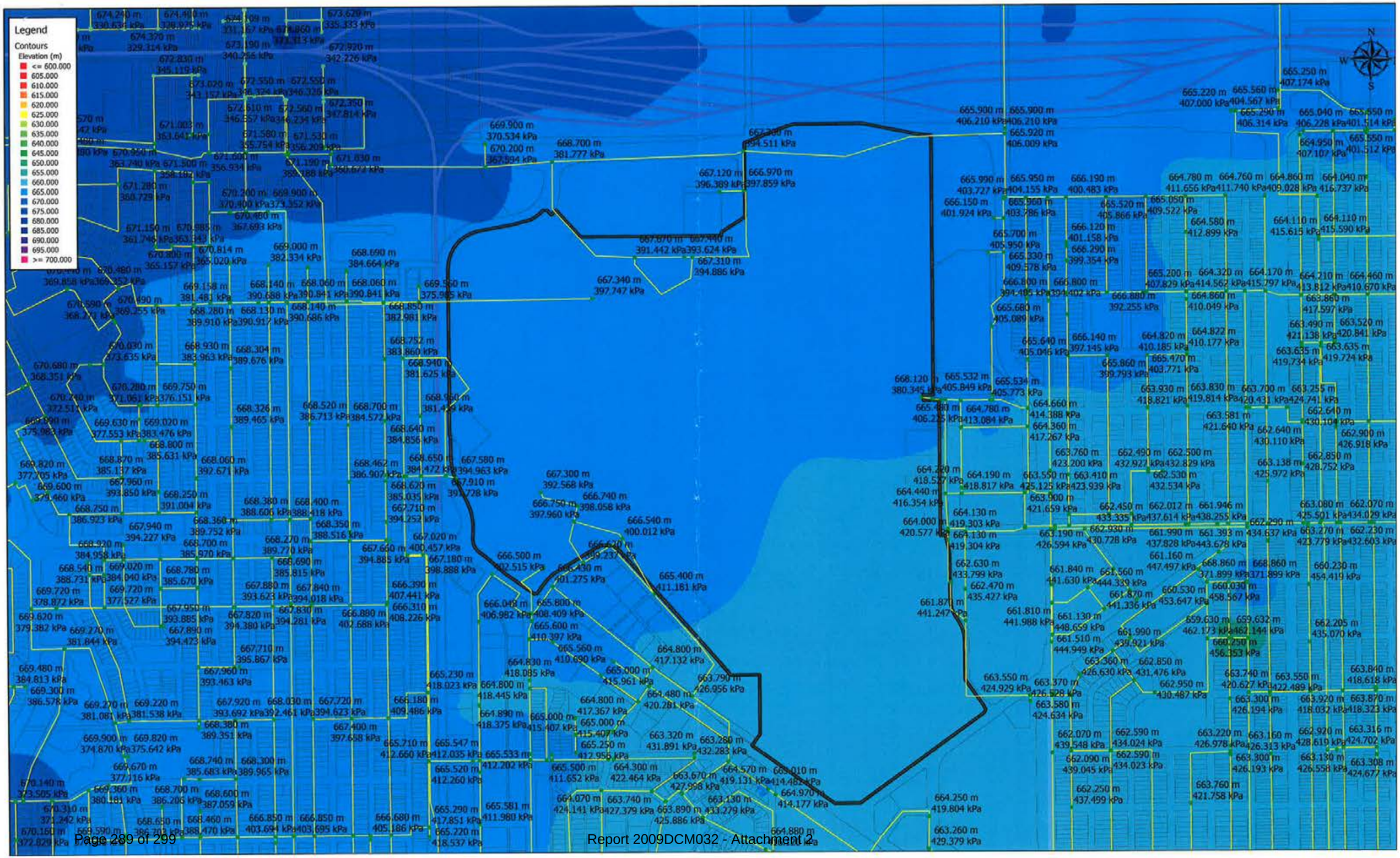
Concept 3

Land Use	Area (net) ha	Area (net) mi²	ADD Demand Unit Demand	ADD Demand Total Demand	Maximum Daily Demand Factor	Maximum Daily Demand Total Demand	Peak Hour Demand Factor	Peak Hour Demand Total Demand
RA7	26 ha	0.102 mi²	2.5 ML/d/mi² (net)	0.254 ML/d	1.5 x ADD	0.381 ML/d	2.5 x ADD	0.635 ML/d
RA8	25 ha	0.098 mi²	2.5 ML/d/mi² (net)	0.244 ML/d	1.5 x ADD	0.366 ML/d	2.5 x ADD	0.610 ML/d
RA9	14 ha	0.055 mi²	2.5 ML/d/mi² (net)	0.137 ML/d	1.5 x ADD	0.205 ML/d	2.5 x ADD	0.342 ML/d
Mixed Residential	25 ha	0.098 mi²	3.0 ML/d/mi² (net)	0.293 ML/d	1.5 x ADD	0.439 ML/d	2.3 x ADD	0.674 ML/d
Commercial Office (111 Street)	45 ha	0.176 mi²	6 L/day/m² (net)	2.700 ML/d	1.8 x ADD	4.860 ML/d	1.8 x ADD	4.860 ML/d
Commercial Office (118 Ave)	27 ha	0.105 mi²	6 L/day/m² (net)	1.620 ML/d	1.8 x ADD	2.916 ML/d	1.8 x ADD	2.916 ML/d
	162 ha	0.633 mi²		5.248 ML/d		9.168 ML/d		10.037 ML/d

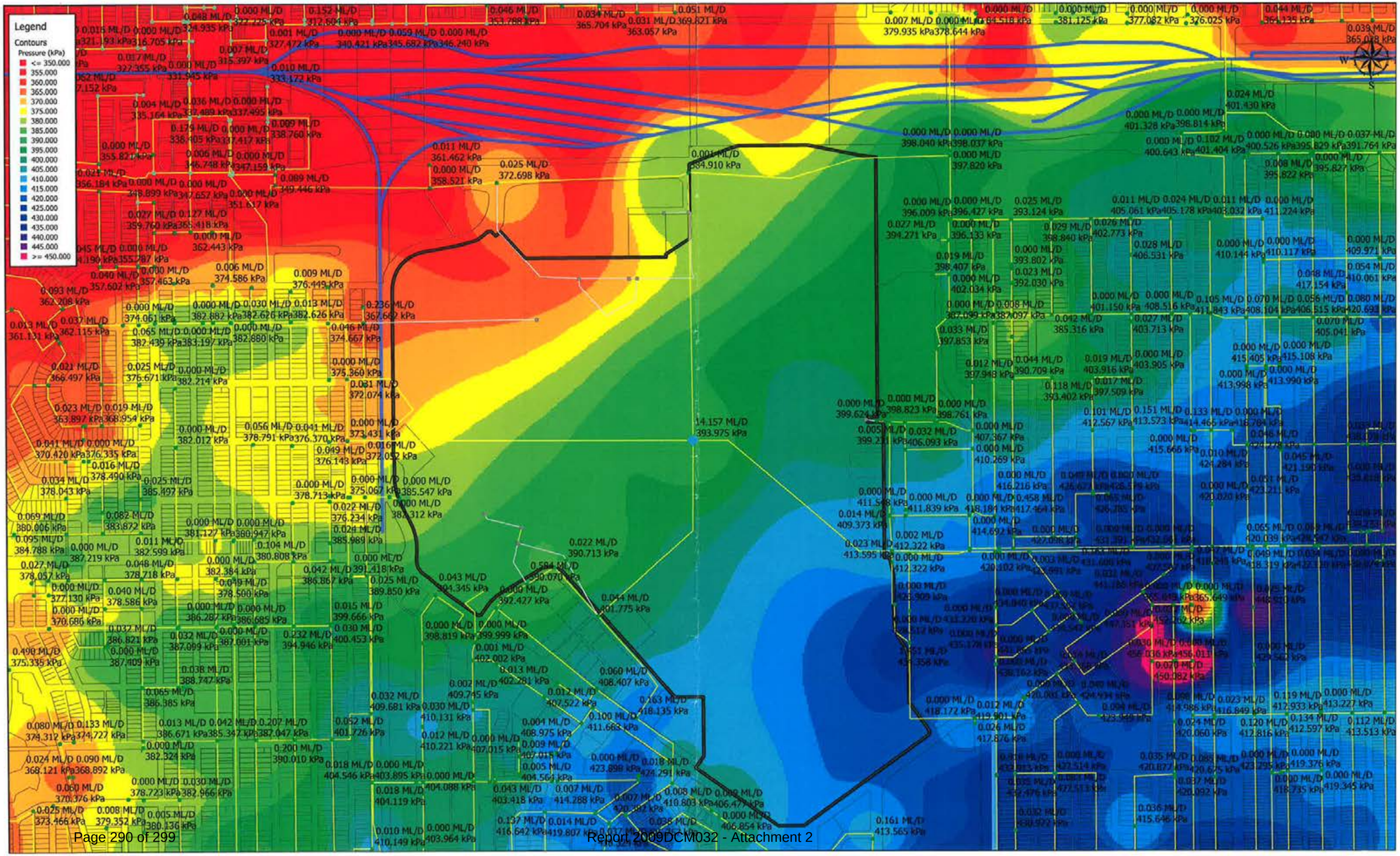
Pressure Gradients - Peak Hour



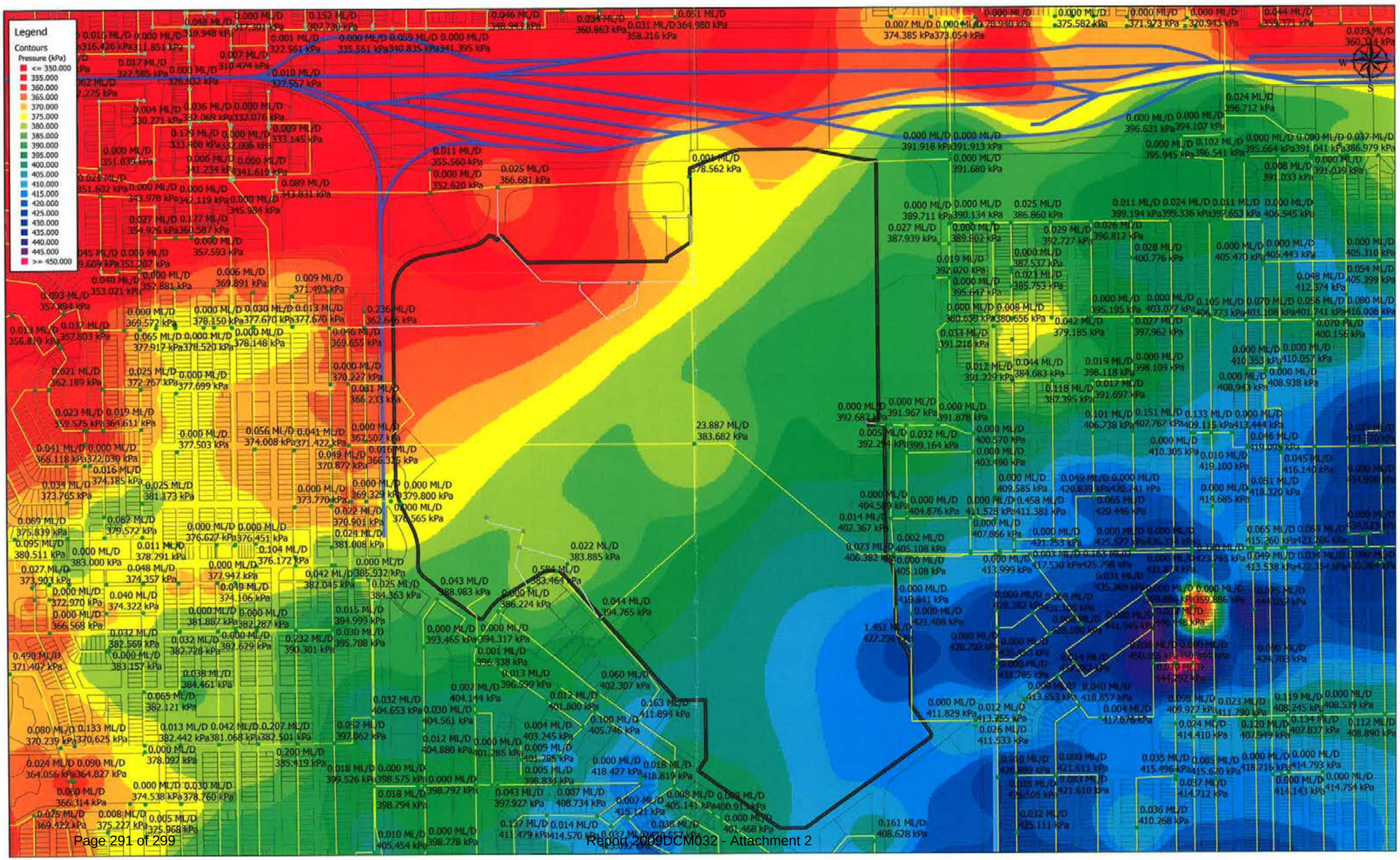
Elevation Gradients - Peak Hour



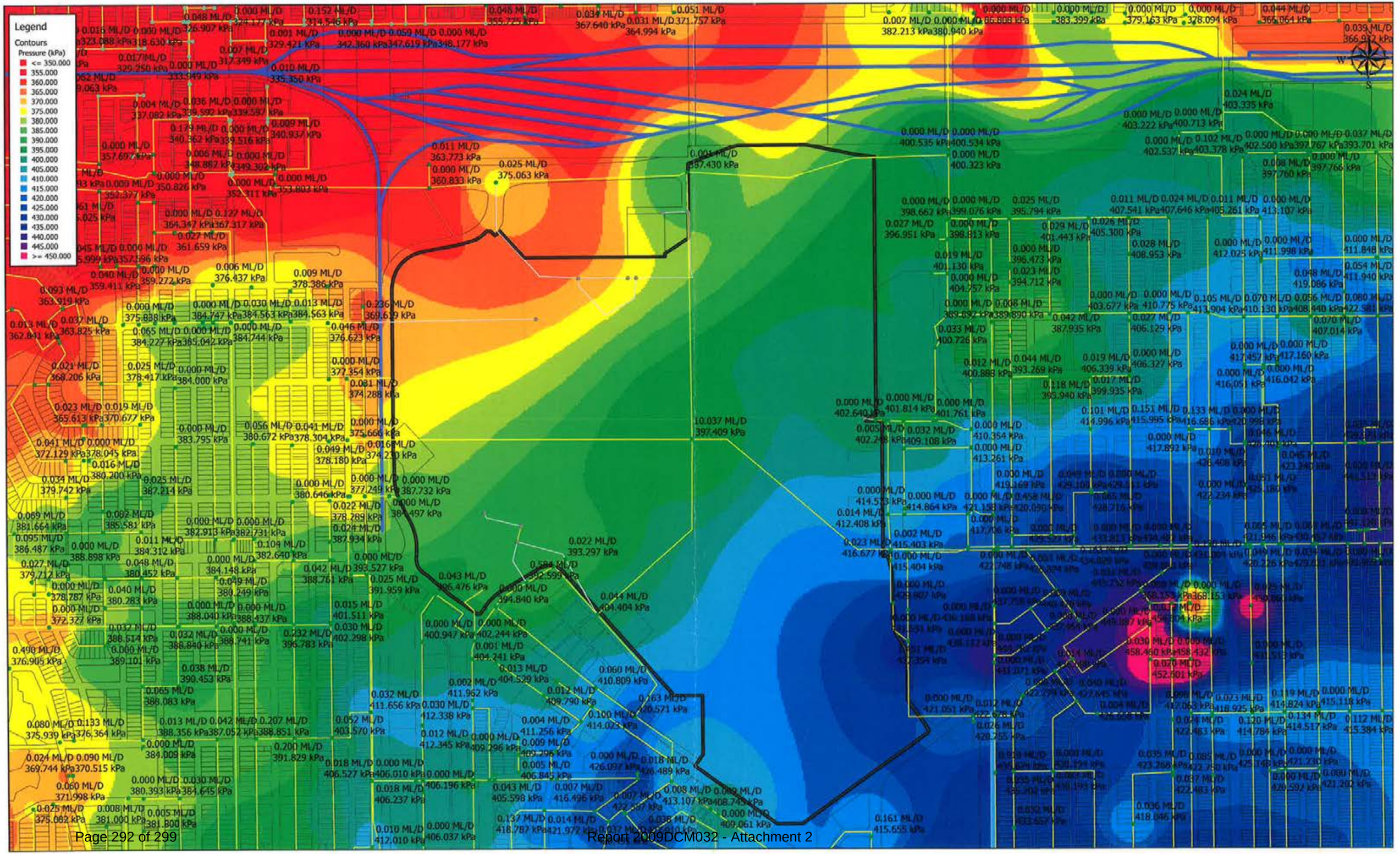
Pressure Gradients Concept 2 - Peak Hour



Pressure Gradients Concept 1 - Peak Hour



Pressure Gradients Concept 1 - Peak Hour



Attachment

'H'

Marinella Matesic-Barth

From: Albert Kwan [Albert.Kwan@edmonton.ca]
Sent: Tuesday, June 02, 2009 11:54 AM
To: Marinella Matesic-Barth
Cc: Fernando Sacluti; Francis Wu
Subject: RE: Assessment on ECCA

Marinella,
Sorry for replying to you late. We had the SSSF Operational Committee meeting this morning and your questions were discussed. The followings are our responses:
- the requirement for on-site sanitary storage requirement will need to be evaluated as this project move forward. In general it will be the responsibility of the developer to construct any on-site sanitary storage requirements.
- SSSF can also look at the implication on the implementation schedule for the WESS trunk system when more information on the proposed development at the airport is available. SSSF will be responsible for the construction of the WESS trunk system.
Please submit all relevant information on this development for evaluation when they are available. Thanks!
Albert Kwan

-----Original Message-----
From: Marinella Matesic-Barth [mailto:mmatesic-barth@selecteng.ca]
Sent: Thursday, May 28, 2009 10:36 AM
To: Albert Kwan
Subject: RE: Assessment on ECCA

Albert,
As discussed in our phone conversation, I want to confirm that there will not be a requirement for the on-site sanitary storage and all sanitary flows can be directed to the existing combined sewer system within the airport lands. On site storage is not required for other new developments that tie into the existing sanitary system that are assessed under SSSF. I understand that if any upgrades are required downstream, the SSSF will typically fund the upgrades.

Just to summarize the current flows into the combine sewer:

- Storm flows from 89 ha of airport lands is directed into the combined sewer. Using a runoff coefficient of 0.1 and Tc of 10 minutes, a 1:5 year peak flow was calculated as 2.1 m3/s
- During winter months only, as additional 87 ha of land flows into the combined sewer so that the runoff from the deicing operations at the airport can be treated before being discharged into the river.

When the airport lands are redeveloped:

- No storm flows will be directed from the redeveloped airport lands
- Sanitary flows from the redevelopment will be directed to the combined sewer at estimated flow of 0.47m3/s. This flow was based on 23,948 residents in 166 ha plus 51.2 ha of commercial/industrial development.
- Flows into the combined sewer will be substantially less with the redeveloped lands

Please let me know if you are in agreement with the information stated above.
Thanks

Marinella Matesic-Barth, P.Eng.
Project Manager
Direct: 780-651-5760 Cell: 780-691-2588
E-mail: mmatesic-barth@selecteng.ca

From: Albert Kwan [mailto:Albert.Kwan@edmonton.ca]
Sent: Thursday, May 07, 2009 4:30 PM
To: Marinella Matesic-Barth; Ken Sadownyk
Cc: James Tan; Francis Wu
Subject: Assessment on ECCA

Marinella & Ken,

As per your request. this is a quick update on this subject. We have our SSSF Management Committee meeting this morning and one of the discussion item is on the assessment requirement for the ECCA area. The Committee agrees that assessment is applicable for the redevelopment of this area. A letter will be delivered to Harvey explicitly saying that PAC, EA & SSTC will be charged on any redevelopment at the ECCA area. Thanks!

Albert Kwan, M.Sc., P.Eng., PMP
Drainage Services, AM&PW
6th Floor Century Place
9803 102A Avenue
Edmonton, Alberta
Canada T5J 3A3
Phone: (780) 496-6852
Fax: (780) 496-5648
E-mail: albert.kwan@edmonton.ca

Attachment

'I'

Marinella Matesic-Barth

From: Dale Fong [Dale.Fong@sjrb.ca]
Sent: Friday, May 29, 2009 10:56 AM
To: Marinella Matesic-Barth
Subject: RE: City Center Airport - possible redevelopment

Hi Marinella,

Typically the developer would not be responsible for covering the costs associated with bringing the service to the site, however we would expect costs to be covered in a similar fashion as any of our competitors (i.e. if Telus or any other competitor, was getting reimbursed from the developer for upgrading their facilities off site as a result of this development, we would be looking for a similar type of compensation).

Hope this helps, Feel free to call if you need further clarification.

Thanks,

Dale

From: Marinella Matesic-Barth [mailto:mmatesic-barth@selecteng.ca]
Sent: Friday, May 29, 2009 9:16 AM
To: Dale Fong
Subject: RE: City Center Airport - possible redevelopment

Thanks Dale for the information. One more question I would like to verify. Will the developer of the site be responsible for costs associated with bringing service to the site (ie offsite costs)?

Marinella Matesic-Barth, P.Eng.
Project Manager
Direct: 780-651-5760 Cell: 780-691-2588
E-mail: mmatesic-barth@selecteng.ca

From: Dale Fong [mailto:Dale.Fong@sjrb.ca]
Sent: Friday, May 29, 2009 9:00 AM
To: Marinella Matesic-Barth
Cc: Tony Wong
Subject: RE: City Center Airport - possible redevelopment

Hi Marinella,

Shaw Communications has no constraints that would prohibit the redevelopment of this site.
We would be required to complete offsite work place a Fibre Optic Cable from the development site back to an existing tie in point. Cost, timing, and scope of this work will depend on the phasing of the development and we will be able to provide more information in this regard when a detailed development plan becomes available (the further away from our tie in point the first stage of development is, the higher the costs will be).

Let us know if you need any further information,

Thanks,

Dale Fong

Supervisor, Planning
***SHAW*CABLE**
10450 178 St NW | Edmonton, Alberta | T5S 1S2
Ph: (780) 490-3620 | Fx: (780) 490-3510
dale.fong@sjrb.ca

ACCOUNTABLE BALANCE CUSTOMER FOCUSED INTEGRITY LOYALTY POSITIVE, CAN DO ATTITUDE TEAM PLAYER

From: Marinella Matesic-Barth [mailto:mmatesic-barth@selecteng.ca]
Sent: Thursday, May 28, 2009 2:27 PM
To: Dale Fong
Subject: City Center Airport - possible redevelopment

Dale,
As per our phone conversation, I have attached a plan showing the area that we are looking at possible redevelopment (city center airport). I am doing a summary of constraints and servicing impacts if redevelopment goes ahead. The land use stats project a population of approximately 25,000 (approx 12,200 units) in an area of 217 ha. A small part of that area will be commercial/institutional. Could you let me know if there are any constraints from Shaw Cable service perspective that would prohibit redevelopment of this site and if there will be additional cost to the development for any upgrades offsite.

Thanks for your help.

Marinella Matesic-Barth, P.Eng.
Project Manager
Select Engineering Consultants Ltd.
Suite 220, 9303-34 Avenue
Edmonton, AB T6E 5W8
Office: 780-651-5777 Fax:780-651-5757
Direct: 780-651-5760 Cell: 780-691-2588
E-mail: mmatesic-barth@selecteng.ca

Marinella Matesic-Barth

From: Marsha Benson [Marsha.Benson@TELUS.COM]
Sent: Tuesday, June 02, 2009 11:39 AM
To: Marinella Matesic-Barth
Subject: RE: City Center Airport

Hi Marinella.

1) The developer will be responsible for the relocation/removal of all existing facilities to accommodate the redevelopment. Cost $200,000 plus/minus 25%.
2) As per conversation with our Regulatory dept, this was after I talked to you **there will be no cost to the developer to reinforce facilities to support the redevelopment** The developer will however be required to provide easements and alignments to TELUS to serve the redevelopment.

If further info or clarification is req'd, please call on my cell 780 886-1939 or email me.

Thanks,

Marsha Benson
TELUS Network Operations
PHONE: 780-493-4894
EMAIL: marsha.benson@telus.com

From: Marinella Matesic-Barth [mailto:mmatesic-barth@selecteng.ca]
Sent: Thursday, May 28, 2009 2:00 PM
To: Marsha Benson
Subject: City Center Airport

Marsha,
As per our phone conversation, I have attached a plan showing the area that we are looking at possible redevelopment (city center airport). I am doing a summary of constraints and servicing impacts if redevelopment goes ahead. The land use stats project a population of approximately 25,000 in an area of 217 ha. A part of that area will be commercial/institutional. Could you let me know if there are any constraints from telephone service perspective that would prohibit redevelopment of this site and if there will be additional cost to the development for any upgrades offsite.

Thanks for your help.

Marinella Matesic-Barth, P.Eng.
Project Manager
Select Engineering Consultants Ltd.
Suite 220, 9303-34 Avenue
Edmonton, AB T6E 5W8
Office: 780-651-5777 Fax:780-651-5757
Direct: 780-651-5760 Cell: 780-691-2588
E-mail: mmatesic-barth@selecteng.ca