



# TECHNICAL STUDIES AND KEY FINDINGS

**Edmonton**

This document was written by The City Plan Team to describe what technical studies were initiated to inform preparation of The City Plan and highlights the key findings of each study.

**AUGUST 2019**



# Technical Studies and Key Findings

## STEP 2

The City Plan's evaluation scenarios and the recommended (draft) land use concept are being actively informed by a number of technical studies. The key findings and results of these helped inform the development of the recommended land use concept. Full reports can be found at [www.edmonton.ca/thecityplan](http://www.edmonton.ca/thecityplan).

### **ECONOMIC, DEMOGRAPHIC AND MARKET STUDY**

This study assessed Edmonton's current and anticipated future demographic, employment and market trends. The study identified key areas of population and employment growth as Edmonton grows to a population of two million. The most recent learnings of this study are listed below:

- Edmonton's employment base has gradually shifted from a goods-producing economy to a services-producing economy.
- Anticipated changes to the employment and non-residential landscape include:
  - A growing knowledge-base and creative class economy driving office, flex-office, and multi-purpose facilities in employment areas.
  - New distribution and warehousing facilities located in areas with strong regional connectivity and transportation infrastructure.
  - Retail space needs are changing to accommodate more service-based retailers with smaller footprints than traditional goods-based retailers
- The aging of Edmonton's current population will be counterbalanced by continued in-migration of younger working-aged people.
- There has been a shift to more apartment housing; however, homeowners are still partial to lower-density housing.
- Apartment housing is still considered a stepping stone for families to transition into lower-density home ownership.
- Growth patterns for residential development will need to continue to shift toward higher density options in order to accommodate two million people within Edmonton's current boundaries.

### **MASS TRANSIT STUDY**

*(This report is still in progress; additional findings and the final report are forthcoming)*

This study assessed the current state of Edmonton's mass transit network and provides a framework to guide the development and expansion of mass transit as the city grows to two million residents. The most recent learnings of this study are listed below:

- There is an opportunity for transit to gain market share for short trip lengths (<10 km) which are currently dominated by automobile use.
- The future distribution of people and jobs will be a critical determinant of where, when and how new mass transit lines will be built.

- The proposed Mass Transit Network for the City Plan will include three key categories of transit hierarchies (Regional, Rapid and Urban-Frequent).
- Demand is high for key parallel north-south and east-west mass transit lines.
- A mass transit option that serves the airport can also serve demand to the downtown area from the southern parts of the City, including the newly annexed lands.
- Rapid (semi-exclusive right-of-way) lines performed reasonably well and were found to be critical for crosstown movements to compliment the LRT network.
- Rapid (limited stop) and Urban-Frequent lines connected a large part of the City beyond what the LRT and Rapid (Semi-Exclusive right-of-way) could cover.
- Success was observed in terms of carrying higher passenger volumes when lines were connected to employment areas.
- Travel demand from the region into Edmonton is dispersed. A different form of mass transit may appropriate to serve intra-regional travel markets over time.
- Two interdependent networks, City-Wide Rapid and Rapid-Frequent, will serve different mass transit needs but together encompass the Mass Transit Network for Edmonton at two million people.

### RELATIVE FINANCIAL ASSESSMENT

*(This report is still in progress; additional findings and the final report are forthcoming)*

This study will be analyzing the fiscal impacts of differing land use patterns within the three evaluation scenarios, business-as-usual scenario, and the recommended land use concept. The study considered costs of 11 service areas such as roads and active modes, libraries, fire services, transit and EPCOR water, drainage and power. The most recent learnings of this study are listed below:

- Many of the City's service areas are financially impacted by the location and nature of development.
- Greenfield development often requires more road infrastructure than infill development, while urban intensification can lead to higher costs in certain service areas, such as parks and transit.
- Containing growth within the existing city boundary generally results in capital cost savings related to road and transportation infrastructure, recreation facilities, and fire services.
- Public realm improvements, in particular streetscaping, can be an influential driver of cost when much of a city's growth depends on intensification, particularly in a corridor-heavy growth pattern.
- Police, libraries, waste management, and general government are more dependent on overall population and/or employment growth than any particular growth pattern. Therefore these costs do not vary significantly between different scenarios.

- Growth patterns supporting residential intensification and a shift to medium and high-density residential unit types tend to provide higher assessment value and therefore greater fiscal sustainability in the long term.

### GREENHOUSE GAS AND ENERGY ANALYSIS

*(This report is still in progress; additional findings and the final report are forthcoming)*

The purpose of this study is to understand the relative greenhouse gas and energy performance of the three evaluation scenarios, and apply any learnings to the development of a recommended land use concept. The analysis compared the three evaluation scenarios to a future Edmonton following currently approved growth plans ("business as planned" reference case for this study). The most recent learnings of this study are listed below:

- A more densely developed and compact urban form results in greater reduction of greenhouse gas emissions.
- The different types of housing does not, on its own, determine greenhouse gas emissions but rather where these different types of housing are located.
- A highly urbanised, pedestrian-oriented city is the most efficient in terms of managing greenhouse gas emissions.
- Intensification of our urban form creates the potential for major district energy systems which are more efficient at curbing the city's carbon footprint.
- In each of the three evaluation scenarios, there are areas of lower GHG concentration encircling downtown.
- None of the evaluation scenarios were able to meet the carbon budget associated with a 1.5 degree target despite incorporating a range of changes to energy and programs.

### CLIMATE VULNERABILITY RISK ASSESSMENT

*(This assessment is still in progress; additional findings and the final report are forthcoming)*

This study extends a previous analysis that was completed as part of the Climate Resilient Edmonton: Adaptation Strategy and Action Plan. It determines the relative climate-related costs to Edmonton for each of the evaluation scenarios and business-as-usual to inform the recommended land use concept. The most recent learnings of this study are listed below:

- The evaluation scenarios all performed better than a traditional growth pattern scenario in reducing costs incurred as a consequence of climate change.
- Projected climate-related costs (including social costs) for the repair and replacement natural related areas managed by the City are higher under the evaluation scenarios due to more population and development existing in these scenarios.
- The impact of climate change related health effects are expected to be less in a more highly concentrated urban form.