

12 Thousand Acres Plan

Submitted to The City of Airdrie
by IBI Group

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12 THOUSAND ACRES PLAN

THE CITY OF AIRDRIE



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Introduction



In 2012, the City of Airdrie (“the City”) annexed approximately 12,640 acres (5,115 hectares) of land from Rocky View County to provide a 50-year land supply for growth (**Figure 1**). This was done to facilitate a more comprehensive plan for growth management for the City and to eliminate the need for smaller, more incremental annexations over the same timeframe.

Following the 2012 annexation, there were multiple City documents which needed to be referenced to inform and guide growth management and sequencing decisions. As a result, the City has completed a Growth Management and Development Sequencing Study to review and align all information available into one comprehensive Growth Sequencing Strategy. This plan is known as the **12 Thousand Acres Plan (12K Plan)**.

The 12K Plan is a non-statutory document intended to guide Council’s decision making on future development within the annexation lands (“the plan area”).

This document is to be read in conjunction with the City Plan 2014 (City of Airdrie Municipal Development Plan). Additional information can be found **Section 2 (Foundational Framework)**.

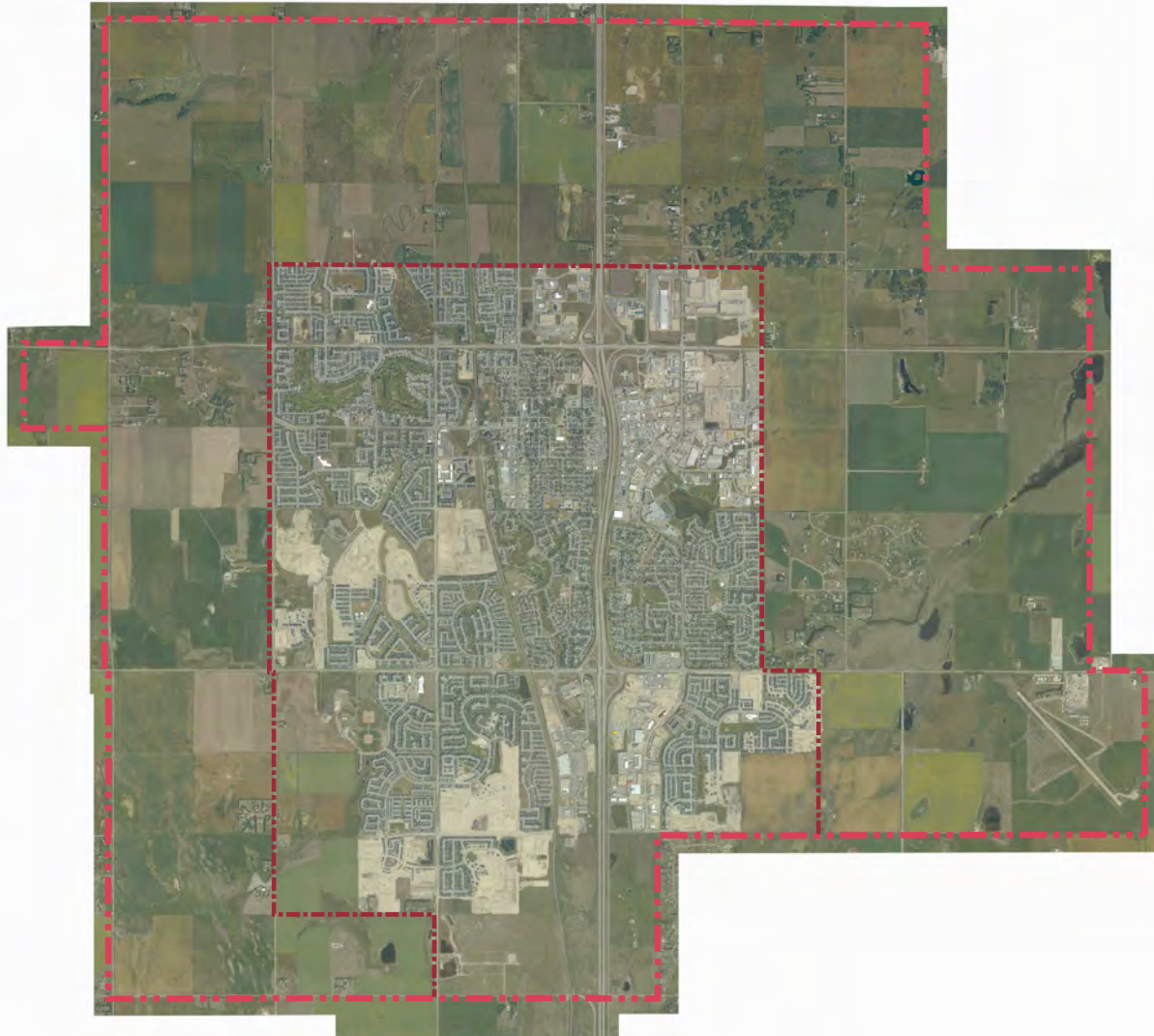


Figure 1: 12K Plan Boundary

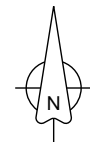
1.1 Goals

The goals of the 12 K Plan are to:

1. Provide general direction on land uses for the annexed area;
2. Outline future Community Area Structure Plan (CASP) boundaries;
3. Determine the sequencing for when lands within the post annexation boundary will be available for development ; and
4. Outline a framework for guiding interim non-residential land uses before new areas receive statutory (CASP-level) planning and approval.

LEGEND

- CURRENT AIRDRIE BOUNDARY
- PRE-2012 AIRDRIE BOUNDARY



1.2 Interpretation of the Document

The 12K Plan is a high-level document which provides direction for growth management decisions and guidelines for future Community Area Structure Plans. The statements and directions in the document are meant to offer flexibility to decision-makers and should be read in context with any changes in the market and the planning context for the city over time.

The 12K Plan is a supporting document to the Airdrie City Plan, as amended, for decisions pertaining to growth management and future developments within the plan area. In the event of a conflict between the 12K Plan and the City Plan, the City Plan will prevail.

The details in the 12K Plan are synthesized from information in existing technical reports and policy documents. Information that is critical to the 12K Plan is summarized in Section 2 (Foundational Framework), and readers should familiarize themselves with these documents for additional detail. Over time, some of these reports will be reviewed and updated and the direction provided in the 12K Plan will also need to be reviewed and updated to reflect current information.

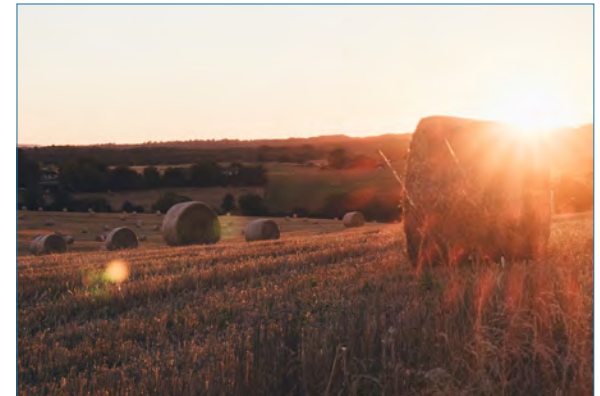
A series of maps form essential parts of the 12K Plan and provide graphic summaries of the Plan directions. The areas shown within these maps are approximate and should not be literally interpreted nor meant for exact distance or area measurements from the maps themselves.

The projected growth statistics provided within the tables, figures, and maps are based on information extracted from other reports and in the event of any discrepancy, the source report will be relied upon. All projected growth statistics are approximate in nature and based on recognized trends, but may ultimately vary based on market fluctuations, regional context, and decisions made by the City and others, especially for longer-term population horizons. Some of this nuance is addressed specifically within the 12K Plan in **Section 2.2.3**, and readers will need to be aware of how current information and context may affect directions outlined in this Plan.

Within **Section 4 (Plan Guidelines)**, the use of the following words are defined as follows:

- **Must:** Refers to mandatory requirements;
- **Should:** Refers to critical requirements that can only be altered if other equivalent requirements are met or additional information is provided that justify a different result;
- **May:** Refers to requirements that are at the discretion of the City but are generally encouraged;
- **Will:** Refers to a requirement where a commitment on the part of the City of Airdrie is involved.

Within the Plan, references to a **Development Concept** refer to any combination of drawings and/or illustrations that help to convey the relevant details of a proposed development as defined by the Development Authority from time to time for a specific type of application.





Foundational Framework



The approach to managing growth in the plan area builds on a number of other plans and studies completed and / or commissioned by the City of Airdrie. **Table 1** lists the foundational documents that guided the creation of the 12K Plan. Some of these documents are overarching plans that provide strategic direction and inform broad portions of the plan across all of Airdrie, while others are more limited in scope, dealing with very specific subjects or geographic areas within a portion of the 12K Plan.

YEAR	DOCUMENT NAME
2007	Nose Creek Watershed Water Management Plan
2012	AirdrieONE Sustainability Plan
2013	Annexation Strategy
2013	Ecological Inventory and Environmental Best Practices Study
2014	Airdrie City Plan (MDP)
2015	Connecting Airdrie (TMP)
2015	Master Stormwater Drainage Plan
2015	Utility Master Plan (UMP)
2016	Transit Master Plan
2016	Growth Strategy Update
2016	Great Places Plan, City of Airdrie

Table 1: 12K Plan Foundational Documents



2.1 Statutory Plan Framework

2.1.1 AirdrieOne Sustainability Plan

The AirdrieONE plan outlines ten sustainability goals which align with what citizens identified as important to long-term quality of life in the community. Under each of the ten sustainability goals, strategies are identified to guide implementation, alignment of many of the City's existing plans, and decision-making processes. These goals are meant as a guide for future development and apply specifically to the 12K Plan area.

Several sustainability objectives and actions in AirdrieONE apply directly to the 12K Plan.

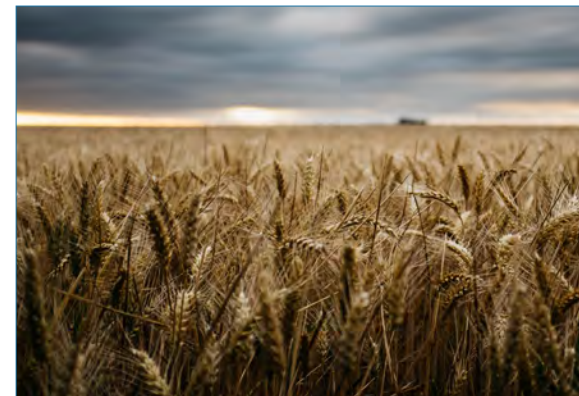
- One of the four priorities of AirdrieONE is to develop a planning framework for the annexed lands. AirdrieONE anticipates that this framework will identify environmentally-sensitive areas (ESAs), non-residential development opportunities, major servicing corridors and sequencing for services and future development. The 12K Plan addresses several elements of this framework, and guides decision-making on other elements (such as detailed servicing and identification of ESAs) which are addressed at during development of a CASP.
- The Economic Prosperity goal outlines that future planning decisions should increase the proportion of non-residential uses and support a broad range of employment opportunities. This is facilitated through the 12K Plan land use concept.

- Guidelines on the Built Environment emphasize environmental sustainability by promoting smart growth, less sprawl, and green development, as well as creating complete communities. This section also addresses alignment with regional planning goals and objectives.
- For water resources, AirdrieONE addresses the need for the City to secure a long-term supply of water, protect natural ecosystems, and promote the efficient use of water. Water and stormwater management are important elements to sustainability and future CASP applications must address the provision of critical services and infrastructure.

2.1.2 Airdrie City Plan (2014)

The City Plan provides the overall framework for land use planning and decision-making within the City of Airdrie. The City Plan is a strategic document that guides future statutory and non-statutory planning documents, including Community Area Structure Plans, Neighbourhood Structure Plan (NSP), Area Redevelopment Plans, the Land Use Bylaw (LUB), Master Plans, municipal servicing standards, landscape standards, and urban design guidelines.

The City Plan informs the 12K Plan by providing a policy framework for growth management, development strategy, CASP justification, future land use development, and fiscal sustainability. However, the City Plan does not provide policy and land use direction for all areas in the post-annexation lands, creating the necessity for development of the 12K Plan.



The 12K Plan therefore informs the next updates and review of the City Plan, specifically as it relates to the 2012 Annexation lands. Therefore, the two plans are closely tied and must be read in conjunction.

The City Plan addresses growth to a target of 75,000 population within the pre-annexation growth boundary and a projected 90,000 population within the entire plan area, reflecting the best estimates available at the time the City Plan was drafted. The City Plan further notes a longer-term projection of 110,000 population but the plan notes that this is beyond the timeframe of the plan and subject to change based on trends, constraints, and better available information. These population projections were updated in 2016 for the development of the 12K Plan (see **Section 2.2**).

In addition to the population projections, there are several policies which provide information and direction for the 12K Plan.

Development Strategy

The City Plan includes an overarching development strategy which provides a set of principles to guide land use and development related decisions. These principles direct the City to protect natural features and natural assets, ensure land use balance, develop viable neighbourhoods, plan for density in strategic areas, facilitate transportation choice, and provide community and emergency services. The City Plan also includes development expansion area policies for development sequencing and land needs.

Growth Management

The growth management policies in The City Plan are aligned with the AirdrieONE Sustainability Plan and provide the following objectives:

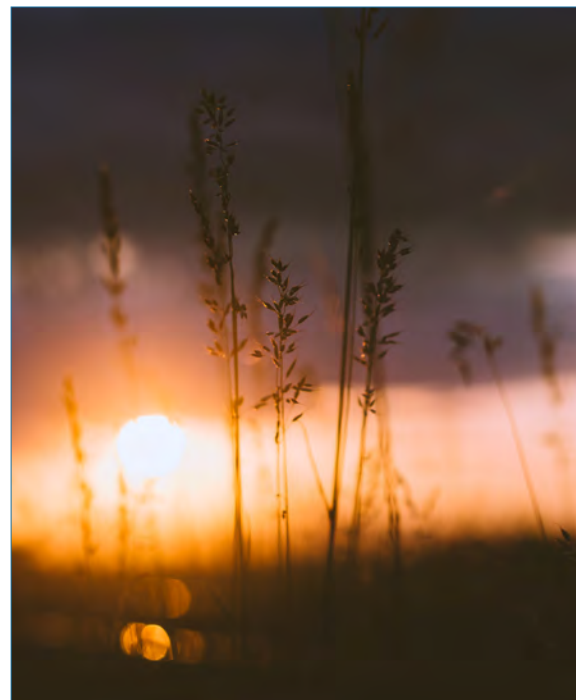
- Manage growth in a way that recognizes limits to land, natural areas, water, infrastructure and tax-supported revenues.
- Ensure that new development can be provided with necessary urban services and public amenities in a cost-effective manner.
- Prevent premature development and maintain the lands outside of the built-up area in low-intensity agricultural and other open space uses until the land is needed for planned City expansion and development.
- Reduce land use conflicts between the City of Airdrie and neighbouring jurisdictions.

CASP Justification

The City Plan requires a planning and growth management justification report for any development proponent looking to initiate a Community Area Structure Plan. Policy 2.14 (Determination of Urban Development Location and Sequencing), further applies a set of criteria to assess the suitability of proposals to bring additional lands into urban development. The 12 Thousand Acres Plan provides additional context and direction for these policies by outlining the City's expectations and guidelines for future land use, CASP boundaries, and general sequencing and timing of bringing future lands online for urban development.

Future Land Use

The City Plan provides a generalized land use concept for the current and future growth areas, assuming a population of up to 75,000 within the pre-2012 annexation boundary. The land use concept for the future growth area is limited to only a portion of the 12K Plan area and assumes a population of up to 90,000. The 12K Plan took guidance from the City Plan and provides a general land use concept which addresses the full post-2012 annexation lands and provides further direction on interim land uses and development sequencing.



Fiscal Sustainability

Chapter 4 of the City Plan focuses on Airdrie's financial sustainability and the City's ability to continue to provide services and infrastructure through long-term financial planning, diversification of revenue sources, and the retention and increase of Airdrie's non-residential land uses. The City Plan targets an assessment split of 75% residential and 25% non-residential, which reflects a long-term strategic priority of Airdrie's Council and represents an increase from the current 85-15% residential to non-residential assessment split. The 12K Plan provides a land use concept that helps to achieve these assessment targets.



2.1.3 Annexation Strategy (2013)

The 2013 Annexation Strategy sets the framework for managing growth within the 2012 annexation lands. This includes the following criteria for determining new growth areas, which were used to develop the 12K Plan sequencing strategy.

1. Accurate growth demands and projections are required to demonstrate the need for new development areas and inform the sequencing and approval of communities and neighbourhoods;
2. It is a strategic priority of City Council to increase the proportion of employment lands relative to residential lands and to enhance the economic resiliency of Airdrie by attracting a broad range of employment opportunities;
3. The City will only approve CASPs and NSPs which adequately respond to environmental conditions and established best practices for protecting the Nose Creek floodplain, riparian areas, and other environmental features;
4. Adjacency to existing development and services is a key growth management principle. The Annexation Strategy prioritizes growth in areas adjacent to existing development and infrastructure, and sequences growth from south to north to align with infrastructure servicing corridors;
5. Servicing requirements, feasibility and costs must be addressed before any development can proceed in the annexation lands; and

6. The availability and capacity of critical community infrastructure must be considered, including protective services and the capacity of community facilities to accommodate additional growth.

2.1.4 Great Places (2016)

The Great Places Plan (GPP) is a non-statutory guiding document that provides direction on the City of Airdrie open space system within the pre-annexation and annexation lands; and provides a philosophy for the planning and building of a great city.

The GPP serves as a foundational document upon which more specific and detailed parks and open space planning (e.g., at CASP or NSP) is based. A general concept for an open space network in Airdrie is provided by the GPP (see **Appendix A**), and identifies major open space nodes and city wide open space corridors and linkages.

Guidelines are provided for new residential, commercial and industrial development; protection of natural areas; ecologically-sensitive parks and open space design; urban forestry; and parks and open space acquisition guidelines.

The City prioritizes environmentally significant areas, natural environments suitable for parks, and significant wildlife and fish habitat to be protected through the dedication of Reserve land or other forms of conservation. In addition, the City utilizes a range of opportunities and tools to maximize the supply of available parkland, beyond Municipal and Environmental Reserve.

These principles are reflected in the 12K Plan, and the GPP should be referenced for further detail through review and approval of CASPs within the plan area. In general, the open space concept of the GPP is too detailed to be carried through to the land use concept of the 12K Plan. However, it will continue to influence the development of CASPs within this plan.

2.1.5 Ecological Inventory and Environmental Best Practices Study (2013)

The Ecological Inventory and Environmental Best Practices Study identifies key natural features in the 12K Plan area and ranks them according to their ecological significance.

Twelve ecological hotspots were identified in the study. The hotspot rankings considered riparian corridors, natural grasslands, steep slopes, trees and shrubs, wetlands, natural features, wildlife, and flood risks. Together, these natural features form a significant interconnected network which offers a range of benefits to the natural developed fabric of the region.

The document is to be used as a guide to inform development planning in a way that protects networks of natural features not only for their ecological value but also for the value of the ecological services they can provide; to enable Airdrie to manage its long-term growth in a sustainable manner. For example, ecological services that enable sustainable growth may involve the management of stormwater runoff provided by healthy riparian vegetation in watersheds; the maintenance of water quality provided by riparian vegetation offered by connected areas of natural vegetation.



Furthermore, the Ecological Inventory and Environmental Best Practices Study recommends environmental best practices for Airdrie. Including, but not limited to, riparian setbacks, wetland management, and parks and open spaces. The document recommends that the City link riparian corridors with parks and open space networks to help maintain ecological connectivity and wildlife corridors.

2.1.6 Nose Creek Watershed - Water Management Plan (2007)

The Nose Creek Watershed Water Management Plan aims to protect riparian areas and improve water quality in the Nose Creek watershed. The terms of reference was developed in partnership with Alberta Environment and has three main objectives: to recommend the development of water conservation objectives; to provide approval guidelines for decision makers; and builds on the requirements of strategic broad scale planning documents.

The plan provides several tools and best practices, including: Water Conservation Objectives (WCO), Reduced Maximum Allowable Release Rates, Staged implementation of Runoff Volume Control Targets, Low Impact Development strategies, A Riparian Area Management Map defining site-specific setback criteria, Implementation of agricultural Best Management Practices; Mitigation of impact, compensation for loss and restoration of natural system function; and cumulative effects assessment.

The Watershed Water Management Plan serves as a guiding document and planning tool for future development applications and approvals, and the objective to protect and enhance the Nose Creek corridor is documented through several guiding documents and carried through the land use concept and guidelines of the 12K Plan.

At the time the 12K Plan was drafted, a 2018 update to the Nose Creek Watershed Water Management Plan was in draft and was referenced to ensure that elements used to inform the principles and guidelines of the 12K Plan were still correct.

2.2 Growth Strategy Update

The City of Airdrie has experienced very high rates of growth over the last decade and is expected to continue to grow. Given the historical trends and Council priorities, the 2016 Growth Strategy Update has forecasted the population and land demand requirements for the City of Airdrie for a 50-year horizon to the year 2065.

Together, the Growth Strategy Update and the 12K Plan form a **Growth Management and Development Sequencing Strategy** for the City of Airdrie. The Growth Strategy Update forms Phase 1 of the Study and sets the parameters for future planning decisions. **The 12K Plan forms Phase 2** of the Study and applies the findings in Phase 1 to develop the future land use concept and guidelines for the development of future Community Area Structure Plans.

The Growth Management and Development Sequencing Study together (phase 1 and 2) lead the City towards having an adequate inventory of residential, commercial, industrial land and public services to meet the projected needs. As well as the mechanisms to successfully bring services to these lands.



2.2.1 Population and Employment Projections

The City of Airdrie pre-annexation boundary is projected to accommodate a population of approximately 75,000 (2014, City Plan). The Growth Strategy Update includes two population and employment scenarios: a base and alternate (more aggressive) scenario, covering the years 2015 to 2065. The population and employment projections for the City of Airdrie are shown in the following **Figures 2 & 3** and **Tables 2 & 3**.

YEAR	BASE SCENARIO	ALTERNATIVE SCENARIO
2025 (10 Year)	84,528	92,769
2035 (20 Year)	109,574	127,307
2045 (30 Year)	134,111	165,534
2055 (40 Year)	154,273	193,021
2065 (50 Year)	168,468	211,112

Table 2: City of Airdrie Population Projections
(Growth Strategy Update - Phase 1: Population and Land Supply/Demand Analysis, Oct 2016 - Dillon Consulting)

YEAR	BASE SCENARIO	ALTERNATIVE SCENARIO
2025 (10 Year)	27,684	34,539
2035 (20 Year)	35,679	50,003
2045 (30 Year)	43,942	67,764
2055 (40 Year)	50,904	83,643
2065 (50 Year)	55,683	94,175

Table 3: City of Airdrie Employment Projections
(Growth Strategy Update - Phase 1: Population and Land Supply/Demand Analysis, Oct 2016 - Dillon Consulting)

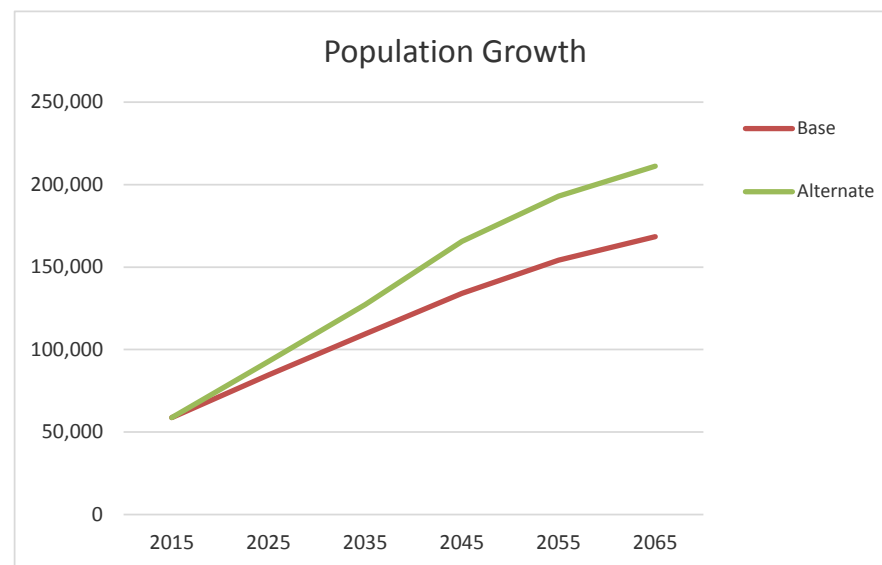


Figure 2: City of Airdrie Population and Growth Projections
(Dillon Consulting)

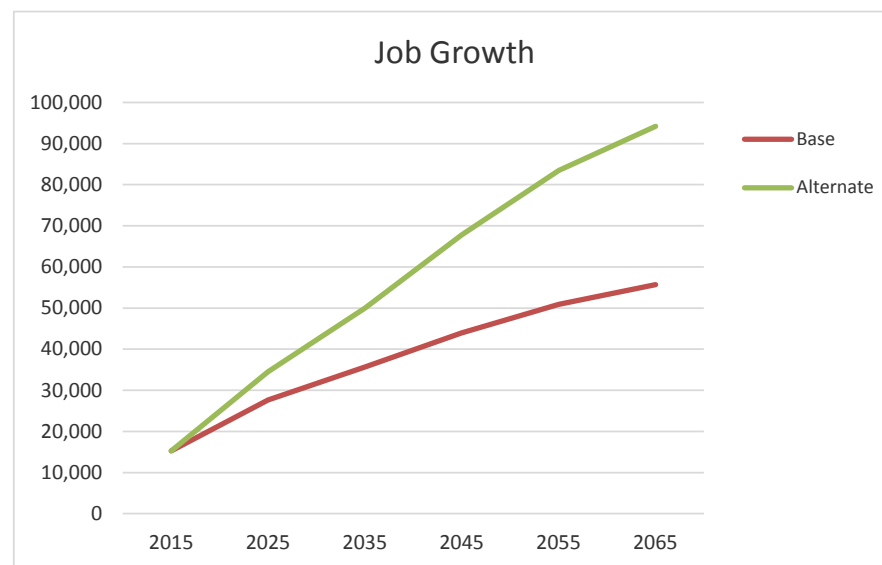


Figure 3: City of Airdrie Population and Growth Projections
(Dillon Consulting)

2.2.2 Land Supply and Demand Assessment

The City of Airdrie has 20,819 acres of land within its municipal boundary. This includes 8,179 acres in the pre-2012 annexation growth area and 12,640 acres in the post-2012 annexation growth area. **Table 4** summarizes the land use supply, demand and anticipated absorption for the City's pre-2012 and post-2012 annexation lands (12K Plan area); as well as the post land supply within the 12K Plan area based on the 2016 Growth Strategy Update alternate projections.

The alternate scenario was used to develop the 12K Plan as it assumes the highest demand scenario. However, both the base and the alternate projected land demands meet the objectives of the Annexation Strategy by supplying land for the 50-year horizon and beyond.

The land demand projections provide a 60/30/10 split for residential, industrial, and commercial land uses to meet the City's target tax assessment split of 75% residential and 25% non-residential. Furthermore, the residential population projections assume a density of 8 units per acre (UPA) for the first 30 years of the projections and 9 UPA for the remaining years (years 31-50). These assumptions were carried forward to develop the 12K Plan Land Use Concept in **Section 3.1**.

The projected land demand and supply shown in **Table 4** is based on the Growth Strategy Update from 2016. Subsequently, City Administration noted that the 10-year land absorption rates were incorrect, and the data was reviewed and revised, along with corresponding conclusions, to align with the growth rates and development densities

that were projected in the original report. These adjustments were accepted by Airdrie City Council in April 2018 and have been represented in the 12K Plan.

Additionally, the 12K Plan has accounted for the supply of vacant land within the pre-annexation area as of 2017, and represented this in **Table 4** for land absorption over the 50-year horizon for the plan. **Figure 4** represents the undeveloped lands within the pre-2012 annexation boundary as of 2017.

The 12K Plan land absorption by use assumes that the land demand will be initially absorbed within the pre-2012 annexation area only until lands within the 12K Plan area are serviced and brought to market. At this point, land will be absorbed both internally (within the pre-2012 annexation area) and externally (post-2012/12K Plan area) until land within the pre-2012 annexation is exhausted. Once exhausted, the absorption transitions to primarily be in the 12K Plan area only.

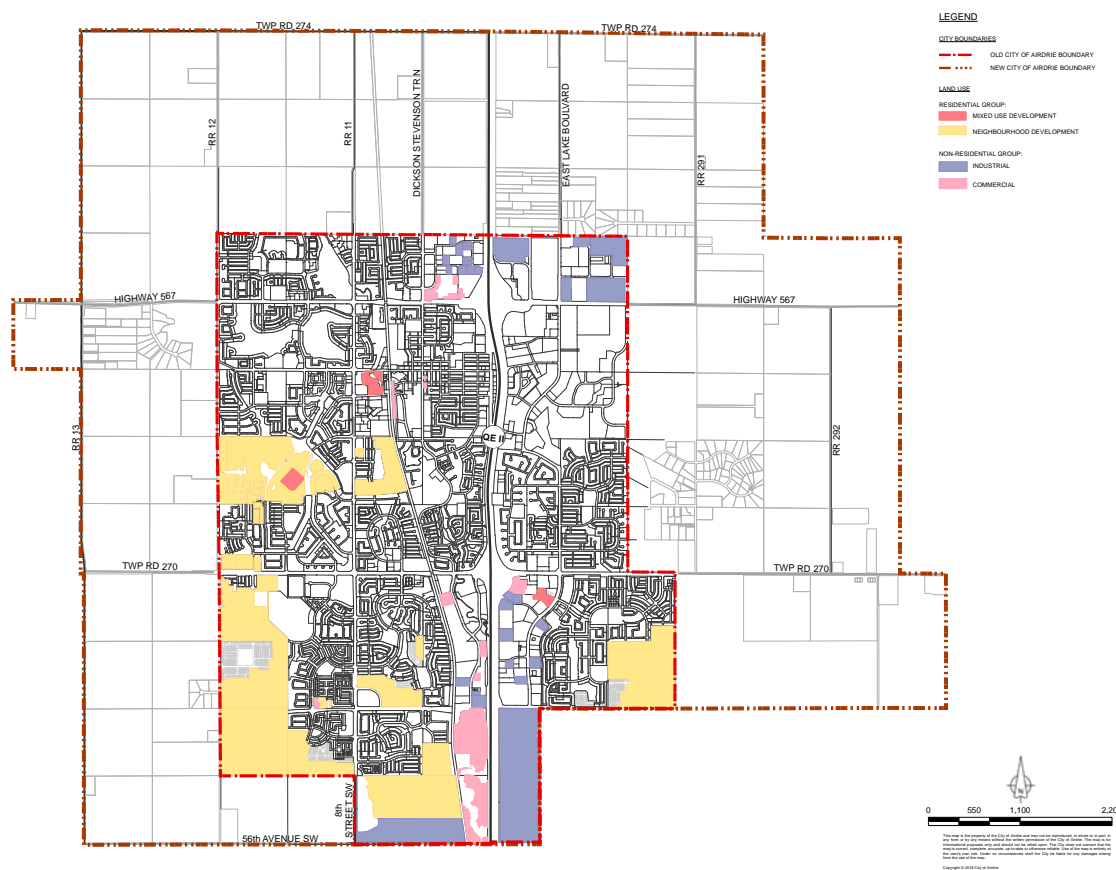


Figure 4: Net Developable Areas Map as of end of 2017

The post 2065 land supply represents the land remaining in the 12K Plan area after the projected 50-year horizon. For the alternate scenario there will be approximately 2,538 gross acres of land remaining in the 12K Plan area after the 2065 horizon.

Land Use	Projected Demand Through 2065 (Gross Acres)		Land Supply (Gross Acres)			Land Absorption Through 2065 (Alternate)			Post 2065 Land Supply in 12K Plan Area
	Base	Alternate	Pre-2012 Annexation Growth Area (at the end of 2015)	12 K Growth Area ¹	Total	Pre-2012 Annexation	12 K Plan	Total	12 K Plan
Residential	5,183	7,241	1,410	7,584	8,994	1,410	6,017	7,427	1,567
Industrial	2,612	3,629	560	3,792	4,352	560	3,048	3,608	744
Commercial	918	1,203	147	1,264	1,411	147	1,037	1,184	227
TOTAL	8,713	12,073	2,117	12,640	14,757	2,117	10,102	12,219	2,538

Table 4: 50 Year Land Supply and Demand Analysis (2015-2065)

¹ Assumes a 60/30/10 split for residential, industrial, and commercial land uses, respectively, over the 12 K Plan area.

2.2.3 Variables Affecting the Envisioned Outcome

Notwithstanding the efforts to apply realistic population and employment projections to drive the land demand requirements, there are many factors to acknowledge that may influence the eventual outcome of the land use concept and development horizons:

Projections & Aspirational Targets

- The population, employment and land demand projections take into consideration both anticipated growth projections (based on models prepared for the Growth Strategy Update) and the City's aspirational targets (which include objectives like the 75%-25% assessment split, which may not happen naturally without active measures taken by the City).

- If the projected growth rates change and become either higher or lower than projected, the 12K Plan Land Use Concept will still apply, however the year at which these lands are absorbed will differ.
- If the City's aspirational targets change, this may alter the 12K Plan land use demand requirements.

Development Densities

- If the City achieves higher densities per gross acre than projected this may extend the land supply within the 12K Plan area. Conversely, if the City achieves lower residential densities per gross acre than projected there may not be enough land supply within the 12K Plan area.

Tax Assessment Ratio (Aspirational Target)

- If future industrial or commercial development trends away from lower intensity developments, a higher-yielding built form could enhance and surpass the City's assessment targets.

- The opposite can happen if lower yields are realized and/or if the market for employment land is not sufficient to support the amount of land designated for employment uses, and some of this land is allowed to be re-designated for residential uses.

Available Developable Lands

- As development progresses and detailed wetland and environmental assessments are completed, the City may find that there is less net land for development than originally considered.

Market Fluctuations

- Market changes may affect Airdrie's share of region & provincial economy, leading to changes in land demand.

2.3 Transportation Infrastructure

2.3.1 City of Airdrie Transportation Master Plan (2015)

The City of Airdrie Transportation Master Plan (TMP) provides a vision for how people will move in and around Airdrie for the next ten years. The plan includes an overall vision and principles to guide future decision-making and transport investments, which include accommodating a diverse transportation network that provides for transit and active transportation, properly servicing industrial areas with truck and dangerous goods access, and addressing multi-modal planning for the transportation network through Complete Streets guidelines.

The TMP proposes recommendations for improving the function, accessibility and connectivity of the transportation system for three growth horizons at 65,000, 80,000 and 110,000 population.

Recommendations within the TMP include a proposed skeletal road network; road, intersection and overpass upgrades; transit and goods movement route recommendations; and active transportation (cycling and pedestrian connections). Furthermore, the transportation sequencing horizon recommendations are assisted by the associated capital cost.

The TMP is relevant to the 12K Plan because it outlines the baseline improvements recommended for the transportation sequencing within the annexation lands at the 65,000, 80,000 and 110,000 population horizons. However, the TMP does not address transportation improvements

required for the 210,000 population horizon which is captured within the 12K Plan.

2.3.2 Transit Master Plan

The 2016 Transit Master Plan for the City of Airdrie describes the existing services and provides a framework for future transit services required to achieve a mode share increase for transit use by the year 2025.

Currently, Airdrie Transit operates a base network of five routes. Two local routes and three Intercity Express (ICE) routes connect Airdrie to Calgary and the CrossIron Mills shopping Mall in Rocky View County. All routes connect to the South Transit Terminal at the south end of Main Street. ICE services (Route 900, 901 and 902) are primarily operated on the provincial highway network (between Airdrie and outside destinations) and the arterial road network within the City.

The Transit Master Plan provides service standards and metrics for phasing in transit as new neighbourhoods are developed and should be used when planning new development in the 12K Plan area.

[Future Link to Calgary LRT on West Side of the City – BRT 24th Street](#)

The City of Calgary is currently in the process of planning and building the Green Line LRT project, the north part of which will eventually travel north from downtown Calgary up Centre Street and Harvest Hills Boulevard as far as 160 Avenue N. “Connecting Airdrie” recommends that once the north central part of the Green Line is operational, Airdrie Transit should consider running Commuter ICE service to the north LRT terminal station.

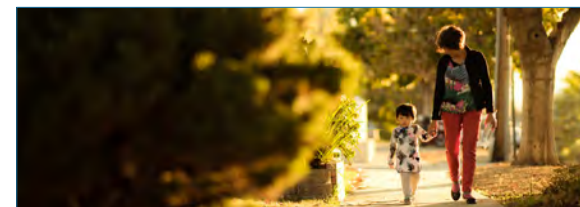
2.4 Servicing Feasibility

2.4.1 Airdrie Utility Master Plan (2015)

The 2015 Airdrie Utility Master Plan (UMP) outlines the conditions of water and wastewater infrastructure and identifies future infrastructure needs for projected City populations within the 12K Plan area. Furthermore, the UMP assesses existing servicing capacity; provides future upgrade requirements, servicing concepts, a staged infrastructure and sequencing plan, and required infrastructure costs for a population of up to 170,000.

Three growth horizons with approximate projected city populations were assumed for the UMP. These included a population 80,000 for build out of the “pre-annexation lands”, 110,000 for the “annexation lands”, and 170,000 for the “post-annexation lands.” Under the UMP, the “annexation lands” addresses fifty-seven quarter sections out of the seventy-nine quarter sections comprising the 12K Plan area, and build out of the remaining twenty-two quarter-sections is considered in the “post-annexation lands.”

The population horizons used in the UMP do not align with the updated growth projections from the Growth Strategy Update (2016), therefore the UMP will require updating based on the adoption of the 12K Plan.





The residential populations align with projections listed in supporting documents such as the Transportation Master Plan, but employment populations were unavailable. To quantify the usage of water and wastewater, both residential and employment populations needed to be represented, and employment populations were ultimately estimated within the UMP by an employment density value. These population horizons were utilized for the Utility Master Plan analysis and may differ from the projections listed within the 12K Plan document.

A schematic land use map was created within the UMP, identifying residential, commercial, industrial, institutional or combined areas. This land use map was completed solely for the analysis of the UMP and may differ from the land use plan recommended within the 12K Plan document.

Six water and twelve wastewater servicing concepts were established and further analyzed within the UMP. The servicing concepts were evaluated based on life cycle cost, residual risks, compliancy of the two servicing networks and the flexibility of staged development of infrastructure.

An overview of the existing water and wastewater infrastructure and the recommended servicing concepts will be explained in the following sections.

Existing Wastewater Infrastructure

The City of Airdrie's wastewater system ultimately conveys sewage south to The City of Calgary via three major forcemains. There are four existing lift stations (LS) with a combined total of eleven pumps in the City of Airdrie. Three major LS (Main,

West, Sierra Springs) pump from Airdrie to Calgary, and one minor LS (Reunion) is a part of the local infrastructure network.

Sanitary sewage generally flows from west to east in the west, east to west in the east, north to south in the north and south to north in the south, reaching a common point at the Main and West Lift Stations, where the sewage then continues south to The City of Calgary's Bonnybrook Wastewater Treatment Plant. Sewage can be directed to either Main or West LS or both at the same time since the two LS are interconnected by a 900mm PVC equalizing trunk.

The existing wastewater network has capacity for servicing to the pre-annexation boundary when upgrades at the Main, West, and Sierra Springs Lift Stations are complete. An additional four to six quarter sections of existing capacity is available for the 12K Plan area. Spare capacity is available in each of the northwest, northeast (south of Highway 567), and southeast quadrants of the city.

Preferred Wastewater Concept

A total of twelve servicing concepts were developed for the future sanitary system for the 12K Plan area. The most favorable concept based on a strategic selection approach was Concept C2 from the UMP (The UMP wastewater preferred concept C2 is provided in **Appendix A**).

A quarter section grid was assumed when laying out the conceptual network of the future sanitary system. The exact configurations of the proposed force mains will be determined at the detailed design stage.

The annexed quarter sections of land that are capable of being serviced by the sanitary system were considered at the time of development of the sanitary servicing concepts.

Capital costs for the 110,000 population horizon ranged between \$140M to \$162M; and \$165M to \$202M for whole life costs. Ultimately, the provision of servicing infrastructure as well as a financing strategy for the associated costs should be addressed with future CASP justifications.

Existing Water Infrastructure

The City of Airdrie receives its potable water from The City of Calgary via three supply mains. The City of Calgary has two water treatment plants which treat raw water from two bodies of water. The Bearspaw Water Treatment Plant obtains and treats water from the Bow River, and the Glenmore Water Treatment Plant receives and treats water from the Glenmore Reservoir.

There are three existing reservoirs in the City of Airdrie: Main, Northeast and Windsong Reservoirs. Also, there are two pressure zones encompassing the City of Airdrie that are being utilized: The Main Pressure Zone and the Northeast Pressure Zone. The Main and Windsong Reservoir service all the land within the Main Pressure Zone, as well as supply the Northeast Reservoir. The Northeast Reservoir services a fraction of the City population within the Northeast Pressure Zone since most of the population is located within the Main Pressure Zone.

The UMP shows that the existing system has adequate capacity to service growth to the pre-annexation boundary, with no deficiencies beyond those noted for the existing system.

Preferred Water Concept

A total of six alternatives were developed for review, with variants based on reservoir locations and reservoir feed systems. Alternatives included water supply main upgrading from Calgary, reservoirs, pump stations, and pressure reducing systems. The most favorable concept based on the strategic selection approach was Concept B2. (The UMP wastewater preferred concept B2 is provided in **Appendix A**).

The 12K Plan area will require two new pressure zones in the west (West Pressure Zone and High West Pressure Zone), as well as expansion of the existing Northeast Pressure Zone in the east. The existing Main Pressure Zone would be expanded north and south in lower areas. The water supply required for the 110,000 population is up to 1,050mm (or equivalent capacity).

A new reservoir would be required in each new pressure zone, with room for additional storage in the northeast pressure zone, through expansion at the northeast reservoir and a new southeast reservoir.

For the purposes of the 12K Plan development sequencing, the variation that proposes moving the two southern reservoirs, originally located in the West and Northeast Pressure Zones, into the Main Pressure Zone was utilized.

Capital costs for the 110,000 population horizon ranged between \$73M to \$81M, and \$113M to \$137M for whole life costs.

2.4.2 Master Stormwater Drainage Plan

The Master Stormwater Drainage Plan (MSDP) was completed by Associated Engineering (AE) for the City of Airdrie defining key aspects of the planning, analysis, design and construction of future stormwater management systems within the 12K Plan area for the City of Airdrie.

The MSDP assumes the following:

- A projected population of 109,000 within the 12K Plan area (i.e., excludes population within the pre-annexation boundary) by 2057.
- A 1:100 year pre-development design flow of 1.257L/s/ha for the Nose Creek Watershed (provided by the 2008 Nose Creek Watershed Water Management Plan).
- A runoff volume control target of 16mm based on the Nose Creek Watershed requirements in effect through the Water Management Plan as of 2013. (This target is being held at 16mm pending further review of the 2018 Nose Creek Plan Watershed Water Management Plan in progress).

It should be noted that the population horizons used in the MSDP do not align with the 12K Plan growth projections and population horizons and will need to be updated based on the adoption of the 12K Plan.

The MSDP recommends a preferred stormwater concept (see **Appendix A**) containing post-development catchments, proposed stormwater management storage facilities and associated storm sewers for the 12K Plan area. The post-development catchments have been designed to span a minimum of two quarter sections.

A stormwater management storage facility has been proposed within each post development catchment.

The facilities with the highest development potential are generally located close to the pre-2012 annexation boundary. As the facilities extend towards the post-2012 annexation boundary, the development potential decreases as it becomes increasingly difficult to service these sections of land.

There are approximately six locations where future development will connect to the existing stormwater system within the City of Airdrie. These six connection locations have been identified in **Figure 4-5** of the MSDP (**Appendix A**).

Construction costs for stormwater management storage facilities vary considerably depending upon the type of facility. For the purposes of this MSDP, \$80 per cubic metre of active storage is assumed for construction costs. On average, the facilities represent a capital cost of approximately \$51,000 per hectare of gross development area and the operation and maintenance costs are about \$2,600 per hectare per year.





2.5 Planning Considerations

In addition to reviewing and aligning foundational documents, the 12K Plan assessed existing land use patterns and approved Community Area Structure Plans, environmental conditions, and development constraints within the plan area. The Land Use Concept provided in the 12K Plan recognizes developed lands in the 12K Plan area such as existing Country Residential communities and the Airdrie AirPark; identified existing wells and pipelines, airport noise contours, environmentally sensitive areas and flood ways; and initiated CASP areas within the City of Airdrie. **Figure 5** summarizes the planning considerations reviewed when developing the 12K Plan.

2.5.1 Existing Land Uses

Residential

Urban Residential

There are approximately 1,017 acres of existing urban residential land within the pre-annexation boundary, which was identified and considered in the 12K Plan growth sequencing.

Country Residential Areas

There are several country residential development areas in the 12K Plan area. They are Hamilton Green, Croxford Estates, Yankee Valley Estates, Dry Creek Bay and Buffalo Rub. These subdivisions were developed under Rocky View County and were considered during the development of the 12K Plan Land Use Concept.

Employment Lands

Employment lands within the city contain both commercial and industrial development. There are approximately 130 acres of existing commercial land within the pre-annexation boundary and 443 acres of existing industrial land within the pre-annexation boundary. The majority of the City's developed industrial lands are located on the east side of the City, however the bulk of the available lands within the pre-annexation lands are assumed to be west of Highway 2.

Where it is noted that land within the pre-annexation boundary is existing available land (as illustrated in **Figure 4**), these numbers are current as of 2017 and were considered during review of the Growth Strategy Update and development of the 12K Plan sequencing strategy.

Open Space

Existing open space nodes and corridors were identified in Figure 5, as well as those planned and shown in the 2016 GPP as existing or proposed open spaces and green corridors. This includes future pathways, pedestrian rail crossings, and overpasses, as well as district-, civic-, and neighbourhood-level open space nodes. The GPP also provides an implementation strategy to guide open space acquisition, development, and use.

2.5.2 Special Study Areas

Several special study areas are identified which require further technical analysis and planning prior to development.

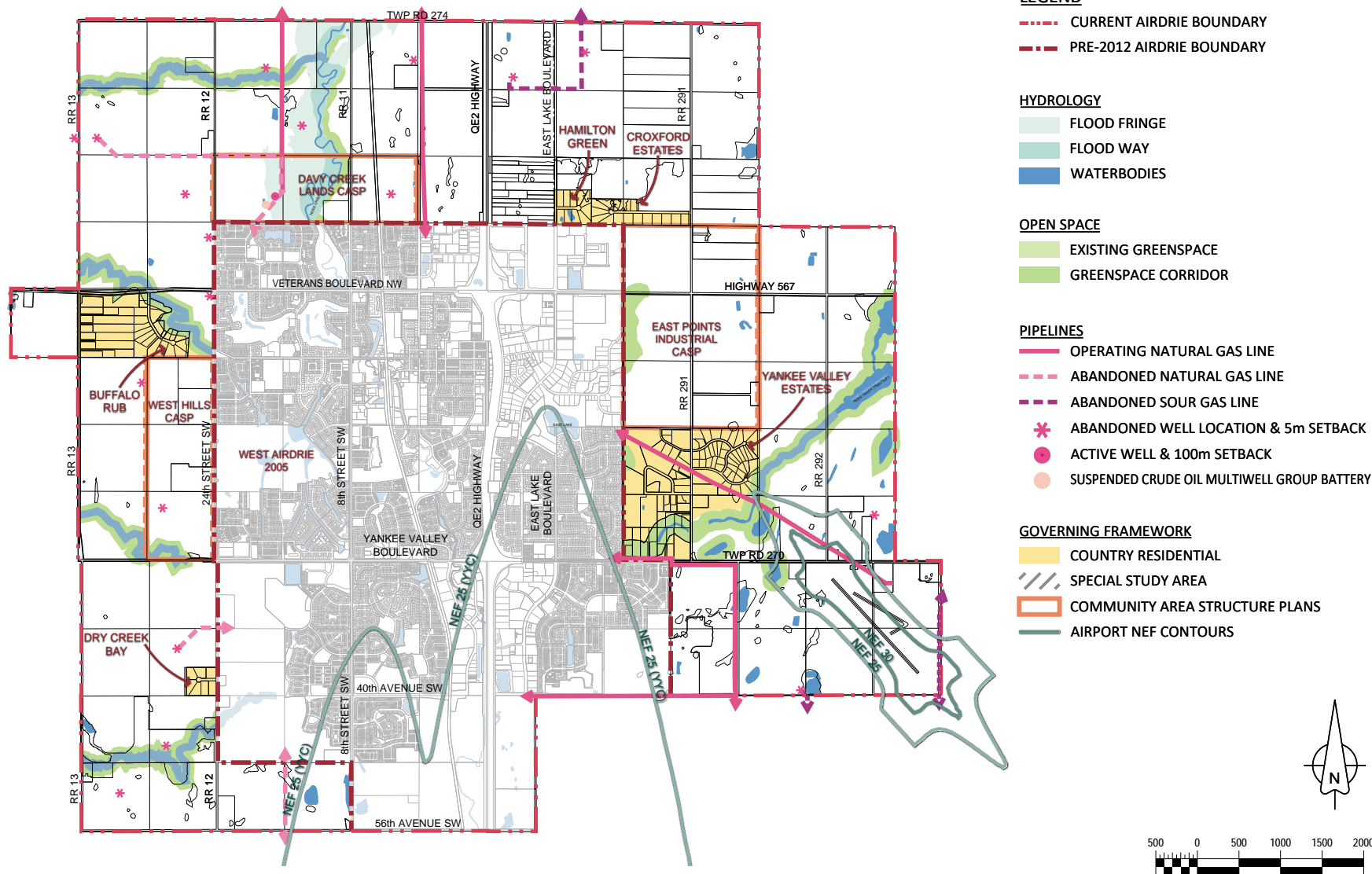
Airdrie AirPark

The Airdrie AirPark was a part of the 2012 Airdrie Annexation and is located in the southeast corner of the 12K Plan. The AirPark has future aspirations to develop their lands for aviation and non-aviation businesses and services allowing for permanent hanger space and storage of vehicles (including cars, boats, planes, helicopters and RVs).

Figure 5 also shows the Noise Exposure Forecast (NEF) contours surrounding the Airdrie Airpark and Calgary International Airport, which impact development in those areas. Transport Canada recommends that developers be made aware that annoyance caused by aircraft noise may begin within the NEF 25 contour, and development of residential land uses is restricted within the NEF 30 contour and above. Although residential development is permitted within this contour, developers should inform all prospective tenants or purchasers of residential units. In addition, it is suggested that development should not proceed until the responsible authority is satisfied that acoustic insulation features, if required, have been considered in prospective building designs.

Civic Uses

The far west quarter section of the annexation lands is identified in the Airdrie City Plan as a potential civic use area and was given a special study area overlay to address this through future planning and design considerations.





2.5.3 Environmental Considerations

Existing Topography and Drainage

The drainage patterns of the undeveloped annexation lands are dictated by the general topography and natural drainage channels. The topography of the City of Airdrie is relatively flat with three distinct high points near the western border of the 12K Plan area and a high ridge within the northeastern area.

Stormwater runoff generally flows towards Nose Creek within the north, central and southern regions of Airdrie. There are six well defined natural channels conveying stormwater runoff within the 12K Plan area.

Wetland Status

The recently annexed lands include natural, undisturbed areas including rural residential, commercial, industrial, and agricultural land uses. A combination of background information from City of Airdrie Environmental Policies and Ecological Infrastructure Mapping – Southern Alberta Region (O2, 2008) and aerial photography identify known and potential environmentally significant areas within each quarter section. These areas have been identified on the 12K Plan Land Use Concept for potential open spaces and/or storm water management and will need to be addressed during the development of each individual quarter section through more detailed analysis such as biophysical impact assessments.

Environmentally Sensitive Areas (ESA)

There are several Environmentally Sensitive Areas (ESA) within the 12K Plan area and are shown in **Figure 5 - Planning Considerations**. These mainly include the areas adjacent to Nose Creek and its tributaries.

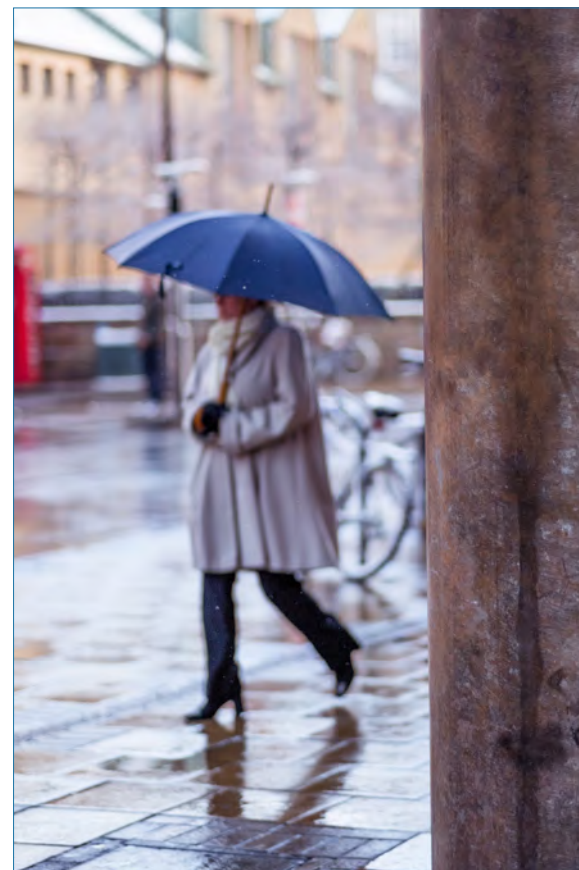
The Ecological Inventory Expansion and Environmental Best Practices (2013) identifies ESAs within the 12K Plan as well as environmental best practices and should be used for future planning through CASPs and NSPs to address these areas. Key best practices that apply to the 12K Plan include riparian setbacks, wetland management, and parks and open spaces guidelines.

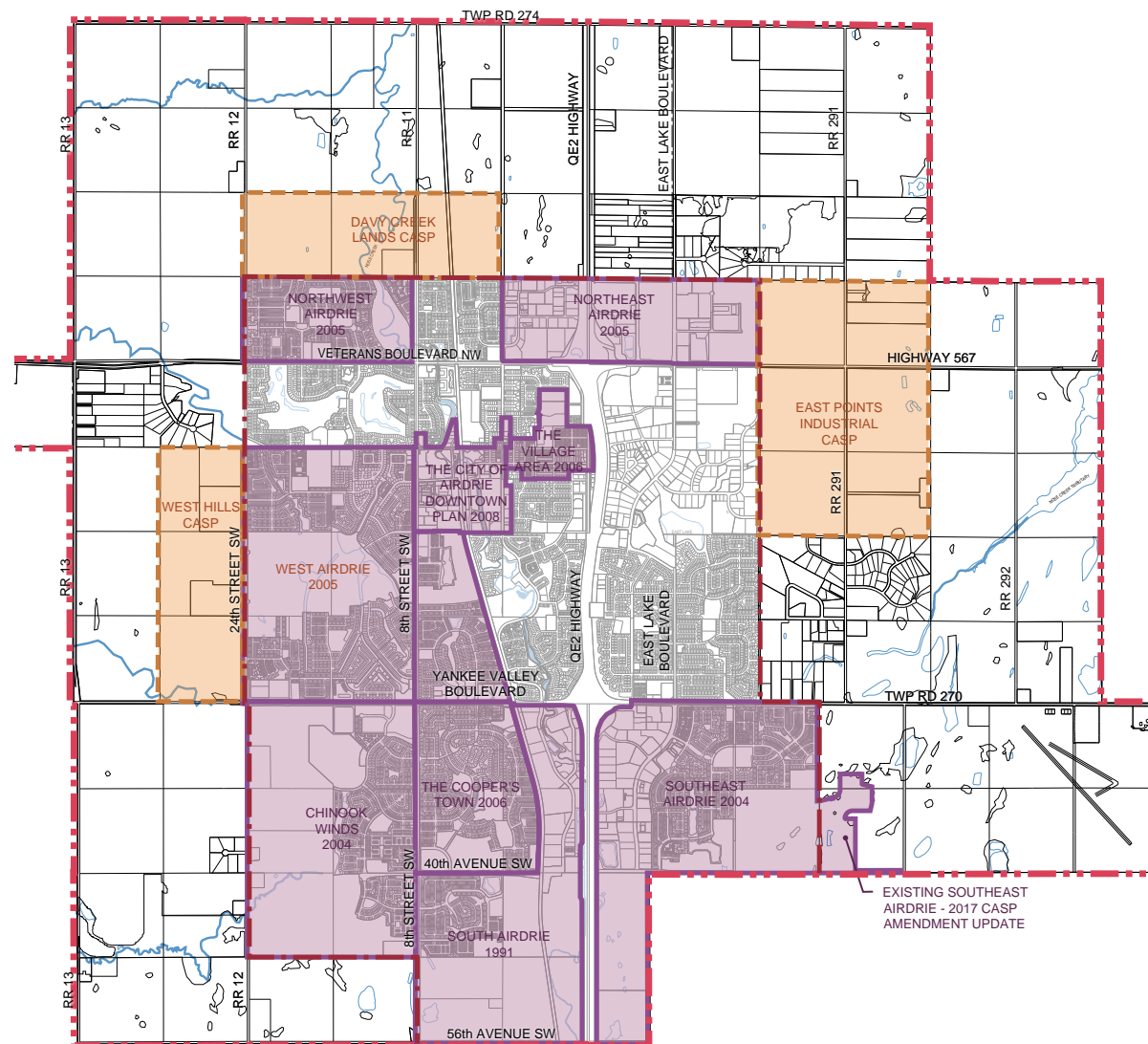
2.5.4 Oil and Gas Wells

Existing oil and gas wells and pipelines are located within the 12K Plan area. Many of these are no longer in use and have been capped, but not removed, and are shown on **Figure 5**. Minimum development setbacks and remediation requirements for abandoned wells will need to be accounted for in future development plans.

2.5.5 CASP Justifications Already Approved

There are eight existing CASPs within the City of Airdrie pre-annexation boundary and two Area Redevelopment Plans (ARP), which are shown in **Figure 6**. Furthermore, three initiated CASP's within the Plan area need to be considered. They are Davy Creek, West Hills, and East Points Industrial CASPs. The three CASPs within the plan area were initiated prior to the development of the 12K Plan and, with CASP justifications already being approved by Airdrie City Council, have been considered as plans in progress and reflected to the best extent possible within the 12K Plan.





LEGEND

- CURRENT AIRDRIE BOUNDARY
 - PRE-2012 AIRDRIE BOUNDARY
 - APPROVED COMMUNITY AREA STRUCTURE PLANS
 - COMMUNITY AREA STRUCTURE PLANS IN PROGRESS*
- *AT THE TIME OF PUBLICATION OF THIS REPORT





The Plan

The key components of the 12K Plan are presented in this section and based on the convergence of the foundational framework summarized in the previous section.

The three key components of the Plan consists of the following:

- Land Use Concept
- CASP Boundaries
- Proposed Development Sequencing



3.1 Land Use Concept

3.1.1 Objectives

1. Identify the intended general land use designations, major road network, significant environmental features, and any special study areas.
2. Provide a geographic land use allocation that identifies the net land available for development that is considerate of existing or anticipated land constraints, topographical features and environmental protection areas; and aligns the boundaries of planning cells with the Utility Master Plan wherever possible.
3. Provide a general land use concept that reflects the anticipated land demand analysis, the adopted Transportation Master Plan, future parks and facility plans, future transit plans and other environmental and topographical constraints.
4. Be responsive to public input and landowner needs where in alignment with the overall City objectives.
5. Support the policy direction of the City of Airdrie to attract a greater number of employment opportunities and reach its objective of achieving an assessment ratio of 25% non-residential (75% residential) or better. As of 2017, the ratio is 15% non-residential (85% residential).

3.1.2 Summary of Land Use Concept

The proposed Land Use Concept (**Figure 7**) identifies the direction for the future development of the 12K Plan lands, while recognizing that more detailed land use districts, boundaries and use intensities will be further developed through Community Area Structure Plans and future land use re-designations. As such, the land use boundaries should not be interpreted as definitive and a degree of flexibility is implied.

The Land Use Concept includes three high level land use categories: Residential, Employment and Open Space/Environmental Features. Employment lands consist of industrial uses with commercial uses in the form of overlays and nodes. Residential lands consist of urban neighbourhood development and existing country residential uses. Open space/environmental features consist of natural features and open space networks.

In addition to these high-level use categories, six special study areas have been identified as areas that will need special consideration when determining future development and/or redevelopment for those lands. Finally, Transitional Areas have been identified where the exploration of unique land use interface treatment between uses are warranted.

Based on the City's Growth Strategy projections, the allocation of general land uses for the entire 12K Plan on a gross area basis is trending towards the following distribution ratios (**Table 5**).

Land Use Allocation Target within 12 K Plan		
Use	Gross Acres	%
Residential	7,584	60
Industrial / Employment	3,792	30
Commercial	1,264	10
Totals:	12,640	100

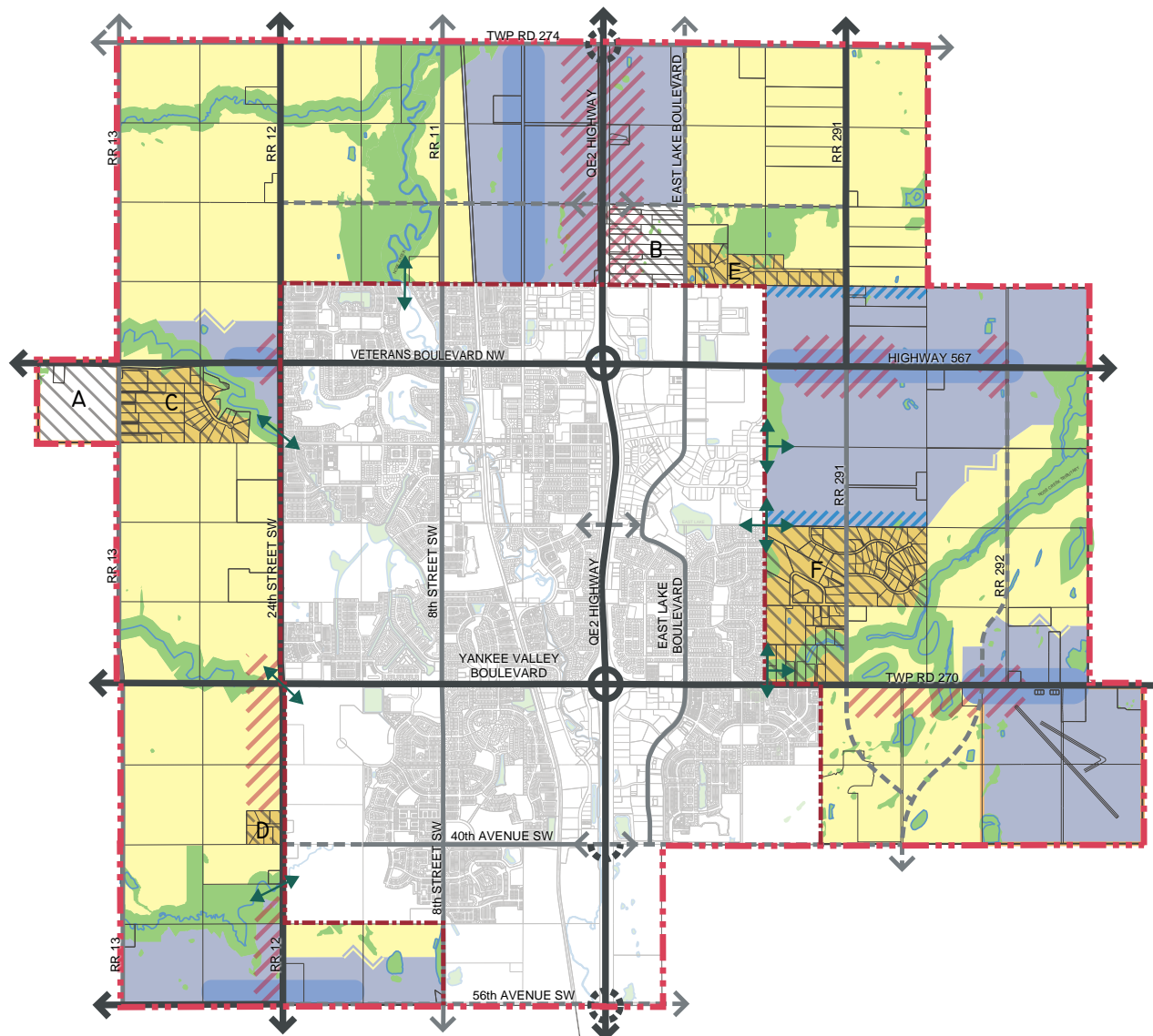
Future infrastructure requirements such as roads and utility rights-of-ways along with municipal and environmental reserves would be accounted for under each general use in which they will ultimately reside.

Table 5: Land Use Allocation Target for 12 K Plan Area

3.1.3 Details and Description

The following section outlines and provides supplementary information to describe the land use categories and other designations shown within the proposed Land Use Concept:

- Neighbourhood Development is largely allocated for urban residential development and neighbourhoods. Neighbourhood-supporting uses such as small to medium scale community commercial and public services and facilities may also be located within these areas but have not been identified on the general Land Use Concept, as they will be determined through subsequent CASPs.



LEGEND

- CURRENT AIRDRIE BOUNDARY
- PRE-2012 AIRDRIE BOUNDARY

LAND USE

RESIDENTIAL:

- NEIGHBOURHOOD DEVELOPMENT
- EXISTING COUNTRY RESIDENTIAL

NON-RESIDENTIAL:

- EMPLOYMENT
- COMMERCIAL OVERLAY
- INTERIM USE CORRIDOR

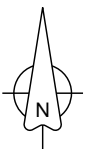
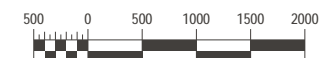
- OPEN SPACE / ENVIRONMENTAL FEATURES

- A SPECIAL STUDY AREA
- TRANSITIONAL LAND USE AREA
- FLEXIBLE LAND USE BOUNDARY

CIRCULATION

- EXISTING MAJOR NETWORK
- FUTURE MAJOR NETWORK
- EXISTING LOCAL NETWORK
- FUTURE LOCAL NETWORK (PRELIMINARY & SUBJECT TO CHANGE)
- FUTURE OVERPASS
- EXISTING INTERCHANGE
- FUTURE INTERCHANGE
- PARTIAL INTERCHANGE
- PATHWAY CONNECTIONS

Notes: Overall land use areas are approximate and based on the City's Growth Demand Projections. Land Use areas may be adjusted as part of new CASP approvals or amendments to existing CASP's where necessary, and at the discretion of the City of Airdrie.





- Employment lands are largely intended for a blend of heavy, general, and light industrial as well as mixed commercial-industrial uses. The Land Use Concept shows that when the City of Airdrie reaches full build-out (over 210,000 population) approximately 3,792 acres (30%) of the 12K Plan area will have been developed for employment-industrial uses.
- Commercial areas are shown through an overlay which identifies major corridors within the employment and neighbourhood development that should be geared towards commercial services and retail uses. This creates opportunities across the City of Airdrie to provide localized services and employment, as well as allocate sufficient land to meet the anticipated demand for these uses.
- Open Space Networks and Environmental Features represent the areas that comprise the Nose Creek and tributaries, riparian areas, wetlands, and other environmentally sensitive areas. Generally, this reflects areas that should be preserved as part of the City's natural open space system, though the actual open space area dedication for any future plan is determined collaboratively between the developer and the City and must be supported by relevant technical studies and approvals associated with this process. For the purposes of the proposed Land Use Concept, local parks and pathways are not included in this designation and would be included within the defined Neighbourhood Development areas.
- Special Study Area Overlays are defined on the Land Use Concept and identify areas requiring further technical analyses and planning prior to development. There are six special study areas identified in the 12K Plan Land Use Concept – these are the four established Country Residential areas, one Employment area, and a future Special Use Cell in the far northwest of the City.
- Transitional Areas are shown where employment designations border against established Country Residential communities. These designate areas where the interface between land use designations must be carefully considered, and policies may be developed in further plans to preserve logical and compatible adjacent land uses. Urban design principles and careful land use selection should be applied in these zones to mitigate any potential conflicts between the adjoining designations.
- Interim Use Corridors are identified in five areas that can accommodate interim uses on a limited service basis that will not limit future comprehensive development.

3.2 Future Community Area Structure Plan (CASP) Boundaries

3.2.1 Objectives

1. Set the study area boundaries and general framework for future Community Area Structure Plans for the lands specifically within this Plan.
2. Establish logical CASP cells that foster comprehensive planning.

3.2.2 Summary of CASP Cells and Boundaries






There are eight proposed Community Area Structure Plan (CASP) areas within the 12K Plan as illustrated on **Figure 8**. Three CASPs within the 12K Plan area (West Hills, Davy Creek, and East Points Industrial) were under review at the time of adopting this plan. The boundaries of these CASPs are identified and these areas are envisioned to be the first phase of development within the larger associated CASP areas identified the 12K Plan. The CASP justification areas under review will not be affected by the larger 12K Plan proposed CASP boundaries.

Future CASP sizes vary but are typically 8-12 quarter sections. Larger CASPs were chosen so that boundaries encompass lands that would benefit from comprehensive planning and policy, and so that future CASPs would be able to leverage the larger plan areas to better address financing of required servicing and transportation infrastructure.

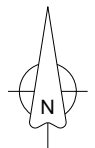
CASP areas were determined based on a series of considerations which included that future CASPs should:

- be a minimum of six quarter sections;
- include a diversity of land uses and consider transitions and interfaces between different land uses;
- group parcels owned by the same landowner into one CASP area wherever reasonably possible;
- encourage landowners to work together to facilitate comprehensive planning and optimization of cost-effectiveness and infrastructure investment;



-  CURRENT AIRDRIE BOUNDARY
-  PRE-2012 AIRDRIE BOUNDARY
-  SPECIAL STUDY AREA
-  COMMUNITY AREA STRUCTURE PLANS IN PROGRESS
(AT THE TIME OF PUBLICATION OF THIS REPORT)
-  PORTION OF APPROVED SOUTHEAST AIRDRIE 2017
CASP AMENDMENT WHICH MAY BE INCLUDED IN
THE PROPOSED SOUTHEAST YANKEE VALLEY CASP

Notes: CASP's in progress at the time of the 12K Plan adoption will not be affected.



- encompass the full extent of natural systems, where possible; and
- span major roads or corridors, where possible, so that future planning considers interfaces on both sides of the road or corridor in an integrated manner.

Not all the considerations noted above could reasonably be captured within all the proposed CASP boundaries, and this necessitated some decisions or boundary conditions which do not meet some of the noted considerations (e.g., spanning major roads or corridors) in exchange for addressing others in a more suitable or comprehensive manner. Where some of the above considerations are not met by the boundaries set within **Figure 8**, these considerations are still to be evaluated and addressed through future CASP planning and policies.

3.3 Proposed Development Sequencing

3.3.1 Objectives

1. Determine which directions the City of Airdrie should grow next within the 2012 annexation boundary.
2. Determine the recommended sequencing for development of all annexed lands and an approximate timeline for development and absorption.
3. Develop recommendations for land development sequencing, correlated with logical infrastructure requirements and costs.

3.3.2 Sequencing Considerations

Many factors were considered when developing the 12K Plan Growth Sequencing Strategy. These factors are a compendium of policy direction, technical studies and input from the general public and landowners within the 12 Thousand Acre Plan area. They included, but were not limited to the following:

- Population & Growth Demand Projections
- Land Use Demand and Absorption (Consideration of 60 residential / 30 industrial / 10 commercial split)
- Proximity to Existing Development and Services
- Servicing Requirements, Feasibility and Costs (Water, Sanitary, Storm Water)
- Transportation Infrastructure Access and Capital Funding
- Development Pressure and Funding
- Environmental Inventory & Opportunities
- Market Demands
- Sustainability
- Capital Budget
- Community Service Capacity (Capacity for fire, police, schools)
- Strategic Priority and Economic Development
- Alignment with Municipal Policy Direction and Priorities

3.3.3 Sequencing Methodology

All the factors noted above were carefully evaluated and coalesced in determining the sequencing strategy. Each variable created slightly different degrees of influence on the general sequencing strategy, but a few key factors played a more substantial role in determining the logical location and size of area that each sequence encompassed.

First, it was important that each sequence facilitate the amount of land by use category as per the demand projections (outlined in **Table 6**). This dictated the amount of land assigned to each sequence, being careful to distribute growth in areas that had matching land use allocations (**Figure 9**) with the projected demand to ensure the 12K Plan is addressing Council's economic development objectives. Therefore, it is important to acknowledge that sequence thresholds may creep down key corridors to ensure the target use distribution will be met.

Secondly, it was critical that the areas assigned matched the infrastructure capability and that growth occur contiguously through efficient infrastructure alignment and extensions in fiscally viable increments. There is a limit to how much growth in the 12K Plan area can be accommodated by the existing infrastructure network within the pre-2012 annexation area before new major upgrades connecting to The City of Calgary are required. Utilizing the existing infrastructure capacity was a primary focus of the initial sequence, as well as equitably assigning capacity that not only offered choice and supports healthy market competition, but also allow efficient payback on the connecting infrastructure that

is required to take advantage of the existing infrastructure network within the pre-2012 annexation area.

The initial sequences focused on contiguous growth areas where development has reached the pre-2012 annexation boundary such as the northwest, northeast and parts of west and southeast, and radiates outwards along these corridors to take advantage of existing service connections at those locations. However, once the limited capacity is reached, new service lines connecting to Calgary to the south would be required and therefore, the latter sequencing thresholds begins to see a south to north trend so that the new upgrades can be made in manageable increments, but still supporting contiguous growth from existing urban edge along several areas to offer equitable distribution of opportunities.

Transportation considerations were also carefully weighed and initial stages tend to focus on areas where the road network is mostly in place or match the horizons for upgrades identified in the TMP. However, the longer-term timing for Transportation improvements were not available, but the overall future network is known, and it was assumed that transportation network upgrades would simply follow where the areas of growth sequentially occurred.

Lastly, the sequencing approach also was respectful of the active CASPS within the 12K Plan that were approved by Council.

3.3.4 Summary of Proposed Sequencing

The proposed Growth Management Sequencing Strategy for the 12K Plan has been divided into four interim sequences. Each sequence is based on the overall City of Airdrie population with the following population thresholds: 80,000; 110,000; 160,000; and 210,000.

These thresholds were selected as they represent sensible increments of growth that also generally reflect a matching blend of the varying population targets used in several the infrastructure studies. By selecting these thresholds, it enabled identification and alignment with key infrastructure components and costs at the critical population milestones.

Table 6 outlines the gross area by use that is anticipated to be serviced, brought to market and absorbed by the time the City achieves the corresponding population threshold. This reflects generally the development yield that the sequencing is intended to facilitate.

The Overall Growth Management Sequencing Strategy Map (**Figure 9**) represents the general growth sequencing pattern truncated to the nearest half quarter section within which development is reasonably foreseen for the first population threshold. Subsequent thresholds are truncated to the nearest quarter section. Land identified for probable development within each sequence is approximate and is only intended to suggest that any portion of the quarter may be developed by the end of the associated population threshold; and does not imply that the entire quarter will be fully developed by the end of the same timeframe.

Development may occur within a particular sequence in differing stages of buildout, contingent on planning rational determined at the CASP stage; realization of the infrastructure needed and market uptake in the various growth corridors; and municipal approvals.

Projected Land Absorption (cumulative gross area) by Use when the City of Airdrie reaches the associated population threshold.						
Population Threshold	Residential	%	Industrial	%	Commercial	%
80,000	151	51	121	41	23	8
110,000	1,599	67	629	26	150	6
160,000	3,928	65	1,700	28	455	7
210,000	6,017	60	3,048	30	1,037	10

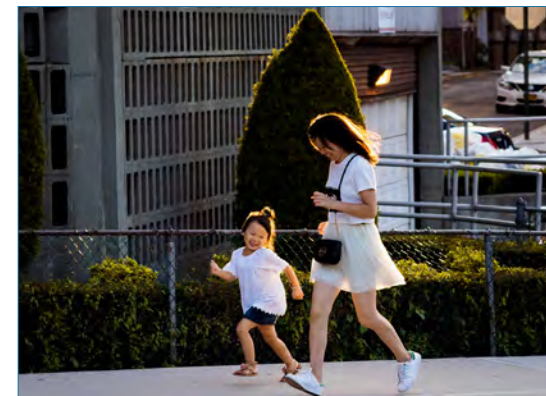
Table 6: 12K Plan Cumulative Land Absorption in acres based on Population Thresholds

Within **Figure 9**, the total gross area and approximate land use allocation anticipated within each CASP area is listed and serves as a general target for use distributions within each CASP.

While it will not directly affect the approval of CASPs, any phasing or sequencing that is out of alignment with the strategy shown in **Figure 9** should be justified and proven out at during the review and approval of the CASP, and the sequencing increments will directly inform timing of land use and subdivision approvals within individual CASPs approved under the 12K Plan.

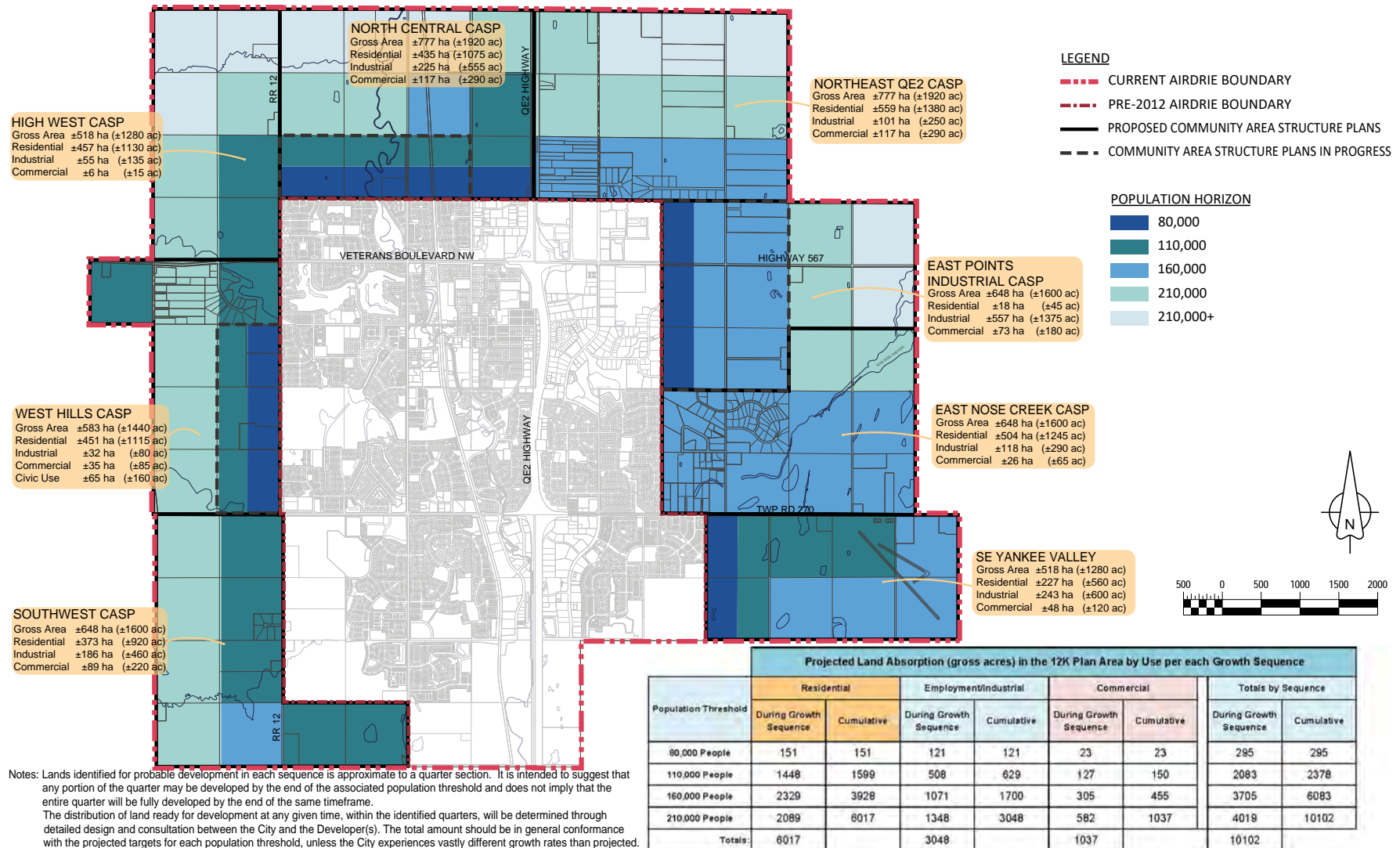
The distribution of land ready for development at any given point in time within the identified quarters will be determined through detailed design and consultation between the City and the developer(s) with the total overall amount to be in general conformance with the projected targets unless the City experiences vastly different growth rates than projected.

In addition, the associated infrastructure and servicing upgrade costs needed to support each population threshold have been summarized in **Table 7**. This information is based on the available technical studies available to date (UMP, MSDP, and TMP). The figures provided reflect the total cost investment necessary to support development specific to achieving the associated population threshold. The costs provided are the additional incremental costs for each growth sequence and is not the cumulative cost. For a detailed cost breakdown, please refer to **Appendix A**.



Population Threshold	Cost of Infrastructure Investment required to support growth through identified population horizon				Projected Land Absorption (gross acres) by Use per each Growth Sequence		
	Transportation	Water	Waste Water	Storm Water	Residential	Industrial	Commercial
80,000 People	\$11,250,000	\$169,800,000	\$30,465,000	\$41,000,000	151	121	23
110,000 People	\$128,500,000	\$23,850,000	\$122,280,000	\$76,880,000	1448	508	127
160,000 People	TBD	\$105,450,000	\$51,045,000	\$123,000,000	2329	1071	305
210,000 People	TBD	TBD	TBD	TBD	2089	1348	582
Totals	\$139,750,000	\$299,100,000	\$203,790,000	\$240,880,000	6017	3048	1037

*Table 7: Summary of Infrastructure Costs and Land Absorption by Population Threshold
(Cost figures are estimates only and subject to change)*





Plan Guidelines

This section outlines a series of instructive guidelines that are meant to facilitate the realization of the key components of the 12K Plan identified in **Section 3**. These guidelines are divided into the following 5 categories:

- Future Urban Growth Areas;
- Community Area Structure Plans;
- Land Use Designation;
- Interim Land Uses;
- Sequencing.

4.1 Future Urban Growth Areas

General Policies:

- 4.1.1 **CASP Requirement:** A Community Area Structure Plan is required prior to the redesignation of lands for large-scale urban developments within the 12K Plan area. This requirement does not apply to interim use corridors.
- 4.1.2 **Assessment Split:** Non-residential and residential lands in the 12K Plan area should be developed in a manner that works toward an assessment split of 75% residential and 25% non-residential as referenced in the City Plan (MDP).

- 4.1.3 **Urban Intensification:** Future CASP submissions must align with the densities and intensities provided in the Airdrie Growth Strategy (2018), unless superseded by the Calgary Metropolitan Regional Growth Plan.
- 4.1.4 **New Country Residential Development Prohibited:** New Country Residential development should not be permitted in future urban growth areas. Existing Country Residential development will be allowed to remain. However, sensitive redevelopment or intensification may be considered through further consultation and may be supported by Area Redevelopment Plans.
- 4.1.5 **CFOs in Future Urban Growth Areas:** New Confined Feedlot Operations or intensive agricultural operations will not be permitted in future urban growth areas. Existing CFOs will be allowed to continue, but with a vision to transition over time to uses more compatible with urban development.



- 4.1.6 **Compliance with this Plan:** Development in the 12K Plan area should generally comply with the Land Use Concept provided in this Plan.

4.2 Community Area Structure Plans

- 4.2.1 Community Area Structure Plan (CASP) justifications should be made in the same geographic context as provided in this plan and should not be severed from the whole or vary from the recommended boundaries without substantive planning rationale.
- 4.2.2 Adjustments to CASP boundaries shown in this plan may only be made at the discretion of Council and based on planning rationale (i.e., servicing logic, comprehensive approach to land use planning, etc.)
- 4.2.3 CASP justifications must provide a detailed proposal for how the supporting infrastructure and costs will be funded.
- 4.2.4 The CASP justification areas under review at the time of the 12K Plan adoption will not be affected by the proposed 12K CASP boundaries (**Figure 8**).
- 4.2.5 Proposed CASP names on Figure 8 are place holders for the purpose of the 12K Plan and may be renamed during the CASP justification approval process.
- 4.2.6 New CASP submissions are highly encouraged to address their context within the broader growth concept and development strategy for the City of

Airdrie. A CASP submission should provide planning details and policies which address its interface with adjoining development areas, and plans for major shared site features (e.g. major corridors or features which cross the CASP boundary into adjoining areas of the City).

- 4.2.7 CASP submissions must address potential impacts on inter-municipal and regional services.
- 4.2.8 Future CASP's must provide policies and address the interface between the Plan boundary and adjoining lands in Rocky View County, ensuring that the CASPs remain in alignment with City Plan policies and requirements on Intermunicipal Development.

4.3 Land Use Designation

General Guidelines:

- 4.3.1 Future residential, commercial, and employment/industrial uses should be directed to the areas conceptually shown for each of the major land uses on the Proposed Land Use Concept.
- 4.3.2 Community Area Structure Plans must generally conform to the land uses designated in the proposed Land Use Concept (Figure 7), while allowing for minor variations to the boundaries of those policy areas. More significant variations may be considered, but must be supported by detailed planning studies.

- 4.3.3 The Land Use Concept (Figure 7) reflects general land use categories which are used to guide future development within the plan area. This does not change the existing land use and associated Land Use Bylaw provisions in the absence of a Land Use Bylaw re-districting process.

- 4.3.4 Reductions to the amount of land designated for non-residential development (employment/industrial and commercial) will be discouraged as it is integral to achieving the City's economic development priorities and strengthening of its non-residential assessment base (25% and higher). To this end, innovative approaches to support strategic investments in infrastructure that facilitate non-residential development will be encouraged.

- 4.3.5 Land Use and development applications near the City of Airdrie boundary with Rocky View County must ensure that potential development impacts are managed and mitigated, and must provide opportunities for involvement of affected municipalities and land owners, in alignment with the Notification Requirements in the City Plan.

Neighbourhood Residential Lands:

- 4.3.6 The allocation of residential densities within any proposed CASP must respond to the Density Strategy, Targets, and Ranges provided within the Airdrie City Plan, as may be amended from time to time.
- 4.3.7 Future residential development should encourage diverse neighbourhoods through offering a broad range of scale, intensity and residential typologies.



Country Residential:

- 4.3.8 Except as otherwise outlined in this Plan, no new land use re-districting or subdivisions should be allowed in existing Country Residential lands before an Area Structure Plan, Area Redevelopment Plan, or similar is adopted and provides a long-term vision and policies guiding future land use and development decisions in those areas.
- 4.3.9 The subdivision and re-districting approval framework for existing Country Residential lots must be outlined within the applicable CASP, NSP, ARP, or other plan as provided above. Once approved, the plan will serve as the guide for future subdivision and re-districting of existing Country Residential lots.
- 4.3.10 Notwithstanding the above guideline, re-districting or subdivision within future urban growth areas may be permitted for the following circumstances:
- Rural parcels may be permitted to subdivide in order to separate two dwellings which had been legally constructed prior to the adoption of this plan;
 - Rural parcels at least 20 acres in area may be permitted to subdivide out a parcel not to exceed 5 acres in area containing a dwelling which had been legally constructed prior to the adoption of this plan;
- 4.3.11 Further redevelopment within existing Country Residential lands identified within the Land Use Concept (Figure 7) must:

- Adhere to the visions, policies, and land use concept established in a plan prepared for the area in accordance with Guideline (9) above;
- Provide a detailed assessment of the servicing and transportation impacts associated with the proposed redevelopment;
- Provide public consultation as determined by the Development Authority to be appropriate for the scope of the request, and;
- Complete, and satisfactorily address the recommendations of, any other studies deemed necessary by the Development Authority.

Employment Lands (Commercial/Industrial)

- 4.3.12 Future CASP submissions should detail how the provision of Employment lands within the CASP responds to the employment projections provided in the Airdrie Growth Strategy Update and achieves (or works toward) the City's non-residential assessment targets.
- 4.3.13 Industrial land uses should be clustered and located in close proximity to one-another to provide for efficient development of infrastructure and community services.
- 4.3.14 CASP policies and development plans should address synergies between commercial and industrial development on the lands indicated as employment lands in the 12K Plan.



- 4.3.15 Future CASP submissions should provide policies ensuring that any potential conflict between employment lands and residential communities is minimized or mitigated.

Commercial Corridors

- 4.3.16 Commercial Corridors should generally be based on the conceptual locations identified in the 12K Plan, and Development Concepts must delineate these future areas for integrated residential, commercial, institutional, and recreational uses in comprehensively planned mixed-use areas.

The Natural Environment & Open Space:

- 4.3.17 The development of future CASPs must address the potential for significant outdoor public amenities, including open space recreational opportunities, integrated trail systems, and continuous pedestrian linkages; and connect to the existing open space network along the pre-2012 annexation boundary.
- 4.3.18 The City and developers should work collaboratively to facilitate a well-connected open space and environmental network across the city giving consideration to:
- Supporting technical studies to define environmental reserve lands;
 - Opportunities to conserve natural features;
 - Compatible uses / amenities adjacent to environmental features, and;

- Stormwater Management & Sustainability practices (application of LIDs and SCPs)

- 4.3.19 Future CASP submissions must provide a land use concept and policies which address the principles, recommendations, and best practices for environmental protection and open space development. CASP submissions should provide specific alignments to the following guiding documents:

- AirdrieONE Sustainability Plan (2014)
- Nose Creek Watershed - Water Management Plan
- Ecological Inventory and Environmental Best Practices Study (2013)
- The Great Places Plan (2016)

- 4.3.20 The City will encourage submissions which facilitate the comprehensive planning, identification, and protection of regional-level environmental features and open space areas in alignment with City Plan policies and other guiding documents.

Special Study Areas:

- 4.3.21 Development within Special Study Area A will need to be supported by future planning studies and needs assessments.
- 4.3.22 Future plans addressing Special Study Area B (as shown on the Land Use Concept), must provide a development concept, policies, and strategic direction for how this area will redevelop in a logical and comprehensive manner.

- 4.3.23 Country Residential areas have been noted as Special Study Areas C-F within this plan. For further direction on this, refer to Guideline 4.3.8.

Land Use Transitions / Buffers

- 4.3.24 Logical and compatible land use interfaces should be applied in the identified transitional land use areas. Urban design principles should be applied in these zones to mitigate any potential land use conflicts.

4.4 Interim Land Uses

- 4.4.1 Unless otherwise permitted within an approved Community Area Structure Plan, interim non-residential uses may be permitted only within the Interim Use Corridors identified on **Figure 7**.
- 4.4.2 Interim development must not contradict, or impact the execution of, the 12K Plan.
- 4.4.3 Interim non-residential uses permitted in accordance with the 12K Plan must:
- Be limited to a term established by the Development Authority;
 - Be designed to be converted or transitioned into the longer-term planning for the area, or must be able to be removed and allow for the site to be remediated for that purpose;
 - Limit further fragmentation of the parcel that would impact the long term plan for the area;
 - Address limited on-site or interim services, and must only require limited services to facilitate the development;



- e. Provide for emergency services for the proposed development to the satisfaction of the Development Authority, and;
 - f. Protect environmentally significant areas, natural landscapes, and the City's ecological assets from adverse impacts.
- 4.4.4 A Development Concept shall be required for interim commercial and industrial development and shall be developed to the satisfaction of the City. At a minimum, this must include:
- a. Initial subdivision plan and site design that facilitate a transition to urban development;
 - b. Interim roadway and servicing infrastructure solutions that facilitates a smooth transition to urban development;
 - c. Consideration of the location and timing of future urban development;
 - d. A transportation impact assessment for uses that could have a significant impact on transportation systems; and
 - e. Any other studies deemed appropriate by the Development Authority.
- 4.4.5 **Environmental Considerations of Interim Uses:** Any development proposal for interim uses must address mitigation and remediation of any environmental impacts on the land or the surrounding area, to the satisfaction of the Development Authority.

4.5 Sequencing

- 4.5.1 General Sequencing: Sequencing will occur in a logical manner as generally outlined in the Sequencing Strategy (**Section 3.3**). Flexibility will be given when deemed necessary at the discretion of Council.
- 4.5.2 In exercising discretion for approving sequencing within a proposed CASP that varies from the defined Sequencing Strategy, applicants must address the following to the satisfaction of Council:
- a. A funding strategy to address the costs for the required servicing and infrastructure;
 - b. Evidence that servicing capacity is available or will be made available via the funding strategy;
 - c. The development does not impact the serviceability or development of other areas that are in priority sequence, and;
 - d. A supporting rationale is provided that helps to demonstrate that the City's broader strategic objectives are being achieved.
- 4.5.3 Each CASP will span multiple sequencing increments and the approval of a CASP is not contingent on the buildout of another CASP area. Notwithstanding the Guidelines for Interim Land Uses (**Section 4.4**), land use and subdivision approvals and development in general may occur in varying degrees within multiple CASPs simultaneously, provided the CASPs have been approved.
- 4.5.4 The following provisions apply to the Growth Management Sequencing Strategy Map (**Figure 9**):

- a. The sequencing increments by population horizon will directly inform CASP approvals within the 12K Plan area.
 - b. Lands identified for development within each population horizon are not exact and are only intended to suggest that any portion of the identified lands may be developed by the end of the associated population horizon. This does not imply that the entire area defined/shaded in that population horizon will be fully developed by the end of the same timeframe.
 - c. The Projected Land Absorption shown (on **Figure 9**) is intended to guide land use and servicing decisions. The amount of land projected to be absorbed within each horizon may be distributed in varying ways across the areas identified within that population horizon.
 - d. The distribution of land within each population horizon will be determined by Council through the approval of CASPs and their respective sequencing/phasing plans, and the total overall amount of land within each population horizon should be in general conformance with the projected targets.
- 4.5.5 Sustainability: Development within the 12K Plan boundary will be secondary and complementary to redevelopment, intensification and efficient use of land within the pre-2012 annexation boundary.



- 5.1 Studies will need to be completed or updated in order to support the development horizons in the 12K Plan. In particular, growth up to and beyond 160,000 population will require further study to determine and plan for the infrastructure required to support long-term growth. Studies that will need to be updated include the:
 - a. Utility Master Plan;
 - b. Master Stormwater Drainage Plan; and
 - c. Transportation Master Plan.
- 5.2 CASP justification submissions will continue to follow the City Plan policy on CASPs and the City of Airdrie Guidelines for the Preparation of CASPs, NSPs and ARPs, as amended.
- 5.3 During the next five-year amendment cycle of the City Plan (2019), Administration should review and identify updates or amendments that may be required to align the City Plan with the 12K Plan.
- 5.4 Once the 2019 review and update to the City Plan is complete, Administration should review and update the 12K Plan in concert with every subsequent comprehensive amendment cycle of the City Plan.
- 5.5 City of Airdrie Administration must draft requirements and administrative processes for the review and approval of Development Concepts submitted in accordance with Guideline 4.4.4.
- 5.6 City of Airdrie Administration must draft amendments to the Land Use Bylaw to allow for implementation of interim use corridors identified on **Figure 7** and referenced in the Guidelines for Interim Land Uses (**Section 4.4**).





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Transportation



Transportation

The 2014 City of Airdrie Transportation Master Plan (“Connecting Airdrie”) provides a vision for how people will move in and around Airdrie for the next 10 years. The plan includes an overall vision and guiding principles which will help guide future decision-making and transport investments.

The following sections illustrate the existing and future roadway network, and outline the future roadway improvements needed to achieve the overall transportation vision.

Existing Road Network

As illustrated in **Figure 1** of the TMP (Existing Street Network), the existing City of Airdrie road network is comprised of a hierarchy of roadways including local, collector, and arterial roads.

The City is bisected by Highway 2, a six-lane freeway maintained by the Province. The key arterial roads within the City are: Veterans Blvd, 1st Avenue, Yankee Valley Blvd, 24th Street, 8th Street, Main Street and East Lake Blvd/ Kingsview Blvd.

The residential street pattern is dominated by looped collector and local roads and cul-de-sacs.

As indicated in the Figure, the current set of Area Structure Plans (ASPs) include recommendations to extend parts of the existing arterial network, as well as additional collectors.



Future Road Network

The master plan introduces a new street classification – Skeletal Arterial streets. These are major roads which provide regional connections and function as the primary entryways into the City, while local arterial streets primarily serve traffic within the Airdrie. The purpose of the new designation is to differentiate between levels of access and the resulting signal and intersection spacing.

As shown in **Figure 3** of the TMP (Proposed Future Skeletal Network), proposed skeletal streets within the City would be:

- East-west proposed skeletal streets include Veterans Boulevard, Yankee Valley Boulevard (west of Highway 2), and 56th Avenue.
- The north-south proposed skeletal streets are 24 Street, and Range Road 292/East Skeletal.

This figure also indicates regional connections in Rocky View County and City of Calgary, including Centre Street, Range Road 292, Highway 567 and Township Roads 270 and 264.

The Transportation Master Plan also proposes recommendations for improving the function, accessibility and connectivity of the transportation system for three population horizons: 65,000, 80,000 and 110,000. **Figure 20** of the TMP (Roadway Capital Improvements) illustrates proposed recommendations through to the full build-out horizon (110,000).

The key road network improvements include:

65,000 Horizon

- Upgrades to Yankee Valley Boulevard, 8th Street, and grade separation of 40 Avenue and CP
- Interchange improvements at 40th Avenue

80,000 Horizon

- Enhance multiple travel modes (e.g., pedestrian network, transit service)
- Additional road network capacity on the east side of Airdrie including 8 Street, 56 Avenue, 40 Avenue, and segments of Veterans Boulevard.
- Grade separation of Yankee Valley Boulevard and CP
- Interchange at 56th Avenue (TWP 264)

110,000 Horizon:

- Staging of a major north-south arterial (East Skeletal/RR 292).
- Additional road network capacity on the east side of Airdrie including Range Road 291, East Lake Boulevard, and segments of Veterans and Yankee Valley Boulevards.
- Additional east-west connection (mid-city fly-over) over Highway #2 between Yankee Valley Boulevard and Veterans Boulevard.
- Future interchange at Twp. Rd. 274, at the north end of the city.
- Extension of existing north-south arterials (24 St, 8 St) to connect to Twp. Rd. 273 (North Fly-Over)



Connecting Airdrie

Figure 1: Existing Street Network

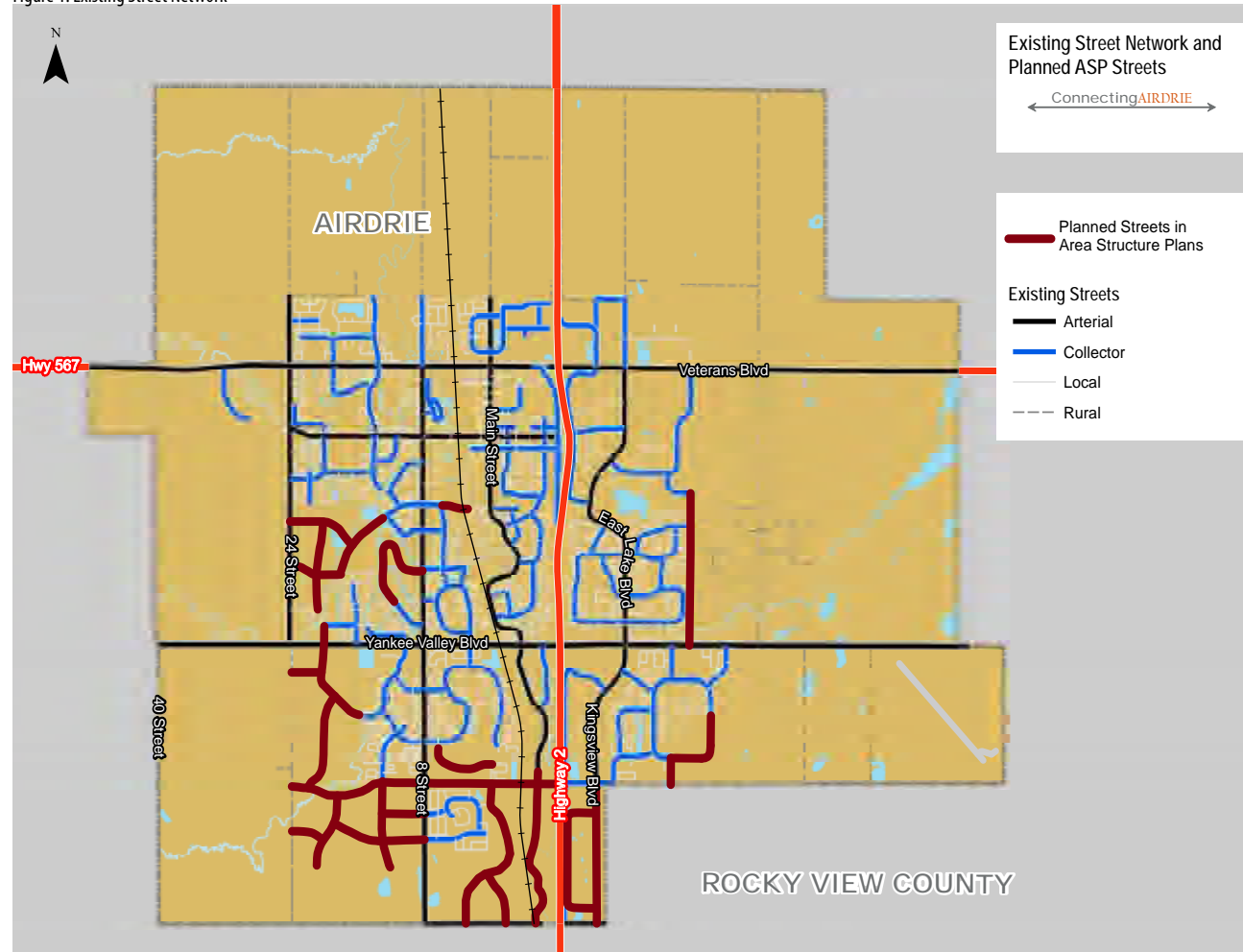
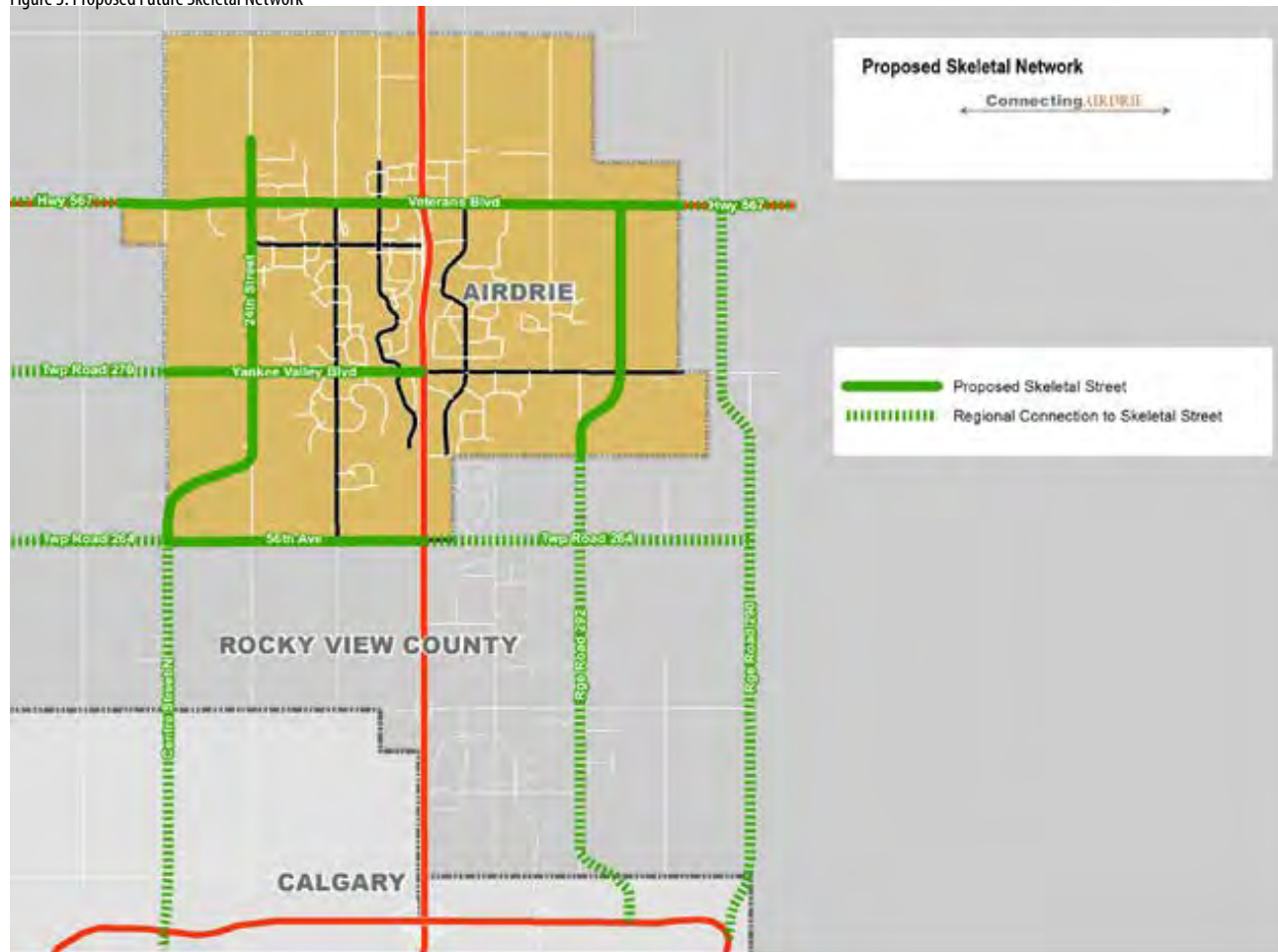
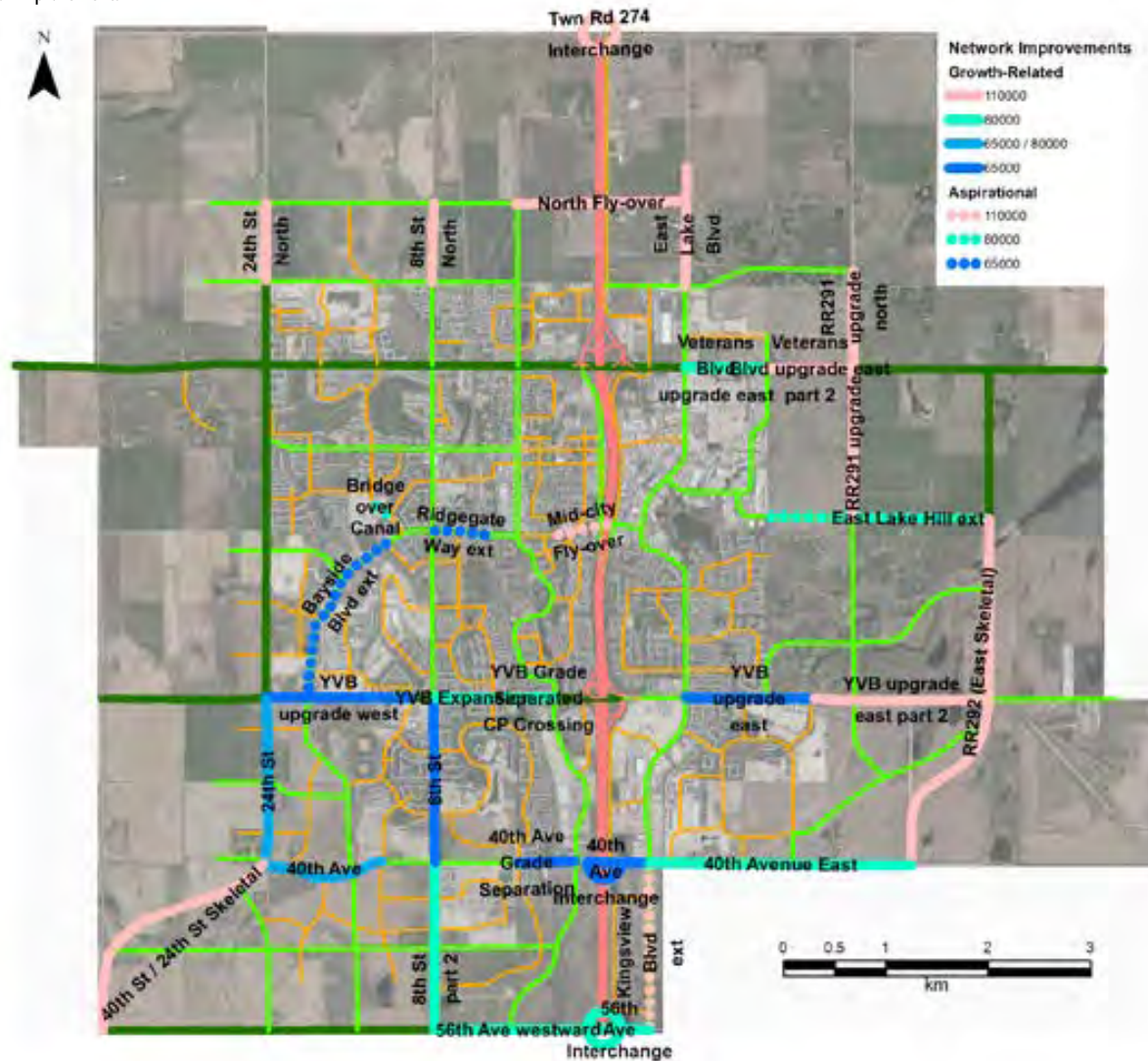


Figure 3: Proposed Future Skeletal Network



Connecting Airdrie

Figure 20: Roadway Capital Improvements





Transit



Transit

The 2016 Transit Master Plan for the City of Airdrie describes the existing services and provides a framework for the future of transit services required to achieve transit mode share increase by 2025.

At the time the Transit Master Plan was published, Airdrie Transit operated on a base network of six routes. Three local routes (**Figure 1: Existing Transit Service**) and three Intercity Express (ICE) routes that connect Airdrie to Calgary and the Cross Iron Mills shopping Mall in Rocky View County. All three Intercity Express Routes and two of the three local transit routes connect at the South Transit Terminal at the south end of Main Street. However, City of Airdrie staff have confirmed that there is currently a base network of 5 routes (2 local and 2 ICE) with all routes connecting to the south terminal.

All three local routes operate on weekdays between 6 am and 9 pm weekdays and 6 am and 6 pm weekends, running at a 30 minute frequency during the AM and PM peak periods and a 60 minute frequency during midday periods.

ICE services (Route 900, 901 and 902) are primarily operated on the provincial highway network (between Airdrie and outside destinations) and the arterial road network within the City.



The Transit Master Plan recommended these key improvements:

- The fixed-route service will be converted to two perimeter routes travelling in opposite directions and extending the service in the northwest, northeast, and southwest areas as well as completing the loop through the northeast industrial park to offer more direct service between areas in the northwest and Genesis Place. Two local routes results with this service model: Route 1 operates in a clockwise direction beginning at the South Transit terminal; and Route 2 operates in a counter-clockwise direction. Both routes will operate every 30 minutes per direction during the AM, Midday and PM peak periods, and every 60 minutes per direction during all other periods.
- The central Main Street corridor will be serviced by extending Route 900 north on Main Street to the Real Canadian Superstore north of Veterans Boulevard. Passengers using this route to make a local trip will pay a local transit fare while those continuing south to Cross Iron Mills or the City of Calgary will pay the Route 900 fare.

- Service hour savings (through the conversion of three existing local routes into two new longer routes) were recommended to be reinvested back into the fixed-route corridor through frequency and service hour improvements.
- Dynamic Transit (on-demand) will be introduced in the Urban Areas of Airdrie that are not within a 400 metre walking distance of one of the fixed-route stops.

Figure 26 (Recommended Local Transit Routes) illustrates the recommended new local routes, while **Figure 30** (Proposed ICE 900 Route) illustrates the proposed ICE 900 route.

- Future Link to Calgary LRT on east side of the City – BRT 24th Street

The City of Calgary is currently in the process of planning and building the Green Line LRT project, the north part of which will eventually travel north from Downtown Calgary up Centre Street and Harvest Hills Boulevard as far as 160 Avenue North. “Connecting Airdrie” recommends that once the north central part of Green Line is operational, Airdrie Transit should consider running Commuter ICE service to the terminal station of the Green Line instead of to downtown Calgary and allow passengers to transfer to the LRT to complete their trip. It is estimated that this modified route would cut travel times for Commuter ICE Routes 901 and 902 almost in half and also allow for the resource savings to be reallocated to other aspects of the transit service , e.g., improving local frequency. Overall, connecting to Green Line is anticipated to generate higher growth for the Airdrie city as a whole.

- Airdrie Transit Master Plan further recommends investigating the possibility of integrating the fare system of Airdrie transit with that of Calgary Transit to ease the travel between Airdrie and Calgary through a single fare.



Active Transportation

As indicated in the 2014 Transportation Master Plan, Airdrie scores low in walkability despite having approximately 140 kilometres of asphalt pathway and approximately 37 kilometres of concrete sidewalks for bikes and pedestrians. Some of the neighbourhoods are observed to be segregated beyond easy walking/biking distance from school, places of work, shopping, leisure or recreation. This form of segregated development has also been identified as an issue in creating links with the transit system. All these factors ultimately contribute to the higher dependence on the automobile in Airdrie. Sprawling neighbourhoods are adding more to this. Not only does this type of growth increase costs of public services, but it also leads to increasing air pollution, rising obesity rates, longer commutes, and increasing levels of climate changing carbon dioxide emissions. These concerns are reflected in “Connecting Airdrie”.

The Master Plan recommends to:

- Improve local accessibility, particularly to schools. Several connections across significant barriers have been recommended. These include several bridges over water features and crossings over the CP railway, as well as new connections within existing residential areas to increase network permeability.

- Propose a hierarchical cycling network that aims to leverage the existing multi-use path system and improve it in a manner that makes every day, purposeful cycling more convenient and likely.
- Adopt a complete street principle that developed a street cross-section for all types of street to include all modes of travel. The master plan recommends an overhaul of the pathway planning by shifting the focus from recreational focus to one that supports direct walking trips and thereby transit access.

Goods Movement

The Transportation Master Plan reviewed the existing truck and dangerous goods routes as well as truck route bylaws from the City and peer cities. The following recommendations were established:

- That the Truck and Dangerous Goods Route be retained as is with no additions. The industrial areas are adequately served in terms of truck and dangerous goods access.
- The City of Airdrie should update their by-laws to define a truck, or heavy truck in more detail by assigning a weight limit.
- The City of Airdrie monitor the Province’s High Load Corridor program to see if or when the proposed Highway 567 corridor (which would then result in Veterans Boulevard being on that corridor) becomes formalized

Currently, there are several truck routes:

- 100% year-round Truck Route runs along 8 St NW, Veterans Boulevard and partially on Yankee Valley Boulevards.
- 24 St SW is a truck route 90% year-round up to Yankee Valley Boulevard, 100% up to Veterans and seasonal beyond Veterans.
- Range Rd 291 is another truck route open 75% year round.
- There are various other season truck routes (mostly operating in summer spread all around the built city. Veterans Boulevard and some of the internal roads truck routes in north-west and the south also provide routes for Dangerous Goods Movement.

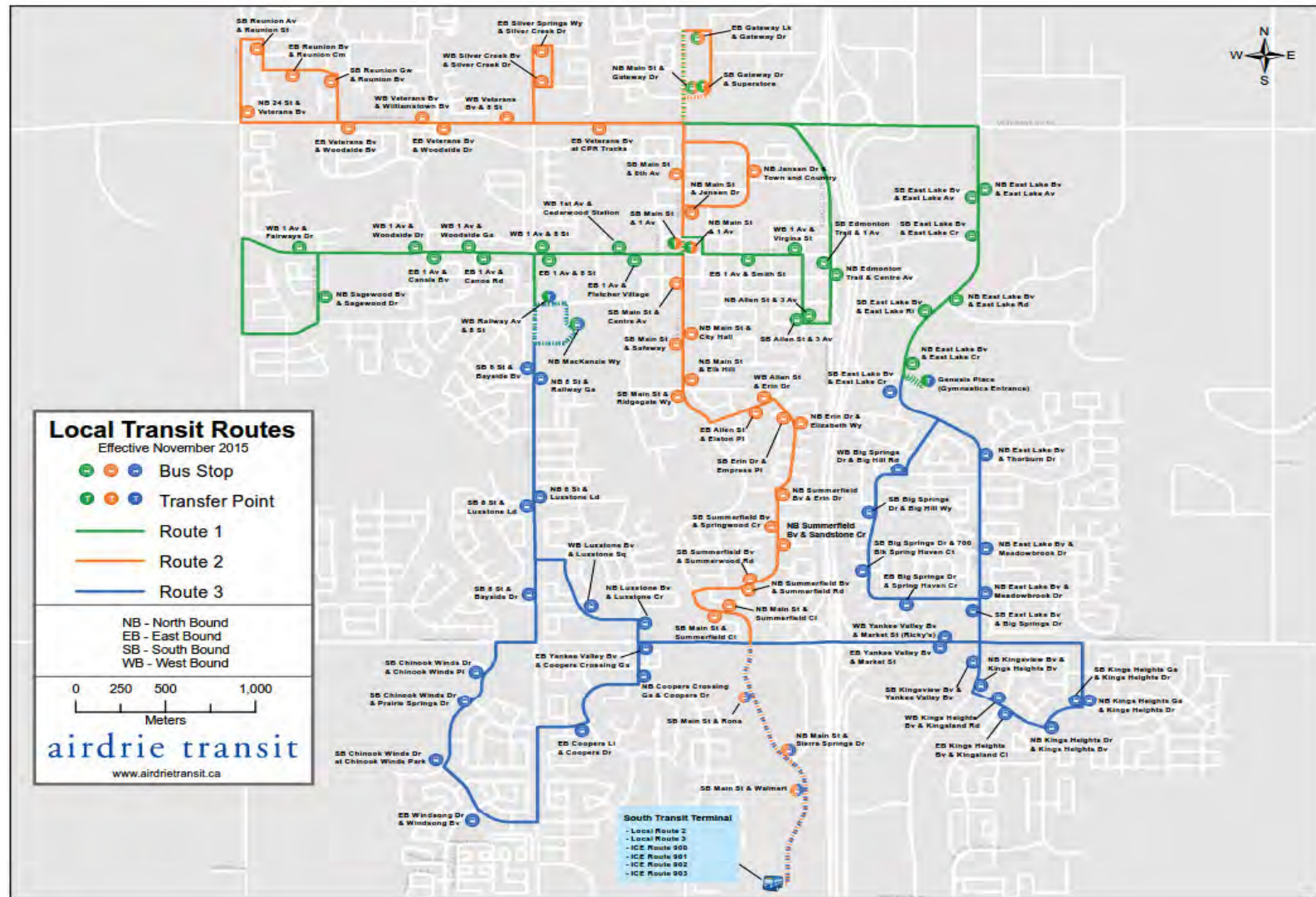
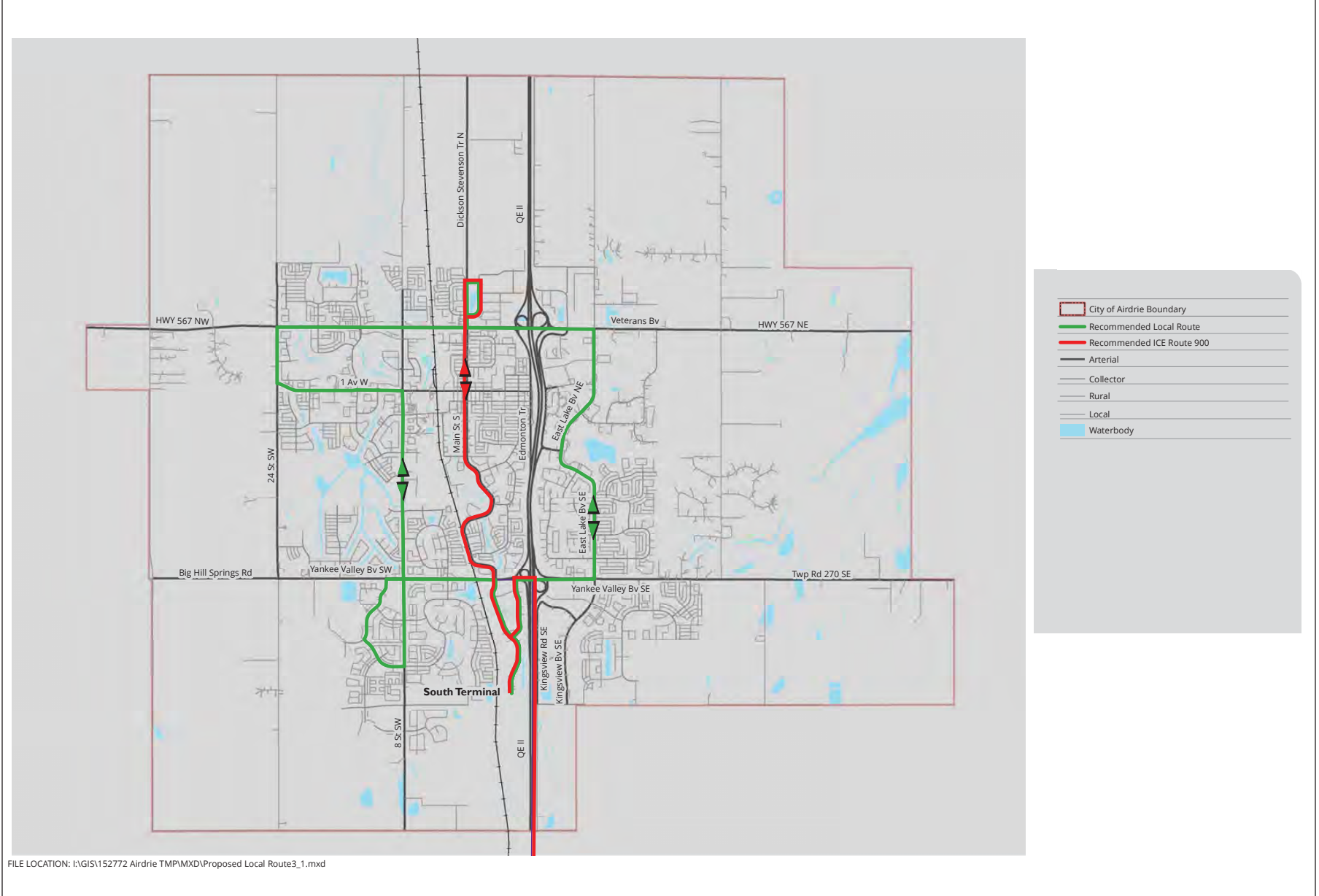
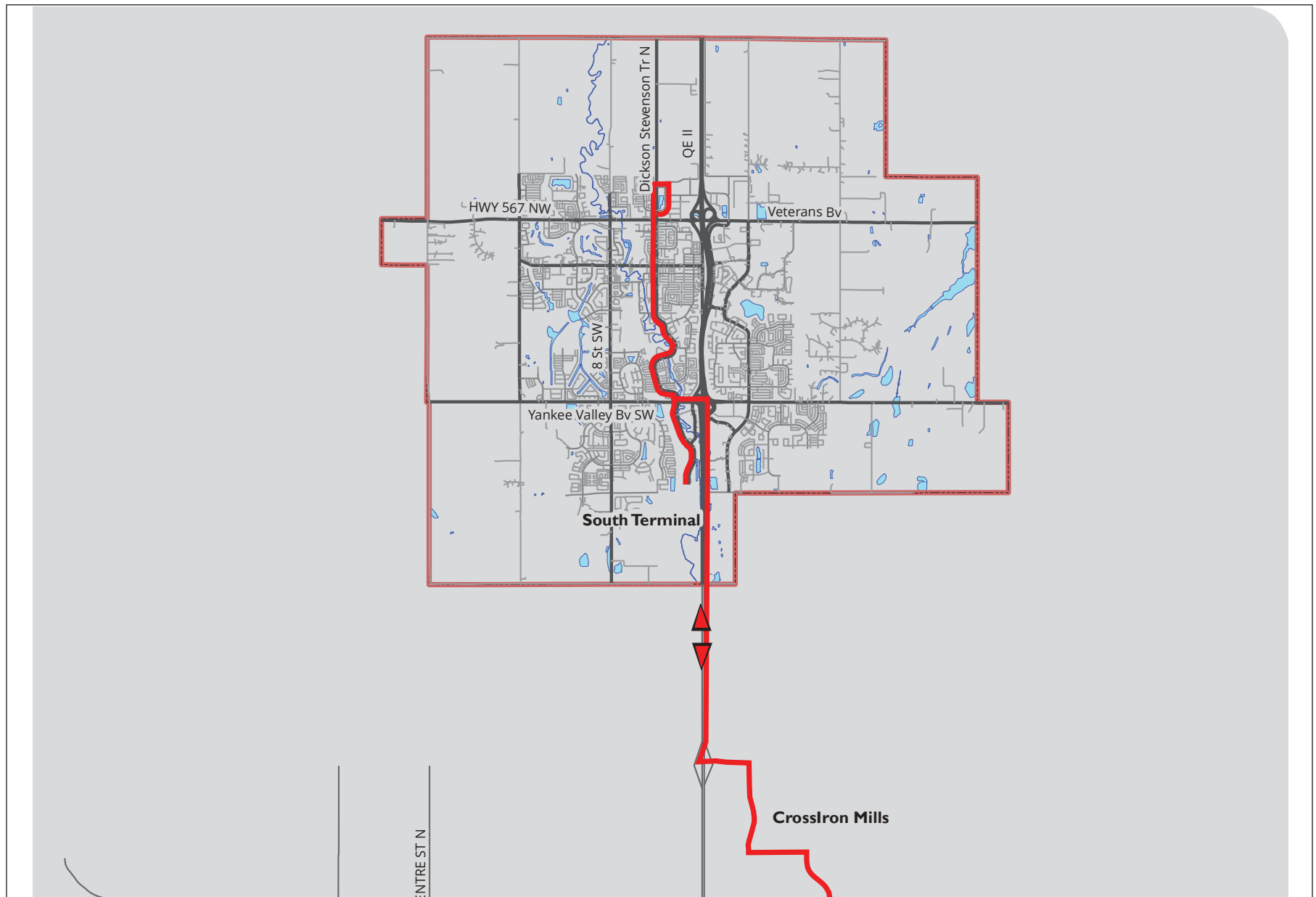


Figure 1 - (Source: City of Airdrie Transit Master Plan, 2016)









Servicing



Servicing

Airdrie Utility Master Plan (2016)

The 2016 Airdrie Utility Master Plan (UMP) outlines the condition of existing water and wastewater infrastructure and highlights the future infrastructure needs for projected City populations. Three growth horizons have been identified within the UMP: Pre-Annexation, Annexation and Post-Annexation. The approximate residential populations, corresponding to each growth horizon that was utilized within the UMP, have been summarized below:

Horizon	Approximate Residential Population
Pre-Annexation	77, 000
Annexation	110, 000
Post-Annexation	169, 000

The residential populations align with projections listed in supporting documents such as the Transportation Master Plan whereas, the employment populations were unavailable. For the purpose of quantifying the usage of water and wastewater, both residential and employment populations needed to be represented. Therefore, the employment populations were ultimately estimated within the UMP, by an employment density value. These population horizons were utilized for the UMP analysis and may differ from the projections listed within the 12K Plan.

A schematic land use map was created within the UMP, identifying residential, commercial, industrial, institutional or combined areas. This land use map was completed solely for the analysis of the UMP and may differ from the land use plan recommended within the 12K Plan. The projected populations for the Annexation was distributed across fifty-seven of the total seventy-nine quarter sections. Twenty-two quarter sections along the Annexation Boundary were excluded since it was assumed development would not occur in this area until a later date. The remaining twenty-two quarter sections were included as part of the Post-Annexation horizon in addition, to growth within the already presumed developed quarter sections.

Six water and twelve wastewater servicing concepts were established and further analyzed within the UMP. The servicing concepts were evaluated based on life cycle cost, residual risks, compliancy of the two servicing networks and the flexibility of staged development of infrastructure.

An overview of the existing water and wastewater infrastructure and the recommended servicing concepts will be explained in the following sections.



Wastewater

Existing Infrastructure

The City of Airdrie's wastewater system ultimately conveys sewage south to the City of Calgary via three major forcemains. There are a total of four existing major lift stations with a combined total of eleven pumps in the City of Airdrie. These four lift stations are as follows: Main, West, Sierra Springs and Reunion. The contributions from the two minor lift stations, Edwards Lift Station and Sunridge Lift Station, were included in the analysis of the UMP however, these lift stations would not foresee any upgrades.

Sanitary sewage generally flows from west to east in the west, east to west in the east, north to south in the north and south to north in the south, reaching a common point at the Main and West Lift Stations, where the sewage then continues south to the City of Calgary's Bonnybrook Wastewater Treatment Plant. Sewage can be directed to either Main or West LS or both at the same time since the two LS are interconnected by a 900mm PVC equalizing trunk.

The existing wastewater network has capacity for servicing up to the Pre-Annexation boundary, if upgrades at the Main, West, and Sierra Springs Lift Stations are undertaken as identified within the Wastewater Servicing Sequencing Steps. Spare capacity is available in each of the northeast (south of Highway 567), the southeast, and in the trunk 800m north of Yankee Valley Boulevard running towards the west side of the City. The amount of available spare capacity should be confirmed at a detailed design stage.

Preferred Concept

A total of twelve servicing concepts were developed for the future sanitary system for the 12K Plan area. The annexed quarter sections of land located in the north, northeast, and the southeast that are capable of being serviced by the current sanitary system were taken into account at the time of development of the sanitary servicing concepts in the UMP. These identified quarter sections can be seen in **Figure 4.84** of the UMP.



A strategy selection approach highlighting the least whole life costs and acceptability of residual risks was undertaken to select the preferred wastewater servicing concept. The whole life cost approach examined capital costs, operational costs, and the costs associated with the triple bottom line (i.e. environmental, economic and social costs). On the other hand, evaluated residual risks include: lift station failure, operational safety, land set-asides, deep sewer failure risk and the carbon impact of pumping. In addition to the preceding criteria, it was critical to select a wastewater and water concept that would complement each other and support the staged development of infrastructure.

The most favorable concept based on a strategic selection approach was Concept C2 from the UMP. A quarter section grid was assumed when laying out the conceptual network of the future sanitary system. The exact configurations of the proposed force mains will be determined at the detailed design stage.

The proposed wastewater servicing concept for the Annexation growth horizon can be seen in **Figure 4.101** of the UMP.

The additional upgrades required when transitioning from the Annexation to the Post-Annexation Horizons total approximately \$51M, as stated within the 2016 UMP. These costs are simply an estimate and are subject to change.

Water

Existing Infrastructure

The City of Airdrie receives its' potable water from the City of Calgary via three supply mains. The City of Calgary has two water treatment plants which treat raw water from two bodies of water. The Bearspaw Water Treatment Plant obtains and treats water from the Bow River, and the Glenmore Water Treatment Plant receives and treats water from the Glenmore Reservoir.

Currently, there are three existing reservoirs in the City of Airdrie: Main, Northeast and Windsong Reservoirs. Also, there are two pressure zones encompassing the City of Airdrie that are being utilized: the Main Pressure Zone and the Northeast Pressure Zone. The Main and Windsong Reservoir service all of the land within the Main Pressure Zone, as well as supply the Northeast Reservoir. The Northeast Reservoir services a fraction of the City population within the Northeast Pressure Zone, since the majority of the population is located within the Main Pressure Zone.

The existing system appears to have adequate capacity to service growth to the pre-annexation boundary, with no deficiencies beyond those noted for the existing system.

Preferred Concept

A total of six alternatives were developed for review, with variants based on reservoir locations and reservoir feed systems. Alternatives included water supply main upgrading from Calgary, reservoir locations, upgrading pump stations, and location of pressure reducing systems.

A strategy selection approach highlighting the least whole life costs and acceptability of residual risks was undertaken to select the preferred water servicing concept. The whole life cost approach examined capital costs, operational costs, and the costs associated with the triple bottom line (i.e. environmental, economic and social costs). On the other hand, evaluated residual risks include: water supply resiliency, water quality risk, operational efficiency, carbon impact of pumping and the flexibility of development. In addition to the preceding criteria, it was critical to select a water and wastewater concept that would complement each other and support the staged development of infrastructure.

The most favorable concept based on a strategic selection approach was Concept C2 from the UMP. A quarter section grid was assumed when laying out the conceptual network of the future sanitary system. The exact configurations of the proposed force mains will be determined at the detailed design stage.

The proposed wastewater servicing concept for the Annexation growth horizon can be seen on the following page.



Due to the CASP developments the proposed quarter sections of land capable of being serviced by the existing wastewater network were modified for the 12K Plan to accommodate growth in all regions of the Annexation and to promote different land usage. The spare capacity of the existing system should be analyzed further to identify if the predicted population for the 80,000 Growth Horizon are capable of being serviced by the existing wastewater system.

The overall capital cost for the wastewater servicing concept for the Annexation growth horizon totals approximately \$153M. The capital costs are simply an estimate and are subject to change.

After selecting the preferred wastewater servicing concept for the Annexation growth horizon, the concept was optimized using the predicted residential and employment populations for the Post-Annexation horizon. The proposed wastewater servicing concept for the Post Annexation can be seen in **Figure 4.102** of the UMP.

The proposed water servicing concept for the Annexation growth horizon can be seen in **Figure 3.34** of the UMP.

The overall capital cost for the preferred water servicing concept for the Annexation growth horizon totals approximately \$104M which excludes watermains which are presumed to be developer funded. The capital costs are simply an estimate and are subject to change.

After selecting the preferred water servicing concept for the Annexation growth horizon, the concept was optimized using the predicted residential and employment populations for the Post-Annexation horizon. The proposed water servicing concept for the Post Annexation can be seen in **Figure 3.35** of the UMP.

The additional upgrades required when transitioning from the Annexation to the Post-Annexation Horizons total approximately \$85M, as stated within the 2016 UMP. These costs are simply an estimate and are subject to change.

Master Stormwater Drainage Plan

The 2015 Master Stormwater Drainage Plan (MSDP) was completed by Associated Engineering (AE) for the City of Airdrie defining key aspects of the planning, analysis, design and construction of future stormwater management systems within the 12K Plan area for the City of Airdrie.

The MSDP assumes the following:

- A projected population of 109,000 within the 12K Plan area (i.e., excludes population within the pre-annexation boundary) by 2057.
- A 1:100 year pre-development design flow of 1.257L/s/ha for the Nose Creek Watershed (provided by the 2008 Nose Creek Watershed Water Management Plan).
- A runoff volume control target of 90mm based on the Nose Creek Watershed requirements.

It should be noted that the population horizons used in the MSDP do not align with the 12K Plan horizons. Therefore the MSDP will require updating based on the adoption of the 12K Plan.

The MSDP recommends a preferred stormwater concept containing post-development catchments, proposed stormwater management storage facilities and associated storm sewers for the 12K Plan area. The post-development catchments have been designed to span a minimum of two quarter sections. A stormwater management storage facility has been proposed within each post development catchment.



The regional stormwater management storage facilities may be wet ponds, constructed wetlands, dry ponds or a combination thereof.

The facilities with the highest development potential are generally located close to the Pre-Annexation boundary. As the facilities extend towards the Post-Annexation boundary, the development potential decreases as it becomes increasingly difficult to service these sections of land.

There are approximately six locations where future development will connect to the existing stormwater system within the City of Airdrie. These six connection locations have been identified in **Figure 4-5** of the MSDP.

The stormwater management facilities were not defined as part of the MSDP therefore, only capital and operating and maintenance costs were explored. Construction costs for stormwater management storage facilities vary considerably depending upon the type of facility. For the purposes of the MSDP, \$80 per cubic meter of active storage was assumed for construction costs. Similarly, annual O&M costs were calculated as a percentage of the total construction cost and for the purpose of the MSDP, an annual O&M cost of 5% of the construction costs was considered. The total capital cost of all proposed stormwater management facilities totals \$228M, the downstream sewer totals \$13M and annual operating and maintenance totals \$12M. These costs have been provided within the MSDP as simply an estimate and are subject to change.

Service Upgrades Sequencing Summary

Wastewater

Notes:

1. The City of Airdrie's wastewater system ultimately conveys wastewater south to the City of Calgary via three (3) force mains (i.e. 350mm DI, 600mm HDPE and 600mm PVC) and four major lift stations (LS) (i.e. Main, West, Sierra Springs and Reunion). Sewage flows to both the Main and West LS since they're both interconnected by a 900mm PVC trunk.
2. The current wastewater network cannot service the Pre-Annexation Boundary population of approximately 77,000. Sequence WW-A to WW-C needs to be implemented before build-out of the Pre-Annexation Boundary. With the listed upgrades, the opportunity to service (7) seven mixed residential and non-residential quarter sections in the north, (2) two non-residential quarter sections in the northeast, and (2) two residential and non-residential quarter sections in the southeast will become available, pending further infrastructure needs.
3. The total cost were retrieved from the 2016 Airdrie Utility Master Plan and are subject to change.
4. Further analysis is required to confirm the spare capacity of the existing wastewater system and whether it can accommodate the identified lands apart of the 80,000 growth horizon.
5. Preferred Staging Plan

Wastewater Servicing Upgrades Sequencing Summary			
Population Horizon	Sequence	Required Upgrade	Total Cost (\$)
80,000	WW-A	Complete upgrades at the Main and West LS.	Excluded from future servicing costs.
	WW-B	Connect the Sierra Springs LS directly to the existing 350mm force main and upgrade pumps.	\$1,705,000
	WW-C	Rehabilitate/replace the existing lower pressure rated 600mm HDPE force main servicing the Main LS.	\$12,353,000
	WW-D	Construct sanitary trunk sewers, forcemains and Lift Station #2 in the northwest to connect to the trunk located 800m north of Yankee Valley Boulevard which will ultimately connect to the Main and West Lift Stations. Additional infrastructure may be required pending available capacity of the existing system.	\$16,407,000
110,000	WW-E	Construct South Lift Station and the associated twin 750mm force main system to Calgary.	\$36,610,000
		Construct the East and West trunks and lift stations. The East and West trunks and lift stations are dependent on the South LS and associated twin 750mm force main system to Calgary.	East: \$57,890,000 West: \$27,780,000 Total: \$85,670,000
160,000	WW-F	Upgrade existing major trunks and lift stations. Construct remaining lift stations and trunks to service the remaining quarter sections of land that were not included as part of the 110,000 growth horizon.	\$51,045,000

Water

Notes:

1. The City of Airdrie receives potable water from the City of Calgary via three (3) supply mains. One (1) of the supply mains is a 350mm yellow jacket steel pipe (YJS) that is getting older and has capacity to service a smaller population (i.e. 21,500), as opposed to the other two (2) supply mains (i.e. 900mm Concrete - 149,000 and 600mm PVC - 77,000).
2. The current water network can service a population of 77,000 with the 350mm YJS pipe decommissioned. With the 350mm YJS pipe remaining in use, the three supply mains can service a population of 98,000 within the existing Main Pressure Zone.
3. The total cost were retrieved from the 2016 Airdrie Utility Master Plan and are subject to change. The cost of the water mains have been included however, it is assumed that it will be developer funded.
4. Preferred Staging Plan

Water Servicing Upgrades Sequencing Summary			
Population Horizon	Sequence	Required Upgrade	Total Cost (\$)
80,000	W-A	Upgrade the Main Reservoir pumps and construct water mains in the Main Pressure Zone.	\$29,760,000
	W-B	Construct a new 600mm supply main from Calgary. This is required if either Southwest or Southeast Reservoir is to be constructed.	\$25,120,000
	WW-C	Rehabilitate/replace the existing lower pressure rated 600mm HDPE force main servicing the Main LS.	\$12,353,000
	W-Ca	Construct new Southwest Reservoir. The West Pressure Zone will be introduced with the implementation of the Southwest Reservoir. This will require a 400mm supply line to feed from the proposed 600mm supply main from Calgary. Implement new pressure reducing valves and water mains.	West Pressure Zone: \$52,900,000
	W-Cb	Construct Southeast Reservoir. This reservoir will assist the Northeast Reservoir in servicing the Northeast Pressure Zone. This will require a 400mm supply line to feed from the proposed 600mm supply main from Calgary. Implement new pressure reducing valves and water mains.	Northeast Pressure Zone: \$62,020,000
		Construct the East and West trunks and lift stations. The East and West trunks and lift stations are dependent on the South LS and associated twin 750mm force main system to Calgary.	East: \$57,890,000 West: \$27,780,000 Total: \$85,670,000
110,000	W-D	Construct the High West Reservoir. The implementation of this reservoir will introduce the High West Pressure Zone. This reservoir will feed through the Southwest Reservoir. Implement new pressure reducing valves and water mains.	High West Pressure Zone: \$23,850,000
160,000	W-E	Implement new pressure reducing valves and water mains. Twin the 600mm Supply Main from Calgary. Upgrade reservoirs and pump stations.	\$105,450,000



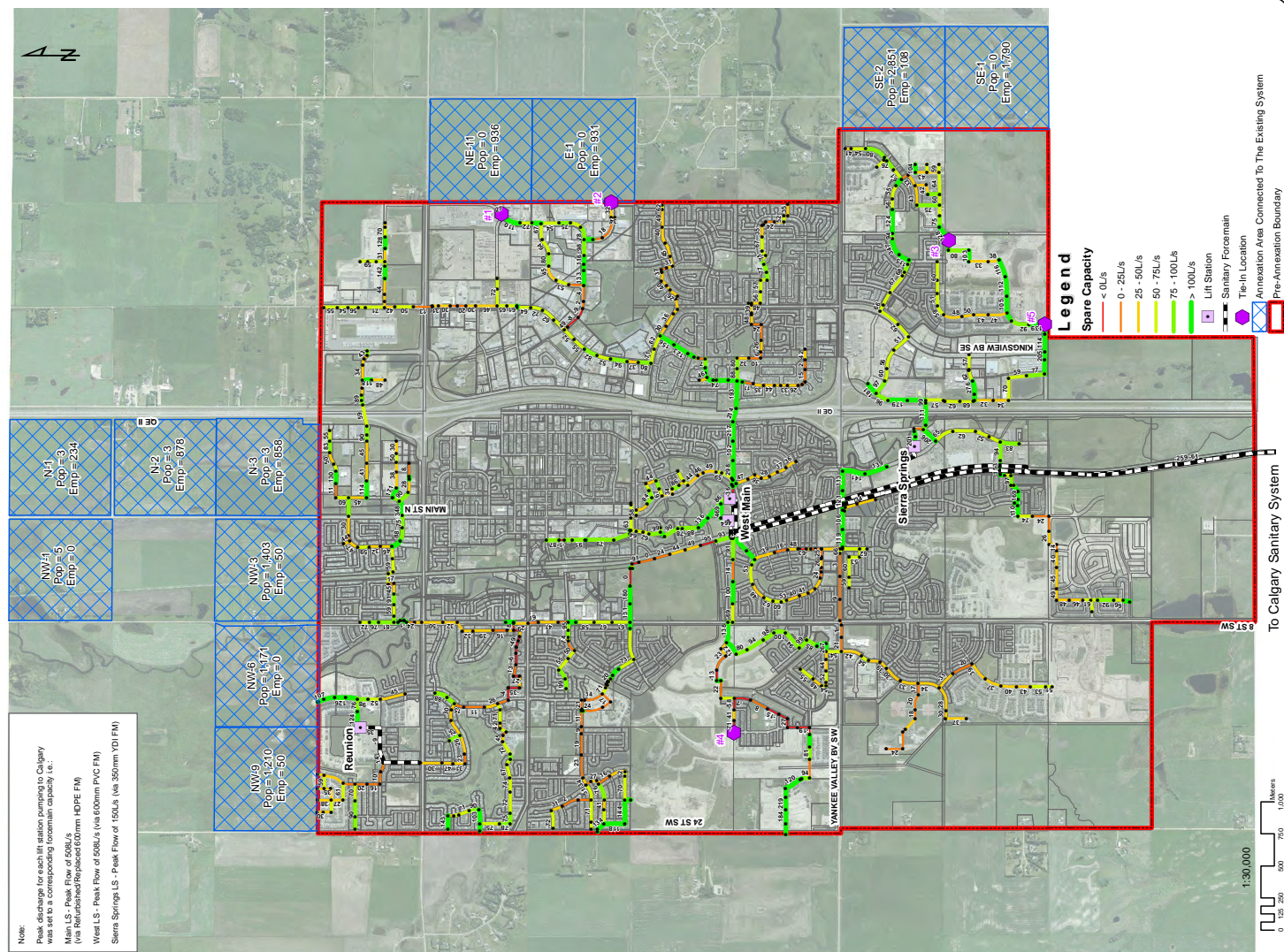
Stormwater

Notes:

1. The construction of the stormwater management storage facilities (SWM facilities) will be influenced by the development of the quarter sections of land. The SWM facilities can be wet ponds, constructed wetlands, dry ponds or a combination thereof.
2. The approximate costs for stormwater management facilities were retrieved from the 2015 Master Stormwater Drainage Plan. The total cost for each growth horizon was determined by the lands being developed within each horizon and the proposed SWM facilities that fall within that region. These costs are simply estimates and are subject to change.
3. The City of Airdrie will utilize the City of Calgary's cost sharing philosophy for regional stormwater management storage facilities.
4. Preferred Staging Plan

Stormwater Management Storage Facilities Upgrades Sequencing Summary			
Population Horizon	Sequence	Required Upgrade	Total Cost (\$)
80,000	S-A	Construct stormwater management storage facilities and associated storm sewers for the respective lands developed within the 80,000 growth horizon.	\$41,000,000
110,000	S-B	Construct stormwater management storage facilities and associated storm sewers for the respective lands developed within the 110,000 growth horizon.	\$76,880,000
160,000	S-C	Construct stormwater management storage facilities and associated storm sewers for the respective lands developed within the 160,000 growth horizon.	\$123,000,000

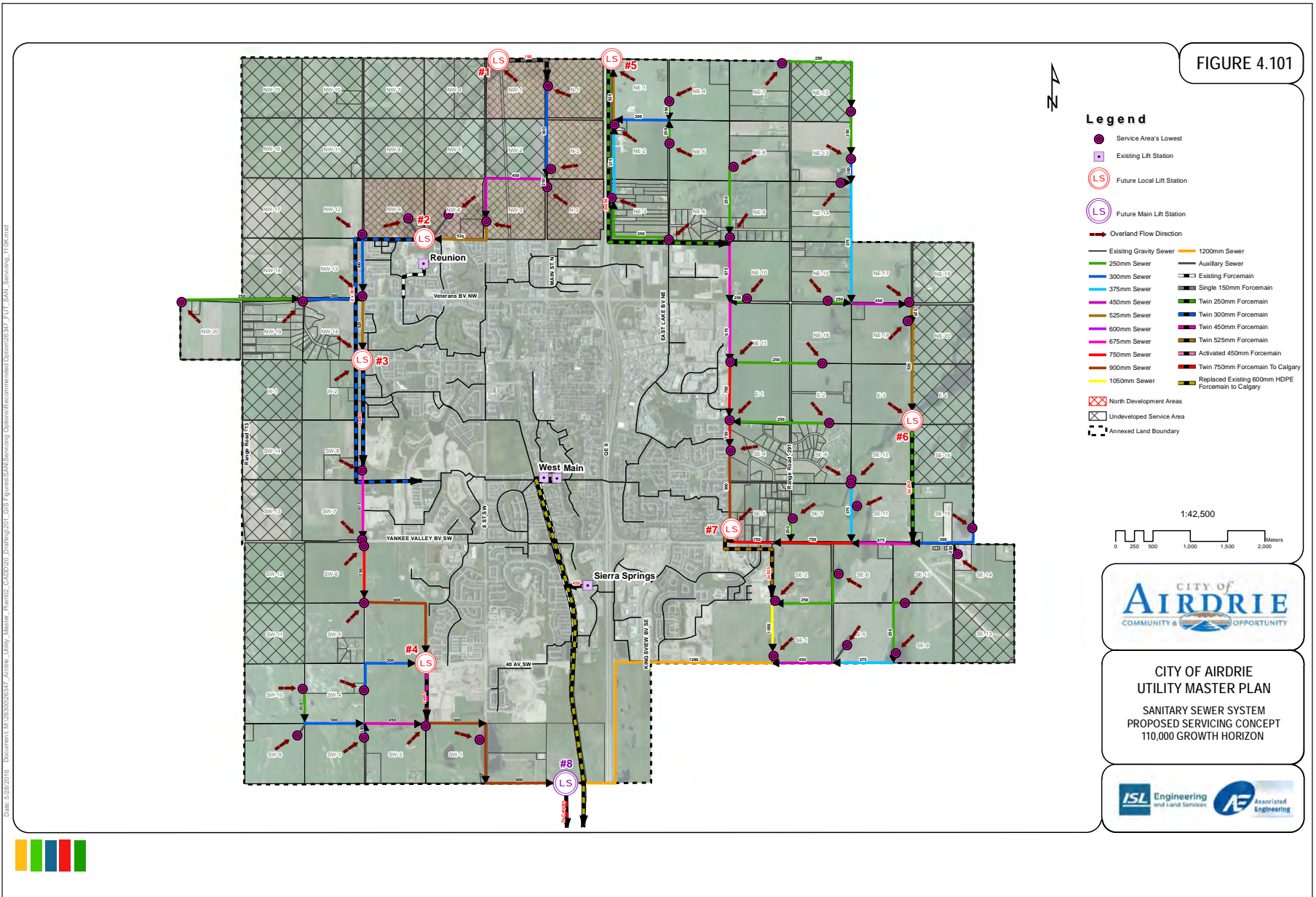
FIGURE 4.84



Associated
Engineering

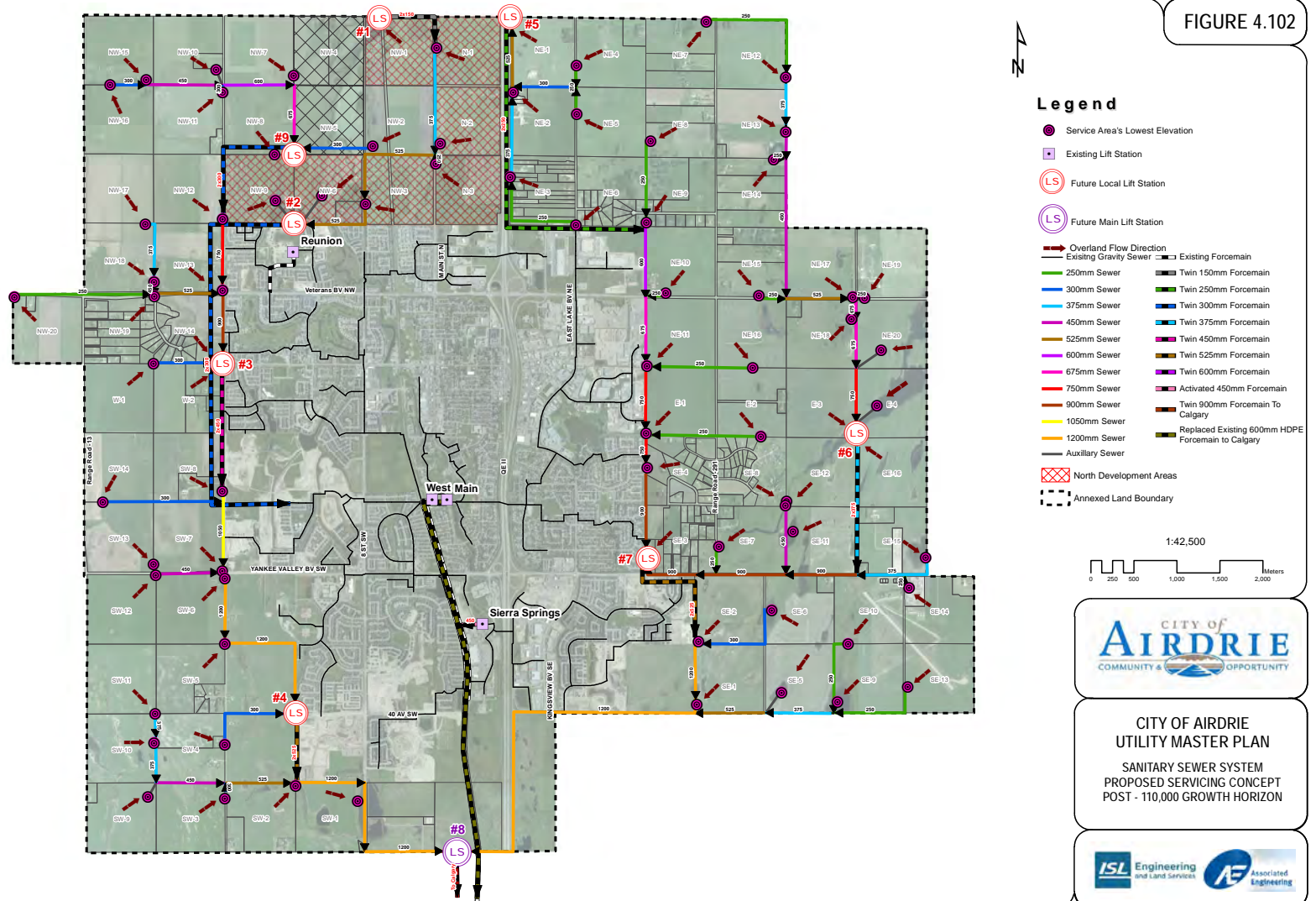
THE CITY OF AIRDRIE
UTILITY MASTER PLAN
SANITARY SEWER SYSTEM ASSESSMENTS
SPARE CAPACITY PLAN
BEYOND 110,000 GROWTH HORIZON
(WITHIN PRE-ANNEXATION BOUNDARY - ALTERNATIVE 4
PLUS VARIABLE I/I OF 0.28l/s/ha
TEACH LIFT STATION PUMPS FLOWS TO A DEDICATED FORCE MAIN

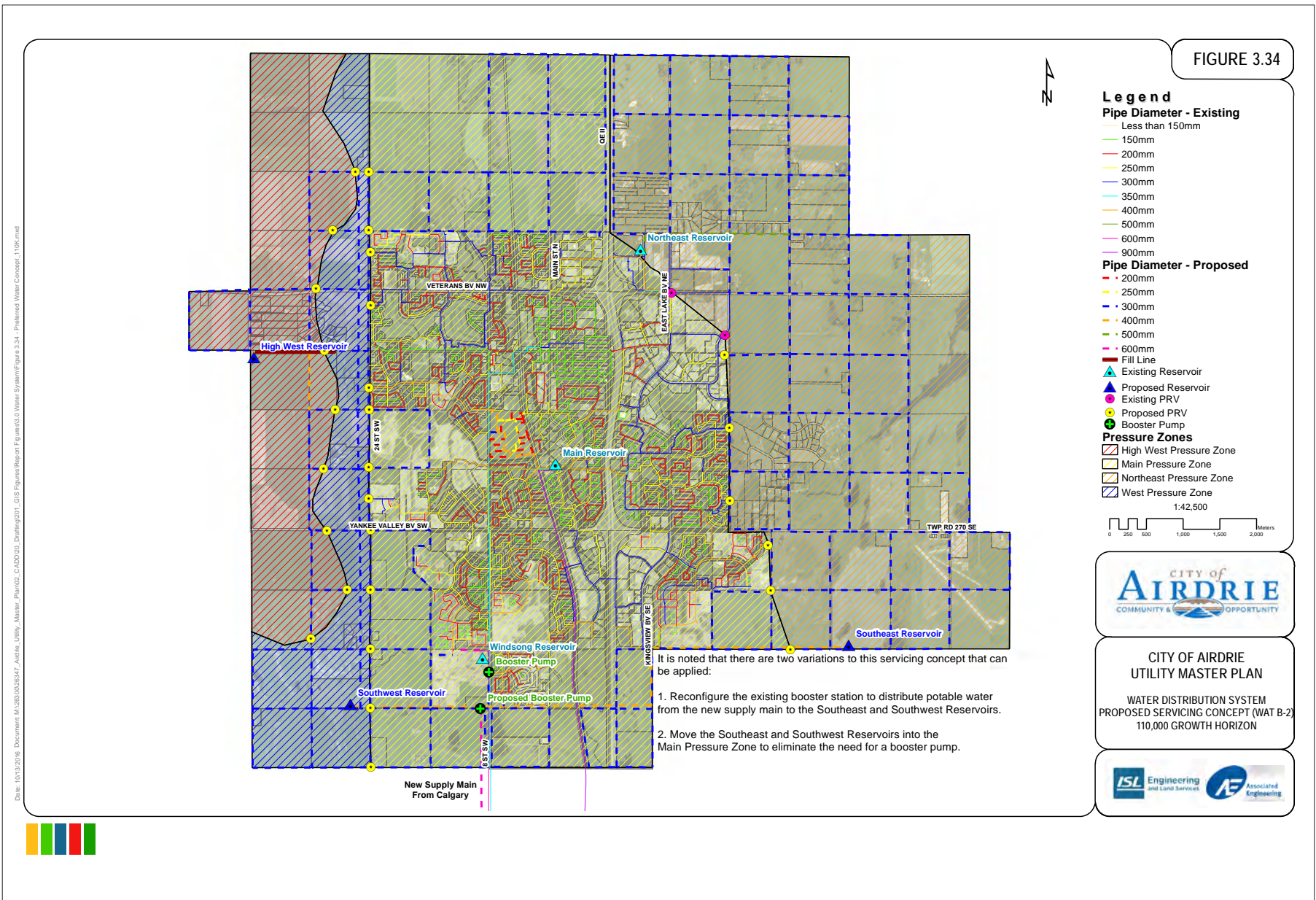






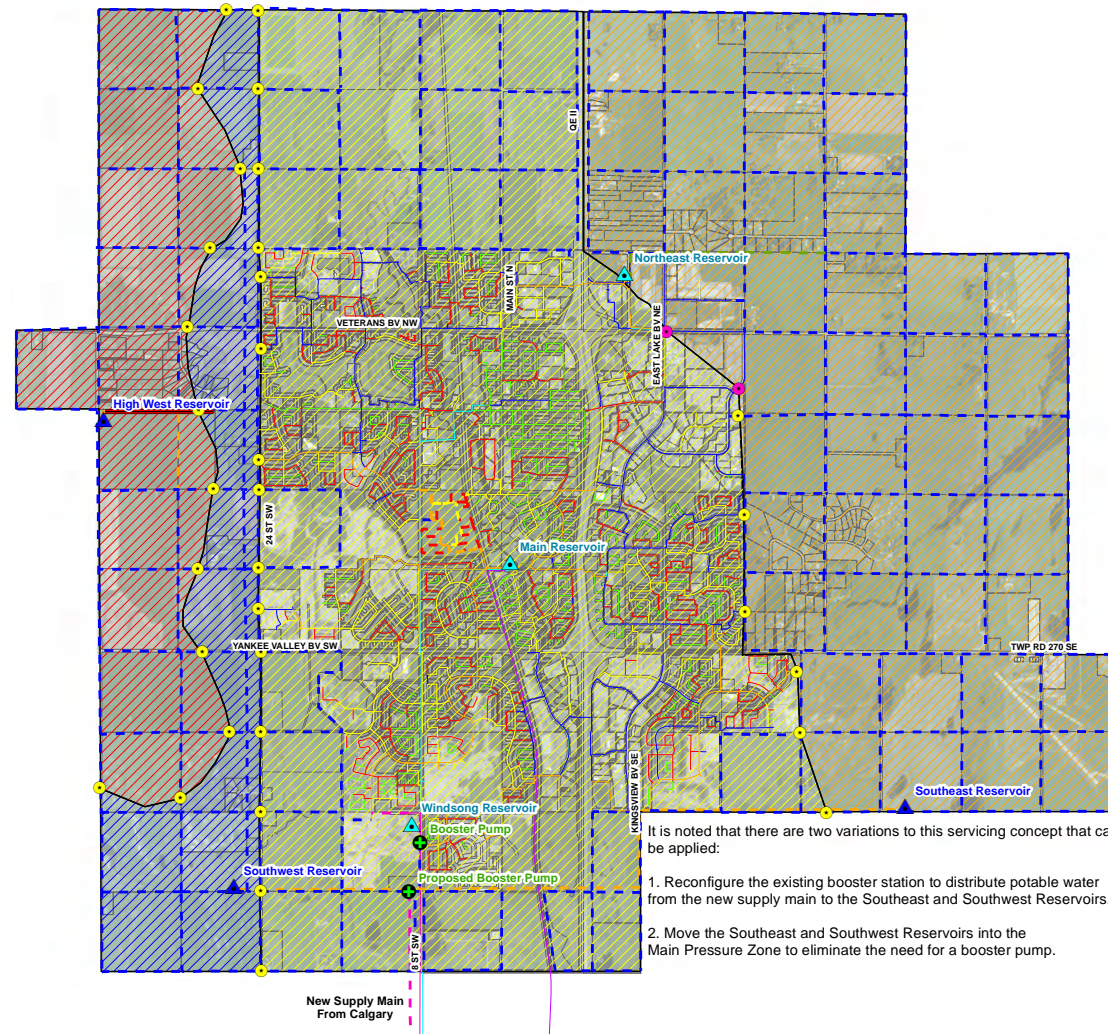
Date: 5/22/2018 Document: M:\25000\25047_Airline_Utility_Master_Plan\02_CADD\201_GIS_Figures\GIS\Reviewing_Options\Recommended_Options\25047_FUT_SSN_Servicing_Post1106.mxd







Date: 10/13/2016 Document: M:\20300\26347_Airdrie_Utilities_Master_Plan\02_CADD\02_Drafting\01_GIS Figures\Report Figures\3.35 - Preferred Water Concept_Post_110K.mxd



North Arrow

FIGURE 3.35

Legend

Pipe Diameter - Existing

- Less than 150mm
- 150mm
- 200mm
- 250mm
- 300mm
- 350mm
- 400mm
- 500mm
- 600mm
- 900mm

Pipe Diameter - Proposed

- 200mm
- 250mm
- 300mm
- 400mm
- 500mm
- 600mm

Fill Line

- Existing Reservoir
- Proposed Reservoir
- Proposed PRV
- Existing PRV
- Booster Pump

Pressure Zones

- High West Pressure Zone
- Main Pressure Zone
- Northeast Pressure Zone
- West Pressure Zone

1:42,500



CITY OF AIRDRIE UTILITY MASTER PLAN

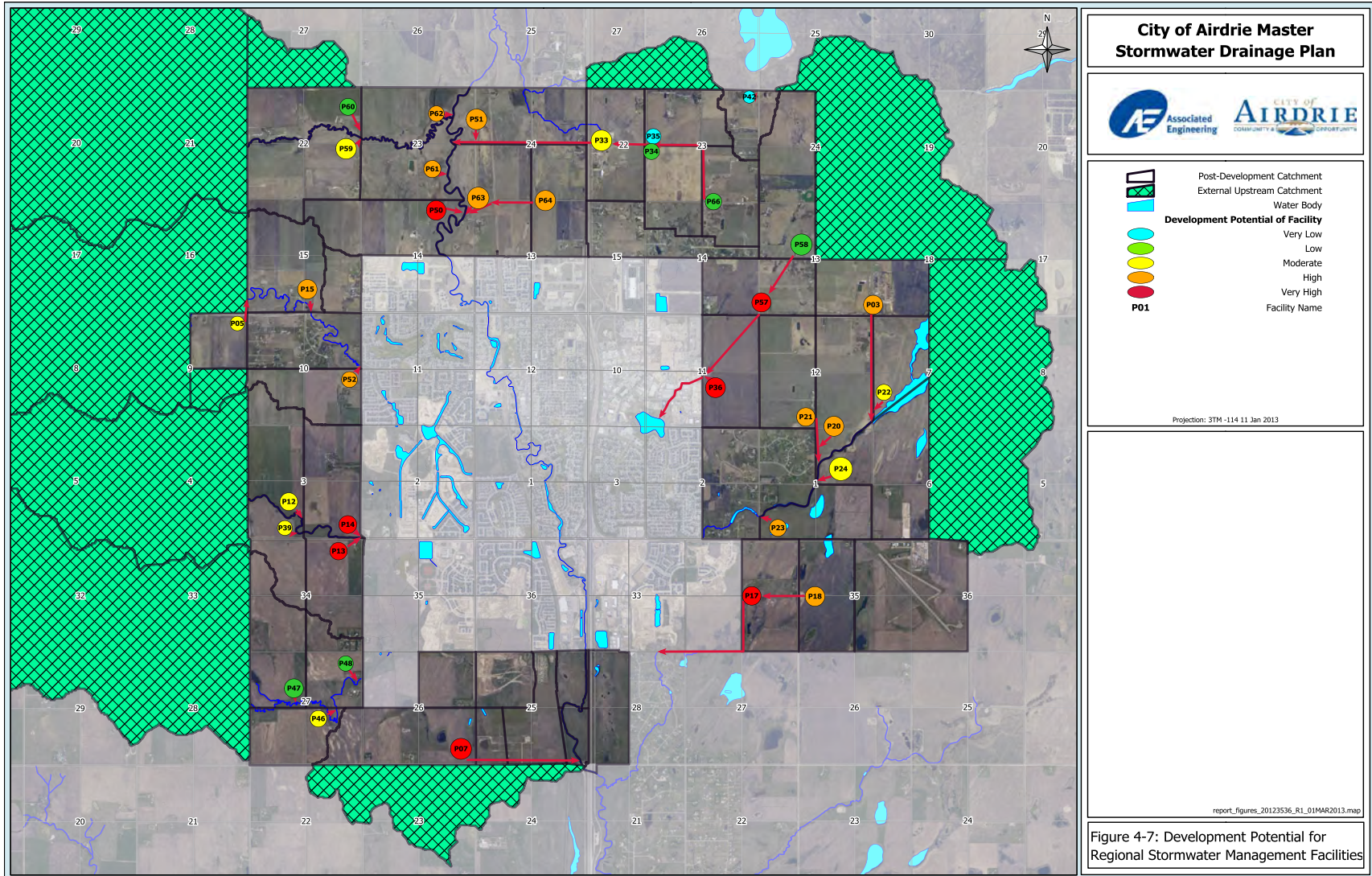
WATER DISTRIBUTION SYSTEM
PROPOSED SERVICING CONCEPT (WAT B-2)
POST - 110,000 GROWTH HORIZON

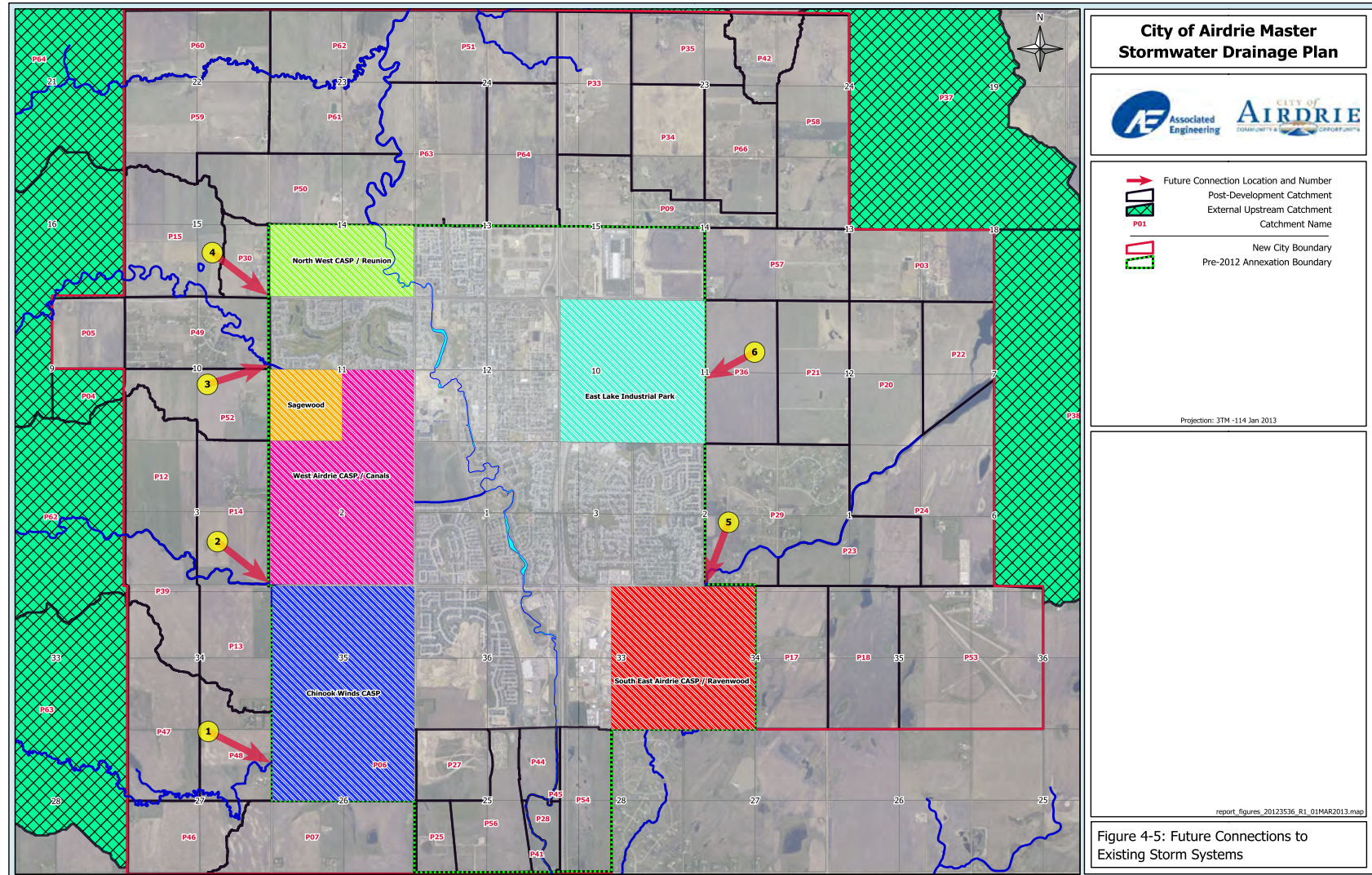


It is noted that there are two variations to this servicing concept that can be applied:

1. Reconfigure the existing booster station to distribute potable water from the new supply main to the Southeast and Southwest Reservoirs.
2. Move the Southeast and Southwest Reservoirs into the Main Pressure Zone to eliminate the need for a booster pump.









12K Plan Sequencing Analysis

Based on IBI's review of the transportation and servicing foundational documents (UMP, MSDP and TMP), the following summary table was prepared to align the information from the foundational documents with the 12K Plan growth sequencing horizons.



80 K	Cumulative Jobs:	29,321		
	Land Absorption	Acres		
	Residential	151		
	Industrial	121		
	Commercial	23		
	Improvements Required	Cost		
	Transportation	Required	Aspirational	Responsibility
	• East Lake Hill Extension / 2 new lanes (Connect to future RR291)	-	\$6,000,000	Airdrie/Developers (s)
	• Veterans Blvd East Upgrade to 4 lanes (East Lake Blvd to East Lake Rd)	\$4,500,000	-	Developers(s)
	• YVB Expansion to 6 Lanes (8th St to Main St)	\$4,500,000	-	Developers(s)
	• 8th St 4 new divided urban lanes + pedestrianestrian (40th Ave to 56th Ave)	\$8,000,000	-	Developers(s)
	• 56th Ave Full Movement Interchange (56th Ave and Hwy 2. Includes 56th Ave)	\$46,000,000	-	Province/Developers(s)
	• YVB Grade Separated CP Crossing, Expand to 6 Lanes (Yankee Valley Blvd at CP Railway tracks)	\$20,000,000	-	Airdrie/Developers (s)
	• 56th Ave westward upgrade to 2 lanes urban (Hwy 2 to 8th St)	\$7,500,000		Developers(s)
	• Bridge over Canal with 2 New Lanes and pedestrian & Cycling Facility (Connect to Canals Blvd to Canoe Ave)	-	\$4,500,000	Airdrie/Developers (s)
	• 40th Avenue East, New 2 lanes urban divided + pedestrian (Connect Kingsview Blvd to East Skeletal)	\$11,500,000	-	Developers(s)
	Total:	102 M	10.5 M	
	Servicing	Total Cost (City/Developer)		
	Wastewater			
	• Complete upgrades at the Main and West Lift Stations.	Excluded from future servicing costs.		
	• Rehabilitate or replace the existing lower pressure rated 600mm HDPE force main servicing the Main Lift Station.	\$12,353,000		
	• Upgrade pumps at the Sierra Springs Lift Station and connect the Lift Station directly to the existing 350mm force main.	\$1,705,000		
	• Construct sanitary trunk sewers, forcemains and Lift Station #2 in the northwest to connect to the trunk located 800m north of Yankee Valley Boulevard which will ultimately connect to the Main and West Lift Stations. Additional infrastructure may be required pending available capacity of the existing system.	\$16,407,000		
	Water			
	• Upgrade the Main Reservoir pumps and construct watermain in the Main Pressure Zone.	\$29,760,000		
	• Construct a new 600mm supply main from Calgary. This is required if either Southwest or Southeast Reservoir is to be constructed.	\$25,120,000		
	• Construct new Southwest Reservoir. The West Pressure Zone will be introduced with the implementation of the Southwest Reservoir. This will require a 400mm supply line to feed from the proposed 600mm supply main from Calgary. Implement new pressure reducing valves and water mains.	\$52,900,000		
	• Construct Southeast Reservoir. This reservoir will assist the Northeast Reservoir in servicing the Northeast Pressure Zone. This will require a 400mm supply line to feed from the proposed 600mm supply main from Calgary. Implement new pressure reducing valves and water mains.	\$62,020,000		
	Storm Water			
	• Upgrades as necessary for new development. No specific global upgrades required.	\$41,000,000		

110 K	Cumulative Jobs:	43,642		
	Land Absorption	Acres		
	Residential	1,448		
	Industrial	508		
	Commercial	127		
	Improvements Required	Cost		
	Transportation	Required	Aspirational	Responsibility
	• RR291 Upgrade to 2 lanes urban + pedestrian (From East Lake Hill extension to Veterans Blvd)	\$4,000,000	-	Developers(s)
	• 8th St North Upgrade to 2 lanes urban undivided + pedestrian (Veterans Blvd to 1600 m north)	\$9,000,000	-	Developers(s)
	• 40th St (RR13) / 24th St Skeletal to 4 new lanes urban with ROW for 6 (From 40th Ave to 56th Ave)	\$14,500,000	-	Developers(s)
	• YVB upgrade east part 2 Upgrade to 4 lanes urban + pedestrian (Ravenswood View to East Skeletal)	\$6,000,000	-	Developers(s)
	• East Lake Blvd Upgrade to 2 lanes urban undivided + pedestrian (Highland Park Lane to 800 m north)	\$4,500,000	-	Developers(s)
	• 24th St north Upgrade to 2 lanes urban divided + pedestrian (Veterans Blvd to 1600 m north)	\$9,000,000	-	Developers(s)
	• RR 291 North Upgrade to 2 lanes urban undivided + pedestrian (Veterans Blvd to 800 m north)	\$4,500,000	-	Developers(s)
	• Veterans Blvd upgrade east Part 2 to 4 lanes urban divided + pedestrian (East Lake Rd to RR291)	\$4,500,000	-	Developers(s)
	• North Fly-over/New 2 lanes + pedestrian & cycling (Located between Veterans Blvd and Twp. Rd 274)	\$TBD	-	Airdrie
	• Twp. Rd 274 Interchange (Twp. Rd 274 Ave and Hwy 2)	\$46,000,000	-	Province/Developers(s)
	• Kingsview Blvd Extension to 2 New Lanes (56th Ave to Sharp Hill Way)	-	\$8,000,000	Airdrie/Developer(s)
	• Mid-city Fly-over / 2 New lanes + pedestrian & cycling (Approximately connecting Allen St to East Lake Cres)	-	\$TBD	Airdrie
	• RR292 (East Skeletal) / New 4 lanes urban (East Lake Hill extension to Regional Connection)	\$18,500,000		-
	Total:	\$120.5 M (+ \$TBD for Twp. Rd 274 Interchange)	8.0 M (+ \$TBD for Mid-City Fly-over)	-
	Servicing	Total Cost (City/Developer)		
	Wastewater			
	• Construct South Lift Station and the twin 750mm force main system to Calgary.	\$36,610,000		
	• Construct sanitary trunk sewers, forcemains and lift stations in the East and West to ultimately connect to the South Lift Station. The South Lift Station and twin 750mm force main to Calgary will need to be constructed in unison or prior to this upgrade.	East: \$57,890,000 West: \$27,780,000 Total: \$85,670,000		
	Water			
	• Construct the High West Reservoir. The implementation of this reservoir will introduce the High West Pressure Zone. This reservoir will feed through the Southwest Reservoir. Implement new pressure reducing valves and water mains.	\$23,850,000		
	Storm Water			
	• Construct stormwater management storage facilities and associated storm sewers.	\$76,880,000		

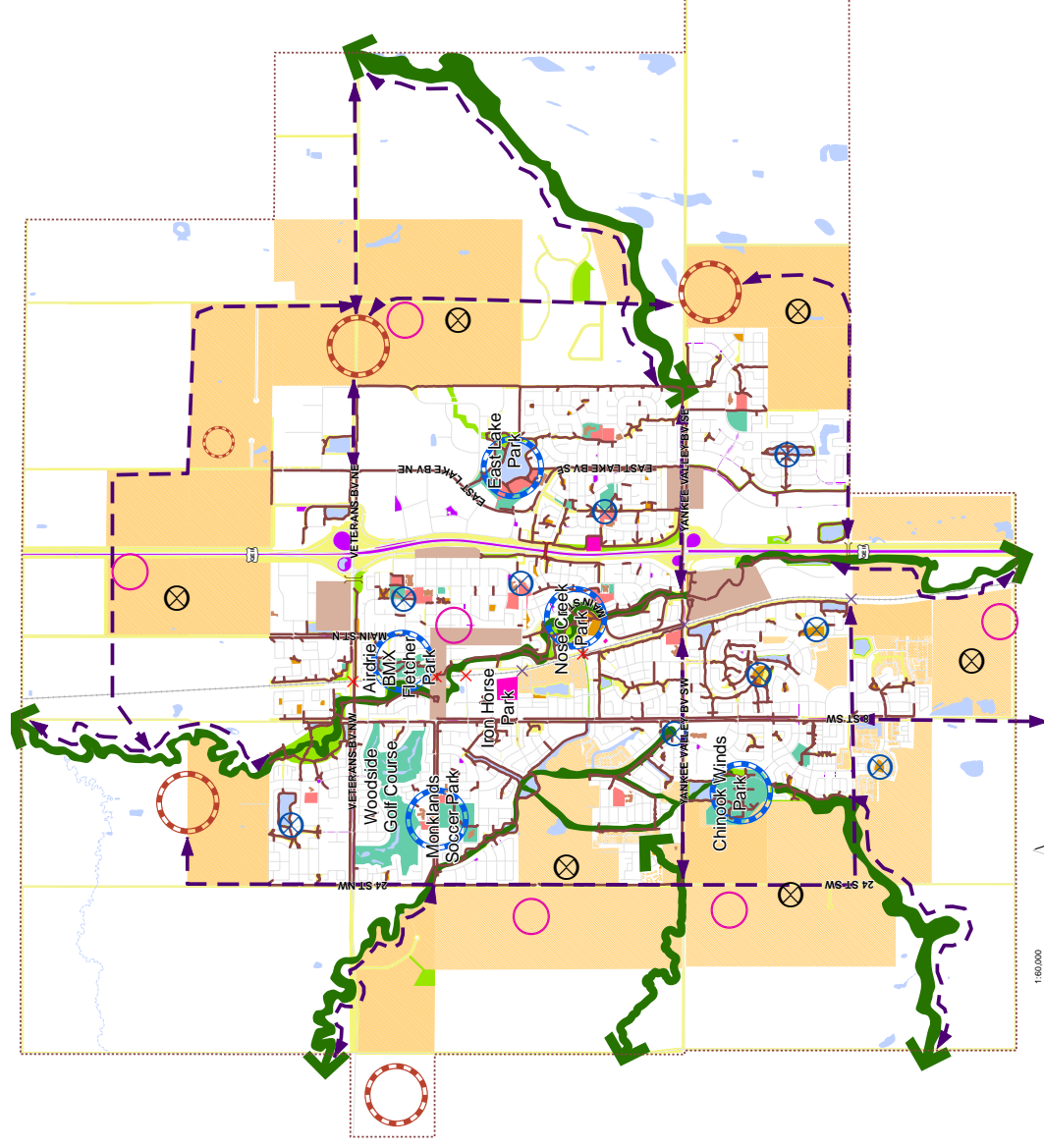


160 K	Cumulative Jobs:	65,867		
	Land Absorption	Acres		
	Residential	2,329		
	Industrial	1,071		
	Commercial	305		
	Improvements Required	Cost		
	Transportation	Required	Aspirational	Responsibility
	• Existing studies do not include information on transportation upgrades required past the 110 K population.	TBD		
	• Additional studies required.			
	Servicing	Total Cost (City/Developer)		
	Wastewater			
	• Upgrade existing major trunks and lift stations. Construct remaining lift stations and trunks to service the remaining quarter sections of land that were not included as part of the 110,000 growth horizon.	\$51,045,000		
	Water			
	• Implement new pressure reducing valves and water mains. Twin the 600mm Supply Main from Calgary. Upgrade reservoirs and pump stations.	\$105,450,000		
	Storm Water			
	• Upgrades as necessary for new development. No specific global upgrades required.	\$123,000,000		






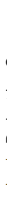









210 K	Cumulative Jobs:	94,175		
	Land Absorption	Acres		
	Residential	2,089		
	Industrial	1,348		
	Commercial	582		
	Improvements Required	Cost		
	Transportation	Required	Aspirational	Responsibility
	• Existing studies do not include information on transportation upgrades required past the 110 K population.	TBD		
	• Additional studies required.			
	Servicing	Total Cost (City/Developer)		
	Wastewater			
	• Existing studies do not include information on wastewater upgrades past the 160 K population.	TBD		
	• Additional studies required.			
	Water			
	• Existing studies do not include information on water upgrades past the 160 K population.	TBD		
	• Additional studies required.			
	Storm Water			
	• Upgrades as necessary for new development. No specific global upgrades required.	TBD		



Great Places Plan - Open Space Concept (2016)



MAP 1 | Open Space Concept

Existing Open Space Types	Existing Open Space Elements	Proposed Open Space Elements
A Natural & Semi-Natural Green Space	 Pathway	 Pathway
B Historic Resource, Cultural Landscape, or Landmark	 Pedestrian Rail Crossing	 Pedestrian Rail Crossing
C Neighbourhood Parks, Gardens and Civic Spaces	 Pedestrian Overpass	 Pedestrian Overpass
D Joint Use Sites	 District Open Space Node	 District Open Space Node
E Outdoor Sport and Recreation Facilities	 Civic Open Space Node	 Civic Open Space Node
F Linear Systems, Green Corridors & Other Linkages	 Neighbourhood Open Space Node	 Neighbourhood Open Space Node
G Campground & Day Use / Picnic Area		 Green Corridor
H Non-Contributing Green Space		
 Proposed Community		
 Future Development Land		

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City of Airdrie



12K Plan Public Engagement Summary



12K Plan Public Engagement Summary

Over the timeline of developing the 12 Thousand Acres Plan, the project team had several engagements on the Plan to gather information and allow the community and stakeholders opportunities to provide their input and direction. The engagement for the 12 Thousand Acres Plan included two main phases:

1. A project kick-off, workshops, and meetings/discussions with individual stakeholders to clarify background information and assumptions and gather information that would be used in the creation of a draft plan. This took place from October to December 2017.
2. Public open houses and another round of individual meetings and discussions with stakeholders and residents in the project area to review the draft plan, capture input or concerns, and make changes to the draft for a final document. This took place during March-April 2018.

Summary of Phase 1

On October 4 2017, the City of Airdrie Planning and Development Department held an open house to introduce the project and provide information to residents and stakeholders about the 12 Thousand Acres Plan, the project goals, and timeline. The City received several questions about what was happening within the area, and how the 12 Thousand Acres Plan related to past strategic plans (AirdrieONE, the Transportation Master Plan) or current projects (such as East Points, or the Davy Creek and West Hills CASPs which were granted justification by Council in May 2017).

On October 17 and 18 2017, the Planning and Development Department held workshops on the 12 Thousand Acres Plan to gather input and allow the community to assist in drafting the first land use concepts for the project area. Attendees at the workshops worked together to create land use maps designating areas for future neighbourhood, employment, or environmental/open space. The project team took these maps and used them alongside information from background documents to create the land use concept in the final plan.

Following the October 2017 events, there were opportunities for members of the public and stakeholders to contact the project team to have further discussions and provide more focused input on individual aspirations and areas of concern. All input was recorded and taken into consideration as part of the draft plan, and a report on this and the October engagement events was provided back to the community in January 2018.

Below are the major themes from these initial sessions.

Employment Land

One of the major items the project team wanted input on was the allocation of employment/commercial areas within the plan. The majority participants ask that the City look at continuing to provide employment areas along the Highway 2 corridor and the east side, to connect with and continue the existing development pattern.

Participants also identified opportunities for new employment nodes for development in other areas of the city, the need for commercial areas to be strategically located, and the sequencing of the plan to ensure that employment areas do not limit or roadblock future residential development.



Residential Development

Most feedback on the location of future residential areas favoured continuing the City's current development patterns, and expanding next to Lanark/ Ravenswood, along West side of City (between 24 Street and 40 Street) and in the NE quadrant of the plan area.

Residents within the plan area were interested in learning more about how the 12 Thousand Acres Plan will impact them, the details around the timing for new plan areas to build out, and any buffering policies to protect country residential/ estate areas from adjacent development. There were also questions about further subdivision in estate areas and timing of services.

Some input suggested that the plan look at the expansion of estate lots and the development of new country residential subdivisions near the three existing communities.

Information about the Development Process and Considerations

Many participants in the engagement sessions were looking for information about the project and how 12 Thousand Acres Plan fits into the overall process for land use planning and development, and the impacts of the other City plans in the area. Participants want information about the three Community Area Structure Plans (CASPs) that are being developed, the servicing plans and timelines for the area, the process and timing following the 12 Thousand Acres Plan, and other CASPs before any physical development begins. Participants were also interested in learning about what their opportunities are to provide feedback and input throughout the process.

Participants also asked questions about development considerations such as setbacks, and how spaces between developments, active and abandoned wells, pipelines, the railway, the airport, and other features will be treated.

Greenspace and Environmental Features

Another theme that emerged from the engagement sessions was the need to protect natural areas and add green space for the city. Discussion included the natural corridors that were identified on the 'planning considerations' maps, specific environmental features in the area, and opportunities to add greenspace or open space areas in specific locations.

Discussion also included the use of open space for specific purposes, such as transitions between residential and non-residential developments, pathways and green corridors connecting different areas of the city, and greenspaces as additional community amenities where residential development backs onto these areas.

Community Facilities

Participants wanted to see a variety of community facilities included in the development plan, such as recreation and fitness centres, a hospital or health care centre, and facilities for the performing arts.

Water Management

Participants discussed how stormwater management is reviewed during the development process, and the engineering requirements for stormwater management ponds. Participants highlighted areas within the project that may need to be looked at in more detail and suggested that the City develop policies regarding development in flood fringe areas.

Transportation and Connectivity

Another theme that emerged from the engagement sessions was the importance of the transportation network and how it relates to land use planning. Participants discussed the importance of development along the highway 2 corridor, the need for access to future residential and commercial areas, how the city's transportation network connects outside of our borders to the Calgary region, connectivity between the east and west of the city across highway 2 and whether services needed to be split across both sides of the city to reduce the need to travel across the highway.

Participants also had questions about the road network maps from the Transportation Master Plan and other background documents and wanted to know how this information will be reflected or revisited in the 12 Thousand Acres Plan and future CASPs.



Detailed Input from Phase 1

Open House – October 4

Questions from participants

- What is the timeline for the big picture (of the project)?
- If someone wanted to develop, what is the process?
- What is being planned for the area?
- Questions on the AirPark.
- Yankee Valley Estates & Country Residential Area to the West:
 - o Country Residential – is it untouchable?
 - o What is the plan for the Country Residential areas?
 - o 20 acre or larger lots that are adjacent to Yankee Valley Estates – would like to redevelop but the City has indicated no process for this yet.
 - o The City doesn't understand Country Residential.
 - o There are rumors that a road is going through Yankee Valley Estates. Is the City going to expropriate these properties? Should owners sell these properties now? What are the impacts of the road?
- Buffalo Rub:
 - o What will happen to the land to the north? It should be a park space.

- East Points Industrial CASP:
 - o What are the buffers (transitional areas) that will be provided for the Industrial CASP?
 - o Industrial impact on land values?
 - o Is Propak moving to adjacent to Yankee Valley Estates?
 - o Devaluing of properties adjacent to industrial.
 - o What is the timing of the East Points Industrial CASP?
- What is the traffic plan?
- What is the servicing plan?
- There is disturbance (moving of dirt) by the Davy Creek CASP lands. What is happening here?
- What will happen to abandoned gas wells?
- Lands north of Buffalo Rub - 5 quarter sections. Owners would like this to be a residential land use. What is the process to have this designation?

Land Use Mapping Exercise – October 17/18

Summary of Land Use Maps

Employment Lands

- Most plans showed employment areas continuing to be concentrated on East Side of Hwy2 and NE of the city (extending from East Points and straddling Highway 2).

- Other employment nodes were identified by groups in the following locations:
 - o Airpark lands (every group) included the 4 quarter-sections of the Airpark, 7 other groups included some of the surrounding areas further west/north.
 - o SW quadrant incorporating some areas along 40th, 24th, Yankee Valley BV, and Highway 2 corridor (specific locations and the amount of land varied between groups – from a thin strip along corridors to some that included 4-5 quarter-sections of employment land).
 - o Possible major urban centre/hub identified by one table for the area around Section 27-26-1 W5M to take advantage of the 40th/24th ST connection from Calgary (and possible transit node?)

Residential

- Most workshop maps identified residential areas next to Lanark/Ravenswood, along West side of city (between 24th ST and 40th ST) and in NE quadrant of the plan area.
- 2-3 groups identified some possible expansion of estate lots and country residential development patterns east of Yankee Valley Estates.
- Possible residential infill identified along the west side of Yankee Valley Estates, moving west to east over time.
- Some groups proposed south 2 quarter-sections of East Points to change to residential/ neighbourhood development; other groups identified the need for transition areas in the same location.



Environmental Areas/Open Space

- Most land use maps followed the greenspace/ natural corridors identified by the Planning Considerations map (from O2 study) or appeared to assume that this would be the default option and focused instead on what land uses would be developed around them.
- Some interesting environmental features/open space nodes were not a part of the Planning Considerations and identified by individual groups/tables:
 - o Node in N1½15 and S1½22-27-1 W5M
 - o Node along RR13 on SW¼434-26-1 W5M
 - o Ridge/high point identified along Section 23-27-29 W4M
 - o Node/regional park north of Croxford Estates
 - o Regional park identified in special study area west of RR13

Comments noted during Mapping Exercise

- Buffers needed at south boundary between Airdrie and RVC.
- Need transition area from Hillcrest/South Windsong to commercial uses.
- Preserve mountain views along east side of city.
- Consider even and/or proportionate allocation of residential vs. non-residential lands on both East and West sides of the city.
- Ensure that future employment areas are located strategically or remain flexible so that they don't limit [residential] development within the city.

- Land Use Plan should be based off major highways and transportation corridors.
- Development sequencing should generally start at south and proceed north
- CASP boundaries should be identified through servicing catchment areas.
- Need a balance of residential and non-residential in most areas so that residential development can drive funding for major infrastructure.
- Connectivity between Highway 2, Veterans/567, and Range Road 292 is desirable for commercial/industrial development (gives options and alternate routes).
- Need a recreation centre on the west side of the city?
- Consider how development along the highway 2 corridor at South and North ends of the city serve as gateways to Airdrie: what is this interface and how does it improve the city?
- Stop putting residential development along the Rail corridor.
- Don't want Airdrie to be a bedroom community or an industrial wasteland.

Comments about Specific Land Uses

- Hospital identified in several land use concepts along north of the city. Locations included East Points, North of Davy Creek, and South of 567 beside Buffalo Rub.
- Consider incorporating more recreation and civic-oriented land uses as Airdrie develops into the 12k Acres Plan area... (examples)
 - o Campground
 - o Seniors Homes
 - o Health Care/Campus
 - o Hospital
 - o Music/Arts (Expand on Theatre)
 - o Recreation Centre

Planning Considerations Map Exercise

- Need better buffers between estate/country residential and employment areas.
- Allow for fitness and recreation centres in industrial areas.
- Keep the grid road system (along Alberta Township System grid lines?)
- Develop flood fringe policies.
- Take advantage of backing development onto greenspaces and water bodies.
- Allow for more estate type housing (½ acre lots).
- Show context between Airdrie and RVC/ Calgary:
 - o Road network connections
 - o Approved ASPs



- Country residential areas don't want services until they sell.
- City of Airdrie has no business tax but does have expensive utility fees.
- Look at sequencing development north-south first, then expand east-west.
- Croxford estates has a high-water table.
- Very wet in NE environmental corridors, floods every spring, road (TWP RD 274?) has been flooded out several times.
- Need better storm water management pond designs for the annexed areas/future CASPs within the 12k Acres Plan.
- Subdivision lines in north quarter-section of West Hills CASP are incorrect.
- Coulee along YVB (west side of city) does not cross 24th – has been channelized.
- Need to identify well-water locations around Yankee Valley Estates (and other rural areas?) and factor these into planning considerations.
- Area around East boundary (and nose creek tributary) will be difficult to develop but could be brought high enough with appropriate measures.
- Show servicing catchment areas as part of Planning Considerations – will likely drive a good part of the future CASP boundaries.
- Check alignment of future 40th/24th ST skeletal connection. How does this align with future plans and when/where will it cross over from 40th ST to 24th?

- Road alignments of 40th AV East and RR292 (East Skeletal) seemed off – had a few comments asking for clarification for how these areas are going to be developed.
- A supportive road network is required before development and that should be what determines the phasing of future areas: Prioritize areas with existing road capacity.

General/Strategic Questions

- How does the 12k Acres Plan fit in the broader context within the Calgary Region?
- What are the costs and what is the current demand for industrial or other non-residential land uses? What types of industrial development are needed or wanted?
- What long-range community facilities might be needed (e.g., Hospital)?
- Need better clarification on how justification reports will work for future CASPs.
- Is the City of Airdrie open to moving or sharing density allocated in certain development areas? Airdrie City Plan alludes to this in principle RE intensifying along corridors and in major nodes, but how would this work and can it be used to support/allow an ASP under 8-10 UPA?
- Large ASP boundaries are problematic in developer-driven model for future CASPs. What does a proponent do if a landowner or group of owners refuse to participate?
- How will Airdrie address truck traffic that currently goes through the city? (Need a vehicle inspection station?)

Individual Discussions

The Project team was directly contacted by stakeholders for discussions about the plan, including developers, land owners, and residents who contacted the City between October and December 2017. These conversations were requested by the individual stakeholders and the details of the discussions were specific to each person or group. All input received by the project team will be taken into consideration as part of the draft plan.

Land Use Maps

Post scans of the land use maps that were completed during the engagement exercises – link online on the project website at: <https://www.airdrie.ca/getDocument.cfm?ID=5707>



Summary of Phase 2

A draft of the 12 Thousand Acres Plan was posted, and a notice was sent to all landowners within the project area and stakeholders from previous engagement events, and the Planning and Development Department held two open houses on March 28 and April 4 2018 to present the draft plan and gather input, question, and recommendations that could be used to address concerns and improve the final draft of the plan.

During April 2018, the Planning and Development Department provided additional opportunities for members of the public and stakeholders to have one-on-one meetings and provide more specific and direct input on the draft plan.

During April 2018 the draft plan was also circulated and referred to external agencies and other jurisdictions for input, questions, and comments. The Planning Department took these comments into consideration, arranged for follow-up discussions to discuss some of this input in more detail, and incorporated revisions into the final draft of the Plan.

Below are the major themes from the sessions.

Sequencing

Several comments from stakeholder related to the sequencing of areas for development. This included comments specific to areas in the plan related to growth, employment and residential land designations, and servicing. These comments will be used to address sequencing.

There were also comments regarding the three CASP that are underway, with the response that these CASPs are being allowed to proceed as they were granted justification prior to the 12 Thousand Acres Plan project. Additional phases will need to be looked at in the context of phase 1 and the guidelines set out in the 12 Thousand Acres Plan. Comments also included the potential for the City to look at reducing the size of CASPs in certain areas, where it makes sense, to still meets the Plan's objectives.

Plan Guidance

Stakeholders asked about how the 12 Thousand Acres Plan relates to CASPs. The 12 Thousand Acres Plan will provide guidance and broad direction for the City's long-term growth and approved CASPs will take precedence once adopted. However, any details that vary from the direction and/or sequencing of 12 Thousand Acres Plan will need to be justified and proven out prior to adoption of those plans.

Stakeholder also has some comments and questions regarding specific areas within the 12 thousand acres and future development. These comments are too detailed for the 12 Thousand Acres Plan and will be addressed at the CASP level.

Water Conservation

A few stakeholder has some ideas with regards to water conservation and sewer capacity. There is policy relating to water conservation and environmental stewardship in the Municipal Development Plan and can be reflected in the 12 Thousand Acres Plan. Planning for necessary infrastructure is part of the engineering review on CASP justification reports.

Levies

A few stakeholder suggested an Offsite Levy Bylaw be prepared to support the development plan shown in 12 thousand acres. An Offsite Levy Bylaw is currently being drafted.

Greenspace and Environmental Features

Some stakeholders commented about greenspace in the 12 thousand acres. The team will better identify natural features and significant/sensitive areas in the background section of the plan. The 12 thousand acres plan does not designate additional areas for conservation on the land use map but supports conservation/preservation initiatives within the guidelines of the plan.



Overall Summary and Key Directions

The project team considered all comments and input that were received through engagement initiatives on the 12 Thousand Acres Plan. Overall, there were several items that formed key themes or were addressed in specific ways in the final plan.

Land Use Balance:

- Residents and stakeholders supported the provision of employment land to meet the City's strategic goals of a higher non-residential assessment base. Input during consultation also supported a balance of neighbourhood and employment land on both east and west sides of the highway. **This is reflected in the final 12 Thousand Acres Plan Land Use Concept, as there are areas designated for residential and employment lands on both sides of the QE2 Highway, and overall the allocation of employment land supports the City's assessment objectives.**

Transportation and Connectivity:

- A major theme that emerged from the engagement sessions was the importance of the transportation network and how it relates to land use planning. Participants discussed the importance of development along the Highway 2 corridor, the need for access to future residential and commercial areas, how the city's transportation network connects outside of our borders to the Calgary region, connectivity between the east and west of the city across Highway 2. **The 12 Thousand Acres Plan reflects the skeletal network provided in the 2015 Transportation Master Plan and considered the implications to transportation infrastructure in determining the sequencing strategy for the plan. Transportation, accessibility, and connectivity remain an integral part of land use planning that need to be addressed through future Community Area Structure Plans.**

Protection of Greenspace and Environmental Features:

- There was a desire for the 12 Thousand Acres Plan to demarcate large area(s) for environmental conservation and to protect a significant portion of the plan area from future development as part of the Land Use Concept. **While the project team did not see this as desirable without direct consultation with the landowners that would be potentially impacted, the Plan does provide guidelines that highlight conservation as a desirable objective and would support planning for these areas during a CASP application.**

Adjustments to CASP Boundaries:

- From the initial March 2018 draft the project team reviewed requests to amend the draft CASP boundaries to facilitate logical groupings of land holdings within common comprehensive plan areas. The East Nose Creek CASP was split into two plans along Yankee Valley BV SE, and the boundaries of the three CASPs along the west side of the city were realigned along Yankee Valley BV SW and Veterans BV NW. **While it was initially the intention of the project team for plan areas to span major roads and corridors so that the interface on both sides could be addressed within the same plan, it was decided that this could still be effectively addressed between the affected CASPs with appropriate policies.**

Alternate Solutions for Servicing:

- Several comments that staff received on the draft plan were interested in the 12 Thousand Acres Plan exploring or allowing future CASP submissions to explore and propose alternate solutions for servicing new development areas. This involved several concepts including identifying unused capacity within the current system, exploring or mandating water conservation initiatives, or allowing for interim servicing. **The 12 Thousand Acres Plan outlines the desired servicing and sequencing concept and makes allowance for the City to consider alternative proposals under the guidelines of the plan.**