Edmonton Energy and Technology Park

Area Structure Plan
December 2009

Office Consolidation January 2015

Marked changes: June 14, 2017

Additions shown as highlighted

Deletions shown in ~~strikethrough~~

Urban Systems
Golder Associates
PAAE Ltd.
Gray Scott Group Inc.
ISL Engineering

Edmonton Energy and Technology Park Area Structure Plan

Office Consolidation Jan 2015

Prepared by:

Current Planning Branch

Sustainable Development

City of Edmonton

Bylaw 15093 was adopted by Council in June 2010. In January 2015, this document was consolidated by virtue of the incorporation of the following bylaws, which were amendments to the original Bylaw 15093

Bylaw 15093	Approved June 9, 2010 (To adopt the Horsehills Energy and Technology Park Area Structure Plan)
Bylaw 15642	Approved May 2, 2011 (To rename the ASP to Edmonton Energy and Technology Park ASP, identify a park site in the park area, delineate the City's Legal Entitlement to Municipal Reserve in Section 7.7 and update the Land Use Statistics Table)
Bylaw 16175	Approved January 23, 2013 (To amend the Edmonton Energy and Technology Park Area Structure Plan to amend the boundaries of the Plan and to incorporate administrative amendments that were approved as a part of Bylaw 16169 to rezone the subject lands)
Bylaw 16767	Approved September 23, 2014 (To allow for the development of a wider range of industrial production facilities in the Edmonton Energy and Technology Park ASP and to update contextual information.)

Editor's Note:

This is an office consolidation edition for the Edmonton Energy and Technology Park Area Structure Plan, as approved by City Council on June 9, 2010. For the sake of clarity a standardized format was utilized in this Plan. Private owner's names have been removed in accordance with the Freedom of Information and Protection of Privacy Act. All text changes are noted in the right margin and are italicized where applicable. Furthermore, all reasonable attempts were made to accurately reflect the original Bylaw.

This office consolidation is intended for convenience only. In case of uncertainty, the reader is advised to consult the original Bylaws, available at the Office of the City Clerk.

City of Edmonton

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LIST OF ABBREVIATIONS

ACRWC Alberta Capital Region Wastewater Commission
AIH Alberta's Industrial Heartland
~~AESO Alberta Electrical System Operator~~
ARA Arterial Roadway Assessments
ARP Area Redevelopment Plan
ASP Area Structure Plan
CFB Canadian Forces Base Edmonton
CN Canadian National Railway
CRNWSC Capital Region Northeast Water Service Commission
~~ERRR Edmonton Regional Ring Road~~
~~ILS Industrial Land Strategy~~
LRT Light Rapid Transit
MDP Municipal Development Plan
MGB Municipal Government Board
MIACC Major Industrial Accidents Council of Canada
NSRV North Saskatchewan River Valley
TMP Transportation Master Plan
TOD Transit Oriented Design
TUC Transportation ~~and~~ Utility Corridor
UPMP Urban Parks Management~~aster~~ Plan

~~LIST OF APPENDICES~~

~~Appendix 1: June 18th Public Information Session~~

~~Appendix 2: October 1st Public Meeting~~

EXECUTIVE SUMMARY

(Bylaw 16767 Sept 23, 2014)

The Province of Alberta has experienced unprecedented levels of economic activity in the exploration and extraction of oil and gas reserves. The value-added production of petrochemical products from these energy resources is immense and offers the potential for significant sector growth in Alberta.

In this context, the City of Edmonton in early 2008 authorized the preparation of this document, the Edmonton Energy and Technology Park Area Structure Plan (EETP ASP). In 2016 the Industrial Investment Action Plan (IIAP) was approved by Executive Committee, as such this ASP has been amended to meet objective seven of the IIAP: increase speed to market. This document is a Statutory Plan that provides a land use framework to facilitate the development of petrochemical, manufacturing, logistics, business and research uses ~~This document is a statutory land use plan that provides a framework to encourage the development of these ancillary petrochemical industries~~ in Northeast Edmonton, comprising approximately ~~5,244~~ 5,218 ha (~~12,958~~ 12,894 acres).

A global downturn in oil prices beginning in 2014 ~~*Recent changes in the global economic situation*~~ *resulted in several industry participants re-evaluating individual corporate pace of growth and commitment to expansion. While short-term reduction in activity has taken place, the long-term expectations of growth within the industry and the Canadian economy remain in place. Together with the reasonable certainty of a significant economic upturn in the future, the opportunity to put in place an action plan for increased participation should be pursued. It is expected that in addition to* ~~*growth in*~~ *bitumen related industry, natural gas derivatives will greatly increase development and investment opportunities*.

(Bylaw 16767 Sept 23, 2014)

Increased liquefied natural gas supply and decreased costs of feedstocks increase the viability of value-added processing of products derived from base chemicals such as ethylene, propylene, benzene and ammonia within Alberta's Industrial Heartland. Products manufactured from these base chemicals include: plastics and engineering resins, synthetic fibers, rubber products, paints and coating, lubricants and cleaning products.

~~In addition to providing land designated for a specific type of industrial growth, the Edmonton Energy and Technology Park ASP intends to chart a course for the development of the ASP area into a world-class eco-industrial precinct that combines economic opportunity, ecological integrity, and~~

~~efficient use of land and resources through the application of Eco-Industrial Development. Eco-Industrial Development has been used as the basis for industrial projects worldwide and is gaining popularity in North America.~~

The precincts ~~land uses~~ within the plan area have been developed to function as an integrated system of ~~cluster of chemical based~~ industries that work together to refine chemicals into market products. The three precincts are: Petrochemical Cluster, Medium Industrial, and Research and Development.

(Bylaw 16767 Sept 23, 2014)

The ~~primary land uses include a~~ ~~p~~Petrochemical ~~c~~Cluster ~~p~~precinct ~~that~~ will use feedstocks from the area for industrial processing to create added value.

The Medium Industrial precinct ~~that~~ will include~~s~~ ~~a~~ manufacturing, ~~precinct~~ logistics, and general industrial uses. This precinct ~~that~~ will use the refined chemicals to create goods ~~a logistics precinct that packagies and moves goods, and a~~ and will be complemented by packaging and transportation services to move these goods to market. ~~At the same time, the Medium Industrial Precinct~~ This precinct also allows for general industrial uses to provide opportunity for more conventional and stand-alone manufacturing and related uses.

The ~~r~~Research and ~~d~~Development ~~p~~precinct ~~that~~ supports the technical needs and business functions of the Petrochemical ~~c~~Cluster precinct. This precinct also provides opportunity for innovative businesses that take advantage of upcoming economic opportunities and incentives for alternative environmentally-friendly industries, such as renewable energy technology.

This plan also provides an integrated natural areas system that protects and augments the ecological function of the existing natural landscape. This will be achieved through a series of active parks incorporated for employee use, together with a walking and cycling network to support recreational use and alternative transportation methods. Sustainable development practices are encouraged through the plan's design guidelines and permissive policies encouraging the development of alternative infrastructure solutions.

VISION

The Edmonton Energy and Technology Park intends to chart a course to develop the area into a world class eco-

industrial park that combines economic opportunity, ecological integrity, and efficient use of land and resources using a progressive and sustainable model of development based on eco-industrial principles.

1.0 INTRODUCTION

1.1 Regional Context

Alberta Economic activity in the petrochemical sector is driven by the exploration and extraction of oil and gas reserves. Edmonton and surrounding area, known as the Capital Region (shown in Figure 1), acts as the service centre for oil and gas activity in northern Alberta. The Capital Region provides these industries supportive services such as logistics, manufacturing, and office functions.

(Bylaw 16767 Sept 23, 2014)

This relationship between the oil and gas industry and the Capital Region has also been strengthened with the creation of Alberta's Industrial Heartland (AIH). AIH consists of over 580 square kilometres of land designated for heavy industrial uses that straddles portions of the City of Edmonton, Strathcona County, Sturgeon County, Lamont County, and the City of Fort Saskatchewan. These municipalities have worked together to create complementary Area Structure Plans to designate AIH as the best suited area for hydrocarbon processing and other heavy industrial development in the Capital Region. AIH provides heavy industry the benefits of co-location, including sharing common products and developing common supportive industries between multiple companies. The area currently houses over 40 ~~30~~ chemical and advanced manufacturing businesses representing more than $32 ~~$11~~ billion in investment and $15+ billion in projects announced or under construction. ~~This including internationally recognized companies like DOW Chemical, Shell, Imperial Oil. BP Amoco, Sherritt International, Praxair, and Petro-Canada.~~ ~~This~~ The agglomeration of internationally recognized companies within AIH has made the AIH Canada's largest hydrocarbon processing region. The AIH is represented by ~~has an association,~~ ~~the~~ Alberta's Industrial Heartland Association (AIHA), a body that actively plans and promotes opportunities within the AIH. Future development in AIH will provide significant long term opportunities for supportive industrial development in the Capital Region. It is anticipated that this ancillary industrial growth could represent more than fifty years of future development potential.

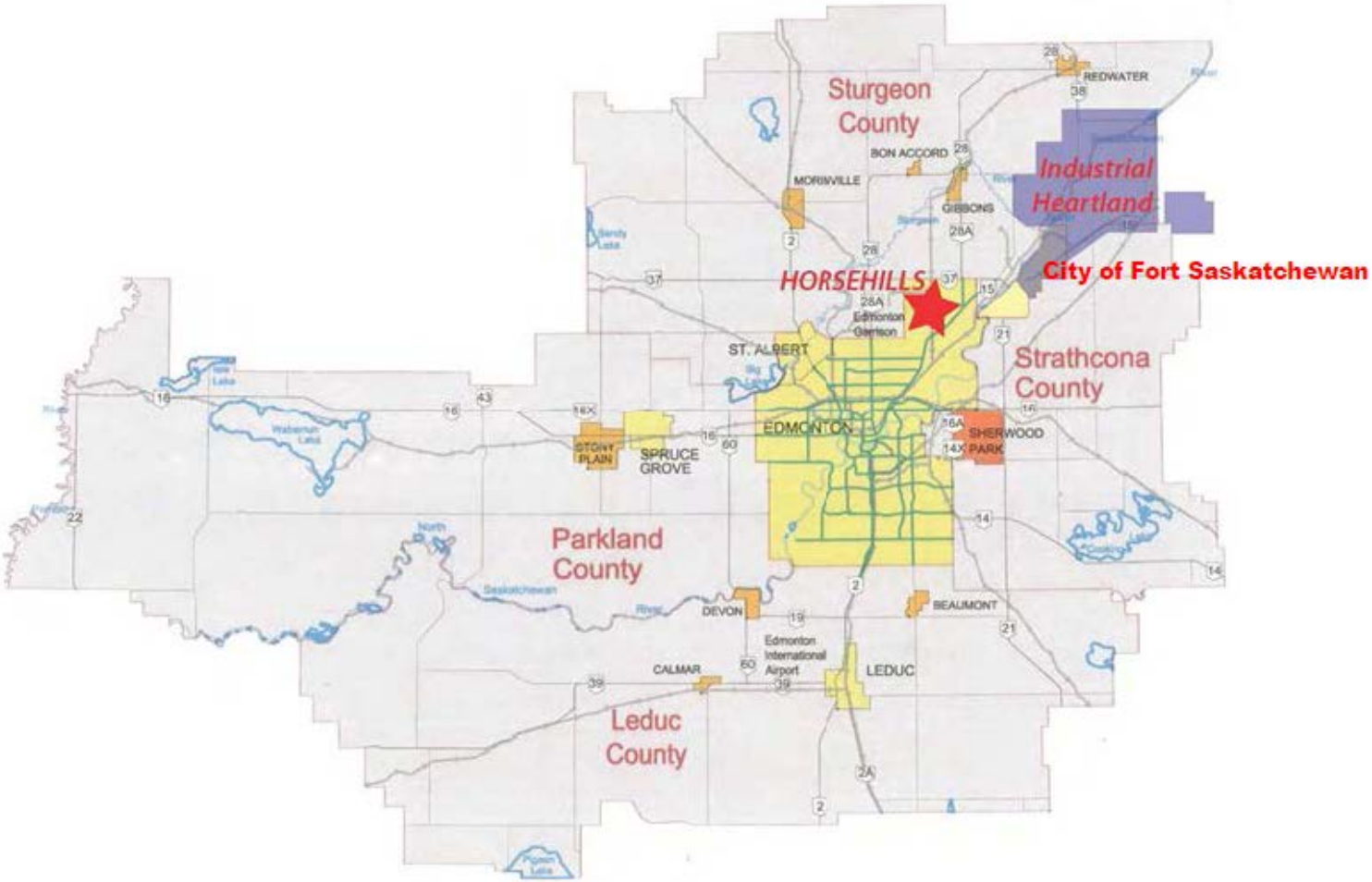
In early 2016, optimism within the AIH increased with the announcement of the Province of Alberta's Petrochemical Diversification program. The program was created to encourage companies to invest in the development of new petrochemical facilities by providing up to $500 million in

incentives through royalty credits. As a result, in late 2016 the AIH announced two propane dehydrogenation (PDH) projects, and three facilities, including a propylene complex (plastic pellets manufacture) by Inter Pipeline Ltd. and Pembina Pipeline Corporation in Sturgeon County and Strathcona County. ~~Optimism within the AIH has increased, in part as a result of the Province's Petrochemical Diversification program, which is supported by some $500 m in royalty credits. This has resulted in a 2016 announcement of two propane dehydrogenation (PDH) projects, and three facilities in the AIH, including a propylene complex (plastic pellets manufacture) by Inter Pipeline Ltd. And Pembina Pipeline Corporation in Sturgeon County and Strathcona County.~~ The propane will be processed into propylene, then higher value polypropylene. The estimated potential capital investment as a result of these projects is close to $6 billion ~~to Alberta~~.

Being a member of the AIH and having a large, skilled workforce to draw from, the EETP is ideally located to take advantage of industrial economic opportunities.

The City of Edmonton Investment Competiveness Study (Watson & Associates Economists Ltd, 2016) forecasts that within the northeast Edmonton Capital Region, the EETP is expected to absorb 19% of the demand for heavy industrial lands between 2016 - 2026. Furthermore, the study indicates that the City of Edmonton's share of regional light medium industrial land is projected to decrease slightly, from 49% between 2011 - 2015, to 47% between 2016 - 2016. The EETP, however, is forecast to account for a significant amount of new light/medium industrial development between 2016 - 2026, offsetting what would otherwise have been a greater decline in market share (Watson & Associates Economists Ltd, 2016).

Figure 1: The Capital Region DELETE AND REPLACE WITH New Figure 1 (see Appendix C of ASP Amendment Application)



1.2 Economic Growth Projections

(Bylaw 16767 Sept 23, 2014)

(Paragraph deleted).

(Sentence deleted). The Edmonton area has superior access to feedstocks, along with cost advantages and good access to skilled staff compared to other global city regions. This makes the Edmonton area a good location to develop chemical industries dependent on feedstocks. This opportunity will be most successful if factors including costs, infrastructure availability, shared services, convenient transportation of goods, availability of skilled workers, and availability of feedstocks are considered through the development planning process.

The EETP ASP plan area, at 5,218 ha in gross area, is the source of approximately 2/3 of the City of Edmonton's vacant industrial land.

(Bylaw 16767 Sept 23, 2014)

The City of Edmonton Investment Competiveness Study (Watson & Associates Economists Ltd (2016) states "The EETP is anticipated to capture an increasing share of the city's industrial land absorption". While the EETP's share of industrial lands development activity over the 2016-2021 period is expected to be relatively modest, over the 2021-2026 period, the EETP is forecast to capture 43% of city-wide land industrial land demand" (p. 8-11). This increased share is forecast partly due to a recovery of the energy sector over the 2021 to 2027 period.

1.3 Project Description

It is in this context that the City of Edmonton authorized the preparation of the Edmonton Energy and Technology Park Area Structure Plan (ASP). The ASP is a Statutory Plan that is approved by City Council through Bylaw. The ASP establishes a coherent framework that will guide future development of the area.

It is the intention of the Edmonton Energy and Technology Park ASP to chart a course for the development of the Northeast area into a world class eco-industrial precinct specializing in petro-chemical manufacturing ~~industry~~. At the same time, the EETP will be flexible enough to accommodate more conventional industrial development and research opportunities in response to changing economic conditions. The Edmonton Energy and Technology Park ASP will create an ordered pattern of development that integrates industry, nature, and people in a way that creates a whole that is better than the sum of its parts.

2.0 ECO-INDUSTRIAL

~~The Edmonton Energy and Technology Park ASP will provide a vision for a new kind of industrial area for the City of Edmonton. The Plan allows for the economic opportunities identified in the Kline studies. Environmental considerations are also becoming increasingly important in public opinion, business functions, and corporate social responsibility. Edmonton Energy and Technology Park provides an opportunity to blend both economics and environment into the planning process.~~

~~Businesses know that maximizing efficiency is good for the bottom line. Development that maximizes utility and minimizes waste can also be good for the environment. This is the fundamental principle behind the development of a new industrial movement called Eco-Industrial Development. Eco-Industrial Development intends to maximize the efficiency of industrial production, individual businesses, and entire business park areas while considering ways in which these efficiencies can best achieve *"environmentally sustainable industry within an environmentally sustainable community"*.~~

~~An Eco-Industrial project is intended to balance economic, environmental, and social interests in a way that maximizes the benefit for each of these factors. This balanced philosophy is referred to as the 'triple bottom line'.~~

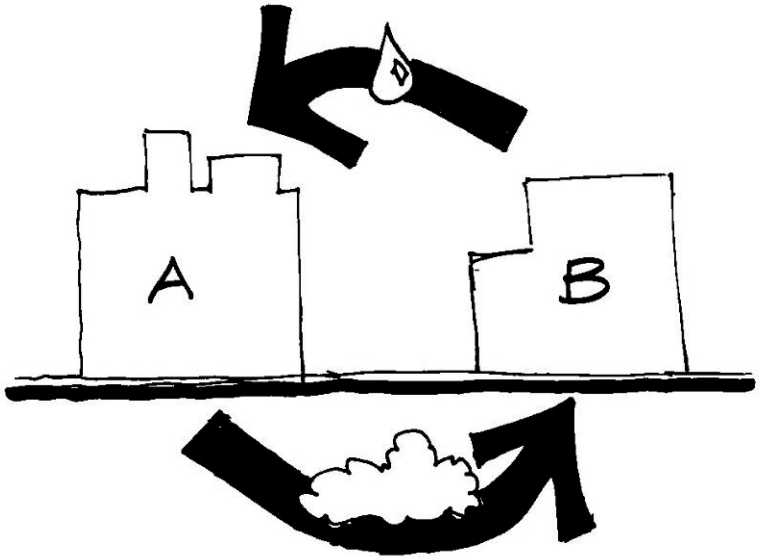
~~Eco-Industrial developments share the following characteristics:~~

- ~~Businesses achieve improvements in productivity of human and natural resources~~
- ~~Energy is used widely and generated locally~~
- ~~Fewer non-biodegradable wastes are introduced into the environment~~
- ~~Businesses connect to their communities and are compatible with mixed land uses~~
- ~~Inter-company networks bring about new efficiencies and new market opportunities~~
- ~~Sustainable land use and sustainable design of facilities are the norm~~

(Bylaw 16767 Sept 23, 2014)

- ~~*There is the opportunity for businesses located in the park to share waste heat*~~

~~A myriad of practices are used to implement these eco-industrial characteristics. Eco-industrial developments may create networks of businesses to share common services like loading yards and parking facilities, or even share waste outputs that can be used as process inputs for another business.~~



~~Alternative infrastructure may be used to improve environmental performance while reducing costs. This may include developing alternative roadway standards that reduce impermeable surfaces and paving costs, creating naturalized stormwater management facilities that improve groundwater recharge and reduce pipe costs, using recycled wastewater from nearby treatment facilities, or storing rainwater to use instead of treated water for industrial process or for yard maintenance. Local service provision is also common in eco-industrial developments, whether that be an area-specific recycling facility, local wastewater treatment plant, or even a co-generation power facility. These are just some examples of the many ways eco-industrial development is implemented.~~

~~Eco-Industrial Development has been used as the basis for industrial projects around the world and is gaining popularity in North America. Canadian examples of the application of Eco-Industrial principles include the Maplewood Project in Vancouver, the Burnside Eco-Industrial Park in Halifax, the Innovista Eco-Industrial Park in Hinton, and Taiga Nova in Fort McMurray.~~

~~The balance between economic, environmental and social~~

~~interests, along with Eco-Industrial Development's proven success in a myriad of applications both locally and worldwide, makes it an ideal model to use as the basis of development in Edmonton Energy and Technology Park. The plan area does not have extensive existing infrastructure. That allows maximum opportunity to pursue eco-industrial development in the development of sites and major infrastructure.~~

~~Development policies and design requirements that respect eco-industrial principles will be incorporated throughout the plan to ensure that eco-industrial objectives become a cornerstone of development in Edmonton Energy and Technology Park.~~

The Edmonton Energy and Technology Park ASP provides a vision for a new kind of industrial area for the City of Edmonton. Environmental considerations are becoming increasingly important in public opinion, business functions, and corporate social responsibility. The Edmonton Energy and Technology Park provides an opportunity to blend both economic and environmental objectives into the planning process. Businesses know that maximizing efficiency is good for the bottom line. Development that maximizes utility and minimizes waste is also good for the environment. This is the fundamental principle behind the development of an industrial movement called 'Eco-Industrial Development', which can be defined as:

Eco-Industrial development promotes environmentally and economically efficient use of all resources and physical assets in new and existing industrial areas. Collaboration and cooperation between stakeholders, innovation, integration, systems thinking, and ecological respect underpin eco-industrial development. This influences the planning and evolution of industrial areas, design and usage of infrastructure and buildings, and operation of businesses. Eco-industrial development results in an industrial area with efficient land use that can protect and enhance local biodiversity; is integrated with adjacent uses; contains sustainable infrastructure; locally generates energy; and has high performance green buildings. Eco-industrial development enables by-product synergies; reducing waste and increasing efficiency while integrating and reinforcing natural systems.

An eco-industrial project balances economic, environmental, and social interests in a way that maximizes the benefit for each factor. This balanced philosophy is referred to as the 'triple bottom line'. Eco-Industrial development in the City of Edmonton should be

underpinned by the following principles:

- *Protect, integrate, connect and enhance local and regional ecological features, functions, and diversity.*
- *Design and operate infrastructure systems that reduce environmental impact and carbon footprint; are multi-purpose; and future-proof the development against changing needs and technologies.*
- *Incorporate green buildings, either new or through retrofitting existing buildings to higher environmental standards.*
- *Support business to business symbiosis around all waste materials, water, and energy streams. Maximizes production use of input resources and by-products as waste is non-productive.*
- *Foster and enable collaborative strategies; partnerships and actions between stakeholders to reduce costs; increase return on investments; and lower environmental impacts.*
- *Maximize use of renewable energy systems and sustainably produced feedstocks in order to reduce dependency of fossil fuel sources and finite material supplies.*
- *Facilitate educational initiatives that increase the eco-industrial literacy of all stakeholders.*

There are many practices used to implement these eco-industrial principles. Eco-industrial developments can create networks of businesses that share common services including waste outputs that can be used as process inputs for other business. A land use framework and regulatory regime based on eco-industrial principles can encourage and facilitate sustainable site and building design. Sustainable infrastructure can be used to improve environmental performance while reducing costs by developing alternative roadway standards that reduce impermeable surfaces and paving costs; creating naturalized stormwater management facilities that improve groundwater recharge and reduce pipe costs; using recycled wastewater from nearby treatment facilities; and using rainwater instead of treated water for industrial processes or yard maintenance. Local service provision is also common in eco-industrial developments, whether that be an area-specific recycling facility, a local wastewater treatment plant, or even a co-generation power facility. These are just some examples of the many ways eco-industrial development is implemented.

The balance between economic, environmental and social

interests makes it an ideal model to use as the basis for development in Edmonton Energy and Technology Park. The plan area does not have extensive existing infrastructure. That allows maximum opportunity to pursue eco-industrial development in the development of sites and major infrastructure.

Development policies and design requirements that respect eco-industrial principles will be incorporated throughout the plan to ensure that eco-industrial objectives become a cornerstone of development in Edmonton Energy and Technology Park.

3.0 SITE CONDITIONS

3.1 Site Context

(Bylaw 16767 Sept 23, 2014)

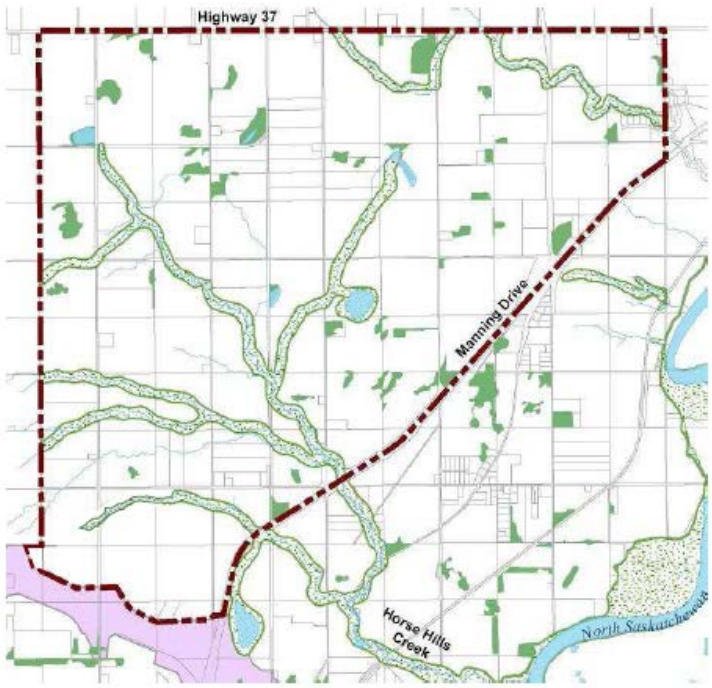
Edmonton Energy and Technology Park is located in northeast Edmonton. It accounts for most of the remaining undeveloped land within the City of Edmonton. The plan area is bounded by the Anthony Henday and Transportation / Utility Corridor (TUC) to the south, ~~and~~ Manning Drive to the southeast, and Sturgeon County ~~on~~ to the west, north and northeast. ~~and the City Limits to the east, the City Limits to the north, and the eastern boundary of the Edmonton~~ Canadian Forces Base (CFB) Edmonton, located within Sturgeon County is situated along ~~to~~ the west boundary, as shown in Figure 2:Edmonton Context.

In order to understand the existing ~~conditions~~ natural features and determine the best way to integrate them with planned development, the ~~Edmonton Energy and Technology Park~~ *Horsehills Industrial Area - Ecological Network Analysis* (Delcan in association with Golder Associates, December 2008) was prepared.

The following sections provide a summary of the existing conditions. Supporting studies, including the initial Ecological Network Analysis, and subsequent studies including the *Phase II Ecological Network Report Edmonton Energy Technology Park Chemical Precinct E-593* by Spencer Environmental Services (December 2014) (see Section 7.5) should be consulted for detailed information and mapping.

Figure 2: Edmonton Context (Bylaw 16175 Jan 23, 2013)

DELETE AND REPLACE WITH NEW Figure 2 (see Appendix C of ASP Amendment Application)



ASP Boundary
Tableland Natural Areas 2006
River Valley Natural Areas
Top of Bank
Waterbodies

3.2 Biological Environment

Biological Environment

The Study Area lies entirely within the Central Parkland Subregion and is characterized by undulating terrain that is predominantly comprised of till plains and hummocky uplands. Most of the area has been cultivated or developed, leaving remnant patches of native parkland, characterized by a mosaic of aspen and grassland vegetation, or mixedwood forests of aspen and white spruce along the North Saskatchewan River system and tributaries.

The main natural feature of the study area is the Horsehills Creek, which is part of the North Saskatchewan River Valley (NSRV) system. Horsehills Creek was identified as one of the most modified ravines within the City of Edmonton by a study undertaken by Wood and Tomiyama in 2006. Horsehills Creek is *"an ephemeral stream that flows during the spring snow melt and then almost completely dries up from early to mid summer. As a result of this low summer flow, agricultural activity frequently reaches to the stream borders and even extends across the creek bed in the upper portions of the creek."* There are natural and man-made depressions along the stream course that contain water throughout the summer, and beaver activity is common.

Natural Communities

In addition to Horsehills Creek, there are several forest patches and wetlands. Many of these areas have been classified as areas of environmental significance ~~by previous~~ in the studies undertaken for the City of Edmonton, as well as studies completed in support of rezoning and subdivision applications.

~~includeing~~ The studies update the ~~the~~ *Inventory of Environmentally Sensitive and Significant Areas* undertaken by Geowest in 1993 identified . These natural areas provide valuable habitat and refuge for many plant and wildlife species and often act as connecting corridors for ~~movement of~~ species movement into the broader North

Saskatchewan River Valley System. The mapping of these areas has been updated based on current aerial photographs, and are shown in Figure 12: Ecological Network.

Many of the species found in the Edmonton Energy and Technology Park are common to the City of Edmonton.

A few of the species that may potentially be found within the general area are protected as provincially and federally-listed species. These include the Peregrine Falcon, Harriot's sagewort, and the Northern leopard frog. However, it is unlikely that any of them would nest or den in the study area in great abundance due to the cultivated and developed nature of the area. Remaining ~~likely~~ habitat for these species includes areas that will be protected, such as the North Saskatchewan River valley, other riparian corridors, and significant wetlands. Additional detailed site specific assessments ~~are also recommended~~ are required at the rezoning, subdivision and/or development application stages to identify appropriate protection measures prior to development.

3.3 Physical Environment

Soils and Bedrock

Area soils generally consist of preglacial fluvial sediments overlying bedrock. The surficial deposits in the vicinity of the site range from less than 10 metres to 50+ metres. thick. Thicker deposits correspond to the Beverly Valley and the Horsehills Creek lows. Preglacial sands and gravels are also found in these lows.

The uppermost bedrock unit consists of the Edmonton Group Horseshoe Canyon Formation, which overlies the Bearpaw Formation and the Belly River Group. The topography of the bedrock regionally slopes towards one of the two predominant preglacial valleys (bedrock lows) in the area. Locally, the top of the bedrock structure generally slopes towards the Horsehills Creek and North Saskatchewan River. The bedrock surface varies from 590 to 650 metres above sea level.

Topography and Drainage

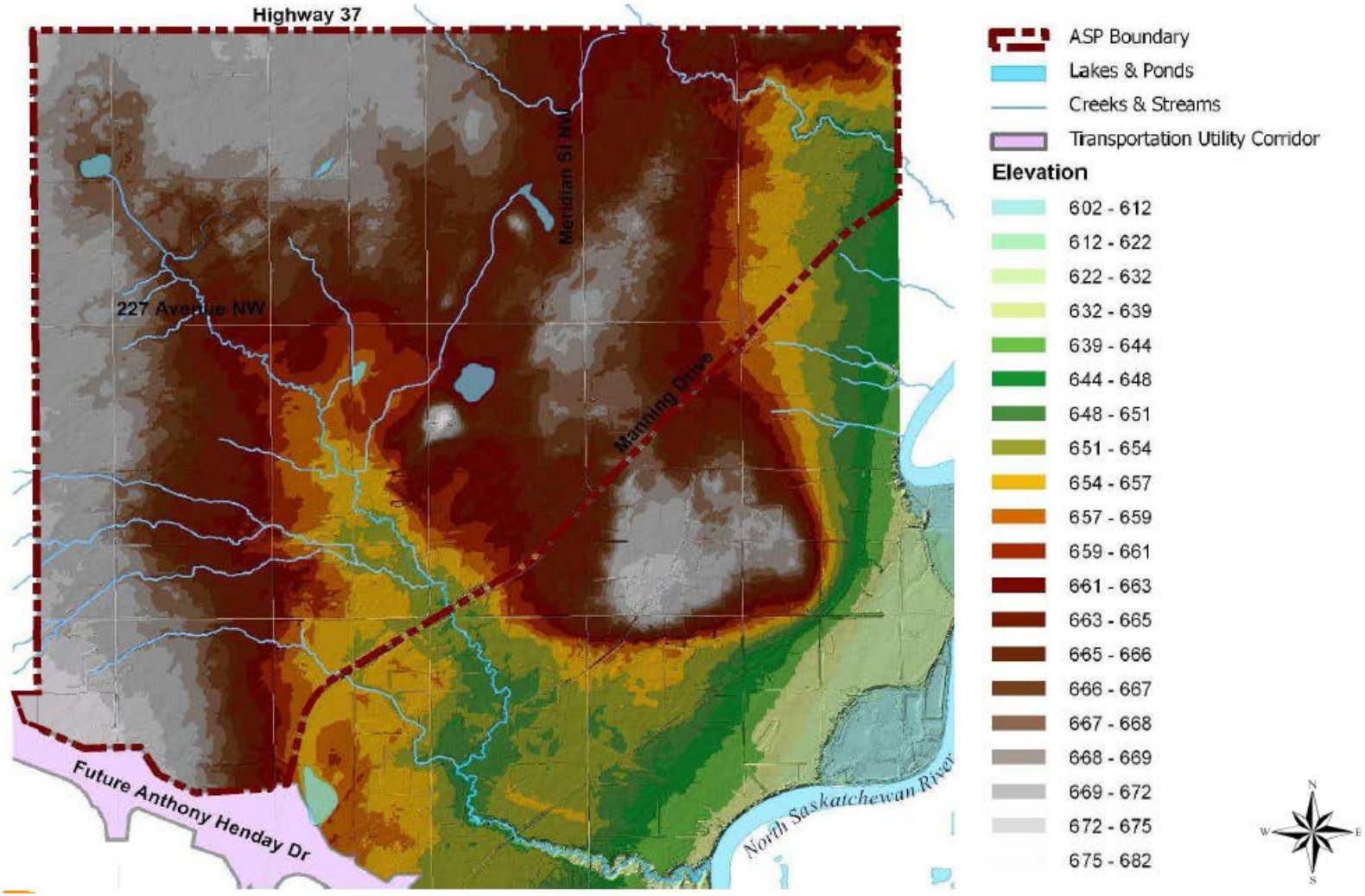
The area is generally flat with isolated low hills, depressions, shallow creek and drainage courses as shown in Figure 3: Topography. The majority of surface water and shallow groundwater flow easterly to the North Saskatchewan River from these creeks and drainage courses. Surface drainage consists of three main basins, all of which drain to the North Saskatchewan River.

Deeper groundwater flows towards the various creeks and bedrock lows of the area. Flows vary depending on the aquifer type. Their flows vary from less ~~that~~ than 5 l/min in shallow sands to over 400 l/min in bedrock wells over 250 metres. Wells in this formation are likely saline in nature.

Potential Contamination

Several areas may have soil or groundwater concerns, including a federal prison, existing pipeline right-of-ways, historical salt water areas, natural gas and condensate release areas, rail lines, abandoned oil and gas wells, unidentified industrial/commercial properties, unidentified structures and an area of historical ground disturbance. Additional investigations are required to confirm the presence of contamination, and are required at the rezoning, subdivision and/or development application stages.

Figure 1: Horsehills Area Topography (Bylaw 16175 Jan 23, 2013) **DELETE AND REPLACE with NEW Figure 3** (see Appendix C, ASP Amendment application)



3.4 Social Environment

Historical Land Use

The Horse Hills are so named because the location was the home of Fort Edmonton's horse guard (Blue 1924) and where as many as 800 horses were housed. The area was bisected by a portion of the Victoria Trail, an important overland route between Fort Edmonton, the Victoria Metis Settlement and areas to the East. The trail roughly follows Old Fort Road and is believed to predate the arrival of Europeans to the area, having been used as main east west travel route in pre-contact times.

Horse Hills played an important role in the maintenance and protection of Fort Edmonton. Review of historic resources did not identify any previously recorded pre-contact archaeological sites but did indicate there are 25 recorded historic structures. Areas surrounding watercourses also have the potential for archaeological resources.

(Bylaw 16767 Sept 23, 2014)

(Sentence deleted). Area names are largely based on this historical use. Residents typically refer to the area as Horse Hills, but the school south of Manning is called Horse Hill Elementary and Junior High School.

Land Use Context

Edmonton Energy and Technology Park is bounded ~~immediately south of the boundary of~~ by Sturgeon County to the west, north and northeast. The Sturgeon County lands near the plan area are used predominantly for agriculture. ~~largely as farmland.~~ The Municipal Government Board has required Sturgeon County ~~has been committed by the Municipal Government Board~~ to develop an Area Structure Plan for the area north of Edmonton Energy and Technology Park to determine future land uses. This project has not yet been initiated.

Strathcona County and the City of Fort Saskatchewan are located across from Edmonton Energy and Technology Park along the eastern boundary of the North Saskatchewan River. The closest lands to Edmonton Energy and Technology Park within Strathcona County are ~~currently~~ primarily agricultural. Strathcona

County's ~~recently updated~~ Municipal Development Plan has designated these lands for both continued agricultural uses and also 'transitional urban reserve' uses. The uses permitted within the transitional area are yet to be determined but are described as predominantly non-residential in the Strathcona County MDP. The closest portion of the City of Fort Saskatchewan to Edmonton Energy and Technology Park is designated for a large park space as a part of the North Saskatchewan River Valley system and the Westpark neighbourhood further east.

Canadian Forces Base (CFB) Edmonton is located along the western boundary of the plan area. The base uses the land along the plan boundary for training purposes, including a gun range, a parachute drop zone, and a munitions storage area. CFB Edmonton also includes two large runways capable of allowing for the takeoff and landing of large, fixed wing aircraft as well as a heliport. Due to the presence of the runways, there is a zoning overlay related to the possible flight paths, Noise Exposure Forecast (NEF) contours, and a bird hazard zone that extend into Edmonton Energy and Technology Park. The flight path zoning overlay restricts building height, while the NEF contours identify areas where noise would preclude more sensitive land uses, like residential uses. The height restrictions are dependent on the distance an individual site is from various portions of the runway, which is identified on the restricted covenant placed on the land titles of affected properties. The related bird hazard zone restricts any activities that would increase the presence of birds within its boundaries, including the development of conventional stormwater management facilities.

A mix of developed and developing lands within the City of Edmonton border the plan area. ~~south of the TUC.~~ The lands to the east of Manning Drive are subject to the *Horse Hill Area Structure Plan* adopted in 2013 and includes existing developments such as Alberta Hospital Edmonton, the Riverbend Receiver Site (a Department of National Defence facility), rural residential uses and agricultural operations. The Marquis Neighbourhood Structure Plan (NSP) was approved by Bylaw as an amendment to the Horse Hill ASP and is primarily intended as a residential area, with elements of commercial and business employment opportunities. *(Bylaw 16767 Sept 23, 2014)*

The lands south of the TUC between the 153 Avenue and 66 Street interchanges are covered by the Pilot Sound Area Structure Plan. Two Neighbourhood Structure Plans, McConachie and Cy Becker, have been adopted as amendments to the Pilot Sound ASP and bounded the

TUC to the south. The McConachie NSP was adopted in 2006 and the Cy Becker NSP was adopted in 2012. Both plans propose a combination of low and medium-density residential adjacent to the TUC.~~That area includes the developing low density residential neighbourhoods of Fraser to the southeast and Brintnell to the southwest.~~ The Gorman area ~~is also located along this boundary, and is~~ located east of Manning Drive and north of 153 Avenue~~. It~~ is currently ~~designated for business uses, along with a location for a large commercial development and~~ home to the Evergreen Cemetery and Memorial Gardens. It is anticipated that Gorman will ultimately be developed as a mixed-use area, containing business park, commercial, and residential uses, centred on a future LRT station ~~location.~~ ~~*In addition, to the southwest beyond the Manning Freeway are the undeveloped residential areas within the Horsehills ASP.*~~

The majority of the Plan area is in agricultural production, and is zoned as Agricultural.

~~However, there~~ There are several existing developments, which include a federal penitentiary, several religious assemblies, and a railway museum, ~~and an existing country residential development, along~~ as identified in Figure 4: Existing Zoning.

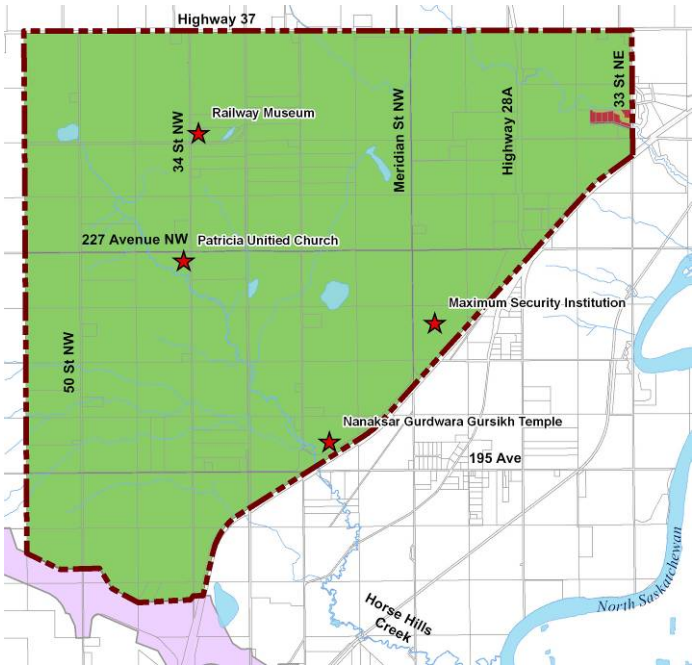
There are two country residential developments: a small six-lot subdivision in the northeast corner west of 33 Street NE zoned (RR) Rural Residential Zone and a five-lot subdivision along 195 Avenue in the southwest zoned (EETR) Edmonton Energy and Technology Industrial Reserve Zone.

Parts of the central, southwest and northeast areas of the EETP have already been rezoned in preparation for future development (see Figure 4: Existing Zoning). These include:

- approximately 500 ha within the centre of the plan area to (EETC) Edmonton Energy and Technology Chemical Cluster Zone in 2014;
- approximately 170 ha within the northeast to (EETL) Edmonton Energy and Technology Park Logistics Zone, (EETM) Edmonton Energy and Technology Park Manufacturing Zone, (AP) Public Parks Zone, (PU) Public Utility Zone and (A) Metropolitan Recreation Zone in 2013; and
- approximately 170 ha within the southwest to (EETL) Edmonton Energy and Technology Park Logistics Zone, (EETM) Edmonton Energy and Technology Park Manufacturing Zone~~,~~ (PU) Public Utility Zone, (AP) Public Parks Zone and (A)

Metropolitan Recreation Zone in 2012. Subdivision of approximately 57 ha of the lands rezoned to the EETP Logistics and Manufacturing zones was approved in the southwest portion of EETP in 2014 and revised with minor modifications approved in 2016. The uses are expected to include commercial and office, with the potential for medium industrial uses.

Figure 4: Existing Zoning **DELETE AND REPLACE WITH NEW Figure 4** (as of Bylaw 16943 (October 20, 2014) (see Appendix C of ASP Amendment Application)



ASP Boundary

Existing Zoning

- Agricultural Zone
- Metropolitan Recreation Zone
- Rural Residential Zone
- Waterbodies
- Existing Property Lines
- Existing Uses
- Transportation Utility Corridor

3.5 Existing Infrastructure

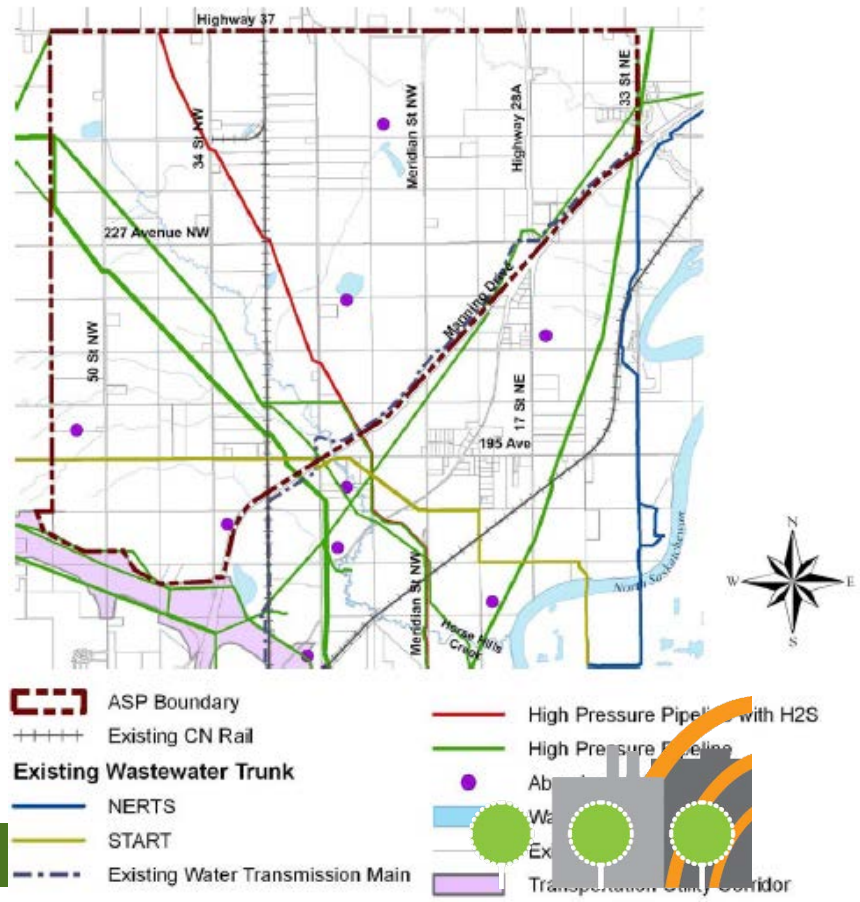
Existing Utilities and Pipeline Corridors

There are a number of major pipelines that run through this area, primarily carrying oil and gas related substances. There is a high pressure H2S line running from the northwest portion of the plan area towards the south central portion of the plan area. There are five additional high pressure gas lines running from the northeast and northwest, as well as four abandoned well sites north of Manning Drive. These are identified in Figure 5: Existing Pipelines and Wells.

The ~~Capital Region Northeast Water Services Commission~~ EPCOR water transmission line is located along Manning Drive. Two Alberta Capital Region Wastewater Commission Trunks, the Northeast Regional Trunk Sewer and the St. Albert Regional Trunk Sewer run through the plan area. The St. Albert Regional Trunk Sewer (START) generally runs along 195th Avenue NW while the Northeast Regional Trunk Sewer (NERTS) runs along 34th Street NW.

~~The Radke Report identifies the potential for a process waterline to extend somewhere within the ASP area from the Goldbar Water Treatment plan to AIH (Exhibit 8.1). The same report also identifies Manning Drive as a suggested pipeline corridor in future to support AIH businesses (Exhibit 10-3), as it would provide a convenient linkage to the TUC for extension of future pipelines around the City of Edmonton.~~

Figure 5: Existing Pipelines and Well Locations (Bylaw 16175 Jan 23, 2013) **DELETE AND REPLACE with NEW Fig. 5** (see Appendix C of ASP Amendment Application)



Existing Roads

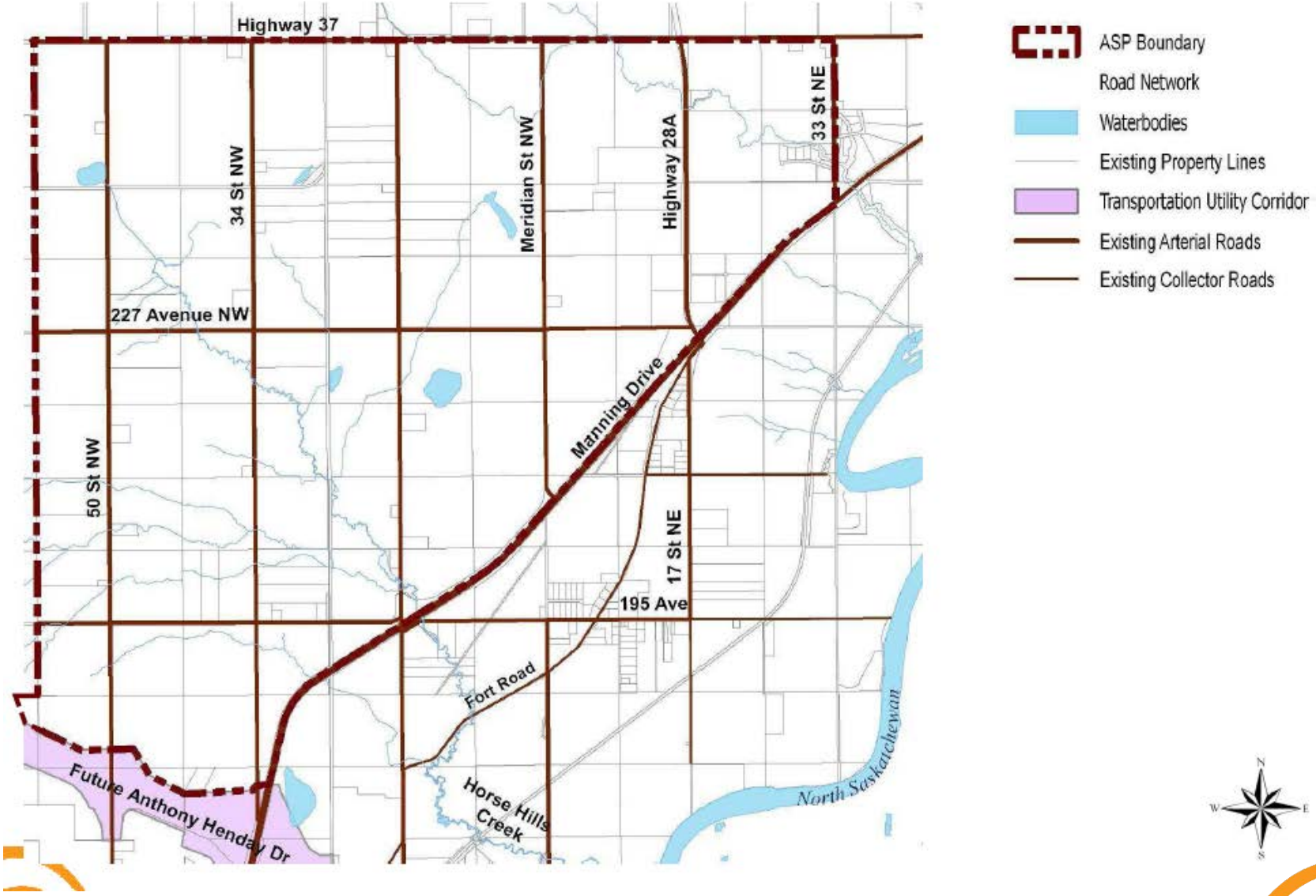
The existing road network in the area is arranged in a typical rural grid pattern (Figure 6). The north south roads are spaced at one mile increments, such as 50 Street NW, 34 Street NW, 17 Street NE, and 33 Street NE. Meridian Street is also a north south roadway. It is on the alignment of Zero Street and is the dividing line between the East and West quadrants in the City. The east west roads are spaced at two mile increments and include 195 Avenue, 227 Avenue NW, and 259 Avenue NW (also Highway 37). All of these local roadways are generally rural in nature with ditches, gravel or cold mix asphalt surfaces, a 20 metre right or way, and an 80 km/hr operating speed.

The area is also served by a number of rural high speed highways, including:

- Highway 37 which is an east west highway that forms the northern boundary of the plan area and is the north City limit.
- Highway 15, which is Manning Drive, and is a northeast southwest highway that forms the southeastern boundary of the plan area.
- Highway 28A which is a north south Highway that is aligned on 17th Street NE between Highway 37 and Highway 15.

Existing Rail

Canadian National (CN) Rail has a rail line running north-south through the plan area. This line, called the Coronado Subdivision, is a rail line running between Edmonton and northeastern Alberta including Fort McMurray. This railway connection provides an important method of goods shipment from the Edmonton area to regional and international markets.


Highway 37
34 St NW
Meridian St NW
Highway 28A
33 St NE
227 Avenue NW
Manning Drive
50 St NW
17 St NE
195 Ave
Fort Road
Future Anthony Henday Dr
Horse Hills Creek
North Saskatchewan
ASP Boundary
Road Network
Waterbodies
Existing Property Lines
Transportation Utility Corridor
Existing Arterial Roads
Existing Collector Roads

4.0 PUBLIC INVOLVEMENT

Public involvement is important in the development of an ASP and is required by the Municipal Government Act and guided by the *City of Edmonton Public Involvement Policy (C513)*. A public involvement plan was developed early in the planning process for the Edmonton Energy and Technology Park in order to ensure that public involvement was meaningfully incorporated throughout the project. The objectives of the public involvement process for this project were:

- To inform and engage landowners, residents, and other stakeholders of the planning process and conceptual plan for the area
- To identify key issues that the individuals, communities, and key stakeholders had regarding the plan
- To communicate to the public the proposed Area Structure Plan to date through a series of public events

The consultation process was comprised of two public involvement events and many key stakeholder meetings. The Area Structure Plan public involvement process has been reviewed and has been deemed complete.

4.1 June 2008 Information Session

An Information Session was held on June 18, 2008 in Patricia United Church, located at 3427 – 227 Avenue, from 4 – 8pm. The intent of the meeting was to make the public aware of the project, explain the planning process, and receive initial input from the public.

This Information Session was advertised on six portable signs throughout the study area and beyond. A combined information brochure and invitation was mailed to all landowners in the study area two weeks prior to the event.

The meeting was an open house format with information boards illustrating project details. Key project team members were available throughout the room to answer questions. A survey was also provided to allow the public to provide input on the information presented.

Over 194 people attended and 25 survey forms and comment sheets were submitted. The written input from these forms was compiled with other comments received after the Information Session. The most common responses included requests for more information, identifying that the area South of Manning Drive also

needed to be planned, and that any development in the area should be well coordinated. Additional details are included in Appendix 1.

4.2 Key Stakeholder Meetings

A number of stakeholders were specifically consulted during the preparation of the Edmonton Energy and Technology Park ASP, as well as the various amendments since its adoption. This stakeholder consultation was undertaken to gain base information about the plan area, to notify key stakeholders of the planning process, and to provide them an opportunity to express any preferences or concerns related to development in the area. All stakeholders were also invited to the information session and public meeting.

The project team undertook individual meetings with the neighbouring municipalities to the ASP area including representatives from Sturgeon County, Strathcona County, and the City of Fort Saskatchewan. The project team met with each municipality at the beginning of the planning process to notify them of the project and discuss any questions or concerns they had related to development in the northeast part of Edmonton. The team then met again with interested municipalities at the end of the process to provide them an opportunity to view the final concept and provide feedback on the chosen concept.

The project team met with the Land Use Committee of AIH to discuss this project and the broader industrial development planned for in the Capital Region. Other groups that the project team undertook individual meetings with regarding the project included representatives from Capital Health, Canadian Forces Base Edmonton, Canadian Pacific Rail, Canadian National Rail, ATCO Pipelines, TELUS, the Alberta Capital Region Wastewater Commission (ACRWC), and EPCOR Distribution.

The key stakeholder meetings identified a number of information pieces and issues related to the plan area. The following themes were identified:

4.2.1 Risk Management

Several groups identified risk management as a concern for this area, given that the plan introduces industrial development, which comes with a heightened risk for incidents that may affect surrounding lands. This has been addressed by identifying a risk management strategy in the ASP document and identifying future locations for emergency facilities.

4.2.2 Consideration of Adjacent Land Uses

This area borders several different land uses~~ that will remain after its development~~. Consideration for the interfaces between Edmonton Energy and Technology Park, CFB Edmonton, future development within the Horse Hill ASP ~~potential south of Manning Freeway~~, and the surrounding counties heavily influenced the development of the Edmonton Energy and Technology Park ASP.

4.2.3 Regional Context of Industrial Development

Industrial expansion in AIH will require supportive development to occur in the entire Capital Region. Discussions with key stakeholders included discussion about the different types of industrial opportunities in the region and how they will work together. This could include future transportation connections, utilities, shared pipeline projects, and other major infrastructure investments.

4.2.4 Maintaining Existing Land Uses

Existing land uses both on the boundaries of the plan, like CFB Edmonton, or within the plan require consideration as a part of the land use planning process, and were included in land use decisions as a part of the development of the Edmonton Energy and Technology Park ASP.

4.2.5 Non-Industrial Land Use

Some of the key stakeholders consulted requested that residential land uses also be incorporated into the ASP.

Council direction for this project identified industrial uses as the key land use for the plan area. Residential uses require separation from industrial uses, given that industrial production can increase noise, dust, smells, and other nuisance factors that are not desirable in residential areas. Residential development within the plan area would therefore require limiting industrial operations, which is intended to be the highest priority land use for the area. There would also be limitations on residential development in the western portion of the plan area due to its proximity to CFB Edmonton's military training area and the airfield noise contours.

Given the intent of this area to accommodate industrial demand and its existing limitations introduced by CFB Edmonton operations, residential development was not deemed to be consistent with the project's goals and was not accommodated within the plan area.

4.3 October 2008 Public Open House ~~Meeting~~

The second public event was held at the Nanaksar

Gurdwara Gursikh Temple on October 1, 2008 from 4 – 8pm, with two formal presentations at 5pm and 7pm. The purposes of the public meeting were to provide the public an opportunity to review the final concept plan for the project and ask questions or provide comment to the project team.

The Public Meeting was advertised with a series of six portable signs throughout the study area and beyond. An invitation was sent on September 18, 2008 to property owners in the study area and to those who provided mail or email addresses at the June 2008 Information Session.

The meeting was also open house format with information boards. In addition to the information boards, two formal presentations followed by question and answer sessions were added to the October open house.

Over 317 people attended the second public meeting, and 59 participant surveys were received by the project team. The comments were compiled, with written responses, by theme after the Public Meeting. Common themes were:

- Planning for the south side of Manning Drive needs to be dealt with.
- Residential areas should be included in the ASP.
- More detailed information is needed.
- Environmental and land use issues need addressing.
- Timelines are needed.
- Members of the Sikh Temple do not want industrial development around their site and would like opportunity for residential uses on their property.

Based on these comments, Edmonton Energy and Technology Park has identified risk management strategies related to existing non-industrial uses in order to mitigate the impacts of industrial development in their vicinity. General timelines for development are identified in the ASP, though development will ultimately be governed by market forces.

The City of Edmonton has developed custom zoning in order to provide additional detail and provide clear regulations for industry as they relate to built form, eco-industrial implementation, risk management, and environmental protection. ~~Additional details are provided in Appendix 2.~~ *(Bylaw 16767 Sept. 23/14)*

4.4 October 2009 Public Open House ~~Meeting~~

The third public event was also held at the Nanaksar Gurdwara Gursikh Temple on October 27th, 2009 from 4 – 8pm. The purposes of the public meeting were to provide the public an update on the planning process and display some minor changes to the alignment of the arterial network caused by movement of the future connections to intersections in Anthony Henday Drive.

An invitation was sent to property owners in the study area. The meeting was also advertised in the Edmonton Journal.

The meeting was also open house format with information boards. Staff were available to answer any questions attendees had and explain the project to those who had not attended previous meetings

Over 122 people attended the third public meeting, and 29 participant surveys were received by the project team. Of those 29 surveys, only 15 provided comments. The comments were compiled, with written responses, by theme after the Public Meeting. Common themes were:

- Concern about the use of prime agricultural land and/or sensitive natural areas for industrial growth.
- Concern about impacts of industrial growth, such as air pollution, vibration, and noise.
- More detailed information is needed on wind direction, potential connection to any development south of Manning, and marketing efforts.
- Preference for a formal presentation over a public open house format and requests for more frequent communication and updates for the community.
- Concern with the City of Edmonton's processes, including the frequency and style of public meetings, scheduling of Public Hearings, and lack of transparency
- Approval of the eco-industrial approach of the Area Structure Plan and the perceived environmental leadership shown by the City of Edmonton in using this approach.

4.5 March 2014 Public Open House

The fourth public event was held at Horse Hill School on March 18, 2014. The purpose of this event was to share information on the progress of the EETP Investment Readiness Initiative, the objectives of which are to attract private investment, reduce the time required to approve major projects, and plan new infrastructure options and solutions.

An invitation was sent to property owners in the study area and portable signs within the EETP plan area were used to advertise the open house.

The open house began with a formal presentation. Information boards were available for viewing and staff was available to answer any questions pertaining to the project.

102 people attended the event and four responses were received. Two responses were seeking further clarification on the details of the plan. The other two raised concerns about the potential tax increases of rezoning land to industrial.

4.6 Stakeholder Consultation and Fifth Public Open House November 2016

Administration completed consultation with key stakeholder groups on proposed EETP ASP and custom Zoning Amendments in 2016. The amendments proposed included a revised arterial road network (based on the grid pattern of section boundaries and existing road rights-of-way) and the merging of the Logistics and Manufacturing precincts into a single EETP Medium Industrial Precinct. A new EETP Medium Industrial Zone was also proposed to implement the new Precinct.

Meetings were held with adjacent municipalities (Sturgeon County, Strathcona County and City of Fort Saskatchewan), as well as key stakeholders (including CFB Edmonton and Alberta's Industrial Heartland) landowners, development interests, and external agencies, with the goal of increasing "investment readiness" of the EETP.

A Public Open House was held on Wednesday, November 9, 2016 at the Horse Hill School from 6:30 PM to 8:30 PM.

Notifications were mailed to landowners and those adjacent to the EETP Plan area. The Open House was advertised on the City website and social media, as well as on three portable road signs throughout the plan area. E-mail notification was also provided to nearby municipalities, organizations, developers and realtors with an interest in the EETP. Over 120 people attended the Open House (98 individuals signed-in). Five feedback sheets were received at the Open House.

The revised arterial road network and merging of the Logistics and Manufacturing precincts into a single EETP Medium Industrial Precinct were presented. Reaction to

both changes was overwhelmingly positive.

At the meeting, a brief presentation of the proposed changes was made. An information package (with feedback sheets, highlights of the amendments, and proposed maps) was given to the attendees. The Open House materials were also posted on the City website after the Open House.

In general, there was a high degree of support for the EETP Medium Industrial Precinct and accompanying custom zoning, as well as the revised Arterial Road Network.

5.0 POLICY CONTEXT

There are many existing plans and policies that relate to the Edmonton Energy and Technology Park or the areas immediately surrounding it. Each of the plans, studies, or municipal programs that relate to development in Edmonton Energy and Technology Park will be discussed below.

5.1 Capital Region Board

The Capital Region Board~~,~~ (CRB) was established on April 15, 2008~~,~~ and is comprised of the ~~25~~ 24 municipalities that make up the Capital Region. The role of the CRB is "to plan and manage the growth of the region in a strategic, coordinated and integrated way that preserves the unique characteristics of each municipality while ensuring the long term sustainability and prosperity of the region as a whole." (CRB Website, 2017) ~~It aims to achieve this through enacting policies contained within the 2010 Capital Region Growth Plan: *Growing Forward*, which is a 35 year growth strategy.~~

The CRB Growth Plan identifies the EETP ASP as being within Priority Growth Area "F" and its policies as they relate to economic development are:

- concentrate new growth within the Priority Growth Areas;
- ensure an adequate supply of land is available for future development of the Region's industries; and
- support further diversification of the Regional economy.

The ASP aims to uphold the CRB Growth Plan's principles and policies specifically the "Support Regional Economic Development" principal by ensuring a supply of industrial and commercial land opportunity for development.

The EETP ASP and amendments thereto are subject to the Regional Evaluation Framework (REF) planning referral and approval process of the CRB, in order to ensure that it meets the goals and policies of the 2010 Capital Region Growth Plan: *Growing Forward*.

The EETP ASP and amendments thereto meet the following three criteria for referral:

- any statutory plan that designates land for heavy industrial use;
- any statutory plan within 0.8 km of a road identified in the Regional Transportation Infrastructure map in

the December 2009 Addendum to the Growth Plan (i.e. Anthony Henday and Manning Drive/Highway 15); and

- any statutory plan within 1.0 km of an approved Intermunicipal Transit route or Park and Ride facility as identified by the Growth Plan. (i.e. Manning Drive/Highway 15)

The 2010 Capital Region Growth Plan is soon to be replaced by the 2016 Growth Plan *The Edmonton Metropolitan Region Growth Plan: Re-imagine. Plan. Build.* The 2016 Plan was approved by the CRB in October 2016 and is currently awaiting approval by Cabinet. It is anticipated that with the impending adoption of the new Growth Plan in 2017, there will be changes to the REF referral process.

~~Their priorities are "to create a long-range plan for regional land use and infrastructure such as roads and transit; develop an electronic system to share geographic information; and develop a strategic plan for social and affordable housing".,.~~

~~In light of these priorities, the Capital Region Board is mandated with the review of planning bylaw applications that meeting defined referral criteria under the Transitional Regional Evaluation Framework (Ministerial Order L:005/08). The goal of this review is to *"ensure consistency with long-term regional interests, the Capital Region Board Regulation, and the "Working Together" report, while the Capital Region Growth Plan is under development"* (Ministerial Order L:005/08). An Area Structure Plan is referred to the Capital Region Board when it is within 0.5km of defined roadways, adjacent to a Transportation / Utility Corridor, within Strathcona County's rural service area and meets defined conditions, would result in more than 1000 residents, and/or will accommodate heavy industry. Given that the Edmonton Energy and Technology Park ASP meets several of these criteria, it will be referred to the Capital Region Board by the City of Edmonton prior to Third Reading of the Third Reading of the Bylaw.~~

5.2 Capital Region Integrated Growth Management Plan – Final Report on Core Infrastructure (ISL Engineering and Land Services, 2008)

As a part of re-establishing regional planning in the Capital Region, a number of studies were undertaken to determine base conditions and to create parameters for the continued

growth of shared services and systems. One of these studies is the Final Report on Core Infrastructure. This report studied the base conditions of key regional infrastructure, including highway systems, airports, rail links, transit, water, wastewater, power, and pipeline corridors. It used this base information to identify any gaps in the existing system and create a strategy for accommodating long term regional growth for these services and utilities. The Final Report on Core Infrastructure identifies several infrastructure items that impact the Edmonton Energy and Technology Park plan area. This includes pipelines, the highway system, water, and power.

The report identifies that Manning Drive should be used as a pipeline corridor in the region connecting to corridors in the TUC, which could serve as a linkage for businesses in Edmonton Energy and Technology Park. It identifies roadway improvements impacting the plan area, which includes the ultimate full construction of the TUC and lane expansions on Manning Drive and Highway 28A. A new EPCOR water main is intended to be extended within Edmonton Energy and Technology Park to provide water looping and enhanced service for the main serving Gibbons and surrounding area. Related to power service, the long term plan includes the twinning of an existing 240 kV transmission line in the plan area. Additional detail on these infrastructure improvements are identified in the servicing sections of the Edmonton Energy and Technology Park ASP.

5.3 *City of Edmonton Strategic Plan – The Way Ahead and ~~MDP~~ Municipal Development Plan: The Way We Grow*

City Council's Strategic Plan – The Way Ahead has a ten year strategic goal to "Diversify Edmonton's Economy" which states that "Edmonton is recognized as an economic powerhouse, maximizing the diversity of its economic advantages, including its location as Port Alberta and as a portal to the north; as the urban centre of regional industrial development; as a knowledge and innovation centre for value-added and green technologies and products". This will be achieved through the three-year priority goal to "Work with both public and private sector partners, to improve the favourable business and investment climate for: ~~E~~eco-industrial based economy; Logistics and Servicing for the needs of the North and Asia; Green technology development and *(Bylaw 16767 Sept. 23/14)*

commercialization; and entrepreneurs".

The plan area is designated as industrial/business in the Municipal Development Plan (MDP) ~~MDP~~., The MDP states in Section 6 - Supporting Prosperity – that: "Edmonton's industrial growth capacity is expanded in this plan by designating a new industrial area in the northeast and an industrial reserve area in the southeast. The northeast industrial area will accommodate economic growth from value added petrochemical processing and supporting products and services, manufacturing and research, and rail and road based logistic operations."

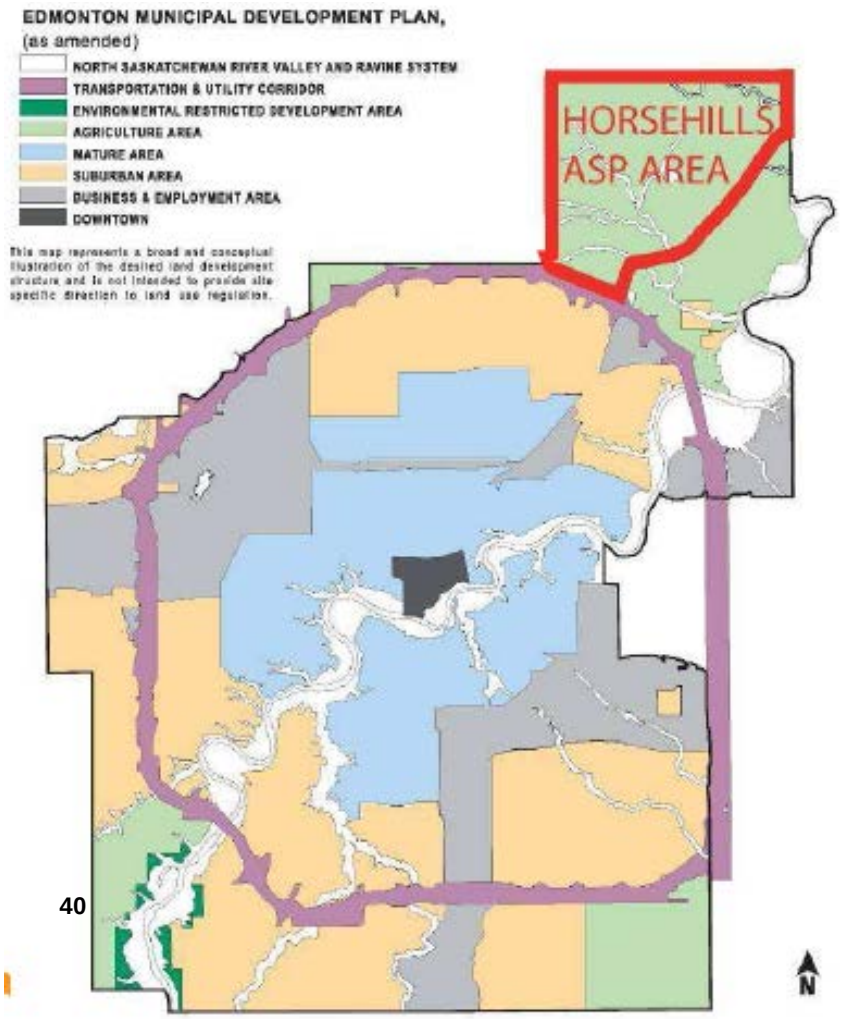
In addition, it also states that "Edmonton will promote sustainability and innovation through adoption of eco-industrial standards and approaches to land and property development and business operations. This will focus on the creation of a chemical industry cluster employing business-to-business eco-industrial relationships."

The areas of the ASP adjacent to municipal boundaries are identified in the MDP as being a part of the Intermunicipal Fringe, meaning that the ASP area is close to neighbouring counties and municipalities. The MDP stipulates that the City will "work cooperatively with neighbouring municipalities to ensure effective use and development of the City's "fringe" lands." It further identifies that an ASP must be circulated to municipalities within 1.6km of its boundary. The MDP identifies many policies intended to encourage industrial development, including ensuring enough land available to support industrial growth. It also provides direction on issues of public safety and risk associated with heavy industrial uses. The existing MDP also supports sustainable development. The MDP encourages retaining natural areas, using sustainable design principles and ecological protection, and incorporating ecology into the planning of new areas. It places priority on using land effectively and states that long term environmental and fiscal sustainability should be incorporated into planning. The MDP promotes attractive and functional developments by identifying those urban design principles that should be promoted. It also encourages business clustering and intensifying land uses around major transit lines and employment areas.

The EETP ASP presents a significant opportunity to incorporate policies in order to meet the goals and objectives of *The Way Ahead* and *The Way We Grow* for regional economic diversification, with an emphasis on value-added industrial processing and manufacturing, utilizing eco-industrial principles, with the long term goal of

environmental and economic sustainability.

Figure 7: Land Development Concept **UPDATE NEW MAP – CURRENT MDP CONCEPT Fig. 7 (2010 The Way We Grow) See Appendix C, ASP Amendment Application**



5.4 Sturgeon County MDP

The Edmonton Energy and Technology Park ASP is bordered by Sturgeon County to the west, north, and northeast. ~~is directly south of Sturgeon County. This portion of Sturgeon County is identified in the Sturgeon County MDP as the "South Sturgeon Study Area". This area was identified by the Municipal Government Board (MGB) as an area that required a statutory plan in an Order issued in 1998, but to date no such plan has been undertaken. The area adjacent to Edmonton Energy and Technology Park in Sturgeon County is designated "Intermunicipal Fringe" and "Environmental Protection" adjacent to the riverbank in the Sturgeon County MDP.~~

~~The area designated as intermunicipal fringe is governed largely by the agricultural policies in the MDP. This stipulates large parcel sizes (in excess of 80 acres) aside from parcels created for the purpose of separating homesteads from farmland (Sec. 2.3-2.7). It is also identified that development proposals within this area will be referred to the City of Edmonton for comment (Sec. 15.5.v).~~

~~The environmental protection section is intended to protect environmentally significant areas such as flood prone areas, riverbanks, shores, and wildlife corridors. It provides development criteria and parameters including requirements for assessments and studies prior to the development of non-agricultural land uses such as multi-lot subdivisions (Sec 11.0).~~

Sturgeon County's MDP was adopted in 2014 and divides the County into "neighbourhoods" each with their own policies. Three "neighbourhoods" border EETP; G, H, and I.

Neighbourhood G encompasses CFB Edmonton, which abuts EETP to the west, and which is under federal jurisdiction. The restrictions and limitations on development within a majority of the EETP plan area have been addressed elsewhere within this ASP.

Neighbourhood H covers the area of land directly to the north of EETP, adjacent to Highway 37 and the predominant land use is agriculture. Its role is to recognize rural development opportunities, while respecting local constraints. Drainage and infrastructure are two constraints that have been identified that may have some bearing on the EETP. Sturgeon County has identified this neighbourhood for a drainage study to assess current and future drainage needs. Given the proximity of this area to

the EETP and its complex stormwater management network, it is likely that any future development of this area will have some impact on City infrastructure.

Sturgeon County has recognized that continued development within this area has resulted in functional deficiencies and capacity constraints where County infrastructure connects with Provincial roadways. As a result, the County worked with the City of Edmonton and Alberta Transportation to identify and locate roadway corrections and intersections along Highway 37 to ensure that that future development does not impact road improvements. The *Sturgeon County Highway 37 Planning Study – Highway 28 to Highway 15* (ISL Engineering and Land Services, 2015) provides direction for these improvements. The revised arterial network of EETP reflects the recommendations of this report.

Neighbourhood I is located to the north east of EETP and is comprised mostly of serviced medium industrial and agricultural parcels, but also envelops the hamlet of Lamoureux approximately 2 km from the EETP boundary along the North Saskatchewan River. Its role has been identified as an industrial corridor that supports and links regional economic growth. An outcome that the County has identified is to encourage a range of manufacturing, logistics and support industries that complement both the Alberta Industrial Heartland and the EETP. Sturgeon County will attempt to achieve this through the development and adoption of an Area Redevelopment Plan for Sturgeon Industrial Park, 1.5 km northeast of the EETP boundary. Also, Sturgeon County will seek to work with the Province and regional partners to ensure adequate transportation infrastructure within the area.

In accordance with an agreement in 2016 the City of Edmonton will purchase a triangular-shaped property located within Sturgeon County between 66 Street north of the Anthony Henday, and the west boundary of the EETP ASP. The area includes the 66 Street right-of-way, and is currently owned by Alberta Transportation who acquired it in order to provide a connection at 66 Street northward from the Anthony Henday. 66 Street enters the City of Edmonton and the EETP ASP plan area just south of 195 Avenue NW (see Figure 8: Development Concept). This will facilitate connectivity to the 66 Street arterial, to the southwest corner of EETP. Ultimately, the City of Edmonton would annex this small 16.3 ha parcel of land sometime in 2018.

5.5 City of Fort Saskatchewan MDP

~~The Fort Saskatchewan MDP designates the lands adjacent to the Edmonton Energy and Technology Park ASP, separated from the plan by the North Saskatchewan River, as Parks, Recreation and Open Space in association with the North Saskatchewan River. The routing of the TransCanada Trail is anticipated to be along the eastern boundary of the North Saskatchewan River within the designated park area, which will connect into Edmonton's river valley trails system.~~

~~In relation to intermunicipal cooperation, Fort Saskatchewan's MDP identifies that they will work together with neighbouring municipalities to establish planning frameworks and land use patterns that benefit both municipalities, maintain open lines of communication, and seek partnerships in service provision. (Section 13.0).~~

The City of Fort Saskatchewan's MDP was adopted in 2010. In alignment with the Land Use Bylaw, the MDP has identified the lands adjacent to the North Saskatchewan River (the closest portion of the City to the EETP) as River Valley Greenbelt. This designation will help maintain the area for natural space and recreation and ensure appropriate setbacks between new industrial development and the river's edge.

The MDP also encourages eco-industrial planning principles, with these principles reinforced through their industrial Area Structure Plans.

5.6 Strathcona County MDP

Strathcona County's MDP was adopted in 2007. As with the City of Fort Saskatchewan, the closest portion of Strathcona County to the EETP is adjacent to the North Saskatchewan River. This land falls under the policies of the Agriculture Large Holdings Policy Area where a key policy is to minimize the fragmentation of agricultural land. The primary land use within this area is agriculture, but the area does also contain a golf course, a public utility (wastewater treatment facility) and some low-density country residential development.

Beyond this area to the south and east are lands covered by the *West of 21 Area Concept Plan* and have mostly been identified for light and medium industrial uses. East of this area lies Bremner which has been identified as the County's next major growth area.

5.7 ~~5.6~~ The Way We Move

(Bylaw 16767
Sept 23, 2014)

The Transportation Master Plan (TMP) entitled 'The Way We Move' was approved in September 2009. It is intended to guide the development of transportation systems in Edmonton and accommodate system requirements. The TMP identifies potential regional roadway networks that may be developed within the plan area, but ultimate alignments have not been determined. Manning Drive is identified as a 'highway connector roadway' linking Edmonton's inner road system to regional communities and the northeast of the province.

LRT extension is possible from the existing terminus at Clareview into the northeast area in future, but no implementation strategy for a northern extension of the LRT is identified in the text.

5.8 ~~5.7~~ Alberta's Industrial Heartland

(Bylaw 16767 Sept 23, 2014)

AIH is a large industrial/chemical area northeast of the City of Fort Saskatchewan intended to facilitate a heavy industrial 'precinct'. AIH is approximately 580 square kilometres including the Edmonton Energy and Technology Park, and is located in five municipalities; City of Edmonton, Lamont County, Sturgeon County, Strathcona County, and the City of Fort Saskatchewan. Its particular focus is the chemical industry, as it is well placed to provide processing facilities to support the oil and gas exploration in Alberta.

There is high connectivity between the Heartland and the Edmonton Energy and Technology Park ASP. The CN Coronado Subdivision rail line runs from the Edmonton Energy and Technology Park ASP area into the Heartland region. In addition, Highway 15/Manning Freeway is also a direct connection through Fort Saskatchewan and the AIH. *The opening of ~~development~~ of the northeast portion of Anthony Henday Drive ~~will also provide~~ provides highway connections between the EETP and the Heartland via the Yellowhead Highway and Highway 21.* *(Bylaw 16767 Sept 23, 2014)*

Land use in AIH is governed through complementary ASPs adopted by each of the member municipalities. The land uses contained within the Heartland area are primarily heavy industrial. A buffer, approximately 1.6 km in width, is intended to accommodate agricultural, commercial, and light to medium industrial uses and surrounds the heavy industrial uses to provide appropriate separation from adjacent development. It also contains provisions for an environmental protection area that abuts the North Saskatchewan River valley.

5.9 ~~5.8~~ Industrial Investment Action Plan ~~Land~~

~~Strategy~~

~~The Industrial Land Strategy (ILS), approved by Council in 2002, was developed with a goal to "increase the prosperity of the City and its citizens by accommodating the growth and development of Edmonton's existing industrial businesses and attracting new ones. (p.3)" It identifies the make-up of existing industrial areas of the city and the types of businesses best suited to the different areas of existing or planned industrial development in Edmonton.~~

~~The northeast area is shown as having a very low share of the overall demand for industrial land in Edmonton, at only 7% of the overall market for the City of Edmonton. The ILS anticipates that this demand will come from growth in the Food and Beverage Industry, with some activity in Plastics, Chemicals, and Refined Petroleum Products. However, this considers only the available industrial land within this sector of the city, much of which is adjacent to residential uses and/or requires redevelopment, which poses significant market barriers when compared to available greenfield sites. *(Sentence deleted).*~~

(Bylaw 16767 Sept 23, 2014)

As outlined within the Executive Summary, the City of Edmonton's Industrial Investment Action Plan was approved by Executive Committee on June 21, 2016. This is a collection of nine actions that the City is advancing to facilitate, attract and retain businesses in Edmonton's industrial neighbourhoods to support the non-residential tax base. The nine actions were drafted based in part on a comprehensive assessment of Edmonton's industrial land inventory. This was completed resulting in an evaluation of Edmonton's current market conditions and trends, target sectors, market readiness and competitiveness.

One of those nine actions, Action 7, is to increase the investment readiness of EETP. The investment readiness is measured on three performance criteria: land absorption (zoned, subdivided and developed), development investments, and industrial taxes. As part of the implementation plan for the Industrial Investment Action Plan, five key deliverables have been established to meet Action 7.

Administration proceeded with land use applications in 2017 on the first of the five key deliverables:

- Amend the EETP ASP to implement efficient infrastructure solutions and accommodate land use planning principles including the revision of the arterial road network and a targeted approach to

edge development. The changes included a revised arterial road network aligned with existing road right-of-ways and property lines.

Edge development changes included an amendment to merge the Manufacturing and Logistics precincts into a single Medium Industrial precinct along with the creation of an EETIM Medium Industrial Zone to implement the new precinct.

Administration will continue to work on the other four key deliverables:

- prepare an alternative stormwater management solution;
- develop municipal and industrial servicing plans and partnerships;
- develop an eco-industrial initiative (City-wide and EETP-specific); and
- prepare ongoing economic/financial analyses, and marketing/business development cases for investment.

The fifth key deliverable for Action 7 (develop an eco-industrial initiative); in part implements Action 8 of the Industrial Investment Action Plan (implement industrial eco-industrial principles).

In addition to the eco-industrial regulations that will be amended into the EETP, the third and fifth deliverables may also result in further amendments as they relate to servicing and any changes required in order to better facilitate business development.

5.10 ~~5.9 Smart Choices~~ Transit Oriented Development Guidelines

~~Smart Choices is a City of Edmonton program that provides recommendations on best practices in planning to improve development in the City of Edmonton. While these recommendations primarily relate to residential development and the redevelopment of commercial and industrial developments along major roadways, there are policies that can be translated to other land use types.~~

~~Smart Choices recommends that areas including a major transit centre, such as an LRT station, consider Transit Oriented Design (TOD). This encourages denser development adjacent to the transit centre to take advantage of the associated transit system. While this theory primarily supports residential development, it could be applied to development of an employment area.~~

~~Smart Choices also improves walkability for new~~

~~developments. While this was primarily benefiting residential areas, walkability should also be considered in the context of an employment area. This could include considerations for the design of streetscape, setbacks of buildings, provision of convenience commercial opportunities, or other factors that would facilitate the ability to reduce vehicle trips.~~

The City of Edmonton's Transit Oriented Development (TOD) Guidelines lay the framework to provide appropriate development around LRT stations and transit centres. They assist the City, businesses and citizens to plan ahead for the integration of transit and land use. They are enabled through the *City of Edmonton Transit Oriented Development Policy (C565)*.

The TOD Guidelines are divided into four separate categories: Land Use & Intensity; Building & Site Design; Public Realm; and Urban Design and Crime Prevention through Environmental Design (CPTED) principles.

LRT stations may be developed within the Research and Development Precinct along an LRT line that would parallel Manning Drive (see Section 8.6).These would be classified as "Employment" station area types in the City of Edmonton's TOD Guidelines. Employment stations recommend a mixture of retail and office uses, along with improved pedestrian and bicycle connectivity.

The guidelines prescribe increased density and land use intensity within 800 m of an LRT station and within 400 m of a transit centre. They provide direction for the desired relationship between buildings on the street, providing transitions between taller and shorter buildings. They also prescribe appropriate block dimensions, and encourage pedestrian and bicycle connectivity.

Dependent on the final LRT alignment within the City's northeast, any amendments to the EETP ASP that provide more direction on line and station locations shall be subject to the TOD Guidelines. In addition, rezoning and development applications within 800 m of potential LRT stations or 400 m of potential transit centres will be subject to the TOD Guidelines.

5.11 ~~5.10~~ North Saskatchewan River Valley Area Redevelopment Plan

~~The North Saskatchewan River Valley Area Redevelopment Plan (NSRVARP) applies to several streams and tributaries flowing into the North Saskatchewan River, as well as the river itself, which is to the southeast of the boundary of the Edmonton Energy and Technology Park ASP area. The intention of the NSRVARP is to identify the river valley area as a metropolitan park and environmental protection area.~~

~~Beyond the basic park and environmental protection intent of the plan, the NSRVARP also identifies methods the City of Edmonton may use to acquire privately owned portions of the river valley and ravine system (Sec. 3.2.7), and identifies regulations around the introduction of new transportation crossings to the river valley system (Sec. 3.4.1 & 3.4.2).~~

The North Saskatchewan River Valley Area Redevelopment Plan (NSRVARP) serves as the primary statutory plan regulating development on public land within the river valley and ravine system. The major goals of the NSRVARP are: to ensure preservation of the natural character and environment; to establish a public metropolitan recreation area; and provide for recreational, aesthetic, and cultural activities in the plan area.

Horsehills Creek and its tributaries are regulated by the NSRVARP, the Provincial Water Act, and the Provincial Public Lands Act. All proposed transportation crossings, alterations to the creeks/tributaries, and new storm water outfall structures are subject to city and provincial regulatory approvals under the aforementioned Bylaws and Legislation. Appropriate Environment Reserve and Municipal Reserve will be identified and dedicated at appropriate planning stages to ensure the long term preservation and recreation goals of the ARP are met.

~~5.11 Zoning Bylaw~~

~~The large majority of the lands within the plan area are currently designated AG (Agricultural).~~

5.12 Risk Management Policy

The Major Industrial Accidents Council of Canada (MIACC) was created in the late 1980s as Canada's reaction to a major industrial accident in Bhopal, India in 1984. MIACC's purpose was to consider voluntary measures to increase prevention, preparedness, and response to industrial accidents. The Council was comprised of government and industry leaders who prepared guideline documents that were voluntarily used by some businesses and

government bodies. The Council itself was dissolved in 1999 due to a lack of operational funding, but is still referred to by many Canadian municipalities. Both Strathcona and Sturgeon Counties use MIACC principles in their legally binding planning documents.

Strathcona County stipulates two distance thresholds around heavy industry in the IH (Heavy Industry) District in their Land Use Bylaw. It identifies that any heavy industrial development may not impose a greater than 1 in 1,000,000 risk of death outside a 3.0km radius from an industrial property boundary. Similarly, an industrial development may not impose greater than 1 in 100,000 risk of death outside a 1.5km radius from its property boundary. A Heavy Industrial Overlay is also included as a part of the Land Use Bylaw and restricts people-intensive industrial/commercial uses within the 1.5 and 3.0km radii, such as retail and offices. It also restricts Floor Area Ratio and includes provisions to enhance emergency provisions within buildings.

(Bylaw 16767 Sept 23, 2014)

The intent of the Edmonton Energy and Technology Park Risk Management Policy is to be consistent with the Capital Region Growth Plan's purpose of regional buffer areas.

The City of Edmonton's current risk management approach also references MIACC and outlines that the MIACC principles are one of several guideline documents that are to be used to evaluate risk and determine risk management. It requires that a risk assessment be completed for projects that would create incompatibility between heavy industry and residential uses. MIACC principles are to be considered for greenfield sites.

Edmonton Energy and Technology Park will also use MIACC principles for the management of risk within the plan area's boundaries, consistent with the risk management approach of the City of Edmonton which considers the source of risk and appropriate mitigation measures. Custom zoning will be developed that will identify buffer areas restricting uses to those that pose a risk of death of no greater than 1:1,000,000. Furthermore, industrial businesses within the Petrochemical Cluster Precinct that would introduce risks to public health or safety will be required to submit a risk assessment that incorporates appropriate buffers and other cumulative risk management measures using the principle of MIACC prior to issuance of zoning approvals to ensure that they do not pose unacceptable risk to the surrounding area. Beyond the municipal level, the Province of Alberta also identifies

risk management and cumulative effects legislation, through the Cumulative Effects Assessment and Management Policy and the Environmental Protection and Enhancement Act.

Edmonton Energy and Technology Park will also use MIACC principles as a reference for the management of risk within the plan area's boundaries, consistent with the risk management approach of the City of Edmonton.

Beyond the municipal level, the Province of Alberta also identifies risk management and cumulative effects legislation, governed by Alberta Environment through the Cumulative Effects Assessment and Management Policy and the Environmental Protection and Enhancement Act.

5.13 Natural Areas Policies

In addition to the above mentioned policies, this area will also fall under the *City of Edmonton's Natural Area Systems Policy (C531)*, the *Natural Connections Strategy~~ic~~ Plan (2007)*, the *City of Edmonton's Environmental Policy (C512)*, and the ~~the Interim Wetland Policy, and Provincial Wetlands Policies.~~ *Alberta Wetland Policy*. These have been addressed in the Ecological Network Analysis.

5.14 Historic Resources

The City's Historic Resources Management Plan requires the City of Edmonton to identify and assess known historic resources and encourage them to be designated and/or incorporated into new development proposals. The program seeks to ensure that notable architecture that represents elements of the areas original development patterns are noted and incorporated in the areas future expansion and development. This ensures that the area over time develops a rich architectural variety that positively reinforces the areas identity. The Historic Resources Management Plan does not seek museum type developments, but ones that creatively adapt resources to new uses.

All efforts must be taken to ensure that those resources identified on the Inventory of Historic Resources in Edmonton must be included and incorporated in all new development proposals.

6.0 GUIDING PRINCIPLES

This plan is intended to create a new kind of industrial development in Edmonton that incorporates economic opportunity with eco-industrial principles, as outlined in the "Vision". This brand of industrial development is intended to look, feel, and function differently than a conventional industrial park. In order to create an ASP that results in an industrial park that would achieve ~~those differences~~ the Vision, the following questions were considered:

> *How can we make Edmonton Energy and Technology Park the kind of place businesses want to locate in?*

and,

> *How can we make industry 'green' without compromising the bottom line?*

While these seem like basic questions, using them to shape a new kind of industrial plan was a challenge. These fundamental questions help to create a set of guiding principles that will lead development to achieve these results. These principles provide direction to answer the questions and to help identify what Edmonton Energy and Technology Park is intended to stand for.

6.1 Edmonton Energy and Technology Park stands for: Sustainable Development

Developments that are built to achieve three bottom line objectives: last longer, improve business performance, and create more comfortable working and living environments. They also provide choices for people – whether that means choices in the way people travel to and between them or adaptability in the way people or businesses use a site over time. Therefore, development in Edmonton Energy and Technology Park will be compact, varied, well connected, and flexible to maximize the area's potential while minimizing its footprint. The development in Edmonton Energy and Technology Park will consider its life cycle costs and look for innovative ways to reduce the carbon footprint it makes.

6.2 Edmonton Energy and Technology Park stands for: Industrial Ecology and Efficiency

One of the keys to a successful business is maximum output from minimum input. This means building efficiency into everything, including product use, staff, and

technology. Eco-industrial development goes a step further and improves efficiency in buildings, sites, and entire districts. Eco-industrial development gets businesses to collaborate to share services and use one business' waste as another business' resource. This kind of collaborative thinking reduces waste and increases profits – and increased profits results in stronger businesses.

6.3 Edmonton Energy and Technology Park stands for: Effective Transportation

Edmonton Energy and Technology Park will be designed to maximize connectivity between businesses, sub-areas, the Edmonton region, and beyond. It will be easy to get to and ship from for business purposes and employees.

It will maximize choice in travel modes including road, rail, transit, and trails in order to get people and goods to the places they want to go. It will also maximize use of the existing transportation system.

6.4 Edmonton Energy and Technology Park stands for: Land Use Compatibility

Industrial development can introduce nuisance factors and introduces the risk of industrial accidents or reduced air quality. This can affect the land adjacent to industrial developments. In Edmonton Energy and Technology Park, nuisance and risk intensive uses will be carefully located to cause as little disturbance as possible to the rest of the plan area. The intensity of industrial use will decrease as it approaches non-industry uses to ensure that businesses in this area are compatible with one another.

6.5 Edmonton Energy and Technology Park stands for: Innovative Infrastructure

Traditionally, infrastructure has been designed to remove natural systems from the process of providing the necessary infrastructure and services to businesses.

Edmonton Energy and Technology Park will put nature back into the system by identifying groundwater infiltration and methods of stormwater servicing that more closely represent the landscape, consistent with low impact development practices. Process and/or stormwater will be recycled for use onsite where viable to reduce demands on the system and water conservation will be pursued. Energy production will incorporate alternative and renewable energy sources that minimize carbon use. Waste management will be minimized through diversion, or safe disposal of wastes that are not recyclable.

6.6 Edmonton Energy and Technology Park stands for: Environmental Protection

The environment is often seen as an obstacle in traditional land development. In Edmonton Energy and Technology Park, environmental responsibility will instead be considered an opportunity. Natural areas will be integrated into development in ways that will respect their value and future sustainability while also enhancing outdoor recreation opportunities and the appearance of the plan area. Conserving, and in some cases restoring, a functional ecological network within the context of an industrial area will be a priority for the plan area.

6.7 Edmonton Energy and Technology Park Stands for: Effective Implementation

Innovative ideas often introduce longer review periods and more rigorous information requirements than conventional development strategies because little or no precedent is available to base their application on. In order to reduce this impact, all efforts will be made to ensure the information requirements for development in this area are clear. Where necessary, custom rules and regulations will be adopted for the area to provide clear direction and streamline the application process. Monitoring will be incorporated to ensure that the goals of the plan area are being met.

The following sections will identify specific policies and regulations that are based on these fundamental principles. The icons related to the principles above will be displayed adjacent to areas of the plan specifically emphasizing one or more of these key principles.

7.0 DEVELOPMENT CONCEPT

(Bylaw 16767 Sept 23, 2014)

The land uses chosen for the plan area have been designed specifically to take advantage of the chemicals and products to be developed in AIH and elsewhere in the province.

7.1 Land Use Precincts

(Bylaw 16767 Sept 23, 2014)

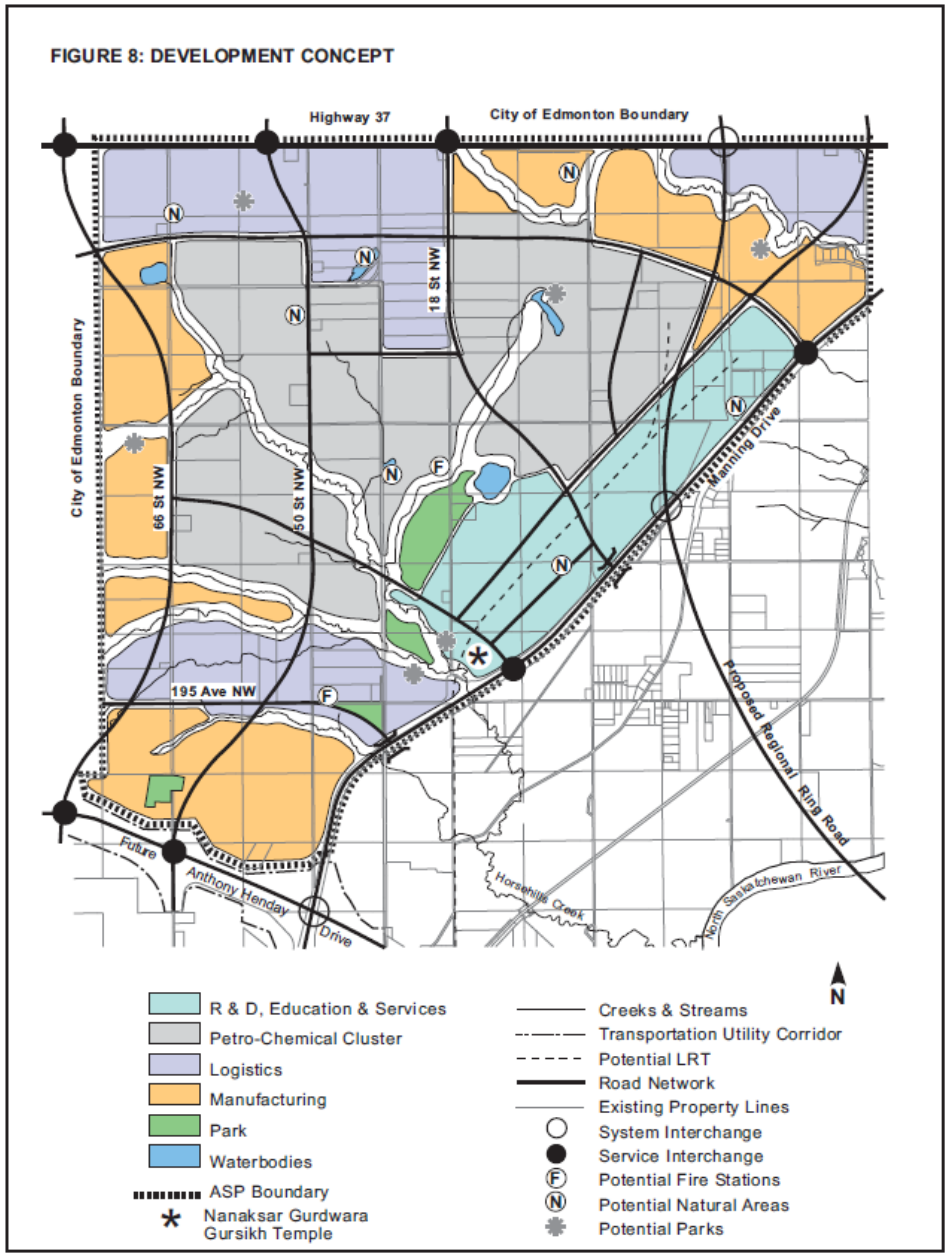
In order to use the petrochemical industrial resources and to achieve the goal of an industrial plan focused on eco-industrial principles, ~~four~~ three main land use precincts are needed: ~~p~~Petrochemical ~~c~~Cluster; ~~manufacturing, logistics~~Medium Industrial; and ~~r~~Research and ~~d~~Development.

The ~~petrochemical cluster precinct~~ Petrochemical Cluster precinct provides the core of heavy ~~industries~~ industrial land uses. ~~It will needrequire a supportive industry industries in order to function well, which requires the development of logistics, supportive manufacturing, commercial and research and development and office business park uses.~~ It will require a collaborative strategy and supportive industrial land uses to function as an eco-industrial development including shared logistics, product manufacturing, research and development and supportive commercial uses.

Each of the land use precincts will be described as shown in Figure 8: Development Concept. The principles of eco-industrial development will be identified as they relate to each individual land use. Specific policies related to their development will also be included in each section.

Figure 8: Development Concept

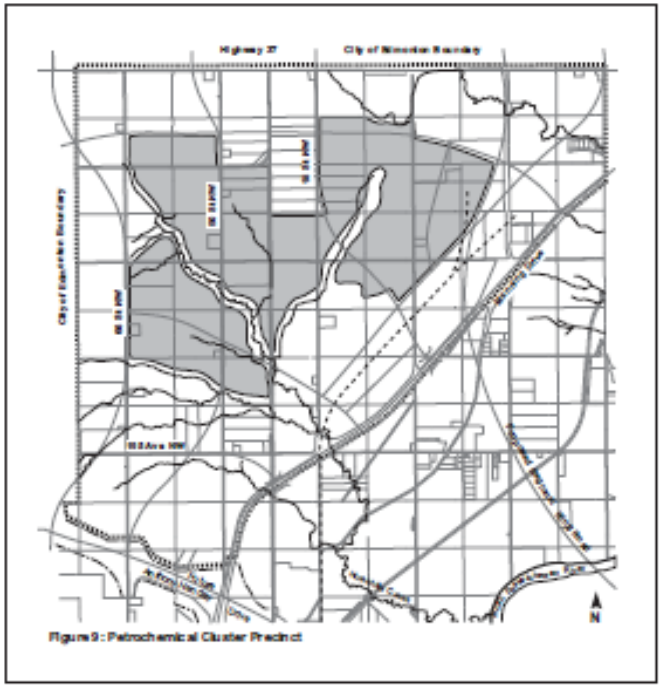
(Amended by Bylaw 16767, September 23, 2014) **UPDATE USING REVISED FIG. 8**, see Appendix C of ASP Amendment Application



7.2 Petrochemical Cluster Precinct

The heart of the plan area will incorporate the ~~petrochemical cluster~~ Petrochemical Cluster precinct (Figure 9: Petrochemical Precinct). This area will produce the chemical products that will be refined, researched, molded, and moved in other parts of Edmonton Energy and Technology Park, and will also provide a location for other heavy industrial uses.

Figure 9: Petrochemical ~~Cluster~~ Precinct (Bylaw 16767 September 23, 2014) **DELETE MAP**



The ~~petrochemical cluster~~ Petrochemical Cluster precinct land ~~use~~ uses will be largely comprised of chemical facilities, but will also include any necessary storage or trans-shipment facilities specializing in chemical processing. As development related to chemicals can pose an elevated risk to the general public in the event of an accident, the ~~petrochemical cluster~~ Petrochemical Cluster land ~~use~~ uses ~~has~~ have been located in the centre of the plan, isolating ~~it~~ them from any existing or future residential developments. This central location also provides the ability to create larger lots to accommodate various sizes of chemical plants. *(Bylaw 16767 Sept 23, 2014)*

Examples of the types of facilities that may be developed ~~Uses~~ within the ~~Chemical~~ Petrochemical Cluster precinct ~~may~~ include:

- Chemical plants
- Local power generation facilities
- Local wastewater treatment facilities
- Recycling centres
- Ancillary warehousing

- Heavy industrial uses

Examples of the types of facilities that will not be considered within the ~~Uses in the Chemical~~ Petrochemical Cluster Precinct ~~will not~~ include:

- Nuclear power facilities
- Waste stockpiles
- Landfills

Objectives

1. In this precinct, waste outputs, such as steam or hydrogen, are encouraged to be traded between industrial developments using a local private pipe system located within road right-of-way or on-lot easements.

Policy

~~1. Any necessary smokestacks or other venting structures will be designed to reduce any adverse impacts on air quality for the surrounding area, in accordance with Provincial and Federal legislation.~~

~~2. Waste outputs, like steam or hydrogen, are encouraged may to be traded between industrial developments in this area using a local private pipe system located within road right-of-way or on-lot easements.~~

~~3.~~ 1. Industrial businesses that would introduce risks to public health or safety are required to submit a risk assessment prior to the issuance of zoning approvals to ensure that they do not pose unacceptable risk to the surrounding area

~~4. . *(Deleted).*~~

(Bylaw 16767 Sept 23, 2014)

7.3 ~~Logistics~~Medium Industrial Precinct

(Bylaw 16767 Sept 23, 2014)

This precinct will provide for an array of industries and services which will include logistics, manufacturing, and commercial uses. These uses can either support those located within the Petrochemical Cluster precinct *or provide a standalone service.*

Logistics facilities provide the means by which chemical and other products manufactured within the EETP can be efficiently gathered and shipped to local and international markets. Logistics uses should be located adjacent to rail facilities and have convenient access to regional roadways.

Manufacturing facilities are well-suited to being located within the EETP as they can benefit from feedstocks supplied by the petrochemical industries to create finished goods such as plastics, synthetic fibres, rubber products, engineering resins, paints and coating, lubricants, and cleaning products. As with logistic facilities, they should be located for ease of access to rail and major roadways to facilitate the movement of goods.

Service Commercial Nodes will be allowed within the Medium Industrial precinct to provide convenient support services to the employees and businesses within EETP. To ensure that commercial uses do not proliferate throughout the EETP, and in order to limit potential human occupancy in proximity to heavy industrial uses in the nearby Petrochemical Cluster, uses will be restricted by size and location.

~~*are important to the chemical and manufacturing industries, as they provide the means by which chemical and other manufactured products can be gathered and shipped to local or international markets. This area is also intended to accommodate the enhancement or assembly of products or equipment prior to shipment.* The uses within the logistics area, highlighted below (Figure 10), will include trans-shipment facilities, storage facilities, and packaging facilities. This precinct has been located adjacent to rail facilities and the best roadway connections to local and regional roadways.~~

Figure 10: ~~Logistics~~Medium Industrial Precinct **(Bylaw 16175 Jan 23, 2013)** **DELETE AND REPLACE WITH NEW** "Medium Industrial Precinct" Figure 10 MAP (see Appendix C of ASP Amendment Application)

~~Uses in the~~ Examples of the types of facilities that may be developed within the Medium Industrial precinct ~~Logistics uses~~ ~~Precinct~~ ~~may~~ include:

- Manufacturing or processing of a variety of products
- Plastics facilities
- Pharmaceutical production
- Pipe coating or production

~~**Policy**~~

- Intermodal yards
- Trucking yards
- Packaging facilities
- Tank farms
- Courier services
- Warehouses
- Palleting facilities

- City-owned integrated services facilities

Examples of the types of facilities that will not be considered within the ~~Uses in the~~ Medium Industrial Precinct ~~Logistics uses~~ ~~Precinct~~ ~~will not~~ include:

- Petrochemical plants
- Landfills
- Self-storage facilities

Objectives

1. Use of rail and pipelines is encouraged to reduce roadway congestion, transportation costs, and greenhouse gas emissions.
2. Manufacturing developments are encouraged to cluster, or develop multiple uses within the same building, in order to use land more efficiently.
3. All properties adjacent to a rail line should, at the time of rezoning and subdivision, consider the extension of rail lines ~~at the time of subdivision~~ to maximize rail access for the entire plan area.

~~3. Outdoor storage areas are permitted, but must be largely screened from roadways using landscaping, fencing, public art, or other methods as appropriate.~~

4. ~~That Intermodal facilities based on rail will shall be located interior to the plan.~~
5. Manufacturing processes that generate significant noise or odour may not be developed within 100 m of an existing residential use or existing agricultural homestead.

Policy

1. Outdoor storage areas are permitted, but shall be largely screened from roadways using landscaping, fencing, public art, or other methods ~~as appropriate~~.
2. Intermodal facilities based on rail shall be located interior to the plan.

Examples of the types of Uses that may be developed within the Service Commercial Nodes include:

- Automotive and Equipment Repair Shops
- Convenience Retail Stores
- Gas Bars

- Restaurants

Examples of the types of Uses that will not be considered within the Service Commercial Nodes include:

- Bars and Neighbourhood Pubs
- General Retail Stores
- Warehouse Sales

Policy

1. Locations of proposed Service Commercial Nodes are to be identified at the time of rezoning.
2. Service Commercial Nodes shall be limited to 2 ha in size to maintain the industrial integrity of the precinct.
3. Service Commercial Nodes shall not abut the CN Rail Line (Dangerous Goods Route) and also leave connections for spur lines,
4. Service Commercial Nodes should be located as to minimize the impact of traffic flow on arterial roadways.
5. Service Commercial Nodes shall be accessed from a collector or local roadway.

7.4 ~~Manufacturing Precinct~~

(Bylaw 16767 Sept 23, 2014)

~~*Supportive manufacturing is another use for chemical cluster development which will cater to businesses that use material from chemical plants, to create finished goods such as plastics and oils*. This area is also intended for services provided by other land uses in the plan area to support its business functions. The manufacturing land use is located for access to rail and major roadways for the ease of trans-shipment and goods movement (Figure 11).~~

~~**Figure 11: Manufacturing Precinct** (Bylaw 16767 September 23, 2014)~~ **DELETE MAP**

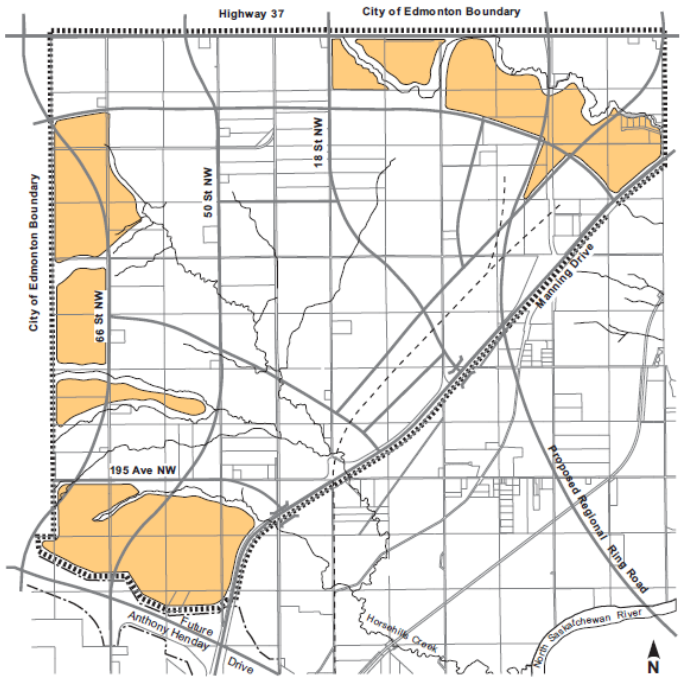


Figure 11: Manufacturing Precinct

~~Example Uses in the Manufacturing Precinct may include:~~

- ~~Plastics facility~~
- ~~Pharmaceutical production~~
- ~~Pipe coating or production~~

~~Uses in the Manufacturing Precinct will not include:~~

- ~~Petro-chemical plants~~
- ~~Land fills~~

~~**Policy**~~

~~1. Manufacturing developments are encouraged to cluster, or develop multiple uses within the same building, in order to use land more efficiently~~

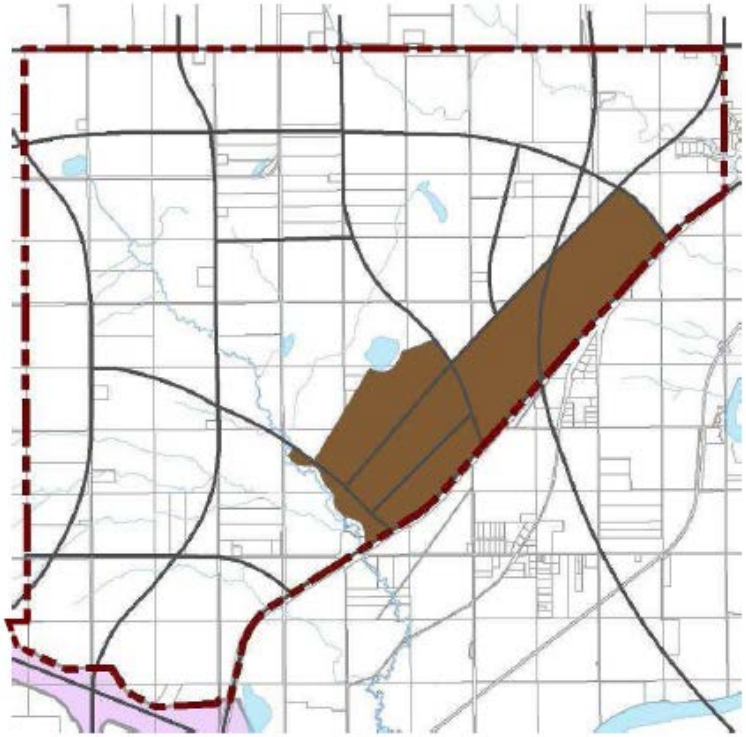
~~2. Manufacturing processes that will generate noise or odour that may impact neighbouring developments may not be developed within 100 m of an existing residential use or existing agricultural homestead~~

7.4 ~~7.5~~ Research and Development ~~Park~~ Precinct

The ~~research and development~~ Research and Development precinct ~~park precinct~~ is anticipated to be the strongest employment generator in the plan area and takes advantage of the availability of arterial roadways and

the potential for LRT connections. The ~~research and development park~~ Research and Development precinct ~~use is~~ uses are intended to include offices, laboratories, research and development centres, together with additional business opportunities that complement the development of the ~~petrochemical cluster~~ Petrochemical Cluster (Figure 11: Research and Development Precinct).

Figure 12: Research & Development Precinct **(Bylaw 16175 Jan 23, 2013) DELETE AND REPLACE WITH NEW MAP,** Figure 11, (see Appendix C of ASP Amendment Application)



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Examples of the types of Uses that may be developed within the ~~Uses in the~~ Research and Development ~~Park~~ precinct include:

- ~~Professional and Financial Offices~~ Professional, Financial and Office Support Services
- ~~Laboratories and Research Facilities~~ Research and Development Facilities
- ~~Education Services (ie., technical school annexes)~~ Laboratories
- Business Support Services
- ~~Limited Commercial Facilities~~ Light Industrial Business
- ~~Restaurants~~

Examples of the types of Uses that will not be considered within the Research and Development ~~Business Park~~ precinct include:

- ~~Shopping Centres~~ General Industrial Uses
- ~~New institutional uses~~ Government Services
- ~~General retail stores~~ Warehouse Sales

Objectives

1. Business park developments are encouraged to cluster, or develop multiple uses within the same building, in order to use land more efficiently.

2. Site developments are encouraged to incorporate the theme of "technology, energy, and innovation" into their facades and signage, as appropriate.

3. Developments are encouraged to incorporate visible green technology into facades and signage, such as photovoltaic cells, recycled materials, and green roofs.

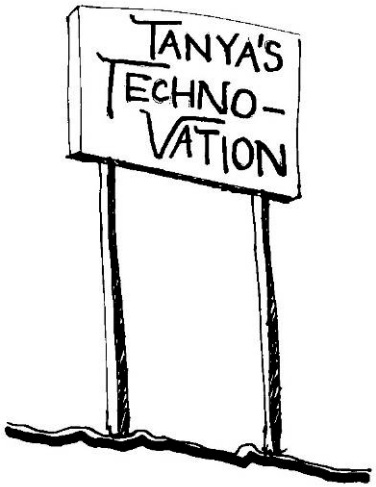
4. Arterial or freeway frontages are encouraged to provide additional landscaping to enhance the view corridor into the plan area.

Policy

1. ~~Business park development are encouraged to cluster, or develop multiple uses within the same building, in order to use land more efficiently~~

2. ~~Outdoor storage of any kind is not permitted fronting onto arterials or freeways within the business park precinct~~

3. ~~Arterial or freeway frontages must include additional landscaping to enhance the view corridor into the plan area~~



4. ~~High quality building materials must be used in buildings located along arterial and freeway frontages~~

5. ~~Site developments are encouraged to incorporate the theme of "technology, energy, and innovation" into their facades and signage, as appropriate.~~

6. ~~Developments are encouraged to incorporate visible green technology into facades and signage, such as photovoltaic cells, recycled materials, and green roofs.~~

7. ~~Uses within the plan area are encouraged to orient to research and development purposes~~

8. 1. Commercial development may occur within the ~~Business Industrial~~ Research and Development

precinct, but they must only serve the plan area and may not be intended to serve a larger catchment area. These local uses may include small coffee shops or restaurants, copy centres, or other related uses.

9. ~~Existing institutional uses within the Research and Development Park Precinct may continue to operate and expand on their existing sites in the Edmonton Energy and Technology Park. However, expansions to existing institutional uses through consolidating additional lands are not permitted. Should the existing institutional uses cease operations, their use designation will revert to Research and Development Park Precinct uses. In the interim, no uses that will introduce unacceptable risk will be permitted in proximity to these existing institutional uses. Also, a buffer must be established between the existing institutional uses and any adjacent development and will be identified in the sub-area planning stage.~~

7.5 ~~7.6~~ Natural Area Integration

The Edmonton Energy and Technology Park development provides an opportunity to conserve and enhance the area's natural areas such as Horsehills Creek and its tributaries, other water courses, wetlands, potential wetlands, potential linkages, and other natural features. Together, these components will form the area's ecological network as outlined in the ~~Edmonton Energy and Technology Park Area ASP, Ecological Network Analysis 2008,~~ *Horsehills Industrial Area - Ecological Network Analysis* (Delcan in association with Golder Associates, December 2008) and subsequent studies, including the *Phase II Ecological Network Report Edmonton Energy and Technology Park Chemical Precinct E-593* (Spencer Environmental Services, December 2014). This network is illustrated on Figure 12: Ecological Network.

The integration of natural areas will be essential to achieving the area's eco-industrial vision. Natural areas will enhance industrial development by maintaining the ecological function of the land and by providing for amenity spaces for area workers as well as a green and healthy working environment.

The Ecological Network Analysis has been completed at a broad geographic level to identify the area's overall Ecological Network and to establish priorities for natural resource management and integration into the ASP. For mapping purposes, only those natural areas that are greater than 2 ha in size have been identified in Figure 12: Ecological Network. The mapping has identified 258.19 ha

(5.79% of GDA) of natural areas within the plan area. Although the natural areas are considered to be non-developable, ~~However,~~ ~~A~~additional investigations will be required either as part of future planning studies or during the site-specific rezoning, subdivision or development approval stages to determine their future use ~~processes~~. The following provisions will apply.

Policy

1. Additional studies and plans will be required prior to development, and the information requirements will vary depending on the stage of planning and development approval. Development applications will include sub-area planning, rezoning approvals, subdivision approvals, and development permitting approvals.

2. There will be an emphasis on requiring ecological information as key components of development applications in order for the applications to be received by the City and deemed "complete". This includes a Phase II Ecological Network Report at the rezoning stage. This will assist the City in making informed decisions in a timely manner. Development applicants will be required to pre-consult by way of a meeting with the City before preparing and submitting any development application in order to confirm the need for and scope of additional studies, and when they are required.

3. Wherever plans or studies are required, they will be completed on behalf of applicants by qualified professionals and will be reviewed and approved by the City at the appropriate stage in the planning and development process. The most current plans, policies, regulations, and information, at the time of ~~individual~~ development application ~~proposal~~, should be utilized.

4. Natural areas that fall under the definition of Environmental Reserve under the MGA (Sec. 664(1)) will be acquired as Environmental Reserve by the City.

5. The City may consider accepting wetland compensation in-lieu of acquisition, in accordance with the Alberta Water Act and/or ~~new~~ *Alberta Wetland Policy*. The compensation may be directed towards the creation, restoration and/or management of other wetlands, water courses and/or water bodies.

6. The preliminary identification of Provincially owned

water bodies has been conducted for the plan area. However, verification of crown ownership will be required at the rezoning, subdivision and/or development application ~~this~~ stage.

7. Natural areas that do not qualify as Environmental Reserve may be considered for ~~retention~~ protection through Municipal Reserve dedication ~~to a maximum of 2% of the Gross Developable area~~. The City will place priority on those natural areas which it determines can form valued components of a connected ecological network.

8. The City will require the preparation of a Natural Site Assessment, completed in accordance with the Natural Site Assessment Guidelines, to support development applications that propose development or site alteration within or adjacent to any designated natural area or associated buffer. Objectives will include, but not be limited to: identifying existing protected ecological features; researching additional details of the valued ecological components; recommending measures to restore and enhance the feature; and recommending measures to mitigate impacts of site development on ecological features. The study will be reviewed and approved by the City at the earliest opportunity, be it the sub-area, zoning, subdivision, or development permit stage.

9. The City will use its guidelines for determining Environmental Reserve dedication for wetlands and other water bodies when applying buffers to those natural areas. Appropriate buffers will also be established surrounding other natural areas to ensure their protection. These will be determined at the zoning or subdivision stages, on a case by case basis and in consultation with the City.

10. Natural areas that are retained as public lands will have public access to provide the opportunity for them to be integrated with the open space network. River valley and ravine system will have public access consistent with the *City of Edmonton's Development Setbacks from River Valley/Ravine Crests Policy (C542A)* ~~Top-of-Bank Development Policy~~.

11. The City will require development proponents to prepare Natural Area Management Plans for natural areas and buffers to be retained within or adjacent to developments, in accordance with the ~~Natural Area Management Plan Guidelines.~~ *City of Edmonton's Natural Area Systems Policy (C531)*. The Plans will be

reviewed and approved by the City at the sub-area planning stage and should follow and be informed by the reports identified in Policy 8 above.

12. The City will require that applicants complete a Tree Conservation and Landscape Plan as a component of development applications. The goal of these Plans will be to retain and plant as much natural vegetation as possible to augment the designated natural areas. Plan objectives will be: to assess the quality of forest patches, specimen trees, windrows, and other naturally vegetated areas and their value for retention; to recommend site design and mitigation measures that will conserve those areas to be retained, to recommend measures to transition and integrate new landscaped areas with adjacent natural features, and to recommend new tree or vegetation planting that will contribute to native vegetation cover in the area. The Plans will be reviewed and approved by the City at the development permit stage.

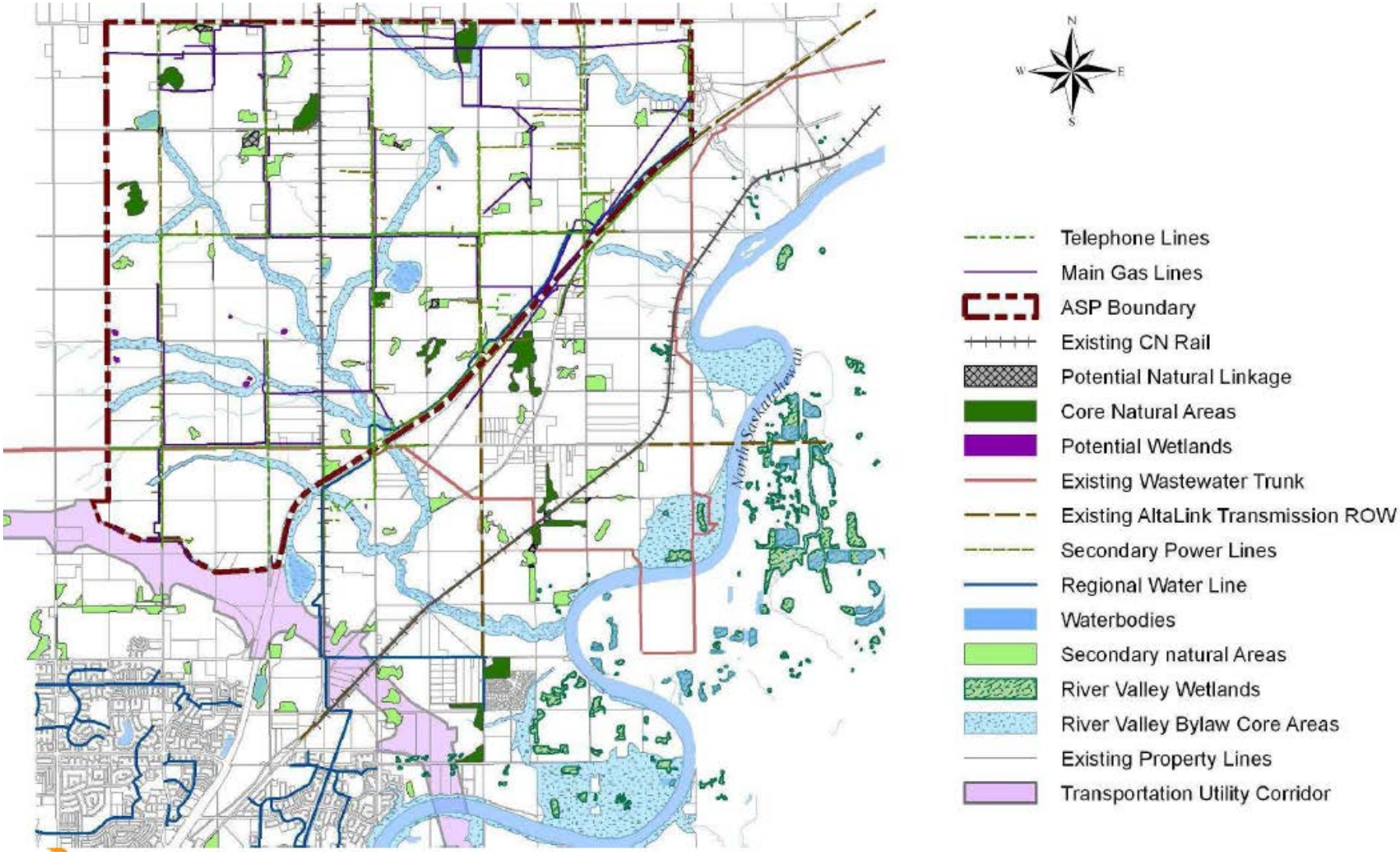
13. Any proposed activities within the designated North Saskatchewan River Valley Area are regulated by existing Bylaws and the associated Area Redevelopment Plan (Bylaw 7188). These regulations are supported by this Plan and will be reflected in the regulations of the City's Zoning Bylaw, including, but not limited to, the North Saskatchewan River Valley and Ravine System Protection Overlay, that are applied to the ASP area.

14. The City's Zoning Bylaw will be used as one of many tools to implement the ~~area'~~ area's ecological network objectives. The Bylaw will stipulate the natural areas where development is strictly controlled, and the regulations and site development criteria that apply. This zoning process will be completed by the City upon the approval of the Area Structure Plan.

15. In addition to these polices, the City will utilize all of its other various policy and regulatory means to achieve the goals as set out in the Municipal Development Plan in regards to planning for the natural environment.

Figure 13: Ecological Network (Bylaw 16175 Jan 23, 2013) DELETE AND REPLA, Figure 12 (s

ASP Amendr



7.6 ~~7.7~~ Open Spaces and Parks

A number of parks have been identified in addition to natural areas. A ~~large city-wide~~ district activity park has been identified in the centre of the plan area, with an area of approximately 45.56 ha (Figure 13: Open Spaces and Parks). It is connected to natural areas and additional park spaces, via the North Saskatchewan River Valley and Ravine System, and multi-corridor pathways (Figure 16: Pedestrian and Bicycle Network). ~~to create a central spine that extends through the centre of the plan area~~. This ~~city wide~~ district park will be used for large programmed sporting events that would attract users from surrounding areas. In addition to this large park ~~system~~, additional smaller local park locations are identified in the plan area, including a relatively larger one to the south at the confluence of the Horsehills Creek and another tributary of approximately 19 ha.

Most existing industrial areas in the City of Edmonton do not incorporate smaller, local parks. Local parks will be incorporated into Edmonton Energy and Technology Park to provide recreation opportunities for area employees as well as the public at large, further differentiating this area from conventional industrial park development.

The Urban Parks ~~Master~~ Management Plan (UPMP) does not contemplate parks for industrial areas, and therefore does not designate a park type to be used in these cases.[1] These park locations will most closely resemble the community or urban village park in intent, but are anticipated to be slightly smaller given the lack of necessity for community league facilities. They are therefore anticipated to be approximately 4 ha in size each and will provide open spaces that can be programmed to provide passive or active recreation. Precise placement of these community level parks will be identified at the time of zoning and subdivision, and as supported in shadow plans, but are identified generally in Figure 13: Open Spaces and Parks ~~14~~ below.

The Municipal Government Act entitles the City of Edmonton to 10% of the total Gross Developable Area as Municipal Reserve upon subdivision. It is anticipated that 103.72 ha ~~334 ha~~ or 2.33 ~~7.3~~ percent of the City's Legal Entitlement (should all lands be subject to subdivision) will be taken as land, with the rest, approximately ~~121~~ 342.22 ha or ~~2.7~~ 7.67% percent, taken as cash-in-lieu. ~~The~~

[1] The UPMP will be replaced *Breathe: Edmonton's Green Network Strategy* sometime in 2017 and specific policies related to parks in industrial areas are subject to change.

~~*proposed 334 ha of MR land would provide six local parks at approximately 4 ha each, one regional park at approximately 217 ha and 93 ha for natural area as identified in Figure 14.*~~

The proposed 103.72 ha of municipal reserve land would provide parks with the following approximate areas:

- a central district park at 45.56 ha;
- a local park south of the district park at 19 ha;
- a triangular park at 195 Avenue and the CN Rail line at 3.66 ha;
- two pocket parks in the northeast portion of EETP, on either side of the ravine totalling approximately 5.73 ha;
- a park west of 33 street at 1.79 ha; and
- six local parks totalling 28 ha (4 ha each, except for a southwest park at 8 ha).

The seven natural areas identified in Figure 13: Open Spaces and Parks are proposed to be retained through appropriate environmental reserve dedication on subdivision. Exact boundaries will be confirmed through detailed ecological network studies as a condition of rezoning and subdivision applications. Other natural areas, as identified in Figure 14: Arterial Road Network may also be required to be dedicated as environmental reserve on subdivision.

Figure 14: Open Spaces and Parks (Bylaw 16175 Jan 23, 2013)

DELETE AND REPLACE WITH NEW MAP Figure 13 (see Appendix C of ASP Amendment

The identified parks and natural areas are conceptual in nature and subject to change. The specific location of parks will be determined at the zoning and subdivision stages. The location of natural areas will be confirmed by subsequent evaluation.

- ASP Boundary
- Natural Areas
- Potential Parks
- Park
- Waterbodies
- River Valley Natural Areas
- Top of Bank
- Existing Property Lines
- Transportation Utility Corridor

7.7 ~~7.8~~ Risk Management Strategy

While industry continually strives to reduce the danger associated with their operations, there is typically some level of elevated risk to health and safety involved in industrial development due to the potential for accidents. While this risk will continue to exist, good planning can play a role in lessening the impact of any future industrial accidents on people.

The distance between high concentrations of people and industry plays a critical role in managing risk effectively, and has been researched by many industry organizations and government bodies. As discussed in Section 5.12, the Major Industrial Accidents Council of Canada (MIACC) helped to identify guidelines for safe distances between people and industry. *Development will be further guided by studies in air dispersion modeling and risk analysis related to petrochemical facilities.*

(Bylaw 16767 Sept 23, 2014)

A risk buffer, approximately 1.6 km in depth and consistent with MIACC principles, serves as a transition from the heavy industrial uses within the Petrochemical Cluster precinct to other land uses within and adjacent to the EETP that may be subject to greater rates of human occupancy. This will be implemented through EETP custom zoning.

General locations for fire stations have also been identified in Edmonton Energy and Technology Park in consultation with the Emergency ~~Rsponse~~ Response Branch ~~Department.~~ These facilities have been located to provide efficient emergency services to this area, which also works to reduce the risk and severity of any accidents that may occur in the plan area.

The Riverbend Receiver Site is a Department of National Defence facility located at SW 22-54-23-W4M. It is vital to the Canadian Forces High Frequency communications which in turn is crucial to strategic imperatives such as operations in the north, and national search and rescue. Due to the potential for electromagnetic interference, any rezoning within 1.6 km of the antennas located at this site are subject to consultation with the Department of National Defence.

Policy

1. A risk assessment is required for industrial uses intended to produce, process, handle, and/or store hazardous materials.

2. Residential uses are not permitted in the ASP area.

3. All site and building designs within the chemical cluster or 1.5km of its boundary shall be designed for ease of evacuation and provide protection to building occupants specific to the potential for industrial accidents.

4. Cumulative effects of multiple risk management sites must be considered as a part of all risk assessments undertaken in the plan area.

5. *Buffer areas will be designated in order to transition from uses within the Petrochemical Cluster precinct to adjacent areas through zoning that restrict uses within the buffer to those that pose a risk of death of no greater than 1:1,000,000 in accordance with MIACC principles.* *(Bylaw 16767 Sept 23, 2014)*

6. *The rezoning of lands within a 1.6 km radius of the antennas located at SW 22-54-23-W4M are subject to consultation with the Department of National Defence.*

~~7.9 Existing Residential~~

~~That a new zone would be prepared for existing residential properties that would allow for the continuation of the existing uses.~~

8.0 TRANSPORTATION

The Edmonton Energy and Technology Park ASP area is constrained by several regional roads in the area which may limit access to the developable lands, but which also create opportunities for development. It is important to note that the roadway network for the plan area, as shown in Figures ~~15~~ 14-17, cannot be developed in isolation from the rest of the City and region because the road network must operate effectively and efficiently for all users in the future. Therefore, some c~~C~~onsideration of a the road network through the lands south of Manning Drive, including the concept provided in the *Horse Hill Area Structure Plan*, is included in this discussion to provide some context for regional traffic movement. The road network outside of the plan area is conceptual in nature and subject to change as part of future land use planning processes.

8.1 Regional Road Network

(Bylaw 16767 Sept 23, 2014)

The south boundary of the plan area is Anthony Henday Drive, the northeast section of which ~~will be, when completed,~~ was completed in 2016. It is a full access controlled freeway ring road encompassing the City of Edmonton. This ring road allows for the movement of goods and services through the region at higher speeds and less delay.

(Bylaw 16767 Sept 23, 2014)

The portion of Anthony Henday Drive west of Manning Drive was completed in 2011 and has access via interchanges at 66 Street and Manning Drive. A future half interchange is planned at 50 Street, with access to and from the west. ~~The portion of AHD east of Manning Drive is currently under construction and is anticipated to be complete between Manning Drive and Yellowhead Trail by 2016. Extensions of the 66 Street and 50 Street north of the Anthony Henday will be key connectors into the EETP as shown in Figure 14 Arterial Road Network. Additional access for the lands south of Manning Drive (within the Horsehills Horse Hill ASP area) is planned to include an interchange at 153 Avenue and a flyover extension of Victoria Trail.~~

To the east of the plan area, Manning Drive is an expressway facility on a southwest – northeast alignment, ultimately becoming Highway 15 and turning eastward to Fort Saskatchewan. It connects to Anthony Henday Drive to the south.

To the north of the plan area is Highway 37 which connects this northeast part of the Capital Region near

Fort Saskatchewan to the northwest parts closer to St. Albert. Today, it is a high speed two-lane rural highway with at-grade intersections with other highways, and graveled or paved municipal rural roads.

~~*Highway 37 in the future will continue to be a component of the future regional road network. The alignment shown in this ASP, including approximate intersection locations,* represents the best available information at the time of writing. It was developed through discussions with Alberta Transportation and City of Edmonton staff and it was generally acceptable to both groups.. *However, future discussions and on-going studies may lead to modifications of the Highway 28A alignment and the system interchanges.*~~

~~*Additional lengths of a potential regional road network passes through the plan area on a NW to SE alignment between the Edmonton Institution and the Department of National Defense communication array, crossing the North Saskatchewan River near the Capital Region Waste Water Treatment plant. This facility is expected to have a systems interchange with Manning Drive and with Highway 37 at Highway 28A (Figure 15). A systems interchange accommodates traffic flow between two intersecting freeway facilities. Additional access for either freeway within 3 km of the interchange is undesirable under Provincial standards. There will be access opportunities via service interchanges every two km along Highway 37, Manning Drive and the regional roadway freeway connection between Highway 37 and the North Saskatchewan River crossing. These access locations were also discussed with, and agreed upon, with Alberta Transportation and City staff and represent the best information available at the time of writing this document.*~~

(Bylaw 16767 Sept 23, 2014)

~~*Manning Drive is an expressway facility on a SW to NE alignment, ultimately becoming Highway 15 and turning eastward to Fort Saskatchewan. It connects Anthony Henday Drive to the Regional Road network and will have systems interchanges with both freeways. There is likely space between these two systems interchanges for one service interchange to provide access to the plan area from Manning Drive.. A second service interchange location exists to the northeast in the vicinity of the existing Highway 37 intersection point. Manning Drive was transitioned to the Province in a 2012 Highway Transfer Agreement and is currently a Provincial roadway with the completion of the northwest portion of Anthony Henday Drive in 2011.*~~

~~Interchange locations are based on the *Sturgeon County*~~

~~*Highway 37 Planning Study – Highway 28 to Highway 15 Final Report* (ISL Engineering and Land Services, March 2015).~~

The road alignments shown in this ASP, including approximate intersection locations, represents the best available information at the time of writing. It was developed through discussions with Alberta Transportation, and studies related to the regional road network. These studies included the *Sturgeon County Highway 37 Planning Study – Highway 28 to Highway 15 Final Report (ISL Engineering and Land Services, March 2015)* and the *Freeway Concept Plan Highway 15 & 28A within the City of Edmonton R-1198 (Alberta Transportation, January 2016).* The latter report was developed between 2012 and 2015 partly in response to anticipated growth either side of Manning Drive.

The Capital Region Board's *Integrated Regional Transportation Master Plan* recommends a new route across the North Saskatchewan River and to address Alberta Transportation's previous Capital Region Ring Road initiative.

These plans provide for systems interchanges at Highway 28A and Manning Drive, and Highway 28A and Highway 37. Access to the EETP is provided via service interchanges on Manning Drive west of Meridian Street, and in the vicinity of 243 Avenue. Flyovers are also planned west of 18 Street and at Meridian Street. This is represented in Figure 14: Arterial Road Network.

Future discussions and on-going studies, including the Northeast River Crossing (NERC, below) may lead to modifications of the Highway 28A alignment and the system interchanges.

The Capital Region Board's *Integrated Transportation Management Plan* (IRMP) (September 2011) identifies a new river crossing in the northeast sector of the Capital Region as one of the 10-year investment priorities. The City of Edmonton's commenced a functional planning study (FPS) for the planned Northeast River Crossing in partnership with Alberta Transportation, Strathcona County, City of Fort Saskatchewan and Sturgeon County in 2016.

The freeway will facilitate improved regional travel by creating a direct connection between Strathcona County, the City of Edmonton and Sturgeon County; thereby also providing a bypass of the City of Fort Saskatchewan.

The NERC FPS includes linkages between Highway 21 in Strathcona County and Highway 15 (Manning Drive). The FPS limits are from Highway 21, approximately 1.4 km north of Highway 16 (Yellowhead) to Highway 28A, about 1 km north of Manning Drive. The FPS is expected to identify right-of-way requirements for both the bridge and the linkages, and will be completed by the end of 2018.

It is expected that construction of the NERC route will not occur for at least 25 to 35 years, however this could change depending on development pressures in EETP and the Capital Region.

Alberta Transportation is currently engaged in a High Load/Over-dimensional study for a strategy for highway routes throughout Alberta to accommodate oversized loads. The study is expected to be complete some time in 2017. The Highway 28A/Northeast River Crossing route was envisioned to be a "Heavy Haul" or "Over-Dimensional" highway route in the Capital Region Board's *Integrated Regional Transportation Master Plan* (IRTMP). While the terms of reference for the NERC do not include such a requirement, the option for the route to be constructed to accommodate over-Dimensional loads remains. A final decision on the NERC route has implications for flows of heavy equipment and over-sized loads into and out of the EETP.

Given that there are expected to be large industrial facilities within EETP, a High Load corridor that provides an efficient connection to suppliers of materials to EETP (e.g. modules used in the construction of manufacturing and petroleum plants), and buyers of products produced within EETP, is desirable.

Existing and potential high load corridors, that may connect EETP to potential suppliers within the Capital Region (PCL and Ledcor, Nisku Industrial Park, CESSCO in the City's southeast, and PCL in Aurum Industrial Park in Strathcona County, have been identified in the ISL Engineering and Land Services *Edmonton Energy and Technology Park Over-dimensional Routes Assessment* (December 2015).

The EETP will benefit greatly with a direct link to a northeast North Saskatchewan River Crossing as this will facilitate the movement of goods and labour into and out of the area. Maximum flexibility will be gained if the route also meets the requirements as an over-dimensional highway route.

8.2 Arterial Road Network

The Arterial Road Network has been revised since the

(Bylaw 16767 Sept 23, 2014)

initial concept that was approved in the ASP in 2010. The network is now less curvilinear, and based on a more conventional grid pattern, following section boundaries, as well as existing road right-of-ways as much as possible (Figure 14: Arterial Road Network). This will minimize unnecessary fragmentation of parcels and reduce the overall costs for the road network. The revised road network is based on the *Edmonton Energy and Technology Park Arterial Road Network Analysis* (ISL Engineering and Land Services, December 2015) and *Edmonton Energy and Technology Park Traffic Impact Assessment* (ISL Engineering and Land Services, August 2016).

The lands in the plan area are well serviced with arterial roads. There are generally three north south arterials spaced at 1.5 to 2 km apart. 66 Street (which becomes 50 Street in EETP) and 50 Street (which becomes 34 Street in EETP) connect Anthony Henday Drive to Highway 37. 18 Street is the third arterial road. It passes Anthony Henday Drive and winds through the lands south of Manning Drive, crosses Manning Drive and connects to Highway 37.

There are also three east west arterials spaced 2 to 3 km apart. 195 Avenue parallels Anthony Henday Drive to the west portion of the plan area and it is proposed to extend into the plan area intersecting ~~66th~~ 50 Street and ~~50th~~ 34 Street and then across Manning Drive to ~~feed~~ connect to 18 Street ~~into~~ within the *Horse Hill Area Structure Plan*. The central east west arterial extends from ~~66~~ 50 Street to connect to the central service interchange on Manning Drive and then eastward into the lands south of Manning Drive. *The northern arterial parallels Highway 37 from west of the plan area, connects to ~~66~~ 50 Street, ~~50~~ 34 Street~~,~~ and 18 Street, crosses the proposed Highway 28A freeway ~~regional ring road~~ to connect to the north service interchange and then into the lands south of Manning Drive.*

(Bylaw 16767 Sept 23, 2014)

~~There are other arterials within the plan area that are included to provide connectivity between the main roadways already discussed. South of Manning Drive, arterial road connections will be necessary and could include:~~

- ~~East leg of 153 Avenue at Anthony Henday Drive. This could connect through the lands to the south of Manning Drive to connect to the north service interchange at Manning Drive.~~

- ~~Continuation of Victoria Trail/18 Street from Anthony Henday Drive through the lands south of Manning Drive to cross Manning Drive and extend into the plan area.~~

- ~~Continuation of east-west roads within the plan area to allow connectivity to the industrial lands via a 195 Avenue extension and as part of 211 Avenue the central east west arterial, which connects to the central service interchange.~~

High Load standard arterials, connecting the interior of EETP to Highway 37 to the north, and then routing to Highway 28A (potential High Load corridor route) north and south, are required. In addition, over-dimensional load connections to Manning Drive/Highway 15, with potential connection to a future extension of Highway 28A through a new northeast river crossing (see NERC study under Section 8.1, above) ~~(~~and then to Highway 21~~)~~, are required.

Lands within the ASP will be subject to Arterial Roadway Assessments (ARA) pursuant to the Arterial Roads for Development Bylaw 14380, or to the policies and Bylaws regarding arterial roadways in place at the time of development to cost share the construction of arterial roadway facilities necessary to serve the area. In general terms, the ARA outlines the developer's contribution for arterial roadways construction within the catchment area and is based on the estimated and actual costs for the construction of the arterial roads required for access to a catchment area.

Policy

1. Additional access points to and from Anthony Henday Drive or Manning Drive will not be permitted.

2. Direct access within EETP to the future improved Highway 28A alignment connecting Highway 37 with Manning Drive, and ultimately, to the future northeast North Saskatchewan River Crossing, will not be permitted, in accordance with Alberta Transportation required separation of system interchanges.

3. Interim accesses for staging purposes must be provided in the location of ultimate interchanges or intersections.
4. At least one over-dimensional/high load arterial corridor will be provided to connect to each of

Highway 37 and to Manning Drive/Highway 15. The exact determination of appropriate routes will be determined prior to construction improvements of the Arterial Road Network.

8.3 Collector Road Network

A conceptual ~~The~~ collector road network is shown in Figure 15. The Collector Road Network is provided as a guideline only. The Collector Road Network concept is to be flexible and may be modified in subdivision applications through supportive shadow plans. Changes may be merited dependent on the type, location and site requirements of uses proposed within the EETP.

The Collector Road Network concept was developed using the following guiding principles:

- Minimize creek crossings and other environmental impacts.
- Connect to arterial roadways a minimum 300 m from arterial-arterial intersections and then spaced at a minimum of 200 m along the arterial roadway.
- Provide a reasonable amount of transit coverage through the area to be served from the collector roads, ensuring a maximum 400 m walking distance where possible.
- Provide connectivity to potential future LRT alignments.
- Locate roadways adjacent to or on quarter section lines where possible, but with the flexibility to relocate as the lands develop to ensure the roadway maximizes, as far as possible, access to development facilities.
- Routed to allow for signed bicycle route connectivity.
- The network is conceptual, and subject to change based on shadow plans submitted at the time of subdivision and rezoning applications.

Policy

1. The collector road network will be determined based on shadow plans at the time of rezoning and subdivision applications, and may vary from Figure 15: Collector Road Network Concept, depending on traffic impact assessments.

2. The final Collector Road Network and changes thereto shall be done in accordance with the principles as contained in the *City of Edmonton's Complete Streets Policy (C573A)*.

INSERT: NEW MAP 15: Collector Road Network Concept" (see Appendix C, ASP Amendment Application)

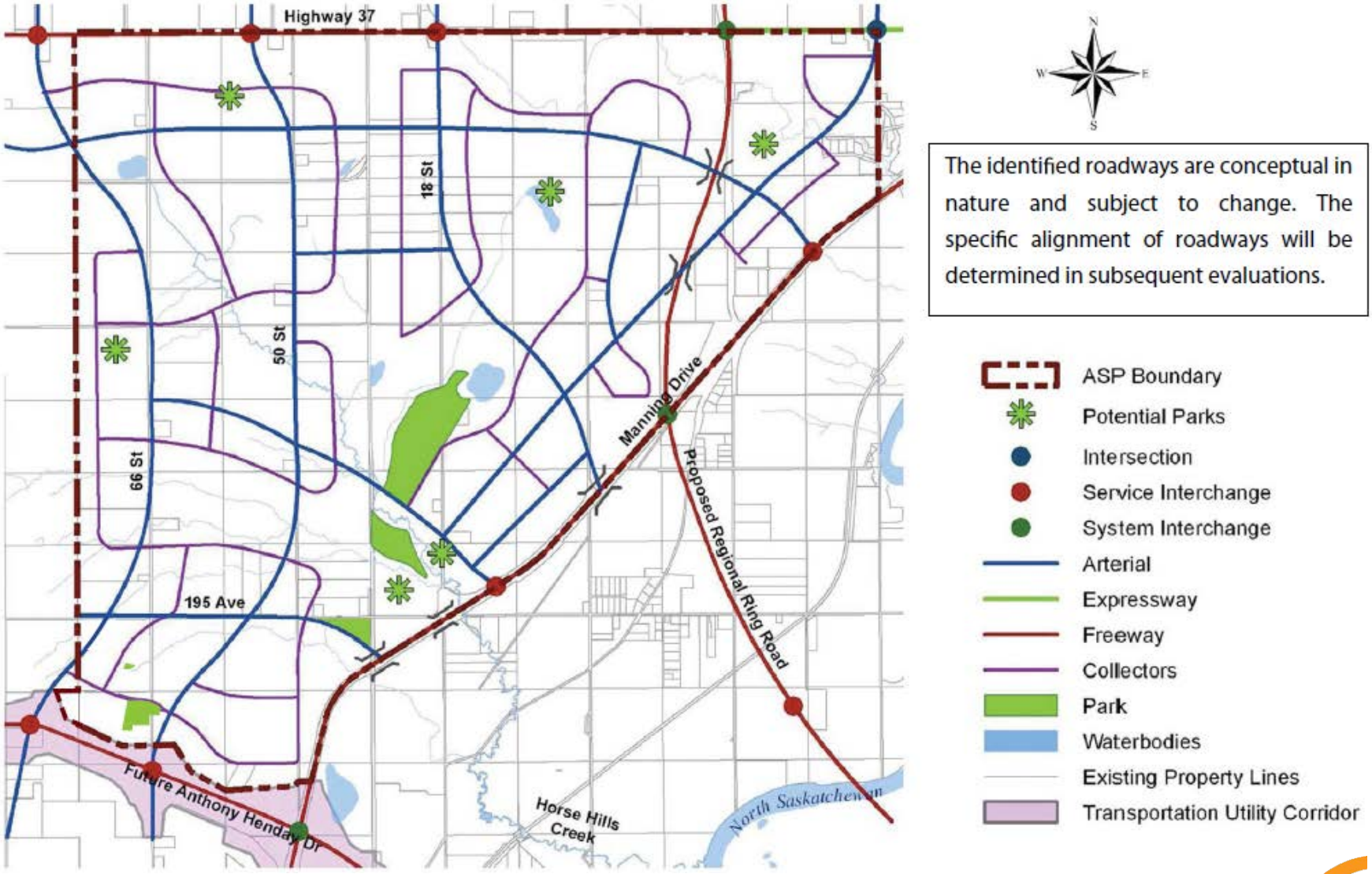
8.4 Eco-Industrial Alternative Road Cross-sections

Eco-industrial development includes concepts or methods for reducing the impact that industrial development has on the environment. "Eco" can refer to ecological, but it can also refer to economical. Several methods of creating eco-industrial transportation facilities include:

- Promoting the use of alternate modes of transportation; walking, cycling, or transit.
- Promoting the use of transportation demand techniques including car-pooling, other forms of ride-sharing, and premium parking spaces for those that car-pool.
- Reducing the width of hard surface dedicated to the vehicle which reduces the volume of storm runoff. Pavement width can be reduced by over 30% through the elimination of on-street parking and thereby improve the economics of development.
- Creating roadway ditches to collect and convey storm runoff from local and collector roads. This can also improve development economics while increasing ecological sustainability.

Several alternative road cross-sections were considered through this ASP process for local and collector roadways. These cross sections may include ditches, reduced pavement width, pedestrian accommodation, and transit stop provisions. Modified urban

cross-section roadways may be permitted within the plan area, subject to the review and approval of the City of Edmonton City Planning Branch ~~Transportation Department~~. and subject to the *City of Edmonton's Complete Street Policy (C573A).* It is important to use the guiding principles above in the creation of alternative cross-sections in the future to serve the eco-industrial area.


Highway 37
18 St
50 St
66 St
195 Ave
Manning Drive
Proposed Regional Ring Road
Future Anthony Henday Dr
Horse Hills Creek
North Saskatchewan
N
S
E
W
The identified roadways are conceptual in nature and subject to change. The specific alignment of roadways will be determined in subsequent evaluations.
ASP Boundary
Potential Parks
Intersection
Service Interchange
System Interchange
Arterial
Expressway
Freeway
Collectors
Park
Waterbodies
Existing Property Lines
Transportation Utility Corridor

8.5 Pedestrian/Bicycle Network

A Pedestrian and Bicycle Network concept provides ~~The pedestrians and cyclists are accommodated through~~ a potential network of comprehensively developed ~~network of~~ multi-use trails, sidewalks, and on-street signed bike routes (Figure 16: Pedestrian and Bicycle Network ~~15)~~. As with the Collector Road Network (Figure 15), this is a concept, subject to change with the final collector and arterial road alignment.

The multi-use trails form part of the standard arterial roadway cross-section. ~~and therefore the arterial road network is generally the same as the recommended multi-use trail network.~~ The trails will connect from known connection points south of ~~AHD~~ Anthony Henday Drive on 50~~th~~ Street and on 18 Street and along the future LRT alignment to feed into the area. The primary goal is to continue these trails into the plan area along these north/south arterial roads to connect to destinations within the plan area and potentially into Sturgeon County.

Typical destinations and routings include:

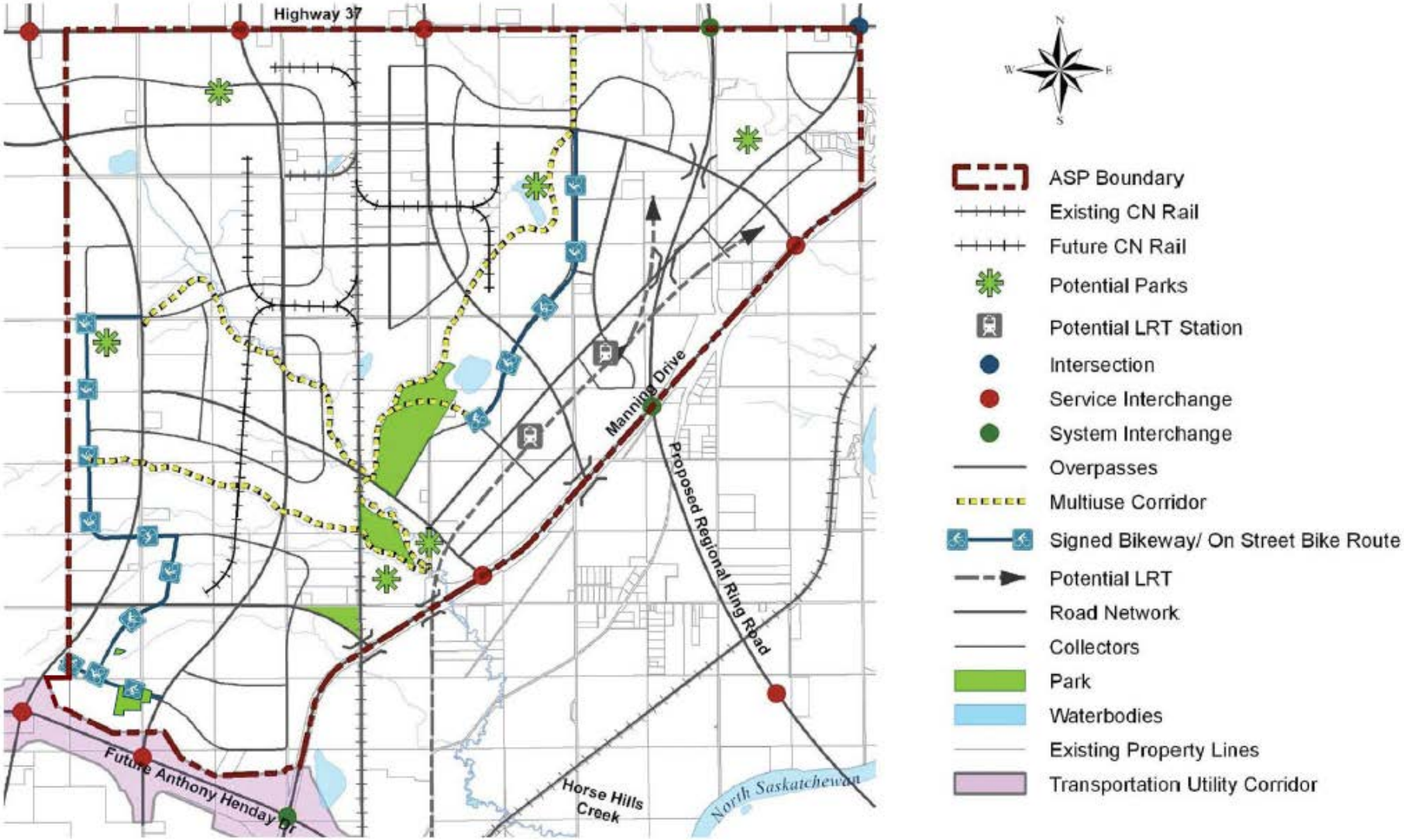
- Regional park facilities.
- Local parks
- LRT and transit facilities.
- Linear park systems such as along top of bank of the creeks in the area.
- Connections through the lands south of Manning Drive to connect to the river valley park system.

The standard arterial roadway cross-section includes a multi-use trail on one side which allows for many choices for users. Multi-use corridors are required on the top of bank of ravines of the North Saskatchewan River Valley and Ravine System, as prescribed in the *City of Edmonton's Development Setbacks from River Valley/Ravine Crests Policy (C542A)*. These are shown as Multi-use Corridor" in Figure 16. These multi-use corridors ~~Top of bank options~~ have been provided as alternatives for users wishing to stay away from the roadways. A circle route linking regional parks within the plan area to the river valley may also be provided with any future development within the Horse Hill Area Structure

Plan south of Manning Drive. A commuting bicycle facility may be included adjacent to ~~the~~ LRT alignment for future development and use. A concept for ~~O~~on-street signed bike routes ~~are~~ is also shown to provide local connections to the multi-use trail system.

Another key component is to ensure that people have well-maintained pathways or sidewalks to walk on throughout the year on all roadways. A key factor to promoting walking or other non-motorized travel is the establishment of convenient and safe routes to multi-use trails. Without those routes, people are less likely to use the multi-use trails or transit to reach their destination. Therefore, all collector roads should have a sidewalk on one side at minimum with bus stop connector walks as required.

INSERT: NEW MAP 16 "Pedestrian and Bicycle Network"(see Appendix C, ASP Amendment Application)


Highway 37
Manning Drive
Proposed Regional Ring Road
Future Anthony Henday Dr
Horse Hills Creek
North Saskatchewan
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S
E
W
ASP Boundary
Existing CN Rail
Future CN Rail
Potential Parks
Potential LRT Station
Intersection
Service Interchange
System Interchange
Overpasses
Multiuse Corridor
Signed Bikeway/ On Street Bike Route
Potential LRT
Road Network
Collectors
Park
Waterbodies
Existing Property Lines
Transportation Utility Corridor

8.6 LRT and Transit Network

The City of Edmonton has identified a northeast corridor extension of the existing LRT network, with a planned station in Gorman, located at 153 Avenue and Victoria Trail. Corridor planning northeast of the Gorman station is being prepared separately from the Edmonton Energy and Technology Park ASP and will be considered at a later date. The LRT alignment shown in Figure 17: LRT and Rail Network is a potential alignment only, and will be updated to reflect the completed planning for the Northeast LRT when a final route is determined.

The potential LRT alignment for the plan area is assumed to originate from the Horse Hill Area Structure Plan south of Manning Drive ~~the area of Anthony Henday Drive near Victoria Trail~~ via a crossing somewhere between 18 Street and Meridian Street. ~~and il~~ It runs northward across Manning Drive and then it turns northeastward to parallel Manning Drive to the northeast City limit. Stations could be strategically located within the ~~r~~Research and ~~d~~Development Precinct ~~park~~, given that it will be the area of highest employment density. Stations within this area will be considered as an "Employment" standard LRT Station as defined in the City of Edmonton TOD Guidelines (see Section 5.9 Transit Oriented Development [TOD] Guidelines).

Stations could be located at nodes selected to serve both walk-in riders and employees transferring from buses circulating on the larger collector and arterial road network. A large number of people are expected to work in the plan area at full development. Providing transit service to these employees will help manage the vehicle demands of the area. As with the LRT line location, potential station locations will be determined as part of future northeast LRT corridor studies.

The need or desirability to have LRT routed through the plan area as shown is highly dependent upon the rate of development within both the EETP plan area and the Horse Hill Area Structure Plan area south of Manning Drive, where two LRT stations are proposed in the vicinity of the Alberta Hospital along 18 Street and the Town Centre southwest of the planned crossing of Meridian Street with Manning Drive ~~land use and land u`se intensity~~

~~for the lands south of Manning. In the event that land now south of Manning were to remain unchanged from the existing agricultural uses, LRT service through the industrial area becomes a key driver in evaluating future LRT extension options in the northeast. However, if the lands south of Manning Drive are planned for additional development in future, it would also influence the LRT alignment choice.~~

~~If both the plan area and the lands south of Manning Drive develop, then LRT alignments parallel to Manning Drive on an optimum alignment should be evaluated.~~ Whether the LRT alignment is north, south, or on both sides of Manning Drive ultimately depends on the rate of development within the EETP ASP as compared to the Horse Hill ASP, and in turn which area will provide the highest level of ridership or add efficiencies to the system. ~~The planning for the Northeast LRT alignment is being prepared separately from the Edmonton Energy and Technology Park ASP and will be considered at a later date. The LRT alignment shown in Figure 17 is a potential alignment only, and will be updated to reflect the completed planning for the Northeast LRT when a final route is determined.~~

Figure 17: LRT and Rail Network shows the potential LRT routes. As with the Collector Road Network (Figure 15), the LRT routes shown are conceptual. Shadow or concept plans in support of subdivision applications will include bus routes required to service the various sub-areas of EETP.

The bus network to serve the area ultimately depends on where transit ridership is concentrated in the plan area. Ridership will depend, in turn, on the final road network, development staging, and job density of the EETP.

~~However, t~~The network will utilize the collector and arterial roads to provide service within the plan area and then travel to the LRT station~~ using the arterial road network~~. Therefore, where the LRT station is located has little impact on the transit coverage for the plan area, but it has a greater impact on the frequency of service.

One of the principles considered when establishing the conceptual collector road network, and hence, the transit network was the walking distance to the collector road network from the more remote lands. People will typically walk 400 m to a transit stop. Therefore, if the majority of the lands are within, or close to this comfortable walking distance to a collector roadway, then the area is assumed

to have good transit coverage. The network shown was established with a goal of greater than 85% coverage and this should be the general goal when subdivision and development proposals are made that may result in modifications ~~if changes~~ to the ~~network are desired in the future~~.

Figure 17: LRT and Rail Network **(Bylaw 16175 Jan 23, 2013)**

DELETE AND REPLACE WITH NEW MAP, Figure 17

(see Appendix C of ASP Amendment Application)

8.7 Heavy Rail

Maximizing railway service is important to the marketability of businesses with shipping needs throughout the plan area. Collector and local roadways must be developed in conjunction with the development of spurs from the existing CN Coronado Subdivision to ensure that the potential for rail access is maximized for as many future businesses as possible.

Policy

1. The potential for rail spurs must be considered as a part of the development of the area and the network of local roadways.

2. Lotting patterns and/or roadway designs that restrict the extension of rail service should be avoided, except where it can be demonstrated that subsequent subdivisions would not benefit from rail service.

3. An area level rail service plan should be developed in order to guide the development of rail for each subdivision application.

A heavy rail spur network to service the logistics and petro-chemical cluster uses within the plan area is shown in Figure 17: LRT and Rail Network. This is a sample of how rail service could be expanded in the plan area should a market exist for this type of land.

8.8 Pipeline Systems & Abandoned Wells

~~The plan identifies some suggested alignments for a future pipeline corridor to/from AIH. A similar line is also identified in the Radke report to be contained in the Manning Drive right-of-way. *It will be critical to provide an easy and*~~ *(Bylaw 16767 Sept 23, 2014)*

~~*efficient way for feedstocks to make their way to Edmonton Energy and Technology Park*. A pipeline corridor would provide an alternative means of moving product into the plan area. The specific alignment of any future pipelines will require coordination with the Province, Alberta's Industrial Heartland Association, affected municipalities, and the companies that will be using them in future~~.

The *Capital Region Regional Energy Corridors Master Plan* (February 11, 2016) provides priorities for future pipeline corridors connecting with the EETP. Two future priority corridors are identified, both as medium priority projects, to be developed within five to 20 years:

1. The Edmonton Energy and Technology Park Connector will connect Alberta's Industrial Heartland to the EETP, as well as the TUC. It would connect EETP via the northwestern portion of the EETP, and would generally run north-south along the western edge of EETP; and
2. The Northwest Alberta Connector~~: it~~ would also connect to the northwest portion of EETP, however, would run diagonally in a southeasterly directly, through EETP, along a corridor already defined by existing high pressure pipelines identified in Figure ~~4~~ 5: Existing Pipelines and Wells. This connector would connect northwest Alberta and northeast British Columbia to EETP and the rest of Alberta's Industrial Heartland.

A City of Edmonton *EETP – Corridor from TUC to the City's Northern Boundary with Sturgeon County (259 Avenue NW/Hwy.#37* study, August 6, 2015) identified a potential north-south corridor between the west boundary of EETP and 50 Street. Such a corridor could be applied to the Edmonton Energy and Technology Park Connector. This is based on other work completed in the *Edmonton Energy & Technology Park (EETP) Linear Corridor Feasibility Analysis & Assessment* completed by Stantec Consulting (December 2015).

A pipeline corridor linking EETP to the rest of the Industrial Heartland, northern Alberta and British Columbia is an easy and efficient way for feedstocks to make their way to Edmonton Energy and Technology Park. A pipeline corridor would provide an alternative means of moving product into the plan area. The specific alignment of any future pipelines will require coordination with the Province, Alberta's Industrial Heartland Association, affected municipalities, and the companies that will be using them in future.

The plan area has four abandoned well sites located within it; these are identified in Figure 5: Existing Pipelines and Wells. The Alberta Energy Regulator (AER) has established minimum setback requirements from abandoned wells in Directive 079 (Surface Development in Proximity to Abandoned Wells). Development within the plan area is required to abide by these requirements in conjunction with the *City of Edmonton's Oil and Gas Facilities Policy (C515).*

Due to the large parcel sizes required by the industries that the EETP is looking to attract, it is possible that subdivision of certain parcels within the plan area may not be required. The subdivision process is an important aspect in determining the provision of easements, right-of-ways and Public Utility Lots, which are means by which a pipeline could be protected. As such, it is important that developers engage with pipeline operators and owners throughout the various stages of development (rezoning, subdivision [if required] and development) to determine appropriate development setbacks from existing pipelines.

Policy

1. Further studies and review of existing studies are required to establish future pipeline right-of-ways to connect the EETP to the rest of Alberta's Industrial Heartland, as well as other key locations, including the Capital Region, northern Alberta and Northern British Columbia.

2. Future development within the EETP ASP plan area may be required to dedicate right-of-way required for future key pipeline routes through mechanisms such as easements or right-of-way.

3. Future development within the EETP ASP plan area shall abide by the *City of Edmonton's Oil and Gas Facilities Policy (C515).*

9.0 INFRASTRUCTURE AND SERVICING

9.1 Water Servicing

The Edmonton Energy and Technology Park area is ~~not currently~~ partially serviced with water. ~~as it~~ A 900 mm diameter EPCOR supply line ~~owned by the Capital Region Northeast Water Service Commission (CRNWSC)~~ bounds part of the industrial area, running north of ~~generally paralleling~~ Manning Drive after crossing Manning Drive at 18 Street NW (Figure 18: Water Servicing). This supply line is fed from a 600 mm diameter EPCOR primary pressure zone transmission main which extends north from Clareview Reservoir.

Other water infrastructure in the vicinity includes an EPCOR-owned 300 mm distribution main which connects to the supply line at 167 Avenue. This feeds Evergreen Manufactured Home Community, local acreages and greenhouses. There is also a 200 mm distribution main from the primary pressure zone servicing Alberta Hospital and local acreages near 18 Street, north of 167 Avenue. This infrastructure is located to the south of Manning Drive and is not included as part of the overall water servicing infrastructure for the Edmonton Energy and Technology Park. However, depending on development progress there may be opportunity to utilize this infrastructure on an interim basis.

~~The proximity of the~~ The ~~CRNWSC~~ EPCOR supply line north of Manning Drive ~~to the study area~~ has the potential to allow for cost effective servicing of the Edmonton Energy and Technology Park ~~provided an agreement can be reached between EPCOR and CRNWSC to utilize this infrastructure~~. ~~Otherwise a new transmission line would need to be constructed from the terminus of the 600mm EPCOR main to industrial area.~~ ~~In either case,~~ ~~t~~The existing EPCOR 600 mm main will need to be twinned to deliver sufficient flows to the area.

It is expected that a future EPCOR water line connection will be extended to 50 Street south of 195 Avenue, within the Southwest portion of EETP, as a result of subdivision approved in this area in 2014. This will include a 450 mm water main stub to serve a 400 mm distribution line.

EPCOR's Clareview reservoir would be the main supply point for the area. Clareview reservoir is located within the primary pressure zone, and is filled from Rossdale Water Treatment Plant via EPCOR's transmission network. EPCOR has indicated that the Clareview reservoir may become dedicated to supplying Northeast Edmonton, north

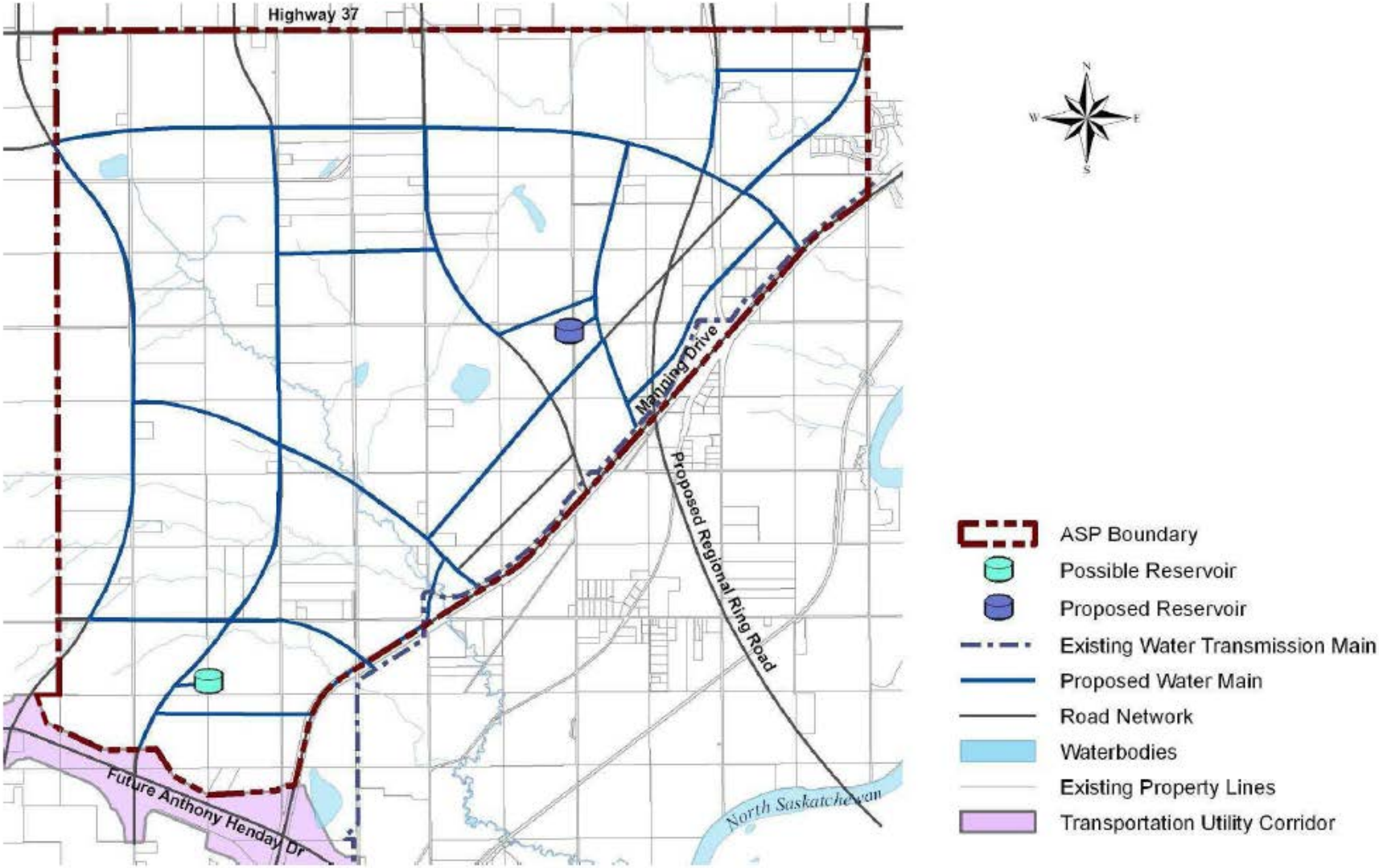
of the TUC, ~~and the CRNWSC~~ when development proceeds. EPCOR has also indicated that a series of local upgrades between the Rossdale ~~WTP~~ Water Treatment Plant and the Clareview Reservoir would be completed to provide the required conveyance capacity to the reservoir.

At least one local reservoir will be required in the Edmonton Energy and Technology Park. A ~~potential~~ proposed location for this is indicated on Figure 18: Water Servicing southwest of Meridian Street and 22 Avenue NW. ~~(Figure 18). A second~~ Additional reservoirs, depending on future water demands, may also be required and ~~a~~ possible locations for this is these are also shown in the southwest and northeast areas of the Plan. ~~Both~~ The reservoir sites are located at higher elevations within ~~in the area~~ sub-areas of the EETP and would be supplied from the local water distribution system as shown. It should be noted that the suggested local water servicing infrastructure is subject to change, depending on development progress and the required water demands.

Initial development may be fed directly from Clareview reservoir via the existing ~~CRNWSC~~ EPCOR supply line north of Manning Drive. ~~However, if agreement with the CRWSC to utilize this infrastructure cannot be reached, the dedicated transmission line, as previously described, will be required to service the area.~~

;

Figure 16: Water Servicing Network (Bylaw 16175 Jan 23, 2013) DELETE AND REPLACE WITH NEW MAP, Figure 17 (see Appendix C of ASP Amendment Application)



9.2 Stormwater Servicing

The plan area is located approximately 5 km from the North Saskatchewan River and drains to the river via Horsehills Creek and two unnamed watercourses, #1 in the far Northeast position and the #2 approximately 2.4 km south and fully contained East of Manning Drive (Figure 19: Stormwater Management). The land generally slopes from west to east, with the plan area being relatively flat with increasing slopes toward the river.

The breakdown of the three basin area is shown below:

Basin	Upstream of Plan Area (km2)	Within Plan Area (km2)	Downstream of Plan Area (km2)	Total Basin Area (km2)
Horsehills Creek	22	40	13	75
Unnamed Watercourse 1	41	8	5	54
Unnamed Watercourse 2	0	5	16	21

All three watercourses become deeply incised with heavily treed ravines between Manning Drive and the river.

Within the plan area, Horsehills Creek consists of six tributaries which merge into a single creek south of Manning Drive. These tributaries are generally very shallow with farming activities to within 5 to 10 m of the tributary. They generally convey stormwater only during spring runoff and during major rainfall events. The majority of the Horsehills Creek and the two unnamed watercourses are within the City of Edmonton's North Saskatchewan River Valley Area Redevelopment Plan.

The stormwater servicing concept for the plan area supports the eco-industrial concept using the following policies.

Policy

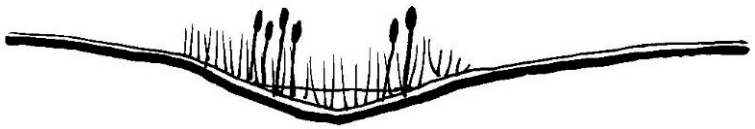
1. Mimic pre-development hydrologic conditions as much as possible in terms of ground infiltration and stormwater discharges.
2. Sustain the existing creek system ecology for conveying post-development flows in terms of maintaining creek base flows and protecting the creeks from erosion, as well as reducing sediment loading to the river.
3. Retain stormwater on-site as much as possible for irrigation, process water etc. to minimize the reliance on potable water.

The stormwater servicing concept includes on-site best management practices, stormwater management facilities (SWMF) and off-site conveyance system (pipes or creeks) which eventually discharge to the North Saskatchewan River ~~(Figure 19)~~. Two new storm outfalls to the river are proposed at this time.

The use of a number of on-site best management practices is anticipated. This includes the use of on-site storage facilities such as underground cisterns and storage ponds for irrigation and process water purposes. Limited Impact Development practices that are encouraged include ~~F~~facilities that promote groundwater recharge such as permeable pavements, bio-retention areas and grassed swales ~~are also anticipated~~ to maintain the pre-development hydrology and to enhance the quality of stormwater discharges.

The central and western parts of the plan area are within the Edmonton Garrison Heliport Zoning Regulations Bird Hazard Area. The Department of National Defense (DND) will have authority over the size and number of SWMF as well as the design parameters. Although there is support for habitat development, DND wants to minimize the attractiveness of the area to birds in order to minimize conflicts with heliport operations. The heliport zoning regulations may preclude the use of constructed wetlands.

SWMF is to be designed meeting DND requirements and the City of Edmonton Design Standards.



Stormwater discharge from SWMF will be required to be controlled to less than the pre-development rates. This less than pre-development discharge rate is necessary in order to minimize erosion impacts in the creeks, reduce sediment loading to the river, enhance the quality of the stormwater discharge and reduce the size of the downstream conveyance systems.

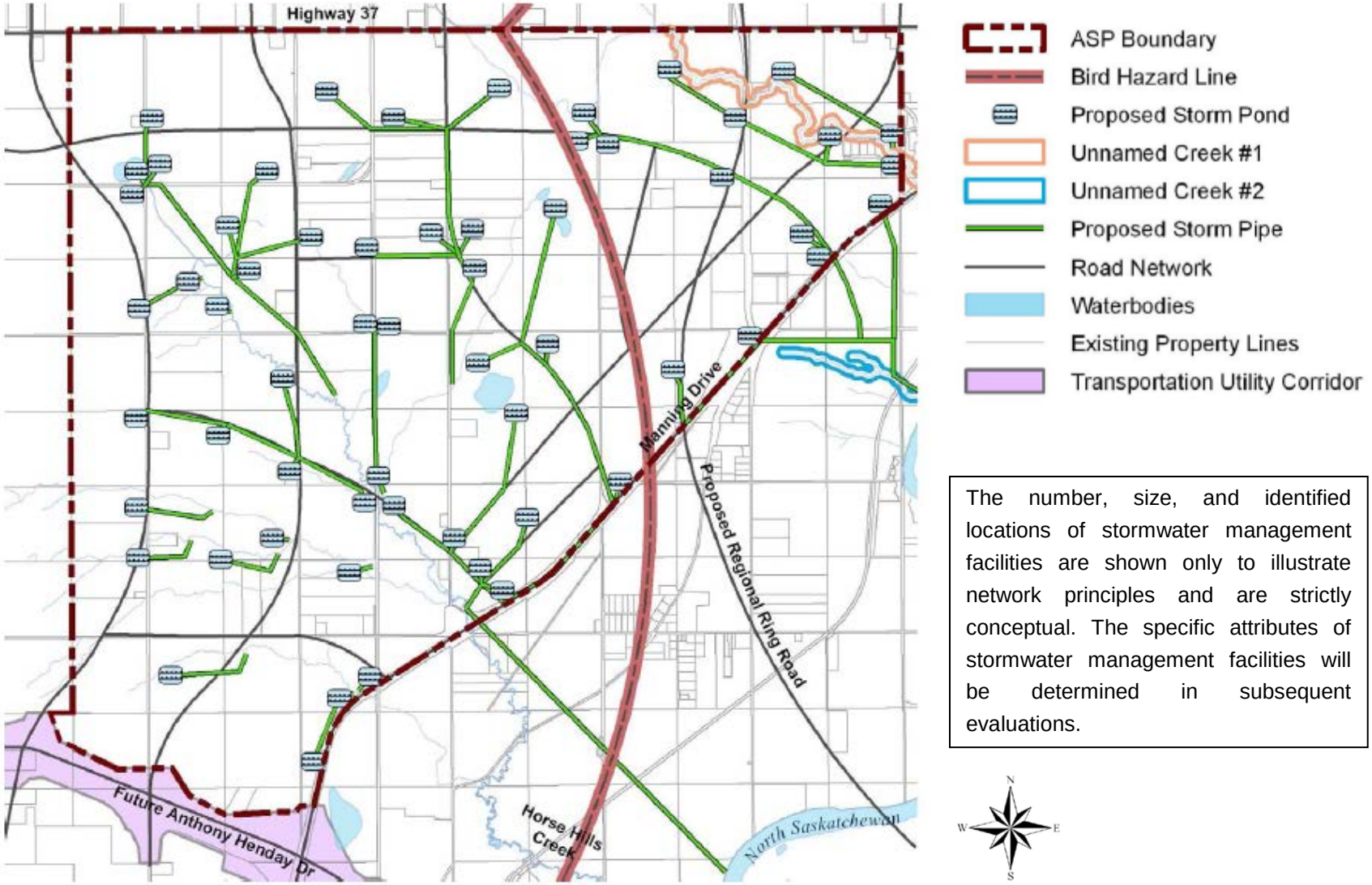
The stormwater servicing concept will allow interim drainage to the Horsehills Creek and Creek # 1 and # 2, with the outfall trunks to the river to be constructed at a later time. The design of the conveyance systems will have to incorporate provision for future diversions to these outfall trunks. Delaying the construction of the outfall trunks and the river outfalls will allow sufficient time for funding and environmental approvals for these facilities.

Given the limitations of conventional stormwater systems

due to the requirements of the Edmonton Garrison Heliport Zoning Regulations and the existing condition of ravines susceptible to erosion, alternative drainage systems are being explored so that flexibility in the phasing of development over time can be maximized.

Figure 19: Stormwater Management Network (Bylaw 16175 Jan 23, 2013) DELETE AND REPLACE WITH NEW MAP Figure 18

(see Appendix C of ASP Amendment Application)



The number, size, and identified locations of stormwater management facilities are shown only to illustrate network principles and are strictly conceptual. The specific attributes of stormwater management facilities will be determined in subsequent evaluations.

9.3 Wastewater Servicing

The study area encompasses ~~5,238~~ 5,218 ha of land. It is located approximately 5 km from the Alberta Capital Region Wastewater Commission's (ACRWC) Treatment Plant and 10 km from the City's Gold Bar Wastewater Treatment Plant. There are two ACRWC trunk sewers running through or adjacent to the study area. The ACRWC St. Albert Regional Trunk Sewer (START) generally runs along 195th Avenue NW while the Northeast Regional Trunk Sewer (NERTS) runs along 34th Street NW (Figure 20: Wastewater Servicing).

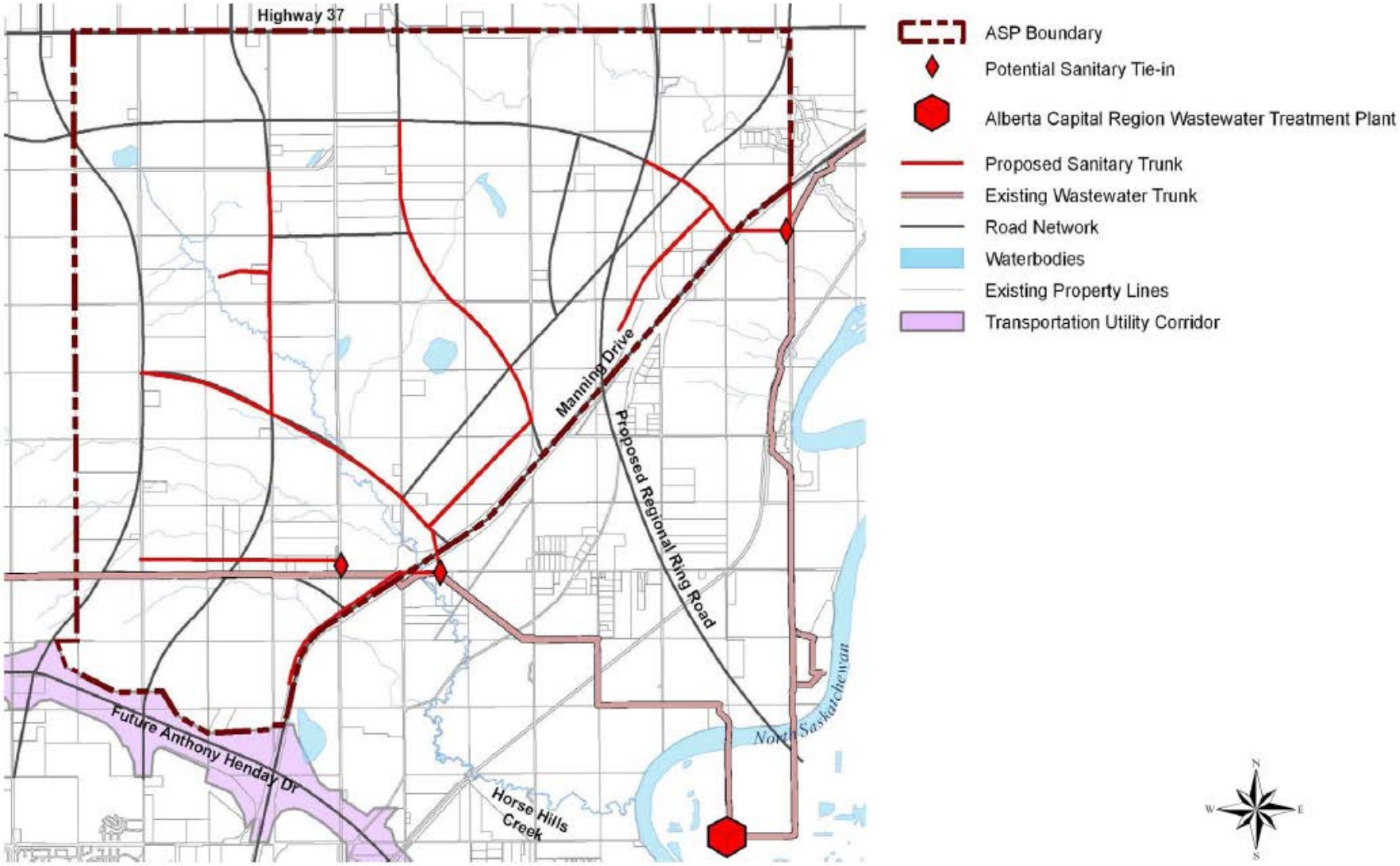
The western, central and southern portions of the industrial area are serviced to the ACRWC START Line, while the northeast portion is serviced to the ACRWC NERTS Line. Three to five connection points are anticipated. The location and number of connections to these regional trunk sewers are conceptual and require formal approval by ACRWC at the development phase.

In 2008, the City of Edmonton and the ACRWC entered into a Regional Wastewater Exchange Agreement, where each party agrees to exchange wastewater transmission and treatment services. Based on discussions with ACRWC, both the START Line and the NERTS Line have surplus capacity to accept wastewater flows from the study area initially, but both regional trunk sewers will eventually need to be twinned to accommodate the increased flows from the study area and the region. ACRWC is obligated under the Regional Wastewater Exchange Agreement to provide the necessary transmission and treatment capacity for these flows. To ensure capacity is available to meet the requirements of the City and the region, the City will provide information to the ACRWC, including development schedules, staging information, and wastewater flow projections through the joint planning process outlined in the agreement.

The Regional Wastewater Exchange Agreement has defined "Level of Service" for exchanging flows at connection points between the City and ACRWC systems. These "Level of Service" parameters have a lower allowable sewage generation rate than that of the City's current design parameters for sizing sanitary sewers in industrial areas. To support the eco-industrial concept, these "Level of Service" parameters have been adopted. This results in smaller sewer pipes, lower overall servicing costs and meet the ACRWC's servicing policies. Water conservation is also encouraged which will result in less sewage generation for treatment and disposal.

The Sanitary Servicing Concept will consider innovative wastewater systems such as local treatment facilities with recycled wastewater used for irrigation or process water. Such services would be required to meet applicable regulations for both the water reuse and the discharge of effluent to the sanitary sewer. Given that this serves as a departure from conventional servicing systems, future policy will be required to address the inclusion of local treatment facilities in developments. This will require consideration of the City of Edmonton's role in physically controlling sewage generation rates from developments, as well as how management of these facilities would be undertaken.

Figure 20: Wastewater Servicing Network (Bylaw 16175 Jan 23, 2013) DELETE AND REPLACE WITH NEW MAP Figure 19 (see Appendix C of ASP An[illegible]n)



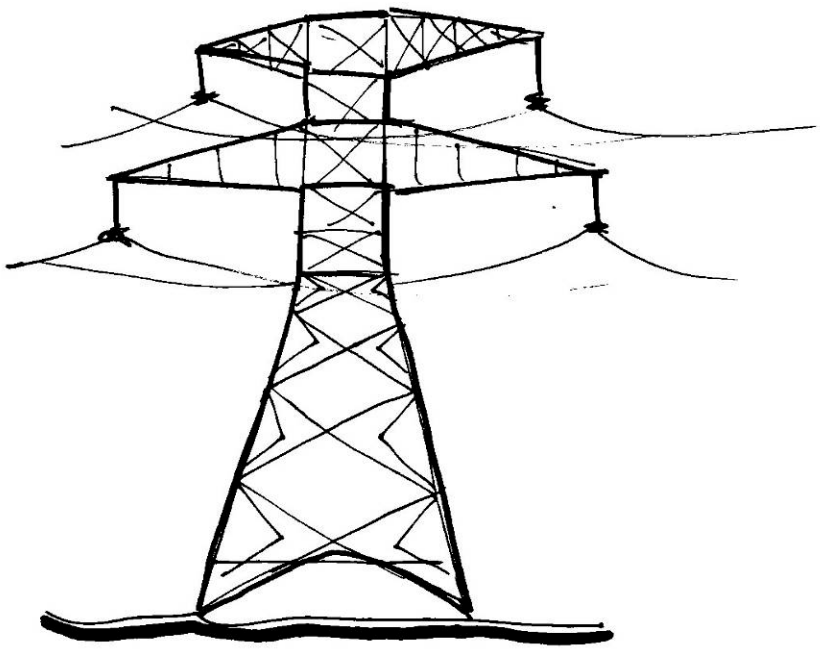
9.4 Energy

Electrical service will be supplied throughout the area by private utility agencies. In order to serve the plan area, EPCOR may require a substation to be developed in the plan area, identified in Figure 21: Utilities and Potential Power Substations. Another substation will also be required to the south of the plan area as development proceeds, which is also shown generally in Figure 21.

As part of the Heartland Transmission Project, a new 66 km high voltage (240kV/500kV) transmission line has been constructed by Altalink and EPCOR, to connect Alberta's Industrial Heartland to the City of Edmonton. The transmission line within EETP, which runs east of the CN Rail Line, and then veers east toward Fort Saskatchewan, was completed at the end of 2013. The location of the new Heartland line provides increased opportunities for heavy industrial uses within Alberta's Industrial Heartland and EETP.

~~The Alberta Energy System Operator (AESO) is currently developing an orientation for new 240 kV / future 500 kV lines that will provide improved service to AIH. One of the options considers routing this transmission line through Edmonton Energy and Technology Park..~~

Several eco-industrial projects use local power supplies, such as co-generation facilities, waste steam, wind power, solar arrays, or other alternative power generation methods. These local plants are encouraged to develop within Edmonton Energy and Technology Park. Areas that



are supplied with a local power supply will not be required to tie into regional services.

In addition, it is anticipated that individual businesses will

implement on-site alternative power generation technologies along with energy conservation measures. This will be an important way for industries in the area to reduce their carbon footprint.

Figure 21: Potential Power Substations (Bylaw 16175 Jan 23, 2013) DELETE AND REPLACE WITH NEW MAP Figure 20 (see Appendix C of ASP Amendment Application)

9.5 Shallow Utilities

Private utilities, such as power, gas, and other optional services will be supplied by private utility companies as required. Alternative and/or locally based services are also encouraged for shallow utility service provision. Alignments for these services will be determined at the development permitting stage.

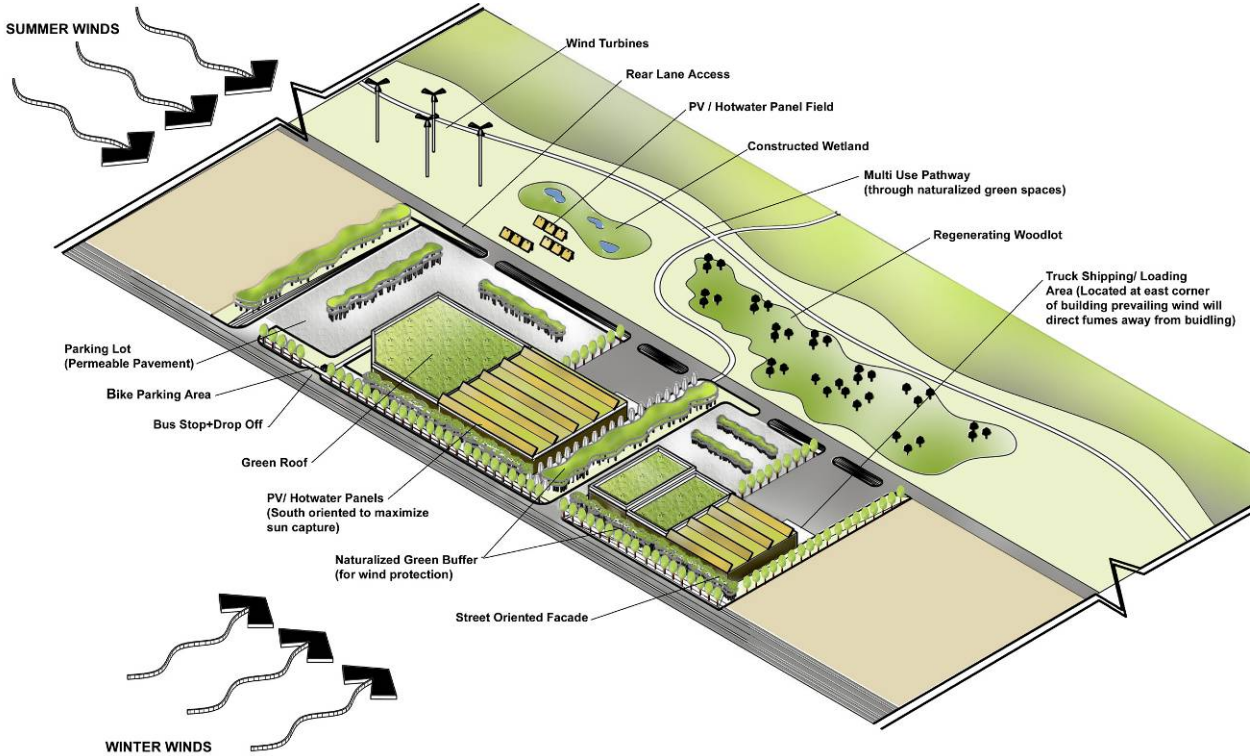
9.6 Communal Piping System

The basis of eco-industrial development includes the sharing of inputs and wastes for the benefit of company bottom lines and the environment. Therefore, waste stream sharing is strongly encouraged by the Edmonton Energy and Technology Park ASP. Waste sharing may include the development of piping systems to allow the transfer of materials such as steam, hydrogen, or process water. This 'green infrastructure' may be included along the boundaries of development sites within a designated easement. These facilities may also be incorporated within road right-of-way at the discretion of the City of Edmonton, where space is available and the substance to be transferred is non-hazardous in nature. Provisions for these minor pipeline systems will be considered at the development permitting stage.

10.0 DESIGN GUIDELINES

Developments in Edmonton Energy and Technology Park should implement the principles of the Edmonton Energy and Technology Park ASP. Attention to details of the design and operation of buildings, structures, infrastructure and associated site improvements will play an important role in achieving the principles Edmonton Energy and Technology Park is intended to exemplify.

standards and development approvals should therefore have regard for the principles of the Edmonton Energy and Technology Park ASP in Section 7. The following design guidelines identify the individual factors at a development level that address the implementation of those principles. An example of how this attention to design could look is shown below:



Zoning

10.1 Sustainable Development

10.1.1 Area Design

1. Create lots with as minimal street frontage as is required for the use, to allow for the most efficient delivery of the valuable linear infrastructure (utilities) in the street.

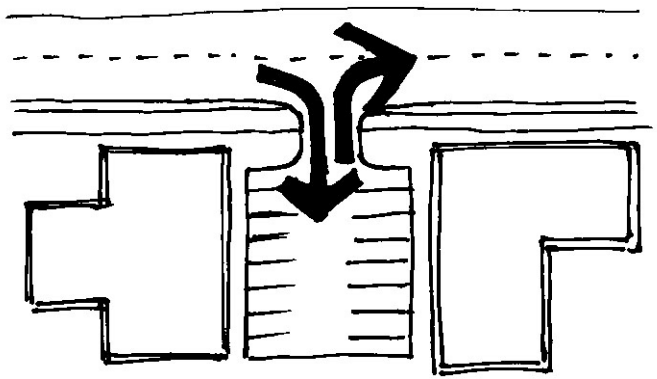
2. Provide for flexibility in lot sizes, densities and heights to accommodate a wide range of potential uses, recognizing that the lot sizes may vary within the ASP land use designations.

3. Establish zoning standards for required parking rates that recognize the area's travel demand management objectives, to avoid requiring more parking than is actually needed.

10.1.2 Site Design

1. Encourage users on adjacent lots to develop interconnected parking lots and service areas under shared use agreements, with the objective of reducing the total amount of land utilized for parking.

2. Incorporate landscape features within parking lots and service areas and around their perimeter to reduce heat island effects.



3. Consider multi-leveled, structured parking integrated into multi-use buildings, where large parking volumes are unavoidable, to minimize the development footprint.

4. Incorporate Limited Impact Development (LID) principles in order to minimize impact on the environment and in order to increase efficiencies with regard to stormwater management, circulation, and water use, and other infrastructure.

10.1.3 Building Design

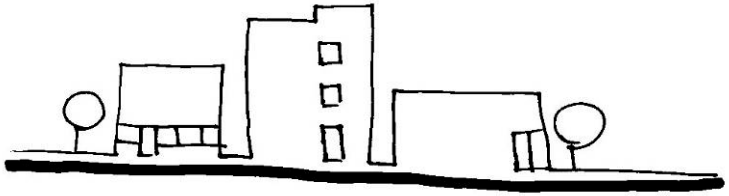
1. Promote the construction of high performance buildings by encouraging each development to pursue LEED*

(Leadership in Energy and Environmental Design) certification or other third party green building rating systems, to reduce their net amount of energy consumed and reduce their overall carbon footprint.

2. Encourage a range of building typologies, including multi-storey buildings, to add variety to the urban environment and to reduce their environmental footprint.

3. Develop street building facades to have inviting, varied and cohesive visual sequence.

4. Require that tall buildings located close to sidewalks have setbacks above the third storey level, to allow sunlight to penetrate to the street level at approximately 45 degrees, to promote naturally lit streets and mitigate wind-tunnel effects.



10.2 Industrial Efficiency and Ecology

10.2.1 Area Design

1. Encourage adjacent developments to coordinate and share material/resource input and output shipping and loading facilities, as well as joint site accesses and service lanes.

2. Encourage businesses to organize themselves to establish Business Collaboration Networks with the objective of sharing information on opportunities to share business intelligence, technologies, infrastructure, services, products, materials and resources.

3. Consolidate logistics areas and major transportation services in hubs that take advantage of road and rail arteries and that will result in the greatest potential for use by area businesses.

10.2.2 Site Design

1. Encourage adjacent developments to coordinate and share material/resource input and output shipping and loading facilities, as well as joint site accesses and

service lanes.

10.2.3 Building Design

1. Locate buildings in close proximity when there are opportunities for sharing of infrastructure such as building systems, energy systems (heating, cooling and electrical), waste systems, parking and loading services, drainage.

10.3 Effective Transportation

10.3.1 Area Design

1. Provide shaded and covered pedestrian routes for protection from natural elements (wind, rain, snow and sun UV radiation).

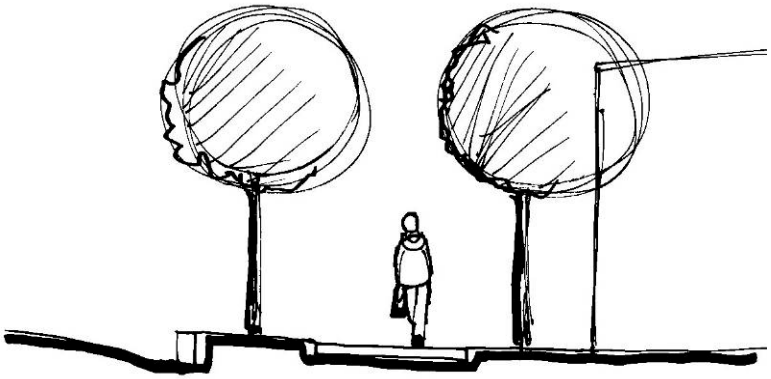
2. Provide sidewalks or recreation paths on at least one side of all streets, and provide sidewalks or recreation paths on both sides of all streets carrying transit, to promote walking and transit use.

3. Provide direct walking routes linking building entrances to street sidewalks, transit stops/stations, pathways, and parking areas, to promote walking and transit use.

4. Provide generous landscaping and amenities adjacent to transit stops, to provide weather protection and to create the stops as recognizable places along the street edge.

5. Use utility corridors, right-of-ways, and easements for possible recreation path connections.

6. Plant canopy trees along all walking routes to define the routes, to provide protection from the elements, and to create a pleasant visual walking environment.



7. Ensure that all pedestrian routes are universally accessible to enable the mobility of persons with a wide range of abilities.

8. Consider requiring dedicated cycling lanes or wide

paved shoulders to provide for safe cycling.

9. Increase land use densities and mixtures of land uses within 800m of potential LRT stations, to maximize the potential for transit use and generate the best returns on the transit investment.

10. Provide ergonomic street furniture, signage and wayfinding along roads and in public areas to promote active transportation modes.

11. Incorporate transit routes in the street layout that provide service for large areas, maximize the number of potential riders and ensure safe and convenient service.

10.3.2 Site Design

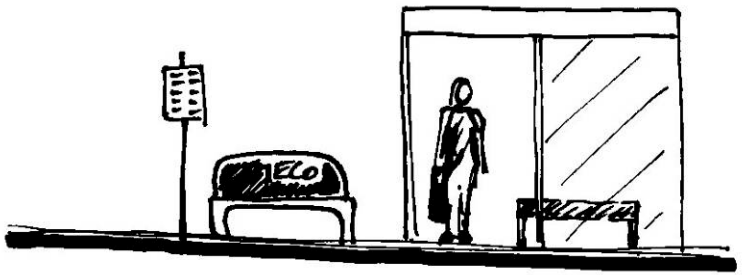
1. Coordinate landscaping within the street right-of-way and on adjacent lands to create a seamless transition between public and private space, to avoid duplication of landscaping investments, and to reduce the road right-of-way requirements where possible.

2. Provide on-site sidewalk or pathway connections between adjacent lots and that link site users to ecological network features and area-wide pathway systems, to improve area walkability.

3. Avoid nooks and confined spaces as well as poorly lit areas adjacent to pedestrian areas, to reduce personal security risks.

4. Require Transportation Demand Management Plans to be completed by applicants as conditions of development approval, with the objective of reducing dependency on private automobile travel.

5. Provide thermal comfort at transit stops, including transit shelters. Also explore recycling the exhaust air from adjacent buildings as a heat source at transit stops.



10.3.3 Building Design

1. Where appropriate, locate buildings close to the street lot line with minimal setbacks to reduce walking distances between buildings and sidewalks, transit stops, and other buildings across the street.

2. Provide bicycle parking on hard surfaces near employee and customer entrances and at transit stops and stations, to promote cycling.

3. Encourage buildings to be designed with shower and changing facilities to serve the needs of active transportation users.

10.4 Land Use Compatibility

10.4.1 Area Design

1. Industrial businesses that would introduce risks to public health or safety are required to submit a risk assessment prior to the issuance of zoning approvals to ensure that they do not pose unacceptable risk to the surrounding area.

10.4.2 Site Design

1. Site development must screen unattractive features from major roadways. Examples of unattractive features include development of extensive outdoor storage, blank building facades, and outdoor assembly yards. Screening of unattractive features can be done using a number of methods, including landscaping, fencing, and/or public art.

10.4.3 Building Design

1. Orient building facades toward the street, and locate parking lots to the rear or side of buildings with landscape buffering, to mitigate noise and improve the visual and pedestrian environment along to the street.

10.5 Innovative Infrastructure

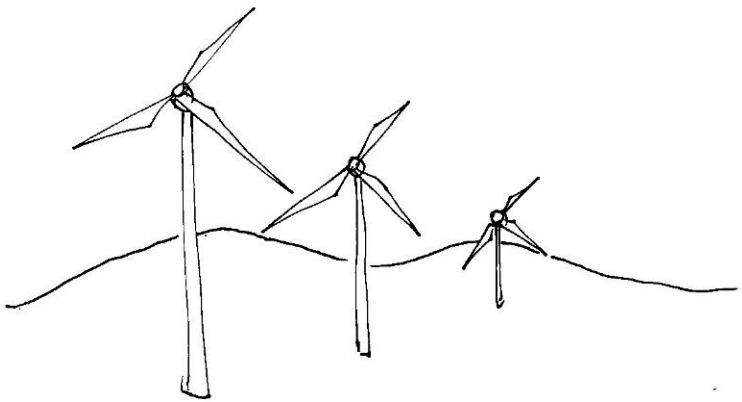
10.5.1 Area Design

1. Use available corridors and right-of-ways for utility, piping and transmission line requirements and protect for future requirements.

2. Encourage businesses to cluster and develop district heating and cooling systems, including manufacturing process heat capture and ground source (geothermal)

heat systems, to increase the proportion of alternative energies used.

3. Encourage businesses and utility providers to collaborate and develop district energy systems that maximize the use of alternative (tri-generation) and renewable energy forms such as solar, wind, and biomass., having regard for the operational requirements of CFB Edmonton.

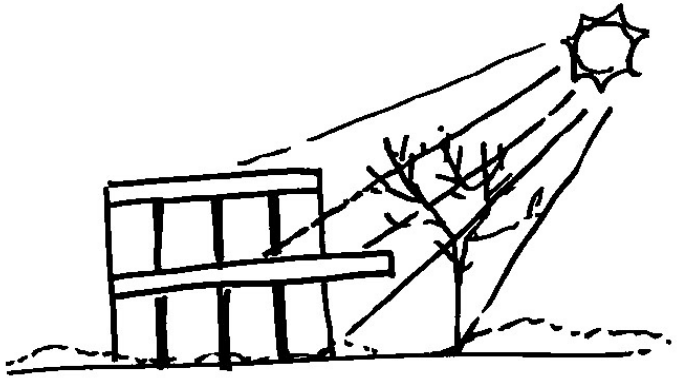


4. Permit and encourage on-site solar arrays, wind turbines, biomass cogeneration, waste incineration cogeneration, fuel cell, and similar energy-producing facilities in all zones. Limit the use of land-consuming energy facilities within 800m of potential LRT stations where greater development densities are desired.

10.5.2 Site Design

1. Encourage the use of residual heat or energy from business operations to provide heating, cooling, and energy for other processes on the same lot, adjacent lots or public spaces, and require the dedication of associated cross-site easements or right-of-ways to enable area-wide systems.

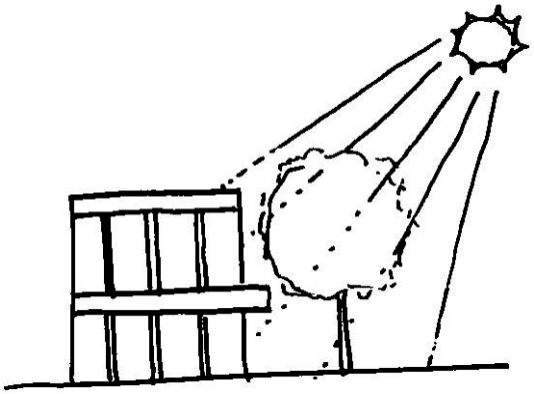
2. Orient streets and buildings to maximize solar exposure for harvesting solar energy.



3. Prescribe a measure of landscaped open space to be included as a zoning standard, to ensure that an

appropriate proportion of a site's area is capable of supporting vegetation and reducing stormwater runoff.

4. Plant trees and shrubs adjacent to buildings and in strategic areas to provide shading, climate protection, and windbreaks, with the objective of reducing energy used for cooling and heating in all seasons.



5. Utilize low water demand plantings to reduce or eliminate the need for site watering and improve survivability.

6. Consider using permeable paving surfaces and light-coloured materials in hard landscaped areas to improve ground water recharge, reduce storm water runoff, and reduce heat radiation.

7. Encourage businesses to development plans and strategies to reduce wastes in site development and operation, and promote the reuse or recycling of otherwise wasted materials.

10.5.3 Building Design

1. Encourage the installation of vegetated roofs and site/building systems that either reduce the amount of storm water runoff and/or reuse storm water on-site or within buildings.

2. Ensure that storm water runoff from site and roofs is quality-controlled through the use of best environmental practices in on-site retention, collection, conveyance, and treatment, prior to discharge into receiving watercourses or storm sewers.

3. Encourage innovative building systems such as grey water recycling and storm water storage, to reduce water consumption.

10.6 Environmental Protection

10.6.1 Area Design

1. Create lots that use natural areas as defining elements of the lot, such as using the buffered edges of watercourse corridors, forest patches or wetlands to delineate rear or side lot lines, to reinforce the role and function of the ecological network in shaping the area's built form.

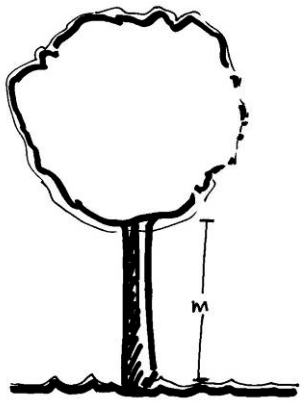
2. Use existing and planned utility corridors as potential areas for naturalization and habitat enhancement, and co-locate trails and pathways to minimize land consumption.

3. Ensure that connections are protected as conditions of development approval to enable the location of recreation paths and trails, and consolidate these with edges of the natural areas as greenways.

10.6.2 Site Design

1. Require green vegetated buffer areas between the edge of protected natural areas and adjacent buildings, parking lots, aisles, and service areas. Use the City's Guidelines for Determining Environmental Reserve Dedication for Wetlands and other Water Bodies as a guide in determining buffer size and shape.

2. Where buffer areas are proposed adjacent to natural features, require the Tree Conservation and Landscape Plans to recommend planting and/or restoration measures that will best transition and integrate the maintained environment with the natural environment.



3. Prohibit site clearing and preparation until Natural Site Assessments, Natural Area Management Plans, Wetland ~~Evaulation~~ Evaluation, and Tree Conservation and Landscape Plans have been approved in accordance with Section 7.6 of this Plan.

4. Reduce the spread of invasive species by encouraging the planting of indigenous species and using natural alternatives to pesticides and herbicides.

5. Reduce the amount of light pollution onto natural areas and reduce the amount of energy consumed by using

high efficiency L.E.D. lighting and sharp cut-off luminaries.

6. Incorporate Limited Impact Development (LID) principles in order to limit environmental impact and increase efficiencies of infrastructure.

10.6.3 Building Design

1. Use landscaping and vegetated roofs to minimize environmental impact of excessive noise, light and heat pollution and encourage the maintenance and development of natural habitats to promote biodiversity.

10.7 Effective Implementation

1. City of Edmonton administration is to develop strategies to track and minimize the life-cycle costs and carbon and environmental impacts of the construction processes as well as after construction, for the complete life-cycle of buildings, systems and infrastructure.

11.0 IMPLEMENTATION

It is anticipated that the Edmonton Energy and Technology Park ASP will develop over a period of 30 – 50 years. Within that time period, it is important to provide guidance that will ensure that development occurs in a way that maximizes efficiency while minimizing the disturbance to the surrounding community.

11.1 General Staging

Development staging ~~is intended to provide a recommended direction for the development of the plan area. It~~ is not intended to be regulation, but instead provides a ~~preferred direction~~ guideline for development sequence, ~~to take~~ given the location of existing services, market conditions, demographics, and other factors relevant to growth patterns (Figure 22: Development Staging).

Development is expected ~~recommended~~ to commence in the southern portion of the plan area and extend towards the northeast corner, following Manning Drive. Development will then trend towards the northwest corner from Manning Drive as services are extended from their existing locations.

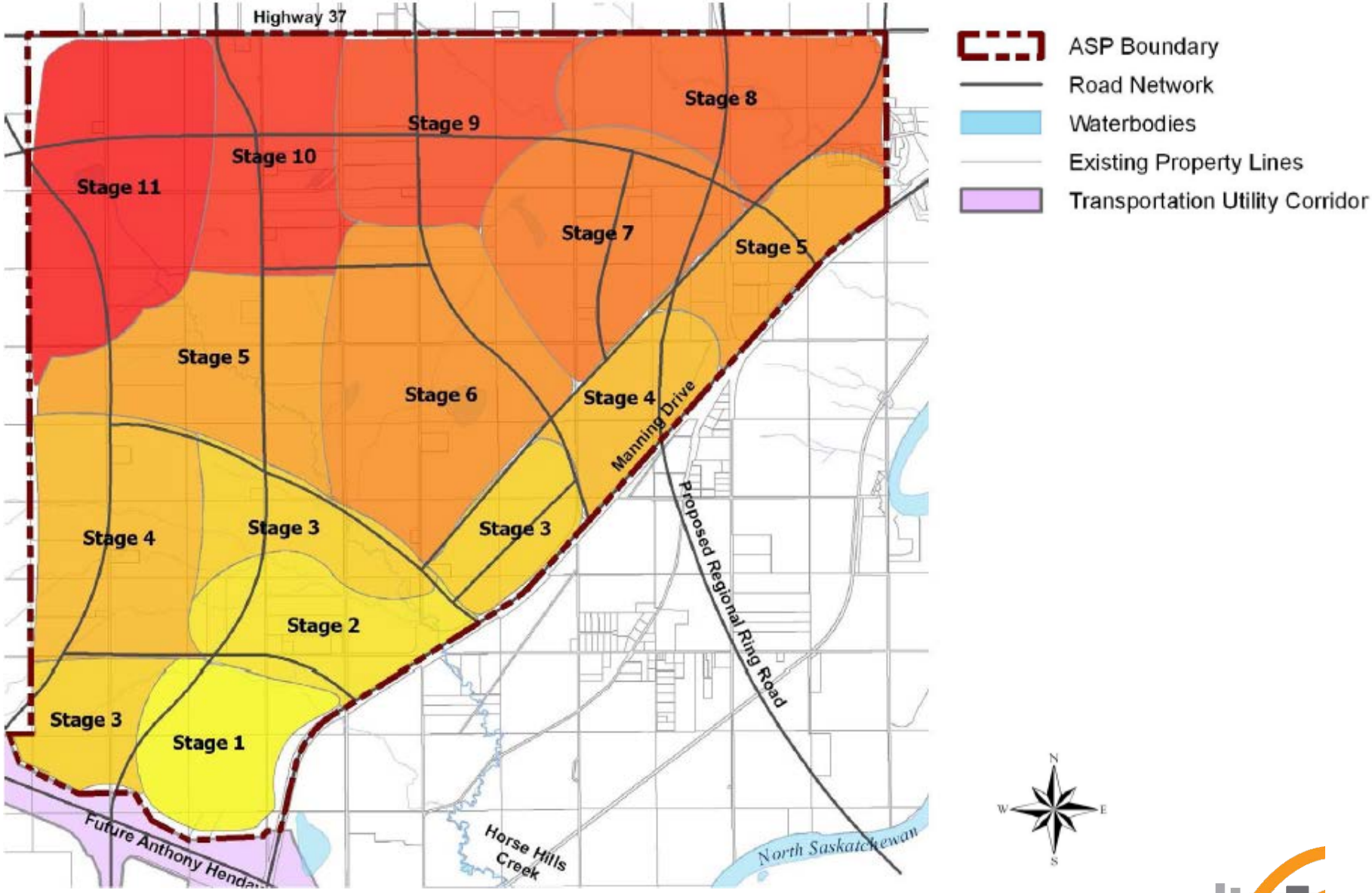
Given that chemical feedstock availability is critical to the development of the petro-chemical cluster, it is important that a supply of these feedstocks is available for the plan area. It is anticipated~~,~~ that the development of the petro-chemical cluster area may lag in the initial stages of development. Therefore, the initial stages will likely have stronger development growth within the Medium Industrial precinct and Research and Development precinct. ~~be dominated by the development of the manufacturing and business parkuses~~. It is expected that the Medium Industrial precinct and Research and Development precinct will develop more or less contiguously, as infrastructure is extended from the south and along Manning Drive.

Once initial development within the Petrochemical Cluster precinct commences, it is expected that this will create greater impetus for complementary industrial and associated businesses within the outer Medium Industrial and Research and Development precincts.

~~However, it is anticipated that the petrochemical cluster will catch up to surrounding development after a few stages have been undertaken, which will provide the benefit of some existing support industries in the area. Once the petrochemical cluster has begun development, it is~~

~~expected to lead development in the other supportive land use precincts.~~

Figure Edmonton nt Staging (Bylaw 16175 Jan 23, 2013) **DELETE AND REPLACE WITH NEW MAP** Figure 21 (see Appendix C of



11.2 Technical Report Requirements

The approval of the Edmonton Energy and Technology Park ASP is only the first step in the development of the plan area. It provides the vision and initial development parameters to initiate subsequent steps in the planning process.

The Edmonton Energy and Technology Park ASP encompasses a large land area, which presents unique coordination challenges at the time of implementation. The scale of the ASP is such that details of engineering, natural areas protection and municipal reserve allocation are identified on an area level. This level of information does not provide sufficient detail to provide decision-makers the information they need to approve an individual project. However, the ASP provides sufficient detail that additional full area or neighbourhood level plans are unnecessary.

Therefore, this area will require a new type of process for the review of zoning applications. Zoning applications in Edmonton Energy and Technology Park will require a coordinating technical report to be in place to address this detail shortfall, which will take the form of a technical report. The Technical Report will be provided by applicants for land use changes in the area. The general geographic extent of the Technical Report sub-areas ~~is~~ are identified in Figure 23: Technical Report Sub Areas. It should be noted that the exact location and extent of the plan sub-area boundaries shown within Figure 23 may change, dependent on technical requirements. The requirements may change depending on existing Technical Reports and associated studies completed for nearby sub-areas.

Prior to the approval of any zoning change in the identified sub-areas, a Technical Report must be provided to the satisfaction of the City of Edmonton administration.

This Technical Report ~~must~~ shall include the following components as they pertain to the entire sub-area:

- A Water Network Analysis
- A Neighbourhood Design Report
- Sub-area Municipal Reserve allocation
- Natural Site Assessment(s)
- A Wetland Evaluation
- Ecological Design Report
- Phase II Ecological Network Report
- Wayfinding Assessment

- Crime Prevention Through Environmental Design (CPTED) Assessment
- Views and Vistas Assessment
- Wildfire Hazard Assessment
- A brief synthesis report identifying how this system works together

At the discretion of the City of Edmonton, the Technical Report may also include:

- A sub-area specific Risk Assessment
- A Transportation Assessment
- A Natural Area Management Plan
- Communal piping alignments
- Railway spur alignments

The above noted studies will be identified in greater detail in the following section. Additional studies or details may be included in the Technical Report, depending on the review requirements of City of Edmonton administration. It should be noted that the Technical Report may not deviate from the intent of the Edmonton Energy and Technology Park ASP.

11.3 Planning Documents / Engineering Studies

In order to support future development, the following additional studies and implementation tools are needed. These may or may not be included in the parameters of the Technical Report described above, depending on the information needs for each sub-area.

- Pipeline Study

A pipeline study should be undertaken to consider the viability of a pipeline corridor between Edmonton Energy and Technology Park and AIH, as well as pipelines to transport chemical products. A pipeline reduces the amount of truck or rail traffic needed to transfer feedstocks or chemical goods to market. A pipeline also reduces the introduction of industrial accidents, which are most likely to occur during transportation.

- Zoning Bylaw Amendments

The conventional industrial zones used within the City of Edmonton do not provide the necessary specificity to support the land uses contemplated for this area. *New zoning tools were necessary in order to implement the vision of the Edmonton Energy and Technology Park ASP.* *(Bylaw 16767 Sept 23, 2014)*

The zoning methods chosen for this area incorporated eco-industrial principles described in the ASP.

- Neighbourhood Design Reports

A number of Neighbourhood Design Reports (NDR) will be required in order to provide engineering detail to support site development in the area.

- Ecological Information Requirements

A range of studies will be required to assist the City in protecting and restoring Edmonton Energy and Technology Park's many and varied natural areas. These studies include Natural Site Assessments, Phase II Ecological Network Reports, Wetlands Evaluations, Natural Area Management Plans, and Tree Conservation and Landscape Plans. The highest value natural areas will be acquired through a combination of Environmental and Municipal Reserve. Natural areas of lesser priority will be retained through the site decision process and integrated into developments. The studies and their timing requirements are identified in Section 7.6.

- Risk Assessment

(Bylaw 16767 Sept 23, 2014)

A Risk Assessment will be required for any proposed industrial development that either stores, creates, or uses hazardous materials as a part of their operations. This study will be required prior to the issuance of zoning approvals and before development permitting may commence. *Furthermore, the Zoning Bylaw will include regulations around designated buffer areas restricting uses within these buffer areas to those that pose a risk of death no greater than 1:1,000,000 as determined by an approved Risk Assessment.*

- Shadow Plan

A shadow plan will be required in order to illustrate provide lot layout, roadway configuration, and connectivity between sub-areas along the top of bank.

- Environmental Site Assessment

A Phase 1 Environmental Site Assessment will be required for areas where there is potential for environmental contamination to be present. Additional studies or remediation efforts may be required to ensure that sites are suitable for development. This information will be required at the zoning stage.

- Communal Piping Study

If communal piping for shared utilities or sharing waste streams is to be considered, a specific implementation strategy will need to be considered. This will include determining where these pipes would be located (ie., road right-of-way, onsite easements, etc), how many pipes would be permitted within the designated area, whether formal agreements would be needed between companies or through civic departments, and engineering logistics. Existing Bylaws, such as the Sewers Bylaw, may also require amendment in order to implement communal piping.

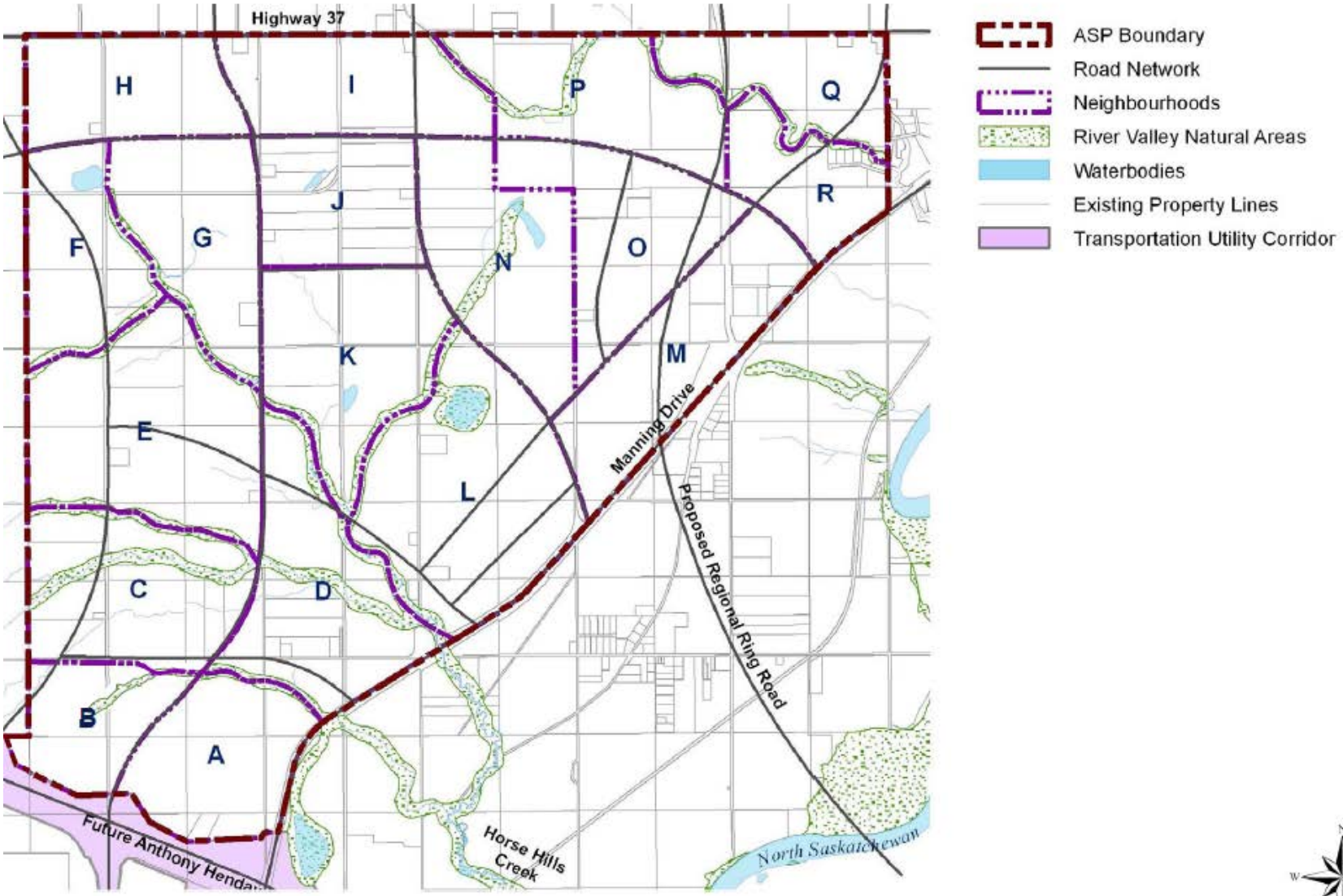
11.4 Public Consultation Requirements

Public consultation for development in this area will be in accordance with the Municipal Government Act (MGA) and the *City of Edmonton's Public Engagement ~~consultation~~ Policy (C593)*.

11.5 Monitoring

This plan will be reviewed every ten years to ensure relevancy of its main objectives. If the vision of this document is deemed to be no longer relevant, a new plan must be implemented to supplant its policy direction.

Figure 23: Technical Report Sub-Areas (Bylaw 16175 Jan 23, 2013) DELETE AND REPLACE WITH NEW MAP Figure 22 (see Appendix C of ASP Am



	Area (ha)	%GDA
Gross Area	**5244**	
Environmental Reserve/Ravine	366	
Arterial/Freeway	304	
Gross Developable Area	**4574**	**100%**
Regional Park	217	4.8%
Local Park	24	0.5%
Natural Area (NA)	93	2.0%
Stormwater Management Facilities	214	4.7%
Circulation	697	15.3%
Net Developable Area	**1245**	**27.2%**

Net Land Uses	**Area (ha)**	**%GDA**
R&D, Education &Services	439	9.6%
Petro-Chemical Cluster	1239	27.2%
Logistics	783	17.1%
Manufacturing	868	19.0%
Total	**3329**	**72.8%**

Amended by Bylaw 16175, Jan 23, 2013

DELETE AND REPLACE WITH NEW TABLES 1 and 2

R&D, Education & Services	ha	%Area
Gross Area	657	100%
SWMF	26	4%
Park	4	1%
Natural Area (NA)	13	2%
Arterial/Freeway	76	12%
Circulation	99	15%
Net Area	**439**	**67%**

Logistics	ha	%Area
Gross Area	1100	100%
SWMF	44	4%
Park	0	0%
Natural Area (NA)	22	2%
Arterial/Freeway	90	8%
Circulation	165	15%
Net Area	**778**	**71%**

Petro-Chemical Cluster	ha	%Area
Gross Area	1714	100%
SWMF	69	4%
Park	8	0.5%
Natural Area (NA)	34	2%
Arterial/Freeway	78	5%
Circulation	257	15%
Net Area	**1268**	**74%**

Manufacturing	ha	%Area
Gross Area	1173	100%
SWMF	47	4%
Park	12	1%
Natural Area (NA)	23	2%
Arterial/Freeway	60	5%
Circulation	176	15%
Net	**855**	**73%**

Industrial Land Use	Total Area (ha)	% Developable	Developable Area	Employees/ha	Total Employees
Logistic	1338	71	783	15	12,313
Manufacturing	1501	73	868	27	23,436
Petro-Chemical Cluster	1714	74	1268	7	9,400
Business Park/R&D	657	67	439	91	40,140

Table 1: Land Use Statistics

	Area (ha)	%
Gross Area	5218.11	
North Saskatchewan River Valley	375.51	7.20
Arterial/Freeway	383.22	7.34
Gross Developable Area	4459.38	100
SWMF	388.00	8.70
Parks	103.72	2.33
Natural Areas	258.19	5.79
Circulation	668.90	15.00
Non-Developable Area	1418.81	31.82

Medium Industrial Precinct	Area (ha)	%
Gross Area	2668.19	
North Saskatchewan River Valley	191.98	7.20
Arterial	178.94	6.71
Gross Developable Area	2297.27	100
SWMF	202.00	8.79
Parks	31.18	1.36
Natural Areas	128.09	5.58
Circulation	344.59	15.00
Net Developable Area	1591.41	69.27

Petrochemical Cluster Precinct	Area (ha)	%
Gross Area	1840.64	
North Saskatchewan River Valley	164.60	8.94
Arterial	68.56	3.72
Gross Developable Area	1607.48	100
SWMF	138.00	8.58
Parks	22.98	1.43
Natural Areas	71.53	4.45
Circulation	241.12	15.00
Net Developable Area	1133.85	70.54

Research & Development Precinct	Area (ha)	%
Gross Area	709.28	
North Saskatchewan River Valley	18.93	2.67
Arterial	135.72	19.13
Gross Developable Area	554.63	100
SWMF	48.00	8.65
Parks	49.56	8.94
Natural Areas	58.57	10.56
Circulation	83.19	15.00
Net Developable Area	315.31	56.85

Precinct	Gross Area (ha)	% Developable	Net Developable Area (ha)	Employees/ha	Total Employees
Medium Industrial	2668.19	59.64	1591.41	21	33420
Petrochemical	1840.64	61.60	1133.85	7	7937
Research & Development	709.28	44.45	315.31	91	28693
Total	**5218.11**	**58.27**	**3040.57**		**70049**

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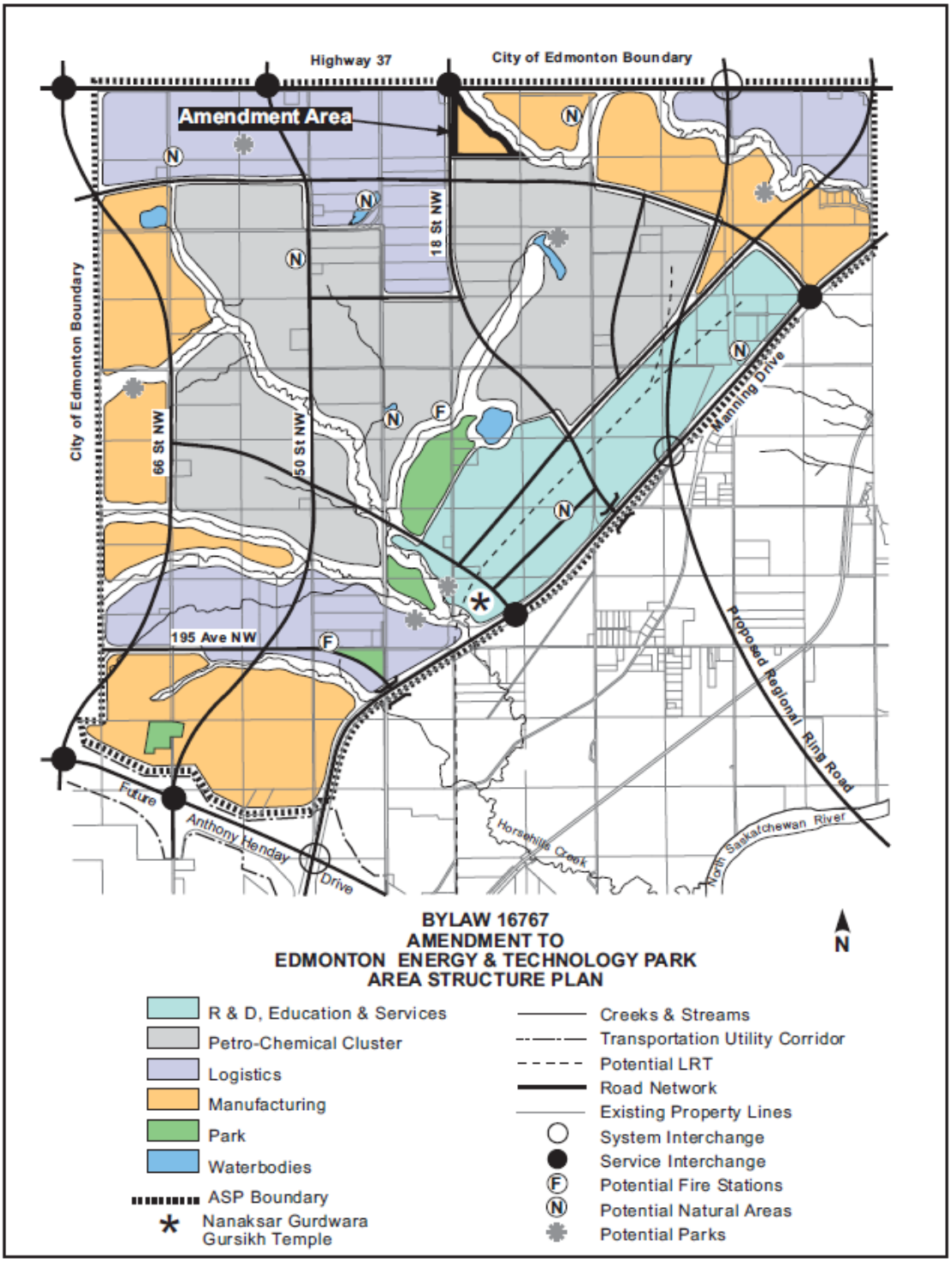
Bylaw page to be updated using Figure 8 Development Concept at time Bylaw Number