PIONEER LANDS AREA STRUCTURE PLAN

Office Consolidation

Pioneer Lands Area Structure Plan Bylaw C-686-08 was adopted by Council on February 9, 2009.

This "Consolidated Edition" was published in April 2025, and incorporates all amendments and additions to Bylaw C-1278-23 as referenced below:

Bylaw C-745-10 *passed June 28, 2010, to reconfigure the southwest lands north of Grove Drive for changes to the collector road, the residential and commercial uses, parks, and stormwater management.*

Bylaw C-797-11 *passed November 14, 2011, to define a plan for the Special Study Area (Gateway Lands) and other changes to residential types, parks and open spaces, and realignment of Pioneer Road.*

Bylaw C-837-13 *passed March 25, 2013, to: refine mixed-use urban village (i.e. Westwind Village & change open space and commercial/residential uses); add neighbourhood names; adjust commercial to residential on Pioneer Road; and, update servicing plans.*

Bylaw C-932-15 *passed September 26, 2016, to adjust residential, commercial, parks, stormwater management, and removal of Grove Drive's connection to the City's boundary.*

Bylaw C-1062-18 *passed April 23, 2019, to relocate a medium-high density residential site eastward and to define the proposed transit station location within the Westwind area.*

Bylaw C-1185-22 *passed August 22, 2022, to reconfigure medium-high density residential land use and the stormwater management facility in the northwest plan area, and to add a central neighbourhood commercial site.*

Bylaw C-1201-22 *passed August 22, 2022, to redesignate a Commercial area at 300 Pioneer Road to Medium to High Density Residential.*

Bylaw C-1285-23 *passed March 11, 2024, adjusted: open space; parks; the Greenbury school site; medium-density residential sites along Westwind Drive; and pedestrian linkages.*

Bylaw C-1278-23 *passed May 13, 2024, to designate a high-density residential site in Westwind near the Transit Station.*

All reasonable efforts were made to accurately reflect the original amending Bylaws, and all text changes made are referenced in the margin and/or italicized.

This "Consolidated Edition" is intended for convenience only, and in case of uncertainty the reader is advised to consult the original Bylaws that are available at the City Clerk's Office.

City of Spruce Grove
Planning and Development

CITY OF SPRUCE GROVE

BYLAW C-686-08

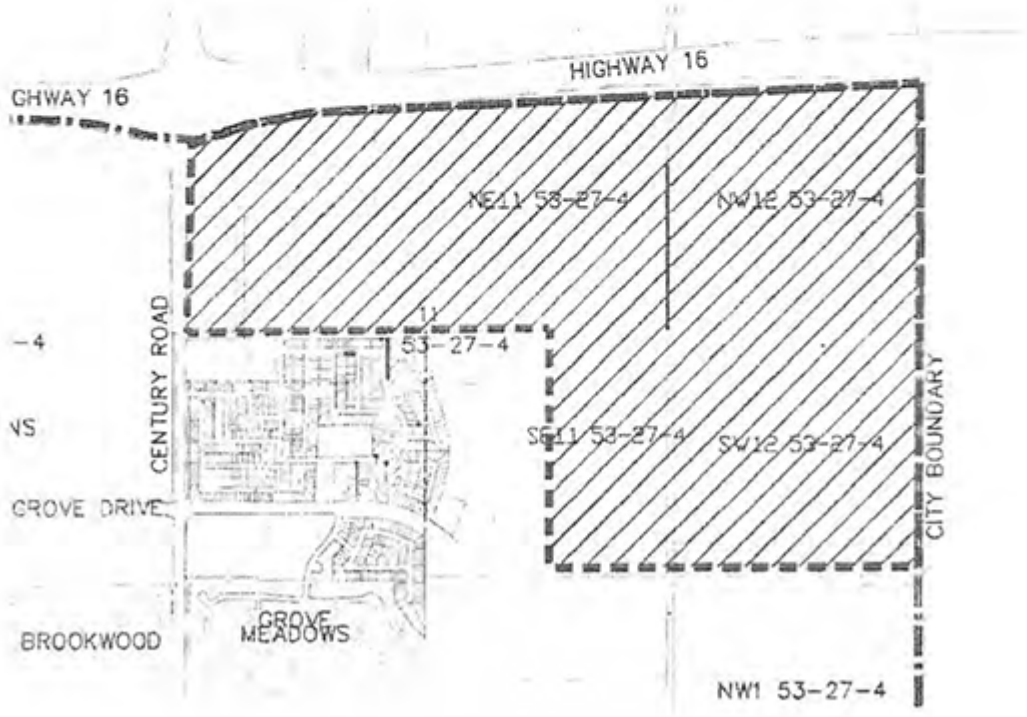
PIONEER LANDS AREA STRUCTURE PLAN

Being a bylaw to approve the Pioneer Lands Area Structure Plan in the City of Spruce Grove, in the Province of Alberta.

Pursuant to Sections 633 and 692 of the Municipal Government Act, R.S.A. 2000, c. M-26, including amendments thereto, the Council of the City of Spruce Grove, DULY ASSEMBLED, HEREBY ENACTS as follows:

THAT, Bylaw C-686-08, be adopted as shown in Schedule 1 which is attached as part of this bylaw.

Bylaw C-686-08 pertains to NW 11-53-27-4, NE 11-53-27-4, E½ SE 11-53-27-4, NW 12-53-27-4 and SW 12-53-27-4 as shown on the following map:



This bylaw shall take effect on the date of its final reading.

First Reading Carried 14 April 2008

Public Hearing Held 24 November 2008

Second Reading Carried 24 November 2008

Third Reading Carried 9 February 2009

Mayor

General Manager of Corporate Services

EAST PIONEER AREA STRUCTURE PLAN

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List of Figures

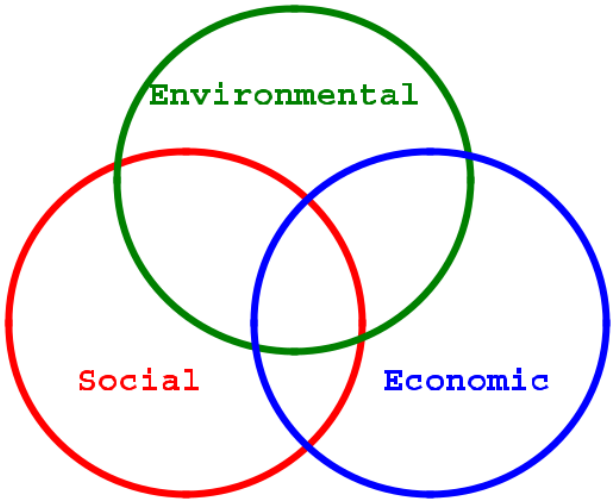
1.0 Background

The area included in the Pioneer Lands Area Structure Plan is a part of those lands annexed from Parkland County by Provincial Order in Council 390/2007 signed September 12, 2007 and delineated in **Exhibit 1**. This Area Structure Plan (ASP) is intended as a guide for development of predominantly residential uses in the north portion of the annexation lands.

1.1 An ASP for a Smart-Green Community

This ASP establishes the pillars for smart growth and sustainable, green development focusing on a "triple" bottom line model:

- Social Sustainability;
- Economic Sustainability;
- Environmental Sustainability;



Sustainability Model

These pillars recognize that:

- land is a scarce and valuable asset that must be used efficiently;
- natural attributes of the land need to be preserved, managed and enhanced where possible;
- the lifestyle demands of people include being able to walk to recreation and other community amenities;
- the near term and long term cost efficiencies can be achieved in development and in the ongoing operations and maintenance of community infrastructure;
- compact, diverse and connected development offers a range of housing types and affordability levels; a diversity of setbacks, building forms and finishes;

Proposed ASP

AREA STRUCTURE PLAN BOUNDARY AND CONTEXT

PROPOSED PIONEER LANDS ASP
CITY OF SPRUCE GROVE
EXHIBIT 1

N.T.S.

OCTOBER 2008
NOT TO SCALE

IBI GROUP

J:\pre-integration\old_H\Planning\12513 Pioneer Lands\ASP\MAY 2007\Exhibit_1_May2.07.dwg July 12 2007 2:43pm bdibben

- "Greener" development reduces energy and increases the use of simple infrastructure that is ecologically friendly as well as adding to the ambiance of the community.

Accordingly, this ASP addresses the pillars of smart-green growth as follows:

SOCIAL

- By providing a range of housing across demographic and affordability levels.
- Creating housing affordability through density.
- Creating work, live, and play opportunities within the same geographic area.
- Creating active streets and open spaces fostering public interaction and "know your neighbour opportunities".
- Connecting developments within the ASP and to the City at large3
- Accommodating healthier lifestyles through the use of multi-use trails and walkway linkages to open spaces.
- Providing access to the public transit system.

ECONOMIC

- Efficiently using the land through compact, denser development.
- Introducing low technology, e.g., surface drainage, bio-swales, and highly effective stormwater management techniques.
- Creating affordability through density.

ENVIRONMENTAL

- Preserving Natural Areas.
- Minimizing stormwater runoff into sewers.
- Planning for transit ensuring that the majority of development is within 400 m of a collector road which is the typical routing for transit.
- Considering alternative development standards: e.g. bio-swales as a complement to storm sewers; reduced street lighting levels to reduce energy consumption and light pollution; alternative road construction to accommodate recycled material.
- Encouraging increased water efficiency through measures such as: requiring multi-family buildings to capture and reuse rainwater for toilets and irrigation; providing rain barrels for low density residential development; requiring dual flush toilets.
- Encouraging methods to minimize construction waste.

1.2 Our Vision

Our vision is to create liveable communities by implementing cost effective development techniques and design approaches that integrate the best practices for sustainable development.

Pioneer Lands is an outgrowth of our belief that there is a market for communities with subdivisions and buildings that are ecologically responsible and environmentally intelligent.

2.0 Description of ASP

The Pioneer Lands Area Structure Plan contains lands located in the east half of 11-53-27-4, north of Grove Drive, west of Range Road 271 (Atim Road) and south of Highway 16 in the City of Spruce Grove. A location plan is included as **Exhibit 1**.

The Plan area encompasses approximately 283 ha of land and is located directly east of the City's 24 ha Jubilee Park. While the ASP is intended to follow the framework established by development in the Spruce Village Area Structure Plan to the west, incorporating neo-traditional elements into some parts of this proposed ASP, the emphasis of this ASP is to provide a planning context for a "Smart-Green Community". The following are planning considerations:

- the City of Spruce Grove is growing and demand for housing is high.
- these lands are newly annexed and require a framework for rational development.
- the collector roads have not been established or configured and servicing must be planned and staged to connect from existing infrastructure.
- the parks and land uses must be outlined and determined for future staging based on the market and civic needs.

2.1 Existing & Proposed Surrounding Land Uses

The Grove Meadows area to the southwest of the Pioneer Lands ASP has been substantially developed as a residential neighbourhood and Spruce Village is currently under development to the west. Greystone Centennial School and associated City sports fields are located immediately south of Spruce Village across Grove Drive. The remaining undeveloped land in Spruce Village and Grove Meadows is designated for low-density residential use. Immediately west of Pioneer Lands is City-owned and intended for recreational lands called Jubilee Park. Lands immediately south of the Plan area are presently under cultivation and were included in the annexation from Parkland County. Lands to the east are part of Parkland County, are currently vacant or under cultivation and include the Wagner Natural Area. The proposed land uses in the Plan area will not create problems or incompatibility with surrounding development. The existing conditions are presented graphically in **Exhibit 2**.

2.2 Land Ownership

An ownership plan showing property lines is included as Exhibit 3. There are two major owners in the proposed ASP area and several owners of smaller parcels of land. Beaverbrook Pioneer Ltd. is the predominant landowner within the ASP owning approximately 54% of the land.

2.3 Natural Areas

There are two natural areas identified within the ASP boundary. One is a creek that crosses from southwest to northeast and eventually drains into Big Lake. There is also a small tree stand in the southeast corner of the plan area. The ASP incorporates the creek as part of the stormwater management system.

PIONEER LANDS AREA STRUCTURE PLAN AMENDMENT

Exhibit 2 - Existing Conditions

DATE: October 20, 2015

SCALE: NTS

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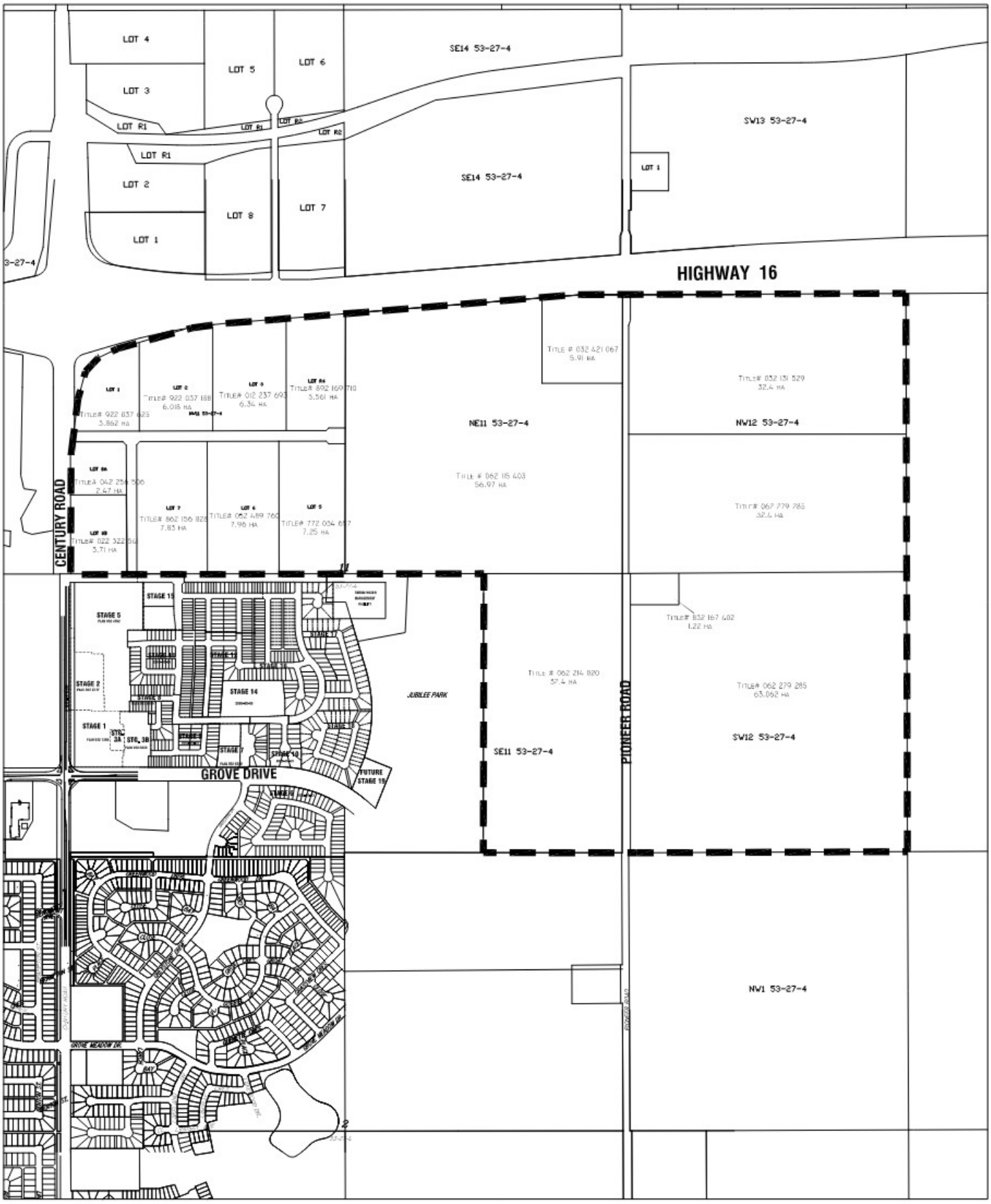

OWNERSHIP

PROPOSED PIONEER LANDS ASP
CITY OF SPRUCE GROVE

EXHIBIT 3

NTS
OCTOBER 2008

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2.4 Soil Classification

According to the Parkland County soil classification map, soils in the ASP area are predominantly Class 1 which is considered the highest class with “few limitations to production and workability in terms of soil texture, soil moisture, or rocks and are expected to support a variety of cereal crops at relatively high productivity”. Notwithstanding this classification, the City has annexed these lands for urban development purposes. The quality of the soil demands that development occurs that is as efficient as possible.

3.0 Policy Context

This proposed ASP describes the proposed land uses, density of development, location of major roads and utilities and the proposed sequence of development in accordance with the City of Spruce Grove “Area Structure Plan Guidelines”.

3.1 Municipal Development Plan

The newly annexed lands in the Pioneer Lands ASP are identified as mainly residential in the Municipal Development Plan C-668-07.

The ASP conforms and specifically responds to the following goals and objectives of the City’s Municipal Development Plan (Bylaw C-327-98) and the subsequent MDP amendment, Bylaw C-668-07:

2.2.1 To create neighbourhoods which have individual identities, but are inter-linked with one another to promote social interaction.

2.2.4 To allow a full range of housing types to meet the needs of various income, age and social groups.

2.5.1 To identify and protect natural vistas.

2.5.2 To create opportunities for a broad range of social and aesthetic community experiences.

2.5.5 To develop and maintain a linked comprehensive open space system which integrates conservation areas, farmlands, community streets and urban parks.

3.4 To encourage diversity in neighbourhood living experiences.

3.5 To recognize and provide a range of parks and recreation experiences varying in scale.

4.1.1 To provide a safe and efficient road system which will also support a desired urban form.

4.1.2 To recognize and enhance the role of community streets as potential social places in addition to their functional role in the urban transportation system.

4.1.4 To ensure that future urban development accommodates a variety of transportation modes.

4.1.5 To promote alternative transportation options.

The ASP conforms to the MDP amendment (Bylaw C-668-07) as it reflects the expansion for the City’s boundaries:

- to the northeast for continued residential growth;
- to the north for possible commercial/business growth.

3.2 The City of Spruce Grove Parks & Open Space Master Plan

The City of Spruce Grove Parks and Open Space Master Plan was approved by Council on March 26, 2007. This document guides the development of parks, open space and recreation facilities in the City of Spruce Grove. The following principles are considered in this Area Structure Plan.

- reflect the environmental context of Spruce Grove through the respect of natural features and views, and the use of plants and other materials that are appropriate to the climate and context, and that protect and enhance biodiversity.
- provide a variety of places for recreation, physical activity, and enjoyment of the outdoors, for a diverse population by ensuring that there is a complete range of open space types appropriate for Spruce Grove.
- reflect and respect Spruce Grove's history and culture.
- recognize Spruce Grove's existing special places, create new ones, and provide good linkages through paths, good streets and linear parks.
- ensure a walkable and accessible city, neighbourhoods, and streets.
- promote public health objectives through the provision of open space.
- ensure that a range of open spaces are within the appropriate proximity of every citizen.
- ensure that all open spaces are safe for use, and that the urban design of surrounding areas supports the concept of 'eyes on the street/path/park'; and
- raise the profile of parks, open space and trail systems within The City of Spruce Grove's Administration to ensure that it is a priority in future planning and development.

The open space system will be linked via walkways and trails to connect with focal points and the major transportation linkages of the neighbourhood.

Editor's Note

3.3 The City of Spruce Grove Land Use Bylaw

Editor's Note

The City of Spruce Grove Land Use Bylaw contains zoning regulations and land use information for the City of Spruce Grove. Development within Pioneer Lands will adhere to the general guidelines contained in the Land Use Bylaw.

Editor's Note

In order to achieve higher residential densities in support of the pillars of smart-green development, specific land use zones are created for the Pioneer ASPs and are included in Land Use Bylaw.

These land use zones permit higher density development to occur for single detached, semi-detached and street-oriented townhousing enabling higher levels of affordability.

4.0 Sustainability

The ASP considers and recognizes many of the principles of LEED.

LEED is the Leadership in Energy and Environmental Design program that is currently conducting a pilot program for green-field development with numerous neighbourhood projects to determine the efficacy of defined prerequisites and credits. There are currently 9 prerequisites in 4 categories of development principles and a minimum point credit system to achieve different levels of LEED certification for the neighbourhood. Many of these that are applicable are recognized in this ASP.

The Pioneer ASP will strive to achieve sustainable and responsible development by following the framework presented by the LEED pilot program and other sustainability programs and incorporating its principles where feasible. The LEED program deals with sustainable neighbourhood design while Build Green, which is referenced in other areas of the ASP deals with building scale sustainable practices.

The following are LEED and smart growth principles reflected in this ASP:

4.1 Smart Location & Linkage

The following are key LEED and smart growth location and linkage principles of the ASP:

- encourage development within and near existing communities or public transportation infrastructure. Reduce vehicle trips and miles traveled and support walking as a transportation choice.
- encourage new development within and near existing communities in order to reduce multiple environmental impacts caused by sprawl. Conserve natural and financial resources required for construction and maintenance of infrastructure.
- protect imperilled species and ecological communities.
- conserve water quality, natural hydrology and habitat and preserve biodiversity through conservation of water bodies or wetlands.
- protect life and property, promote open space and habitat conservation, and enhance water quality and natural hydrological systems.

4.2 Neighbourhood Pattern & Design

The following are LEED and Smart Growth neighbourhood pattern and growth principles of the ASP:

- use the land resource efficiently.
- promote communities that are physically connected to each other. Foster community and connectedness beyond the development.
- promote liveability, transportation efficiency, and walkability.
- create a range of housing opportunities and choices.
- foster distinctive, attractive communities with a strong sense of place.

- mix land uses.
- preserve open space, natural beauty and critical environmental areas.
- take advantage of compact building design.

4.3 Green Construction & Technology

The following construction and technology principles of LEED in the ASP:

- reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.
- manage construction waste through a site development recycling program.
- encourage sustainable products in development and construction.

4.4 Community Sustainability

The following are Smart Growth principles in the ASP to promote community sustainability:

- provide a mix of housing forms across income levels so that families can mature in place.
- provide opportunities for employment generating land uses.
- integrate housing forms to encourage a blend of family and non-family households.
- achieve densities that will support local retail opportunities, transit and other municipal services.

5.0 Development Goals & Concept

5.1 Development Goals

The development goals of the ASP are:

CREATE A LIVEABLE COMMUNITY THAT IS COMPACT, DIVERSE & CONNECTED

- Plan for transit ensuring that the majority of development is within 400 m of a collector road which is the typical routing for transit.
- Provide efficient and connected pedestrian access to open space, transit stops and commercial areas.
- Plan for higher residential densities.
- Create neighbourhood focal points with increased housing densities.
- Provide a range of housing types across demographic groups and affordability levels.
- Consider suites in low density housing areas, e.g., garage suites.
- Provide a variety of passive/active open spaces within 400 m walking distance of residents.
- Provide the opportunity for mixed use residential and commercial developments including live-work opportunities.
- Create diversity in street types and streetscapes: lanes and non-lane development should be accommodated.

BUILD GREENER

- Consider alternative development standards: e.g. bio-swales (see Section 6.3) as a complement to storm sewers; reduced street lighting levels to reduce energy consumption and light pollution; alternative road construction to accommodate recycled material.
- Encourage increased water efficiency through measures such as: requiring multi-family buildings to capture and retain rain water for irrigation and toilets.
- Provide rain barrels for low density residential development.
- Require dual flush toilets.
- Consider the requirement that buildings meet “Built Green” or other recognized standards.
- Orient lots to maximize solar exposure.
- Provide locations for separation of construction waste.
- Encourage efficiency methods to minimize construction waste.

PRESERVE NATURAL AREAS

- Protect the natural water courses by incorporating them into the stormwater management systems and the pedestrian circulation system.
- Ensure natural amenities are at least partially fronted on public spaces.

5.2 Planning Principles

5.2.1 Neighbourhood Character & Placemaking

- Create a neighbourhood with an identifiable heart(s) or focal point(s).
- Provide a variety of different building forms and uses, focusing on compatible integration rather than separation.
- Create a pedestrian friendly environment.
- Plan an integrated community for a diversity of ages, incomes and needs with associated community services that are adaptable over time, such as park and commercial space.
- Through careful design and planning, encourage the development of active community places which are alive and utilized and promote community interaction.

5.2.2 Open Space

- Provide a simple and understandable pattern of open space nodes, greenways, park sites and walkway connections. Greenways are vegetated, linear green spaces that contain multi-use trails.
- Ensure that park space is accessible to all members of the community.
- Provide a variety of opportunities for passive and active recreation experiences, incorporating a variety of activities to encourage community interaction.
- Design different types of park space to meet the needs of all users within the community.
- Design safe park spaces by implementing CPTED (Crime Prevention Through Environmental Design) principles.
- Include landmarks or visual points of reference within the open space system to provide local context and assist in wayfinding.
- Design a connected and integrated open space system that encourages non-vehicular movement (e.g. pedestrians and bicycles).
- Consider streets and lanes as an extension of the park and circulation system.
- Plan greenways and walkway connections to complement on-street sidewalk routes and connections.
- Treat outdoor space as a positive entity between buildings rather than as a void between buildings.
- Ensure that private amenity space provides an amenity value to building occupants and integrates well with the public open space landscape.
- Encourage biological diversity and natural processes within the natural and planted landscapes in the neighbourhood.
- Ensure that the landscape design of the open space network, particularly the stormwater management facilities and the pathways by which they are connected, includes predominantly native plant material with the intent that over time, this vegetative network seamlessly connects with the existing ecology of the area.

5.2.3 Neighbourhood Movement & Circulation

- Implement the City of Spruce Grove road hierarchy system of an integrated arterial, collector and local roadway network.
- Establish gateways into the neighbourhood that identify a sense of arrival.
- Establish sufficient locations for neighbourhood access by a variety of modes, such as automobiles, transit, bicycle and pedestrian connections.

SAFETY

- Integrate land use and circulation patterns considering safety of automobiles, pedestrians and cyclists.
- Provide traffic calming at appropriate locations to moderate vehicular speeds.

PEDESTRIANS, WALKABILITY & CYCLISTS

- Ensure that pedestrian/bicycle connections to the wider community are highly integrated, direct and legible as part of the open space network.
- Accommodate safe pedestrian movement on all roadways through the neighbourhood using the sidewalk network.
- Ensure that off-street bicycle and pedestrian facilities complement on-street circulation patterns.
- Establish integration between the street and urban form respecting human scale to achieve a more walkable neighbourhood.
- Define the interface between public and private property lines with plantings, pavement treatments or fencing.

TRANSIT

- Provide transit stops within approximately 400m walking distance from all residences and schools.
- Initiate transit service at earliest possible date.
- Provide flexibility in neighbourhood transit configurations over time to accommodate convenient bus transit access.

5.2.4 Land Use

- Provide a variety of housing types in different physical forms to meet the needs of different age and income groups.
- Create a healthy mix of densities to support the provision of hard and soft infrastructure to the neighbourhood in a timely manner.
- Provide opportunities for higher density housing at accessible locations, near community focal points, open space and transit routes.
- Site buildings to optimize views and vistas.
- Provide the opportunity for local commercial needs to be met within the neighbourhood.
- Locate and orient commercial sites along arterial or collector roadways to ensure high visibility and convenient access opportunities.

- Develop built form with a strong relationship to the street, encouraging human scale and having regard for pedestrian mobility, access and streetscaping.

5.2.5 Implementation

- Adopt Pioneer Land zoning for the initial development phases.
- Determine the extension and upgrading of services by responding to the market schedule for providing serviced sites.
- Develop park facilities at the same time that new housing is developed and as the City budget allows.
- Provide greenways to link newly developing areas of the neighbourhood, open space and the adjacent Jubilee Park.
- Allow for flexibility between developers and homebuilders and the City Administration in regulating the introduction and implementation of alternative designs and technologies that support the ecological sustainability, cost effectiveness and environmental stewardship in the development of the neighbourhood.

5.3 Land Use Concept

The land use concept for the Plan area is presented as **Exhibit 4**.

Bylaw C-745-10, June 28, 2010

The ASP comprises *three* major components:

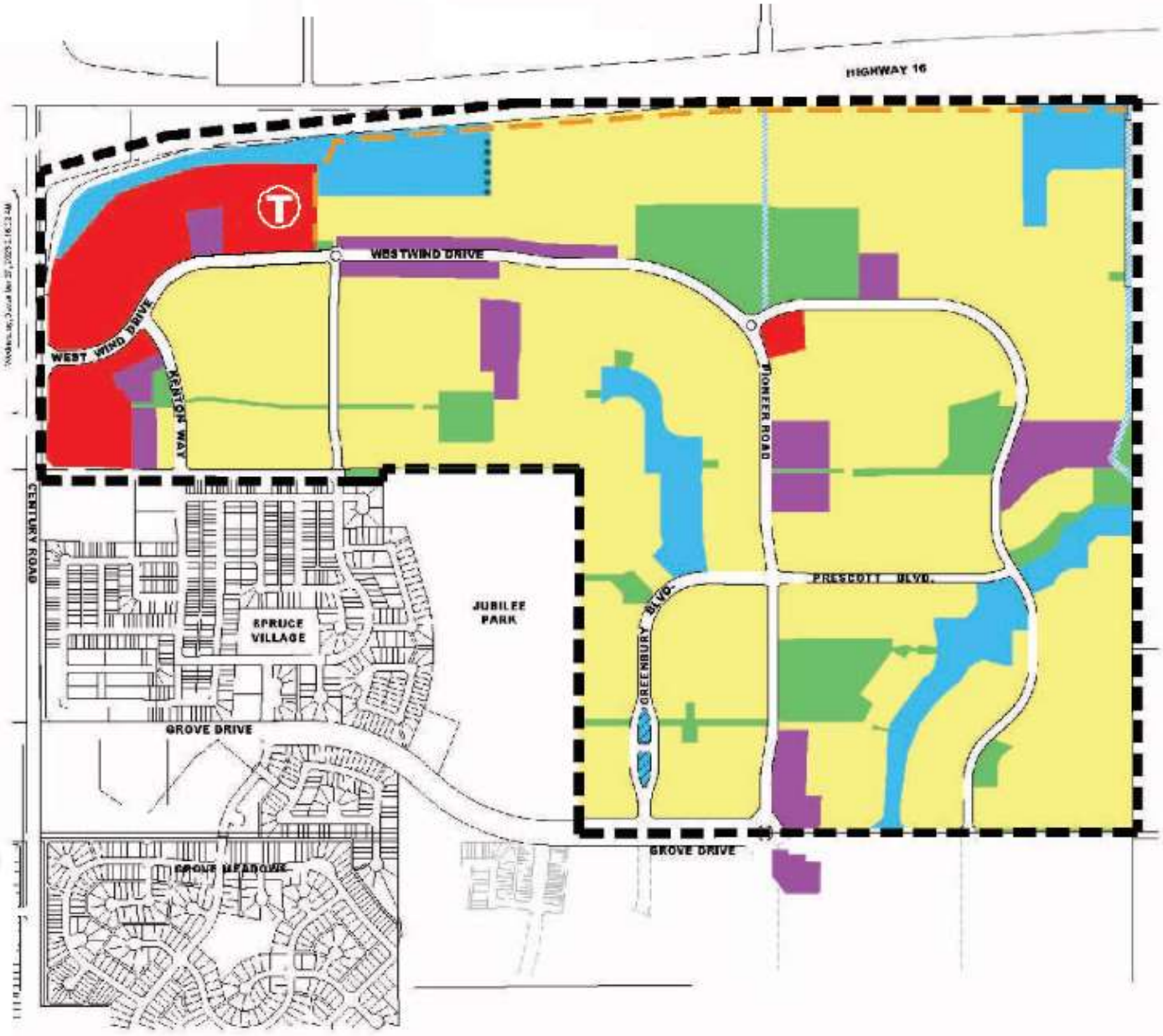
- residential development providing diverse housing and recreation opportunities connected by a collector road and trail system;
- a green space open space framework offering a hierarchy of recreational opportunities to residents. A major locational attribute for the ASP is adjacency to Jubilee Park. Linkages to Jubilee Park from the residential components integrate the Pioneer community with this major recreational feature;

Bylaw C-797-11, November 14, 2011

- *Westwind, a regional employment centre, that provides opportunities for shopping and employment and the integration of a compact residential community.*

The ASP is accessed from the north via Vanderbilt Common and from the south by way of Grove Drive and Pioneer Road. The north access serves the employment centre node and residential component. The south access serves the residential component.

The following provides a brief description of the various land uses in the ASP area. Land use and population statistics are presented as **Exhibit 5**.



LEGEND

- Commercial
- Medium to High Density Residential
- Low to Medium Density Residential
- Storm Management Facility
- Park/Open Space
- Berm
- Median PUL
- Public Utility Lot (PUL)
- ASP Boundary
- Transit Station
- Storm Management Facility Street Frontage

Pioneer Lands Area Structure Plan

Exhibit 4 - Development Concept

Date: August 30th, 2023 **Drawn By:** JA **Checked by:** RE **Scale:** NTS

Exhibit 5: Pioneer Lands ASP Land Use Statistics

Bylaw C-1278-23,
May 13, 2024

Land Use	GDA (ha)	% of GDA	Units/ha	Units	Pop/Unit	Pop.
Low to Medium Density Residential	140.27	49.8	25	3,507	3.0	10,520
Medium to High Density Residential	14.18	5.0	67	950	2.5	2,375
Total Residential	**154.45**	**54.8**	**28.9**	**4,457**		**12,895**
Westwind Commercial	17	6.0				
Neighbourhood Commercial	0.78	0.3				
Parks and Recreation (MR)*	24.03	8.5				
Stormwater Management Facilities	23.06	8.2				
Public Utility Lot	0.86	0.3				
Local Roads and Lanes	42.37	15.0				
Collector Roads	19.06	6.8				
Total Non-Residential	**127.16**	**45.2**				
Gross Developable Area	**281.61**	**100.0**				
Pipeline	1.24					
Arterial Road (Grove Dr.)	1.35					
Total Gross Area	284.20					

**The MR in Gateway Lands portion of the ASP was Dedicated with the original subdivision. The 10% MR required for the remaining GDA in Pioneer Lands is 22.7 ha. (C-797-11)*

5.3.1 Residential

Bylaw C-1278-23, May 13, 2024

Residential development comprises *54.8*% of the Gross Developable Area (GDA), with a planned yield of *4,457* units and a population of *12,895* residents. *The overall mix of residential densities shall yield approximately 28.7 units per net residential hectare.*

Bylaw C-797-11, November 14, 2011

LOW TO MEDIUM DENSITY

Bylaw C-797-11, November 14, 2011

Low to Medium Density residential development allows for increased density housing to be developed in response to market demands, i.e., affordability and trends in sustainable development. Safe, comfortable and attractive pedestrian connections to focal points such as Jubilee Park, the stormwater management trail and others will reinforce the sense of community. Architectural controls will be used to ensure compatibility and thematic continuity.

Too many communities have been developed over the past 50 years which have focused on the automobile:

- garages are the focus from the street rather than the front door;
- sidewalks are constantly crossed by driveway accesses;
- cars are given priority over people on the streets.

Similarly, these communities have tended to be physically homogenous, primarily with a single detached housing characteristic. While it may be acceptable visually to create buildings and streetscapes of like design, developing hundreds of acres in the same manner, creates a visually less appealing environment for residents, visitors and the municipality.

Bylaw C-797-11, November 14, 2011

The intent of the *Low to Medium Density* residential component includes:

- to allow for the development of single family, semi-detached and street-oriented townhousing to create a diverse and interesting streetscape;
- to achieve higher density and therefore, more affordable housing product, the experience across North America to reducing housing costs has been to increase density, thereby reducing the impact on the consumer of higher land and servicing costs;
- to facilitate a mix of demographics in the community;
- to facilitate an attractive, liveable, sustainable and economic housing community.

Bylaw C-797-11, November 14, 2011

The *Low to Medium Density* residential development will promote the following performance criteria in the new zoning:

- bring the front entrance of the residential unit closer to the street to improve the pedestrian environment and to reduce the waste of land;
- reducing the impact of the garage by use of lanes and, for street facing garages, how far they may protrude past the front entrance;
- a mix of lot widths and depths to accommodate a range of lot formats including narrow lots, estate lots, wide-shallow lots (maximize street frontage), clustered housing and other single and semi-detached housing forms;

- single and double garages coupled with parking pads at the front or rear of the house;
- attached townhousing of up to eight units to create focus for the streetscape;
- side yards appropriate for the character of the development and housing types;
- private open space for each unit.

The City's Development Officer would work with builders to enable attractive and well laid out development to occur. Developer administered architectural guidelines will be placed on each title. *Design objectives for the Low to Medium Density residential designation include:*

Bylaw C-745-10, June 28, 2010

- *An architectural theme should be established for the overall area;*
- *New buildings should harmonize with adjacent developments by ensuring that siting and massing of new structures are compatible with each other;*
- *Buildings should generally be located closer to the street to help reinforce and enhance pedestrian relationships to the building and the street, where appropriate. Buildings should frame the street and be sited to enhance natural surveillance;*
- *Street oriented garages should be de-emphasized through the use of architectural design features and integrating the garage into the house, while balancing consumer preferences for the provision of garage space;*
- *Development within this district shall ensure that the design of the pedestrian environment is comfortable, convenient, visually attractive and safe for human activity;*
- *Buildings and site amenities should be scaled to enhance the pedestrian environment;*
- *Safe and direct pedestrian connections should be provided throughout the district to unify urban design and landscape elements on site and to other neighbourhood facilities and amenities;*
- *Individual building entrances should be defined and highlighted through the use of architectural elements such as but not limited to, roofline features, doors with glazing and/or treatment(s) that emphasize the entry way, and special lighting.*

Bylaw C-797-11, November 14, 2011

Low to Medium Density residential provides the City and the developer flexibility to create interesting, attractive streetscapes that are responsive to the demographic shifts that occur in communities in short periods of time.

Bylaw C-745-10, June 28, 2010

This residential area is expanded to 38 ha by replacing high, medium, and low-density residential uses northwest of the Grove Drive and Pioneer Road intersection, and the overall Development density in the *Low to Medium Density* residential zone will range from 22 - 30 units per hectare for a planning average of 25 upha.

LOW DENSITY HOUSING

Bylaw C-797-11, November 14, 2011

The ASP also promotes the creation of other heterogeneous living environments outside the *Low to Medium Density* residential area by integrating various forms of street-oriented dwelling units throughout the residential component of the ASP. This will be achieved by designating "clusters" of single detached and semi-detached or duplex dwellings along a street. Homogenous districts may also be considered if warranted by consumer/demographic demand, e.g. lifestyle communities. For this reason, several proposed districts are for single detached dwellings only. For each cluster, the specific zoning regulations of the Land Use bylaw as approved will apply.

The mixing of housing forms brings not only visual diversity to the community, but social and cultural diversity too. Architectural controls will be used to provide the thematic continuity required so that there is no need for "transition" between different districts (e.g. increased side yard setbacks where one district abuts another district).

Bylaw C-797-11, November 14, 2011

MEDIUM TO HIGH DENSITY

Editor's Note

Bylaw C-1062-18, April 23, 2019

Bylaw C-1278-23, May 13, 2024

Bylaw C-1285-23, March 11, 2024

The multi-family housing comprises about *9*% of the approximately *154* ha of land available for residential development. This includes sites as you enter the neighbourhood from Pioneer Road, *along Westwind Drive*, *in Westwind including near the Transit Station*, and several along Grove Drive. Higher density projects are incorporated adjacent to collector roads and medium density sites to transition to neighbouring low density residential and *includes street-oriented townhouse development along Westwind Drive within walking distance to the civic centre*.

RESIDENTIAL SITING & DESIGN PRINCIPLES

All housing units will front on public streets. In order to create a varied streetscape, there may be a mix of housing types – single family detached, semi-detached and duplex.

Vehicular access and parking are essential considerations in any residential neighbourhood. However, prominent front and attached garages can be a major obstacle to social interaction between people in private yards and people using public streets. The concept focuses on and encourages non-vehicular traffic (pedestrians, cyclists, in-line skaters, etc.) while providing for safe vehicular movement and parking. Within the ASP area, laned systems will have rear garages only. In laneless systems, some residential development will allow vehicular drive-through access to a rear garage or parking area.

Front garages will also be permitted in the laneless system but will not be prominent. Garages will be incorporated into the front of the dwelling in such a manner as to minimize their influence on the streetscape (e.g., in some districts, the front attached garage cannot protrude more than 2.5 m beyond the front of the porch, veranda or stoop). This and the use of front porches on all dwelling units, are ways of encouraging socializing. *Where appropriate, housing along collector roads will be oriented to address the street through the use of rear lanes.*

Bylaw C-797-11, November 14, 2011

Site specific amendments to the Land Use Bylaw were created to provide new residential districts for Spruce Village. Pioneer Lands will also use these districts in which:

- lot widths and depths are reduced for single and semi-detached uses;
- front yard setbacks are reduced to bring the dwelling units closer to the street;
- side yards are modified to allow vehicular access to rear garages on narrower lots.

The Area Structure Plan, when fully developed, is projected to provide approximately:

Bylaw C-1278-23, May 13, 2024

- *3,507 Low to Medium Density Units;*
- *950 Medium to High Density Residential Units;*

for a projected population of *12,895* residents.

5.3.2 Commercial, Retail, & Office Park

The ASP accommodates a hierarchy of commercial, retail and office park opportunities.

These uses create the opportunity to accommodate City and local development, capitalizing on the location and access attributes of the ASP.

The neighbourhood commercial sites will serve the local residential areas in Pioneer, providing lower order, convenience uses.

Exposure to Century Road will allow arterial oriented retail/commercial to occur, attractive to district and regional level markets.

Bylaw C-1185-22, August 22, 2022

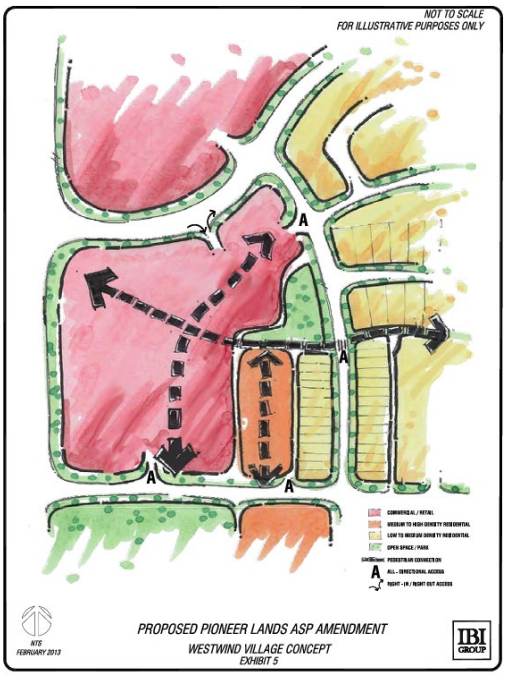
A 0.8 ha neighbourhood commercial site is located centrally in the neighbourhood to better serve the long-term local commercial needs of the area.

5.3.3 Westwind

Bylaw C-797-11, November 14, 2011

Westwind is a regional destination point for consumers and to provide local residents convenient access to a variety of commercial/business uses including a four (4) hectare urban village node that provides a focal point of interest and entry feature. Westwind will accommodate a horizontal mix of retail and residential uses, and the intensity of commercial development is expected to increase from east to west for potential uses that include vehicle sales, offices, hotels restaurants, financial services, retail stores, etc. (see Concept Plan: Westwind Village).

Bylaw C-837-13, March 25, 2013



Concept Plan: Westwind Village

Bylaw C-837-13, March 25, 2013

The Westwind Village Traffic Impact Assessment and determined that the north commercial site access is limited to right-in/right-out with the addition of an all-directional access to the east onto the adjacent collector roadway. (TIA - Bunt Engineering)

Bylaw C-797-11, November 14, 2011

Westwind Village connects to the community walkway system and is integrated with the surrounding residential community through use of visually interesting streetscapes and stormwater management facilities that provide an open space amenity. Additionally, a central park creating a natural focal point and meeting place for residents of the area. This area may have opportunity to retain some of the existing trees, and additional studies to determine the feasibility of retaining trees will be carried out in later planning stages.

Bylaw C-797-11, November 14, 2011

This mixed-use area intends a pedestrian scale street presence for units fronting on to Vanderbilt Common and the north/south collector road. The streetscape will be enhanced through application of a unifying theme and implementation of architectural design guidelines. The specific size, shape, and orientation of residential uses will be determined at zoning and development permit through discussions with City staff.

Bylaw C-797-11, November 14, 2011

Architectural guidelines will provide a unifying theme through establishment of standards for landscape, architecture, signage, and accessibility to establish the area as an attractive and desirable place to work, live and play.

Bylaw C-797-11, November 14, 2011

The following table lists urban design concepts and how they will be applied to Gateway Lands.

Urban Village Design Guidelines

Concept	***Guidelines***	***Application within Gateway***
1. Connectivity *Bylaw C-837-13, March 25, 2013*	*1.1 Provide convenient links for pedestrians, cyclists, motorists, and transit users between neighbourhood focal points and amenities.*	*1.1.1 Provide accesses around the perimeter of the urban village with clear distinction between internal roads and walkways.* *1.1.2 Provide several opportunities for pedestrian and vehicular access to the site at regular intervals from the surrounding roadways.* *1.1.3 Provide connections from the community and to/from neighbourhood amenities and focal points with greenways, multi-use trails, or sidewalks.*
2. Integration *Bylaw C-837-13, March 25, 2013*	*2.1 Integrate the internal uses in a complementary fashion.*	*2.1.1 Connections between residential and commercial uses will be accommodated through marked pedestrian crossings.* *2.1.2 Orient buildings to maximize active use of the public spaces, such as*

		locating outdoor patios for restaurants and cafes near main thoroughfares.
Bylaw C-837-13, March 25, 2013	*2.2 Integrate commercial and residential uses with the surrounding community.*	*2.2.1 The surrounding community will have strong multi-use trail linkages and greenways providing attractive and convenient links between neighbourhood amenities and focal points.* *2.2.2 Incorporate 360 degree facades for retail where access is provided from internal parking areas and buildings address the public street.* *2.2.3 Opportunities for "reverse housing" where houses front onto greenways will be explored at more detailed levels of planning.* *2.2.4 Multi-use linkages are provided through linear ponds, linear greenways, and in some cases along major street linkages to connect neighbourhood amenities, such as, the Westwind commercial area, Westwind Village, Jubilee Park, future potential school sites, and open space opportunities.*
3. Sense of Place *Bylaw C-837-13, March 25, 2013*	*3.1 Use appropriate signage to clearly identify uses within Westwind Village.*	*3.1.1 Integrate signage into the architecture of buildings.* *3.1.2 Use signage that is clearly visible at pedestrian and vehicular scale.* *3.1.3 Place signage perpendicular to shop fronts at a pedestrian scale.*

		3.1.4 Avoid visual clutter from signs. *3.1.5 Use entry features to give names to areas.*
Bylaw C-837-13, March 25, 2013	*3.2 Apply a unique architectural theme for Westwind Village to enhance a sense of place.*	*3.2.1 An architectural and landscape theme for Westwind Village will be described and implemented through architectural design guidelines.* *3.2.2 Landmarks shall be located at strategic points on the site to enhance local place making.*
4. Arrangement of Internal Uses *Bylaw C-837-13, March 25, 2013*	*4.1 Reduce the impacts of incompatible uses.*	*4.1.1 Arrange and buffer residential areas and public gathering spaces from high traffic areas and incompatible uses to reduce the impact of noise and visual irritants.* *4.1.2 Orient commercial loading zones away from residential uses, outdoor patios and public open spaces.* *4.1.3 Use landscape and fencing to screen waste disposal and storage areas from sight lines of residential areas and pedestrian walkways.* *4.1.4 Use buffers or specialized technical applications, such as, double glazed windows to reduce noise levels where optimal layout of noise sources cannot be achieved.* *4.1.5 In integrated land use developments, residential and commercial uses will be separated by internal*

		circulation systems and/or landscape features. *4.1.6 Separate parking areas and accesses for residential and/or commercial uses will be provided.* *4.1.7 Where applicable, arrange residential uses to back on to the north collector road, which will accommodate high levels of commercial and neighbourhood traffic.*
5. Parking	*5.1 Parking areas are designed to be efficient, unobtrusive and complementary to surrounding uses.*	*5.1.1 Commercial and residential uses will have separate parking areas.* *5.1.2 Commercial and residential uses will have separate accesses to parking areas.* *5.1.3 Designated pedestrian links from parking areas to residential or commercial buildings will be provided.* *5.1.4 Parking lot promenades will be strategically located and enhanced with landscaping to provide convenient links to commercial uses.*
6. Streetscape	*6.1 Arrange buildings to provide an attractive and secure urban environment for pedestrians.*	*6.1.1 Where appropriate, orient buildings to front onto the collector and local roads.* *6.1.2 Provide higher density street- oriented residential product along the collector roads with vehicle access from back lanes.* *6.1.3 Plan for higher density residential within*

		and adjacent Westwind Village. *6.1.4 Explore options for innovative housing and architecture to provide visual interest to pedestrians and motorists.* *6.1.5 Provide ground floor facades that are rich in detail and provide interest for pedestrians.* *6.1.6 Provide a variety of facades for residential units fronting onto the street.* *6.1.7 Arrange landscaping in an attractive and complementary manner.* *6.1.8 Provide outdoor seating where appropriate.* *6.1.9 Provide adequate lighting using efficient technologies to illuminate dark areas creating an inviting atmosphere.* *6.1.10 Clearly identify primary entrances through the use of canopies, awnings, porches, architectural features, display windows, signage, planters and other design features.* *6.1.11 Design entrances to be well-lit at night with clear address numbering.*
7. Sustainability	*7.1 Encourage a sustainable and environmentally friendly community through the use of environmentally friendly technologies and sustainable design.*	*7.1.1 Explore the use of environmentally friendly technologies for lighting, construction materials, landscaping, water usage, and stormwater drainage.* *7.1.2 Where possible, orient buildings and windows to*

		take advantage of winter sun and summer shade through passive solar design. *7.1.3 Design buildings with flexibility to change uses adapting to market trends.* *7.1.4 Provide a range of services and residential forms to accommodate different age groups and allow for residents to remain in Pioneer Lands throughout different stages of their life cycle.* *7.1.5 Minimize waste during construction activities.* *7.1.6 Incorporate existing vegetation into site design.*

5.3.4 Noise Attenuation

A Noise Impact Assessment was conducted by ACI Acoustical Consultants Inc. The recommendations for noise abatement will be implemented at time of development, including berms and fence at the residential property lines along Highway 16 as noted in **Exhibit 4**. *The berm and fence ends at the commercial area; however, it is extended southward along the east boundary to mitigate differences in grade and provide screening for the residential lots backing onto this area.*

Bylaw C-797-11, November 14, 2011

Bylaw C-1185-22, August 22, 2022

5.3.5 Open Space & Schools

The Separate and Public School Boards anticipate no need for future school sites within this ASP, however two park sites large enough to accommodate a school are provided in the event schools are needed in the future. An existing school/park site with recreation fields is located to the southwest of the ASP across Grove Drive.

The open space needs of Pioneer Lands residents will be satisfied through a hierarchy of open space arranged in a linear, connected manner. The major elements include:

- a district park called Jubilee Park, abuts the ASP area and will eventually be developed by the City at the western edge of the Plan area. The ASP provides major linkages to Jubilee Park;
- community parks in the north part and the south part of the ASP are planned as “focal” points for the ASP, accessible by walkways and roads. These parks are also large enough to accommodate schools, if deemed necessary in the future;
- dispersed neighbourhood parks and linear greenways are provided to increase social interactions and encourage non-vehicular travel. The parks will be developed as either informal, active, or passive recreational spaces. *The municipal reserve required for the parks in Westwind (approx. 0.89 ha) is included in the overall reserve dedication as this area had previously provided reserves in its original subdivision.*

Bylaw C-797-11, November 14, 2011

- linear stormwater management facilities will be integrated with the adjoining open space areas.

The open spaces proposed are consistent with the City of Spruce Grove Parks and Open Space Master Plan, which defines seven categories of open space. The open space categories planned to be included in the Pioneer Lands fall under categories ‘C’, ‘D’ and ‘E’.

Type C parks include parks, gardens, and civic spaces serving social, aesthetic and informal recreation purposes.

Type D parks include outdoor sports and recreation facilities. This could also include school sites.

Type E parks are classified as linear systems, green corridors, paths, and streets.

The types of parks in the Pioneer Lands ASP are identified in **Exhibit 6 - Transportation, Parks, & Open Space**.

5.3.6 Transportation System

The Area Structure Plan lands are located within 0.5 km of Highway 16, a road identified in the "Working Together Report" prepared for the Capital Region Board. No changes are planned for Highway 16 to 2016 (Ten Year Roads/Highways Improvement Plan), but by 2041 this highway will be upgraded to six lanes (Next 35 Years Roads/Highways Improvement Plan).

A network of roads, trails and sidewalks combine to move people, private vehicles and transit. The major access points are arterial roads:

- Grove Drive from the west;
- Pioneer Road from the south;
- Century Road from the west.

Collector roads will loop through the components providing transit and private vehicles effective and efficient access to the arterial system. Traffic calming measures will be implemented to control and direct traffic to major roadways.

A TIA was completed for the Pioneer Lands by IBI Group in December 2007.

PM peak hour traffic forecasts have been developed utilizing proposed land use development and the Institute of Traffic Engineers trip rates. Estimates for 2006 traffic were obtained from Alberta Infrastructure and Transportation's website, as well as other sources provided by the City's consultant. These forecasts were grown to the forecast years, 2016 and 2026 at 2.0% per annum.

As part of this analysis, it was assumed that the lands south of the subject site to Highway 16A would also be developed sometime over this period. Accordingly, traffic forecasts were prepared for the subject lands with and without the south lands being developed.

A level of service analysis for at grade intersections on Century Road, Highway 16 and Highway 16A adjacent to the subject lands, was undertaken for the PM peak hour. Also, all day traffic forecasts were prepared for various stages of development, to assist in determining roadway lanes and classification. Based on this information, the following roadway improvements are proposed to accommodate various levels of development by time period:

- Highway 16/Century Road – additional westbound to southbound left turn lane by 2016 to accommodate Background and Pioneer Site traffic, and associated interchange improvements.
- Highway 16A/Century Road – additional left turn lanes by 2016 to accommodate Background traffic, then additional east/west lanes from 6 lanes to 8 lanes by 2026 to accommodate Background plus full Site Development (Pioneer and South Lands).
- Century Road – expansion of roadway from 2 lanes to 4 lanes by 2016 to accommodate Background traffic.
- Vanderbilt Common – signalization and turn lanes in conjunction with 100 dwelling units in the Pioneer site (expected by 2009).
- Grove Meadows – no improvements required.

- McLeod Avenue – no improvements required.
- Central Collector – signalization and turn lanes required to accommodate 2026 Background plus Site traffic.
- Pioneer Road - signalization and turn lanes required to accommodate 2026 Background plus Site traffic.

Transit service should be provided for on all the collector and arterial roadways listed above.

Bylaw C-745-10, June 28, 2010

The east collector road entrance to Grove Drive includes an entry feature that connects to the Jubilee Park pedestrian greenway and also include a modified bioswale for neighbourhood stormwater management.

Bylaw C-797-11, November 14, 2011

A major collector road, with additional width for turn-bays to access the Westwind commercial lands, connects Century Road to Pioneer Drive and a north-south collector road connects this major collector road to Spruce Village and Vanderbilt Common.

Bylaw C-797-11, November 14, 2011

All-directional access from the Westwind commercial area to Century Road was identified by Alberta Infrastructure as requiring the following:

- *Prior to the commercial access being opened to traffic, construct a double left turn exit ramp from Highway 16 westbound onto the Century Road interchange, including an additional southbound lane on the interchange structure. Dedicate all right-of-way necessary for the ultimate interchange improvements, and complete a design of the ultimate interchange to the department's satisfaction.*
- *Complete the following prior to development in the Pioneer Lands ASP reaching 85% of desired build-out densities, including the commercial:*
    - *Construct a double loop ramp in the northwest quadrant of Highway 16/Century Road interchange;*
    - *Widen the interchange structure to provide two lanes northbound, offset left turn lanes, and four lanes southbound;*
    - *Reconstruct northbound to westbound Highway 16 on-ramp;*
    - *Reconstruct northbound to eastbound off-ramp to triple lane ramp, including all necessary lane changes and tapers onto and off of Highway 16;*
    - *Interchange improvements further to the ultimate interchange design noted above.*

Bylaw C-932-15, September 26, 2016

In accordance with the Transportation Master Plan, Grove Drive will not continue eastward into Parkland County, and it is redesignated from an arterial to collector road standard east of Pioneer Road. Grove Drive terminates at the intersection of the eastern collector road in Prescott that connects southward with the East Pioneer Area Structure Plan's road network.

TRANSIT STATION

Bylaw C-797-11, November 14, 2011

Bylaw C-1062-18, April 23, 2019

An approximate two (2) acre transit station, with park-and-ride area to serve the regional transit system with links to Edmonton and Stony Plain, is located on the eastern edge of the Westwind commercial area.

PEDESTRIAN TRAILS

Trails incorporated in the linear park and stormwater management system will provide a significant pedestrian/bicycle circulation opportunity. The majority of these will be located in an amenity rich environment. *A walkability plan should be prepared at the subdivision level of planning to indicate the types of sidewalks, important pedestrian connections and opportunities for alternate road cross sections, such as, sidewalks on one side of the road or enhanced pedestrian corridors.*

Bylaw C-932-15, September 26, 2016

Pedestrian links along roads will be along boulevard separated sidewalks so that all streets become part of the walkway system. This separation not only increases pedestrian safety, but with appropriate tree planting creates an attractive streetscape. Additional pedestrian links will be provided, where required, to improve access to open space and other destination areas.

Bylaw C-1185-22, August 22, 2022

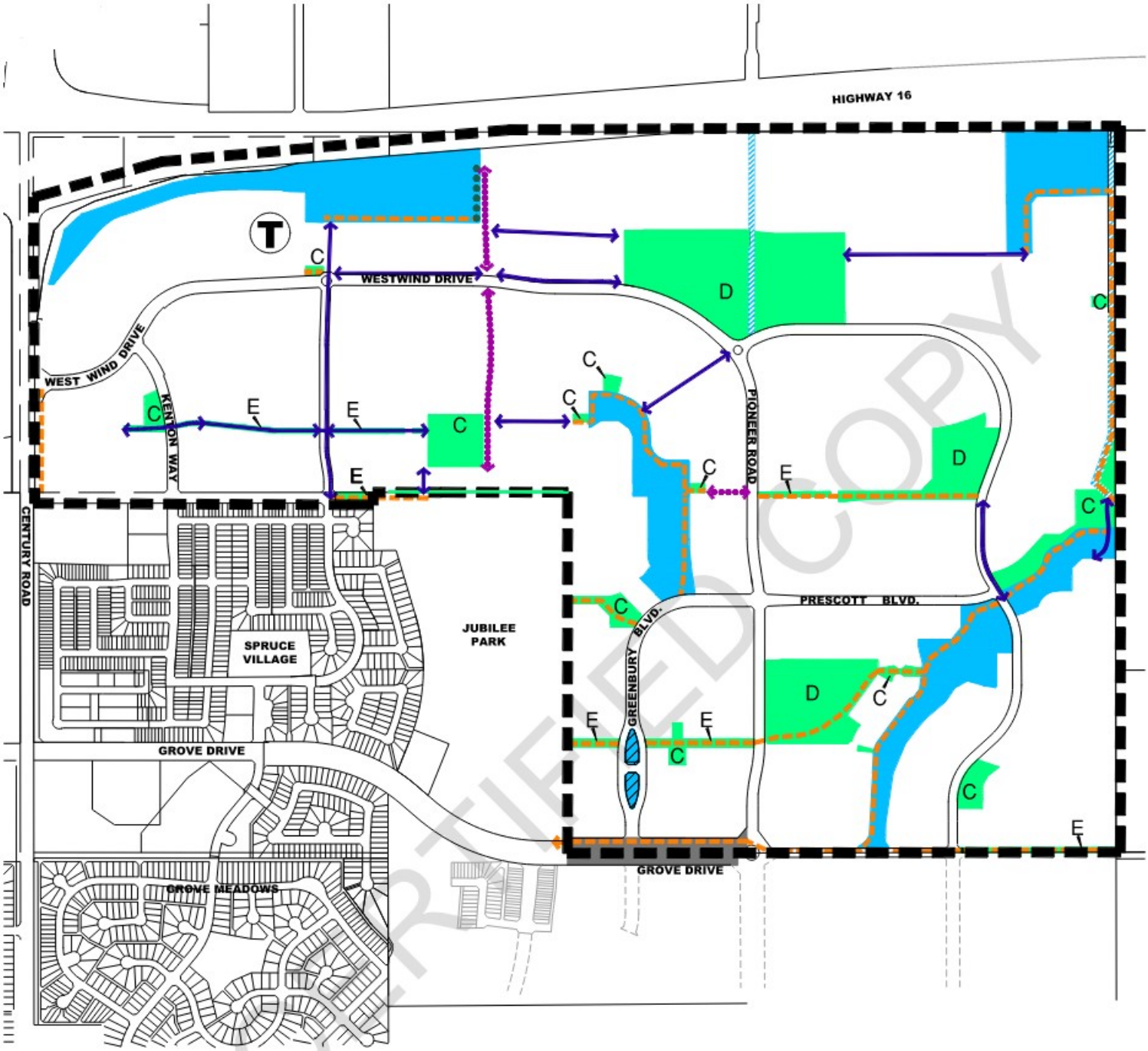
Changes have been made to the pedestrian network as a result of the reconfiguration of the Westwind residential areas and the interface between residential development, the civic centre, and the north stormwater management facility. A multi-use trail connection that was previously proposed within a public utility lot (PUL) has been replaced with a short on-street key pedestrian linkage and an east-west multi-use trail within the proposed Municipal Reserve parcel. Pedestrian circulation is directed south within the road right of way of the low-density area (in the form of a sidewalk connection) and then west along the multi-use trail through the proposed Municipal Reserve parcel. The multi-use trail along the south perimeter of the SWMF has been re-oriented to align with the reconfiguration of the pond design. An additional key pedestrian linkage has been identified along Westwind Drive identifying this segment as a key corridor for pedestrian circulation in the plan area.

Bylaw C-1185-23, March 11, 2024

The pedestrian connection between the centrally located park has been shifted to reflect the location of an existing storm water management facility pipe. The original depiction of this connection was conceptual to maintain the intention that a connection between these two parks will be provided at the time of development. The new location of the pedestrian connect minimizes the impacts of providing the pedestrian connection (i.e. tree removal, SWMF pipe extension, construction workspace).

The combination of sidewalks and pathways will link the open space opportunities and features.

A transportation and open space plan is presented in **Exhibit 6.**



LEGEND

- C — Parks, Gardens, and Civic Spaces
- D — Outdoor Sports and Recreation Facilities - This Could Include School Sites
- E — Linear Systems, Green Corridors, Paths, and Streets.
- ASP Boundary
- Collector Road
- Arterial Road
- Multi-Use Trail
- Enhanced Pedestrian Linkage
- Key Pedestrian Connection
- Storm Management Facility/PUL
- Park/Open Space
- Median PUL
- Public Utility Lot (PUL)
- Transit Station
- Storm Management Facility Street Frontage

ALL AREAS AND DIMENSIONS HAVE BEEN ROUNDED; LOT INFORMATION IS PRELIMINARY AND SUBJECT TO CHANGE, AND SHOULD BE CONFIRMED WITH A REGISTERED PLAN.

PIONEER LANDS AREA STRUCTURE PLAN

Exhibit 6 - Transportation and Open Space Plan

DATE: December 27, 2023

SCALE: NTS

6.0 Servicing

The servicing concepts are graphically presented in **Exhibit 7**.

6.1 Water Supply & Distribution

The City has adequate treated water available to accommodate the ASP area.

6.2 Sanitary Sewage Collection

Sanitary sewage for the plan area will be directed to the Capital Region sanitary trunk sewer located north of Highway 16. These flows will be directed to the trunk sewer via conventional gravity sewer piped systems. A drainage assessment will be submitted in parallel with the Area Structure Plan circulation to determine the remaining capacity of the 525 mm sewer located in the northwest corner of the plan area which was intended to service a component of the plan area. Flows in excess of the capacity of this connection will be directed via a future second connection to the Regional Sewer. The mandate of the regional sewer commission is to provide sanitary servicing necessary to develop all lands within the service area.

Bylaw C-797-11, November 14, 2011

The direction of sanitary flow in Gateway Lands will be split with one sanitary trunk extending west in the major collector road and out-letting to the north, and a second sanitary trunk going east to connect to a major sanitary trunk that goes north in the old Pioneer Road government road allowance within a designated public utility lot.

6.3 Stormwater Drainage

The stormwater facilities will accommodate a 100 year storm event. The drainage swales, pipes and detention area form integral components of the overall stormwater management concept. The drainage swales will accommodate overland flows in the ASP to catch basins connected to the piped stormwater system.

The linear nature of the stormwater management system offer two significant opportunities:

Editor's Note

- to minimize the use of piping by incorporating bioswales (definition *Section 6.3.2*) and linear wetlands;
- to maximize the open space in the ASP by incorporating the bioswales and wetlands with the parks and multi-use trails.

Planning for alternative stormwater management techniques in the initial stages of land development can yield significant cost and environmental benefits for developers, municipalities, and residents. Stormwater management systems can simultaneously satisfy regulatory requirements, act as site design elements, protect the environment, and reduce infrastructure costs - all the attributes of minimizing the impact of development.

Bylaw C-797-11, November 14, 2011

The linear storm pond in the northwest corner is configured to run along the north boundary of the neighbourhood for providing an amenity space with a multi-use trail extending along the Westwind area and linking to the internal commercial area walkway system and the

Century Road walkway. The details of the stormwater management system will be included in the Stormwater Management Plan.

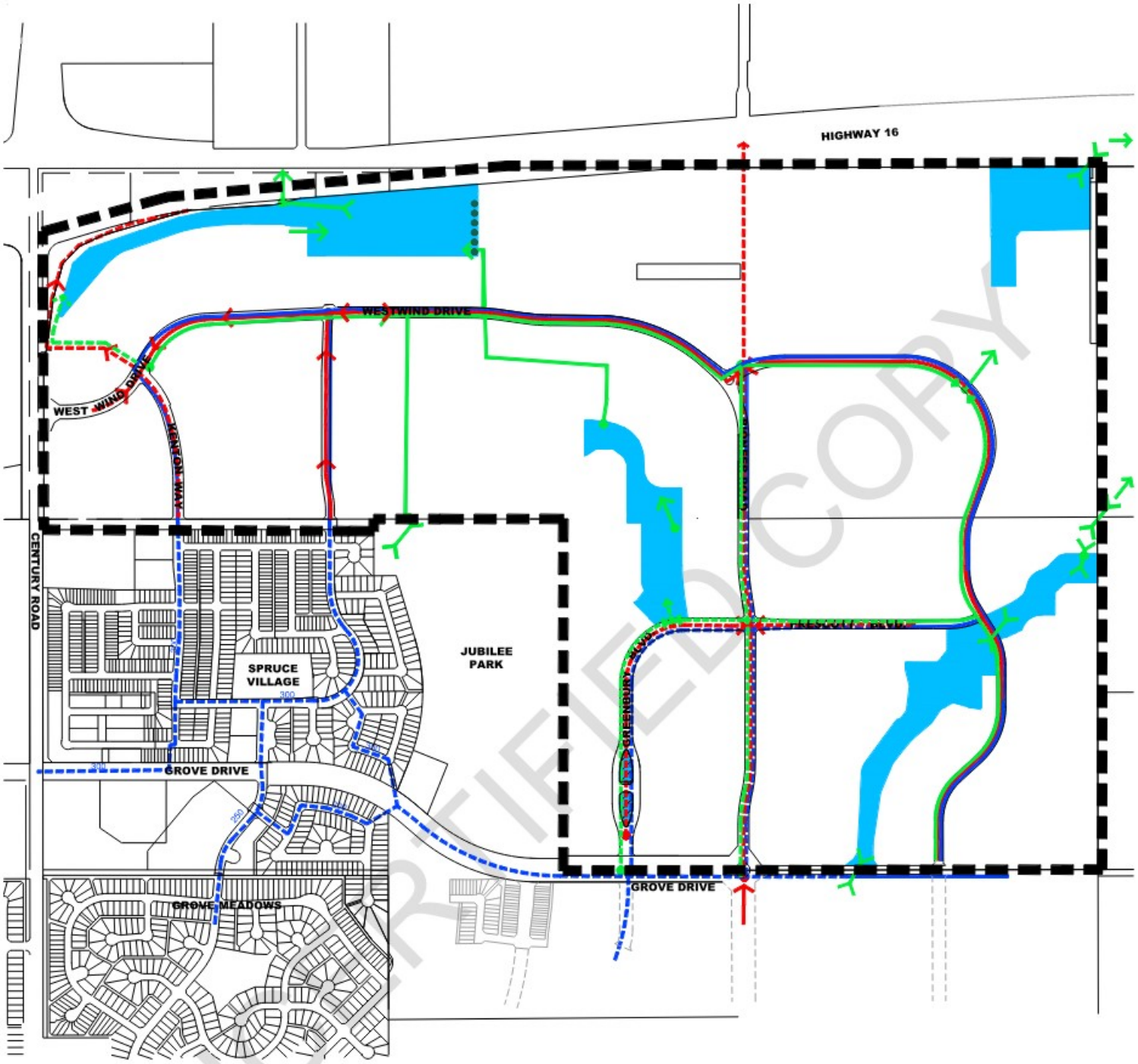
Bylaw C-932-15, September 26, 2016

The City of Spruce Grove is in the process of obtaining approvals from Alberta Environment and Sustainable Resource Development for the mitigation of the existing wetlands south of Highway 16. No claim to the bed and shore was made under the Public Lands Act.

Bylaw C-932-15, September 26, 2016

The stormwater management ponds within Greenbury and Prescott are reconfigured and reduced in size. The existing unnamed creek in the southeast portion of the plan area will be integrated into the stormwater management facility, which will be designed to control runoff from the area and allow flow through runoff from upstream catchments.

One concept is to implement alternate conveyance systems to slow the erosive velocity of stormwater, increase time of concentrating, and filter pollutants such as sediment. Another initiative is to reduce the quantity of stormwater runoff to reduce the amount of impairment on the quality of water. This can be achieved through the installation of various infiltration systems which encourage the downward movement of water into the underlying soil to reduce the total quantity of overland runoff and pollutants from impervious surfaces. The following paragraphs provide some techniques in alternate conveyance systems and infiltration systems that may be implemented in this ASP.



LEGEND

- Existing Water Pipe (>300mm)
- Proposed Water Pipe (>300mm)
- Existing Sanitary Sewer
- Proposed Sanitary Sewer
- Existing Surface Drainage Course
- Proposed Storm Connection
- Propsed Storm Sewer
- Existing Storm Sewer
- ASP Boundary
- Storm Management Facility
- Median PUL
- Public Utility Lot (PUL)

PIONEER LANDS AREA STRUCTURE PLAN

Exhibit 7 - Servicing Concept

DATE: December 27, 2023

SCALE: NTS

6.3.1 Vegetated Channels / Bioswales

Vegetated channel systems and bioswales are alternatives for conveying water away from streets, downspouts, and structures. They are low-cost alternatives to conventional conveyance systems, such as curbs or concrete channels. These alternatives reduce storm water velocities and allow sediment and pollutants contained within storm water to be filtered.

In residential settings, swales are an effective way to convey water to bioretention areas sited a short distance away from structures and foundations. When used in conjunction with bioretention areas, swales function as pre-treatment mechanisms that filter sediments from storm water.

Wet swale systems are variants of dry swales and function similarly to a wetlands system. Slightly more expensive to construct than a vegetated channel or dry swale, wet swales are designed with a permanent pool structure and planted with wetlands vegetation for pollutant treatment.

6.3.2 Bioretention

Bioretention areas are shallow, topographic depressions filled with engineered soils and vegetation that retain, treat, and infiltrate water. Bioretention systems are designed for the temporary storage of rainwater. They successfully remove pollutants through increased contact time with soils and plant materials. As compared with conventional storm water management systems, bioretention areas more closely mimic the natural hydrologic cycle, allowing soils and plants to filter pollutants from storm water and permitting the processes of infiltration, evaporation, and transpiration to occur. The systems can also create wildlife habitat, minimize erosion, and recharge local groundwater supplies.

For residential applications, treatment areas are generally located some distance away from houses to increase flow paths and treat runoff from rooftops and driveways. In either case, bioretention systems route storm water to bioretention areas that are designed to accumulate water. In the event that storm water volumes exceed treatment capacities, bioretention areas are usually equipped with overflow drop inlets routed to municipal storm water systems.

6.3.3 Filter Strips

Filter strips are low-grade vegetated areas that permit sediment deposition during sheetflow. Usually used as one component of a storm water management system, filter strips are considered pre-treatment devices, meaning that water is routed through them before entering systems such as bioretention areas.

6.3.4 Wetlands

Constructed wetlands systems use soils, vegetation, and hydrology to remove pollutants from storm water. The systems are effective in attenuating flood flows, reducing pollutant loadings, and providing wildlife habitat. From a community design

standpoint, wetlands systems can create open space, offer improved aesthetics over traditional treatment systems, and provide recreational and educational opportunities.

Similar to their natural counterparts, constructed wetlands types can vary from seasonally inundated to year-round, open-water systems. To optimize pollutant removal capacities, engineers usually aim to maximize flow paths through wetlands systems to prolong exposure to soils and vegetation, thereby facilitating nutrient and pollutant uptake, retention, and settling.

6.3.5 Rain Barrels

Rain barrels are low-cost retention devices placed below roof downspouts to collect water during storms. Although rain barrels offer no primary pollutant removal benefits during collection times, they act as quantity controls and can help reduce the cumulative effects of storm water on downstream systems.

7.0 Staging

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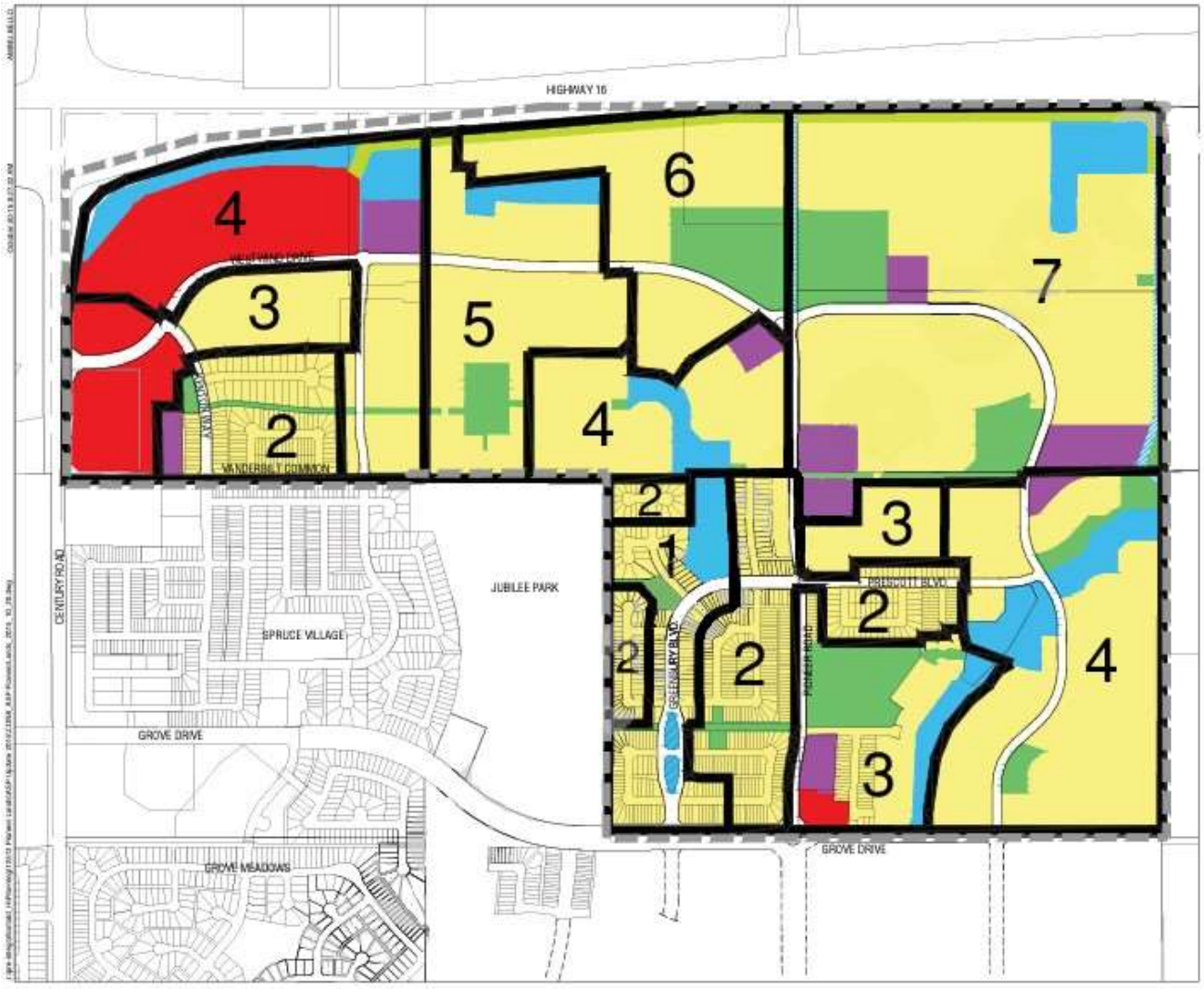
The proposed staging of the amendment area is presented as **Exhibit 8**.



LEGEND

- Phase Boundary
- ASP Boundary
- 1 Phase Number

PIONEER LANDS AREA STRUCTURE PLAN AMENDMENT

Phasing Plan

Exhibit 7

DATE: October 20, 2015

SCALE: NTS

8.0 Sustainability

The development of the Pioneer Lands ASP will strive to achieve a high level of sustainability.

Development will occur in a manner that is increasingly sustainable and sensitive to the environment through use of design techniques and alternate technologies that are more environmentally intelligent. In order to implement a development of this ecological nature, consideration of servicing techniques, and infrastructure provision in general may be necessary in consultation with the City Engineer. The approach to neighbourhood design in Pioneer is proposed to achieve a higher environmental standard, and, in doing so, requires cooperation and flexibility between City Departments, Utility Agencies and the proponents of this plan in order to achieve this unique design.

Along with the LEED neighbourhood design guidelines listed in Section 3.4, the following principles provide a guideline for sustainability.

- consider the three foundations of sustainability: economy, society and environment in decision making regarding land use and building form.
- balance development and environmental protection by maintaining a vibrant residential community that demonstrates caring stewardship of the environment.
- preserve and enhance environmental resources including watershed, air quality and natural areas.
- ensure a compact, integrated urban form that responsibly uses the land resource.
- maximize the benefits gained from the land resource by having the land accommodate numerous functions where possible.
- ensure sustainable and cost effective landscape development of the open space areas over the long term with the use of native plant species and the added benefit of the re-establishment of natural habitat.
- consider ways to lower consumption and demand in the development of infrastructure for the neighbourhood on all applicable resources, both inputs and outputs.
- provide flexibility for the introduction of new technologies, as they emerge over time, especially with respect to energy inputs and waste outputs.
- consider natural drainage techniques as an alternative to conventional stormwater
- management collection.
- where stormwater is collected and discharged, provide bio-filtration to filter stormwater prior to discharge.
- where it is desirable to encourage groundwater recharge, provide pervious surfaces as much as possible.

The following are specific initiatives that could add to sustainability in the Pioneer Lands ASP.

8.1 Land Use

The following are land use initiatives embedded in the ASP:

- increased densities for residential development;
- preservation of natural areas through incorporation in the stormwater management system and the use of Municipal Reserve provisions.
- The following are initiatives that are encouraged by this ASP and may be pursued at the building stage.
- provide orientation to enhance opportunities for solar power;
- encourage the Urban Village as a focus for such initiatives as district geothermal and other innovations if practical.

8.2 Sanitary System

The following are initiatives that are encouraged by this ASP and may be pursued at the building stage.

- encourage grey water reuse in accordance with the Health Canada Guidelines. Grey water is any water that has been used in the home, except water from toilets. Dish, shower, sink, and laundry water comprise 50-80% of residential "waste" water. This may be reused for other purposes, especially landscape irrigation;
- specify builder to install low flush toilets and low flow showerheads;
- encourage heat recovery from plumbing down spouts;
- encourage front load washers.

8.3 Stormwater System

The following are initiatives embedded in the ASP

- Use of bioswales and linear stormwater management facilities. The following are initiatives to be pursued outside the ASP at a later stage of development;
- rain barrels for every residence to capture water for gardening/domestic use;
- site storage via cistern for larger developments for landscape/domestic reuse.

8.4 Landscape

The following practices will be implemented to respond to smart-green growth challenges:

- maximizing permeable surfaces in park and trails;
- maximizing the use of natural landscape materials.

8.5 Streets

The following opportunities will be pursued with the City:

- incorporate recycled materials into roadwork and trails e.g. crushed concrete, recycled asphalt, etc.;
- determine the most efficient and convenient locations for sidewalks in the context of the total pedestrian system in accordance with City standards to ensure pedestrian connectivity;
- the use of multi-use trails to encourage walking/cycling within the ASP and to other adjacent areas.

8.6 Construction

The following initiatives will be implemented:

- construction waste management to minimize waste and maximize recycling;
- use of "Build Green" builders;
- requiring high efficiency furnaces R 2000 construction and other energy-wise initiatives.

8.7 Public Education

Pursue public education for the construction industry and the general public on the value of smart-green development.