Saline Creek Plateau
Area Structure Plan

Prepared for the

REGIONAL MUNICIPALITY OF WOOD BUFFALO

by

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Saline Creek Plateau
Area Structure Plan Amendment

by

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1.0 INTRODUCTION

Amendment (Bylaw No. 12/028): The proposed Area Structure Plan Amendment is prepared by IBI Group on behalf of Keyano College and the Rotary Club of Fort McMurray.

1.1 Purpose

The Saline Creek Plateau Area Structure Plan is a general planning framework that facilitates the orderly and efficient development of the Plan area by setting out the major land uses (residential, commercial, institutional and mixed use), population densities, transportation networks, infrastructure, parks, school sites, and greenways. Maps in this Area Structure Plan are conceptual and provide general descriptions and approximate locations of proposed future land uses. The specific locations and designs of these land uses are further refined at a more detailed Outline Plan stage to ensure implementation of the prescribed planning principles and objectives stated in this Area Structure Plan.

The specific objectives of the Saline Creek Plateau Area Structure Plan are to:

- Develop a general outline for the layout of residential development.
- Determine environmental/geotechnical constraints to development.
- Review servicing constraints and the cost of mitigating those constraints.
- Integrate land use with existing and future transportation, servicing and other infrastructure.
- Work cooperatively with Keyano College to develop integrated strategies and policies for future development.
- Assess the impact of development on parks and recreation.
- Identify significant environmental features for protection / preservation and to minimize impacts on terrestrial and aquatic habitats.
- Identify significant historical and archaeological resources for protection.

Added as per June, 2012 Saline Creek Plateau Area Structure Plan Amendment (Bylaw No. 12/028)

The purpose of the Saline Creek Plateau Area Structure Plan Amendment is to alter the land use configuration and transportation network in the Saline Creek Plateau Area Structure Plan (Bylaw 07/58) without compromising the vision, objectives, goals, and the planning principles of the plan. This amendment is proposed in response to the servicing and transportation networking constraints of the area.

This amendment includes:

- Reconfiguration of the land uses within the Area Structure Plan boundaries to address transportation and servicing constraints in the plan area;
- Change in densities of the residential land uses in the plan area as a result of transportation and servicing constraints in the area;
- Revised transportation network plan providing enhanced connectivity between the future neighbourhoods, village centre, and public amenities within the plan area as well as with the surrounding region;
- The addition of a transit hub, so that public transit becomes a convenient mode of transportation;
- Revised servicing plans to reflect the changes to the Development Concept;
- Revised Land Use and Population Statistics; and,
- Revised Staging Plan for the development in the plan area.

1.2 Vision for a Sustainable Community

The Saline Creek Plateau Area Structure Plan provides a unique opportunity to plan and develop a complete, mixed-use community that incorporates sustainable development principles. Sustainable development is defined as development that "*meets the needs of the present without compromising the ability of future generations to meet their own needs*." (United Nations Brundtland Commission, 1987).

Sustainable communities enhance liveability and sense of place through neighbourhood design. They incorporate a site's natural assets; make efficient use of land by promoting higher density development and alternative modes of transportation; and provide a range of housing choice, recreation, education and social opportunities for residents.

To ensure that sustainable development principles were incorporated into the development of the Saline Creek Plateau Area Structure Plan, a Sustainable Design Charette was held early in the planning process. The eleven planning principles and supporting objectives arising from the Design Charette are discussed in Section 4.1 of this Area Structure Plan.

1.3 Enabling Legislation

The Saline Creek Plateau Area Structure Plan has been prepared in accordance with Sections 633 of the *Municipal Government Act* (MGA) (Revised Statutes of Alberta, 2000, Chapter M-26). The Act enables municipalities to adopt area structure plans to provide a framework for future subdivision and development of an area. The MGA stipulates the following:

- An area structure plan must describe the sequence of development, land uses, population density and location of transportation routes and utilities proposed for the area.

- Property owners, businesses, interested members of the public and school boards must be given the opportunity to provide input in the planning process.
- An area structure plan must be adopted by bylaw, which requires a public hearing to be held on the proposed plan.
- An area structure plan must conform to a municipality's Municipal Development Plan.

The requirements of the MGA have been followed in the preparation of the Saline Creek Plateau Area Structure Plan.

1.4 Plan Area

Amendment (Bylaw No. 12/028): This amendment is not restricted to a particular area within the plan boundaries, but affects the entire plan area. The plan area consists of approximately 860 hectares (2,125 acres) of land.

As shown on *Map 1 – Plan Area*, it is bounded on the north and east by the Clearwater River valley, to the south by Highway 69 / Airport Road and by Saline Creek to the west. The Fort McMurray Municipal Airport is located approximately one (1) kilometre southeast of the Saline Creek Plateau Area Structure Plan area.

Figure 1-1: Site Photographs; west across Saline Creek, north across the Clearwater River, an existing cleared area

1.5 Land Disposition

Map 2 – Land Disposition and Map 14 - Ownership shows land leases and ownership within the Area Structure Plan area. It was prepared with information provided by Alberta Sustainable Resource Development. Keyano College owns a 209 hectare (516 acre) parcel of land and the Rotary Club of Fort McMurray leases 159 hectares (393 acres) from the Province. At the time of the development of this Plan, most of the remaining developable land within the Plan area is Crown Land. The Regional Municipality of Wood Buffalo owns a small land parcel at the northern tip of the Area Structure Plan area. There are a few privately owned parcels within the Area Structure Plan area located predominantly within the side slopes of the Clearwater River valley.

1.6 Community Consultation

Community consultation was an important part of the planning process. The following summarizes the consultation activities undertaken during preparation of the Area Structure Plan.

Stakeholder and Public Notification

In October 2005, a Project Backgrounder and Map of Plan Area were prepared describing the purpose, scope and timelines for the Saline Creek Plateau Area Structure Plan. This accompanied a letter mailed in October 2005 to various stakeholders and land owners notifying them of the project start. A news release was also issued in November 2005 to ensure broader community awareness of the Area Structure Plan.

Design Charette

A three-day Sustainable Design Charette was held on February 14-17, 2006 in Fort McMurray. The purpose was to establish principles for community and sustainable design and to arrive at a consensus for a recommended development concept for the Area Structure Plan. In addition to the Regional Municipality of Wood Buffalo staff and the consulting team, over thirty individuals participated in the Design Charette. They included professionals from a variety of architectural disciplines, representatives from the Province of Alberta, Canada Mortgage and Housing Corporation, Keyano College, local community business groups and land developers. A full list of participants and details on the Charette process and outcomes is contained in the *Saline Creek Plateau Sustainable Community Design Charette Report* (March 20, 2006).

Open Houses

Two Open Houses were held over the course of the ASP to share information and to solicit public feedback. The first was held on March 27, 2006 at City Hall to share information and invite comments on the outcomes of the Sustainable Design Charette. The second Open House was held over two days from February 27-28, 2007 at the Stonebridge Hotel in Fort McMurray. The purpose was to present the draft Area Structure Plan and to solicit feedback on the land use development concept. Over seventy people in total attended and gave

feedback on the elements of the draft Plan that they most supported and those they thought should be changed. Generally, positive comments were made on the Plan's walkability and livability, its mixture of uses, density, location of school sites and recreation centre, and the multiple uses of roads. The main area of concern related to the proposed development of the Saline Creek Parkway: its cost, geotechnical considerations and impact on the Waterways community. Other participants felt that more land was needed for commercial and industrial uses within the Plan area.

Public Hearing

A Public Hearing was held on April 24, 2007.

2.0 STATUTORY PLAN AND POLICY CONTEXT

There are several Plans and Bylaws that address subdivision and development policies in or adjacent to the Saline Creek Area Structure Plan area. They are summarized as follows:

2.1 Regional Municipality of Wood Buffalo Municipal Development Plan, Bylaw No. 11/027

Amendment (Bylaw No. 12/028): The Saline Creek Plateau Area Structure Plan is in compliance with the Municipal Development Plan's vision for the sustainable development which encourages efficient use of transportation network, efficient servicing, and minimized impact on natural environment.

The proposed amendment is in compliance with the following policies of the Municipal Development Plan:

- *Policy U.1.3 - Promote sustainable development in New Neighbourhoods*

  New neighbourhoods will help accommodate population growth that cannot be accommodated in the existing built-up area. These areas will offer a range of housing choices, encouraging higher average densities than existing neighbourhoods, a mix of uses, and compact form. New neighbourhoods will also offer a range of mobility choices and be developed in a manner consistent with transit oriented development (Principles), ensuring the integration between land uses and transportation.

- *Policy U.3 - Integrated Urban Green Space*

  Managing growth sustainably requires a balance between the accommodation of development needs and the provision of green space including parks, riverbanks, and natural areas. The geography of Fort McMurray, with its many rivers, streams, and wet soils, makes possible an abundance of urban green space as development in these areas is challenging. As the population increases so too should a system of green space to accommodate the need for passive and active recreation and leisure. An interconnected network of trails that link nodes of activity can encourage an ongoing exploration of urban activities and participation in urban life.

2.2 Highway 69/Clearwater River Valley Area Structure Plan, Bylaw 99/058

The Highway 69/Clearwater River Valley Area Structure Plan, adopted in 1999, includes the lands in the Saline Creek Plateau Area Structure Plan. The Highway 69 / Clearwater River Valley Area Structure Plan, however, covers a broader area - approximately 58 square kilometres - and extends east to beyond Saprae Creek Estates. In part, the Highway 69/Clearwater River Valley Area Structure Plan determines future land uses for the area, reviews environmental and geotechnical constraints to development, and assesses the impact of development on parks, schools and other community services.

Map 6 of the Highway 69/Clearwater River Valley Area Structure Plan outlines a conceptual land use framework for the Area Structure Plan area. Future urban residential uses, parks and recreation and environmental protection lands are identified for the Saline Creek Plateau. This Map notes that areas have been generalized. The Saline Creek Plateau Area Structure Plan updates and refines this generalized land use pattern and sets out in greater detail the future land use concept for the area. In the Highway 69/Clearwater River Valley Area Structure Plan, the need for a more detailed area structure plan is identified for the Keyano site to address future land use, densities, servicing and other development issues. The Saline Creek Plateau Area Structure Plan has been developed in cooperation with Keyano College to create integrated strategies and policies for future development on the College lands.

Amendments to the Highway 69/Clearwater River Valley Area Structure Plan will be necessary to remove the portion of land covered by the Saline Creek Plateau Area Structure Plan from the Highway 69/Clearwater River Valley Area Structure Plan.

2.3 Fort McMurray Mineable Oil Sands Integrated Resource Management Plan

The Fort McMurray Mineable Oil Sands Integrated Resource Management Plan is a draft proposal of the Province's resource management policy for public lands and resources in the area. The draft Plan released in October 2005 identifies the Fort McMurray Fringe Resource Management Area and acknowledges increased demand for land uses near Fort McMurray. The Plan also notes that urban growth will continue to be concentrated in existing communities with an emphasis on the Urban Service Area of Fort McMurray. The intent of this Resource Management Area is to manage public lands and resources in recognition of the multiple uses required to service and enhance development in the area.

The draft Plan stipulates that resource management should take into consideration the needs of a growing urban area. The draft Plan acknowledges that in the long-term, the urban area may require room for expansion. These potential growth areas are currently being evaluated for land transfer for municipal urban use. The lands that are included in this Area Structure Plan are included in the Fringe Resource Management Area.

This Area Structure Plan is consistent with the general policy direction outlined in the draft Fort McMurray Mineable Oil Sands Integrated Resource Management Plan.

2.4 Fort McMurray Municipal Airport Area Structure Plan, Bylaw No. 12/009

Amendment (Bylaw No. 12/028): Fort McMurray Regional Airport Area Structure Plan Bylaw No. 12/009 was adopted in April 2012.

The southeast corner of the Saline Creek Plateau Area Structure Plan area falls within the NEF 25 contour. The Fort McMurray Regional Airport Area Structure Plan recommends that in order to maximize protection to the airport and minimize conflict, residential development is restricted to areas falling beyond the NEF 25 contour. The proposed amendment to the plan does not allocate residential development within the NSP 25 and 30 contours.

The Area Structure Plan has incorporated some storm water management ponds in the vicinity of the airport area. These ponds will be planned and designed so that the negative impact on aviation from the hazardous birds will be mitigated. A detailed mitigation strategy will be articulated in the Outline Plan for the area.

2.5 Regional Municipality of Wood Buffalo Land Use Bylaw, 99/059

Amendment (Bylaw No. 12/028): Land Use Bylaw 99/059 regulates the land use and development in the Regional Municipality of Wood Buffalo. The Land Use Bylaw presently designates a UE - Urban Expansion land use to the Saline Creek Plateau plan area. The purpose of UE - Urban Expansion District is to protect land in the Rural Service Area for future urban development and to limit premature subdivision and development. To enable development, the Regional Municipality of Wood Buffalo Land Use Bylaw will be amended as required throughout the development process.

3.0 SITE CONTEXT AND DEVELOPMENT CONSTRAINTS

3.1 Existing and Surrounding Land Uses

Refer to *Map 5 – Existing Zoning.*

The dominant land use of the Area Structure Plan area is the Keyano College Heavy Equipment Campus in the southwest area. This campus is currently used as training grounds for the operation of heavy equipment vehicles. Other uses in the area include gravel extraction and formal/informal recreation activities. The Rotary Club Campground is located adjacent to Airport Road at the south end of the Area Structure Plan area. Elsewhere, there is evidence of off-roading activities in some of the old pit areas. A large portion of the site consists of natural areas that have been used for informal hiking activities. Sites have been cleared for natural resource extraction adjacent to Airport Road and for the Phoenix Heli-flight site outside the Area Structure Plan area. Existing gravel roads provide access to portions of the Area Structure Plan area.

Draper Road and the Clearwater River Valley system border the Area Structure Plan area to the north and east. Saline Creek is the westerly boundary, separating the Area Structure Plan area from the MacKenzie Park industrial subdivision within the Urban Service Area. Natural areas and the airport lands are located to the south and southeast.

3.2 Topography and Natural Drainage

Refer to *Map 3 – Site Analysis*. The Area Structure Plan area is located southeast of the Fort McMurray Lower Townsite on the upper plateau between the Clearwater River, Saline Creek and Saprae Creek valleys. Primarily a gently undulating upland plain, part of the Area Structure Plan area east of the Keyano College lands is covered with muskeg terrain consisting of low lying, wet and flat poorly drained areas. Development of this area will require special attention.

As reported by Thurber Engineering Ltd. (February 2006), the site is relatively level with a slight slope towards the Clearwater River valley and Saline Creek valley, except for a shallow northwest to southeast trending trough that is located in the southeast quadrant of the area. The difference in elevation between the upper plateau and the Clearwater River valley flood plain is about 110 metres. All of the valley slopes surrounding the fringe area are inclined at an overall average angle of about eleven degrees.

3.3 Soils and Vegetation

The dominant glacial deposits are of glaciolacustrine origin, consisting of lacustine clay and silt and ranging from loamy to silty clay. The anticipated subsurface soil conditions include organics, sand and/or gravel, overlying clay till containing random pockets of sand and gravel, and overlying clay shale bedrock. Below this clay shale, it is estimated that oilsands are present at an elevation of 300 to 304 metres.

Along the Clearwater River, fluvial erosion has occurred, accompanied by mass wasting of slopes by slumping, with deposition of alluvial terraces and flood plain deposits. Along the lower reaches of Saline Creek, minor erosional deposits, mainly colluvial material, are found. The Clearwater Formation consists of marine dark gray fossiliferous shale, laminated stone and thin beds of fine-grained cherty sandstone. The Formation's thickness varies from 34 to 107 metres (110 to 350 feet).

The valley slopes are all covered with mature forest consisting of a mixture of Spruce and aspen. Similar forest cover exists in the undeveloped areas of the plateau with the exception of the lower lying areas which are covered with more widely spaced shorter black spruce and willows.

3.4 Natural Constraints

3.4.1 Top of Bank Setbacks

Recommended development setback distances from the valley slopes of the Clearwater River and Saline Creek have been established for preliminary design purposes through a Preliminary Geotechnical Assessment, dated February 8, 2006. These setbacks are illustrated on *Map 3 – Site Analysis*. These setback distances are summarized as follows:

Table 3-1: Recommended Development Setbacks

Valley Slope	Preliminary Minimum Recommended Development Setback (metres)
Clearwater River	60 - 70
Saline Creek	30 - 80
Saprae Creek	30 - 115

In addition to the recommended development setbacks from the valley slopes, the Preliminary Geotechnical Assessment recommends a minimum development setback of 30 metres from all watercourses and water bodies. This setback is intended to reduce potential impacts of high water and groundwater effects on the proposed developments and associated impacts on environmentally sensitive creek areas.

No development, grading or tree clearing shall take place within these setback zones. Tree cover will reduce water infiltration into slopes while root systems will reinforce surface soils thus reducing weathering and erosion.

These setbacks are for conceptual planning purposes only. Detailed drilling investigations, site specific surveyed slope cross-sections and top-of-bank surveys are required at the Outline Plan stage to provide accurate setback distances for subdivision design.

3.4.2 Poorly Drained Areas

The Area Structure Plan area is relatively level with a slight slope towards the Clearwater River valley and Saline Creek valley. A shallow trough, trending northwest to southeast is located in the southeast. Approximately 7 per cent of the area appears to be covered with terrain consisting of low lying, wet, flat poorly drained areas vegetated with willows and/or short sparsely spaced black spruce trees. These areas, illustrated on *Map 3 – Site Analysis*, may be underlain by peat and organic soil deposits and are possibly unfavorable for development. The thickness of peat and organic soil deposits could vary within this area and a field investigation must be undertaken at the Outline Plan stage to provide a suitable assessment.

3.4.3 Need for Fire Guard

The Area Structure Plan area is surrounded by tree covered lands. Therefore, provision of a fire guard to protect the area from the potential wildfire hazards has been considered in the layout of future land uses within the Area Structure Plan area. Refer to section 5.8.6 – 30 Metre Firesmart Firebreak.

3.5 Man Made Constraints

3.5.1 Fort McMurray Municipal Airport

Refer to *Map 4 – Existing Development Constraints*. The Fort McMurray Municipal Airport is located approximately one (1) kilometre south east of the Area Structure Plan area. Noise impacts and obstruction zoning requirements for development in proximity to the Airport apply to the Area Structure Plan area.

NAV Canada does not permit new residential development within the 30 Noise Exposure Forecast (NEF) contour. Transport Canada also recommends that residential development should not be located within the 25 NEF contour. Figure 13 in the Fort McMurray Municipal Airport Area Structure Plan, Bylaw 03/062 defines the contour for the planned western runway extension. With the westward extension of the runway, the 30 NEF contour will extend approximately 75 metres (250 feet) into the Area Structure Plan boundary. With the construction of the proposed cross-wind runway, a portion of land in the north east of the Area Structure Plan area will lie within the future 30 NEF contour. This area is planned for non-residential uses. Through consultation with the Fort McMurray Municipal Airport and NAV Canada, it has been determined that the land uses planned for the Area Structure Plan area will not be impacted by their proximity to the airport.

The outer surface is an imaginary surface located by a common plane elevation on of 45 metres above the airport reference point and extending 4,000 metres in every direction from the airport runways. The Fort McMurray Municipal Airport reference is 1,205 feet above sea level. Development above this plane is not permitted and will not

occur through the land uses planned in this Area Structure Plan.

The take off and approach surface includes areas off both ends of the runways, originating at the elevation of the runway and extending 15,000 metres at a two (2) per cent angle. Although the Area Structure Plan area lies partially within the approach surface for both the existing and future cross wind runways, the land uses planned will not be impacted by these surfaces.

The transitional surface extends in a plane from the edge of the runways, beginning at the elevation point, to the intersection with the outer surface. Development above this plane is not permitted and will not occur through the land uses planned as part of this Area Structure Plan.

3.5.2 Phoenix Heli-Flight

Phoenix Heli-Flight occupies a lease to the south east of the Area Structure Plan area. Constraints to development related to the proximity of this business are mitigated by locating land uses, including airport commercial and a golf course, in the south east portion of the Area Structure Plan Area. Refer to *Map 4 – Existing Development Constraints*.

3.5.3 Gravel Workings / Keyano College Excavations

Map 3 – Site Analysis shows parts of the Saline Creek Plateau Area Structure Plan area that are occupied by existing gravel pit locations or excavations carried out by operations of Keyano College's Heavy Machinery Campus. Detailed geotechnical studies must be conducted as part of the preparation of Outline Plans to identify the extent of surface and subsurface disturbance to determine where undisturbed grounds begin. In addition, the geotechnical investigations must identify reclamation or remedial works necessary to allow development in accordance with land uses proposed in the Saline Creek Plateau Area Structure Plan.

3.5.4 Telecommunications Towers

An existing transmitting facility, operated by OK Radio Group Ltd., is located in the north west of the Area Structure Plan area. A proposal to upgrade this facility with a new 150 metre (492 foot) tower, installation of a new antenna, and installation of new transmitters has been submitted for approval to Industry Canada and the Canadian Radio-television and Telecommunications Commission (CRTC). These upgrades will be accommodated within the existing Transmitting Site. When this upgrade is complete, the existing tower will be dismantled. For the location of the existing Transmission site, refer to *Map 4 – Existing Development Constraints*.

Two other telecommunications towers are located in the north west of the Area Structure Plan area. No development is planned for this area in this Area Structure Plan.

3.5.5 Pipelines

Refer to *Map 4 – Existing Development Constraints*. An existing ATCO Gas pipeline (right-of-way # 8621388) runs parallel to the southern boundary of the Area Structure Plan area, following the north side of the Highway 69 and Airport Road rights-of-way.

A South East Regional Water Supply Line runs parallel to the ATCO Gas pipeline, between the Fort McMurray Water Treatment Plan and the Hamlet of Anzac.

None of the land uses proposed in this Area Structure Plan will be unduly impacted by location of these pipelines and right-of-ways. These pipelines are located within the existing road right-of-ways or within the proposed 30 metre buffer strip on the north side of Higway69/Airport Road.

3.5.6 Historical and Archaeological Resources

In the vicinity of the Saline Creek Plateau Area Structure Plan area, there is one site containing a historical resource with a value of "four" (4). Historical Resource Value is assigned by the Heritage Resource Management Branch, Alberta Community Development, as a number from one (1) to five (5), with one (1) being the most significant. This resource is located in Sec. 31-88-8 W4M, in legal subdivisions 1-16. A Historical Resource Impact Assessment must be conducted at the Outline Plan stage, if deemed necessary by Alberta Community Development.

Specific locations of historical resources are not illustrated. This information is withheld in order to prevent potential disturbances to unattended sites in remote locations. Refer to *Map 4 – Existing Development Constraints*.

4.0 PLANNING PRINCIPLES AND OBJECTIVES

The following eleven (11) key planning principles and objectives shape the future development concept for the Saline Creek Plateau Area Structure Plan.

4.1 Planning Principles and Objectives

Principle #1: *Develop the Saline Creek Plateau Area Structure Plan area as a complete and integrated mixed-use community that provides opportunities to live, work, shop, play and learn.*

Objectives:

a. Develop three (3) compact, walkable neighbourhoods surrounding a mixed-use Village Centre.

b. Provide for shopping and employment opportunities by allocating land for Mixed Use – Office / Commercial / Residential uses in the Area Structure Plan area.

c. Arrange the mix of land uses so they function in a mutually supportive fashion to minimize land use conflicts while maximizing synergies amongst them e.g. locating higher density residential uses close to shopping areas, services, schools, parks and open space.

d. Centrally locate schools, parks, and community facilities so they are easily accessible from each neighbourhood through a well-designed interconnected network of roads, pathways and open spaces.

Principle #2: *Create a centrally located mixed-use Village Centre, linked to the Grand Boulevard, to serve as a focal point, gathering place and community service centre for the surrounding residential neighbourhoods.*

Objectives:

a. Incorporate a wide range of uses including a community centre, joint high school site with playfields, recreation complex, community health centre, daycare, neighbourhood commercial and services, emergency service facilities and residential uses to create a vibrant Village Centre.

b. Encourage the development of higher density residential uses within or near the Village Centre to provide housing for a range of household types, incomes, and ages.

c. Provide transit and vehicular access to the Village Centre, from the surrounding neighbourhoods and region.

d. Provide pedestrian access to the Village Centre through a system of interconnected multi-use pathways and sidewalks.

Principle #3: *Take advantage of the site's natural systems and assets by preserving and, where possible, integrating natural features into the design of the community.*

Objectives:

a. Maintain the recommended top of the bank setbacks from the Clearwater River Valley and Saline Creek Ravine, as recommended in geotechnical studies.

b. Integrate natural drainage courses, wetlands and low-lying areas into the stormwater management system where practical.

c. Connect the 30 metre Firesmart Firebreak setback, riparian areas along the creek, and natural areas with pathways to provide a linked network of greenways.

Principle #4: *Apply best practices in neighbourhood design that foster identity, liveability, interaction, safety and a sense of place.*

Objectives:

a. Ensure that each neighbourhood is designed around a focal point such as park / school sites, neighbourhood commercial uses or community services uses to provide opportunities for interaction amongst residents.

b. Promote walkability by providing safe, interconnected, pedestrian friendly streets and pathways, including a central green space spine, to ensure that recreation opportunities, convenience goods and services, are provided within a 10 minute (800 metre) walking distance from residences.

c. Prepare and adopt, at the Outline Plan stage and subdivision, architectural design guidelines to ensure high quality buildings, streetscapes and park designs that create attractive and livable neighbourhoods.

d. Utilize Crime Prevention Through Environmental Design principles (CPTED), at the subdivision and site planning stages, to enhance public safety.

e. Require laned subdivisions with shallow front yards (i.e. 3 metre versus 6 metre setbacks) to have dwelling units with front doors located closer to the street encouraging "eyes on the street" and creating larger, useable backyard areas.

f. Locate services and amenities such as transit, schools, parks and shops centrally in each of the three neighbourhoods within a 400 metre radius, or five-minute walk of residences, to encourage walkability.

g. Locate mixed use office / commercial / residential along the Grand Boulevard and in the Village Centre to provide exposure and easy access from arterial roadway network.

h. Reinforce the unique character of each neighbourhood through "placemaking" by providing distinctive entrances, gateways, focal points, memorable parks, open spaces and legible neighbourhood centres and boundaries, while discouraging gated communities. These will be described in more detail at the Outline Plan and architectural design guideline stages.

i. Utilize winter city design principles at the Outline Plan and subdivision stage to create a community that is functional and enjoyable year round.

j. Provide for a landscaped buffer along Highway 69 and Airport Road for noise attenuation and visual screening, and to beautify the major entrance way from the airport to Fort McMurray.

Principle #5 *Apply the wildfire hazard mitigation measures from the Firesmart "Protecting Your Community from Wildfire" guide.*

Objectives:

a. Provide a 30 metre Firesmart firebreak adjacent to natural open areas, such as the top of bank setback from the Clearwater River and Saline Creek valleys.

b. Ensure a looped collector roadway network, where feasible, to facilitate emergency vehicle access and public evacuation.

c. Ensure adequate municipal water servicing to the Area Structure Plan area for fire suppression purposes.

Principle #6: *Provide a range of housing choice to address the needs of various demographic and income groups for long-term community sustainability.*

Objectives:

a. Ensure provisions for a wide range of housing choice, including apartments, rowhousing, single family detached, work / live accommodation, co-housing and secondary suites within the Area Structure Plan area.

b. Allow for secondary suites in areas proposed for Low Density Residential uses, to provide alternative housing options as well as "mortgage helper" opportunities for the homeowner.

c. Encourage an increased proportion of higher density housing products in comparison to the current housing mix in the Urban Service Area of Fort McMurray, including ground-oriented multiples (duplexes, rowhousing, stacked row-housing and apartments) to make better use of a limited land base.

d. Encourage opportunities for locating aging in place seniors complexes in the Village Centre with easy access to shopping, recreation, community and support services.

Principle #7: *Conserve energy and natural resources through best practices of sustainability consistent with the Leadership in Energy and Environmental Design for Neighbourhood Developments (LEED-ND) Rating System (Preliminary Draft).*

Objectives

a. Create complete, compact, mixed-use and walkable neighbourhoods within the Area Structure Plan area to promote public health. Also reduce air pollution, energy consumption, and greenhouse gas emissions through community design.

b. Wherever possible, protect and integrate existing natural areas and wildlife habitats into the parks and open space system and development sites by minimizing clearing of vegetation and grading.

c. Implement a stormwater management plan that utilizes existing wetlands and low-lying areas where feasible. Other stormwater management methods such as bioswales, engineered wetlands and other best practices will also be utilized to capture and treat stormwater runoff.

d. Use untreated stormwater for irrigation and other uses to conserve water.

e. Orient buildings to take advantage of solar energy relative to the sun, by maximizing the amount of south facing glass in relation to the building's thermal mass.

f. Encourage the use of "green building technologies" such as energy efficient mechanical systems, geothermal heating and cooling, green roofs and low energy lighting, where physically and economically feasible, through the application of architectural design guidelines to be adopted at the Outline Plan stage.

Principle #8: *Provide a balanced transportation network for the Area Structure Plan area, create a choice of transportation modes for future residents and encourage walkability.*

Objectives

a. Implement the principles of fused grid roadway system by creating pedestrian and vehicular connections that enhance mobility and circulation within the Area Structure Plan area.

b. Provide a hierarchy of roads including arterial, collector and local roadways to ensure efficient vehicular and public transit access within the Area Structure Plan area, directing traffic towards destinations, while discouraging short cutting through neighbourhoods.

c. Connect the Area Structure Plan area to the surrounding region and the Lower Townsite, by providing two access points to Highway 69, a roadway connection to Draper Road and, potentially, a roadway connection across Saline Creek to MacKenzie Park.

d. Manage parking through the use of lanes, encourage site design which avoids large parking areas and orients buildings towards the street, and take advantage of opportunities for shared parking facilities.

e. Provide a functional and attractive Grand Boulevard with mixed uses along it, as a central access to the Area Structure Plan area from Highway 69 to the Village Centre.

f. Undertake streetscape treatment of the Grand Boulevard as a means of enhancing the identity and character of the Area Structure Plan area.

g. Provide for roads with reduced cross sections, to minimize land consumed by road and to reduce the total area of hard surfacing. Seek alternative roadway design standards to accommodate streetscaping.

h. Design arterial and collector roadways to accommodate both city transit and highway coaches, used for commuting workers to plant sites. Central pick-up and drop off locations for commuters will be designated in each neighbourhood at the Outline Plan stage.

Principle #9: *Provide recreational uses, educational uses, and social gathering opportunities in the Area Structure Plan area, interconnected by a pathway network.*

Objectives:

a. Centrally locate opportunities for indoor and outdoor recreation such as parks, gathering spaces and social areas for special events and programming.

b. Strategically site and link stormwater management facilities, parks, schools and associated playfields using multi-use pathway connections thus increasing their accessibility for community use and enhancing walkability.

c. Utilize the 30 metre Firesmart Setback and 30 metre highway buffer to create a multi-purpose pathway connection around the perimeter of the Area Structure Plan area, with attractive connections to the Village Centre and individual neighbourhoods.

Principle #10: *Provide a framework that will facilitate financial viability of future development through the orderly and economic extension of services and strategic allocation of land uses.*

Objectives:

a. Provide a phasing plan for the orderly, economic and efficient extension of roadways, and utility servicing.

b. Ensure the full utilization of existing gravel deposits within the Area Structure Plan area prior to development for other uses.

c. Provide for construction of a mix of land uses and residential densities in the each phase of development.

Principle #11: *Foster the safety of residents to enhance liveability.*

Objectives:

a. Consider 1st Generation (physical) Crime Prevention Through Environmental Design (CPTED) principles when evaluating development proposals.

b. Consider 2nd Generation (social) Crime Prevention Through Environmental Design (CPTED) principles during the Outline Plan and subdivision approval process.

5.0 LAND USE CONCEPT

5.1 Overview of Land Use Concept

Amendment (Bylaw No. 12/028): Map 6 – Development Concept shows the amended Land Use Plan for the Saline Creek Plateau Area Structure Plan. A mix of land uses including residential, retail, commercial, and office, institutional and recreational is proposed, leading towards a vibrant and diverse community. A variety of housing types and commercial uses are proposed to fulfil the housing and shopping needs of a diverse community. The plan proposes to lower the density for low density residential in the plan area. However, the overall population in the plan area is maintained by incorporating secondary suites and garage top suites in the low density residential area.

The Village Centre Node is proposed as a major community feature, accommodating a mix of land uses including retail and small office commercial and residential. It will be located centrally in the community with easy accessibility to the neighbourhoods within the plan area and in its surrounding proximity. A community recreation facility and a High School, a Village Centre Node, and Regional Commercial development along Highway 69 from the core of the community. This core is located centrally along north-south arterial roadway connecting to the Saline Creek Parkway at one end and Highway 69 at other.

The plan area encompasses three Neighbourhoods as shown in Map 7 - Neighbourhood Units. Neighbourhood boundaries are determined by development priority and suitability factors including: serviceability; access; and land ownership patterns. Given the ready access to arterial roadways and existing servicing infrastructure, Neighbourhoods A and B, will likely undergo development simultaneously. Development in Neighbourhood C will follow the servicing and transportation infrastructure development in Neighbourhood B.

All three Neighbourhoods propose a mix of land uses and densities encouraging diversity in the plan area. These Neighbourhoods provide easy access to the community amenities, including schools, parks, and commercial developments. These Neighbourhoods will be connected to the Village Centre and recreational facilities in the plan area by both pedestrian and vehicular networks. The plan also incorporates a transit node, providing convenient options for transportation. This transit node is proposed in the close vicinity of the Village Centre Node and is easily accessible from the communal amenities; such as shopping and recreation. An interconnected and interspersed green/open space network and trail system will be integral to this Area Structure Plan.

The majority of the proposed residential development in the plan area is within 800 metre walking distance of the public amenities including schools, recreational facilities, green/open spaces, and trail system. Given the existing spatial and environmental constraints, the residential developments in the north-west and north-east part of the plan area may be over 800 metre walkable distance from schools and commercial facilities.

Saline Creek Parkway is currently in the planning stages and the timeline for its construction is not confirmed at this time. The timing and final alignment of Saline Creek Parkway may influence the development staging for the plan area.

5.2 Need for Architectural Design Guidelines

Detailed architectural design guidelines need to be developed at the Outline Plan and subdivision stage to ensure detailed implementation of planning principles and objectives. These architectural design guidelines are important in implementing the sustainable development and urban design concepts promoted in this Area Structure Plan. These concepts include, but are not necessarily limited to, a fused grid roadway network, an integrated open space and pathway system, innovative housing forms, mixed use areas, location and configuration of parking, landscaping and architectural treatment of buildings. These design considerations will contribute to the attractiveness, liveability and sustainability of the Area Structure Plan area.

5.3 Village Commercial

Amendment (Bylaw No. 12/028): Approximately 5.6 hectares (13.8 acres) of lands is allocated for Village Commercial land use. The Village Commercial will include retail including restaurants and cafes, specialty shops, and offices including small scale professional and medical services. This development will be street oriented contributing towards a lively, diverse, and vibrant streetscape. Parking will be a combination of on-street parking at the front of the buildings and off-street parking at the rear of buildings.

Figure 5-1: Village Commercial; examples of mixed use "high street" style of development

5.4 Convenience Commercial.

Amendment (Bylaw No. 12/028): Approximately 2.6 hectares (6.43 acres) of lands are allocated to the Neighbourhood Commercial land use in this plan area. There are two neighbourhood commercial sites, one located in the north-west and other in the north-central portions of the plan area. The purpose of these sites is to provide smaller scale commercial services meeting day to day requirements of residents of the community. The Neighbourhood

Commercial sites are also located in close proximity to the medium density residential sites in the neighbourhoods.

5.5 Airport Commercial.

Amendment (Bylaw No. 12/028): Airport Commercial lands are located in the easterly portion of the plan area. The Airport Commercial lands total approximately 14.4 hectares (35.6 acres). Uses may include a broad variety of office, commercial, and light industrial, and other convenient airport oriented commercial uses.

5.6 Regional Commercial

Amendment (Bylaw No. 12/028): Services for Regional Commercial development are located in the plan area abutting the north edge of Highway 69, between the two future arterial roadways traversing the plan area, immediately south of the Village Centre. This prime location will be convenient for both the residents of the plan area and the traveling public. The Regional Commercial development will comprise approximately 12.2 hectares (30.2 acres) of the plan area and include larger scale commercial establishments such as grocery stores, small box and large format stores, and a variety of other commercial retail units.

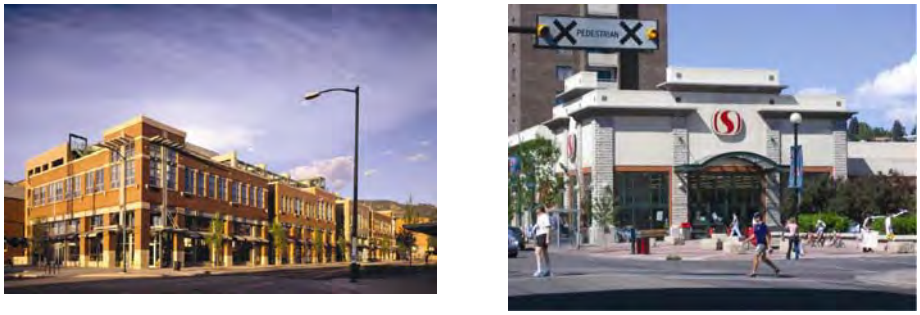


Figure 5-2: Regional Commercial; examples of vertically stacked mixed use development and large retail development incorporating a strong street edge

5.7 Residential Uses

Amendment: A total of 321.6 hectares (795 acres) of lands in this plan area are allocated for the residential uses. The plan area will offer a variety of housing options serving a diverse range of age, and income groups.

5.7.1 Low Density Residential

Amendment (Bylaw No. 12/028): Low Density Residential development is proposed for 264.9 hectares (656 acres) of lands in the plan area. The housing forms will include single family detached, semi detached, and duplex homes. The mix of housing

sizes and forms will accommodate both young and mature families and create opportunities for rental/shared housing.

Low Density Residential is proposed in a variety of housing products with street access and lane access. A limited amount of small scale residential development may be considered in strategic locations. Secondary suites will be considered in the Low Density Residential area to provide additional housing opportunities without changing character of the neighbourhood. In particular, consideration will be given to 2nd floor secondary suites (garage top suites) to enable higher quality rental housing opportunities. Secondary and garage top suites will be accommodated by exploring and implementing innovative architectural designs. In order to address parking concerns, single detached dwelling lots are recommended to be wider for front access lots and deeper for rear access lots, as shown in the images below. Further design details will be articulated through the Outline Plan process.

Figure 5-3: Low Density Residential; examples of secondary suites and street oriented low density residential development

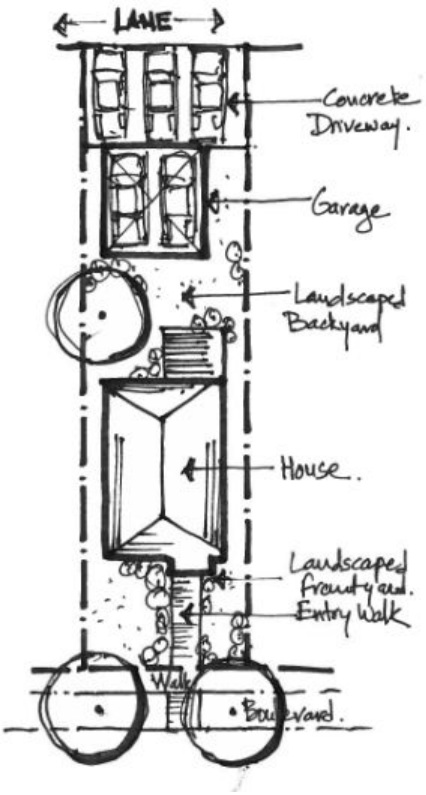


Figure 5.4 – House with rear garage

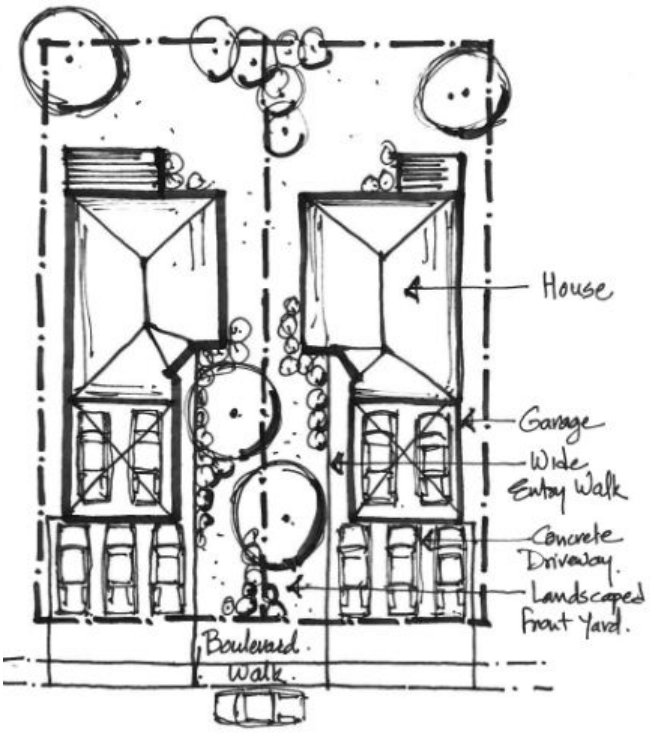


Figure 5.5 – House with front attached garage

5.7.2 Village Low Density Residential

Amendment (Bylaw No. 12/028): Village Low Density Residential accounts for approximately 6.1 hectares (15 acres) of land in this plan area.

Low density development in the Village Centre area will accommodate a variety of housing forms including semi-detached homes and duplexes. The majority of this type of development is proposed to be street oriented with garages to the rear of homes accessible by lanes, creating more interactive and street oriented building frontages.

Figure 5-6: Village Low Density Residential; examples of multiplex and townhouse forms of medium density residential development

5.7.3 Medium Density Residential

Amendment (Bylaw No. 12/028): Medium Density Residential uses are allocated to approximately 27.9 hectares (68.9 acres) of lands in the plan area. The Medium Density Residential development sites are interspersed throughout the plan area. These sites are located along major transit/transportation routes, in close proximity to community amenities such as schools, neighbourhood commercial sites, open spaces, and in the Village Centre.

Medium Density Residential development will be a complimentary use for the Village Centre. This residential component will create local market for the businesses and round-the-clock community activities in the Village Centre enhancing its safety. Multiplex residential development consisting of three (3) to six (6) unit residential buildings, three to four storey walk up apartments, and town houses is proposed in this area. This style of development will be suitable for young families, singles, empty nesters, and to provide for shared accommodations. Street oriented development is proposed for this area. Sufficient parking is to be provided to the rear side of the Medium Density Residential buildings limiting its visibility from the streets.

Figure 5-7: Medium Density Residential; examples of apartments with individual ground level entrances

5.8 Parks, Schools and Open Spaces

Amendment (Bylaw No. 12/028): Parks, school sites, and open spaces in the plan area are as shown in *Map 8 – Open Space System*. A total of 76.9 hectares (190.0 acres) is dedicated as parks, schools, and open spaces in this plan area.

The parks, schools site, and open spaces are connected to residential areas by a pathway network interspersed throughout the plan area. This pathway network will provide pedestrian and non motorized access to the parks, schools, and open spaces within the plan area. The proposed pathway system will be connected to the regional pathway system at various locations along the plan boundaries. Refer to *Map 8 – Open Space System*

The general locations and sizes for the school sites are included in this plan. The locations and sizes of these sites are proposed in consultation with the Fort McMurray Public School District No. 2833 and the Fort McMurray Catholic Schools. The detailed planning of the school sites is ongoing and will be determined as the development of the area progresses.

Total school area comprises 42.6 hectare (105.3 acre). The school sites are located along the major transportation routes for easy access. Also, they are located throughout the plan area and within 10 minute walking distance of the most of residential population. Where possible, the school sites are located close to major roads for enhanced accessibility.

5.8.1 Shared Elementary School

Amendment (Bylaw No. 12/028): One (1), approximately 8.3 hectares (20.5 acres), site is identified for a shared elementary school within the plan area. The school site is located in the northwest neighbourhood within the plan area.

5.8.2 Shared Elementary School

Amendment (Bylaw No. 12/028): One (1), approximately 10 hectares (24.7 acres) site is identified for a shared elementary school within the plan area. The school site is located centrally relative to the southwest neighbourhood within the plan area.

5.8.3 Shared Elementary High School

Amendment (Bylaw No. 12/028): One (1), approximately 8.2 hectares (20.3 acres) site is identified for a shared elementary junior high school within the plan area, east of the Village Centre. This site will serve the east sector of the plan area.

5.8.4 Shared High School

Amendment (Bylaw No. 12/028): A shared High School site is located centrally in the plan area adjacent to the Community Recreation Centre encouraging resource sharing and connectivity between these facilities. This site will be accessible by a multi-modal network.

5.8.5 Parks Space

Amendment (Bylaw No. 12/028): Approximately 3.8 hectares (9.4 acres) of space is identified as parks/open space in the plan area. Refer to *Map 8 - Open Space System.* These sites can be allocated for programmed and unprogrammed activities of passive recreation.

5.8.6 Community Recreation Facility

Amendment (Bylaw No. 12/028): The Community Recreation site is centrally located

in the plan area, along an arterial route connecting to Saline Creek Parkway and Highway 69 at either end. The site is proposed to accommodate a variety of civic and recreational uses such as ice arenas, swimming pools, a library, meeting rooms, play fields and parking. This site is within a ten minute walking distance from the most of the residential development in the plan area and has convenient vehicular, transit, and pedestrian accesses. The proposed Village Centre and High School on either side of the Community Recreation Facility will be complimentary uses, and contribute towards creating a stronger community core and sense of place. This land use comprises 12.1 hectares (29.9 acres).

5.8.7 Other Open Spaces

Amendment (Bylaw No. 12/028): Multiple park spaces comprising 14.2 hectares (35.1 acres) are interspersed throughout the plan area. These park spaces mostly serve as connections between various community services and include pathway network for pedestrian and non-motorized uses within them.

5.8.8 30 Metre Firesmart Firebreak

Amendment (Bylaw No. 12/028): A 30 metre wide Firesmart Firebreak is a mandatory requirement and will be located adjacent to the top of bank setback established by the Preliminary Geotechnical Assessment. These lands comprise approximately 16.3 hectares (40 acres). Some of the local road network will be exposed to the firebreak adjacent to residential areas to provide easy access for emergency vehicles.

5.8.9 30 Metre Landscaped Highway Buffer

A 30 metre landscaped highway buffer, parallel to the north side of the Highway 69 and Airport Road rights-of-way, provides attenuation of noise and nuisance effects related to development in proximity to the Area Structure Plan area. In addition, this landscaped buffer will provide an opportunity to beautify the Highway 69 and Airport Road access as a major gateway to the Urban Service Area for visitors and residents arriving from the Fort McMurray Municipal Airport. A pathway connection is proposed within this buffer, connected to the local and regional pathway network.

5.9 Golf Course

Amendment (Bylaw No. 12/028): An 18 hole championship golf course will be developed on the Rotary Club's lands in the easterly portion of the plan area. Some of the lands in this area are not suitable for residential development because of the existing high water table. This golf course will serve as a recreational amenity for the residents of Saline Creek as well as the community at large. The lands comprise 70.5 hectares (174.2 acres).

The majority of the golf course is located centrally on the Rotary lease lands. A smaller,

triangular site contains a 3 golf holes and is located adjacent to and north of Saline Creek Parkway and bound by top of bank setback on the north, north-east and north-west sides. Golf cart access linkage is proposed to be safely provided by an overhead or underground cart path.

The golf course design incorporates open ponds which, in turn will function as a part of the area's stormwater management system. Mitigation measures will be incorporated in planning and design of these ponds to minimize negative impact and hazards of birds and waterfowl to the Fort McMurray Regional Airport. A detailed mitigation strategy will be articulated at the Outline Plan stage.

5.10 Lands with Development Limitations

Amendment (Bylaw No. 12/028): Figure 7 identifies lands within the plan area that have development limitations. Lands located in the north central portion of the plan area falling under the Clearwater River Valley slopes pose considerable servicing and development constraints because of their topography. The total area of these lands with development limitations total 14.2 hectares (35 acres). The lands with development limitations located near the southwest boundary of the plan area comprise 9.7 hectares (24 acres) and may accommodate a storm water management facility. Residential development is proposed on these lands at much lower densities.

Special studies will be required to determine the development potential and serviceability of these lands.

6.0 TRANSPORTATION

6.1 Regional Transportation Network

Amendment (Bylaw No. 12/028): *Map 9 – Transportation*, illustrates the recommended transportation network for the plan. The plan area is accessible from the Urban Service Area and surrounding region via Highway 69 that connects to Highway 63 west of the plan area. Highway 63 is the principal thoroughfare for the Regional Municipality of Wood Buffalo.

Currently, Highway 69 is a two lane municipal arterial roadway carrying an average annual daily traffic volume of 5100. Highway 69 provides the main access to the Fort McMurray Regional Airport as well as other industrial and residential developments further east. Highway 69 will be the main connection for the plan area with two arterial roads, two collector roads, and Saline Creek Parkway connections. These five proposed connections will provide access to an estimated 70 percent of the traffic generated by the plan area. Therefore, significant improvements to Highway 69 will be required.

Twinning of Highway 69 is currently in the design process and construction is underway. Access locations on Highway 69 will be controlled by the Regional Municipality of Wood Buffalo Engineering and Servicing Standards.

In addition to the connection to Highway 63, Highway 69 also provides access to other regional transportation modes including air travel through the Fort McMurray Regional Airport and rail through the Lynton Siding rail yards. The Fort McMurray Regional Airport services commercial and private air travel for Urban Service Area. Lynton Siding rail yard is being used as a major depot for logging to destinations south of the Urban Service Area.
It is recognized that the current location of the Airport Road connection to Highway 69 will likely change as development in the area progresses over the next 10 or so years. Any modifications to this access point will be coordinated with the Airport authority and the Regional Municipality of Wood Buffalo to ensure that any proposed reconfiguration is appropriate.

6.2 Transportation Analysis

Amendment (Bylaw No. 12/028): The plan area trip rates were developed from the Institute of Transportation Engineers' (ITE) Trip Generation manual, 8th Edition, based on proposed land uses and distribution. Based on these volumes, the size and number of arterial and collector roadways were determined from the Regional Municipality of Wood Buffalo Engineering and Servicing Standards.

6.2.1 Trip Generation

Amendment (Bylaw No. 12/028): Table 6.1 summarizes the trip generation rates and

the estimated number of residential units used to calculate the total number of trips generated for the plan area.

Using the trip generation rates from the expected residential development, a conservative estimate of the average annual daily traffic volume for the plan area is provided. The average annual daily traffic volume is used to establish the required road network. Given the development principles discussed earlier, some of the traffic generated will be internal only, and therefore trip origin and destination will be within the plan area.

Table 6-1: Gross Build Out Trip Generation Estimates

Land Use (ITE LUC)	Intensity	Daily	
		In	Out
East Airport Business Industrial (770)	137,000 SF.	874	874
West Airport Business Industrial (770/820)	204,000 SF.	4,090	4,090
Regional Commercial (820)	289,000 SF.	6,768	6,768
Village Commercial (820/850)	133,000 SF.	4,995	4,995
North Neighbourhood Commercial (820/932/944)	47,000 SF.	2,924	2,924
East Neighbourhood Commercial (820/934/944)	14,000 SF.	2,624	2,624
Golf Course (430)	18 holes	322	322
Recreation Centre (495)	195,000 SF.	2,231	2,231
Elementary School (520)	750 students	484	484
Elementary/Junior High School (522)	1,500 students	1,216	1,216
High School (530)	1,000 students	855	855
Total Non-Residential Traffic		27,383	27,383
LDR (210)	5,002 du	23,935	23,935
MDR – Townhouses (231)	455 du	1,794	1,794
MDR – Apartments (230)	801 du	2,326	2,326
Village LDR (231)	146 du	575	575

Land Use (ITE LUC)	Intensity	Daily	
		In	Out
Village Commercial Residential (230)	134 du	389	389
Total Residential traffic		29,019	29,019
Total Gross Site Generated Traffic		56,402	56,402
		112,804	

*Notes - * du – dwelling unit SF – Square Foot*

Amendment (Bylaw No. 12/028): Based on potential 112,804 trips generated by the plan area, five arterial and collector roadways and Saline Creek Parkway accesses are proposed for connection to the plan area. The Traffic Impact Assessment suggests that approximately 26 percent (29,320 trips) will use the Saline Creek Parkway. The remaining 74 percent (83,434 trips) will use Highway 69 via the two arterial and two collector access points.

Using the Regional Municipality of Wood Buffalo Engineering and Servicing Standards, the capacity of an urban arterial divided road is 12,000 to 30,000 vehicles per day. For the southern accesses to Highway 69 and Airport Road, a site-specific cross-section is proposed in light of the development principles to be implemented. Parking along portions of the arterial adjacent to the Village Centre will be considered although this may result in a reduction in capacity of the roadway. However, provided that the parking lanes are of sufficient width and the through traffic is not interfered with, the proposed cross section could provide the required capacity. This will be examined in further detail at the Outline Plan stage.

Using the Regional Municipality of Wood Buffalo Engineering and Servicing Standards, the capacity of an undivided arterial road is 5,000 to 12,000 vehicles per day. For Saline Creek Parkway, an urban arterial undivided may provide the necessary capacity without a significant drop in the level of service. The roadway will not have any on-street parking and is free of other accesses or intersections that cause traffic delays.

Detailed design of the roadway may incorporate a raised center median, as a safety feature, should the horizontal geometry warrant the median.

6.3 External Roadway Circulation

Amendment (Bylaw No. 12/028): Two - four lane arterial roads are proposed to provide access to the plan area, the Village Centre, and to Highway 69. A mix of land uses and streetscape treatments are planned for the Village Centre, to create a functional and attractive access to the plan area and to establish a sense of place. With the future development of Rotary Club's recreational lease area, an additional access off Airport Road will be required. It is anticipated that a collector road design will be used, with less emphasis on the entrance features to provide the required access capacity.

In addition to the proposed southern connections, an access to the northwest, connecting the plan area to Saline Creek Parkway is also proposed. This access is estimated to carry approximately 30 per cent of the traffic generated within the plan area. The construction of the proposed Saline Creek Parkway will require that Draper Road also be upgraded to accommodate the additional volume of traffic and to safely convey the traffic to the Lower Townsite. Regional Municipality of Wood Buffalo is currently reviewing the improvements required to Draper Road and the connection to the Lower Townsite.

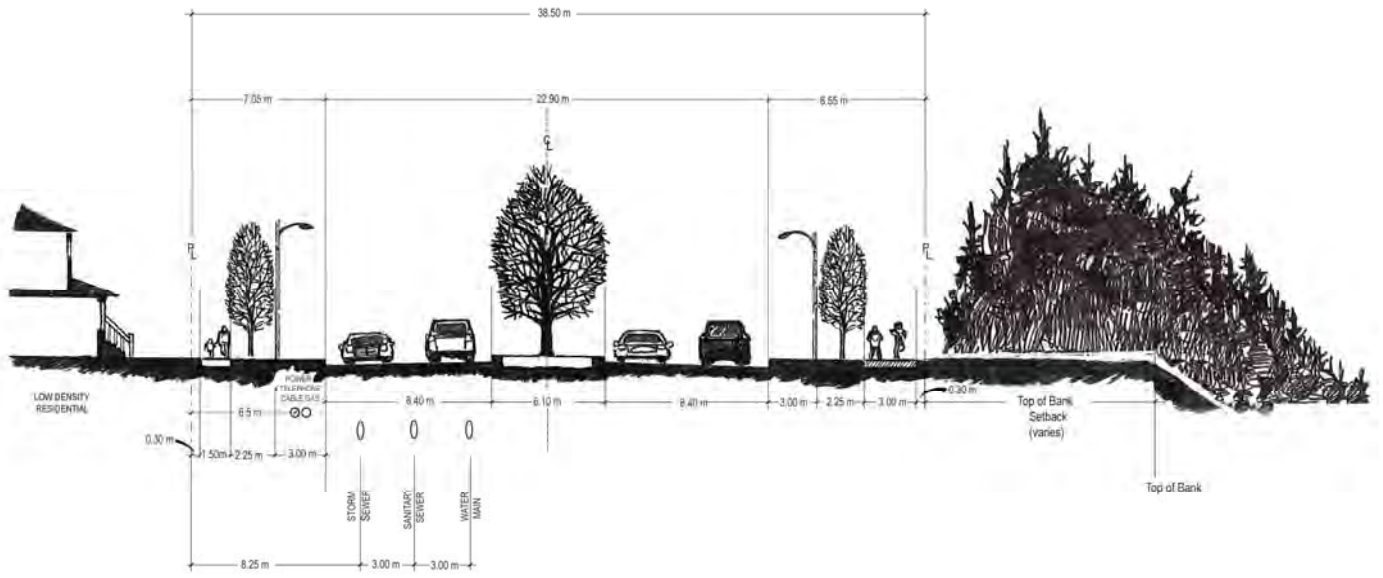


Figure 6-1: Cross section of Saline Creek Parkway within Area Plan

The Draper Road Detailed Planning Report (Associated Engineering, May 2006) proposes an alignment that will have Saline Creek Parkway extend past the community of Waterways connecting to the Prairie Boulevard Loop on the west side of the Hangingstone River. Given the expected volume of traffic, the Saline Creek Parkway will need to be classified as an arterial roadway. The arterial roads will incorporate multiple modes of transportation.

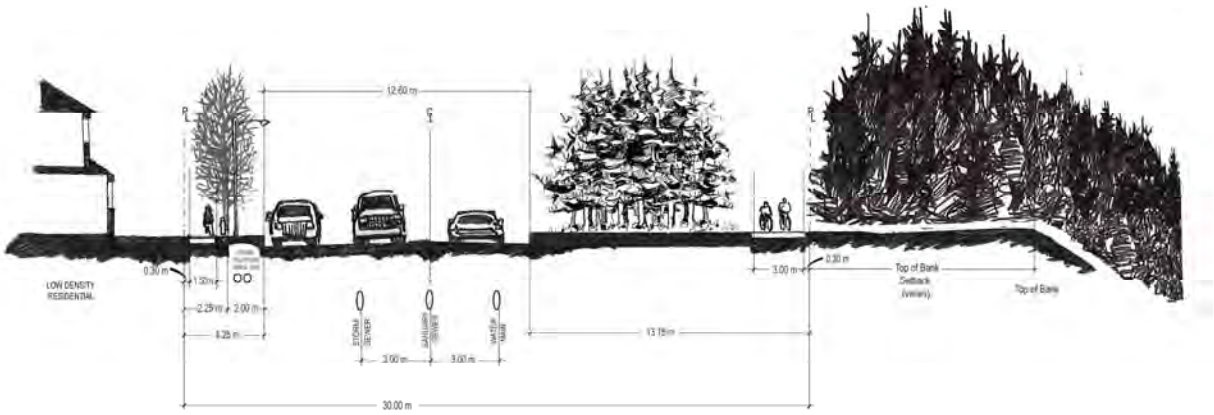
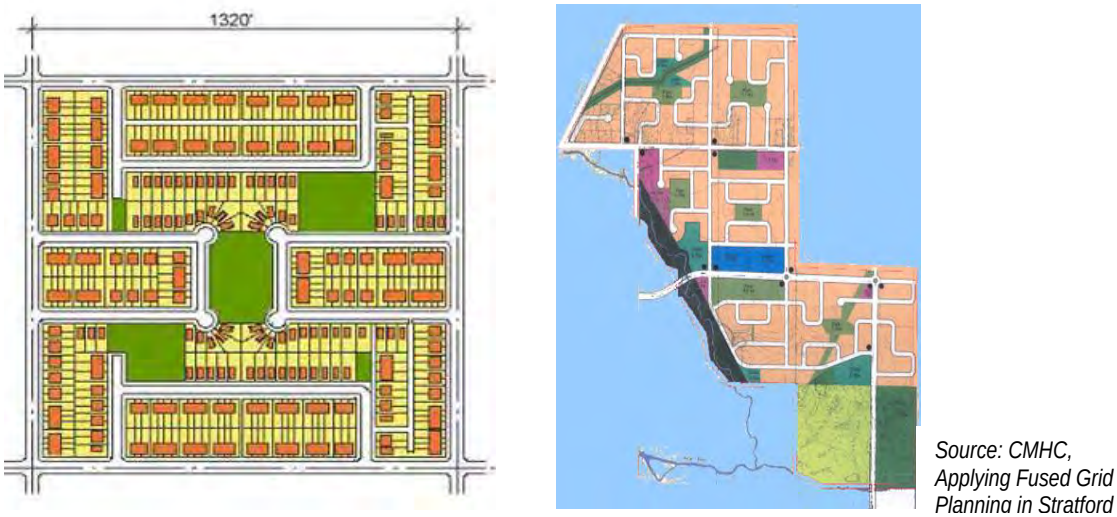


Figure 6-2: Cross Section of Fire break Road; showing Pathway in wooded area

6.4 Internal Roadway Circulation

Amendment (Bylaw No. 12/028): A system of collector and local roadways is proposed to provide a hierarchical vehicular circulation network and public transit access within the plan area. This network is based on the principle of fused grid design that enhances vehicular and pedestrian circulation. Off street parking lots will be highly encouraged wherever possible.



Source: CMHC, Applying Fused Grid Planning in Stratford

Figure 6-3: Fused Grid Design; examples of conceptual block and neighbourhood designs

Collector roads will be situated within the plan area to direct traffic to the arterial road network. Cross sections of the collector road will vary between neighbourhoods depending on the land use. Parking along collector roads will be dependent on adjacent land uses and development type. On-street parking may also be limited where heavier use of public transportation is expected such as schools and other public buildings.

At appropriate locations, adjacent to the top-of-bank setbacks from the Clearwater River and

Saline Creek valleys, a local road is proposed within the 30 metre Firesmart Firebreak. The road should not be a continuous loop, as this may encourage shortcutting though neighbourhoods to access the collector roads. Breaks at locations based on the fused grid principle are recommended. Continuation of pedestrian walkways is encouraged to provide alternate modes of transportation such as cycling, public transportation and walking.

6.5 Transit

Amendment (Bylaw No. 12/028): The RMWB's Municipal Development Plan identifies the need for a comprehensive mobility system that includes bus rapid transit (BRT) as a key component to provide alternative transportation options for area residents. While the initial focus is on providing rapid transit options from residential communities to the employment areas within and surrounding the oil sands operations, the potential for a bus rapid transit route between the Lower Townsite and the airport has also been identified.

Within the RMWB's Transit Master Plan, a bus system providing a link from the Lower Townsite to the airport is recommended, potentially operating as an extension of the existing Route 10 (10A or 10B) through Gregoire and the Mackenzie Industrial Park. Expansion of the system to include an express route along Highways 63 and 69 was identified if ridership from the Lower Townsite to the airport increases substantially.

It is anticipated that there is the potential to develop an express bus route in mixed traffic from the Lower Townsite to the airport along Saline Creek Parkway. If an express bus route is provided, it could utilize Saline Creek Parkway to access the future Saline Creek Plateau transit centre proposed adjacent to the community recreation area and the village centre before continuing on to the airport lands. This regional route could be coordinated with traditional residential transit service within the Saline Creek Plateau area via the transit centre.

The local public transit system will use the arterial and collector roads within the plan area. Private busing systems will be expected to use the same routes and stops as the public system.

In addition to providing rapid transit routes throughout the urban services area and to employment areas outside of the urban services area, the Regional Municipality of Wood Buffalo is also investigating transit priority measures to improve transit operations within the urban services area. Transit priority measures can include geometric improvements and traffic control improvements specifically designed for transit.

There is the potential to develop bus priority features such as the implementation of bus bulbs at bus stops along arterial roadways within the neighbourhood and the use of bus priority phasing at signalized intersections. The appropriateness of potential transit priority features will be examined further at the outline plan stage.

7.0 ENGINEERING SERVICES

7.1 Water Supply and Distribution

Amendment (Bylaw No. 12/028): Potable water supply in the Urban Service Area is provided through a centralized water treatment plant on the shore of the Athabasca River. Currently, the existing water treatment plant is undergoing an expansion to service a design population of 133,000. Water is supplied from the Water Treatment Plant through the Urban Service Area through a series of feeder trunk mains, reservoirs, and pump stations to provide water to different pressure zones.

In accordance with the Water Master Plan (Associated Engineering, 2011), the Saline Creek Plateau will be serviced from the newly constructed pump station at the east end of the Lower Town Site on Mills Avenue. This pump station will provide water to the expanded Mackenzie Reservoir via a new 750 mm transmission main to be installed by directional drill from Waterways to the top of the Plateau, and from the Plateau into Mackenzie. A 600 mm supply main will return to the Plateau from the Mackenzie Reservoir, and provide all of the domestic and fire-fighting demands for the Saline Plateau without the need for a dedicated reservoir within the development area.

A 400 mm supply line along Highway 69 to the Southeast Reservoir has recently been constructed and will provide redundant and secondary supply to the development area. This line can also provide the interim supply for development phasing until the other water infrastructure is completed.

Based on the Engineering Servicing Standards, the Area Structure Plan development area will have the following ultimate water demands:

Table 7-1: Potable Water Supply

Population	Average Day Demand Per Capita (liters/capita/day)	Average Day Demand (liters/second)	Peak Day Demand (liters/second)
20,896	360	87	174

Refer to *Map 10 – Water Servicing* for the recommended pipeline alignment. The final sizing and detailed alignment of the water distribution system will be analyzed in the Outline Plan stage. The size of internal watermains will depend on the actual fire flow requirements for each Neighbourhood area. A 400 millimetre loop around the proposed Village Centre is expected to provide the necessary capacity to reach the other neighbourhoods.

7.2 Sanitary Drainage

7.2.1 Offsite Collection and Disposal

Wastewater from the Urban Service Area is collected at a centralized Wastewater Reclamation Facility. The Wastewater Reclamation Facility is currently under construction. When operational it will have the capacity to service 133,000 people.

The Lower Townsite East End, Waterways, Beacon Hill, Gregoire and Abasand areas are currently connected to the East Sanitary Trunk. Several studies have reported that the existing sanitary sewer trunk is at its design capacity and during a wet weather event is likely to surcharge. Past inspections of the East Sanitary Trunk by the Regional Municipality of Wood Buffalo indicated that significant maintenance is required and the pipe is currently operating at a higher capacity than it is designed for, thus increasing the odds of surcharging and possible flood damage in the Lower Townsite.

Based on the design capacity and considering the current conditions, the East Sanitary Trunk cannot accept additional flows from new developments. A new lift station (LS1B) in the Lower Townsite is currently under construction connecting to the existing trunk sewer temporarily. A new forcemain will be required to bypass the existing gravity sewer and pump the wastewater directly to the Wastewater Reclamation Facility.

Sanitary Sewer Servicing for the Area Structure Plan area can be accommodated through a combination of gravity and siphon connections to Lift Station 1B. The Waterways community is currently serviced through a separate local collection system which flows to an existing lift station and forcemain, and discharges directly onto the East Trunk on Penhornwood Street.

Refer to *Map 10 – Water Servicing* for the recommended pipeline alignment. The final sizing and detailed alignment of the water distribution system will be analyzed in the Outline Plan stage. The size of internal watermains will depend on the actual fire flow requirements for each Neighbourhood area. A 400 millimetre loop around the proposed Village Centre is expected to provide the necessary capacity to reach the other neighbourhoods.

7.2.2 Onsite Collection

Amendment (Bylaw No. 12/028): Refer to *Map 11 - Sanitary Servicing*. A sanitary Trunk Sewer is currently underway which will provide offsite service to the Fort McMurray Airport and collect the onsite sanitary sewer flows from the development area. This trunk sewer will tie into the Saline Creek Outfall, which will convey wastewater via a pressurized inverted syphon to the system of lift stations in the Lower Townsite, and onward to the Waste Reclamation Facility. Topographical constraints will require lift stations within the development area to discharge into the Trunk Sewer.

Based on the Engineering and Servicing Standards, the plan area will have the following ultimate sanitary sewer flows:

Table 7-2: Sanitary Sewer Contribution

Population	Average Day Contribution Per Capita (liters/cap/day)	Average Day Flow (liters/sec)	Peaking Factor	Area (ha)	Infiltration (liters/sec)	Total Flow (liters/sec)
20,896	360	87	2.6	368.5	103	329

7.3 Stormwater Drainage

Map 12 – Stormwater Management illustrates the proposed stormwater management concept for the Saline Creek Plateau Area Structure Plan area.

From the contour information available, there is a highpoint in the center of the Area Structure Plan area close to the southern boundary. Given the area's triangular shape and the bounding river and creek valleys, the area can be divided into three basic catchment areas: the southwest basin which naturally drains to the west to Saline Creek; the northwest catchment area which drains west and east; and the east basin which drains to the north and south.

Although the topography suggests that the Area Structure Plan area is well drained, the nature of the soil and the vegetation suggests that much of the rainfall is retained in the plateau. In the east catchment area, contours show a relatively low-lying area. Air photographs suggest the area is boggy and retains water. The tree cover and natural vegetation in the other catchments will also retain rainfall. Several drainage courses or ephemeral draws within the catchment to carry the run off to the bounding creeks.

The development of the Area Structure Plan area will increase run off. This increased run off will further aggravate the potential for slope instability. Therefore, it is recommended that stormwater management methods be implemented to reduce the impact of increased runoff. Generally, drainage outlets should be limited to existing drainage courses. Runoff water should be directed to the Saline Creek or other existing unnamed creeks.

The Water Act is the provincial legislation governing the management of water bodies. The Alberta Environment Code of Practice for Outfall Structures On Water Bodies provides the necessary guidance for the construction of new outfalls to water bodies. The classification of a river or creek specifies the restricted activity period and the special conditions for some water bodies. The restricted activity period is based on the potential risk to fish habitat to the water body.

Alberta Environment classifies the Clearwater River as a "Class C" water body with a restricted activity period from September 16 to July 15. Saline and Saprae Creek are classified as "Class C" water bodies with a restricted activity period of April 16 to July 15. Prior to development of the Area Structure Plan area, an Environmental Assessment of Saline Creek must be completed by a qualified aquatic environment specialist to establish the following:

- Existing flows in the creek.
- Capacity of the creek to accommodate additional flow.
- Fish habitat and wildlife sensitive areas.
- Geologically sensitive areas and areas at risk of erosion.
- Areas of high risk of slope failure.

From the results of the study above, the Regional Municipality of Wood Buffalo can establish the Saline Creek Plateau Area Structure Plan area post-development run-off release rate. The study will also confirm requirements for water quality management of run off. Solid removal though settlement ponds or mechanical traps will be required at each outfall. Wet ponds near the top of bank are not recommended if slope stability is a concern. Minimizing the number of outfalls to the Creek will also be important.

7.3.1 Southwest Catchment Area (1)

Amendment (Bylaw No. 12/028): Refer to *Map 12 – Stormwater Management*

The southwest catchment area (1) has a topography that slopes in a radial pattern to the south and the west. The natural runoff is to Saline Creek. The catchment area is ±196 hectares. Three ponds are proposed to store the stormwater. The anticipated pond area is estimated to be ±10 hectares. The actual size of the ponds will be determined by the allowable runoff to Saline Creek.

It is recommended that the outlet of this pond be routed through pond 2A in Catchment 2. The outlet for these ponds should be combined and constructed to outlet to Saline Creek. Minimizing removal of vegetation on the slope and the disturbance to the natural slope is recommended. A piped outfaIl down the slope with provision for energy dissipaters is recommended.

7.3.2 Northwest Catchment Area (2)

Amendment (Bylaw No. 12/028): The northwest catchment area (2) naturally drains to the top of bank of the Saline Creek Valley on the west and the Clearwater River Valley on the north. The area is +124 hectares requiring +7 hectares of pond area for storage. The topography of the catchment area is relatively flat, and the shape linear, therefore two ponds are proposed to accommodate the stormwater.

Pond 2A should share the outfall with Pond 1. The outfall should be a piped outlet to the creek level with provisions for energy dissipation at the outlet to avoid erosion to the creek bed. Armoring the creek bed at the outlet may be required.

The outlet for Pond 28 should also be to Saline Creek. The impact of the runoff flow from the piped outlet, at creek level needs to be considered in the design of the outfall.

7.3.3 Southeast Catchment Area (3)

Amendment (Bylaw No. 12/028): The southeast catchment area (3) drains from the outside in. The contours suggest there is a low-lying boggy area in the center of the catchment. Overflow from the boggy area appears to drain to the southwest then easterly along Highway 69 to a tributary of Saprae Creek and though Saprae Creek to the Clearwater River.

The catchment area is ± 220 hectares. The proposed stormwater management facilities are estimated to be ± 13 hectares. Three stormwater management facilities are proposed to store flows from this catchment area: west, golf course and east stormwater management facilities. Flows from the West stormwater management facility outlet are routed towards golf course stormwater management facility. Storm flows directed to the west and golf course stormwater management facilities will be utilized for golf course irrigation. Therefore, the outflows from these facilities to Saprae Creek will be substantially constrained.

Lots south and west of the golf course will drain to a west-east pipe, in which flows are routed to the golf course stormwater management facility. The East stormwater management facility is proposed to store flows from Airport Commercial lots in the southeast corner of the plan area. Because the outflows are substantially constrained, the outlet of catchment area (3) is proposed for surface discharge to Saprae Creek, with use of erosion protection measures.

7.3.4 Saline Creek Parkway Drainage

The construction of the Saline Creek Parkway will be challenging on the slopes of the Clearwater River Valley. One issue is the removal of vegetation that assists in maintaining slope stability. The other issue to be considered is exposing the slope to erosion from surface water runoff. Paving the road will significantly increase the volume of surface water runoff and may concentrate the run off that accelerates erosion and therefore contributes to the instability of the slope.

Drainage of the surface of the Saline Creek Parkway through a dedicated storm sewer within the road way is required. The outfall of the storm sewer will be at the bottom of the road to the Clearwater River. Catchment of the storm sewer must be limited to the roadway only to minimize the runoff. Stormwater quality can be managed either by a

mechanical treatment at the outfall or by extending the storm sewer to the north and constructing an area in the flood plain to allow settlement of particles and to dissipate the energy from the grade.

7.4 Shallow Utilities

7.4.1 Natural Gas

Amendment (Bylaw No. 12/028): ATCO Gas provides distribution servicing throughout the Urban Service Area. Currently, the Area Structure Plan area is not serviced with gas. A high pressure Gas pipelines along Highway 69 may be able to provide the required supply from Mackenzie Industrial Park.

The Regional Municipality of Wood Buffalo is also considering alternative modes of heating to reduce natural gas consumption. The proposed development concept lends itself to connecting different buildings through centralized heating plants. For example, within the Village Centre, there is potential to use a central heating plant for several public buildings such as schools and the community recreation facility.

7.4.2 Power

ATCO Electric is the electrical service provider in the Urban Service Area. The franchise agreement should be reviewed to ensure that the Area Structure Plan area is included in ATCO's plans for expansion. Detailed servicing and extension of existing utilities must be reviewed at the Outline Plan stage.

7.4.3 Communications – Telephone and Cable TV

The existing telephone service provider for the Urban Service Area is TELUS. In addition to telephone service, supernet installations to the proposed school sites must also be considered to avoid future disruption to roadways.

Shaw Cable currently has a franchise agreement with the Regional Municipality of Wood Buffalo to provide television services in the Urban Service Area.

8.0 IMPLEMENTATION

The Saline Creek Plateau Area Structure Plan will be implemented through the following planning approvals.

8.1 Amendment to the Municipal Development Plan

An amendment will be required to the Municipal Development Plan Bylaw No. 00/005 to remove the Saline Creek Plateau Area Structure Plan area from the Rural Service Area and including it within the Urban Service Area boundary.

8.2 Amendment to Highway 69/Clearwater River Valley Area Structure Plan

An amendment would be required to the Highway 69/Clearwater River Valley Area Structure Plan Bylaw No. 99/058 removing the Saline Creek Plateau Area Structure Plan area from that Area Structure Plan Bylaw so as to avoid overlap of the two (2) Area Structure Plans.

8.3 Adoption of the Saline Creek Plateau Area Structure Plan

Adoption of the Saline Creek Plateau Area Structure Plan will provide the basis for the preparation of more detailed outline plans (Refer to Section 8.5), and amendments to the Land Use Bylaw establishing detailed zoning and plans of subdivision.

Other implementation actions include the following:

8.4 Development Staging

Amendment (Bylaw No. 12/028): Refer to *Map 13 – Staging.*

Development staging is subject to change as Saline Creek Parkway is still in the planning stages and the timing of construction is not confirmed. Modifications to the plan area's transportation system and /or population densities could limit the timing and ultimate developability of lands in the area.

At present, the access to the plan area is from Highway 69 and Airport Road. Hence, the development staging will progress northwards from the Area Structure Plan lands in the vicinity of Highway 69. The lands in the south-central portion of the plan area will be included in the earlier stages of the development. As well, the lands accessible by Airport Road and development of golf course can form the part of the early development stages.

Following the first development stages, the development staging will progress to the interior lands of the plan area. Development of lands in the north portion may occur in accordance with the above sequence of land development or upon the construction of the Saline Creek Parkway.

The development of lands in the north-west portion of the plan area will form one of the later stages of the development. These lands will not have access to the transportation and servicing infrastructure until the infrastructure in the majority of the plan area is developed.

8.5 Outline Plan Requirements

Outline plans will be required for each of the proposed neighbourhoods and village centre as an intermediate planning document to bridge the gap between the large-scale Saline Creek Plateau Area Structure Plan and individual plans of subdivision. All outline plans shall include:

a. A statement of compliance with the Municipal Development Plan and this Area Structure Plan and an identification of amendment requirements, if applicable;

b. An examination of existing land uses and physical features including vegetation, watercourses and topographic information (1 metre contours);

c. A detailed geotechnical study to confirm the location of the top of the bank and required set-backs as well as addressing any other geotechnical limitations such as gravel pits and excavations on Keyano College Lands;

d. The identification of environmentally sensitive features and measures for their protection;

e. An Environmental Overview or Impact Assessment and/or Audit;

f. An Archeological / Historical Impact Overview and/or Assessment;

g. A detailed land use plan illustrating all residential, commercial, mixed use, and institutional areas by type, location, and area;

h. A summary of land use areas and population generation in tabular form;

i. Proposed land use districting, as provided under the Land Use Bylaw;

j. The location of all playgrounds, linear parks, and pathways, and their integration with Fort McMurray's overall regional pathway network;

k. Elementary, junior high, and high school site areas and locations;

l. Arterial, collector and local road alignments and sizes supported by a Transportation Impact Assessment (TIA);

m. Proposed transit routes;

n. Proposed sanitary sewer, storm drainage, and water distribution facilities, alignments and locations;

o. Surface drainage patterns, storm pond and outfall locations, and proposed trunk mains;

p. Public utility lots and easement locations;

q. Ties to existing sanitary facilities, lift station and proposed trunk main locations;

r. Ties to existing water supplies, proposed trunk main locations;

s. How sustainable infrastructure practices and site designs have been effectively used to reduce the consumption of water, energy, and materials consistent with Leadership in Energy and Environmental Design for Neighbourhood Developments (LEEDS-ND Rating System – Preliminary Draft)

t. Details of the landscaped buffer of proposed noise attenuation measures along Highway 69;

u. Develop staging plans based on the logical extension of roadways infrastructure and proposed shallow utility networks; and

v. Any other matters the Municipality deems necessary.

8.6 Supporting Technical Studies

At the time of land use redesignation (rezoning), subdivision or approvals, additional technical information may be required in order to confirm the technical feasibility and design of the proposed land uses in the Area Structure Plan.

8.7 Subdivision and Development

Ensure that any applications for subdivision and development are consistent with the approved Saline Creek Plateau Area Structure Plan.

8.8 Functional Planning Study for Saline Creek Parkway

A functional planning study will also be required for the Saline Creek Parkway to establish its alignment, address geotechnical issues and integration with the regional transportation network. This study may also evaluate the impacts of the proposed roadway alignment through local communities and recommended options for mitigation.

8.9 Development Servicing Agreements

Require on-site and off-site costs associated with new development of roadways and infrastructure be borne by the developers through development charges and levies in accordance with specific development agreements.

8.10 Provincial Land Release Strategy

Continue discussions with the Province of Alberta regarding the timely release of Crown Lands within the Saline Creek Plateau Area Structure Plan area including the establishment of a Land Trust (or Land Bank).

8.11 Plan Amendments

The Regional Municipality of Wood Buffalo will provide for an orderly amendment process that includes community consultation for any proposed amendments to this Area Structure Plan. Applicants applying to amend the Saline Creek Area Structure Plan must provide a supporting technical report so that the Regional Municipality of Wood Buffalo can properly evaluate the proposed changes. The technical report must consider the following:

a. Justification for the amendment and, if applicable, why additional areas are needed for the proposed use;

b. The extent to which existing areas for the proposed use are available for development;

c. The cumulative effects the proposed amendment and related development will have on the natural environment and surrounding land uses;

d. The cumulative effect the proposed use will have on the roads, water, sewer, and stormwater system; and

e. Any other consideration the Regional Municipality of Wood Buffalo deems necessary.

8.12 Reviewing and Updating the Area Structure Plan

The Regional Municipality of Wood Buffalo will undertake to review and update, if necessary, the Area Structure Plan at five (5) year intervals from the date of adoption. This review should determine whether any changes are required to the current land use designations.

9.0 GLOSSARY OF TERMS

Adjacent

Refers to those lands that are next to the parcel of land in question and includes lands that would be next to the subject parcel if not for a river, stream, railway, road, utility right-of-way, or reserve land.

Area Structure Plan

An intermediate level statutory plan, adopted by bylaw, which details the intended land uses, road patterns, utilities and municipal services for subdivision and development of a specified area within the Municipality.

Building

Includes anything constructed or placed on, in, over or under land. This includes supporting structures of any type but does not include a highway or public roadway or a bridge forming part of a highway or public roadway.

Buffer

A natural or designed linear area of trees, shrubs, grass, earth berms, or fencing providing visual or physical separation and/or noise attenuation between water bodies, lots, roads, and other land uses.

Council

The Municipal Council of the Regional Municipality of Wood Buffalo.

Development

Development is defined in the *Municipal Government Act* specifically as:

a) an excavation or stockpile and the creation of either of them;

b) a building or an addition to or replacement or repair of a building and the construction or placing of any of them in, on, over, or under land;

c) a change of use of land or a building or an act done in relation to land or a building that results in or is likely to result in a change in the use of the land or building; or

d) a change in the intensity of use of land or a building or an act done in relation to land or a building that changes or is likely to change the intensity of use of the land or building.

Dwelling Unit

A complete building or self-contained portion of a building used by a household, containing sleeping, kitchen and sanitary facilities intended as a permanent residence and having an independent entrance either directly from the outside of the building or through a common area inside the building.

Environmental Reserve (ER)

A lot created by a plan of subdivision, as required under the *Municipal Government Act*, which is not suitable for development because of slope instability, groundwater, steep valley banks, flooding, soil conditions, pollution concerns, etc. Environmental Reserve lots may consist of a swamp, gully, ravine, coulee or natural drainage course, or a strip of land abutting the bed and shore of any lake, river, stream or other body of water in order to provide public access. An environmental reserve lot is identified by the "ER" suffix on the lot number in the

	legal description.
Environmentally Sensitive Area	An undisturbed or relatively undisturbed site that because of its natural features has value to society and ecosystems worth preserving but is susceptible to further disturbance.
Geotechnical	Pertaining to the condition of land and soils in an area, typically as it relates to use or potential use of the area for development.
Greenway	Open space linkages that include environment preservation areas, ravines, municipal and environmental reserves, farm trails, abandoned railways, wildlife habitats, and woodlands. Greenways connect various land uses throughout a community, thus serving as recreational destinations and transportation corridors.
Highway	A road that is designated as a primary highway or a secondary highway pursuant to the *Public Highways Development Act*.
Historical Resources Impact Assessment	An analysis of the potential impacts of development on archaeological and/or historical resources as defined in the *Historic Resources Act*.
Infrastructure	Systems and facilities (e.g. roads, sanitary sewers, water treatment and distribution networks, power lines, and telephone and cable TV systems) that service development.
Land Use District	An area of the Municipality established as a land use district by the Land Use Bylaw.
Lot	a) A quarter section; b) a river lot shown on an official plan, as defined in the Surveys Act, that is filed or lodged in a land titles office; c) a settlement lot shown on an official plan, as defined in the Surveys Act, that is filed in a land titles office; d) a part of a parcel of land described in a certificate of title if the boundaries of the part are described in the certificate of title other than by reference to a legal subdivision; or e) a part of a parcel of land described in a certificate of title if the boundaries of the part are described in a certificate of title by reference to a plan of subdivision.
Municipal Development Plan	A statutory plan adopted by Municipal Council under the authority of Section 632 of the *Municipal Government Act*. A Municipal Development Plan outlines direction and scope of future development, the provision of required transportation systems and municipal services, the coordination of municipal services and programs, environmental matters, and economic development with a given region. It is intended to provide direction for land use decisions that would satisfy the present

	and future needs of residents of the Municipality.
Municipal Government Act	The Statutes of Alberta, 1994, Chapter M-26.1, as amended, which govern the operation of a municipality in Alberta.
Muskeg	Waterlogged, spongy ground, consisting primarily of mosses, containing acidic, decaying vegetation that may develop into peat. Muskeg is generally unfit for intensive development.
Natural Features	Includes landscapes that are found in their natural state and may be remnant, undisturbed, diverse or contain unique environmental characteristics.
Objective	Directional statements that are usually phrased in measurable terms for given time frames.
Outline Plan	An intermediate planning document, required in specific circumstance, in order to bridge the gap between a large scale Area Structure Plan and an individual plan of subdivision.
Policy	A statement identifying a specific course of action for achieving objectives.
Rural Service Area	Lands whose boundaries are described by Order in Council and are generally regarded as those lands not identified as part of the Urban Services Area- Fort McMurray.
Stakeholder	Any group or individual who has a stake in what happens including those who will be directly and indirectly affected by a project.
Statutory Plans	A Municipal Development Plan, Area Structure Plan, Area Redevelopment Plan, or Intermunicipal Development Plan adopted by Municipal Council pursuant to the *Municipal Government Act*.
Subdivision	The division of a parcel of land into one or more smaller parcels by a plan of subdivision or other instrument.
Sustainable Development	Development that meets the economic, social, environmental and physical need of residents today without compromising the ability of future generations to meet their own needs. This means that a community needs to sustain its own quality of life, yet ensure that future growth does not impede the economic, social, environmental and physical resources of future generations.
Technical Report	A summary of background information relevant to the Area Structure Plan. A Technical Report is used to inform the Area Structure Plan but is not adopted as part of the Area Structure Plan bylaw.

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APPENDIX A: LAND USE AND POPULATION STATISTICS

SALINE CREEK PLATEAU AREA STRUCTURE PLAN

		Area (ha)	% of GDA
GROSS AREA		860	
Saline Creek Parkway		16.7	
Arterial Roadways		26.5	
Highway 69		16.3	
Environmental Reserve			
Slope (Below TOB)	*160.5*		
Slope (Above TOB)	*80.0*		
		240.5	
Recreational Uses			
Golf Course	*70.5*		
		70.5	
GROSS DEVELOPABLE AREA		489.5	100.0%
Non-Residential Uses			
Circulation (Collector Roads)		24.1	4.9%
Stormwater Management		20.0	4.1%
Public Service			
Open Space		*14.2*	*2.9%*
30m Firesmart Setback		*16.3*	*3.3%*
		74.6	15.2%
Park/School			
Shared Elementary School Site		*10.0*	
Public Elementary School Site		*8.3*	
Shared Jr. High School Site		*8.2*	
Shared High School Site		*16.1*	
Park		*3.8*	
		46.4	
Community Recreation		12.1	2.5%
Regional Commercial		12.2	2.5%
Convenience Commercial		2.6	0.5%
Airport Commercial		14.4	2.9%
Village Commercial		5.6	0.1%
		46.9	9.6%

Residential Developable Area

RESIDENTIAL LAND USE ANALYSIS

	Area (ha)	Density (Units/ ha)	Units	Persons/Unit	Population
Low Density Residential*	264.9	18.0	4,768	3.1	14,781
Village Low Residential	6.1	24.0	146	2.9	424
Medium Density Residential	27.9	45.0	1,256	2.9	3,643
Commercial/Industrial @ 50 person/ha	32.2				1,610
Lands with Development Limitation (South)*	8.5	9.0	77	3.1	239
Lands with Development Limitation (North)*	14.2	4.5	64	3.1	199
TOTAL	353.8		6,311		20,896

Notes:

* Persons/unit for Low Density Residential area accounts for secondary suites accommodated on approx. 15% of the total units in the area @ 1.5 persons/ unit.

** Lands with Development Limitations will be developed at 50% unit density (9 units/ha) as that of Low Density Residential (18 units/ ha) and accommodate secondary suites on 15% of the total suites @1.5persons/ unit.

***Lands with Development Limitations will be developed at 25% unit density (4.5 units/ha) as that of Low Density Residential (18 units/ ha) and accommodate secondary suites on 15% of the total suites @1.5persons/ unit.

APPENDIX B: STUDENT GENERATION

SALINE CREEK PLATEAU AREA STRUCTURE PLAN

Total Population	Student Generation					
	Public			Separate		
	K-6	7-9	10-12	K-6	7-9	10-12
20,000	895	402	530	597	268	353

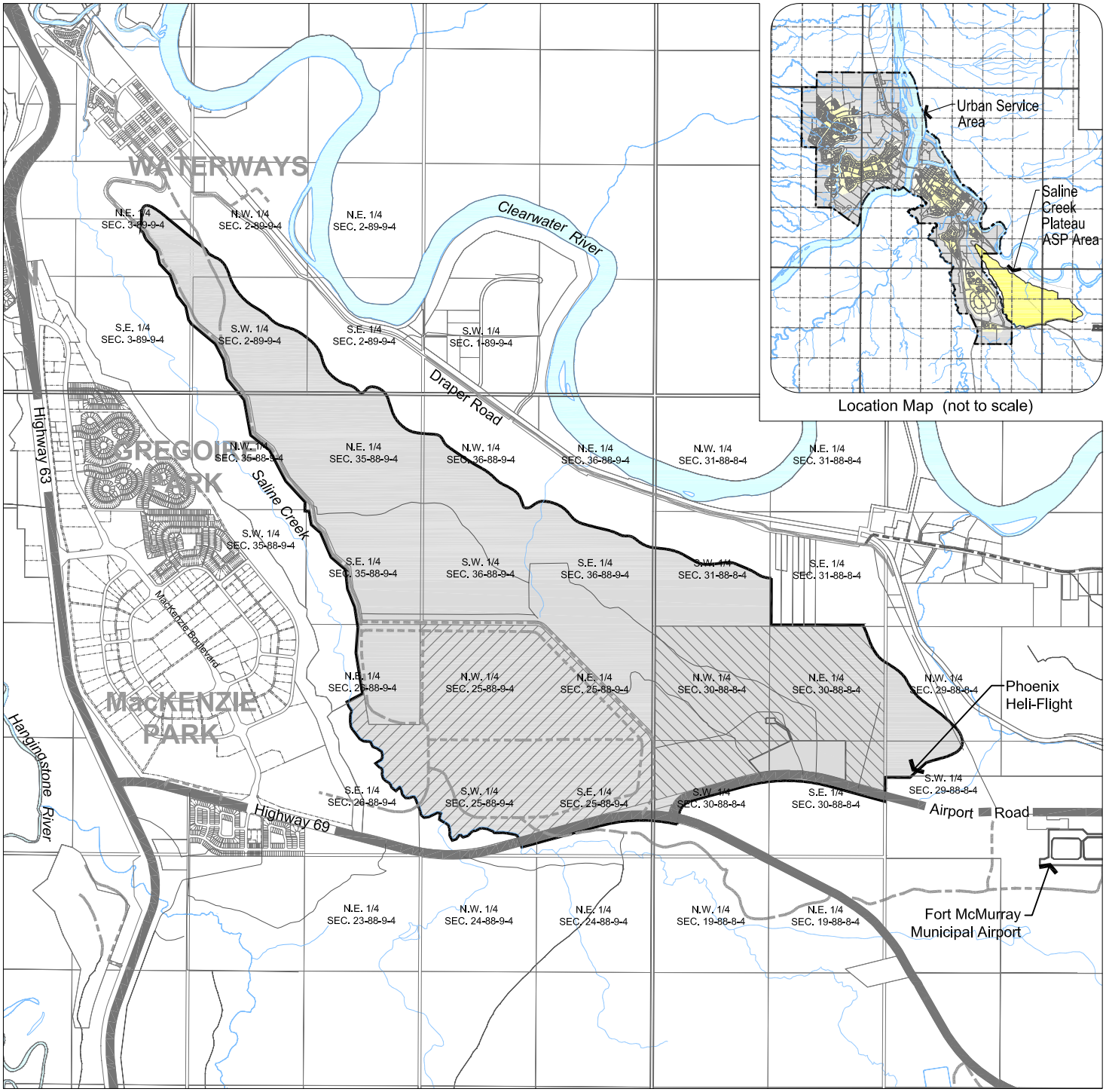
Public School Student Generation:

913 students per 10,000	people		=	1,826
	K-6	49%		895 students
	7-9	22%		402 students
	10-12	29%		530 students

Separate School Student Generation:

609 students per 10,000	people		=	1,218
	K-6	49%		597 students
	7-9	22%		268 students
	10-12	29%		353 students

Total Student Generation:				3,044
	K-6	49%		1,492 students
	7-9	22%		670 students
	10-12	29%		883 students



Legend

- Keyano College Lands
- Rotary Club Lease Area
- Highway
- Resource Road
- Unimproved Road
- Cutline
- Water Courses
- ASP Area

Map 1
Plan Area

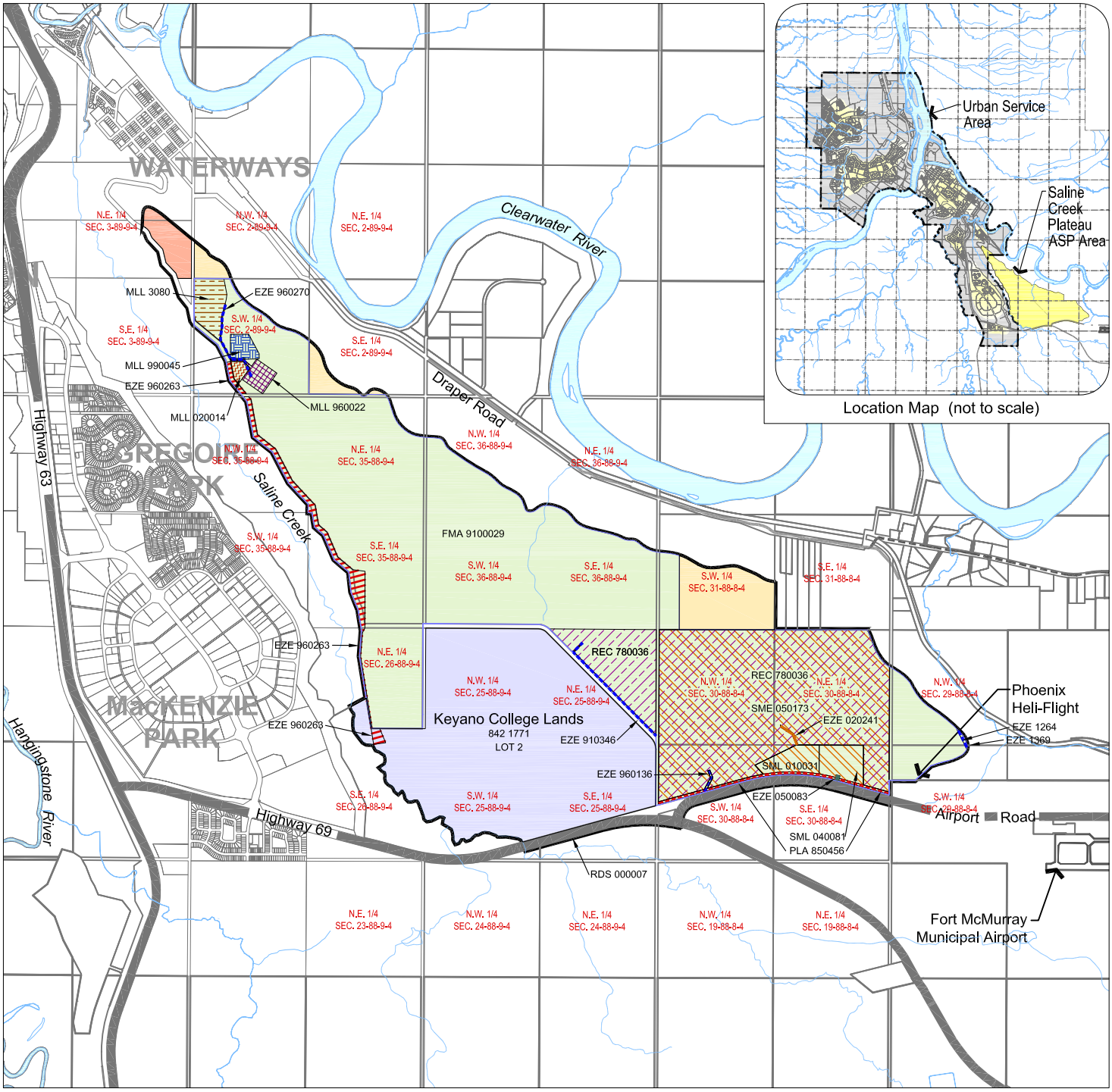
Regional Municipality of Wood Buffalo

Saline Creek Plateau Area Structure Plan

N

0 400 800 1600

Armin A. Preiksaitis & Associates Ltd. in association with: Associated Engineering



Legend

- Keyano College Lands
- Forest Management Agreement
- Regional Municipality of Wood Buffalo
- Other (Freehold and other Dept.)
- Rotary Club of Fort McMurray Lease
- H. Wilson Industries Ltd. Lease
- Telus Comm. Inc. Easement
- Rogers Wireless Inc. Lease
- Tele-Mobility Co. Lease
- OK Radio Group Lease
- Power Antenna Mfg. Lease
- Atco Electric Ltd. Easement
- Atco Gas and Pipelines Ltd. Pipeline Agreement
- H. Wilson Industries Ltd. Easement
- ASP Boundary

Map 2
Land Disposition

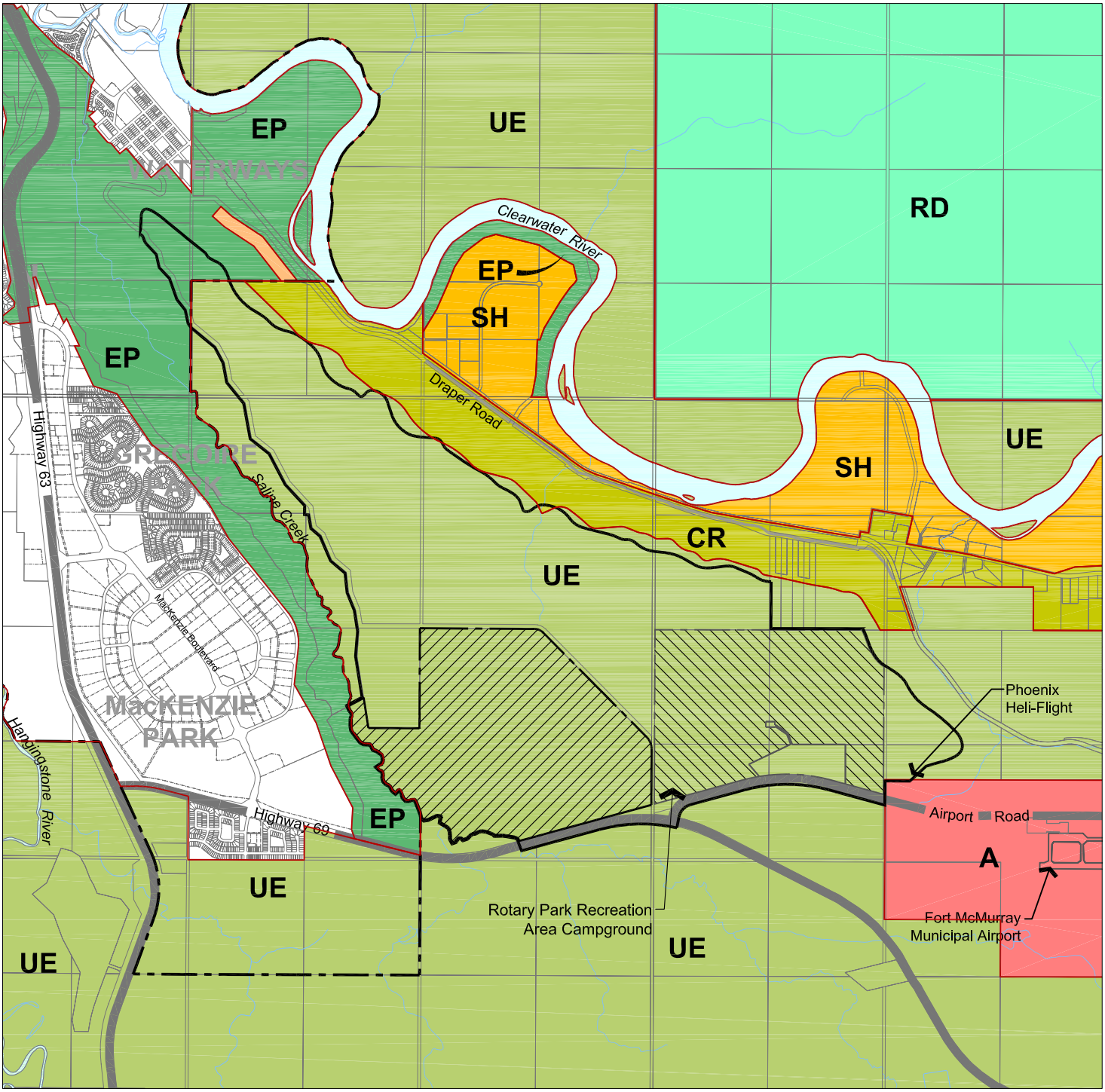
REGIONAL MUNICIPALITY OF WOOD BUFFALO

Saline Creek Plateau Area Structure Plan

N

0 400 800 1600

ARMIN A. PREIKSAITIS & ASSOCIATES LTD. in association with: Associated Engineering



Legend

- Keyano College Lands
- Rotary Club Lease Area
- RD - Rural District
- UE - Urban Expansion
- A - Airport District
- EP - Environmental Protection
- CR - Country Residential
- SH - Small Holdings
- DC-UER - Direct Control (Urban Estate Residential)
- Rivers
- Highways
- Urban Service Area
- ASP Boundary

Map 3
Existing Zoning

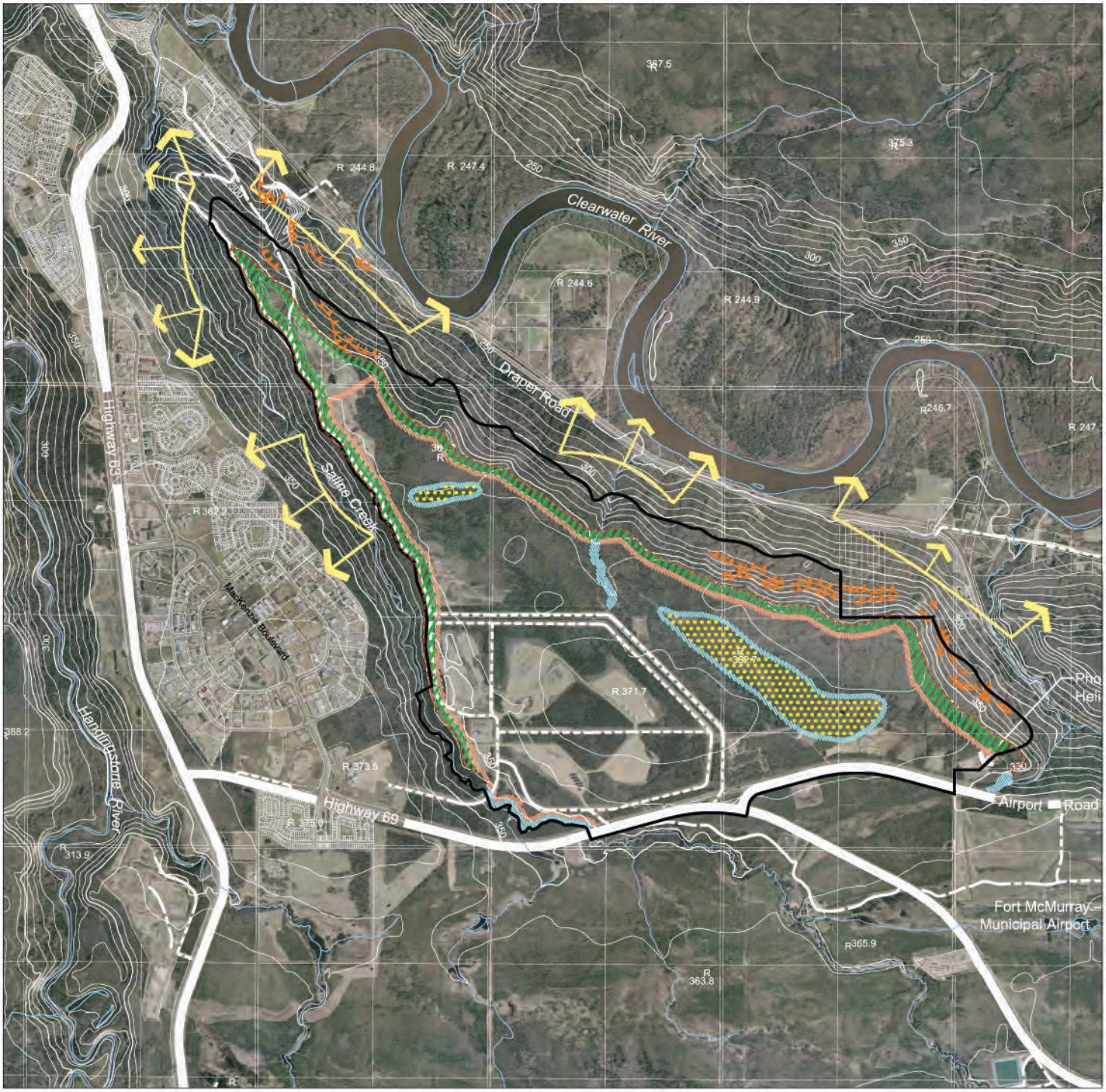
Regional Municipality of Wood Buffalo

Saline Creek Plateau Area Structure Plan

N

0 400 800 1600

Armin A. Preiksaitis & Associates Ltd. in association with: Associated Engineering



Legend

- 350 — 10m Contour Interval
- 30m Fire Break
- Possible Unfavorable Areas
- Setback From Water / Wet Areas
- Visible Slope Failures
- Top of Bank Setback
- Existing Views
- Top of Bank
- Highway
- Resource / Unimproved Road
- Water Courses
- ASP Boundary

Map 4
Site Analysis

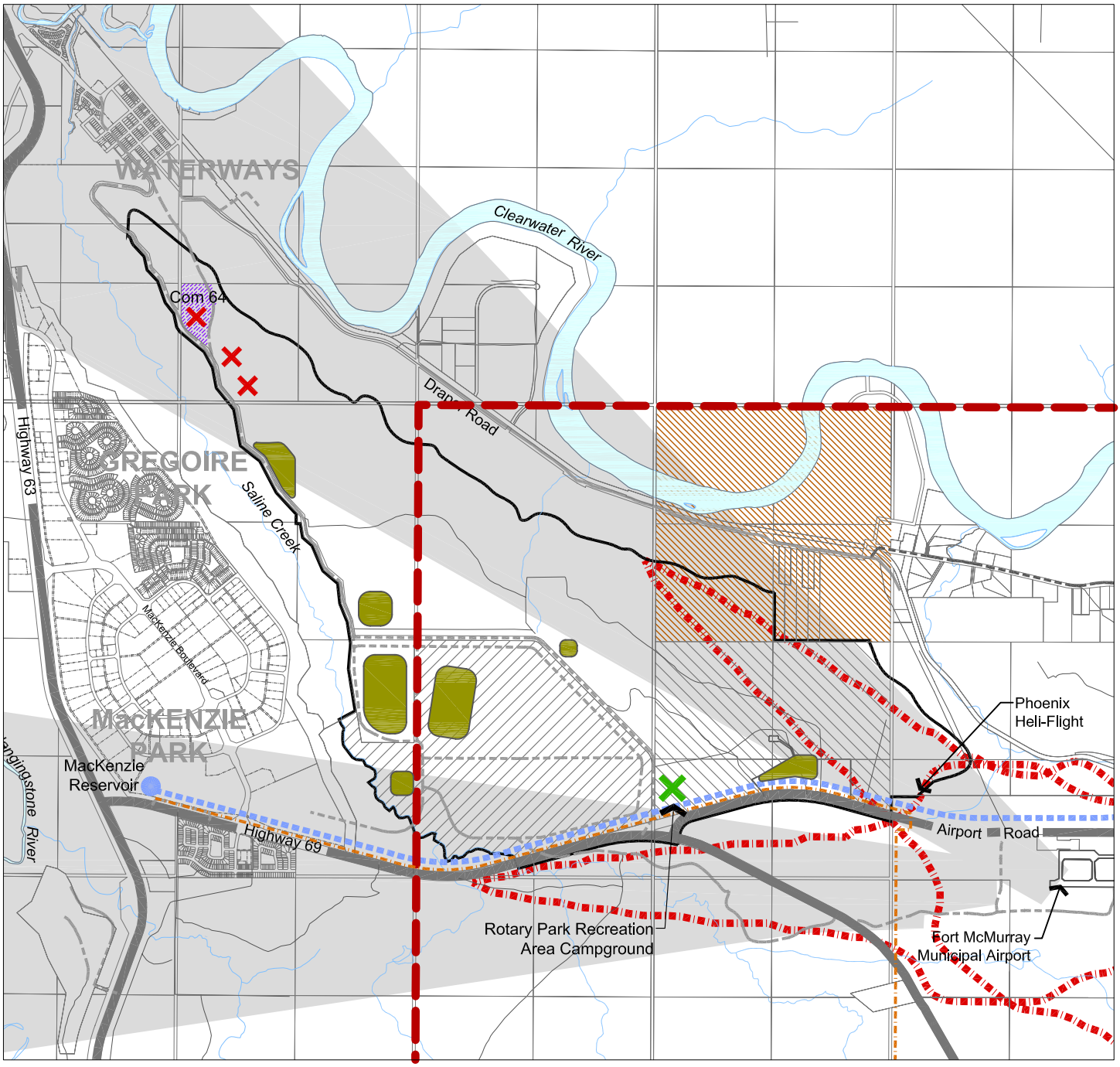
Regional Municipality of Wood Buffalo

Saline Creek Plateau Area Structure Plan

N

0 400 800 1600

Armin A. Preiksaitis & Associates Ltd in association with: Associated Engineering



Legend

- Keyano College Lands
- Rotary Club Lease Area
- Highways
- Resource Road
- Unimproved Road
- Cutline
- Noise Exposure Forecast Contour (2020)
- Airport Approach Surface
- Airport Outer Surface
- Existing Water Pipeline
- Existing ATCO Gas Pipeline
- Historical Resource Site
- Transmission Tower Site
- Gravel Workings / Excavations
- Existing Transmission Tower
- Existing Campground
- ASP Boundary

Map 5
Existing Development Constraints

Regional Municipality of Wood Buffalo

Saline Creek Plateau Area Structure Plan

N

0 400 800 1600

Armin A. Preiksaitis & Associates Ltd. in association with: Associated Engineering

SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 7 - Neighbourhood Units

NOT TO SCALE

JUNE 2012

IBI GROUP

LEGEND

- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- CONVENIENCE COMMERCIAL
- GOLF COURSE
- OPEN SPACE / PARKS / SCHOOLS
- TOP OF BANK SETBACK
- 30m LANDSCAPE BUFFER
- COMMUNITY RECREATION
- VILLAGE COMMERCIAL
- VILLAGE LOW DENSITY RESIDENTIAL
- REGIONAL COMMERCIAL
- AIRPORT COMMERCIAL
- STORMWATER MANAGEMENT FACILITY
- DEVELOPMENT LIMITATIONS
- ENVIRONMENTAL RESERVE
- FIRESMART FIREBREAK
- ASP BOUNDARY
- FUTURE ROAD CONNECTION
- TOP OF BANK LINE
- LOCAL ROAD
- NEIGHBOURHOOD UNIT BOUNDARY

NEIGHBOURHOOD - C

NEIGHBOURHOOD - B

NEIGHBOURHOOD - A

SALINE

SALINE CREEK

SALINE CREEK PARKWAY

DRAPER ROAD

CLEARWATER RIVER

HIGHWAY 63

MACKENZIE INDUSTRIAL

HIGHWAY 69

AIRPORT ROAD

PRAIRIE CREEK

2

27

TP 88 R 9

26

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SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 8 - Open Space System

NOT TO SCALE

LEGEND

- ENVIRONMENTAL RESERVE
- STORMWATER MANAGEMENT FACILITY
- OPEN SPACE / PARKS / SCHOOLS
- COMMUNITY RECREATION
- GOLF COURSE
- TOP OF BANK SETBACK
- 30m LANDSCAPE BUFFER
- DEVELOPMENT LIMITATIONS
- FIRESMART FIREBREAK
- FUTURE ROAD CONNECTION
- LOCAL ROAD
- URBAN CONNECTOR
- ASP BOUNDARY
- TOP OF BANK LINE
- REGIONAL TRAIL

IBI GROUP

JUNE 2012

SALINE

BRAPER ROAD

CLEARWATER RIVER

SALINE CREEK PARKWAY

SALINE CREEK

HIGHWAY 63

MACKENZIE INDUSTRIAL

ELEMENTARY / JUNIOR HIGH SCHOOL

HIGH SCHOOL

ELEMENTARY SCHOOL

ELEMENTARY / JUNIOR HIGH SCHOOL

GOLF COURSE

GOLF COURSE

AIRPORT ROAD

HIGHWAY 69

PRAIRIE CREEK

TP 88 R 9

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SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 9 - Transportation

NOT TO SCALE

LEGEND

- DIVIDED ARTERIAL ROADWAY
- UNDIVIDED ARTERIAL ROADWAY
- COLLECTOR ROADWAY
- SALINE CREEK PARKWAY
- POTENTIAL FUTURE ROAD
- FIRESMART FIREBREAK

IBI GROUP

JUNE 2012

SALINE

FORT MCMURRAY

2

1

27

TP 88 R 9

26

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SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 10 - Water Servicing

NOT TO SCALE

JUNE 2012

IBI GROUP

LEGEND

- PROPOSED WATER LINE NETWORK
- SITE CONNECTION POINTS TO EXTERNAL WATER NETWORK
- EXTERNAL WATER LINE NETWORK

EXISTING 750mm WATER SUPPLY LINE

EXISTING 600mm WATER DISTRIBUTION LINE

EXISTING 750mm WATER SUPPLY LINE

EXISTING 400mm WATERLINE

PROPOSED WATERLINE

PROPOSED 300mm WATERLINE

TO OFFSITE WATER CONNECTION TO AIRPORT

EXISTING 400mm WATERLINE

SALINE

SALINE CREEK

SALINE CREEK PARKWAY

BRAPER ROAD

CLEARWATER RIVER

CLEARWATER RIVER

HIGHWAY 63

HIGHWAY 63

HIGHWAY 63

HIGHWAY 69

AIRPORT ROAD

MACKENZIE INDUSTRIAL

PRAIRIE CREEK

TP 88 R 9

2

26

27

300 Ø

400 Ø

250 Ø

200 Ø

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SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 11 - Sanitary Servicing

NOT TO SCALE

JUNE 2012

IBI GROUP

LEGEND

- ① CATCHMENT NUMBER
- CATCHMENT AREA BOUNDARY
- PROPOSED SANITARY TRUNK SEWER
- MAJOR TRUNKS
- PROPOSED SANITARY FORCEMAIN
- SERVICING PATTERN
- PROPOSED LIFT STATION
- OFFSITE SANITARY FORCEMAIN CONNECTION

SALINE

OUTFALL SYPHONS

DRAPER ROAD

CLEARWATER RIVER

SALINE CREEK PARKWAY

FORT MCMURRAY

SALINE CREEK

HIGHWAY 63

MACKENZIE INDUSTRIAL

27

TP 88 R 9

26

HIGHWAY 63

HIGHWAY 63

POSSIBLE 300mm OFFSITE SANITARY FORCEMAIN CONNECTION PER WWMP

HIGHWAY 69

PROPOSED OFFSITE SANITARY FORCEMAIN CONNECTION FROM AIRPORT

AIRPORT ROAD

TO OFFSITE SEWER CONNECTION TO AIRPORT LIFT STATION

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SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 12 - Stormwater Management

NOT TO SCALE

IBI GROUP

JUNE 2012

LEGEND

- ① CATCHMENT NUMBER
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA BOUNDARY
- MAJOR TRUNKS
- OUTFALLS

SALINE

DRAPER ROAD

CLEARWATER RIVER

SALINE CREEK PARKWAY

SALINE CREEK

HIGHWAY 63

MACKENZIE INDUSTRIAL

27

TP 88 R 9

26

HIGHWAY 63

HIGHWAY 63

HIGHWAY 69

AIRPORT ROAD

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SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 13 - Staging

NOT TO SCALE

JUNE 2012

IBI GROUP

LEGEND

- STAGING BOUNDARY
- 1 Keyano Development Stages
- R1 Rotary Development Stages
- G1 Government of Alberta Development Stages

SALINE

FORT MCMURRAY

MACKENZIE INDUSTRIAL

HIGHWAY 63

DRAPER ROAD

CLEARWATER RIVER

SALINE CREEK PARKWAY

SALINE CREEK

PRAIRIE CREEK

HIGHWAY 69

AIRPORT ROAD

TP 88 R 9

27

26

G4 G3 G2 G1

1 2 3 4 5

R6 R5 R4 R3 R2 R1 R2A

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SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 14 - Ownership

NOT TO SCALE

IBI GROUP

JUNE 2012

LEGEND

- Keyano Lands
- Rotary Lands
- Government of Alberta Lands

RAILWAY

SALINE

CREEK

N.W. 1/4 SEC.2, TWP.89, RGE.9, W.4 MER.

S.W. 1/4 SEC.2, TWP.89, RGE.9, W.4 MER.

S.E. 1/4 SEC.2, TWP.89, RGE.9, W.4 MER.

2

35

TP 88 R 9

LOT 2
BLOCK 1
PLAN 112 4621

LOT 4
BLOCK 2
PLAN 112 4621

LOT 5
(IN TWO PARTS)
BLOCK 1
PLAN 122 1953

LOT 6
(IN TWO PARTS)
BLOCK 2
PLAN 122 1953

LOT 3
BLOCK 3
PLAN 122 1953

LOT 8
BLOCK 4
PLAN 122 1953

LOT 1
PLAN 842 1771

LOT 2
PLAN 842 1771

27

TP 88 R 9

26

CLEARWATER RIVER

DRAPER

ROADWAY

PLAN 112 2284
BLOCK 1

BLOCK 1
PLAN 042 6271

BLOCK 1
PLAN 062 6005

PLAN 013 0995

PLAN 9920494

pt 501

pt 502

pt 828

S.W. 1/4 SEC.31, TWP.88, RGE.8, W.4 MER.

N.W. 1/4 SEC. 30, TWP.88, RGE.8, W.4 MER.

N.E. 1/4 SEC.30, TWP.88, RGE.8, W.4 MER.

S.E. 1/4 SEC.30, TWP.88, RGE.8, W.4 MER.

S.W. 1/4 SEC.30, TWP.88, RGE.8, W.4 MER.

N.W. 1/4 SEC.29, TWP.88, RGE.8, W.4 MER.

SAMPAE CREEK

UTILITY RIGHT OF WAY 862 1388

ROAD PLAN 885 PX

ROADWAY 885 PX

S.W. 1/4 SEC.30, TWP.88 RGE.8, W.4 MER.

S.E. 1/4 SEC.30, TWP.88, RGE.8, W.4 MER.

ROAD PLAN 962 1811

S.W. 1/4 SEC.30, TWP.88, RGE.8, W.4 MER.

UTILITY RIGHT OF WAY 862 13

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