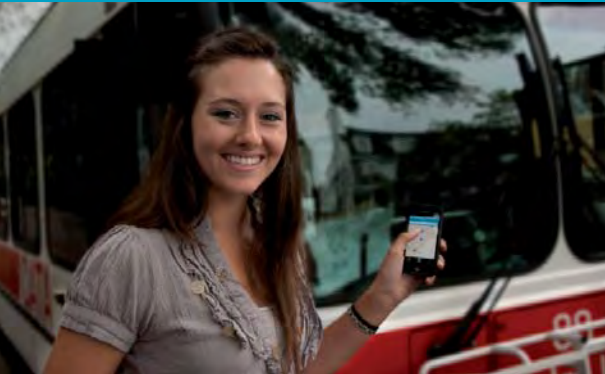


Keyano College Lands Saline Creek Plateau Outline Plan Report

March 2015



REGIONAL MUNICIPALITY
OF WOOD BUFFALO



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Figure 2 – Land Development Concept

Figure 3 – Open Space System

Figure 4 – Transportation Network

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Figure 6 – Potential Transit Network

Figure 7 – Water Distribution System

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Supporting Information

APPENDIX E

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1. KEYANO COLLEGE LANDS OUTLINE PLAN AREA

1.1 Location and Plan Boundary

The Keyano College lands are located within the Saline Creek Plateau Area Structure Plan area – one of the preferred growth areas identified in the Fringe Area Development Assessment – Urban Service Area (Regional Municipality of Wood Buffalo, 2007). The regional and local context is presented in **Figure 1 – Location** of this report.

The Keyano College Lands Outline Plan boundaries are:

North Boundary – Undeveloped Government of Alberta lands in the northern portion of the Saline Creek Plateau Area Structure Plan area

West Boundary – Undeveloped Government of Alberta lands in the west portion of the Saline Creek Plateau Area Structure Plan area and Saline Creek

South Boundary – Highway 69 and Saline Creek

East Boundary – Undeveloped Government of Alberta lands and Keyano College lands that form part of the Rotary Lands Outline Plan.

Highway 69 provides direct access to the Keyano College lands which in turn connects the Outline Plan area to Highway 63 and Airport Road. Highway 63 connects to the Fort McMurray City Centre.

For integrated planning purposes, the lands located immediately adjacent to the Keyano College lands are also included in the Outline Plan area. A shadow plan is provided to illustrate the feasibility of continuous land use and infrastructure planning on these lands.

1.2 Land Ownership

Keyano College owns the land parcel legally described as Lot 2; Plan 8421771 in the Saline Creek Plateau Area Structure Plan area. This parcel comprises 247 hectares (610 acres) of land; of which 213 hectares (526 acres) fall under the Saline Creek Plateau Area Structure Plan area. The remaining 34 hectares (84 acres) of lands are located to the southwest of the Saline Creek and are not a part of the Outline Plan area.

The lands outside the boundaries of the Keyano College lands are primarily owned by the Government of Alberta.

1.3 Compliance with Statutory Plans

The Keyano College Lands Outline Plan is in compliance with the following statutory plans.

1.3.1 REGIONAL MUNICIPALITY OF WOOD BUFFALO MUNICIPAL DEVELOPMENT PLAN

The Fort McMurray Municipal Development Plan (MDP) designates the lands in the Saline Creek Area Structure Plan area as 'New Neighbourhoods'. The Keyano College Lands Outline Plan is in accordance with the Municipal Development Plan's goals; which are Responsible development, Environmental stewardship, Economic resilience, and Home and belonging. The Outline Plan is in compliance with the following policies of the Municipal Development Plan.

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

The Keyano College Lands Outline Plan assists in accommodating population growth outside the existing built-up areas of Fort McMurray. The Outline Plan caters for a range of housing choices and densities to meet market demands, whilst achieving higher average densities than existing neighbourhoods. Housing choice and a mix of uses and a compact urban form are planned and will be developed in a manner consistent with transit oriented development (Principles), ensuring efficient and effective land use and transport integration ((Pg. 62, Municipal Development Plan, Regional Municipality of Wood Buffalo Bylaw No. 11/027, October 2011).

- **Policy U.1.5 – Plan for hierarchy of retail and commercial centres**

A Village Centre and Regional Commercial District are provided centrally within the Keyano College Lands Outline Plan, providing a full range of retail and commercial services which are conveniently located and supported by transportation and transit networks. The Village Centre addresses the day to day retail needs of residents, whilst also acting as a key destination and activity area for the neighbourhood (Pg. 63, Municipal Development Plan, Regional Municipality of Wood Buffalo Bylaw No. 11/027, October 2011). The Regional Commercial District is ideally located to maximise exposure and access, and is of a scale and type to support the neighbourhood without detracting from efforts to revitalize the City Centre.

- **Policy U.2.1 – Focus on Transit**

The Land Development Concept has been designed and provides a reliable, safe, convenient and accessible transit service system throughout the year (Pg. 64, Municipal Development Plan, Regional Municipality of Wood Buffalo Bylaw No. 11/027, October 2011). The Transportation and Pedestrian Cycle Network is efficient in design to ensure the majority of residents are within 400 metres walk of transit options and key destinations within the neighbourhood.

- **Policy U.2.2 – Promote integration of urban transportation systems**

Transportation and Transit networks are integrated with Pedestrian, Bicycle and Open Space networks within the Outline Plan to ensure smooth interchanges between systems and promote alternative modes of transportation. Integration of pedestrian connections and open space is maximized, enhancing safety, comfort and amenity. Likewise, the Land Use Concept ensures vehicular flow is reserved to higher order roads, thereby reducing pedestrian and vehicular conflicts in local residential streets. Bicycle stands and lockers, bicycle accommodation on transit, sheltered transit nodes, and park-and-rides, among many other possibilities, will be considered in design stages of the neighbourhood. Detailed design will promote complete streets that provide equal opportunity for all modes of mobility (Pg. 64, Municipal Development Plan, Regional Municipality of Wood Buffalo Bylaw No. 11/027, October 2011).

- **Policy U.3.1 - Develop an interconnected and accessible green network**

The Outline Plan provides a range of parks and recreational facilities which are integrated and highly accessible via both the Transportation and Pedestrian and Bicycle Networks. The green network also connects residents and places of employment, encouraging its use as a means of getting to work (Pg. 66, Municipal Development Plan, Regional Municipality of Wood Buffalo Bylaw No. 11/027, October 2011).

- **Policy U.3.2 – Develop a river trail system**

The Clearwater and Athabasca Rivers provide scenic beauty to Fort McMurray. The Municipality will take advantage of this amenity by ensuring that river banks within the urban areas are secured for public use and enjoyment and by building a river trail system along banks promoting active living while connecting nodes of activity.

The Regional and multi-purpose trail networks of the Outline Plan area are linked with the Regional Municipality of Wood Buffalo's river trail system (Pg. 66, Municipal Development Plan, Regional Municipality of Wood Buffalo Bylaw No. 11/027, October 2011).

1.3.2 SALINE CREEK PLATEAU AREA STRUCTURE PLAN

The existing Saline Creek Plateau Area Structure Plan (Bylaw No. 07/058) was adopted in June 2007 and an amendment to this Plan was approved by Bylaw No. 12/028 in July 2012. The Keyano College Lands Outline Plan is in compliance with the community vision, and planning principles articulated in the Area Structure Plan as demonstrated throughout this document. This plan also meets the 'Outline Plan Requirements' listed in the Implementation section of the Area Structure Plan.



2. DEVELOPMENT CONCEPT OVERVIEW

The development concept is based on the planning principles articulated in the Saline Creek Plateau Area Structure Plan. This Outline Plan is in compliance with the Vision for Sustainable Community identified in this Area Structure Plan. The Area Structure Plan not only outlines the Planning Principles for the Plan area, but also identifies the need for applying best practices in neighbourhood design and developing architectural design guidelines.

The Keyano College Lands Outline Plan is a step towards developing a more detailed plan for the subject area on the basis of in-depth technical studies. These technical studies are submitted to the RMWB and a list of these studies is included in **Appendix E – List of Technical Studies**.

The Outline Plan also includes lands adjacent to the Keyano College lands, to ensure comprehensive, continuous, and efficient planning of land uses and servicing infrastructure in the Saline Creek Plateau area. The planning layout shown for the lands outside the Keyano College owned lands is subject to change at each respective land owner's discretion. Prime features of the development in the Outline Plan area are as listed below:

2.1 Mix of Land Uses






The Saline Creek Plateau Area Structure Plan envisions and encourages mixed use and sustainable development in this area. **Figure 2 – Land Development Concept** shows the proposed land use district designations for the Keyano College lands.

By the virtue of the Keyano College lands' central location in the Saline Creek Plateau area, the Outline Plan area is home to a mix of land uses and the community core. These uses include single and multi-family residential, schools, parks, regional commercial, and a higher density, mixed-use, and vibrant community core; also referred as the Village Centre. This **Village Centre** consists of retail and small business commercial, a wide range of residential development, a transit centre and a recreation complex. Residential densities are higher throughout the Village Centre than that in the rest of the Saline Creek Plateau Area Structure Plan area.



This mix of land uses in the Outline Plan area creates a diverse, vibrant, and inclusive community that meets housing, shopping, and recreational needs of its residents and that of the neighbouring areas. A variety of housing styles including single family, semi-detached, triplexes, fourplexes, town houses, row houses, cluster housing, stacked townhomes and three (3) to six (6) storey apartments are proposed throughout the Outline Plan area. Low density residential areas are flexible in design to allow the Outline Plan to respond to changing

market and consumer trends as development progresses within the neighbourhood. Additionally, low density residential development in this area also allows for the secondary suites (secondary suites are discussed in Section 2.4 of this document). Diversity in housing types provides for the accommodation of different income and age groups in the plan area and create opportunities for affordable and rental housing. The proposed densities for the Outline Plan area are in accordance with the approved Saline Creek Plateau Area Structure Plan Amendment (Bylaw No. 12/028) and are as follows:

	Low Density Residential	18 units/ha
	Medium Density Residential	45 units/ha
	Village Low Density Residential	24 units/ha

Low density residential neighbourhoods are located along the Saline Creek valley slopes and within the interior part of the Outline Plan area and will be developed in a combination of single family and semi-detached product. Multi-family residential sites are located along the collector roads in the vicinity of public amenities such as schools, recreation complex, Transit Centre, and shopping areas. Residential neighbourhoods are connected to public amenities, transit, and park system by a multi-modal transportation network which includes the multi-purpose trail network, transit network, and vehicular road network.

2.2 Village Centre

The Village Centre is a special character area located centrally within the Saline Creek Plateau Area Structure Plan area. This area is framed by two divided arterial roadways to its east and west, Highway 69 to the south, and a recreation complex site to the north.

The Village Centre accommodates a mix of land uses including retail, small office commercial, street oriented low and medium density residential, and institutional uses. A Transit Centre is proposed close to the Village Centre site and will not be part of a road right of way. A **Transit Centre** is a facility that may include multiple bus bays, sheltered bus stops, and waiting areas, restrooms, and changing facilities for the transit staff. The Transit Centre is located adjacent to the recreation complex which makes shared parking between recreation facilities and the Transit Centre a viable option. In addition to the Transit Centre, transit nodes are interspersed throughout the Village Centre for the convenience of the residents and visitors. **Transit nodes** are areas within road right of ways that are dedicated for transit related uses including drop-offs, sheltered bus stops, kiss-'n'-rides and taxi stands. Together these land uses and amenities form the social core of the community. The Village Centre is well connected to the surrounding neighbourhoods in and adjacent to



the Keyano College lands by a multi-modal transportation system. The Village Centre is directly accessible by arterial road network and in the close vicinity of the Transit Centre, which ensures easy access from surrounding areas.

The Village Centre acts as a social node – a gathering place for not only the residents of the Keyano College lands, but the entire Saline Creek Plateau. The mix of land uses creates diversity in the community centre. Retail uses along with residential development in the area create round-the-clock community presence and opportunities for social interaction.

Development in the Village Centre is pedestrian friendly, diverse, lively, and attractive. This can be achieved by applying planning and design principles included in the Saline Creek Plateau Area Structure Plan and this Outline Plan respectively. The Village Commercial District, located centrally within the Village and creating a 'Main Street' experience for residents, will be subject to a more specific planning and design guidelines to address architectural and urban design of the Village Centre.

2.3 Multi-modal Transportation

Appendix B.2 illustrates the proposed road right-of-way configurations and cross-sections for the Keyano College Lands Outline Plan area.

Figure 2 - Land Development Concept shows a modified fused grid road network system as recommended in the Saline Creek Plateau Area Structure Plan. The modified fused grid road pattern along with the hierarchy of roads creates an efficient transportation network, resulting in enhanced connectivity and convenience in transporting people and goods within and to and from the Outline Plan area. This system also enhances pedestrian safety in the Plan area by separating vehicular and pedestrian movements and ensuring vehicle movement through the neighbourhood is reserved to higher order roads. This is reflected in the Land Use Concept with residential precincts designed to prevent shortcuts (i.e. rat running) through residential areas.

The Transit Centre for the Saline Creek Plateau area will be developed in conjunction with the recreation complex abutting the Village Centre development. The Transit Centre may accommodate both public and private transit services. This Transit Centre may include sheltered bus stops, changing facilities for the transit staff, and rest rooms. In early stages of development, on-street bus stops or bus bays may be sufficient to serve the population. The off street Transit Centre will be developed by the Regional Municipality of Wood Buffalo when development in the Saline Creek Plateau advances. It is recommended that all residential areas of the Outline Plan be served by transit, with routes located within a walkable distance of any residential development. Transit nodes in the form of on-street bus bays, taxi stands, and drop off areas are proposed



in the Village Centre and in the vicinity of the Regional Commercial development. Transit is further discussed in **Section 5.3 - Transit** of this document.

Pedestrian linkages and multi-purpose trails are interspersed throughout the community connecting residential neighbourhoods to public amenities, open spaces, shopping areas, and transit in the Outline Plan area. The streets have sidewalks and multi-use trails to accommodate pedestrians and bicyclists (Refer to Figure 3 - Open Space System and Figure 5 - Pedestrian and Bicycle Network). Where appropriate, traffic calming measures may be incorporated to ensure the safety of the pedestrians. These measures may include and not be limited to the provision of crosswalks, separated sidewalks, controlled and signalized intersections, and flaring or bulb outs at intersections.

The regional trail runs along the south boundary north edge of Highway 69 and along the north boundary of the Outline Plan area, abutting north edge of Saline Creek Parkway. The regional trail network provides connections to the surrounding communities.

2.4 Secondary Suites

As one of the fastest growing communities in Canada, housing affordability is a pressing concern in Fort McMurray. Hence, creating an adequate supply of rental and affordable housing choices is a high priority of the Municipality.

The Saline Creek Plateau Area Structure Plan accounts for secondary suites in approximately 15% of the total units in the Low Density Residential District. This increases the density and create rental opportunities in the Outline Plan area. The income from the secondary suites may provide a “mortgage helper” opportunity for the home owners in the Plan area.

Secondary suites in the Outline Plan area can be in the form of basement suites or garage top suites. A **Garage top suite** is a secondary suite located in a separate accessory building in conjunction with a garage having rear lane access.

Lot size, access, and additional parking requirements are the three (3) important factors that need to be addressed when accommodating secondary suites in the development. **Lot Development Typology Options** as illustrated in **Appendix C** were created for the Low Density Residential development in the Outline Plan Area. All Low Density Residential lots in the Outline Plan area will be in compliance with the Lot Development Typology Options and regulations of the Municipality's

Land Use Bylaw. Secondary suites are only permitted on lots that provide four or more on site parking stalls. Lots with rear lane access, with a double car garage and a parking pad for additional two (2) cars, are the most suitable to accommodate garage top suites. Development and allocation of the secondary suites will be regulated through the bylaws and the land use development permit process.

Developers in the Outline Plan area will require builders and/or home owners to submit plot plans indicating the location and foot print of the proposed garage, as part of the design control process. Design of a garage top suite is subject to the same design control process.

Accessory buildings accommodating garage top suites are to exhibit similar or complimentary architectural style and treatments as that of the main building on the lot. Building facades facing lanes and main buildings should be aesthetically pleasing. Roof lines and slopes are to be appropriate to the building style and complimentary to the primary building design and adjacent development. Building setbacks for accessory buildings with garage top suites are to be in compliance with the setbacks as identified in ***Lot Development Typology Options- Appendix C***. The Municipality's current Land Use Bylaw allows for an accessory building up to 60 sq.m. Building height of the accessory buildings with a garage top suite is not to exceed 7.2 m as specified in the Municipality's Land Use Bylaw. The upper storey should be set back from the backyard open space (open space between the main building and the accessory building on the lot) and limited to 70% of the at grade foot print. If balconies are developed, they should be oriented towards the lane.

3. DESIGN PRINCIPLES

Urban and building design, and sustainability initiatives undertaken in the Outline Plan area will impact overall aesthetic value and socio-economic aspects of the community. This section articulates the design principles for the development in the Keyano College Lands Outline Plan area.

These design principles are based on the planning principles outlined in the Saline Creek Plateau Area Structure Plan and contribute towards achieving the vision of the Area Structure Plan.

3.1 Urban Design Principles

Below are the Urban Design Principles for development in the Outline Plan area. This palette of design principles will assist in creating a vibrant, pedestrian friendly, walkable/bikeable, sociable, and safe public realm contributing to a healthy and livable community. Below are the Urban Design principles which will shape the public realm throughout the Outline Plan area.

3.1.1 DIVERSITY AND INCLUSIVITY

Objective 1 Create a live-work-play community through a harmonious mix of land uses.

Objective 2 Create a balanced community inclusive of all socio-economic groups.



Diversity is encouraged by promoting a mixed use development with compatible land uses such as residential, institutional, commercial, and recreational. The range of uses meet the day to day needs of residents without the need to travel outside the neighbourhood. The Outline Plan encourages a mix of commercial and residential land uses in the Village Centre. Schools, parks, recreational facilities, and convenience stores are interspersed throughout the community.



Diversity in housing types range from large to small lot single family housing, semi-detached housing, triplexes, fourplexes, cluster housing, seniors' housing, and walk up apartments. In addition, secondary suites create rental opportunities in the area. This wide range of housing styles meets the needs of various income, ethnic, and age groups in the community.

Diverse yet compatible architectural building treatments will create interesting and attractive streetscapes in the area, giving the community its identity and sense of place.



3.1.2 CONNECTIVITY

Objective 1 Create a vehicular and pedestrian/non-motorized vehicular transportation network for efficient transport of people and goods.

A modified fused grid road network with a hierarchy of roads serves the Outline Plan area. The proposed road network enables multiple road access to key destinations and recreation areas within the neighbourhood. This helps in distributing vehicular traffic within the Outline Plan area and moderate traffic congestion. Hence, the road network enhances connectivity and efficiency in commuting. Regular intersections equipped with appropriate and efficient traffic control measures increases safety on the streets.

All the focal points and social nodes in the Outline Plan area, including school sites, parks, recreation complex, Village Centre, and public amenities are easily accessible by both vehicular and pedestrian linkages.

3.1.3 WALKABILITY

Objective 1 Create a healthy community where people can walk and/or bike to work, schools, shops, transit, and recreational facilities.

A walkable community is where people's day to day needs are met within a 5 minute walking distance radius. The provision of block lengths less than 200 metres can assist in achieving walkability, although block lengths may exceed this provision if they do not hinder access or a mid-block pedestrian walkway is provided. Block lengths are also influenced and should respond to the road network and design standards, particularly along higher order roads (i.e. arterials/major collectors) where access points should be minimized for road function and safety.

All streets in the Outline Plan are proposed to be pedestrian and bike friendly. Appropriately sized sidewalks and multi-purpose trails connecting focal points and social nodes in the community enhances the walkability of the area. Street furniture and amenities including benches, street lights, and bike racks will encourage residents to walk and/or bike. Barrier free design will be provided throughout the community, where appropriate.



Street oriented housing and business and /or retail commercial development creates a 'eyes on the street' effect, resulting in an increased level of safety and enhanced walkability.

3.1.4 URBAN AND BUILT FORM

Objective 1 Create a sense of place and define character/identity of neighbourhoods.

Objective 2 Create a vibrant, diverse, and lively community all year-round.

Urban fabric and built form play an important role in defining the character and the identity of a place. A compact/dense urban fabric with walkable block sizes and road network, mix of land uses, green spaces, and social nodes interspersed throughout the community contribute towards a healthy, vibrant, livable, sociable, and diverse community.

Public spaces, including sidewalks, open space and plazas, defined a public/urban realm for the neighbourhood. Built form defines the location and function of these public spaces. Buildings close to the front property line help in reducing the impact of severe weather conditions, such as wind, rain and snow. Building façades act as a shared interface between the public (outdoor) and private (indoor) realms. Through effective use of windows, glass facades, inviting entry ways, patios, and canopies, the interaction between indoor and outdoor spaces can be enhanced. These active and passive connections between indoor and outdoor spaces contribute to the safety on street by creating an 'eyes on street' effect and also benefit local businesses.

High quality built form, design and variation adds to the aesthetic value of public spaces they surround. Adjacent buildings as well as those on the same block are complimentary to each other in terms of their architectural styles and overall appearance. Building massing, styles, colours, and textures significantly contribute towards the success of the urban public spaces. Public spaces are to be designed to and/ or located to capture and enhance attractive natural views overlooking the Saline Creek and Clearwater River valleys.

3.1.5 WINTER CITY APPROACH

Objective 1 Address extreme climate through site planning, architectural design, and landscaping.



Weather can affect the social life of a place. Fort McMurray, being a winter city, experiences severe weather conditions with temperatures below -10°C for a significant part of the year. Hence, serious consideration to the climate is necessary while designing and planning these places.



Sociable outdoor spaces and walkable streets for year-round use can be created by incorporating design elements that provide protection/ shelter from extreme weather conditions. Site planning is a critical tool in planning for the cold climates. Streets, buildings and open spaces should be oriented to maximize sun exposure. In addition, building massing and architectural treatments can modify weather conditions and such options should be explored. Building elements such as store canopies and awnings can create shelter from the rain and snow; whereas use of glass can provide protection from cold while maintaining visual connection with the outdoors. Walking trails and green linkages can be used for cross country skiing or snowshoeing.

Winter cities may look dull and unattractive when covered with snow and leafless trees. The use of brighter colour palette for building facades can



contribute towards vibrant and lively streetscapes, especially in business/shopping districts. Use of pedestrian oriented lighting in streets, open spaces, and commercial developments will be encouraged enhance the liveliness, vibrancy, and safety in public realm.

3.2 Architectural Design Principles

A variety of housing styles and forms are encouraged throughout the residential neighbourhoods to ensure that the diverse housing needs of the population are met. Low Density Residential development in the Outline Plan area provides for single family and semi-detached homes with front or rear garages. Secondary suites are allowed in low density housing types. See **Appendix – C - Lot Development Typology Options** for plot plans showing accommodation of the secondary suites and parking associated with them.

Residential development in the Village Centre may accommodate semi-detached, triplexes, fourplexes, row housing, stacked town homes, clustered housing, and walk-up apartments. Street oriented residential housing forms are highly encouraged in the Village Centre. Retail and small business development in the Village Centre will be compact while zero front setback is highly recommended. Commercial store bays will be narrow in width to create more store entrances along the block length. General commercial will be accommodated at the main level of the walk-up apartment buildings in the Village Centre.

The concept of 360 degree architecture (where all building facades are designed and developed to architectural standards that contribute to the quality of face they front on to) is highly encouraged, especially in the Village Centre development. Institutional and recreational buildings will showcase high standards of architecture and may act as the “signature” buildings for the Outline Plan area. Facilities such as schools and the recreation complex have large sites and open spaces associated with them in the form of outdoor fields and parking area. Therefore, these sites offer more flexibility in site planning and building orientation and design. These sites have potential to be designed to optimize energy efficiency through climate sensitive site planning, building orientation, and use of energy efficient materials, building practices, and green appliances. For example, more windows and glazed surfaces can be placed on south façades of the buildings. Building massing and landscaping can create wind screens and shelter adjacent open spaces such as plazas and sidewalks from rushing winds, rain, and snow.

Architectural standards and diversity in housing forms will be achieved through the development and implementation of the Design Guidelines by the developers in the Outline Plan area.

3.3 Sustainability Principles

Objective 1 Incorporate sustainable practices throughout the various aspects of urban development including urban planning and design, transportation, and servicing infrastructure.

Objective 2 Promote walkability and encourage use of transit.





Objective 3 Encourage a mix of land uses and housing types that meet the community's day to day and diverse housing needs.

Objective 4 Allow for heat generating technologies where it is practical and cost-effective, such as solar air heating, solar hot water heating, geothermal heating, heat recovery, and district energy.

Objective 5 Allow for the potential of sustainable electricity generation where it is practical and cost effective.

Objective 6 Minimize the development impact on the local and regional ecosystem, through environmentally sensitive development approach and mitigation measures.

Objective 7 Encourage use of energy efficient materials, construction practices and appliances.

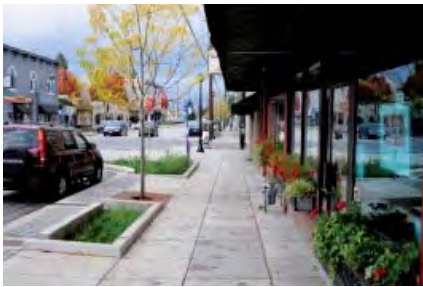
This plan promotes a healthy and walkable community, as it incorporates a modified fused grid road network with wide sidewalks and a multi-purpose trail network planned throughout the community. The trail network connects residential development to various destinations, focal points, and open spaces that are distributed through-out the community. Smaller block sizes are used and residents' day-to-day needs such as schools, parks, convenience stores, and transit stops are met within a walkable distance. A live-work-play environment is promoted in the Outline Plan area through the creation of a mixed use development. A variety of housing types and secondary suites are encouraged in the Outline Plan area. This assists in addressing diverse housing needs in the region.

Both public and private transit is encouraged throughout the Saline Creek Plateau, connecting residents to the community amenities within the areas, adjacent neighbourhoods, job sites, the City Centre and the Regional Airport. A centrally located Transit Centre serves the community. Transit stops will be located within a five minute walking distance of any residential development. See **Section 5.3** of this Outline Plan.

Builders are encouraged to use energy efficient construction materials. Resource sensitive construction practices are encouraged to conserve energy and reduce waste. Energy efficient appliances, plumbing fixtures, and other energy conservation practices are encouraged to be incorporated in building development.

Incorporation of district energy utilities will be provided for the Village Centre in conjunction with the recreation complex site, high school site, and regional commercial site. Larger building footprints, compatible uses, and compact development in the Village Centre makes the area favourable to explore and implement the district energy system options.

Sustainable development initiatives are incorporated in the Plan area. The quality and flow rates of water bodies will be maintained through effective stormwater management. Environmentally sensitive areas are maintained through environmental reserve and open space dedications. Low maintenance and native landscaping is used where possible to reduce concrete surfaces and allow for stormwater infiltration.



4. LAND USE DISTRICTS OVERVIEW

4.1 Village Commercial District

4.1.1 OBJECTIVES

- To create a “Main Street” equivalent shopping experience for the residents of Saline Creek Plateau.
- Contribute to the live, work, and play character of the Village Centre.
- Allow for a mix of commercial retail, small business, and complimentary uses to create a centrally located social node for the Saline Creek Plateau.
- Create many businesses and entrances on the street, which in turn will create a vibrant street life and opportunities for social interactions.
- Allow for compact building forms.

4.1.2 PURPOSE

The Village Commercial District includes retail commercial such as restaurants and cafes, commercial offices and art studios/galleries. The district is designed on the ‘Main Street’ theme with the focus on creating a high quality pedestrian oriented place. Retail commercial uses are concentrated at the street level, whereas small office commercial are located on the second level. There is an opportunity to incorporate some residential units on the second level along with the office commercial use depending on the market demand.

Development in this district is street oriented to contribute towards a lively, diverse, and vibrant streetscape. The street oriented development with many entrances and windows along the street creates an interactive public realm, maximizing casual surveillance opportunities and contributing to the safety of the pedestrians. Development in this district is pedestrian friendly with tree lined boulevards and attractive street furniture suitable to the adjacent development. Opportunities for social interactions can be created by creating pocket parks, patio spaces, and providing seating. Parking is provided in the form of on street parking and surface parking lots at the rear of the buildings. Building side and rear facades is interactive with rear entryways with windows incorporated in the design, where feasible. These facades are aesthetically pleasing, especially where commercial land use is adjacent to and/ or backs on to residential development. Back lanes are well lit, landscaped, and maintained to provide safe access to the surface parking located at the rear side of the buildings.

KEYANO COLLEGE LANDS OUTLINE PLAN DESIGN PRINCIPLES

URBAN DESIGN



Diversity and Inclusivity

- Create a live-work play community through a harmonious mix of land uses.
- Create a balanced community inclusive of all socio-economic groups.



Transportation Connectivity

- Create a vehicular and pedestrian or non-motorized vehicular transportation network for efficient transport of people and goods.



Walkability

- Create a healthy community where people can walk and or bike to work, schools, shops, transit and recreational facilities.



Urban and Built Form

- Create a sense of place and define character or identity of neighbourhoods.
- Create a vibrant, diverse and lively community all year round.



Winter City Approach

- Address extreme climate through site planning, architectural, urban design and landscaping.



ARCHITECTURAL DESIGN



Site Planning

- Energy efficiency can be achieved through climate sensitive site planning



Diversity in Housing / Building Styles

- Variety of housing styles will serve diverse income groups and age groups.
- Affordable housing will be created through innovative design.
- Diverse but compatible architectural building treatments will create interesting streetscapes.



Secondary Suites

- Secondary suites will be allowed in the Outline Plan Area.
- Secondary suites will create affordable and rental housing opportunities and act as a mortgage helper for the home owners.



Village Centre

- Retail and small business development running along the central axis of the Village Centre will be compact. Commercial storebays will be narrow in width to create more store entrances along the block length.
- Residential development will be street oriented.



Institutional and Recreational

- High standards of architecture and urban design will be incorporated. Buildings with large footprints should be designed to optimize energy efficiency through site planning, building orientation and material selection.



SUSTAINABILITY



Urban Development

- Incorporate sustainable practices throughout the various aspects of urban development including urban planning and design, transportation, and servicing infrastructure.



Alternative Energy Generation

- Where feasible and efficient, allow for sustainable electricity and heat generating technologies such as solar and geothermal.



Environment

- Allow for xeriscaping and the use of natural planting and landscaping.
- Minimize urban development impact on the eco-system of the area and protect environmentally



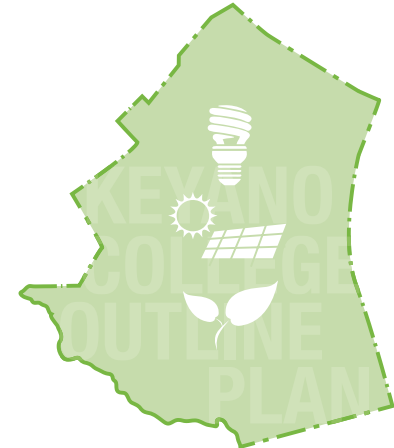
Transportation

- Promote a walkable community through multi-purpose trail networks, wider sidewalks and smaller blocks
- Promote public transit through an easily accessible Transit Centre, transit nodes, and bus stops that connects residents to amenities, adjacent neighbourhoods and job sites.



Building Development

- Encourage the use of energy efficient construction materials and sustainable construction practices.





4.1.3 DESIGN GUIDELINES

A separate design guidelines document will be prepared specifically for the Village Precinct.

4.1.4 CORRESPONDING LAND USE DISTRICT

A corresponding land use district will be prepared/identified as part of a separate design guidelines document for the Village Commercial District.

4.2 Village Residential District

4.2.1 OBJECTIVES

Objectives for this district are as follows:

- Allow for street oriented, compact, low and medium density residential development in the Village Centre.
- Allow for the Village Low Density Residential (24 units/ha) on the respective sites allocated in the Saline Creek Plateau Area Structure Plan and this Outline Plan. The Village Low Density Residential District provides for alternative housing product and greater density and design than the Low Density Residential District.
- Allow for the Medium Density Residential (45 units/ha) on the respective sites allocated in the Saline Creek Plateau Area Structure Plan and this Outline Plan.
- Create around-a-clock activity contributing to sociability and safety of the Village Centre.
- Contribute to the live, work, and shop character of the Village Centre.

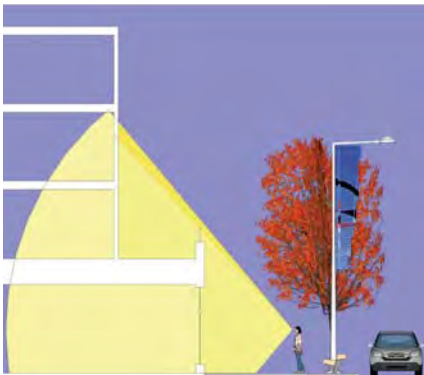
4.2.2 PURPOSE

The Village Residential District accommodates Village Low Density Residential and Medium Density Residential sites as identified in this Outline Plan and in compliance with the Saline Creek Plateau Area Structure Plan. Low Density Residential development in this district includes semi-detached homes and provides for greater density, design and housing product than the Low Density Residential District (s4.5); whereas Medium Density Residential development allows for stacked town houses and row houses. This District will complement the Village Commercial development to create a Village Core that is vibrant, diverse, and pedestrian friendly.

Residential development in this district encourages lane oriented garages and/or parking access and street oriented development with compact and innovative housing forms.

4.2.3 DESIGN GUIDELINES

- Development in this district will be street oriented. A maximum 4.5 m front building setback for Village Low Density development is highly recommended.
- Vibrant building colours and high quality finishing materials highly encouraged in this district.
- Heritage contemporary housing styles will be promoted in this district.
- Entry ways to the residential neighbourhoods and the Village Commercial District will be well defined with the use of attractive entry features and landscaping.
- Building heights are not to exceed three (3) storeys.
- Landscape will help define streets, lanes and pedestrian networks.
- Detailed architectural guidelines will be developed and implemented by the builders and developers.
- Consideration should be given to the rear and side building facades to create safe lanes providing primary accesses to the garages.



Step back upper floors to reduce visibility. Pedestrians will be less aware of upper floors and attention will be drawn to street level activities and features.

4.2.4 CORRESPONDING LAND USE DISTRICT

A land use bylaw district or a site specific district specifically developed for the Saline Creek Village Residential development will allow for low and medium density development in the Village Centre and address housing form and density that will allow for clustered housing and shared parking arrangements. The district/s will encourage development that is complimentary to overall character of the Village Centre.

4.3 Village Mixed Use District

4.3.1 OBJECTIVES

- Allow for medium density residential development (45 units/ha) with commercial at ground level.
- Combine commercial uses including retail and office commercial uses and community oriented services that are complimentary to the residential land uses of this district.
- Enhance diversity and safety in the Village Centre.

4.3.2 PURPOSE

The Village Mixed Use District is intended to add more density and diversity to the Village Centre. This district accommodates four (4) and six (6) storeys with commercial use at the grade level. This maximizes casual surveillance, enhancing the safety in the Village Centre.



Commercial use in this district may include convenience stores, personal service shops, small restaurants, and coffee shops. This district could include institutional uses such as seniors' homes and daycare facilities. This location provides easy pedestrian access to shopping, transit, and recreation.

This district is pedestrian and bike friendly with tree lined streets, wider sidewalks, and appropriate street furniture. Refer to Appendix B.2 - Road Cross Sections. Parking spaces for the residential units are provided to the rear of the buildings or underground, where feasible. Parking required for the commercial units is provided in the form of street parking and surface parking lots to the side or rear of the building or underground, where feasible.

4.3.3 DESIGN GUIDELINES

- Main level commercial development should be located along pedestrian spaces and pathways to allow for interaction.
- Sidewalks and pedestrian connections are provided to link the buildings together.
- Sidewalks are sheltered with canopies and awnings, to provide protection from harsh weather.
- Residential development (second storey upwards) may be setback from the front façade.
- Building height in this district is not to exceed six (6) storeys.
- Where building is setback from the front property line, the sidewalk is extended to the building façade, making that space a continuation of public realm. Different paving materials may be used to distinguish between the sidewalk and the building front setback.
- Patios, extended store displays awnings, and street furniture such as benches can be accommodated within the sidewalks and building front setbacks.
- Treed boulevards accommodate street lights, fire hydrants, bicycle stands, traffic control signage, and other street furniture complimentary to the adjacent land uses.
- Pedestrian scale lighting is highly encouraged in this district.
- The majority of the main level front façade should be glazing, creating visual contact between indoor and outdoor spaces.
- Surface parking lots visible from the street are to be buffered by appropriate landscape treatment.
- Surface parking lots to the rear and side of the buildings are well lit and landscaped. Landscaped islands will also be incorporated to break continuous expanse of parking lots.

- Development of parkades is encouraged in this area and should be located to the rear sides of the buildings.
- Rear and side facades have windows and balconies enhancing the safety by creating eyes on the parking lot/s.
- Long continuous building facades should be avoided through building massing and architectural elements such as balconies, window box-outs, and canopies.
- This architectural vocabulary of this district should be complimentary to the development in the Village Commercial and Village Residential Districts.
- Developers prepares design guidelines for the building forms and sites of this district.

4.3.4 CORRESPONDING LAND USE DISTRICT

The RMWB's R5-MU – Apartment and Commercial Mixed Use District is the most suitable for the development of the Village Mixed Use Development. The R5-MU district allows for apartment building up to six (6) storeys with retail commercial at ground level.

4.4 Regional Commercial District

4.4.1 OBJECTIVES

- Provide for the comprehensive development of larger scale commercial establishments and small box and large format stores.
- Provide for walkable and pedestrian friendly, medium to large scale retail commercial development in the form of a shopping centre and/or independent commercial/retail units.

4.4.2 PURPOSE

The Regional Commercial District abuts Highway 69 and has direct access from arterial roads traversing the Outline Plan area. The Regional Commercial District is served by public transit and be connected to the Transit Centre via the Village Commercial District.

This prime location makes the Regional Commercial District convenient for both the residents of the Saline Creek Plateau area and commuters of Highway 69.

4.4.3 DESIGN GUIDELINES

- Commercial buildings placed in proximity to the street with parking located interior to the site is highly recommended.
- Pedestrian safety measures such as cross walks, traffic control



signs, lower speed limits, and pedestrian scale and street lighting is incorporated in this district.

- Entry points to this commercial development are well defined with inviting and attractive entry features.
- Sidewalks and pedestrian connections are provided to link the buildings together.
- Sidewalks are sheltered with canopies and awnings, to provide protection from harsh weather.
- Parking areas are well landscaped and lit to create safe access to buildings. Continuity of surface parking on the site is softened by landscaped islands. Sidewalks are incorporated into landscaped islands to allow easy pedestrian access to buildings.
- Development of parkades and underground parking should be considered in this district. Parking structures should be located internally within the site and easily accessible from HWY 69.
- Street furniture such as benches, bicycle stands, parking and pedestrian oriented lights, and garbage receptacles are provided in this district.
- Building envelopes accommodate extensive use of glazing, creating visual connection between indoor and outdoor spaces.
- Contemporary architecture or modern interpretations of heritage architecture is highly encouraged in this district.
- High quality building finishes such as masonry and stucco should be incorporated in building design.
- Loading/unloading and service areas are buffered from public view by appropriate landscape treatment.
- Detailed design guidelines are prepared by the developer/s for this district.

4.4.4 CORRESPONDING LAND USE DISTRICT

The RMWB's C3 – Shopping Centre District is the most suitable district to allow for the development of the Regional Commercial development. This District allows for larger scale commercial establishments as well as small and large format stores.

4.5 Low Density Residential District

4.5.1 OBJECTIVES

- Provide single family and semi-detached residential development at

a density of 18 units per net developable hectare as identified in the Saline Creek Plateau Area Structure Plan.

- Allow for secondary suites to create affordable and rental housing options.
- Encourage low impact development through energy efficient building practices and materials.

4.5.2 PURPOSE

The Low Density Residential District primarily comprises of single family and semi-detached residential housing. The Land Use Concept does not specify the location of single family vs. semi-detached product within this District, allowing for flexibility to respond to changing market trends and consumer needs as development progresses in this District. Secondary suites are permitted in this district. To accommodate additional parking requirements associated with the secondary suites, the lot development in this district will be in compliance with the **Lot Development Typology Options-Appendix C** and the Municipality's Land Use Bylaw. Secondary suites in this district can be in the form of basement suites or garage top suites where garages are accessed by lanes. Four (4) off-street parking stalls are provided on all lots within this district.

Allocation and development of the secondary suites will be regulated through the development permit process, enforcement of development permits and the Land Use Bylaw. Residential densities are in accordance with the Municipal bylaws and as specified in the Saline Creek Plateau Area Structure Plan.

Street oriented housing is encouraged in this district. This enhances the street appeal, walkability, and pedestrian safety. Residential neighbourhoods are connected to the community amenities through the regional and multi-purpose trail network and sidewalks.

Lands with development limitations are located in the northern portion of the Outline Plan area outside the Keyano College lands boundaries. These development limitations are mostly due to the steep topography of the area. This area requires further technical investigation to articulate servicing solutions for the area. Building design also needs to respond to the existing topography and may include design approaches such as walk-out basements or drive under garages.

4.5.3 DESIGN GUIDELINES

Design guidelines for this district are as follows:

- Contemporary heritage building architectural styles are encouraged.
- High quality building materials and bright/vibrant colours are used in the development. Exterior finishing materials may include vinyl siding, hardboard, masonry, stucco, and timber.

- High visibility rear building elevations are designed with well proportioned building features including windows, patios, balconies, doors, and garages.
- Garage top suites shall follow the general design guidelines as discussed in **Section 2.4**
- Lot development are in compliance with the lot typology options articulated in **Appendix C**, to allow for on-street and off-street parking associated with the primary and secondary residential units on the lot.
- Developers prepare detailed design guidelines for residential development in this district.
- Developer's design guidelines require a builder/home owner in this district to indicate the location and footprint of a garage on plot plans. This information is a requirement for the design review and approval process specified in the design guidelines for this development.

4.5.4 CORRESPONDING LAND USE DISTRICT

The RMWB's Land Use Bylaw districts, R1-Single Detached Residential District and R1S – Single Family Small Lot Residential District, allows for the development of single family detached and semi-detached residential development. In addition to being in compliance with the regulations of the above land use districts, the development shall also comply with the Lot Typology Options in **Appendix C**.

4.6 Medium Density Residential District

4.6.1 OBJECTIVES

- Provide a wide range of medium density housing at a density of 45 units per net developable hectare.
- Encourage low impact site and building development through the use of environmentally sensitive planning, design, and construction practices and energy efficient building materials.

4.6.2. PURPOSE

The Medium Density Residential District allows for townhouses, stacked townhouses, row housing, clustered housing, and three (3) to four (4) storey walk up apartments. Street oriented development is encouraged to enhance walkability, safety, and streetscape in the community. Medium density residential sites are in the vicinity of schools, park sites, and neighbourhood convenience commercial sites and are directly accessed by collector roads. The medium density residential sites are connected to the focal points and communal amenities in and around the plan

area through the regional and multi-purpose trail networks, continuous sidewalks, and public and private transit network.

4.6.3 DESIGN GUIDELINES

- Architectural styles which blend heritage and contemporary design promoted in this district.
- Architectural and urban design compatibility of adjacent houses and neighbourhoods should be taken into consideration.
- Use of masonry on highly visible building facades is strongly encouraged.
- Vibrant housing colour palettes is promoted in this district.
- Use of high quality vinyl siding, hardboard, stucco, and masonry are highly recommended in this district.
- Entryways are well defined with attractive entry features and/or landscape.
- Developers create design guidelines for the development in this district.

4.6.4 CORRESPONDING LAND USE DISTRICT

To allow for the development of Medium Density Residential, the respective sites in the Outline Plan will be redistricted to the RMWB's R3 – Medium Density Residential District. The R3 allows for townhousing, row housing, stacked townhousing, and walk-up apartments.

4.7 Convenience Commercial District

4.7.1 OBJECTIVES

Objectives for this district are as follows:

- Provide neighbourhood scale commercial establishments throughout the community.
- Provide pedestrian friendly and easily accessible commercial development that conveniently meets the community's day to day shopping requirements.

4.7.2 PURPOSE

The Convenience Commercial District allows for commercial development that is appropriate at the neighbourhood scale. The commercial development in this district take cares of the day to day needs of the residents within a close distance of their residences. This district allow for the commercial developments including retail stores, convenience stores, health service facilities, financial institutions, laundromats, small offices, personal services, commercial schools, and minor liquor stores. These commercial establishments are located close to the multi-family residential

development and other community amenities. Convenience Commercial sites is connected to the adjacent community through the multi-purpose trail networks and continuous sidewalks. The development is walkable, pedestrian friendly, and safe.

4.7.3 DESIGN GUIDELINES

- Architecture styles complimentary to the surrounding development is encouraged in this district.
- Maximum building height is restricted to 10 metres (2 storeys).
- Use of glazing on front facades is highly encouraged to create interactive and inviting store fronts.
- High quality finishes including masonry and stucco on high visibility building facades is recommended.
- Vibrant building colours and high quality building finishes are highly encouraged.
- Entryways to the commercial development are well defined and attractive.
- Buildings are to be placed close to the front property line and zero front setback is encouraged, where feasible.
- Parking required for this commercial development is located to the side or to the rear of the building.
- Parking lots are landscaped and well lit. When visible from the street, parking lots should be buffered by use of appropriate landscaping treatments.
- Loading and unloading areas are buffered from public view through appropriate site planning and use of appropriate landscaping treatments.
- Detailed design guidelines are prepared by the developer/s for this district.

4.7.4 CORRESPONDING LAND USE DISTRICT

Convenience Commercial sites interspersed throughout the Outline Plan area can be developed in accordance with the regulations of the C1 – Community Commercial District. The C1 District permits commercial development including retail stores, convenience stores, child care facilities, financial institutions, health service facilities, gas bars, liquor stores, and office uses.

4.8 Parks and Recreation District

4.8.1 OBJECTIVES

Objectives for this district are as follows:

- Provide land for the development of open space, parks, walkways, and recreation facilities to meet the active recreation needs for the community.



- Provide interspersed parks and open spaces to offer recreational opportunities for residents through the dedication of Municipal Reserves.
- Where economically viable and sustainable, utilize stormwater management facilities to provide pedestrian linkages and open space for recreational opportunities.

4.8.2 PURPOSE



Open spaces, recreational opportunities, and parks are provided throughout the Outline Plan area. The Parks and Recreation District forms a part of the open space system, along with the Public Service District and Public Utility Lots. This open space network is multi-functional and accommodates active and passive recreational needs of the community. This system provides a comprehensive network of pedestrian and non-vehicular linkages with convenient and safe walking/biking routes to local destinations.

The open space system links together regional pathway corridors, parks, stormwater management facilities, the 30 metre highway buffer, firesmart setback, environmental reserve and open spaces associated with the Parks and Recreation District. The open space network allows residents to conveniently access and enjoy the open space system.

Two stormwater management facilities are identified. These facilities provide necessary stormwater management and water quality, and are constructed to provide active and passive recreational opportunities.

Environmental Reserve is designated in accordance with the Municipal Government Act. This provides protection to the Saline Creek, its valley slopes, and natural areas associated with the Creek.

Figure 3 – Open Space System illustrates the distribution of open spaces and their linkages to the local destinations throughout the Plan Area and to the adjacent neighbourhoods.



4.8.3 CORRESPONDING LAND USE DISTRICT

Development in this District will be in compliance with the regulations of the PR – Parks and Recreation District of the RMWB's Land Use Bylaw.

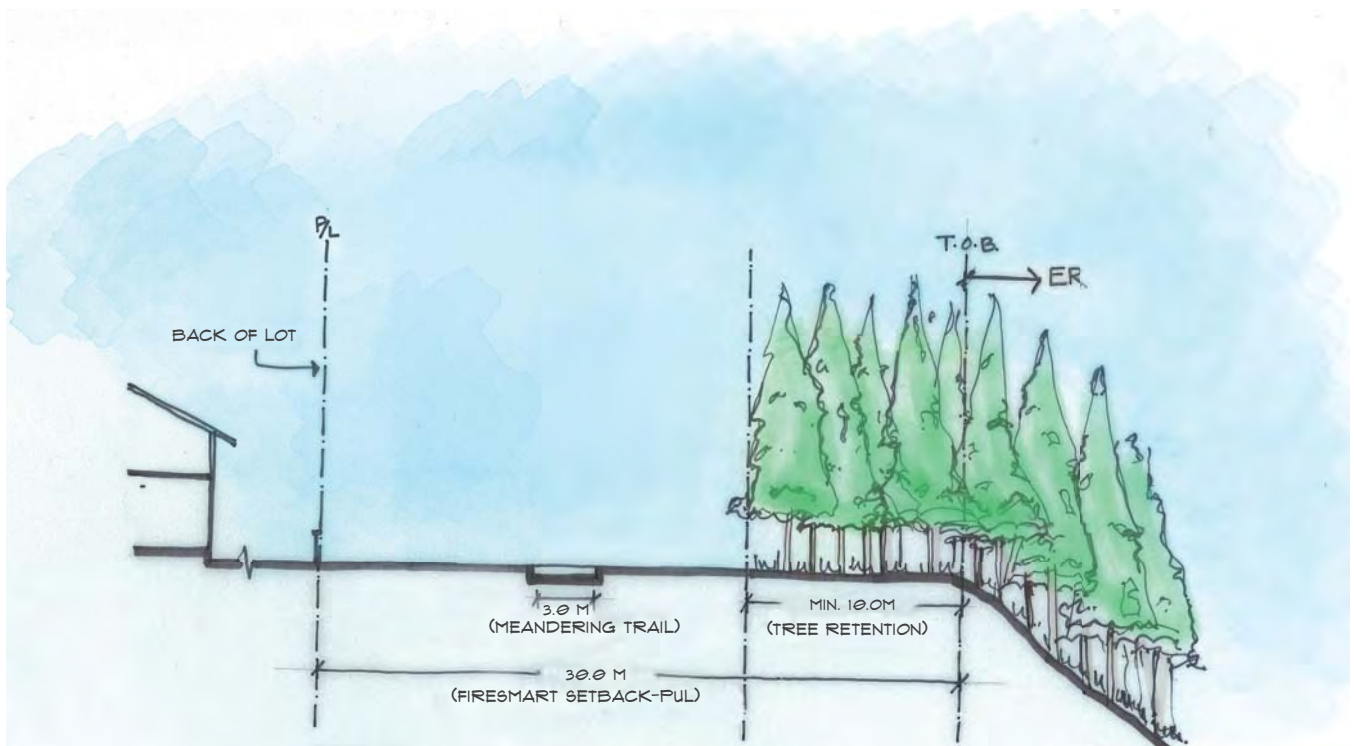
4.9 Public Service District

4.9.1 OBJECTIVE

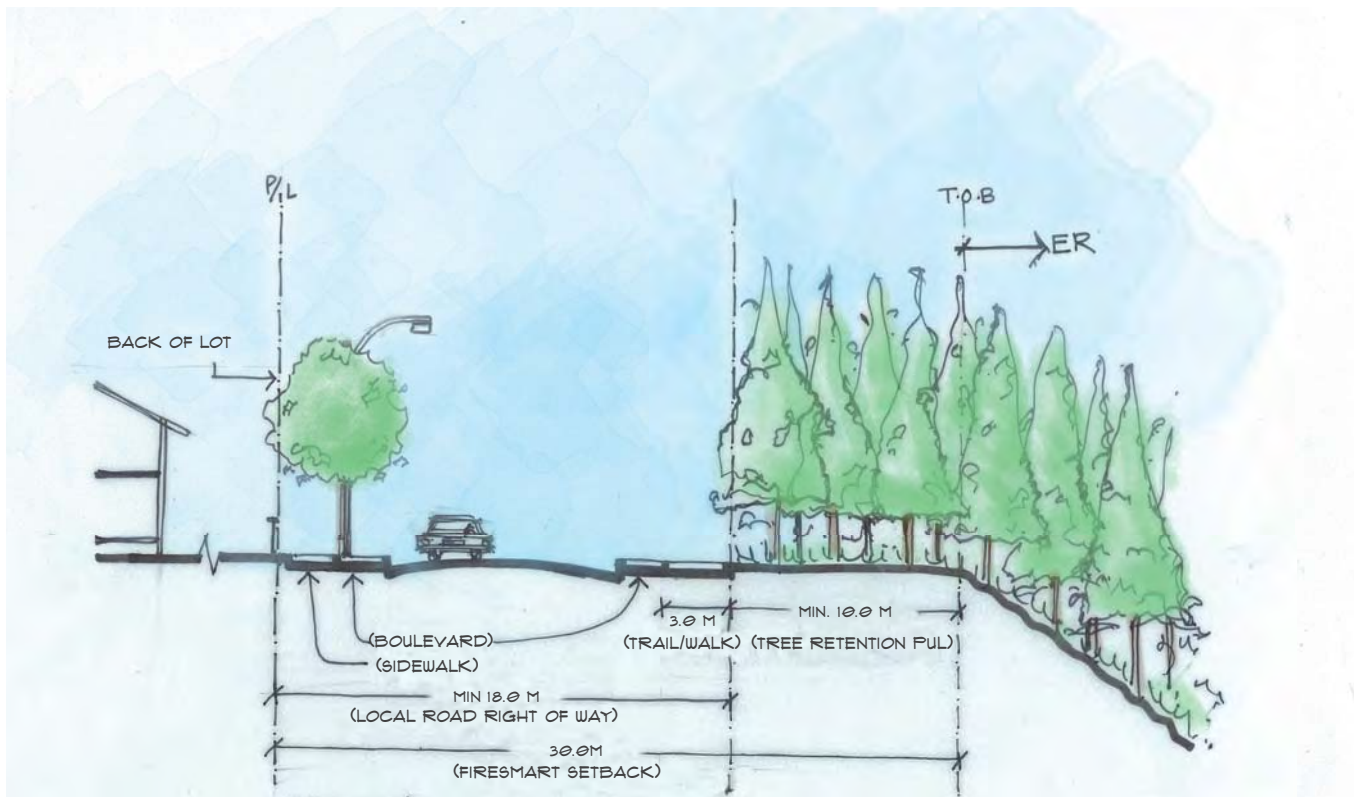
Objectives for this district are as follows:

- Provide land for the development of schools for the use of the residents of the Outline Plan Area and adjacent neighbourhoods.
- Provide school sites in the Outline Plan area through the dedication of Municipal Reserve.





KEYANO COLLEGE LANDS OUTLINE PLAN FIRESMART SETBACK SCENARIO 1



KEYANO COLLEGE LANDS OUTLINE PLAN FIRESMART SETBACK SCENARIO 2

- Provide lands for 30.0 m wide firesmart setback from top of bank through the dedication of public utility lots or incorporation into roads.

4.9.2 PURPOSE

A shared elementary school site in the south-west and a shared high school site are accommodated in the north-east portions of the Outline Plan area.

The school sites are located abutting collector roadways to allow for easy access to the public transit, school buses, and student drop off. Convenient pedestrian linkages are provided in the form of connecting walkways, wider sidewalks, and multi-purpose trails.

In addition, these school sites are part of the open space system and provide recreational opportunities for the residents of the Outline Plan area and adjacent neighbourhoods.

A 30.0 m wide firesmart setback is provided from the top of bank. This setback may include a local road and a 3.0 m wide regional trail. The firesmart setback excluding local roadway will be dedicated as a (PUL).



4.9.3 CORRESPONDING LAND USE DISTRICT

Development in this district will be in accordance with the regulations of the PS – Public Services District of the RMWB's Land Use Bylaw.

4.10 Trails and Pedestrian Network

4.10.1 OBJECTIVES

- Provide easy and safe linkages to the community amenities in the Outline Plan area and adjacent neighbourhoods.
- Provide a walkable and pedestrian friendly environment through effective design.

4.10.2 PURPOSE

The Trails and Pedestrian network link the residential development to the community amenities in the Outline Plan area and adjacent neighbourhoods including commercial, retail, schools, parks, recreation complex, and public transit. The Trails and Pedestrian network in the Plan area include multi-purpose trails, naturalised trails, walkways, and sidewalks; providing opportunities for active and passive recreation. This trail network in turn connects to the regional trail network.

The regional trail runs along the top of bank, Highway 69 and Airport Road as shown on **Figure 5.0 - Pedestrian and Bicycle Network**. Along the south edge of the Outline Plan, the firebreak setback accommodates the regional trail or multi-purpose trail. Along the north



boundary, the regional trail runs along the north edge of Saline Creek Parkway. Viewing points are linked into the trails along the valleys of the Clearwater River and Saline Creek, providing scenic views to the trail users. The multi-purpose trails traversing north-south through the area link to the regional trail network along the north and south boundaries of the Plan area. Both the regional trail and multi-purpose trails are 3.0 metre wide and accommodate pedestrians, bicyclists, and in-line skaters in both directions. In winter, the trail network may be utilized for cross country skiing. Wider sidewalks are provided in retail and commercial areas and along the collector roads abutting public amenities including schools and recreation centre. The sidewalks accommodate pedestrian friendly street furniture including appropriate street lighting, bike racks, and benches.

4.10.3 DESIGN GUIDELINES

- Human scale lighting should be incorporated along trails and walkways to enhance pedestrian safety.
- Park furniture such as benches, bicycle stands, wayfinding, and garbage receptacles should be provided.
- Pedestrian cross walks should be incorporated where a trail or bike path intersects with a vehicular roadway.

5. TRANSPORTATION

5.1 Roadway Network

The Saline Creek Plateau roadway network consists of divided and undivided arterial, collector, local roadways and lanes. An overall map of this network is provided in **Figure 4 – Transportation Network** and the corresponding road cross sections are provided in **Appendix B2 – Road Cross Sections**. It is to be noted the designation of “arterial” vs “collector” follows the Regional Municipality of Wood Buffalo’s criteria for the roadways.

5.1.1 ARTERIAL ROADWAYS

A six lane, and a four lane divided arterial roadway, along with a three lane arterial provides the main access to the Outline Plan area via signalized intersections off of Highway 69. The six lane divided arterial intersects with the future Saline Creek Parkway and accommodate a single bus lane in each direction. Internally, the divided arterial roadways transition to undivided arterial roadways to allow traffic distribution within the neighbourhood. A modified undivided arterial road cross section is utilized adjacent to the Village Centre development. Six lane divided arterial intersections accommodate pedestrian refuge areas to enhance the safety. Refer to **Appendix B2 – Road Cross Sections**.

5.1.2 COLLECTOR ROADWAYS

Collector roads connect local roads to arterial roads. Character of the collector roads change with respect to the surrounding development. The collector road that forms the spine of the Village Centre accommodates wide, paved, and treed sidewalks on both sides without boulevard separations from parking lanes. The Collector road abutting public amenities such as schools accommodates 3.0 m wide multi-purpose trail to encourage walkability and safety of pedestrians. Collector roads accommodate a parking lane in each direction. Refer to **Appendix B2 – Road Cross Sections**.

5.1.3 LOCAL ROADWAYS

The local roadway system provides efficient access to all individual block/lot developments, while discouraging short cutting between collector and arterial roads. Refer to **Appendix B2 – Road Cross Sections**.

5.1.4 LANES

In order to provide a variety of housing products, laneways are incorporated into residential developments. The lanes provide a 7.0m right of way and in some instances storm sewers run along the centreline to collect storm runoff. Where lane openings to arterial and collector

roads is provided, access is restricted to right-out only for efficient operation of the higher order road network.

5.2 Pedestrian and Bicycle Network

The Pedestrian and Bicycle Network is interspersed throughout the Outline Plan area and form an integral part of the street network. Refer **Figure 5 – Pedestrian and Bicycle Network**. Transit is best suited for medium to long distance commutes; whereas cycling can be a very effective mode of commute for shorter trips. The combination of cycling and transit creates an opportunity for commuters to cover longer distances while allowing them to conveniently reach destinations that may be up to 5 km from a transit stop or station. Bicycle and pedestrian friendly streets with supportive infrastructure leading to and from transit will encourage users.

All roadways in the Outline Plan are designed with sidewalks to provide pedestrian circulation. When abutting a community amenity, a wider sidewalk may be provided. Arterial roadways are designed to accommodate a 3.0 m wide multi-purpose trail in either direction. The proposed multi-purpose trail network accommodates pedestrians, bicyclists, and in line skaters, separating them from the moving and parked vehicles on the roadways. This provides safe and convenient linkage to the public amenities throughout the Outline Plan area and its surrounding neighbourhoods. The Pedestrian and Bicycle Network provides an opportunity for active and passive recreation and encourages a healthy lifestyle in the community.

Development of the Pedestrian and Bicycle Network is highly encouraged in adjacent to the residential communities of Prairie Creek and Waterways to provide a more connected system.

5.3 Transit

Use of transit is highly encouraged in the Outline Plan area and its surroundings. This significantly helps ease traffic congestion while enhancing the convenience of commute and access to the City Centre and the Regional Airport. The encouragement of transit use also leads to reduced green house gas emissions and environmental impacts.

Transit services are accommodated on arterial and collector roadways. Transit includes both public/municipal transit and private buses providing services to job sites to the north of the urban area. The most easterly arterial road, running north-south between Highway 69 and proposed Saline Creek Parkway accommodates a dedicated bus lane in both directions. Bus bays are accommodated along the arterial road to the west of the Village Centre in the portion abutting the Village Centre. The Village Centre will accommodate transit nodes to serve commuters efficiently. Refer **Figure 6 – Potential Transit Network**.

The proposed Transit Centre is conveniently located amongst the uses including recreation centre, Village Centre, schools, higher density

A **Transit Centre** is a facility that will include multiple bus bays, sheltered bus stops and waiting areas, restrooms, and changing facilities for the transit staff.

Transit nodes are the areas within road right of ways that will be dedicated for transit related uses including drop offs, sheltered bus stops, kiss-'n'-rides and taxi stands.

residential developments and the regional commercial centre. The Transit Centre serves both the public and private bus services. This Transit Centre accommodates services such as bus bays, transit shelters, drop off zones, change room facilities for the transit staff, and rest rooms. In addition, the Transit Centre will be developed in conjunction with the recreation complex site, along the north-south arterial road connecting Highway 69 and Saline Creek Parkway. This collaboration with the recreation complex creates an opportunity for shared parking and/ or park and ride between these two facilities. The Transit Centre may be developed in stages, as development in the Saline Creek Plateau area progresses.

Transit nodes are also provided in the Village Centre. These transit nodes are accommodated within the right-of-way that are assigned for passenger drop-off, kiss-'n'-rides, and taxi stands. Tentative configuration of a Transit Centre and bus node is identified in **Figure 6 - Potential Transit Network**.

6. WATER DISTRIBUTION SYSTEM

The water distribution network for the Keyano College lands is shown in **Figure 7 – Water Distribution System**. Initially the network will be fed by the existing 400 mm watermain located within the Highway 69 road right of way. Several pressure reducing valves (PRVs) are required to ensure appropriate water pressures to the residential developments on the western edge of the Outline Plan area. Ultimately, a 600 mm water trunk will connect the plateau to the McKenzie pump house and reservoir. There is adequate capacity in the McKenzie reservoir to satisfy both peak flow demands and fire flows for the ultimate build out of the Saline Creek Plateau.

7. SANITARY SEWER SYSTEM

As described in, **Figure 8 – Sanitary Services**, the majority of wastewater flows are conveyed using gravity sewers, however in some of the lower lying areas a lift station will be required. Running through the Outline Plan area is an existing regional sewer trunk which is comprised of a forcemain and a gravity line. This trunk continues on to the City Centre of Fort McMurray.

The southern portion of the site (Area 2), which is at the lowest elevation, drains into the southern gravity trunk and into the proposed lift station.

From the lift station, a forcemain discharges into the north gravity trunk which ties into the regional sewer trunk. The lift station is oversized to

accommodate a small portion of flows from the lands to the northwest of the Outline Plan area which are also situated in a low lying area (Area 1). The north portion (Area 3) and northeastern portion (Area 4) of the Keyano College lands are all serviced by gravity and discharge directly into the regional trunk.

8. STORMWATER SYSTEM

The stormwater system is comprised of a series of gravity mains, over land flow routes, and stormwater management facilities (SWMFs). As shown in **Figure 9 – Stormwater Management Plan** two SWMFs are identified as two separate wet ponds with a common control manhole. The facilities then discharge from the control manhole into Saline Creek through an outfall structure.

Stormwater is collected through the minor system, i.e. underground pipes, and the major system, i.e. overland flow routes. The minor system is designed to handle storm events up to and including the 1:5 year storm event. Depending on location, the minor system will discharge into either 'SWMF2' or 'SWMF3'. The storm sewers within the subdivision discharge through pond inlet structures located below the normal water level in each pond. The major system flow routes are designed in such a manner that private property will not sustain any damage due to flooding during a 1:100 year storm. Primarily, the overland flow routes coincide with the road right of ways, but some areas public utility lots will be utilized.

The SWMFs are located on the southwest portion of the site adjacent to Saline Creek. The ponds are sized with adequate storage for the 1:100 year event with provision of at least additional 0.5 m free board above the high water level to accommodate additional storage as a factor of safety. The ponds have been oversized to accommodate future flows from some portions of the Government of Alberta lands. Storm water is discharged from the facility in a controlled manner to Saline Creek. The outlet structure will include energy dissipation measures to mitigate any potential damage to the creek.

Both the SWMFs and the collection systems will adhere to the Regional Municipality of Wood Buffalo Engineering Servicing Standards and Alberta Environment Stormwater Management Guidelines.

In response to bird collision hazard concerns regarding the stormwater ponds' proximity to the Regional Airport, the mitigation measures recommended in the 'Migratory Bird Mitigation Plan for Proposed Stormwater Pond Development at Keyano College Properties (Pts. of 25-88-9-W4M)' will be incorporated in the design, execution, and maintenance of these ponds. These mitigation measures may focus on manipulating habitat and access to habitat at or near the airport, dispersing wild life from the airport, and physical design of the

stormwater ponds. Passive and active methods of deterrents, scare, and / or kill techniques could be used (if required). Deterrents and scare techniques may include falconry, timed propane cannons, pyrotechnics and/ or electronic Airport Whalers.

9. COST SHARING PRINCIPLES

9.1 Arterial Road Cost Sharing Principles & ARA Estimate

9.1.1 CALCULATION PRINCIPLES

The following is a brief description of the methodology of calculating shared costs for the arterial roadways in the Saline Creek Area Structure Plan. These arterial roads include all of the proposed internal arterial roadways, Highway 69 and Airport Road channelization at intersections and Road D. The offsite roadways (the Saline Creek Parkway, Regional Trail Connectors and Highway 69 Upgrades) are handled through the Regional Municipality of Wood Buffalo's Development Charge Levy.

For the proposed internal arterial system, these cost sharing principles assume that each adjacent developer will be responsible to construct the first two lanes of the arterial roadway and related servicing. The second two lanes and associated servicing would be cost shared by all of the Saline Creek Plateau Area Structure Plan Lands (the benefitting lands). This principle is consistent with the arterial road cost-sharing principles currently used by the Regional Municipality of Wood Buffalo.

Construction costs will be estimated based on the current costs in the Regional Municipality of Wood Buffalo. A contingency of 10% and Engineering and Testing of 15% will be added to establish the total estimated cost of construction.

Allocation will be to the Gross Developable Area (GDA) of the benefitting areas excluding any existing or future gas pipelines, Municipal Reserve Lands (MR), Public Utility Lots (PUL) and arterial road right of way area. The dedicated lands for the arterial roads will be included in the cost base at a rate of actual purchase price or an agreed upon valuation. For the purpose of this preliminary calculation, arterial road Right of Way (ROW) dedication is carried as \$250,000 per hectare (ha).

For the purposes of this document, the cost of the ultimate four lane arterial road is broken down into the following phases:

- (A) Initial Construction- Construction of first two lanes (the 'access' component) adjacent to new development.

The new developer would be responsible for construction of the initial two lanes directly adjacent to the new development and the work would include construction of the following:

- Sanitary sewer laterals, size based on full development ultimate servicing requirements;
- Drainage sewer laterals and interim drainage structures;
- Watermains, size based on full development ultimate servicing requirements;
- Power and communication, utility constructed to accommodate ultimate servicing load requirements;
- Clearing and Grading the full arterial right of way;
- Basic landscaping;
- Sidewalk and initial Pedestrian Ways;
- Initial Illumination, sized and located based on the Ultimate arterial road design.

Based on the construction requirements and for the purposes of this analysis, we have approximated that the Interim Construction portion of the overall cost of construction would be approximately 60% of the total cost of the ultimate arterial roadway on a lineal meter basis.

Note: If any Developer is required (by the Municipality) to construct the initial two lanes on a right-of-way that is not adjacent to his lands, then that Developer can recover the cost of the initial construction as a 'Boundary Condition' from the adjacent land owners on either side of the arterial right-of-way in question.

- (B) Final Construction- Construction of the second two lanes (the 'arterial' component) adjacent to new development.

The Saline Creek Plateau developers would be responsible for construction of the final two lanes of the arterial and the work would include construction of the following:

- Final Drainage elements including catch basins;
- Channelization upgrades to intersections;
- Signalization of intersections (where required);
- Final Illumination;
- Final landscaping;
- Upgrades to pedestrian ways and multi-purpose trails;
- Note that by agreement, the Saline Creek Area Structure Plan owners have agreed to include the Area Structure Plan planning and

engineering fees, as well as the Area Structure Plan Traffic Impact Assessment fees as a Saline Creek Arterial Road Cost, for cost-sharing purposes.

Based on the construction requirements, we can approximate the Final Construction phase would be approximately 40% of the total cost of the ultimate arterial roadway on a lineal meter basis.

Upon completion of the arterial component ('second two lanes') construction, the actual costs will be reconciled against the estimated costs and the go forward Saline Creek Arterial Road Assessment (SCARA) calculations will be adjusted accordingly.

9.1.2 IMPLEMENTATION PROCESS & ASSUMPTIONS

The following is a brief description of the proposed implementation framework for the method of Cost Sharing through construction stages of development. Construction of common systems is staged according to the pace of the overall development and each individual developer is responsible for constructing their portion of the infrastructure as required by subdivision conditions issued by the Regional Municipality of Wood Buffalo.

The 'initial two-lane' construction will be the developers responsibility or may be recoverable as a boundary condition from adjacent owners (at the time of their development proceeding).

The 'final two-lanes' and related infrastructure when constructed is included in the Developers servicing obligations. At the time of Development Agreement, the developer will be required to:

1. Commit to construct a portion of arterial road (if required by the Municipality).
2. Pay his SCARA contributions based on the GDA of the proposed development.
3. The developer will be required to provide the higher of items 1 and 2 above.
4. To the extent that the Development cost of Item 1 is higher than the SCARA amount, the difference would be considered an 'over expenditure' and recovered from future developments as each pays its SCARA.

There are effectively three possible scenarios for each developer which are as follows:

1. Equivalent Contribution: The developer's shared SCARA contribution matches the actual cost of construction obligation. Thus, no further Arterial Road Assessment contributions are required and the developers obligation for that phase is satisfied by his construction contribution.
2. Shortfall in Contribution: The developer's shared SCARA contribution is greater than the estimated cost of construction obligation.

Therefore, the developer must contribute the difference in cash to a maximum of the ARA contributions.

3. Over Expenditure in Contribution: The developer's shared SCARA contribution is less than the estimated cost of construction obligation. Therefore, the developer has incurred an over expenditure in the amount that exceeds the ARA obligation. This over expenditure is recovered from future developers.

Over expenditures are not 'distributed' and are paid down by each subsequent developers ARA payments to the extent that this exceeds their SCARA construction obligation.

9.1.3 ADMINISTRATION

The Saline Creek Owners (Rotary, Keyano, and Government of Alberta) have agreed to administer the arterial road cost-sharing system and will jointly appoint an agent to implement the program. The owners intend to prepare an Owner's Agreement which will dictate the cost-sharing mechanism. This agreement will be registered on the title of each land owner, and will be referenced in the Regional Municipality of Wood Buffalo's Development Agreement for each phase of development.

9.2 Storm & Sanitary System Permanent Area Contributions (PAC)

Cost sharing of sewer systems installed in the Saline Creek Plateau Area Structure Plan will be administered according to the principles outlined below:

9.2.1 COST SHARABLE ITEMS

- Any sanitary sewer (and associated manholes) having an internal diameter of 375 mm or more (sanitary trunk sewers).
- Any storm sewer (and associated manholes) having an internal diameter of 1,200 mm or more (storm trunk sewers).
- Any stormwater management (SWM) system which includes, among others, SWM drainage studies, stormwater retention/detention facilities, the interconnecting and connecting storm sewers, control structures, landscaping, land cost, outfalls, etc.
- Any sanitary lift station facilities and related construction, including the discharge forcemain.

Installation costs of sanitary sewer of less than 375 mm in diameter and storm sewer of less than 1,200 mm in diameter (i.e., lateral sewers) are normally not cost sharable. They are installed at the developer's expense. The only exception is when oversized laterals (providing additional capacity and/or depth) are required to service areas external to the development in question. The cost difference can be recovered by an oversize claim from the benefitting areas.

9.2.2 COST SHARING CONCEPTS

There are two types of cost sharing: on-site and off-site. The onsite system applies in the case of the Saline Creek Plateau Area Structure Plan.

On-site Cost Sharing refers to cost sharing of trunk sewers installed within a pre-defined boundary (drainage basin). The boundary of the cost sharing area is determined on the basis of topographic, political, economic and design constraints. This cost sharing is characterized by the following:

- A number of developers benefitting from a common sewer system within the cost sharing area are involved in the installation and financing of the required system. Construction of the sewer system is staged according to the pace of development. Each developer is responsible for constructing the portion of the system required by the Regional Municipality of Wood Buffalo.
- Each developer is required to pay his relative share of the construction cost which is established by an area assessment known as the Permanent Area Contribution (PAC). This rate or area charge is recalculated each year and is derived by dividing the remaining estimated construction cost of the cost sharable items within the cost sharing boundary by the remaining benefitting areas. The PAC for each developer is calculated by multiplying the PAC rate by its development area (GDA) at each stage.
- If a developer is required to construct a portion of the trunk sewer system that is more expensive than his storm PAC obligation for that stage of development, then they will front-end the required construction costs. Since all that they are ultimately required to pay is its PAC, the difference between the actual construction cost and the PAC is treated as an over expenditure. An over expenditure can be recovered from subsequent developers when they pay their storm PAC. An under expenditure will be held in trust to offset over expenditures from future developers.
- The Sanitary Onsite PAC is managed in a similar fashion.
- For the Sanitary Lift Station, the cost of the lift station and related facilities is cost-shared by the catchment area that connects to the lift station.

Construction costs will be estimated based on the current costs in the Regional Municipality of Wood Buffalo. A contingency allowance of 10% and an Engineering and Testing allowance of 15% will be added to establish the total estimated cost of construction.

Allocation will be to the Assessable Area (AA) which shall be calculated as the Gross Developable Area (GDA) of the benefitting catchment excluding pipeline R.O.W.'s, Municipal Reserve, Public Utility lots and Arterial Road R.O.W.'s. Any PUL lands dedicated for the purposes of these cost-sharable facilities will be included in the cost base at a rate of actual purchase price or an agreed upon valuation.

10. SHALLOW UTILITIES

Within an easement along the south property line of the Rotary Outline Plan lands, on the north side of Highway 69, runs an existing power line, natural gas, communications (including fibre), and a water trunk. The proposed development will allow for acceptable offsets of site features from these shallow utilities.

The Outline Plan also incorporates District Energy utilities for Commercial, Institutional and Medium Density areas. The proposed line assignment is provided along Road A and Road B (arterials) as shown in Appendix B.2 - Road Cross Sections A-A and B-B.

The shallow utility alignments will be established during preparation of the detailed servicing design and layouts for the Outline Plan area.

11. IMPLEMENTATION

11.1 Development Staging

Indicative development staging for the Outline Plan area is illustrated in **Figure 10 – Staging Plan**. Not all the lands included in the plan area are owned by Keyano College. Therefore, the sequence of development is tentative and subject to change. Market conditions may also impact the development staging in the Outline Plan area and housing product mix within individual stages.

11.2 Land Use Bylaw Amendment

The Land Use Bylaw identifies these lands under the Urban Expansion Land Use District. The purpose of this district is to protect the lands in the Rural Service Area for future urban development and limit premature subdivision and development. This Outline Plan identifies and allocates land use districts to the plan area, which, with the exception of the Village Commercial and Village Residential District, align with the RMWB Land Use Bylaw. Existing districts of the Land Use Bylaw may be customized to enable the development of the Village Commercial and Village Residential Districts within the Outline Plan area. This would be determined during the development of more specific design and planning guidelines for the Village area.

11.3 Design Guidelines

Developers are to prepare Design Guidelines for each respective development in the Outline Plan area. These Design Guidelines will be based on the Design Principles and district-specific design guidelines of this document.

APPENDIX A

Keyano College Lands Outline Plan Land Use Statistics



KEYANO COLLEGE OUTLINE PLAN : LAND USE STATISTICS

	TOTAL (ha)	%GDA
GROSS AREA	250.86	
Environmental Reserve - Below TOB	1.73	
Environmental Reserve - Above TOB	1.87	
Saline Creek Parkway	3.79	
Arterial Roads	27.53	

Non-Developable Area	34.92	
Gross Developable Area	215.94	100%

NON-RESIDENTIAL USE

Circulation		
Collector Roads	6.65	3.08%
Local Roads	25.42	11.77%
Walkways	0.4	0.19%
Sub-Total	32.47	15.04%

District Parks (MR)		
Schools	25.89	11.99%
Highway 69 Buffer	0.26	0.12%
Local Park	1.63	0.75%
Sub-Total	27.78	12.86%

Public Service		
Open Space	1.04	0.48%
Firebreak	4.6	2.13%
Sub-Total	5.64	2.61%

Public Utility Lot		
Highway 69 Buffer (PUL)	0.26	0.12%
SWMF (PUL)	9.35	4.33%
Sub-Total	9.61	4.45%

Community Recreation & Commercial Uses (Net Developable Area)		
Community Recreation Complex	11.96	5.54%
Regional Commercial District	11.73	5.43%
Village Commercial District	6.21	2.88%
Convenience Commercial District	3.67	1.70%
Total Non-Residential	109.07	50.51%

RESIDENTIAL LAND USES (Net Developable Area)			Net Density (units/ha)	Total No. of Units	Persons/unit	Total Population
Low Density Residential District	82.77	38.33%	18	1490	3.5	5215
Low Density Residential District (Development Limitation) ¹	5.56	2.57%	4.5	25	3.5	88
Medium Density Residential	8.06	3.73%	45	363	2.5	907
Village Low Density Residential/Street Oriented District	3.85	1.78%	24	92	2.5	231
Village Medium Density Residential/Street Oriented District	6.63	3.07%	45	298	2.5	746
Total Residential	106.87	49.49%		2268		7186

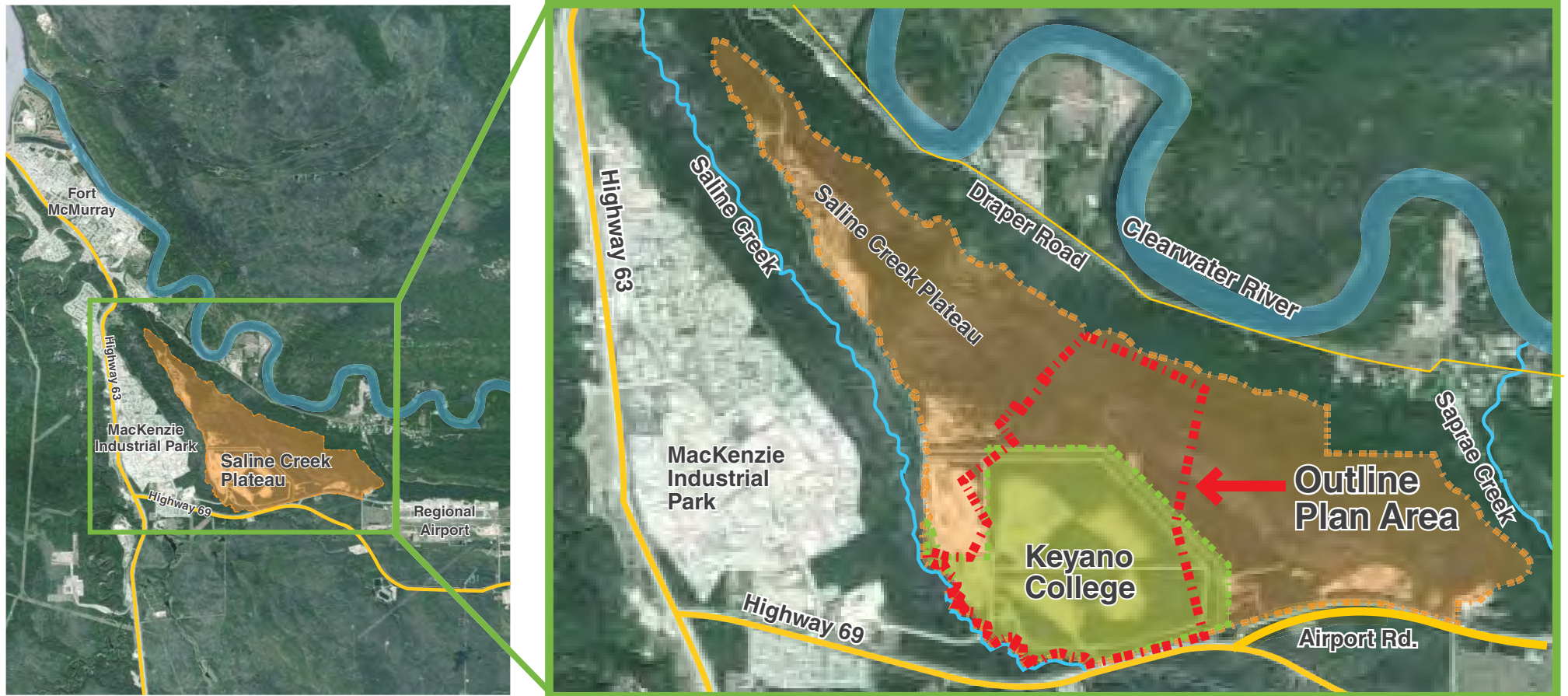
Note:

¹ Land falling within the Clearwater River Valley slopes posing considerable servicing and development constraints due to topography. The area identified represents 'Net Developable Area'

APPENDIX B.1

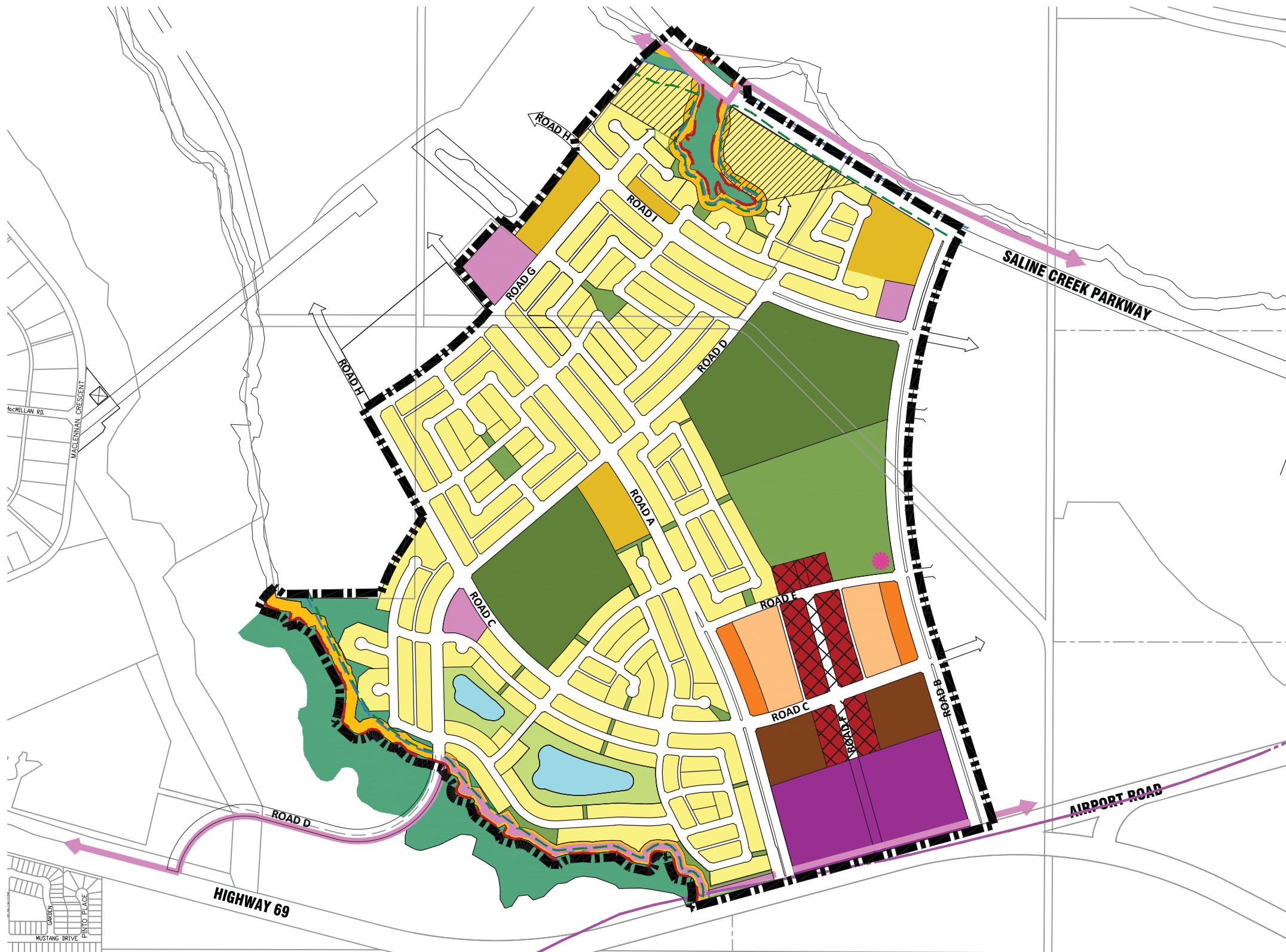
Figures





Keyano College Lands Outline Plan

Figure 1.0 Location Plan



LEGEND

- LOW DENSITY RESIDENTIAL DISTRICT
- MEDIUM DENSITY RESIDENTIAL DISTRICT
- CONVENIENCE COMMERCIAL DISTRICT
- VILLAGE MIXED USE DISTRICT
MEDIUM DENSITY RESIDENTIAL
- VILLAGE COMMERCIAL DISTRICT
- VILLAGE RESIDENTIAL DISTRICT
LOW DENSITY RESIDENTIAL
- VILLAGE AREA SUBJECT TO SEPARATE
DESIGN GUIDELINES DOCUMENT
- VILLAGE RESIDENTIAL DISTRICT
MEDIUM DENSITY RESIDENTIAL
- REGIONAL COMMERCIAL DISTRICT
- PARKS AND RECREATION DISTRICT
- PUBLIC SERVICE DISTRICT (SCHOOLS)
- DEVELOPMENT LIMITATION
- ENVIRONMENTAL RESERVE
- STORM WATER MANAGEMENT FACILITY
- TRANSIT CENTRE
- TOP OF BANK
- URBAN DEVELOPMENT SETBACK LINE
- STRUCTURAL DEVELOPMENT SETBACK LINE
- NOISE EXPOSURE CONTOUR NEF 25
- REGIONAL TRAIL
- 30.0m FIREBREAK
- KEYANO COLLEGE LANDS BOUNDARY
- OUTLINE PLAN BOUNDARY

NOTE: LOCAL ROADS ARE SUBJECT TO
MINOR REVISIONS AT SUBDIVISION STAGE.

Keyano College Lands Outline Plan

Figure 2.0 Land Development Concept



LEGEND

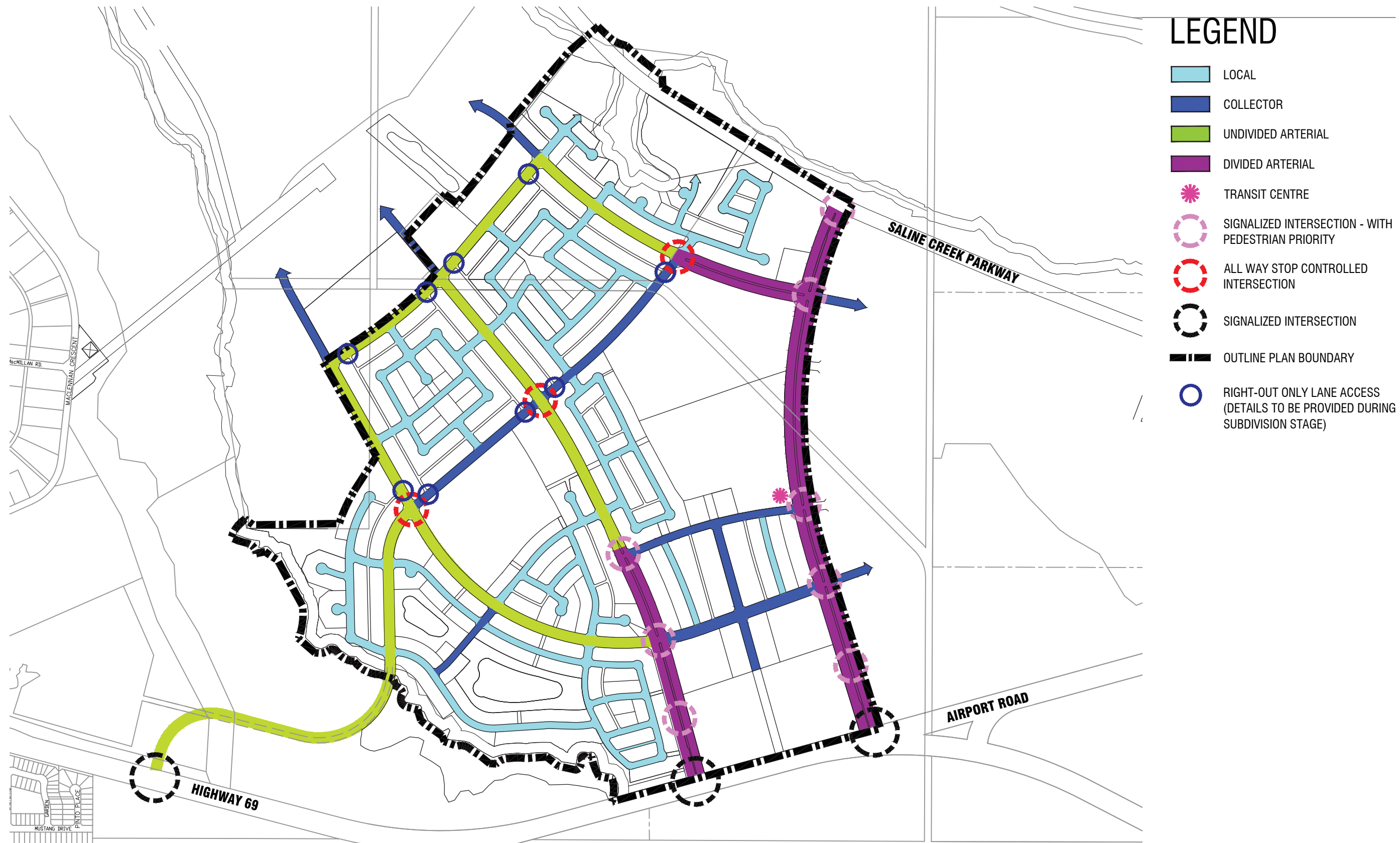
- PARKS AND RECREATION DISTRICT
- PUBLIC SERVICE DISTRICT
- ENVIRONMENTAL RESERVE
- STORM WATER MANAGEMENT FACILITY
- TRANSIT CENTRE
- SIDEWALK
- REGIONAL TRAIL
- FIREBREAK
- TOP OF BANK
- OUTLINE PLAN BOUNDARY



Keyano College Lands Outline Plan

Figure 3.0 Open Space System

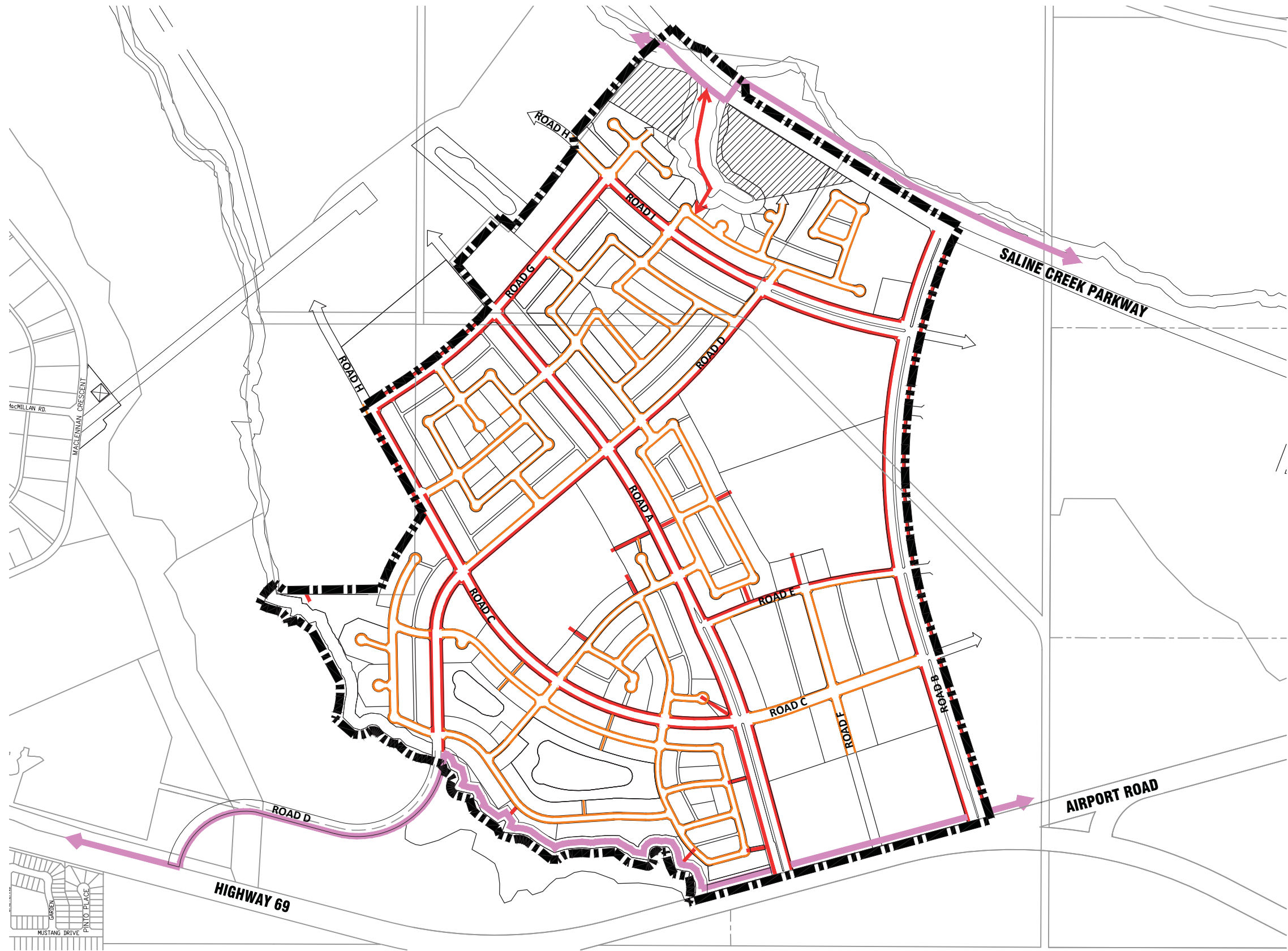




Keyano College Lands Outline Plan

Figure 4.0 Transportation Network





LEGEND

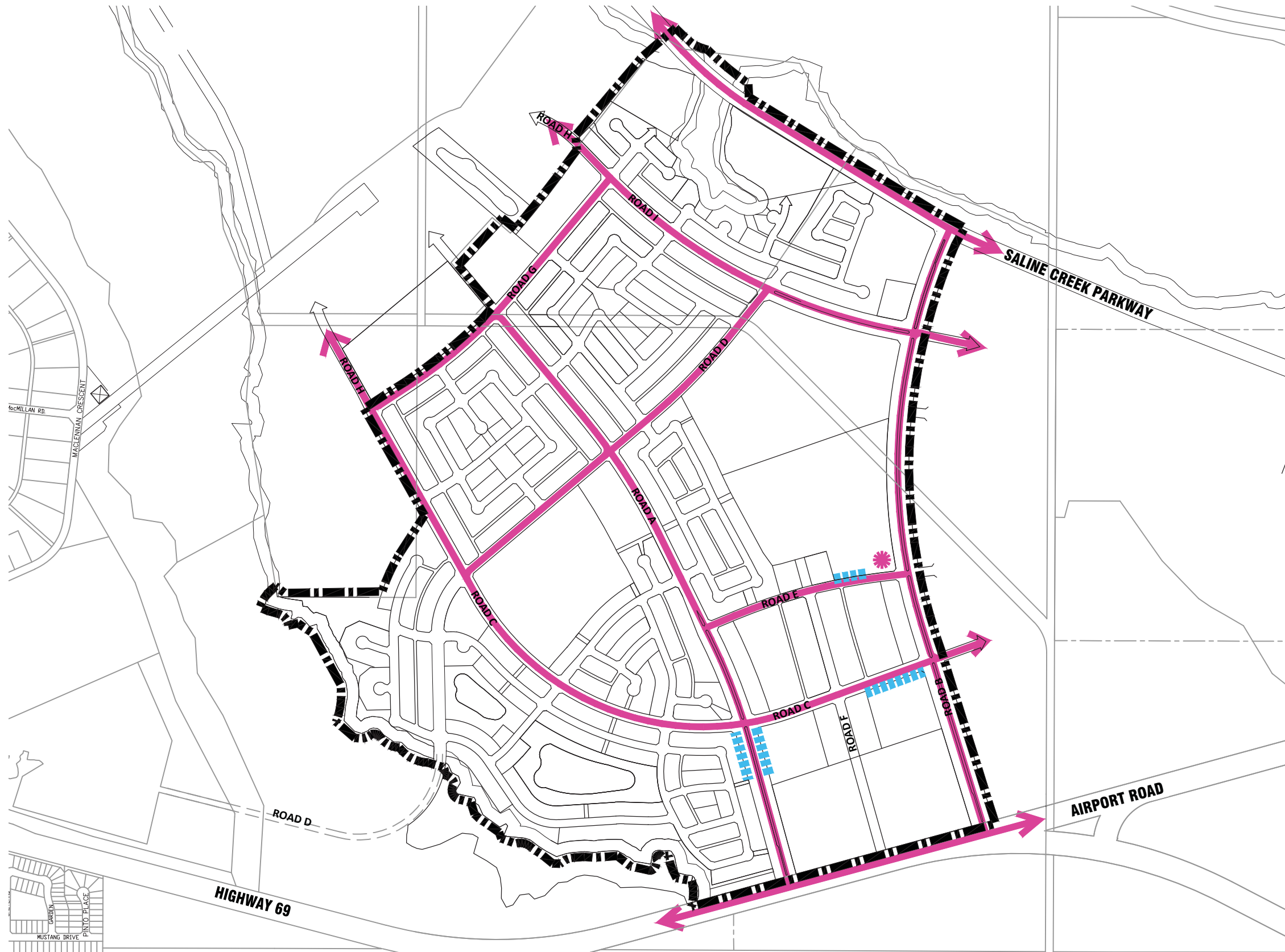
- TRANSIT CENTRE
- PEDESTRIAN CONNECTION
- SIDEWALK
- MULTI-PURPOSE TRAIL
- REGIONAL TRAIL
- OUTLINE PLAN BOUNDARY







Keyano College Lands Outline Plan

Figure 5.0 Pedestrian and Bicycle Network





LEGEND

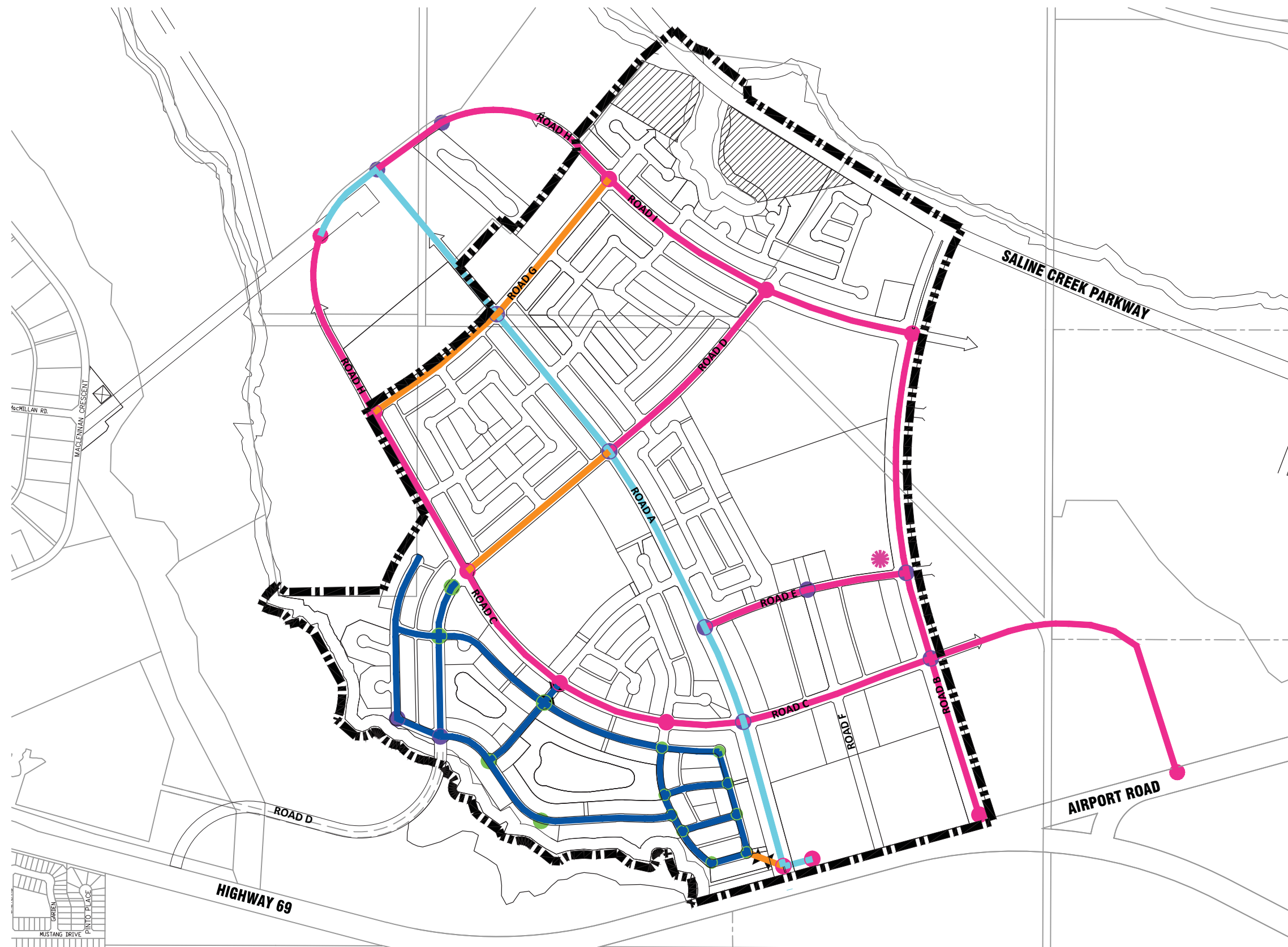
-  TRANSIT CENTRE
-  TRANSIT NODE/BUS BAY
-  TRANSIT ROUTE
-  OUTLINE PLAN BOUNDARY



Keyano College Lands Outline Plan

Figure 6.0 Potential Transit Network





LEGEND

- EXISTING WATER LINE
- PROPOSED 200mmØ WATER LINE
- PROPOSED 250mmØ WATER LINE
- PROPOSED 300mmØ WATER LINE
- PROPOSED 400mmØ WATER LINE
- OUTLINE PLAN BOUNDARY

PEAK HOUR PRESSURE (PSI)

- 40 - 60
- 60 - 80
- 80 - 90
- PRESSURE REDUCING VALVE (PRV)

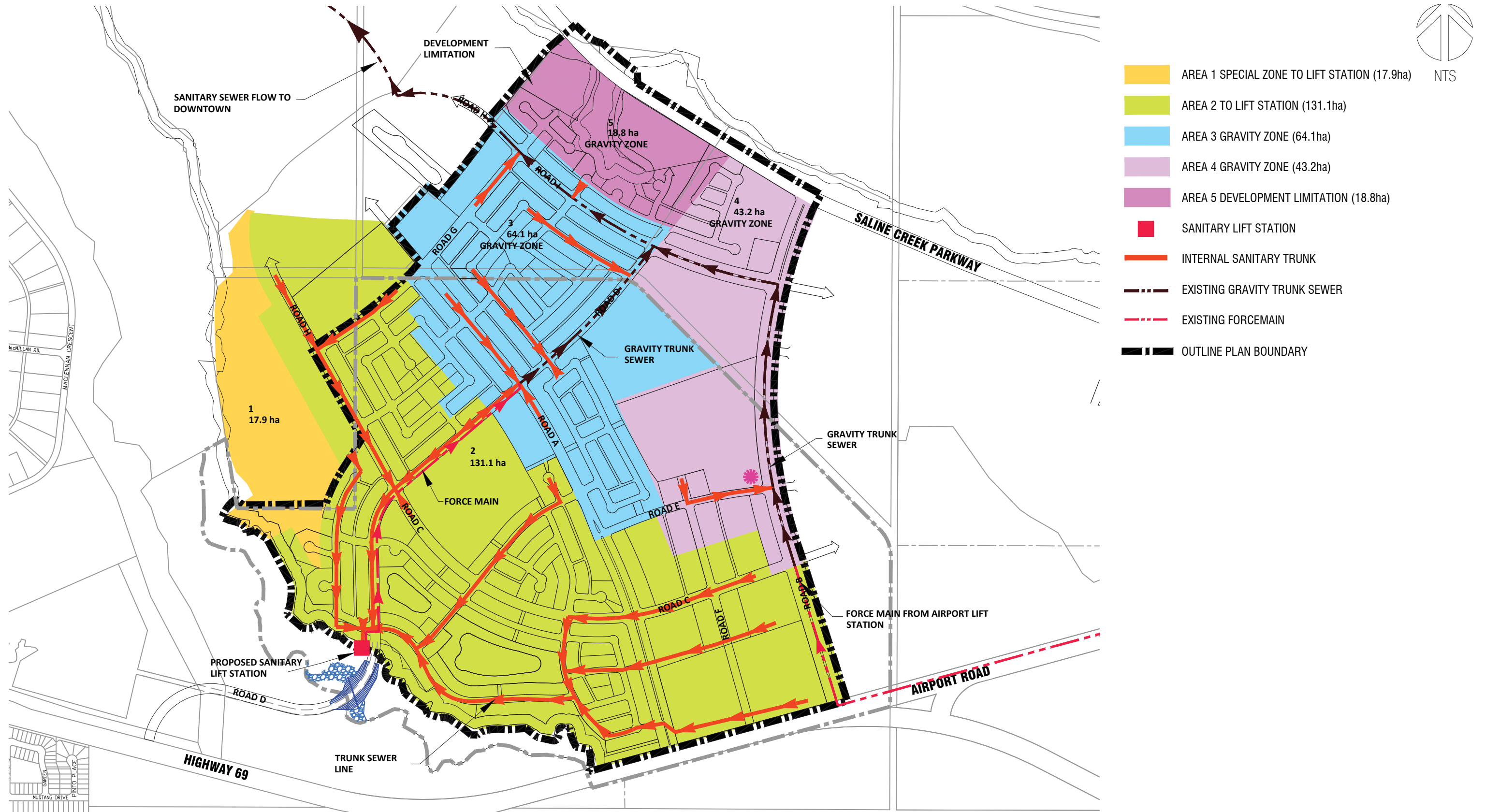
NOTE: LOCAL ROADS ARE SUBJECT TO MINOR REVISIONS AT SUBDIVISION STAGE.



Keyano College Lands Outline Plan

Figure 7.0 Water Distribution System

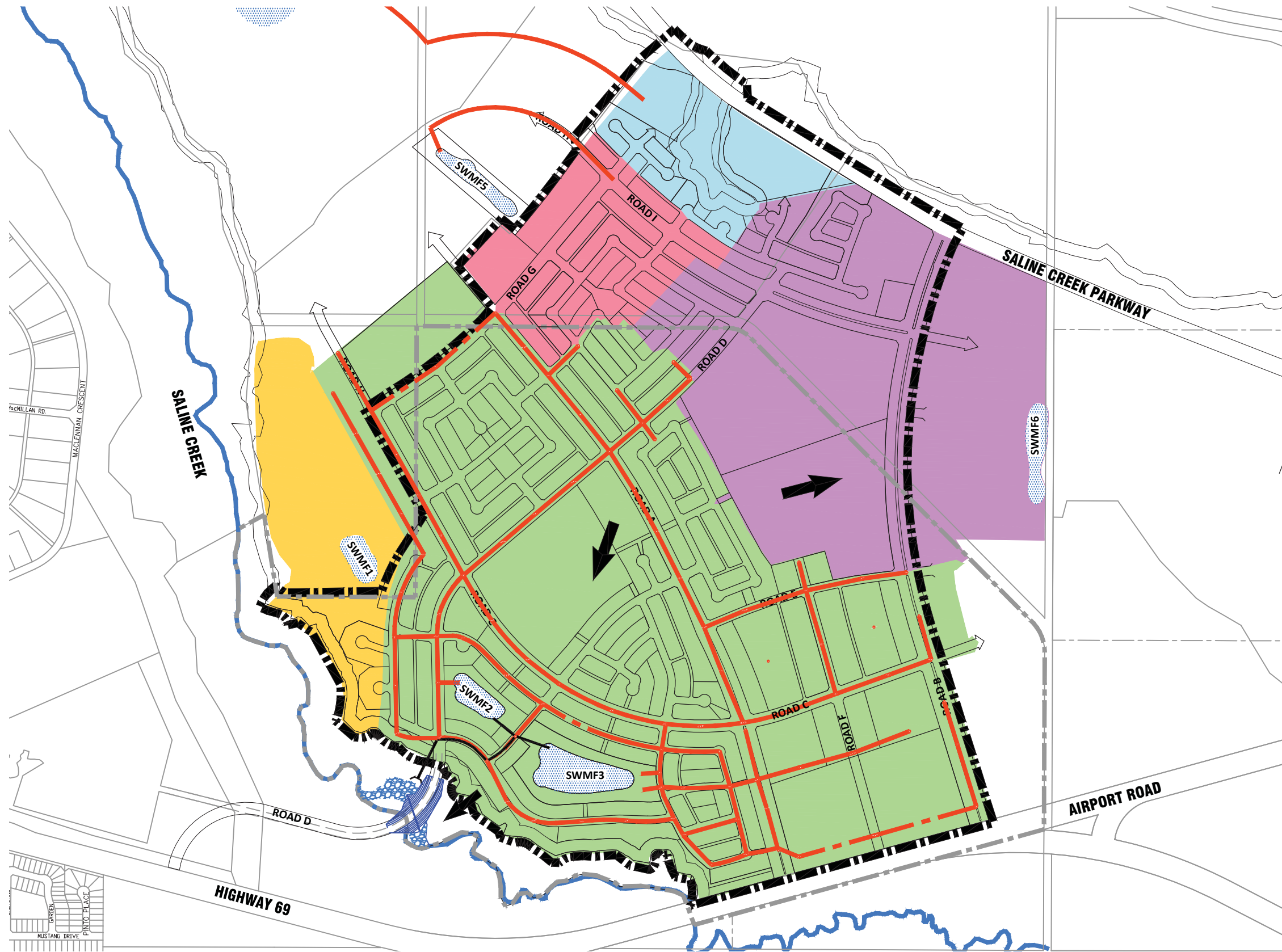




Keyano College Lands Outline Plan

Figure 8.0 Sanitary Services





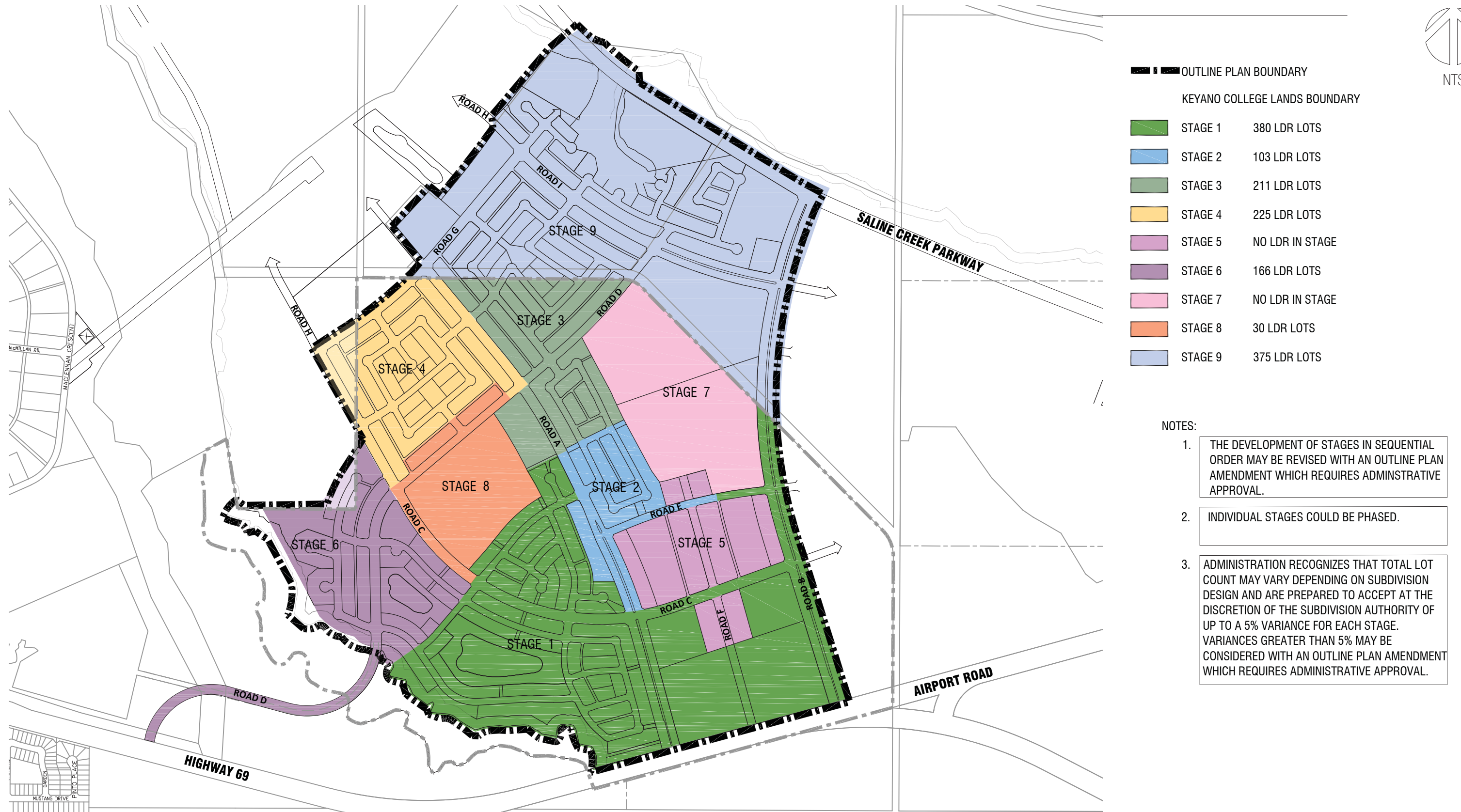
- CATCHMENT AREA 1 TO SWMF 1(20.1ha)
- CATCHMENT AREA 2 TO SWMF 2, 3(159.3ha)
- CATCHMENT AREA 3 TO SWMF 6 (78.2ha)
- CATCHMENT AREA 4 TO SWMF 4 (14.4ha)
- CATCHMENT AREA 5 TO SWMF 5 (19.7ha)
- STORM TRUNK
- DIRECTION OF FLOW
- SWMF OUTFALL
- SWMF POND
- OUTLINE PLAN BOUNDARY



Keyano College Lands Outline Plan

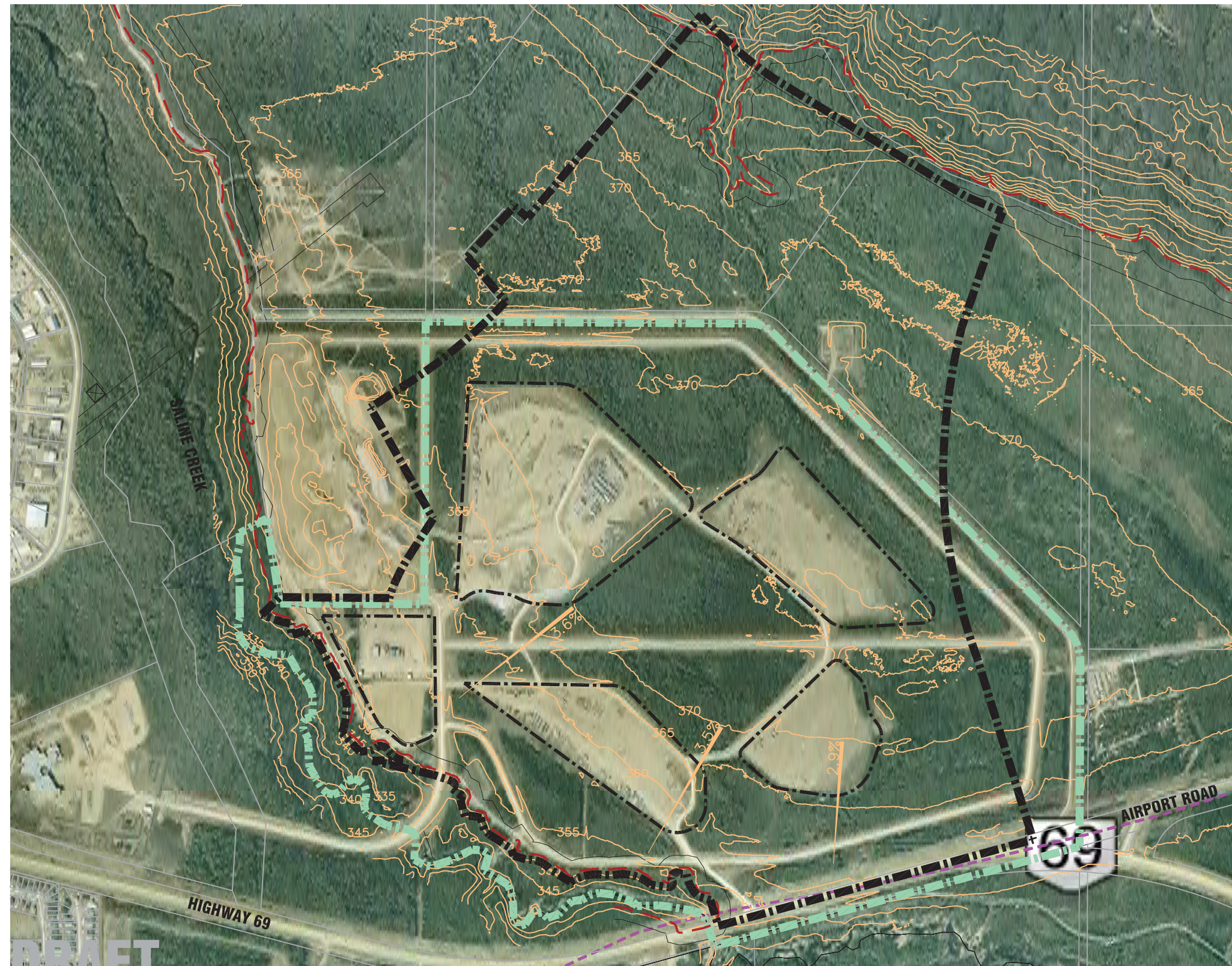
Figure 9.0 Stormwater Management





Keyano College Lands Outline Plan

Figure 10.0 Staging Plan & Indicative Low Density Residential District Density Breakdown



LEGEND

- YARD, TRAINING FACILITY
- KEYANO COLLEGE LANDS BOUNDARY
- TOP OF BANK LINE
- NOISE EXPOSURE CONTOUR
- OUTLINE PLAN BOUNDARY



NTS

Keyano College Lands Outline Plan

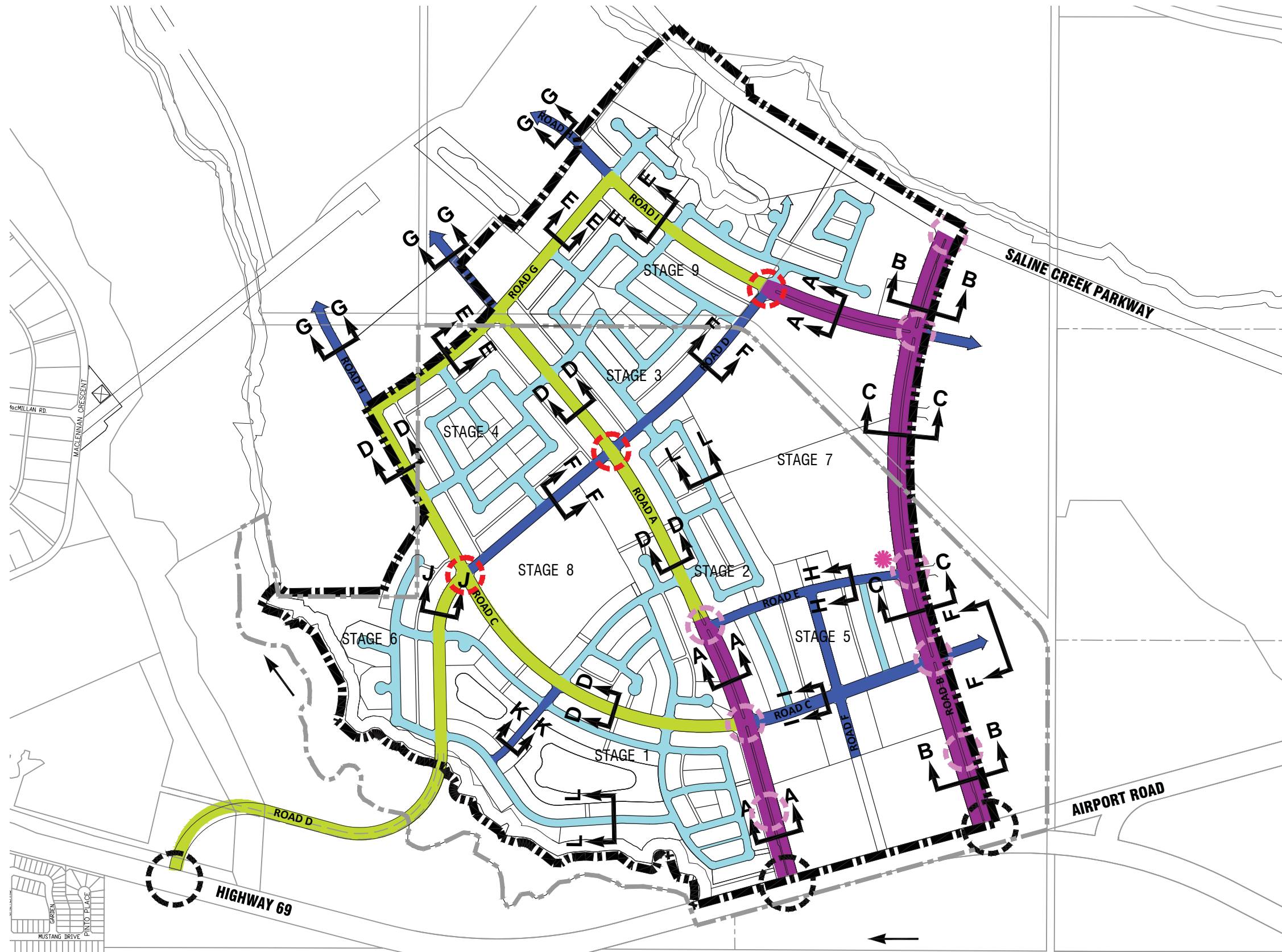
Figure 11.0 Aerial Photograph









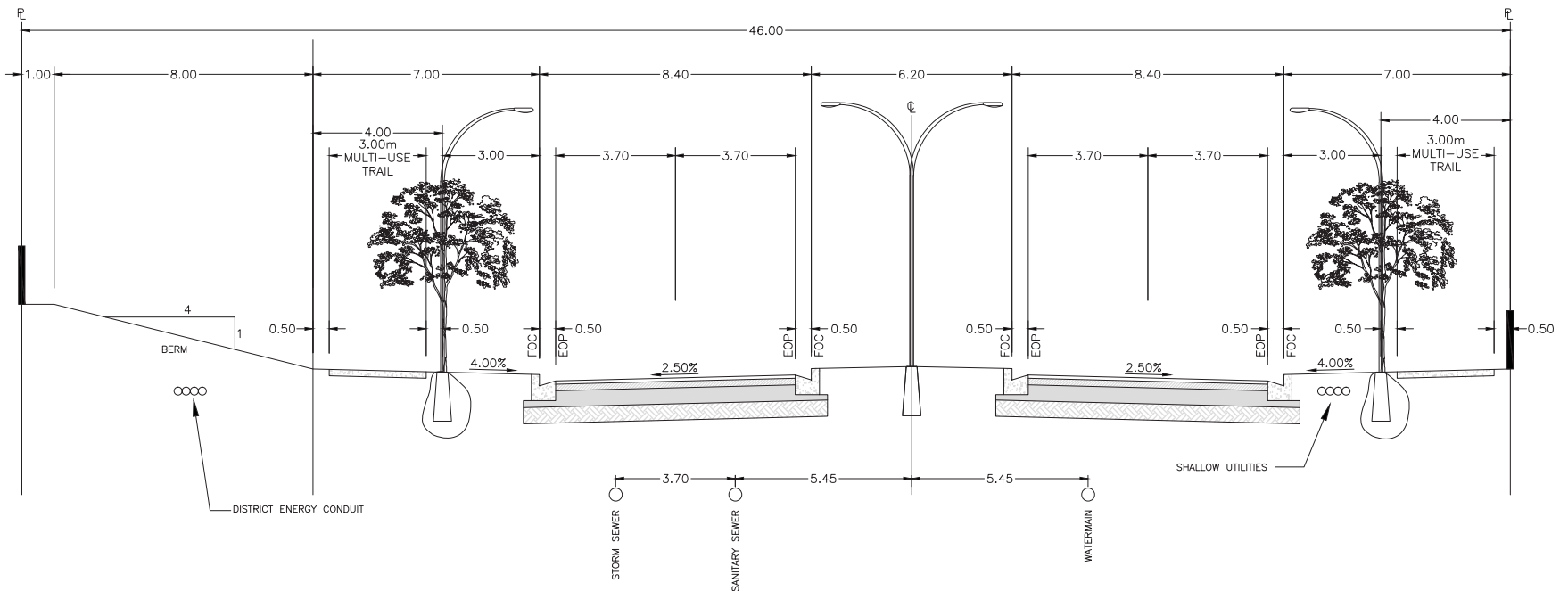
APPENDIX B.2

Road Cross Sections





-  OUTLINE PLAN BOUNDARY
-  LOCAL
-  COLLECTOR
-  UNDIVIDED ARTERIAL
-  DIVIDED ARTERIAL
-  TRANSIT CENTRE
- A-A** 4-LANE DIVIDED ARTERIAL - WITH BERM ON ONE SIDE
- B-B** 4-LANE DIVIDED ARTERIAL - WITH TWO BUS LANES - WITH BERM ON ONE SIDE
- C-C** 4-LANE DIVIDED ARTERIAL - WITH TWO BUS LANES
- D-D** 4-LANE UNDIVIDED ARTERIAL
- E-E** 4-LANE UNDIVIDED ARTERIAL - WITH PARKING LANES
- F-F** MAJOR COLLECTOR - WITH MULTI-USE TRAIL ON ONE SIDE
- G-G** MAJOR COLLECTOR
- H-H** MAJOR COLLECTOR - WITH PARKING LANE ON ONE SIDE - WITH MIDDLE TURN LANE
- I-I** 6-LANE MAJOR COLLECTOR - UNDIVIDED - WITH PARKING LANE ON ONE SIDE
- J-J** MINOR COLLECTOR
- K-K** MINOR COLLECTOR
- L-L** LOCAL

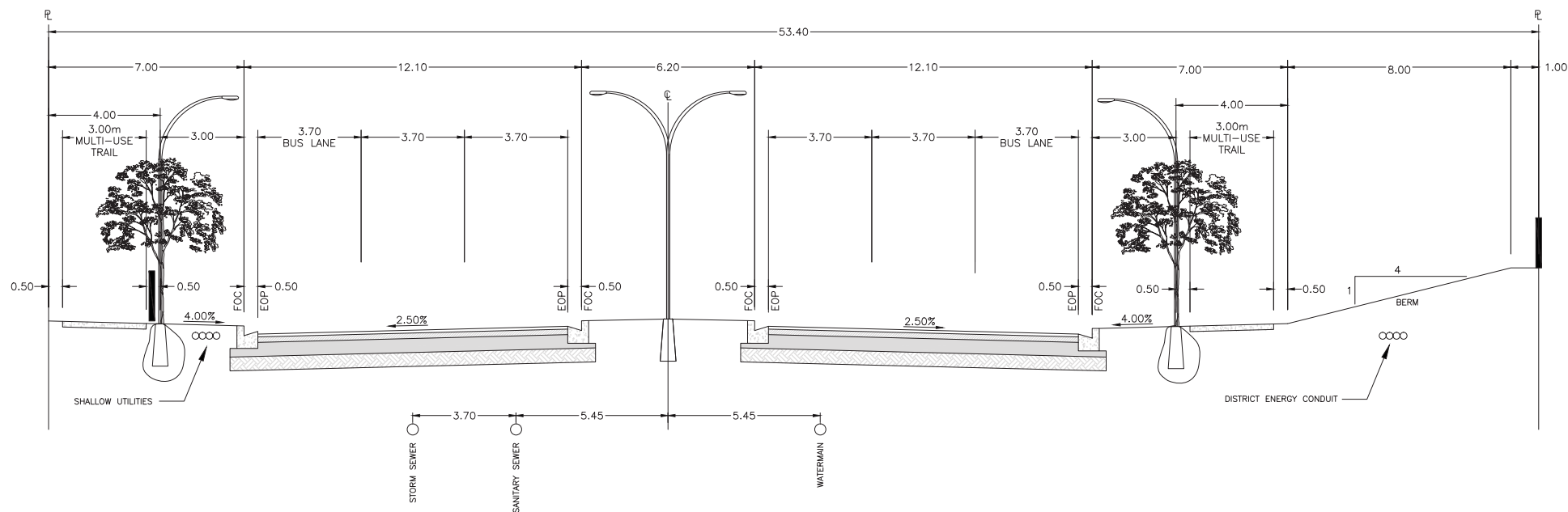


SECTION A-A
46.00m 4-LANE DIVIDED ARTERIAL - WITH BERM ON ONE SIDE

NOTE:

- DISTRICT ENERGY LINE ASSIGNMENTS TO BE CONFIRMED WITH RMWB
- BACK OF CURB TREATMENT AS PER ENGINEERING STANDARDS
- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARDS 10-802

Preliminary only, subject to detailed design.

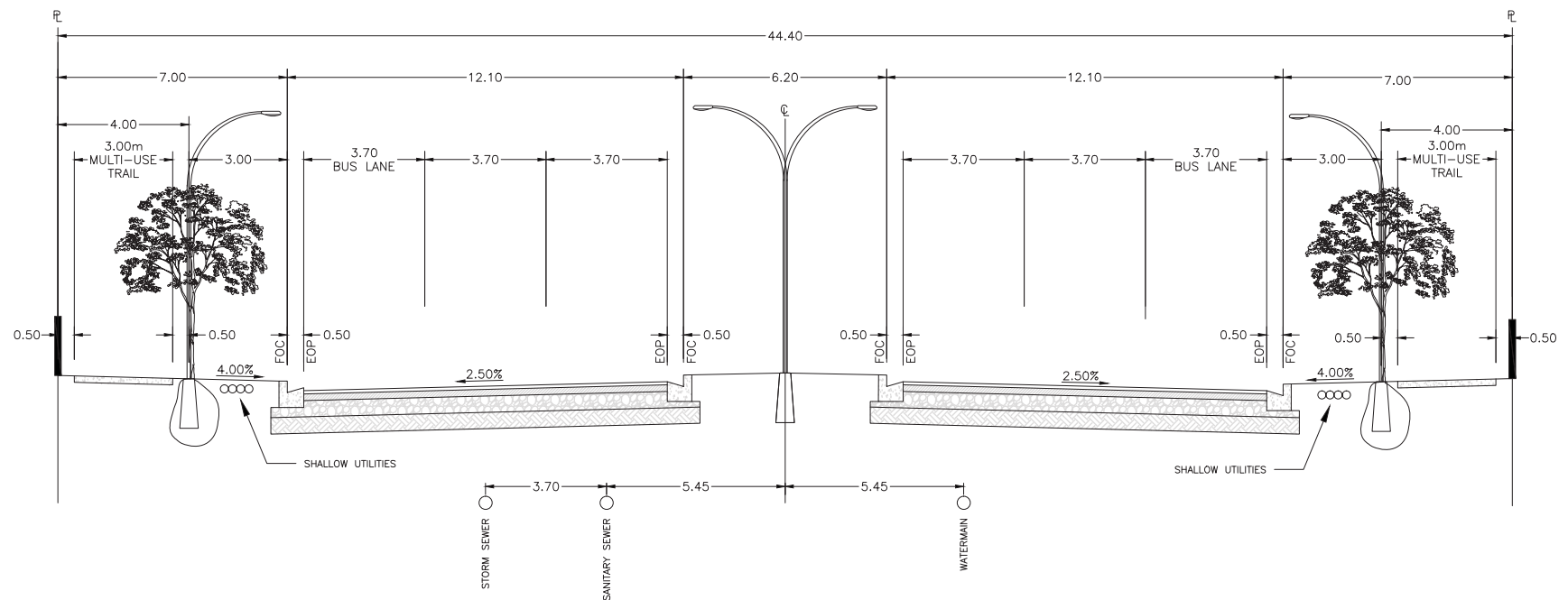


SECTION B-B
53.40m 4-LANE DIVIDED ARTERIAL WITH TWO BUS LANES – WITH BERM ON ONE SIDE

NOTE:

- DISTRICT ENERGY LINE ASSIGNMENTS TO BE CONFIRMED WITH RMWB
- BACK OF CURB TREATMENT AS PER ENGINEERING STANDARDS
- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARDS 10-802

Preliminary only, subject to detailed design.



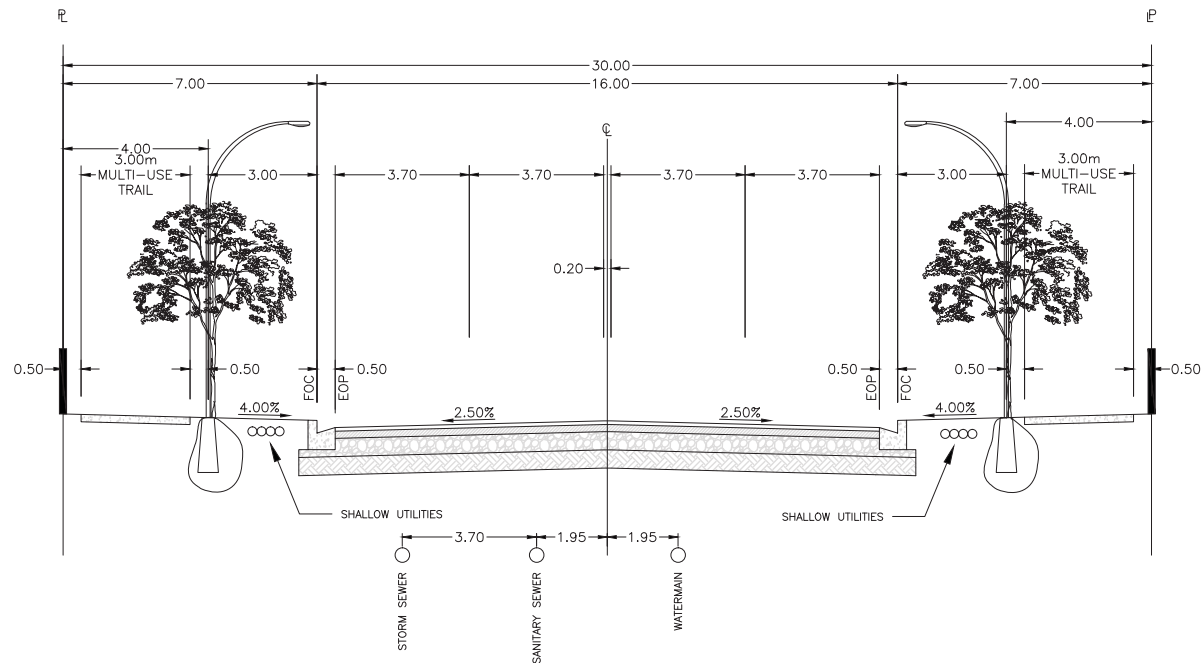
SECTION C-C

44.40m 4-LANE DIVIDED ARTERIAL WITH TWO BUS LANES

NOTE:

- BACK OF CURB TREATMENT AS PER ENGINEERING STANDARDS
- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARD DETAIL 10-802

Preliminary only, subject to detailed design.

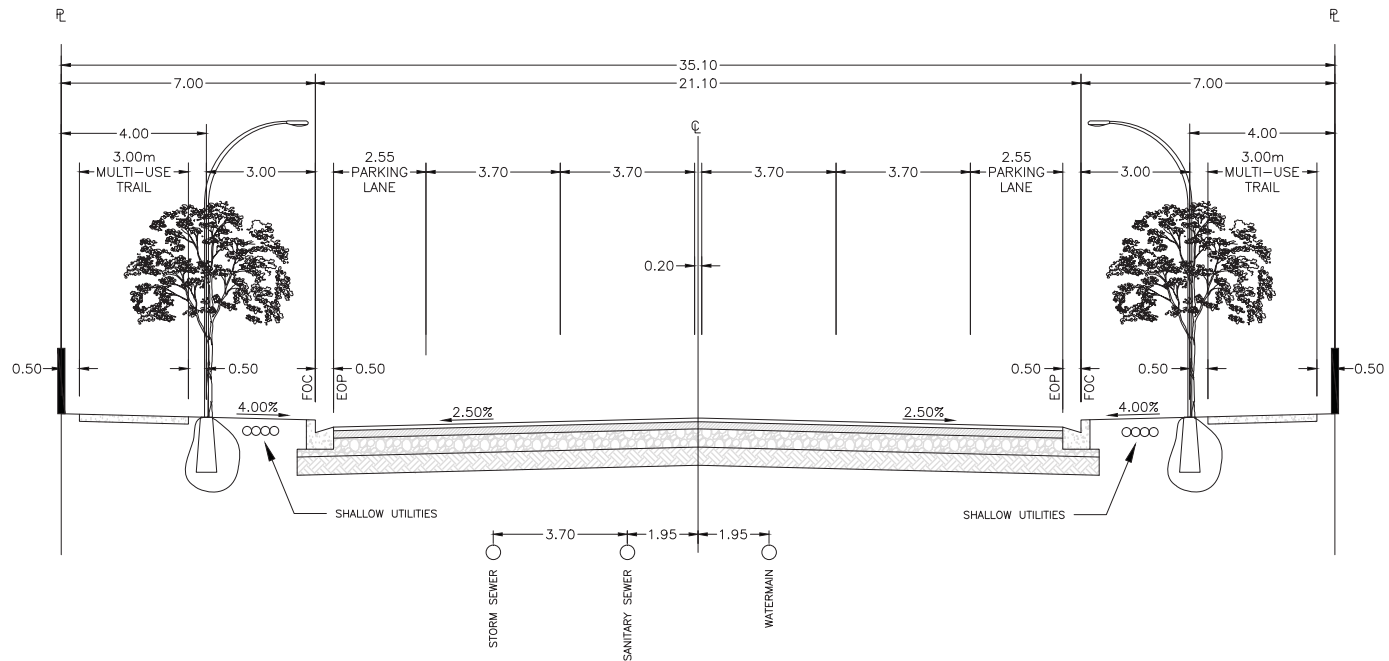


SECTION D-D
30.00m 4-LANE UNDIVIDED ARTERIAL

NOTE:

- BACK OF CURB TREATMENT AS PER ENGINEERING STANDARDS
- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARD DETAIL 10-802

Preliminary only, subject to detailed design.



SECTION E-E

35.10m 4-LANE UNDIVIDED ARTERIAL - WITH PARKING LANES

NOTE:

- BACK OF CURB TREATMENT AS PER ENGINEERING STANDARDS
- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARD DETAIL 10-802

Preliminary only, subject to detailed design.



25.00m MAJOR COLLECTOR ROAD – WITH MULTI-USE TRAIL ON ONE SIDE

- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARDS 10-802

Keyano College Lands Outline Plan

Section F-F

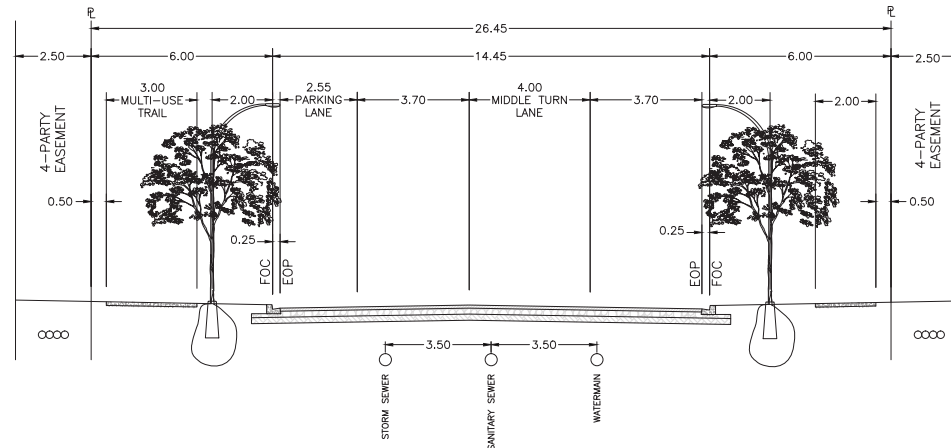


SECTION G-G
25.00m MAJOR COLLECTOR ROAD

- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARDS 10-802

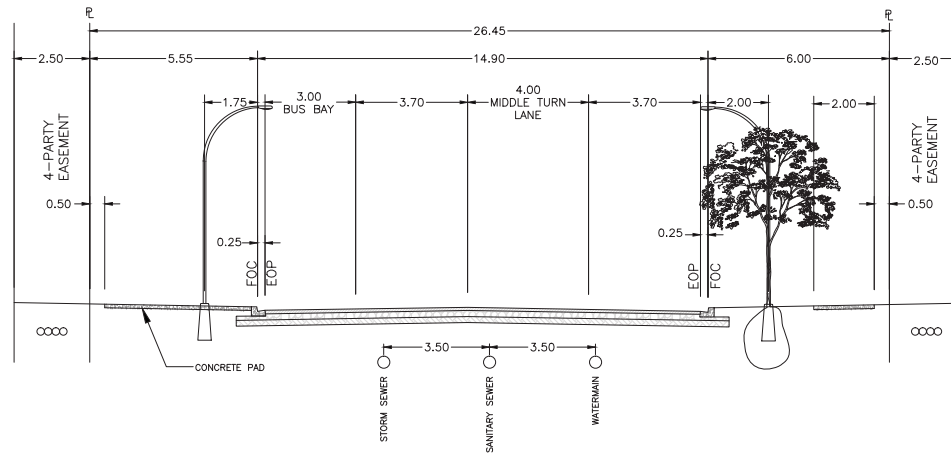
Keyano College Lands Outline Plan

Section G-G



SECTION H1-H1

26.45m MAJOR COLLECTOR – WITH PARKING LANE ON ONE SIDE – WITH MIDDLE TURN LANE



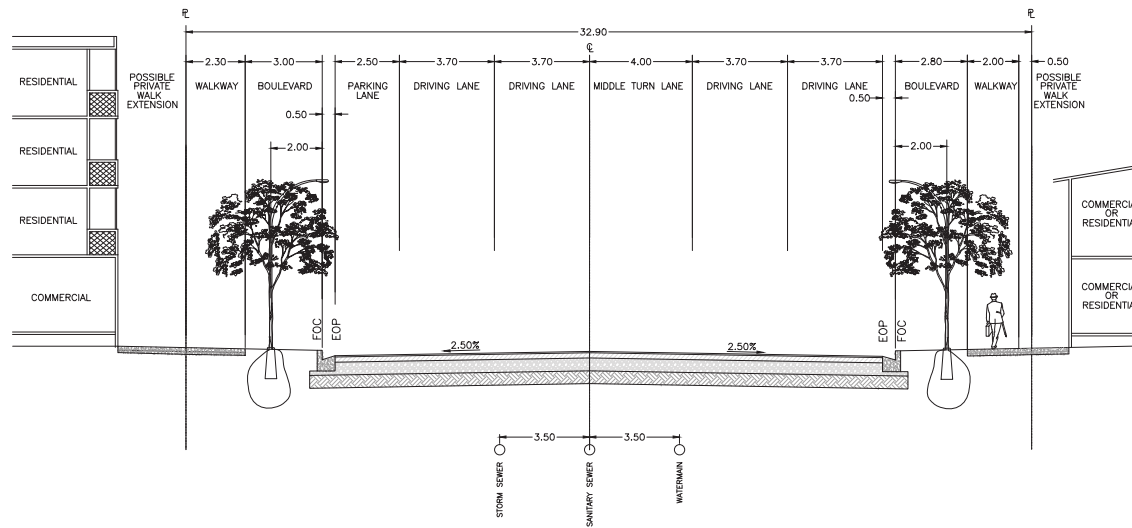
SECTION H2-H2

26.45m MAJOR COLLECTOR – WITH BUS BAY ON ONE SIDE – WITH MIDDLE TURN LANE

NOTE:

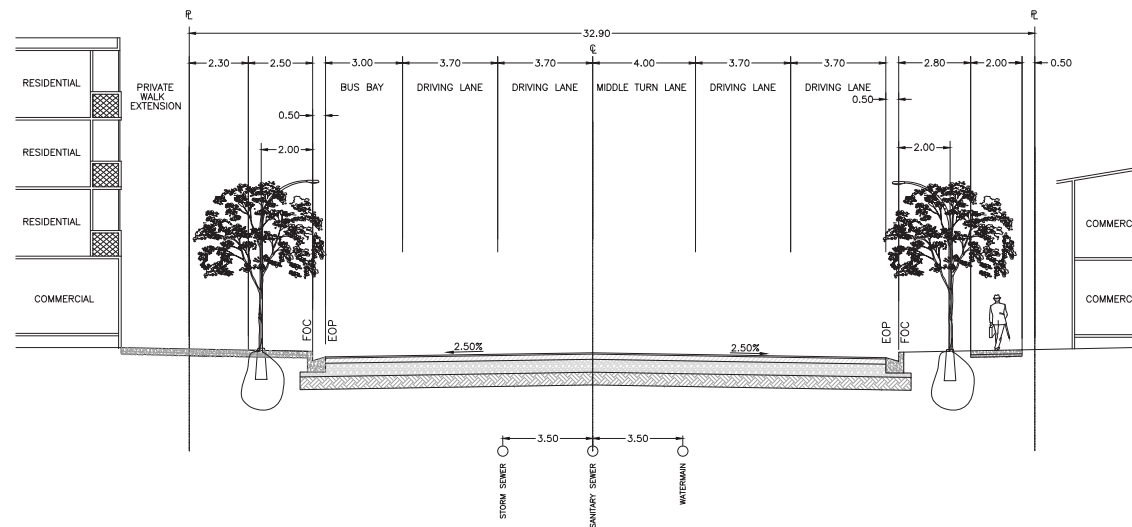
- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARDS 10-802

Preliminary only, subject to detailed design.



SECTION 11-11

32.90m 6-LANE MAJOR COLLECTOR — UNDIVIDED — WITH PARKING LANE ON ONE SIDE



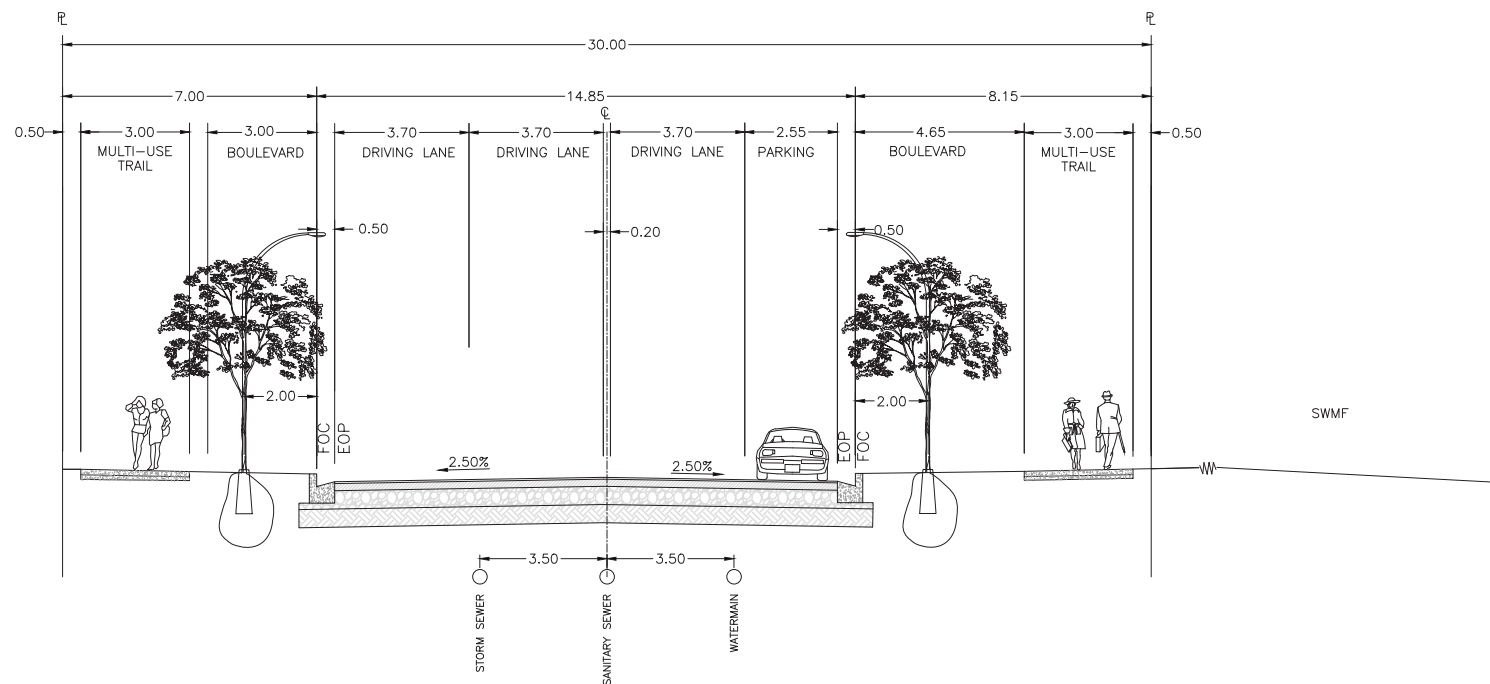
SECTION 12-12

32.90m 6-LANE MAJOR COLLECTOR — UNDIVIDED — WITH BUS BAY ON ONE SIDE

Preliminary only, subject to detailed design.

NOTE:

- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARDS 10-802



SECTION J-J

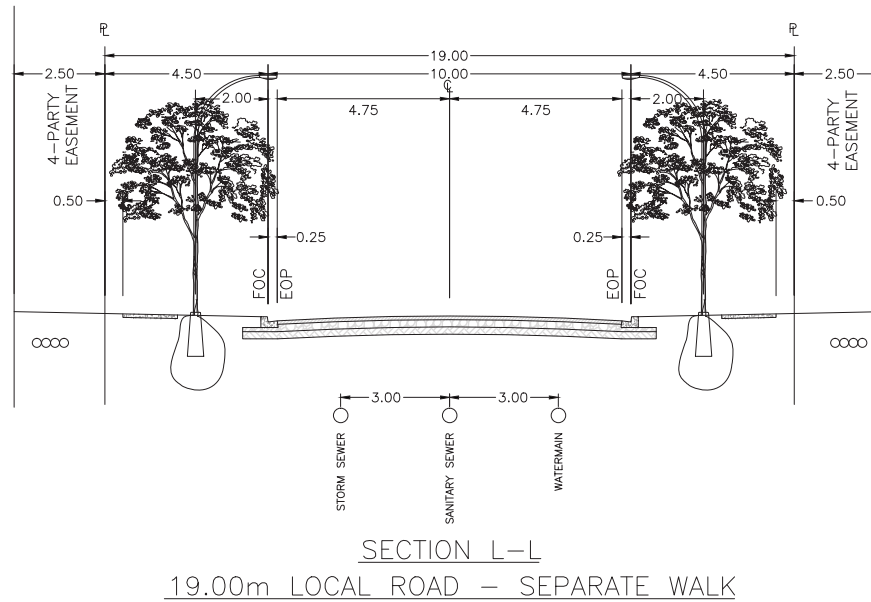
30.00m 4 LANE ARTERIAL WITH PARKING ON ONE SIDE

NOTE:

- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARDS 10-802

Preliminary only, subject to detailed design.





NOTE:

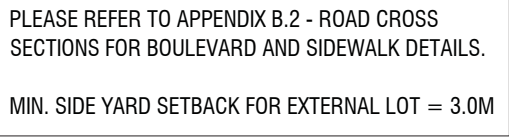
- MULTI-USE TRAILS TO USE PAVED MATERIALS AS PER ENGINEERING STANDARDS 10-802

Preliminary only, subject to detailed design.

APPENDIX C

Lot Development Typology Options







Straight Face Curb



PLEASE REFER TO APPENDIX B.2 - ROAD CROSS SECTIONS FOR BOULEVARD AND SIDEWALK DETAILS.

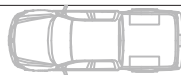
MIN. SIDE YARD SETBACK FOR EXTERNAL LOT = 3.0M



Lane



Straight Face Curb



PLEASE REFER TO APPENDIX B.2 - ROAD CROSS SECTIONS FOR BOULEVARD AND SIDEWALK DETAILS.

MIN. SIDE YARD SETBACK FOR EXTERNAL LOT = 3.0M

APPENDIX D.1

Saline Creek Plateau Area Structure Plan



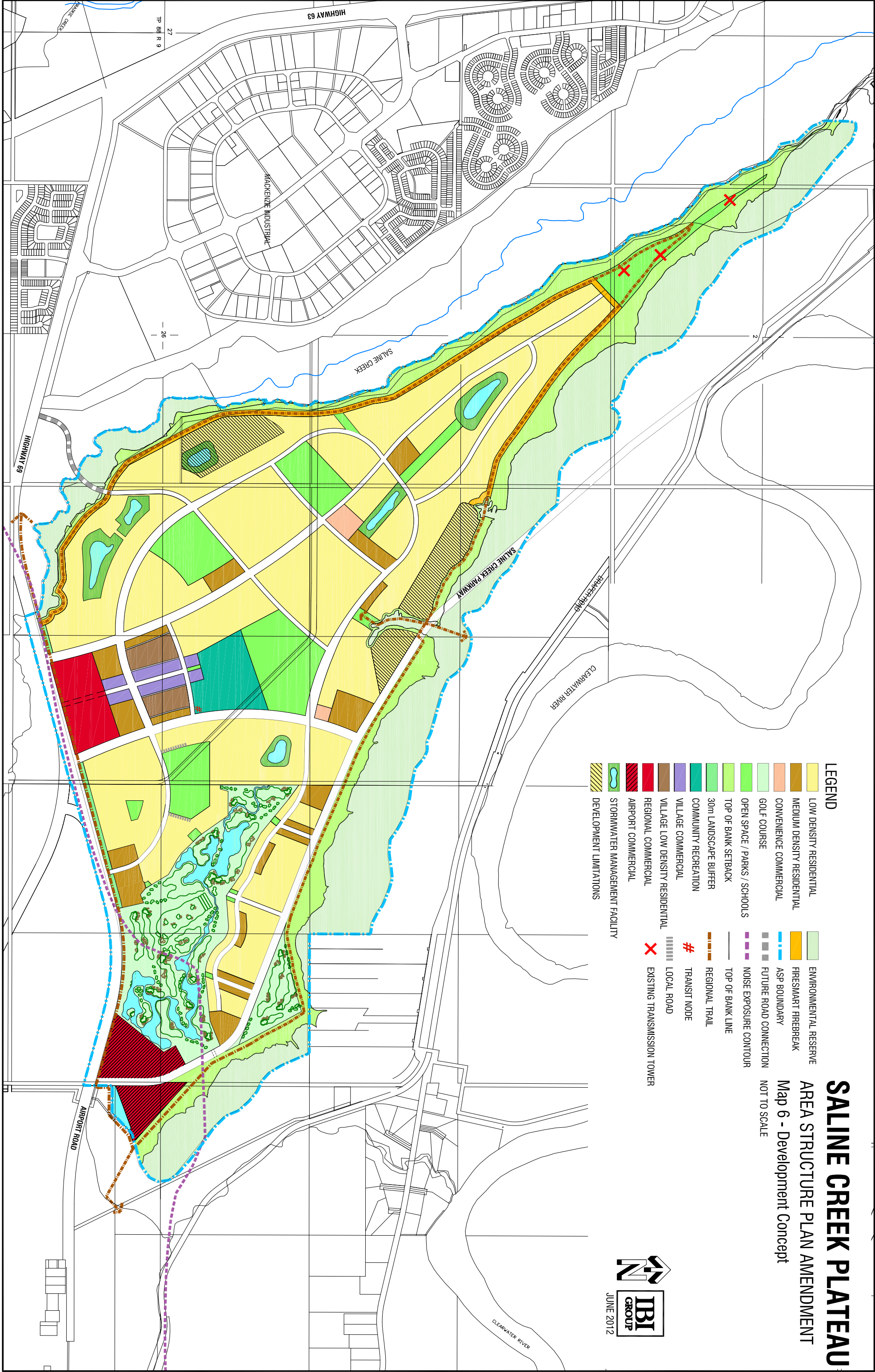
SALINE CREEK PLATEAU

AREA STRUCTURE PLAN AMENDMENT

Map 6 - Development Concept

NOT TO SCALE

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
	NOISE EXPOSURE CONTOUR
	TOP OF BANK LINE
	REGIONAL TRAIL
	TRANSIT NODE
	LOCAL ROAD
	EXISTING TRANSMISSION TOWER



APPENDIX D.2

Supporting Information



APPENDIX D.2 – SUPPORTING INFORMATION

D.2.1 Natural Features

The Keyano College lands are bound by Saline Creek and its valley on its south and south-west edges. The un-cleared lands in the Outline Plan area are heavily comprised of mixedwood forest. White spruce, black spruce, and balsam fir are the prominent tree species of the area. No significant muskeg areas are identified in the area.

D.2.2 Topography, Soils, & Vegetation

The Keyano College lands indicate a gentle slope towards the Saline Creek valley. The highest elevation on this site is around 370.0 m above sea level, along the ridge that runs from the north-west to the south-east portions of the site. From this ridge the lands slope in the south-west, south, and west directions towards Saline Creek. On the other side of the ridge, which is towards the north and north-east boundaries of the site, the lands are largely flat.

The lands to the south and south-west of the ridge slope from 370.0 m to the elevation of 355.0 m along Regional 69 Road (southern boundary for the Keyano lands) and 335.0 m along the Saline Creek Valley (south-west boundary of the Outline Plan area). From the ridge to the Urban Development Setback line the land gradient approximately ranges from 2.9% to 3.6%.

The site is underlain by a mixture of sand, silt, clay, and clay till deposits, which are generally favourable for subdivision development. Bedrock was encountered in some place at depths ranging between 2.3 m to 9.6 m. Based on the LiDAR data the ground surface of the site appears to be fairly well drained. Groundwater is closest to the ground surface in the south part of the site where water levels are around 0.6 m to 0.8 m below ground surface. The ground water table appears to fall with distance to the north to 6.1 to 7.4 m below the ground surface. The northern half of the site and the cleared areas of the south part of the site have been subject to a significant amount of surface disturbance. There are a few gravel pits on the site. Care needs to be taken while grading these areas to remove unsuitable and loose material and replace it with suitable engineering fill.

No agricultural influence has occurred in the Outline Plan area. The subject site falls under the Mid Boreal Mixed Wood eco-region. No muskeg areas are located within the Outline Plan boundary. The majority of trees are of a mix of ages and species, including white spruce, black spruce, and balsam fir. There are scattered amounts of white birch, bog birch, balsam poplar, trembling aspen, willow, pin cherry, and tamarack throughout the forest. There is some understorey present in various sections of the forest, including speckled alder, beaked hazelnut, red-osier dogwood, buffaloberry, saskatoon, wild rose, western mountain ash, wild red raspberry, buckbrush, Labrador tea, bog cranberry and kinnikinnick. The ground cover and low lying grass land and/ or waste areas are also found within the various areas. (*Valued Ecosystem Components and Vegetation Inventory of Proposed Development at Keyano College Properties (Pts. of 25, 26, 35, and 36-88-9-W4M)*, EnviroMak Inc., September 2012).

D.2.3 Environmental Site Assessment

Phase I Environmental Site Assessment, (for Lot 2, Plan 8421771, Fort McMurray, Alberta, (Shelby Engineering Ltd., August 2012) does not identify any existing or former on or offsite land uses

which are likely to have significant environmental impact and/ or require extensive remediation prior to site development. The site is, in general, deemed a low environmental risk however discrete areas and land uses which may have had isolated impact were identified.

The primary activities of concern identified for the subject site include the presence of above ground petroleum storage tanks, and other petroleum or other potentially hazardous material storage containers, vehicle/ equipment repair garages, and general material storage. The observed condition and identified historical information suggests that contamination is likely to be present; however it is believed to be low and not warrant additional investigation at this time. However, future work may be recommended for due diligence purposes.

On termination of lease agreements, at minimum, the respective leases should be inspected to ensure that tanks, refuse materials, structures, and other materials which may have been stored on the property in conjunction with the activities have been removed and the lease cleaned. Excessively stained soils should be removed. Numerous areas of stained soils may require sampling to ensure that significant contamination has not occurred.

D.2.4 Historical & Current Land Use

Historical Resources Impact Assessment was conducted on the Keyano College lands by *Altamira Consulting Ltd.*, August 2012. Assessment consisted of field reconnaissance and visual examination of target areas selected on the ground and during pre-field project screening. A search of existing historical resource site files revealed that there are no previously recorded sites located in or adjacent to the project study area. No new archeological sites or historic sites were recorded during HRIA survey.

The subject lands were undeveloped raw lands through the 1950's and 1960's. Roads were developed along the north half of the site in 1970's and the area opened up for gravel extraction. Gravel quarries have been historically located in the northwest and southwest portions of the site. Additional roadways and three additional portions of the site were cleared by the late 1970's. The existing Crane and Hoist training lands also appear to have been developed around this time. Aerial photographs suggest that, apart from sand and gravel extraction/ storage, these cleared areas remained largely vacant until late 1990's when storage leases were added. The amount of lease activity and heavy equipment / vehicle storage increased through the 2000's. New leases were developed and lands cleared throughout the north portion of the site between 2008 and 2012. (*Phase I Environmental Site Assessment, Lot 2, Plan 8421771, Fort McMurray, Alberta; Shelby Engineering Ltd., August 2012*)

Currently the Keyano College Lands are home to the Heavy Equipment Campus which is used as training grounds for the operation of heavy equipment vehicles. There are gravel extraction sites, storage/ lay down areas under leasehold arrangements and formal/ informal recreation activities. Significant portion of the subject site is cleared off the trees and there is limited access to the site in the form of gravel roads.

The Rotary Club camp ground is located to the east of Keyano College lands and near the intersection of Highway 69 and Airport Road. The Gregory Park residential development and the MacKenzie Park Industrial subdivision are located to the west of Saline Creek. The Fort McMurray Regional Airport is located to the south east and is accessed by Airport Road.

APPENDIX E

List of Technical Studies



List of Technical Studies	Prepared by	Year
Saline Creek Plateau Outline Plan - Traffic Impact Assessment	Bunt & Associates	2012
Keyano Lands - Saline Creek Subdivision Fort McMurray, Alberta Preliminary Geotechnical Investigation	Thurber Engineering Ltd.	2012
Phase I Environmental Site Assessment Lot 2, Plan 8421771 Fort McMurray, Alberta	Shelby Engineering Ltd.	2012
Saline Creek Plateau Fort McMurray, Alberta Slope Setback Assessment & Preliminary Geotechnical Investigation	Thurber Engineering Ltd.	2009
West Storm Sewer Outfall Keyano College Lands - Saline Creek Subdivision Fort McMurray, Alberta Geotechnical Investigation	Thurber Engineering Ltd.	2011
Biophysical Site Assessment of Proposed 862 Hectare Development at Keyano College properties (Pts. of 29, 30 and 31-088-8-W4M, 25,26,35 AND 36-088-09-W4M and 2-089-09-W4M)	EnviroMak Inc.	2012
Migratory Bird Mitigation Plan for Proposed Stormwater Pond Development at Keyano College Properties (Pts. of 25-88-9-W4M)	EnviroMak Inc.	2012
Valued Ecosystem Components and Vegetation Inventory of Proposed 167 Hectare Development at Keyano College Properties (Pts. of 25, 26, 35 and 36-88-9-W4M)	EnviroMak Inc.	2012
Historical Resources Impact Assessment	Altamira Consulting Ltd.	2012
Low Flow Hydrology Saline Creek at Fort McMurray, Alberta	northwest hydraulic consultants	2012
Keyano Lands (Saline Creek) - Fort McMurray, AB Stormwater Management Plan	IBI GROUP	2012
Saline Creek Plateau Keyano College Lift Station Preliminary Design Report	IBI GROUP	2012
Keyano College Lands Saline Creek Water Servicing Brief	Associated Engineering	2012
Engineering Design Brief	IBI GROUP	2013
Transit Concept Plan	IBI GROUP	2013

