City of Swift Current

Northeast Urban Expansion Area Sector Plan

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1. Introduction

1.1 Purpose

This document establishes a vision and outlines overarching objectives and planning policies to guide future development in the Northeast Urban Expansion Area (NEUEA).

There are several policy documents which guide land use planning in the City of Swift Current that impact the development of the NEUEA. These are:

- The Saskatchewan Planning and Development Act, 2007
- The City of Swift Current Expansion Planning Project, 2007
- The City of Swift Current Development Plan, 2003
- **The NEUEA Sector Plan**
- The City of Swift Current Zoning Bylaw, 2003 (and future amendments)
- Neighbourhood Plans (Not always required)
- Urban Design Guidelines

The Saskatchewan Planning and Development Act establishes Saskatchewan's land use planning and development system. It identifies provincial interests to guide provincial and municipal planning decisions. The aim of the Planning and Development Act is to support the development of environmentally, economically and culturally sustainable communities and to encourage co-operation between municipalities and other key stakeholders.

The Expansion Planning Project undertaken in 2007 reviewed the need for additional land within the City of Swift Current and identified areas for future annexation. Part of the NEUEA was identified for annexation at this time, and has since been included within the City of Swift Current boundaries.

The **City of Swift Current Development Plan** establishes high-level policies to guide the growth and development of the City. The 'Development Pattern' (Map 2, Development Plan) identifies the NEUEA as an area for future residential and commercial growth.

A **Sector Plan** is a concept plan used where minimal or no urban development has yet taken place. A Sector Plan establishes a guiding land use framework, which will be used to inform future development and potential amendments to the Zoning Bylaw. The NEUEA Sector Plan is a long-term development plan to guide future urban growth in the City of Swift Current's northeast lands. This Plan, once approved by Council, will provide the public with a sense of the vision for this area and a framework for future land use planning to be further defined in subsequent development proposals. The NEUEA Sector Plan identifies where various types of possible land uses (residential, commercial uses, parks and open space, etc.) will be located, and how essential municipal services (water, sanitary sewer, stormwater systems) and street networks may be provided. The Sector Plan's Land Use Designations do not enable new development to occur or existing land uses to change. The Sector Plan simply establishes the guiding land use framework, which will be used to inform the development of subsequent Neighbourhood Plans. A Neighbourhood Plan should be adopted for the underlying land use to change to accommodate new development.

The **City of Swift Current Zoning Bylaw** controls the use and development of land in the City of Swift Current through objectives, policies and rules to assist in implementation of the development plan. While the NEUEA Sector Plan proposes several land uses that are consistent with the Swift Current Zoning Bylaw designations, some new land uses are proposed, and will be further refined in the Neighbourhood Planning Phase. Amendments to the Zoning Bylaw may therefore be required to reflect the new land use categories proposed.

A **Neighbourhood Plan** is a local concept plan (typically large enough to support an elementary school, neighbourhood park or detention pond) that may be prepared for a smaller sub-section of a Sector Plan, focussing on the detailed design of a specific location. This plan sets out detailed development plans for an area, giving due consideration to housing types, roads, public transportation, edge planning, environmental protection, amenity provision, servicing, financing and implementation. Neighbourhood Plans must comply with the principles and objectives of the Development Plan and the NEUEA Sector Plan and should be adopted by Council before any new development can occur.

1.2 Background

The NEUEA Sector Plan (the 'Concept Plan') has been sponsored by the City of Swift Current to help guide future development in an area anticipating and already experiencing growth. The development of a Sector Plan is not always City-lead and private developers are also able to spearhead, develop and submit Sector Plans to Council for approval.

The NEUEA is a largely undeveloped area to the north and east of Highway No. 4 (Memorial Drive) that encompasses approximately 437 hectares (1080 acres). Approximately 266 hectares (660 acres) of this area was part of an annexation approved by the Saskatchewan Ministry of Municipal Affairs from the R.M. of Swift Current No. 137 in August of 2011. This area is bounded on its east by Highway No. 4, and Highway No. 1 passes thought the area's southeast corner.

The majority of the NEUEA is currently under-developed. However, recent developments including the Cypress Regional Hospital, a large-format retail area, and some new residential development have been key factors influencing additional development in this location. Currently in the planning stages are the development of an Integrated Facility site for schools, long-term regional health care residences, and recreational and cultural facilities. Community growth evidenced by new area development and the 2011 annexation has influenced the need to plan this northeast area of Swift Current for future development.

The City of Swift Current Development Plan (Map 2 – Development Pattern) identifies this area for a range of urban uses, providing the statutory framework for the area's future development pattern. To help inform the City's overall development needs a Market Area Analysis was commissioned to support the understanding and development of this plan. The Market Analysis (prepared by Urbanics Consultants Ltd.) identifies the northwest and northeast areas as representing the bulk of the City's developable lands in coming years. This is due to the City prioritising servicing and development in these locations. The outcomes of the Market Analysis have helped to form the basis of the proposed land use allocation for the NEUEA Sector Plan:

- Based on reasonable population growth rates, NEUEA residential demand is projected to represent over 1,300 dwelling units
- Dwelling units would be composed of a mix of housing types including as many as 735 single-family homes and as many as 600 multi-family homes (which would accommodate as many as 115 seniors' housing units)
- Market demand for regionally oriented and highway commercial could represent as much as 280,000 sq. ft. of warranted space
- Office space could represent as much as 120,000 sq. ft. of additional on-site office space

Due to the level of growth expected, the Sector Plan establishes a framework for how and where this development can occur in the future.

1.3 Plan Location

The NEUEA forms the northeast corner of the City of Swift Current, and it includes parts of Sections 5 and 6 in 16-13-W3M and Sections 31 and 32 in 15-13-W3M as shown in Figure 1 on the following page. The area is defined by the following general boundaries:

- North Boundary – City Limit
- West Boundary – Highway No. 4 (Memorial Drive) and City Limit
- East Boundary – City Limit
- South Boundary – Highway No. 4 (Memorial Drive) and City Limit

The NEUEA lands are easily accessed from the two highways which border the site to the west, south, and at the southeast corner. Access from Highway 1 is provided by Highway 4 at the southeast corner of the site by way of exit ramps for both east and west bound traffic. Access from the existing parts of the City, including the city centre, is provided mainly by way of Memorial Drive (Highway 4), Central Avenue, and Battleford Trail which turns into Saskatchewan Drive before leading into the NEUEA.

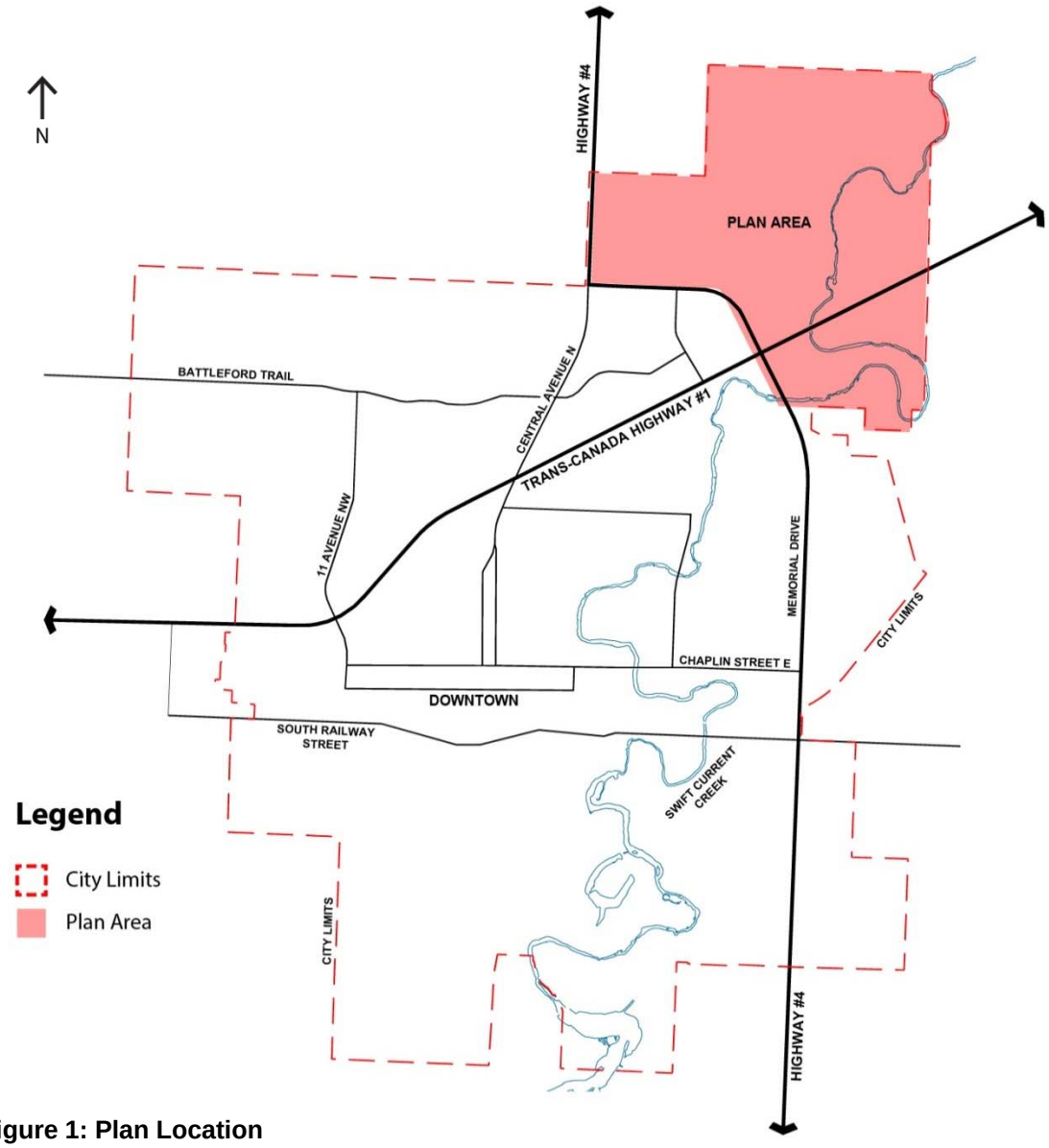


Figure 1: Plan Location

1.4 Land Ownership

The area lands are generally under-developed, they are owned by a few private individuals that typically have about a quarter-section of land each and also include land owned by the City. Some smaller ownership interests exist along the highways, the creek, and in the newly developing lands around the hospital site. A land ownership plan is provided as Figure 2.

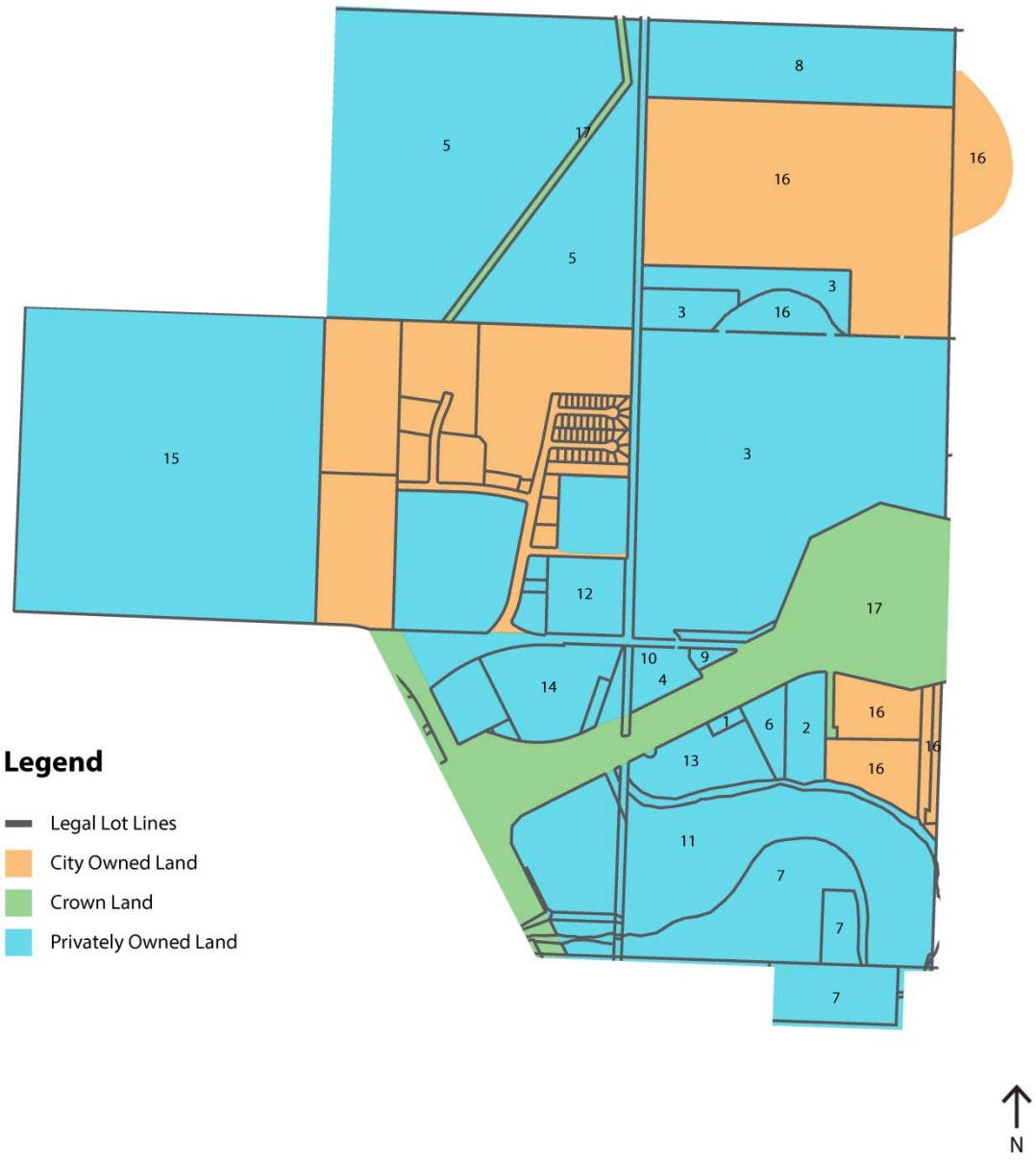


Figure 2: Land Ownership as of Early 2013

1.5 Public Consultation

The NEUEA Sector Plan has utilized a public engagement process that has included a series of meetings and consultations over the course of the project. This has included consultation with City administration, local stakeholders, and the greater public to identify needs, opportunities, constraints, and to review the overall planning approach.

An initial landowner meeting was held on June 26th, 2012 to present the preliminary NEUEA concept and receive stakeholder feedback. A further landowner gathering and public information session (open house format) were held on December 19th, 2012 to present the proposed land use concept and receive feedback. This meeting provided the community and stakeholders the opportunity to review the planning progress, voice any comments or concerns, ask questions and seek clarification. These meetings opened up dialogue with interested NEUEA landowners and the public. The information obtained from these meetings (and the discussions which followed) have been considered and incorporated into this planning document where possible.

With regards to proposed density, most respondents were in agreement that they didn't want to see high-rise buildings or too much small-lot residential or commercial development. Some believed that there is no demand in the NEUEA area for the density proposed (based on previous land uptake and development), that the amount of multi-family should be reduced, and the area should remain primarily Single-Family or Country Residential. The NEUEA Sector Plan proposes a land use designation with the majority of land designated as small-scale, Single-Family Residential, in line with feedback received from stakeholders. The multi-family designations that are proposed are located adjacent to Activity Centres and along main roadways or Activity Corridors. The Multi-Family Residential in this location will help to support these activity areas, support neighbourhood commercial activities and increase the viability of regular transit to NEUEA. Further, the Market Analysis (prepared by Urbanics Consultants Ltd.) identifies the NEUEA Area as one of the key future development areas in the City of Swift Current. This document states that land use demands are likely to require development to comprise of a mixture of single-family and multi-family units.

Respondents considered that a lack of servicing or issues with existing servicing has been the key factor limiting development in this area. In order to increase development viability and to address stakeholder concerns, the NEUEA Sector Plan proposes a phased strategy for servicing that outlines how key services and infrastructure will be provided (or improved) within the study area (see Section 6).

Several respondents noted that the proposed land use designations are very different to the land use designations in place when the land was still located within the Rural Municipality boundaries. Following annexation of this land from the RM, the NEUEA was identified of within the City of Swift Current Development Plan for future residential and commercial growth. Proposed land use designations in this Sector Plan are in line with the intent of the City of Swift Current Development Plan.

2. Policy Context and Development Considerations

This Sector Plan is influenced by both the City of Swift Current's overarching planning policies and the opportunities and constraints presented by the physical characteristics of the area's lands.

2.1 Policy Context

Swift Current Development Plan

The NEUEA Sector Plan was developed under the Swift Current Development Plan (Bylaw No. 3-2003). This Development Plan is an overall City wide plan that provides policy and a development pattern to guide more specific and detailed plans used to develop the City. The lands within the NEUEA are designated on the City's Development Plan – Map 2 Development Pattern for Planned Residential, Planned Highway No. 4 Commercial, Existing Commercial, and Future Residential land uses.

The Sector Plan complies with Development Plan's pattern and policies that include:

SECTION 3 – DEVELOPMENT PATTERN

Policy 3.2.4 Take into account appropriate functional roadway designs for major transportation corridors which incorporate appropriate mitigation measures such as noise attenuation, streetscaping, lighting and roadside vegetation;

Policy 3.2.6 Maintain development which is compact and efficient by setting overall density guidelines for new residential development areas, infill development in established residential areas, and development in commercial and industrial areas; and

Policy 3.2.7 Ensure that development takes place in a contiguous manner, in order to make the most efficient use of municipal services and community infrastructure.

SECTION 5 – RESIDENTIAL DEVELOPMENT

Policy 5.2.1 Ensure orderly, contiguous development and efficient use of lands designated for residential and related uses;

Policy 5.2.2 Ensure an adequate supply of serviceable residential lands sufficient to meets the needs of the projected population over the next twenty years;

Policy 5.2.5 Provide for an adequate supply of residential housing types, lots sizes and densities which takes into account the age, family or household and economic structure of city residents;

Policy 5.2.12 Adopt energy conservation by promoting: (b) residential densities and designs which are conducive to efficient transportation; and

Policy 5.2.13 Maintain an average residential density of approximately 10.5 dwelling units per hectare;

Policy 5.2.15 Ensure that any new residential subdivisions and development shall not adversely affect significant natural and archaeological features of the area;

Policy 5.2.16 Ensure that new residential dwellings adjacent to major roadways, railways and other incompatible uses are provided with adequate buffering;

Policy 5.2.19 Ensure that subdivision design should maintain, wherever possible, natural features such as wetlands and ravines;

Policy 5.2.20 Appropriately integrate schools, playgrounds and open space within residential subdivision layouts;

Policy 5.2.21 Provide that multiple-unit dwellings be located near collector and arterial streets; however, dwellings should not have frontage on highways or arterial roadways;

SECTION 6.3 – HIGHWAY COMMERCIAL

Policy 6.3.2(b) New and redeveloped commercial developments along major arterials (including service streets) should be aesthetically pleasing, incorporating the following design characteristics and amenities:
(i) pedestrian and customer safety; and
(ii) Appropriate landscaping of medians, boulevards and parking areas.

Policy 6.3.2 (c) Loading areas shall be hidden from view of the highway if at all possible; and

Policy 6.3.2 (d) All large scale developments, including shopping centers and “big box” retail establishments shall require an impact assessment to determine the impacts and improvements necessary to the existing transportation network.

SECTION 8 – HERITAGE CONSERVATION

Policy 8.2.1 Investigate and research potential heritage buildings and sites.

SECTION 9 – OPEN SPACES, PARKS AND RECREATION FACILITIES

Policy 9.2.1 To recognize the Swift Current Creek and its associated environment as the most valuable open space/recreation resource in the City;

Policy 9.2.2 To designate the Swift Current Creek (including its banks and the associated environment), steep slopes and valleys for open space and both passive and active recreation;

Policy 9.2.3 To protect the Swift Current Creek area by dedicating it as Municipal Reserve or Environmental Reserve as authorized by the Planning and Development Act, 1983;

Policy 9.2.6 That open spaces, parks and recreation facilities should be linked to a continuous city-wide trail system, providing access for both pedestrians and cyclists;

Policy 9.2.7 That approvals for new neighbourhood subdivisions and associated developments are subject to conditions that extend, protect and enhance the existing trail system; and

Policy 9.2.13 To encourage cooperation and joint planning between the City, the school boards, and other public and private groups involved in the provision of recreational facilities.

SECTION 10 – TRANSPORTATION

Policy 10.2.2(i) Arterial streets in developing areas shall be designed primarily to accommodate through traffic between major land use areas. Access to individual abutting parcels may be restricted through planning devices such as reverse frontages, separate frontage streets and common access points for a number of properties;

Policy 10.2.2(j) The right-of-ways, design of new streets and the reconstruction of existing streets shall take into consideration:
(i) the requirements for pedestrian movements;
(ii) construction of bicycle paths where warranted and feasible;
(iii) visual and noise impact; and
(iv) landscaping and tree planting.

Policy 10.2.2(k) Guidelines shall be incorporated for boulevard landscaping;

Policy 10.2.2(r) The needs of pedestrians and cyclists are integrated into the planning and design of transportation facilities. In general, pedestrians should be provided with adequate sidewalks, walkways, crosswalks, lighting and street furniture. Pathways through linear parks (e.g. along the Swift Current Creek) should be safe for both pedestrians and cyclists;

Policy 10.2.2(t) Vehicle and pedestrian traffic should be separated by using the appropriate siting of sidewalks and City pedestrian/bicycle trails;

Policy 10.2.2(v) Residential areas adjacent to major streets should receive adequate buffering;

Policy 10.2.2(w) Streets shall be located with due regard to topography, to avoid the costs of excessive cutting and filling;

SECTION 12.6 – FLOOD MANAGEMENT (Bylaw No. 1-2005)

Policy 12.6.2 (c) To encourage flood proofing of existing development, where feasible, and restrict new development on lands identified as subject to flooding. This policy shall not exclude recreational use of flood prone lands.

2.2 Existing Land Use

Existing land uses within the NEUEA area are shown in Figure 3. The area is dominated by large scale agricultural activities, with associated farmsteads, that consist of primarily cultivated fields where the topography allows. As the Trans-Canada Highway No. 1 enters the City on the east, the pattern of existing uses includes, on the highway's north side, a bed and breakfast, and then on its south side a cemetery, a manufactured home community with camping resort, a homestead, and part of the City's waste-water treatment site. At the intersection of Memorial Drive (Highway No. 4) and Saskatchewan Drive, area development consists of the Cypress Regional Hospital, a large format commercial development, a religious facility, a small residential development for single detached houses and an agricultural business. A second bed and breakfast development exists along Waker Road on the west side of Swift Current Creek. Memory Gardens, a privately owned cemetery, is located southerly in NE31-15-13-W3M.

These existing land uses would not constrain future urban development. However, it is noted that the future development or redevelopment of existing properties would be at the option and timing of the respective landowners and will still require necessary approvals and planning studies.

2.3 Surrounding Land Uses

The NEUEA lands border the R.M. of Swift Current on the north, east, and west. The surrounding land uses on these borders are largely agricultural and used for crops, rangeland, or pasture. Some development does exist to the southeast where a manufactured home community abuts the east City boundary on the north side of Highway No. 1, and the City of Swift Current's wastewater (sewage lagoons) and landfill sites are located south of the highway. The plan's south boundary along Memorial Drive (Highway No. 4) has some vacant and recently developed commercial lands, including the Swift Current Mall.

2.4 Topography and Soils

The NEUEA's general landform consists of a broad plain with incised valleys and hilly uplands that contain surface drains which drain towards Swift Current Creek. NEUEA's elevation achieves a highpoint of approximately 785.0 m on hilly northern uplands (see Figure 3), and descends to the banks of the Swift Current Creek at an elevation of 750.0 m. In between these two prominent features, the lands are generally gently sloping (except drainage channels) and therefore viable for urban development.

Natural overland drainage consists of two primary ephemeral drainage ways that trend southeasterly toward Swift Current Creek. The southerly drainage way is most evident outside the NEUEA boundary, and only passes through the areas extreme southwest corner (SE6-16-13-W3) before it is obscured by cultivation. However, a northerly drainage way though NE6-16-13-W3 is more evident as it heads southeasterly towards the creek. In addition to these two drainage ways in SW6-16-13-W3, the review of air photos indicates some lower lands that had in the past been part of the area's natural drainage system.

The soils in the NEUEA vary in classification according to the soil survey reported by the University of Saskatchewan in 1985. The majority of the soils are a mixture of orthic and calcareous alluvium soils in the central area. Hillwash (mainly shallow, eroded, and weakly developed soils on steep gullied valley side slopes) is present in the northern section of the study area. There is also a small section of Orthic Brown, Chernozemic, and Birsay soils in portions of the eastern and southern most project areas. These soils developed from sandy glacio-lacustrine deposits comprised of at least 15% clay, the parent material is shallow and overlie glacial till, gravel, sand, clay or bedrock (U of S, 1985). As such, the soil conditions do not pose any impediment to urban development (AECOM, 2012).

2.5 Swift Current Creek

A segment of Swift Current Creek is located within the boundary of the NEUEA. This well-defined creek is typically only a few metres wide in this area (estimated 4.0 m– 6.0 m), and does not have a significant or steep bank. The Creek is prone to periodic flooding, and development should respect areas susceptible to flooding and ensure that a reasonable natural buffer is provided to protect the creek's riparian area. Recognizing the potential hazards due to flooding, the City has studied the creek's flood pattern and is currently updating its flood management bylaws, to be finalized in 2013. Once complete, these bylaws will need to be considered as part of future development and this information should be incorporated into subsequent and more detailed Neighbourhood Plans. The City's Flood Hazard Map indicates areas of 'flood zone' and 'flood fringe'. These areas, as they impact the NEUEA area are included in Figure 3.

2.6 Sewage Treatment and Landfill Setbacks

NEUEA's southeast corner is influenced by the City's wastewater treatment facility and landfill. The Saskatchewan Subdivision Regulations (P-13.1 REG1) states in Section 15(2) that no subdivision may be approved for residential purposes within 457.0 m (1500 ft) of a landfill used for disposal of garbage or refuse, nor within 300.0 m (985 ft) of land used or authorized for a sewage treatment plant or sewage lagoon. However, the Saskatchewan Guidelines for Sewage Works Design recommend a lagoon to be located 600 m from built-up areas if possible, which has been incorporated into the conceptual design. Appropriate setbacks for subdivision and development should be maintained from these facilities, and setback distances are illustrated on Figure 3.

2.7 Heritage Resources and Cemeteries

The City and RM of Swift Current contain an abundance of heritage-sensitive lands, and the Heritage Conservation Branch (HCB) provided a letter noting the high sensitivity for heritage resources due to approximately 170 previously recorded heritage sites (see Appendix A). This includes three sites located within the City and four sites located within the NEUEA. Three of the seven sites within the City/ NEUEA are designated as "Sites of a Special Nature" and receive special protection under the Heritage Property Act due to their sacred nature.

The general terrain, high propensity for heritage sensitivity and known archaeological sites present in this area may result in a requirement to undertake a Heritage Resource Impact Assessment (HRIA). This would be at the developer's expense and conducted by a qualified archaeologist working under permit from the Heritage Branch. Such an assessment would be trigged by routine reviews of development sites – where qualified personnel review development sites determine the potential impact on heritage resources. Full details of the Heritage Branch response and requirements are contained in Appendix A.

2.8 Groundwater Wells

A search for groundwater wells on the Saskatchewan Watershed Authority Data (SWA) Portal indicated a total of 19 registered water wells within the NEUEA (18 domestic wells and one municipal well). These wells will need to be protected or abandoned according the Saskatchewan Watershed Authority (SWA) “Abandonment Test Holes and Wells Fact Sheet 309”. A summary of the ground water wells are included in Appendix B.

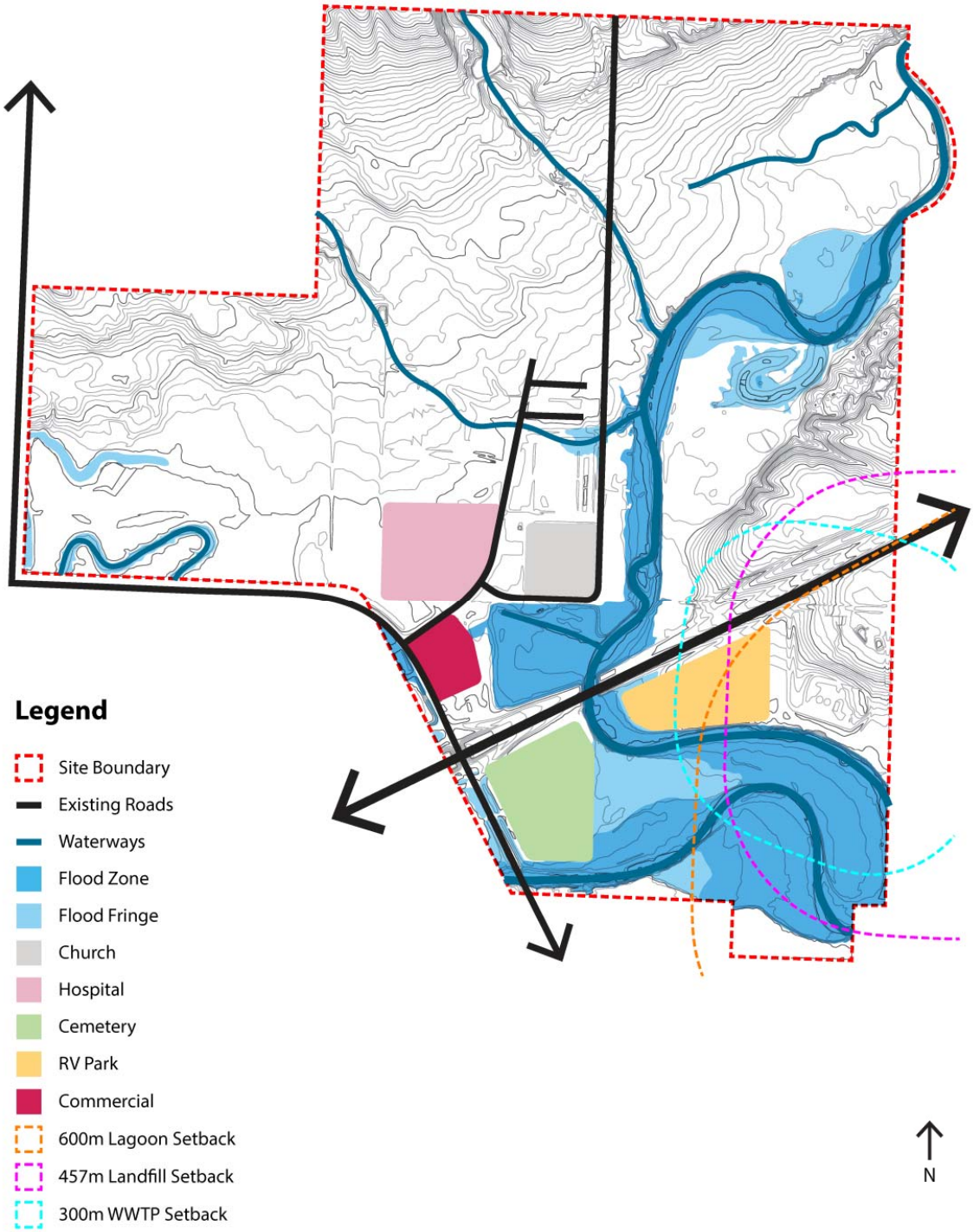


Figure 4 Existing Site Conditions

3. Goals, Objectives, and Principles

3.1 A Complete Community

The primary goal of the NEUEA Sector Plan is to create a 'Complete Community' for the use and enjoyment of its future residents while remaining consistent with the City's overall development objectives. A Complete Community is a place where it is easy to live, work, and play for people of all ages, incomes, interests and lifestyles. A Complete Community provides an attractive setting for local businesses, residents and visitors by providing a wide range of services and amenities to accommodate various community needs.

The key elements of a Complete Community are summarized below and form the main objectives of the NEUEA Sector Plan:

- Foster distinct, attractive and active residential communities with a strong sense of place
- Create walkable environments
- Facilitate a wide range of transportation options
- Provide safe and direct connections between key attractors
- Provide access to a variety of public open spaces
- Support compact, mixed use development
- Create a range of housing opportunities and choices
- Preserve open space, agricultural land, natural beauty and critical environmental areas
- Utilize (where possible) green infrastructure and buildings

3.2 Plan Objectives

The following objectives expand upon the key elements of a Complete Community, and provide an overall framework and structure for the NEUEA Sector Plan.

Foster distinct, attractive and active neighbourhoods with a strong sense of place
Develop an integrated, well-connected, compact community built around a series of carefully-planned activity nodes providing access to schools, retail, services, and places of work and play. This in turn creates places that are vibrant, sociable and full of public life.

Create walkable environments
Put pedestrians first by promoting safe, healthy, walkable neighbourhoods that are pedestrian-oriented with a grid-like network of streets. Encourage built form that fosters a safe and usable public realm and promotes healthy lifestyles.

Facilitate a variety of transportation options
While public transit within the City of Swift Current is currently limited to a Tel-a-Bus service, a Transportation Masterplan is currently being developed (2013). Once complete, the Transportation Masterplan will outline how a broader range of transportation options can be encouraged and supported by the City as population and urban densities increase. As the Sector Plan is a forward-thinking document providing a framework for future development, access to transit (likely in the form of a local bus service) is assumed, with a bus route looping through NEUEA and connecting this area to the wider Swift Current community. A bus route has not been indicated in this plan and will be provided following completion of the Transportation Masterplan and in the Neighbourhood Plan phase of development.

This plan aims to give greater priority to active modes of transportation (i.e. human powered). By providing comprehensive pedestrian and cycling connections, and complementing this with efficient transit, accessibility within the community and to other areas of Swift Current will be enhanced. Transportation options should be attractive, safe and reliable to further encourage alternate modes of transit and reduce reliance on the private vehicle.

Provide safe and direct connections between key attractors
Provide safe and direct pedestrian, cycle and transit connections between residential areas and key attractors or areas of interest. This is particularly important for school children, where safe connections to elementary schools and recreation facilities are essential

Provide access to a variety of public open spaces
Provide safe and easy access to a variety of public open spaces from riverside promenades and naturalized open spaces to neighbourhood parks, community plazas and bustling commercial streets.

Support compact, mixed-use development
Encourage a compact urban form with the highest intensity of development located in pedestrian-oriented activity nodes served by transit (i.e. transit-supportive density) and in close proximity to local amenities and areas of public space. Develop a mix of land uses focused around transit, with the broadest range of uses around Neighbourhood Activity Centres. Additionally, encourage a mix of employment opportunities including home-based businesses, local commercial uses, and live–work units around these activity nodes to maximize the opportunities for a balance of housing and employment. The creation of mixed use developments will enliven these central areas, not only during the day, but also at night increasing opportunities for passive surveillance.

Create a range of housing opportunities and choices

Enhance community diversity and sustainability by providing access to a range of housing opportunities in different forms and at different levels of affordability, from single-family homes through to row-houses and multi-family residential in apartments.

Preserve open space, agricultural land, natural beauty and critical environmental areas

Conserve and enhance the existing wetlands, habitats, topography and agricultural land in order to provide a visually appealing and biologically diverse environment where the built form is designed to respect the functions of the natural environment.

Utilize green infrastructure and buildings

Encourage sustainable design solutions by creating neighbourhoods where energy and resource use are minimized and building designs incorporate green building methods and alternative energy solutions.

3.3 Development Principles

The NEUEA Sector Plan, as a Complete Community, is to have a full range of housing, commercial, recreational and institutional land uses and public spaces. It must also utilize land and infrastructure efficiently to provide housing choices, local services, and employment at transit-supportive densities[1] that promote mobility options.

The Plan adheres to the following development principles and provides:

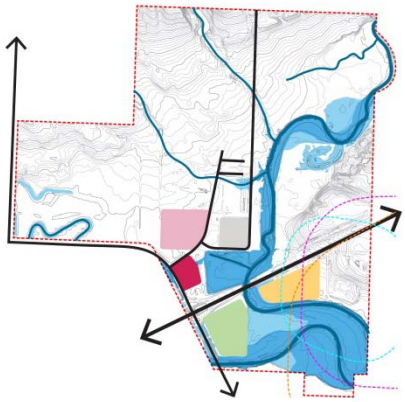
- A broad range of housing choices covering a mix of built forms at densities that support transit viability and changing demographics within the community
- A range of local commercial uses that both provide employment and allow residents to meet most of their basic needs within the community
- A range of institutional uses including schools, places of worship, culture and leisure spaces, child/day care facilities, other care facilities and community services
- Public spaces, parks and recreation facilities that support a healthy natural environment, and include the preservation and integration of unique natural features
- Distinctive, attractive neighbourhoods designed with natural elements that contribute to local identity and provide a sense of place
- A high quality of architecture and urban design to create attractive streetscapes convenient for all modes of travel and integrating local parks, landmark buildings or structures, and public art in public places
- Permeability (connectivity) facilitated by a block-based road network (grid) comprised of walkable streets fronted by street-oriented development to allow all modes of travel to move easily within and between neighbourhoods
- An inter-connected pathway, bikeway, sidewalk and roadway network allowing convenient pedestrian and vehicle access to focal points within the community
- Conveniently spaced and accessible transit service designed to accommodate efficient transit access, comfortable passenger waiting areas (bus shelter), bicycle parking, and safe, direct and unobstructed routes for pedestrians and cyclists
- Support for sustainability initiatives wherever possible and feasible by the use of green infrastructure, energy efficient design and site planning, linked green spaces, and the re-use and recycling of building materials where possible

These principles will be developed further during subsequent stages of planning and development within NEUEA, through Property Development Standards and compliance with City of Swift Current urban design expectations.

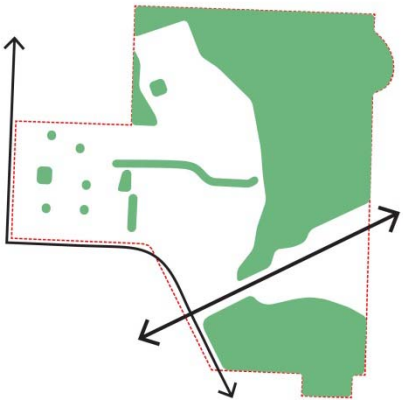
[1] *The minimum densities to achieve transit viability have not yet been determined in the NEUEA context. A City of Swift Current Transportation Masterplan is currently under development and will help to guide how public transit will develop in the future. However, based on current best practice, it is likely that a minimum density of 30 residents per hectare or 25 jobs per hectare as measured over a minimum developed area of 10 hectares would be required in order to introduce a regular bus service. Provision of a community shuttle would require less density (20 residents / 20 jobs per hectare).*

3.4 Conceptual Neighbourhood Framework

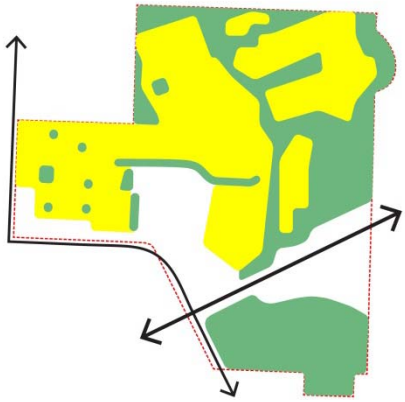
The NEUEA Sector Plan area consists of distinct neighbourhood areas that are centered around a focal point (activity centre) where possible, and otherwise have a distinct edge defined by a major roadway, water course, open space, or other constructed or geographical features, to become a Complete Community. Generalized concept diagrams illustrating the design process that has informed the underlying structure for the NEUEA Sector Plan are illustrated in Figure 5**.** Figure 4 builds the site up (top left to bottom right) from the existing conditions and constraints, proposed areas of public open space, proposed residential development, proposed institutional development, proposed highway retail and the neighbourhood activity centres and corridors**.**



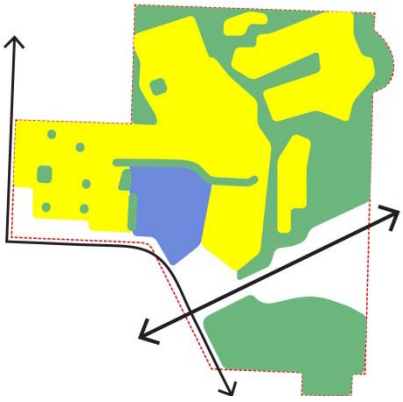
Existing Site Conditions



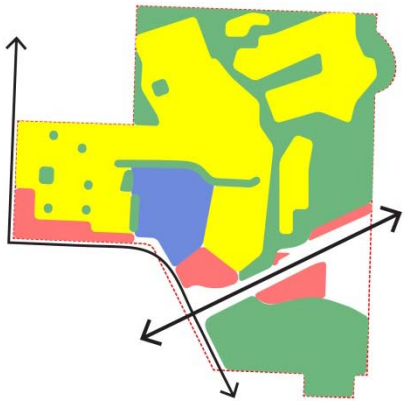
Proposed Open Space



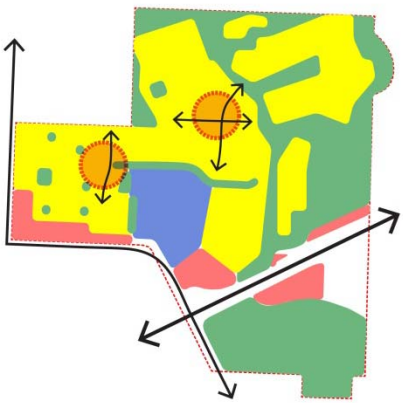
Proposed Single-Family Residential



Proposed Institutional Use



Proposed Highway Commercial



Proposed Activity Centres / Corridors

Figure 5: Conceptual Framework

4. Development Concept

The NEUEA Sector Plan has the goal of creating a Complete Community, and a corresponding Land Use Concept (Figure 7) has been designed incorporating design principles and best practices to achieve this goal. The concept reflects the area's inherently interesting land form, and links it into the City of Swift Current's existing development patterns. As an extension of the aforementioned conceptual framework (see Figure 5), this more detailed development concept places great importance on the provision of activity nodes, activity corridors, and the central institutional campus to place residential areas in close proximity to services and interesting community-focused areas.

4.1 Neighbourhood Units

As this Sector Plan provides a framework for a large area to be developed over many years, the Plan is organized around the use of five identifiable neighbourhoods that contribute to a balanced growth approach to community building (see Figure 6: Neighbourhood Units). These neighbourhoods have been divided based on how they are influenced by natural land forms, roadways, and most importantly their relationships to the community-forming activity nodes.

The neighbourhood units each have an activity node, gateway and/or a natural feature that provides an identifiable area boundary. Therefore, each neighbourhood is different in what it offers residents, but they have common elements that foster walkability, accessibility and a sense of place. Wherever possible, the composition of each neighbourhood unit consists of an activity node, a diverse residential area, and a cohesive and functional arrangement of parks and open space.

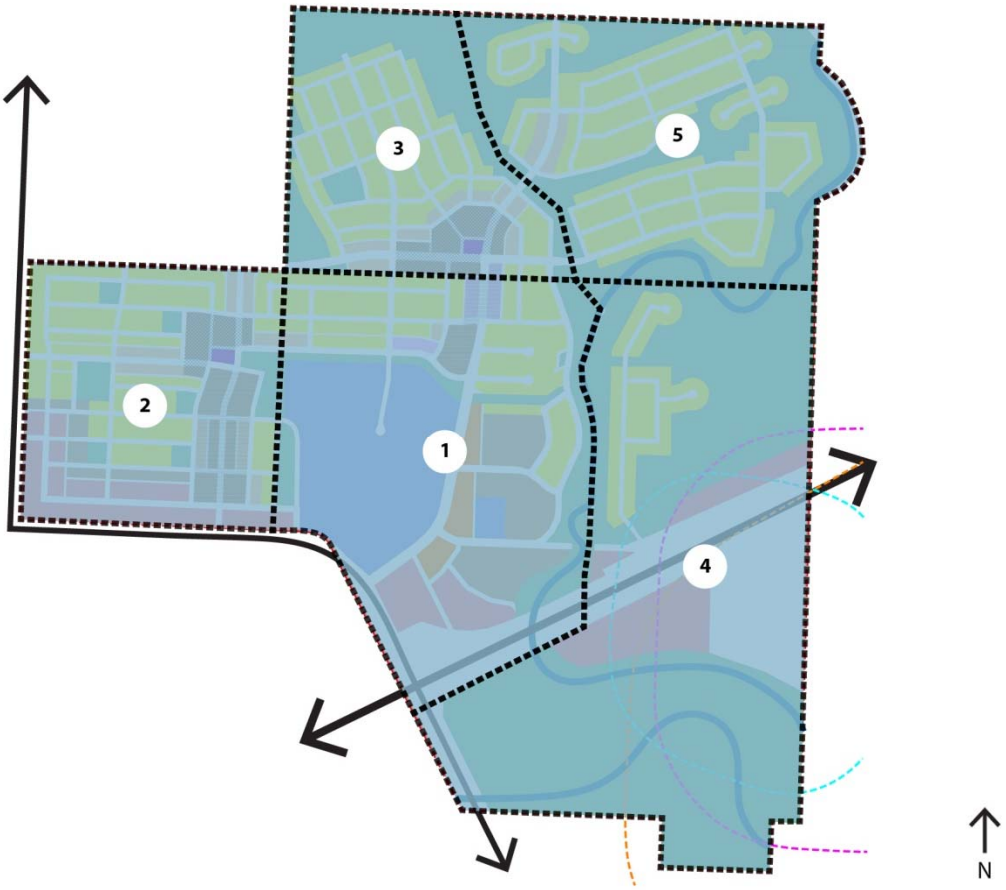


Figure 6: Neighbourhood Units

While these neighbourhood units are distinct, they are all linked together through roads, walkways, and open spaces that provide a series of focal points accessible in a variety of ways. The attributes of the five neighbourhood units can be summarized as follows:

Neighbourhood 1 is formed around the NEUEA's central joint-use institutional space/parkland and it is bisected by the Saskatchewan Drive Neighbourhood Activity Corridor. It is approximately 80 hectares, and it is bounded on the north by the east-west arterial road and on the east by Swift Current Creek.

Neighbourhood 2 is bounded on the south and west by Highway No. 4 (Memorial Drive), the City boundary on the north, and the Joint Use area on the east. This neighbourhood is approximately 64 hectares in size, and it is focused around the Springs Drive Neighbourhood Activity Centre and Corridor.

Neighbourhood 3 radiates northwesterly from the Saskatchewan Drive Activity Centre, and it has an area of approximately 64 hectares. It is bounded on the south by NEUEA's major east-west roadway, on the north and east by a natural drainage course, and by the City boundary on the east.

Neighbourhood 4 is bound by on east by the City boundary, and otherwise bound by Swift Current Creek. The area is split north-south by Highway No. 1, and contains a centrally located commercial area

Neighbourhood 5 is defined by the Swift Current Creek on the south and east, the City boundary on the north, and by a natural drainage course on the west. This neighbourhood is mostly residential, but is influenced and radiates northeasterly from the Saskatchewan Drive Activity Centre. This neighbourhood is approximately 64 hectares in area.

4.2 Land Use Concept

The intended spatial land use framework for the NEUEA is shown in Figure 7: Land Use Concept**.** The Land Use Concept provides more detail in the critical Neighbourhood Activity Centres and Neighbourhood Activity Corridors while remaining less prescriptive as the development pattern radiates out from these important nodes. This plan underlies that to achieve the concept goal of a Complete Community, it is necessary to adhere closely to the street network defined for the activity nodes and the associated higher density residential uses that radiate outward. This will promote the key objectives of the plan by promoting walkability (through providing compact and mixed use developments), creating a range of housing types and fostering distinct, attractive and active residential communities with a strong sense of place.

The location of open spaces, parklands, major roadways, and stormwater management facilities are designed to protect the area's steep slopes, creeks, drainage ways, and significant environmental resources. However, the exact locations of parks, stormwater facilities, and local streets and block configurations will ultimately be defined in future Neighbourhood Plans. Neighbourhood Plans will be developed using the descriptions and design principles presented in the NEUEA Sector Plan and further expanded to express the land use and design intentions of the NEUEA key community areas.

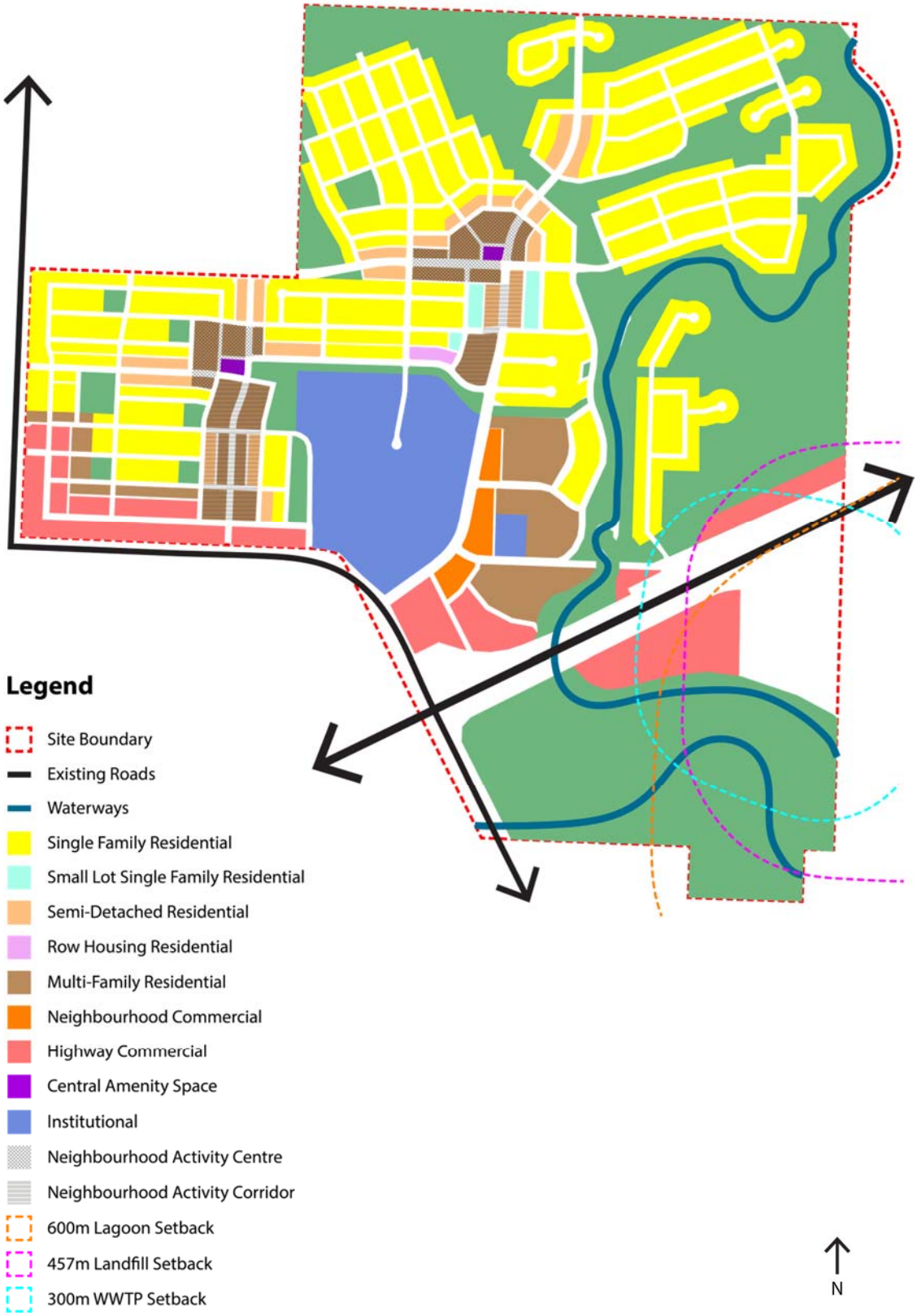


Figure 7: Land Use Concept

4.2.1 Neighbourhood Activity Centres (NAC)

Neighbourhood Activity Centres (NAC) are intended as centrally located focal points that have a strong sense of place. They are focused around a central amenity space and have a mix of higher density residential uses that put a greater number of residents within walking distance of local services. These areas are connected to surrounding residential neighbourhoods by a network of converging streets, walkways and pathways. The NAC itself is designed to provide a positive pedestrian environment and foster activity on the street and in the public realm. Development proposals within the NAC's will be evaluated with the following requirements and recommendations in mind.

A total of two NACs are defined for the NEUEA and are located central to surrounding residential areas so the majority of residents live within a 400.0 m walking distance to these central facilities. As shown in Figure 6 one NAC is located along Saskatchewan Drive and a second NAC is situated west of the Integrated Facility. Importantly, both NAC locations are situated on major roadways that will, over time, allow for access to transit services.

The NACs are comprised of land uses that is intended to reach a residential density of 60 units per gross developable hectare (24 units per gross developable acre), and should comprise an area of approximately 3 to 5 hectares (7.4 to 12.5 acres). These NACs are comprehensively planned mixed-use areas consisting of a central amenity space, medium to higher density multi-residential development, and supportive non-residential uses. The areas designated for NAC are to be designed pursuant to this Plan's Urban Design policies (see Section 4.2.9) and any subsequent design guidelines.

Central amenity spaces (neighbourhood square) in the NAC shall comprise a land area of 0.2 to 0.4 hectares (0.5 to 1 acres), and be designed as multi-functional spaces such as a plaza or square bounded by streets and/or active building facades (buildings shall front onto the space). This space should be located on a prominent site fronted by multi-residential and mixed use developments (apartments and town/row houses) and be in close proximity to one or more future transit stops. In order to create an appropriate level of activity and sense of spatial enclosure, single detached or semi-detached houses should not front or be adjacent to the central amenity space. Development incentives for such amenity spaces will be developed during the formation of detailed property development standards, or during Neighbourhood Plan development. It is envisioned that densities and land-use mix will be achieved through development incentives, which will be further defined during the Neighbourhood Plan stage.

Note: The amount of multi-residential development shown (in grey) that does not directly face / front onto the Central Amenity Space (in green) and the internal configuration of the parcels are conceptual and for illustrative purposes only; however, the overall general block structure and orientation of buildings shall remain the same.

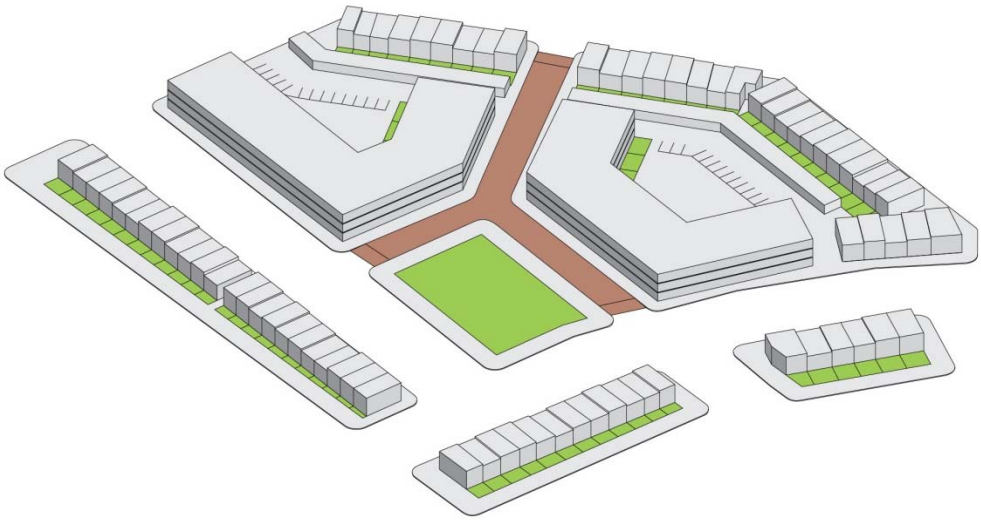


Figure 8: NAC Indicative Massing and Form

Residential Uses

Required residential uses in the NAC:

- Shall include a range of medium to higher density multi-residential development such as town/row houses and apartment complexes. A minimum of 25% of the combined total footprint of all buildings within the NAC should be in the form of apartments.
- Must be oriented towards the central amenity space (neighbourhood square) with direct pedestrian connections from the public sidewalk to building entrances.
- Shall be developed on multiple small-scale sites or parcels less than 1.0 hectares (2.5 acres) in size and any one parcel should not exceed 30% of the total NAC area.
- Should include opportunities for residential-based commercial uses such as live–work units, bed and breakfasts and home-based businesses including child care.

Non-Residential Uses

Required non-residential uses in the NAC:

- Should allocate at least 400.0 m^2 (4,306 ft2) of building area for non-residential uses such as local commercial (personal services, small scale grocery/retail/convenience, restaurants/cafes, drug store, medical/dental clinics), civic (cultural, recreational or institutional), and/or employment (office) uses in a mixed-use format with non-residential and residential coinciding together.
- Should provide a vertical mixed-use format (horizontal mixed-use may be suitable in some locations) with non-residential uses located within a building that has a minimum of two-storeys.

Figure 9: NAC Central Amenity Space with Neighbourhood Square

- Street should have direct pedestrian connections from the public sidewalk to building entrances
- Should have a minimum street wall height of 3 storeys – to retain a human-scale of public spaces and roadways and reflect local character
- Utilize transparent glazing to allow visual connectivity to internal uses

Recommended non-residential uses in the NAC:

- Should be consistent with nearby residential areas
- Should provide for only limited automotive uses

Movement Networks / Access

To ensure a high degree of connectivity for pedestrians, cyclists, and vehicles, the design of the transportation network in and around the NAC shall be composed of a block-based grid network of interconnected streets, walkways, and pathways. It shall exclude cul-de-sacs, P-loops, crescents and other non-connective street patterns (unless a cul-de-sac would beneficially terminate directly adjacent to another street right-of-way limiting vehicular through movement, but enabling through movement for pedestrians and cyclists).

Landscape and Amenity

- Provide a publically accessible central amenity space
- Activate the central amenity space through an active ground floor level and a mix of uses that creates an active environment during both day and night
- Minimize shadowing of the central amenity space by design and location of surrounding buildings
- Provide appropriate street furniture to encourage stationary activities within the central amenity space
- Utilize local species that will survive in the seasonal variances expected on-site
- Adhere to this Plan's Open Space policies (4.2.7), Urban Design policies (see Section 4.2.9 and any subsequent design guidelines

4.2.2 Neighbourhood Activity Corridors

The Sector Plan identifies two Neighbourhood Activity Corridors (NA Corridors), one along Saskatchewan Drive and the other along the northward extension at Springs Drive. The NA Corridors will provide a variety of housing and local commercial opportunities. Development within the NA Corridors should be of a more dense urban nature, consisting of medium to higher density residential and local commercial uses to create a strong pedestrian environment by providing a variety of transit-supportive uses and active street frontages. Development proposals within the Neighbourhood Activity Corridors will be evaluated with the following requirements and recommendations in mind.

The NA Corridors will contain local commercial and a range of residential uses in a mix of housing tenure and affordability levels to accommodate a diverse population. The NA Corridors are to be pedestrian-oriented, with a well-designed public realm. Furthermore, buildings along the NA Corridors should be oriented towards the street, with both primary and individual ground floor unit entrances facing Saskatchewan Drive or Springs Drive extension to create a vibrant pedestrian environment that supports transit services.

Figure 10: Illustrative example of a Neighbourhood Activity Corridor along the future extension of Springs Drive (left), Neighbourhood Activity Corridor with adjoined bike lane (right)

Residential Uses

Required residential uses in the NA Corridor:

- The areas designated as NA Corridors shall be comprised of land uses that reach a residential density of 30 to 40 units per gross developable hectare (12 to 16 units per gross developable acre).
- Residential development shall provide a broad range of medium and higher density multi-residential development (town/row houses and apartments). For example, 30% should be higher density residential in the form of apartments developed on multiple small-scale sites of less than 1.2 hectares (3 acres) in size. It is envisioned that densities and land-use mix will be achieved through development incentives, which will be further defined during the Neighbourhood Plan stage.
- The NA Corridors are to be designed pursuant to this Plan's Urban Design policies (see Section 4.2.9 and any subsequent design guidelines.

Recommended residential uses in the NA Corridor:

- These corridors should include opportunities for residential-based commercial uses such as live–work units, bed and breakfast developments and home-based businesses.

Non-Residential Uses

Local/neighbourhood commercial development in a NA Corridor is encouraged to have uses that include personal services, small scale grocery/retail/convenience, restaurants/cafes, drug store, medical/dental clinics, and/or employment (office). These are encouraged to be provided in a mixed-use format with commercial and residential coinciding together. Stand-alone neighbourhood commercial uses may occur provided that the buildings are

pedestrian oriented with store fronts and main entrances being oriented to the street and having parking at the rear. The buildings shall have a minimum of two storeys and utilize zero side yard setbacks. Other uses are also encouraged in the NA Corridors and may include: cultural, recreational and institutional uses; child care facilities and care facilities, community supportive uses; and other compatible uses as deemed appropriate in the area zone.

Required non- residential uses in the NA Corridor:

- All non-residential development in NA Corridors shall be street-oriented and have direct pedestrian connections from the public sidewalk to building entrances.
- Furthermore these uses should be small in scale, consistent with nearby residential areas, and have only limited automotive-type uses.

Movement Networks / Access

Mobility within the Neighbourhood Activity Corridors will prioritize the movement of pedestrians, cyclists and transit vehicles above private automobiles.

Landscape and Amenity

The NA Corridors should be designed pursuant to this Plan's Open Space policies (4.2.7), Urban Design policies (see Section 4.2.9) and any subsequent design guidelines.

4.2.3 Residential Areas

Required:

- Residential Areas in the NEUEA will provide a range of housing choices (type and tenure) to meet the needs of Swift Current's diverse population and provide these with convenient access to amenities (parks, community gardens, schools, recreation facilities, activity centre or corridor) by a transportation network that balances the needs of pedestrians, cyclists and drivers.

- Residential development shall provide a variety of housing forms for different levels of affordability and different lifestyles (e.g. single-detached, semi-detached, townhouses, row houses and secondary suites). The density shall move outward from the activity centres (60 units / hectare) and corridors (30-40 units / hectare) by gradually transitioning from higher to lower density housing forms. That is multi-family houses (60 units / ha) shall be located within and directly adjacent to activity centres, town/row houses (30-40 units / ha) should be located adjacent to these dense cores and within activity corridors and then density will transition to semi-detached housing (20 units / ha), small lot single family (15 units / ha) and then single-detached housing (10 units / ha) in peripheral areas.

Recommended:

- The area should also provide opportunities for residential-based commercial uses such as live–work units, bed and breakfasts and home-based businesses that would not compromise the viability of similar development in Neighbourhood Activity Centres. Other compatible uses here could include, but are not limited to, civic, cultural, recreational, institutional, child care, and care facilities.

Movement Networks / Access

To provide residents with a pedestrian-oriented environment, the transportation network in Residential Areas shall be designed with a block-based grid pattern, and provide multiple routing options (walkways, pathways and/or streets) for residents to access the Activity Centre or Corridor safely and conveniently. The use of P-loops, cul-de-sacs, crescents and other single-access or disconnected street patterns should be avoided. In cases where this is deemed impractical by the Approving Authority, safe and attractive pedestrian and bicycle connections shall be provided to link streets.

Landscape and Amenity

The NA Corridors should be designed pursuant to this Plan's Open Space policies (4.2.7), Urban Design policies (see Section 4.2.9) and any subsequent design guidelines.

4.2.4 Highway Commercial

The Highway Commercial district is intended for automobile-oriented uses along a major regional transportation corridor where the businesses typically benefit from access and visibility from a highway. The location of highway commercial uses is located along Highway No. 4 (Memorial Drive) and Highway No. 1, as shown on Figure 7. These highway commercial areas will follow the Urban Design policies defined in Section 4.2.9.

The intended uses for Highway Commercial include uses such as: hotels and motels; large format and auto-oriented restaurants (including drive-through); automotive service stations; and motor vehicle sales and service.

In support of the viability of potential neighbourhood commercial uses occurring in the nearby NACs and NA Corridors, the following uses will not be permitted within the Highway Commercial areas: personal service establishments; medical and dental clinics; drug store / pharmacy; professional offices; small-scale restaurants; neighbourhood pubs; and, small-scale retail stores with less than 150.0m^2 (1,615 ft^2) of gross floor area that do not have significant parking needs associated with them.

4.2.5 Neighbourhood Commercial

Neighbourhood commercial districts will be provided across from the institutional core, forming the main entrance into the NEUEA area and bound by multi-family residential on the east. Neighbourhood commercial will provide for local commercial and retail needs and will be small-format, pedestrian oriented and walkable. Ground floor treatment of these areas will ensure a high-level of transparency and should not contain blank walls, allowing visual access to internal uses and enabling passive surveillance through providing ‘eyes on the street’. Outdoor dining and outdoor retailing shall be provided on retail oriented streets, where possible, to help animate and activate the streetscape.

4.2.6 Integrated Facility Site

The Integrated Facility Site provides the overall NEUEA with a grand multi-use institutional and recreation node that will be recognized community-wide. The site provides a central location for the development of two elementary schools (one public and one separate), sports fields and recreational areas, a recreational/civic facility, and incorporates the existing Cypress Regional Hospital and future residential care facilities for the Cypress Health Region. It is imperative that this site is provided with comprehensive pedestrian and bicycle route connections, and adequate transit service connecting it to the surrounding neighbourhoods and the greater city.

4.2.7 Open Space System

The NEUEA Open Space System is intended to promote, conserve and enhance an interconnected ecological and recreational park system of active and passive parklands. This system uses an interconnected system of parks, schools, public plazas, natural areas and other open spaces to address the social, biophysical and aesthetic concerns of an integrated open space system.

Local Open Spaces

Local open spaces in the NEUEA consist of central amenity spaces (neighbourhood squares), small to medium sized neighbourhood parks, and playgrounds. Future planning of development phases will further define the distribution and location of local open spaces. With exception to the two central amenity spaces in the NACs, the specific distribution and location of local open spaces will be left to subsequent Neighbourhood Plans to decide and are not shown on Figure 6.

To achieve the desired function of the local open space systems, the following policies should be incorporated into their design:

Required:

- Integrate the open space into the wider community through safe, pleasant and efficient pedestrian and bicycle routes
- Ensure seasonal adaptability for year-long usability through appropriate locations and site design
- Provide public visibility into open spaces through a combination of visual corridors and single-loaded streets
- Design open spaces to provide view corridors and focal points throughout the community
- Size and design open spaces to create spaces that are functional, safe, flexible and that they provide for a variety of recreational opportunities and passive use for various ages and abilities
- Protect and restore natural features including but not limited to wetlands, natural vistas and slopes, mature vegetation, native prairie/native pasture grasslands and biologically diverse areas
- Design open spaces for passive and active recreational functions and locate them within an approximate 400.0 m (0.25 mile) walking radius for all residents in the community
- Encourage provision of private and semi-private open space and recreational amenities of various sizes and forms within multi-residential, mixed use and commercial developments
- Encourage the protection and planting of native species and landscapes
- Encourage drought-tolerant vegetation and zeroscaping strategies to lower irrigation demands

Recommended:

- Support linear parks and linkages where appropriate to promote connectivity and facilitate walking and cycling
- Encourage opportunities to connect people with nature and provide environmental education
- Provide opportunities for local food production such as community gardens
- Encourage connections to green infrastructure such as bioswales and vegetated street corridors

The recognition of heritage areas should seek to conserve, as much as possible, the unique features of history and culture. Park lands may be located and used to support the protection of these features of history and culture for promoting community interest in their collective heritage.

Local open spaces will use Municipal Reserve land dedications to meet the educational, recreational and social needs of residents. The reserves will be taken in the full amount owing through the subdivision process in residential and mixed-use areas in accordance with the requirements of the City.

City policy for heritage preservation is to conserve, as much as possible, unique features of history and culture. Area park lands may be used to support the protection of significant buildings, sites, districts, and other unique features of the City's history and culture to promote interest in local heritage.

Environmental Open Space Network

The purpose of the Environmental Open Space Network is to conserve, protect, and restore the natural environment within the Plan Area. Environmental Open Space (see Figure 7) is composed of the Swift Current Creek valley system, and other environmentally significant areas (wetlands, natural water bodies, escarpments, riparian corridors, natural grasslands and native pasture and tree stands protected through land use designations, conservation easements, or other mechanisms).

Area biodiversity and landscape diversity should be retained by giving the highest priority to protection of environmentally significant areas when assigning land uses. To best achieve this, NEUEA creates an

interconnected open space system within and between watersheds. This system respects and enhances the region's ecological infrastructure, aligns land uses and landscape elements to increase functional connectivity, and integrates the natural features of the surrounding landscape into urban development.

Where it is determined that lands within the Environmental Open Space Network qualify as Environmental Reserve (ER) in accordance with the Planning and Development Act, these lands are to be dedicated as ER through the subdivision approval process, subject to the discretion of the City. Where Environmental Open Space does not qualify as ER, the lands may be acquired and protected through alternative means where deemed appropriate and at the discretion of the City.

The Chinook Parkway Master Plan (2011) outlines key areas within the Plan Area for the future expansion of the Chinook Parkway and trails system along Swift Current Creek. The large green corridors shown in this Plan are generally aligned with the intended parkway areas shown in the Master Plan (2011); however, exact alignments will be determined at the Neighbourhood Plan stage. Minor pathways within linear open space corridors throughout the rest of the Plan Area will connect to the proposed future "Parkway" trails alignments as shown in the Master Plan (2011).

4.2.8 Circulation

A key objective of this Plan is to give residents a variety of transportation options when travelling within and beyond the community. More travel choices means that the transportation system will improve overall mobility, reduce energy use and emissions, and provide travel options to all residents regardless of age or income. It is recognized that the automobile will still be a common choice for many residents, but other modes of travel that provide many of the benefits listed above will be emphasized, encouraged and supported through the transportation network.

The NEUEA internal street network provides a system that accommodates transit, non-motorized and vehicular traffic in a safe, efficient and balanced manner. The policies and design guidelines aim to balance the need for motor vehicle movement and parking with the need for using streets to create a sense of community and active mode mobility. Conceptual street cross sections that illustrate the typology/classification of roads at various key locations throughout the Plan Area are shown in Figure 11. The exact road and street pattern, as well as local off-road trail and walkway networks, will be determined at the Neighbourhood Plan stage. However, the major collector and collector streets will generally adhere to the street network shown in Figure 12.

The NEUEA local street network is only identified for areas within and directly adjacent to Neighbourhood Activity Centres and Corridors. Therefore, the exact alignment of local streets in residential areas will be determined at the Neighbourhood Plan stage and observe the following:

- Provide direct connections and multiple route choices to origin/destination points and connectivity between parts of the Plan Area for all modes of transportation
- Provide street connections for all modes that converge toward the Neighbourhood Activity Centres and Neighbourhood Activity Corridors
- Form an internal street network comprised of interconnected streets creating multiple routing options for pedestrians, cyclists and motorists
- Incorporate green Infrastructure at the design stage, where it is deemed appropriate

- Direct vehicular access to adjacent properties along major collector and collector streets is not permitted

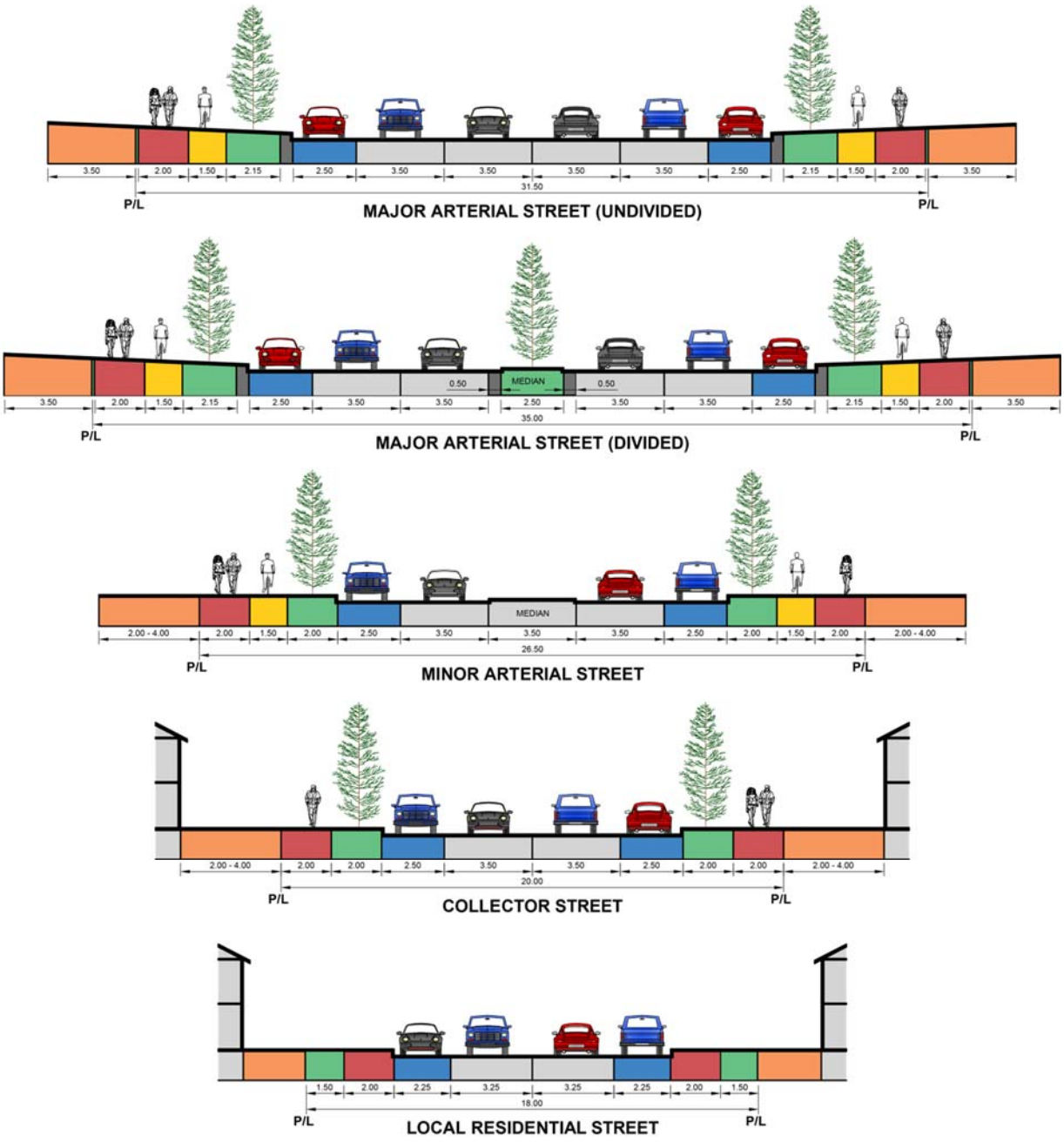
A pedestrian and bicycle circulation system provides for direct and convenient circulation within and through Neighbourhood Units. Local sidewalk and walkway systems (such as off-street trails through parks / open space) should be designed to achieve convenient connections to NACs, NA Corridors, transit stops, and to the Chinook Parkway trail system. In order to facilitate the ease of and safety of pedestrian movement between the Plan Area and the area south of Memorial Drive, the Saskatchewan Drive and Springs Drive intersections at Memorial Drive should incorporate pedestrian crossing features.

On-street bicycle route design treatments should be determined at subsequent detailed planning stages (Neighbourhood Plan). All Neighbourhood Plans must provide quantitative measures demonstrating the active mode (i.e. human powered) connectivity is achieved for that specific plan and/or neighbourhood.

Transit Service will be provided to residential areas to allow direct, convenient, and efficient transit service at an appropriate point in the future. Currently, the City of Swift Current public transportation system consists of a Tel-a-Bus service. However, as the City continues to grow, it is important to plan for a more robust system and recognize that the Plan Area will eventually be served by a bus route that will be extended throughout[2].

Bus transit service area requirements should be achieved through the provision of direct and convenient road, pedestrian and street connections and bus transit stops. The proposed bus routes should be based on the major road patterns described in Figure 12. The future bus service is intended to provide direct and convenient connections within the Plan Area to allow residents and area employees more direct and convenient connections outside the Plan Area. Bus transit stops should be located to serve higher-density Neighbourhood Activity Centres and Corridors, schools and major institutional uses, commercial uses, and residential uses in the Plan Area.

[2] A Transportation Masterplan is currently under development and will inform future transit provision within the City and the NEUEA



Legend

- Easement
- Sidewalk/Multi-Use Pathway
- Bicycle Lane
- Green Infrastructure
- Curb & Gutter
- Parking Lane
- Vehicle Travel Lane

Figure 11: Conceptual Street Cross-Sections

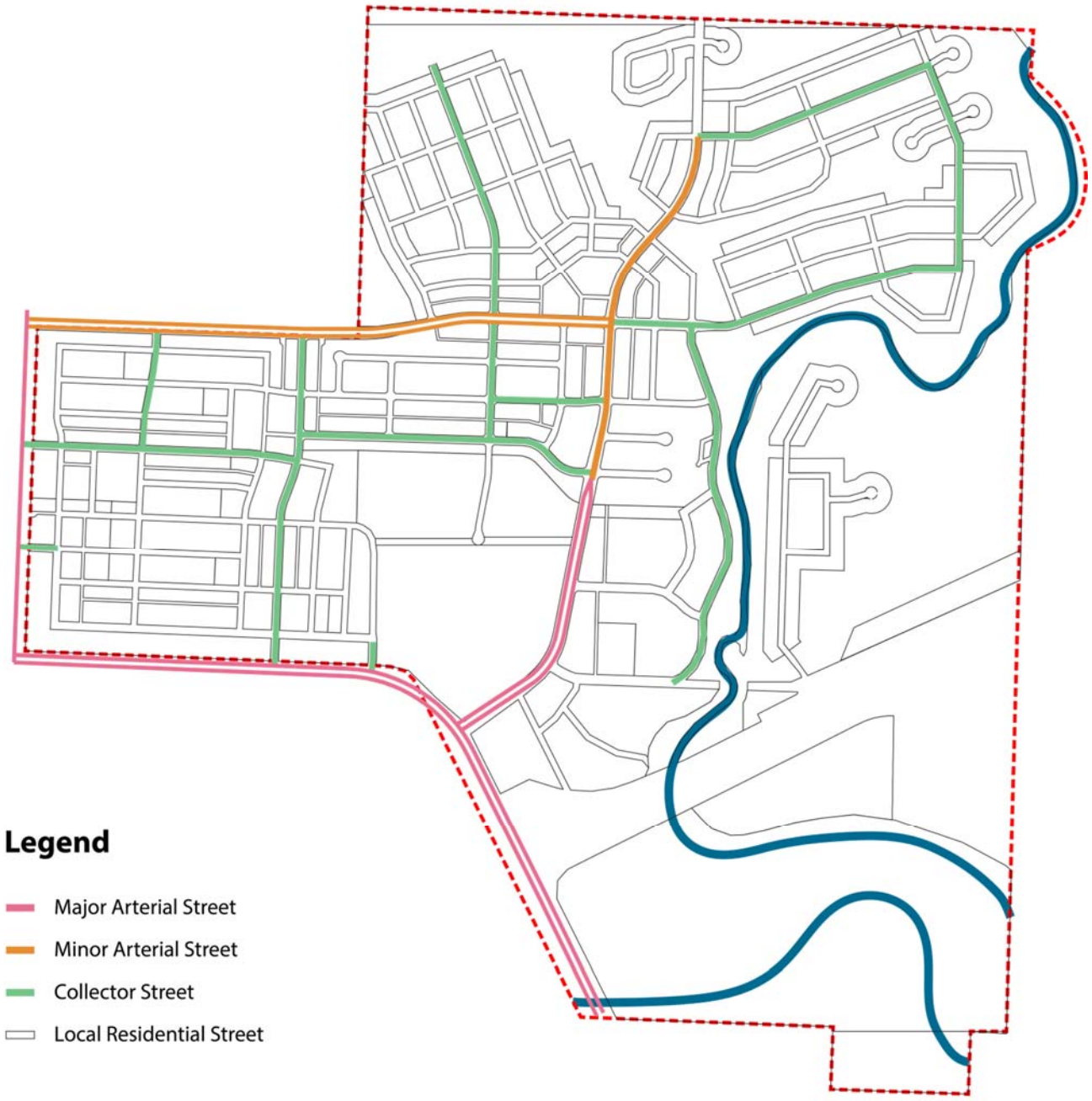


Figure 12: Street Network

4.2.9 Urban Design

Urban Design concerns the arrangement, shaping, appearance and functionality of urban public space. It deals with the quality of the interface between buildings and the public realm to ensure animation and vitality. These goals are achieved through the coordination of all related disciplines that include: planning; transportation planning; architecture; engineering; and, landscape design. Urban design contributes to the creation of places for people which are attractive, memorable and functional.

The NEUEA Sector Plan, as a Complete Community, seeks to integrate and to guide important urban design elements in order to create a high-quality public realm. These urban design initiatives will be further defined through a Neighbourhood Plan or at the Development Permit Stage.

4.2.9.1 Neighbourhood Activity Centre and Corridor Design Policies

Urban design considerations are paramount in the implementation of Neighbourhood Activity Centres and Neighbourhood Activity Corridors and must be designed with a focus on providing vibrant, mixed-use pedestrian environments that support transit services. Furthermore, the scale, form and character of buildings in NACs and NA Corridors should transition gradually in order to provide an appropriate interface with surrounding areas and between areas of differing densities and land uses. The streetscapes and buildings of NACs and NA Corridors should be designed in accordance with the following policies:

Streetscape Design Policies

The design of new development areas, including public spaces and streets, shall encourage and support walking, cycling and transit. Some measures to achieve this include, but are not limited to:

Required:

- Provide wide sidewalks - with a minimum width of 2m (sidewalks in areas where built form is over two-storeys should provide a wider sidewalk)
- Plant trees in the boulevard, where possible
- Ensure there is no conflict between proposed utility locations and proposed landscaping within the ROW
- Provide appropriate street frontage for parks and open space
- Provide direct and safe pedestrian connections to bus stops and shelters
- Locate convenient passenger drop-off areas
- Place bicycle storage facilities in public and private developments
- Orient buildings to the street to create a sense of enclosure
- Overlook sidewalks and streets (eyes on the street) from adjacent shops, offices and homes

Recommended:

- Design streetscape elements to enhance the pedestrian environment(such as trees, landscaping, light fixtures, street furniture, signage, banners, public art, and others should be considered in designing buildings, streets and open spaces).
- Utilize land access in parcels facing amenity spaces or other open space in NACs and NA Corridors to provide pedestrians with sidewalks that are free from conflict with automobiles.
- Incorporate public art at prominent locations in order to provide points of interest and to serve as landmarks for local residents, business patrons and visitors. Prominent locations include, but are not limited to, the central amenity space within the NACs, other nodes along the NA Corridors and key gateway areas into the NEUEA area.

- Design the local street type (on the quiet sides of the central amenity space) as shared space streets, consisting of a substantially narrower cross section width and carriageway width (see Figure 8). The carriageway shall consist of only one lane in one direction, and shall have a maximum vehicular speed of 20 km/h.

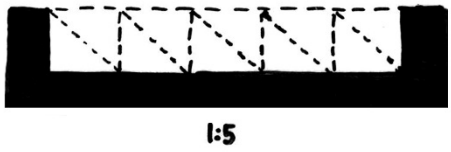
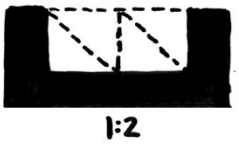
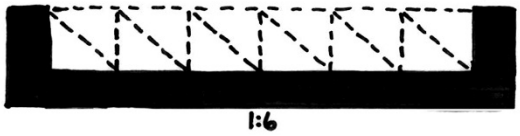
Building Design Policies

Required:

- Provide a well-defined streetscape, sense of continuity, and reinforce pedestrian activity, by orienting all buildings adjacent public streets with a consistent setback from the sidewalk. Main entrances should not be oriented to interior blocks or parking lots.
- Create a better sense of spatial enclosure and defined streetscape by requiring the front yard building setback for development within NACs and NA Corridors to be a maximum of 4.0 m and a minimum of 2.0 m, regardless of use. The existing minimum front yard setback for multi-residential development (town/row houses and apartments) in the City of Swift Current Zoning Bylaw (2003) is 4.6 m (15.0 ft), and this shall be addressed by an amendment to allow reduced front yard setbacks wherever a lane product is provided throughout the Plan Area.

Figure 13: Ground floor apartment units with individual entrances to the street

- Provide ground floor units with individual entrances that face the public street / sidewalk and require all buildings, including apartments, to have active frontages with primary public entryways facing the public sidewalk along all street segments.
- Promote universal design in the design of new buildings and spaces. The built environment will be accessible and usable to the greatest extent possible by everyone, regardless of their age, ability, or status in life.
- Scale building elevations and the cross sections of public spaces/streets within Neighbourhood Activity Centres and Corridors to foster a sense of urbanism and enclosure. Streets, squares and smaller parks are defined by having appropriately scaled buildings fronting onto them, and these vary depending on the location. Enclosure ratios (ratio of building height to width of space between the buildings) should adhere to the ratios in the table below.

Cross Section Type	Minimum Enclosure Ratio (height to width)	Maximum Enclosure Ratio (height to width)
Street within Neighbourhood Activity Centre or Corridor	 1:5	 1:2
Square / Central Amenity Space within Activity Centre	 1:6	 1:3

Example of a street with a height to width ratio of 1:4.5

- Require a minimum building height within NACs and NA Corridors of two storeys, regardless of use, and require apartments to have a minimum building height of three storeys. Require the maximum building height to be five storeys within NACs and NA Corridors and three storeys in residential areas.
- Design multi-family residential developments in a perimeter block building form. Locate buildings along the perimeter of the parcel and orient the front of the buildings towards the public street on all street segments of the block as illustrated in Figure 14.

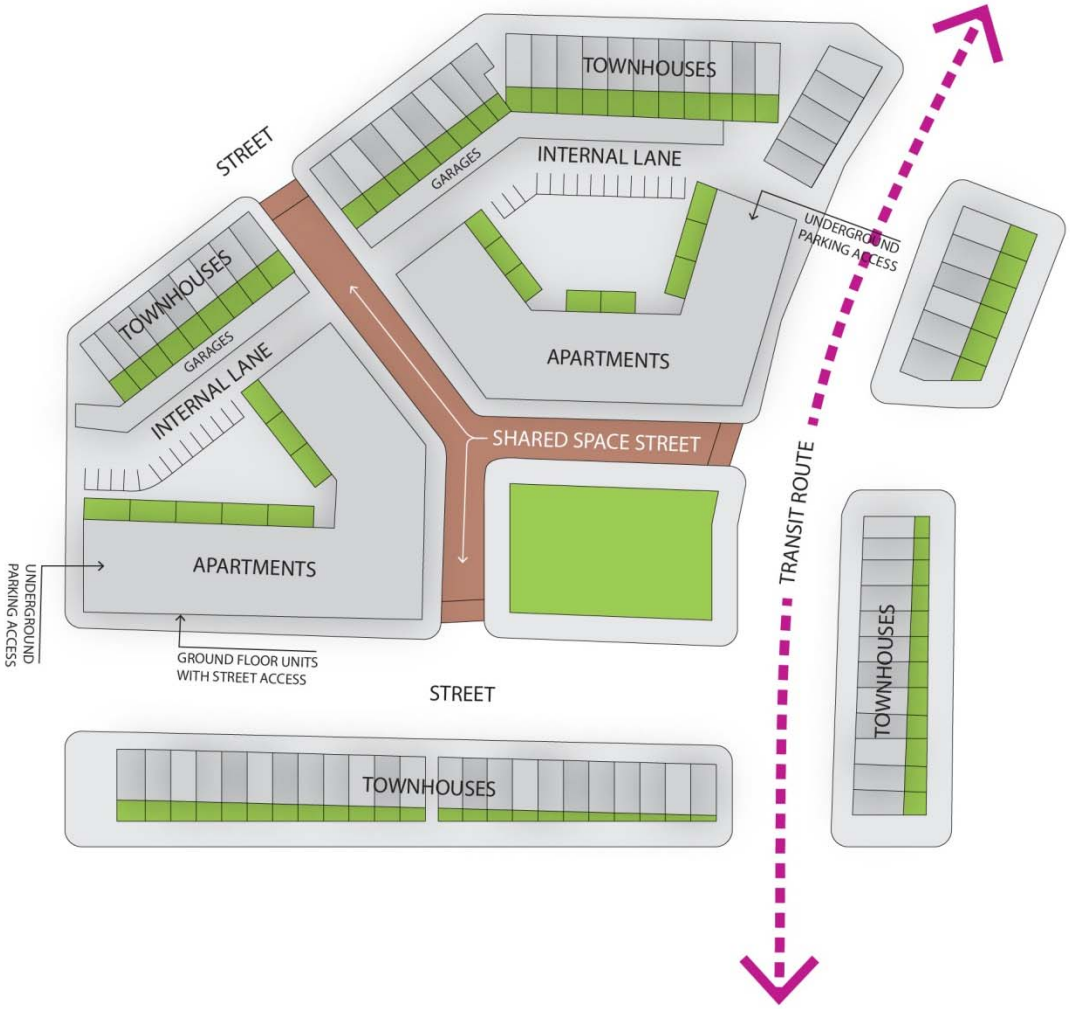
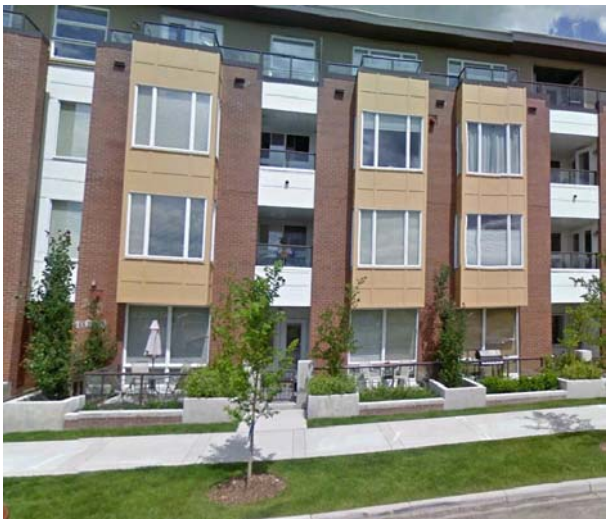


Figure 14: NAC Perimeter Block Illustration

<u>Recommended:</u>

- Design front yards of apartments as an attractive and usable amenity space for ground floor unit residents. This will also help to establish an urban character, enhance the pedestrian experience, improve streetscape aesthetics and bring activities closer to the sidewalk.
- Provide ground floor apartment units facing the street with individual semi-private front yard patios (or equivalent) with a mix of soft and hard landscaping. Features such as high or visually impermeable perimeter fencing shall be avoided.

- Design buildings to incorporate a high degree of exterior articulation, architectural detail, and visual interest. This is especially important on facades adjacent to public streets and open spaces, and these facades shall not consist of an unarticulated blank wall or a series of garage doors.
- Design and site buildings, wherever possible, to optimize the benefits of solar exposure and reduce overshadowing effects on surrounding buildings and public spaces – a maximum street-wall height of three storeys will help to achieve this (unless stated otherwise in this document).
- Extend wherever possible, and to the greatest extent possible, the building form along the streets continually and un-interrupted for the entire length of the block, creating a continuous 'street wall'.



Views and Landmarks

- Locate key buildings, such as places of worship or other institutional/civic uses, on sites of visual prominence to create "legibility" for people as they attempt to find their way around.
- Design major gateways to receive special treatment that may include prominent placement of buildings, unique intersection design, formal landmarks, changes in building scale, or other design elements.
- Accentuate street corners with prominent buildings or elements such as awnings or banners to orient pedestrians and motorists, to reinforce these spaces as activity areas, and to mark them as landmarks.

4.2.9.2 NAC and NA Corridor Parking Design Policies

In order to improve the pedestrian environment and encourage other forms of mobility, such as cycling and transit use, the following policies shall apply.

- Design parking to include a mix of short and long-term parking, bicycle parking and on-street parking in order to accommodate different users and mitigate any potential parking impacts on adjacent residential areas.
- Design streets, vehicular access and parking lots to minimize negative impacts on the pedestrian environment. Do not permit parking between the street and buildings (front yards), and locate parking to the rear of buildings to reinforce the pedestrian orientation of the area. Minimize parking areas to the side of buildings and driveways across sidewalks, where possible.
- Design developments and buildings to reduce the amount of off-street surface parking by providing structured and/or underground parking to accommodate parking stalls for higher density residential development (apartments). Encourage no more than 50% of parking stalls to be in the form of at-grade surface parking for apartments.
- Utilize strategies that qualify for parking requirement reductions, such as shared parking among uses.

4.2.9.3 Central Amenity Space Design Policies

- Design Neighbourhood Activity Centres to serve as a focal point and destination for local residents, and provide a central amenity space within to provide residents with a multi-functional area that can accommodate both passive and active recreation and local gatherings/events. Locate the central amenity space close to transit stops, and provide bicycle parking.
- Design the central amenity space in the shape of a square or a very short rectangular with all corners being right angles to give greater priority to pedestrians (over the automobile).
- Do not exceed the 2:1 length to width ratio of the central amenity space in order to create an appropriate neighbourhood focal point.
- Activate the central amenity space through adjacent mixed use development, which will enable passive surveillance and encourage activity during both day and after working hours.

4.2.9.4 Highway Commercial Building Design Policies

Highway Commercial development located at the northward extension of Springs Drive from Memorial Drive and within a NA Corridor (see Figure 7), shall be designed in accordance with the following design criteria:

- Orient buildings towards the adjacent public street and provide a consistent setback from the sidewalk to provide a well-defined streetscape, a sense of continuity, and reinforce pedestrian activity. Orient main building entrances to face the public street and not interior blocks or parking lots.
- Require a 5.0 m maximum, 2.0 m minimum front yard / building setbacks from the public street right of way. The front yard area shall be predominantly hard landscaping as an extension of the sidewalk, with a mix of soft landscaping as well.
- Locate parking areas at the rear of the buildings
- Design the building and architectural design to visually establish the area as a community landmark - given that this location is a major gateway to the Plan Area and encourage building height be a minimum of two storeys
- Extend the building form continually and un-interrupted for the entire length of the block, creating a continuous ‘street wall’.

5. Transportation

The NEUEA, comprised of residential, commercial and institutional developments, and the proposed road network which will service them, has been reviewed at a planning-level to identify potential transportation impacts and provide recommended mitigation methods.

The Plan area includes the Highway No. 1 and Highway No. 4 Bypass interchange (Memorial Drive), associated on and off ramps, as well as the adjacent portions of the north and south services roads. The bypass originally served as a truck route between Highway No. 1 and Highway No. 4 North to reduce the number of trucks that travel within the City of Swift Current. However, commercial development along the bypass and adjacent service roads has modified it from a true bypass route to also function as part of the city road network, and was renamed as Memorial Drive. City traffic now utilizes this as an access road to commercial development, and it has a two-lane undivided rural cross section with left turn lanes at the intersections. The annual average daily traffic (AADT) on Memorial Drive is 2,110 vpd and the AADT on Highway No. 4 to the west of NEUEA is 2,230 vehicles per day (vpd).

Access to the NEUEA will be provided at several key existing roadways and intersections, including: Highway No. 1; Memorial Drive, and Saskatchewan Drive. Highway No. 1 has a four-lane divided rural cross section with restricted access, and the Average Annual Daily Traffic on Highway No. 1 just east of Swift Current is 5,940 vpd.

It is anticipated that the NEUEA will generate an estimated total trips of 3,880 vehicles per hour (vph) during the morning peak hour and 4,520 vpd during the afternoon peak hour. This translates to approximately 48,600 trips per day to and from the NEUEA. To identify the classification of roadways in the Land Use Concept (see Figure 7) to support future subdivision, the function and traffic characteristics of each roadway were considered. Transportation Association of Canada (TAC) guidelines for the classification and geometric design of collector and local roadways were utilized to help guide the classification of roadways.

The proposed classification, roadway right-of-way and requirements for accommodation of pedestrians for each internal roadway within the proposed Land Use Concept are noted in Table 1. The resulting classifications are based primarily on anticipated traffic volumes as well as proposed pedestrian and transit use on study area roadways.

The Sector Plan has two key major arterials – Memorial Drive and Saskatchewan Drive, which will be a major arterial south of Douglas Drive. There will be three key minor arterials, including Saskatchewan Drive north of Douglas Drive, the EW Arterial connecting Saskatchewan Drive to Highway No. 4, and Highway No. 4 North (Central Avenue). The key consideration for these roadways is traffic movement and maintaining proper intersection spacing to allow for progression of traffic through signalized intersections.

There are four major collector roadways that branch off from the major arterials – a loop in the Northeast Quadrant, a north south roadway in the Northwest Quadrant, Springs Drive and Douglas Drive in the Southwest Quadrant and Waker Road in the Southeast Quadrant. There will also be other collectors in the Southwest Quadrant that connect to the bordering arterials. Access to the Highway Commercial Area will be primarily from Memorial Drive.

Table 1: Roadway Classification

Roadway	Total Forecast Daily Traffic Volumes (vpd)	Classification	Right of Way	Sidewalks	Total Min. Travel Lanes*	Minimum Intersection Spacing
Saskatchewan Dr. (Memorial Drive to Douglas Dr.)	23,550	Major Arterial	20-45 metres	May be provided	4	400 metres
Highway No. 4 Bypass	14,500 - 17,000	Major Arterial	20-45 metres	May be provided	4	400 metres
EW Arterial	19,100	Minor Arterial	20-45 metres	May be provided	4	200 metres
Saskatchewan Dr. (N of Douglas Dr.)	6,000 - 10,050	Minor Arterial	20-45 metres	May be provided	4	200 metres
Highway No. 4 North (Central Ave.)	8,850	Minor Arterial	20-45 metres	May be provided	4	200 metres
NE Quadrant Loop	2,500 - 3,725	Collector	20-24 metres	Both Sides	2	60 metres
NW Quadrant - Centre Collector	3,175	Collector	20-24 metres	Both Sides	2	60 metres
Springs Dr.	6,500	Collector	20-24 metres	Both Sides	2	60 metres
Douglas Dr.	6,500	Collector	20-24 metres	Both Sides	2	60 metres
SW Quadrant - Arterial Connectors	1,600 - 3,250	Collector	20-24 metres	Both Sides	2	60 metres
Waker Road	3,125	Collector	20-24 metres	Both Sides	2	60 metres
All other roadways	< 1,000	Local	15-22 metres	One or both sides	2	60 metres

* Total number of lanes required in both directions.

This Sector Plan, which involved planning at a macro level, will be supported in planning for detailed transportation network requirements through a process that includes:

- *Area-Specific Planning Study* – examination of needs for a specific neighbourhood (i.e. neighbourhood plan). The Neighbourhood Plan will consider all neighbourhood collector and arterial roadways, as well as the potential impacts to adjacent neighbourhoods. The analysis can reflect roadway needs over a 25-year period or more.

- *Zoning/Subdivision/Site Impact Traffic Study (SITS)* – An application for zoning and/or subdividing parcels of land may require further analysis of anticipated transportation network operation to the local road level. A SITS is undertaken to more accurately predict the impact that an individual development (e.g. a Wal-Mart or a Superstore) will have on the surrounding road network. The timeframe for the assessment is commonly five years (i.e. the developer is responsible to ensure the road network will remain operating acceptably for a defined period after store opening). SITS will be required for major developments within the NEUEA, as deemed necessary by the City of Swift Current. Typically, a SITS is required for any development expected to generate more than 100 vehicles per hour during the weekday afternoon peak hour.

At the Area Specific and SITS level of planning for the future developments in the NEUEA, the following issues should be addressed, where applicable:

- Intersection operation along key arterials with full development of the study area based on anticipated increase in traffic volume
- Examination of the anticipated timing of modifications necessary to existing roadways as a result of future development
- Detailed description of the traffic generated by the proposed development compared to proposed concept plan estimates

- Traffic volume data utilized in these studies should be from the current calendar year. Otherwise, new traffic data should be collected for study intersections
- Micro-simulation of study area intersections should be conducted in order to identify required capacity issues and mitigation measures
- The impact to existing roadways from the proposed development must be quantified and mitigation measures identified
- Ensure that an adequate number of accesses are provided. The location and design of access points will also be critical to the operation
- Examine pedestrian, bicycle and transit routes to ensure alternative modes of transportation are supported within the study area for access to and from the site. The development plan should examine on-site circulation for all transportation modes, including vehicular, pedestrian, cyclist and transit.

6. Infrastructure and Utility Servicing

In 2010, AECOM prepared the Servicing Master Plan that considered the effect of proposed and possible future developments on the existing systems, including water distribution, sanitary collection and storm water collection. The Northeast Subdivision Development review, also completed by AECOM in 2010, reviewed the services for several adjacent developments in the north east including: Valley Ridge Subdivision, Lotus Estates as well as the Creekside and Spring Valley commercial developments.

The objectives of the servicing study are to assess the feasibility of providing municipal services to the proposed development area north and east of the Valley Ridge Subdivision. The servicing review includes the following activities:

- Identify the existing water, wastewater and stormwater management services in the study area; and
- Determine the effect of the proposed development on the existing downstream services.

6.1 Water Supply

6.2.1 Introduction

The City's Water distribution system is shown in Figure 15. The City of Swift Current's water treatment plant obtains raw water from the Swift Current Creek. The water treatment plant pumps treated water to the South Hill Reservoir. Water is then distributed to the City via the water distribution network. The network consists of two storage reservoirs, six pressure zones, two booster pump stations and over 143 kilometres to water distribution mains.

The existing City wide WaterCAD model was used as the basis in the analysis. The City's existing water distribution network as represented by the WaterCAD model is shown in Figure 16. The model has been updated to include water distribution mains for the Valley Ridge development currently under construction.

6.2.2 Proposed Water Distribution

Water demands from the proposed development were added to the model to assess the impact of the new developments in the northeast on the City's existing network. The design criteria used is shown in Table 2 Design Criteria (adopted from previous developments being undertaken in the city)Table 2.

The proposed development area is intended to be primarily residential. However, the area also includes some institutional and commercial areas. Demands were added to the model based on the type of development, population density and per capita water demand.

The proposed water supply network for the new developments in the northeast is shown in Figure 156. The proposed water supply network consists of pipe sizes ranging from 150mm to 250mm.

Parameter	Value
Water Demand	454 Litres per capita per day
Single Family Occupancy	3.3people per unit
Multi Family Occupancy	2.3 people per unit
Highway Commercial	65 people/ha
Institutional	50 people/ha
Density	Single Family – 10units/ha Small Lot Single Family – 15units/ha Semi-Detached – 20units/ha Row Housing – 40units/ha Multi-Family – 60units/ha

Table 2 Design Criteria (adopted from previous developments being undertaken in the city)

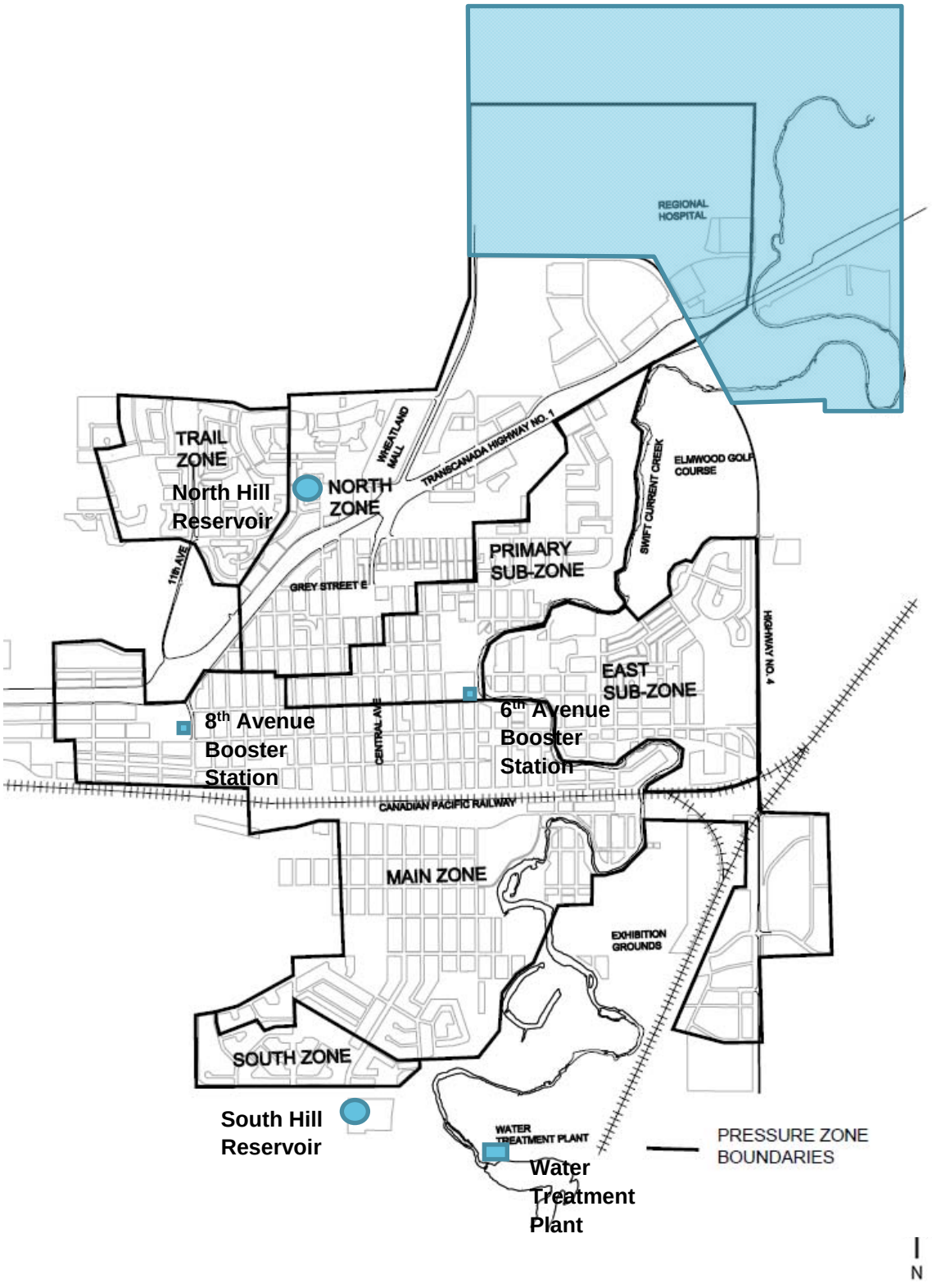


Figure 15 Existing Water Distribution System

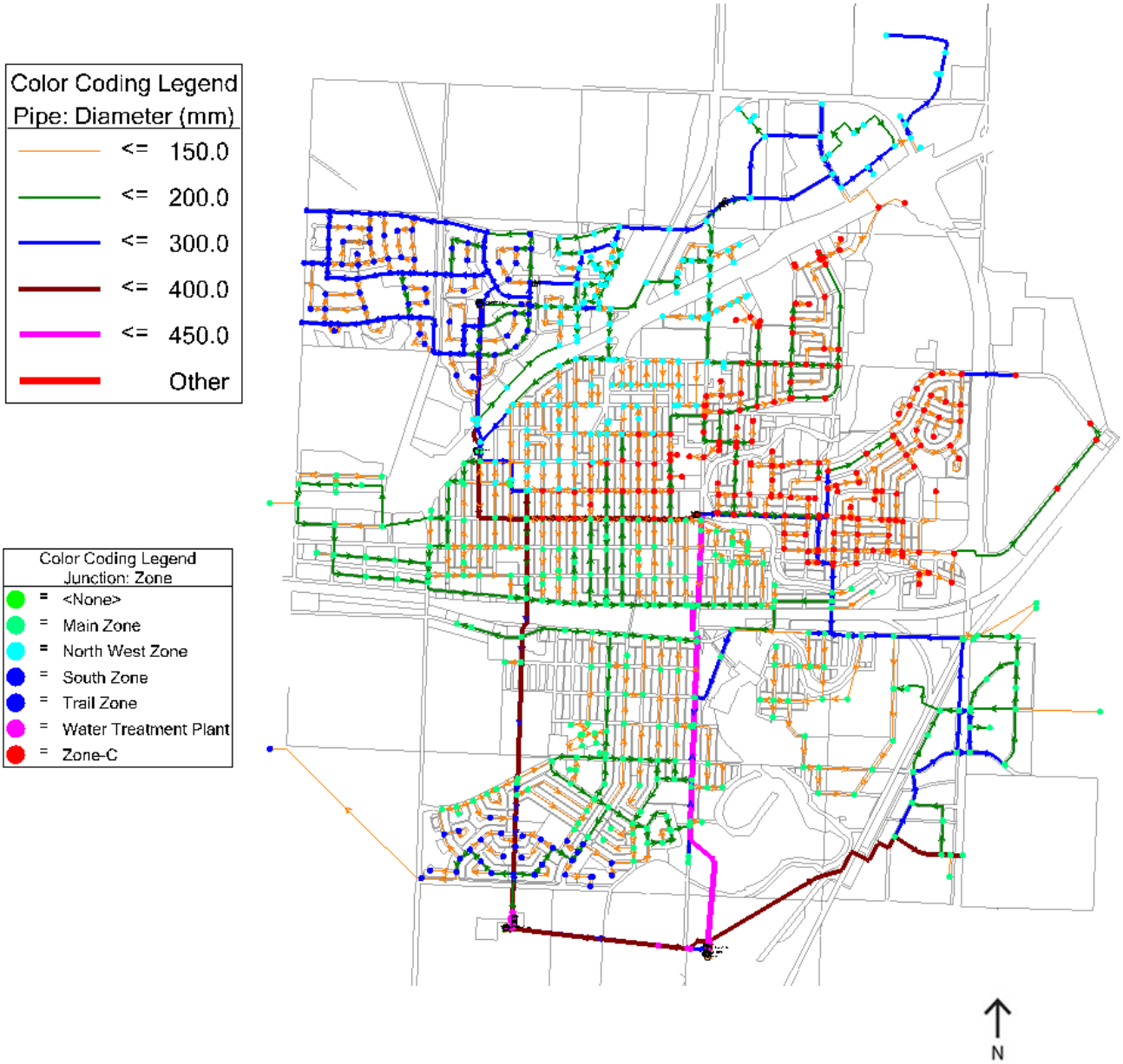


Figure 16 Existing Water Supply Network

Figure 17 Proposed North East Water Supply Network (the existing network in the study area is shown under the brown polygon)

The connections to the existing water distribution network are located at the 250mm PVC water main at the junction of Springs Drive and Memorial Drive and along Saskatchewan Drive (see the blue circles in Figure 17).

The steady state water network model of the distribution system was used to assess the performance of the system for current and future flow rates during average daily demand (ADD), maximum day demand (MDD) and peak hour demand (PHD) conditions.

The analysis considered the standard water demand scenarios of Average Day Demand (ADD), Maximum Day Demand (MDD) and Peak Hour Demand (PHD). The model results were then measured against the system performance parameters shown in Table 3.

Demand Condition	Model Nodes	Model Pipes
ADD	Identify nodes with pressure >690kPa (100psi)	No analysis
MDD	Identify nodes with pressure <262kPa (38psi)	No analysis
PHD	Identify nodes with pressure <262 kPa (38psi)	Identify pipes with velocity > 1.5m/s
MDD + Fire Flow	Identify fire flow deficiencies at 140kPa Residual/Zone Pressure	Identify pipes with velocity > 3.5m/s

Table 3 Water Model Parameters

Standard design practice is to consider the available fire flow during MDD conditions. A minimum residual pressure (normally 140 kPa or 20 psi) is commonly specified at the point of withdrawal to overcome the friction losses in the hydrant branch, hydrant and suction hose.

The fire flows used in the 2010 Servicing Master Plan were 63L/s in residential areas and 127L/s for commercial and industrial areas were adopted for this analysis. Confirmation of the fire flow requirements for the new developments should be further examined in future design stages.

Results of the modeling are as follows:

6.2.3 Average Day Demand Scenario

The minimum pressure achieved in the proposed network during ADD is 261 kPa while the maximum was 677 kPa; occurring at the highest and lowest elevations in the development, respectively. There were no nodes in the layout with pressure exceeding 690kpa (100psi).

6.2.4 Maximum Day Demand

The minimum pressure achieved in the proposed network during MDD is 67.6 kPa while the maximum was 483.2 kPa. Approximately 25 nodes fail the MDD design criteria and they are mainly located on the highest elevations in the development.

6.2.5 Peak Hour Demand Scenario

There were no pipes with velocities more than 1.5m/s as required by the design criteria. The maximum pressure in the system during the peak hour demand scenario was 291.1kPa while the minimum pressure was -124.3kPa.

A booster pump is therefore required to supply water to the new development.

6.2.6 Maximum Day Demand plus Fire Flow Scenario

At full build out, no nodes meet the required fire flow with the existing network layout for the MDD plus fire flows scenario. A booster pump is required to provide the required fire flows.

6.2.7 Summary

The Servicing Master Plan completed in 2010 indicated a new pressure zone would be required to service any new lands developed in the northeast area of the City. The results of this study confirm that a new pressure zone will be required to service the higher elevations of the new development area.

The proposed new pressure zone is shown in Figure 18. A new booster pump station and feeder main from the North Hill Reservoir will be required to supply water to the new pressure zone.

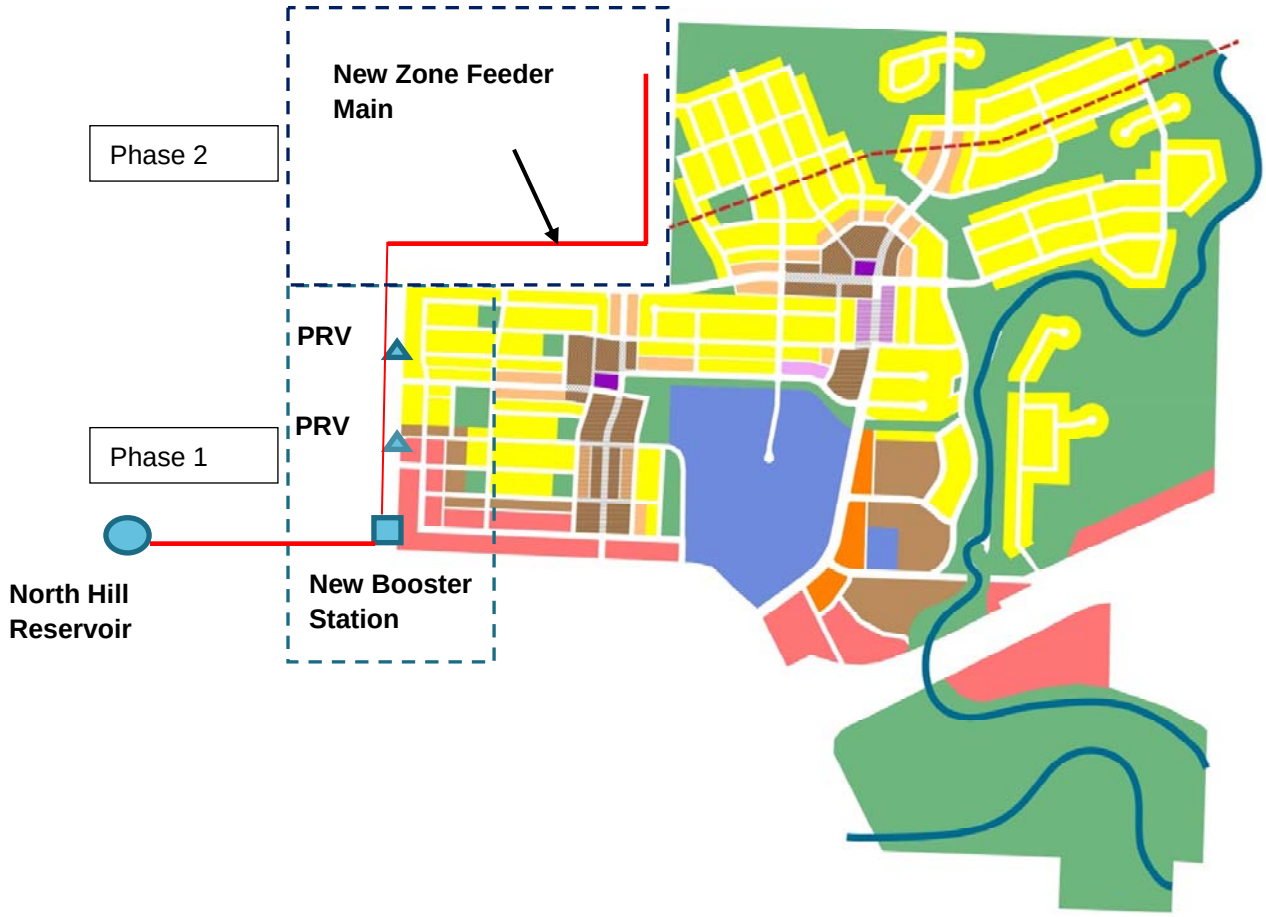


Figure 18 Proposed New Pressure Zone

The preliminary zone boundary is shown on Figure 18. A booster pump station located at the junction of Highway 4 and Memorial Drive would be designed to deliver the total peak hourly flow rates of 125 L/s with a pump head of approximately 70 metres.

Modeling also indicates connections from the new feeder main to the west side of the development area south of the new pressure zone will be required to provide additional supply to the area south of the new zone boundary during high demand periods, or when fire flow is required. This would be achieved using pressure reducing valves (PRVs).

Staging of construction of the booster pump station and feeder main is recommended. Stage 1 would install the new booster pump station and connections to the west end of the development. Stage 2 would be completed once development starts to proceed above the new pressure zone boundary.

The new zone boundary should be established at an elevation of approximately 743 m. The new zone boundary would be delineated by closed gate valves. The exact details of the booster pump station, feeder main and zone boundary should be confirmed by a more detailed pre-design analysis. However, the booster pump should be designed to accommodate the proposed staging.

6.2 Sanitary Collection System

6.2.1 Introduction

All wastewater collected in the City is directed to the City's existing wastewater treatment plant (WWTP) located approximately two kilometres southeast of the study area.

The study area is serviced by the existing Lift Station Number 10 located at the junction of Memorial Drive and North service Road. All of the study area will ultimately drain to this existing lift station.

6.2.2 Proposed Wastewater Services

The proposed sanitary collection system for the new development is shown in Figure 19. The sanitary collection system will connect to the existing sanitary collection mains along Saskatchewan Crescent, and eventually discharge to Lift Station No. 10. In addition, two additional new lift stations will be required to service the eastern most areas of the new development. New Lift Station N2 drains into the New Lift Station N1 whose forcemain drains to the existing Lift Station No.10.

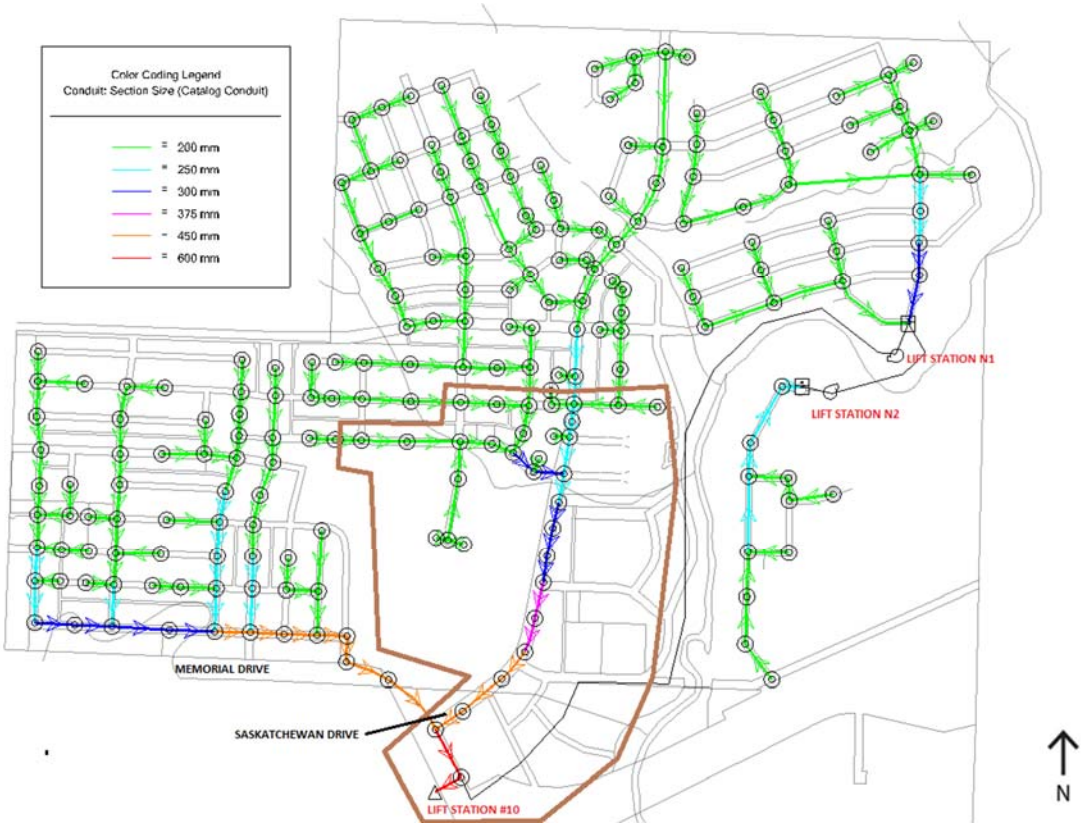


Figure 19 Proposed Sanitary Collection System (the existing network in the study area is shown under the brown polygon)

There is no infiltration data available for the City hence an assumption of 21,100L/ha/d was used for the analysis. This was adopted from data used for other cities in the province. The sewage generation values adopted for this analysis are as follows:

- Single Family – 225L/c/d
- Multi Family – 454L/c/d
- Highway Commercial – 454L/c/d

The sanitary collection network for the proposed development will consist of pipe sizes ranging from 200mm to 450mm. The size of the forcemains from the new lift stations will be 75mm and 150mm in size (this will need to be confirmed at detailed design stage).

The total flow generated by the existing and proposed new developments in the study area, is estimated at approximately 135 L/s. Lift Station No. 10 was estimated to have a capacity of 65 L/s (AECOM, 2010). Therefore, Lift Station No. 10 will require upgrading prior to further development.

The Lift Station No. 10 Hydraulic Review, March, 2007 by AECOM previously reviewed options for upgrading of the lift station. The report recommended upgrading the Lift Station to provide a design flow of 200 L/s as well as upgrades to the lift station's forcemain. However, this report was prepared prior to consideration of development of lands included under this study.

6.2.3 Summary

Development of lands in the northeast area of the City will require two new lift stations. Upgrades to the existing Lift Station No. 10 will also be required to accommodate further development.

As per the previous Northeast Subdivision Development Review by AECOM in 2010, a review of capacity of Lift Station No. 10 is recommended. The study should also review options for upgrades to the forcemain from Lift Station No. 10, including the option of twinning the forcemain to the WWTP or pumping back to the Main Sewage Pump Station.

6.3 Stormwater Management

6.3.1 Introduction

Swift Current Creek is generally located on the east limit of the study area. The study area slopes from north to south in general, draining to Swift Current Creek. Figure 20 shows the layout of the existing site including drainage runs that traverse the site.

6.3.2 Proposed Major Storm Water System

The major (or overland) drainage system for the new development area was reviewed. The general process is to compare the pre-development runoff to the post development runoff and then implement features, such as detention ponds, to attenuate any runoff to pre-development conditions.

The design objective is to ensure that the proposed development does not cause any adverse effects on the existing stormwater management system.

The review of the proposed development includes development of stormwater management options to mitigate negative effects on the existing downstream system while accommodating upstream rural/undeveloped areas flows.

The proposed development shown in Figure 20 covers approximately 840ha in extent and has an elevation difference of approximately 40 metres. The pre-development major stormwater management system was assessed using the XPSWMM software to minimize cut and fill requirements and utilize the natural topography of the area.

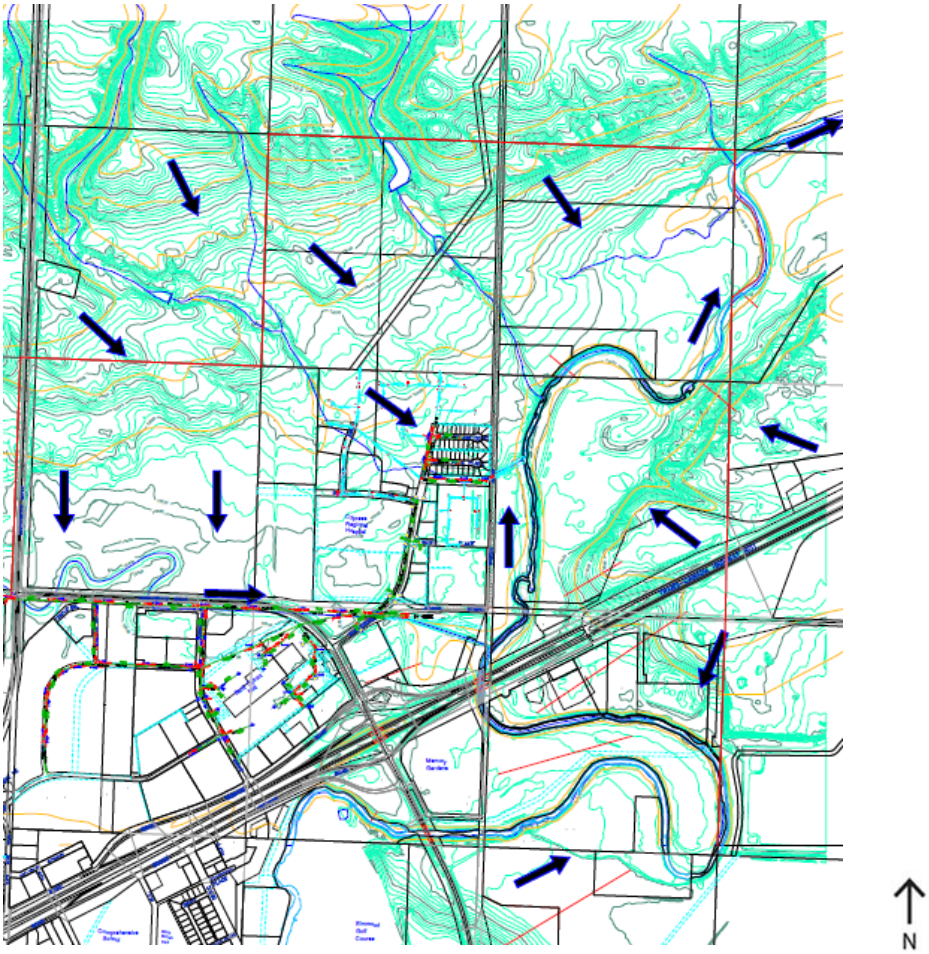


Figure 20 Existing Stormwater Conditions

The size, location and construction of the stormwater management system facilities will be dependent on how the development carries forward. Other considerations that will determine the location of the detention ponds are physical boundaries, topography and tie-ins into the existing stormwater systems.

The analysis assumes that the development of the site will take place at the same time. The actual development phasing will determine the stormwater systems required at each phase. More detailed assessment of the stormwater issues will be required once the phasing of development is known.

Contour data obtained from the City and aerial photos of the study area were used to identify the sub-catchment areas contributing runoff to the ditches and the Creek. There are existing wet detention ponds along some of the ditches. However, the details of the ponds were not available at the time of this review. Depths and volumes of these were therefore assumed for the purposes of developing the model. Baseline flows through Swift Current Creek were not available and were therefore not included in the model. The estimated pre-development peak flows from the existing catchments was determined to be 30.32 litres per second.

The method of post-development stormwater management is to provide facilities in the form of detention ponds to detain the additional flows generated by the new developments. Assessment of the effects of the proposed developments was carried out by identifying the contributing areas based on the proposed concept plan for the study area.

The new sub-catchments and the catchment characteristics were input into the model to determine the peak flows and compare them with the pre-development flows. Stormwater management facilities were then introduced to alleviate the adverse effects of these developments.

The proposed detention pond locations and their approximate size are shown in Figure 22. A new open channel will be required to drain the north-east part of the proposed development.

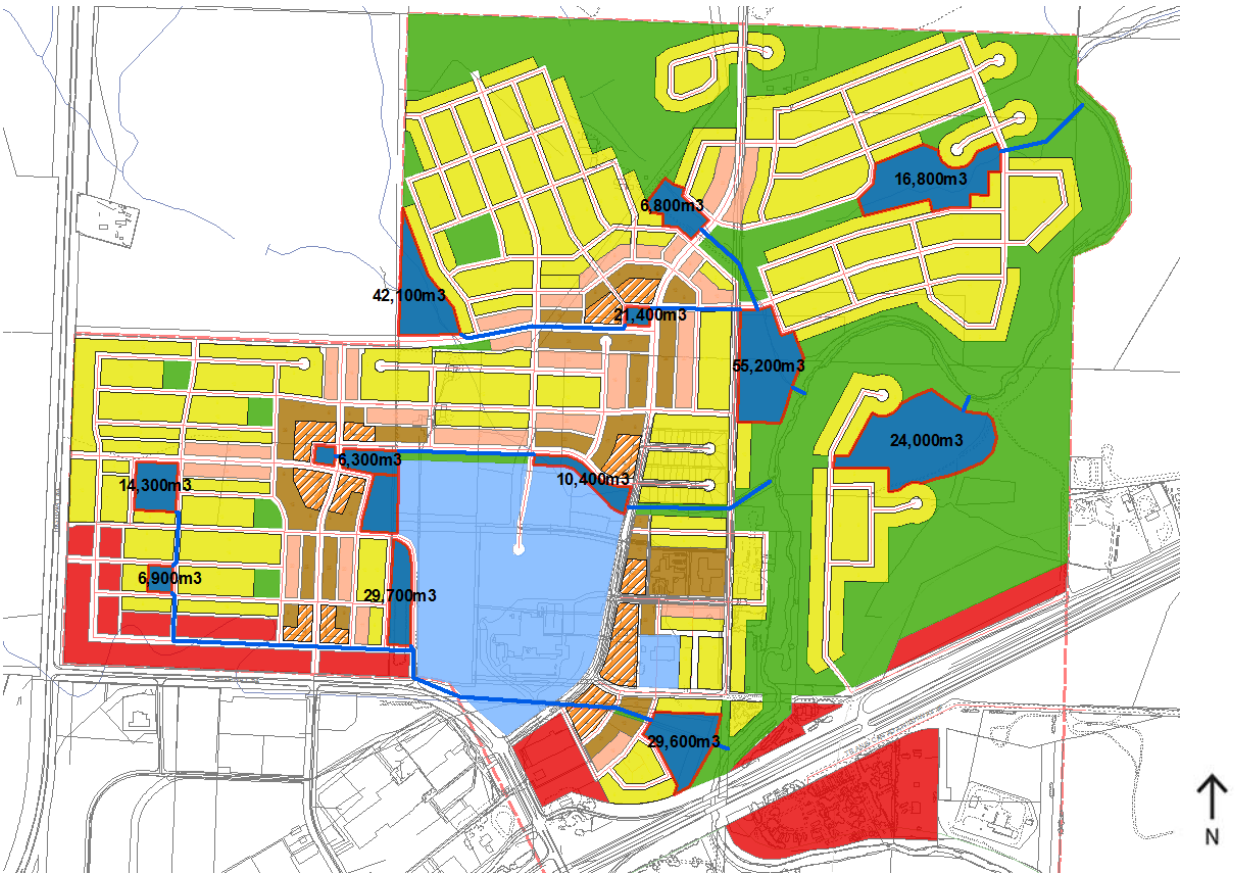


Figure 21 Proposed Detention Ponds

Low Impact Development (LID) options may be considered in the stormwater management systems for the site when the individual developments are implemented. LID is defined as the integration of site ecological and environmental goal and requirements into all phases of urban planning and design from the individual residential lot level to the entire watershed (*Low-Impact Development Design Strategies by Prince George's County, Maryland – June 2009*).

The options used in LID mimic the predevelopment site hydrology by using techniques that can store, infiltrate, evaporate and detain runoff. Examples of techniques that can be adopted under the LID methodology are as follows:

- Bio-retention;
- Dry wells;
- Filter/ buffer strips;
- Swales;
- Infiltration trench;
- Rain barrels and cisterns; and
- Tree-box filters.

The report by Prince George County also notes that Low Impact Development designs can also significantly reduce the development costs through smart site designs by:

- Reducing impervious surfaces (roadways), curbs and gutters;
- Decreasing the use of storm drain piping, inlet structures; and
- Eliminating or decreasing the size of large stormwater ponds.

Photos of Low Impact Development techniques are shown below:

Figure 22 LID examples

Figure 23 Bio-Retention Swale

6.3.3 Proposed Minor Storm Water System

The minor (or piped) collection system for the development will connect to the existing storm water mains already in-place or currently being installed. Minor collection system storm mains are normally sized to accommodate the 1:5 year rainfall event.

The storm mains installed south of Douglas Drive discharge to the existing Outfall No. 8 and the storm mains north of Douglas Drive discharge to a new outfall to Swift Current Creek, as shown in Figure 24.

The Northeast Subdivision Development Review by AECOM in 2010 recommended installing a new section of 525 mm storm main along Memorial Drive to connect to Outfall No.8.

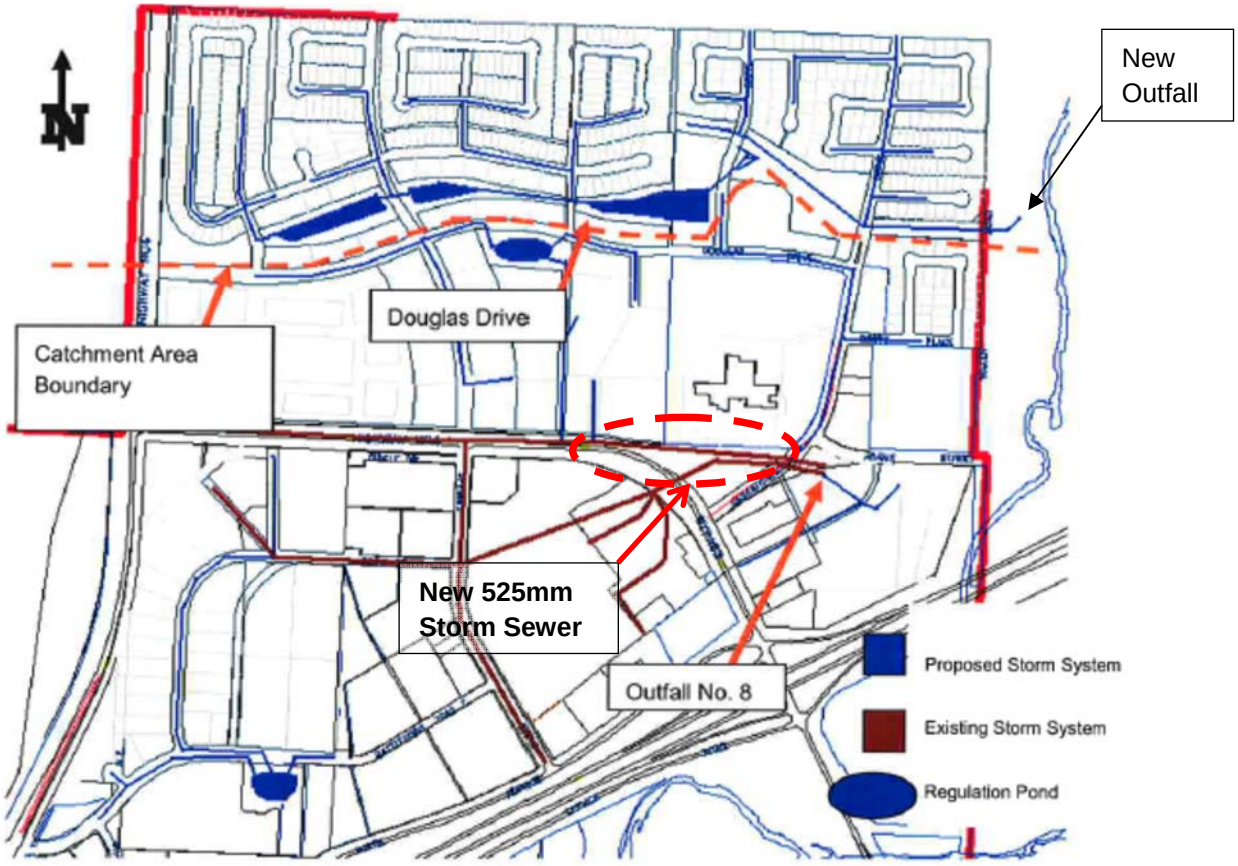


Figure 24: Minor Collection System

6.4 Existing System Impacts

To accommodate the northeast development, the following upgrades to the City's existing systems are required:

Water Supply

- A new feeder main and booster pump station is required from North Hill Reservoir; and

Wastewater Collection System

- Review the capacity of Lift station No. 10.

Stormwater Management System

- A new minor system along Memorial Drive to connect to the existing 1,500 mm storm sewer.
- Incorporate storm water detention ponds in the new development to attenuate storm runoff to pre-development conditions

6.5 Municipal and Shallow Utilities

Urban development in the Plan Area will be serviced with municipal water, sanitary sewer, a stormwater system and shallow utilities (i.e., gas, cable, electricity and telephone) and these services and any required right-of-ways will be extended as required.

7. Implementation

The NEUEA is expected to develop over the next 20 to 30 years, and it has been segmented into five neighbourhood units that anticipate how development will progress. More detailed Neighbourhood Plans for these areas will be required prior to zoning and subdivision.

The following sections outline the recommended implementation sequence and rationale for neighbourhood unit development.

7.1 Development Staging

The NEUEA will commence in Neighbourhood One and start to extend into Neighbourhood Two as the initial phase progresses westward as shown in Figure 26**.** This progression reflects the extension of major services and the extension of Saskatchewan Drive. Subject to market demands, and the development aspiration of respective landowners, development will generally proceed in a manner that radiates out from the centrally located Neighbourhood One.

7.2 Neighbourhood Plans

The NEUEA Sector Plan has defined an area-wide concept for the long-term development of a Complete Community that covers a large area that will take many years to fully develop. This overarching plan should be followed by more detailed Neighbourhood Plans for each neighbourhood unit or for specific locations within those units that will be based on the objectives and design policies defined in this Sector Plan to provide additional detail and guidance on development and site design. However, a Neighbourhood Plan may not be required if the development can be accommodated through the Development Permit process, which will be determined by the City's Planning and Growth Development Department.

Neighbourhood Plans are not required for development (rezoning, subdivision, development permits) to occur. They may however be prepared for specific locations within a Sector or Neighbourhood Plan to provide additional detail and guidance on development and site design.

7.2.1 NEUEA Neighbourhood One

This neighbourhood is the logical starting point of area development. This central location contains both the Integrated Facility Site and the Saskatchewan Drive Neighbourhood Activity Corridor, which are both important defining elements of the overall community vision, objectives and principles. This initial neighbourhood presents opportunities for a diverse range of residential housing, commercial, retail, business employment, joint use sites and natural areas within its boundaries.

7.3 Phasing Plan

The overarching land use and development strategies contained within the Sector Plan represent a long-term vision for NEUEA. In order to enable development to occur in an efficient and considered manner, a phasing plan **(Figure 25)** has been established to guide which parts of the NEUEA Sector Plan should develop first.

Development in NEUEA will commence with Phase 1 in the south-central section of the plan, currently containing the Cypress Regional Hospital, bound to the south by Memorial Drive and to the east by Swift Current Creek. This area will comprise Phase 1 due to its location, ease of access and servicing and due to the extent of development currently present in this location. The proposed land use for Phase 1 contains a large area of institutional (due to the hospital), some Highway Commercial at the southern edge and the initial Neighbourhood Activity Corridor extending along Saskatchewan Drive. Phase 1 consists of multi-family, semi-detached, small lot residential and single family residential.

Phase 2 will extend NEUEA development to the west, to the area bound by Memorial Drive and Central Ave North. Phase 2 will contain the first Neighbourhood Activity Centre and the second Neighbourhood Activity Corridor connecting to Memorial Drive (Highway 4), The proposed land use for Phase 2 is varied, with single-family residential in the north, Highway Commercial bounding the southern edge and density increasing around commercial and activity nodes to the south and east.

The third phase of development will comprise the neighbourhood located to the north-west. The proposed land use for this neighbourhood is primarily single-family residential, with density increasing to the south where the second Neighbourhood Activity Centre is located, connecting to the Neighbourhood Activity Corridor in Phase 1.

Phasing will then jump to the south-eastern corner of the Sector Plan for Phase 4, Phase 4 area contains large areas of open space due to required servicing setbacks (wastewater treatment plant and lagoons and landfill), flood zone setbacks and the presence of the Memory Gardens cemetery. Trans-Canada Highway 1 will be edged by Highway Commercial to the north and south and single-family residential will be located further north of Highway 1.

The final Phase (Phase 5) located to the north-east. Phase 5 is bound to the west by drainage waterways and to the south and east by Swift Current Creek. This area contains extensive areas of open space and is primarily single-family residential with a small pocket of semi-detached residential along the western edge.

Each phase of development will incorporate required stormwater management facilities and all necessary off-site water and sewer infrastructure. The ultimate development phasing will be somewhat flexible and will be determined through detailed review and minor adjusting of the Sector Plan, based on aspects such as market demand, infrastructure management plans, and developer initiative.

7.4 Rezoning & Subdivision

The rezoning and subdivision of land will conform to the land use designations proposed in this Sector Plan and any subsequent Neighbourhood Plans. The rezoning and subdivision of land is required prior to Neighbourhood Unit development.

The NEUEA Sector Plan defines various densities, land uses, and urban design principles that may require new development regulations and zones in the City’s Zoning Bylaw, which will be reviewed by the City’s Planning and Growth Development Department for proposed amendments at the appropriate stage.

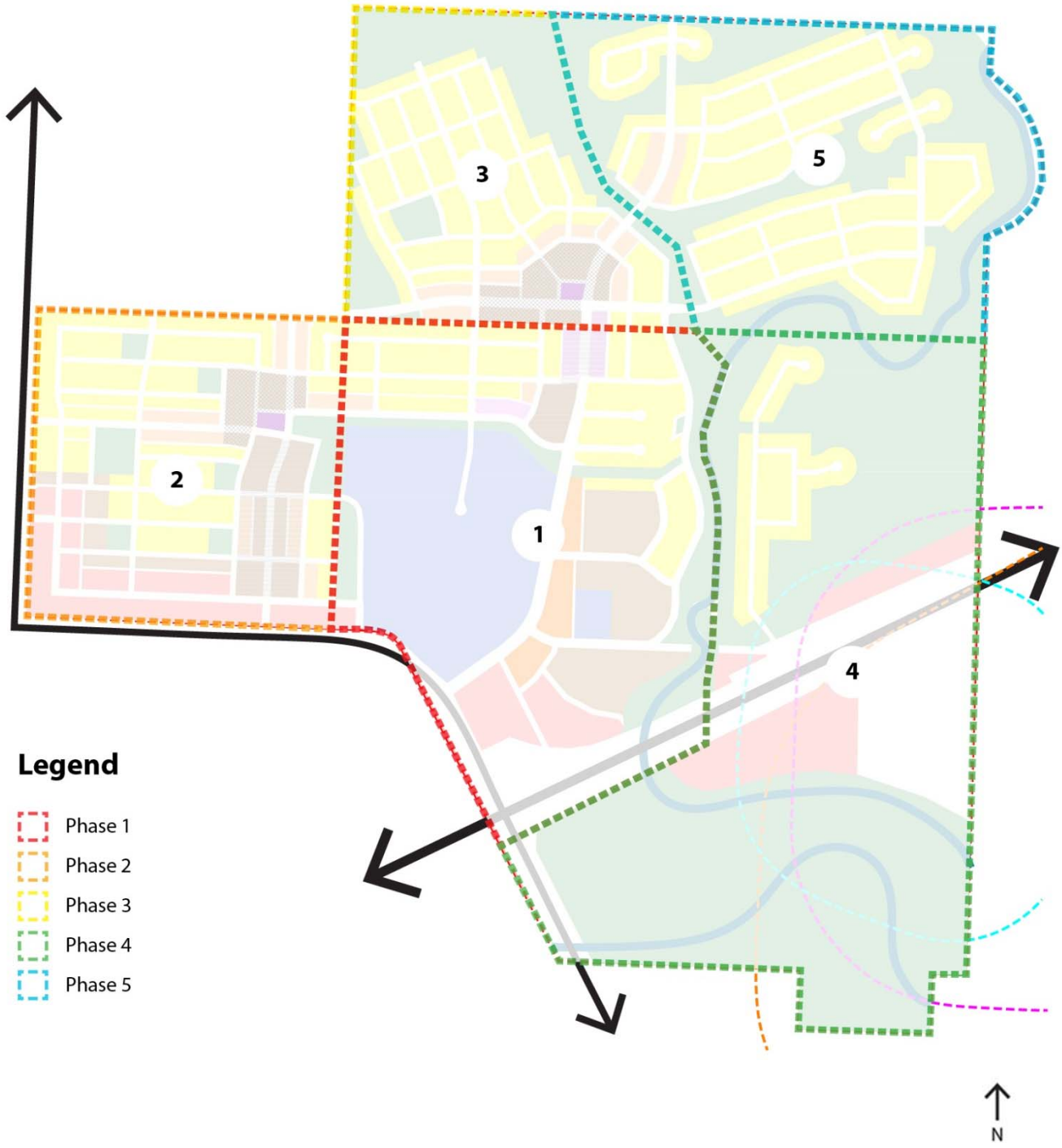


Figure 25: Phasing Plan

8. Glossary

Enclosure Ratio: Defined by the ratio between the horizontal dimension and the vertical dimension of a space. These ratios typically fall into whole number categories ranging from 1:1, 2:1, 3:1, and greater. Generally, the closer the horizontal dimension is to the vertical dimension (e.g., 1:1), the greater the sense of enclosure and the stronger the spatial feeling.

Gross Density: Any density figure for a given area of land that includes uses that are not necessarily directly relevant to the figure such as roads and other transport infrastructure.

Sector Plan: A statutory concept plan used for large areas of land (greater than or equal to 20 hectares) where minimal or no urban development has yet taken place. A Sector Plan establishes the guiding land use framework which will be used to inform future development and potential amendments to the Zoning Bylaw.

Mixed Use: Any urban, suburban or village development, or even a single building, that blends a combination of residential, commercial, cultural, institutional, or industrial uses, where those functions are physically and functionally integrated, and that provides pedestrian connections

Neighbourhood Plan: A local plan which applies to sub-sections (less than 20 hectares) of the Sector Plan area (typically large enough to support an elementary school, neighbourhood park or detention pond). They set out detailed development plans for an area, giving due consideration to housing types, roads, public transportation, edge planning, environmental protection, amenity provision, servicing, financing and implementation.

Net Density: A density figure for a given area of land that excludes land not directly related to the figure.

Pedestrian-Oriented: An environment facilitating safe, convenient, attractive and comfortable foot travel for pedestrians of all ages and abilities. Considerations include providing direct pedestrian routes, safety, separation of pedestrians from traffic, attractiveness of the pedestrian route including visual interest, street furniture, sidewalk width and material, intersection treatment, curb cuts, ramps and landscaping.

Permeability: (or connectivity) refers to the directness of links and the density of connections in a transport network. A highly permeable network has many short links, numerous intersections, and minimal dead-ends. As connectivity increases, travel distances decrease and route options increase, allowing more direct travel between destinations, creating a more accessible and resilient transportation system.

Public Realm: All external areas of the city (on public or private land) to which the public has regular access. This includes, for example, sidewalks, squares, plazas, walkways and associated outdoor spaces.

Shared Access: An accessway to residential or commercial buildings that is shared between two or more properties.

Shared Parking: The practice of making existing parking space available to more than one person. Usually, shared parking utilizes parking spaces left empty when the owner is not using it.

Street-Oriented Design: Design that supports orienting building frontages and primary entranceways towards the street rather than internal to a site. This is also known as Street-Oriented Development.

Subdivision: A division of land that will result in the creation of a surface parcel or the rearrangement of the boundaries or limits of a surface parcel, as surface parcel is defined in The Land Titles Act, 2000.

Typology: The classification of (usually physical) characteristics commonly found in buildings and urban places, according to their association with different categories, such as intensity of development, degrees of formality, and school of thought.

Universal Access: Provision of environments that are inherently accessible to older people, people without disabilities and people with disabilities.

Urban Design: The practice of giving form, shape and character to the arrangement of buildings, of whole neighbourhoods, or the city. At the more detailed level, it involves the shaping of the external spaces between buildings, and the design of their detail and finishes to respond to use, context, climate, and building form.

9. References

The Saskatchewan Planning and Development Act, 2007

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The City of Swift Current Zoning Bylaw, 2003, City of Swift Current

Northeast Urban Expansion Area Retail Market Study, Urbanics Consulting Ltd., 2012

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