



RANGE POINT

JOINT MASTER PLAN

Final Report

Prepared for

Government of Yukon Land
Development Branch
and
Kwanlin Dün First Nation Department
of Heritage, Lands and Resources
by



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PLANNING

in association with

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1.0 Introduction

In 2020, the Government of Yukon (YG) Land Development Branch and Kwanlin Dün First Nation (KDFN) Department of Heritage, Lands and Resources initiated work on a joint master plan for YG’s Lot 262-6 and KDFN’s Settlement Land parcel C-15B in the Range Point neighbourhood of Whitehorse. Groundswell Planning was retained to lead the planning process in early February 2021. Since that time, the planning team and partner governments have worked with the City of Whitehorse (“the City”) through multiple iterations of information gathering, conceptualization and engagement to arrive at the final Range Point Joint Master Plan (RPJMP) concept.

This Master Plan Final Report establishes the framework for this future neighbourhood by articulating:

- The location, configuration and area for residential, parks and open space, and public utility land uses and proposed zoning;
- The types, density and resulting population for residential development;
- Direction for parks and open space programming and efforts;
- The pattern and alignment of a multi-modal transportation network;
- Desired neighbourhood character;
- A conceptual scheme for servicing the development with water, sanitary and power;
- Implementation considerations; and
- Other items pertinent to development.

The Master Plan will be the framework for proceeding with YESAA review, detailed engineering design, and other regulatory obligations such as subdivision and rezoning. The Master Plan will be approved by the plan partners and endorsed by the City.

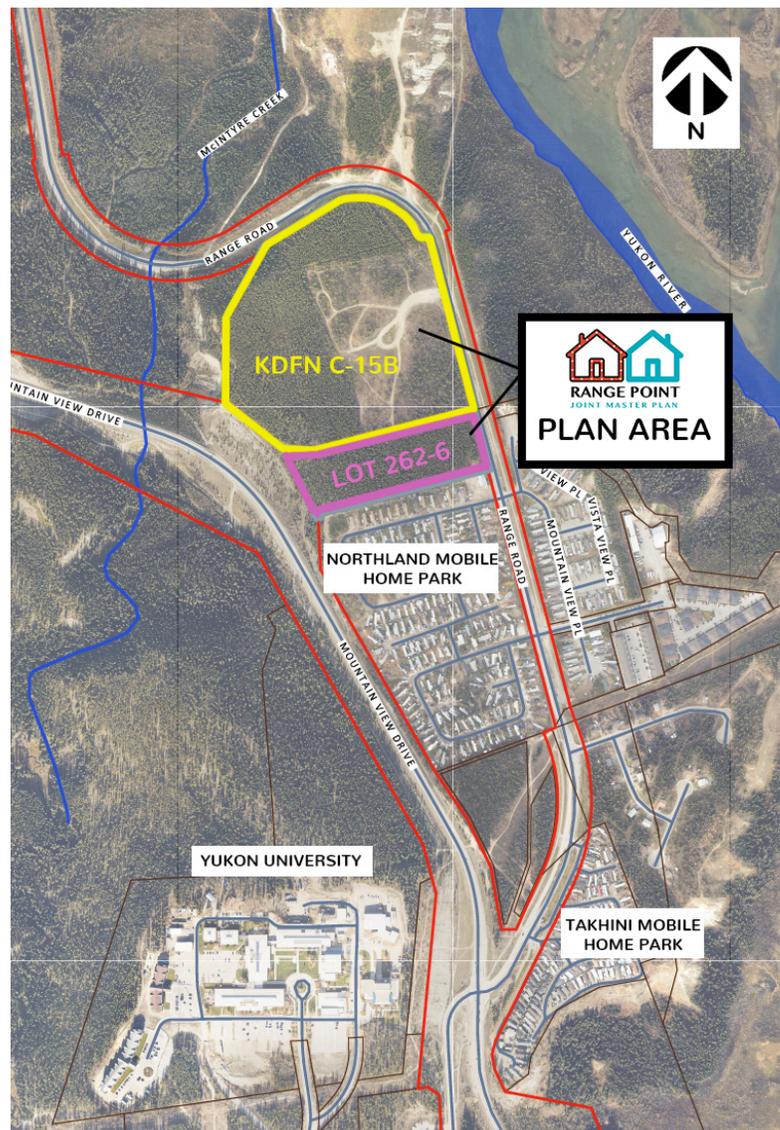


Figure 1. Overview of planning area and Range Point neighbourhood

2.0 Neighbourhood Context

2.1 Legal Description and Size

The Master Plan site consists of two surveyed land parcels and an unsurveyed triangle-shaped area of public land situated between them. Refer to Table 1 and Figure 2.

Table 1. Master Plan site land tenure/parcel sizes

Parcel	Legal Description	Size (ha)
C-15B	LOT 1469 QUAD 105D/14 93163 CLSR YT LTO Plan 2007-0088 YT	14.85
Lot 262-6	LOT 262-6 GROUP 804 71449 CLSR YT LTO Plan 88-109 YT	3.30
Unsurveyed Commissioner's land	n/a	0.30
TOTAL AREA		18.45

For planning purposes (and ease of communication), Lot 262-6 and the adjoining portion of unsurveyed Commissioner's land are considered one parcel and are jointly referred to as Lot 262-6 (unless otherwise noted).

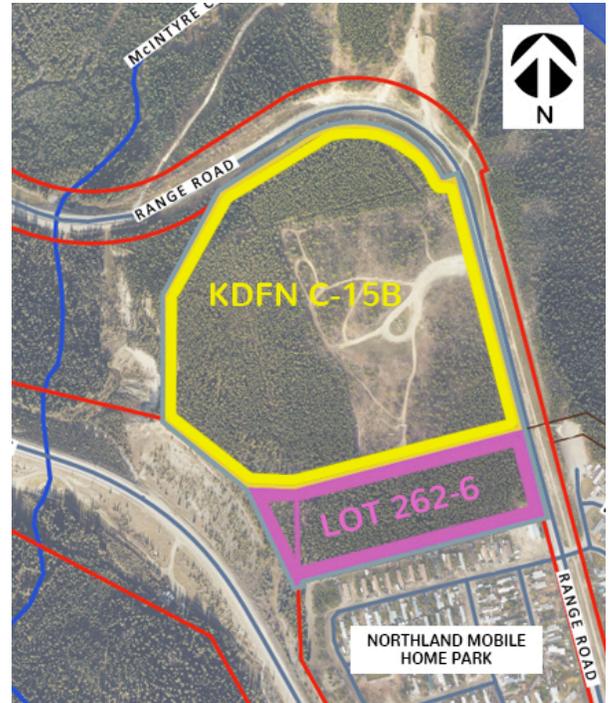


Figure 2. Overview of Master Plan site

2.2 Site Description and Uses

The planning area is situated on the west side of Range Road North and bordered by Chasàn Chuà/McIntyre Creek to the north, Mountain View Drive to the west, and Northland Park to the south. The surrounding neighbourhood of Range Point houses approximately 1240 people (YBS, 2020) in about 560 dwelling units (City of Whitehorse, 2014). Most of the neighbourhood is occupied by private residential or condominium developments, and mobile homes are the dominant housing form. Range Road North, the only road connection to the planning area, is designated a Minor Collector Road with a posted speed of 50 km/h.

The area is mostly vegetated, with lodgepole pine predominant but spruce, poplar, and trembling aspen also present. Most of the eastern portion of C-15B is traversed by several dirt roads branching out from a wide gravel/dirt road loop that connects to Range Road. In addition to this informal network of old roads, there are various trails throughout the site, most notably along the boundary line between the two parcels, directly behind Northland Park, and around the western perimeter/escarpment.

The planning area's proximity to Northland Park and other Range Point development has resulted in heavy use of trails in the planning area by existing residents. The gravel road/loop on C-15B is utilized as a turn-around by the City's Transit Services.

Figure 3. Existing neighbourhood conditions - photo log



Range Road at C-15B (looking south)



Western escarpment trail



C-15 turn-around/loop



Boundary line between Lot 262-6/C-15B



Well-used trail behind Northland Park



Northland Park



Slope failure by McIntyre Creek



Tilted trees indicating slope creep



The Point entrance



Yukon River view from the Point



Yukon River below the Point



C-15B dirt roads

2.3 Site Conditions and Values

2.3.1 Geotechnical

The planning area is generally flat to gently sloping; however, the western and northern portions of the site consist of a glaciolacustrine escarpment situated about 35 metres above Chasàn Chuà/McIntyre Creek with grades of up to 30%.

KDFN and YG commissioned geotechnical evaluations of their land parcels in 2007 and 2021, respectively. The assessments concluded that, based on the terrain and geotechnical conditions, the potential for conventional subdivision development on this site is very good. Soil conditions are characterized by a thin veneer of organic soil overlying 0.2-1.0 metres of silty sand underlain by glaciolacustrine silt (to undetermined depth). No bedrock, permafrost or groundwater was noted during test pitting. Seepage zones were noted along the bank overlooking Chasàn Chuà/McIntyre Creek, and there was evidence of mass movement processes (e.g., erosion), likely caused by the under-cutting of the toe-of-slope by the creek. The report notes potential for frost susceptible soils on the site and recommended that a development setback of 30 metres be applied to the northern boundary of C-15B and that natural vegetation remain intact throughout the adjacent greenbelt. The Master Plan reflects this guidance.

2.3.2 Ecological

The development site is adjacent to residential development and situated between two collector roads; as such, its environmental value is assumed to be low. However, KDFN's C-Lands Plan identifies the general Chasàn Chuà/McIntyre Creek area as a significant wildlife area and this watershed is of considerable ecological value.

The Chasàn Chuà/McIntyre Creek - Yukon River confluence is dominated by shallow open water, marsh and shrub-dominated wetland ecosystems, alongside white spruce (*Picea glauca*) lowland forest. Previous studies have identified the location as a significant wildlife area due to its aquatic habitat characteristics and connectivity to areas outside the Yukon River corridor. A 350-metre riparian buffer (i.e., 175 metres from each bank) is considered a best practice to mitigate impacts on wildlife. A small portion of the northwestern corner of development falls within this 175-metre setback; however, the very steep slopes separating McIntyre Creek from the development site in this area realistically compromise habitat connectivity here.



Lower McIntyre Creek/Yukon River confluence, with planning area in the right/middle ground
(Credit: Alistair Maitland Photography)



Range Road dumpsite circa 1960s
(Source: Yukon Archives 85-25-595)

The Yukon River island complex, Chasàn Chuà/McIntyre Creek and its riparian forests, and steep slopes have also been identified as highly sensitive areas. Resident wildlife includes avian predators, forest birds, water birds, microtine mammals, ungulates, and fish. The confluence is a spring staging area for a variety of swans and other waterfowl. Most large animal species found in the Whitehorse area can occasionally be found in the Chasàn Chuà/McIntyre Creek area but mostly use the corridor for travel. Six fish species have been documented in the lower portion of the creek, including adult and juvenile Chinook salmon.

2.3.3 Heritage

The lower Chasàn Chuà/McIntyre Creek area is known to have significant tangible and intangible heritage values. The lower reaches of the creek and nearby “Point”, or Dàmäwtän (High Bank), played a key role as a First Nations gathering place, with many people camping there both pre and post-contact. Chasàn Chuà/McIntyre Creek functioned as a major travel route between the Lake Laberge area and Fish Lake, which was an important fishing, hunting, and camping area. The area around the Point was the site of numerous fish camps near the mouth of Chasàn Chuà/McIntyre Creek and across to Croucher Creek. Archaeological remains found on high banks at the mouth of Chasàn Chuà/McIntyre Creek suggest that this was an important prehistoric lookout and hunting site.

During World War II, the Point was utilized by the United States military as a dumpsite. The dump was subsequently re-opened by the City of Whitehorse and operated until 1975, when the Yukon Water Board ordered it closed due to impacts on Chasàn Chuà/McIntyre Creek. C-15B was used as a radio range transmitter site, part of the Northwest Staging Route wartime project; the tower was decommissioned several decades later.

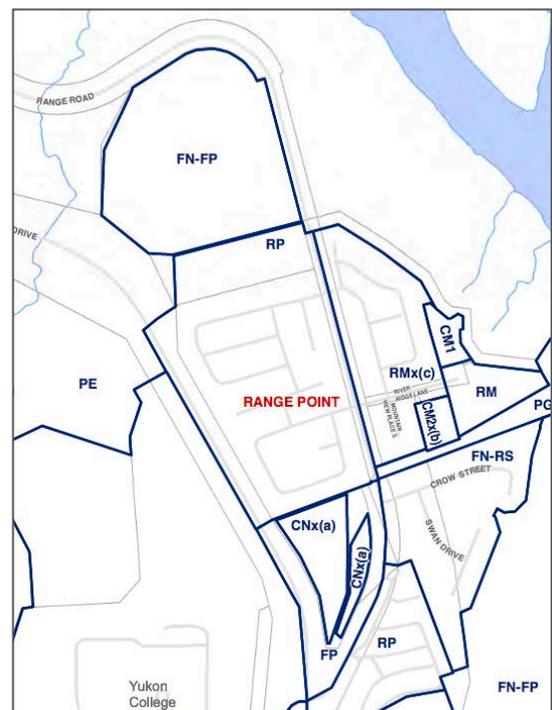
A Heritage Resource Impact Assessment was carried out for C-15B in 2007 and for Lot 262-6 in 2021. No heritage resources were encountered during either investigation, and neither deemed further assessment work necessary. The 2007 report recommended that personnel and contractors be briefed on proper protocols if heritage resources are encountered during site work.

2.4 Designation and Zoning

The recently adopted 2040 City of Whitehorse Official Community Plan (OCP) designates the planning area as Residential – Urban (Lot 262-6) and First Nations Development Land (C-15B).

Section 15 of the OCP establishes the purpose of Residential – Urban lands to “Accommodate a wide range of residential housing forms and compatible uses, located primarily within the Urban Containment Boundary” and allows for all types of municipally serviced residential development, as well as neighbourhood service commercial uses, parks, natural areas, schools, etc.

Figure 4. Range Point zoning (Source: City of Whitehorse Zoning Bylaw)



Section 15 of the OCP establishes First Nations Development Land as “Lands where the First Nations may develop consistent with the Self Government Agreements and land planning policies and documents completed by the First Nation to guide development.” This Master Plan fulfills this obligation for C-15B and the OCP designation Residential – Urban will be applied to this parcel.

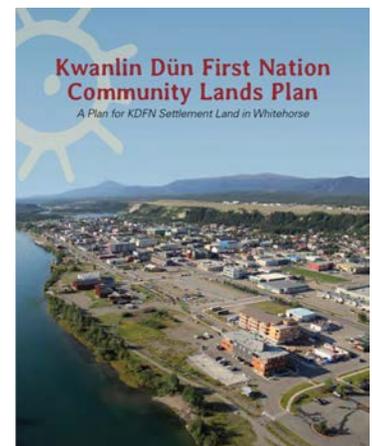
Under the City’s *Zoning Bylaw*, C-15B is zoned FP - First Nation Future Planning, Lot 262-6 is zoned RP – Residential Mobile Home Park, and the unsurveyed area is zoned PE – Environmental Protection. Refer to Figure 3. A zoning amendment for both parcels, will be required to implement the Master Plan.

C-15B is a Type 2 Settlement Land parcel designated for Residential use under the KDFN *Self Government Agreement* (SGA). On Type 2 parcels, KDFN can enact a law in relation to planning, zoning and land development that is consistent with Yukon and City of Whitehorse laws as they pertain to public health or safety.

2.5 Relevant Plans and Studies

2.5.1 Kwanlin Dün First Nation

Overarching guidance for development on C-15B is provided by KDFN’s Traditional Territory Land Vision (2017) and Community Lands Plan (2020). C-15B is associated with all four Land Vision goals (Community Development, Heritage, Wildlife, and Revenue Generation) and their corresponding objectives. The master planning process itself fulfilled much of the relevant policy direction from the Community Lands Plan; however, others are reflected in Master Plan policies in the following sections. C-15B-specific feedback received during the planning process is summarized in Section 2.6.



2.5.2 City of Whitehorse

- *Range Road North Neighbourhood Plan (2014)*

The City undertook the above referenced plan with the broad objectives of making Range Point a complete and successful neighbourhood. Notably, the plan provides guidance to develop Lot 262-6 for residential purposes. Relevant policies and direction from the plan are incorporated into the overarching Master Plan policies.



Figure 5.
Rendering of
Range Road
linear park
(Source: Range
Road North
Neighbourhood
Plan)

- **Range Point/Whistle Bend/Takhini/Porter Creek Trail Plan (2016)**

A Memorandum of Understanding was signed between the City and KDFN in spring 2015 to allow the City to adopt and manage significant trails located on KDFN lands until future development occurs. Trail planning was undertaken for the Range Point/Whistle Bend/Takhini/Porter Creek neighbourhoods in 2016 to identify candidate City trails, their proposed designations (i.e., non-motorized or motorized multi-use), and potential connections and additions to the proposed City network in the area. The Range Point-specific improvements have yet to occur.

Recommendations from that plan are incorporated into the overarching Master Plan policies for Parks, Open Space and Trails in Section 4.3.6.



Boardwalk near McIntyre Creek
(Credit: City of Whitehorse)

- **Point Park Feasibility Study (2016)**

This study came out of a City commitment in the 2014 Range Road Neighbourhood Plan. It concluded that development of a park at the Point would allow the City and its partners to implement management measures, proactively shift behavior away from unwanted uses, and limit the potential effects of a growing residential population. Furthermore, the traditional significance of the site and its high value to First Nations, residents, and stakeholder groups was felt to present a unique opportunity to co-create, interpret, and care for a special place in a manner that reflects both its significant ecological and human-ascribed values. The conceptual plan includes a picnic area with shelters and power, cantilevered lookout, grass field for play and events, interpretive/natural play areas, loop trails, prospective McIntyre Creek bridge crossing, and parking for 20+ vehicles.

No further work has taken place to advance this project. Recommendations from that plan are incorporated into the overarching Master Plan policies for Parks, Open Space and Trails Section 4.3.6.

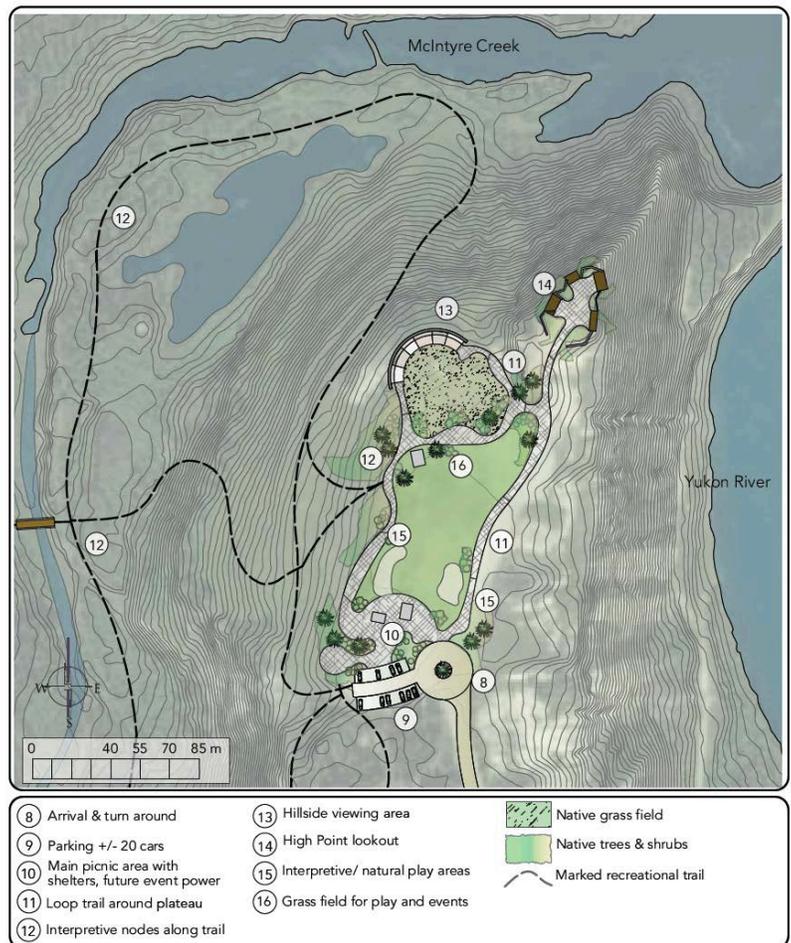


Figure 6. Point Park concept (Source: Jane of all Trades Consulting)

2.6 Citizen and Resident Perspectives

Engagement with KDFN citizens and Range Point residents was carried out in May and November 2021 to inform the master planning process and supplement previous input gathered for the Range Road North Neighbourhood Plan in 2013-14. The overlap of RPJMP timing with the COVID-19 pandemic and accompanying restrictions on in-person gathering resulted in an exclusive focus on online and mail-out surveys and social media. These engagements, and highlights of the most relevant input received during them, are outlined in Table 2. Refer to the two RPJMP “What We Heard” reports (available from YG and KDFN) for full 2021 results.

Table 2. Summary of engagement feedback for Range Point Master Plan area

Year	Project	Target Audiences	Key themes from citizen and resident input
2013-14	Range Road North Neighbourhood Plan (City of Whitehorse)	Range Point residents, stakeholders, landowners	<p><i>For Lot 262-6</i></p> <ul style="list-style-type: none"> • Small, higher quality and affordable housing units in a variety of one, two, and three unit configurations • High quality and street friendly housing design through “comprehensive” zoning • Preservation of key trails, 10m wide greenspace behind Northland, and greenspace on the western perimeter • Preference for RCM3 (for condominium style development) or RCS2 (for individual lot development)
2018	Community Lands Plan (KDFN)	KDFN citizens	<ul style="list-style-type: none"> • The McIntyre Creek area, including C-15B, has wildlife and heritage values • C-15B is appropriate for community development and revenue generation
May 2021	Range Point Joint Master Plan – Values and Preferences	Range Point residents, KDFN citizens, stakeholders, landowners (Note: some non-citizens participated in survey via KDFN social media promotion)	<p><i>KDFN citizens</i></p> <ul style="list-style-type: none"> • 40% of respondents interested in a lease, with single detached units most desired by a wide margin (duplexes and town homes the next popular) • Housing for different income levels, provision of parks/trails/greenspace and using lease revenues to benefit citizens part of social license • Trails, trail improvements, protection of waterways and education are pre-requisites to respecting and protecting site’s heritage and wildlife values <p><i>Range Point residents</i></p> <ul style="list-style-type: none"> • Strong support for buffer behind Northland Park, perimeter trail, using street-friendly design and diverse, appealing housing types • Concerns about traffic, poor condition of Range Road, greenspace loss
Nov. 2021	Range Point Joint Master Plan – Draft Neighbourhood Concepts		<ul style="list-style-type: none"> • Concepts A and B were generally better received by citizens and residents • The higher density of Concept C was opposed by citizens and residents • Concept B’s road layout was preferred by citizens and residents • Concept A’s housing concept was preferred by KDFN citizens • There was mixed support for commercial development • General approach to parks, trails, greenspace in all concepts supported but a strong preference for natural surface trails • Stronger support from citizens for a larger, more diverse park space that functions for both gathering and activity (i.e. Concept B). Range Point residents generally opposed all park concepts (preferring open space)



Figure 7. Survey promotion



Figure 8. Zoom session with KDFN Youth Council

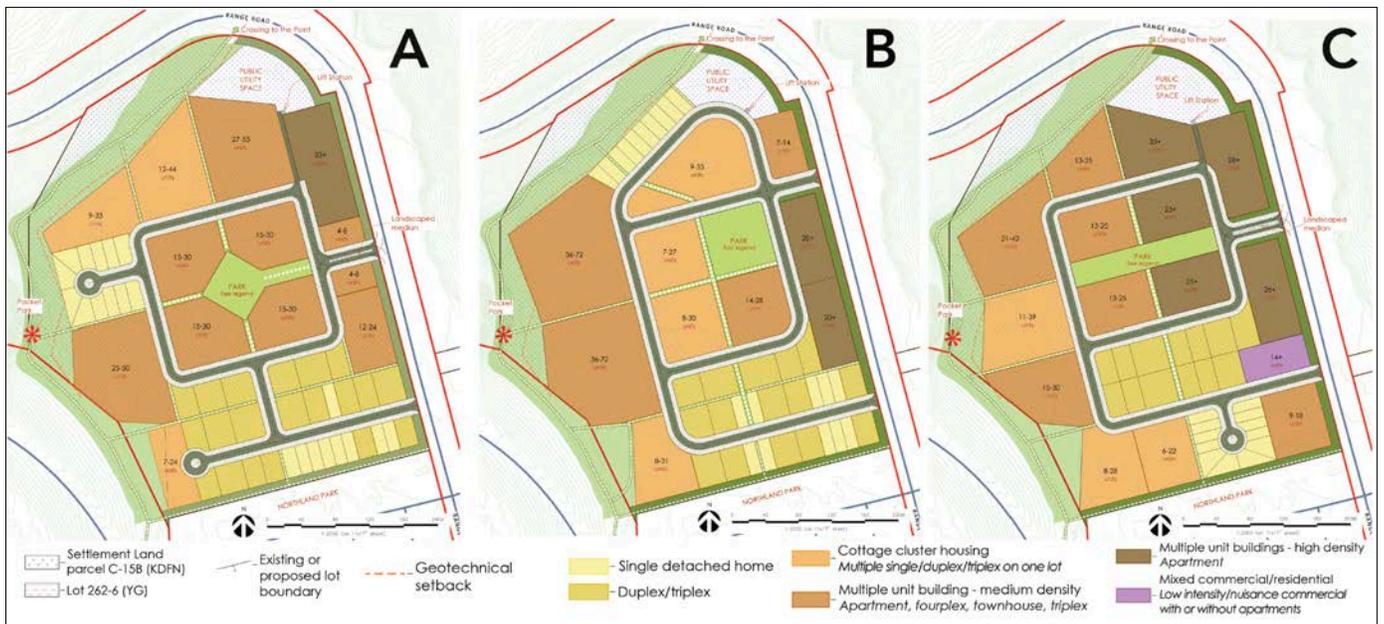
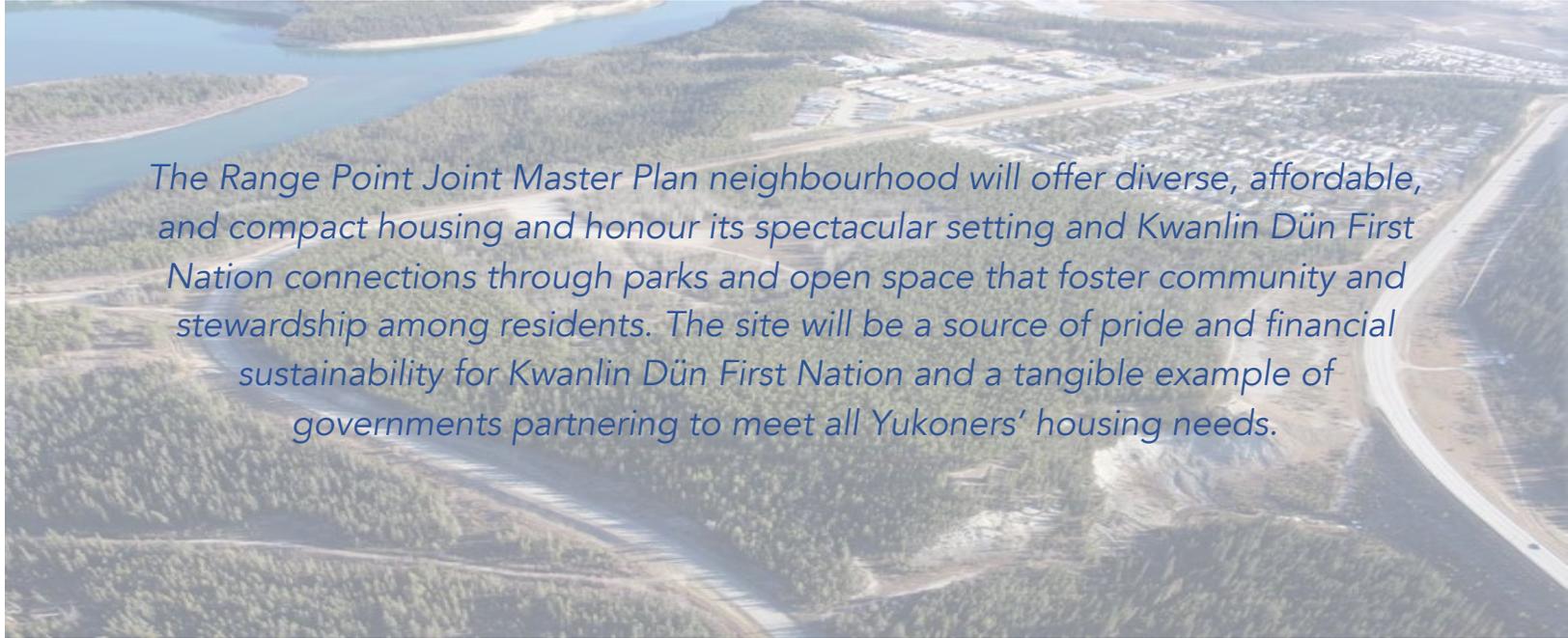


Figure 9. Preliminary concepts A, B and C

3.0 Neighbourhood Vision



The Range Point Joint Master Plan neighbourhood will offer diverse, affordable, and compact housing and honour its spectacular setting and Kwanlin Dün First Nation connections through parks and open space that foster community and stewardship among residents. The site will be a source of pride and financial sustainability for Kwanlin Dün First Nation and a tangible example of governments partnering to meet all Yukoners' housing needs.

3.1 Goals

The objectives for the new development area flow from the overarching vision and include the following:

1. Enhance resident quality of life with convenient access to nature, quality park spaces, and trails.
2. Offer a diversity of housing choices that cater to residents with different life stages, incomes, and lifestyles.
3. Create a compact, walkable neighbourhood and strong connections for all modes of transportation.
4. Protect, honour, and celebrate the site's unique context and values.
5. Foster a sense of community and shared stewardship.
6. Create a positive "brand" for KDFN residential leaseholds and generate revenues for KDFN.
7. Complement and enhance the Range Point neighbourhood and offer amenities for both new and existing residents.

3.2 Neighbourhood Concept

As illustrated in the Neighbourhood Plan contained in Appendix B, the Master Plan articulates its vision and achieves its goals through a variety of design, planning and policy elements, including:

Goal #1. Enhance resident quality of life with convenient access to nature, quality park spaces, and trails.

- A central park space with a variety of active and passive leisure programming serves as the key neighbourhood gateway and connects to natural surface trails via green corridors
- Retention of mature forest around the periphery of the neighbourhood buffers from adjacent development and enhances residents' connectedness to nature
- Protection and enjoyment of Chasàn Chuà/McIntyre Creek viewsapes for all residents and maintenance of Range Road aesthetics
- Place and context-sensitive landscaping that replicates the local ecology to the extent possible

Goal #2. Offer a diversity of housing choices that attract residents with different life stages, incomes, and lifestyles.

- Capacity for approximately 387 housing units and an estimated 889 residents
- A mix of housing choices ranging from traditional single and semi-detached homes to townhomes and apartments within a cohesive and unified residential character
- Facilitation of a variety of housing tenures, including fee simple, leasehold title, strata ownership, and market and non-market rental

Goal #3. Create a compact, walkable neighbourhood and strong connections for all modes of transportation.

- A central block that sets an easily navigable quasi-grid road pattern and creates short, walkable distances between key neighbourhood destinations
- Tree-lined streets, on-street parking and street-oriented development creates a higher quality, safer public realm
- Convenient access to transit, public bicycle storage and active transportation networks

Goal #4. Protect, honour, and celebrate the site's unique context and values.

- Neighbourhood character and placemaking that draw inspiration from nature and Yukon First Nation visual traditions
- Development setbacks from the Chasàn Chuà/McIntyre Creek escarpment and corridor and establishment of trail networks that offer views to but maintain distance from this important wildlife corridor
- Use of language, culture and place names to celebrate the millennia-long occupation of the area by First Nation people and share this legacy with newcomers
- Retention of mature trees to the extent possible and replication of natural site ecology using native plantings

Goal #5. Create a sense of community and shared stewardship.

- Distribution of housing types around the site to encourage social cohesion and mixing
- Small neighbourhood size and strategically located gathering spaces that invite different groups to meet and interact
- Education of residents and visitors about the cultural and ecological values of the Chasàn Chuà/McIntyre Creek area through site interpretation
- Intentional use of participatory placemaking to empower and involve residents in shaping how their neighbourhood evolves
- Gateway landscaping and placemaking features welcome people into the neighbourhood

Goal #6. Create a positive "brand" for KDFN residential leaseholds and generate revenues for KDFN.

- A smaller-scale development that allows KDFN to successfully establish its residential development "brand" and position leaseholds as an appealing housing option for Whitehorse residents
- A variety of multi-family parcels sized and zoned to provide flexibility and choice for private sector builders and partners
- An estimated 322 dwelling units housing an estimated population of 742 residents on C-15B, with associated income tax revenues contributing to financial sustainability for KDFN and its citizens and beneficiaries

Goal #7. Complement and enhance the Range Point neighbourhood and offer new amenities for both new and existing residents.

- Single detached and duplex lots to broaden the spectrum of housing in Range Point
- New active transportation infrastructure to connect the neighbourhood from north to south
- New parks and trails offering a neighbourhood gathering place and focal point
- Potential for neighbourhood commercial services on C-15B (subject to private sector interest)

4.0 Land Use Designations

4.1 Land Use Summary

The Master Plan for the site consists of 10 different land uses. The predominant land use is medium density multiple unit buildings at 28%. Parks, trails, open space, and green buffers/landscaping account for a combined 25% of the site. Roads and road rights-of-way and cottage cluster housing account for 13% each. Single detached and duplex housing account for a combined 14%, whereas medium to high density multiple unit buildings account for 5%. A summary is presented below and illustrated in the Land Use Plan in Appendix B.

Table 3. Land use summary

Land Use	Area (ha)	% of total area
Single detached housing	1.56	8
Duplex housing	1.17	6
Cottage cluster housing	2.36	13
Multiple unit building – medium density	5.15	27
Multiple unit building – medium - high density	0.91	5
Treed buffer or gateway landscaping	0.90	5
Perimeter greenspace	2.62	14
Neighbourhood parks and trails	1.06	6
Roads and road right-of-ways	2.48	13
Utilities	0.57	3
TOTAL	18.77	100

Note that land use areas and percentages are approximate for planning purposes and are based on the usable portions of the site (i.e., at and/or near development grade). Designated areas are subject to some refinement through final site design and engineering at the time of zoning and subdivision.

While the development area is located outside of the City’s Urban Core area and the accompanying OCP density minimum requirement of 20 units/hectare, it is still helpful to track density. To aid with that, gross developable area is calculated at 15.88 hectares, factoring in setbacks and land set aside for public utilities. Refer to Table 4.

Table 4. Gross developable area

Original development area	18.45 ha
Development setback area	(2.00) ha
Public utilities	_.57) ha
TOTAL	15.88 ha

4.2 Residential Land Use

4.2.1 Housing and population density

The RPJMP development site is projected to result in approximately 387 new housing units including single detached, duplex, triplex, cottage cluster, and medium and higher density multiple unit dwellings. This intended variety of housing choices is facilitated by the range of zoning and accompanying lot sizes within the development site. The intent of the proposed mix and orientation of housing types is to foster a diverse

community that can accommodate a variety of income groups, household configurations, and age groups, while generally promoting more compact and affordable housing forms.

The RPJMP partners set out to utilize existing City zoning in this new development and specific zoning is assigned to each housing parcel to achieve the desired mix of residential density and forms. The different housing types, intended zoning and associated density requirements, and resulting unit ranges are summarized in Table 5 and illustrated in the Housing Plan and Zoning Plan presented in Appendix B.

Table 5. Housing units summary

Housing Type	Intended Zoning	Density (units per ha)	Area (ha)	Total Units
Single detached home	RCS2	n/a	n/a	29
Duplex	RCS2	n/a	n/a	30
Cottage cluster housing	RCM3	15-55	2.36	35-129
Multiple unit building – medium density	RCM	25-50	5.36	134-267
Multiple unit building – medium - high density	RM	25+	0.91	22-68 ¹
TOTAL HOUSING UNIT COUNTS				250 - 523
HOUSING UNIT AVERAGE				386.5

KDFN’s C-15B is anticipated to provide 322.5 of the anticipated 386.5 units on the site, amounting to about 83% of housing. YG’s Lot 262-6 is anticipated to contribute 64 units, or 17%. Based on the average housing counts for each parcel and the Yukon’s average dwelling size of 2.3 people per household (YBS, 2021), the new neighbourhood is expected to house about 889 people in total (742 on C-15B and 147 on Lot 262-6). Refer to Table 6.

Table 6. Breakdown of housing units and population by land parcel

Housing Type	C-15B					LOT 262-2				
	Area (ha)	Min. # units	Max. # units	Min. pop.	Max. pop.	Area (ha)	Min. # units	Max. # units	Min. pop.	Max. pop.
Single detached home	n/a	15	15	35	35	n/a	14	14	32	32
Duplex	n/a	10	10	23	23	n/a	20	20	46	46
Cottage cluster housing	1.61	24	88	55	202	0.75	11	41	25	94
Multiple unit building – medium density	5.23	131	262	301	603	0.11	3	5	7	12
Multiple unit building – medium - high density	0.91	22	68 ²	51	156 ³	-	-	-	-	-
SUB-TOTALS	7.75	202	443	465	1019	0.86	48	80	110	184
AVERAGES	-	322.5		742		-	64		147	

¹ There is no maximum density for RM zoning; it was assumed to be 3 times minimum.

² See above

³ See above

These estimates represent averages only. If built out to minimum density, the site could accommodate as few as 250 units and 575 people. If built out to maximum density, the site could accommodate as many as 627 units and 1442 people. Neither scenario is considered likely given the challenges of meeting setbacks and other zoning requirements (e.g., parking) and the likely desire of future lessees/builders on multi-unit parcels to balance density and liveability.

Based on the projected average housing count and gross developable area, the anticipated overall density of the development is calculated at 24.3 units/hectare ($386.5 \text{ units} \div 15.9 \text{ gross hectares of developable land}$). This comfortably meets the 2040 OCP Urban Core residential minimum density standard of 20 units/hectare (even though this does not apply to the Range Point neighbourhood).

4.2.2 Housing types

- *Single detached*

The Master Plan provides for 29 single detached housing lots within the southern third of the development site and a portion of the northwest. The lots are oriented almost exclusively north-south along the southern access road, southern segment of the interior road, and the cul-de-sac. Most of the southern lots are roughly on par or slightly larger than the minimum 490 m² requirement in the Comprehensive Residential Single Family (RCS2) zone, while the cul-de-sac lots are slightly larger. The north-south orientation facilitates housing design that maximizes passive solar heating in the winter months. None of the lots are large enough to accommodate duplex development under the zoning; garden and/or living suites could potentially be allowed (subject to other Zoning Bylaw requirements).

- *Duplex/semi-detached*

The Master Plan provides for 30 semi-detached or duplex lots within the southern third of the development site. The lots are oriented north-south along the southern access road, southern segment of the interior road, and a short cul-de-sac. This north-south orientation will help to maximize passive solar gains during the winter months. Most of the duplex lots are slightly larger than the minimum 780 m² combined area requirement in the Comprehensive Residential Single Family (RCS2) zone. None of the lots are large enough to accommodate triplex development under the zoning; however, garden and/or living suites could potentially be allowed (subject to other Zoning Bylaw requirements such as setbacks).

- *Cottage cluster*

The Master Plan provides for 2.46 hectares of cottage cluster housing on two parcels, one located on Lot 262-6 (1.61 ha) and the other on C-15B (0.75 ha). The Cottage Cluster Homes (RCM3) zone allow for the development of multiple ground-oriented single detached, duplex, and triplex housing units on one lot. The siting of the two cottage cluster housing parcels on the western escarpment is intended to facilitate innovative and aesthetically appealing development along this important viewshed.

RCM3 is a relatively uncommon zoning in Whitehorse. To date it has not been applied in a manner that completely fulfils the original spirit and intent of the cottage cluster housing movement. The traditional hallmarks of cottage cluster development include shared amenity space, smaller and more affordable homes (compared to conventional single detached), common buildings and parking areas. This flexibility allows for more efficient use

of land compared to single detached housing, while providing for a sensitive transition from single detached housing (with thoughtful attention to building siting and massing). The RPJMP site creates a new opportunity to nudge Whitehorse residential options further in this direction.

- ***Multiple unit – medium density***

The Master Plan provides for a combined total area of 5.34 hectares of medium density multiple unit residential housing distributed across five lots ranging from 0.11 to 1.92 hectares in size. Four of the lots are located on C-15B; except for a small parcel on the western end of the shared block, lots are in the 1-2 hectare range that Whitehorse-based home builders expressed an interest in during market research undertaken for the Master Plan. Only a small 0.11-hectare medium density multiple unit parcel is located on Lot 262-6.

A variety of medium density housing types – apartment, fourplex, townhouse, and triplex - are permitted by the Comprehensive Residential Multiple Family (RCM) zoning intended for these parcels. Care should be taken to ensure private residential buildings complement and successfully transition to adjacent public spaces, such as the escarpment and central park.

- ***Multiple unit – medium - high density***

The Master Plan provides for a combined total area of 0.91 hectares of medium-to-high density multiple unit residential housing contained on one Range Road-adjacent parcel on C-15B. The Residential Multiple Housing (RM) zoning intended for this parcel allows for any physical arrangement of three or more dwelling units with a minimum 25 unit/ha density but no maximum. A 10-metre treed buffer will provide separation and noise attenuation from Range Road and maintain semi-natural viewsapes along this well-used transportation corridor.

4.2.3 Residential policies

The specific configuration and densities of dwelling units across the neighbourhood will largely be dictated by market conditions, builder preferences, and zoning requirements. The Zoning Bylaw will provide specific guidance for how lots and housing are developed. While respecting the authority of the bylaw and discretion of individual owners and builders, the Master Plan makes suggestions to future lot owners, lessees and builders in fulfilling its vision and intent. These are contained in Appendix C.

4.3 Parks, Open Space and Trails

The new development's proximity to Chasàn Chuà/McIntyre Creek and Yukon River lend it a spectacular natural setting. KDFN citizens indicated high quality parks, open space, and trails as the key criteria for a successful development, while Range Point residents spoke to a strong desire to retain as much of the area's existing natural character as possible. This direction is reflected in an approach that seeks to maintain the area's natural assets and provide a complementary built environment that offers more structured leisure opportunities. Refer to the Parks, Open Space and Trails Plan in Appendix D.

4.3.1 Park spaces

- **Central park**

The neighbourhood will be oriented around a central 5108 m² park space containing a mix of active and passive programming elements that attract a diversity of users and encourage frequent visitation. The park concept (refer to Appendix C) allows for a phased, people-centered approach to making this vital space reflective of resident values and preferences.

A natural playground, picnic and gathering areas, pathways, and entry features will act as park focal points and are considered priority park elements. The park will provide an appealing gateway from the main neighbourhood access point on C-15B. Banners, seating, and welcome features will invite visitors in and crushed granular pathway "spokes" will provide connections to the street and facilitate internal circulation.

Park spaces not occupied with built features or open lawn areas will be seeded with a native low grass and wildflower mix which will require less frequent maintenance and will provide a more diverse park landscape and improved habitat. A water connection will be provided to the park, including a quick coupling irrigation valve for water access, and standpipe/water tap for a potential future community garden.

Priority programming elements and park landscaping will be developed as part of the initial phase of park development. Phase 2 elements could include a variety of features, including a small bicycle pump track or skills area for children that could integrate with landscaping. There is also sufficient space for another major park element, such as a community garden, outdoor rink, or volleyball court. These latter amenities could be selected through a participatory neighbourhood planning exercise. Native low grass and wildflower would serve as a "placeholder" ground cover serving to create a more aesthetic interim space.

The park will adjoin the central medium density multi-unit residential parcel to the west and south. Care will need to be taken to optimize the Crime Prevention Through Environmental Design benefits of this co-location while still allowing for some degree of privacy for both residents and park users. Thoughtful transitions between public and adjoining private space will help to ensure that both realms are clearly delineated and visually complementary. The planting of trees around these edges is one example; low shrubs and trees with higher canopies are recommended to ensure "eyes on the park." Sight lines into the park from the road should similarly create a sense of increased safety and resident surveillance from unwanted activity.

- **Pocket park**

The western escarpment of the development site offers views of Haeckel Hill and westerly and southerly exposure. A parkette, or “pocket” park, will provide a quiet, contemplative space to enjoy both and will be accessed via a new natural surface trail spoke from the central block, as well as the escarpment trail. The parkette will defer to its natural setting and built features will be limited to benches and interpretive signage. Seating will help to augment the experience of the escarpment trail for Elders and young children. Refer to the detailed parks concept in Appendix D.

4.3.2 Natural surface trails

The plan reflects the strong preference of KDFN citizens and Range Point residents to retain natural surface trails to the extent possible. The well-used escarpment trail that borders the development to the west and north will be retained, along with the trail that straddles the boundary between Northland Park and Lot 262-2. A network of new natural surface trails will allow for circulation between the neighbourhood and these important trails. Refer to Section 5.1.2 for an overview of paved trails.

6-metre wide trail corridor spokes radiate from the center of the neighbourhood in three directions and there is a 3-metre wide corridor at the west end of the cul-de-sac. A new 90-metre segment of trail will be constructed in the vicinity of the stormwater pond. The plan envisions 1.5-metre wide natural surface trails being developed within these corridors to replicate the look, feel, and functioning of the escarpment trail and facilitate use by pedestrians, cyclists and even wheelchairs. To achieve a natural trail experience in these corridors, careful and complementary landscaping treatment may be required where grading activities necessitate the removal of native trees. Refer to Figure 10.

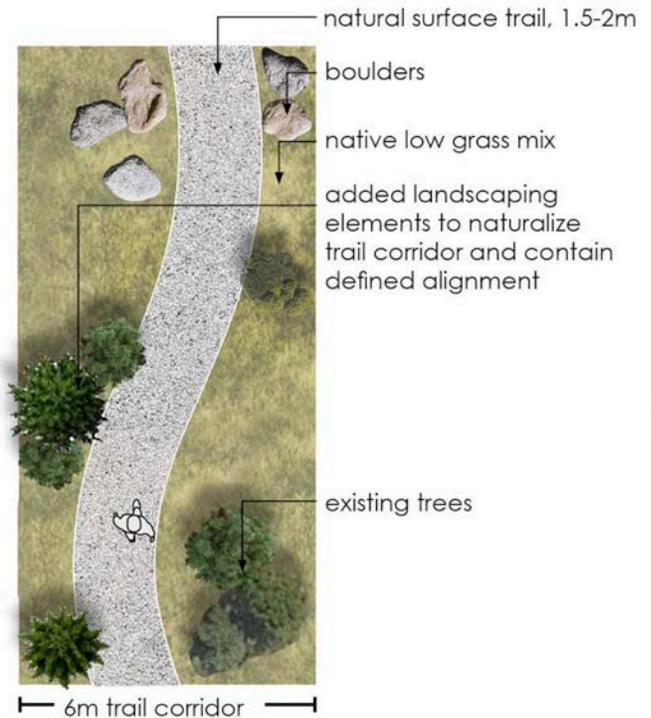


Figure 10. Plan view of conceptual trail corridor treatment

4.3.3 Buffers and landscaping

As committed to in the Range Road North Neighbourhood Plan in 2014, a 10-metre treed buffer will be retained between Northland Park and the new subdivision. The plan extends this green buffer to the eastern edge of the development site as well, allowing for more privacy for residents of the Range Road parcels and a more pleasing, natural Range Road viewscape.

Landscaping treatments will be applied in five key areas: north road access on C-15B; central park space; adjacent to sidewalks (i.e., street trees); trail corridors; and stormwater retention pond.

The extent of landscaping applied in each will depend on the degree of existing site disturbance and the amount of clearing and/or disturbance required for grading and construction. The overlap of the central park space and north road entrance with the cleared portion of the site requires full landscaping treatment. Trail corridors overlap with existing forest cover and will be left as natural as possible, with landscaping applied where clearing is required for site grading. Refer to Sections 4.3.2 and 4.4.2 for examples of trail and pond landscaping.

4.3.4 Placemaking

The parks, trails and open space components offer an opportunity to create a distinct sense of place that will differentiate this new development from others. A unique neighbourhood identity serves to foster belonging and stewardship among residents and competitively position lots in the marketplace. Placemaking efforts will be prioritized in the central and pocket park spaces but could apply to other neighbourhood elements such as trail and street signage and utility boxes. Placemaking should reflect the site's First Nation origins and KDFN citizen and Range Point resident values by emphasizing natural materials and nature and culture-inspired themes. This is an excellent opportunity to engage KDFN artisans and citizens. Refer to Appendix D for initial placemaking concepts.

4.3.5 Prior City parks and open space amenity commitments

The 2014 Range Road North Neighbourhood Plan committed to three major parks and open space actions:

- Establishment of a formal trail network and accompanying signage;
- Exploration of a municipal-level park at the Point; and
- A linear park along Range Road.

A feasibility study for Point Park was completed in 2016 but there has been no further implementation of its recommendations, nor the other committed actions.

These public amenity features were intended to enhance resident quality of life in this relatively dense and underserved neighbourhood. Further, they could add considerable value and appeal to new lots and housing that will be developed on the RPJMP site. There are implementation synergies between the RPJMP development, pending reconstruction of Range Road, and these Range Road North Plan action items. The RPJMP partners should revisit these items as part of development agreement discussions with the City at both administrative and political levels.

4.3.6 Parks, trails, and open space policies

Notwithstanding the landscaping and amenity space requirements set out in the Zoning Bylaw, the following policies are intended to provide reinforcing and/or supplementary guidance to the RPJMP partners and future lot owners/lessees and/or builders in fulfilling the vision and intent of the Plan:

1. Prioritize the retention of existing trees on the site and resulting lots throughout all stages of design and construction, with particular care given to trail corridors.
2. Prioritize high quality, durable, natural materials (such as wood, metal, and stone), and nature-inspired elements in the design of park amenities.

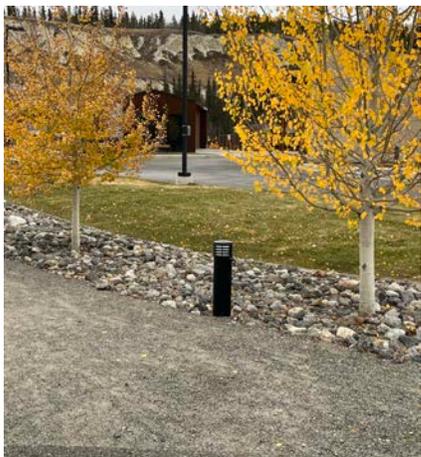
3. Prioritize accessibility for all ages and abilities in the design of central park space elements such as seating and granular pathways.
4. Provide a water connection to the central park space for irrigation.
5. Incorporate First Nation history, heritage, language, legend, stories, and place names into interpretive signage, park names and placemaking features (this is consistent with KDFN Community Lands Plan Heritage Policy #3).
6. Incorporate environmental and stewardship themes into interpretive signage, park names and placemaking features.
7. Utilize native and near native salt tolerant species for street trees adjacent to roads and sidewalks that may be subject to winter clearing and salting.
8. Utilize native low grass and wildflower mix (unmowed) for areas that require low maintenance such as undeveloped areas of the central park space, landscaped boulevards, and the bottom of the stormwater pond.
9. Consider park lighting where it can increase winter use of active park spaces or increase perceptions of safety along important connector trails.
10. Establish an accessible, naturalized network of trails and corridors by:
 - Proactively developing new natural surface trails and accompanying trail corridor landscaping elements as an integrated unit during construction (to anticipate desired routes)
 - Aligning and constructing new natural surface trails to mimic the existing escarpment trail (i.e., slight meanders) and to add interest and a natural feel
 - Constructing trail treads to provide a smooth travel surface with positive drainage
11. Create a participatory neighbourhood planning opportunity to select the Phase 2 elements for the central park, using the RPJMP engagement results as a starting point.
12. Consider opportunities to involve neighbourhood residents in the planning and future stewardship of the Chasàn Chuà/McIntyre Creek Regional Park (this is consistent with KDFN Community Lands Plan Wildlife Policy #2).
13. Work with the City of Whitehorse to develop an implementation plan for Point Park, linear park, and trail network commitments made in the 2014 Range Road North Neighbourhood Plan.
14. Work with the City of Whitehorse to explore options for fulfilling some of the amenity space requirements for multi-family residential developments through contributions to the central park space.

Refer to Figure 11 for neighbourhood character examples for inspiration and guidance in implementing the parks, open space and trails policies. A recommended native plant list is included in Appendix E.

Figure 11. Neighbourhood character examples – parks, open space and trails



Above: samples of native plants
Below: crushed granular pathway and lighting



1.5-2.0m wide natural surface trail on the McIntyre Creek escarpment



Sensitive, semi-transparent transition between public and private spaces



Nature-themed wayfinding



Seating with natural elements



Fire circle and natural seating



Viewing deck and interpretive panel



Community garden



Bicycle playground nature-themed features



Bike skills park features



Natural playground inspired by a First Nation creation story

4.4 Public Utilities

0.57 hectares of the new development will be allocated to public utility functions. These are described in the following sections, as well as Section 5.0 and Appendix F.

4.4.1 Lift station

A sanitary lift station, sized approximately 8x10 metres, will be located in the southwestern corner of the development site on Lot 262-6. A generator, pumps and control systems will be located inside the building, while the wet well will be located outside. A 6-metre wide gravel access road (with a 9-metre right-of-way) will connect from the paved road network. A separate, public utility zoned parcel will be created to house the access road and lift station. The property will be fenced and gated. This lift station will be highly visible to escarpment trail users and Mountain View Drive traffic, and negative aesthetic impacts should be avoided to the extent possible.

4.4.2 Stormwater pond

The new RPJMP development will alter the surface drainage regime via introduction of impervious surfaces, grading, and direct drainage routes. Best practice dictates that stormwater should match pre-development discharge conditions (i.e., flow rates, water quality, and discharge locations) to receiving waterbodies. This will be achieved with a dry stormwater management pond (SWMP) in the northeastern corner of the site on C-6B.

The proposed SWMP will limit discharge to the 1-in-5 year pre-development discharge rate and will be sized to temporarily store the difference between the pre-development and post-development flow rates. The pond will be designed to have a maximum depth of 3 metres during the 1:5 year storm event and will include an emergency overflow structure to safeguard the surrounding land parcels. Refer to Section 5.4 for more details on the pond outflow.

The stormwater pond presents a specific landscaping need. The pond will be dry for most of the time, but the bottom will need to be erosion resistant during high water events. The pond's 4:1 sideslopes on its north and eastern edges will lend it the appearance of a gradual slope and crowning plateau ranging from 1-3 feet high from the adjacent trail; residents in the multi-unit residential parcel to the south will see a depression. In both cases, landscaping will be installed to create sensitive transitions between both residential and natural spaces and this engineered earthen feature, as well as avoid the establishment of undesirable invasive species. Refer to Figures 12 and 13 for a conceptual landscaping approach.

Access to the pond for maintenance purposes would ideally be provided from the interior of the development site to avoid the construction of a 6-metre access road (within 9-metre right-of-way) across the perimeter trail corridor connecting the escarpment to the crossing to the Point (and negatively impacting trail user experience in the process). A 9-metre access easement should be registered across the parcel adjoining the pond; this would overlap with the corridor required for access to and maintenance of the northernmost section of storm main (refer to Section 5.4).

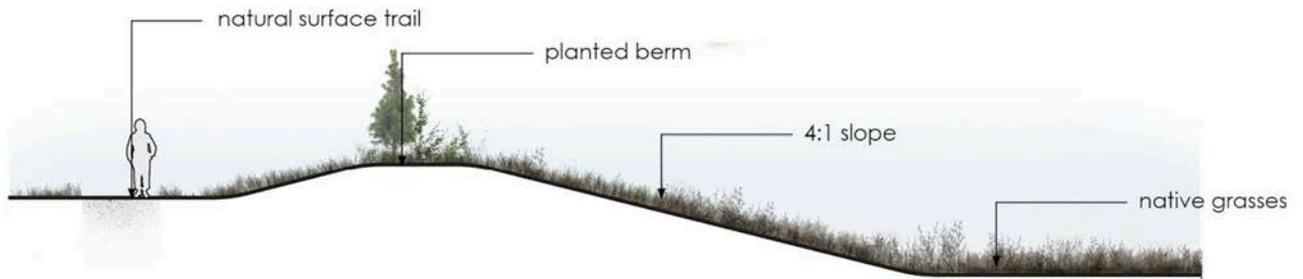


Figure 12. Profile view of stormwater pond landscaping adjacent to trail corridor

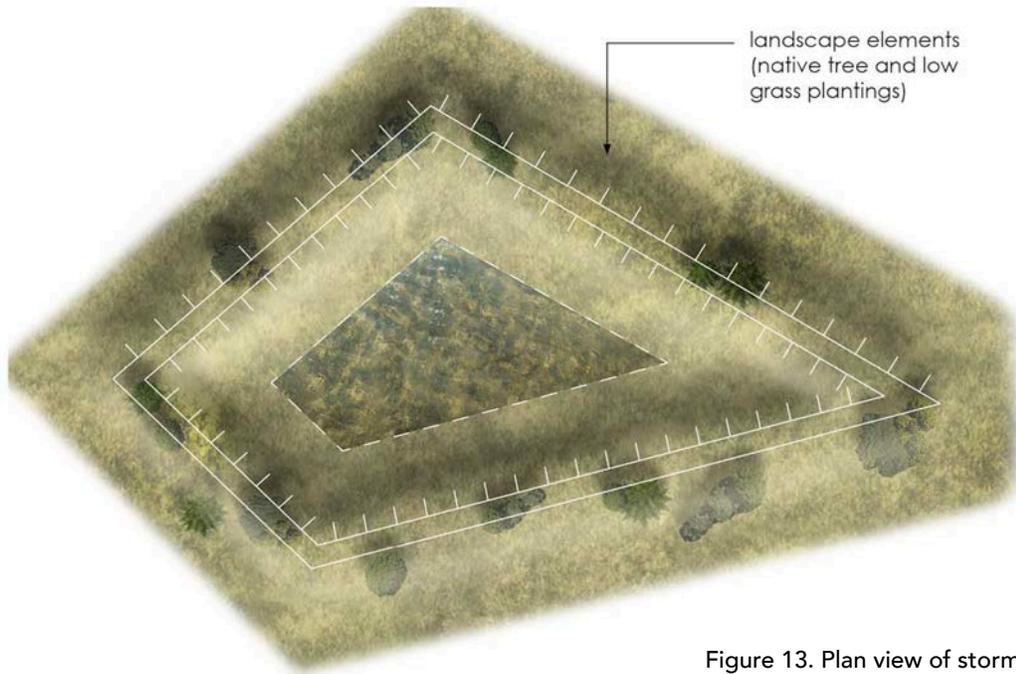


Figure 13. Plan view of stormwater pond landscaping

Refer to Figure 14 for neighbourhood character examples for inspiration and guidance in implementing the public utilities policies.

4.4.3 Public utilities policies

1. Ensure access to the SWMP and connecting mains via an easement through the adjacent parcel.
2. Consider lift station and associated fencing design and material choices that integrate well with the adjacent escarpment landscape.
3. Landscape the stormwater pond using native species to integrate with the adjacent trail corridor and utilize native low grass and wildflower mix (unmowed) for the bottom of the stormwater pond.

Figure 14. Neighbourhood character examples – public utilities



Proposed City of Calgary lift station design using wood and natural design elements



Proposed City of Calgary lift station design for a park space



Vegetated dry stormwater pond

5.0 Neighbourhood Infrastructure and Services

The provision of infrastructure at the level of urban servicing is essential to meet the needs of the new RPJMP development. Infrastructure will aim to be cost effective, respect the environment, and conserve water and energy resources. While identified conceptually in the Master Plan and specific infrastructure requirements will be determined as part of the development agreement with the City and detailed engineering design.

The following section and the Transportation Plan and Utilities Plan in Appendix B offer a general description of infrastructure. More detail is provided in the preliminary engineering designs and accompanying technical memorandum included in Appendix F.

5.1 Transportation Network

5.1.1 Automobile travel

- ***Existing road network***

The new development is situated west of Range Road, a northbound-southbound two-lane undivided Minor Collector Road with a posted speed of 50 km/hr. Mountain View Drive is a northbound-southbound two-lane undivided arterial road that provides major connection between downtown and the neighbourhoods on the north end of the city, primarily Whistle Bend and Porter Creek. Mountain View Drive and Range Road intersect about one kilometre south of the new development. This signalized intersection will serve as the main access point to and from the new development. The alternate access will be the intersection of Whistle Bend Way and Range Road, about 1.5 kilometres to the north.

The southern portion of Range Road North was reconstructed in 2012 and there is a marked cycling lane and separated paved pathway on the west side of the road. The reconstruction ends at Crow Street. The reconstruction of the northern portion of Range Road has been committed to by the City but timing is unconfirmed at this point.

- ***New road network***

The Master Plan sets out a simple road network oriented around the central block and two accesses, a southern entrance on Lot 262-6 and northern entrance on C-15B. The location of new accesses from the development to Range Road follows the Transportation Association of Canada's Geometric Design Guide for Canadian Roads standards for minimum intersection spacing and sight distances. A cul-de-sac spurs off the central block to provide access to the small cluster of single family homes on the western escarpment.

The road right-of-way is 20 metres wide, with two 4.5-metre shared driving lanes designed to accommodate on-street parking. This conforms with the City of Whitehorse's Servicing Standards Manual (SSM) for local roads and is the standard being applied to similar road networks throughout new neighbourhoods such as Whistle Bend. The road network reflects Complete Streets principles by including traffic calming features such as on-street parking and street trees. Additional measures could be taken to maximize safety.

- **Traffic-oriented improvements**

A Traffic Impact Analysis (TIA) conducted for the RPJMP project predicted that 27% of vehicle trips generated by the new development will be northbound, with the remaining 73% southbound. The TIA modeled traffic impacts at the 2032 and 2042 horizon years and made several recommendations for improvements. Refer to Table 7.

Table 7. Summary of traffic improvement recommendations

Year	Traffic Issue	Recommended Improvement
2032	<ul style="list-style-type: none"> • Eastbound left turn and through movement at Mountain View Drive and Range Road is expected to approach or exceed capacity during the PM peak hour at minimum housing count • Westbound left and right turn movement at the Whistle Bend Way and Range Road is expected to perform with long average delay during PM peak hour at minimum housing count 	<ul style="list-style-type: none"> • New intersection configuration is recommended for Mountain View Drive • Monitoring
2042	<ul style="list-style-type: none"> • Eastbound left turn and through movement at Mountain View Drive and Range Road is expected to approach or exceed capacity during the PM peak hour at minimum housing count 	<ul style="list-style-type: none"> • Minor adjustments to signal timing

Background traffic conditions – specifically the impacts of continued Whistle Bend build-out on Range Road and Mountain View Drive - are the more significant issue. The TIA noted that, even without the new development, the Mountain View Drive/Range Road intersection is expected to operate at the lowest Level of Service with high delays and volume to capacity ratios by 2032 and cites the improvements recommended in the 2012 TIA for Whistle Bend, which include widening Mountain View Drive to four lanes and signal timing/phasing at Range Road/Mountain View. (Note that the same TIA recommends additional improvements to manage traffic by 2042).

5.1.2 Active travel modes

- **Walking**

The proposed road network meets key requirements for Complete Streets that accommodate all modes of travel safely. Pedestrian traffic will be accommodated with 1.5-metre wide sidewalks buffered from the vehicle lanes by street trees. Multiple internal crosswalks facilitate internal pedestrian circulation. Three marked pedestrian crosswalks are envisioned for Range Road, one at each road access, and another at a proposed new crossing to the north of the development.

The northern crossing is intended as a “compromise” intervention to a potentially problematic situation. Currently, pedestrians cross Range Road in the middle of the curve when traveling between the escarpment trail and the trails and Point Park site east of Range Road. Sight lines are poor in the curve, making this crossing dangerous, although the current volume of pedestrian traffic and vehicle traffic is relatively low. The addition of 890 new residents to this corner of Range Point, combined with a future Point Park and increased traffic along Range Road will likely increase the potential for collisions. Pedestrians are unlikely to detour 220 metres south along Range Road to make the crossing at the road entrance. This northern pedestrian crossing reduces that distance to about 100 metres and is uses an advance warning light for eastbound vehicles. YG and KDFN will work with the City to determine whether the crossing is possible and desirable at that location during detailed design.

One section of 2-metre wide paved pathway is planned for the interior of the neighbourhood, along with a 2-metre paved pathway on the west side of Range Road (see below section). The Plan contemplates an additional east-west trail paved pathway connection to Range Road through the medium-high density (RM zoned) parcel. A trail connection here should be confirmed in the detailed design phase, pending consideration of how a trail could be formalized (i.e., easement, public access trail, or private amenity requirement) and implications to construction costs and development/market implications of creating two parcels (instead of one).

- **Cycling**

A dedicated cycling lane was not deemed necessary and cycling within the development will be accommodated either on the sidewalks or within the shared driving lane. Class 2 bicycle parking (i.e., bike rack) is provided at the central park space. The Zoning Bylaw will provide guidance on bicycle parking for multi-family residential buildings.

A 2-metre paved pathway on the west side of the Range Road right-of-way, planned as part of pending road upgrades, will extend from the southern limit of the subdivision to the planned crossing to future Point Park. The City has indicated some potential for the trail between Northland Park and Lot 262-2 to be incorporated into the preferred routing of a future Whistle Bend connector paved pathway.

5.1.3 Transit

There is currently transit service to the Range Point neighbourhood. While specific future transit routing is unknown, the plan anticipates that the new development will be serviced via two stops situated just south of the two road access points along Range Road. This represents a 375-metre maximum walking distance between residences and transit, which meets the 400-metre standard the City is working to achieve. Depending on routing at the time of build-out, an additional stop could be included along the central road loop and buses could use the neighbourhood as a turn-around point.

5.1.4 Parking

Parking will largely be dictated by the requirements set out in the Zoning Bylaw. For single family and duplex, a minimum of one off-street parking space is required. For multi-family buildings, which may or may not be ground-oriented, the minimum requirement is one off-street space per dwelling unit and one additional space for visitor parking per seven dwelling units. A brief comparative analysis for the TIA determined that this requirement may be insufficient and recommended increases, but this may hinder developer flexibility and increase building costs without an equivalent benefit.

The Zoning Bylaw sets out a minimum of 7.3 metres for an on-street parallel parking space. There are theoretically about 104 linear metres of street available next to the single family and duplex housing in the development⁴. Efforts should be made to maximize the amount of that available on-street space to facilitate parking. The City has encountered challenges with on-street parking with more recent developments in Whistle Bend and the details around on-street parking will need to be confirmed as part of development agreement discussions.

⁴ This assumes that triplexes are built on the two multi-family unit lots and each duplex, single, and triplex unit has a six-metre wide driveway (the maximum under the Zoning Bylaw). It also assumes that both sides of the street are available for on-street parking.

5.1.5 Recreational motor vehicles

The City's Snowmobile Bylaw and All-Terrain Vehicle (ATV) Bylaw establish the rules for recreational motor vehicles within the municipal boundary. ATVs are confined to motorized multiple use (MMU) trails, whereas snowmobile movement is generally less restricted. Both are allowed to use City streets for the purposes of connecting to the nearest MMU trail and/or permitted open space.

Currently the City's MMU trail network includes the portion of the west escarpment trail. The extension of this MMU trail further north does not align with the Master Plan and intended quality of experience along the escarpment trail; in fact, this activity may be better suited for the expansive Range Road corridor. The relocation of this routing away from the escarpment trail should be considered as part of trail network discussions with the City.

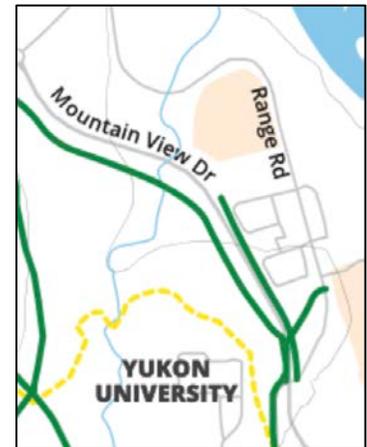


Figure 15. Motorized multi-use trail routing (shown in green) in Range Point (Source: City of Whitehorse)

5.1.6 Transportation policies

Notwithstanding the landscaping and amenity space requirements set out in the Zoning Bylaw, the following policies are intended to provide reinforcing and/or supplementary guidance to the RPJMP partners and builders in fulfilling the vision and intent of the Plan:

1. Ensure the pending reconstruction of the north section of Range Road complements the new development by:
 - Considering traffic calming measures in the detailed design, including the incorporation of the new crosswalks and proposed advance warning signal
 - Coordinating reconstruction with the connection of water mains to minimize disturbances to a newly reconstructed roadway
 - Revisiting the speed limit along Range Road to ensure safety for the pedestrian crossings
 - Creating a well-lit transportation corridor
2. Consider additional traffic calming approaches in final design of the RPJMP site road network by:
 - Considering traffic calming measures such as curb extensions and raised crosswalks in the detailed design
 - Considering reducing the internal road speed limit to 30 km/hr to encourage safety and comfort for pedestrians and cyclists
3. Revisit the potential for and merit of an east-west paved pathway connection through the medium to high density parcel adjoining Range Road during detailed design.
4. Incorporate First Nation language, legend, stories, and place names into road and street signage.
5. Provide winter maintenance to active transportation networks.

6. Increase transit service frequency to Range Road and consider supporting transit enhancement measures such as better transit information and improved transit stops.
7. Examine opportunities to integrate the new development with a paved Whistle Bend to Marwell pathway.
8. Revisit the Range Point snowmobile and ATV routing and confirm access points for the new development.

5.2 Water Servicing

The new subdivision will be serviced from the 450mm ductile iron watermain located within the Range Road right-of-way. Two watermain tie-in connections, each located at the road accesses, will provide more pressure, improved circulation and water quality, and frost protection redundancy in the event of repairs. A water model will be needed during detailed design to determine the required pipe diameters for fire flow and pressure requirements. All lots will be provided with recirculating water service stubbed 3 metres into the property, as per the City's SSM.

5.3 Sanitary Servicing

The Master Plan proposes servicing the development via a new forcemain located within the Mountain View Drive right-of-way along the perimeter of Northland Park and connecting to the Marwell Collection System via the sanitary sewer main just north of the intersection of Mountain View Drive and Range Road. The forcemain will extend from a lift station situated on newly created public utility parcel at the western end of Lot 262-6, accessed via a 6-metre gravel road and fenced for security. The sanitary sewer pipe network will be located within the road right-of-way and all lots will be provided with sanitary services stubbed three metres into the property, as per the SSM.

Refer to Section 4.4.3 for policy guidance on the lift station.

5.4 Stormwater

The new development will alter the surface drainage regime via introduction of impervious surfaces, grading, and direct drainage routes. Best practice dictates that stormwater should match pre-development discharge conditions (i.e., flow rates, water quality, and discharge locations) to receiving waterbodies. This will be achieved through the construction of a dry stormwater management pond (SWMP).

The proposed dry pond will limit discharge to the 1-in-5 year pre-development discharge rate and will be sized to temporarily store the difference between the pre-development and post-development flow rates. The pond will be designed to have a maximum depth of 3 metres during the 1:5 year storm event and will include an emergency overflow structure to safeguard the surrounding land parcels. During significant (i.e., 1:100 year) events, stormwater will be conveyed overland on the roadway to outlets at both the north and south road entrances, where they will discharge into the western Range Road ditch and on to the existing City stormwater conveyance system. Further investigation will be needed for these discharge points during detailed design to confirm whether erosion protection is required.

The routing of the stormwater pond outfall warrants further consideration. The toe-of-slope on the escarpment on the south side of the Chasàn Chuà/McIntyre Creek culvert on Range Road is more vulnerable to mass movement and erosional processes than the north side. While discharge is designed to meet pre-development rates, there may be merit in conveying pond outflow underneath Range Road to run along the north ditch, where it would discharge downstream of the culvert.

Refer to Section 4.4.2 for policies specific to the pond.

5.4.1 Stormwater policies

1. Ensure access to the northernmost section of storm main via a 9-metre easement along the eastern edge of the northeast multi-unit parcel on C-15B.
2. Further investigate the potential geotechnical implications of the two stormwater outfall routing options and determine whether the additional cost of crossing Range Range is warranted.
3. Review the major storm outlets during detailed design to determine if any erosion protection is required.

5.5 Power and Communications

There is currently an overhead three-phase power line and cable Internet (copper coaxial cables) located along the Range Road North corridor. New development will trigger the need to extend fibre optic line from Whistle Bend, which will ultimately benefit the broader neighbourhood. At the time of writing, ATCO Electric staff are reviewing the Master Plan concepts; the expectation (based on previous discussions) is that no offsite upgrades will be required to service the new development.

Street lighting, power and telephone/cable services will run underground following road alignments. Utility easements or right-of-ways must be acquired where services are located outside road limits, and shallow utilities will need to be coordinated to avoid conflicts with water and sanitary servicing to lots.

5.6 Granular Material

Granular material will be required for many aspects of development, including roadway construction, underground utilities installation (i.e., water, sewer, storm, and power and communications lines). Quantity estimates are as follows:

- Pit run – 21,000 m³
- Granular A – 16,000 m³
- Granular B - 16,000 m³

Note that these estimates are very preliminary (50% level of accuracy).

5.7 Other Municipal Services

As per other established neighbourhoods such as Whistle Bend, the Master Plan anticipates that miscellaneous services, such as snow removal and garbage/compost removal, will be arranged for by strata councils on multi-unit developments and snow removal on streets will be provided by the City.

The City has been working towards the consolidation of its snow storage locations throughout Whitehorse. There is currently no municipal snow storage in the Range Point neighbourhood. The plan assumes that the City will transport snow to the nearest storage location.

5.8 Neighbourhood Services

The Master Plan does not explicitly provide for any neighbourhood-serving commercial and/or public/institutional uses. However, a preliminary commercial potential analysis conducted during the background research phase identified some potential, particularly given the current lack of services in the Range Point neighbourhood. Future residents will presumably access services outside of the neighbourhood, the nearest service centre being the future commercial area of Whistle Bend (along Keno Way) or downtown. Two elementary schools (Takhini and the one currently under construction in Whistle Bend) are located within two kilometres of the development site. Porter Creek Senior Secondary School is located about 3.5 kilometres away.

There is also a 3.3-hectare Neighbourhood Commercial zoned parcel at the northeast side of the Range Road and Mountain View Drive intersection that may be developed in the future and would presumably accommodate some of the service demand generated by the new development.

5.8.1 Neighbourhood services policies

1. Consider rezoning, as needed, to allow for mixed use development on the C-15B parcels closer to Range Road.

6.0 Implementation

The Master Plan marks a key milestone in the two years of collaborative partnership between KDFN and YG. Its precedent-setting nature posed new questions along the way. As the plan transitions to implementation, flexibility and innovation will be required from the RPJMP partners and City of Whitehorse. The following section touches on the key tasks and strategic considerations that must be navigated to successfully implement the Master Plan.

6.1 Regulatory and Other Processes

6.1.1 Existing survey plan

The plan for Lot 262-6 was registered in 1988. The current practice in Yukon is to raise title for all parcels created in a survey plan at the time of registration with LTO. Title was not raised for Lot 262-6 in 1988 and City Land and Building Services staff recommended that LTO be consulted to ensure that the pre-existing survey plan and the parcel's untitled status do not pose issues when the new plan of subdivision is prepared and submitted for registration.

6.1.2 Yukon Environmental and Socioeconomic Assessment Act

Section 47(2)(b) of the *Yukon Environmental and Socioeconomic Assessment Act* (YESAA) requires an assessment for land development by either YG or KDFN. In addition, the development will trigger numerous activities listed under Schedule 1 of the Act, including:

- Construction, modification, or decommissioning of a public road, including a public road used only in winter (Part 6.10);
- Moving earth or clearing land using a self-propelled power driven machine (Part 13.12); and
- Leveling, grading, clearing, cutting or snow ploughing of the right-of-way of a power line, pipeline, railways line or road (Part 13.13b).

The YESAA assessment is anticipated to be a Designated Office level screening.

6.1.3 City of Whitehorse

Once the master plan is approved by Council, the RPJMP partners can rezone the entire development area (C-15B, Lot 262-6 and the unsurveyed triangle of Commissioner's land) as per the Zoning Plan in Appendix B. Rezoning will in turn facilitate the next step, the negotiation of a development agreement and subdivision approval.

A development agreement will be negotiated and signed between the RPJMP partners and City as a condition of subdivision and eventual transfer of roads, utilities, and public space to the City. The draft plan of subdivision will be reviewed for compliance with the *Subdivision Control Bylaw* in terms of the 10% public lands allocation and the approved draft plan will allow detailed engineering to proceed.

Detailed engineering design will be reviewed by the City for assurance that it meets the SSM. A construction completion certificate will be issued once the infrastructure is developed, followed by a warranty period and final acceptance certificate, which triggers the transfer of the new land and infrastructure by the City.

In addition to the development agreement, the City and KDFN will negotiate a service agreement setting out roles and responsibilities with respect to infrastructure and municipal service provision on C-15B. This agreement will need to respect the principles set out within the SGA. There is already precedent for this with the McIntyre subdivision, and the City's current negotiations with Chu Nii Kwän Development Corporation around the pending Copper Ridge subdivision should provide guidance. Due to KDFN's inability to transfer ownership of Settlement Lands, an alternate arrangement will also need to be captured in the agreement between the two governments.

6.2 Development Financing and Sequencing

The RPJMP partners have engaged in ongoing discussions around how to finance infrastructure development on both parcels in a manner that recognizes the high capital costs involved, KDFN's current financial capacity, and long-term income tax revenues that will transfer from future residents of C-15B to KDFN. The final arrangement may be precedent setting and accordingly require that new policy be developed by YG to ensure a coherent and consistent approach to other First Nations interested in undertaking land development in the future.

Infrastructure costs, whether assumed by YG and/or KDFN, could potentially be eligible for federal and/or other funding, with KDFN potentially eligible for First Nation-specific funding. Financing agreements will need to address cost sharing for the considerable project administration and consulting work that is yet to come, including detailed engineering design. One of the most challenging issues to navigate in this respect is the fair attribution of development costs to each partner. Each partner's respective contributions to parks and utility space that benefit the entire development, as well as housing unit contributions, could be factored in. The Range Road for-remain commitment made by YG as part of the Whistle Bend Yukon Asset and Construction Agreement with KDFN will also factor in.

The RPJMP partners plan to develop the site in one construction phase, pending the outcome of detailed design. The expectation is that YG will tender the work as it would for Whistle Bend or other new land development in Yukon. Construction will start with site grading, road construction, installation of deep utilities (i.e., water, storm and sanitary) and lift station and stormwater pond construction. Road surfacing, curbs and sidewalks, and installation of parks and landscaping will be completed in the final steps.

6.2.1 Development financing and sequencing policies

1. Negotiate a principles-based allocation of development costs based on benefits, provision of public services and amenities, housing densities, density contributions to OCP compliance, and previous funding commitments.
2. Work with the City to time reconstruction of Range Road North to align with the Range Road watermain connection for the new development.
3. Work with the City to cooperatively to integrate Range Point neighbourhood trail planning with trail design and installation of new trail alignments and accompanying signage.

6.3 Land Dispositions

KDFN's *Lands Act* is the enabling legislation for residential leases on C-15B. Residential leases are intended to provide long term tenure. Recent leases have provided a term of 125 years, and include mechanisms to maintain the value of the property, such as clauses on lease renewal. Most residential leases will require that "rent" be paid in full at the beginning of the lease term. With a lease registered in the Land Titles Office, leasehold purchasers may seek a mortgage with a financial institution, just as with a freehold title purchase. KDFN continues to work through policy and operational details associated with residential leasing.

Section 27 of the Act requires that KDFN give Citizens and Beneficiaries the opportunity to apply for an interest in respect of a planned development parcel prior to the general public. This provision will require additional policy and operational work in order to apply it to the Range Point multiple unit parcels. While KDFN has not yet determined the development model for C-15B, it will likely sell multiple unit leases to developers, who will build on them for resale as individual strata leasehold lots.

On most land development projects, YG will retain a third party appraiser to determine market pricing for lots to be made available by land lottery. Services are installed, final survey plans registered at Land Titles, and prepared lots are released to market at the appraised prices.

Given the importance of this neighbourhood in establishing a positive "brand" in the Whitehorse real estate market, the RPJMP partners should consider the issue of competition between the fee simple and leasehold tenures on Lot 262-6 and C-15B. Much of this will depend on KDFN's decision on leasehold pricing; if it adopts differential pricing (which occurs in markets such as Metro Vancouver and the Okanagan), this may be a lesser concern.

6.3.1 Land disposition policies

1. Ensure conformance with the provisions of the KDFN *Lands Act* in disposing of leasehold interests on C-15B.
2. Utilize the Master Plan report as a cornerstone for partner solicitation for the multi-unit parcels on C-15B.
3. Consider mechanisms to avoid inequity between lot offerings on Lot 262-2 and C-15B.

6.4 Next steps

The implementation of this Master Plan is anticipated to occur over the next few years, starting with the document's formal endorsement in 2023 and ending with the release of lots to the marketplace. Refer to Table 8 for an outline of key tasks and responsibilities moving forward. Note that many of these tasks will be undertaken concurrently, with some overlap.

Table 8. Preliminary implementation workplan

Task	Parties Involved	Anticipated Timeframe
Obtain Council endorsement	City	1-2 months
Initiate/complete YESAA application and review	YG, KDFN, YESAB	3-6 months
Apply for rezoning	YG, KDFN	3 months
Conduct further geotechnical testing	YG, KDFN	1-2 months
Prepare subdivision application	YG, KDFN, City	2-3 months
Prepare detailed engineering design	YG, KDFN	3-6 months
Establish development and service agreements (for subdivision approval)	YG, KDFN, City	3-6 months
Establish development financing agreement	YG, KDFN	2-3 months
Prepare construction tender	YG	3 months
Install infrastructure	YG, KDFN, City	2 years
Install parks and landscaping	YG, KDFN, City	3 months
Transfer assets to City	YG, KDFN, City	Unknown
Prepare land lottery and release of single/duplex/multi-family lots	YG, KDFN	3-6 months

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APPENDIX A

Site and Context Maps

APPENDIX B

Neighbourhood Concept Drawings

APPENDIX C

Residential Development Recommendations

APPENDIX D

Parks and Placemaking Concepts

APPENDIX E

Recommended Plant List

RECOMMENDED PLANT LIST FOR RANGE POINT DEVELOPMENT SITE

Key	Common Name	Botanical Name
STREET TREES		
NWP	Northwest Poplar	<i>Populus x jackii</i> 'Northwest'
ASP	Assiniboine Poplar	<i>Populus</i> 'Assiniboine'
AMC	Amur Cherry	<i>Prunus maackii</i>
WEB	Weeping Birch	<i>Betula pendula</i> 'Youngii'
WPB	White Paper Birch	<i>Betula papyrifera</i>
DECIDUOUS TREES		
TRA	Trembling Aspen	<i>Populus tremuloides</i>
BAP	Balsam Poplar	<i>Populus balsamifera</i>
WPB	White Paper Birch	<i>Betula papyrifera</i>
CONIFEROUS TREES		
WHS	White Spruce	<i>Picea glauca</i>
LOP	Lodgepole Pine	<i>Pinus contorta latifolia</i>
SHRUBS		
REC	Red Currant	<i>Ribes triste</i>
LAT	Labrador Tea	<i>Ledum groenlandicum</i>
HBC	High Bush Cranberry	<i>Viburnum trilobum</i>
SOA	Soapberry	<i>Sheperdia canadensis</i>
SHC	Shrubby Cinquefoil	<i>Potentilla fruticosa</i>
PWR	Prickly Wild Rose	<i>Rosa acicularis</i>
ROD	Red Osier Dogwood	<i>Cornus stolonifera</i>
WOW	Wolf Willow	<i>Elaeagnus commutata</i>
GROUNDCOVERS/PERENNIALS		
LIN	Lingonberry	<i>Vaccinium vitis-idaea</i>
COY	Common Yarrow	<i>Achillea millefolium</i>
KIN	Kinnikinnick	<i>Arctostaphylos uva-ursi</i>
CRJ	Creeping Juniper	<i>Juniperus horizontalis</i>
COJ	Common Juniper	<i>Juniperus communis</i>

APPENDIX F

Engineering Technical Memorandum